IWATSU ELECTRIC CO., LTD.

OSCILLOSCOPE SS-7611/SS-7607 SS-7610/SS-7606

SERVICE MANUAL



Read Operators Safety Summary Before Use

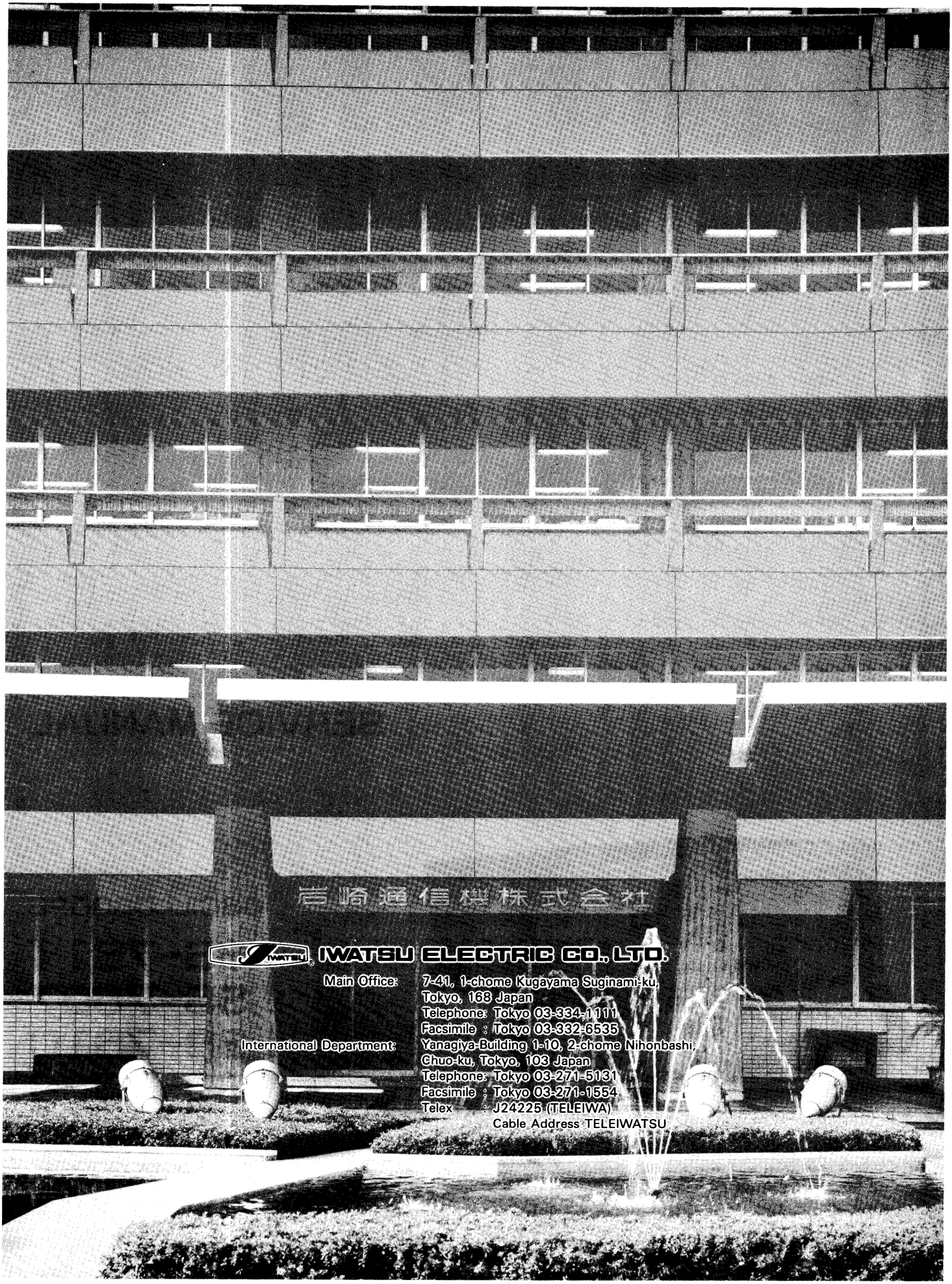
SERVICE MANUAL



OSCILLOSCOPE

SS-7611
SS-7607
SS-7610
SS-7606

D251－816500(K)



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Operators Safety Summary

Read through the following precautions prior to performing any service.

WARNING

The servicing instructions in this manual are for use by qualified personnel only. If you are not qualified, do not perform any servicing other than that contained in operating instructions to avoid personal injury.

Terms

CAUTION : states that the conditions or practices could result in damage to the instrument or other property.

WARNING : states that the conditions or practices could result in personal injury or loss of life.

Safety symbols

⚠ instruction manual symbol. The instrument is marked with this symbol for the detailed information.

⚡ indicates hazardous voltage.

⏚ protective earth (grounding) terminal.

General safety precautions

The instrument shall be disconnected from all voltage sources before it is opened.

WARNING

Opening the covers causes the instrument dangerous, since there are dangerous voltages inside the instrument.

Line voltage check

Before plugging the power cord to an electrical outlet, be sure to check its voltage. The SS-7611, the SS-7610, the SS-7607 and the SS-7606 operate from 90 volts to 250 volts ac power line without line selector. It is not necessary to replace the fuse through the line voltage range, since the fuse rating is the same through the range. Using the oscilloscope at the voltage other than specified range causes the instrument damage.

Operational voltage range : 90 volts to 250 volts

Use the power cord supplied

The instrument shall be connected to a protective earth conductor by using the supplied three-wire power cord or equivalent. Do not operate the instrument without earth connection of the power line.

WARNING

Any obstruction of the protective grounding inside or outside the instrument may cause the instrument dangerous. Intentional obstruction is strictly prohibited.

Use the fuse only specified

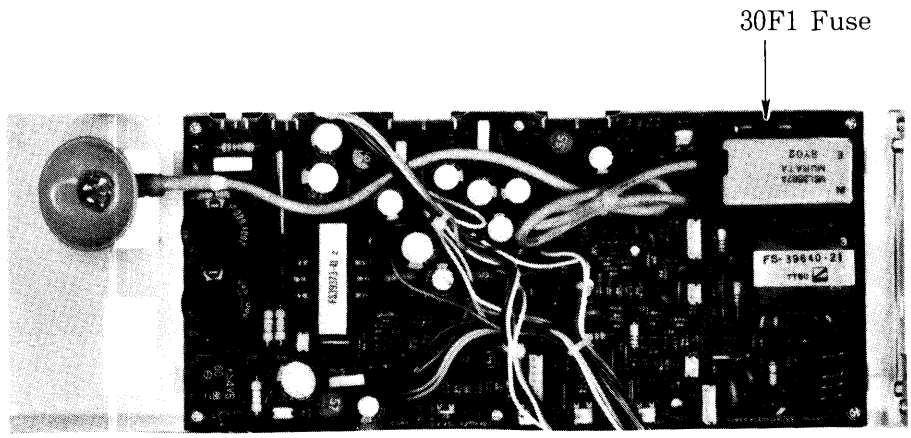
Use the proper rated fuse only listed below. When the fuse has blown, fix the cause first and replace the proper rated fuse. Using the wrong fuse may lead the instrument to the fire hazard.

Circuit No.	Fuse	Usage	Location
29F2	2A slow-blow	Line fuse	Rear panel
30F1	1A slow-blow	CRT circuit fuse	See Figure S-1

WARNING

The instrument shall be disconnected from all voltage sources when replacing a fuse.

Fig. S-1



Do not apply excessive voltage

To avoid damaging the instrument, do not apply the excessive voltage into any input connectors. The following list shows the maximum input voltage rating at the input connectors.

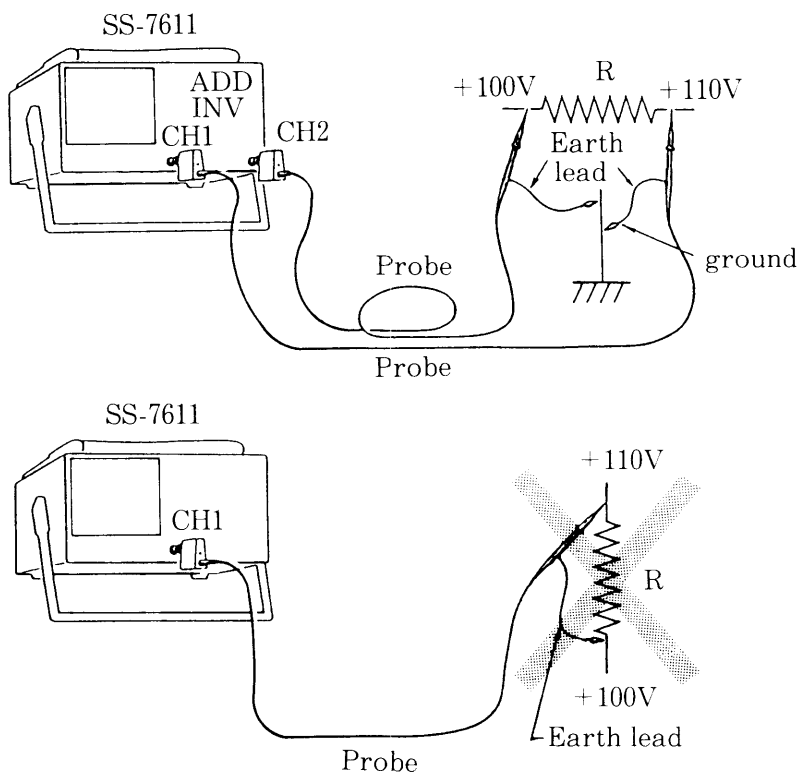
CH1, CH2, CH3 and CH4 inputs : ± 400 V (DC + ACpeak) without probe
± 600 V (DC + ACpeak) with SS-080R probe
± 1000 V (DC + ACpeak) with SS-081R probe

Z AXIS input : ± 50 V max.

Grounding

To avoid electrical shock and damage of the instrument, connect the grounds between the instrument and unit under test. Floating measurement illustrated below may cause not only electrical shock but also instrument damage. The differential measurement method is strongly recommended for the operator's safety and avoiding the instrument damage.

Fig. S-2 Differential measurement vs. floating measurement



Ambient temperature and ventilation

The SS-7611, the SS-7610, the SS-7607 and the SS-7606 oscilloscopes operate under the temperature from 0 ℃ to 50 ℃. Operating the instrument beyond this temperature range may cause instrument damage. Be careful to make space for the ventilation of the instrument. Do not block the ventilation holes.

Do not increase the CRT intensity highly

For the normal measurement, adjust the CRT intensity not too high. Highly increased intensity may result in eye irritation. When the instrument is left under high intensity condition for a long time, this may burn the phosphor on the CRT face plate.

Standing position of the instrument

When setting the instrument to the standing position, be careful not to topple the instrument accidentally.

Internal battery

While the instrument is turned off, the internal battery will back up the real time clock and the setup memories. When the voltage of the battery gets low, the real time clock may lose its accuracy. In this case, call your dealer and have him replace the battery.

Section 1 Specifications

Section 2 Circuit Description

Section 3 Maintenance

Section 4 Check and Adjustment

Section 5 Schematic Diagrams

Section 6 Electrical Parts List

Section 7 Mechanical Parts List and Board Locations

Section 1 SPECIFICATIONS

1-1 GENERAL

The SS-7611, the SS-7610, the SS-7607 and the SS-7606 are the general purpose portable oscilloscopes. The SS-7611 and the SS-7610 are 100 MHz oscilloscopes. The SS-7607 and the SS-7606 are the 60 MHz oscilloscopes. The SS-7610 and the SS-7606 have the four vertical input channels and the dual time bases with the cursor measurement capability. The SS-7611 and the SS-7607 are the advanced versatile oscilloscopes including automatic measurement, counter, auto-setup functions and the capabilities of the SS-7610 or the SS-7606.

- DC to 100 MHz (SS-7611 and SS-7610)
- DC to 60 MHz (SS-7607 and SS-7606)
- Four input channels
- 1 mV/div high sensitivity by using X5 MAG
- 2 ns/div maximum sweep rate by using X10 MAG
- CRT character readout and cursor measurement
- Four cursors simultaneous display
- Automatic vertical sensitivity correction for the specified probes
- Six digits reciprocal counter (SS-7611 and SS-7607)
- Automatic DC voltage measurement and peak voltage measurement (SS-7611 and SS-7607)
- Calender and real time clock (SS-7611 and SS-7607)
- Ten setup memories and comment mode (SS-7611 and SS-7607)
- Auto-setup function

All the specifications in this section are :

1) applicable to the all units of the SS-7611, the SS-7610, the SS-7607 and the SS-7606 if not specified.

2) valid within + 10 ℃ to + 35 ℃, unless noted.

3) valid after 30-minute warm-up time.

1-2 ELECTRICAL SPECIFICATIONS

Vertical deflection system (Y axis)

Mode : CH1, CH2, CH3, CH4, ALT, CHOP, ADD, X-Y
(CHOP switching frequency : 800 kHz ± 5 %)

CH1 and CH2

Deflection factor : 5 mV/div to 5 V/div in a 1-2-5 sequence of 10 steps
1 mV/div and 2 mV/div with X5 MAG
5 mV/div to 12. 5 V/div (continuously variable with VARIABLE)

Accuracy : 5 mV/div to 5 V/div ± 2 %
± 5 % (−10 ℃ to +50 ℃)
1 mV/div, 2 mV/div ± 4 %
± 8 % (−10 ℃ to +50 ℃)

Frequency response :

SS-7611 and SS-7610

Sensitivity	Bandwidth
1 mV/div, 2 mV/div	DC to 50 MHz (−3 dB)
10 mV/div to 2 V/div	DC to 100 MHz (−3 dB)
5 mV/div, 5 V/div	DC to 100 MHz (−3. 5 dB)

SS-7607 and SS-7606

Sensitivity	Bandwidth
1 mV/div, 2 mV/div	DC to 30 MHz (−3 dB)
5 mV/div to 2 V/div	DC to 60 MHz (−3 dB)
5 V/div	DC to 60 MHz (−3. 5 dB)

<Note>
The lower cutoff frequency (−3 dB) at AC coupling is 4 Hz.
When the bandwidth limit is on, the bandwidth is limited to 20 MHz.

Rise time : At 10 mV/div
SS-7611 and SS-7610 : 3. 5 ns
SS-7607 and SS-7606 : 5. 8 ns
(Rise time is calculated from : Bandwidth × Rise time = 0. 35)

Pulse response : At 10mV／div
Overshoot : 3 %
Sag (at 1 kHz) : 1 %
Other distortion : 3 %

Signal delay : 30 ns or greater (delay time on the screen)

Input coupling : AC, DC, GND

Input RC : 1 MΩ ± 1.5 % // 25 pF ± 2 pF (without probe)
10 MΩ ± 3 % // 14.5 pF ± 2 pF (with SS-080R probe)

Maximum input voltage : ± 400 V (DC + ACpeak) (without probe)
± 600 V (DC + ACpeak) (with SS-080R probe)
± 1000 V (DC + ACpeak) (with SS-081R probe)

Drift : 0.1 div／hour or 2 mV／hour, whichever is greater after 30 minutes warm-up. (typical value)

Polarity : CH2 only

Common mode rejection ratio : At 10 mV／div
50 : 1 (1 kHz sine wave)
15 : 1 (20 MHz sine wave)

CH3 and CH4

Deflection factor : 0.1 V／div and 0.5 V／div
Accuracy : ± 4 %
± 8 % (−10 ℃ to +50 ℃)

Frequency response : SS-7611 and SS-7610
0.1 V／div DC to 100 MHz (−3 dB)
0.5 V／div DC to 100 MHz (−3.5 dB)
SS-7607 and SS-7606
0.1 V／div DC to 60 MHz (−3 dB)
0.5 V／div DC to 60 MHz (−3 dB)
<Note>
The lower cutoff frequency (−3 dB) at AC coupling is 4 Hz.
When the bandwidth limit is on, the bandwidth is limited to 20 MHz.

Pulse response : The value in the parentheses is for the SS-7607 and the SS-7606.

	0.1 V／div	0.5 V／div
Overshoot	7 % (6 %)	8 % (6 %)
Sag (at 1 kHz)	2 %	2 %
Others	5 %	6 % (10 %)

Input coupling : AC, DC

Input RC : 1 MΩ ± 1.5 % // 25 pF ± 3 pF (without probe)
10 MΩ ± 3 % // 14.5 pF ± 2 pF (with SS-080R probe)

Maximum input voltage : ± 400 V (DC + ACpeak) (without probe)
± 600 V (DC + ACpeak) (with SS-080R probe)
± 1000 V (DC + ACpeak) (with SS-081R probe)

Triggering

A triggering

Trigger sensitivity : The value in the parentheses is for the SS-7607 and the SS-7606.

Coupling	Frequency range	Maximum sensitivity
DC	DC to 10 MHz 10 MHz to 100 (60) MHz	0. 4 div 1. 0 div
AC	100 Hz to 10 MHz 10 MHz to 100 (60) MHz	0. 4 div 1. 0 div
FIX (sine wave only)	100 Hz to 10 MHz 10 MHz to 100 (60) MHz	1. 0 div 2. 0 div
TV-V TV-H		1. 5 div complex video signal amplitude

<Note>

The lower limit frequency at AUTO mode is 50 Hz.

At REJ coupling, the trigger signal is attenuated at the frequency of :

HF REJ : 10 kHz or higher

LF REJ : 10 kHz or lower

A composite video signal consists of a video signal and a sync-pulse signal. The 70 % of a composite video signal amplitude is a video signal and the 30 % is a sync-pulse signal normally.

Trigger source : VERT, CH1, CH2, CH3, CH4, LINE

Coupling : FIX, AC, DC, HF REJ, LF REJ, TV-V, TV-H

Polarity : Positive (+), negative (−)

B triggering

Trigger sensitivity : Same as in the A trigger sensitivity

Trigger source : RUNS AFTER, CH1, CH2, CH3, CH4

Coupling : FIX, AC, DC, HF REJ, LF-REJ, TV-H

Polarity : Positive (+), negative (−)

Horizontal deflection system (X axis)

Horiz display : A, ALT, B

A time base

Sweep mode : AUTO, NORM, SINGLE

Sweep rate : 20 ns/div to 0.5 s/div in a 1-2-5 sequence of 23 steps
20 ns/div to 1.25 s/div (continuously variable with VARIABLE)
Accuracy I : Over center eight divisions
± 2 %
Accuracy II : Over any two divisions within center eight divisions
± 5 %

Holdoff time : Variable with HOLDOFF

B time base

Delay : Continuous delay (RUNS AFTER) or triggered delay (CH1, CH2, CH3, CH4)

Sweep rate : 20 ns/div to 50 ms/div in a 1-2-5 sequence of 20 steps
Accuracy I : Over center eight divisions
± 2 %
Accuracy II : Over any two divisions within center eight divisions
± 5 %

Delay range : 0.2 to 10.2 div delay position at 1 ms/div
Delay time accuracy : Over 1 μs/div to 0.5 s/div (A sweep rate) and
1 μs/div to 0.5 ms/div (B sweep rate)
± 0.5 % of reading ± 1 % of full scale − 30 ns

Delay jitter : 1/20,000 or less

Sweep magnification : 10 times (maximum sweep rate : 2 ns/div)
Accuracy I : Over center eight divisions
20 ns/div, 50 ns/div ± 5 %
0.1 μs/div to 0.5 s/div ± 3 %
Accuracy II : Over any two divisions within center eight divisions
20 ns/div to 2 μs/div ± 8 %
5 μs/div to 0.5 s/div ± 5 %

<Note>
The first 30 nsec and last 40 nsec of the sweep are not valid for this specification.

X-Y operation

X axis

Input :	CH1
Deflection factor :	Same as that of CH1 Accuracy : 5 mV／div to 5 V／div ± 3 %
Frequency response :	DC to 4 MHz, −3 dB
Input RC :	Same as that of CH1
Maximum input voltage :	Same as that of CH1

Peak voltage measurement (only for the SS-7611 and the SS-7607)

The value in the parentheses is for the SS-7607.

Measurement	Accuracy
DC voltage	± (0.5% of reading + 1.6% of full scale + 20% of one division) within center 6 vertical divisions
+ PEAK, -PEAK 45Hz to 100(60)MHz and one division or more screen amplitude	± (0.5% of reading + 1.6% of full scale + 20% of one division + 0dB/-2dB* + CH1 and/or CH2 vertical frequency response) within center 6 vertical divisions < Note > 0dB/-2dB*: is the value befween 0dB and -2dB, and follows the curve of the peak detector frequency response. The cursor may jump 0.2 div or so depending on the some input frequency.
GATED + PEAK, GATED -PEAK 45Hz to 100(60)MHz and one division or more screen amplitude in the gated period and one cycle or more display signal	± (0.5% of reading + 1.6% of full scale + 30% of one division + 0dB/-2dB* + CH1 and/or CH2 vertical frequency response) within center 6 vertical divisions and one horizontal division or more gated period at 5ms/div to 0.2 µs/div sweep rate < Note > 0dB/-2dB*: is the value befween 0dB and -2dB, and follows the curve of the peak detector frequency respouse. The cursor may jump 0.3 div or so depending on the some input frequency.

< Note >

- The accuracy mentioned above are specified after executing the **AUTO CAL** function.

Cursor measurement (only for the SS-7611 and the SS-7607)

TIME cursor measurement :

Delta time (△t) :

±0.5 % of reading ± 1.3 % of full-scale

Frequency (1/△t), Phase (PHASE), Period ratio (RATIO), Rise time and fall time (Tr, Tf), and Duty ratio (DUTY) :

Calculated from the delta time value.

VOLT cursor measurement :

Delta voltage (△V) :

± 0.5 % of reading ± 1.6 % of full-scale

Delta voltage from GND (△V π), Voltage ratio (V RATIO) :

Calculated from the delta voltage value.

Cursor position range :

VOLTAGE cursors :

± 3.6 divisions or more from the screen center

TIME cursors :

± 4.5 divisions or more from the screen center

<Note>

The cursor tracking mode, which allows to position the cursors maintaining the fixed span between the cursors, is available.

Date and time (only for the SS-7611 and the SS-7607)

Display format : DD-MMM-YY HH : MM

DD : day (2-digit number, 01 to 31)

MMM : month (3-digit alphabet, Jan through Dec)

YY : year (2-digit number, 00 to 99)

HH : hour (2-digit number, 00 to 23)

MM : minute (2-digit number, 00 to 59)

Leap year : Auto correction of a leap year

Comment display (only for the SS-7611 and the SS-7607)

Display area : 4 th row through 14th row from the top of the screen

Number of characters : Up to 80 characters

Character set :

Data storage

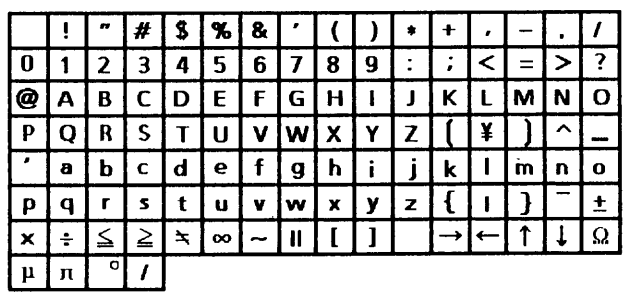
Data memory :	Backup by built-in batteries
Storage data :	SS-7611 and SS-7607 10 setup memories excluding the last setup at power-off SS-7610 and SS-7606 Last setup memory at power-off
Battery life :	Approx. 40,000 hours (at room temperature)

CRT

Shape :	Rectangular, 6 inches
Display area :	8 div × 10 div (1 div = 10 mm), Non-parallax internal graticule with scale illumination
Phosphor :	B31
Accelerating voltage :	Approx. 16 kV

Power supply

Voltage range :	90 V to 250 V AC
Frequency range :	50 Hz to 440 Hz
Power consumption :	SS-7611 and SS-7607 Approx. 85 W (at 100 V AC) SS-7610 and SS-7606 Approx. 75 W (at 100 V AC)



1-3 WEIGHT AND DIMENSIONS

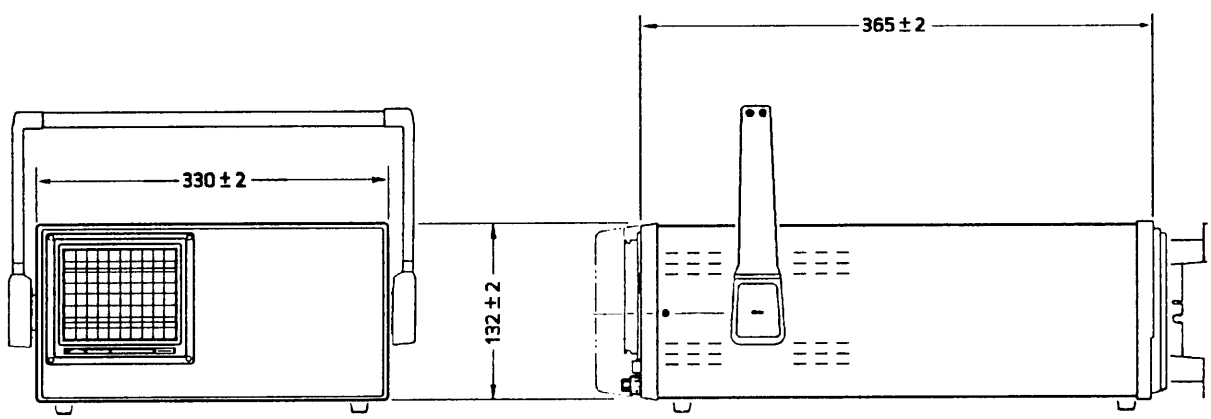
Weight :	Approx. 7.5 kg (excluding the panel covers and accessories)
Size :	330 ± 2 mm (W) × 132 ± 2 mm (H) × 365 ± 2 mm (L)

1-4 ENVIRONMENTAL CHARACTERISTICS

Operating temperature :	−10 ℃ to +50 ℃
Operating humidity :	90 % at 40 ℃ (relative humidity)
Storage temperature :	−20 ℃ to +70 ℃
Altitude :	
Operating :	5,000 m, barometric pressure of 405 mmHg
Non-operating :	15,000 m, barometric pressure of 90 mmHg
Vibration test :	Start from 10 Hz to 55 Hz and back in one minute. Peak-to-peak amplitude 0. 67 mm ; for 15 minutes each in vertical, horizontal, and longitudinal directions for a total of 45 minutes.
Shock test :	Raise one side by 10 cm and let it fall onto a piece of a hard wood ; 4 times for each side.
Drop test :	Pack the instrument in the transportation carton and drop it from the height of 90 cm.

1-5 ACCESSORIES

Power cord (3-core)	1
Fuse (2 A/250 V, slow blow)	2
Probe (SS-080R)	2
Panel cover	1
Instruction manual	1
Accessory bag	1



MEMO

Section 2 Circuit Description

2-1 GENERAL DESCRIPTION

a. Vertical deflection system

Schematic diagram: 1, 2, 3, 4, 5, 6, 7, 8

The signal applied to the input channel is routed to the preamplifier via input coupling, 1M Ω attenuator, buffer amplifier, and low impedance attenuator, which consists of the attenuation factors of the 1/2 and 1/5. The CH1 and the CH2 attenuators are identical. The buffer amplifier stage has the 1M Ω input impedance and the low output impedance. There are high and low frequency paths in the buffer amplifier stage.

The CH3 and the CH4 attenuators are similar to the CH1 and the CH2 attenuators.

The serial data transmission, which consists of the **S DATA**, **S CLK**, and **STROBE**, distributes the hardware control lines to the each circuitry from the CPU.

Preamplifiers of the CH1, CH2, CH3 and CH4 receive the single-ended signals and convert into the differential signals. The each **POSITION** control provides the DC offset and changes the signal position on the screen. The **VARIABLE** control varies the amplifier gain continuously. The preamplifier stage also provides the trigger signal to the trigger generator section.

Delay cable driver amplifier stage receives the signal selected by the **VERT MODE**, and drives the delay cable. The **20MHz BANDWIDTH** limits the amplifier bandwidth to the 20MHz.

The calibrator provides the 1KHz calibration signal.

The vertical output amplifier consists of the three cascode amplifiers. When the **BEAM FIND** is on, the output amplifier dynamic range is reduced. In the **ALT HORIZ DISPLAY** mode, the **TRACE SEP** control provides the DC offset and changes the B trace signal position on the screen. The character signal is applied to the output amplifier stage via the character and cursor readout amplifier.

b. Horizontal deflection system

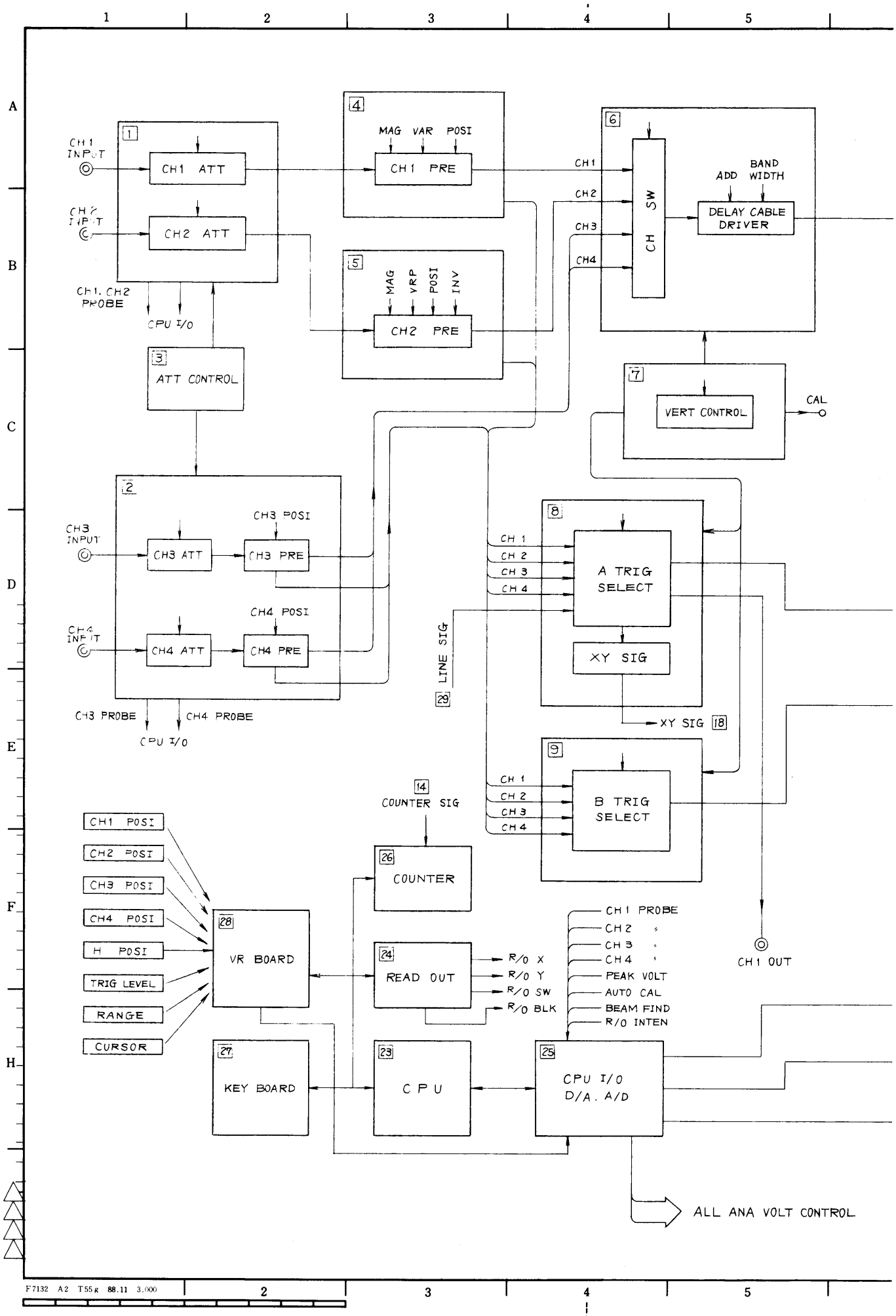
Schematic diagram: 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 31, 32, 33, 34

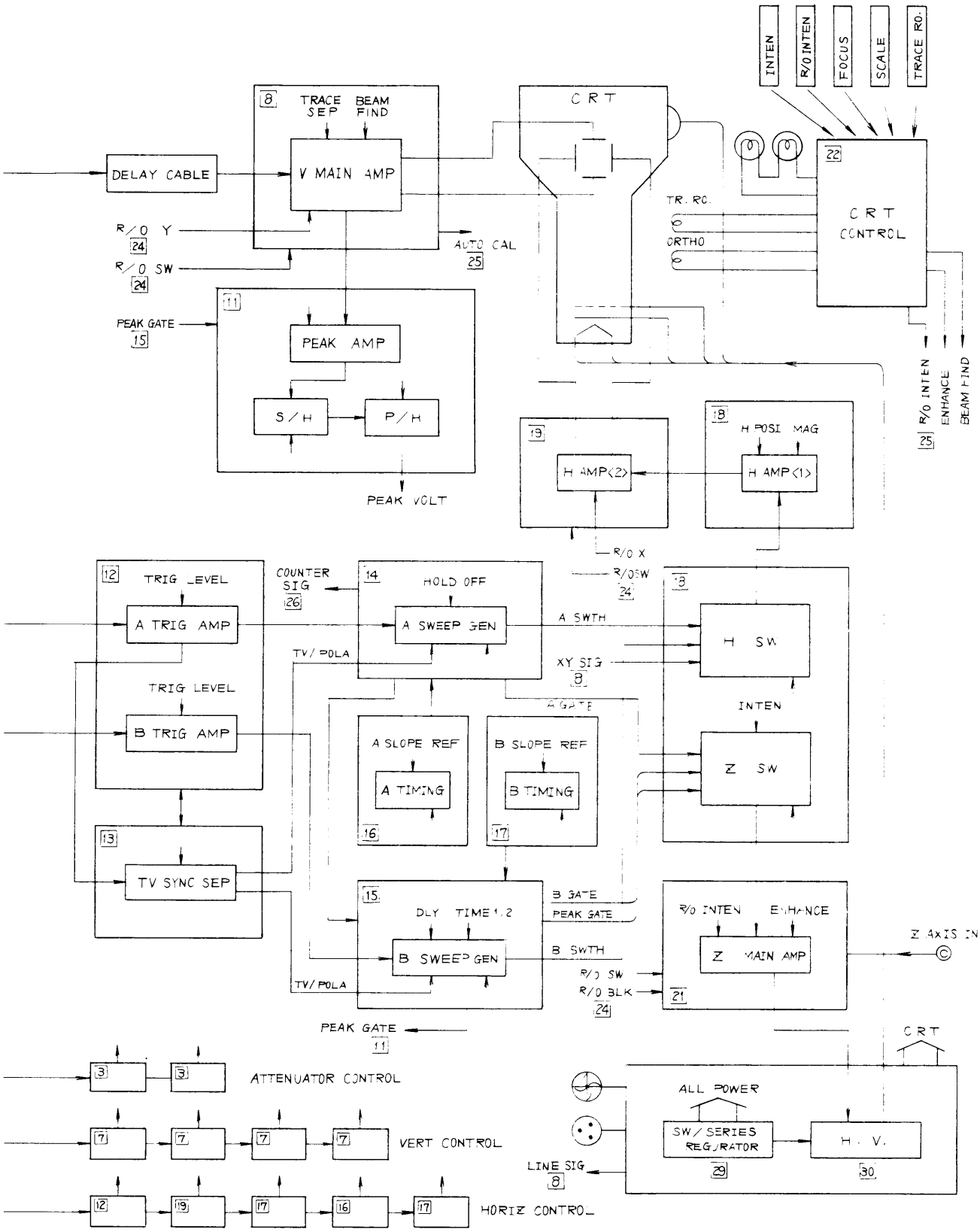
The A trigger source selects the trigger source among the CH1, CH2, CH3, CH4 and line signals, while the B trigger source selects the trigger source among the CH1, CH2, CH3 and CH4 signals. The **CH1 OUT** and the **XY** signals are provided in the A trigger selector section.

The peak hold circuit detects the plus and or minus peak value for the peak measurement. The measurement mode selector switches the dc voltage and the peak voltage measurements.

The A and the B trigger amplifier stages are identical. The trigger signal is filtered by the **COUPLING** at the input of the A and the B trigger amplifiers. The **TRIG LEVEL** sets the DC offset of the trigger amplifier. The TV sync-pulse separator separates the sync-pulse for the video signal measurement.

The A sweep generator is triggered by the trigger pulse from the A trigger amplifier, and generates the A sawtooth signal. When the oscilloscope is set to the **AUTO** mode, the A sweep generator generates the sawtooth signal even in the absence of the trigger pulse.


1
CH1 INPUT
CH1 ATT
CH2 INPUT
CH2 ATT
CH1, CH2 PROBE
CPU I/O
3
ATT CONTROL
4
MAG VAR POSI
CH1 PRE
5
MAG VRP POSI INV
CH2 PRE
6
CH1
CH2
CH3
CH4
CH SW
BAND ADD WIDTH
DELAY CABLE DRIVER
7
VERT CONTROL
CAL
2
CH3 INPUT
CH3 POSI
CH3 ATT
CH3 PRE
CH4 INPUT
CH4 POSI
CH4 ATT
CH4 PRE
CH3 PROBE
CH4 PROBE
CPU I/O
8
CH 1
CH 2
CH 3
CH 4
A TRIG SELECT
XY SIG
LINE SIG
29
XY SIG 18
9
CH 1
CH 2
CH 3
CH 4
B TRIG SELECT
14
COUNTER SIG
26
COUNTER
CH1 POSI
CH2 POSI
CH3 POSI
CH4 POSI
H POSI
TRIG LEVEL
RANGE
CURSOR
28
VR BOARD
24
READ OUT
R/O X
R/O Y
R/O SW
R/O BLK
CH1 PROBE
CH2 "
CH3 "
CH4 "
PEAK VOLT
AUTO CAL
BEAM FIND
R/O INTEN
CH1 OUT
27
KEY BOARD
23
C P U
25
CPU I/O
D/A. A/D
ALL ANA VOLT CONTROL
A
B
C
D
E
F
H
1
2
3
4
5


INTEN
R/O INTEN
FOCUS
SCALE
TRACE RO.
8
TRACE SEP
BEAM FIND
V MAIN AMP
DELAY CABLE
R/O Y
24
R/O SW
24
AUTO CAL
25
CRT
22
CRT CONTROL
TR. RO.
ORTHO
11
PEAK GATE
15
PEAK AMP
S/H
P/H
PEAK VOLT
R/O INTEN
ENHANCE
BEAM FIND
25
19
H AMP(2)
18
H POSI MAG
H AMP(1)
R/O X
R/O SW
24
12
TRIG LEVEL
A TRIG AMP
COUNTER SIG
26
14
HOLD OFF
A SWEEP GEN
A SWTH
TV/ POLA
XY SIG
8
13
H SW
TRIG LEVEL
B TRIG AMP
A GATE
INTEN
A SLOPE REF
A TIMING
16
B SLOPE REF
B TIMING
17
Z SW
13
TV SYNC SEP
15
DLY TIME 1,2
B SWEEP GEN
B GATE
PEAK GATE
B SWTH
R/O SW
R/O BLK
24
21
R/O INTEN
ENHANCE
Z MAIN AMP
Z AXIS IN
TV/ POLA
PEAK GATE
11
CRT
ATTENUATOR CONTROL
3
3
VERT CONTROL
7
7
7
7
HORIZ CONTROL
12
19
17
16
17
ALL POWER
SW/ SERIES REGULATOR
29
H. V.
30
LINE SIG
8

The B sweep generator has two modes, the **RUNS AFTER** mode and the trigger delay mode. In the **RUNS AFTER** mode, the B sweep generator generates the B sawtooth signal just after the certain delay time. In the trigger delay mode, the B sweep generator generates the B sawtooth signal when the B sweep generator is triggered by the B trigger pulse from the B trigger amplifier after the certain delay time.

