

D-E55

(U, C, FS, BS, AU, W)

TECHNICAL INFORMATION

This Technical Information describes the new circuit (micro-processor and peripheral circuits) of the D-E55. Refer to Service Manual No. 1470 for other items.

CONTENTS

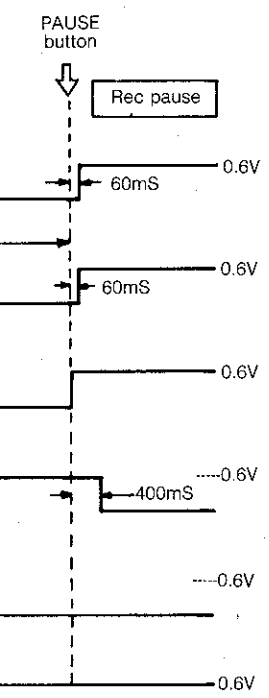
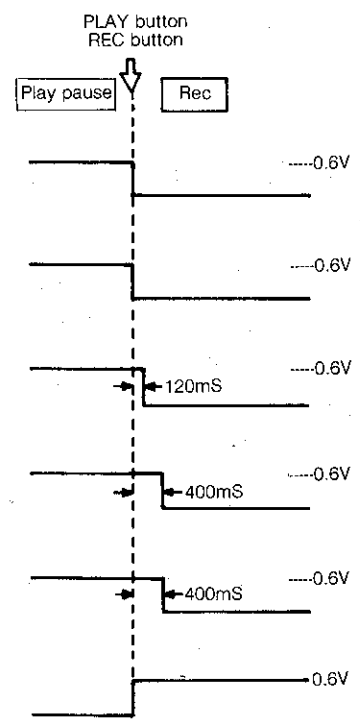
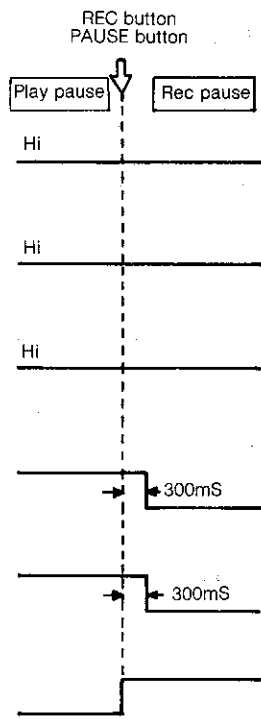
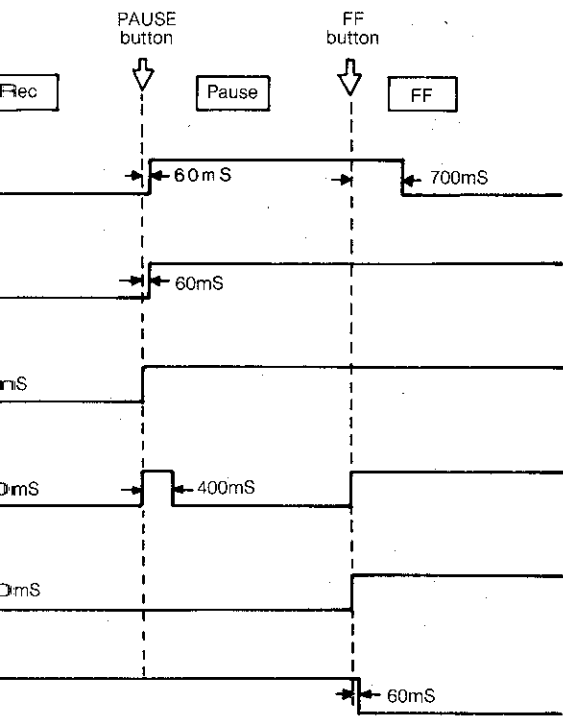
Block diagram	2
Explanation of new circuit	3
Test program operation procedure	4
IC101 pin functions	5
Timing chart	7

