

1-3. SERVICE INFORMATION DISPLAY

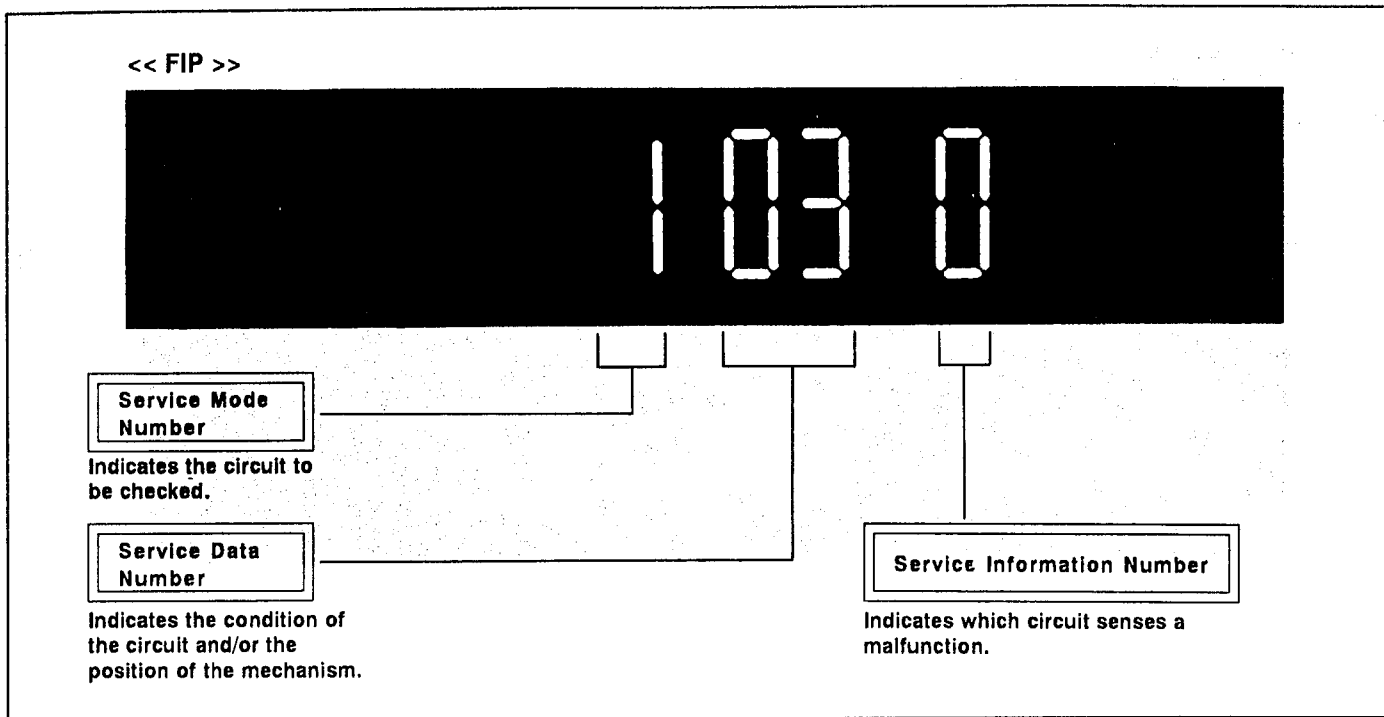


Fig. D1 Service Information Display

1-3-1. Purpose of Service Information Display

This information aids trouble shooting by indicating the source of the malfunction. The service mode number & service data number are used by the technician during repair while the service information can be used by the consumer to diagnose malfunctions allowing the technician to provide a more accurate repair cost estimate and reduce repair time.

1-3-2. Turning on Service Information Display

There are two ways to turn on the Service Information Display.

- (1) Press the FF, REW and EJECT buttons simultaneously.
The Service Information will be displayed for 1 minute.
- (2) Connecting a jumper wire between TLSEV and GND will display the service information indefinitely.

In the Service Information Display, there are four digits divided into 3 functions. The first digit indicates which of the 7 service modes that the unit is currently in.

MODE 1	:Checks tape protection circuit
MODE 2	:Checks tape transport mechanism
MODE 3	:Checks mode switching operation
MODE 4	:Checks control buttons
MODE 5	:Checks capstan motor
MODE 6	:Checks cylinder motor
MODE 7	:Checks loading/unloading operation

The second and third digits are service data which indicate the condition of the circuit or mechanism being checked.