The horizontal amplifier receives the sawtooth signal via the horizontal control circuit, and drives the CRT for the horizontal deflection. The horizontal amplifier increases its gain ten times at the **MAG X10**. The character and the cursor readout signal is applied to the CRT deflection plate through the readout preamplifier and the horizontal final amplifier stages.

c. CRT peripherals

Schematic diagram: 21, 22

The Z axis amplifier receives the unblanking pulse from the sweep generator via horizontal control circuit, and outputs the unblanking pulse to the CRT grid via the high voltage generator circuit. The character and the cursor readout unblanking signals are also applied to the CRT grid via the readout preamplifier and the Z final amplifier stages.

The **A INTEN**, the **READOUT** intensity and the **FOCUS** controls are located in the CRT circuit.

d. CPU circuit and peripherals

Schematic diagrams: 23, 24, 25, 26, 27, 28

The 8-bit microcomputer, which has a 8-bit data bus and a 16-bit address bus, is a central part of the control circuit. The serial data transmission, which consists of the **S DATA**, **S CLK**, and **STROBE**, distributes the hard ware control lines to the each circuitry from the CPU.

The character display processor handles the character and the cursor readouts on the screen. The two 12-bit D/A converters outputs the vertical and the horizontal analog readout signals to the each amplifier stages.

The CPU I/O interface provides the serial data transmissions, the analog control lines and the A/D converter functions. The serial data transmissions transfer the serial data from the CPU to the peripheral analog circuits. The analog control lines are distributed to the peripheral analog circuits. The A/D converter functions receive the analog data from the peripheral circuits and convert into the digital data for the CPU processing.

The counter section receives the A trigger pulse via the A trigger amplifier for the counter measurement.

The LED indicators and the key board switches on the front panel are placed in the matrices and are scanned by the interface device.

e. Power supplies

Schematic diagrams: 29, 30

The power supplies consist of the switching regulator and the series regulators. Without power line selector selection, the power supply regulates the secondary voltages within the full line voltage range between 90V and 250V.

There are four secondary voltages, and the −12V, +12V and the 50V power supplies are provided by the individual series regulators.

The CRT power supply provides the high voltages to the CRT by generating the oscillation. If the high voltage power supply accidentally gets higher, the protection circuit works to stop the oscillation.

2-2 VERTICAL DEFLECTION SYSTEM

a. CH1 and CH2 1MΩ attenuators [1]

The CH1 attenuator section will be only discussed here, since the CH1 and the CH2 attenuators are identical in operation.

The signal applied to the **CH1 INPUT** is routed to the **AC／DC／GND COUPLING**. The **COUPLING** consists of the 3RL11 relay for the **DC** or **AC** coupling and 3RL12 relay for the **GND** coupling.

There are two 1M Ω attenuator stages. Both stages are identical, and has the 10 to 1 attenuation factor. The 3RL13 and 3RL14 relays switch the each attenuator stage.

After the signal passed through the 1MΩ attenuator stage, the signal is routed to the buffer amplifier stage. The buffer amplifier stage has the 1MΩ input impedance, low output impedance, and almost a unity-gain. There are two signal paths in the buffer amplifier. The one is the low frequency path, which consists of the 1IC11, 1Q14, 1Q12 and associated components. The other is the high frequency path, which consists of the 1Q11 and associated components.

The output signal of the buffer amplifier is applied to the low impedance attenuator stage. The low impedance attenuator stage has three attenuation factors of 1／1, 1／2, and 1／5.

Table 2-2-1 CH1 and CH2 coupling logic

The logic "1" shows the relay is set to the position indicated by the arrow in the schematic diagram.

	AC	DC	GND
3RL11／21	0	1	0 or 1
3RL12／22	1	1	0

Table 2-2-2 CH1 and CH2 attenuator logic

The logic "1" shows the relay is set to the position indicated by the arrow in the schematic diagram.

	5mV	10mV	20mV	50mV	0.1V	0.2V	0.5V	1V	2V	5V
3RL13／23 (CH1／CH2 A)	0	0	0	0	0	0	0	1	1	1
3RL14／24 (CH1／CH2 B)	0	0	0	0	1	1	1	1	1	1
3RL15／25 (CH1／CH2 C)	0	0	0	1	0	0	1	0	0	1
3RL16／26 (CH1／CH2 D)	0	0	1	0	0	1	0	0	1	0

b. CH3 and CH4 attenuators and preamplifiers [2]

The CH3 and CH4 sections are identical and therefore the CH3 section will be discussed here.

The signal applied to the **CH3 INPUT** is delivered to the differential amplifier through the **COUPLING**, buffer amplifier and the low impedance attenuator stages. The buffer amplifier is similar to the buffer amplifier in the CH1 and CH2 attenuators section. For the detail, see the "a. CH1 and CH2 attenuators."

The single-ended output signal from the buffer amplifier is applied to the differential amplifier stage, which consists of the 2Q34, 2Q35, 2Q36 and the associated components. The emitter follower amplifier stage consists of the 2Q37 and associated components, and picks off the trigger signal and deliver it to the **TRIGGER SOURCE** section.

Table 2-2-3 CH3 and CH4 coupling logic

The logic "1" shows the relay is set to the position indicated by the arrow in the schematic diagram.

	AC	DC
3RL31/41	0	1

Table 2-2-4 CH3 and CH4 attenuator logic

The logic "1" shows the relay is set to the position indicated by the arrow in the schematic diagram.

	0.1V	0.5V
3RL32/42	0	1

c. **Attenuator control circuit** [3]

The attenuator control circuit receives the serial data called **S DATA** from the CPU and decodes it into the individual control lines. The pair 8-bit shift registers of the 3IC11 and 3IC21 receives the **S DATA** in the serial format, which is clocked by the clock pulse called the **S CLK3** and latched by the **STROBE** pulse. The each control line has the buffer amplifier and the diode limiter respectively.

Figure 2-2-1 Serial to parallel conversion timing chart

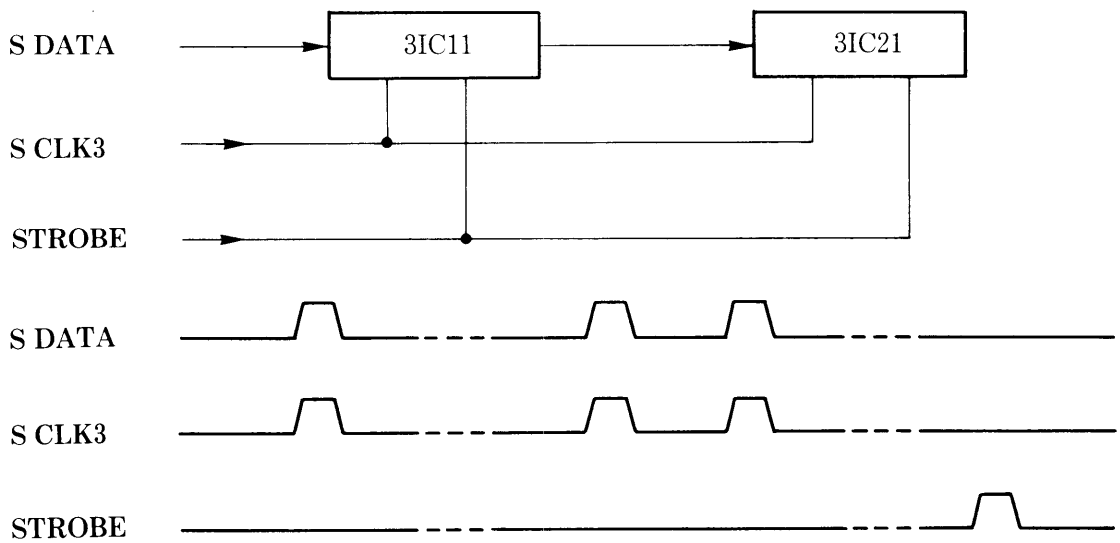


Table 2-2-5 3IC11 and 3IC21 pin assignments

3IC11	pin #	Signal
	1	CH4 *AC/DC
	2	CH1 *AC/DC
	3	CH1 *GND/Through
	4	CH1 A (3RL13)
	5	CH1 B (3RL14)
	6	CH1 C (3RL15)
	7	CH1 D (3RL16)
	11	Serial clock input
	12	Strobe pulse input
	14	Serial data input
	15	CH4 *0.1/0.5

3IC21	pin #	Signal
	1	CH3 *AC/DC
	2	CH2 *AC/DC
	3	CH2 *GND/Through
	4	CH2 A (3RL23)
	5	CH2 B (3RL24)
	6	CH2 C (3RL25)
	7	CH2 D (3RL26)
	11	Serial clock input
	12	Strobe pulse input
	14	Serial data input
	15	CH3 *0.1/0.5

Note: The "*" in the table shows low level logic.

d. CH1 and CH2 preamplifiers [4], [5]

The CH1 and CH2 preamplifiers are almost identical, and therefore only the CH1 preamplifier is discussed regarding the identical part. The CH2 amplifier is discussed only the difference from the CH1 amplifier.

The CH1 preamplifier consists of the two cascode amplifier stages. There are an emitter follower amplifier stage between the first and the second cascode amplifier stages.

The first cascode amplifier stage receives the single-ended signal from the attenuator section and converts it into the differential signal. The pair operational amplifiers of the 4IC1 composes the low frequency negative feedback loop for the first cascode amplifier. The first cascode amplifier is a gain- switchable. Normally the **CH1 X5 CONT** is set to the low level. When the vertical **X5 MAG** is set, the **CH1 X5 CONT** line goes to the high level. This sets the 4Q3 and 4Q4 transistors active and the 4RL2 relay to the make position. Eventually the gain of the first cascode amplifier is increased five times higher than the normal gain.

The second cascode amplifier stage converts the differential voltage inputs into the differential current outputs which drives the delay cable driver amplifier stage. This amplifier stage includes the **VARIABLE** function. The **CH1 VAR-CONT** line controls the gate voltage of the 4Q25 field effect transistor and the resistance between the drain and the source of the 4Q25. Decreasing the drain-source resistance of the 4Q25 reduces the gain of the common-base amplifiers composed of the 4Q13 and 4Q14 transistors and associated components.

The second cascode amplifier is a gain-switchable. Normally the **CH1 X2 CONT** is set to the low level. When the 5mV/div attenuation range is set, the **CH1 X2 CONT** line goes to the high level and this sets the 4RL1 relay to the make position. Eventually the gain of the second cascode amplifier is increased two times higher than the normal gain.

The emitter-coupled amplifier, which is composed of 4Q21 and 4Q22 transistors and the asso-

ciated components, controls the bias current of the common-base amplifier of the 4Q15 and 4Q16 transistors and the associated components.

The emitter follower amplifiers, which are composed of the 4Q23 and 4Q24 transistors and associated components, picks off the trigger signal from the vertical amplifier and delivers to the trigger source section.

The 5Q17 and 5Q18 transistors and associated components are special only for the CH2 amplifier and compose the inverted CH2 signal path, which provides the **CH2 INV** polarity. When the **CH2 NORM** line is high and the **CH2 INV** line is low, the pair transistors of the 4Q17 and 4Q18 are on and the pair transistors of the 4Q15 and 4Q16 are off. When the **CH2 NORM** line is low and the **CH2 INV** line is high, the 4Q17 and 4Q18 transistors are off and the 4Q15 and 4Q16 are on.

e. Delay cable driver [6]

The delay cable driver consists of the 6Q1 and 6Q2 transistors and the associated components, and receives the current signal from the preamplifiers via diode current switching circuit, and drives the 6DL3 delay cable.

The CH3 and CH4 signals are delayed to match the CH1 and CH2 delay time via the 6DL1 and 6DL2 delay cables respectively.

The diode current switching circuit is composed of the four signal paths, i. e. the CH1, CH2, CH3, and CH4 signal paths. Only one signal path is routed to the delay cable driver at one time except for **ADD** mode. When the **VERT MODE** is set to the **ADD** mode, the **ADD** line goes low and the transistor 6Q7 goes off. Then the CH1 and CH2 signal paths turns through. Except for the **ADD** mode when the ***CH1-CONT** line is low, the 6D1 and 6D2 diodes are off and the 6D11 and 6D12 diodes are on, and this makes the CH1 signal path to the delay cable driver. The emitter follower amplifier 6Q6 and associated components buffer the ***CH1-CONT** line and drive the 6D1 and 6D2 diodes. The CH2, CH3, and CH4 signal paths are similar to the CH1 signal path.

The 6Q1 and 6Q2 transistors and associated components compose the shunt feedback amplifier.

The 6R53 and 6C55, and the 6R54 and 6C56 compose the low pass filters respectively at the bandwidth limited mode. In the normal bandwidth mode, the **BW** line is high and the 6Q8 transistor is off. This makes the diode switches of 6D55, 6D56, 6D57 and 6D58 off, and the low pass filters do not work, since the 6C55 and 6C56 capacitors are open at the diode sides. When the **BW** line goes low at the bandwidth limited mode, the 6Q8 transistor goes on. This makes the diode switches on, and the 6C55 and 6C56 capacitors and the associated components compose the low pass filters, which reduces the bandwidth of the signal path.

f. Vertical control and calibrator [7]

The large scale integrated circuit 7IC1 receives the serial data from the CPU and decodes into the control signals. The 7IC1 controls the vertical display modes, CH1 gain selections, trigger source selections, and generates the chop blanking signal.

The 7IC1 receives the serial data from the CPU at the pin 46 and outputs the serial data at the pin 3. The pair 8-bit shift register, the 7IC2 and the 7IC3 (SS-7611 and SS-7607 only), receives the serial data from the CPU through the 7IC1. The serial data called **S DATA** is converted into each control line by clock pulse **S-CLK1** and strobe pulse **STROBE.**

Table 2-2-6 7IC1 pin assignments

7IC1	pin #	Signal
	1	CH1X5-CONT *OFF/ON
	2	CH1X2-CONT *OFF/ON
	3	Serial data output
	5	CHOP-BLNK
	7	Strobe pulse input
	17	CH1-CONT *OFF/ON
	15	CH2-CONT *OFF/ON
	20	CH3-CONT *OFF/ON
	22	CH4-CONT *OFF/ON
	25	ADD-CONT OFF/*ON
	26	CH1 A-TRIG *OFF/ON
	28	CH2 A-TRIG *OFF/ON
	30	CH3 A-TRIG *OFF/ON
	34	CH4 A-TRIG *OFF/ON
	36	LINE TRIG *OFF/ON
	38	A-DISP *AB/ALT
	39	Sweep gate input
	41	Serial clock input
	44	Chop clock input
	46	Serial data input

Note: The "*" in the table shows low level logic.

Table 2-2-7 7IC2 and 7IC3 (SS-7611 and SS-7607 only) pin assignments

7IC2	pin #	Signal
	1	CH2 B-TRIG OFF/*ON
	2	CH3 B-TRIG OFF/*ON
	3	CH4 B-TRIG OFF/*ON
	4	CH2X5-CONT *OFF/ON
	5	CH2X2-CONT *OFF/ON
	6	CH2INV *OFF/ON
	7	BW-CONT *20M/100MHz
	11	Serial clock input
	12	Strobe pulse input
	14	Serial data input
	15	CH1 B-TRIG OFF/*ON

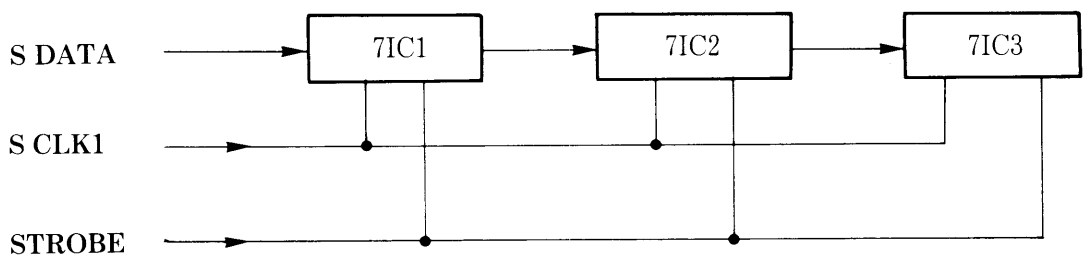
SS-7611 and SS-7607 only

7IC3	pin #	Signal
	1	NC
	2	NC
	3	PEAK *RESET/HOLD
	4	PEAK *+/−
	5	PEAK DC *OFF/ON
	6	PEAK GATED OFF/*ON
	7	NC
	11	Serial clock input
	12	Strobe pulse input
	14	Serial data input
	15	NC

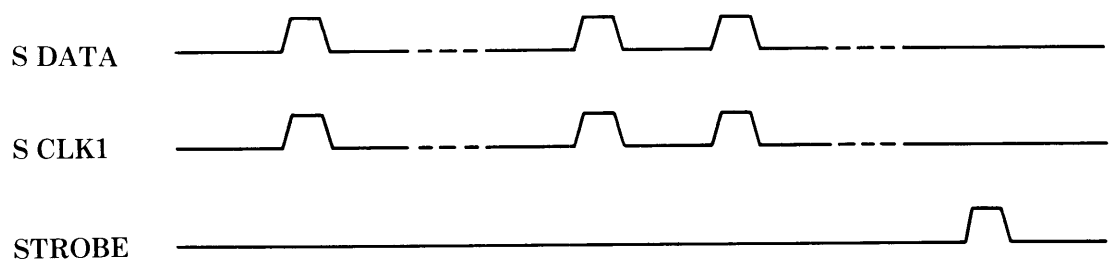
Note: The "*" in the table shows low level logic.

The calibrator consists of the 7Q5 and 7Q6 transistors and the associated components. The 7Q5 transistor receives the **CAL 1KHz** signal from the 24IC103.

Figure 2-2-2 Serial to parallel conversion timing chart



7IC3: SS-7611 and SS-7607 only



g. Vertical output amplifier [8]

The vertical output amplifier consists of the three cascode amplifiers, the character and cursor readout amplifier, and the dc pickup amplifier (SS-7611 and SS-7607 only).

The first cascode amplifier stage is composed of the 8Q1, 8Q2, 8Q6, 8Q7 transistors and the associated components. The first cascode amplifier stage receives the vertical differential signals via the delay line 6DL3. When the **BEAM FIND** line is low level, the 8Q26 transistor is on and the first cascode amplifier holds its full amplifier dynamic range. When the **BEAM FIND** goes high, the dynamic range of the first amplifier stage is reduced by turning the 8Q26 transistor off. Setting the **TRACE SEP ENBL** line to the high level makes the 8Q3 base-common amplifier on and enables the trace separation between A sweep and B sweep displays by varying the **TRACE-SEP** line voltage. The 8Q4, 8Q5 and the associated components compose the buffer amplifier and pick up the vertical signal for the peak detector circuit.

The second cascode amplifier stage consists of the 8Q8, 8Q9, 8Q11, and 8Q12 transistors and the associated components.

The third or the final cascode amplifier stage is composed of the 8Q13, 8Q14, 8Q15 and 8Q16 transistors and the associated components. The final amplifier outputs are applied to the deflection plates of the CRT. When the ***CHAR-SW** line is high level, the 8Q25 transistor is on. This makes the vertical signal path on by setting the 8Q13 and 8Q14 transistors active, while the character signal path is turned off by setting the 8Q22, 8Q23 and 8Q24 transistors off. When the ***CHAR-SW** line goes low, the vertical signal path is turned off and the character signal path is turned on.

The 8Q17, 8Q19 and 8Q20 transistors and the associated components compose the character amplifier, which receives the **Y-OUT** signal from the D/A converter, and outputs the character signal to the 8Q23 and 8Q24 differential amplifier.

The following descriptions are only for the SS-7611 and the SS-7607. The dc pickup amplifier consists of the 8IC2 operational amplifier and the associated components. The amplifier picks up the dc voltage at the CRT deflection plate and outputs the **V-SELF CAL-SIG** signal for the self calibration routine.

2-3 HORIZONTAL DEFLECTION SYSTEM

a. A trigger selector [9]

The A trigger selector consists of the CH1 and CH2 trigger amplifiers, buffer amplifiers and the diode switches. The X-Y amplifier and the buffer amplifier for the **CH1 OUT** are also included. The CH1 and the CH2 trigger amplifiers are identical except for the buffer amplifier for the **CH1 OUT** and the X-Y amplifier. (The **CH1 OUT** is only for the SS-7611 and the SS-7607.)

The CH1 trigger amplifier consists of the 9Q31, 9Q32 and associated circuits and receives the differential signals from the CH1 preamplifier. The transistors from the 9Q11 through the 9Q15 receive the trigger signals respectively, i. e. the line, CH4, CH3, CH2, and CH1 trigger signals. The diodes from the 9D1 through the 9D5 and the 9D11 through the 9D15 compose the diode switches. The 9PC1 and the 9PC2 provide the five photo-couplers, which isolate the signal offset level between the signal and the control lines. When the ***CH1 A TRIG** control line is low, the 9Q15 transistor and the 9D5 and the 9D15 diodes are on. This makes the CH1 trigger signal path on, while the other signal paths are off. The emitter-follower amplifier, which consists of the 9Q16 and the associated components, receives the trigger signal selected at the diode switch and provides the trigger signal to the A trigger amplifier.

This paragraph is only for the SS-7611 and the SS-7607. The 9Q48 and the associated components compose the emitter-follower amplifier and provide the **CH1 OUT**. The 9R28 resistor and the diodes from the 9D22 through the 9D25 protect the 9Q48 transistor from damage by accidentally applying the signal to the **CH1 OUT**.

The X-Y amplifier consists of the 9Q34 and the 9Q35 transistors and the associated components. When the **XY MODE** line is low, the 9Q36 and the 9Q35 transistors are set off. This makes the X-Y amplifier off. When the **XY MODE** line goes high, the 9Q36 transistor is turned off and this makes the X-Y amplifier on.

b. B trigger selector [10]

The B trigger selector consists of the CH1, CH2, CH3, and CH4 trigger buffer amplifiers and the diode switches. The diodes from the 10D1 through the 10D4 and the 10D11 through the 10D14 compose the diode switches. The 10PC1 and the 10PC2 provide the four photo-couplers, which isolate the signal offset level between the signal and the control lines. When the ***CH1 B TRIG** control line is low, the 10Q11 transistor and the 10D1 and the 10D11 diodes are on. This makes the CH1 trigger signal path on, while the other signal paths are off. The emitter-follower amplifier, which consists of the 10Q16 and the associated components, receives the trigger signal selected at the diode switch and provides the trigger signal to the B trigger amplifier.

c. Peak hold circuit (SS-7611 and SS-7607 only) [11], [31], [32]

The peak hold circuit consists of the peak hold amplifier, the measurement mode selector, the sampling pulse generator and amplifier, the sampling gate and the peak hold amplifier.

The peak hold amplifier consists of the two cascode amplifiers and the emitter follower amplifier. The first cascode amplifier, which consists of the 11Q1, 11Q2, 11Q3 and 11Q4 transistors and the associated components, receives signal from 8Q4 and 8Q5 transistors in the vertical output amplifier. The two pairs of the 11Q7 and 11Q8 transistors and the 11Q9 and 11Q10 transistors select the peak polarity. When the **PEAK-POL** line is low level, the ***PEAK-POL** line goes high level. This sets the ***PEAK** measurement by making the pair of the 11Q9 and the 11Q10 transistors on, while the other pair is set off by the **+PEAK-POL** line. The 11PC1 has two photo-diode couplers and isolates the offset voltage between the control lines and the switching transistors. The final stage of the peak hold amplifier is the emitter follower amplifier, which consists of the 11Q11 and the 11Q12 transistors and the associated components. The 11IC3, 11Q13 and the associated components make the negative feedback loop in common mode. The other input of the operational

amplifier 11IC3 is the **PEAK-BAL** line, which sets the appropriate operating dc level for the peak detector at **+PEAK** and **−PEAK** measurement modes respectively. The **PEAK-BAL** voltage is sought during the calibration procedure.

The measurement mode selector consists of the two signal paths, where the one path is the dc path which includes the active low pass filter or the integrator for the dc voltage measurement, and the another path is the straight path for the peak voltage measurement. The straight path for the peak voltage measurement includes the gate operation. The 11Q15 and the 11Q17 field effect transistors are controlled by the **PEAK-DC** line via the 11IC1. When the **PEAK-DC** line is high, the 11Q15 field effect transistor goes on to set the dc voltage measurement, while the 11Q17 transistor is set off. Setting the **PEAK-DC** line low makes the straight path for the peak voltage measurement. The 11Q14 and the 11Q16 field effect transistors work as a gated operation. When the 11Q14 transistor is on, the 11Q16 transistor is off. When the 11Q14 transistor is off, the 11Q16 transistor is on. While the 11Q14 transistor is on, the signal passes through for a gated peak voltage measurement. The 11Q54 and the 11Q55 transistors and the associated components compose the differential amplifier. When the **PEAK-GATE** line is low, the 11Q55 transistor is on. This makes the 11Q14 transistor on. When the **PEAK-GATE** line is high, the differential amplifier receives the **GATED-PULS** signal and provides the gate signals to the 11Q14 and the 11Q16 field effect transistors.

The sampling pulse generator consists of the software routine and the random pulse generator. The random pulse generator and the **PEAK-RANDOM-REF** line controlled by the software routine generate the sawtooth signal. The software routine generates the arbitrary dc voltage at the **PEAK-RANDOM-REF** line. The **PEAK-RANDOM-REF** line sets the current source composed of the 31IC1 operational amplifier, 31Q11 transistor and the associated components. The 31Q13 field effect transistor and the associated components form the integrator which produces the sawtooth by charging the capacitor 31C15 with the current source set by the **PEAK-RANDOM-REF** line. The 31Q12 is a discharging transistor and driven by the 31Q17 emitter follower amplifier and the Schmitt trigger composed of the 31Q14, 31Q15 and 31Q16 transistors and the associated components.

The sampling pulse amplifier consists of the wave shaping circuit, the pulse amplifier and the pulse transformer. The wave shaping circuit involving the logic circuit 11IC6 receives the sawtooth signal from the sampling pulse generator and differentiates the pulse. The 11Q41, 11Q42 and 11Q43 transistors and the associated components form the wave shaping circuit. The pulse transformer provides the negative and the positive sampling pulses to the sampling gate.

The 11Q18 transistor receives the signal via peak amplifier and drives the sampling gate composed of the diode bridge, i.e. 11D71, 11D72, 11D73 and 11D74. The signal sampled by the sampling gate is stored by the capacitor 11C70.

The 32IC1 operational amplifier buffers the sampled signal and drives peak detector. The peak detector consists of the 32IC2, 32Q11, 32Q12, 32Q13, 32IC1 and the associated components. The capacitor 32C18 stores the peak value of the input signal. When the signal more than the peak voltage stored by the 32C18 is applied to the pin 2 of the 32IC2, the emitter of the 32Q13 goes high, and this charges the 32C18 until the voltage over the 32C18 reaches the new peak voltage applied to the pin 2 of the 32IC2. The 32Q14 and the 32Q15 transistors discharge the 32C18 capacitor for the new peak measurement, when the **HOLD / *RESET** line is set low.

The 32IC1 provides the peak value at the pin 14 of the 7J4 connector through the low pass filter composed of the 11R97 and the 11C97.

d. A and B trigger amplifiers 12

The A and B trigger amplifiers are identical. Therefore only the A trigger amplifier will be discussed in this section.

The 12Q1 and the associated components compose the high frequency signal path for the trigger signal, while the 12IC5, the 12IC1 and the associated components compose the low frequency signal path for the trigger signal. When the **ATC1** line is low, the 12Q1 transistor is active by setting the 12D1 off. This makes the high frequency signal path. When the **ATC1** line is high, the 12Q1 transistor goes off by setting the 12D1 on. This turns off the high frequency signal path. The 12IC5 and the associated components compose the low frequency filter selection. Setting the **ATC1** line high inserts the 12C25 capacitor into the low frequency signal path. This sets the **HF-REJ** coupling in conjunction with breaking the high frequency signal path. The **ATC2** line switches the low frequency signal path on or off. When the **ATC2** line is low, the low frequency signal path goes off. The **ATC3** line selects the **DC** or **AC** coupling. When the **ATC3** line is high, the switch X of the 12IC5 is turned close. This sets the DC coupling. When the **TV-V** or **TV-H** coupling is set, the **TRIG INHI** line goes high to disable the low frequency signal path. For the coupling logic, see the table 2-3-1 and table 2-3-2.

The one operational amplifier of the 12IC1 receives the **A TRIG LEVEL** line from the CPU I/O interface. The **A TRIG LEVEL** line varies from −8V to 0V, while the **B TRIG LEVEL** line varies from −4V to 4V. The 12IC3 amplifier amplifies the trigger signal and drives the final trigger amplifier stage.

The 12Q11, 12Q12, 12Q5, 12Q6 and the associated components compose the final trigger amplifier stage. The final trigger amplifier stage consists of the emitter-follower amplifier and the emitter-coupled comparator. The 12Q9 and the associated components form the current source for the emitter-coupled comparator.

The 12IC7 8-bit shift register receives the serial data **S DATA** clocked by the **S CLK2** pulse and latches the data by the **STROBE** pulse. For the detail, see the table 2-3-5 and figure 2-3-5.

Table 2-3-1 A trigger coupling logic

Coupling	Control signal				
	ATC1	ATC2	ATC3	*TV-ENBL	TV-V ENBL
AC	L	H	L	H	X
DC	L	H	H	H	X
HF-REJ	H	H	L	H	X
LF-REJ	L	L	L	H	X
TV-V	H	X	X	L	H
TV-H	H	X	X	L	L

Note : The "H" in the table shows high level logic.
The "L" in the table shows low level logic.
The "X" in the table shows "don't care."

Table 2-3-2 B trigger coupling logic

Coupling	Control signal				
	BTC1	BTC2	BTC3	*TV-ENBL	TV-V ENBL
AC	L	H	L	H	X
DC	L	H	H	H	X
HF-REJ	H	H	L	H	X
LF-REJ	L	L	L	H	X
TV-H	H	X	X	L	X

Note : The "H" in the table shows high level logic.
The "L" in the table shows low level logic.
The "X" in the table shows "don't care."

e. TV sync-pulse separator 13

The TV sync-pulse separator consists of the polarity switch, the sync-pulse separation amplifier and the logic circuit. The circuit separates the TV sync-pulse from the composite video pulse.

The 13Q1 transistor receives the **TV SIGNAL** via 12R3 resistor, when the ***TV ENBL** line is low. Setting the ***TV ENBL** line high makes the 13Q1 transistor off. This disables the TV sync-pulse separator. When the ***TV ENBL** line is low and the **A+ SLOPE** line is high, the 13Q3 transistor is on and the 13D2 diode is off. This inverts the input **TV SIGNAL** polarity at the output. When the ***TV ENBL** and the **A+ SLOPE** lines are low, the 13Q3 transistor is off and the 13D2 diode is on. This sets the same polarity at the output as that at the input.

The sync-pulse separation amplifier consists of the 13Q4, 13Q5, 13Q6, 13Q7 and the associated components. The 13Q6 transistor and the 13D3 diode prevent to overdrive the 13Q7 emitter-common amplifier by limiting the signal amplitude. The 13Q6 and the 13D3 form the negative feedback for the first amplifier stage composed of the 13Q4 and the 13Q5 transistors, when the input **TV SIGNAL** amplitude is increased. Normal condition, or at the small input **TV SIGNAL** amplitude, the negative feedback loop is open by setting the 13D3 off. The dc restorer consists of the 13C14 capacitor and the base-emitter diode of the 13Q7 transistor, and the 13Q7 transistor amplifies the TV sync-pulse only.

The logic circuit composed of the 13IC1 and the 13IC2 integrated circuits receives the TV sync pulse and triggers the sawtooth generator. Not in the **TV-V** or **TV-H** coupling mode, the logic circuit operates as the trigger polarity selector. When the ***TV ENBL** line is high, the pin 8 of the 13IC1 goes low and the NOR gates of the 13IC2 open for the **A+** and **B+ SLOPE** lines respectively. In the **TV-V** or the **TV-H** coupling mode by setting the ***TV ENBL** line low, the logic circuit allows the TV sync-pulse to pass through. And this closes the NOR gates of the 13IC2 for the trigger slope.

f. A sweep generator 14, 16, 33

The **A TRIG SIGNAL** is applied at the pin 4 of the 14IC1 gates. The **A POLA** line at the pin 7 of the 14IC1 selects the trigger polarity. When the ***XY MODE** line is set to low by selecting the **X-Y VERT MODE**, the D inputs at the pin 7 and the pin 10 of the 14IC2 are turned low. This disables the A sawtooth generator. Setting the ***XY MODE** line high enables the A sawtooth generator. Receiving the trigger pulse at the high level of the ***XY MODE** line, the 14IC2 outputs the high at the pin 15 and the low at the pin 14. This switches the comparator, which consists of the 14Q1 and the 14Q10, and provides the low level output at the pin 7 of the 33P100 on the **A SWEEP** mini-board through the two gates of the 14IC4 to generate the sawtooth signal.

The low level at the pin 7 of the 33P100 switches off the transistor 33Q100. By turning the transistor 33Q100 off, the current source, which is composed of the transistor 16Q15, 16IC1 and the associated components, starts charging the timing capacitor. The timing capacitor 16C16 is valid when the 16Q16 transistor is turned on by the high level at pin 4 of the 16IC4. The timing capacitor 16C17 is valid when the 16Q17 transistor is turned on by the high level at pin 3 of the 16IC4. The current source composed of the timing resistors and the two reference voltage generators, low and high reference voltage generators, provides the charging current for the timing capacitor.

The low reference voltage generator, which consists of the 16Q15 transistor, 16IC1, 16IC2 and the associated components, sets the fixed lower reference voltage. The high reference voltage generator, which is consists of the 16Q2 and 16Q3 transistors, 16Q1 field effect transistor, 16IC1, 16IC2 and associated components, sets the higher reference voltage. The higher reference voltage is controlled by the CPU via **A SLOPE REF** line. The timing resistor 16R11 is valid when the 16Q4 transistor is turned on by the high level at the pin 7 of the 16IC3. For the full timing capacitor and resistor logic, see the table 2-3-3.

The sawtooth signal at the pin 7 of the 33P101 is applied to the horizontal amplifier section and the B sweep generator. The sawtooth signal at the pin 5 of the 33P101 is applied to the pin 5 of the 14IC5 via resistor attenuator composed of the 14R29 and the 14R30 resistors, and turns the output of the 14IC5 to low at the pin 6.

The holdoff time generator consists of the 14IC6, 14IC12, 14IC5, 14IC7, 14IC8, 14Q8, 14Q9, the holdoff capacitors and the associated components. The holdoff generator generates the certain holdoff time to inhibit the re-triggering the sawtooth generator until the sawtooth signal returns to the original base line, when the output of the 14IC5 at the pin 6 goes low level. The holdoff capacitors consist of the 16C31, 16C32, 16C33, 16C34, 16C35 and 16C36. The demultiplexer 14IC8 selects the valid holdoff capacitor to generate the appropriate holdoff time. For the holdoff capacitor selection, see the table 2-3-3. The holdoff time is varied continuously by the CPU through The **HOLDOFF CONTROL** line.

After the certain holdoff time the holdoff generator releases the holdoff time by setting the signal from low to high at the pin 11 of the 14IC3. This makes the sawtooth generator ready for the another triggering.

The one half of the 14IC9 having the pin 11 and the associated components compose the re-triggerable multivibrator for the free-running mode in which the sawtooth signal is generated without triggering. The other half of the 14IC9 having the pin 3, 14IC2 and the associated components compose the firing pulse generator for the jitter-free triggering. With the first trigger signal, the first D-type flip-flop 14IC2 having the pin 7 makes the second D-type flip-flop 14IC2 having the pin 10 ready. With the next trigger signal, the second D-type flip-flop 14IC2 goes firing to generate the sawtooth. This ensures the jitter-free triggering. When the interval between the first and the second trigger signals gets longer, the multivibrator 14IC9 having the pin 3 and the associated components release the jitter-free triggering by setting the second D-type flip-flop 14IC2 ready for triggering without trigger signal.