CAUTIONS ON USING MOS IC

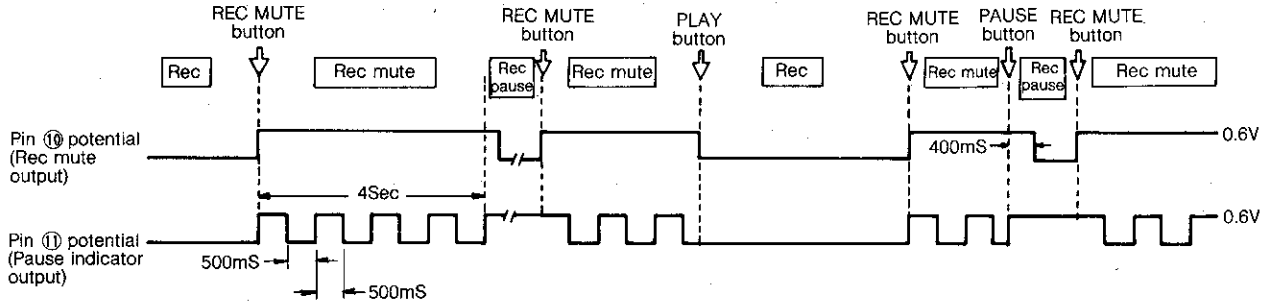
1. The MOS ICs are inserted into a black sponge for shipment. This sponge is conductive and is used to prevent destruction by short-circuiting between leads.
Do not remove the IC from this sponge during storage. Avoid removing ICs from the sponge and do not place on plastic which is likely to be charged with static electricity or inserting it into styrofoam.
2. Be sure to ground the soldering iron or use a low voltage soldering iron for soldering because a high voltage may be applied due to a leakage from the soldering iron.
3. The worker should be grounded during work because the human body, clothes made from synthetic fibers, nylon gloves, etc., may be charged with several thousand volts of static electricity.
4. Be sure to ground measuring instruments such as oscilloscopes, VTVMs, etc. when they are used.

STEREO CASSETTE TAPE DECK

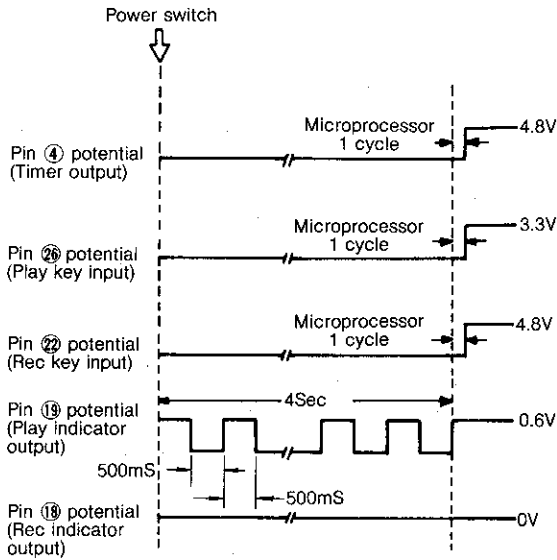
December 1980 TOKAI WORKS



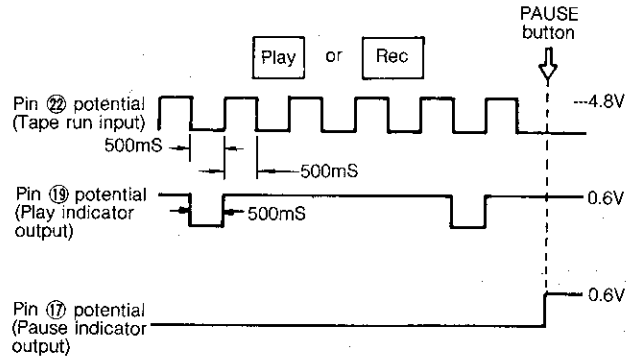
2. REC MUTE output, PAUSE indicator output



3. PLAY indicator output, REC indicator output



4. PLAY indicator output, PAUSE indicator output



HITACHI SALES CORPORATION OF AMERICA**Eastern Regional Office**

1200 Wall Street West, Lyndhurst, New Jersey 07071
Tel. 201-935-8980

Mid-Western Regional Office

1400 Morse Ave., Elk Grove Village, Ill. 60007
Tel. 312-593-1550

Southern Regional Office

510 Plaza Drive College Park, Georgia 30349
Tel. 404-763-0360

Western Regional Office

401 West Artesia Boulevard, Compton, California 90220
Tel. 213-537-8383

HITACHI SALES CORPORATION OF HAWAII, INC

3219 Koapaka Street, Honolulu, Hawaii 96819, U.S.A.
Tel. 808-836-3621

HITACHI SALES CORP. OF CANADA Ltd.

3300 Trans Canada Highway Pointe Claire, Quebec, H9R1B1, Canada
Tel. 514-697-9150

HITACHI SALES EUROPA GmbH

2 Hamburg 54, Kleine Bahnstraße 8, West Germany
Tel. 850 60 71-75

HITACHI SALES (U.K.) Ltd.

