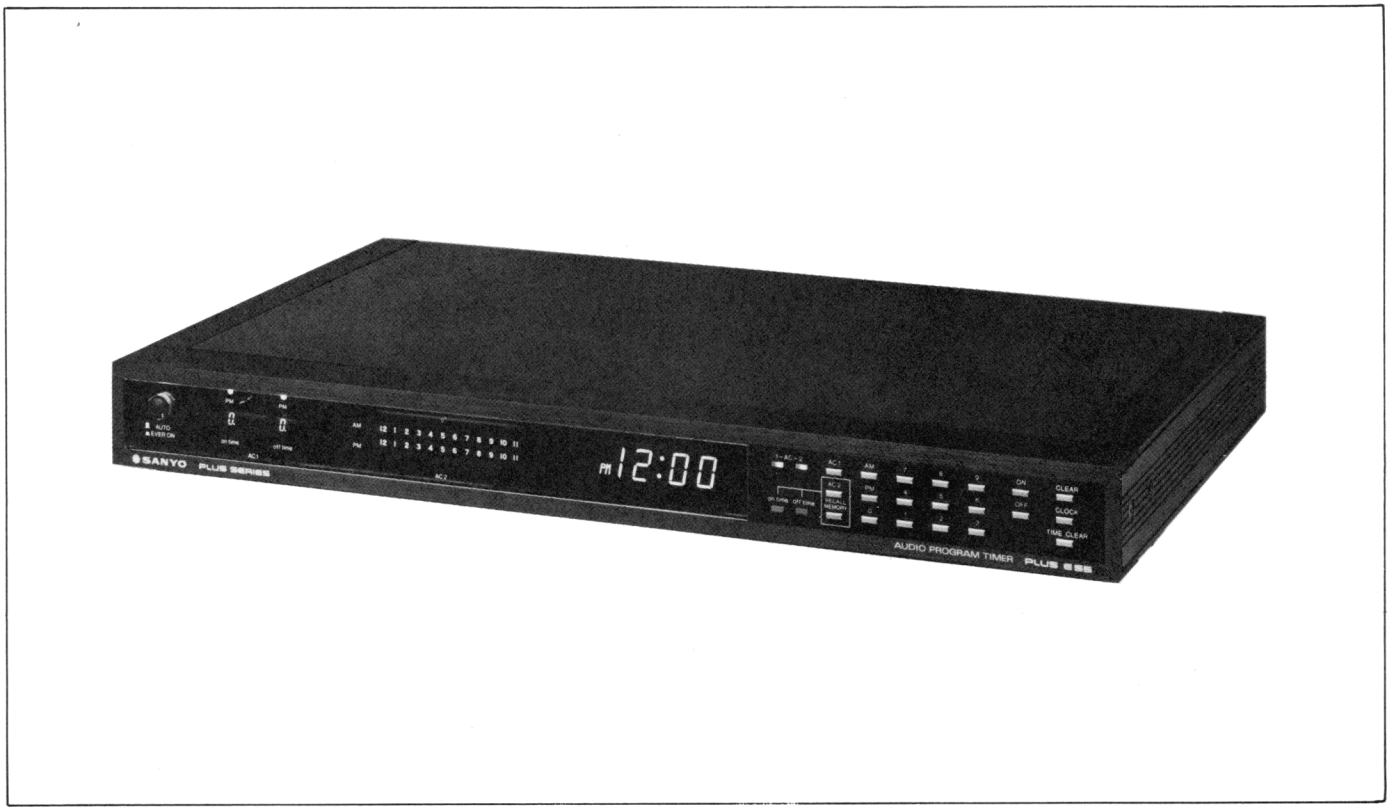
SERVICE MANUAL

AUDIO PROGRAM TIMER

SANYO

PLUS E55

(U.S.A.)



SPECIFICATIONS

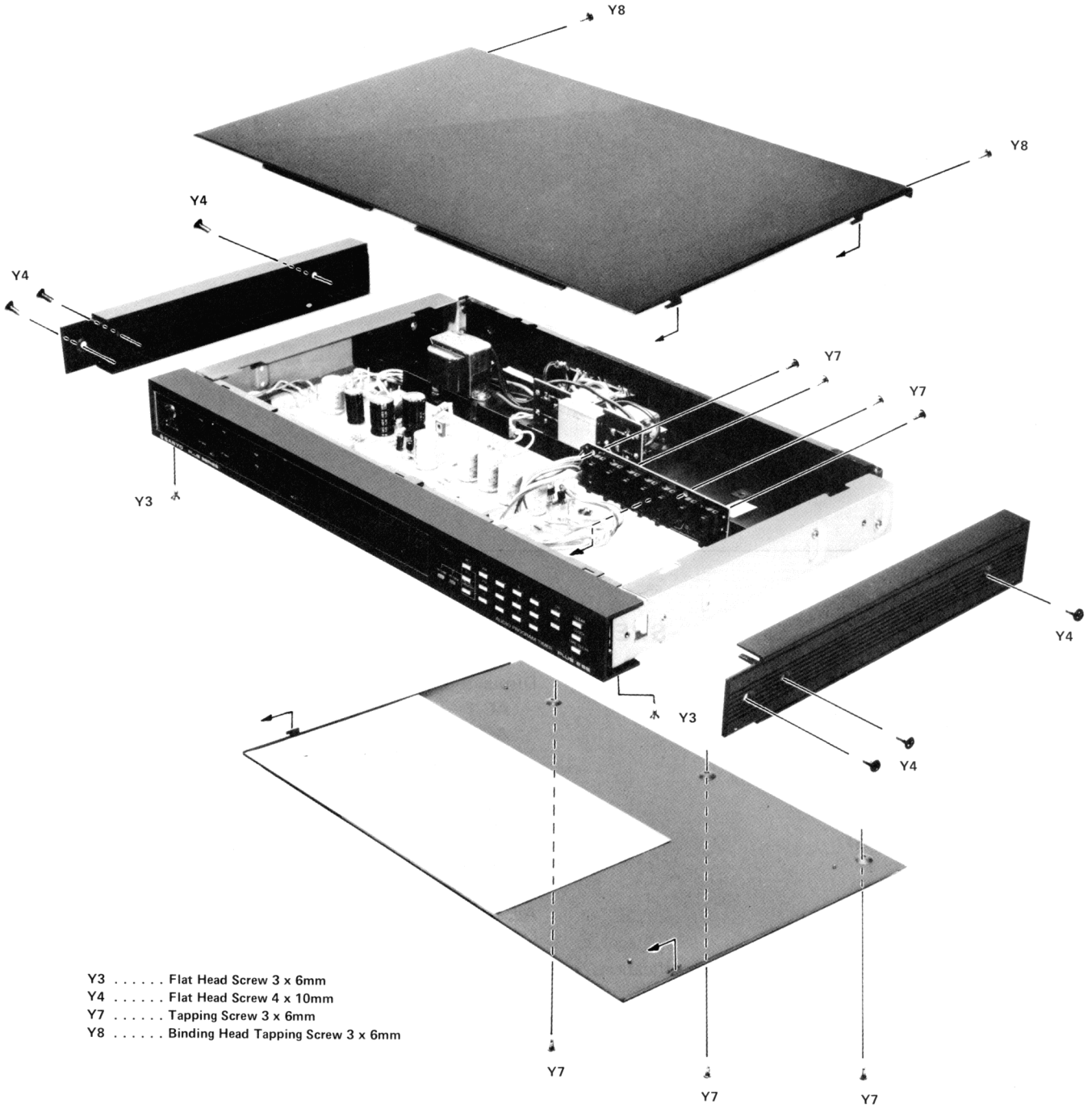
Number of channels	2 (AC 1, AC 2)
AC outlets	AC 1. 500W Max.
	AC 2. 700W Max.
Timing resolution	1 minute
Program repeat cycle	24 hours
Programable on/off intervals (per 24 hours)	
AC 1	1
AC 2	9

Displays	
AC 1	on/off time
AC 2	on/off intervals (30 min. resolution)
Main	Real time AM/PM. hr/min.
Other functions	Sleep with programable interval, Wake up.
Dimensions (WxDxH)	17-3/8" x 10" x 1-3/4" (19" W with rack handles attached)
Accessory	Rack handles x 2

* Description and specifications subject to change without notice.

HOW TO REMOVE THE CABINET AND PCB.

1. **How to detach the top lid**
   Unscrew two screws (Y8) fitted on the back, and if the top lid is pushed toward the rear of the set and then lifted up, the top lid can be detached from the set.
2. **How to remove a side panel**
   As three screws (Y4) fitted on each of both side panels are unscrewed, side panels can be removed from the set.
3. **How to detach the bottom lid**
   Unscrew three screws fitted on the bottom, and if the bottom lid is pushed toward the rear of the set and then pulled down, the bottom lid can be detached from the set.
4. **How to remove the front panel**
   As two screws (Y3) used to fit the front panel are unscrewed, the front panel can be removed from the set.
5. **How to detach the control printed circuit board**
   As four screws (Y7) used to fit the control printed circuit board are unscrewed, this printed circuit board can be detached from the interior of the set.
   In the case of reassembly, it can be accomplished if work opposite to procedure and order mentioned above is done.