Figure 2-3-1 A sweep generator block diagram

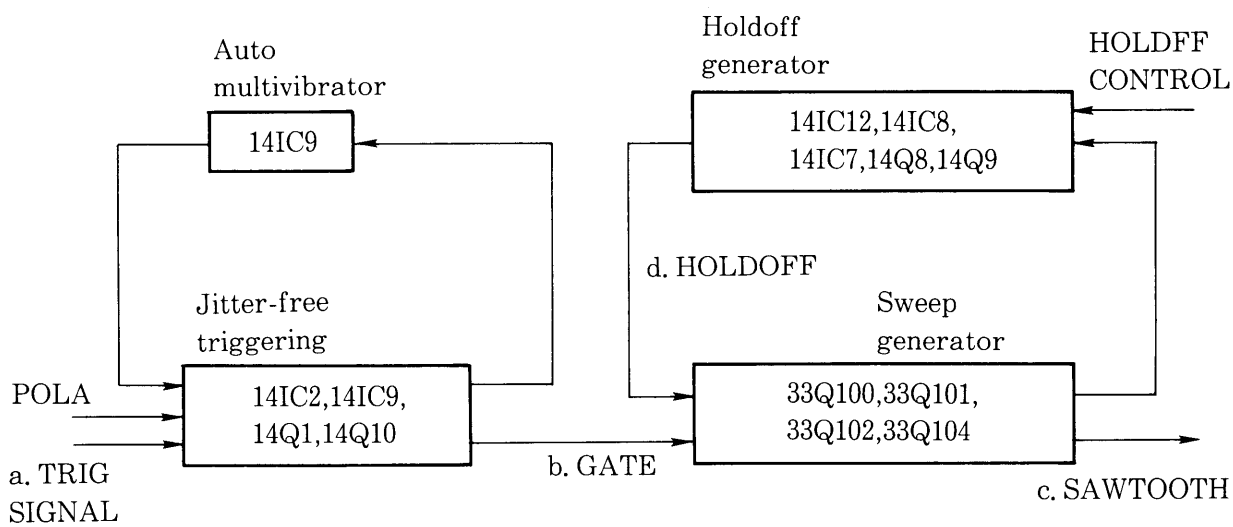
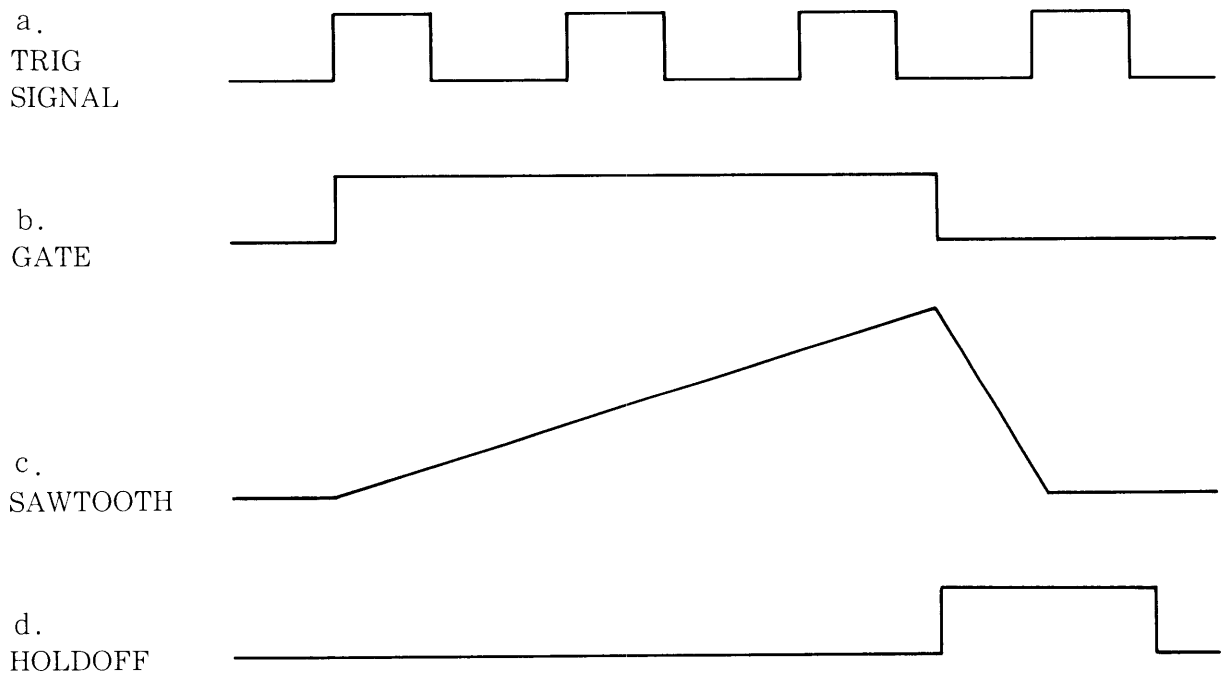


Figure 2-3-2 A sweep generator timing chart



f. B sweep generator 15, 17, 33

In the SS-7611 and the SS-7607, there are two delay pickoff comparators, while there are only first delay pickoff comparator in the SS-7610 and the SS-7606. The first delay pickoff comparator is for the normal use and consists of the 15Q10 transistor array and the associated components. The second delay pickoff comparator is only for the gated peak measurement and consists of the 15Q11 transistor array and the associated components. In the gated peak measurement mode (SS-7611 and SS-7606 only), the second comparator sets the start of the measurement and the first comparator sets the end of the measurement. The both comparators operate similarly. In the normal delay mode, the A sawtooth is applied to the one input of the first comparator at the pin 9 of the 15Q10. The **DLY TIME 1** control line is applied to the other input at the pin 2 of the 15Q10. When the A sawtooth goes over the **DLY TIME 1** control voltage, the first comparator outputs the delay pickoff pulse from low to high at the pin 11 of the 15IC3.

The high level of the **B SWP** control line sets the delay sweep generator active. In the runs after delay mode, the ***RUNS AFT** control line is set to low. The positive-going delay pickoff pulse triggers the first D-type flip-flop 15IC2 having the pin 10 and the output at the pin 15 of the 15IC2 passes through the 15IC3 gate having the pin 2, because the ***RUNS AFT** control line is low.

In the trigger delay mode, on the other hand, the output at the pin 15 of the 15IC2 does not pass through the 15IC3 gate, because the ***RUNS AFT** control line is high. Instead the output signal at the pin of the 15IC2 sets the second D-type flip-flop 15IC2 having the pin 7 ready. The **B TRIG SIGNAL** is applied at the pin 7 of the 15IC1 gates. The **B POLA** line at the pin 4 of the 15IC1 selects the trigger polarity. Receiving the trigger pulse, the second D-type flip-flop 15IC2 having the pin 7 outputs the positive-going signal at the pin 2.

In the either case, the 15IC3 gates output the positive-going signal at the pin 2 and pin 3. This switches the comparator, which consists of the 15 Q1 and the 15Q2, and provides the low level output

at the pin 7 of the 33P200 on the **B SWEEP** miniboard through the 15Q15 and 15Q16 transistors to generate the sawtooth signal.

The low level at the pin 7 of the 33P200 switches off the transistor 33Q200. By turning the transistor 33Q200 off, the current source, which is composed of the transistor 17Q15, 17IC1 and the associated components, starts charging the timing capacitor. The timing capacitor 17C16 is valid when the 17Q16 transistor is turned on by the high level at pin 1 of the 17IC3. The timing capacitor 17C17 is valid when the 17Q17 transistor is turned on by the high level at pin 2 of the 17IC3. The current source composed of the timing resistors and the two reference voltage generators, low and high reference voltage generators, provides the charging current for the timing capacitor.

The low reference voltage generator, which consists of the 17Q15 transistor, 17IC1, 17IC2 and the associated components, sets the fixed lower reference voltage. The high reference voltage generator, which is consists of the 17Q2 and 17Q3 transistors, 17Q1 field effect transistor, 17IC1, 17IC2 and associated components, sets the higher reference voltage. The higher reference voltage is controlled by the CPU via **B SLOPE REF** line. The timing resistor 17R12 is valid when the 17Q5 transistor is turned on by the high level at the pin 10 of the 16IC3. For the full timing capacitor and resistor logic, see the table 2-3-4.

The sawtooth signal at the pin 7 of the 33P201 is applied to the horizontal amplifier section. The sawtooth signal at the pin 5 of the 33P201 is applied to the pin 3 of the 15IC3 via resistor attenuator composed of the 15R36 and the 15R37 resistors, and turns the output of the 15IC3 to high at the pin 15. Setting the reset line at the pin 13 of the 15IC2 to high resets the first D-type flip-flop. This discharges the timing capacitor and the sawtooth signal returns to the base line or the start line.

Figure 2-3-3 B sweep generator block diagram

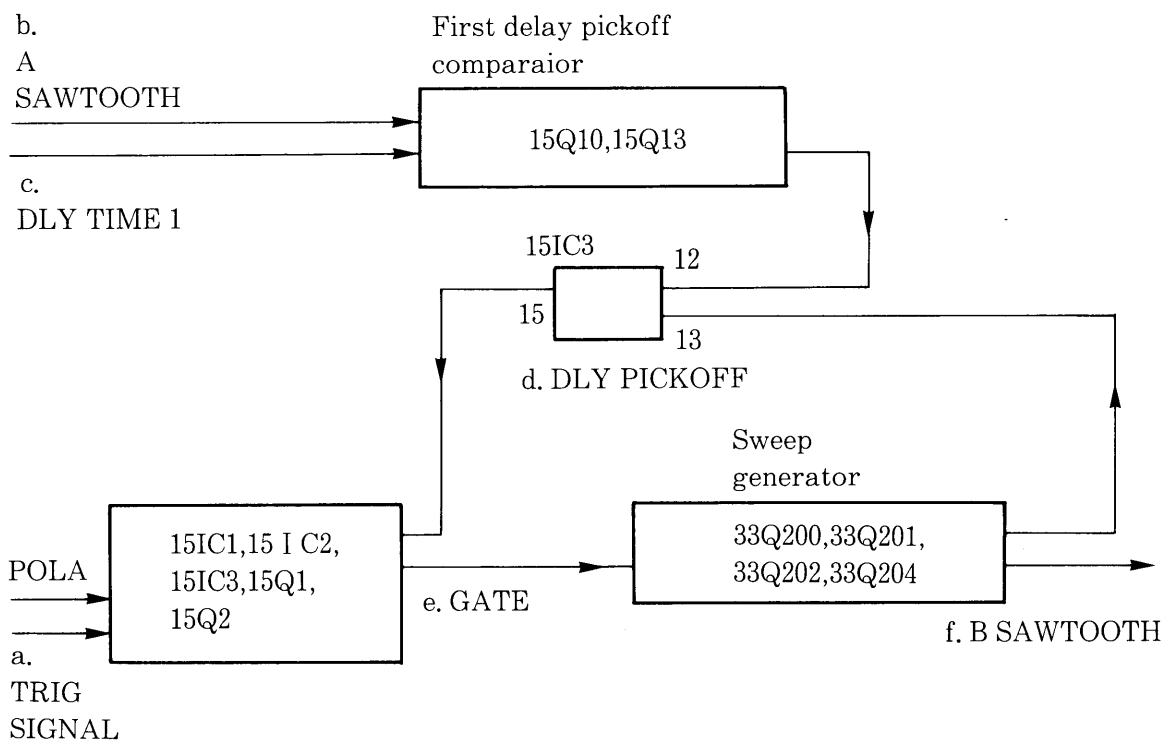


Figure 2-3-4 B sweep generator timing chart

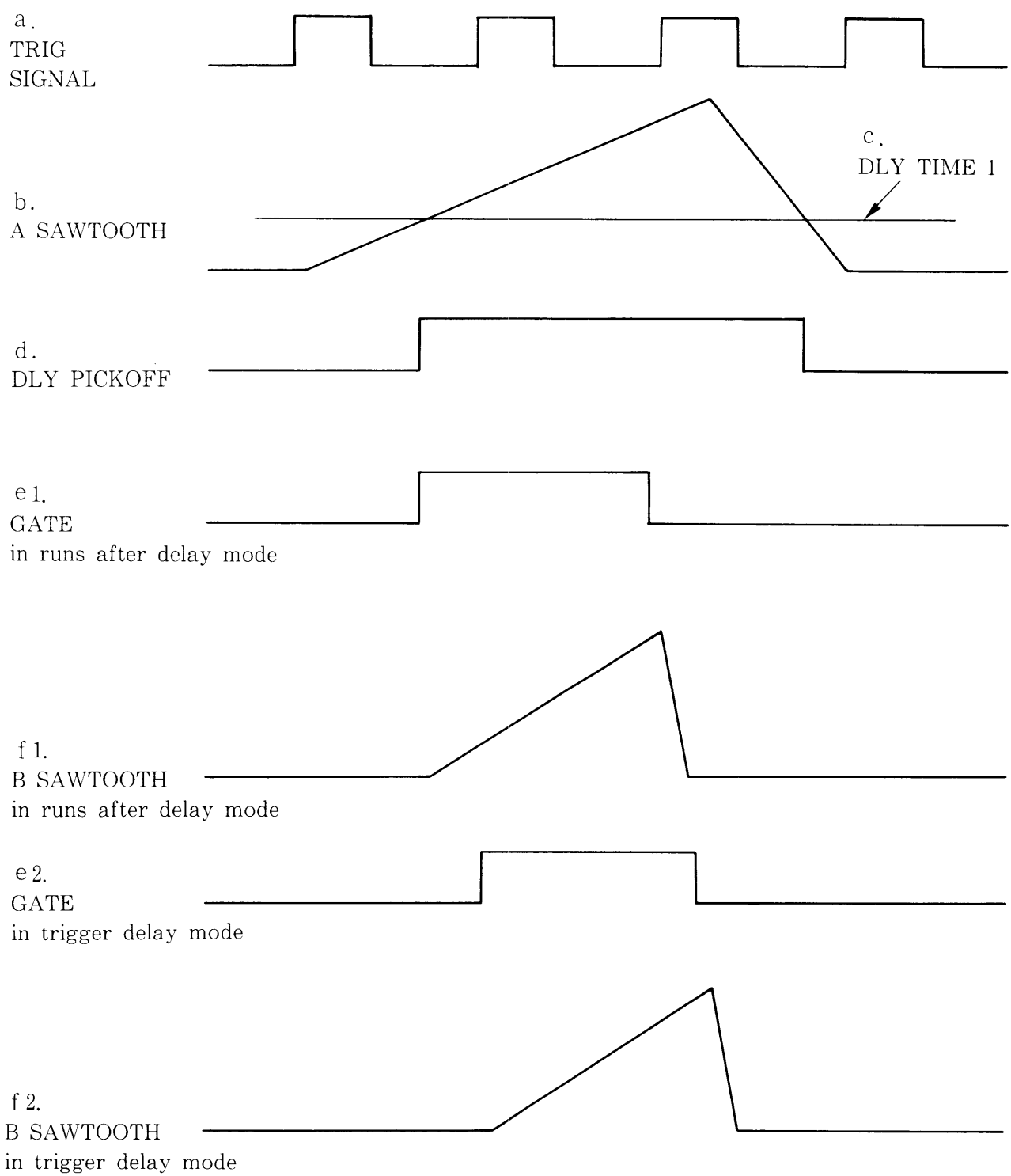


Table 2-3-3 A timing CR logic

	Timing capacitor		Timing resistor					Timing reference voltage	Holdoff capacitor		
	16IC4		16IC3					A SLOPE	14IC8		
TIME/DIV	# 4	# 3	# 7	# 6	# 5	# 4	# 1	REF	# 11	# 10	# 9
0.5 s/div	H	L	H	L	L	L	L	−1.875 V	H	H	L
0.2 s/div	H	L	L	H	L	L	L	−1.875 V	H	H	L
0.1 s/div	H	L	L	H	L	L	L	−3.750 V	H	H	L
50 ms/div	H	L	L	H	L	L	L	−7.500 V	H	H	L
20 ms/div	H	L	L	L	H	L	L	−1.875 V	H	H	L
10 ms/div	H	L	L	L	H	L	L	−3.750 V	H	H	L
5 ms/div	H	L	L	L	H	L	L	−7.500 V	L	H	H
2 ms/div	H	L	L	L	L	H	L	−1.875 V	L	H	H
1 ms/div	H	L	L	L	L	H	L	−3.750 V	L	H	H
0.5 ms/div	H	L	L	L	L	H	L	−7.500 V	H	L	H
0.2 ms/div	L	H	L	L	H	L	L	−1.875 V	H	L	H
0.1 ms/div	L	H	L	L	H	L	L	−3.750 V	H	L	H
50 μs/div	L	H	L	L	H	L	L	−7.500 V	L	H	L
20 μs/div	L	H	L	L	L	H	L	−1.875 V	L	H	L
10 μs/div	L	H	L	L	L	H	L	−3.750 V	L	H	L
5 μs/div	L	H	L	L	L	H	L	−7.500 V	H	L	L
2 μs/div	L	L	L	L	H	L	L	−1.875 V	H	L	L
1 μs/div	L	L	L	L	H	L	L	−3.750 V	H	L	L
0.5 μs/div	L	L	L	L	H	L	L	−7.500 V	L	L	L
0.2 μs/div	L	L	L	L	L	H	L	−1.875 V	L	L	L
0.1 μs/div	L	L	L	L	L	H	L	−3.750 V	L	L	L
50 ns/div	L	L	L	L	L	H	L	−7.500 V	L	L	L
20 ns/div	L	L	L	L	L	L	H	−1.875 V	L	L	L

Table 2-3-4 B timing CR logic

	Timing capacitor		Timing resistor				Timing reference voltage
	17IC3		16IC3				A SLOPE
TIME/DIV	#1	#2	#10	#11	#12	#15	REF
50 ms/div	H	L	H	L	L	L	−7.500 V
20 ms/div	H	L	L	H	L	L	−1.875 V
10 ms/div	H	L	L	H	L	L	−3.750 V
5 ms/div	H	L	L	H	L	L	−7.500 V
2 ms/div	H	L	L	L	H	L	−1.875 V
1 ms/div	H	L	L	L	H	L	−3.750 V
0.5 ms/div	H	L	L	L	H	L	−7.500 V
0.2 ms/div	L	H	L	H	L	L	−1.875 V
0.1 ms/div	L	H	L	H	L	L	−3.750 V
50 μs/div	L	H	L	H	L	L	−7.500 V
20 μs/div	L	H	L	L	H	L	−1.875 V
10 μs/div	L	H	L	L	H	L	−3.750 V
5 μs/div	L	H	L	L	H	L	−7.500 V
2 μs/div	L	L	L	H	L	L	−1.875 V
1 μs/div	L	L	L	H	L	L	−3.750 V
0.5 μs/div	L	L	L	H	L	L	−7.500 V
0.2 μs/div	L	L	L	L	H	L	−1.875 V
0.1 μs/div	L	L	L	L	H	L	−3.750 V
50 ns/div	L	L	L	L	H	L	−7.500 V
20 ns/div	L	L	L	L	L	H	−1.875 V

g. **Horiz control** 18, 34

The horiz control circuit consists of the two switching circuit, the horizontal signal switching circuit and the z-axis signal switching circuit.

The horizontal switching circuit switches three signals, i. e. **A SWTH** (A sawtooth signal), **B SWTH** (B sawtooth signal) and **XY SIGNAL**, and provides the selected signal to the horizontal pre-amplifier. Turning the 18Q3 transistor on closes the A sawtooth signal path by setting the 18D1 diode off and the 18D4 diode on. Turning the 18Q3 transistor off opens the A sawtooth signal path by setting the 18D1 diode on and the 18D4 diode off. Only one path is open to the horizontal preamplifier at one time. The other paths operates similarly. The one half of the 18IC5 operational amplifier, 18Q6 transistor and the associated components set the A sawtooth start on the screen. The other half of the 18IC5 operational amplifier, 18Q7 transistor and the associated components set the B sawtooth start on the screen.

The **H CONT BOARD 1** and the **H CONT BOARD 2** receive the four control lines, i. e. **A SWP END** (end pulse of the **A GATE**), ***B SWP** (low level at B horizontal display), ***ALT SWP** (low level at **ALT** horizontal display) and ***XY MODE** (low level at **X-Y** vertical mode), and control the horizontal signal switching and the z-axis signal switching circuit accordingly.

The z-axis signal switching circuit switches three signals, i. e. **A** and **B SWEEP GATE**s, and **PEAK GATE BLK** (blanking pulse for the gated peak measurement), and drives the z-axis amplifier with the selected blanking signal. When ***XY MODE** line is low, **A** and **B SWEEP GATE** paths closes by turning the 34D412 and the 34D418 diodes off. The 34D409, 34D412 and 34D413 diodes compose the **A SWEEP GATE** current switching. The 34D411, 34D415, 34D418 and 34D419 compose the **B SWEEP GATE** current switching. The 34D 410, 34D416 and 34D417 diodes compose the **PEAK GATE BLK** current switching.

Table 2-3-5 Serial decoder pin assignments

12IC7	pin #	Signal
	1	NC
	2	INTEN LIMIT
	3	ATC2
	4	ATC1
	5	BTC1
	6	BTC2
	7	BTC3
	11	Serial clock input
	12	Strobe pulse input
	14	Serial data input
	15	ATC3

19IC2	pin #	Signal
	1	*ALT SWP
	2	*B SWP
	3	ENHANCE
	4	H MAG ENBL
	5	TV−V ENBL
	6	A + SLOPE
	7	B + SLOPE
	11	Serial clock input
	12	Strobe pulse input
	14	Serial data input
	15	*TV ENBL

17IC4	pin #	Signal
	1	SINGL ENBL
	2	HOLDOFF 3
	3	HOLDOFF 1
	4	HOLDOFF 2
	5	B ENDS A ENBL
	6	AUTO ENBL
	7	AUTO SET
	11	Serial clock input
	12	Strobe pulse input
	14	Serial data input
	15	SINGL RESET

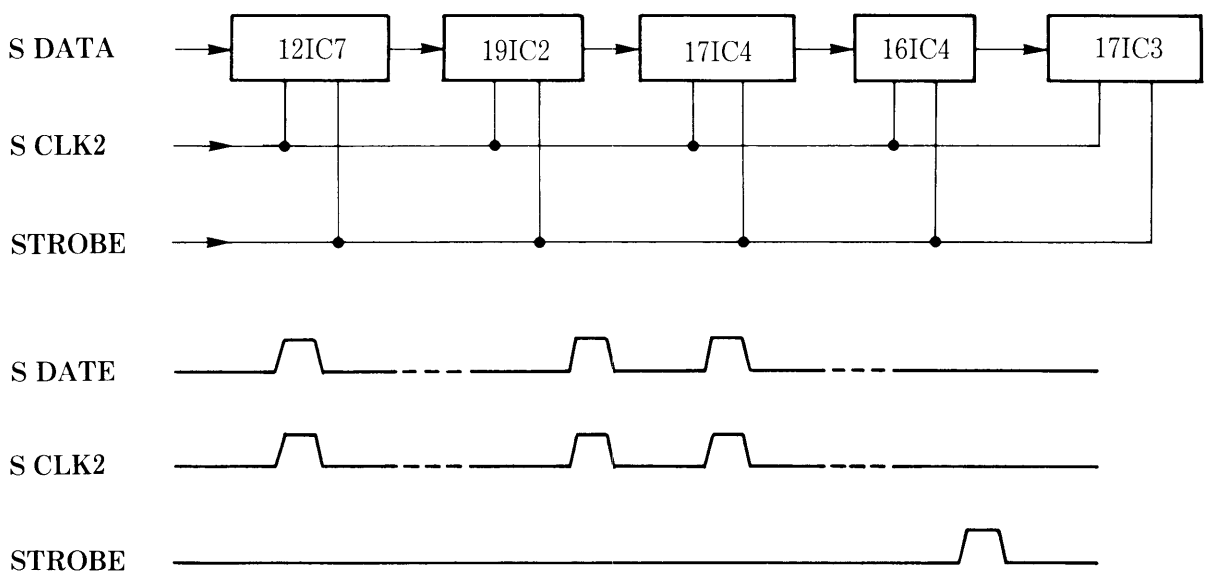
Table 2-3-5 Serial decoder pin assignments (continued)

16IC4	pin #	Signal
	1	B SWP
	2	*RUNS AFT
	3	A 9900 ENBL
	4	A 1μENBL
	5	A TR CONTROL 1
	6	A TR CONTROL 2
	7	A TR CONTROL 3
	11	Serial clock input
	12	Strobe pulse input
	14	Serial data input
	15	*XY MODE

17IC3	pin #	Signal
	1	B 1μENBL
	2	B 9900 ENBL
	3	NC
	4	A TRIG'D RESET
	5	NC
	6	B TR CONTROL 2
	7	B TR CONTROL 3
	11	Serial clock input
	12	Strobe pulse input
	14	Serial data input
	15	B TR CONTROL 1

Note: The "*" in the table shows negative logic.

Figure 2-3-5 Serial to parallel conversion timing chart



h. Horizontal amplifier 19, 20

The first stage of the horizontal amplifier consists of the 19Q1 and the 19Q2 transistors and the associated components. The 19Q1 and the associated components, compose the shunt-feedback amplifier, receives the horizontal signal through the horizontal control circuitry. The other end of the first stage, which consists of the 19Q2 and the associated components, receives the **H POSI CONTROL** line to position the horizontal signal. The second amplifier stage, which consists of the 19Q3 and the 19Q4 transistors and the associated components, is the differential amplifier and the gain switchable amplifier. When the **H MAG ENBL** line at the pin 4 of the 19IC2 is high by setting the horizontal magnification X10, the 19RL1 relay is set to the make position and the gain of the second amplifier stage becomes ten times higher than the normal gain condition in low level of the **H MAG ENBL** line. The 19Q5 and the associated components compose the current source for the second amplifier stage. Setting the **BEAM FIND** line to high reduces the current source and this reduces the dynamic range of the second amplifier stage.

The common-base amplifier stage, which consists of the 20Q3 and the 20Q4 transistors and the associated components, receives the differential sawtooth signals via horizontal pre-amplifier stage.

The differential amplifier composed of the 20Q14 transistor and the associated components receives the character readout signal called **X-OUT** from the D/A converter.

The pair transistors of the 20Q1 and the 20Q2 and the another pair transistors of the 20Q15 and the 20Q16 form the transistor current switch. When the **CHAR-SW** line at the pin 13 of the 8IC1 is low, the pair of the 20Q1 and the 20Q2 are off and the differential sawtooth signals from the horizontal pre-amplifier stage pass through, while the other pair of the 20Q15 and 20Q16 are on and the character readout signal is blocked. When the **CHAR-SW** line goes high, the differential sawtooth signal is blocked and the character readout signal passes through.

The differential amplifier composed of the 20Q5 and the 20Q6 transistors receives the sawtooth or the character readout signal via the transistor current switch, and drives the final shunt-feedback amplifier stage.

The final amplifier stage consists of the two identical shunt-feedback amplifiers, one for the horizontal positive deflection plate of the CRT and the other for the horizontal negative deflection plate of the CRT. The 20Q8, 20Q9 and 20Q10 transistors and the associated components compose the one shunt-feedback amplifier for the positive CRT deflection plate. The 20Q11, 20Q12 and 20Q13 transistors and the associated components compose the another shunt-feedback amplifier for the negative CRT deflection plate.

2-4 CRT PERIPHERALS

a. Z axis circuit 21

The common-base amplifier, which consists of the 21Q2 transistor and the associated components, receives the sawtooth blanking signal called Z SIGNAL via horizontal control circuitry and the external intensity modulation signal applied to the **Z AXIS INPUT** 21J3. The transistor 21Q3 draws extra current when it is on in the **ENHANCE MODE**. This sets the increased intensity.

The emitter-follower amplifier, which consists of the 21Q6 and the associated components, receives the character readout intensity control signal called **READOUT INTEN.**

The pair transistors of the 21Q1 and the 21Q13 and the another pair transistors of the 21Q4 and the 21Q5 form the transistor current switch. When the ***CHAR-SW** line is high, the 21Q1 transistor is off and the 21Q13 transistor on. This makes the sawtooth blanking signal path through. Setting the ***CHAR-SW** line high further makes the 21Q4 transistor on and the 21Q5 transistor off. This makes the character readout intensity control signal path off. When the ***CHAR-SW** is low on the contrary, the sawtooth blanking signal path is off and the character read out intensity control signal path is on.

The **CHARA Z BLK** character blanking signal is applied to the base-common amplifier composed of the 21Q7 transistor and the associated components. The **CHARA Z BLK** signal is only active during the character readout period, or at the low level of the ***CHAR-SW** line. Setting the **CHARA Z BLK** signal high blanks the CRT beam during the character readout period.

The final z-amplifier stage consists of the 21Q8, 21Q9, 21Q10 and the 21Q11 transistors and the associated components.

b. CRT circuit 22

The 22R1 potentiometer is for the **A INTEN** control, and the associated switch is for the **ENHANCE** facility. The 22R2 potentiometer is for the **READOUT** intensity control, and the associated switch is for the **BEAM FIND** facility. The 22R3, 22R4 and 22R5 potentiometers are for the **FOCUS**, the **SCALE** and the **TRACE ROTATION** controls respectively.

The buffer amplifier composed of the 22Q1 and the 22Q2 transistors drives the trace rotation coil 22L1. The buffer amplifier composed of the 22Q3 and the 22Q4 transistors drives the orthogonality coil 22L2. The transistor 22R6 drives the scale illumination lamps 22PL1 and the 22PL2.

2-5 CPU CIRCUIT AND PERIPHERALS

a. CPU circuit 23

The 23IC3 is a 8-bit microcomputer, which has a 8-bit data bus and a 16-bit address bus, and it is clocked at pin 6 by the **CLK4MHz** clock pulse, which is counted down by the 24IC103 from the 24X101 16MHz crystal oscillator. The 23IC1 and the associated components reset the 23IC3 microcomputer at power up time. The 23IC9 decoder generates eight chip select signals for the I/O ports. See table 2-5-2 for the detail.

The 23IC4 is a 64k-byte ROM in the address range between 0000H and DFFFH hexadecimal. The 23IC5 is a 8k-byte RAM in the address range between E000H and FFFFH hexadecimal. The lithium battery 23BT1 supports the contents of the 23IC5 RAM and keeps 23IC6 real time clock generator (SS-7611 and SS-7607 only) running during the power off. The 23Q1 and the 23Q2 transistors and the associated components supply the power to the 23IC5 and 23IC6 (SS-7611 and SS-7607 only) during power on by substituting the 23BT1 battery. The 23IC6 clocked by the 23X01 32.768kHz crystal oscillator generates real time clock. (SS-7611 and SS-7607 only)

The one half of the 23IC2 dual flip-flops having pin 5 receives the **CDP INT** interrupt request line at pin 3 and outputs the interrupt to the 23IC3 microcomputer. The **CDP INT RESET** line resets the flip-flop when the 23IC3 microcomputer recognized the interrupt request. The other half of the 23IC2 having the pin 9 receives the **3ms INT** interrupt request at pin 11 and outputs it to the 23IC3 microcomputer. The **3ms INT RESET** line resets the flip-flop when the 23IC3 microcomputer recognized the interrupt request.

The 23IC11 display keyboard interface device provides a scanned display and keyboard interface to the key switch and the LED indicator matrices on the front panel, respectively. The scan lines from the **SL0** through the **SL2** are decoded into 8 control lines by the 27IC1 decoder. The outputs from the **K0** through the **K7** are buffered by the 23IC12 and drive the LED indicator matrix. The return lines from the **RL0** through the **RL7** receive the key switch conditions.

Table 2-5-1 Memory Map

Hex Address	Memory IC	Memory Bytes
FFFF to E000	RAM 23IC5	8k bytes
DFFF to 0000	ROM 23IC4	56k bytes

b. Character generator 24

The character generator consists of the 24IC 103 character display processor (CDP), 24IC 102 character RAM, two D/A converters of the 24IC105 and the 24IC106, and the associated components. Figure 2-5-1 shows simplified block diagram of the character generator.

When turning the power on, the CPU loads down the character fonts into the 24IC102 character RAM via 24IC103 CDP registers. For the address map of the 24IC102 character RAM, see the table 2-5-3 character RAM map. Each character font has a 32-byte long. All valid bytes have the high level at the bit seven. When the bit seven is set to low, the data is recognized as invalid. For the detail, see the example of the table 2-5-4 character font. The example shows the character A font. The character A is coded as a 41H in the table 2-5-6 character table. The character A font starts at 02C0H character RAM address and lasts up to 0C3FH address. At the address 02C0H, the high b7 bit indicates that the co-ordinator (x1, y3) is a bright dot. The 0C37H address is the last bright dot address. The low b7 bit at the 0C38H address through the 0C3FH address indicates that all the bytes at these addresses are invalid.

The character RAM area between 0000H and 02A7H addresses shows a character display area. The 0000H character address shows the left-most and upper-most position on the screen. The 02A7H address shows the right-most and lower-most position on the screen. The figure 2-5-2 shows the character display area. For example, the character code 41H at the 02A7H character address shows that the character A is displayed at the right-most and lower-most position on the screen.

The addresses from the 0320H through the 0397H shows the cursor type. There are four cursors, or the two vertical and two horizontal cursors. The solid and the dotted lines are available for the cursors. The figure 2-5-5 shows the detailed cursor type. The eight registers of the 24IC103 CDP locate the four cursor positions on the screen respectively.

The dual mono-multivibrators 24IC109 and the associated components set the 20m second frame cycle. Every 20m second, one character display screen is refreshed once.

The 24IC105 12-bit D/A converter outputs the analog horizontal character signal via the one half of the 24IC107 dual operational amplifiers. The 24IC106 12-bit D/A converter outputs the analog vertical character signal via the one half of the 24IC107 dual operational amplifiers.

Table 2-5-2 I/O Map

Hex Address	Port IC	Chip Select Signal
FF to F0	Unused	*CS7
EF to E4	Unused	
E3 to E0	Programmable I/O interface 25IC202 second interface group	*CS6
DF to D4	Unused	
D3 to E0	Programmable I/O interface 25IC202 first interface group	*CS5
CF to C1	Unused	
C0	Programmable counter 26IC305 register address latch	*CS4
BF to B1	Unused	
B0	Programmable counter 26IC305	*CS3
AF to A0	Real time clock generator 23IC6	*CS2
9F to 90	Character display processor 24IC103	*CSCDP (*CS1)
8F to 82	Unused	
81 and 80	Programmable keyboard/display interface 23IC11	*CS0
7F to 00	Unused	

23IC6 : SS-7611 and SS-7607 only

Figure 2-5-1 Simplified Character Generator Block Diagram

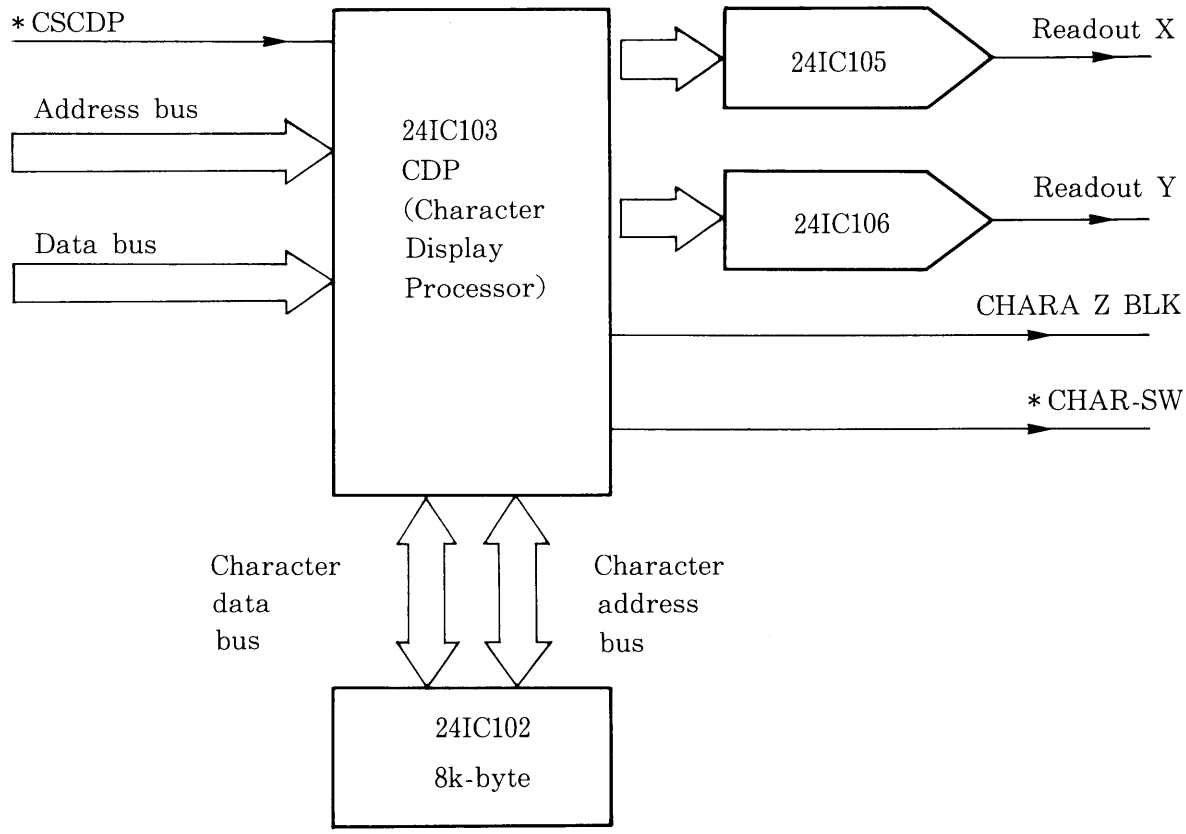


Table 2-5-3 Character RAM Map

Character RAM Address (Hex)	Data
1FFF to 0400	Character font (see Table 2-5-4)
03FF to 0398	Unused
0397 to 0320	Cursor type (see Table 2-5-5)
02A7 to 0000	Display area (see Figure 2-5-2)

Table 2-5-4 Character Font

Character RAM Address (Hex)	Data
1FFF to 1FEO	224th character font
1FDF to 1FC0	223rd character font
•	
•	
041F to 0400	1st character font

Table 2-5-4 Character font (continued)

<Example : >

<Example #41H character font: "A">

					b6	0	0	0	0	1	1	1	1
					b5	0	0	1	1	0	0	1	1
					b4	0	1	0	1	0	1	0	1
b3	b2	b1	b0			x0	x1	x2	x3	x4	x5	x6	x7
0	0	0	0	y0									
0	0	0	1	y1					○	○			
0	0	1	0	y2				○			○		
0	0	1	1	y3		x						○	
0	1	0	0	y4		○						○	
0	1	0	1	y5		○						○	
0	1	1	0	y6		○	○	○	○	○	○	○	
0	1	1	1	y7		○						○	
1	0	0	0	y8		○						○	
1	0	0	1	y9		○						○	
1	0	1	0	y10		○						x	
1	0	1	1	y11									
1	1	0	0	y12									
1	1	0	1	y13									
1	1	1	0	y14									
1	1	1	1	y15									

Character RAM Address (HEX)	Data		
	b7	b6 b5 b4	b3 b2 b1 b0
	FE	X factor	Y factor
0C20	1	1	3
0C21	1	1	4
0C22	1	1	5
.	.	.	.
.	.	.	.
.	.	.	.
0C36			
0C36	1	6	9
0C37	1	6	10
0C38	0	0	0
.	.	.	.
.	.	.	.
.	.	.	.
0C3F	0	0	0

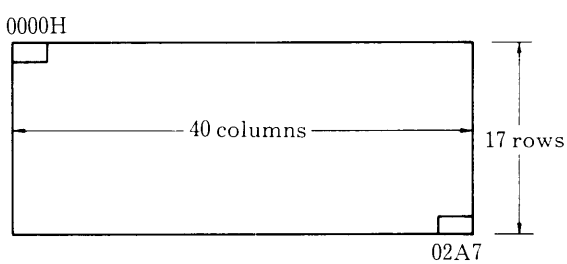
Table 2-5-5 Cursor Type

Character RAM Address (Hex)	Data
0397 to 0384	Vertical cursor 2 (20 characters)
0383 to 0370	Vertical cursor 1 (20 characters)
036F to 0348	Horizontal cursor 2 (40 characters)
0347 to 0320	Horizontal cursor 1 (40 characters)

Table 2-5-6 Character table

b3 b7 b4	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2	-	!	"	#	$	%	&	'	(	)	*	+	,	−	.	/
3	0	1	2	3	4	5	5	7	8	9	:	;	<	=	>	?
4	◌	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6	‘	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	▒
8	α	β	ɾ	δ	ϵ	θ	λ	μ	⅄	π	ρ	σ	ɤ	ϕ	ω	Ω
9	⌜	⌝	⌞	⌟	|	¯	_	|	_	°	◌			→	←	↑	↓
A																
B																
C																
D																

Figure 2-5-2 Display area



c. CPU I/O interface 25

The 25IC202 programmable interface device has two interface groups. Each interface group has three interface ports. The chip select line ***CS5** selects a first interface group and the chip select line ***CS6** selects a second interface group.