Hitachi House, Station Road, Hayes, Middlesex UB3 4DR, England
Tel. 01-848-8787 (Service Centre : 01-848-3551)

HITACHI SALES SCANDINAVIA AB

Rissneleden 8, Sundbyberg, Box 7138, S-172-07 Sundbyberg 7,
Sweden
Tel. 08-98 52 80

HITACHI SALES NORWAY A/S

Oerebekk 1620 Gressvik P.O. Box 46 N-1601 Fredrikstad, Norway
Tel. 032-28050

SUOMEN HITACHI OY

Box 151, SF-15100 Lahti 10, Finland
Tel. Lahti 44 241

HITACHI SALES A/S

Kuldysen 13, DK-2630 Taastrup, Denmark
Tel. 02-999200

HITACHI SALES A.G.

5600 Lenzburg, Switzerland
Tel. 064-513621

HITACHI-FRANCE (Radio-Télévision Electro-Ménager) S.A.

9, Boulevard Ney 75018, Paris, France
Tel. 201-25-00

HITACHI SALES WARENHANDELS GMBH

A-1180/Wien, Kreuzgasse 27
Tel. (0043222) 439367/8

HITACHI SALES AUSTRALIA Pty Ltd.

153 Keys Road, Moorabbin, Victoria 3189 Australia
Tel. 95-8722

HITACHI Ltd. TOKYO JAPAN

Head Office : 5-1, 1-chome, Marunouchi, Chiyoda-ku, Tokyo
Tel. Tokyo (212) 1111 (80 lines)

