SONY®

VIDEO CASSETTE RECORDER/PLAYER

BVW Series
DVW Series
DNW Series
HDW Series

BETACAM™

BETACAM SP™

Digital BETACAM™

BETACAM SX™

HDCAM

PROTOCOL OF REMOTE (9-pin) CONNECTOR
2nd Edition (Revised 5)

Table of Contents

Any Connector Panel of BETACAM, BETACAM SP, DIGITAL BETACAM, BETACAM SX and HDCAM VTR series implements a 9-Pin connector for REMOTE.
In this section it explains the contents of serial signals processed through this 9-Pin connector.

| Note |

IN and OUT connector for BVW-60/65/70/75/95/96/85P/D75/D265/9000, DVW-500 Series, DNW-65/A65/75/A75, HDW-500/F500.

The definition of CONTROLLER and DEVICE is shown in the follows,

"CONTROLLER" means the unit which controls VTR.
"DEVICE" means the unit (VTR) which is controlled.

Example 1)
When two sets of VTR of the Betacam series are connected by REMOTE-1 (9-pin) connector, the VTR as the recorder means CONTROLLER and the VTR as the player means DEVICE.

Example 2)
When the editing controller is connected with one or more Betacam series VTR (s), this editing controller is CONTROLLER and all VTRs are DEVICEs

1. Interface System Overview

・ Conforming to EIA RS-422A.
・ Full duplex communications channel is utilized.
・ Data is transmitted asynchronously, bit serial, word serial with data exchange between devices.
・ Standard transmission rate on the interface bus is 38.4 kilobits per second (K bps).
・ The data word utilized by the interface system is as follows :

		D0	D1	D2	D3	D4	D5	D6	D7	PARITY			(MARK)
START BIT	(LSB)								(MSB)		STOP BIT		(SPACE)
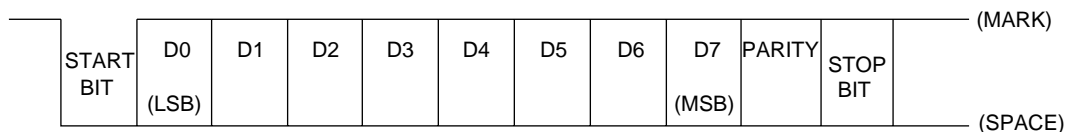
・ 1 START BIT + 8 DATA BITs + 1 PARITY BIT + 1 STOP BIT.
ODD parity : The total of "1"s in D0+D1+・・・D7+PARITY equals an odd number.

| Note |

The contents of this manual are adapted to PAL, PAL-M and SECAM models.

2. Command Block Format (CMD BLOCK)

The communication between the CONTROLLER and the DEVICE is composed of CMD-1 + DATA COUNT, CMD-2 + DATA and CHECKSUM, and is transmitted from CMD-1 + DATA COUNT in order.
When the DATA COUNT is zero, the DATA is not transmitted.
When it is not zero, the DATA corresponded with the value is inserted between CMD-2 and CHECK-SUM.

```
   MSD          LSD
  ┌────────┬────────┬────────┬────────┐   ╱╱  ┌────────┬──────────┐
  │        │  DATA  │        │        │  ╱╱   │ DATA-N │          │
  │ CMD-1  │ COUNT  │ CMD-2  │ DATA-1 │       │(MAX,15)│ CHECKSUM │
  └────────┴────────┴────────┴────────┘   ╱╱  └────────┴──────────┘
       ╰────────────╯ ╰──────╯ ╰──────╯           ╰──────╯ ╰──────╯
          1 BYTE       1 BYTE   1 BYTE             1 BYTE   1 BYTE
```
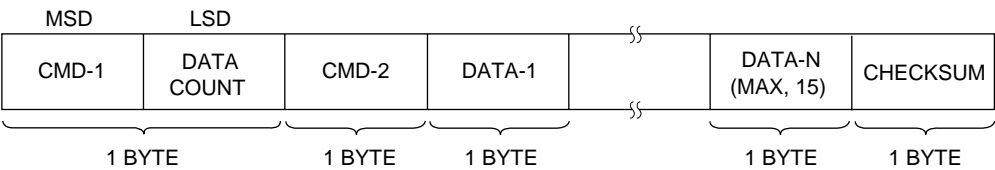
CMD-1 :   CMD-1 classifies the command into the main groups which indicates the function and direction of the data words as follows.

CMD-1	FUNCTION	DIRECTION	
		CONTROLLER	DEVICE
0	SYSTEM CONTROL	→	
1	SYSTEM CONTROL RETURN	←	
2	TRANSPORT CONTROL	→	
4	PRESET & SELECT CONTROL	→	
6	SENSE REQUEST	→	
7	SENSE RETURN	←	

DATA COUNT : DATA COUNT indicates the number of dat a words exist the following CMD-2.
        (0 to FH)

CMD-2 :   CMD-2 is the designated command to the DEVICE or the command return from the DEVICE.

DATA :   The number of dat a words and their contents are defined by the specific CMD-2.

CHECKSUM :   The CHECKSUM is the sum of the DATA (D0 to D7) contained in each data word, from CMD-1/DATA COUNT to last data word before CHECKSUM.
        The CHECKSUM is used to verify data accuracy and reject communication sequence when contains the bit error.

3. Connector Pin Assignment

Interface connector : 9 pin D-subminiature female (D-9S)

The pin assignment for the CONTROLLER and the DEVICE is as shown in the following table.
The function as CONTROLLER (BVW-40/75, DVW-A500/500, DNW-75/A75, HDW-500/F500 etc.) is become pin assignment of CONTROLLER when RECORDER or PLAYER indicator on the control panel is lit.
Except for that, it's become pin assignment of DEVICE.
The VTR not had the function as CONTROLLER (BVW-10/15/35/50/60/65/D265, DVW-510/A510, DNW-65/A65 etc.) is always become pin assignment of DEVICE.

Signal Pin	CONTROLLER	DEVICE
1	Freme Ground	Frame Ground
2	Receive A	Transmit A
3	Transmit B	Receive B
4	Transmit Common	Receive Common
5	Spare	Spare
6	Receive Common	Transmit Common
7	Receive B	Transmit B
8	Transmit A	Receive A
9	Freme Ground	Freme Ground

① ⑥
② ⑦
③ ⑧
④ ⑨
⑤
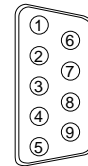
External View

A and B are defined as shown below.

B

A

T

+
R
−

$A < B \Rightarrow$ "1" (MARK)

$A > B \Rightarrow$ "0" (SPACE)
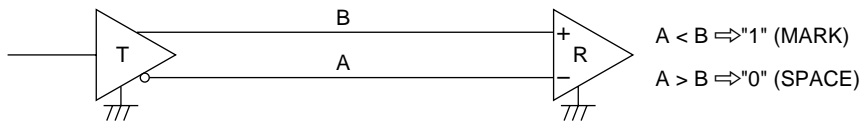
4.   Communication Protocol

1)   All communications between the CONTROLLER and the DEVICE will be under the direct supervision of the CONTROLLER.
When the DEVICE (VTR) receives the COMMAND from CONTROLLER, the following COMMAND is returned.

   ・ ACK :   In case that the DEVICE receives the COMMAND not required the data
   ・ COMMAND + DATA :   In case that the DEVICE receives the COMMAND required the data
   ・ NAK + ERROR DATA :   In case that the error communication is detected or the undefined
                                             COMMAND is received

2)   The CONTROLLER must not transmit additional COMMAND blocks to a DEVICE (VTR) prior to response to a previous COMMAND block.

3)   The CONTROLLER must not interrupt transmission of a byte in a COMMAND block for more than 10 milliseconds. A DEVICE (VTR) detects an interruption of a byte in a COMMAND BLOCK that exceeds 10 milliseconds, CONTROLLER execute a TIME-OUT error sequence, and a DEVICE will void the receiving COMMAND block and transmit a NAK (TIME OUT).

4)   When a DEVICE (VTR) receives a COMMAND Block from the CONTROLLER, the DEVICE must transmit a response within 9 milliseconds.
Therefore if the CONTROLLER cannot receive the appropriate response from the DEVICE within 10 milliseconds. after performing the COMMAND block transmission, the CONTROLLER detects a communication error, and must execute a appropriate process.

5)   When the DEVICE (VTR) detects a communication error, it must immediately transmit a NAK to the CONTROLLER. (The contents of an error is shown on the COMMAND tables.)
When the CONTROLLER receives a NAK, it will immediately stop transmission of the COMMAND block. The DEVICE must not accept a subsequent command within 10 milliseconds after that (except NAK-UNDEFINED command) and must execute a necessary process.

5. Command Table

The marks shown in the tables mean the following contents.○
1) Commands marked ○ support the players as the DEVICE.
   If the contents are in the column RETURN, its RETURN and DATA means to be returned, and if not (blanc), ACK will be returned.
2) Each model returns a ACK or a STATUS as a RETURN to the commands marked △, and does nothing.
3) Each model does not support the commands marked ×, and returns NAK UNDEFINED command.
4) When the model is worked as a CONTROLLER, the commands marked ∗ can be sent to the DEVICE.

BVW series

COMMAND	RETURN	BVW-10	BVW-11	BVW-15	BVW-35	BVW-40	BVW-50	BVW-60	BVW-65	BVW-70/D75	BVW-75	BVW-85P	BVW-95	BVW-96	BVW-D265	BVW-9000
00·0C : LOCAL DISABLE	10·01 : ACK ⇐○ 11·12 : NAK ⇐×	×	○	○	×	○*	×	○	○	○*	○*	○*	○	○*	○	○
00·11 : DEVICE TYPE REQUEST	12·11 : DEVICE TYPE RETURN	○	○	○	○	○*	○	○	○	○*	○*	○*	○	○*	○	○
00·1D : LOCAL ENABLE		×	○	○	×	○*	×	○	○	○*	○*	○*	○	○*	○	○
20·00 : STOP		○	○	○	○	○*	○	○	○	○*	○*	○*	○	○*	○	○
20·01 : PLAY		○	○	○	○	○*	○	○	○	○*	○*	○*	○	○*	○	○
20·02 : REC		×	×	×	○	○	○	△	△	○*	○*	○*	△	○*	△	○
20·04 : STANDBY OFF		○	○	○	○	○*	○	○	○	○	○*	○*	○	○*	○	○
20·05 : STANDBY ON		○	○	○	○	○*	○	○	○	○*	○*	○*	○	○*	○	○
20·0D : DMC START		×	×	×	×	×	×	△	○	△	○	○	○	○	○	△
20·0F : EJECT		○	○	○	○	○*	○	○	○	○*	○*	○*	○	○*	○	○
20·10 : FAST FWD		○	○	○	○	○*	○	○	○	○*	○*	○*	○	○*	○	○
2X·11 : JOG FWD		○	○	○	○	○*	○	○	○	○*	○*	○*	○	○*	○	○
2X·12 : VAR FWD		○	○	○	○	○	○	○	○	○*	○*	○*	○	○*	○	○
2X·13 : SHUTTLE FWD		○	○	○	○	○*	○	○	○	○*	○*	○*	○	○*	○	○
20·20 : REWIND		○	○	○	○	○*	○	○	○	○*	○*	○*	○	○*	○	○
2X·21 : JOG REV	10·01 : ACK ⇐○/△ 11·12 : NAK ⇐×	○	○	○	○	○*	○	○	○	○*	○*	○*	○	○*	○	○
2X·22 : VAR REV		○	○	○	○	○	○	○	○	○*	○*	○*	○	○*	○	○
2X·23 : SHUTTLE REV		○	○	○	○	○*	○	○	○	○*	○*	○*	○	○*	○	○
20·30 : PREROLL		○	○	○	○	○*	○	○	○	○*	○*	○*	○	○*	○	○
24·31 : CUE UP WITH DATA		○	○	○	○	○*	○	○	○	○*	○*	○*	○	○*	○	○
24·34 : SYNC PLAY		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
21·38 : PROGRAM PLAY +		×	×	×	×	×	×	○	○	○*	○*	○*	○	○*	○	△
21·39 : PROGRAM PLAY −		×	×	×	×	×	×	○	○	○*	○*	○*	○	○*	○	△
20·3C : DMC PREROLL		×	×	×	×	×	×	△	○	△	○	○	○	○	○	△
20·40 : PREVIEW		×	×	×	×	×	×	△	△	○	○	○	○	○	○	△
20·41 : REVIEW		×	×	×	×	×	×	△	△	○	○	○	○	○	○	△
20·42 : AUTO EDIT		×	×	×	×	×	×	△	△	○	○	○	○	○	△	△
20·4B : DMC RUN		×	×	×	×	×	×	△	○	△	○	○	○	○	△	△
20·4C : DMC PREVIEW		×	×	×	×	×	×	△	○	△	○	○	○	○	△	△
20·52 : TENSION RELEASE		×	○	×	×	×	×	○	○	○	○	○	○	○	○	○

COMMAND	RETURN	BVW-10	BVW-11	BVW-15	BVW-35	BVW-40	BVW-50	BVW-60	BVW-65	BVW-70	BVW-75/D75	BVW-85P	BVW-95	BVW-96	BVW-D265	BVW-9000				
20·54 : ANTI-CLOG TIMER DISABLE		O	O	O	×	O*	×	O	O	O*	O*	O*	O	O*	O	O				
20·55 : ANTI-CLOG TIMER ENABLE		O	O	O	×	O*	×	O	O	O	O*	O*	O	O*	O	O				
2X·5C : DMC SET FWD		×	×	×	×	×	×	△	O	△	O	O	O	O	O	△				
2X·5D : DMC SET REV		×	×	×	×	×	×	△	O	△	O	O	O	O	O	△				
20·60 : FULL EE OFF		×	×	×	O	O	O	△	△	O*	O*	O*	△	O*	△	O				
20·61 : FULL EE ON		×	×	×	O	O	O	△	△	O*	O*	O*	△	O*	△	O				
20·63 : SELECTED EE ON		×	×	×	O	O	O	△	△	O	O	O	△	O	△	△				
20·64 : EDIT OFF		×	×	×	O	O	O	△	△	O	O	O	△	O	△	△				
20·65 : EDIT ON		×	×	×	O	O	O	△	△	O	O	O	△	O	△	△				
20·6A : FREEZE OFF		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×				
20·6B : FREEZE ON		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×				
44·00 : TIMER-1 PRESET		×	×	×	O	O	O	O	O	O	O	O	O	O	O	O				
44·04 : TIME CODE PRESET		×	×	×	O	O	O	△	△	O*	O*	O*	△	O*	△	O				
44·05 : USER'S BIT PRESET		×	×	×	O	O	O	△	△	O*	O*	O*	△	O*	△	O				
45·05 : USER'S BIT WITH FLAG PRESET		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×				
40·08 : TIMER-1 RESET		O	O	O	O	O*	O	O	O	O*	O*	O*	O	O*	O	O				
40·10 : IN ENTRY		O	O	O	O	O*	O	O	O	O*	O*	O*	O	O*	O	O				
40·11 : OUT ENTRY		O	O	O	O	O*	O	O	O	O*	O*	O*	O	O*	O	O				
40·12 : A IN ENTRY	10·01 : ACK ⇐O/△	×	×	×	×	×	×	O	O	O*	O*	O*	O	O	O	O				
40·13 : A OUT ENTRY	11·12 : NAK ⇐×	×	×	×	×	×	×	O	O	O*	O*	O*	O	O	O	O				
44·14 : IN PRESET		O	O	O	O	O	O	O	O	O	O	O	O	O	O	O				
44·15 : OUT PRESET		O	O	O	O	O*	O	O	O	O*	O*	O*	O	O	O	O				
44·16 : A IN PRESET		×	×	×	×	×	×	O	O	O	O	O	O	O	O	O				
44·17 : A OUT PRESET		×	×	×	×	×	×	O	O	O*	O*	O*	O	O	O	O				
40·18 : IN SHIFT +		O	O	O	O	O*	O	O	O	O*	O*	O*	O	O	O	O				
40·19 : IN SHIFT −		O	O	O	O	O*	O	O	O	O*	O*	O*	O	O	O	O				
40·1A : OUT SHIFT +		O	O	O	O	O*	O	O	O	O*	O*	O*	O	O	O	O				
40·1B : OUT SHIFT −		O	O	O	O	O*	O	O	O	O*	O*	O*	O	O	O	O				
40·1C : A IN SHIFT +		×	×	×	×	×	×	O	O	O*	O*	O*	O	O	O	O				
40·1D : A IN SHIFT −		×	×	×	×	×	×	O	O	O*	O*	O*	O	O	O	O				
40·1E : A OUT SHIFT +		×	×	×	×	×	×	O	O	O	O	O	O*	O	O	O				
40·1F : A OUT SHIFT −		×	×	×	×	×	×	O	O	O*	O*	O*	O	O	O	O				
40·20 : IN RESET		O	O	O	O	O*	O	O	O	O*	O*	O*	O	O*	O	O				
40·21 : OUT RESET		O	O	O	O	O*	O	O	O	O*	O*	O*	O	O*	O	O				
40·22 : A IN RESET		×	×	×	×	×	×	O	O	O*	O*	O*	O	O*	O	O				
40·23 : A OUT RESET		×	×	×	×	×	×	O	O	O	O	O	O*	O	O	O				
40·24 : IN RECALL		O	O	O	O	O	O	O	O	O*	O*	O*	O	O*	O	O				
40·25 : OUT RECALL		O	O	O	O	O	O	O	O	O*	O*	O*	O	O*	O	O				
40·26 : A IN RECALL		×	×	×	×	×	×	O	O	O	O*	O*	O	O*	O	O				
40·27 : A OUT RECALL		×	×	×	×	×	×	O	O	O	O*	O*	O	O*	O	O				

COMMAND	RETURN	BVW-10	BVW-11	BVW-15	BVW-35	BVW-40	BVW-50	BVW-60	BVW-65	BVW-70	BVW-75/D75	BVW-85P	BVW-95	BVW-96	BVW-D265	BVW-9000			
40・2D ： LOST LOCK RESET		×	×	×	×	×	×	○	○	○	○	○	○	○	○	○			
4X・30 ： EDIT PRESET		×	×	×	○	○	○	△	△	○	○	○	△	○	△	△			
44・31 ： PREROLL TIME PRESET		○	○	○	○	○*	○	○	○	○*	○*	○*	○	○*	○	○			
41・32 ： TAPE AUTO SELECT		×	×	×	○	×	○	△	△	○	○	○	△	○	△	○			
41・33 ： SERVO REFERENCE SELECT		×	×	×	×	×	×	△	△	○	○	○	△	○	△	○			
41・34 ： HEAD SELECT		×	×	×	×	×	×	△	△	△	○	○	△	○	△	△			
41・35 ： COLOR FRAME SELECT		×	○	○	×	×	○	○	○	○	○	○	○	○	○	○			
41・36 ： TIMER MODE SELECT	10・01 ： ACK ⇐○/△ 11・12 ： NAK ⇐×	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
41・37 ： INPUT CHECK		×	×	×	○	○	○	△	△	○	○	○	△	○	△	○			
40・40 ： AUTO MODE OFF		×	×	×	○	○	○	○	○	○	○	○	○	○	○	○			
40・41 ： AUTO MODE ON		×	×	×	○	○*	○	○	○	○*	○*	○*	○	○*	○	○			
40・44 ： AUDIO SPLIT OFF		×	×	×	×	×	×	○	○	○	○	○	○	○	○	○			
40・45 ： AUDIO SPLIT ON		×	×	×	×	×	×	○	○	○*	○*	○*	○	○*	○	○			
40・46 ： VARIABLE MEMORY OFF		×	×	×	×	×	×	△	○	△	○	○	○	○	○	△			
40・47 ： VARIABLE MEMORY ON		×	×	×	×	×	×	△	○	△	○	○	○	○	○	△			
40・48 ： VIDEO REFERENCE DISABLE OFF		×	×	×	×	○	×	△	△	○	○	○	△	○	△	○			
40・49 ： VIDEO REFERENCE DISABLE ON		×	×	×	×	○	×	△	△	○	○	○	△	○	△	○			
61・0A ： TC GEN DATA SENSE	74・08 ： GEN TC DATA	×	×	×	○	○	○	×	×	○	○	○	×	○	×	○			
	78・08 ： GEN TC & UB DATA	×	×	×	○	○	○	×	×	○	○	○	×	○	×	○			
	74・09 ： GEN UB DATA	×	×	×	○	○	○	×	×	○	○	○	×	○	×	○			
61・0C ： CURRENT TIME SENSE	74・00 ： TIMER-1 DATA	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
	74・04 ： LTC TIME DATA	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
	78・04 ： LTC TIME & UB DATA	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
	74・05 ： LTC UB DATA	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
	74・06 ： VITC TIME DATA	×	×	×	○	×	○	○	○	○	○	○	○	○	○	○			
	78・06 ： VITC TIME & UB DATA	×	×	×	○	×	○	○	○	○	○	○	○	○	○	○			
	74・07 ： VITC UB DATA	×	×	×	○	×	○	○	○	○	○	○	○	○	○	○			
	70・0D ： REQUEST TIME MISSING	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
	74・14 ： LTC INTERPOLATED TIME DATA	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
	78・14 ： LTC INTERPOLATED TIME & UB DATA	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
	74・16 ： VITC HOLD TIME DATA	×	×	×	×	×	×	○	○	○	○	○	○	○	○	○			
	78・16 ： VITC HOLD TIME & UB DATA	×	×	×	×	×	×	○	○	○	○	○	○	○	○	○			

COMMAND	RETURN	BVW-10	BVW-11	BVW-15	BVW-35	BVW-40	BVW-50	BVW-60	BVW-65	BVW-70	BVW-75/D75	BVW-85P	BVW-95	BVW-96	BVW-D265	BVW-9000			
60·10 : IN DATA SENSE	74·10 : IN DATA	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O			
60·11 : OUT DATA SENSE	74·11 : OUT DATA	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O			
60·12 : A IN DATA SENSE	74·12 : A IN DATA	×	×	×	×	×	×	O	O	O	O	O	O	O	O	O			
60·13 : A OUT DATA SENSE	74·13 : A OUT DATA	×	×	×	×	×	×	O	O	O	O	O	O	O	O	O			
61·20 : STATUS SENSE	7X·20 : STATUS DATA	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O			
60·2E : COMMAND SPEED SENSE	71·2E : COMMAND SPEED DATA	×	×	×	×	×	×	O	O	O	O	O	O	O	O	O			
60·2F : VAR MEMORY SPEED SENSE	71·2F : VAR MEMORY SPEED DATA	×	×	×	×	×	×	×	O	×	O	O	O	O	O	O			
6X·30 : EDIT PRESET SENSE	7X·30 : EDIT PRESET DATA	×	×	×	O	O	O	O	O	O	O	O	O	O	O	O			
60·31 : PREROLL TIME SENSE	74·31 : PREROLL TIME DATA	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O			
60·36 : TIMER MODE SENSE	71·36 : TIMER MODE DATA	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O			