The port A and the lower 4-bit of the port B in the first interface group outputs the digital data to the 25IC203 12-bit D/A converter. The higher 4-bit of the port B in the first interface group associates the serial data communication. The port C in the first interface group associates the analog control line sequencer including five multiplexers of the 25IC207 through the 25IC211. The 25IC207 to 25IC209 multiplexers output the analog control line from the 25IC203 D/A converter to the analog circuitry via individual buffer operational amplifier. The 25IC210 and the 25IC 211 multiplexers receive the analog data which is digitized by the 25IC203, 25IC206 and the associated components.

The port A in the second interface group control the LED indicators on the front panel. The port B and C in the second interface group associate the interrupt handler and the counter interface.

d. Counter 26

The **COUNTER SIGNAL** is applied to the programmable counter 26IC305 via 3-bit pre-fast-counter block, which consists of the 26IC301 and 26IC302 flip-flops and the associated components. In the case of the SS-7610 or the SS-7606, the programmable counter 26IC305 is eliminated. In the case of the SS-7606, the 3-bit pre-fast-counter block consists of the 26IC303 flip-flop instead of the 26IC301 flip-flop.

When the **AUTO SET** is activated, the 26IC302 dual flip-flops provides the **H RANGE C. OVER FLOW** signal at the pin 5 to the CPU interface.

e. Key/LED interface and VR board 27, 28

The key switches and the LED indicators are placed in matrix, respectively. The each switch or LED indicator is scanned by the 23IC11 keyboard display interface device.

There are two rotary pulse generators, 28SW1 and 28SW2. The 28SW1 outputs the signal via the 28IC1 mono-multivibrator and the 28Q1 and the 28Q2 transistors. The 28SW2 outputs the signal via the 28IC2 mono-multivibrator and the 28Q3 and the 28Q2 transistors.

The analog voltages provided by the three potentiometers of 28R1, 28R2 and 28R5 are digitized by the 25IC203, 25IC206 and the associated components. The other analog voltages provided by the 28R3 and the 28R4 potentiometers control the analog circuitry directly.

2-6 POWER SUPPLIES 29, 30

The power supplies consist of the switching regulator and the series regulators. Without power line selector selection, the power supply regulates the secondary voltages within the full line voltage range between 90V and 250V.

The line voltage passes through the noise filters, which consists of the 29L1 and 29L2 choke coils and the capacitors from the 29C1 to 29C5, and is rectified by the diode bridge 29D36 and the storage capacitors, 29C10 and the 29C11. The thermistor 29TH1 limits the surge current when the power supply is turned on first. The photo coupler 43PC1 picks up the line signal for the **LINE** trigger source.

After the power switching transistor 29Q1 is activated on through the 29IC1 at the power on time, the 29Q1 transistor drives the transformer 29T1. Through the negative-feedback loop, which consists of the 29PC2, the 29IC2 3-terminal regulator and the associated components, the 29IC1 operates to regulate the +5 voltage line.

There are four secondary voltages from the 29T1 transformer. Each secondary voltage is rectified through the diode rectifier and the choke coil. The −12V, +12V and the +50V power supplies are provided by the individual series regulators. The 29Q9 transistor and the associated components provides the +50V power supply. The 29Q4 transistor and the associated components provides the +12V power supply. The 29Q5 transistor and the associated components provides the −12V power supply.

The switching transistor 30Q12 and the transformer 30T2 generate the high voltage for the CRT power supply. Through the negative-feedback loop of the 30R93 resistor, the 29IC operational amplifier having the pin 1 regulates the secondary voltages. The 30Q12 transistor starts to oscillate at power on time by the discharging current of the 30C60 capacitor, which is only in the circuit at power on time by turning the transistor 30Q13 on. Once the oscillation reaches stable, the 30C60 oscillation starter capacitor is took off by turning the transistor 30Q13 off.

If the high voltage power supply accidentally gets higher, the 30IC5 operational amplifier having the pin 7 and the associated components turns the transistor 30Q15 on and stops the oscillation of the 30Q12 transistor. After the power supply returns within the safety voltage range, the 30Q15 transistor goes off and the oscillation starts again. If the defects still exists, the preventive cycle above mentioned lasts again. The 30U1 high voltage multiplier provides the +14kV power supply.

MEMO

Section 3 Maintenance

This section describes how to keep the oscilloscope in good condition over a long period of time, and includes how to make a troubleshooting, and the replacement of components.

Before starting maintenance, read the operating manual carefully to familiarize with the operation of the oscilloscope.

3-1 PREVENTIVE MAINTENANCE

To avoid causing unnecessary damage to the oscilloscope, keep the oscilloscope clean, and make visual inspection and calibration of the oscilloscope periodically.

3-1-1 Cleaning

When the instrument is used in the dirty room, the instrument will get dust easily. Even in the clean room, still the instrument will get dust. Accumulation of the dust in the instrument may cause overheating, since the dust obstructs the heat radiation. Under high humidity condition, the dust may loose the insulation between components. A dirty switch contact or connector contact may loose stable connection. Worst thing is that accumulation of the dust may cause spark in wet season and may damage the component. In order to clean the instrument, select the appropriate cleaner in the Table 3-1-1.

Table 3-1-1 Cleaner selection

Liquid recommended as cleaner	Water, mild detergent
Prohibited liquid	Ether, lacquer thinner, methyl-ethyl as chemicals containing ketone detergent

Exterior

Using wet cloths dipped in cleaning liquid, clean the dirty surface of the instrument. The brush is useful as well particularly for cleaning corner. Be careful to use only liquid recommended in Table 3-1-1.

Interior

The best way to clean the dust accumulated in the instrument is to use an air compressor. Dust which remains after air blowing may be removed by using a soft paint brush and blowing again with air compressor.

CRT and Filter Cleaning

The front face of the CRT and the filter will get dirty easily. Wet soft cloth will remove dust and fingerprints. If necessary, use alcohol.

3-1-2 Storage

When the instrument is not used for a long time, remove probes, power cord and accessories attached. Store the accessories in the accessory bag. Set the front panel cover on the front panel, and place the dust cover over the instrument. Then store the instrument in the clean and dry room.

3-1-3 Visual Checking

Visual checking is the easiest way to find out bad components. Burnt resistors, loose connectors, and damaged printed circuit boards are easily identified by visual inspection. Many troubles are prevented by repairing them before they get serious.

3-1-4 Periodical Check and Adjustment

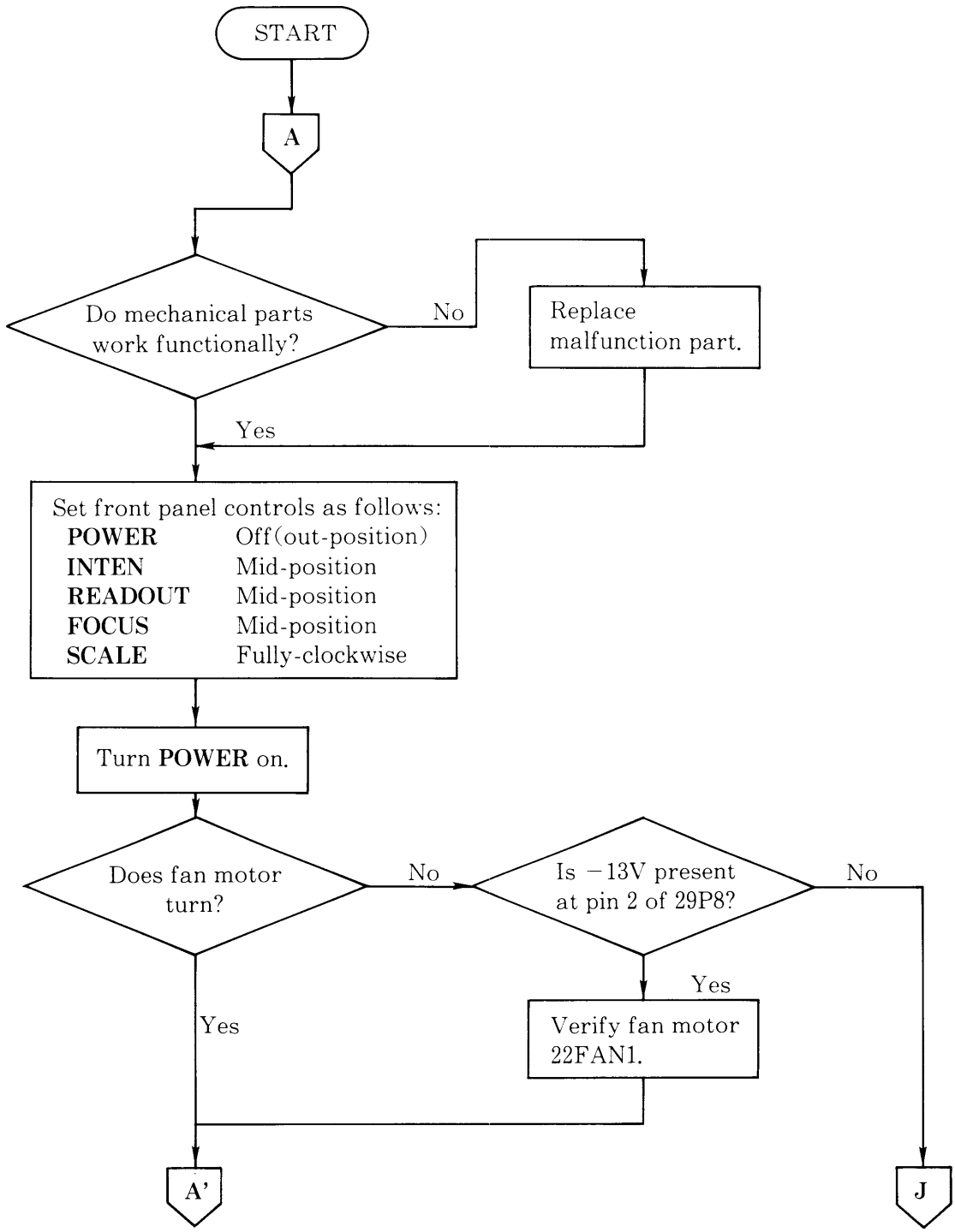
Periodical check and adjustment are important for keeping the instrument in proper operating condition at all times. When the instrument is used frequently, check and adjust the instrument every 1000 hours. When the instrument is not used frequently, once each six months is recommended.

3-2 TROUBLESHOOTING FLOW CHART

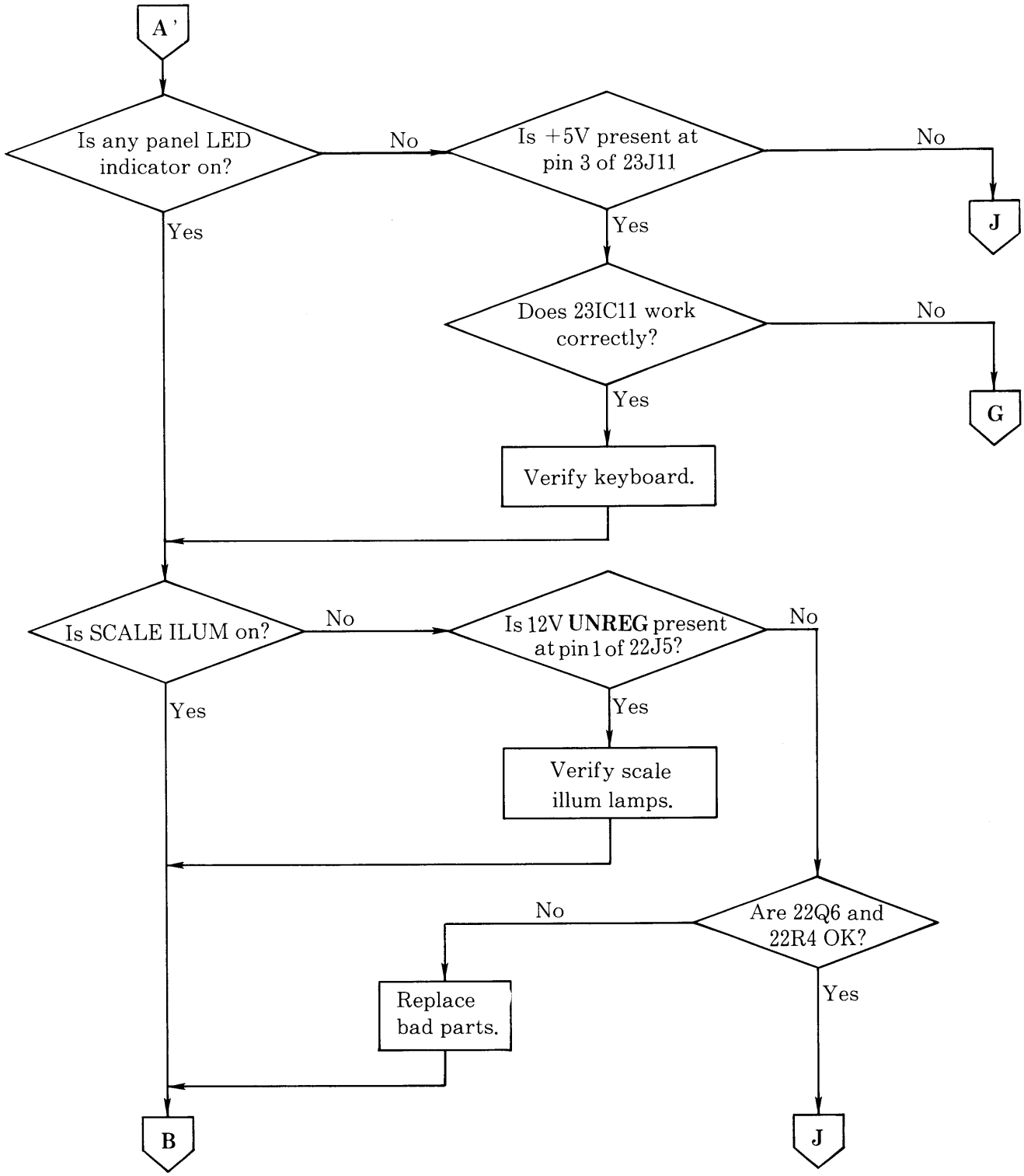
The basic troubleshooting procedures are illustrated in this chapter. At first, follow from the beginning. The self diagnostic procedure is also discussed in this chapter.

3-2-1 Preliminary Troubleshooting
3-2-2 Display Troubleshooting
3-2-3 Vertical Amplifier Troubleshooting
3-2-4 Sweep Generator Troubleshooting
3-2-5 Vertical and Horizontal Main Amplifier Troubleshooting
3-2-6 Z Amplifier Troubleshooting
3-2-7 CPU Circuit Troubleshooting
3-2-8 Character Generator Troubleshooting
3-2-9 CPU I/O Interface Troubleshooting
3-2-10 Power Troubleshooting
3-2-11 HV Generator Troubleshooting

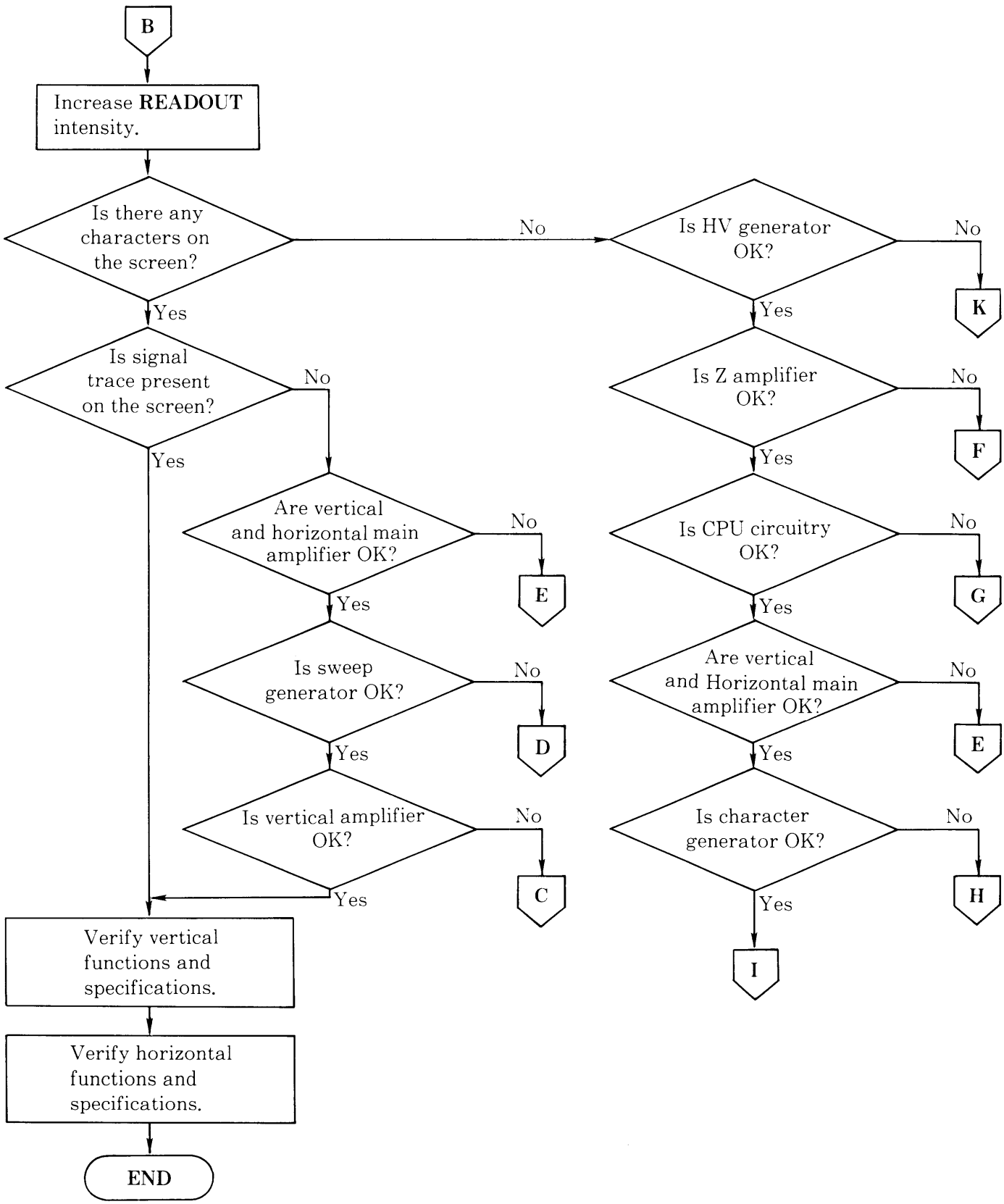
3-2-1 Preliminary Troubleshooting



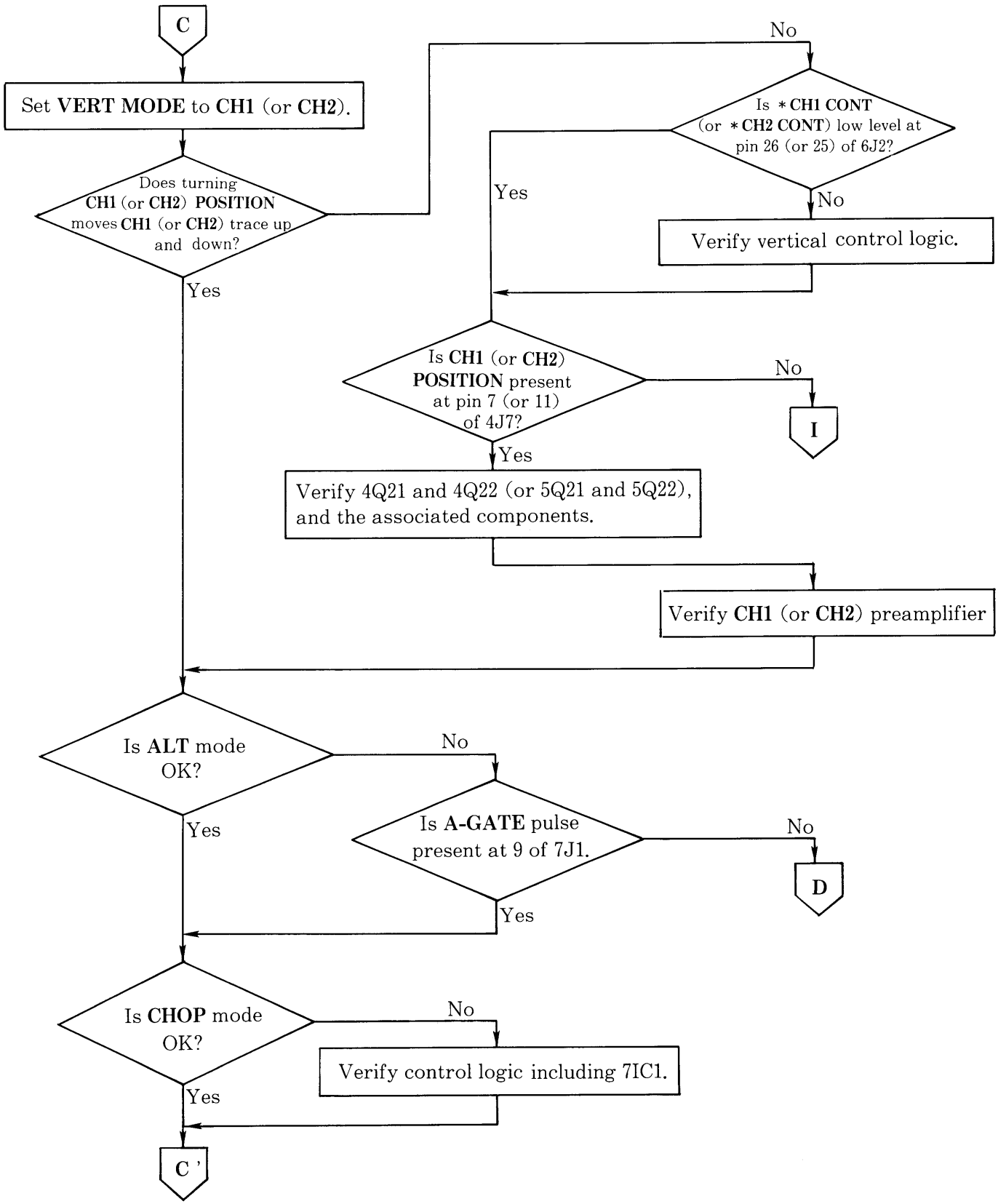
3-2-1 Preliminary Troubleshooting (continued)



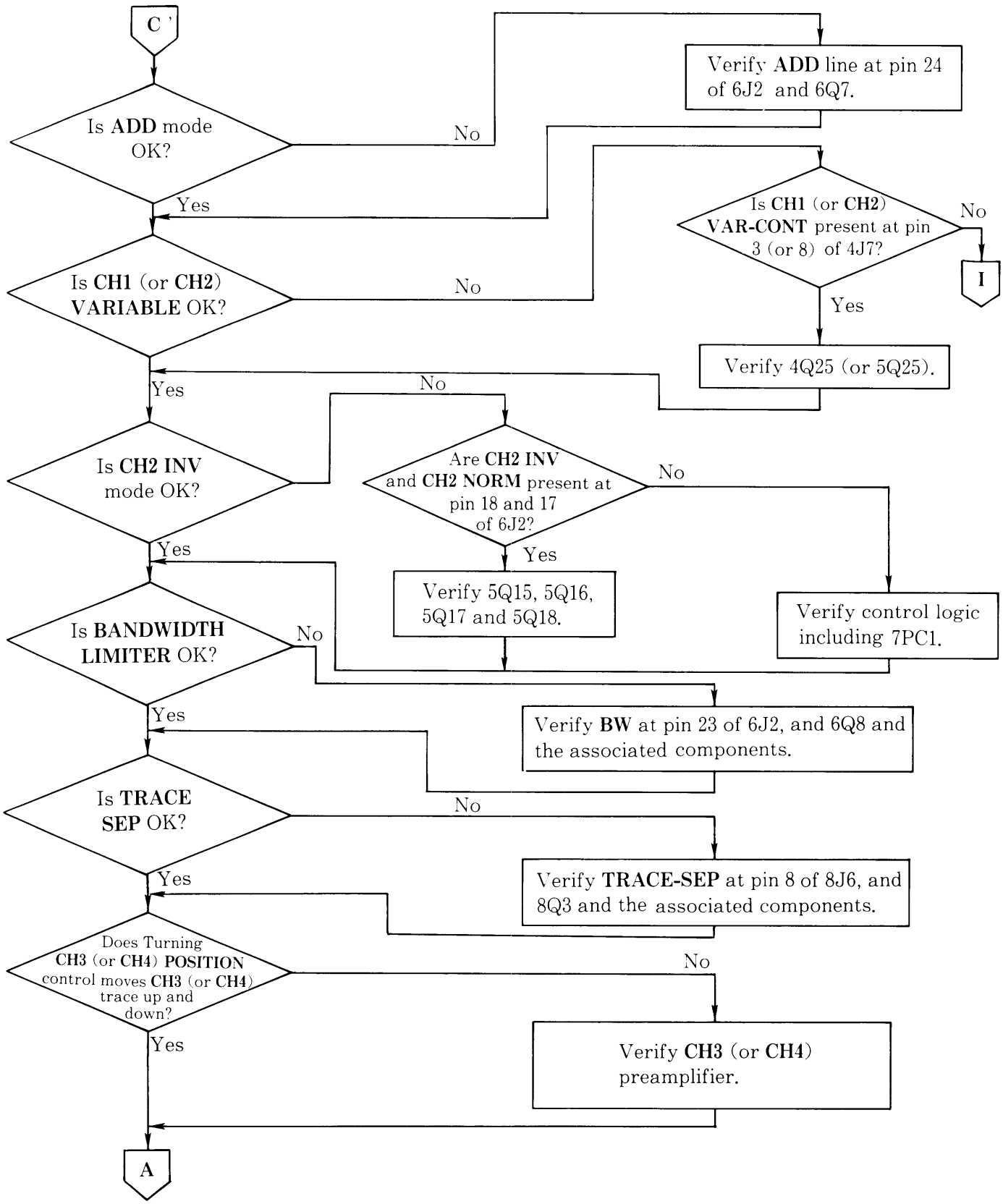
3-2-2 Display Troubleshooting



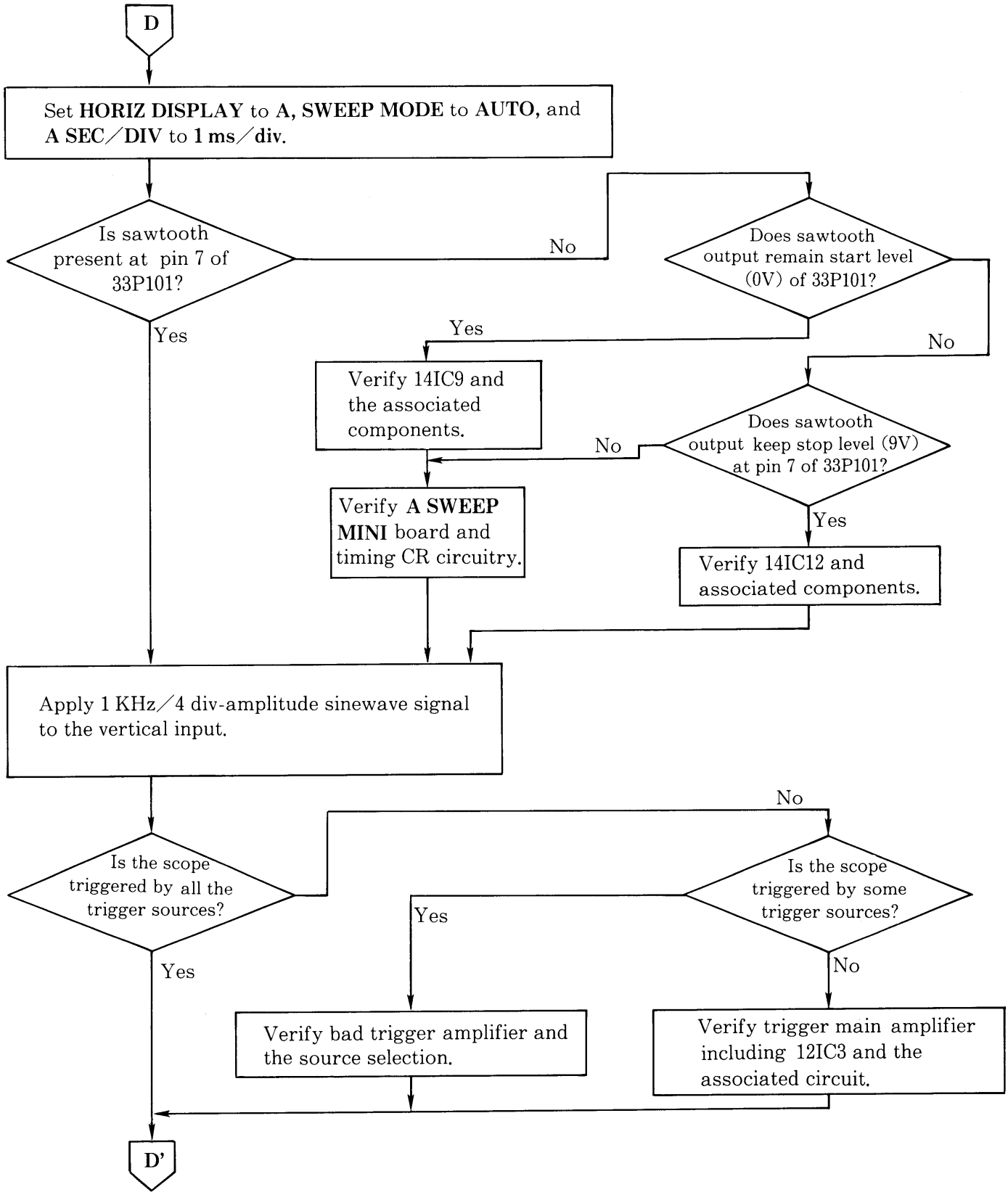
3-2-3 Vertical Amplifier Troubleshooting



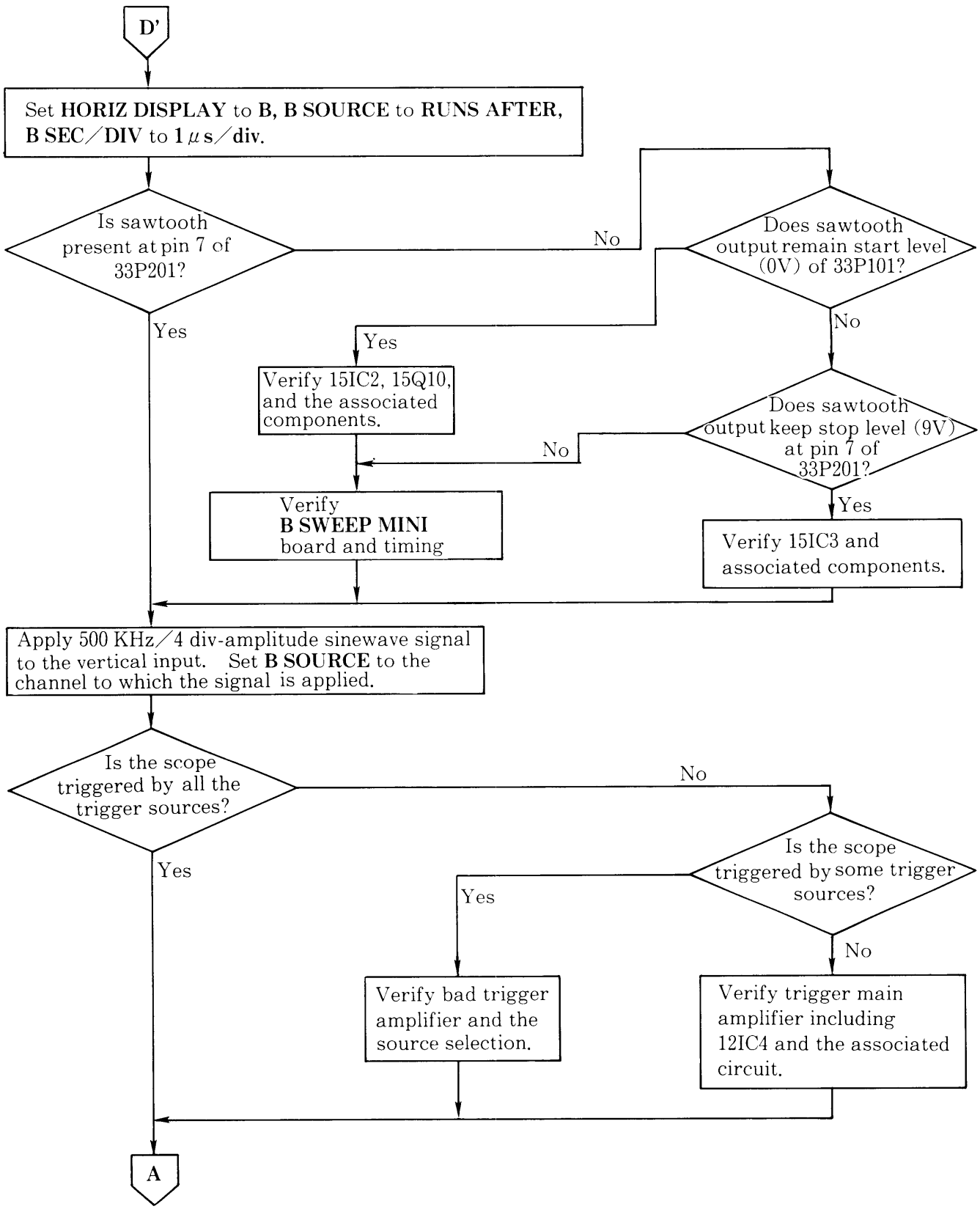
3-2-3 Vertical Amplifier Troubleshooting (continued)



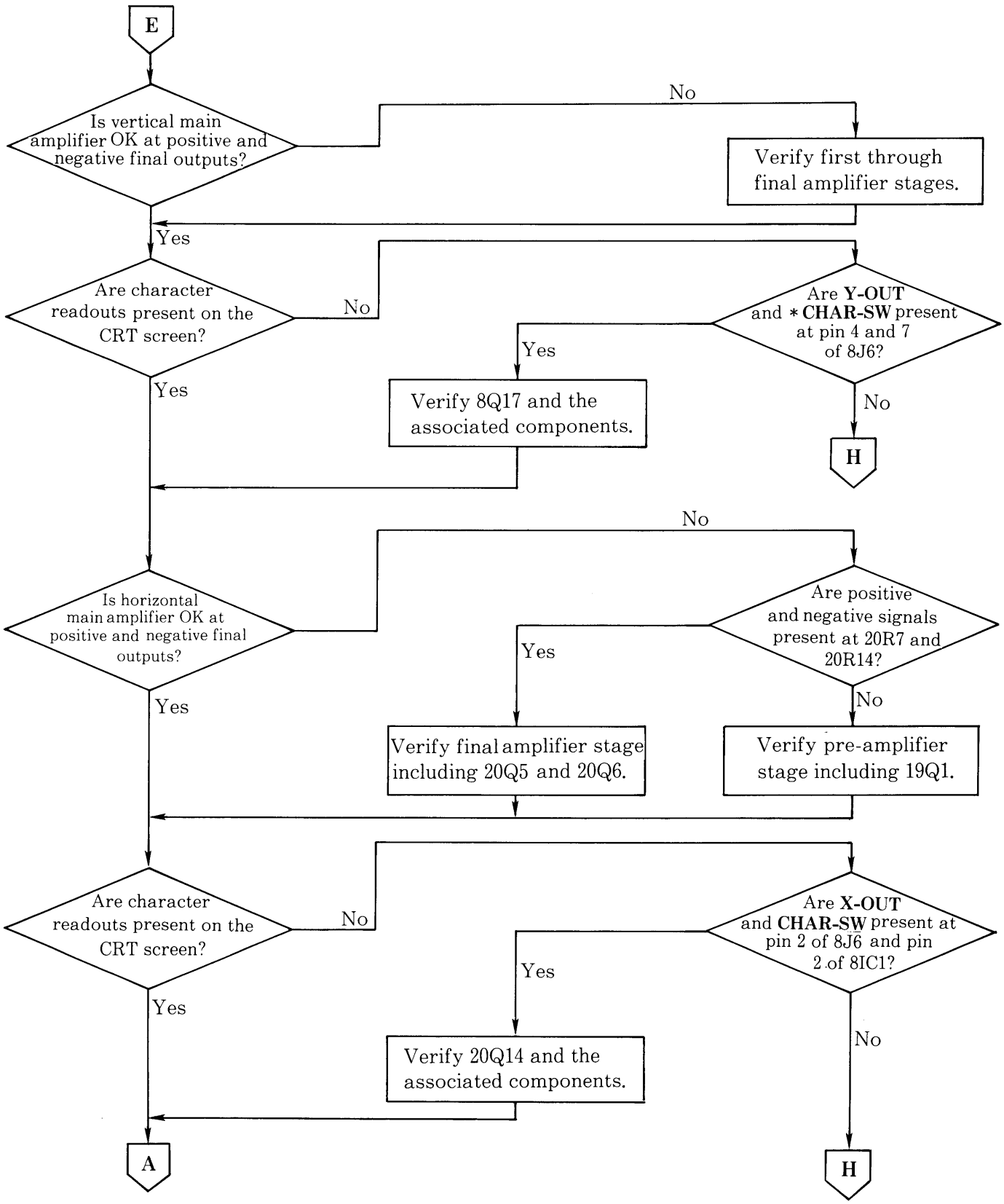
3-2-4 Sweep Generator Troubleshooting



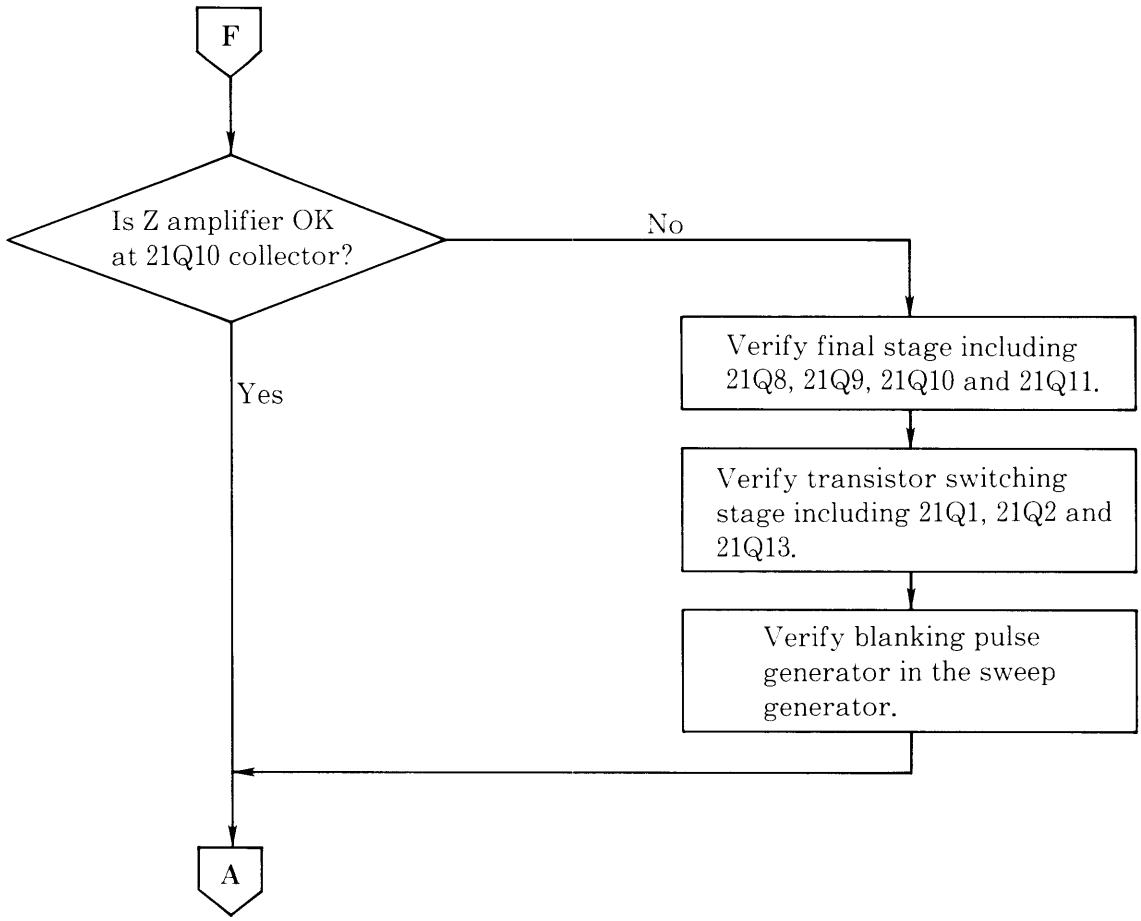
3-2-4 Sweep Generator Troubleshooting (continued)