Y3 . . . . . Flat Head Screw 3 x 6mm
Y4 . . . . . Flat Head Screw 4 x 10mm
Y7 . . . . . Tapping Screw 3 x 6mm
Y8 . . . . . Binding Head Tapping Screw 3 x 6mm

OPERATION

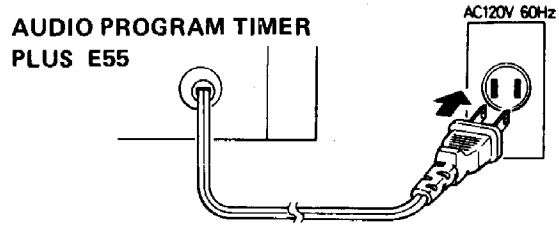
AC POWER SUPPLY

Connect the AC power cord of PLUS E55 to a wall outlet supplying AC 120V, 60Hz. When power cord is connected at first time or power supply is resumed after an interruption, the AM and PM signs start blinking alternately at interval of 0.5 to 1 second.

NOTES; 1. All displays and indicators will light for the first time and after several seconds they will disappear, then AM and PM signs will start blinking.

2. If timer does not operate correctly (AM and PM signs do not start blinking etc.), disconnect the power cord from the wall outlet and wait for about 10 seconds. Then reconnect the power cord to the wall outlet again.

On pushing the CLOCK key, PM 12 : 00 will appear on the main display and the blinking of the AM and PM signs discontinues.



SETTING THE CLOCK

1. Push keys as in the sequence illustrated when setting the clock.

   e. g. Set the clock to AM 10 : 45

   [AM] → [1] → [0] → [4] → [5]

When the above keys are pushed in the sequence shown above, the clock will be set to AM 10 : 45 as it appears on the main display.

2. Wait several seconds and push CLOCK key when you have just heard the time signal on the radio or TV. The clock will start counting time the moment CLOCK key is pushed.

NOTE: In case error is made in data input from the keyboard. "E" will appear on the main display. Should this occur, go through the data input process all over again after pushing the CLEAR key.

E In this case, input data is wrong

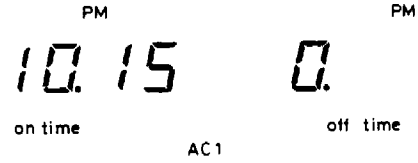
Also in any of the operating examples given in this chapter, operating errors will be indicated by the display of "E".

SETTING THE TIMER ON AC 1

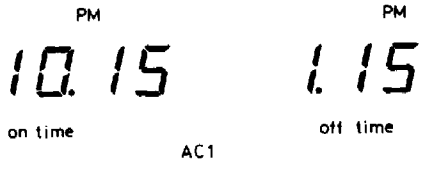
1. The AC 1 outlet can be switched on and off independently from timer operation by doing as instructed below. Push keys as in the sequence illustrated.

   e. g. If you want to switch on at AM 10 : 15 and off at PM 1 : 15;

   [AC 1] → [AM] → [1] → [0] → [1] → [5] → [ON]



   [AC 1] → [PM] → [1] → [1] → [5] → [OFF]



2. The content of set in the AC 1 memory is always on displayed on AC 1.

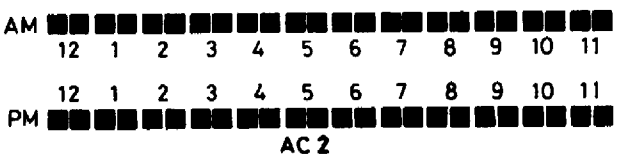
NOTE: If PM indicator is not light, this indicates AM time.

SETTING THE TIMER ON AC 2

1. By using the AC 2 program timer outlet of AC 2 can be turned on and off 9 separate times within 24 hours.

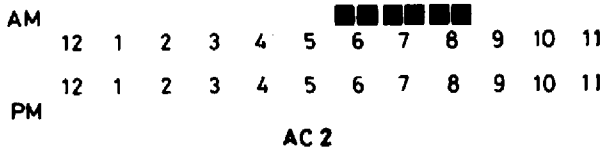
   e. g. Switching on at AM 6:00, off at AM 7:30, on again at AM 10:00, and off again at AM 11:00, on again PM 1:00, off again at PM 3 : 00 etc.

   [AC 2] → [AM] → [6] → [0] → [0] → [ON]

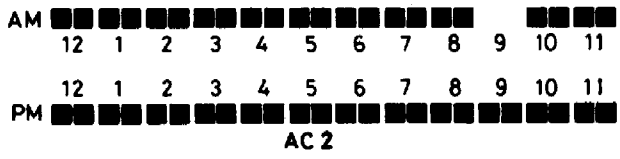


All indicators light up

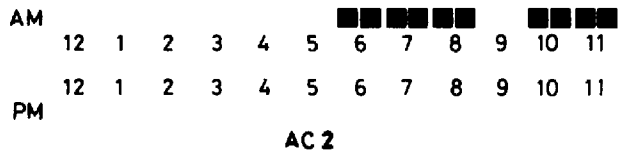
   [AM] → [7] → [3] → [0] → [OFF]



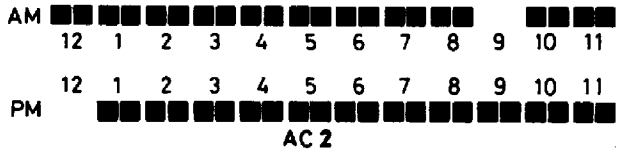
AM → 1 → 0 → 0 → 0 → ON



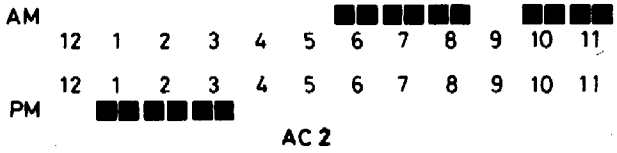
AM → 1 → 1 → 0 → 0 → OFF



PM → 1 → 0 → 0 → ON

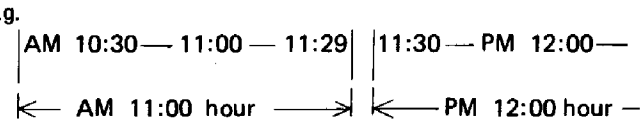


PM → 3 → 0 → 0 → OFF



2. AC 2 display is for the AC 2 timer memory. It displays registrated programs on an hourly basis. Timer setting should, therefore, be made in hourly units.
On this model, each hour unit begins with the 30th minutes of the hour and ends with the 29th minutes of the next.

e.g.



SETTING THE HOURS AND MINUTES THAT WILL LAPSE

The timer can be switched on or off at set time which has passed.

e.g. Set the timer to switch on AC 2 in 20 minutes (AC 1 can not be used for this purpose)

AC 2 → 2 → 0 → ON

Set the timer to switch off AC 2 in 50 minutes (AC 1 can not be used for this purpose. Suppose that AC 2 is now on switched off)

AC 2 → ON → AC 2 → 5 → 0 → OFF

NOTE: The content of input data will not appear on the main display.

SWITCHING ON AND OFF THE OUTLETS BY KEY CONTROL (ON, OFF by Manual Operation)

The AC 1 and AC 2 outlet can be switched on and off independently from timer operation by doing as instructed below.

Switching on AC 1 (or AC 2)
AC 1 → ON
(AC 2)

Switching off
AC 1 → OFF
(AC 2)

CLEARING TIMER MEMORIES

Clear the memories of a registered program, following the instructions given below.

1. Clearing the timer memory for AC 1.

AC 1 → TIME CLEAR The AC 1 timer return to "0".

2. Clearing the memories for AC 2 (all memories cleared)

AC 2 → TIME CLEAR All memories are cleared.

Real time re-appears on main display.

NOTE: Power outputs from the respective outlets do not change by going through the above steps 1 and 2, that is, if outlet power is on, it keeps power on, not to be power off. In this case, push the AC 2 key and the OFF key.

MEMORY DISPLAY

Do as instructed below when reading the memory contents.

1. AC 1 memory on main display.

RECALL MEMORY → AC 1 "ON" time appears on main display.

2nd time ⇢ AC 1 "OFF" time appears on main display.

CLEAR → CLOCK Real time re-appears on main display.

2. AC 2 memory on main display.
Push RECALL MEMORY and AC 2 key as illustrated.

RECALL MEMORY → AC 2 Numeral 1 appears on main display for about 2 seconds to be followed by the display of the memory contents.

2nd time onward → AC2 Numeral 2 appears and its memory content will appear on the display. Similarly numeral and its content are displayed.

18th times onward → AC 2 On pushing AC 2 first time after pressing RECALL MEMORY key, the memory content registed in the first step will appear on the main display. Then step-by-step changes take place on the display every time the AC 2 key is pushed.

The memory program will be finished on 18th input and return to step 1.

NOTE:
If you have pushed to wrong key for RECALL MEMORY. "E" will appear on the main display. In case, "E" apperas, push the CLEAR key first and then RECALL MEMORY key again.

NOTE: If, in both step 1 and 2, no subsequent key is pushed for more than one minute after pressing either the AC 1 or AC 2 key, clock time will appear automatically on the main display.

