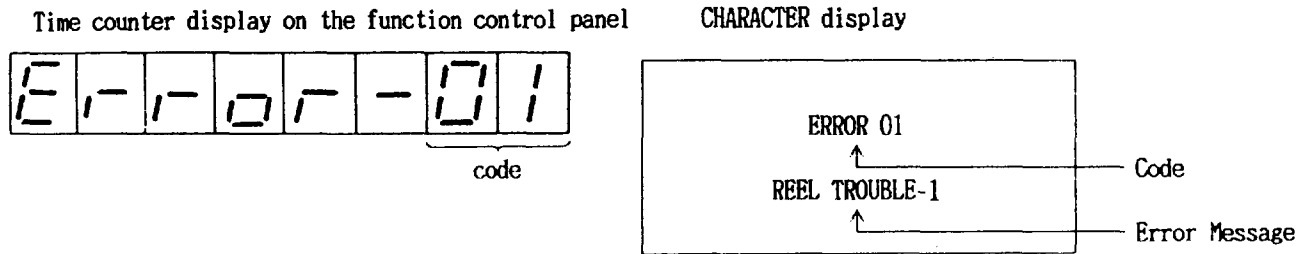


DOCUMENT B - 1

SELF DIAGNOSIS FUNCTION

The unit has a self diagnosis to isolate the troubles described below. When the troubles are detected, an error message is displayed on the function control panel's time counter display and monitor television. (To display the error message on the monitor television, connect a monitor television to the VIDEO OUT-3 connector on the connector panel and set the CHARACTER ON/OFF switch on the SY-61A board to on.)



DOCUMENT B - 2

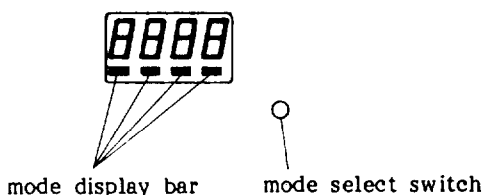
Code	Error message	Description	Detection
01	REEL TROUBLE-1	When tape slacking is detected during unthreading or tape breaking is detected during threading, tape protection operation is done and this message is displayed.	Detected when the ratio of the FG frequency at a take-up reel and threading ring is less than the specified value.
02	REEL TROUBLE-2	When tape breaking is detected in REC, SEARCH, F.FWD, and REW modes, tape protection operation is done and this message is displayed.	Detected when the ratio of the FG frequency at a supply reel and take-up reel is less than the specified value.
03	REEL TROUBLE-3	When tape breaking is detected or either of the locked supply or take-up reel is detected, tape protection operation is done and this message is displayed.	Detected when the ratio of the FG frequency at a supply or take-up reel is zero (0), or when the tension detected from a tension sensor is less than 15g.
04	REEL TROUBLE-4	When the tape does not run at the speed designated in F.FWD and REW modes, tape protection operation is done and this message is displayed.	Detected when the tape speed using the FG frequency at supply and take-up reels is compared with the designated speed.
05	REEL TROUBLE-5	Detected when the supply and take-up reels cannot be stopped with the cassette not inserted.	Detected using the FG frequency at supply and take-up reels.
06	TAPE TENSION ERROR	When excessive tension is detected, tape protection operation is done this message is displayed.	Detected when the tension detected from a tension sensor is more than 55g.
07	CAPSTAN TROUBLE	When the tape does not run at the speed designated in PLAY and SEARCH modes, tape protection operation is done and this message is displayed.	Detected at the tape speed detected from the FG frequency at a capstan motor.
08	DRUM TROUBLE	When drum motor rotation is not normal, tape protection operation is done and this message is displayed.	Detected when the drum speed obtained from the drum motor's phase PG and speed PG is less than the specified value or when the drum servo is not locked for more than the specified time.
09	TH/UNTH MOTOR TIME OUT	When threading or unthreading is not completed, tape protection operation is done and this message is displayed.	Detected when threading or unthreading is not completed within ten seconds after it is started.
0A	THREADING TROUBLE	When threading cannot be done, tape protection operation is done and this message is displayed.	Detected when the FG frequency at a take-up reel cannot be detected during threading or the tape beginning sensor is activated after the short FF mode is automatically entered three times.
10	H U M I D	Displayed when humid condensation is detected.	Detected using a condensation sensor.
11	TAPE BEGINNING/END SENSOR	Displayed when the tape beginning and end sensor operation is defective.	Detected when the tape beginning and end are detected at the same time.
12	TAPE BEGINNING SENSOR TROUBLE	Displayed when the tape beginning sensor operation is defective.	Detected when the tape beginning continues for more than seven seconds.
13	TAPE END SENSOR TROUBLE	Displayed when the tape end sensor operation is defective.	Detected when the tape end continues for more than seven seconds.