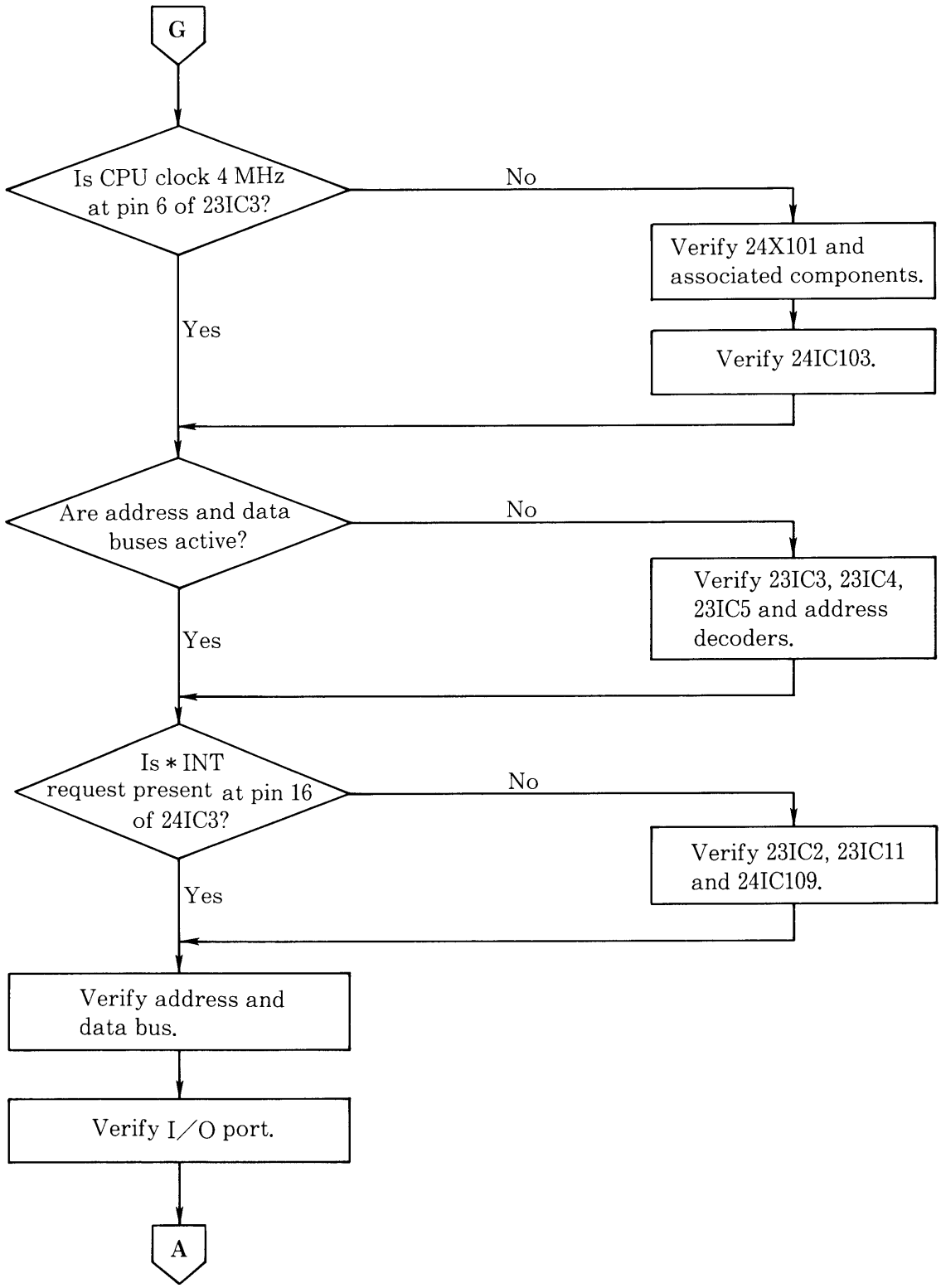
3-2-5 Vertical and Horizontal Main Amplifier Troubleshooting



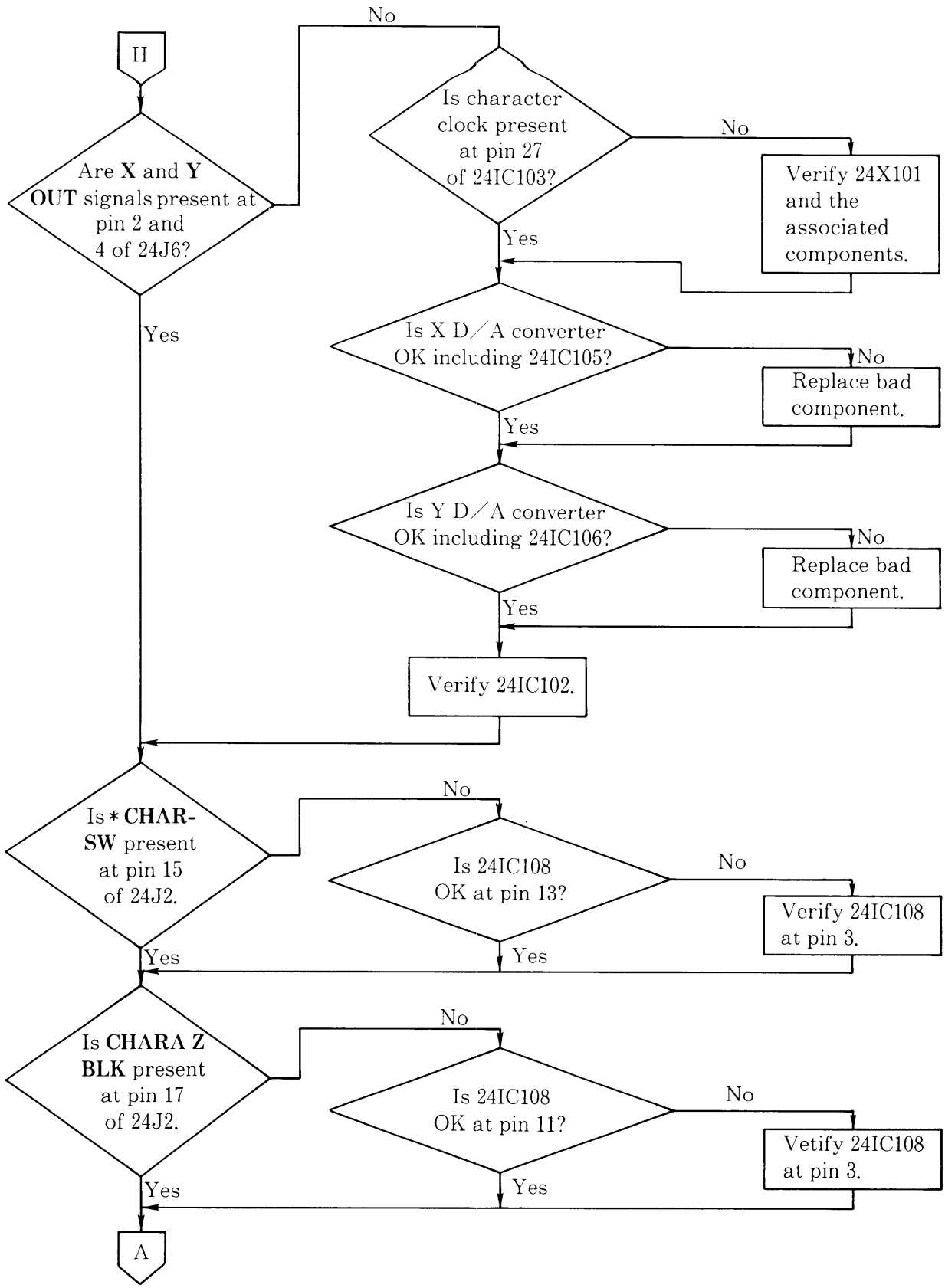
3-2-6 Z Amplifier Troubleshooting



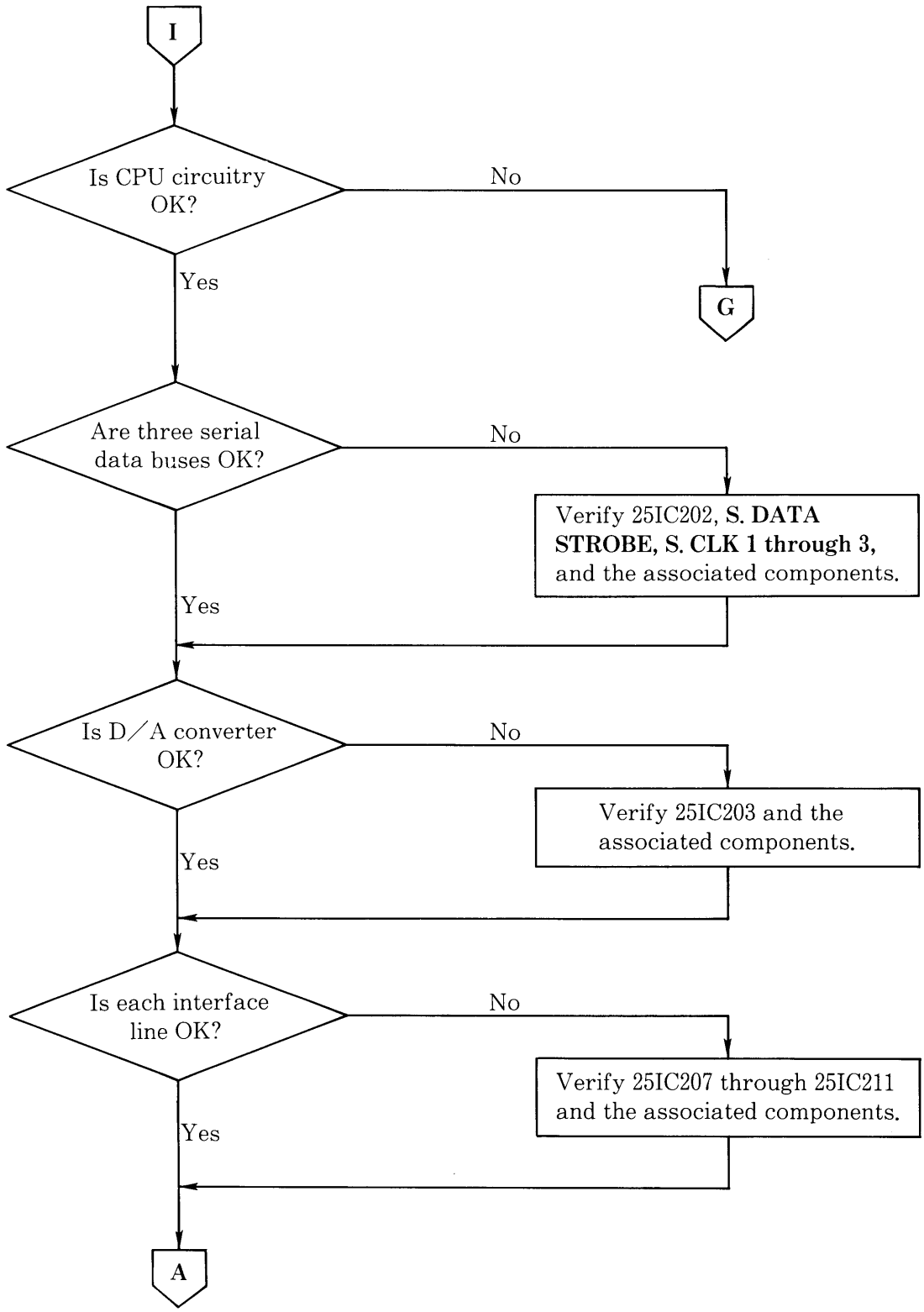
3-2-7 CPU Circuit Troubleshooting



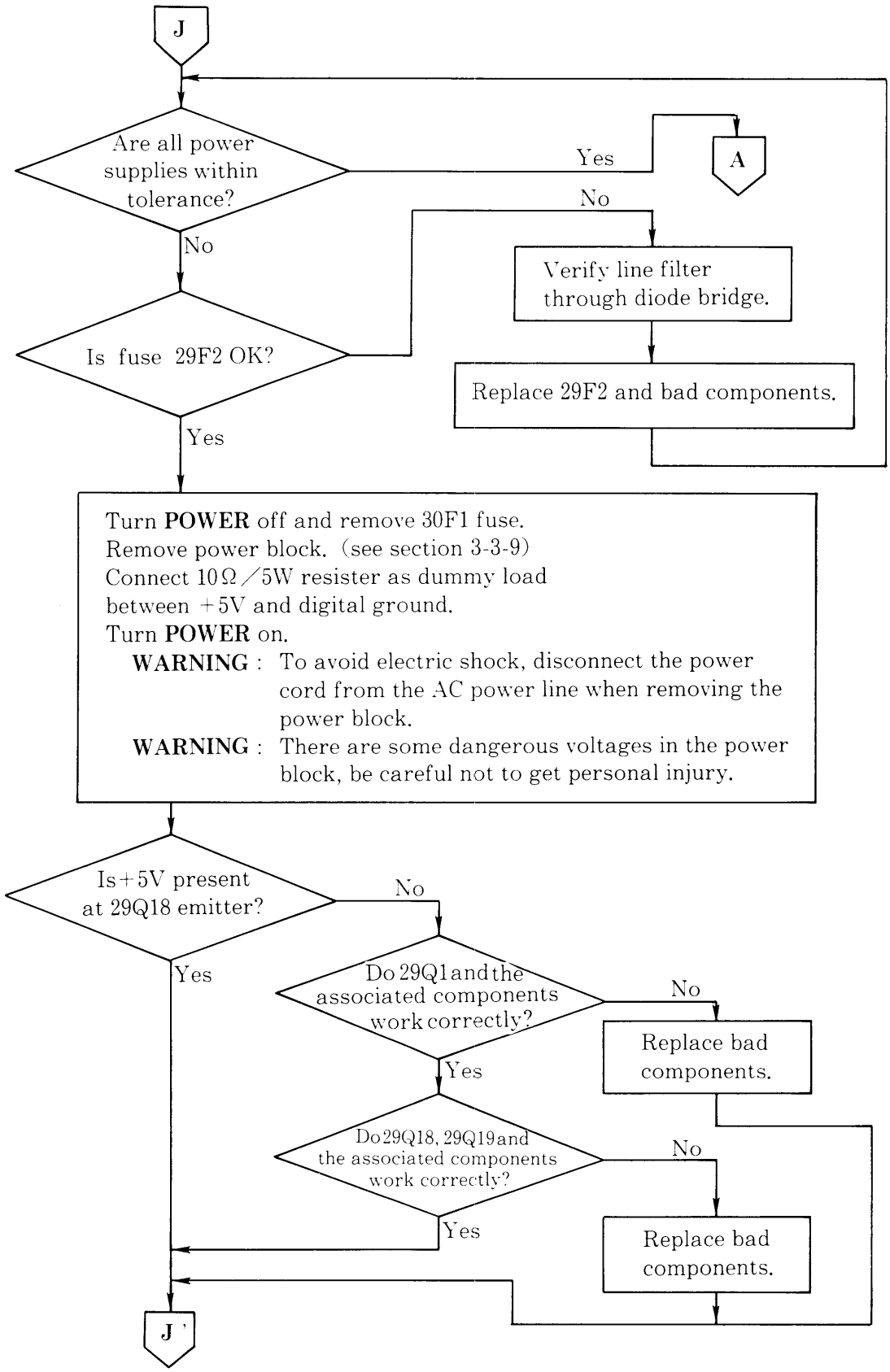
3-2-8 Character Generator Troubleshooting



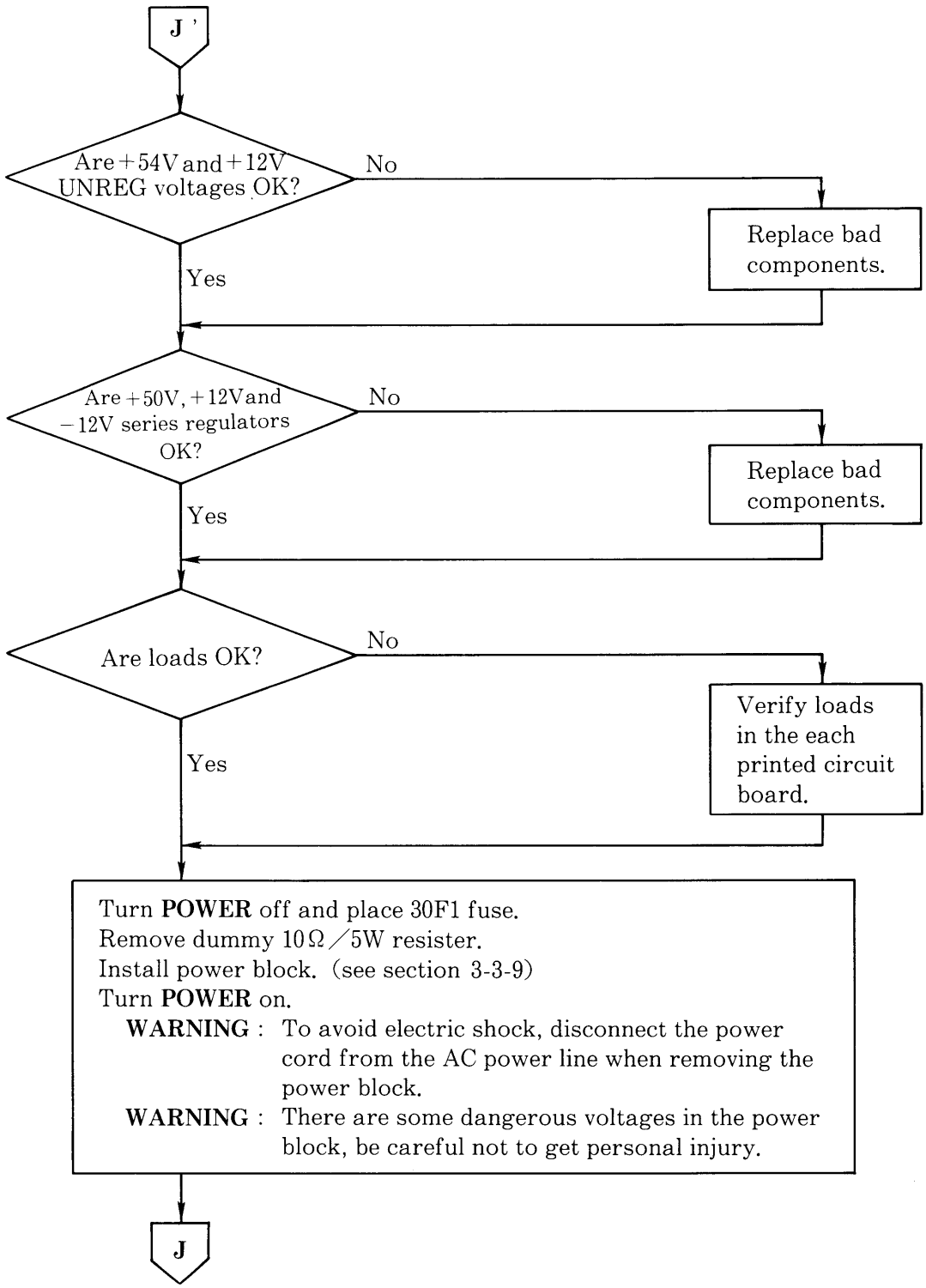
3-2-9 CPU I/O Interface Troubleshooting



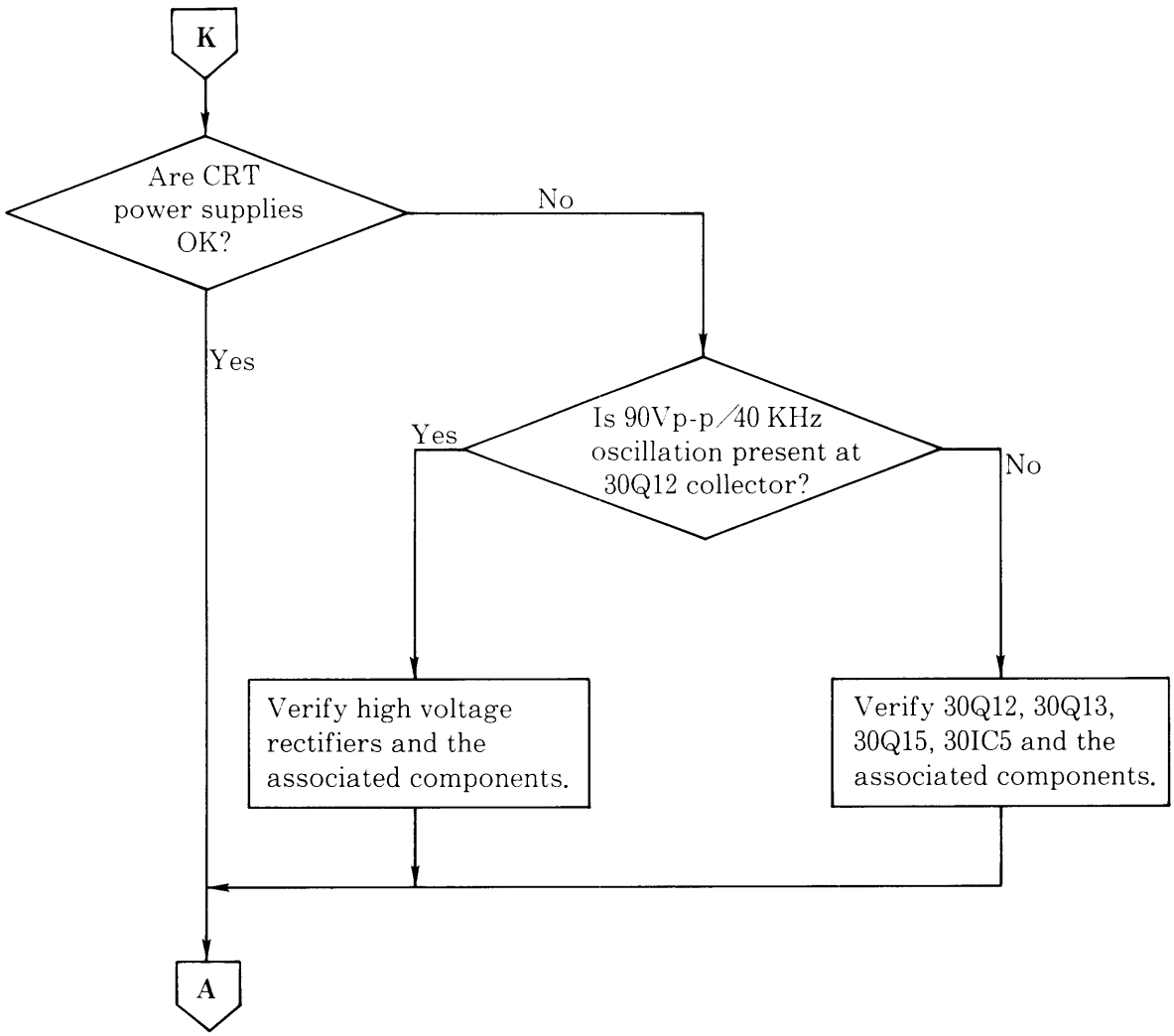
3-2-10 Power Troubleshooting



3-2-10 Power Troubleshooting (continued)



3-2-11 HV Generator Troubleshooting



3-3 BOARD REMOVAL AND REPLACEMENT INSTRUCTIONS

This section explains how to remove the printed circuit boards, and bad components. The printed circuit board location photographs in the "Section 7" offer quick board identification. The mechanical drawing in the "Section 7" will be helpful as well for the removal and reinstallation of components or subassemblies. The Table 3-3-1 lists maintenance aids for quick reference. All the instructions in this section are applied to the all models, unless specially stated.

WARNING

To avoid electric shock, disconnect the power cord of the instrument from the AC power line before removing covers.

Table 3-3-1 Maintenance aids

Description	Specification	Usage
1. Soldering iron	15 W to 25 W	General soldering and unsoldering.
2. Crossed-head screwdriver	2. 6 mm, 3 mm	Assembly and disassembly.
3. Torque screwdriver	3 mm/10 kgf × cm	Assembling handle.
4. Nut screwdriver	11 mm (subtense)	Mounting and dismounting variable resistors.
5. Hexagonal-head screwdriver	2 mm (subtense)	Mounting and dismounting bezel.
6. Long-nose plier		Component removal and replacement.
7. Releasing lever	WAGO Type 236-332	Releasing primary wire from WAGO 236-401 terminal.
8. Vacuum solder extractor	No static charge retention	Unsoldering static sensitive devices and components on boards.
9. Spray cleaner	No-noise	Cleaning switches and connector contacts.
10. IC removal tool		Removing DIP-ICs.
11. Isopropyl alcohol	Reagent grade	Cleaning front panel.

3-3-1 Cover Removal

To start the internal check, remove the covers first according to the following procedure.

a. Rear Panel

1. Remove the four screws. (see Fig. 3-3-1-(2).)
2. Pull off the rear panel from the instrument.

Fig. 3-3-1-(1) SS-7611 and SS-7607 Front view

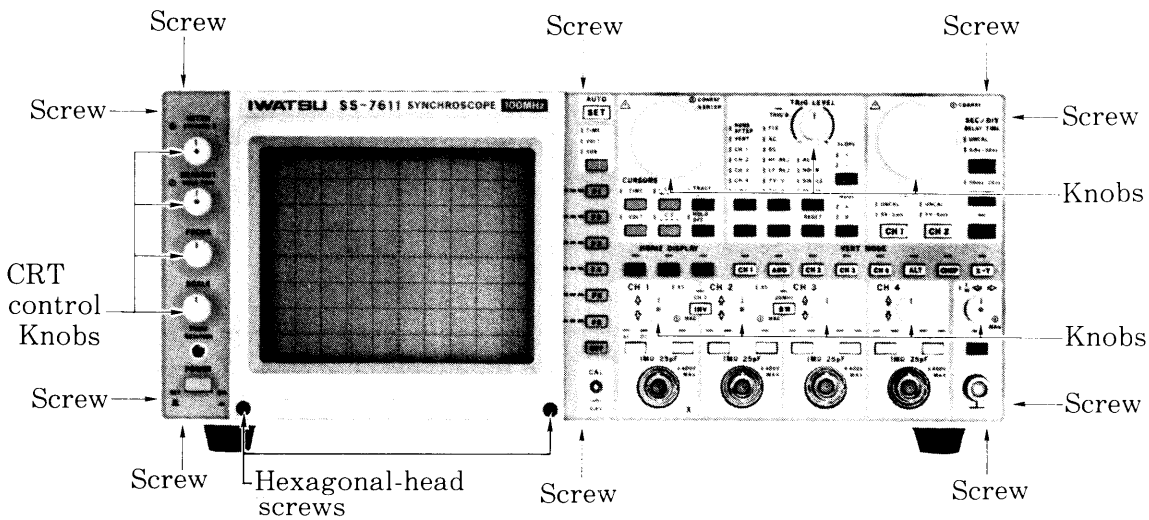


Fig. 3-3-1-(1) SS-7611 and SS-7607 Front view

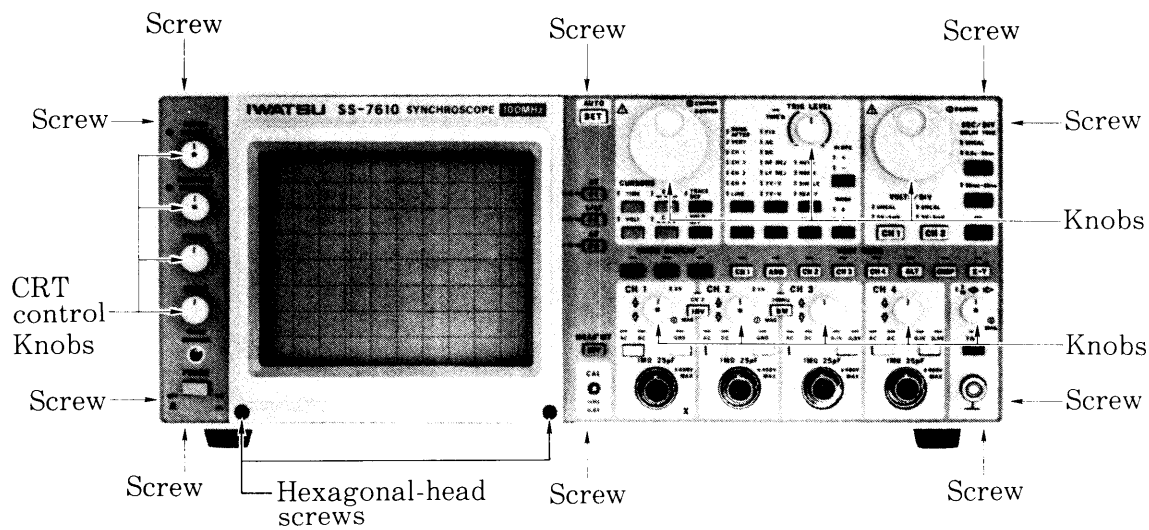


Fig. 3-3-1-(2) SS-7611 and SS-7607 Rear view

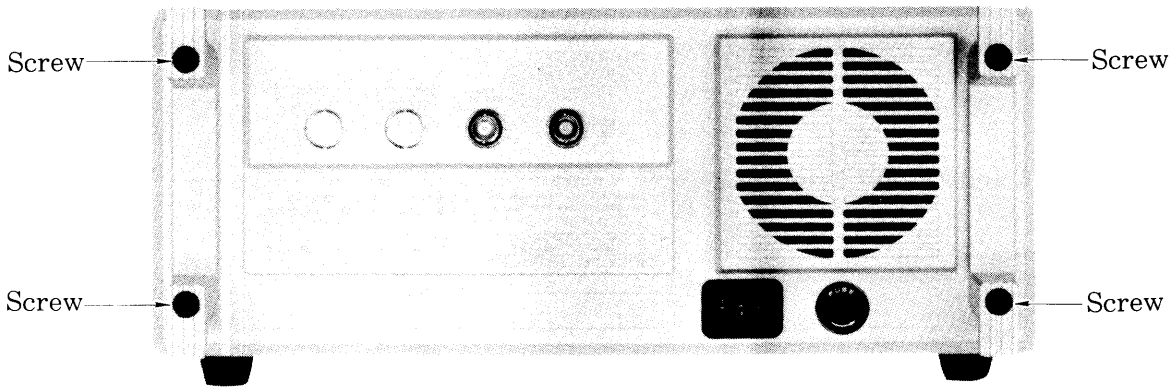
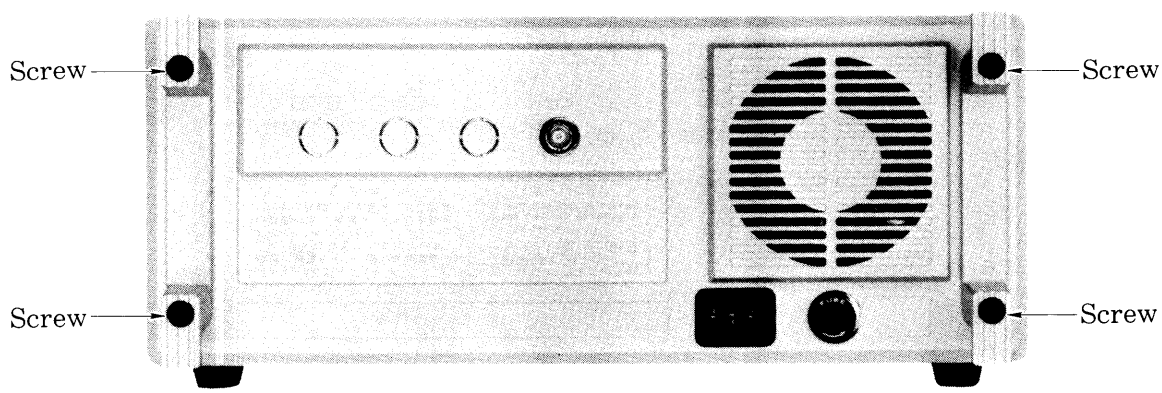


Fig. 3-3-1-(2) SS-7610 and SS-7606 Rear view



b. Main Cover

3. Place the front panel cover on the front panel.
4. Remove the two screws. (see Fig. 3-3-1-(3) and (4).)
5. Stand the instrument with the front face down.
6. Slide the cover upward and remove the cover.

Fig. 3-3-1-(3) Top view

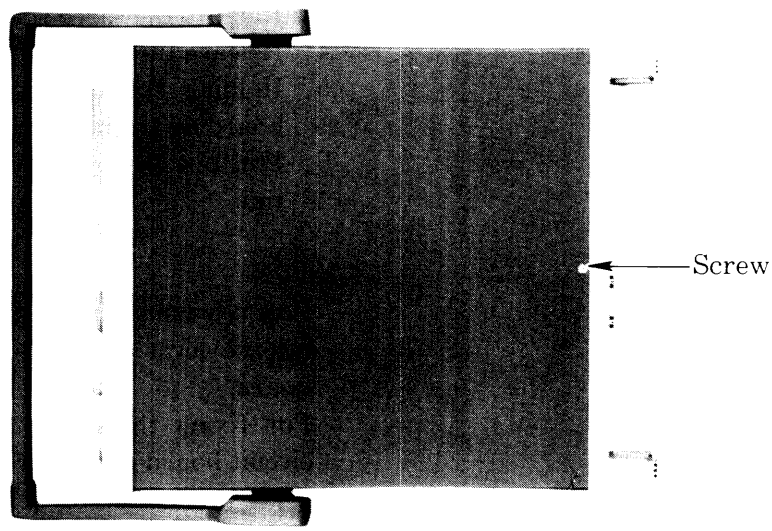
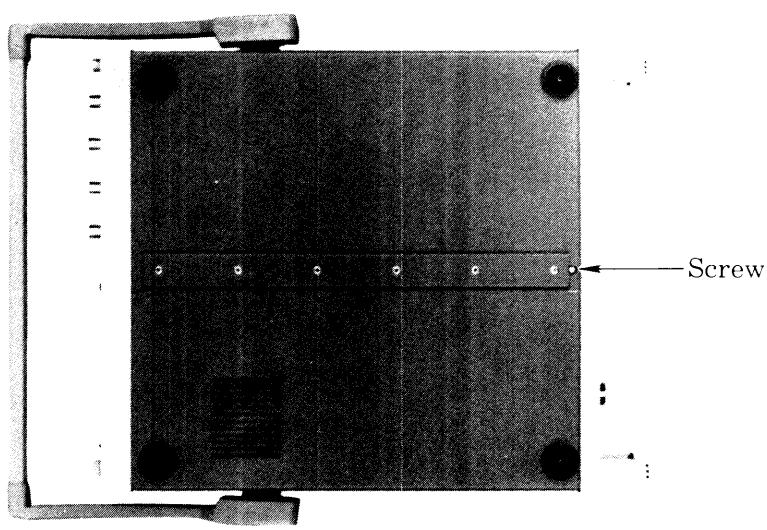


Fig. 3-3-1-(4) Bottom view



3-3-2 Vertical Preamplifier Board

1. Disconnect the six coaxial connectors, the three flexible flat cables, and the one generic connector. (see Fig. 3-3-2-(1).)
2. Using the vacuum solder extractor, unsolder the three contacts of the delay cable.
3. Remove the four 2.6 mm screws and the three 3mm screws. (see Fig. 3-3-2-(2).)
4. Slide the preamplifier board back and pull out the board.

3-3-3 Vertical Control Board

1. Remove the vertical preamplifier board first. (see the section 3-3-2.)
2. Disconnect the twelve coaxial connectors (nine coaxial connectors for the SS-7610 and the SS-7606), the three flexible flat cables, and the one generic connector. (see Fig. 3-3-3.)
3. Remove the three screws. (see Fig. 3-3-3.)
4. Release the one latch. (see Fig. 3-3-3.)
5. Holding the outside board edge, lift the board up to the 2 o'clock position.
6. Pull out the board while in the step 5 position.

<Note>

For releasing the latch, just push the latch release lever outward of the printed circuit board.

For fixing the latch, just push the printed circuit board downward.