CORRECTION DATE INPUT ERRORS

Error Indication
Two kinds of errors are indicated by "E" sign which will appear on the display. These are;

a. Errors in time data input
e.g.
PM → 1 → 5 → 0 → 0 → CLOCK (PM 15:00)
"E" will appear on display when this key has been pressed.
PM → 3 → 0 → 0 → CLOCK Correction
(PM 3:00)

b. Excessive program Input
If programs are registered in the time memory in excess of its storage capacity, 1999 appears on display and excessive programes are not accepted.

19:99

When an error is commited in key operation, it can be corrected by going through the following steps. There instruction apply, provided that none of the ON, OFF, CLOCK and TIME CLEAR keys has been pushed.

1. Correct by pushing the right key immediately after an error has been committed.
e. g. Set to AM 10 : 30;

AC 1 → AM → 2 If error is commited this key, push the correct key immediately.
↓
1
Correction

2. Cancel the input data by pushing the CLEAR key and register correct data from the beginning.
e. g. Change or cancel of the data
(AC 1 from AM 10 : 30 to AM 11 : 30)

AC 1 → AM → 1 → 0 → 3 → 0
CLEAR → AC 1 → AM → 1 → 1 → 3 → 0 change of data

Push CLEAR key for only cancel of the data

e. g. Correct by changing AC 2 to AC 1

AC 2 → AC 1

e. g. Correct AC 1 AM to PM

AC 1 → AM → PM

e. g. Correct clock time

PM → 1 → 1 → 3 → 0
CLEAR → PM → 1 → 0 → 3 → 0 Correction

Provided that any of the ON, OFF, CLOCK and TIME CLEAR keys has been pressed. It is necessary to make a correction by registering correct data from the beginning of the step.

CHANGING PROGRAMS (AC 1 and AC 2)

Since the program for AC 1 is one and involves switching-on and switching-off operation just one time, it is easy to rewrite it by the input of new data. On the contrary, AC 2 programs are many and their partical alteration must be made by a different manner. Revise program as described below.

To Change All Programs

When all programs are to be rewritten, clear the timer memory for each channel as instructed in CLEARING TIMER MEMORIES on page 5 and input new data by the keyboard operation as discribed below.

To Clear AC 1 Programs

Push AC 1 and TIME CLEAR keys.

AC 1 → TIME CLEAR

To Clear AC 2 Programs

Push AC 2 and TIME CLEAR keys

AC 2 → TIME CLEAR

To Change One of AC 2 Programs

When finished one of the AC 2 program that has to be changed.

1. First, put the program so that it appeare on main display.
2. Put in data for the new program by keyboard operation. Memory contents of subsequent steps can be changed by pushing the RECALL MEMORY key first and then push the AC 2 key for the necessary number of times needed.

e.g. RECALL MEMORY → AC 2

On pushing AC 2 for the first time, the first step content of the memory will appear on display.

AC 2

The second content of the memory appears. Memory contents of subsequent step will appear the display by pushing the AC 2 key repeatedly.

5th time AC 2

On pushing the AC 2 key for the fifth PM 3:00 ON (fifth step content) will appear on display. If you want to change this programs to PM 3:30 ON, push the following key in the order illustrated.

PM → 3 → 3 → 0 → ON

To Cancel One of the Program

When program has to be cancelled (after the programing process), do as follows;

1. Display the program to be cancelled as instructed in "To Change one of the AC 2 Programs".
2. Push the TIME CLEAR key, and the memory content of the step on display will be cancelled.

e.g. MEMORY RECALL → AC 2

5th time AC 2

If, on pushing the AC 2 key for the fifth time, AM 6:00 ON will appear on display.

TIME CLEAR

This can be cancelled by pushing the TIME CLEAR key.
In this case, the next program is advanced one step.

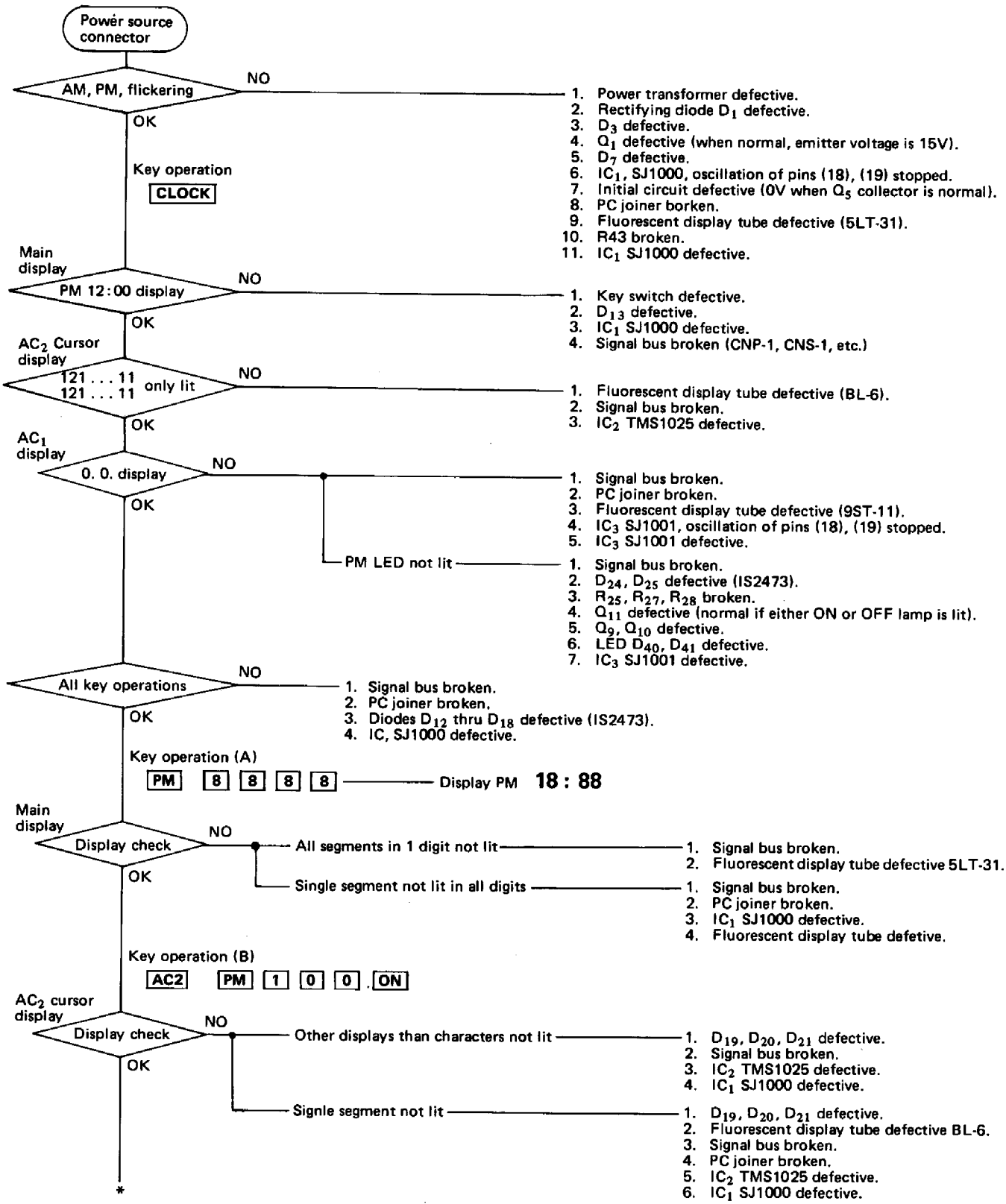
FROM KEYBOARD OPERATION BACK TO CLOCK TIME DISPLAY