DVW/DNW/HDW series

COMMAND	RETURN	DVW-500/A500	DVW-510/A510	DVW-250		DNW-A100	DNW-A45/A50	DNW-30/A30	DNW-A25/A28/A220	DNW-75/A75	DNW-65/A65		HDW-500/F500	HDW-250						
00・0C ： LOCAL DISABLE	10・01 ： ACK ⇐O/△	O*	O	△		O*	O*	O	O*	O*	O		O	△						
00・11 ： DEVICE TYPE REQUEST	12・11 ： DEVICE TYPE RETURN	O*	O	O		O*	O*	O	O*	O*	O		O	O						
00・1D ： LOCAL ENABLE		O*	O	△		O*	O*	O	O*	O*	O		O	△						
20・00 ： STOP		O*	O	O		O*	O*	O	O*	O*	O		O*	O						
20・01 ： PLAY		O*	O	O		O*	O*	O	O*	O*	O		O*	O						
20・02 ： REC		O*	△	O		O*	O*	△	O*	O*	△		O*	O						
20・04 ： STANDBY OFF		O*	O	O		O*	O*	O	O*	O*	O		O*	O						
20・05 ： STANDBY ON		O*	O	O		O*	O*	O	O*	O*	O		O*	O						
20・0D ： DMC START		O	O	△		×	×	×	×	O	O		O	△						
20・0F ： EJECT		O*	O	O		O*	O*	O	O*	O*	O		O*	O						
20・10 ： FAST FWD		O*	O	O		O*	O*	O	O*	O*	O		O*	O						
2X・11 ： JOG FWD		O*	O	O		O*	O*	O	O*	O*	O		O*	O						
2X・12 ： VAR FWD		O*	O	O		O*	O*	O	O*	O*	O		O*	O						
2X・13 ： SHUTTLE FWD		O*	O	O		O*	O*	O	O*	O*	O		O*	O						
20・20 ： REWIND		O*	O	O		O*	O*	O	O*	O*	O		O*	O						
2X・21 ： JOG REV		O*	O	O		O*	O*	O	O*	O*	O		O*	O						
2X・22 ： VAR REV		O*	O	O		O*	O*	O	O*	O*	O		O*	O						
2X・23 ： SHUTTLE REV		O*	O	O		O*	O*	O	O*	O*	O		O*	O						
20・30 ： PREROLL		O*	O	O		O*	O*	O	O*	O*	O		O*	O						
24・31 ： CUE UP WITH DATA	10・01 ： ACK ⇐O/△	O*	O	O		O*	O*	O	O*	O*	O		O*	O						
24・34 ： SYNC PLAY	11・12 ： NAK ⇐×	O*	O	△		O*	O*	O	O*	O*	O		O*	△						
21・38 ： PROGRAM PLAY +		O*	O	△		O*	O*	O	O*	O*	O		O*	△						
21・39 ： PROGRAM PLAY −		O*	O	△		O*	O*	O	O*	O*	O		O*	△						
20・3C ： DMC PREROLL		O	O	△		△	△	△	△	O	O		O	△						
20・40 ： PREVIEW		O	△	O		O*	O*	△	O*	O*	△		O	O						
20・41 ： REVIEW		O	△	O		O*	O*	△	O*	O*	△		O	O						
20・42 ： AUTO EDIT		O	△	O		O*	O*	△	O*	O*	△		O	O						
20・4B ： DMC RUN		O	O	△		△	△	△	△	O	O		O	△						
20・4C ： DMC PREVIEW		O	O	△		△	△	△	△	O	O		O	△						
20・52 ： TENSION RELEASE		O	O	△		O*	O*	O	O*	O*	O		O	△						
20・54 ： ANTI-CLOG TIMER DISABLE		O*	O	△		O*	O*	O	O*	O*	O		O*	△						
20・55 ： ANTI-CLOG TIMER ENABLE		O*	O	△		O*	O*	O	O*	O*	O		O*	△						
2X・5C ： DMC SET FWD		O	O	△		△	△	△	△	O	O		O	△						
2X・5D ： DMC SET REV		O	O	△		△	△	△	△	O	O		O	△						
20・60 ： FULL EE OFF		O*	△	O		O*	O*	△	O*	O*	△		O*	O						
20・61 ： FULL EE ON		O*	△	O		O*	O*	△	O*	O*	△		O*	O						
20・63 ： SELECTED EE ON		O	△	O		O*	O*	△	O*	O*	△		O	O						

COMMAND	RETURN	DVW-500/A500	DVW-510/A510	DVW-250		DNW-A100	DNW-A45/A50	DNW-30/A30	DNW-A25/A28/A220	DNW-75/A75	DNW-65/A65		HDW-500/F500	HDW-250
20·64 : EDIT OFF		O	△	O		O*	O*	△	O*	O*	△		O	O
20·65 : EDIT ON		O	△	O		O*	O*	△	O*	O*	△		O	O
20·6A : FREEZE OFF		O	O	O		△	△	△	△	O	O		O	O
20·6B : FREEZE ON		O	O	O		△	△	△	△	O	O		O	O
44·00 : TIMER-1 PRESET		O	O	O		O	O	O	O	O	O		O	O
44·04 : TIME CODE PRESET		O*	△	O		O*	O*	△	O*	O*	△		O	O
44·05 : USER'S BIT PRESET		O*	△	O		O*	O*	△	O*	O*	△		O	O
45·05 : USER'S BIT WITH FLAG PRESET		O	△	△		O	O	△	O	O	△		△	△
40·08 : TIMER-1 RESET		O*	O	O		O*	O*	O	O*	O*	O		O	O
40·10 : IN ENTRY		O*	O	O		O*	O*	O	O*	O*	O		O	O
40·11 : OUT ENTRY		O*	O	O		O*	O*	O	O*	O*	O		O	O
40·12 : A IN ENTRY		O*	O	△		O*	O*	O	O*	O*	O		O	△
40·13 : A OUT ENTRY		O*	O	△		O*	O*	O	O*	O*	O		O	△
44·14 : IN PRESET		O*	O	O		O*	O*	O	O*	O*	O		O	O
44·15 : OUT PRESET		O*	O	O		O*	O*	O	O*	O*	O		O	O
44·16 : A IN PRESET		O*	O	△		O*	O*	O	O*	O*	O		O	△
44·17 : A OUT PRESET		O*	O	△		O*	O*	O	O*	O*	O		O	△
40·18 : IN SHIFT +		O*	O	O		O*	O*	O	O*	O*	O		O	O
40·19 : IN SHIFT −	10·01 : ACK ⇐O/△	O*	O	O		O*	O*	△	O*	O*	△		O	O
40·1A : OUT SHIFT +	11·12 : NAK ⇐X	O*	O	O		O*	O*	O	O*	O*	O		O	O
40·1B : OUT SHIFT −		O*	O	O		O*	O*	O	O*	O*	O		O	O
40·1C : A IN SHIFT +		O*	O	△		O*	O*	O	O*	O*	O		O	△
40·1D : A IN SHIFT −		O*	O	△		O*	O*	O	O*	O*	O		O	△
40·1E : A OUT SHIFT +		O*	O	△		O*	O*	O	O*	O*	O		O	△
40·1F : A OUT SHIFT −		O*	O	△		O*	O*	O	O*	O*	O		O	△
40·20 : IN RESET		O*	O	O		O*	O*	O	O*	O*	O		O	O
40·21 : OUT RESET		O*	O	O		O*	O*	O	O*	O*	O		O	O
40·22 : A IN RESET		O*	O	△		O*	O*	O	O*	O*	O		O	△
40·23 : A OUT RESET		O*	O	△		O*	O*	O	O*	O*	O		O	△
40·24 : IN RECALL		O*	O	O		O*	O*	O	O*	O*	O		O	O
40·25 : OUT RECALL		O*	O	O		O*	O*	O	O*	O*	O		O	O
40·26 : A IN RECALL		O*	O	△		O*	O*	O	O*	O*	O		O	△
40·27 : A OUT RECALL		O*	O	△		O*	O*	O	O*	O*	O		O	△
40·2D : LOST LOCK RESET		O*	O	O		O*	O*	O	O*	O*	O		O	O
4X·30 : EDIT PRESET		O	△	O		O	O	△	O	O	△		O	O
44·31 : PREROLL TIME PRESET		O	O	O		O	O	O	O	O	O		O	O
41·32 : TAPE AUTO SELECT		O	△	△		O	O	△	O	O	△		O	△
41·33 : SERVO REFERENCE SELECT		O	△	△		O	O	△	O	O	△		O	O

COMMAND	RETURN	DVW-500/A500	DVW-510/A510	DVW-250		DNW-A100	DNW-A45/A50	DNW-30/A30	DNW-A25/A28/A220	DNW-75/A75	DNW-65/A65		HDW-500/F500	HDW-250						
41·34 ： HEAD SELECT		○	△	△		△	△	△	○	○	△		△	△						
41·35 ： COLOR FRAME SELECT		○	○	○		○	○	○	○	○	○		○	○						
41·36 ： TIMER MODE SELECT		○	○	○		○	○	○	○	○	○		○	○						
41·37 ： INPUT CHECK		○	△	△		○	○	△	○	○	△		○	○						
41·38 ： PB FIELD/FRAME SEL		×	×	×		×	×	×	×	×	×		○	△						
41·3A ： EDIT FIELD SELECT		○	△	△		×	×	×	×	△	△		○	○						
41·3B ： FREEZE MODE SELECT		×	×	×		×	×	×	×	×	×		○	△						
41·3C ： POST ROLL TIME		×	×	×		×	×	×	×	×	×		○	△						
41·3D ： PRE READ MODE SELECT		○	△	△		△	△	△	○	○	○		○	△						
4X·3E ： REC INH PRESET		×	×	×		×	×	×	×	×	×		○	△						
4X·3F ： Δt PLAY PRESET		×	×	×		○	△	△	△	○	○		△	△						
40·40 ： AUTO MODE OFF		○	○	○		○	○	○	○	○	○		○	○						
40·41 ： AUTO MODE ON		○*	○	○		○*	○*	○	○*	○*	○		○	○						
40·44 ： AUDIO SPLIT OFF		○	○	△		○	○	○	○	○	○		○	△						
40·45 ： AUDIO SPLIT ON		○*	○	△		○*	○*	○	○*	○*	○		○	△						
40·46 ： VARIABLE MEMORY OFF		○	○	△		×	×	×	×	○	○		○	△						
40·47 ： VARIABLE MEMORY ON		○	○	△		×	×	×	×	○	○		○	△						
40·48 ： VIDEO REFERENCE DISABLE OFF	10·01 ： ACK ⇐○/△	○	○	△		○	○	○	○	○	○		△	△						
40·49 ： VIDEO REFERENCE DISABLE ON	11·12 ： NAK ⇐×	○	△	△		○	○	△	○	○	△		△	△						
42·50 ： DA INPUT SELECT		○	△	△		○	○	△	○	○	△		○	△						
42·51 ： DA SYS EMPHASIS PRESET		○	△	△		○	○	△	○	○	△		○	△						
4X·54 ： EXTENDED DA INPUT SELECT		○	△	△		○	○	△	○	○	△		○	△						
41·60 ： VITC BYPASS		○	△	△		○	○	△	○	○	△		○	△						
42·61 ： LTC GENERATOR MODE SELECT		○	△	△		○	○	△	○	○	△		○	△						
41·63 ： RECORD LTC SELECT		○	△	△		○	○	△	○	○	△		○	△						
42·70 ： VIDEO INPUT SELECT		○	△	△		○	○	△	○	○	△		○	△						
4X·91 ： OUTPUT VIDEO LEVEL		○	○	△		○	○	○	○	○	○		○	△						
4X·92 ： OUTPUT SETUP LEVEL		○	○	△		○	○	○	○	○	○		○	△						
4X·93 ： OUTPUT CHROMA LEVEL		○	○	△		○	○	○	○	○	○		○	△						
47·95 ： EXTENDED OUTPUT VIDEO CONTROL		○	○	△		○	○	○	○	○	○		○	△						
4X·98 ： OUTPUT H PHASE		○	○	△		○	○	○	○	○	○		○	△						
4X·99 ： OUTPUT SC PHASE		○	○	△		○	○	○	○	○	○		○	△						
4X·9A ： OUTPUT VIDEO HUE		○	○	△		○	○	○	○	○	○		○	△						
44·9C ： OUTPUT SYSTEM PHASE		○	○	△		○	○	○	○	○	○		△	△						

COMMAND	RETURN	DVW-500/A500	DVW-510/A510	DVW-250	DNW-A100	DNW-A45/A50	DNW-30/A30	DNW-A25/A28/A220	DNW-75/A75	DNW-65/A65	HDW-500/F500	HDW-250
41·9E : SUPERIMPOSE	10·01 : ACK ⇐O/△ 11·12 : NAK ⇐×	O	O	△	O	O	O	O	O	O	O	△
42·9F : VIDEO CONTROL DATA SET		O	O	△	O	O	O	O	O	O	O	△
4X·A0 : AUDIO INPUT LEVEL		O	△	△	O	O	△	O	O	△	O	△
4X·A1 : AUDIO OUTPUT LEVEL		O	O	△	O	O	O	O	O	O	O	△
45·A3 : EXTENDED AUDIO INPUT LEVEL		O	△	△	O	O	△	O	O	△	O	△
45·A4 : EXTENDED AUDIO OUTPUT LEVEL		O	O	△	O	O	O	O	O	O	O	△
4X·A8 : AUDIO OUTPUT PHASE		O	O	△	O	O	O	O	O	O	O	△
4X·AA : CROSS FADE TIME PRESET		×	×	×	×	×	×	×	×	×	O	△
4X·AE : AUDIO MONITOR CHANNEL SELECT		O	O	△	O	O	O	O	O	O	O	△
4X·AF : AUDIO CONTROL DATA SET		O	O	△	O	O	O	O	O	O	O	△
4X·B8 : LOCAL KEY MAP CONTROL		O	O	△	O	O	O	O	O	O	O	△
42·F8 : STILL OFF TIME		×	×	×	×	×	×	×	×	×	O	△
42·FA : STANDBY OFF TIME		O	O	△	O	O	O	O	O	O	O	△
61·0A : TC GEN DATA SENSE	74·08 : GEN TC DATA	O	×	O	O	O	△	O	O	△	O	O
	74·08 : GEN TC & UB DATA	O	×	O	O	O	△	O	O	△	O	O
	74·09 : GEN UB DATA	O	×	O	O	O	△	O	O	△	O	O
61·0C : CURRENT TIME SENSE	74·00 : TIMER-1 DATA	O	O	O	O	O	O	O	O	O	O	O
	74·04 : LTC TIME DATA	O	O	O	O	O	O	O	O	O	O	O
	78·04 : LTC TIME & UB DATA	O	O	O	O	O	O	O	O	O	O	O
	74·05 : LTC UB DATA	O	O	O	O	O	O	O	O	O	O	O
	74·06 : VITC TIME DATA	O	O	O	O	O	O	O	O	O	O	O
	78·06 : VITC TIME & UB DATA	O	O	O	O	O	O	O	O	O	O	O
	74·07 : VITC UB DATA	O	O	O	O	O	O	O	O	O	O	O
	70·0D : REQUEST TIME MISSING	O	O	O	O	O	O	O	O	O	O	O
	74·14 : LTC INTERPOLATED TIME DATA	O	O	O	O	O	O	O	O	O	O	O
	78·14 : LTC INTERPOLATED TIME & UB DATA	O	O	O	O	O	O	O	O	O	O	O
	74·16 : VITC HOLD TIME DATA	O	O	O	O	O	O	O	O	O	O	O
	78·16 : VITC HOLD TIME & UB DATA	O	O	O	O	O	O	O	O	O	O	O

COMMAND	RETURN	DVW-500/A500	DVW-510/A510	DVW-250	DNW-A100	DNW-A45/A50	DNW-30/A30	DNW-A25/A28/A220	DNW-75/A75	DNW-65/A65	HDW-500/F500	HDW-250
60·10 : IN DATA SENSE	74·10 : IN DATA	O	O	O	O	O	O	O	O	O	O	O
60·11 : OUT DATA SENSE	74·11 : OUT DATA	O	O	O	O	O	O	O	O	O	O	O
60·12 : A IN DATA SENSE	74·12 : A IN DATA	O	O	×	O	O	O	O	O	O	O	△
60·13 : A OUT DATA SENSE	74·13 : A OUT DATA	O	O	×	O	O	O	O	O	O	O	△
61·20 : STATUS SENSE	7X·20 : STATUS DATA	O	O	O	O	O	O	O	O	O	O	O
61·21 : EXTENDED VTR STATUS SENSE	7X·21 : EXTENDED VTR STATUS	O	O	×	O	O	O	O	O	O	O	O
62·23 : SIGNAL CONTROL DATA SENSE	7X·23 : SIGNAL CONTROL DATA	O	O	×	O	O	O	O	O	O	O	△
61·24 : SUPPORTED SIGNAL SENSE	7X·24 : SUPPORTED SIGNAL	O	O	×	O	O	O	O	O	O	O	O
62·25 : VIDEO CONTROL DATA SENSE	7X·25 : VIDEO CONTROL DATA	O	O	×	O	O	O	O	O	O	O	△
62·26 : AUDIO CONTROL DATA SENSE	7X·26 : AUDIO CONTROL DATA	O	O	×	O	O	O	O	O	O	O	△
6X·28 : LOCAL KEY MAP SENSE	7X·28 : LOCAL KEY MAP DATA	O	O	×	O	O	O	O	O	O	O	△
61·2A : HM DATA SENSE	7X·2A : HM DATA	O	O	×	O	O	O	O	O	O	O	O
60·2B : REMAIN TIME SENSE	76·2B : REMAIN TIME	O	O	×	O	O	O	O	O	O	O	O
60·2E : COMMAND SPEED SENSE	7X·2E : COMMAND SPEED DATA	O	O	×	O	O	O	O	O	O	O	O
60·2F : VAR MEMORY SPEED SENSE	7X·2F : VAR MEMORY SPEED DATA	O	O	×	×	×	×	×	O	O	O	△
6X·30 : EDIT PRESET SENSE	7X·30 : EDIT PRESET DATA	O	O	O	O	O	O	O	O	O	O	O
60·31 : PREROLL TIME SENSE	74·31 : PREROLL TIME DATA	O	O	O	O	O	O	O	O	O	O	O
60·32 : TAPE/AUTO SENSE	71·32 : TAPE/AUTO STATUS	O	O	×	O	O	O	O	O	O	O	△
60·33 : SERVO REF SENSE	71·33 : SERVO REF STATUS	×	×	×	×	×	×	×	×	×	O	O
60·36 : TIMER MODE SENSE	71·36 : TIMER MODE DATA	O	O	O	O	O	O	O	O	O	O	O
60·3C : POSTROLL TIME SENSE	74·3C : POSTROLL TIME STATUS	×	×	×	×	×	×	×	×	×	O	O
60·3E : RECORD INHIBIT SENSE	72·3E : RECORD INHIBIT STATUS	×	×	×	×	×	×	×	×	×	O	△
60·3F : Δt PLAY PRESET SENSE	73·3F : Δt PLAY PRESET DATA	×	×	×	O	△	△	△	O	O	△	△
60·50 : DA INPUT SENSE	71·50 : DA INPUT STATUS	O	△	×	O	O	△	O	O	△	O	O
60·51 : DA SYS EMPHASIS SENSE	71·51 : DA SYS EMPHASIS STATUS	O	△	×	O	O	△	O	O	△	O	O
60·52 : DA INP EMPHASIS SENSE	71·52 : DA INP EMPHASIS STATUS	O	△	×	O	O	△	O	O	△	O	O
60·53 : DA PB EMPHASIS SENSE	71·53 : DA PB EMPHASIS STATUS	O	O	×	O	O	O	O	O	O	O	O
6X·54 : EXTENDED DA INPUT SENSE	7X·54 : EXTENDED DA INPUT STATUS	O	△	×	O	O	△	O	O	△	O	O

COMMAND	RETURN	DVW-500/A500	DVW-510/A510	DVW-250		DNW-A100	DNW-A45/A50	DNW-30/A30	DNW-A25/A28/A220	DNW-75/A75	DNW-65/A65		HDW-500/F500	HDW-250						
60·58 : DA SAMPLING FREQ SENSE	71·58 : DA SAMPLING FREQ STATUS	○	○	×		○	○	○	○	○	○		○	○						
60·60 : VITC BYPASS SENSE	71·60 : VITC BYPASS STATUS	○	△	×		○	○	△	○	○	△		○	○						
60·61 : LTC GENERATOR MODE SENSE	72·61 : LTC GENERATOR MODE STATUS	○	△	×		○	○	△	○	○	△		○	△						
60·62 : VITC GENERATOR MODE SENSE	72·62 : VITC GENERATOR MODE STATUS	○	△	×		○	○	△	○	○	△		○	△						
60·63 : RECORD LTC SENSE	71·63 : RECORD LTC STATUS	○	△	×		○	○	△	○	○	△		○	○						
60·70 : VIDEO INPUT SENSE	72·70 : VIDEO INPUT STATUS	○	△	×		○	○	△	○	○	△		○	○						
60·9E : SUPERIMPOSE SENSE	71·9E : SUPERIMPOSE STATUS	○	○	×		○	○	○	○	○	○		○	○						
60·AE : AUDIO MONITOR CHANNEL SENSE	74·AE : AUDIO MONITOR CHANNEL STATUS	○	○	×		○	○	○	○	○	○		○	△						

6. Detailed Description of Commands

00•0C : LOCAL DISABLE

When receiving this command, all functions of the DEVICE will be disabled.

00•11 : DEVICE TYPE REQUEST
12•11 : DEVICE TYPE

The "00•11 : DEVICE TYPE REQUEST" command is used for asking the model of the DEVICE to be connected, and if the DEVICE receives this command, the "12•11 : DEVICE TYPE" with 2 bytes data will be sent back as a response.