Fig. 3-3-2-(1) Conrectors on the vertical preamplifier board

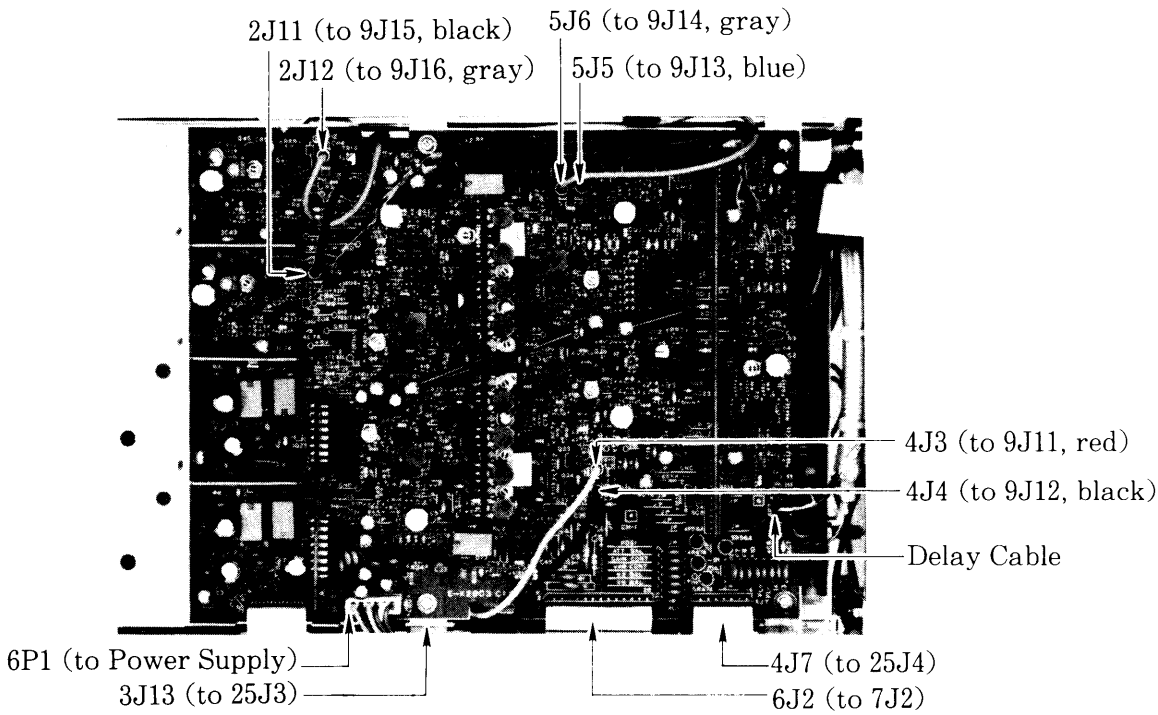


Fig. 3-3-2-(2) Screws or the vertial preamplifier board

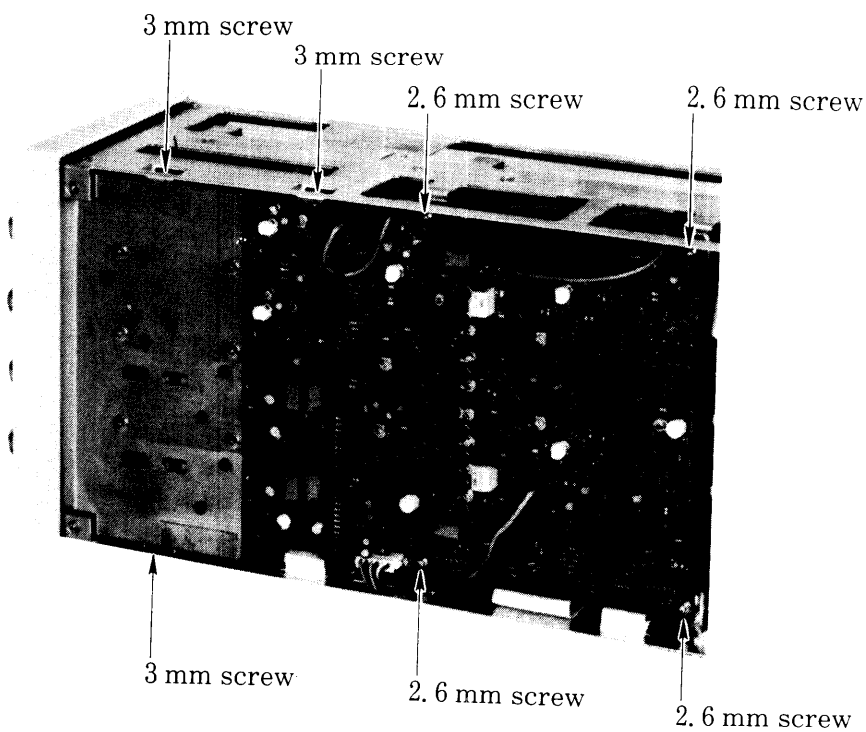


Fig. 3-3-3 SS-7611 and SS-7607 vertical control board

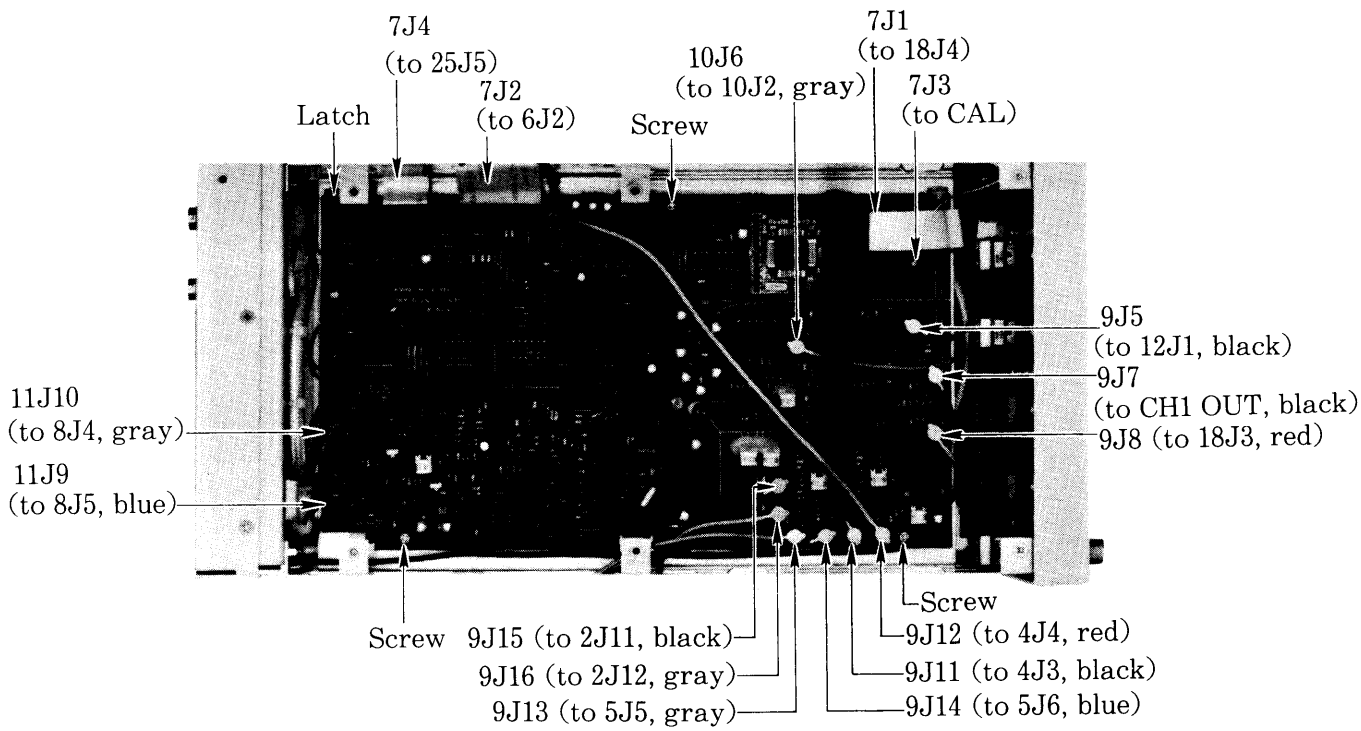
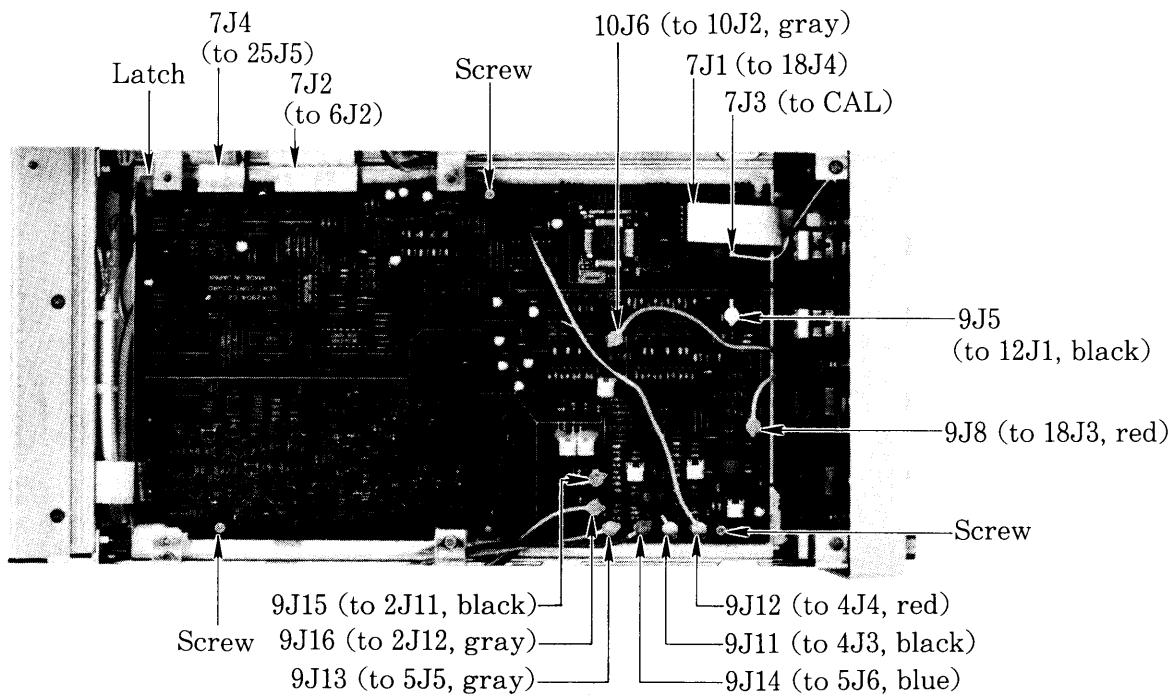


Fig. 3-3-3 SS-7610 and SS-7606 vertical control board



3-3-4 Sweep Generator Board

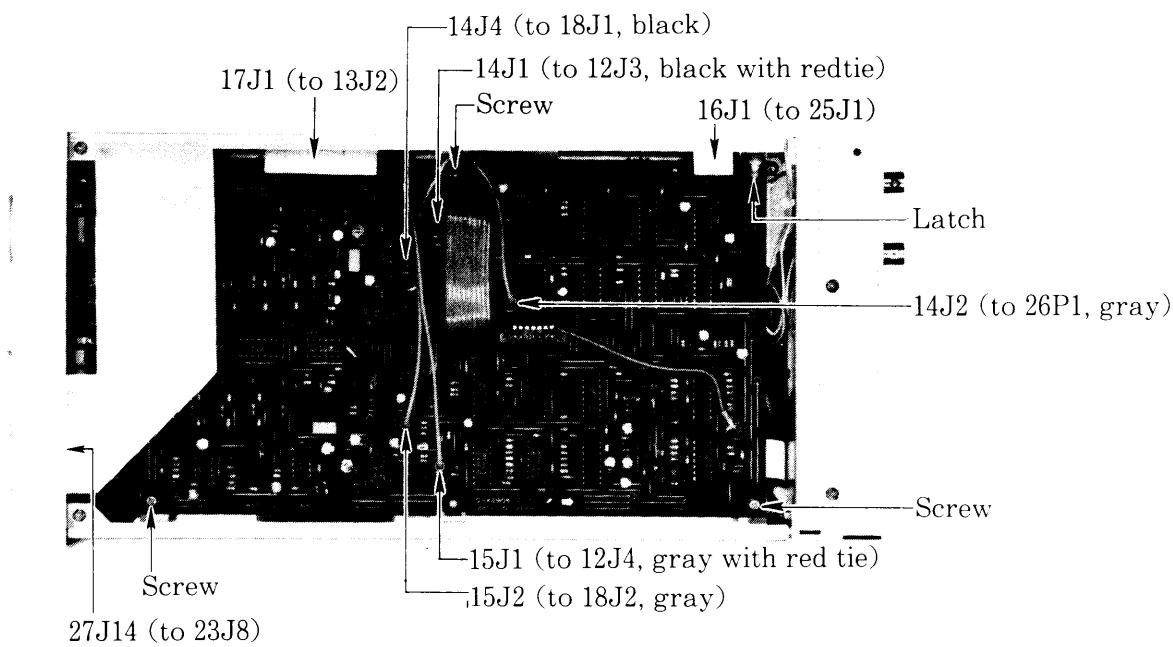
1. Disconnect the one flexible flat cable on the key board block. (see Fig. 3-3-4.)
2. Disconnect the five coaxial connectors and the two flexible flat cables. (see Fig. 3-3-4.)
3. Remove the three screws. (see Fig. 3-3-4.)
4. Release the one latch. (see Fig. 3-3-4.)
5. Holding the outside board edge, lift the board up to the 2 o'clock position.
6. Pull out the board while in the step 5 position.

<Note>

For releasing the latch, just push the latch release lever outward of the printed circuit board.

For fixing the latch, just push the printed circuit board downward.

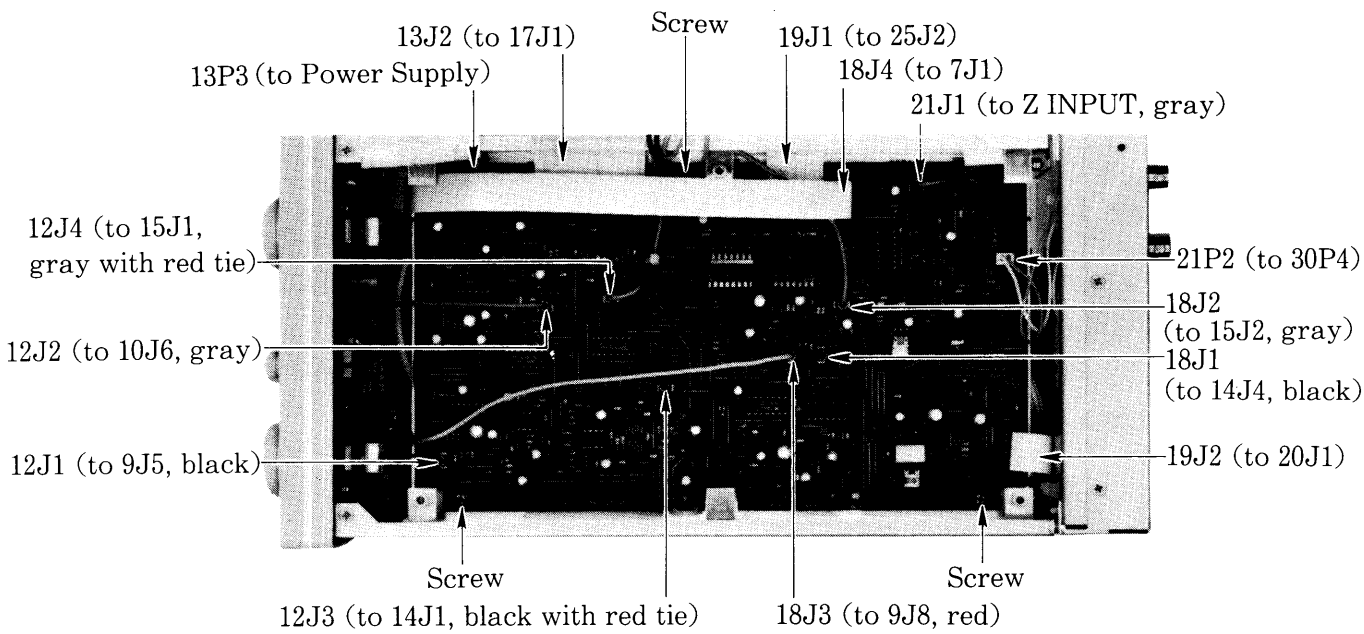
Fig. 3-3-4 Sweep generctor board



3-3-5 Trigger Amplifier Board

1. Remove the sweep generator board first. (see the section 3-3-4.)
2. Disconnect the eight coaxial connectors, the four flexible flat cables, and the two generic connectors. (see Fig. 3-3-5.)
3. Remove the three screws. (see Fig. 3-3-5.)
4. Holding the outside board edge, lift the board up to the 2 o'clock position.
5. Pull out the board while in the step 4 position.

Fig. 3-3-5 Trigger amplifier bcard



3-3-6 Main Amplifier Board

1. Remove the six screws and take off the main amplifier board shielding cover. (see Fig. 3-3-6-(1).)
2. Disconnect the two BNC connector sockets on the shielding cover for the SS-7611 or the SS-7607. (one socket for the SS-7610 or the SS-7606)
3. Remove the three flexible flat cables and the three generic connectors. (see Fig. 3-3-6-(2).)
4. Using the vacuum solder extractor, unsolder the three contacts of the delay cable. (see Fig. 3-3-6-(2).)
5. Remove the four screws. (see Fig. 3-3-6-(2).)

Fig. 3-3-6-(1) Main amplifier shielding covers

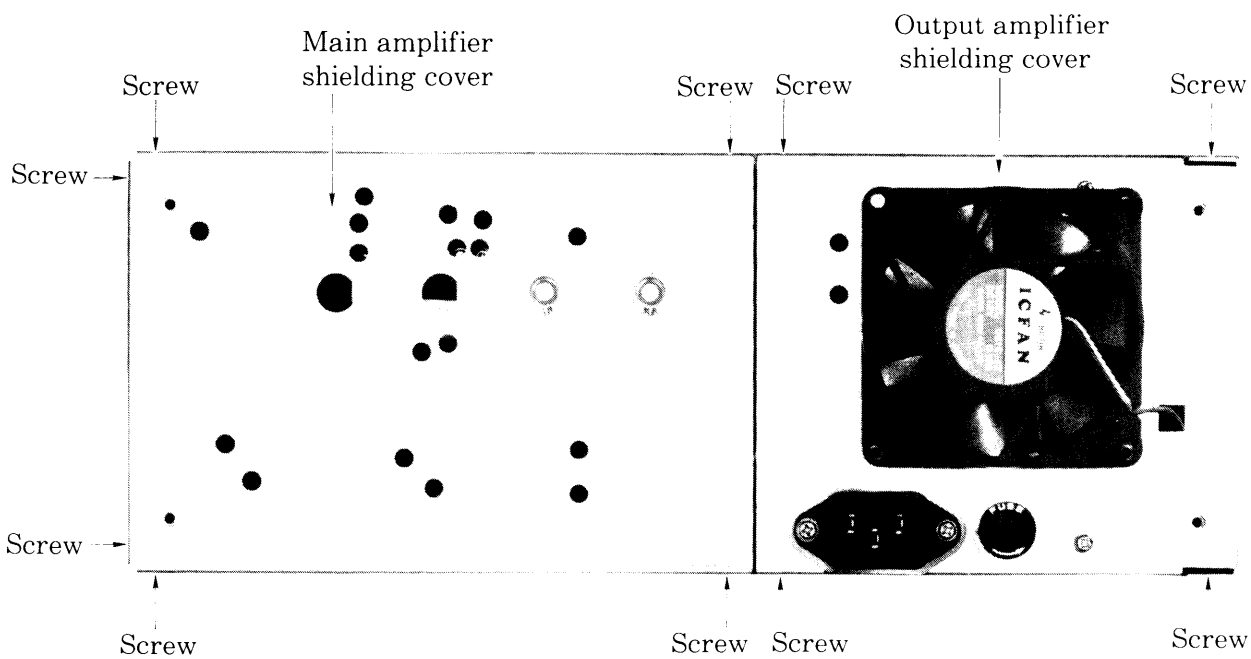
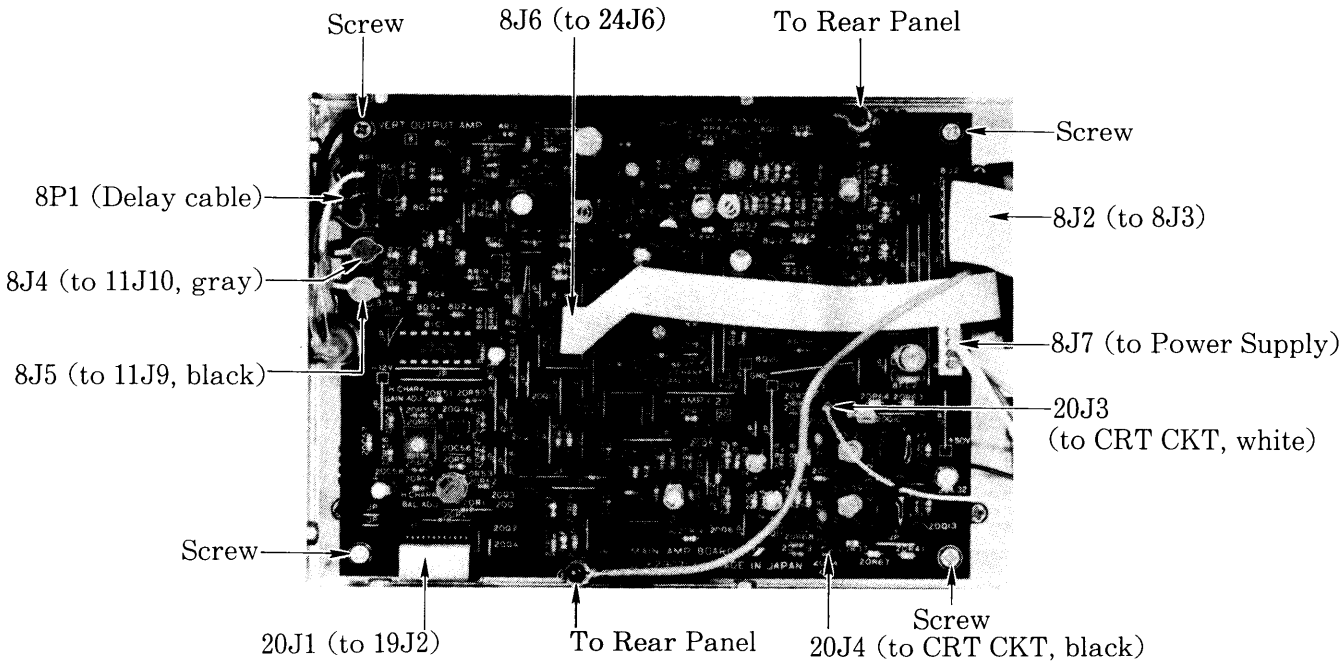


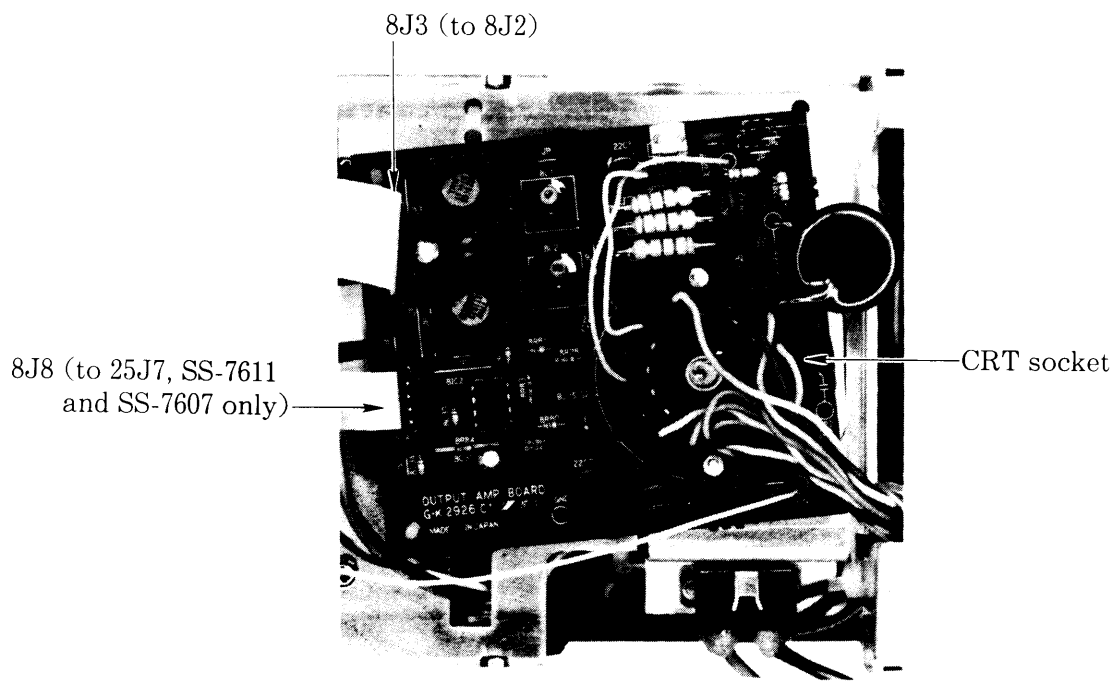
Fig. 3-3-6-(2) Main amplifier board



3-3-7 Output Amplifier Board

1. Remove the six screws and take off the main amplifier board shielding cover. (see Fig. 3-3-6-(1).)
2. Disconnect the two generic connectors, 20J3 and 20J4, on the main amplifier board. (see Fig. 3-3-6-(2).)
3. Remove the four screws and take off the output amplifier board shielding cover. (see Fig. 3-3-6-(1).)
4. Remove the two flexible flat cables for the SS-7611 or the SS-7607. (one cable for the SS-7610 or the SS-7606.) (see Fig. 3-3-7.)
5. Remove the four generic connectors, or 30P3, 30P5, 30P6, and 30P7, for the CRT high voltage on the power board. (see Fig. 3-3-9-(2).)
6. Pull the output amplifier board and disconnect the CRT socket.

Fig. 3-3-7 Output amplifier board



3-3-8 CPU Board

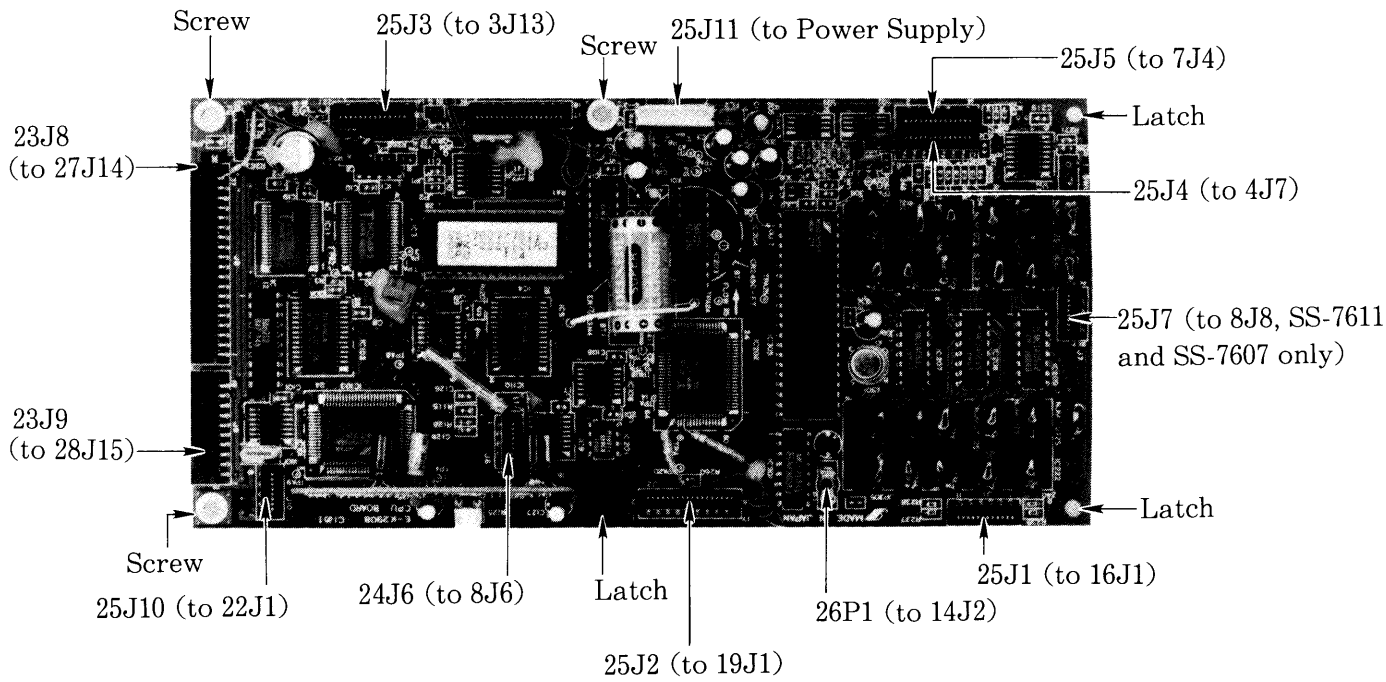
1. Remove the one coaxial connector, the one generic connector and the ten flexible flat cables for the SS-7611 or the SS-7607. (nine cables for the SS-7610 or the SS-7606.) (see Fig. 3-3-8.)
2. Remove the three screws. (see Fig. 3-3-8.)
3. Release the three latches, the two latches at upper board edge and the one latch at lower board edge. (see Fig. 3-3-8.)
4. Pull out the CPU board from the bottom of the oscilloscope.

<Note>

For releasing the latch, just push the latch release lever outward of the printed circuit board.

For fixing the latch, just push the printed circuit board downward.

Fig. 3-3-8 CPU boad



3-3-9 Power Block

This section describes how to remove the power block from the main frame. The power block consists of the power board and the chassis.

a. Power block

1. Remove the sweep generator board first, then disconnect the one generic connector 13P3 for the power distribution on the trigger amplifier board. (see the section 3-3-4 and Fig. 3-3-5.)
2. Using the releasing lever, remove the two primary wires from the terminal 29J2. (see Fig. 3-3-9-(1).)
3. Remove the one generic connector 22P4 for the power distribution on the CRT control board. (see Fig. 3-3-10.)
4. Remove the six generic connectors on the power board. (see Fig. 3-3-9-(2).)
5. Remove the two 3×8mm round head screws, the eight 3 × 8 mm flat head screws, and the two 3 × 6 flat head screws. (see Fig. 3-3-9-(1) a and b.)
6. Pull out the power block outward.

b. Power board

7. Remove the six screws on the power board. (see Fig. 3-3-9-(2).)

Fig. 3-3-9-(1) Power block a : Top view

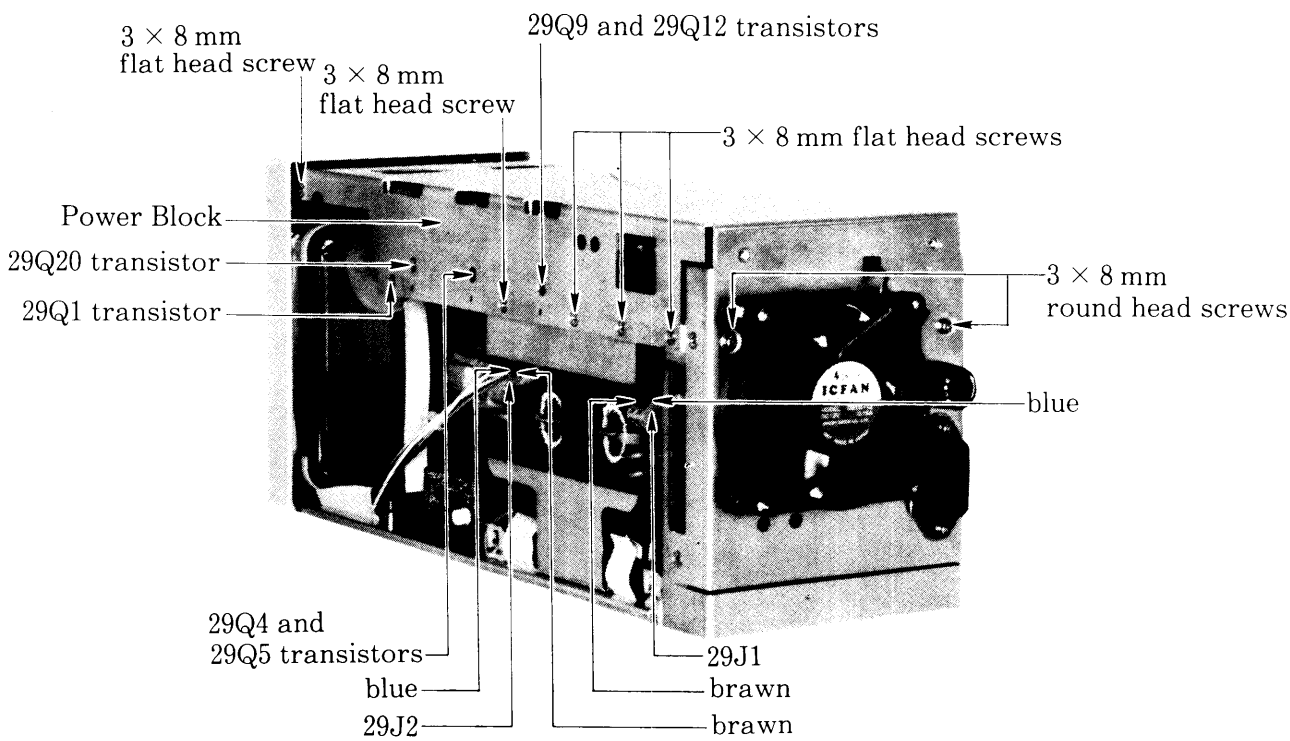


Fig. 3-3-9-(1) Power block b : Side view

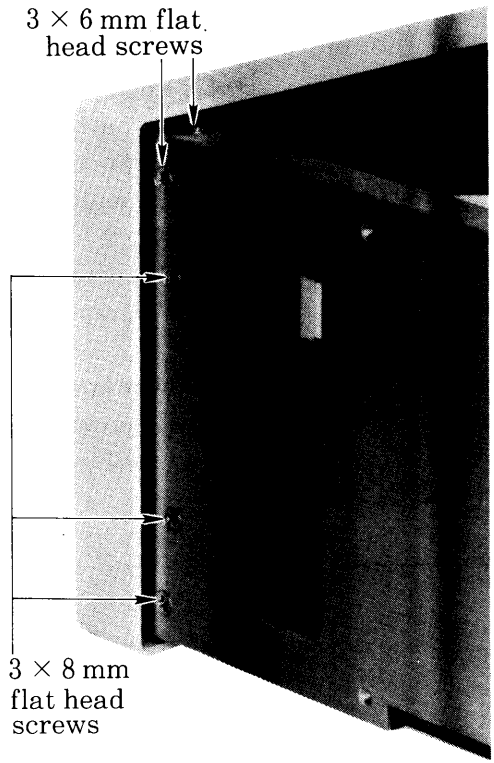
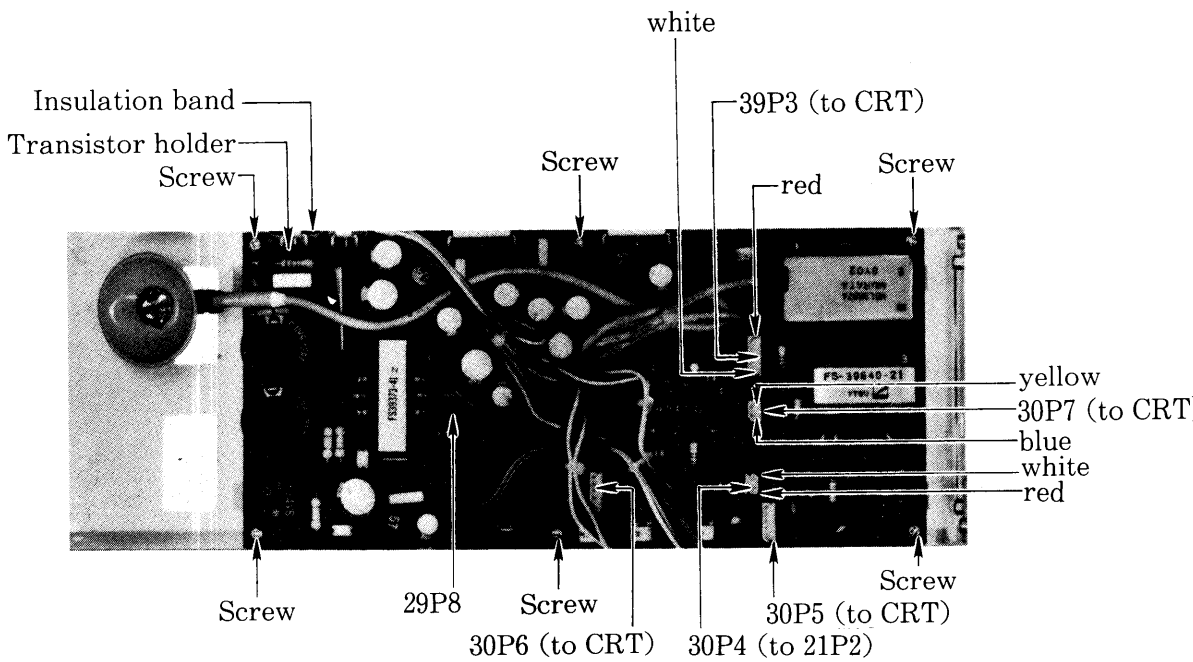


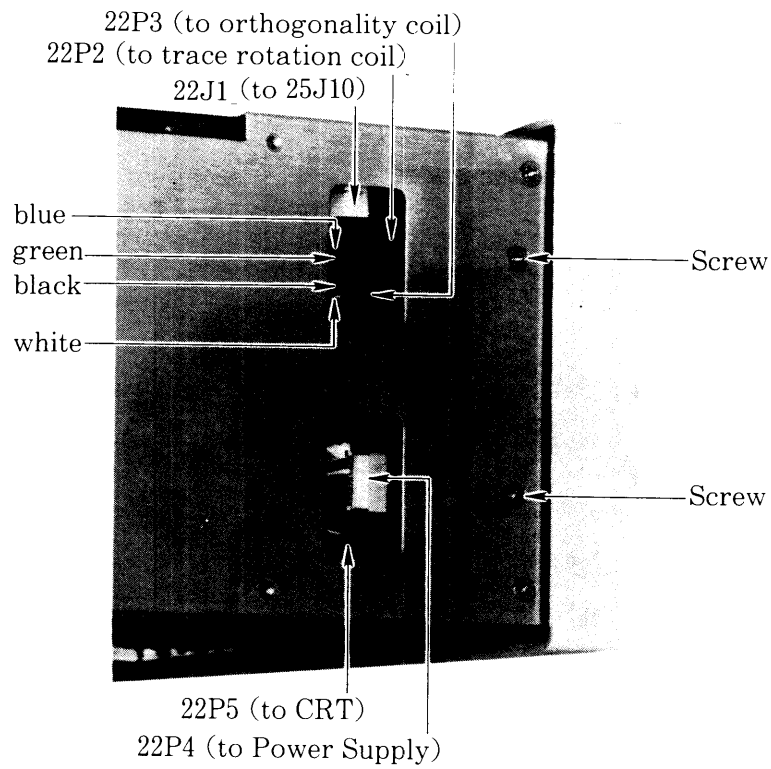
Fig. 3-3-9-(2) Power board



3-3-10 CRT Control Board

1. Remove the four knobs on the front panel. (see Fig. 3-3-1-(1).)
2. Remove the one flexible flat cable and the four generic connectors. (see Fig. 3-3-10.)
3. Remove the two screws. (see Fig. 3-3-10.)
4. Pull out the CRT control board upward.