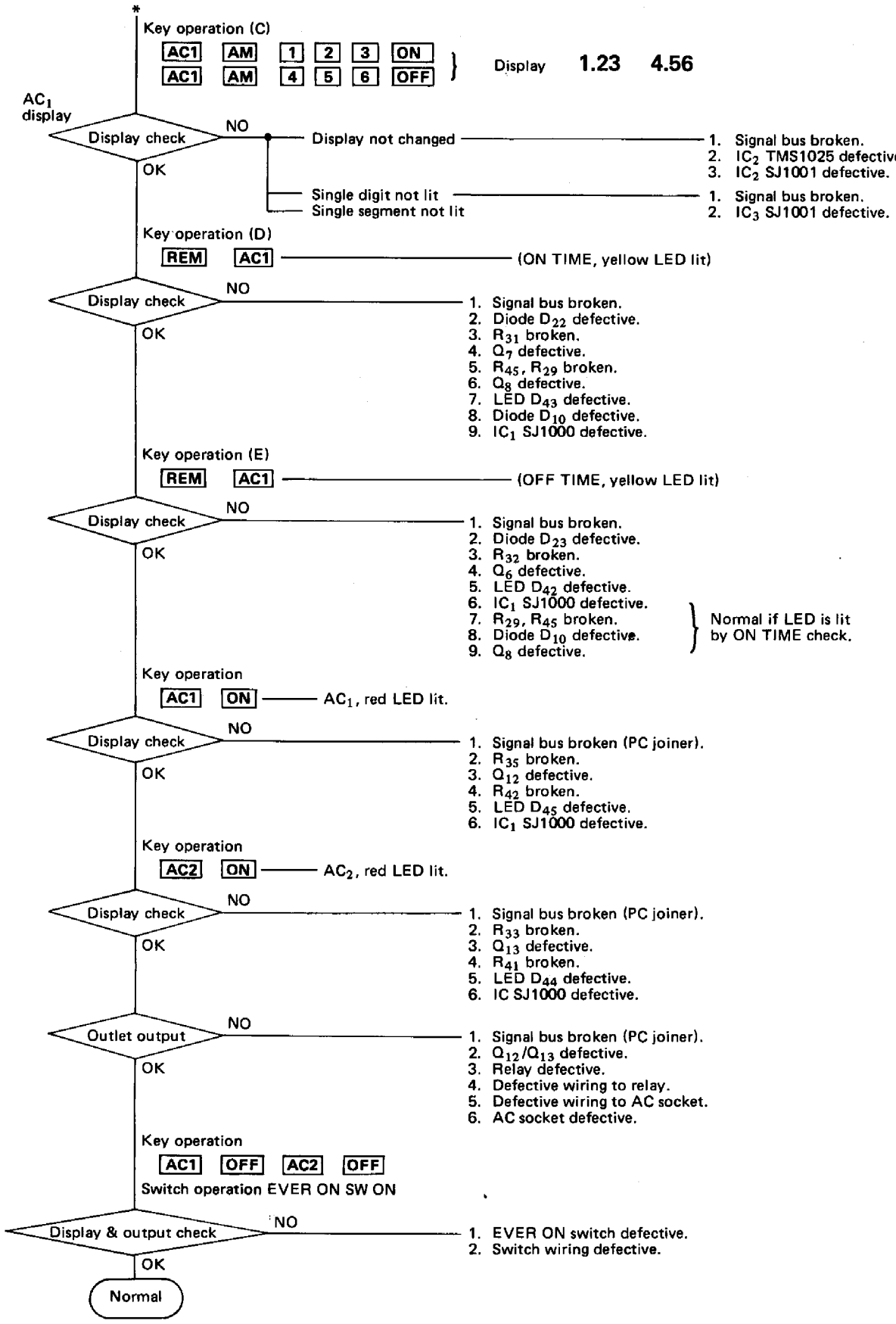
On starting the data input by keyboard operation, clock time will go out and the data being registered in the memory will appear on the main display. The clock time will appear on the display again.

1. At the end of timer programing.
2. On the finishing correcting or cancelling a program.
3. On pushing the CLEAR and CLOCK keys in that order.

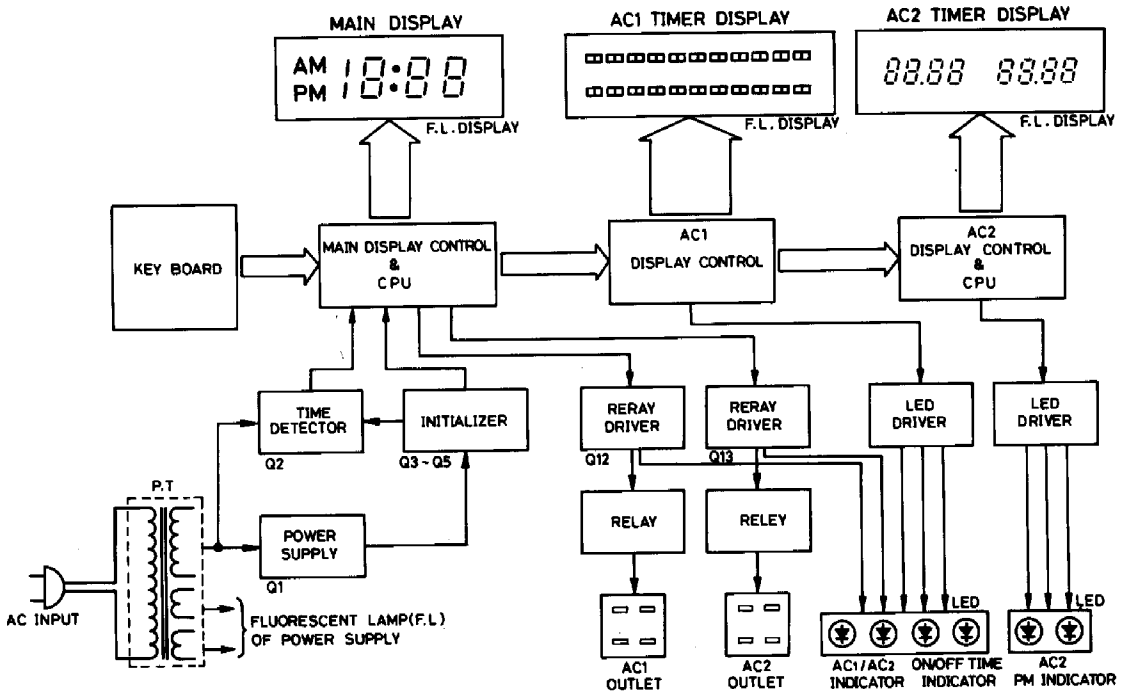
ON THE OCCASION OF TROUBLE REPAIRING

This audio timer consists of a microcomputer (TMS-1000) and performs effectively the input and memory/control functions. In the case of repairing it, a trouble of other than the relay, LED display, TIME detection, initializer and power circuit is a trouble of the LSI interior. Because of this, after confirming well operating method, proceed to checking/repairing in order of circuit other than LSI, fluorescent display tube and LSI.
(Apply Performance Check Order.)
NOTE: As for the microcomputer interior, make use of the Users' Guide prepared by TI.



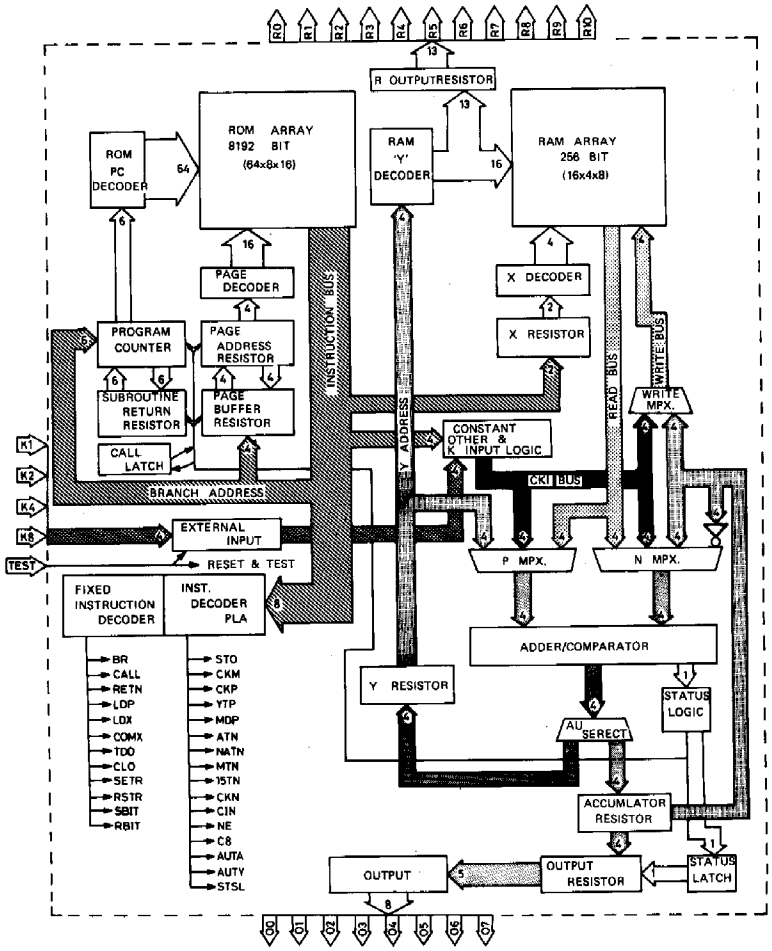

*
Key operation (C)
AC1 AM 1 2 3 ON
AC1 AM 4 5 6 OFF
Display 1.23 4.56
AC1 display
Display check
NO
Display not changed
1. Signal bus broken.
2. IC2 TMS1025 defective.
3. IC2 SJ1001 defective.
OK
Single digit not lit
Single segment not lit
1. Signal bus broken.
2. IC3 SJ1001 defective.
Key operation (D)
REM AC1
(ON TIME, yellow LED lit)
Display check
NO
1. Signal bus broken.
2. Diode D22 defective.
3. R31 broken.
4. Q7 defective.
5. R45, R29 broken.
6. Q8 defective.
7. LED D43 defective.
8. Diode D10 defective.
9. IC1 SJ1000 defective.
OK
Key operation (E)
REM AC1
(OFF TIME, yellow LED lit)
Display check
NO
1. Signal bus broken.
2. Diode D23 defective.
3. R32 broken.
4. Q6 defective.
5. LED D42 defective.
6. IC1 SJ1000 defective.
7. R29, R45 broken.
8. Diode D10 defective.
9. Q8 defective.
Normal if LED is lit by ON TIME check.
OK
Key operation
AC1 ON
AC1, red LED lit.
Display check
NO
1. Signal bus broken (PC joiner).
2. R35 broken.
3. Q12 defective.
4. R42 broken.
5. LED D45 defective.
6. IC1 SJ1000 defective.
OK
Key operation
AC2 ON
AC2, red LED lit.
Display check
NO
1. Signal bus broken (PC joiner).
2. R33 broken.
3. Q13 defective.
4. R41 broken.
5. LED D44 defective.
6. IC SJ1000 defective.
OK
Outlet output
NO
1. Signal bus broken (PC joiner).
2. Q12/Q13 defective.
3. Relay defective.
4. Defective wiring to relay.
5. Defective wiring to AC socket.
6. AC socket defective.
OK
Key operation
AC1 OFF AC2 OFF
Switch operation EVER ON SW ON
Display & output check
NO
1. EVER ON switch defective.
2. Switch wiring defective.
OK
Normal