Cable Address : "HITACHY" TOKYO

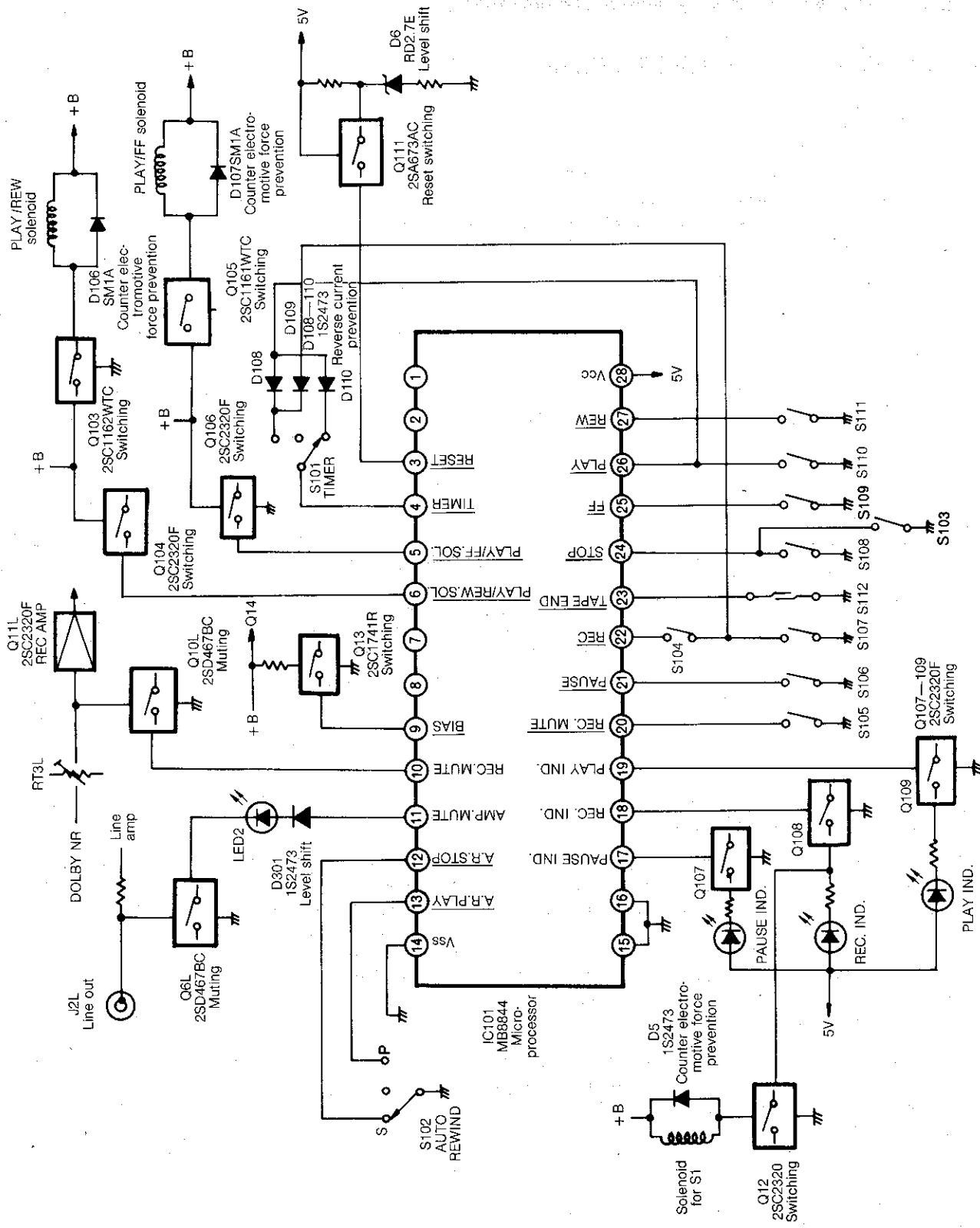
Codes : All Codes Used



D-E55 TK No. 1471E (G, F) TOKAI

U, C, FS, BS, AU, W

BLOCK DIAGRAM (Microprocessor and peripheral circuits)



EXPLANATION OF NEW CIRCUIT

1. REC/PLAY switch selection and monitor signal select circuit

The REC/PLAY selection is performed by the REC indicator output of the IC101.

When the REC button (S107) is pressed, pin ⑱ is set to Hi, Q108 turns ON and the REC indicator lamp lights. When Q108 is set to ON, Q12 is set to OFF and S1 (R/P switch) is set to the REC position. In the other modes (ex. PLAY), pin ⑱ is set to Lo, Q108 turns OFF, Q12 turns ON, and Solenoid (S1) operates. So R/P switch is changed over to the PLAY position by operating the solenoid.

Simultaneously when the REC/PLAY switch is changed over, the monitor signal is also changed over.

Q108 is set to ON, Q20 is set to OFF and Q17, ON during the REC mode. As a result, IC2 pin ⑥ is set to Hi, and pin ⑫ is set to Lo. This IC2 pin ⑥ or ⑫ is set to Hi, SW1 or SW2 is set to ON, so SW1 is set to ON during the REC mode and the REC signal is output from LINE OUT. On the contrary, Q108 is set to OFF, Q20 is set to ON and Q17, to OFF during the PLAY mode, so IC2 pin ⑥ is set to Lo and pin ⑫ is set to Hi and the PLAY signal is output from LINE OUT.

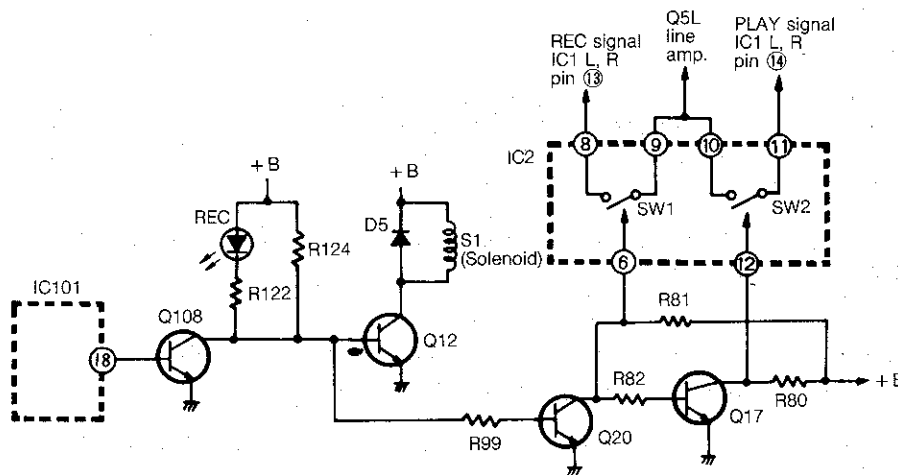


Fig. 1

2. Muting circuit during Power circuit ON/OFF

This circuit mutes the line out noise which occurs during the power switch ON/OFF operation. When the power switch is set to ON, a potential difference in the normal direction arises between Q301 emitter and base after a delay determined by the time constant of C301, C302 and R302 at the power rising; Q301 becomes conductive, and the

muting transistor Q6 L, R operates. When the power switch is set to OFF, the terminal voltage of Q302 which positions at the base of Q301 rapidly discharges via D303, so a potential difference arises between Q301 base and emitter, and the operation is the same as when the power switch is turned ON.