Fig. 3-3-10 CRT control board



3-3-11 Key Board Block

Firstly remove the key board block from the main frame. Then disassemble the panel control board and the key board in the following order.

a. Key board block

1. Remove the twelve knobs on the front panel. (see Fig. 3-3-1-(1).)
2. Remove the two flexible flat cables from the key board block. (see Fig. 3-3-11-(1).)
3. Remove the ten screws on the front corner of the main frame. (see Fig. 3-3-1-(1).)

b. VR board

4. Remove the six screws on the VR board. (see Fig. 3-3-11-(2).)

c. Shielding plate

5. Remove the fourteen screws on the shielding plate. (see Fig. 3-3-11-(3).)

Fig. 3-3-11-(1) Cables on the key board block

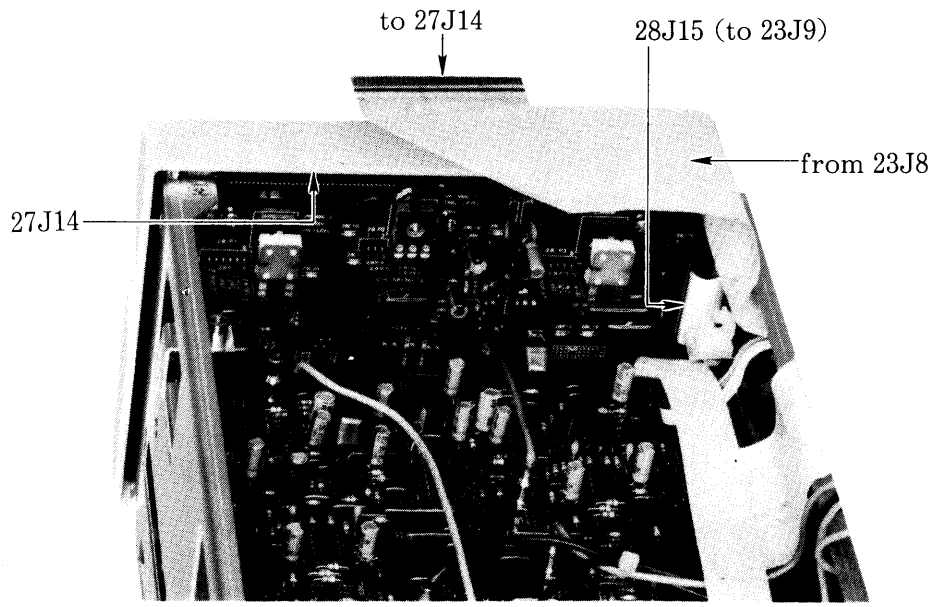


Fig. 3-3-11-(2) Screws on the VR board

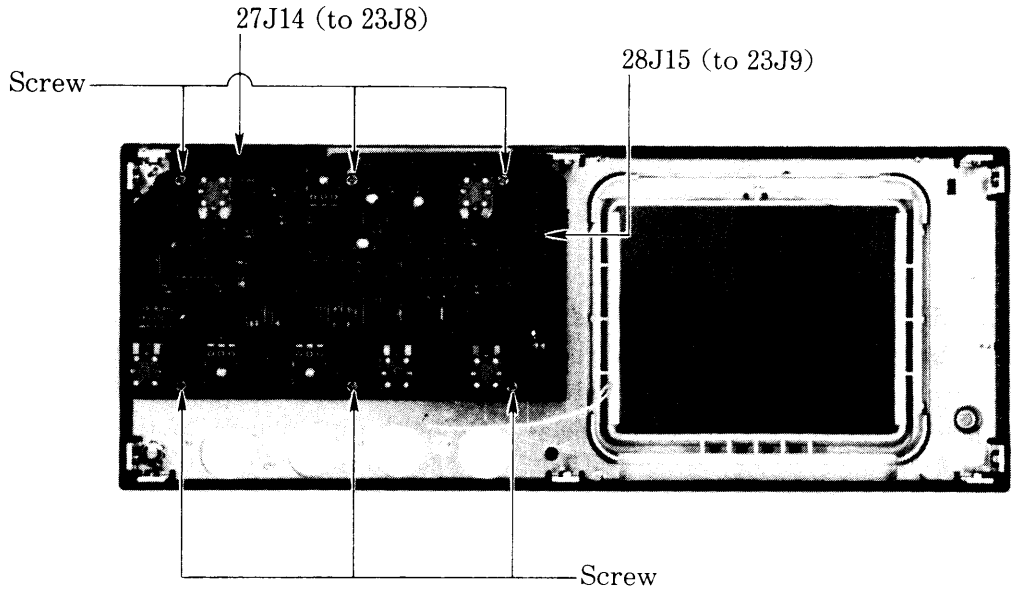
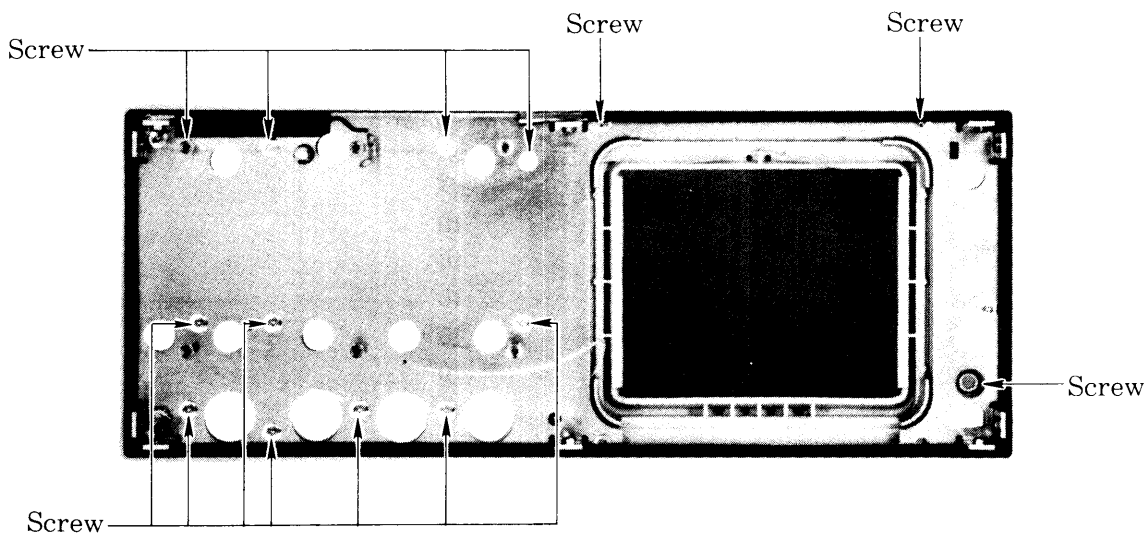


Fig. 3-3-11-(3) Shieldiry plate



3-4 PART REPLACEMENT

This section shows how to replace the faulty component. Be sure to disconnect the power cord from the power line before starting replacement.

3-4-1 Parts

While replacing diodes, transistors, ICs, resistors, or capacitors on the printed circuit board, use the soldering iron carefully not to damage the other components and electric path on the printed circuit board. Table 3-4-1 shows the resistor color coding, and Table 3-4-2 shows the semiconductor lead configurations.

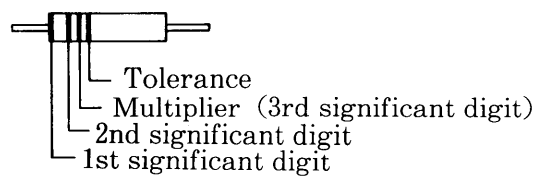
Since the semiconductors such as transistors, diodes, and ICs are vulnerable to heat, use small power solder iron carefully and quickly not to damage the semiconductors. Use the vacuum solder extractor, when necessary. The replacement of the semiconductors may change the characteristic of the instrument. Therefore, it is necessary to replace with the part having the same specification as the one used originally had. For the detail, refer to the "Section 6 Electrical Parts List." After replacement, it is necessary to check the characteristic of the instrument.

Passive components such as resistors, capacitors, and inductors are carefully selected. Therefore the replacement of the passive components needs the same characteristic as the original ones had and listed in the "Section 6 Electrical Parts List."

Some serious damage of the semiconductors may cause the secondary damage, or may cause the other component damage. When this happens, repair the primary damage first.

Table 3-4-1 Color coding of resistor

Resistor



Color	Resistance value		Tolerance for resistor
	1st or 2nd significant digit	Multiplier	
BLK	0	1	–
BRN	1	10	±1
RED	2	10^2	±2
ORG	3	10^3	–
YEL	4	10^4	–
GRN	5	10^5	–
BLU	6	10^6	–
VLT	7	10^7	–
GRY	8	10^8	–
WHI	9	10^9	–
GOLD	–	10^{-1}	±5
SILVER	–	10^{-2}	±10
No color	–	–	±20

3-4-2 Scale Illumination Lamp

1. Remove the one generic connector for the lamp power on the CRT control board.
2. Remove the shading black paper tape from the CRT. (see Fig. 3-4-1.)

CAUTION

Be careful not to scratch the carbon coat on the CRT surface.

3. Remove the conductive tape from the CRT. (see Fig. 3-4-1.)
4. Using the hexagonal-head screwdriver, remove the two hexagonal-head screws. (see Fig. 3-3-1-(1).)
5. Remove the lamp block.

Fig. 3-4-1 Scale illumination lamp

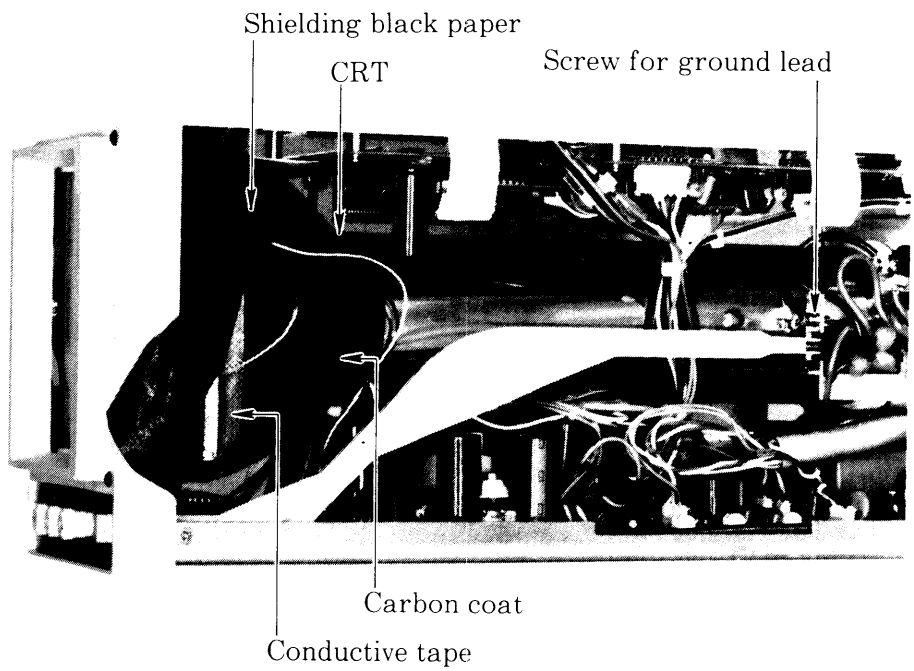


Table 3-4-2 Semiconductor package and pin configurations

		Package
DIC110181	IC,SN 7417N	DIP-14, see drawing I1
DIC141181	IC,74LS122N	DIP-14, see drawing I1
DIC194021	IC,SN 74A74NS (TEX)	DIP-14, see drawing I1
DIC198031	IC,74F00PC	DIP-14, see drawing I1
DIC310051	IC,F10107DC	DIP-16, see drawing I1
DIC310081	IC,F1013DC (FC)	DIP-16, see drawing I1
DIC310191	IC,F10115DC	DIP-16, see drawing I1
DIC322051	IC,MC10102L (MTL)	DIP-16, see drawing I1
DIC322141	IC,MC 10131L (MTL)	DIP-16, see drawing I1
DIC410501	IC,CD 4051BE	DIP-16, see drawing I1
DIC410521	IC,CD 4053BE	DIP-16, see drawing I1
DIC414111	IC,CD 4555BE	DIP-16, see drawing I1
DIC440011	IC,MC 74HC00N	DIP-14, see drawing I1
DIC440031	IC,MC 74HC02N	DIP-14, see drawing I1
DIC440051	IC,MC 74HC04N	DIP-14, see drawing I1
DIC440091	IC,MC 74HC08N	DIP-14, see drawing I1
DIC440151	IC,MC 74HC14N	DIP-14, see drawing I1
DIC440751	IC,MC 74HC74N	DIP-14, see drawing I1
DIC441131	IC,MC 74HC112N	DIP-16, see drawing I1
DIC445961	IC,MC 74HC595N	DIP-16, see drawing I1
DIC447001	IC,MC 74HC00F	SOP-14, see drawing I2
DIC447041	IC,MC 74HC04F	SOP-14, see drawing I2
DIC447271	IC,MC 74HC27F	SOP-14, see drawing I2
DIC447321	IC,MC 74HC32F	SOP-14, see drawing I2
DIC447741	IC,MC 74HC74F	SOP-14, see drawing I2
DIC448381	IC,MC 74HC138F	SOP-16, see drawing I2
DIC492361	IC,MSM 6242RS (OKI)	SOP-18, see drawing I2
DIC492451	IC,MB 60VH156U (FUJ)	DIP-42, see drawing I1
DIC492552	IC,MB 61VH138A (FUJ)	QFP-80, see drawing I3
DIC493981	IC,TC 4538BF (TSB)	SOP-16, see drawing I2
DIC494151	IC,TC74HCU04F/u-PD74HCUO4G	SOP-14, see drawing I2
DIC494441	IC,CD049APF (NEC)	QFP-48, see drawing I3
DIC494621	IC,4051BF (TSB)	SOP-16, see drawing I2
DIC494631	IC,MC 14051BCP (MTL)	DIP-16, see drawing I1
DIC494691	IC,HD 74HC221P (HIT)	DIP-16, see drawing I1
DIC516261	IC,TC 5565AFL-15L (TSB)	SOP-28, see drawing I2
DIC525501	IC,EPRUM 27C512 (MAX250NS)	DIP-28, see drawing I1
DIC526031	IC,MSM 16911RS (OKI)	DIP- 8 , see drawing I1
DIC552931	IC,TMPZ84C00AM (TSB)	SOP-40, see drawing I2
DIC556171	IC,TMP 82C79M-2-(TSB)	SOP-40, see drawing I2
DIC556211	IC,MB89363 (FUJ)	QFP-80, see drawing I3
DIC613031	IC,NJM 4558D (JRC)	DIP- 8 , see drawing I1
DIC613321	IC,TA 75559P (TSB)	DIP- 8 , see drawing I1

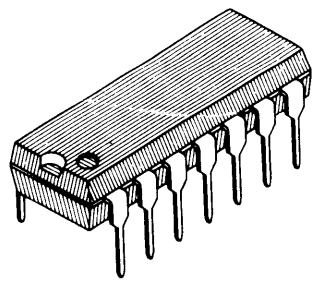
Table 3-4-2 Semiconductor package and pin configurations (continued)

		Package
DIC613832	IC,HA17080PS (IS)／TL080ACP	DIP- 8 , see drawing I1
DIC614101	IC,NJM 082D (JRC)	DIP- 8 , see drawing I1
DIC614111	IC,NJM 072S (JRS)	SIP- 9 , see drawing I4
DIC614141	IC,u-PC 812C (NEC)	DIP- 8 , see drawing I1
DIC614321	IC,NJM 4558S (JRC)	SIP- 9 , see drawing I4
DIC614331	IC,u-PC 811C (NEC)	DIP- 8 , see drawing I1
DIC614391	IC,NJM 4559M (JRC)	SOP- 8 , see drawing I2
DIC614401	IC,NJM 082M (JRC)	SOP- 8 , see drawing I2
DIC614451	IC,u-PC 814G2 (NEC)	SOP- 8 , see drawing I2
DIC623361	IC,u-PC 1663C (NEC)	DIP- 8 , see drawing I1
DIC630791	IC,NJM 2903D (JRC)	DIP- 8 , see drawing I1
DIC630981	IC,u-PC 393G2 (NEC)	SOP- 8 , see drawing I2
DIC631051	IC,TL 810CPS (TEX)	SOP- 8 , see drawing I2
DIC641101	IC,BA 9221 (ROM)	DIP-20, see drawing I1
DIC641111	IC,BA 9221F (ROM)	SOP-22, see drawing I2
DIC652091	IC,TL 431CLPB (TEX)	See drawing T1
DIC652541	IC,u-PC 78L05 (NEC)	See drawing T4
DIC659011	IC,TA 78L005AP TPE5	TO-92, see drawing T1
DIC690351	IC,M51953BL (MIT)	SIP-5, see drawing I4
DIC823651	IC,HIC B365N	SIP-12, see drawing I4
DIC889041	IC,TC 7S08F TE0804L	See drawing T14
DTR115321	Tr,2SA 1206	TO-92, see drawing T1
DTR115591	Tr,2SA 992F／E	TO-92, see drawing T1
DTR116321	Tr,2SA 1237G	See drawing T2
DTR119011	Tr,2SA 1015Y TPER1	TO-92, see drawing T1
DTR119041	Tr,2SA 1206 TRC	TO-92, see drawing T1
DTR125481	Tr,2SB 834	TO-220AB, see drawing T3
DTR129011	Tr,2SB 605K／L TRB	See drawing T4
DTR135091	Tr,2SC 1845-U	TO-92, see drawing T1
DTR135741	Tr,2SC 2901	TO-92, see drawing T1
DTR135871	Tr,2SC 3064	See drawing T2
DTR136001	Tr,2SC 3064G (DP6A)	See drawing T2
DTR136181	Tr,2SC 2551	TO-92, see drawing T1
DTR136281	Tr,2SC 2315	TO-220, see drawing T5
DTR137311	Tr,2SC 4237	See drawing T5
DTR137391	Tr,2SC 3405	See drawing T6
DTR137591	Tr,2SC 2037	TO-92, see drawing T1
DTR137711	Tr,2SC 2037	TO-92, see drawing T1
DTR139011	Tr,2SC 1815GR TPER1	TO-92, see drawing T1
DTR139061	Tr,2SC 1907 TR	TO-92, see drawing T1
DTR139321	Tr,2SC 3732K-T	See drawing T7
DTR139361	Tr,2SC 2412 TZ	SOT-23, see drawing T8

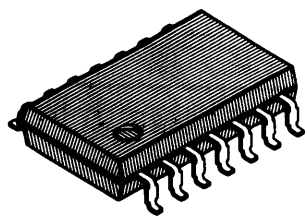
Table 3-4-2 Semiconductor package and pin configurations (continued)

		Package
DTR139381	Tr,2SC 2668-Y TPE4	See drawing T9
DTR145851	Tr,2SD 1266P／Q	TO-220, see drawing T5
DTR149011	Tr,2SD 571K／L TRB	See drawing T4
DTR190631	Tr,HA 1127	DIP-14, see drawing I1
DTR191291	Tr,BA 6212	DIP-20, see drawing I1
DTR191331	Tr,MRF 544	TO-205AD, see drawing T10
DTR191351	Tr,MPS 571	TO-92, see drawing T1
DTR191361	Tr,MPS 901	TO-92, see drawing T1
DTR191371	Tr,MPS 911	TO-92, see drawing T1
DTR199011	Tr,DTA 114YS TP	See drawing T11
DTR199331	Tr,DTA 114ES TP	See drawing T11
DTR199351	Tr,DTC 114ES TP	See drawing T11
DTR215181	Tr,2SK 30ATM-GR	TO-92, see drawing T1
DTR215311	Tr,2SK 117-GR	TO-92, see drawing T1
DTR215471	Tr,2SK 373GR	TO-92, see drawing T1
DTR219011	Tr,2SK 30ATM-O TPER1	TO-92, see drawing T1
DTR230201	Tr,3SK 183-Q	See drawing T12
DTR295281	Tr, μPA-61AM	See drawing T13
DTR295421	Tr,BF 410F	TO-92, see drawing T1
DTR810021	Tr,2SA 1245MD TE85L	SOT-23, see drawing T8
DTR810041	Tr,2SA 1162Y TE85L	SOT-23, see drawing T8
DTR830051	Tr,2SC 2712G TE85L	SOT-23, see drawing T8
DTR830091	Tr,2SC 3099 TE85L	SOT-23, see drawing T8
DTR830201	Tr,2SC 1621 T1B B3	SOT-23, see drawing T8
DTR860041	Tr,2SK 211-Y TE85L	SOT-23, see drawing T8
DTR890011	Tr,DTC 114EK T-96	SOT-23, see drawing T8
DTR890051	Tr,DTB 113ZK T96	SOT-23, see drawing T8
DTR890061	Tr,DTA 114YK T96	SOT-23, see drawing T8

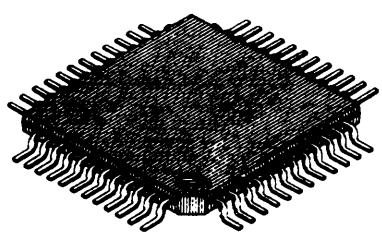
I 1 Dual in-line package



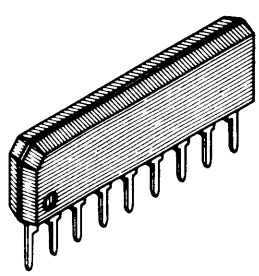
I 2 Small out-line packge



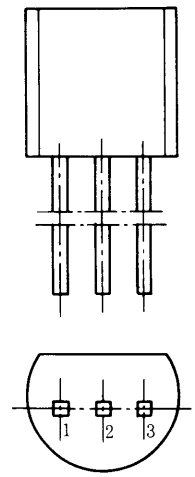
I 3 Quad flat package



I 4 Single in-line package

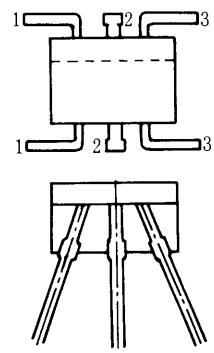


T 1



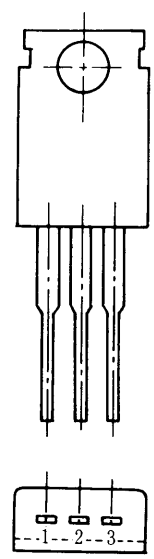
1. Emitter or Reference (Vref)
2. Base or Anode
3. Collector or Cathode

T 2



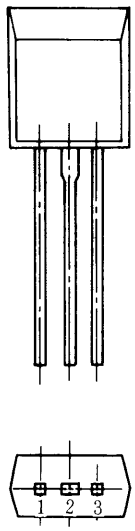
1. Emitter
2. Collector
3. Base

T 3



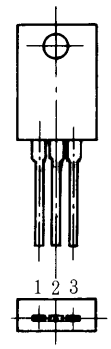
1. Base
2. Collector
3. Emitter

T 4



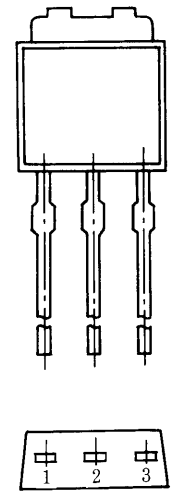
1. Emitter
2. Collector
3. Base

T 5



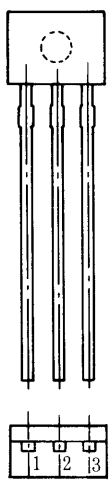
1. Base
2. Collector
3. Emitter

T 6



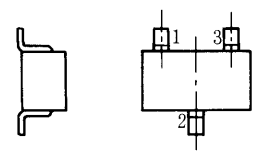
1. Base
2. Collector
3. Emitter

T 7



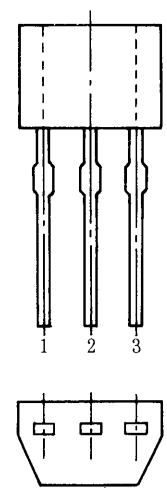
1. Emitter
2. Collector
3. Base

T 8



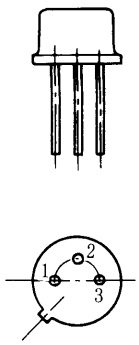
1. Emitter or Gate
2. Collector or Source
3. Base or Drain

T 9



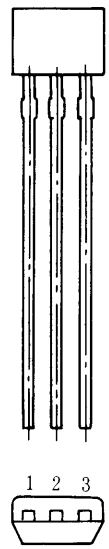
1. Emitter
2. Collector
3. Base

T10



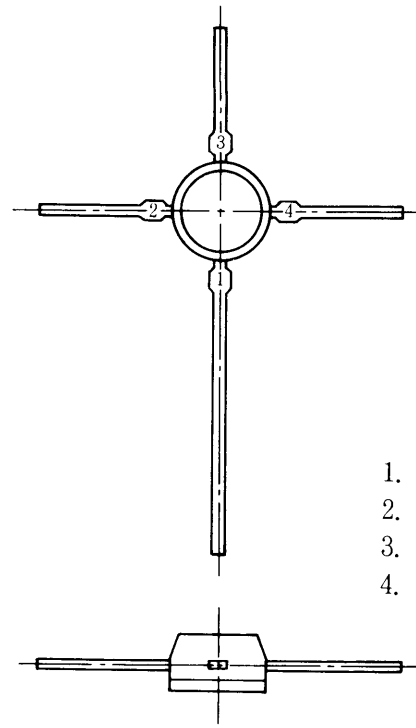
1. Emitter
2. Base
3. Collector

T11



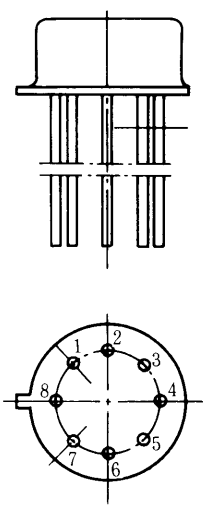
1. GND
2. Out
3. In

T12



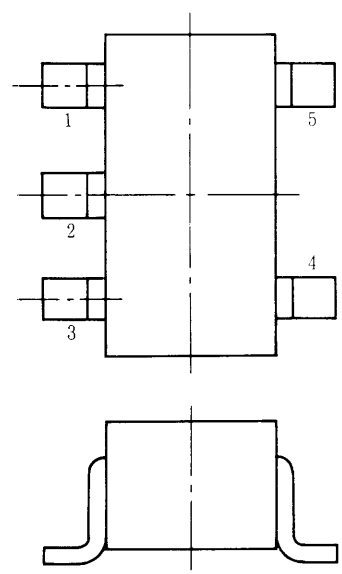
1. Drain
2. Source
3. Gate 1
4. Gate 2

T13



1. Source 1
2. Drain 1
3. Gate 1
4. Substrate
5. Sourte 2
6. Drain 2
7. Gate 2
8. Substrate

T14



1. In A
2. In B
3. Vss
4. Out
5. V_{DD}

3-4-3 CRT

Handle the CRT with care while replacing it, since the CRT is vulnerable to mechanical shock such as drop or hit. Do not apply stress to the CRT terminal pins also, since the CRT terminal pins are delicate.

The following procedure shows how to replace the CRT.

WARNING

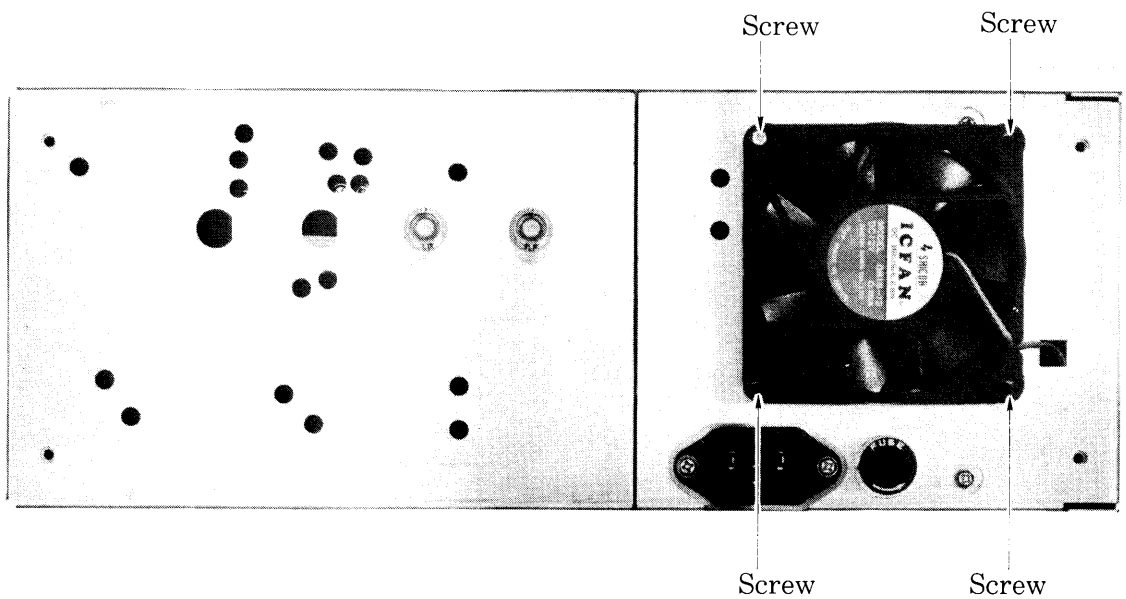
The CRT terminals, especially anode terminal, are charged high voltage for a long time even after the power off. Therefore, be careful not to get electrical shock during removing the CRT.

1. Remove the illumination block first. (see the section 3-4-2.)
2. Remove the two generic connectors for the rotation and orthogonarity coils on the CRT control board. (see Fig. 3-3-10.)
3. After discharging the anode terminal, remove the anode protection cap.
4. Remove the one screw holding the ground lead. (see Fig. 3-4-1.)
5. Disconnect the CRT socket by removing the output amplifier board. (see the section 3-3-7.)
6. Remove the key board block. (see the section 3-3-11.)
7. Take out the CRT from the front.

CAUTION

When installing the CRT, turn the fixing wheel counterclockwise first at the end of CRT.
When you finish installing the CRT, turn the fixing wheel clockwise. Turn the fixing wheel another half turn after you feel the resistance of the wheel.

Fig. 3-4-2 Fan motor



3-4-4 Power Transistors

1. Using the vacuum solder extractor, unsolder the transistor leads to be replaced.
2. Remove the screw holding the power transistor to be replaced. (see Fig. 3-3-9-(1).)
3. Take off the transistor holder and the insulation band. (see Fig. 3-3-9-(2).)

3-4-5 Fan Motor

1. Remove the one generic connector 29J10 from the 29P8 connector on the power board. (see Fig. 3-3-9-(2).)
2. Remove the four screws. (see the Fig. 3-4-2.)

MEMO

Section 4 Check and Adjustment

4-1 GENERAL

To make measurement accurately, it is necessary for the instrument to meet with it's performance requirements. This section covers the performance check and adjustment procedure.

4-2 PERIOD OF CHECK AND ADJUSTMENT

The regular and periodical check and adjustment ensures accurate measurement and may reduce the risk of the instrument malfunction as well. Six month check interval is recommended.

4-3 BEFORE STARTING

There are the following cautions and rules.

1. The beginning of the "**4-4 ACTIVATING ANALOG INITIAL SETTING**" shows the initial setting of the instrument. The individual setup condition in each check and adjustment procedure is originated from the initial setting. The individual setup condition describes only the differences from the initial setting. Regardless of the full or partial adjustments, set the instrument to the initial setting at first and change to the individual setup conditions mentioned in the each section.
2. Before starting, make sure the room temperature is between 18℃ and 28℃.
3. For the complete adjustments, follow the all steps from the beginning to the end. When the partial adjustment is needed, refer to the adjustment interaction table in the "**4-6 CHECK AND ADJUSTMENT LIST**." Since the secondary voltage adjustment may change many adjustment conditions, the adjustment should be done first and needs careful attention to the all performances.
4. Some signal generator needs 50Ω termination at the input of the instrument. Refer to the generator manual and if the 50Ω termination is needed, apply it to the input connector.

5. The symbol used in this section has the following meanings.

<Example>

29 R24 −12V ADJ

- −12V ADJ — Title of the adjustment
- R24 — Circuit number
- 29 — Schematic diagram number

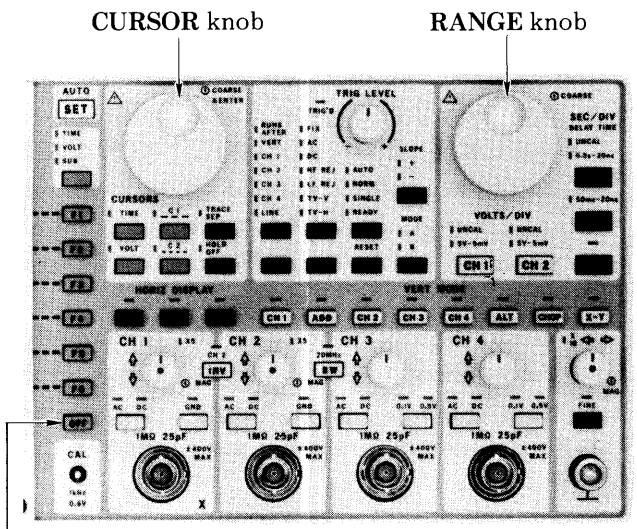
The component R24, or 24th resistor, in the schematic diagram 29 is the adjustments for the −12 volts secondary voltage.

WARNING

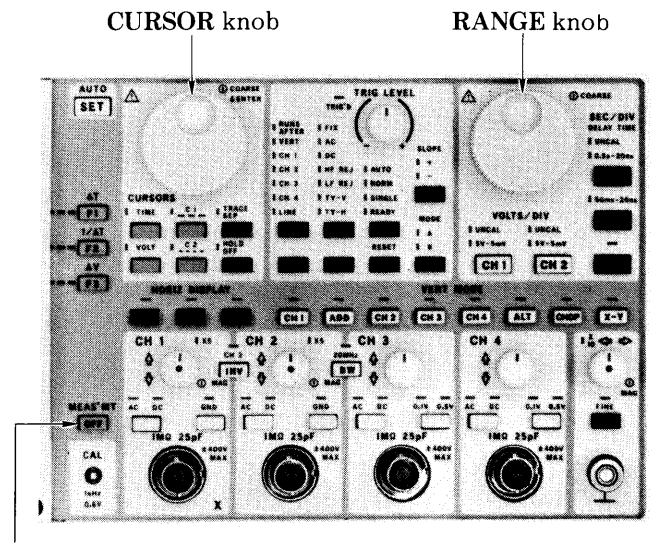
There are dangerous voltages at the special location inside the instrument. Be careful to avoid physical damage.

Fig. 4-3-1 Front Pamel

SS-7611/SS-7607



SS-7610/SS-7606

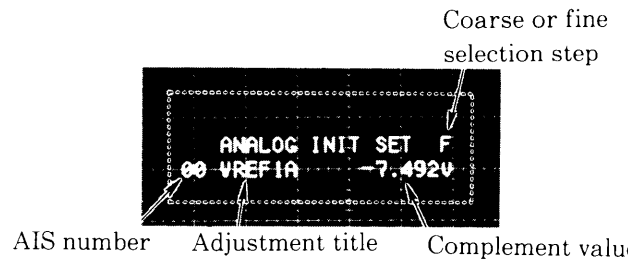


4-4 ACTIVATING ANALOG INITIAL SETTING

Some adjustments involve software adjustments called Analog Initial Setting (AIS). The following steps show how to activate the AIS mode. Only activate the AIS mode when the adjustment requires the AIS mode.

Setup procedure

1. Turn the power on while pressing the **READOUT** knob.
   The five traces will be displayed after the initial setup.
2. Turn the **CURSOR** knob one clockwise step and display the " ／" mark at the right and upper corner of the screen.
3. Turn the **CURSOR** knob clockwise until the six dot marks are displayed on the screen.
4. Turn the **CURSOR** knob counterclockwise and erase all dot marks on the screen.
   Turn the **CURSOR** knob counterclockwise further until nine dot marks are displayed on the screen.
5. Turn the **CURSOR** knob clockwise and erase all dot marks on the screen.
   Turn the **CURSOR** knob clockwise until one dot mark is displayed on the screen.
6. Turn the **CURSOR** knob counterclockwise and erase the dot mark on the screen.
   Turn the **CURSOR** knob counterclockwise un til five dot marks are displayed on the screen.
7. Turn the **CURSOR** knob one clockwise step and the following AIS menu will be displayed.
   Note: When you made a mistake in step 3 through 6, start at step 3 again after displaying the " ／" mark by turning the **CURSOR** knob clockwise.



8. Push the **CURSOR** knob and select the AIS number for the desired adjustment between 00 and 55. Turning the **RANGE** knob clockwise sets ascending AIS selection, while turning the **RANGE** knob counterclockwise sets descending AIS selection.
9. Turn the **CURSOR** knob and set the complement value. Pushing the **INTEN** knob selects the coarse or fine selection step.
   C: shows coarse selection step.
   F: shows fine selection step.
10. Push the **OFF** key for the **FUNCTION** after the all adjustments have been completed and register the new complement value. This sets the instrument to the preliminary stage at step 2. Turn the power off and on for quitting the AIS mode totally.

CAUTION

Pushing the **OFF** key in the AIS mode automatically sets the new complement value. This erases the old complement value. Activate the AIS mode only when it is required, this prevents the accidental erasure of the correct complement value.

4-5 TEST AND MEASUREMENT INSTRUMENTS REQUIRED

The Table 4-5-1 lists the test and measurement instruments required for the calibration. The performance listed in the table is the minimum requirement. The measurement instruments should have the performance listed in the table or more.