The fourth digit is the service information display. It is to be used by the consumer to help determine the source of a malfunction. The service information display operates independently of the service modes and stores the fault indication in memory for as long as AC power is supplied

1-3-3. Use of Service Modes

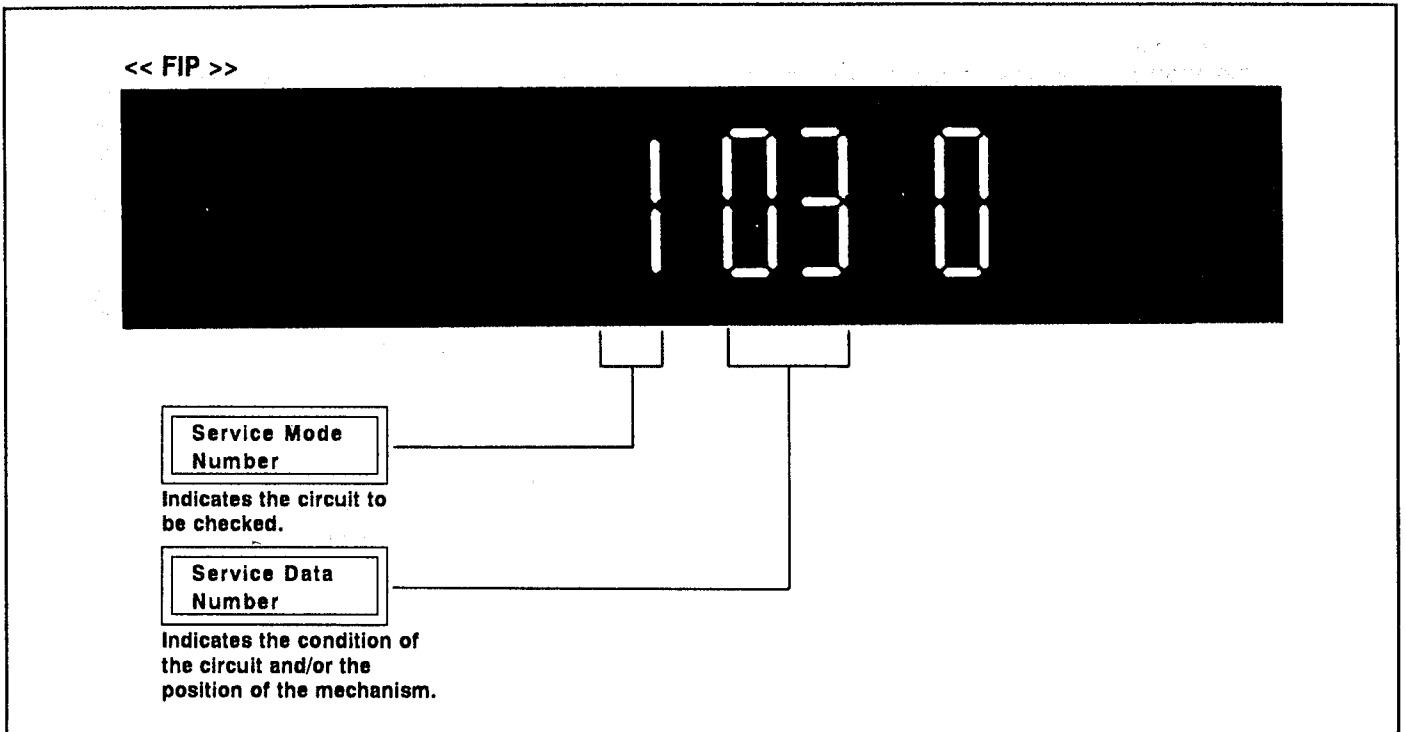


Fig.D2 Service Mode Number and Service Data Number on S.I.D.

(1) Turn on Service Information Display.

(2) To change Service Modes press the FF, REW and EJECT buttons simultaneously.

(3) Mode 1 : Check that the Sensor LED, Supply & Take-up Sensor circuits check the circuits by blocking the light from the Sensor LED to either or both Supply & Take-up Sensors.

1

When the light is blocked to both sensors, " 00 " should be indicated on the service data number. When the light is blocked to the supply sensor, " 01 " should be indicated.