MODEL	DATA-1	DATA-2
BVW-10	2X	00
BVW-11	2X	02
BVW-15	2X	03
BVW-35	2X	10
BVW-40	2X	01
BVW-50	2X	30
BVW-60	2X	20
BVW-65	2X	21
BVW-95	2X	22
BVW-96	2X	23
BVW-70	2X	24
BVW-75	2X	25
BVW-D75	2X	46
BVW-D265	20	45
BVW-9000	2X	47
BVW-35PM	20	18
BVW-65PM	20	29
BVW-95PM	20	29
BVW-75PM	20	2D
BVW-85P	21	26
BVW-70S	21	2C
BVW-75S	21	2D
WBR-700	21	2F
DVW-A500	BX	00
DVW-A510	BX	01
DVW-CA510	BX	03
DVW-500	BX	10
DVW-510	BX	11
DVW-250	BX	30

NTSC or PAL-M model : X=0
PAL or SECAM model : X=1

MODEL	DATA-1	DATA-2
DNW-30	BX	49
DNW-A30	BX	48
DNW-A45	BX	45
DNW-A50	BX	45
DNW-65	BX	4F
DNW-A65	BX	47
DNW-75	BX	4E
DNW-A75	BX	46
DNW-A100	BX	41
DNW-A25	BX	4B
DNW-A28	BX	4D
DNW-A220/R	BX	4A
DNW-A220/L	BX	4C

Note

Since the DNW series equipment can modify their own specifications by themselves using menu, the DNW series equipment returns the specifications that are set at present, to CONTROLLER.
525 system operation : X = 0
625 system operation : X = 1

MODEL	DATA-1	DATA-2
HDW-50	20	E0
HDW-F500	2X	E0
HDW-250	20	E1

Note

Exceptionally as for HDW-F500, it returns current mode to CONTROLLER.
30 frame system operation : X= 0
25 frame system operation : X= 1
24 frame system operation : X= 2

00•1D : LOCAL ENABLE

When receiving this command, the control panel operation will be enabled according to the DEVICE setting.

When the power of the DEVICE is turned on, it will be set to the LOCAL ENABLE state.

10•01 : ACK

When receiving this command, the DEVICE will send back this command as acknowledgement.

11•12 : NAK

When detecting the communication errors or receiving the undefined COMMAND, the CONTROLLER will send back this command as not-acknowledgement.

BIT-7 to BIT-0 of DATA-1 will be set in accordance with the contents.

[DATA-1]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
TIME OUT	FRAMING ERROR	OVERRUN ERROR	PARITY ERROR		CHECKSUM ERROR	SOFTWARE OVERRUN	UNDEFINED COMMAND

20•00 : STOP
20•01 : PLAY
20•02 : REC
20•04 : STANDBY OFF
20•05 : STANDBY ON

When receiving one of the above commands, the DEVICE will be in the specified mode.

The "20•04 : STANDBY OFF" command is available only when the DEVICE is in the STOP mode.

20•0D : DMC START

When receiving this command, the DEVICE will start running with a speed setting by the "20•4B : DMC RUN" command.

Note

DMC = Dynamic Motion Control (=VAR MEMORY)

20•0F : EJECT

When receiving this command, the DEVICE ejects the cassette.

20•10 : FAST FWD
20•20 : REWIND

When receiving this command, the DEVICE will become the specified mode.

2X•11 : JOG FWD
2X•12 : VAR FWD
2X•13 : SHUTTLE FWD
2X•21 : JOG REV
2X•22 : VAR REV
2X•23 : SHUTTLE REV

> When receiving one of the above commands, the DEVICE will start running in accordance with speed data defined by the DATA-1 and the DATA-2.
> When only DATA-1 is given, (X = 1) and the tape speed will be defined as follows.

> TAPE SPEED = $10^{(N/32-2)}$, N : SPEED DATA (DECIMAL)

> EX.

TAPE SPEED	SPEED	DATA
STILL	0	(0H)
0.1 times normal speed	32	(20H)
1.0 times normal speed	64	(40H)
About 2.9 times normal speed	79	(4FH)

> When setting more precise value than the tape speed defined by DATA-1, DATA-2 will be added, however, the precise value is a linear approximate value. (X = 2)
> When both DATA-1 and DATA-2 are given, the tape speed will be defined as follows.

> TAPE SPEED = $10^{(N/32-2)}$ + N'/256 × { $10^{[(N+1)/32-2]}$ − $10^{(N/32-2)}$ }
> N : SPEED DATA OF DATA-1 (DECIMAL)
> N': SPEED DATA OF DATA-2 (DECIMAL)

> In the case of BVW-10/11/15/35/40/50 and DVW-250, DATA-2 is always regarded as "0" even if DATA-1 or DATA-2 is given.

20•30 : PREROLL

> When receiving this command, the DEVICE will be prerolled to the tape position that is obtained by the subtracting the preroll time from the IN POINT.
> PREROLL TIME is defined by the "44•31 : PREROLL TIME" command.
> IN POINT is defined by the "40•10 : IN ENTRY" command.

24•31 : CUE UP WITH DATA

> The "24•31 : CUE UP WITH DATA" command is used for cueing up the DEVICE to the position assigned by the time data of DATA-1 through DATA-4. A unit of respective data are as follows :

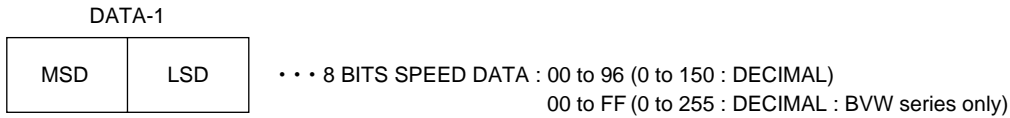| DATA-1		DATA-2		DATA-3		DATA-4	
10 Frame	1 Frame	10 Second	1 Second	10 Minute	1 Minute	10 Hour	1 Hour
MSD	LSD	MSD	LSD	MSD	LSD	MSD	LSD

20•34 : SYNC PLAY

> This command sets the DEVICE to the play mode. It has synchronization capability to compensate the delay which occurrs during the initial servo lock up period, but the "20•01 : PLAY" command has no compensation for the delay.
> If this command is received when preset tape position of the DEVICE is within a range of ±2 frames of the preroll point, SYNC PLAY is executed so that the tape will be positioned at the preroll point ±0 frame.

21•38 : PROGRAM PLAY +
21•39 : PROGRAM PLAY −

These commands are used for playing back the DEVICE in steps of 0.1% within the range of $\pm$ 15 % (BVW series : $\pm$25.5 %) against the normal PLAY ($\times$1) speed.

DATA-1

MSD	LSD

・・・ 8 BITS SPEED DATA : 00 to 96 (0 to 150 : DECIMAL)
00 to FF (0 to 255 : DECIMAL : BVW series only)

Relationship between the deviation (%) from the normal PLAY ($\times$1) speed and SPEED DATA is defined as follows :

DEVIATION (%) = 0.1 $\times$ SPEED DATA (Decimal)
BVW-60/65/70/75 works every 1%.

20•3C : DMC PREROLL

This command is used for cueing up the DEVICE to the point as follows :
IN POINT - (MEMORIZED INITIAL SPEED $\times$ PREROLL TIME)

20•40 : PREVIEW
20•41 : REVIEW
20•42 : AUTO EDIT

When receiving one of the above commands, the DEVICE will go into the specified mode.

20•4B : DMC RUN

When receiving this command, the DEVICE will perform a sequence of the following operations in the VAR MEMORY mode.
1. Cues up to the following point ;
   IN POINT - (INITIAL SPEED $\times$ PREROLL TIME)
2. Runs to the IN point with the initial speed.
3. Memorize the speed given by the PLAY, VAR FWD or VAR REV from the IN point.

20•4C : DMC PREVIEW

When receiving this command, the DEVICE will perform a sequence of the following operations in the VAR MEMORY mode.
1. Cues up to the following point ;
   IN POINT - (MEMORIZED INITIAL SPEED $\times$ PREROLL TIME)
2. Runs to the IN point with the initial speed which was memorized.
3. Plays back from the IN point with the memorized speed.

20•52 : TENSION RELEASE

When receiving the above command in STILL mode of STOP or SHUTTLE/JOG/VAR, the DEVICE will be in the TENSION RELEASE mode.

20•54 : ANTI-CLOG TIMER DISABLE
20•55 : ANTI-CLOG TIMER ENABLE

"20•54 : ANTI-CLOG TIMER DISABLE" command prohibits the operation of the ANTI-CLOG TIMER. (As for HDW-500/F500, it is set to maximize STILL TIMER for 30 minutes.)
"20•55 : ANTI-CLOG TIMER ENABLE" command permitted the operation of the ANTI-CLOG TIMER.
When turning on the power of the VTR, ANTI-CLOG TIMER ENABLE mode is in the enable mode.

2X•5C : DMC SET FWD
2X•5D : DMC SET REV

These commands are used for presetting the SPEED DATA to the DEVICE as the initial speed of the "20•4B : DMC RUN" command in the VAR MEMORY mode.

The initial speed will be assigned in the DATA-1 (and DATA-2) of the above command.

For the SPEED DATA, refer to "2X•11 : JOG FWD" command.

20•60 : FULL EE OFF
20•61 : FULL EE ON

These commands are used for setting or clearing all channels to EE mode.

BVW-40/70/75/96/85P/D75, DVW-500/A500/250, DNW-A45/A50/A100/A25/A28/A220/75/A75, or HDW-500/F500/250 will start executing after passing the editdelay time.

For the timing, refer to Appendix.

The edit delay time for the DEVICE is as follows.

DEVICE	Edit delay time
BVW-40/70/75/96/85P/D75	3 (2) frames *1)
DVW-500/A500/250, HDW-500/F500/250 DNW-A45/A50/A100/A25/A28/A220/75/A75	5 frames

*1) : Selected by internal setting

20•63 : SELECT EE ON

This command is used for setting each EDIT PRESET channel assigned by the DATA-1 of the "41•30 : EDIT PRESET" command to the EE mode.

To clear the SELECT EE mode, the "20•64 : EDIT OFF" command is used.

BVW-40/70/75/96/85P/D75, DVW-500/A500/250, DNW-A45/A50/A100/A25/A28/A220/75/A75, or HDW-500/F500/250 will start executing after passing the edit delay time.

For the timing, refer to Appendix.

20•64 : EDIT OFF

This command is used for clearing the EDIT mode and also clearing the SELECT EE mode.

BVW-40/70/75/96/85P/D75, DVW-500/A500/250, DNW-A45/A50/A100/A25/A28/A220/75/A75, or HDW-500/F500/250 will start executing after passing the edit delay time.

For the timing, refer to Appendix.

20•65 : EDIT ON

This command is used for setting the DEVICE, which is running at the normal PLAY speed during the EDIT PRESET mode, to the EDIT mode.

BVW-40/70/75/96/85P/D75, DVW-500/A500/250, DNW-A45/A50/A100/A25/A28/A220/75/A75, or HDW-500/F500/250 will start executing after passing the edit delay time.

For the timing, refer to Appendix.

20•6A : FREEZE OFF

This command is used to clear the FREEZE MODE.

20•6B : FREEZE ON

This command sets the DEVICE to the FREEZE mode. If this command is received with the DEVICE already set to the FREEZE mode, the FREEZE DATA is updated.

Ex.   When "Field" is specified in ITEM-903 (for HDW-500/F500 ITEM-902) of SETUP MENU

The figure below shows the sequence from the receipt of the "20•6B : FREEZE ON" command to the actual freeze operation.
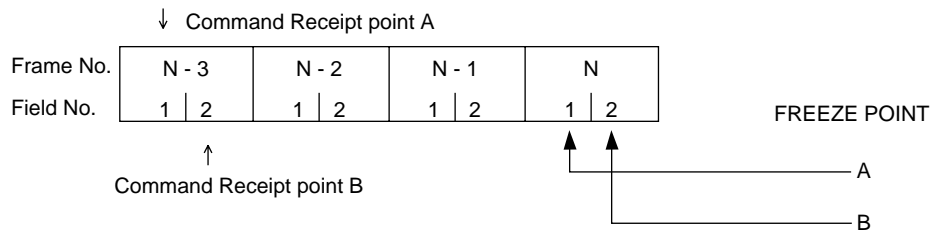
(N = Frame No. of FREEZE point)

When the command is received in the field 1, the picture freezing starts at position A.
When it is received in the field 2, freezing starts at position B.

44•00 : TIMER-1 PRESET

This command is used for presetting the value, which has been given by the DATA-1 through DATA-4, to the TIMER-1 (CTL COUNTER) of the DEVICE.
The (Drop Frame/Non Drop Frame) mode of TIMER-1 is set according to BIT-6 of DATA-1 as the following table.

DATA-1 BIT-6	DF
0	OFF
1	ON

For the data format, refer to "24•31 : CUE UP WITH DATA" command.
The DF/NDF mode of the BVW-35/50 is determined by the state of the front main panel unit.

44•04 : TIME CODE PRESET

This command is used for presetting the value, which has been given by the DATA-1 through DATA-4, to the TIME CODE of the time code generator.
For the data format, refer to "24•31 : CUE UP WITH DATA" command.
The COLOR FRAMING (CF)and the DF/NDF mode of the TIME CODE GENERATOR are set according to BIT-7 and BIT-6 of DATA-1.
The COLOR FRAMING and the DF/NDF mode of the BVW-35/50 follow the state of the front main panel unit.

DATA-1 BIT-7	CF
0	OFF
1	ON

DATA-1 BIT-6	DF
0	OFF
1	ON

For the timing, refer to Appendix.

44•05 : USER'S BIT PRESET

This command is used for presetting the value, which has been given by the DATA-1 through DATA-4, to the USER's BIT of the time code generator.

For the timing, refer to Appendix.

DATA-1		DATA-2		DATA-3		DATA-4	
2nd BINARY GROUP	1st BINARY GROUP	4th BINARY GROUP	3rd BINARY GROUP	6th BINARY GROUP	5th BINARY GROUP	8th BINARY GROUP	7th BINARY GROUP
MSD	LSD	MSD	LSD	MSD	LSD	MSD	LSD

45•05 : USER'S BIT WITH FLAG PRESET

This command is used for presetting the value, which has been given by the DATA-1 through DATA-4, to the USER's BIT of the time code generator.

For the DATA-1 through DATA-4, refer to "44•05 : USER'S BIT PRESET".

DATA-5 (for setting Binary Group Flag) is effective only for DVW-500/A500.

[DATA-5 (Binary Group Flag)]

(NTSC)

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
0	0	0	0	0	Bit-59 (BG2)	Bit-58 (BG1)	Bit-43 (BG0)

(PAL)

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
0	0	0	0	0	Bit-43 (BG2)	Bit-58 (BG1)	Bit-27 (BG0)

40•08 : TIMER-1 RESET

This command is used for resetting the TIMER-1 (CTL COUNTER) to zero.

40•10 : IN ENTRY
40•11 : OUT ENTRY
40•12 : A IN ENTRY
40•13 : A OUT ENTRY

These commands are used for storing the value of the TIMER or the TIME CODE data, which is displayed on the DEVICE, into the IN, OUT, A IN or A OUT memory as an IN POINT, OUT POINT, A IN POINT or A OUT POINT data.

44•14 : IN DATA PRESET
44•15 : OUT DATA PRESET
44•16 : A IN DATA PRESET
44•17 : A OUT DATA PRESET

These commands are used for presetting the value, which has been given by the DATA-1 to DATA-4, into the IN, OUT, A IN or A OUT memory.

For the data format, refer to the "24•31 : CUE UP WITH DATA" command.

40•18 : IN SHIFT +
40•19 : IN SHIFT −

These commands are used for adding or subtracting the value of the TIME DATA, which has been stored as an IN POINT, by one frame.

40•1A : OUT SHIFT +
40•1B : OUT SHIFT −

These commands are used for adding or subtracting the value of the TIME DATA, which has been stored as an OUT POINT, by one frame.

40•1C : A IN SHIFT +
40•1D : A IN SHIFT −

These commands are used for adding or subtracting the value of the TIME DATA, which has been stored as an AUDIO IN POINT, by one frame.

40•1E : A OUT SHIFT +
40•1F : A OUT SHIFT −

These commands are used for adding or subtracting the value of the TIME DATA, which has been stored as an AUDIO OUT POINT, by one frame.

40•20 : IN RESET
40•21 : OUT RESET
40•22 : A IN RESET
40•23 : A OUT RESET

These commands are used for turning the IN, OUT, AUDIO IN or AUDIO OUT indicator to off.

40•24 : IN RECALL
40•25 : OUT RECALL
40•26 : A IN RECALL
40•27 : A OUT RECALL

These commands are used for turning the IN, OUT, AUDIO IN or AUDIO OUT indicator to on.

40•2D : LOST LOCK RESET

This command is used for resetting the "DATA No.8 BIT-6: LOST LOCK" of the "7X•20 : STATUS DATA".
The LOST LOCK status will be set when the servo is unlocked in the PLAY, REC or EDIT mode.

4X•30 : EDIT PRESET

This command is used to select the edit mode and the video/audio preset channels.
The DEVICE sets all channels to "1" when the ASSEMBLE mode is selelcted.

Each bit in the DATA-1 is defined as follows.
In the BVW-35/50, only INSERT, A1, and A2 can be specified.
In the DVW-250, only INSERT and CUE can be specified.
In the HDW-250, only ASSEMBLE can be specified.

[DATA-1]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
	INSERT	ASSEMBLE	VIDEO		TIME CODE	A2 (CUE)	A1 (CUE)

[DATA-2 (DVW-500/A500, DNW-75/A75/A25/A28/A220, BVW-85P, and HDW-500/F500)]
In the BVW-85P, only DA1 and DA2 can be specified.

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
				DA4	DA3	DA2	DA1

1: EDIT PRESET ON
0: EDIT PRESET OFF

(DVW-500/A500, and HDW-500/F500)
In the case of "41•30" command, the channel to be preset by BIT-1 and BIT-0 of DATA-1
depends on the setting ITEM-311 to 315 (ANALOG AUDIO EDIT PRESET REPLACE).
In the case of "42•30" command, the setting of ITEM-311 to 315 (ANALOG AUDIO EDIT
PRESET REPLACE) or the setup menu becomes invalid, and the preset channel is selected
according to the contents of DATA-1 and DATA-2.

(DNW-75/A75/A25/A28/A220)
In the case of "41•30" command, the channel to be preset by BIT-1 and BIT-0 of DATA-1
depends on the setting ITEM-311 to 314 (ANALOG AUDIO EDIT PRESET REPLACE).
In the case of "42•30" command, the setting of ITEM-311 to 314 (ANALOG AUDIO EDIT
PRESET REPLACE) or the setup menu becomes invalid, and the preset channel is selected
according to the contents of DATA-1 and DATA-2.

(BVW-85P)
In the case of a "41•30" command, the channel to be preset by BIT-1 and BIT-0 of DATA-1
depends on the setting of ITEM-205 (A1/A2 INSERT COMMAND WHEN PCM MODE) of
the initial setup menu.
In the case of a "42•30" command, the setting of ITEM-205 (A1/A2 INSERT COMMAND
WHEN PCM MODE) or the setup menu becomes invalid and the preset channel is selected
according to the contents of DATA-1 and DATA-2.

| Note |

(BVW-40/70/75/96/85P/D75, DVW-500/A500, DNW-75/A75/A25/A28/A220, and HDW-500/
F500/250)
When receiving this command during editing or rehearsal, the DEVICE set the preset channel
after passing edit delay time.
For the timing, refer to the Appendix.

44•31 : PREROLL TIME PRESET

This command is used for presetting the preroll time, which has given by the DATA-1 through DATA-4, to the DEVICE. Setting PREROLL TIME is allowed in step a second within the range of 0 to 30 seconds.

For the data format, refer to the "24•31 : CUE UP WITH DATA" command.

Ex. Preroll Time = 5 sec.

DATA-1	DATA-2	DATA-3	DATA-4
00	05	00	00

41•32 : TAPE/AUTO SELECT

The TAPE/EE mode is selected by the value of the DATA-1.

[DATA-1]   00 : AUTO (TAPE/EE)
               01 : TAPE
               FF : Depends on the DEVICE.

"AUTO" is equivalent to "PB.EE", and "TAPE" is equivalent to "PB" of PB.EE/PB selection on the VTR's control panel.

41•33 : SERVO REFERENCE SELECT

The SERVO reference signal is selected by the value of the DATA-1.

[DATA-1]   00 : AUTO
               01 : EXTERNAL
               02 : INPUT
               FF : Depends on the DEVICE

41•34 : HEAD SELECT

The VIDEO head for play back is selected by the state of the DATA-1.

[DATA-1]   00 : R/P HEAD
               01 : PLAY HEAD
               FF : Depends on the DEVICE

| Note |

In the case of DVW-500/A500 and DNW-75/A75, DATA-1 is defined as follows.

               00 : ADVANCE HEAD
               01 : CONFI HEAD

41•35 : COLOR FRAME SELECT

The color frame mode of the servo system is selected by the value of the DATA-1.

[DATA-1]   01 : 2 Fields
               02 : 4 Fields
               03 : 8 Fields (PAL, PAL-M)
               FF : Depends on the DEVICE

41•36 : TIMER MODE SELECT

This command is used for selecting the TIMER system used in the AUTO mode by the value of
DATA-1. This is used for the IN ENTRY, OUT ENTRY, IN PRESET, OUT PRESET, PRE-
ROLL and CUE UP WITH DATA, etc.

[DATA-1]   00 : TIME CODE
                  01 : TIMER-1
                  FF : Depends on the DEVICE

41•37 : INPUT CHECK

When DATA-1 is set to "01", VIDEO and all AUDIO channels are set to Forced EE mode.
When DATA-1 is set to "00", the Forced EE modes of VIDEO and all AUDIO channels are
released.

41•38 : PB FIELD/FRAME SEL

This command is used to select either a Field or Frame for the DT head to trace during playback
in accordance with the contents of DATA-1.

[DATA-1]   00 : FIELD
                  01 : FRAME

41•3A : EDIT FILED SELECT

This command is used to specify the edit field according the the value of DATA-1.

[DATA-1]   00 : FILED-1/FILED-2
                          EDIT and EE will be started and completed at the field which is the same
                          as the field that the following commands are received.
                          20•60 : FULL EE OFF
                          20•61 : FULL EE ON
                          20•63 : SELECT EE ON
                          20•64 : EDIT OFF
                          20•65 : EDIT ON
                          4X•30 : EDIT PRESET
                  01 : FILED-1
                  02 : FILED-2
                  FF : Depends on the DEVICE
                        DVW-500/A500 : ITEM-304
                        HDW-500/F500 : ITEM-305

41•3B : FREEZE MODE SELECT

This command is used to select a field or frame to constitute the FREEZE picture in accordance
with the contents of DATA-1.

[DATA-1]   00 : FIELD-1 or FIELD-2
                  01 : FIELD-1
                  02 : FIELD-2
                  03 : FRAME1, 2
                  04 : FRAME2, 1
                  FF : Depends on the DEVICE

44•3C : POST ROLL TIME

This command is used to preset the POST ROLL TIME of DEVICE to the value given by
DATA-1 to DATA-4. Setting POST ROLL TIME is allowed in step a second within the range
of 0 to 30 seconds.

Refer to "24•31 : CUE UP WITH DATA" for the data format.

41•3D : PRE READ MODE SELECT

This command is used for selecting the mode for pre-read editing according to the DATA-1.

[DATA-1]   00 : DISABLE (PRE READ editing mode is disabled)

                01 : ENABLE (PRE READ editing mode is enabled)

                FF : Depens on the DEVICE.

4X•3E : REC INH PRESET

This command is used to set or to reset the REC INHIBIT mode of all channels in accordance with the contents of DATA-1 and DATA-2.