DOCUMENT C - 1

DIGITAL HOURS METER

3-2-1. Outline

When you open the Function Control Panel, a digital hours meter can be seen on the left of the chassis. The hours meter has four display modes. The accumulated elapsed operation time or the number of operations is displayed for every mode. It is recommended to perform the periodic checks and maintenance based on the hours meter.



Note: The hours meter has a built-in battery which should be replaced every five years.

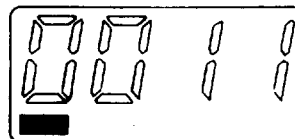
3-2-2. Description of the Display Mode

1. T1: OPERATION METER mode
 - . Displays accumulated time that the power of the unit has been turned on.
2. T2: DRUM RUNNING METER mode
 - . Displays accumulated rotation time of the drum in the THREADING END mode.
3. T3: TAPE RUNNING METER mode
 - . Displays accumulated tape running time in the F.FWD REW, PLAY, and SEARCH modes (not including the STILL mode).
4. CT: THREADING/UNTHREADING COUNTER mode
 - . Displays accumulated number of threading and unthreading operations.

T1, T2, and T3

These modes display the accumulated time. The actual operation time is equal to the displayed value multiplied by 10.

Example

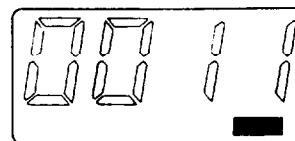


This display indicates between 110 hours 00 minutes 00 seconds and 119 hours 59 minutes 59 seconds (up to a maximum of 99,999 hours 59 minutes 59 seconds can be displayed).

CT

This mode displays the number of operations instead of the hours. The actual operation number is equal to the displayed value multiplied by 10.

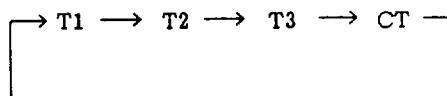
Example



This display indicates between 110 and 119 operations.

3-2-3. Mode Selection

When the mode select switch is pressed, the display rotates in the sequence shown below.



DOCUMENT C - 2

PERIODIC CHECK

To obtain the higher function and performance of the unit or the longer lives of the unit and tape, perform the periodic checks below according to the hours meter reading on the front panel.

Item	Part No.	Hours meter mode	Replacement	Remarks
Upper drum replacement	A-6762-351-A	T2	1,000 H	The video head life is greatly affected by operational conditions and tapes. Clean every 500 hours.
Cleaning roller replacement	X-3675-858-1	T2	1,000 H	
Brush replacement	A-6050-656-A	T2	3,000 H	
Slip ring replacement	A-6050-576-A	T2	3,000 H	
Pinch roller replacement	X-3717-215-2	T3	1,000 H	Clean every 500 hours.
Lower drum replacement	A-6050-554-A	T2	3,000 H	Clean the drum's tape transport surface every 500 hours.
TG1 tape guide replacement	A-6746-027-C	T3	3,000 H	
TG2 tape guide replacement	A-6746-028-C	T3	3,000 H	
TG3 tape guide replacement	A-6746-029-C	T3	3,000 H	
TG4 tape guide replacement	A-6746-030-C	T3	3,000 H	
Replacement of tape guide's upper and lower flanges on threading ring	3-717-267-01 3-680-812-00	T3	3,000 H	
Reel motor replacement	A-6737-175-A	T3	3,000 H	
Capstan motor replacement	8-835-259-02	T3	3,000 H	
Audio confi head replacement	8-825-771-11	T3	3,000 H	Clean every 500 hours.
CTL head replacement	8-825-554-73	T3	3,000 H	Clean every 500 hours.