(4) Mode 2 : Checks the mode switch circuit while indicating mechanism position.

2

Service Data Numbers indicate the position of the mode switch and there by the mechanism position.

(5) Mode 3 : Checks that mode switch circuit operations have been completed.

3

Service Data Number should indicate " 00 " after each mechanism operation is completed.

(6) Mode 4 : Checks the operation circuit. Indicates if IC6001 receives the operating commands from the mode buttons and/or remote controller.

4

(7) Mode 5 : Checks the capstan motor circuit. Indicates if the IC6001 has received the command to rotate the capstan motor.

5

(8) Mode 6 : Check the cylinder motor circuit. IC6001 has received the command to rotate the cylindermotor.

6

(9) Mode 7 : Checks the Loading/ Unloading Operation. The Loading Motor rotates for loading operation when the " PLAY " button is pressed. The Loading Motor rotates for unloading operation when the " STOP " button is pressed. This mode can be displayed indefinitely until the OPERATE button is pressed.

7

<NOTE>

Refer to Fig. D5 for details of Service Data Number.

1-3-4. Service Information Number

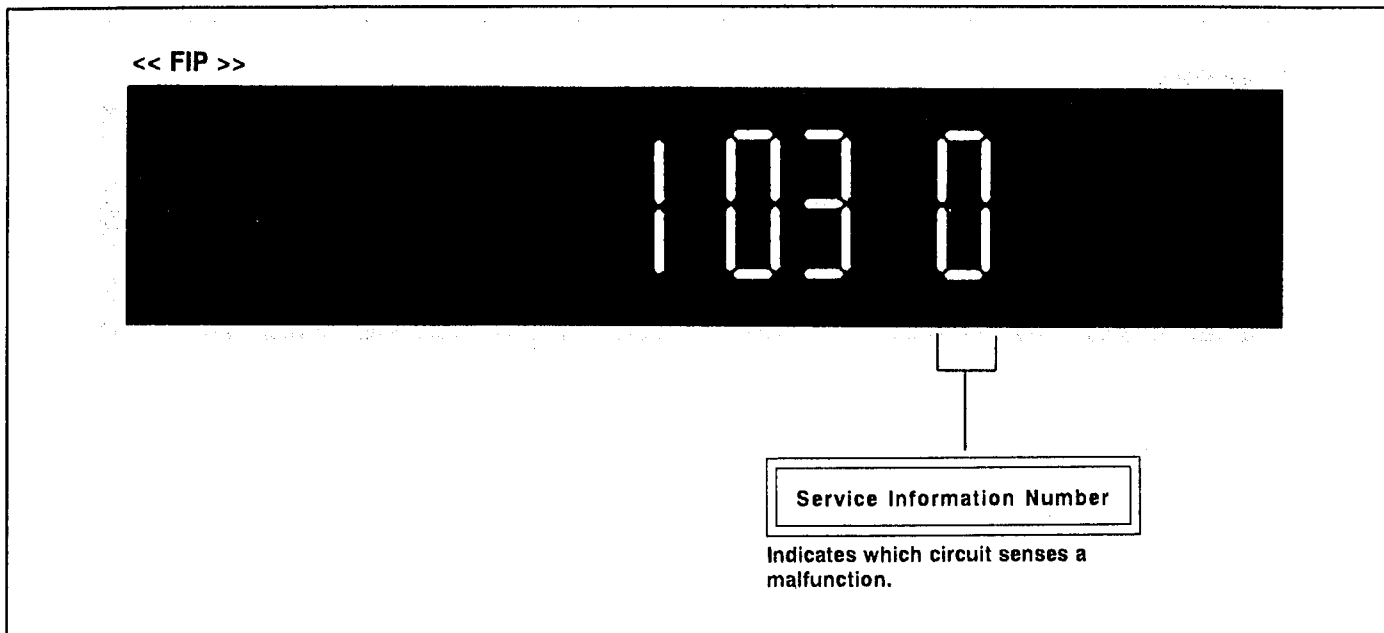


Fig. D3 Service Information Number on S. I. D.

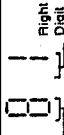
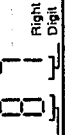
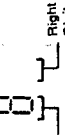
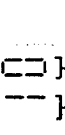
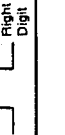

Refer to Fig. D4 for details of Service Information Number.