All channels are set to the REC INHIBIT mode when all bits other than bit-6 of DATA-1 or any bit of DATA-2 is "1".

The REC INHIBIT mode of all channels is reset when bit-6 only of DATA-1 is "1", or when all bits are "0".

Refer to the "4X•30 : EDIT PRESET" command, for the data format.

4X•3F : ∆t PLAY PRESET

This is the command set set/cancel the FEED PLAY mode.

When the FEED PLAY mode is set, the device starts preparation for FEED PLAY. When the preparation is complete, it sets the status FEED READY (7X•20 : STATUS DATA data No. A bit-3).

[DATA-1 : MODE]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
					FEED PLAY		

[DATA-2/DATA-3 : SPEED]

Refer to "2X•11 : JOG FWD" for the data format.

When a device receives 20•01 : PLAY command in the FEED PLAY mode, the device operates at specifying speed.

40•40 : AUTO MODE OFF
40•41 : AUTO MODE ON

This command is used for switching ON/OFF the AUTO mode of the DEVICE.

40•44 : AUDIO SPLIT OFF
44•45 : AUDIO SPLIT ON

This command is used for switching ON/OFF the AUDIO SPLIT MODE of the DEVICE.

40•46 : VARIABLE MEMORY OFF
40•47 : VARIABLE MEMORY ON

This command is used for switching ON/OFF the VARIABLE MEMORY MODE of the DEVICE.

40•48 : VIDEO REFERENCE DISABLE OFF
40•49 : VIDEO REFERENCE DISABLE ON

When the DEVICE receives "40•49 : VIDEO REFERENCE DISABLE ON" command, EX-TERNAL reference is selected as SERVO REFERENCE in the playback of EE mode. When turning on the power, VIDEO REFERENCE DISABLE OFF is set.

42•50 : DA INPUT SELECT

This command is used to select the input signal source of the audio channels according to the contents of DATA-1 and DATA-2.

[DATA-1/DATA-2]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
				DA4	DA3	DA2	DA1

The table below shows the input signal sources for the audio channels.

DATA-1 BIT-X	DATA-2 BIT-X	INPUT SIGNAL
0	0	DIGITAL AUDIO (AES/EBU)
0	1	ANALOG AUDIO
1	0	NO CHANGE

42•51 : DA SYS EMPHASIS PRESET

This command is used to select the emphasis mode of the audio channels according to the contents of DATA-1 and DATA-2.

[DATA-1/DATA-2]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
				DA4	DA3	DA2	DA1

The table below shows the emphasis mode statuses.

DATA-1	DATA-2	EMPHASIS MODE
00	00	OFF
00	0F	ON
OTHERS		NO CHANGE

4X•54 : EXTNDED DA INPUT SELECT

This command is used for selecting the input audio source according to the value of DATA-1 and DATA-2.

DATA-1		DATA-2	
CH2	CH1	CH4	CH3
MSD	LSD	MSD	LSD

4-BIT DATA
0 : ANALOG
1 : AES/EBU
2 : SDI
3 : SDTI
E : INTERNAL SG
F : NO CHANGE

Ex. In the case of "42•54•22•00"
CH-1 & CH-2 : SDI input
CH-3 & CH-4 : ANALOG input

41•60 : VITC BYPASS

This command is used for selecting the recording VITC according to the value of DATA-1.

[DATA]   00 : Record the TIME DATA of internal LTC GENERATOR
                    01 : Record the VITC signal data inserted in Input Video Signal
                    FF : Depends on the DEVICE

42•61 : LTC GENERATOR MODE SELECT

This command is used for presetting the internal LTC generator according to the value of DATA-1 and DATA-2.

			DATA-2 (UB MODE)				
			00	**02**	**03**	**04**	**05**
			preset	**copy from tape LTC**	**copy from tape VITC**	**copy from ext LTC**	**copy from ext VITC**
DATA-1 (TIME MODE)	**00**	**preset free run**	preset free run	regenerate UB with tape LTC	regenerate UB with tape VITC	regenerate UB with ext LTC	regenerate UB with ext VITC
	01	**preset rec run**	preset rec run				
	02	**regenerate with tape LTC**	regenerate TC with tape LTC	regenerate TC & UB with tape LTC			
	03	**regenerate with tape VITC**	regenerate TC with tape VITC	regenerate TC & UB with tape VITC			
	04	**regenerate with ext LTC**	regenerate TC with ext LTC	regenerate TC & UB with ext LTC			
	05	**regenerate with ext VITC**	regenerate TC with ext VITC	regenerate TC & UB with ext VITC			

The values of setup menus ITEM-606 to 609 are set as shown in the table below in HDW-500/ F500.

		Data-2 (UB MODE)				
		00 (Preset data)	02 (COPY from tape LTC)	03 (COPY from tape VITC)	04 (COPY from ext LTC)	05 (COPY from ext VITC)
Data-1 (TC MODE)	00 (Free run)	preset int-∗ ∗ free run	regenerate int-LTC UB free run	regenerate int-VITC UB free run	regenerate ext-LTC UB free run	regenerate ext-VITC UB free run
	01 (Rec Run)	preset int-∗ ∗ rec run	regenerate int-LTC UB rec run	regenerate int-VITC UB free run	regenerate ext-LTC UB ∗	regenerate ext-VITC UB ∗
	02 (Regenerate with INT LTC)	regenerate int-LTC TC free run	regenerate int-LTC TC & UB ∗	regenerate int-LTC TC & UB ∗	regenerate int-LTC TC & UB ∗	regenerate int-LTC TC & UB ∗
	03 (Regenerate with INT VITC)	regenerate int-VITC TC free run	regenerate int-VITC TC & UB ∗	regenerate int-VITC TC & UB ∗	regenerate int-VITC TC & UB ∗	regenerate int-VITC TC & UB ∗
	04 (Regenerate with EXT LTC)	regenerate ext-LTC TC free run	regenerate ext-LTC TC & UB ∗	regenerate ext-LTC TC & UB ∗	regenerate ext-LTC TC & UB ∗	regenerate ext-LTC TC & UB ∗
	05 (Regenerate with EXT VITC)	regenerate ext-VITC TC free run	regenerate ext-VITC TC & UB ∗	regenerate ext-VITC TC & UB ∗	regenerate ext-VITC TC & UB ∗	regenerate ext-VITC TC & UB ∗

∗: The mode remains unchanged.

Menu items to be set

ITEM-606 : TCG MODE SELECT
ITEM-607 : TCG REGENE SOURCE SELECT
ITEM-608 : TCG REGENE MODE
ITEM-609 : REC RUN/FREE RUN SELECT

41•63 : RECORD LTC SELECT

This command is used for selecting the recording LTC according to the value of DATA-1.

[DATA-1]   00 : Internal generated LTC is recorded.

                  01 : External LTC is recorded.

                  FF : Depends on the DEVICE

42•70 : VIDEO INPUT SELECT

This command is used for selecting the input video source according to the value of DATA-1 and DATA-2.

This command is invalid on the occasion that a VTR does not have Video Input Source correspond to DATA-1 and DATA-2.

[DATA-1]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
INTERNAL SG				SDTI*1		SDI	ANALOG

[DATA-2]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
				DUB*1		Y/P_B/P_R	COMPOSITE

DATA-1	DATA-2	Video Input Source
01	01	Analog composite input
01	02	Analog component (Y/P_B/P_R) input
02	02	SDI (Serial Digital Interface) input
02	08	DUB*1 input (or, SDTI input on HDW-500/F500)
08	02	SDTI*1 (Serial Data Transport Interface) input (HDW-500/F500 excluded)
80	XX	Internal Signal Generator

*1: For HDW-500/F500, DUB and SDTI input are processed regarded as the same command applied to DATA-1 = 02, DATA-2 = 08 only.

4X•91 : OUTPUT VIDEO LEVEL

This command is used to control the output video signal level.

It is common to both digital and analog video outputs.

For other HDW series, applied only to Down Converter output.

When the "40•91" command is received ;

This requests to set the UNITY value of the DEVICE. (UNITY value = 4000H)

When the "42•91" command is received ;

DATA-1 : Lower byte ⎤
                    ├─ N: Level control data (16-bit straight binary, Linear code)
DATA-2 : Upper byte ⎦

     Cover range : +3 dB to – ∞

VIDEO OUTPUT LEVEL = 20 log $\dfrac{N\,(H)}{4000\,(H)}$ [dB]

4X•92 : OUTPUT SETUP (BLACK) LEVEL

This command is used to control the setup level (black level) of the output video signal.

It is common to both digital and analog video outputs.

For other HDW series, applied only to Down Converter output.

When the "40•92" command is received ;

This requests to set the UNITY value of the DEVICE. (UNITY value = 00H)

When the "41•92" command is received ;

DATA-1: Level control data (8-bit binary, Twos complement)

   1 step: 0.7 IRE (for NTSC or when 525/60 system operation)

       0.5 IRE (for NTSC HDWseries)

       1.19 mV (for PAL or when 625/50 system operation)

4X•93 : OUTPUT CHROMA LEVEL

This command is used to control the chroma level of the output video signal.

It is common to both digital and analog video outputs.

For other HDW series, applied only to Down Converter output.

When the "40•93" command is received ;

This requests to set the UNITY value of the DEVICE. (UNITY value = 4000H)

When the "42•93" command is received ;

DATA-1 : Lower byte ⎤
                    ├─ N: Level control data (16-bit straight binary, Linear code)
DATA-2 : Upper byte ⎦

     Cover range : +3 dB to – ∞

OUTPUT CHROMA LEVEL = 20 log $\dfrac{N\,(H)}{4000\,(H)}$ [dB]

47•95 : EXTENDED OUTPUT VIDEO LEVEL CONTROL

This command is used to control the output video level by the DATA-1 through DATA-7.

This command is common to digital video output and analog video output.

The upper 4-bit of DATA-1 define the control mode, and the lower 3-bit define validity of the DATA-2 through DATA-7.

[DATA-1]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
				0	DATA-6, DATA-7 1 : VALID 0 : INVALID	DATA-4, DATA-5 1 : VALID 0 : INVALID	DATA-2, DATA-3 1 : VALID 0 : INVALID

BIT-7	BIT-6	BIT-5	BIT-4	MODE
0	0	0	1	COMPOSITE
0	0	1	0	$Y/P_B/P_R$ or $Y/C_B/C_R$
1	0	1	0	HD $Y/P_B/P_R$

BIT-3 is always set to "0".

The DATA-2 through DATA-7 are 16-bit level control data.

These contents depend on control mode.

MODE	DATA-2/DATA-3	DATA-4/DATA-5	DATA-6/DATA-7
COMPOSITE	VIDEO	CHROMA	HUE
$Y/P_B/P_R$ or $Y/C_B/C_R$	Y	P_B or C_B	P_R or C_R
HD $Y/P_B/P_R$	Y	P_B	P_R

$$\text{OUTPUT LEVEL} = 20 \log \frac{N\,(H)}{4000\,(H)} \text{ [dB]}$$

N: Level control data (16-bit straight binary)

UNITY = 4000 (H)

$$\text{HUE (CHROMA PHASE)} = 45° \times \frac{N\,(H)}{1000\,(H)} \text{ [dB]}$$

N: HUE (CHROMA PHASE) control data (16-bit binary, Twos complement)

UNITY = 0000 (H)

4X•98 : OUTPUT H PHASE

This command is used to control the H phase (for HDW series SYNC plase) of the output video signal.

It is common to both digital and analog outputs.

For other HDW series, applied only to Down Converter output.

When the "40•98" command is received ;
This requests to set the UNITY value of the DEVICE.
(UNITY VALUE = 00H)

When the "41•98" command is received ;
DATA-1 : Phase control data (8-bit binary, Twos complement)
Cover range : +127 to −128 steps, 1 step : cycle of SC.

4X•99 : OUTPUT SC PHASE

This command is used to control the SC PHASE (for HDW series SYNC FINE PHASE) of the output video signal.

It is common to both digital and analog video outputs.

For other HDW series, applied only to Down Converter output.

When the "40•99" command is received ;
This requests to set the UNITY value of the DEVICE. (UNITY VALUE = 0000H)

When the "42•99" command is received ;

DATA-1 : Lower byte

DATA-2 : Upper byte

N: Phase control data (16-bit straight binary, Linear code)

Cover range : 0 to 296 ns

$$SC\ PHASE = 296\ ns \times \frac{N\ (H)}{400\ (H)}$$

4X•9A :OUTPUT VIDEO HUE

This command is used to control the HUE (Burst CHROMA phase) of the output video signal.

It is common to both digital and analog video outputs.

For other HDW series, applied only to Down Converter output.

When the "40•9A" command is received ;
This requests to set the UNITY value of the DEVICE. (UNITY = 00H)

When the "41•9A" command is received ;
DATA-1 : Hue (Burst CHROMA phase) control data (8-bit binary, Twos complement)
Cover range : +30 to −30 steps, 1 step : 1°

44•9C : OUTPUT SYSTEM PHASE

This command is used to control the SYSTEM PHASE of the output video signal.

It is common to both digital and analog video outputs.

DATA-1 to DATA-4 : Phase control data (32-bit binary, Twos complement)

Cover range : -31.7 to $+31.7$ μs, 1 step : 10 ps

41•9E : SUPERIMPOSE

This command is used to control the SUPER IMPOSE mode of the DEVICE according to the value of DATA-1

[DATA-1]	00	: SUPERIMPOSE OFF
	01	: SUPERIMPOSE ON
	FF	: DEPEND ON THE DEVICE

4X•9F : VIDEO CONTROL DATA SET

This command is used to specify the VIDEO CONTROL DATA according to the DATA-1 and DATA-2.

[DATA-1]

Upper 4-bit are used to specify the block.

The data defined below must be set for BIT-7 to BIT-4.

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
BLOCK3	BLOCK2	BLOCK1	BLOCK0	0	0	0	0

BIT-7	BIT-6	BIT-5	BIT-4	MODE	
0	0	0	1	BLOCK 0	COMPOSITE
0	0	1	0	BLOCK 1	Y/P_B/P_R or Y/C_B/C_R
0	1	0	0	BLOCK 2	G/B/R
1	0	1	0	BLOCK 3, BLOCK 1	HD Y/P_B/P_R

[DATA-2]

Indicates the first data No. of each block data.

[DATA-3 or followings]

The number of data is according to the byte count of the command set.

For the data format, refer to the "7X•25 : VODEO CONTROL DATA".

When specified data includes undefined area, it will be ignored.

4X・A0 : AUDIO INPUT LEVEL

This command is used to control the audio input level by the BIT-0 through BIT-7 of DATA-1.
When the DEVICE receives "41・A0" command, the audio input level of the channels assigned by DATA-1 will be set to the reference level of the DEVICE.
The level data are composed of 2 bytes for each channel, and they are arranged in the sequence of DA1 and DA2 channels.

[DATA-1]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
＊	＊	＊	＊	DA4	DA3	DA2	DA1

＊ :Reserved

Ex. When DATA-1 is "00001001", the data format is as shown below.

DATA-1	DATA-2	DATA-3	DATA-4	DATA-5
09	LOWER	UPPER	LOWER	UPPER

DA1 LEVEL DATA　　　DA4 LEVEL DATA

If the value of the level data is assumed to be N, then the signal level is defined as follows.

N: Level data : (16-bit straight binary, Linear code)
Cover range : $+12$ dB to $-\infty$

$$\text{INPUT SIGNAL LEVEL} = 20 \log \frac{N\,(H)}{4000\,(H)} \ \ [\text{dB}]$$

4X・A1 : AUDIO OUTPUT LEVEL

This command is used to control the audio output level. For the data format, refer to the "4X・A0 : AUDIO INPUT LEVEL" command.
When the DEVICE receives the "41・A1" command, the audio output level is set to the unity level of the DEVICE.

45•A3 : EXTENDED AUDIO INPUT LEVEL
45•A4 : EXTENDED AUDIO OUTPUT LEVEL

This command is used to control the audio input/output level.

The controlled channel is specified in DATA-1/DATA-2, and level data is specified in the following 3-byte data (DATA-3/DATA-4/DATA-5).

[DATA-1 : Aux audio channel]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
*	*	*	*	*	*	*	*

* :Reserved

[DATA-2 : Main audio channel]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
*	*	*	*	CH-4	CH-3	CH-2	CH-1

* :Reserved

Example: Definition of Ch-1/Ch-2/Ch-3/Ch-4

DATA-1	DATA-2	DATA-3	DATA-4	DATA-5
00000000	00001111	Level Data (Lower)	Level Data	Level Data (Upper)

If the value of the level data is assumed to be N, then the input signal level is defined by the following formula.

N: Level data (24-bit straight binary, Linear code)
Cover range : $+24$ dB to $-\infty$, 000000 (H) $= -\infty$

$$INPUT\ SIGNAL\ LEVEL = 20 \log \frac{N\ (H)}{100000\ (H)}\ [dB]$$

4X•A8 : AUDIO OUTPUT PHASE

This command is used to control the audio output phase in sample units.

When the DEVICE receives the "40•A8" command ;

Audio output phase is adjusted to the video output phase.

(keep the input audio/video phase. keep the lip sync)

When it receives the "42•A8" command ;
DATA-1, DATA-2 :   Phase control data (16-bit straight binary, Twos complement, Linear code)
                1 step = 1 sample

When "43•A8" is received,
DATA-1 to DATA-3 : Phase control data (24-bit binary, Twos complement)
                1 step = 1 sample
                Cover range : $+127$ to -128 steps

4X·AA :CROSS FADE TIME PRESET

This command is used to set the cross fade time of digital audio during editing.

DATA-1 is used to select the signal. DATA-2 and subsequent data set the cross fade time.

The fade time data consists of the 2-byte data for each signal, and is aligned in the order starting from the fade out time, the fade in time during cut-in, and the fade in time, fade out time during cut-out.

Units of the fade time are millisecond.

Example : when 45·AA·03·00·01·00 and 02 are used, the fade out time during cut-in is set to 100 ms and the fade in time during cut-in is set to 200 ms.

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
				FADE OUT	FADE IN	FADE IN	FADE OUT

CUT OUT ——— CUT IN ———

DATA-2, -4, -6, -8	DATA-3, -5, -7, -9
LOWER	UPPER

Note

The cross fade time that is set by DATA-2 and DATA-3, applies to all signals in HDW-500/F500 even though the fade times that are different for the respective signals, are set separately. The cross fade time can be set in the range starting from 0 to 115 milliseconds. However, selection of the cross fade time is not continuous.

Hence, when receiving this command, the input cross fade time is converted to the nearest preset time that has already been stored internally. The actual fade time is displayed in the setup menu ITEM-811 : DIGITAL AUDIO FADE TIME.

44·AE :AUDIO MONITOR CHANNEL SELECT

This command is used for selecting audio monitoring mode for left and right channel respectively.

[DATA-1 : Select the auxiliary channel for monitoring left channel]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
							AUX-1 (CUE-1)

[DATA-2 : Select the auxiliary channel for monitoring right channel]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
							AUX-1 (CUE-1)

[DATA-3 : Select the main channel for monitoring left channel]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
＊	＊	＊	＊	CH-4	CH-3	CH-2	CH-1

＊ :Reserved

[DATA-4 : Select the main channel for monitoring right channel]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
＊	＊	＊	＊	CH-4	CH-3	CH-2	CH-1

＊ :Reserved

4X•AF :AUDIO CONTROL DATA SET

This command is used to specify the AUDIO CONTROL DATA by DATA-1 and DATA-2.

[DATA-1]

Upper 4 bits are used to specify the AUDIO INPUT/OUTPUT CONTROL DATA.

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
0	0	OUT	IN	0	0	0	0

BIT-5	BIT-4	
0	1	INPUT (AUDIO INPUT CONTROL DATA)
1	0	OUTPUT (AUDIO OUTPUT CONTROL DATA)
1	1	INPUT & OUTPUT

[DATA-2]

Indicates the first data No. of each block data.

[DATA-3 or followings]

The number of set data is according to byte count of the command set.

For the data format, refer to the "7X•26 : AUDIO INPUT CONTROL DATA" or the "7X•27 : AUDIO OUTPUT CONTROL DATA".

When specified data includes undefined area, it will be ignored.

When the DATA from No.15 through 1A of the AUDIO INPUT CONTROL DATA is set, it will be ignored.

4X·B8 : LOCAL KEY MAP CONTROL

When the DEVICE receives the "00·1D": LOCAL ENABLE" command, the control panel can be operated in accordance with the LOCAL ENABLE MAP which has been set by the "4X·B8" command.

When the DEVICE receives the "00·1C" LOCAL DISABLE", command, all keys, buttons and controls on the control panel can be no longer operated regardless of the setting of this command.

[DATA-1]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
＊	＊	＊	＊	＊	＊	＊	TTP

＊ :Reserved

The blocks corresponding to the "1" bits of DATA-1 can be used.

DATA-1/BIT-0 : TAPE TRANSPORT CONTROL

In the REMOTE mode, all the control buttons for the tape transfer system can be operated on the control panel.

For controlling the respective buttons individually, DATA-2 and DATA-3 bits correspond to the buttons the control panel.

[DATA-2]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
＊	PREROLL	＊	＊	REC/EDIT	PLAY	STOP	STANDBY

＊ :Undefined

[DATA-3]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
＊	＊	＊	＊	＊	VAR	JOG	SHTL/FF/ REW

＊ :Undefined

42·F8 : STILL OFF TIME
42·FA : STANDBY OFF TIME

This command is used to set the STILL OFF TIME or STANDBY OFF TIMER.

DATA-1		DATA-2	
10 Second	1 Second	10 Minute	1 Minute
MSD	LSD	MSD	LSD

| Note |

For HDW-500/F500/250, timer set which is available using Setup menu ITEM-501: STILL TIMER is rolled up to each second of 0.5, 5, 10, 20, 30, 40, 50 and to each minute of 1, 2, 3, 4, 5, 6, 7, 8 and 30.

61•0A : TC GEN DATA SENSE

This command is used for requesting the TIME CODE data that the DEVICE is generating, and the DEVICE will make a response according to the contents of the DATA-1.

[DATA-1]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
			GEN UB				GEN TC

REQUEST COMMAND		RESPONSE COMMAND
DATA-1 = 01 : Request for GEN TC	———	"74•08 : GEN TIME DATA"
DATA-1 = 10 : Request for GEN UB	———	"74•09 : GEN UB DATA"
DATA-1 = 11 : Request for GEN TC&UB	———	"78•08 : GEN TC & UB DATA"

74•08 : GEN TC DATA

When the DEVICE receives the "61•0A : TC GEN DATA SENSE" command and its DATA-1 is "01", the TC TIME data generated by the DEVICE will be added to the DATA-1 through DATA-4 of the "74•08 : GEN TIME DATA" command.
For the data format, refer to the "24•31 : CUE UP WITH DATA" command.