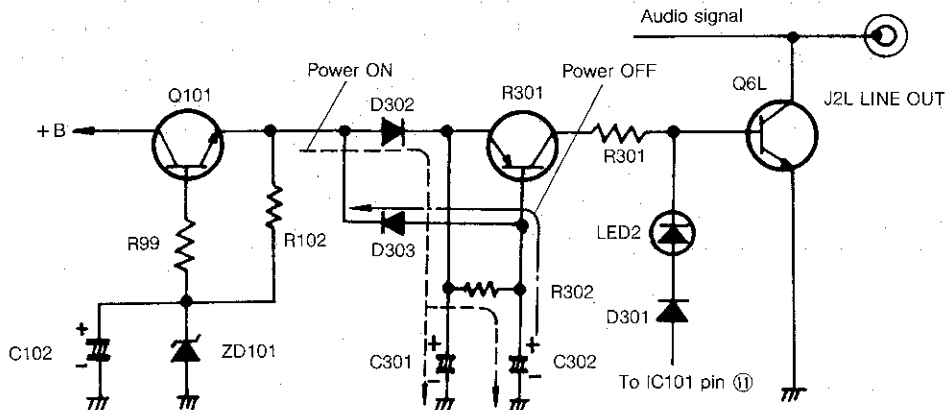


Fig. 2

TEST PROGRAM OPERATION PROCEDURE

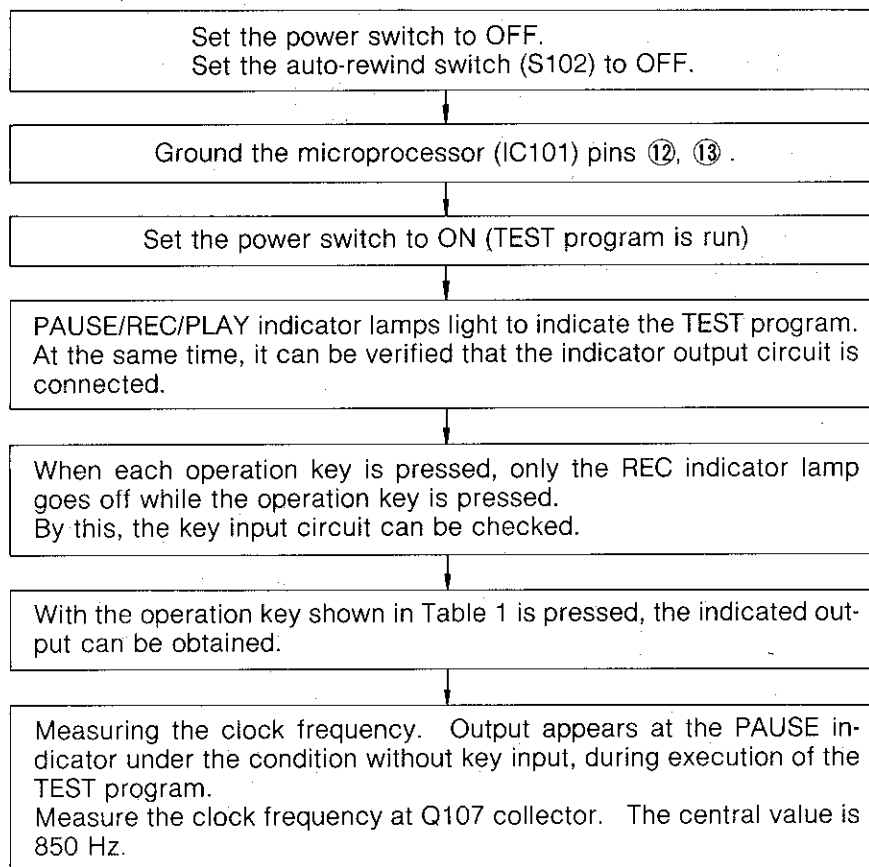
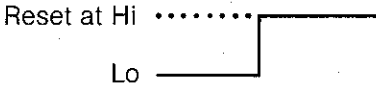


Table 1 Truth table during key operation

Key operation	Pin No.	Output port		Variation of truth value at output port by key operation
		Pin No.	Pin mark	
STOP button : ON	24	4	STOP	Hi → Lo
FF button : ON	25	4	FF	Hi → Lo
PLAY button : ON	26	6	PLAY	Hi → Lo