Note:

The Service Information Number display is independent of the service mode display. The Service Information Number will be stored as long as AC power is supplied. If a second error occurs, only the most recent error will be displayed.

Service Information Number	Malfunction
0	Normal (No problem)
1	Cylinder stop
2	Tape reel stop
3	Stop at position other than 4 or 6
4	Stop during unloading
5	Faulty capstan rotation
6	Stop during Cassette-IN/Eject operation
7	D REC 12V error

Fig. D4 Detail Service Information Numbers

Service mode Number	Note for checking Service Data Numbers	Service Data Numbers	Indication	Remarks
1		00	No light detected at either sensor	Tape not required
		01	Tape Beginning. Light to Supply Photo Sensor is blocked.	
		02	Tape End. Light to Take-up Photo Sensor is blocked.	
		03	Light detected at both sensors.	
2		00	EJECT	Tape Required *1:STOP; The Pinch Roller is on the capstan motor shaft. *2:STOP; The Pinch Roller is off the capstan motor shaft. Refer to Fig.D7 to Check mechanism Position and timing.
		01	Cassette-down	
		02	REV, REV SLOW	
		03	Loading/Unloading	
		04	PLAY/REC, STILL/PAUSE, CUE, FWD SLOW, STOP3 *1	
		05	STOP *2	
		06	FF/REW	
		07	Intermediate position	
3	Disregard service data displayed until mechanism operation is completed. Then the display should indicate "00".	00	Any display other than "00" indicates a fault in the mode switch circuit or system.	Tape Required.
4	Display only when the operating button is pressed.	Refer to Fig. D6.		Tape not required
5	Left digit only, disregard Right digit display.		8, 9, u, A, -, n, L, and no display indicate that the Capstan motor "PLAY" command received by IC6001.	Tape required. If a symbol other than those listed is displayed, a malfunction in that circuit is indicated.
			1, 2, 3, 4, 5, 6, 7, indicate that the Capstan motor "CUE, FF, Forward slow" commands received by IC6001.	
			8, 9, u, A, -, n, L, and no display indicate that the Capstan motor "Reverse, Rew, Reverse Slow" commands received by IC6001.	
			1, 3, 5, 7, 9, A, n and no display indicate that the cylinder motor "ON" command received by IC6001.	
6	Left digit only, disregard Right digit display.			Tape required. If a symbol other than those listed is displayed, a malfunction in that circuit is indicated.
				

SERVICE DATA NUMBERS	MODE BUTTONS	SERVICE DATA NUMBERS	MODE BUTTONS
3n	OPERATE	54	RESET
01	EJECT	5	ZERO STOP
-9	PAL/MESECAM	49.40	INDEX
—	CHECK/PROG.	81.82	TRACKING(+,-)/V-LOCK
34 or 35	^ v . + -	—	PROG.
—	NEXT	—	NEXT
—	SLEEP / SHIFT	00	STOP
A4	TIMER REC	03.02	FF, REW
08	REC	—	TV / VTR
—	CLOCK SET	—	DISPLAY
—	TUNER PRESET	00	PLAY
06	PAUSE / STILL		

Fig. D6 Service Data Display for Service mode 4

1-3-5. Timing Chart from Mode SW to System control
IC6001

System control IC6001 senses the mechanism position through the Mode SW.

Fig. D7 shows the timing for Service Mode Number 2.