BLOCK DIAGRAM

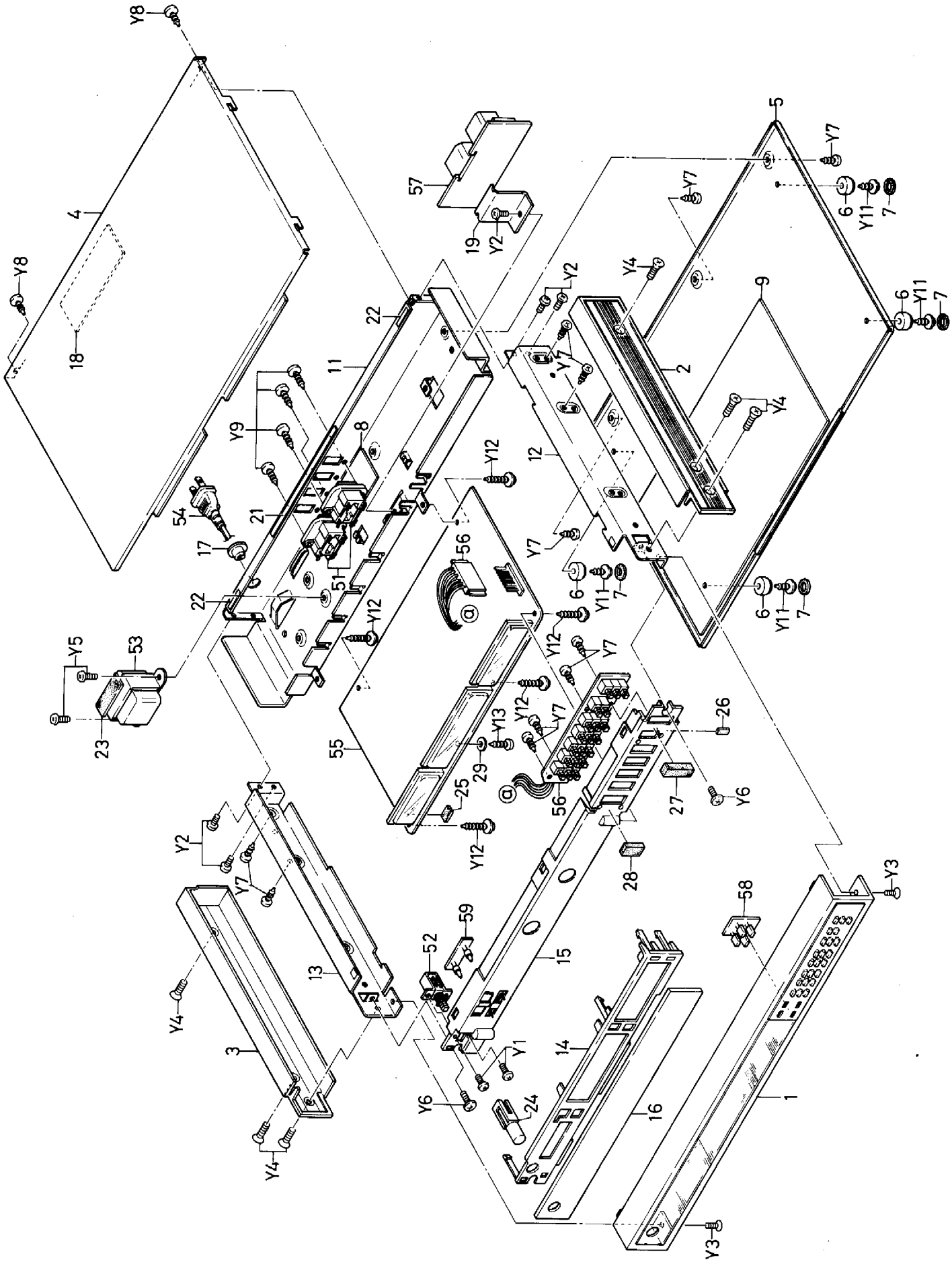


FUNCTIONAL BLOCK

TMS 1000 MICRO COMPUTER SJ 1000 (TMS 1170) SJ 1001 (TMS 1070) } CPU



EXPLODED VIEW



PARTS LIST

Key No.	Part No.	Description	Q'ty
PACKING			
	141-6-133T-05000	Individual Carton	1
	141-6-144T-58100	Foam Plastic Case	2
	141-6-231T-40557	Inner Polye Cover, Set	1
	141-6-231T-25350	Inner Polye Cover	1
	141-6-231T-10300	Inner Polye Cover, 100 x 300	1
	141-6-231T-10150	Inner Polye Cover, Bracket Handle	2
	141-6-317T-15200	Pad	1
	141-6-472T-17100	Caution Label	4
	141-6-478T-01503	Sticker	1
ACCESSORY			
	141-6-410T-33000	Instruction Manual	1
	141-6-493T-01100	Customer Card	1
	141-0-271T-15100	Bracket Handle Ass'y	2
CABINET			
1	141-0-122T-29401	Front Panel Ass'y	1
2	141-0-123T-05100	Side Panel Ass'y, (R)	1
3	141-0-123T-05200	Side Panel Ass'y, (L)	1
4	141-2-124T-24530	Top Lid	1
5	141-2-125T-17230	Bottom Lid	1
6	141-2-174T-05100	Stand	4
7	141-2-441T-05000	Felt Cushion	4
8	141-2-246T-62500	Sheet, Top Lid	1
9	141-2-246T-62600	Sheet, Bottom Lid	1
CHASSIS			
11	141-2-126T-29601	Back Lid	1
12	141-2-315T-17900	Reinforcement, (R)	1
13	141-2-315T-18000	Reinforcement, (L)	1
14	141-2-214T-03800	Bracket, Frame	1
15	141-2-210T-11800	Bracket, Front Chassis	1
16	141-2-132T-14600	Sign Window	1
17	141-2-464T-14400	Fixer, AC Cord	1
18	141-2-246T-62500	Sheet	1
19	141-2-310T-22400	Bracket, Relay	1
20	141-2-246T-33300	Sheet	2
21	141-2-447T-02800	Cushion 4 x 118	1
22	141-2-447T-03000	Cushion 5 x 30	2
23		Cushion 15 x 40 x 3	1
24	141-0-156T-21731	Knob Ass'y, Power Switch	1
25	141-2-447T-31700	Cushion 12 x 3.5 Rubber	1
26	141-2-447T-65400	Cushion 6 x 12 x 2t	1
27	141-2-447T-27700	Cushion 7 x 30 x 9t Rubber	1
28	141-2-447T-67900	Cushion 10 x 20 x 5	1
29	141-2-453T-00800	Washer 3 x 8 x 0.5 Fiber	1
HARDWARE			
Y1		Pan Head Screw 2 x 8	2
Y2		Pan Head Screw 3 x 4	5
Y3		Flat Head Screw 3 x 6	2
Y4		Flat Head Screw 4 x 10	6
Y5		Binding Head Screw 3 x 4	2
Y6		Binding Head Screw 3 x 6	2
Y7		Tapping Screw 3 x 6	11
Y8		Binding Head Tapping Screw 3 x 6	2
Y9		Binding Head Tapping Screw 3 x 8	4
Y10		Washer 3 x 8 x 0.5mm	2
Y11		Tapping Screw with Washer 3 x 6	4
Y12		Tapping Screw with Washer 3 x 8	5
Y13		Tapping Screw 3 x 8	4