78•08 : GEN TC & UB DATA

When the DEVICE receives the "61•0A : TC GEN DATA SENSE" command, if the DATA-1 is "11", the TIME DATA will be added to the DATA-1 through DATA-4 of the "74•08 : GEN TIME DATA" command and the USER'S BIT DATA will be added to the DATA-5 to DATA-8.
For the data format, refer to the "24•31 : CUE UP WITH DATA" and "44•05 : USER'S BIT PRESET".

74•09 : GEN UB DATA

When the DEVICE receives the "61•0A : TC GEN DATA SENSE" command and its DATA-1 is "10", the TC UB data generated by the DEVICE will be added to the DATA-1 through DATA-4 of the "74•09 : GEN UB DATA" command.
For the data format, refer to the "44•05 : USER'S BIT PRESET" command.

This command is used for requesting the TIME DATA or USER'S BIT, and the DEVICE will make a response according to the contents of DATA-1.

When the accurate time data is requested in the normal playback mode, the following condition must be satisfied.

・ Select external reference mode.

・ CURRENT TIME SENSE command and its return must be completed within the field-2.

[DATA-1]   The response command according to the request command is as follows.

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
		VITC UB	LTC UB		TIMER-1	VITC TIME	LTC TIME

MSB (BIT-7 ～ BIT-4)　　　LSB (BIT-3 ～ BIT-0)

RESPONSE \ REQUEST DATA-1	01	02	03 *4	04	10	20	30 *4	11 *3	22 *3	33 *3,*4
74·00: TIMER-1 DATA				O						
74·04: LTC TIME DATA	O		O							
74·14: LTC INTERPOLATED TIME DATA	O		O							
74·05: LTC UB DATA					O		O			
78·04: LTC TIME & UB DATA								O		O
78·14: LTC INTERPOLATED TIME DATA & UB DATA								O		O
74·06: VITC TIME DATA		O *1	O *2							
74·16: VITC HOLD TIME DATA		O *1	O *2							
74·07: VITC UB DATA						O *1	O *2			
78·06: VITC TIME & UB DATA									O *1	O *2
78·16: VITC HOLD TIME & UB DATA									O *1	O *2

Notes

*1)   BVW-10/11/15/40 do not have the VITC READER, so they return "70·0D : REQUEST TIME DATA MISSING".

*2)   BVW-10/11/15/40 do not have the VITC READER, so they do not return the VITC DATA. (only LTC DATA)
BVW-35/50 and DVW-250 return the LTC DATA.

*3)   If the request DATA-1 eguals to 11, 22 or 33, TIME DATA is returned by DATA-1 through DATA-4 and USER'S BIT DATA is returned by DATA-5 through DATA-8.

*4)   When VITC and LTC are requested at the same time, the USER'S BIT or TIME DATA to be returned is determined in accordance with the table shown below.

UB or TC reading		Return data
LTC	VITC	
OK	OK	LTC
NG	OK	VITC
OK	NG	LTC
NG	NG	LTC

74·00 : TIMER-1 DATA

When the DEVICE is required the TIMER-1 data by the "61·0C : CURRENT TIME SENSE" command, the TIMER-1 data (CTL COUNTER) will be added to the DATA-1 through DATA-4.

At that time, the DF/NDF mode of TIMER-1 is set to the BIT-6 of DATA-1.

For the data format, refer to the "24·31 : CUE UP WITH DATA".

74·04 : LTC TIME DATA

When the DEVICE is required the LTC TIME DATA by the "61·0C : CURRENT TIMER SENSE" command, the LTC TIME DATA will be added to the DATA-1 through DATA-4.

For the data format, refer to "24·31 : CUE UP WITH DATA" command.

78·04 : LTC TIME & UB DATA

When the DEVICE is required the LTC TIME DATA and USER'S BIT DATA by the "61·0C : CURRENT TIME SENSE" command, the LTC TIME DATA will be added to the DATA-1 through DATA-4 and the LTC USER'S BIT DATA will be added to the DATA-5 through DATA-8.

For the data format, refer to the "24·31 : CUE UP WITH DATA" and "44·05 : USER'S BIT PRESET".

74·05 : LTC UB DATA

The DEVICE is required the LTC USER'S BIT DATA by the "61·0C : CURRENT TIMER SENSE" command, the LTC USER'S BIT DATA will be added to the DATA-1 through DATA-4.

For the data format, refer to the "44·05 : U-BIT PRESET".

74·06 : VITC TIME DATA

The DEVICE is required the VITC TIME DATA by the "61·0C : CURRENT TIME SENSE" command, the VITC TIME DATA will be added to the DATA-1 through DATA-4.

For the data format, refer to the "24·31 : CUE UP WITH DATA".

78·06 : VITC TIME & UB DATA

When the DEVICE is required the VITC TIME DATA and USER'S BIT DATA by "61·0C : CURRENT TIME SENSE" command, the VITC TIME DATA will be added to the DATA-1 through DATA-4 and the VITC USER'S BIT DATA will be added to the DATA-5 through DATA-8.

For the data format, refer to the "24·31 : CUE UP WITH DATA" or "44·05 : USER'S BIT PRESET".

74·07 : VITC UB DATA

The DEVICE is required the VITC USER'S BIT DATA by the "61·0C : CURRENT TIME SENSE" command, the VITC USER'S BIT DATA will be added to the DATA-1 through DATA-4.

For the data format, refer to the "44·05 : U-BIT PRESET".

70·0D : REQUEST TIME DATA MISSING

When the DEVICE receives a inadequate request (DATA-1 is undefined or mismatched) by the "61·0C : CURRENT TIME SENSE" command, the DEVICE returns this command to the CONTROLLER.

74·14 : LTC INTERPOLATED TIME DATA

As a DEVICE is required the LTC TIME DATA by the "61·0C : CURRENT TIME SENSE" command means that LTC TIME DATA is interpolated with the CTL, the LTC TIME DATA will be added to DATA-1 through DATA-4 for return.
For the data format, refer to the "24·31 : CUE UP WITH DATA".

78·14 : LTC INTERPOLATED TIME & UB DATA

As a DEVICE is required the LTC TIME DATA and USER'S BIT DATA by the "61·0C : CURRENT TIME SENSE" command means that LTC TIME DATA is interpolated with the CTL, the LTC TIME DATA and LTC USER'S BIT DATA will be added to DATA-1 through DATA-4 and to DATA-5 through DATA-8, respectively for return.
For the data format, refer to the "24·31 : CUE UP WITH DATA" or "44·05 : USER'S BIT PRESET".

74·16 : VITC HOLD TIME DATA

The DEVICE is required the VITC TIME DATA by the "61·0C : CURRENT TIME SENSE" command and it is not read exactly, the VITC TIME DATA will be added to the DATA-1 through DATA-4.
For the data format, refer to the "24·31 : CUE UP WITH DATA".

78·16 : VITC HOLD TIME & UB DATA

The DEVICE is required the VITC TIME DATA and USER's BIT DATA by the "61·0C : CURRENT TIME SENSE" command and it is not read exactly, the VITC USER'S BIT DATA will be added to the DATA-1 through DATA-4 and the VITC USER's BIT DATA will be added to the DATA-5 through DATA-8.
For the data format, refer to the "24·31 : CUE UP WITH DATA" and "44·05 : USER'S BIT PRESET".

60·10 : IN DATA SENSE
60·11 : OUT DATA SENSE
60·12 : A IN DATA SENSE
60·13 : A OUT DATA SENSE

These commands are used for requesting the IN/OUT DATA and the AUDIO IN or AUDIO OUT DATA.

For the data format, refer to the "24·31 : CUE UP WITH DATA".

REQUEST COMMAND		RESPONSE COMMAND
IN DATA SENSE	———	"74·10 : IN DATA"
OUT DATA SENSE	———	"74·11 : OUT DATA"
A IN DATA SENSE	———	"74·12 : A IN DATA"
A OUT DATA SENSE	———	"74·13 : A OUT DATA"

74·10 : IN DATA

When the DEVICE receives the "60·10 : IN DATA SENSE" command, the IN point will be added to the DATA-1 through DATA-4 of the "74·10 : IN DATA".

For the data format, refer to the "24·31 : CUE UP WITH DATA".

74·11 : OUT DATA

When the DEVICE receives the "60·11 : OUT DATA SENSE" command, the OUT point will be added to the DATA-1 through DATA-4 of the "74·11 : OUT DATA".

For the data format, refer to the "24·31 : CUE UP WITH DATA".

74·12 : A IN DATA

When the DEVICE receives the "60·12 : A IN DATA SENSE" command, the AUDIO IN point will be added to the DATA-1 through DATA-4 of the "74·12 : A IN DATA".

For the data format, refer to the "24·31 : CUE UP WITH DATA".

74·13 : A OUT DATA

When the DEVICE receives the "60·13 : A OUT DATA SENSE" command, the AUDIO OUT point will be added to the DATA-1 through DATA-4 of the "74·13 : A OUT DATA".

For the data format, refer to the "24·31 : CUE UP WITH DATA".

61·20 : STATUS SENSE

This command is used for requesting the status of the DEVICE.

[DATA-1]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
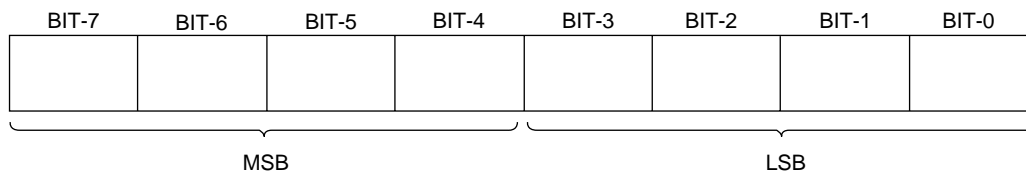
MSB (BIT-7 to 4) : Indicates the first Data No. of the "7X·20 : STATUS DATA" to be sent back.

LSD (BIT-3 to 0) : Indicates the number of data bytes in "7X·20 : STATUS DATA" to be sent back.

EX. When the DATA-1 of the "61·20 : STATUS SENSE" command is 2A.

The DEVICE will send back ten bytes from the DATA No.2, i. e.
DATA No.2 to DATA No.B, of the "7X·20 : STATUS DATA".

7X·20 : STATUS DATA

When the DEVICE receives the "61·20 : STATUS SENSE" command, the STATUS DATA will be sent back.

BVW-10/11/15/35/40/50 STATUS DATA

	BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
DATA No. 0			CASSETTE OUT		TAPE TROUBLE *4	HARD ERROR		LOCAL *5
DATA No. 1	STANDBY ON	TENSION RELEASE	STOP	EJECT	REW	F.FWD	REC *1	PLAY
DATA No. 2	SERVO LOCK	TSO	SHUTTLE	JOG	VAR	REV/FWD	STILL	CUE UP COMPLETE
DATA No. 3	AUTO MODE						OUT	IN
DATA No. 4	SELECT EE ON *1	FULL EE ON *1		EDIT *1				PREROLL OR CUE UP
DATA No. 5		INSERT *1	ASSEMBLE *1 *5	VIDEO *1 *5		TIME CODE *1 *5	AUDIO CH-2 *1	AUDIO CH-1 *1
DATA No. 6								
DATA No. 7								
DATA No. 8				END OF TAPE *4	COLOR FRAME LOCK *6			REC INHIBIT *1
DATA No. 9								
DATA No. A								
DATA No. B								
DATA No. C								
DATA No. D								
DATA No. E								
DATA No. F								

Notes

*1) BVW-10/11/15 do not set this bit.

*2) BVW-10/15/40 do not set this bit.

*3) BVW-10/11/15 always set this bit.

*4) BVW-10/11/15/40 do not set this bit.

*5) BVW-35/50 do not set this bit.

*6) BVW-50 always set this bit.

BVW-60/65/70/75/D75/85P/95/96/D265/9000 STATUS DATA

	BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
DATA No. 0			CASSETTE OUT	REF VD MISSING		HARD ERROR		LOCAL
DATA No. 1	STANDBY ON	TENSION RELEASE	STOP	EJECT	REW	F.FWD	REC *1	PLAY
DATA No. 2	SERVO LOCK	TSO	SHUTTLE	JOG	VAR	REV/FWD	STILL	CUE UP COMPLETE
DATA No. 3	AUTO MODE				AUDIO OUT	AUDIO IN	OUT	IN
DATA No. 4	SELECT EE ON *1	FULL EE ON *1		EDIT *1	REVIEW *1	AUTO EDIT *1	PREVIEW	PREROLL OR CUE UP
DATA No. 5		INSERT *1	ASSEMBLE *1	VIDEO *1		TIME CODE *1	AUDIO CH-2 *1	AUDIO CH-1 *1
DATA No. 6								
DATA No. 7	VARIABLE MEMORY *2	VAR MEMORY ACTIVE *2	AUDIO SPLIT					IN/OUT STATUS
DATA No. 8		LOST LOCK		END OF TAPE	COLOR FRAME LOCK			REC INHIBIT *3
DATA No. 9								
DATA No. A								
DATA No. B								
DATA No. C							DA2 *4	DA1 *4
DATA No. D								
DATA No. E								
DATA No. F								

Notes

*1) BVW-60/65/95 do not set this bit.

*2) BVW-60/70, which do not have DT HEAD do not set this bit.

*3) BVW-60/65/95 always set this bit.

*4) BVW-85P always set this bit.

DVW series STATUS DATA

	BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
DATA No. 0			CASSETTE OUT	REF VD MISSING		HARD ERROR		LOCAL *3
DATA No. 1	STANDBY ON	TENSION RELEASE *3	STOP	EJECT	REW	F.FWD	REC *1	PLAY
DATA No. 2	SERVO LOCK	TSO MODE	SHUTTLE	JOG	VAR	REV/FWD	STILL	CUE UP COMPLETE
DATA No. 3	AUTO MODE	FREEZE ON			AUDIO OUT *3	AUDIO IN *3	OUT	IN
DATA No. 4	SELECT EE ON *1	FULL EE ON *1		EDIT *1	REVIEW *1	AUTO EDIT *1	PREVIEW	PREROLL OR CUE UP
DATA No. 5		INSERT *1	ASSEMBLE *1	VIDEO *1		TIME CODE *1	AUDIO CH-2 (CUE) *1	AUDIO CH-1 (CUE) *1
DATA No. 6		LAMP STILL	LAMP FWD	LAMP REV				
DATA No. 7	VARIABLE MEMORY *3	VAR MEMORY ACTIVE *3	AUDIO SPLIT *1 *3	SYNC ACTIVE *3				IN/OUT STATUS
DATA No. 8		LOST LOCK		END OF TAPE	COLOR FRAME LOCK			REC INHIBIT *2
DATA No. 9								
DATA No. A								
DATA No. B								
DATA No. C					DA4 *1	DA3 *1	DA2 *1	DA1 *1
DATA No. D								
DATA No. E								
DATA No. F								

Notes

*1) DVW-510/A510 do not set this bit.

*2) DVW-510/A510 always set this bit.

*3) DVW-250 does not set this bit.

DNW series STATUS DATA

	BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
DATA No. 0			CASSETTE OUT	REF VD MISSING		HARD ERROR		LOCAL
DATA No. 1	STANDBY ON	TENSION RELEASE	STOP	EJECT	REW	F.FWD	REC *1	PLAY
DATA No. 2	SERVO LOCK	TSO MODE	SHUTTLE	JOG	VAR	REV/FWD	STILL	CUE UP COMPLETE
DATA No. 3	AUTO MODE	FREEZE ON *4			AUDIO OUT	AUDIO IN	OUT	IN
DATA No. 4	SELECT EE ON *1	FULL EE ON *1		EDIT *1	REVIEW *1	AUTO EDIT *1	PREVIEW *1	PREROLL OR CUE UP
DATA No. 5		INSERT *1	ASSEMBLE *1	VIDEO *1		TIME CODE *1	AUDIO CH-2 *1	AUDIO CH-1 *1
DATA No. 6		LAMP STILL	LAMP FWD	LAMP REW				
DATA No. 7	VARIABLE MEMORY *4	VAR MEMORY ACTIVE *4	AUDIO SPLIT	SYNC ACTIVE				IN/OUT STATUS
DATA No. 8		LOST LOCK		END OF TAPE	COLOR FRAME LOCK			REC INHIBIT *2
DATA No. 9								
DATA No. A			FEED EXECUTE *3		FEED READY *3	FEED MODE *3		
DATA No. B								
DATA No. C					DA4 *1	DA3 *1	DA2 *1	DA1 *1
DATA No. D								
DATA No. E								
DATA No. F								

Notes

*1) This bit is not set in the player device (DNW-30/A30/65/A65).

*2) This bit is always set in the player device (DNW-30/A30/65/A65).

*3) This bit is not set in DNW-A25/30/A30/A45/A50/A220.

*4) This bit is not set in DNW-A25/30/A30/A45/A50/A100/A220.

HDW-500/F500/250 STATUS DATA

	BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
DATA No. 0			CASSETTE OUT	REF VD MISSING		HARD ERROR		LOCAL *1
DATA No. 1	STANDBY ON	TENSION RELEASE *1	STOP	EJECT	REW	F.FWD	REC	PLAY
DATA No. 2	SERVO LOCK	TSO MODE *1	SHUTTLE	JOG	VAR	TAPE DIRECTION	STILL	CUE UP COMPLETE
DATA No. 3	AUTO MODE	FREEZE ON		CF MODE	AUDIO OUT *1	AUDIO IN *1	OUT	IN
DATA No. 4	SELECT EE ON	FULL EE ON		EDIT	REVIEW	AUTO EDIT	PREVIEW	PREROLL OR CUE UP
DATA No. 5		INSERT *1	ASSEMBLE	VIDEO		TIME CODE	A2 (CUE)	A1 (CUE)
DATA No. 6		LAMP STILL	LAMP FWD	LAMP REV				
DATA No. 7	VARIABLE MEMORY *1	VAR MEMORY ACTIVE *1	AUDIO SPLIT *1	SYNC ACTIVE *1				IN-OUT
DATA No. 8	BUZZER ON	LOST LOCK	NEAR EOT	END OF TAPE	CF LOCK	SERVO ALARM	SYSTEM ALARM	REC INHIBIT
DATA No. 9	FUNCTION ABORT			VIDEO LACK *1				
DATA No. A								
DATA No. B			DT FLD/FRM *1					
DATA No. C					DA4	DA3	DA2	DA1
DATA No. D	TAPE TOP	TAPE END	THREAD					

Notes

*1) HDW-250 do not set this bit.

BIT-5 : CASSETTE OUT

This bit will be set to "1" when there is no cassette threading on the DEVICE.

BIT-4 : REFERENCE VIDEO MISSING

This bit will be set to "1" when the REFERENCE VIDEO is not detected on the REF VIDEO IN connector panel.

BIT-3 : TAPE TROUBLE

This bit will be set to "1" when the trouble is occurred (the tape is sticking to the drum, the tape is slackening and so on).

For details, refer to the maintenance manual "SELF DIAGNOSTICS".

BIT-2 : HARD ERROR

This bit will be set to "1" when the following troubles (the tape is sticking to the drum, the tape is slackening and so on).

For details, refer to the maintenance manual "SELF DIAGNOSTICS".

BIT-0 : LOCAL

This bit will be set to "1" when the REMOTE/LOCAL switch on the front panel is set to "LOCAL". However, for the DVW series (except DVW-250), DNW series (except DNW-A25/A28/A220) and HDW series (except HDW-250), this bit will be set to "1" when the "REMOTE1 (9P)" indicator of front panel is off.

STATUS DATA No.1

BIT-7 : STANDBY
This bit will be set to "1" when the DEVICE is the STANDBY ON mode.

BIT-6 : TENSION RELEASE
This bit will be set to "1" when the DEVICE is in the TENSION RELEASE mode.

BIT-5 : STOP
This bit will be set to "1" when the DEVICE receives the "20•00 : STOP" command and goes into the STOP mode.

BIT-4 : EJECT
This bit will be set to "1" when the DEVICE receives the "20•0F : EJECT" command and goes into the EJECT mode.

BIT-3 : REW
This bit will be set to "1" when the DEVICE receives the "20•20 : REWIND" command and goes into the REWIND mode.

BIT-2 : F.FWD
This bit will be set to "1" when the DEVICE receives the "20•10 : FAST FWD" command and goes into the FAST FORWARD mode.

BIT-1 : REC
This bit will be set to "1" when the DEVICE receives the "20•02 : REC" command and goes into the REC mode.
This bit will be also set to "1" when "DATA No.4/BIT-4 EDIT" is set to "1".

BIT-0 : PLAY
This bit will be set to "1" when the DEVICE receives the "20•01 : PLAY", "20•02: REC" or "20•65 : EDIT ON" command and goes into the PLAY, REC or EDIT mode.
This bit will be also set to "1" when the DEVICE is in the CAPSTAN OVERRIDE mode.

STATUS DATA No.2

BIT-7 : SERVO LOCK

This bit will be set to "1" when the DEVICE is in the condition that the drum and the capstan servos are locked in the PLAY mode.

BIT-6 : TSO MODE

This bit will be set to "1" when the DEVICE is in the CAPSTAN OVERRIDE mode.

BIT-5 : SHUTTLE

This bit will be set to "1" when the DEVICE receives the "2X•13 : SHUTTLE FWD" or "2X•23 : SHUTTLE REV", and goes into the SHUTTLE mode.

BIT-4 : JOG

This bit will be set to "1" when the DEVICE receives the "2X•11 : JOG FWD" or "2X•21 : JOG REV" command and goes into the JOG mode.

BIT-3 : VAR

This bit will be set to "1" when the DEVICE is in the following mode.
("2X•12 : VAR FWD" or "2X•23 : VAR REV" command is received.)

・VAR mode
・CAPSTAN OVERRIDE mode

BIT-2 : TAPE DIRECTION

This bit shows the tape direction defined in the DEVICE.
0 = FWD
1 = REV

BIT-1 : STILL

This bit will be set to "1" when the DEVICE is STILL mode of SHUTTLE/JOG/VAR.
This bit will be set to "0" when DEVICE is STOP mode.

BIT-0 : CUE UP COMPLETE

This bit will be set to "1" when the DEVICE receives "20•30 : PREROLL" and "24•31 : CUE UP WITH DATA" commands and then cue-up operation is completed.

STATUS DATA No.3

BIT-7: AUTO MODE
This bit will be set to "1" when the DEVICE receives the "40•41 : AUTO MODE ON" command.

BIT-6 : FREEZE ON
This bit is set to "1" when the DEVICE receives the "20•6B : FREEZE ON" command and enters into he FREEZE mode.

BIT-4 : CF MODE
This bit is set to "1" when DEVICE has received the "41•35 : COLOR FRAME SELECT" command and selected the COLOR FRAME in the REMOTE mode, or when DEVICE has selected 4F LOCK or 4F HOLD using ITEM-004 : CAPSTAN LOCK select of the setup menu in the LOCAL mode.