IC101 PIN FUNCTIONS

Pin No.	Symbol of pin	Application
1	EXtal	LC resonance circuit connecting pins used to operate the clock oscillator circuit.
2	Xtal	
3	$\overline{\text{RESET}}$	Reset pin. 
4	$\overline{\text{TIMER}}$	Timer REC/PLAY output pin. After the power is applied and the inhibit time of approx. 4 sec elapses, this is set to Lo potential until 1 cycle of the main program is complete, and then the output is fed back to the REC or PLAY input pin via the TIMER switch. It is set to the Hi potential output after 1 cycle of the main program is complete.
5	$\overline{\text{PLAY/FF SOL}}$	PLAY/FF solenoid drive output pin. During PLAY/FF : Lo
6	$\overline{\text{PLAY/REW SOL}}$	PLAY/REW solenoid drive output pin. During PLAY/REW : Lo
7	$\overline{\text{PAUSE SEARCH SOL}}$	PAUSE/SEARCH solenoid drive output pin. Not used in this unit.
8	MOTOR CON	Motor control output pin. Not used in this unit.
9	BIAS	Output pin used to operate the REC BIAS oscillator circuit. During REC : Lo
10	REC MUTE	REC MUTE output pin. During REC, REC/PAUSE : Lo When Lo potential is input to pin ⑳, 4 sec + 400 msec Hi potential is output.
11	$\overline{\text{AMP MUTE}}$	LINE AMP MUTE output pin. During PLAY, REC, REC/PAUSE : Lo
12	$\overline{\text{AUTO REWIND STOP}}$	<ul style="list-style-type: none"> • AUTO REWIND input pin. This operates the AUTO REWIND STOP when the tape end is detected. • When the REWIND button is pressed during PLAY, the tape is rewound to the position where the PLAY button is pressed and the unit stops automatically. • This pin is used to run the TEST program. Set to Lo potential at that time and power is applied.
13	$\overline{\text{AUTO REWIND PLAY}}$	<ul style="list-style-type: none"> • This is the input pin to rewind and play the tape when the tape end is detected. • When the REWIND button is pressed during PLAY, the tape is rewound to the position where the PLAY button is pressed and starts PLAY again. • This pin is used to run the TEST program. Set to Lo potential applying power.
14	Vss	GND
15	SEARCH	SEARCH output pin. Connected to Vss because this is not used in this unit.
16	SEARCH	SEARCH INTER-TUNE input pin. Connected to Vss because this is not used in this unit.
17	PAUSE IND	<ul style="list-style-type: none"> • PAUSE indicator output pin. During PAUSE : Hi • When the REC button is pressed during REC/PLAY, REC/PAUSE modes, the unit enters the AUTO REC MUTE operation, and outputs the pulse with 1 sec period which indicates REC MUTE.
18	REC IND	<ul style="list-style-type: none"> • REC indicator output pin. During REC mode (REC/PLAY, REC/PAUSE, REC HOLD) : Hi • Output pin to operate the REC/PLAY switch (S1)
19	PLAY IND	<ul style="list-style-type: none"> • PLAY indicator output pin. During PLAY, PAUSE, REC/PAUSE : Hi • Flashes while synchronizing with the tape end detection pulse during PLAY. • When the power is applied and the TIMER switch is set to PLAY or REC position within 4 sec after resetting is complete, the flashing pulse is output at intervals of 250 msec for 4 sec after resetting is complete. After 4 sec has elapsed, it is the same as on PLAY.

Pin No.	Symbol of pin	Application
20	$\overline{\text{REC MUTE}}$	REC MUTE input pin. The unit enters REC MUTE mode at Lo potential input.
21	$\overline{\text{PAUSE}}$	PAUSE mode input pin. Judged to be PAUSE mode at Lo potential input.
22	$\overline{\text{REC}}$	REC mode input in. Judged to be REC mode at Lo potential input.
23	$\overline{\text{TAPE END}}$	Tape end detection input pin. Inputs the output pulse signal of the tape end detection circuit.
24	$\overline{\text{STOP}}$	STOP mode input in. Judged to be STOP mode at Lo potential.
25	$\overline{\text{FF}}$	FF mode input pin. Judged to be FF mode at Lo potential.
26	$\overline{\text{PLAY}}$	PLAY mode input pin. Judged to be PLAY mode at Lo potential.
27	$\overline{\text{REW}}$	REW mode input pin. Judged to be REW mode at Lo potential.
28	Vss	Power input pin. Supplies the +5V power supply.

TIMING CHART

1. PLAY/FF, PLAY/REW solenoid output, bias output, REC/LINE mute output, REC indicator output