Key No.	Part No.	Description	Q'ty
ELECTRICAL PARTS			
51	4-235T-72000	Socket, AC Outlet	2
52	4-231T-90100	Switch, Ever ON	1
53	4-300T-04300	Power Trans	1
54	4-243T-79800	Power Supply Cord	1
CLOCK PCB ASS'Y			
55	141-4-230T-95900	P.C. Board Ass'y, Clock	1
	4-985T-00800	Fluorescent Display, Main	1
	4-985T-00900	Fluorescent Display	1
	4-985T-01000	Fluorescent Display, Sub	1
CNP-1	4-236T-10277	Plug, 3P-25P	1
RA-1	4-221T-02900	Resistor	1
RA-2,3,4	4-221T-01571	Resistor	3
D1		Diode DS17	1
D2,3		Diode 1S1885	2
D8-D25		Diode 1S2473	18
D7		Zener Diode WZ157	1
D4		Zener Diode WZ150	1
D5		Zener Diode WZ061	1
Q1		Transistor 2SD612	1
Q2-Q5		Transistor 2SC536	4
Q6,7,9,10		Transistor 2SC536	4
Q8,11		Transistor 2SC1175	2
Q12,13		Transistor 2SC1175	2
IC-1		LSI SJ1000	1
IC-2		LSI SJ1001	1
IC-3		LSI TM1025	1
	RESISTORS		
R1		Metal 82 ohm ±5% 2W	1
R2		Carbon 2.2K ohm ±5% 1/4W	1
R3,4		Carbon 150K ohm ±5% 1/4W	2
R5-R8		Carbon 47K ohm ±5% 1/4W	4
R10		Carbon 150K ohm ±5% 1/4W	1
R11-R21		Carbon 47K ohm ±5% 1/4W	11
R9,22		Carbon 47K ohm ±5% 1/4W	2
R23,24		Carbon 100K ohm ±5% 1/4W	2
R25		Carbon 15K ohm ±5% 1/4W	1
R26		Carbon 47K ohm ±5% 1/4W	1
R27,28		Carbon 15K ohm ±5% 1/4W	2
R29		Carbon 15K ohm ±5% 1/4W	1
R30		Carbon 47K ohm ±5% 1/4W	1
R31,32		Carbon 15K ohm ±5% 1/4W	2
R33,35		Carbon 22K ohm ±5% 1/4W	2
R34,36		Carbon 10K ohm ±5% 1/4W	2
R38		Carbon 22K ohm ±5% 1/4W	1
R39		Carbon 27K ohm ±5% 1/4W	1
R40		Carbon 1.2K ohm ±5% 1/4W	1
R41,42		Carbon 3.9K ohm ±5% 1/4W	2
R43		Carbon 8.2 ohm ±5% 1/4W	1
R44		Carbon 1K ohm ±5% 1/4W	1
R45		Carbon 8.2 ohm ±5% 1/4W	1
R46		Carbon 8.2 ohms ±5% 1/4W	1
R47		Carbon 3.9K ohm ±5% 1/4W	1
R48		Carbon 47K ohm ±5% 1/4W	1
	CAPACITORS		
C1,2		Electrolytic 1000μF 35V	2
C3		Electrolytic 470μF 35V	1
C4,5		Electrolytic 10μF 16V	2
C6		Electrolytic 22μF 16V	1
C7-C12		Electrolytic 2200μF 16V	6
C20,21		Ceramic 0.01μF +80−20% 500V	2
C22,23,24		Ceramic 0.01μF +80−20% 50V	3
C25-C28		Ceramic 0.01μF +80−20% 50V	4
C29,30		Ceramic 47pF 50V ±5%	2

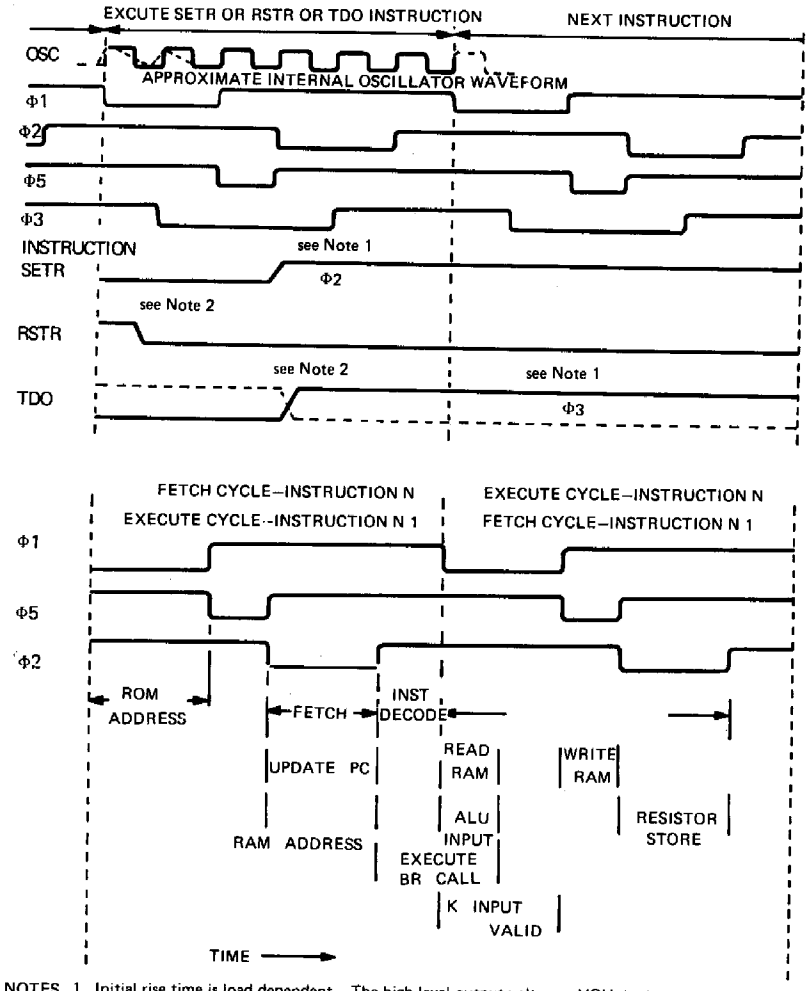
PARTS LIST

Key No.	Part No.	Description	Q'ty
KEY BOARD PCB ASS'Y			
56	141-4-230T-96000	P.C. Board Ass'y, Key Board	1
	4-231T-95800	Push Switch	20
CNS-1	4-235T-71000	Socket, 10P	1
RELAY PCB ASS'Y			
57	141-4-230T-96100	P.C. Board Ass'y, Relay	1
CR-1,2	4-227T-01000	CR Pack	2
RL-1,2	4-232T-05071	Relay } or	2
	4-232T-05072	Relay }	
D26,27		Diode 1S1885	2
DISPLAY-2 PCB ASS'Y			
58	141-4-230T-96600	P.C. Board Ass'y, Display-2	1
		LED PY5531K Yellow, Memoly	2
		LED PR5531K Red, Outlet	2
DISPLAY-1 PCB ASS'Y			
59	141-4-230T-96700	P.C. Board Ass'y, Display-1	1
		LED SLC26UR1 Red, PM	2

TMS 1000 MICRO COMPUTER

SJ 1000(TMS 1170)
SJ 1001(TMS 1070)
} CPU

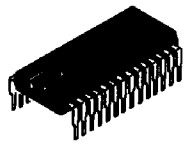
OUTPUT INPUT AND INSTRUCTION TIMING



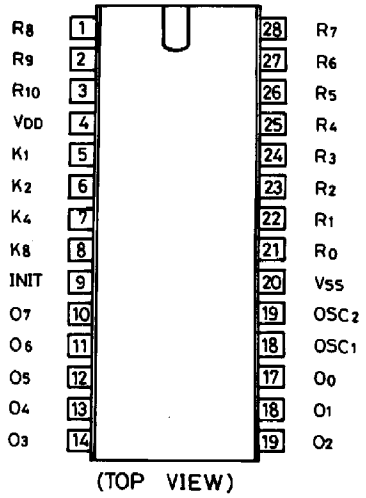
NOTES 1. Initial rise time is load dependent. The high level output voltage. VOH, is characterized following the indicated clock period.

2. Rise and fall times are load dependent.

SJ 1000
SJ 1001

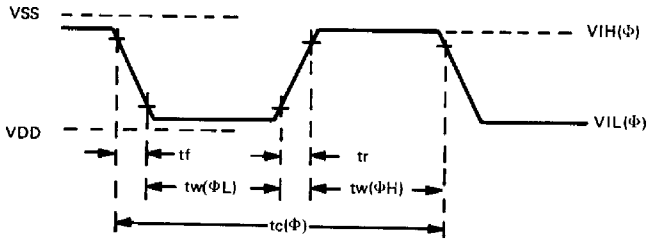


TMS 1170NL



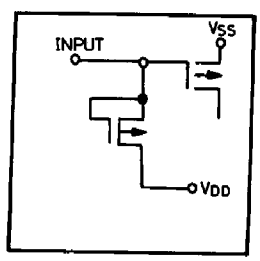
(TOP VIEW)

EXTERNALLY DRIVEN CLOCK INPUT WAVEFORM

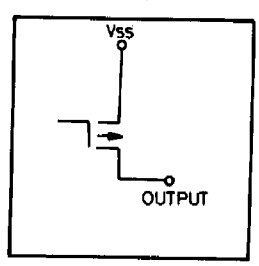


NOTE Timing points are 90% (high) and 10% (LOW)