AVETES

DOCUMENT C - 3

Item	Part No.	Hours meter mode	Replacement	Remarks
Threading belt (LM belt) replacement	3-688-066-01	CT T2	100,000 times 4,000 H	Replace either of them.
Gear box replacement	A-6750-213-E	CT	200,000 times	Do not replace the threading motor only, but whole gear box.
T gear 1 assembly replacement	X-3717-250-1	CT	100,000 times	
Fan motor replacement	1-541-524-11	T1	10,000 H	
S/T brake solenoid replacement	1-454-417-41	CT	200,000 times	
Pinch solenoid replacement	1-454-338-00	CT	200,000 times	Used in LMS system.
	1-454-338-00	T3	3,000 H	Used in systems other than LMS.
Cassette-up compartment replacement	A-6751-360-D	CT	100,000 times	Do not replace the cassette-up compartment motor only, but whole cassette-up compartment.
Main brake replacement	A-6741-066-A	CT	200,000 times	
Ring roller replacement	3-675-866-00	CT	200,000 times	After ring roller replacement, perform the tape run adjustment and the tracking adjustment. Replacement during overhauling is recommended.
Hours meter replacement	1-548-152-11	Replace every five years.		The digital hours meter has an internal battery.

DOCUMENT D-1**SPECIFICATIONS****BVW 60****Video**

Video recording system	
Luminance	FM
Chrominance	FM (Compressed Time Division Multiplex)
Component video characteristics (component input to component output, metal tape)	
Bandwidth (relative to 0.5 MHz)	
Luminance	25 Hz to 5.5 MHz ± 0.5 dB
Color difference	25 Hz to 1.5 MHz ± 0.5 dB
Signal-to-noise ratio	
Luminance unweighted	More than 48 dB (SC trap: OFF, 10 kHz to 5 MHz)
Color difference unweighted	More than 48 dB (SC trap: OFF, 10 kHz to 5 MHz)
Y/C delay	Less than 20 ns (50% Amplitude Bowtie)
Low frequency non-linearity	
Luminance Y	Less than 3%
Color difference	Less than 4%
Component video characteristics (component input to component output, oxide tape)	
Bandwidth (relative to 0.5 MHz)	
Luminance	25 Hz to 4.0 MHz ± 0.5 dB
Color difference	25 Hz to 1.5 MHz ± 0.5 dB
Signal-to-noise ratio	
Luminance unweighted	More than 46 dB (SC trap: OFF, 10 kHz to 5 MHz, Noise cancellor: ON)
Color difference unweighted	More than 45 dB (SC trap: OFF, 10 kHz to 5 MHz, Noise cancellor: ON)
Y/C delay	Less than 20 ns (50% Amplitude Bowtie)
Low frequency non-linearity	
Luminance Y	Less than 3%
Color difference	Less than 4%
Composite video characteristics (composite input to composite output, metal tape)	
Bandwidth	25 Hz to 4.8 MHz ± 1.5 dB
Signal-to-noise ratio	
Luminance unweighted	More than 45 dB (SC trap: ON, 10 kHz to 5 MHz)
Chrominance AM	More than 48 dB (SC trap: ON, 100 Hz to 1 MHz)
Chrominance PM	More than 48 dB (SC trap: ON, 100 Hz to 1 MHz)
Y/C delay	Less than 20 ns
Low frequency non-linearity	Less than 3%
Composite video characteristics (composite input to composite output, oxide tape)	
Signal-to-noise ratio	
Luminance unweighted	More than 44 dB (SC trap: ON, 10 kHz to 5 MHz)
Chrominance AM	More than 48 dB (SC trap: ON, 100 Hz to 500 kHz)
Chrominance PM	More than 48 dB (SC trap: ON, 100 Hz to 500 kHz)
Y/C delay	Less than 20 ns
Low frequency non-linearity	Less than 3%