BIT-3 : AUDIO OUT
BIT-2 : AUDIO IN
BIT-1 : OUT
BIT-0 : IN
When the DEVICE receives ENTRY, PRESET and RECALL commands of each editing point (IN, OUT, AUDIO IN or AUDIO OUT), the corresponded bit will be set to "1", and TIMER-1 or TIME CODE data is memorized.

STATUS DATA No.4

BIT-7 : SELECT EE ON
This bit will be set to "1" when the DEVICE receives the "41•30 : EDIT PRESET" command, and furthermore, receives the "20•63 : SELECT EE ON" command.

BIT-6 : FULL EE ON
This bit will be set to "1" when the DEVICE receives the "20•61 : FULL EE ON" command.

BIT-4 : EDIT
This bit will be set to "1" when the DEVICE is in the EDIT mode, and at the same time, the "DATA No. 1/BIT-1 : REC" is also set to "1".

BIT-3 : REVIEW
This bit will be set to "1" when the DEVICE is in the REVIEW mode.

BIT-2 : AUTO EDIT
This bit will be set to "1" when the DEVICE is in the AUTO EDIT mode.

BIT-1 : PREVIEW
This bit will be set to "1" when the DEVICE is in the PREVIEW mode.

BIT-0 : PREROLL or CUE UP
This bit will be set to "1" when the DEVICE receives the "20•30 : PREROLL" and "24•31 : CUE UP WITH DATA" commands, and goes into the PREROLL and CUE-UP mode, and this bit will be also set to "1" when the PREROLL is performed in the AUTO EDIT or PREVIEW mode.

STATUS DATA No.5

BIT-6 : INSERT
BIT-5 : ASSEMBLE
BIT-4 : VIDEO
BIT-2 : TIME CODE (LTC)
BIT-1 : A2 (CUE)
BIT-0 : A1 (CUE)
When the DEVICE receives the "41•30 : EDIT PRESET" commands, the corresponding bit of DATA No. 5 will be set to "1" according to the state of the DATA-1 of the EDIT PRESET command.

STATUS DATA No.6

BIT-6 : LAMP STILL
BIT-5 : LAMP FWD
BIT-4 : LAMP REV
When the DEVICE receives the SEARCH command, the corresponding bit of DATA No.6 will be set to "1" according to the speed data of the command.

STATUS DATA No.7

BIT-7 : VAR MEMORY MODE
This bit will be set to "1" when the DEVICE receives the "40•47 : VAR MEM ON" command, and goes into the VARIABLE MEMORY mode.

BIT-6 : VAR MEMORY ACTIVE
This bit will be set to "1" when the DEVICE receives the "40•47 : VAR MEM ON" command and memorizing in the VARIABLE MEMORY.

BIT-5 : AUDIO SPLIT
This bit will be set to "1" when the DEVICE receives the "40•45 : AUDIO SPLIT ON" command, and goes into the AUDIO SPLIT mode.

BIT-4 : SYNC ACTIVE
This bit will be set to "1" when the DEVICE is in the SYNC PLAY mode.

BIT-0 : IN-OUT STATUS
This bit will be set to "1" when the DEVICE is in the PREVIEW or AUTO EDIT mode and the tape is running between the IN point and OUT point.

STATUS DATA No.8

BIT-7 : BUZZER ON
This bit is set to "1" when any abnormalities have occurred in CONTROLLED DEVICE, or when the tape has passed the IN point while executing DMC RUN or DMC PREVIEW.

BIT-6 : LOST LOCK
This bit will be set to "1" when the capstan or drum servo lock of the DEVICE is lost during the PLAY, REC or EDIT mode.
When the DEVICE receives the "40•2D : LOST LOCK RESET" command, this bit will be reset.

BIT-5 : NEAR END OF TAPE
This bit is set to "1" when remaining amount of tape on supply reel or takeup reel of DEVICE has reached about 120 seconds or less (L cassette) or about 80 seconds or less (S cassette).

BIT-4 : END OF TAPE
This bit will be set to "1" when the DEVICE detects BEGIN or END of the cassette tape.

BIT-3 : COLOR FRAME LOCK
This bit will be set to "1" when the DEVICE goes into the PLAY, REC or EDIT mode and the color framing is locked.

BIT-2 : SERVO ALARM
This bit is set to "1" when any abnormalities have occurred in either the servo system or sensor system of CONTROLLED DEVICE.

BIT-1 : SYSTEM ALARM
This bit is set to "1" when even one error in the internal ERROR STATUS of the DEVICE has occurred.

BIT-0 : REC INHIBIT
This bit will be set to "1" when the REC INHIBIT switch on the DEVICE is set to "1" or the REC INHIBIT plug on the cassette is set.

STATUS DATA No.9

BIT-7 : FUNCTION ABORT
This bit is set to "1" when servo lock is lost or synchronous lock has not completed at the 5th frame before VIDEO IN point or AUDIO IN point in the AUDIO EDIT or PREVIEW mode. This bit is also set to "1" when normal operation has not completed during CUE UP operation to the point where TC data is discontinuous.

BIT-4 : VIDEO LACK
This bit is set to "1" when playback output of VIDEO and DA-1 to DA-4 channels has completely lacked and the lack of data has continued for 12 frames or more.

STATUS DATA No.A

BIT-5 : FEED EXECUTE
This bit is set to "1" when the DEVICE starts the FEED PLAY.

BIT-3 : FEED READY
This bit is set to "1" when the DEVICE can enter FEED PLAY in the FEED PLAY mode.

BIT-2 : FEED MODE
This bit is set to "1" when the DEVICE receives "43•3F: Δt PLAY RESET " command, and enters the FEED PLAY mode.

STATUS DATA No.B

BIT-5 : DT FLD/FRM
This bit is set to "1" when DT head trace mode is set to frame, and set to "0" when it is set to field.

STATUS DATA No.C

BIT-3 : DA4
BIT-2 : DA3
BIT-1 : DA2
BIT-0 : DA1
When the DEVICE receives the "4X•30 : EDIT PRESET" command, these bits are set "1" in accordance with the DATA-2 added to this command.
Refer to "4X•30 : EDIT PRESET" command.

STATUS DATA No.D

BIT-7 : TAPE TOP
This bit is set to "1" when effective length of tape has been fully wound onto the supply reel.

BIT-6 : TAPE END
This bit is set to "1" when effective length of tape has been fully wound onto the takeup reel.

BIT-5 : THREAD
This bit is set to "1" when cassette is loading or unloading in CONTROLLED DEVICE.

61·21 : EXTENDED VTR STATUS SENSE

This command is used to request the EXTENDED STATUS of the DEVICE.

[DATA-1]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
BLOCK No.7	BLOCK No.6	BLOCK No.5	BLOCK No.4	BLOCK No.3	BLOCK No.2	BLOCK No.1	BLOCK No.0

The data in the block corresponding to the bits set to "1" in DATA-1 are requested.
One data block is composed of 4 bytes of data, and the CONTROLLER can request 3 blocks
(12 bytes) of data at one time.

7X·21 : EXTENDED VTR STATUS

When the DEVICE receives the "60·20 : STATUS SENSE" command, EXTENDED STATUS
DATA will be sent back in acoordance with the contents of DATA-1.

[DATA-1]
The bits corresponding to the requested data block are set to "1".

[DATA-2]
This is byte count of sending data.
(4-byte unit, maximum of 12 bytes)

BLOCK No.	DATA No.	BIT-7 (MSB)	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-7 (MSB)
0 SERVO STATUS	0	TAPE SPEED (LOWER BYTE)							
	1	TAPE DIR	TAPE SPEED (UPPER BYTE)						
	2	*	*	*	*	*	*	*	*
	3	*	*	*	*	*	*	*	*
1 ERROR STATUS	4	*	*	*	*	*	*	*	*
	5	*	*	*	*	*	*	*	*
	6	READ AFTER WRITE VERIFY ERROR LEVEL							
		AUDIO				VIDEO			
		VALID	ERROR LEVEL			VALID	ERROR LEVEL		
	7	AUDIO DATA ERROR LEVEL				VIDEO DATA ERROR LEVEL			
		VALID	ERROR LEVEL			VALID	ERROR LEVEL		
2 TTP STATUS	8	*	*	*	*	*	*	*	*
	9	*	*	*	*	*	*	*	*
	A	CASSETTE IN/OUT	CASSETTE SIZE		CASSETTE COMP UP/DOWN	REEL POSITION		*	*
	B	TOTAL REC INHIBIT	(ID HOLE #6) *1	(ID HOLE #3) REEL HUB DIAMETER	(ID HOLE #1) OXIDE /METAL	(ID HOLE #2) TAPE THICKNESS	(ID HOLE #5) *1	(ID HOLE #4) *1	FORMAT *2
3	C	*	*	*	*	*	*	*	*
	D	*	*	*	*	*	*	*	*
	E	*	*	*	*	*	*	*	*
	F	*	*	*	*	*	*	*	*
4	10	*	*	*	*	*	*	*	*
	11	*	*	*	*	*	*	*	*
	12	*	*	*	*	*	*	*	*
	13	*	*	*	*	*	*	*	*
5	14	*	*	*	*	*	*	*	*
	15	*	*	*	*	*	*	*	*
	16	*	*	*	*	*	*	*	*
	17	*	*	*	*	*	*	*	*
6	18	*	*	*	*	*	*	*	*
	19	*	*	*	*	*	*	*	*
	1A	*	*	*	*	*	*	*	*
	1B	*	*	*	*	*	*	*	*
7 OFF TIMER STATUS	1C	STILL OFF TIMER							
		MSD : 10 SECONDS				LSD : 1 SECOND			
	1D	STILL OFF TIMER							
		MSD : 10 MINUTES				LSD : 1 MINUTE			
	1E	STANDBY OFF TIMER							
		MSD : 10 SECONDS				LSD : 1 SECOND			
	1F	STANDBY OFF TIMER							
		MSD : 10 MINUTES				LSD : 1 MINUTE			

VTR cassette tab sensor
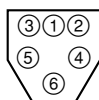
① : ID HOLE #1
② : ID HOLE #2
③ : ID HOLE #3
④ : ID HOLE #4
⑤ : ID HOLE #5
⑥ : ID HOLE #6

* : Undefined
*1 : HDW-500/F500/250 only
*2 : Undefined yet for HDW-500/F500/250

BLOCK No.0 : SERVO STATUS

DATA No.0 : TAPE SPEED (LOWER)
DATA No.1 : TAPE SPEED (UPPER), TAPE DIRCTION

These data indicates the tape running speed with the 15-bit data and the tape running direction with the 1 bit data.
When the tape in the DEVICE is running at $+N$ (or $-N$) times normal speed, the value of following expression is expressed as a 15-bit straight binary code.

$$\text{TAPE SPEED DATA} = N \times 500 \ (0 \leqq N \leqq 60)$$
$$= (N - 60) \times 50 + 30000 \ (60 < N \leqq 100)$$

BIT-7 of DATA No.1 indicates the tape running dirction.
DATA No.1/BIT-7 : "0" = FORWARD
                   "1" = REVERSE

BLOCK No.1 : ERROR STATUS

DATA No.6 : READ AFTER WRITE VERIFY ERROR LEVEL

This data indicate error level with the difference between recorded data and CONFI Head data.

• VIDEO LEVEL

BIT-0 to BIT-2 indicate error level of video data, and BIT-3 is validity bit.

BIT-3	VALIDITY
0	INVALID
1	VALID

BIT-2	BIT-1	BIT-0	ERROR LEVEL
0	0	0	GOOD
1	0	0	NO GOOD

• AUDIO LEVEL

BIT-4 to BIT-6 indicate error level of audio data, and BIT-7 is validity bit.

BIT-7	VALIDITY
0	INVALID
1	VALID

BIT-6	BIT-5	BIT-4	ERROR LEVEL
0	0	0	GOOD
1	0	0	NO GOOD

DATA No.7 : AUDIO DATA ERROR LEVEL, VIDEO DATA ERROR LEVEL

This data indicate the error level of the playback data.

• VIDEO LEVEL

BIT-0 to BIT-2 indicate the error level of the video data, and BIT-3 is validity bit.

BIT-3	VALIDITY
0	INVALID
1	VALID

BIT-2	BIT-1	BIT-0	ERROR LEVEL
0	0	0	GOOD
0	1	0	INDETERMINABLE
0	1	1	DOUBTFUL∗
1	0	0	NO GOOD

∗ : HDW series only

• AUDIO LEVEL

BIT-4 to BIT-6 indicate error level of audio data, and BIT-7 is validity bit.

BIT-7	VALIDITY
0	INVALID
1	VALID

BIT-6	BIT-5	BIT-4	ERROR LEVEL
0	0	0	GOOD
0	1	0	INDETERMINABLE
0	1	1	DOUBTFUL∗
1	0	0	NO GOOD

∗ : HDW series only

BLOCK No.2 : TRANSPORT STATUS

DATA No.A/BIT-7 : CASSETTE IN/OUT
This bit is set to "0" when the cassette is ejected.

DATA No.A/BIT-6, 5: CASSETTE SIZE
These bits are set as shown below according to the size of the inserted cassette.

BIT-6	BIT-5	LEVEL
0	0	S-SIZE
0	1	L-SIZE
1	0	Undefined
1	1	Undefined

DATA No.A/BIT-4 : CASSETTE COMPARTMENT UP/DOWN
This bit is set to "1" when the cassette compartment is in the UP position or while it is operating.
It is set to "0" when it is in the DOWN position.

DATA No.A/BIT-3, 2 : REEL POSITION
These bits are set as shown below according to the position of the supply and take-up reels.

BIT-3	BIT-2	LEVEL POSITION
0	0	S-SIZE
0	1	L-SIZE
1	0	Undefined
1	1	Undefined

DATA No.B/BIT-7 : TOTAL REC INHIBIT
This bit is set to "1" when using a cassette set to the TOTAL REC INHIBIT mode.

DATA No.B/BIT-5 : REEL HUB DIAMETER (ID HOLE #3)
This bit is set to "1" when the reel hub diameter of the inserted cassette is small size.

DATA No.B/BIT-4 : OXIDE/METAL (ID HOLE #1)
This bit is set to "1" when the inserted cassette is used the oxide tape.
This bit is valid when analog tape is used.

DATA No.B/BIT-3 : TAPE THICKNESS (ID HOLE #2)
This bit is set to "1" when the tape thickness of the inserted cassette is the thick type tape.

DATA No.B/BIT-0 : FORMAT
This bit is set to"1" when the inserted cassette is for the along format.

BLOCK No.7 : OFF TIMER STATUS

DATA No.1C, 1D : STILL OFF TIMER
These data are set in accordance with the contents of the "42•F8 : STILL OFF TIME" command received by the CONTROLLER.
Refer to "42•F8 : STILL OFF TIME" command.

DATA No.1E, 1F : STANDBY OFF TIMER
These data are set in accordance with the contents of the "42•FA : STANDBY OFF TIME" command received by the CONTROLLER.
Refer to the "42•FA : STANDBY OFF TIME" command.

62·23 : SIGNAL CONTROL DATA SENSE

This command is used to request the setting of th phase and input/output levels for the VIDEO/
AUDIO signals of the DEVICE.

[DATA-1]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0	
BLOCK No.7	BLOCK No.6	BLOCK No.5	BLOCK No.4	BLOCK No.3	BLOCK No.2	BLOCK No.1	BLOCK No.0	VIDEO SET STATUS SENSE

[DATA-2]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0	
BLOCK No.7	BLOCK No.6	BLOCK No.5	BLOCK No.4	BLOCK No.3	BLOCK No.2	BLOCK No.1	BLOCK No.0	AUDIO SET STATUS SENSE

The data in the block corresponding to the bits set to "1" in DATA-1 and DATA-2 are request-
ed.
One data block is composed of 4 bytes of data, and the CONTROLLER can request 3 blocks
(12 bytes) of data at one time.

7X·23 : SIGNAL CONTROL DATA

When the DEVICE receives the "62·23 : SIGNAL CONT DATA SENSE" command, SIGNAL
CONTROL DATA will be sent back in acoordance with the contents of DATA-1 and DATA-2.

[DATA-1, DATA-2]
The bits corresponding to the requested data block are set to "1".

[DATA-3]
This is byte count of sending data.
(4-byte unit, maximum of 12 bytes)

BLOCK No.	DATA No.	BIT-7 (MSB) ... BIT-0 (LSB)	BLOCK No.	DATA No.	BIT-7 (MSB) ... BIT-0 (LSB)
0	0	INPUT VIDEO SET LEVEL (LOWER)	8	20	AUDIO 1 INPUT SET LEVEL (LOWER)
	1	INPUT VIDEO SET LEVEL (UPPER)		21	AUDIO 1 INPUT SET LEVEL (UPPER)
	2	OUTPUT VIDEO SET LEVEL (LOWER)		22	AUDIO 2 INPUT SET LEVEL (LOWER)
	3	OUTPUT VIDEO SET LEVEL (UPPER)		23	AUDIO 2 INPUT SET LEVEL (UPPER)
1	4	OUTPUT SETUP LEVEL	9	24	AUDIO 3 INPUT SET LEVEL (LOWER)
	5			25	AUDIO 3 INPUT SET LEVEL (UPPER)
	6	OUTPUT CHROMA SET LEVEL (LOWER)		26	AUDIO 4 INPUT SET LEVEL (LOWER)
	7	OUTPUT CHROMA SET LEVEL (UPPER)		27	AUDIO 4 INPUT SET LEVEL (UPPER)
2	8	OUTPUT H SET PHASE	A	28	AUDIO 1 OUTPUT SET LEVEL (LOWER)
	9			29	AUDIO 1 OUTPUT SET LEVEL (UPPER)
	A	OUTPUT SC SET PHASE (LOWER)		2A	AUDIO 2 OUTPUT SET LEVEL (LOWER)
	B	OUTPUT SC SET PHASE (UPPER)		2B	AUDIO 2 OUTPUT SET LEVEL (UPPER)
3	C	OUTPUT SET HUE	B	2C	AUDIO 3 OUTPUT SET LEVEL (LOWER)
	D			2D	AUDIO 3 OUTPUT SET LEVEL (UPPER)
	E	OUTPUT VIDEO SET PHASE		2E	AUDIO 4 OUTPUT SET LEVEL (LOWER)
	F			2F	AUDIO 4 OUTPUT SET LEVEL (UPPER)
4	10		C	30	
	11			31	
	12			32	
	13			33	
5	14		D	34	
	15			35	
	16			36	
	17			37	
6	18		E	38	CUE INPUT SET LEVEL (LOWER)
	19			39	CUE INPUT SET LEVEL (UPPER)
	1A			3A	CUE OUTPUT SET LEVEL (LOWER)
	1B			3B	CUE OUTPUT SET LEVEL (UPPER)
7	1C		F	3C	AUDIO OUTPUT SET PHASE (LOWER)
	1D			3D	AUDIO OUTPUT SET PHASE (UPPER)
	1E			3E	
	1F			3F	

BLOCK No.0

DATA No.0, 1 : INPUT VIDEO SET LEVEL
The video level data (00•40 : fixed) of the input video signal are set.

DATA No.2, 3 : OUTPUT VIDEO SET LEVEL
The video level data of the output video signal are set by the "4X•91 : OUTPUT VIDEO SIGNAL" command received from the CONTROLLER.
Refer to the "4X•91 : OUTPUT VIDEO LEVEL" command.

BLOCK No.1

DATA No.4 : OUTPUT SETUP (BLACK) LEVEL
The setup (black) level data of the output video signal are set by the "4X•92 : OUTPUT SETUP LEVEL" comamnd received from the CONTROLLER.
Refer to the "4X•92 : OUTPUT SETUP LEVEL" comamnd.

DATA No.6, 7 : OUTPUT CHROMA SET LEVEL
The chroma set level data of the output video signal are set by the "4X•93 : OUTPUT CHROMA LEV-EL" command received from the CONTROLLER.
Refer to the "4X•93 : OUTPUT CHROMA LEVEL" command.

BLOCK No.2

DATA No.8 : OUTPUT H SET PHASE
The H phase control data of the output video signal are set by the "4X•98 : OUTPUT H PHASE" command received from the CONTROLLER.
Refer to the "4X•98 : OUTPUT H PHASE" command.

DATA No.A, B : OUTPUT SC PHASE
The SC phase control data of the output video signal are set by the "4X•99 : OUTPUT SC PHASE" command received from the CONTROLLER. (for HDW series FINE PHASE CONTROL DATA)
Refer to the "4X•99 : OUTPUT SC PHASE" command.

BLOCK No.3

DATA No.C : OUTPUT SET HUE (CHROMA PHASE)
The HUE data (Burst Chroma Phase) of the output video signal are set by the "4X•9A : OUTPUT VIDEO HUE" command received from the CONTROLLER.
Refer to the "4X•9A : OUTPUT VIDEO HUE" command.

DATA No.E : OUTPUT VIDEO SET PHASE
The video phase control data (00 : fixed) of the output video signal are set.

BLOCK No.8
BLOCK No.9

DATA No.20, 21 : AUDIO 1 INPUT SET LEVEL
DATA No.22, 23 : AUDIO 2 INPUT SET LEVEL
DATA No.24, 25 : AUDIO 3 INPUT SET LEVEL
DATA No.26, 27 : AUDIO 4 INPUT SET LEVEL
The audio input level control data are set by the "4X・A0 : AUDIO INPUT LEVEL" command received from the CONTROLLER.
Refer to the "4X・A0 : AUDIO INPUT LEVEL" command.

BLOCK No.A
BLOCK No.B

DATA No.28, 29 : AUDIO 1 OUTPUT SET LEVEL
DATA No.2A, 2B : AUDIO 2 OUTPUT SET LEVEL
DATA No.2C, 2D : AUDIO 3 OUTPUT SET LEVEL
DATA No.2E, 2F : AUDIO 4 OUTPUT SET LEVEL
The audio ouput level control data are set by the "4X・A1 : AUDIO OUTPUT LEVEL" command received from the CONTROLLER.
Refer to the "4X・A1 : AUDIO OUTPUT LEVEL" command.

BLOCK No.E

DATA No.38, 39 : CUE INPUT SET LEVEL
The cue input level control data are set by the "4X・A0 : AUDIO INPUT LEVEL" command received from the CONTROLLER.
Refer to the "4X・A0 : AUDIO INPUT LEVEL" command.

DATA No.3A, 3B : CUE OUTPUT SET LEVEL
The cue output level control data are set by the "4X・A1 : AUDIO OUTPUT LEVEL" command received from the CONTROLLER.
Refer to the "4X・A1 : AUDIO OUTPUT LEVEL" command.

BLOCK No.F

DATA No.3C, 3D : AUDIO OUTPUT SET PHASE
The audio output phase control data are set by the "4X・A8 : AUDIO OUTPUT PHASE" command received from the CONTROLLER.
Refer to the "4X・A8 : AUDIO OUTPUT PHASE" command.