TYPICAL OF ALL K INPUTS



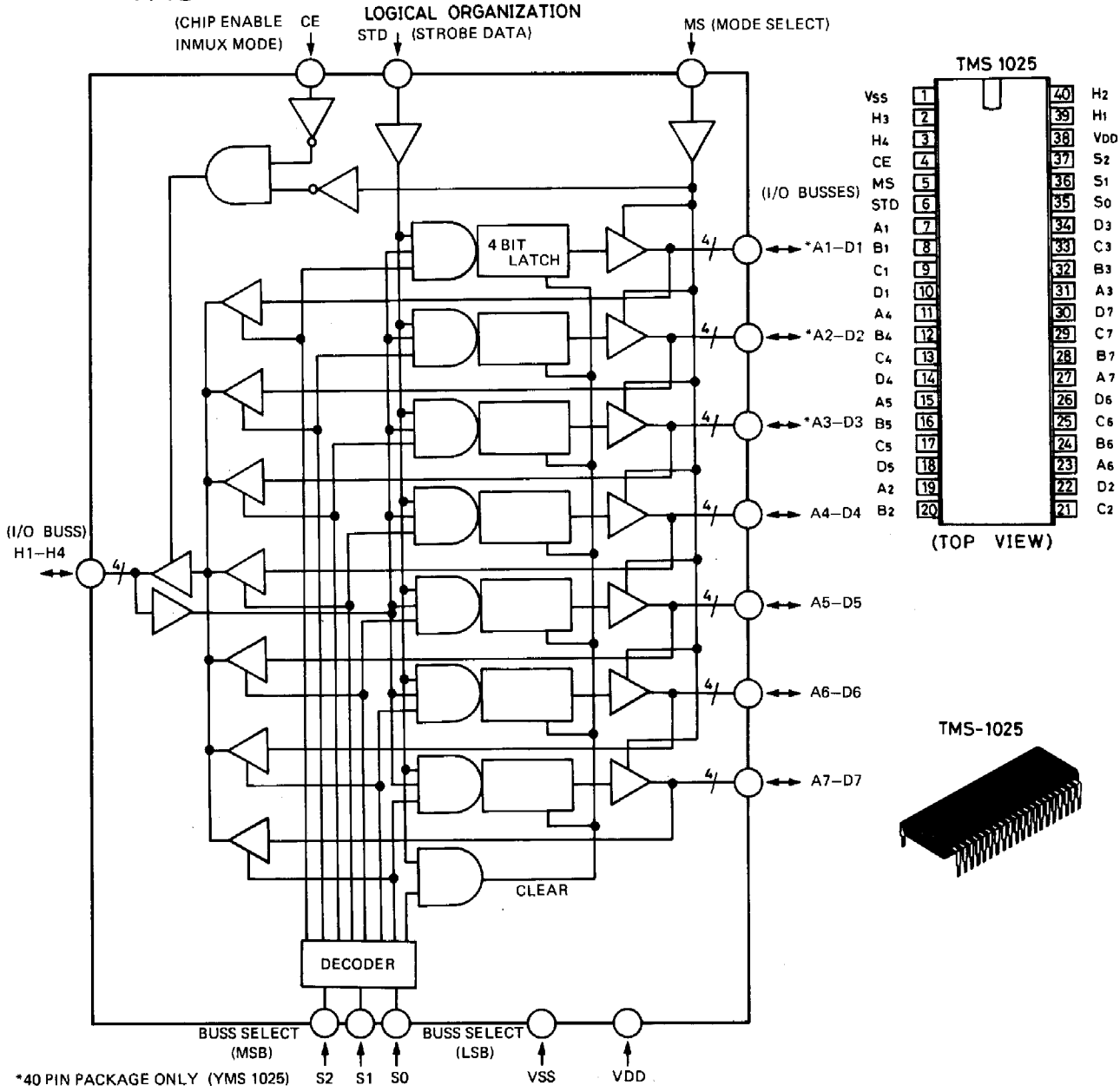
TYPICAL OF ALL O AND R OPEN DRAIN OUTPUTS



The O outputs have nominally 60Ω on-state impedance

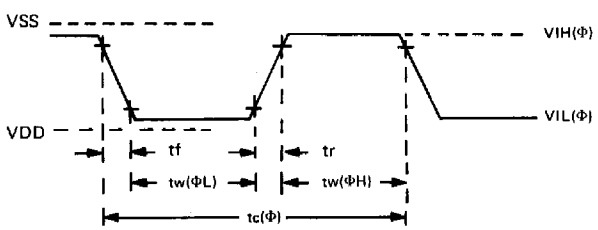
The output pull-down devices are active MOS r transistors that typically provide a low level output voltage within 5 volts of VDD.

TMS 1000 MICRO COMPUTER (TMS 1025 - I/O EXPANDER)