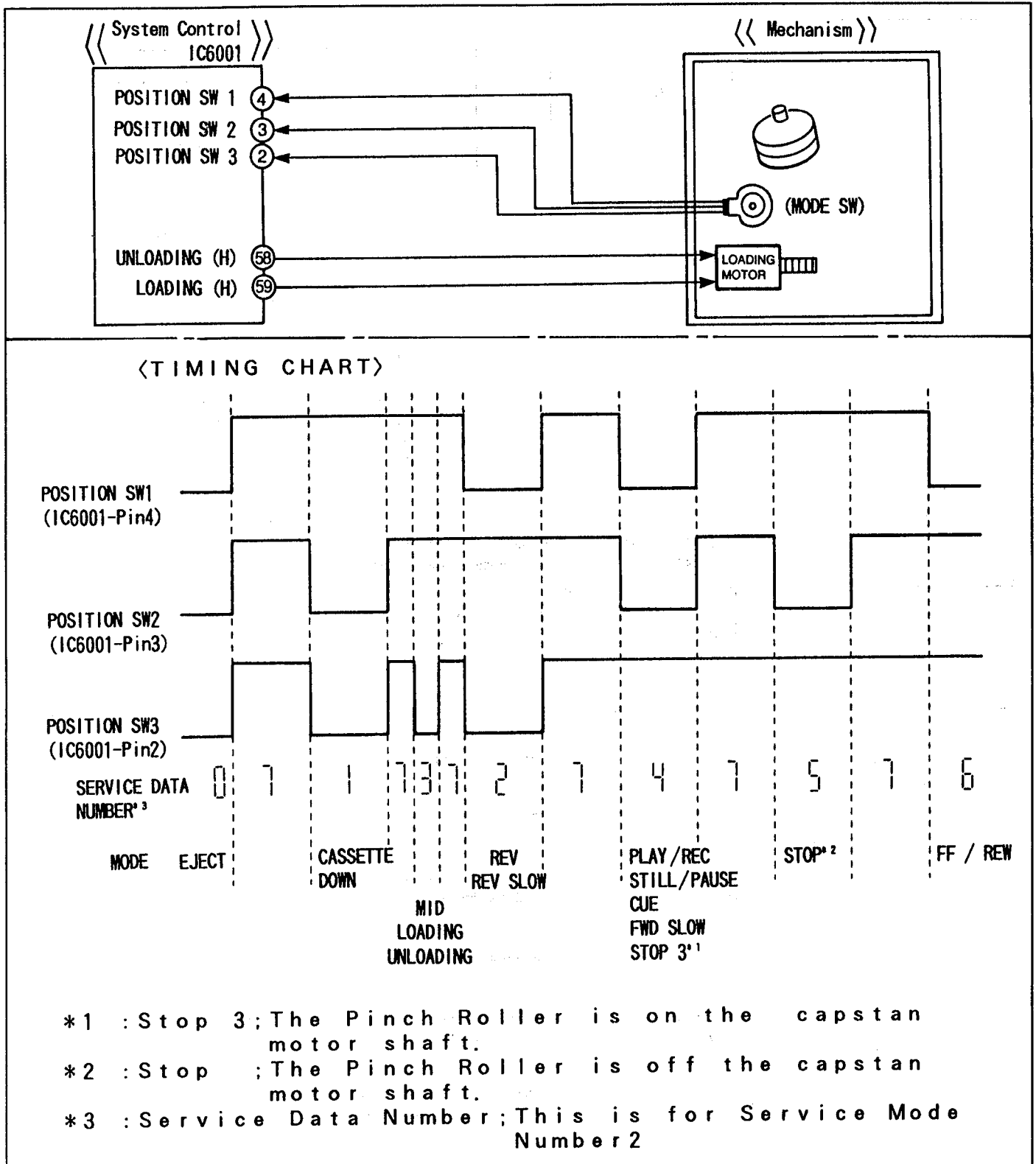


Fig. D7 Timing Chart of Mode SW

1-3-6. Input/Output Chart for IC6001

Pin Number	Input/Output	Port Name	Function																																				
1	I	SAFETY TAB	When inserting the cassette tape with safety tab, this port is low. When there is no safety tab, this port is high to prevent recording.																																				
2	I	POSITION SW 3	<table border="1"> <thead> <tr> <th>P.SW 3</th> <th>P.SW 2</th> <th>P.SW 1</th> <th>Position (Mode) Name</th> </tr> </thead> <tbody> <tr> <td>O</td> <td>O</td> <td>O</td> <td>EJECT</td> </tr> <tr> <td>O</td> <td>O</td> <td>I</td> <td>CASSETTE DOWN</td> </tr> <tr> <td>O</td> <td>I</td> <td>O</td> <td>REV, REV SLOW</td> </tr> <tr> <td>O</td> <td>I</td> <td>I</td> <td>MID (LOADING / UNLOADING)</td> </tr> <tr> <td>I</td> <td>O</td> <td>O</td> <td>PLAY/REC, STILL/PAUSE, CUE, FWD SLOW STOP³ *1</td> </tr> <tr> <td>I</td> <td>O</td> <td>I</td> <td>STOP</td> </tr> <tr> <td>I</td> <td>I</td> <td>O</td> <td>FF/REW</td> </tr> <tr> <td>I</td> <td>I</td> <td>I</td> <td>INTERMEDIATE</td> </tr> </tbody> </table> <p>(*1) The Pinch Roller is on the capstan motor shaft.</p>	P.SW 3	P.SW 2	P.SW 1	Position (Mode) Name	O	O	O	EJECT	O	O	I	CASSETTE DOWN	O	I	O	REV, REV SLOW	O	I	I	MID (LOADING / UNLOADING)	I	O	O	PLAY/REC, STILL/PAUSE, CUE, FWD SLOW STOP ³ *1	I	O	I	STOP	I	I	O	FF/REW	I	I	I	INTERMEDIATE
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I	I	I		INTERMEDIATE																																			
3	I	POSITION SW 2																																					
4	I	POSITION SW 1																																					
5	I	SUPPLY REEL PULSE	Supply Reel Pulse Input (For detecting tape remaining)																																				
6	I	NORMAL/SERVICE/TEST	Service Mode Setting Normal Mode: High Service Mode: Middle Test Mode: Low																																				
7	I	DEW	When Dew is detected, this port is middle. Normally, this port is low.																																				
8	I	TEST	Not used (Low setting)																																				
9	I	ENVELOPE SELECT	The playback envelope video signal level is detected at this input to select the video head in the special playback modes.																																				
10	O	ROTARY SW	This signal is supplied to the chrominance circuit to perform the phase rotation.																																				
12	O	HEAD AMP SWITCH	This signal is supplied to the head amp circuit to switch the video head, SP or LP.																																				