61·24 : **SUPPORTED SIGNAL SENSE**

This command requests the SUPPORTED SIGNAL data of the DEVICE.

Designate kind of data to require, Video or Audio by means of DATA-1.

[DATA-1 : Audio/Video]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
0	0	0	0	0	0	Audio	Video

BIT-1	BIT-0	
0	1	REQUEST SUPPORTED VIDEO SIGNAL
1	0	REQUEST SUPPORTED AUDIO CHANNEL

(Don't make a set for BIT-1 and BIT-0 using ones other than above codes.)

7X·24 : **SUPPORTED SIGNAL**

When the DEVICE receives the "61·24 : SUPPORTED SIGNAL SENSE" command, the data shown below will be added to DATA-1 and DATA-2.

When undefined data is specified in BIT-1 and BIT-0, the "70·24" will be sent back.

When 01H (video) is specified in the "61·24 : SUPPORTED SIGNAL SENSE";

The "62·25 : VIDEO CONTROL DATA SENSE" command is used to request the block informations.

[DATA-1 (supported block)]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
BLOCK No.3	BLOCK No.2	BLOCK No.1	BLOCK No.0	0	0	0	0

BIT-7	BIT-6	BIT-5	BIT-4	BLOCK
0	0	0	1	COMPOSITE
0	0	1	0	$Y/P_B/P_R$ or $Y/C_B/C_R$
0	1	0	0	G/B/R
1	0	1	0	HD $Y/P_B/P_R$

When DATA-1 of "61·24" SUPPORTED SIGNAL SENSE is 02H(AUDIO), audio data supported by DATA-1/DATA-2 of 72·24 will be returned.

The "62·26 : AUDIO INPUT CONTROL DATA SENSE" and "62·27 : AUDIO OUTPUT DATA SENSE" commands are used to request channel control data.

[DATA-1 (Aux audio channel)]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
Monitor (R)	Monitor (L)			Aux-4 (Cue4)	Aux-3 (Cue3)	Aux-2 (Cue2)	Aux-1 (Cue1)

[DATA-2 (Main audio chennel)]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
CH-8	CH-7	CH-6	CH-5	CH-4	CH-3	CH-2	CH-1

Supported channel bit is set to "1".

62·25 : VIDEO CONTROL DATA SENSE

This command requests the VIDEO CONTROL DATA of the DEVICE.

[DATA-1]

MSD (BIT-7 to 4) : indicates the block of the "7X·25 : VIDEO CONTROL DATA" to be sent back.

LSD (BIT-3 to 0) : indicates the number of data bytes (1H to FH) in "7X·25 : VIDEO CONTROL DATA" to be sent back.

Don't make a set for BIT-7 and BIT-4 using ones other than codes below.

BIT-7	BIT-6	BIT-5	BIT-4	BLOCK
0	0	0	1	COMPOSITE
0	0	1	0	Y/P_B/P_R or Y/C_B/C_R
0	1	0	0	G/B/R
1	0	1	0	HD Y/P_B/P_R

[DATA-2]

Indicate starting No. of data for return.

7X·25 : VIDEO CONTROL DATA

When the DEVICE receives the "62·25 : VIDEO CONTROL DATA SENSE" command,the data shown below will be sent back.

Preset value is returned for unsupported data.

When undefined block or undefined code are specified, the "70·25" will be sent back.

If specified data includes beyond No.19, the data up to No.18 are sent back.

No.	COMPOSITE	
00	INPUT VIDEO LEVEL	(LOWER)
01	INPUT VIDEO LEVEL	(UPPER)
02	00H	
03	40H	
04	00H	
05	40H	
06	OUTPUT VIDEO LEVEL	(LOWER)
07	OUTPUT VIDEO LEVEL	(UPPER)
08	OUTPUT CHROMA LEVEL	(LOWER)
09	OUTPUT CHROMA LEVEL	(UPPER)
0A	OUTPUT HUE	(LOWER)
0B	OUTPUT HUE	(UPPER)
0C	∗ OUTPUT SYSTEM PHASE	(LOWER)
0D	∗ OUTPUT SYSTEM PHASE	
0E	∗ OUTPUT SYSTEM PHASE	
0F	∗ OUTPUT SYSTEM PHASE	(UPPER)
10	∗ OUTPUT VIDEO PHASE	(LOWER)
11	∗ OUTPUT VIDEO PHASE	
12	∗ OUTPUT VIDEO PHASE	(UPPER)
13	OUTPUT SETUP LEVEL	(LOWER)
14	OUTPUT SETUP LEVEL	(UPPER)
15	00H	
16	00H	
17	00H	
18	00H	

No.	Y/P_B/P_R or Y/C_B/C_R	
00	INPUT Y LEVEL	(LOWER)
01	INPUT Y LEVEL	(UPPER)
02	INPUT P_B LEVEL	(LOWER)
03	INPUT P_B LEVEL	(UPPER)
04	INPUT P_R LEVEL	(LOWER)
05	INPUT P_R LEVEL	(UPPER)
06	OUTPUT Y LEVEL	(LOWER)
07	OUTPUT Y LEVEL	(UPPER)
08	OUTPUT P_B LEVEL	(LOWER)
09	OUTPUT P_B LEVEL	(UPPER)
0A	OUTPUT P_R LEVEL	(LOWER)
0B	OUTPUT P_R LEVEL	(UPPER)
0C	∗ OUTPUT SYSTEM PHASE	(LOWER)
0D	∗ OUTPUT SYSTEM PHASE	
0E	∗ OUTPUT SYSTEM PHASE	
0F	∗ OUTPUT SYSTEM PHASE	(UPPER)
10	∗ OUTPUT VIDEO PHASE	(LOWER)
11	∗ OUTPUT VIDEO PHASE	
12	∗ OUTPUT VIDEO PHASE	(UPPER)
13	00H	
14	00H	
15	00H	
16	00H	
17	00H	
18	00H	

∗ : For HDW-250/500/F500

0C	OUTPUT FINE PHASE	(LOWER)
0D	OUTPUT FINE PHASE	(UPPER)
0E	OUTPUT SYNC PHASE	(LOWER)
0F	OUTPUT SYNC PHASE	(UPPER)
10	00H	
11	00H	
12	00H	

∗ : For HDW-250/500/F500

0C	OUTPUT FINE PHASE	(LOWER)
0D	OUTPUT FINE PHASE	(UPPER)
0E	OUTPUT SYNC PHASE	(LOWER)
0F	OUTPUT SYNC PHASE	(UPPER)
10	00H	
11	00H	
12	00H	

No.	COMPOSITE	
00	INPUT Y LEVEL	(LOWER)
01	INPUT Y LEVEL	(UPPER)
02	INPUT PB LEVEL	(LOWER)
03	INPUT PB LEVEL	(UPPER)
04	INPUT PR LEVEL	(LOWER)
05	INPUT PR LEVEL	(UPPER)
06	OUTPUT Y LEVEL	(LOWER)
07	OUTPUT Y LEVEL	(UPPER)
08	OUTPUT PB LEVEL	(LOWER)
09	OUTPUT PB LEVEL	(UPPER)
0A	OUTPUT PR LEVEL	(LOWER)
0B	OUTPUT PR LEVEL	(UPPER)
0C	OUTPUT FINE PHASE	(LOWER)
0D	OUTPUT FINE PHASE	(UPPER)
0E	OUTPUT SYNC PHASE	(LOWER)
0F	OUTPUT SYNC PHASE	(UPPER)
10	00H	
11	00H	
12	00H	
13	00H	
14	00H	
15	00H	
16	00H	
17	00H	
18	00H	

62·26 : AUDIO CONTROL DATA SENSE

This command requests the AUIDO INPUT CONTROL DATA of the DEVICE.

[DATA-1]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
0	0	*	*	*	*	*	*

BIT-5	BIT-4	
0	1	INPUT (AUDIO INPUT CONTROL DATA)
1	0	OUTPUT (AUDIO OUTPUT CONTROL DATA)
1	1	UNDEFINED

BIT-3 to BIT-0 : indicate the byte count of the data.

[DATA-2]

Indicate starting No. of Audio Input Control Data or Audio Output Control Data for return.

7X·26 : AUDIO CONTROL DATA

When the DEVICE receives the "62·26 : AUDIO ONTROL DATA SENSE" command, the data shown below will be sent back.

When data for unsupported channel has no meanings.

If specified data includes beyond No.33, the data up to No.32 are sent back.

(1) Audio Input Control Data

DATA No.	BIT-7 (MSB)	BIT-0 (LSB)		DATA No.	BIT-7 (MSB)	BIT-0 (LSB)
00				1B	CH-1 INPUT SET LEVEL	(LOWER)
01				1C	CH-1 INPUT SET LEVEL	
02				1D	CH-1 INPUT SET LEVEL	(UPPER)
03				1E	CH-2 INPUT SET LEVEL	(LOWER)
04				1F	CH-2 INPUT SET LEVEL	
05				20	CH-2 INPUT SET LEVEL	(UPPER)
06				21	CH-3 INPUT SET LEVEL	(LOWER)
07				22	CH-3 INPUT SET LEVEL	
08				23	CH-3 INPUT SET LEVEL	(UPPER)
09				24	CH-4 INPUT SET LEVEL	(LOWER)
0A				25	CH-4 INPUT SET LEVEL	
0B				26	CH-4 INPUT SET LEVEL	(UPPER)
0C				27		
0D				28		
0E				29		
0F				2A		
10				2B		
11				2C		
12				2D		
13				2E		
14				2F		
15	UNDEFINED			30		
16	UNDEFINED			31		
17	UNDEFINED			32		
18	UNDEFINED					
19	UNDEFINED					
1A	UNDEFINED					

(2) Audio Output Control Data

DATA No.	BIT-7 (MSB)	BIT-0 (LSB)	DATA No.	BIT-7 (MSB)	BIT-0 (LSB)
00	AUDIO OUTOUT SET PHASE	(LOWER)	1B	CH-1OUTPUT SET LEVEL	(LOWER)
01	AUDIO OUTOUT SET PHASE		1C	CH-1 OUTPUT SET LEVEL	
02	AUDIO OUTOUT SET PHASE	(UPPER)	1D	CH-1 OUTPUT SET LEVEL	(UPPER)
03			1E	CH-2 OUTPUT SET LEVEL	(LOWER)
04			1F	CH-2 OUTPUT SET LEVEL	
05			20	CH-2 OUTPUT SET LEVEL	(UPPER)
06			21	CH-3 OUTPUT SET LEVEL	(LOWER)
07			22	CH-3 OUTPUT SET LEVEL	
08			23	CH-3 OUTPUT SET LEVEL	(UPPER)
09			24	CH-4 OUTPUT SET LEVEL	(LOWER)
0A			25	CH-4 OUTPUT SET LEVEL	
0B			26	CH-4 OUTPUT SET LEVEL	(UPPER)
0C			27		
0D			28		
0E			29		
0F			2A		
10			2B		
11			2C		
12			2D		
13			2E		
14			2F		
15	MONITOR-L OUTPUT SET LEVEL	(LOWER)	30		
16	MONITOR-L OUTPUT SET LEVEL		31		
17	MONITOR-L OUTPUT SET LEVEL	(UPPER)	32		
18	MONITOR-R OUTPUT SET LEVEL	(LOWER)			
19	MONITOR-R OUTPUT SET LEVEL				
1A	MONITOR-R OUTPUT SET LEVEL	(UPPER)			

6X·28 : LOCAL KEY MAP SENSE

This command requests the LOCAL KEY MAP status.

7X·28 : LOCAL KEY MAP DATA

When the DEVICE the "6X·28 : LOCAL KEY MAP SENSE" command, the LOCAL KEY MAP data will be returned.
For the data format, refer to the "4X·B8 : LOCAL KEY MAP CONTROL".

61·2A : HM DATA SENSE

This command requests the HOURS METER (MAINTENANCE TIMER) data of the DEVICE.
When the DEVICE receives this command, its own MAINTENANCE TIMER data is added after DATA-2 in the "7X·2A : HM DATA" command.

7X·2A :HM DATA

When the DEVICE receives the "61·2A : HM DATA SENSE" command, the MAINTE-NANCE TIMER DATA will be sent back.
The TIMER data are composed of 3-byte or 4-byte (HDW series only) data.

[DATA-1]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
				THREADING COUNTER TIMES	TAPE RUNNING HOURS	DRUM RUNNING HOURS	OPERATION HOURS

The TIMER DATA corresponding to the bits set to "1" in DATA-1 are sent in the sequence of OPERATION, DRUM, TAPE and LOADING.

Ex. The return data applying when "61·2A·03" is sent to the DEVICE are shown below.

[RETURN DATA] (except HDW series)

CMD-1		CMD-2		DATA-1		DATA-2		DATA-3		DATA-4		DATA-5		DATA-6		DATA-7	
7	7	2	A	0	3	Y1	Y0	Y3	Y2	Y5	Y4	Z1	Z0	Z3	Z2	Z5	Z4

OPERATION HOURS (DATA-2, DATA-3, DATA-4)
DRUM RUNNIG HOURS (DATA-5, DATA-6, DATA-7)
DATA-1: The same data as DATA-1 in the "61·2A: HM DATA SENSE" command are added.

In the case, the OPERATION HOURS and DRUM RUNNING HOURS are as follows.

OPERATION $= 10^5 \times Y5 + 10^4 \times Y4 + 10^3 \times Y3 + 10^2 \times Y2 + 10^1 \times Y1 + 10^0 \times Y0$ [HOURS]

DRUM RUNNING $= 10^5 \times Z5 + 10^4 \times Z4 + 10^3 \times Z3 + 10^2 \times Z2 + 10^1 \times Z1 + 10^0 \times Z0$ [HOURS]

CMD-1	CMD-2	DATA-1		DATA-2		DATA-3		DATA-4								
7	B	2	A	0	3	Y1	Y0	Y3	Y2	Y5	Y4	Y7	Y6	Z1	Z0	Z3	Z2	Z5	Z4	Z7	Z6

OPERATION HOURS   DRUM RUNNIG HOURS

DATA-1 : The same data as DATA-1 of "61·2A: HM DATA SENSE" command is added.

The OPERATION HOURS and DRUM RUNNING HOURS become as shown below.

OPERATION

$$= 10^7 \times Y7 + 10^6 \times Y6 + 10^5 \times Y5 + 10^4 \times Y4 + 10^3 \times Y3 + 10^2 \times Y2 + 10^1 \times Y1 + 10^0 \times Y0$$
[HOURS]

DRUM RUNNING

$$= 10^7 \times Z7 + 10^6 \times Z6 + 10^5 \times Z5 + 10^4 \times Z4 + 10^3 \times Z3 + 10^2 \times Z2 + 10^1 \times Z1 + 10^0 \times Z0$$
[HOURS]

60·2B : REMAIN TIME SENSE

This command is used to request the remaining time data of the tape in the DEVICE.
When the DEVICE receives this command, 6 bytes of REMAIN TIME DATA will be sent back.

[RETURN DATA : "76·2B : REMAIN TIME"]

DATA-1		DATA-2		DATA-3		DATA-4		DATA-5	DATA-6
10 Frame	1 Frame	10 Second	1 Second	10 Minute	1 Minute	10 Hour	1 Hour	S-REEL Side	T-REEL Side
MSD	LSD	MSD	LSD	MSD	LSD	MSD	LSD		

Dt : The diameter of the tape wound on the reel. (refer to the following formula)

$$Dt = \frac{A - C}{B - C} \times 10$$

A : Current diameter of the tape wound on the reel.

B : Maximum of the diameter of the tape wound on the reel.

C : The diameter of the hub.

76·2B : REMAIN TIME DATA

When the DEVICE receives the "60·2B : REMAIN TIME SENSE" command, the REMAIN TIME DATA will be sent back.

60·2E : COMMAND SPEED SENSE

This command is used for requesting the operating TAPE SPEED COMMAND of the DEVICE.
While DEVICE receives this command, it returns command "71·2E : COMMAND SPEED DATA".

7X·2E : COMMAND SPEED DATA

When the DEVICE receives the "60·2E : COMMAND SPEED SENSE" command, the COMMAND SPEED DATA will be sent back.
Refer to the "2X·11, 2X·12, 2X·13 : JOG, VAR, SHUTTLE FWD" commands.

60·2F : VARIABLE MEMORY SPEED SENSE

This command is used for requesting the INITIAL SPEED DATA memorized by VARIABLE MEMORY mode of the DEVICE.

While DEVICE receives this command, it returns command "7X·2F : VARIABLE MEMORY SPEED DATA.

7X·2F : VARIABLE MEMORY SPEED DATA

When the DEVICE receives the "60·2F : VARIABLE MEMORY SPEED SENSE" command, the INITIAL SPEED DATA will be sent back.

Refer to the "2X·11, 2X·12, 2X·13 : JOG, VAR, SHUTTLE FWD" commands.

When setting INITIAL SPEED by "2X·5D : DMC SET REV" command, MSB of DATA-1 is set to 1.

6X·30 : EDIT PRESET SENSE

This command is used to request the EDIT PRESET status of the DEVICE, and the contents of the "7X·30 : EDIT PRESET STATUS" command to be sent back are assigned by DATA-1 added to the command.

[DATA-1]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
	MSB				LSB		
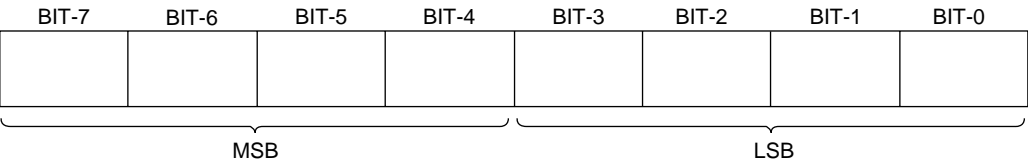
MSD (BIT-7 to 4): These indicate the initial data No. of the "7X·30 : EDIT PRESET STATUS" command to be sent back.

LSD (BIT-3 to 0) : These indicate the number of bytes in the data to be sent back from the data in the "7X·30 : EDIT PRESET STATUS" command to be sent back.

When the "60·30" is received ;
    The DEVICE works same as "61·30·01" command.
    (except HDW-250/500/F500)

7X·30 : EDIT PRESET STATUS

When the DEVICE receives the "6X·30 : EDIT PRESET SENSE" command, the EDIT PRESET STATUS will be sent back.

Refer to the "4X·30 : EDIT PRESET" command.

60·31 : PREROLL TIME SENSE

This command is used to request the PREROLL TIME setting status of the DEVICE.

74·31 : PREROLL TIME DATA

When the DEVICE receives the "60·31 : PREROLL TIME SENSE" command, PREROLL TIME DATA will be sent back.

Refer to the "24·31 : CUE UP WITH DATA" command.

60·32 : TAPE/AUTO SENSE

This command requests the TAPE/AUTO status.

71·32 : TAPE/AUTO STATUS

When theDEVICE receives the "60·32 : TAPE/AUTO SENSE" command, the TAPE/AUTO status will be returned.

For the data format, refer to the "41·32 : TAPE/AUTO CONTROL".

60·33 : SERVO REF SENSE

This command is used to request the setting status of SERVO reference of DEVICE. When DEVICE receives this command, it returns the command "71·33 : SERVO REF STATUS" so that it can know the setting status from DATA-1.

60·36 : TIMER MODE SENSE

This command is used to request the TIMER MODE or TIME CODE of the DEVICE.

71·33 : SERVO REF STATUS

This command is used as the reply command to the "60·33 : SERVO REF SENSE" command. The set value is returned.

Refer to the "41·33 : SERVO REF SELECT" command for data format.

71·36 : TIMER MODE DATA

When the DEVICE receives the "60·36 : TIMER MODE DATA" command, the TIMER MODE STATUS" with DATA-1 that shows the switch setting will be sent back.

[DATA-1]   00 : TIME CODE
              01 : TIMER-1

60·3C : POSTROLL TIME SENSE

This command is used to request the setting status of POSTROLL TIME of CONTROLLED DEVICE. When DEVICE receives this command, it returns the command "74·3C : POS-TROLL TIME" so that it can know the setting status from DATA-1 to DATA-4.

Refer to the command "74·3C : POSTROLL TIME".

74·3C : POSTROLL TIME

This command is used as the reply command to the "60·3C : POSTROLL TIME SENSE" command from CONTROLLING DEVICE. CONTROLLED DEVICE returns the postroll time data in accordance with the request.

Refer to the "24·31 : CUE UP WITH DATA" command for data format.

60·3E : RECORD INHIBIT SENSE

This command is used to request the setting status of RECORD INHIBIT of CONTROLLED DEVICE. When CONTROLLED DEVICE receives this command, it returns the command "72·3E : RECORD INHIBIT STATUS" so that it can know the setting status from DATA-1 and DATA-2.

Refer to the command "72·3E : RECORD INHIBIT STATUS".

72·3E : RECORD INHIBIT STATUS

This command is used as the reply command to the "60·3E : RECORD INHIBIT SENSE" command from CONTROLLING DEVICE. However, the reply data takes either one of the two cases that BIT-0 to BIT-3 of DATA-0 is "1" or all bits of DATA-0 and DATA-1 are "0".

[DATA-0]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
		CTL	VIDEO		TC	A2 (CUE)	A1(CUE)

[DATA-1]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
				DA4	DA3	DA2	DA1

60·3F : Δt PLAY PRESET SENSE

This command is used to request about the FEED PLAY mode.

When a DEVICE receives this command, it returns "7X·3F: Δt PLAY PRESET DATA" command so that the equipment can know the set status using the DATA-1 to DATA-3.

73·3F : Δt PLAY PRESET DATA

This is the return command for "60·3F: Δt PLAY PRESET SENSE command from controller. The DEVICE returns the status of the FEED PLAY mode in accordance with its request.

[DATA-1 : STATUS]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
		FEED EXECUTE		FEED READY	FEED MODE		

[DATA-2/DATA-3 : SPEED]
Refer to "2X·11: JOG FWD" for the data format.

60·50 : DA INPUT SENSE

This command is used to request the digital audio input signal selection status of the DEVICE. Once the DEVICE receives command DA INPUT SENSE, it returns " 71·50 : DA INPUT STATUS" command which includes DATA-1 for notice of the selection status of the Digital Audio Signal.

[RETURN DATA : "71·50 : DA INPUT STATUS"]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
				DA4	DA3	DA2	DA1

1: ANALOG AUDIO INPUT
0: DIGITAL AUDIO INPUT

71·50 : DA INPUT STATUS

When the DEVICE receives the "60·50 : DA INPUT SENSE" command, the DIGITAL AUDIO STATUS will be sent back.

60·51 : DA SYS EMPHASIS SENSE
60·52 : DA INP EMPHASIS SENSE
60·53 : DA PB EMPHASIS SENSE

These command are used to request the emphasis setting of the DEVICE's system setting (SYS), digital audio input signal (INP) and digital audio playback signal (PB).
Once the DEVICE receives these commands, it returns respective command corresponding to those request commands. DATA-1 in these return commands is to notice the setting status of the DEVICE.