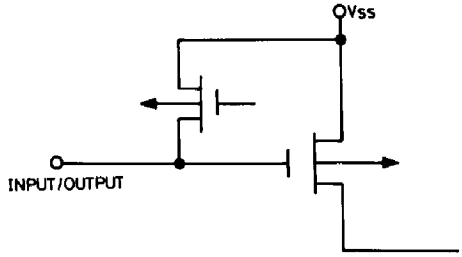
TMS-1025

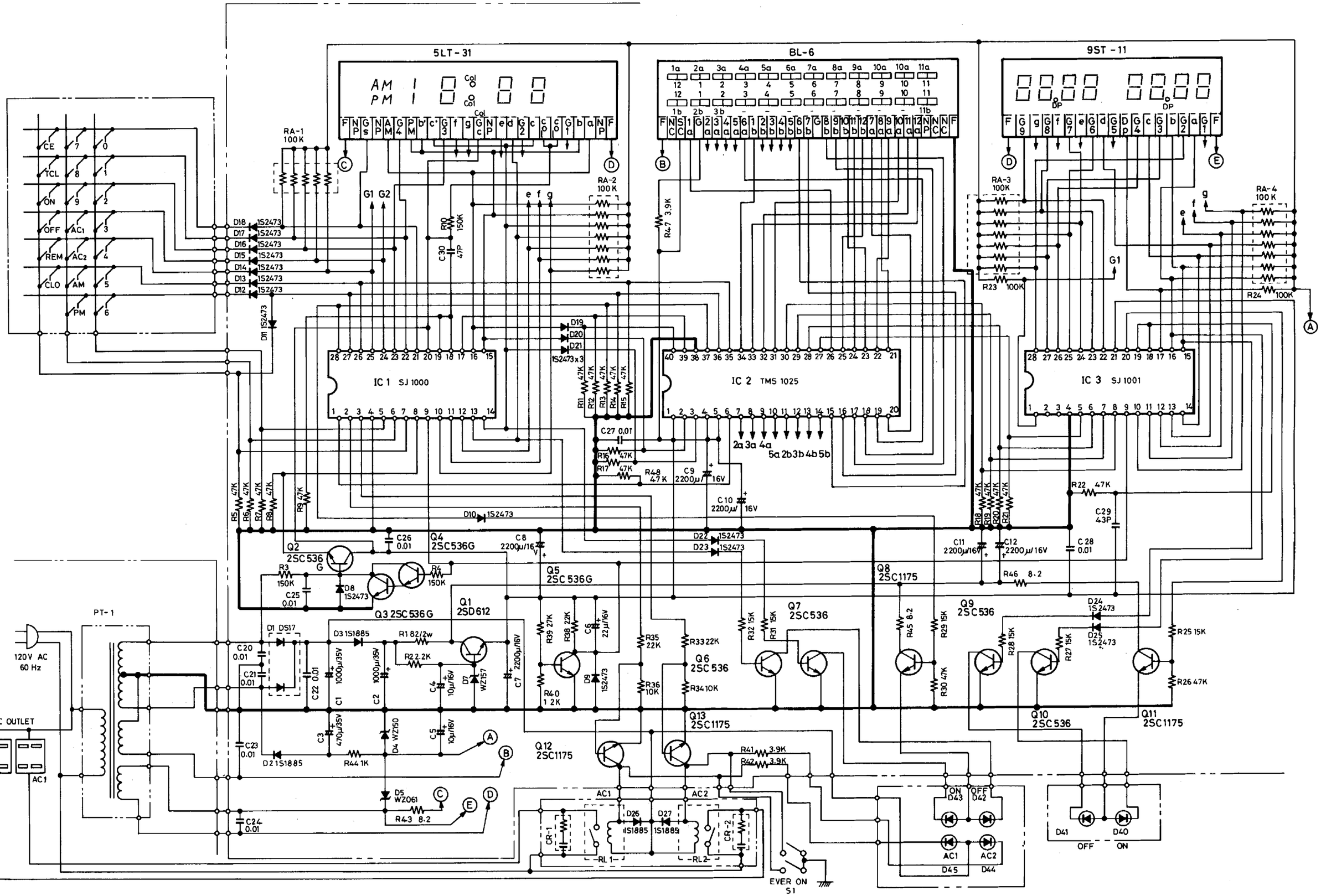
EXTERNALLY DRIVEN CLOCK INPUT WAVEFORM

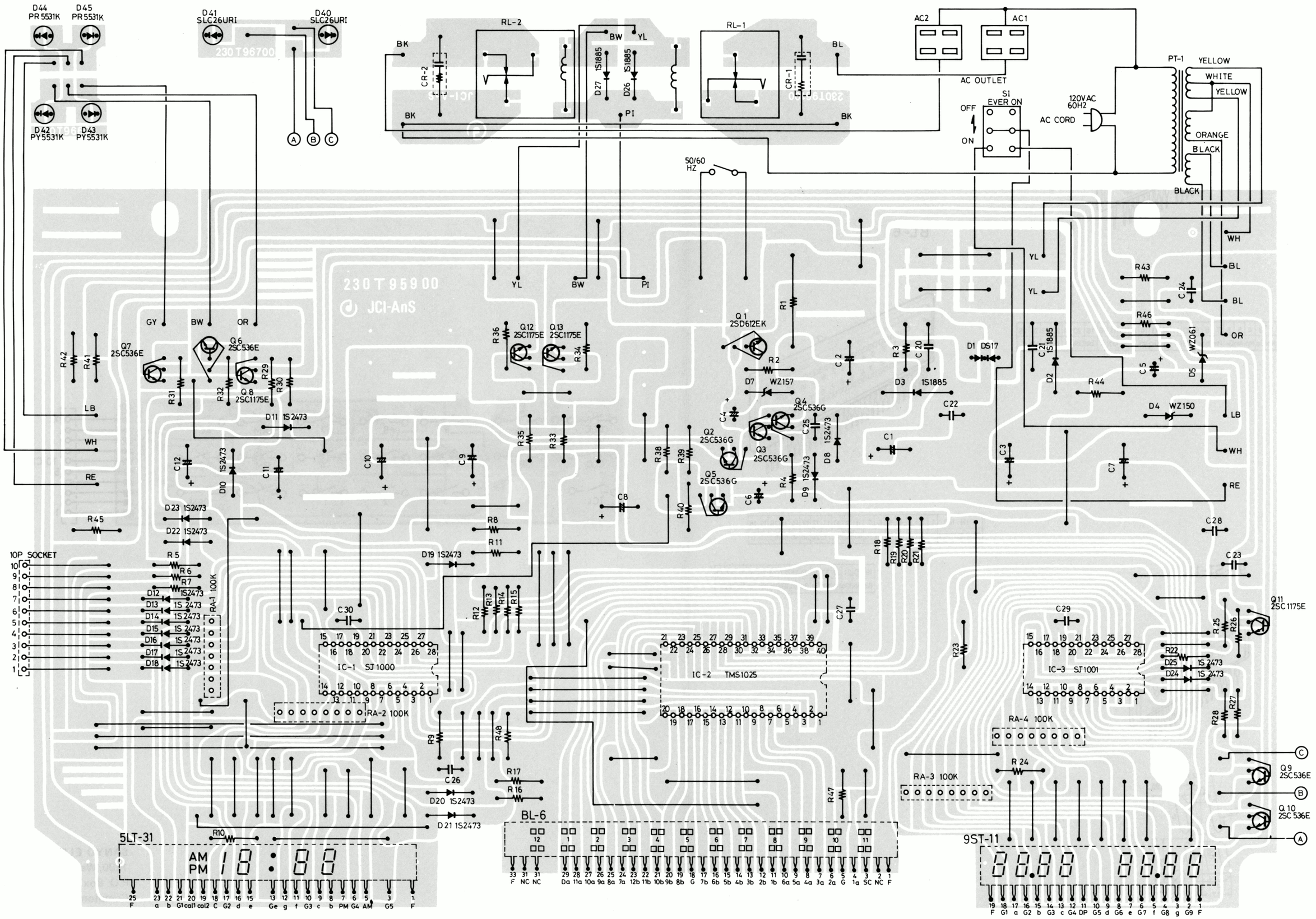


NOTE Timing points are 90% (high) and 10% (LOW)

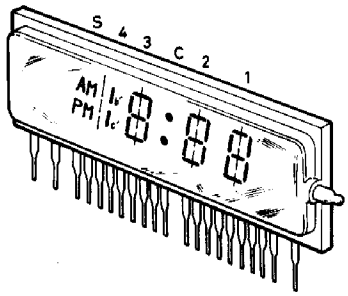
SCHEMATICS OF ALL DATA INPUTS/OUTPUTS




5LT-31
BL-6
9ST-11
IC 1 SJ 1000
IC 2 TMS 1025
IC 3 SJ 1001
PT-1
120V AC 60 Hz
AC OUTLET
AC2
AC1
EVER ON S1
RA-1 100K
RA-2 100K
RA-3 100K
RA-4 100K
Q1 2SD612
Q2 2SC536 G
Q3 2SC536G
Q4 2SC536G
Q5 2SC536G
Q6 2SC536
Q7 2SC536
Q8 2SC1175
Q9 2SC536
Q10 2SC536
Q11 2SC1175
Q12 2SC1175
Q13 2SC1175
D1 DS17
D2 1S1885
D3 1S1885
D4 WZ150
D5 WZ061
D7 WZ157
D8 1S2473
D9 1S2473
D10 1S2473
D11 1S2473
D12 1S2473
D13 1S2473
D14 1S2473
D15 1S2473
D16 1S2473
D17 1S2473
D18 1S2473
D19 1S2473x3
D20
D21
D22 1S2473
D23 1S2473
D24 1S2473
D25 1S2473
D26 1S1885
D27 1S1885
D40
D41
D42
D43
D44
D45
CR-1
CR-2
RL1
RL2
CE
TCL
ON
OFF
REM
CLO
AM
PM
AC1
AC2
G1 G2
e f g
2a 3a 4a 5a 2b 3b 4b 5b

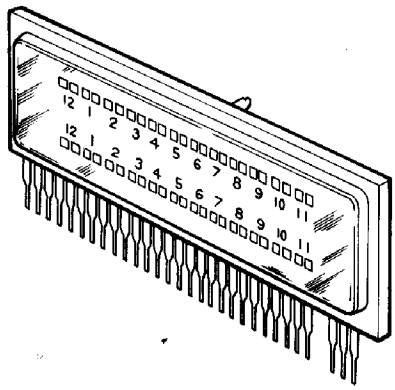

D44 PR5531K
D45 PR5531K
D42 PY5531K
D43 PY5531K
D41 SLC26URI
D40 SLC26URI
230T96700
A
B
C
RL-2
RL-1
CR-2
CR-1
D27 1S1885
D26 1S1885
BK
BW
YL
PI
BL
AC2
AC1
AC OUTLET
S1 EVER ON
OFF
ON
120VAC 60HZ
AC CORD
PT-1
YELLOW
WHITE
YELLOW
ORANGE
BLACK
BLACK
50/60 HZ
230T95900
JCI-AnS
GY
BW
OR
Q7 2SC536E
Q6 2SC536E
Q8 2SC1175E
Q12 2SC1175E
Q13 2SC1175E
Q1 2SD612EK
Q2 2SC536G
Q3 2SC536G
Q4 2SC536G
Q5 2SC536G
R42
R41
R31
R32
R29
R30
R36
R34
R1
R2
R3
R35
R33
R38
R39
R4
R40
LB
WH
RE
D11 1S2473
D10 1S2473
D7 WZ157
D3 1S1885
D1 DS17
D2 1S1885
D4 WZ150
D5 WZ061
D8 1S2473
D9 1S2473
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C20
C21
C22
C24
C25
R43
R44
R46
D23 1S2473
D22 1S2473
D19 1S2473
D12 1S2473
D13 1S2473
D14 1S2473
D15 1S2473
D16 1S2473
D17 1S2473
D18 1S2473
10P SOCKET
R5
R6
R7
R8
R11
R45
RA-1 100K
RA-2 100K
R12
R13
R14
R15
C30
IC-1 SJ1000
IC-2 TMS1025
R9
R48
C26
D20 1S2473
D21 1S2473
R17
R16
R10
5LT-31
AM
PM
18:88
BL-6
R18
R19
R20
R21
C27
R23
C28
C23
C29
IC-3 SJ1001
Q11 2SC1175E
R25
R26
R22
D25 1S2473
D24 1S2473
R27
R28
RA-4 100K
R24
RA-3 100K
Q9 2SC536E
Q10 2SC536E
9ST-11
88.88
88.88

5 - LT-31



PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
CONNECTION	F	Np	Gs	Np	Am	G4	Pm	b'	c'	G3	f	g	Gc	Np	e	d	G2	C	Col2	Col1	G	b	a	Np	F

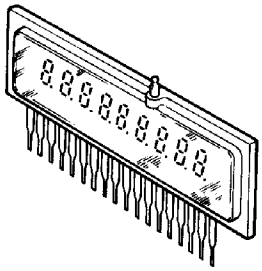
BL-6

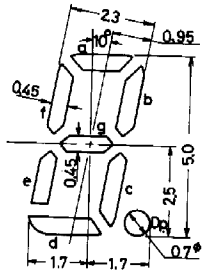


PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
CONNECTION	F	Nc	Sc	1a	G	2a	3a	4a	5a	6a	1b	2b	3b	4b	5b	6b	7b	G

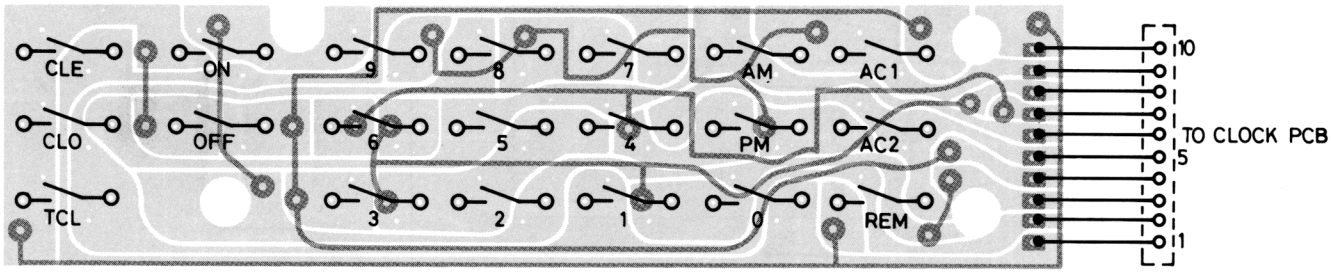
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
8b	9b	10b	11b	12b	7a	8a	9a	10a	11a	12a	Np	Nc	Nc	F

9 - ST-11





WIRING DIAGRAM(KEY BOARD)



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