14	O	ARTIFICIAL V/H/N	Artificial Vertical Sync Signal is supplied to video circuit to stabilize the picture in the special playback modes.																																				
17	I	TAKE-UP PHOTO	Take-up Side Photo Sensor Input (For detecting tape beginning)																																				
18	I	SUPPLY PHOTO	Supply Side Photo Sensor Input (For detecting tape end.)																																				

Pin Number	Input/Output	Port Name	Function
19	I	TAKE-UP REEL	Take-up Reel Pulse Input (For detecting tape remaining and reel (Cap.) lock.
20	O	SP/LP	Tape Speed Output SP: Low LP: High
47	O	VTR (H)	VTR / TV Switch Output VTR: High TV: Low
48	O	SP (H)	Tape Mode Output SP: High LP: Low
54	O	SENSOR LED ON (L)	When turning on the Sensor LED, this port is low. 1) STOP Mode: No lit. 2) FF, REW, CUE, REV Modes: DC is lit. 3) EJECT Mode: Pulse blinking. (Cycle: 320[msec])
55	O	VOLTAGE CHANGE (H)	When increasing the drive torque of loading motor to perform the FF/ REW mode, this port is low.
58	O	UNLOADING (H)	When unloading, this port is high.
59	O	LOADING (H)	When loading, this port is high.
63	O	SERIAL CLOCK	Serial Clock Output
64	I/O	SERIAL DATA	Serial Data In/Out
66	O	DELAYED REC (H)	When the video goes to the recording mode after a delay from the video recording command, this port is high.
67	O	DELAYED AUDIO REC (H)	When the audio goes to the recording mode after a delay from the audio recording command, this port is high.
68	O	FULL ERASE (H)	When the video goes to the recording mode, this port is high.
69	O	REC (H)	When the video goes to the recording mode, this port is high.
70	O	NTSC (L)	System Output NTSC: Low PAL: High
71	O	AUDIO MUTE (H)	When the audio goes to the mute mode, this is high.
72	O	CAPSTAN REVERSE (H)	When the capstan motor rotates in reverse, this is high.
73	O	AUDIO EE (H)	When the audio goes to the EE mode, this is high.

Pin Number	Input/Output	Port Name	Function
75	O	CURRENT EMPHASIS (H)	When the servo goes to the edit mode, this is high.
76	O	FF/REW (L)	When the servo goes to the FF/REW mode, this is low.
78	O	VIDEO EE (L)	When the video goes to the EE mode, this is low.
79	O	TRICK (L)	When the video goes to the special playback (CUE, REV, SLOW, STILL) mode, this is low.
80	O	POWER OFF (H)	Power ON/OFF Control is low when the power switch is turned on.
84	I	RESET (L)	When resetting the IC6001, this port is low.