The return command according to the request command is as follows.

REQUEST COMMAND	RETURN COMMAND
60·51 : DA SYS EMPHASIS SENSE ——	71·51 : DA SYS EMPHASIS STATUS
60·52 : DA INP EMPHASIS SENSE ——	71·52 : DA INP EMPHASIS STATUS
60·53 : DA PB EMPHASIS SENSE ——	71·53 : DA PB EMPHASIS STATUS

The bits in DATA-1 of the response command are defined as shown below.

[DATA-1]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
				DA4	DA3	DA2	DA1

1: EMPHASIS ON
0: EMPHASIS OFF

71·51 : DA SYS EMPHASIS STATUS
71·52 : DA INP EMPHASIS STATUS
71·53 : DA PB EMPHASIS STATUS

When the DEVICE receives the "60·51", "60·52", or "60·53" command, playback emphasis status data will be sent back.

6X·54 : EXTENDED DA INPUT SENSE

This command is used to request the digital audio input status.

When the "60·54" is specified, this command requests the status of the all input channels.

When the "61·54" is specified, this command requests the status of the channel groups corresponding to the bitmap data as follows.

For the return data, refer to "7X·54 : EXTENDED DA INPUT STATUS".

[DATA-1]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
				CH7, CH8	CH5, CH6	CH3, CH4	CH1, CH2

7X·54 : EXTENDED DA INPUT STATUS

When the DEVICE receives the "60·54 : EXTENDED DA INPUT SENSE", the status data will be sent back.
When the "60·54" is received, the status data of all channels (channel 1 through N) will be sent back. Each channel status is composed of 4 bits data as follows.

[DATA-1]   [DATA-2]

MSD	LSD		MSD	LSD
CH2	CH1		CH4	CH3

4-BIT DATA   0 : ANALOG
               1 : AES/EBU
               2 : SDI
               3 : SDTI
                 :
               E : INTERNAL SG
               F : INVALID

When the "61·54" is received, the specified status data corresponding to the bitmap will be sent back from the lower channel number. The data format is same as the return status for "60·54".

60·58 : DA SAMPLING FREQ SENSE

This command is used to request the sampling frequency of the DEVICE's digital audio channels.
When the DEVICE receives this command, it returns a command "71·58 : DA SAMPLING FREQ DATA", DATA-1 of which informs of the sampling frequency of this DEVICE.

71·58 : DA SAMPLING FREQ STATUS

When the DEVICE receives the "60·58 : DA SAMPLING FREQ SENSE" command, digital audio sampling frequency data will be sent back.

[DATA-1]　　01 : 48.0 kHz

60·60 : VITC BYPASS SENSE

This command is used to request the recording VITC.
For the data format, refer to "71·60 : VITC BYPASS STATUS" command.

71·60 : VITC BYPASS STATUS

When the DEVICE receives the "60·60 : VITC BYPASS SENSE" command, recording VITC information will be stored in the DATA-1 and sent back.
For the data format, refer to the "41·60 : VITC BYPASS" command.

60·61 : LTC GENERATOR MODE SENSE

This command is used to request the LTC GENERATOR MODE status of the DEVICE.

72·61 : LTC GENERATOR MODE STATUS

When the DEVICE receives the "60·61 : LTC GENERATOR MODE SENSE" command, digital audio sampling frequency data will be sent back.
Refer to the "42·61 : LTC GENERATOR MODE PRESET" command.

RETURN DATA : "72·61/DATA-1/DATA-2"

60·62 : VITC GENERATOR MODE SENSE

This command is used to request the VITC GENERATOR MODE status of the DEVICE.

72·62 : VITC GENERATOR MODE STATUS

When the DEVICE receives the "60·62 : VITC GENERATOR MODE SENSE" command, digital audio sampling frequency data will be sent back.
Refer to the "42·62 : VITC GENERATOR MODE PRESET" command.
RETURN DATA : "72/62/DATA-1/DATA-2"

60·63 : RECORD LTC SENSE

This command is used to request LTC which is recorded in the DEVICE.

71·63 : RECORD LTC STATUS

When the DEVICE receives the "60·63 : RECORD LTC SENSE" command, RECORD LTC DATA will be sent back.
Refer to the "41·63 : RECORD LTC SELECT" command.
RETURN DATA : "71·63/DATA-1"

60·70 : VIDEO INPUT SENSE

This command is used to request the video input source.

For the data format, refer to "72·70 : VIDEO INPUT STATUS" command.

7·70 : VIDEO INPUT STATUS

When the DEVICE receives the "60·70 : VIDEO INPUT SENSE" command, the video input status will be sent back.

The connector status is stored in the DATA-1 and the signal status is stored in DATA-2.

[DATA-1]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
INTERNAL SG				SDTI	DIGITAL PARALLEL	SDI	ANALOG

[DATA-2]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
			S (Y/C)	DUB	G/B/R	Y/P_B/P_R	COMPOSITE

60·9E : SUPER IMPOSE SENSE

This command is used to request SUPER IMPOSE STATUS of the DEVICE.

71·9E : SUPER IMPOSE STATUS

When the DEVICE receives the "60·9E : SUPER IMPOSE SENSE" command, SUPER IMPOSE ON/OFF data will be sent back.

For the data format, refer to the "42·9E : SUPER IMPOSE" command.

60·AE :AUDIO MONITOR CHANNEL SENSE

This command requests the status of audio monitoring channel.

74·AE :AUDIO MONITOR CHANNEL STATUS

When the DEVICE receives the "60·AE : AUDIO MONITOR CHANNEL SENSE" command, the status of audio monitoring channel will be sent back.

For the data format,refer to "44·AE : AUDIO MONITOR CHANNEL SELECT" command.

Time Data Format

The following shows the time data format used by commands such as "24•31 : CUE UP WITH DATA".

	BIT-7				BIT-0
DATA-1		DF	← 10F →	← 1F →	
DATA-2		← 10S →		← 1S →	
DATA-3		← 10M →		← 1M →	
DATA-4		← 10H →		← 1H →	
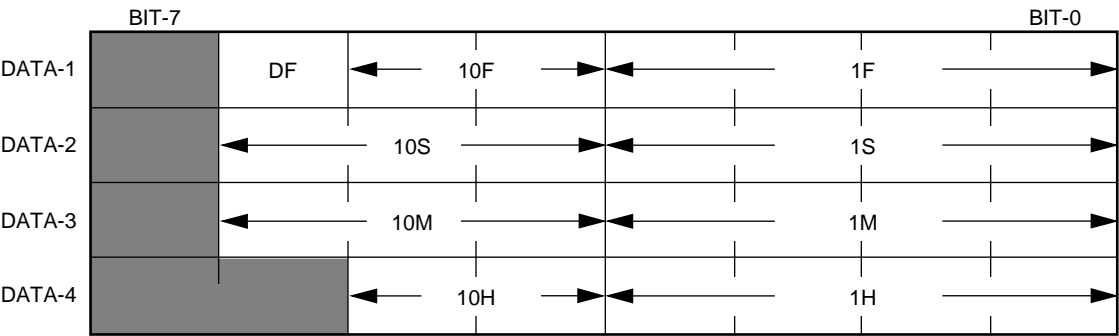
Although the shaded null bits have no meaning as time data, they are set in the following cases.

1. DATA 1 BIT-6 : DF FLAG ("1" DF, "0" NDF) ••••• Only for NTSC, PAL-M model

    This bit is set in a response command from DEVICE of "61•0C : CURRENT TIME SENSE" according to the DF or NDF mode of DEVICE.
    It is also set to specify the DF or NDF mode of the TIME CODE GENERATOR of DEVICE of "44•04 : TIME CODE PRESET".

2. Other bits

    The other bits are defined by SMPTE/EBU in a response command of TIME CODE DATA from DEVICE of "61•0C : CURRENT TIME SENSE". Flags conforming to the TIME CODE FORMAT may be set.

7. Special Commands for BVW-50, DVW-250, and DNW-A28

Since BVW-50, DVW-250 and DNW-A28 support PAUSE-FUNCTIONS, such as PLAY-PAUSE, REC-PAUSE, etc. commands that control these functions and extended status sense commands are located in the DEVICE-DEPENDENT section of the 9-pin command table.

1) 0C•F0•57•48•4F•20•41•52•45•20•59•4F•55•3F:
    This command asks whether DEVICE has a PAUSE-KEY.
    In ASCII, it denotes "WHO ARE YOU?".
    The BVW-50 return command is : 1C•F0•50•41•55•53•45•20•45•58•49•53•54•21.
    In ASCII, it denotes "PAUSE EXIST!".

2) 0A•F1•50•4C•41•59•20•50•41•55•53•45:
    This command enables PLAY-PAUSE mode of DEVICE.
    In ASCII, it denotes "PLAY PAUSE". Return is 10•01 (ACK).

3) 09•F1•52•45•43•20•50•41•55•53•45:
    This command enables REC-PAUSE mode of DEVICE.
    In ASCII, it denotes "REC PAUSE". Return is 10•01 (ACK).

4) 0E.F2.53.54.41.54.55.53.20.52.45.51.55.45.53.54:
    This command senses the extended status of DEVICE.
    In ASCII, it denotes "STATUS REQUEST". Return is 1F•F2•53•54•41•54•55•53•20•52•54•4E
    (DATA-11)•(DATA-12)• (DATA-13)•(DATA-14) •(DATA-15).
    In ASCII, it denotes "STATUS RTN (DATA-11) (DATA-12) (DATA-13) (DATA-14) (DATA-15)".

    DATA No.11/BIT-7 : TAPE BEFORE END ALARM
    DATA No.11/BIT-6 : RF ALARM
    DATA No.11/BIT-5 : SERVO NON LOCK ALARM
    DATA No.11/BIT-4 : HUMID DETECT ALARM
    DATA No.11/BIT-3 : SLACK DETECT ALARM
    DATA No.11/BIT-2 : TAPE END ALARM
    DATA No.11/BIT-1 : BATTERY END ALARM
    DATA No.11/BIT-0 : BATTERY BEFORE END ALARM

    On detection of the above alarm, DEVICE sets these bits to 1.

    DATA No.12/BIT-7 : STANDBY   Set to 1 when DEVICE is in STANDBY ON status.
    DATA No.12/BIT-6 : PAUSE   Set to 1 when DEVICE is in PAUSE status.
    DATA No.12/BIT-5 : STOP   Set to 1 when DEVICE is in STOP status.
    DATA No.12/BIT-4 : EJECT   Set to 1 when DEVICE is in EJECT status.
    DATA No.12/BIT-3 : REW   Set to 1 when DEVICE is in REW status.
    DATA No.12/BIT-2 : F.FWD   Set to 1 when DEVICE is in F.FWD status.
    DATA No.12/BIT-1 : REC   Set to 1 when DEVICE is in REC status.
    DATA No.12/BIT-0 : PLAY   Set to 1 when DEVICE is in PLAY status.

    For example, when the DEVICE is in PLAY-PAUSE status BIT-7, BIT-6, and BIT-0 are set to 1.
    In REC-PAUSE status, BIT-7, BIT-6, BIT-1 and BIT-0 are set to 1.

    The contents of DATA No.13, DATA No.14, and DATA No.15 are always 0.

8. This command is unique to DNW-30/A30/A45/A50/65/A65/75/A75/A100/A25/A28/A220

In the DNW-30/A30/A45/A50/65/A65/75/A75/A100/A25/A28/A220, the search commands and the extension status commands are located in the DEVICE DEPENDENT area of the 9-pin command table in order to enable UB MARK that has been recorded by the Betacam SX camcorder. These commands interprets DATA-1 as CMD-3.

8-1. Command List

COMMAND	RETURN	DNW-A100	DNW-A50/A45	DNW-30/A30	DNW-A25/A28/A220	DNW-75/A75	DNW-65/A65
0X·FA·30 : UB MARK SEARCH MODE PRESET	10·01 : ACK	○	○	○	○	○	○
01·FA·31 : CLEAR UB MARK BUFFER	10·01 : ACK	○	○	○	○	○	○
01·FA·33 : UB MARK FWD SEARCH & CUEUP	10·01 : ACK	○	○	○	○	○	○
01·FA·34 : UB MARK REV SEARCH & CUEUP	10·01 : ACK	○	○	○	○	○	○
01·FB·30 : UB MARK SEARCH MODE SENSE	1X·FB·30 : UB MARK SEARCH MODE DATA	○	○	○	○	○	○
01·FB·32 : UB MARK BUFFER SENSE	1X·FB·32 : UB MARK BUFFER DATA	○	○	○	○	○	○

8-2. Command Details

0X·FA·30 : UB MARK SEARCH MODE PRESET

This is the command used to select the search mode of UB MARK.
Be sure to specify SEARCH ID when approving SEARCH.

[DATA-2 : SEARCH MODE]
00: Prohibiting SEARCH (DISABLE)
01: Approving SEARCH (ENABLE)

[DATA-3 : SEARCH ID1]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
*	*	*	*	POST	SHOT2	SHOT1	REC START

[DATA-4 : SEARCH ID2]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
*	*	*	*	*	*	*	*

01·FA·31 : CLEAR UB MARK BUFFER

This is the command used to clear UB MARK BUFFER.
All of the UB MARK DATA that are searched, are removed from BUFFER.
At the same time, the BUFFER overflow flag is also cleared.

01·FA·33 : UB MARK FWD SEARCH & CUEUP

This is the command used to search UB MARK in the direction of FWD and perform cue-up to the UB MARK that is detected for the first time. This command is valid only when the UB MARK SEARCH MODE is enabled.

01·FA·34 : UB MARK REV SEARCH & CUEUP

This is the command used to search UB MARK in the direction of REV and perform cue-up to the UB MARK that is detected for the first time. This command is valid only when the UB MARK SEARCH MODE is enabled.

01·FB·30 : UB MARK SEARCH MODE SENSE

This command is used to request about the UB MARK search mode.
When a DEVICE receives this command, it returns "1X·FB·30: UB MARK SEARCH MODE DATA" command so that the equipment can know the set status using the DATA-2 to DATA-4.

1X·FB·30 : UB MARK SEARCH MODE DATA

This is the return command for "01·FB·30: UB MARK SEARCH MODE SENSE command from controller. The DEVICE returns the UB MARK search mode in accordance with its request.
Refer to "0X·FA·30: UB MARK SEARCH MODE PRESET" command for the data format.

01·FB·32 : UB MARK BUFFER SENSE

This command is used to request about the UB MARK information.
When a DEVICE receives this command, it returns "1X·FB·32: UB MARK BUFFER DATA" command so that the equipment can know the set status using the DATA-2 to DATA-4.

1X·FB·32 : UB MARK BUFFER DATA

This is the return command for "01·FB·32: UB MARK BUFFER SENSE command from controller. The DEVICE returns the UB MARK information in accordance with its request. A maximum of the two UB MARK information that are searched, is returned in the order of storage in buffer. The returned information is deleted from buffer. A buffer can store data of a maximum of 15.
When a buffer becomes full and unable to store any more data, the overflow bit is set to 1. New information cannot be written until the status is cleared by the CLEAR BUFFER even though a vacant area is created in the BUFFER. The information that has been written before, can be read.

[DATA-2 : STATUS]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
OVER FLOW	*	*	*	*	*	DATA×2	DATA×1

00 : No data

01 : UB MARK information equivalent to 1 information is added hereafter.

02 : UB MARK information equivalent to 2 informations is added hereafter.

80 : No data. Buffer overflow

81 : UB MARK information equivalent to 1 information is added hereafter. Buffer overflow

82 : UB MARK information equivalent to 2 informations is added hereafter.

[DATA-3/DATA-4 : UB MARK ID]

DATA-3	DATA-4	
FF	20	REC START MARK
FF	21	SHOT MARK 1
FF	22	SHOT MARK 2
FF	23	POST MARK

[DATA-5 to DATA-8 : LTC TIME DATA]

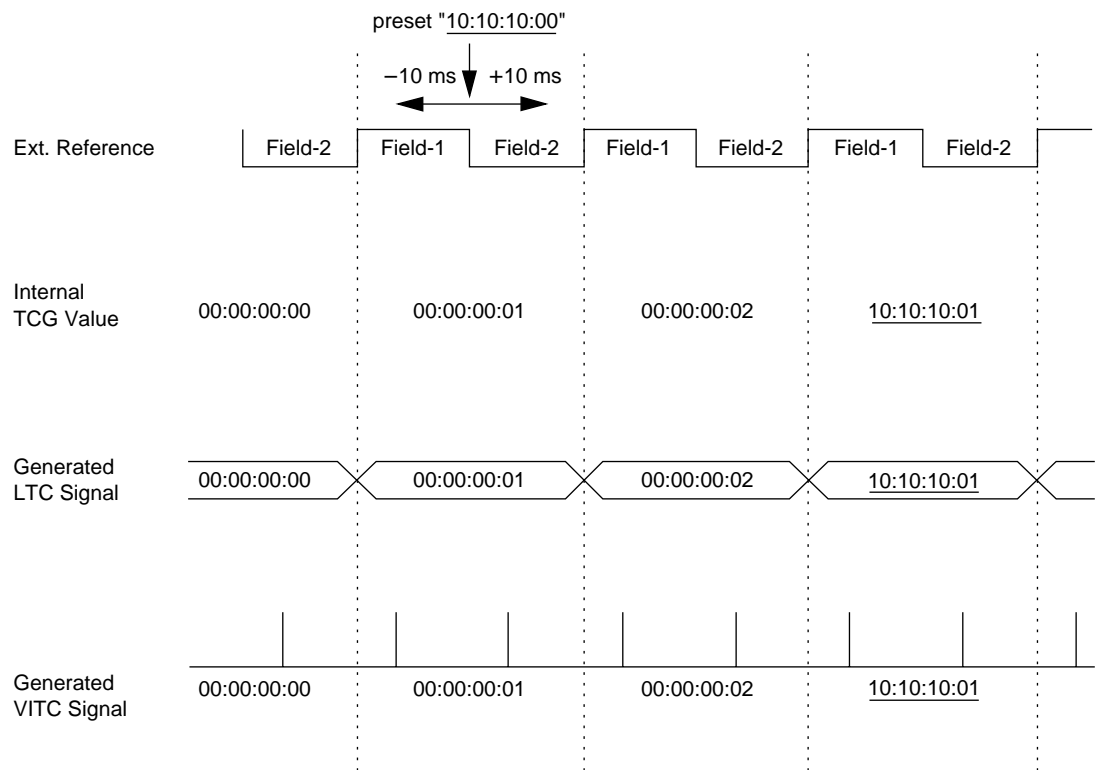| DATA-5		DATA-6		DATA-7		DATA-8	
10 Frame	1 Frame	10 Second	1 Second	10 Minute	1 Minute	10 Hour	1 Hour
MSD	LSD	MSD	LDS	MSD	LDS	MSD	LSD

[DATA-9/DATA-10 : UB MARK ID]
Refer to DATA-3 and DATA-4 for the data format.

[DATA-11 to DATA-14 : LTC TIME DATA]
Refer to DATA-5 to DATA-8 for the data format.

Appendix

(1) 44•04[TIME CODE PRESET], 4X•05[USER BIT PRESET]

preset "10:10:10:00"

−10 ms   +10 ms

| Ext. Reference | | Field-2 | Field-1 | Field-2 | Field-1 | Field-2 | Field-1 | Field-2 | |

Internal
TCG Value

| 00:00:00:00 | 00:00:00:01 | 00:00:00:02 | 10:10:10:01 |

Generated
LTC Signal

| 00:00:00:00 | 00:00:00:01 | 00:00:00:02 | 10:10:10:01 |

Generated
VITC Signal

| 00:00:00:00 | 00:00:00:01 | 00:00:00:02 | 10:10:10:01 |

(2) 20.60[FULL EE OFF], 20.61[FULL EE ON], 20.63[SELECT EE ON]
20.64[EDIT OFF], 20.65[EDIT ON]
4X.30[EDIT PRESET]

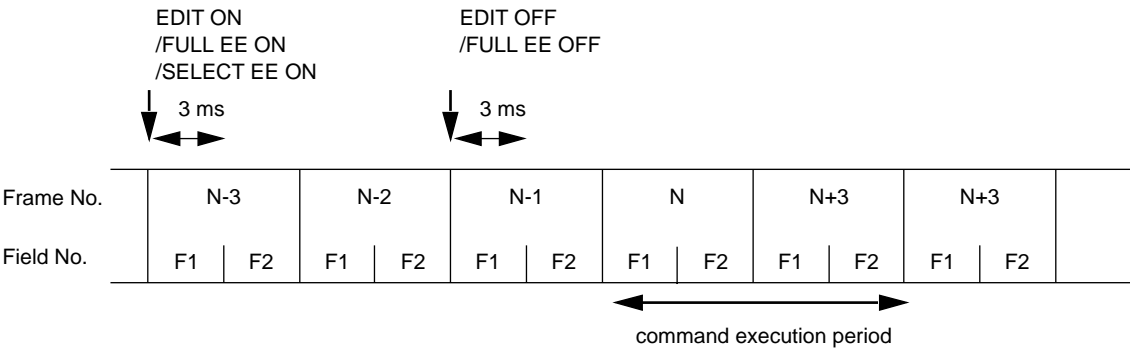Notices for the DEVICE that has editing function.

To execute above command accurately (on the specified tape address) in the normal playback mode,
the floowing condition should be satisfied.
Select external video reference mode.
Send the command within 3 ms (BVW series within 6 ms) after the frame change timing.
The followings are the example of timing chart.
In this case, edit delay is 3 frames.

EDIT ON
/FULL EE ON
/SELECT EE ON

EDIT OFF
/FULL EE OFF

3 ms   3 ms

| Frame No. | N-3 | | N-2 | | N-1 | | N | | N+3 | | N+3 | |
| Field No. | F1 | F2 | F1 | F2 | F1 | F2 | F1 | F2 | F1 | F2 | F1 | F2 |

command execution period

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BVW-10/10P/10PM
BVW-11/11P
BVW-15/15P/15S
BVW-35/35P/35PM
BVW-40/40P/40S
BVW-50/50P
BVW-60/60P
BVW-65/65P/65PM
BVW-70/70P/70S
BVW-75/75P/75PM/75S
BVW-D75/D75PS
BVW-85P
BVW-95/95P/95PM
BVW-96/96P
BVW-D265
BVW-9000/9000P
DNW-A25/A25P
DNW-A28/A28P
DNW-30/30P
DNW-A30/A30P
DNW-A45/A45P
DNW-A50/A50P
DNW-65/65P
DNW-A65/A65P
DNW-75/75P
DNW-A75/A75P
DNW-A100/A100P
DNW-A220/A220P
DVW-250/250P
DVW-500/500P
DVW-A500/A500P
DVW-A510/A510P
DVW-CA510/CA510P
HDW-250
HDW-500
HDW-F500
PROTOCOL, E

9-977-544-16

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