Table 4-5-1 List of equipment required

Recommended Equipment	Minimum Specification	Purpose	Model
1. Oscilloscope Bandwidth Maximum sensitivity	 DC to 100 MHz 1 mV div	Secondary low-voltage power source, CAL voltage, and CRT intensity check and adjustment.	Iwatsu SS-6122
2. Digital voltmeter Range	 DC to 300V accuracy : 0.2 % + 1 dgt.	Secondary low-voltage power source.	Iwatsu VOAC 7411
3. Frequency counter Range	 10 Hz to 1.5 MHz resolution : 0.1 Hz or less at 1 kHz	CAL frequency check and adjustment.	Iwatsu SC-7021
4. Function generator Range Output voltage	 DC to 10 MHz sine wave 1 Vp-p or more	Check and adjustment of triggering system.	Iwatsu SG-4111
5. Scope calibrator Output voltage Time marker Square wave	 60mV to 60V accuracy : 0.5 % 10 ns to 2 s accuracy:0.5 % 50 Hz to 200 kHz	Check and adjustment of vertical and horizontal deflection system, and CAL output voltage.	Iwatsu SC-340
6. Constant amplitude signal generator Frequency Output voltage	 50 kHz to 250 MHz sine wave 60 mVp-p or more flatness : 0.5 dB over full frequency range	Frequency response check and adjustment.	

Table 4-5-1 List of equipment required (continued)

Recommended Equipment	Minimum Specification	Purpose	Model
7. Pulse generator Repetition rate Rise time Output voltage	 100 kHz approximately 1 ns or less 60 mVp-p or more	Step response check and adjustment.	Iwatsu PG-10P
8. Oscilloscope probe Attenuation	 10 : 1	Signal probe	Iwatsu SS-0012R
9. Oscilloscope probe Attenuation	 1 : 1	Signal probe	Iwatsu SS-0001
10. DMM high voltage probe Max. input voltage	 2000 V or more	Signal probe	Iwatsu SC-003
11. BNC coaxial cable (2 pieces) Characteristic impedance Cable length	 50Ω 1.2 m	Signal connection	Iwatsu BB-120C
12. 50Ω termination (2 pieces) Impedance	 50Ω	Signal termination	Iwatsu BB-50M1
13. Attenuator Attenuation ratio Frequency range	 0 to 50 dB DC to 2GHz	Signal attenuation	Iwatsu AA-03B, AA-06B, AA-10B, AA-20B
14. Adjustment driver	Low capacitance and insulated	Adjustment of variable resistors and capacitors.	

4-7 INITIAL SETUP

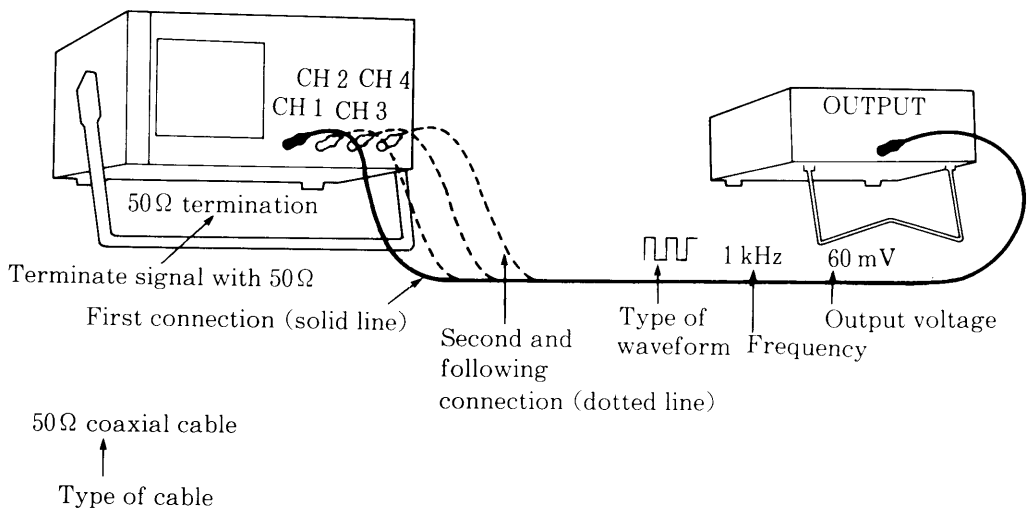
Follow the next steps before starting check and adjustment.

1. Set ambient temperature to 23 ℃ ± 5 ℃.
2. Before turning the power on, check that the power line is within the range from 90V to 250V, and set the instrument as follows in the Table 4-7-1.
3. Turn the **POWER** switch on and adjust the **INTEN** control for the optimum intensity.
4. Warm up the instrument for 30 minutes before starting check and adjustment.

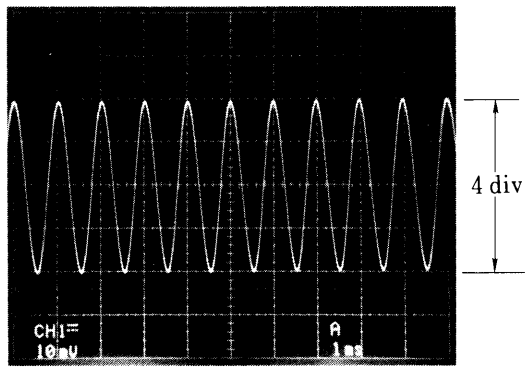
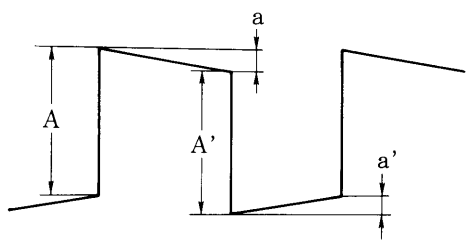
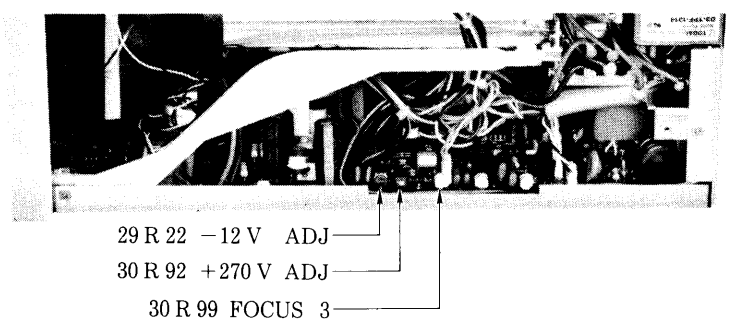
Table 4-7-1 Initial setup

Switch and control	Setting
INTEN	Slightly left from midpoint
READOUT	Midpoint
FOCUS	Midpoint
SCALE	90° to the right from midpoint
VERT MODE	CH 1
⬍ (CH 1/2/3/4 position)	Midpoint
AC/DC (CH 1/2/3/4)	DC
GND (CH 1/2)	OFF
VOLTS DIV (CH 1/2)	10 mV
X5 MAG (CH 1/2)	OFF
UNCAL (CH 1/2)	OFF
0.1 V/0.5 V (CH 3/4)	0.1 V
CH 2 INV	OFF
BW	OFF
MODE A/B	A
(A) TRIGGER SOURCE	CH 1
(B) TRIGGER SOURCE	RUNS AFTER
(A) COUPLING	FIX
(B) COUPLING	FIX
TRIG LEVEL	Midpoint
(A) SLOPE	+
(B) SLOPE	+
SWEEP MODE	AUTO
HORIZ DISPLAY	A
⬅➡(horizontal position)	Midpoint
A SEC/DIV	1 ms
(A) UNCAL	OFF
B SEC/DIV	0.1 ms
X10 MAG	OFF
FINE (position)	OFF
DELAY TIME	5 ms
TRACE SEP	OFF
HOLD OFF	OFF
MEAS'MT MENU	OFF

How to read check and adjustment procedure

Item	Description
Rating	± 3 % ← Specification required
Connection	Illustrate connection between equipments Scope calibrator -- Test equipment (SC-340) -- Recommended model 
Setting	HORIZ DISPLAY : A A SEC/DIV : 1 ms ← Setups changed from the initial setup or not listed in Table 4-6-1.
Procedure	1. Check −12V power source. 2. Adjust **29R24 −12 V ADJ** for its rating. At first check −12 V power source for its rating. When performance exceeds its limits, 29R24 adjustment will follow.

How to read check and adjustment procedure (continued)

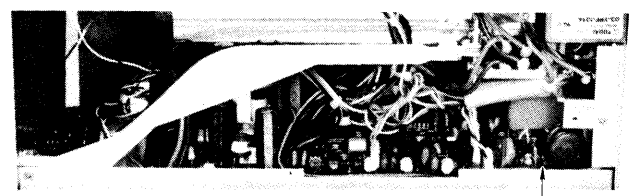
Item	Description
Waveform on screen	Well-aligned focus ← Title of picture  Input signal : Sine wave ← Type of signal : 1 KHz ← Frequency : 40 mV ← Amplitude
Definition	Shows reference for calibration aid.  Sag = a/A (or a'/A') × 100 % whichever is greater. (defined in "MEA-27" by Electronic Industries Association of Japan.)
Adjustment location	Right side view ← Shows right side view of equipment and indicates check and or adjustment location. 

4-8 POWER SUPPLY AND CRT

4-8-1 Secondary DC Power Supply

Item	Description
Rating and Test point	DC voltage / Error limit / Ripple voltage / Test point −12 V / 0.12 V / 0.5 mVp-p or less / Fig. 4-8-2 +5 V / 0.25 V / 10 mVp-p or less / Fig. 4-8-2 +12 V / 0.36 V / 1 mVp-p or less / Fig. 4-8-2 +50 V / 1.2 V / 1 mVp-p or less / Fig. 4-8-2
Procedure	**Error limit** 1. Using digital multimeter, check power sources between check point and ground. 2. When error exceeds limits, adjust **29R24 −12 V ADJ.** 3. Repeat step 1. <Note> Check all power sources before starting adjustment. −12 V adjustment assures all power sources to be in their error limits. **Ripple voltage** 4. Set **SWEEP MODE** to **SINGLE.** 5. Using test oscilloscope with 1:1 probe, check ripple voltage.
Adjustment location	See Fig. 4-8-3.

4-8-2 CRT Cathode Voltage

Item	Description
Rating	−2000 V ±100 V
Procedure	1. Using digital multimeter with the DMM high voltage probe, check CRT cathode voltage between pin 2 of the CRT socket and ground. 2. When error exceeds limits, adjust **30R78 HV ADJ.** (see Fig. 4-8-2.) <Note> Adjust 30R78 only when the error exceeds the limit, since the adjustment affects many other specifications. For the detail, see the Table 4-6-1.
Check location	Rear view  Cathode side of 30R91

WARNING

To avoid electric shock, disconnect the power cord of the instrument from the AC power line before removing covers.

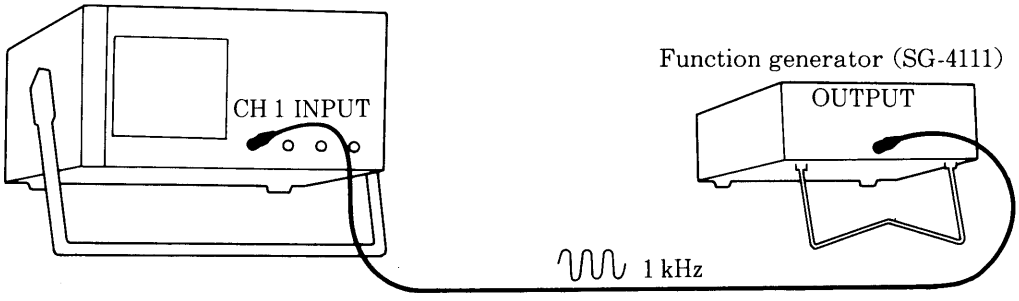
4-8-3 Intensity

Item	Description
Rating	When turning **INTEN** control fully counterclockwise, trace disappears.
Procedure	1. Push **INTEN** knob and set the **ENHANCE** mode. 2. Using the test oscilloscope with 10 : 1 probe, check **Z OUT** level at anode of 30D28. 3. Turn **INTEN** knob fully clockwise and adjust **34R411 Z LEVEL ADJ** for about 40 volts at the high level of the Z OUT. (see Fig. 4-8-1.) 4. Push **INTEN** knob and set the **ENHANCE** mode off. Check that the high level of the **Z OUT** decreases its voltage by 2 volts or more. 5. Turning **INTEN** knob to midpoint, adjust **34C439 Z SIGNAL ADJ** so that the **Z OUT** signal becomes flat mostly at the rising edge. (see Fig. 4-8-1.) 6. Set the **VERT MODE** to **X-Y** and turn the **INTEN** knob fully counterclockwise. Adjust **30R88 INTEN ADJ** so that the trace disappears on the screen. (see Fig. 4-8-3.)

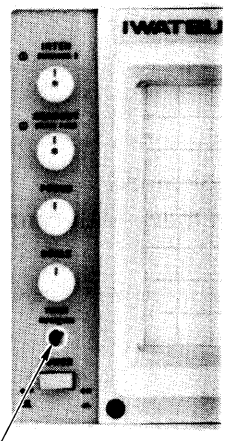
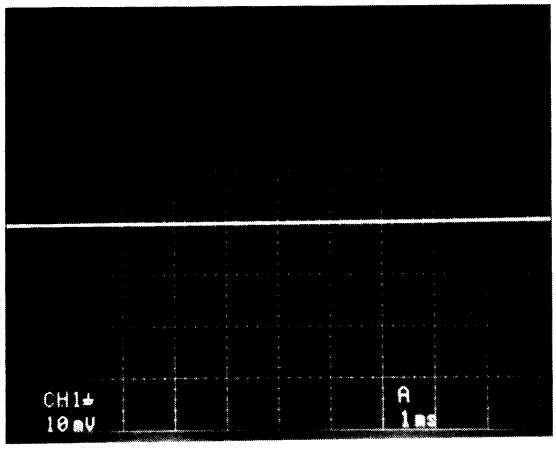
4-8-4 Character Readout Intensity

Item	Description
Rating	When turning **INTEN** control fully counterclockwise, character readout disappears.
Procedure	1. Adjust **READOUT** control knob to midpoint. 2. Adjust **34R414 READOUT INTEN ADJ** so that the character readout appears on the screen dimly. (see Fig. 4-8-1.) 3. Check that the character readout disappears when the **READOUT** control knob is turned fully counterclockwise.

4-8-5 Focus

Item	Description
Rating	Within 45 range over midpoint of **FOCUS** control.
Connecting	
Setting	INTEN : For dim trace A SEC/DIV : 1 mS FOCUS : Midpoint
Procedure	1. Adjust generator for 4 division sine wave amplitude at 1 KHz over center vertical scale line. 2. Adjust **FOCUS** and **ASTIG** control on the front panel for best focused display. 3. Follow the next steps if step 2 does not provide focused display. 4. Adjust **30R98 FOCUS 2** (see Fig. 4-8-2.) for −650V± 5V at pin 5 of 30P3 (see Fig. 4-8-3.). 5. Adjust **30R97 270V ADJ** so that the sine wave signal will be focused well. (see Fig. 4-8-3.) 6. Adjust **22R12** so that the display will be focused horizontally. (see Fig. 4-8-2.) 7. Adjust **30R99 FOCUS 3** so that the display will be focused vertically. (see Fig. 4-8-3.)

4-8-6 Trace Rotation

Item	Description
Rating	Trace align with center horizontal scale line.
Setting	SWEEP MODE : AUTO A SEC/DIV : 1 ms HORIZ DISPLAY : A
Procedure	1. Set **SWEEP MODE** to **AUTO** for free-running sweep. 2. Position the trace to center horizontal scale line. 3. Adjust **TRACE ROTATION** control to align the trace with center horizontal scale line.
Adjustment location Waveform on screen	Partial front panel  TRACE ROTATION Screen display 

4-8-7 Orthogonality

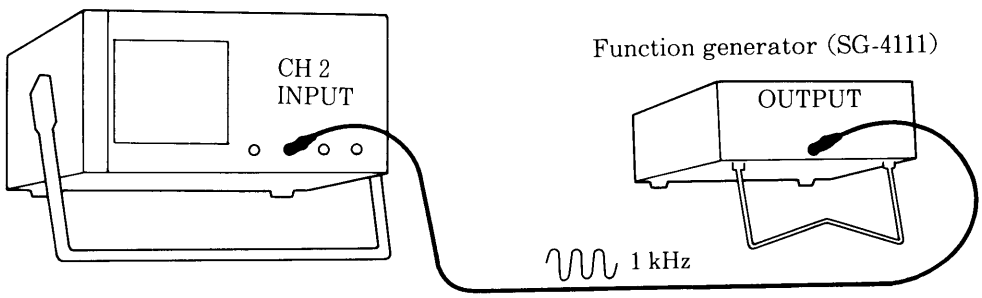
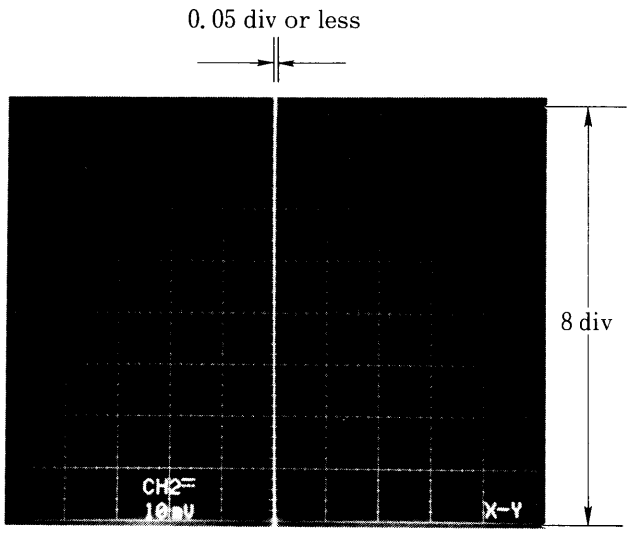
Item	Description
Rating	0. 05 division or less over 8 vertical divisions
Connecting	
Setting	VERT MODE : CH2 and X-Y
Procedure	1. Adjust generator output for 8 divisions or more. 2. Adjust **22R8 ORTHOGO** to align vertical trace with center vertical scale line. (see Fig. 2-8-2.)
Waveform on screen	 Vertical scale

Fig. 4-8-1 Right Side View

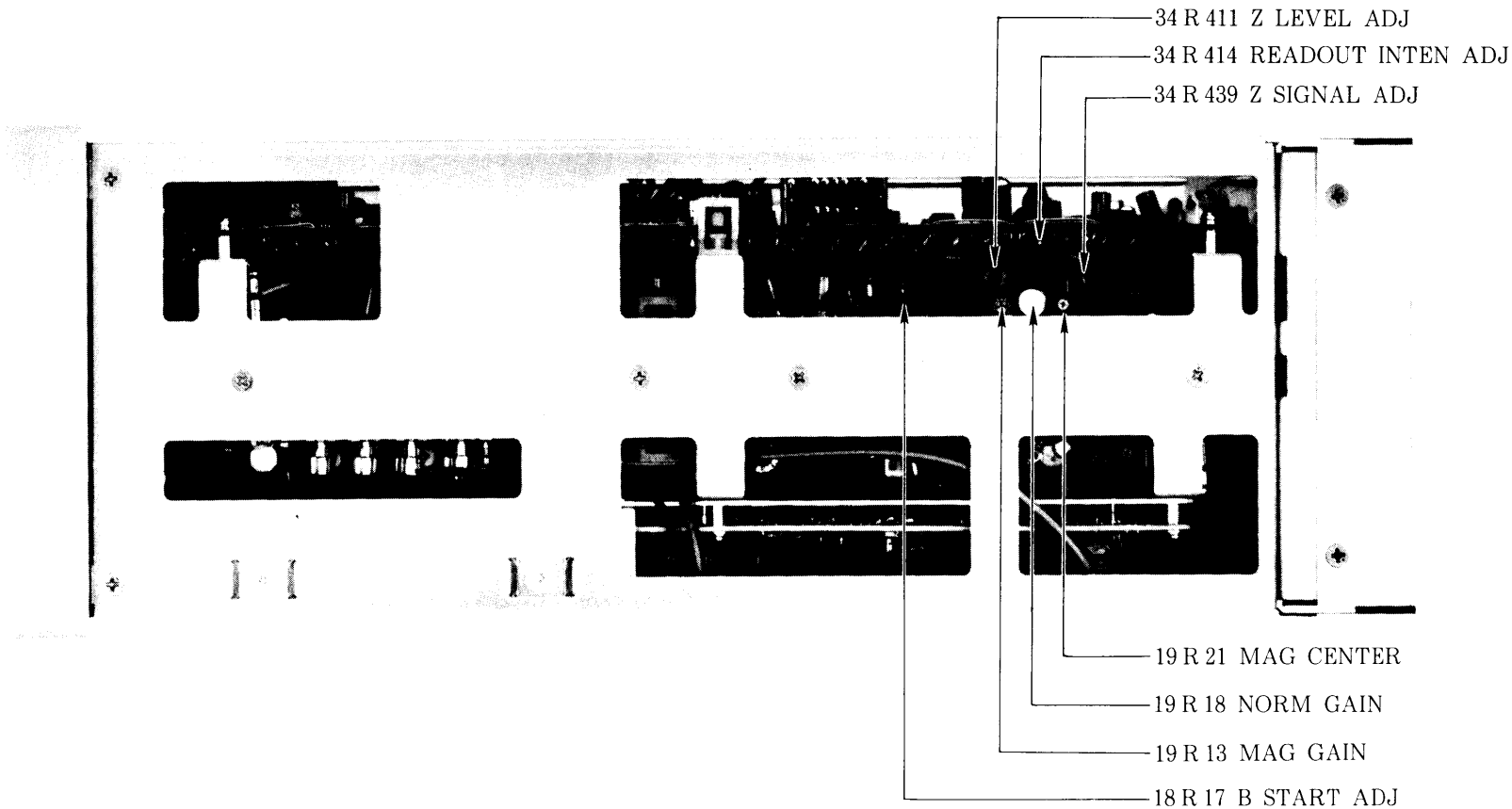


Fig. 4-8-2 Top View

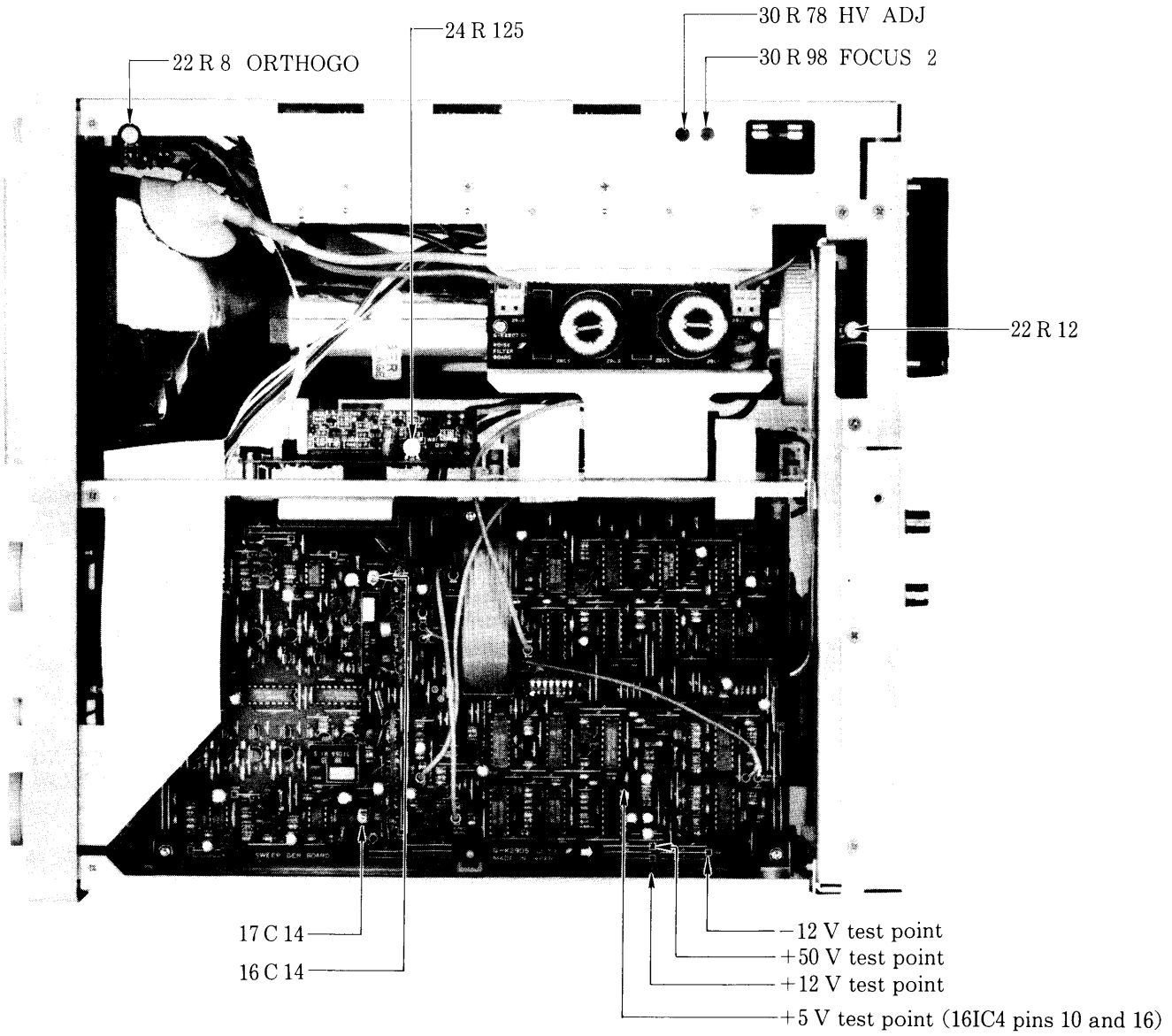
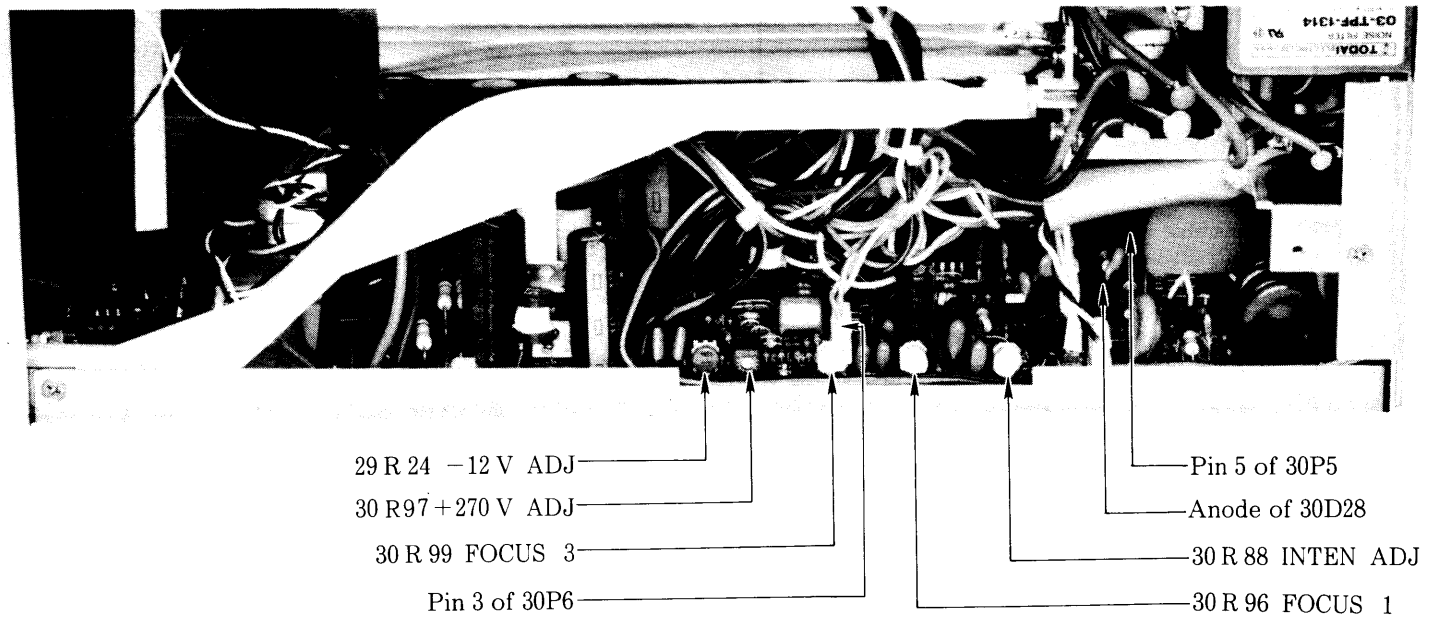
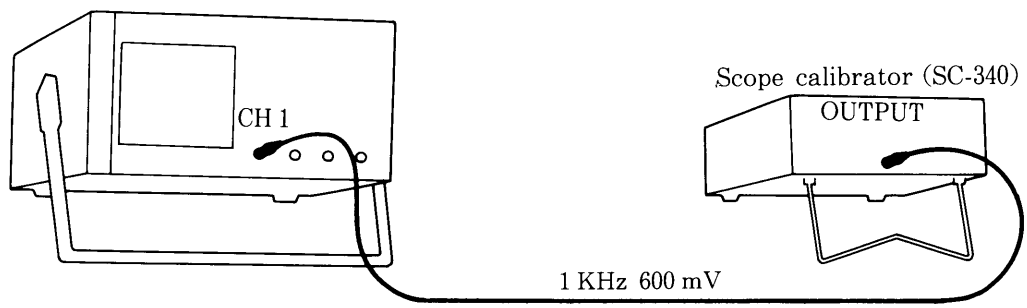


Fig. 4-8-3 Left Side View



4-9 CALIBRATOR OUTPUT

4-9-1 Output Voltage

Item	Description
Rating	0. 6 V ± 1 %
Connecting	
Procedure	1. Set the CH1 VOLTS/DIV to **100 mV.** 2. Apply the 600 mV amplitude square waveform to the CH1 input from the scope calibrator. 3. Using the CH1 variable, adjust the screen amplitude to the exact 6 divisions. 4. Disconnect the square waveform from the CH1 input and apply the calibration signal to the CH1 input. 5. Check that the calibration signal amplitude is 6 divisions 0.03 divisions or 0.5 %. <Note> If more accurate generator such as 0. 1 % amplitude accuracy is used, you can apply the specified rating or 1 % to its checking accuracy in step 5. 6. Adjust **7R42 CAL LEVEL** if the error exceeds. (see Fig. 4-9-1.)

4-9-2 Frequency

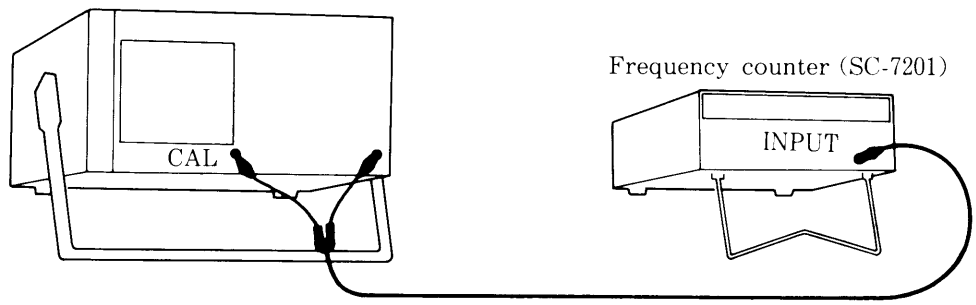
Item	Description
Rating	1 KHz ± 0.01 %
Connecting	
Procedure	1. Connect the counter to **CAL** output terminal. 2. Check the counter reading for its rating.

Fig. 4-9-1 Right Side View

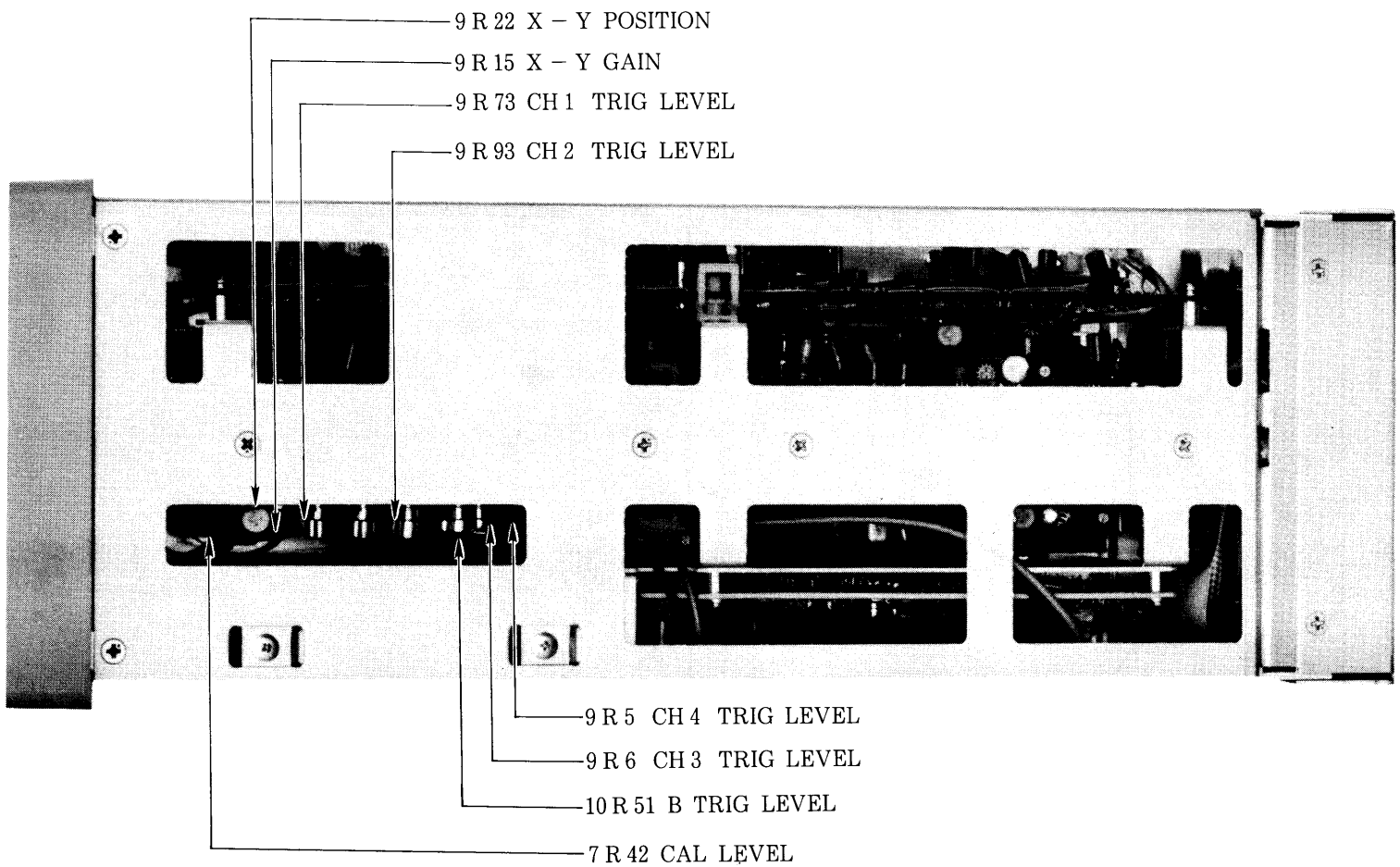
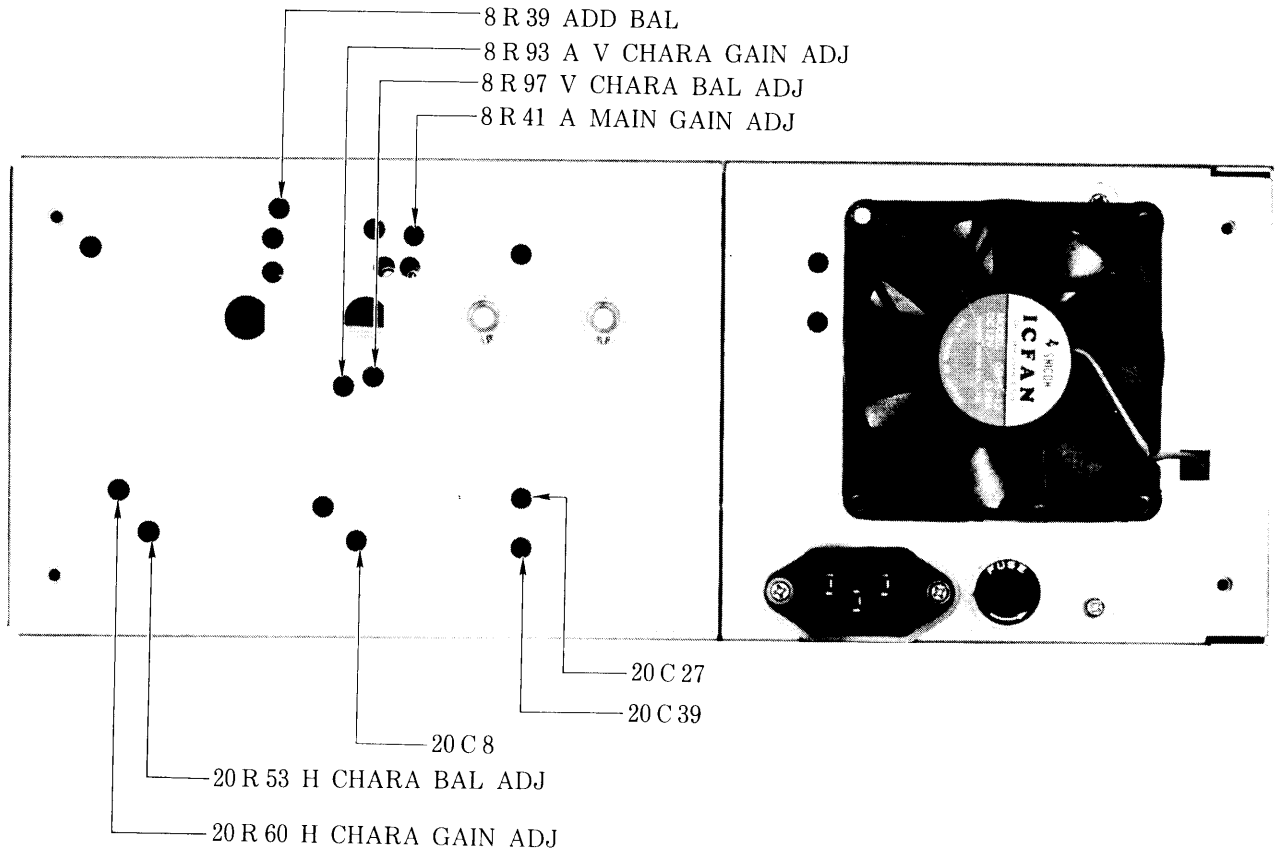


Fig. 4-9-2 Rear View



4-10 VERTICAL DEFLECTION SYSTEM

4-10-1 ADD balance

Item	Description
Setting	VERT MODE : CH1 and CH2
Procedure	1. Setting the **VERT MODE** to **CH1** and **CH2**, position the both of the CH1 and CH2 traces to the vertical screen center. 2. Set the **VERT MODE** to **ADD** and adjust **8R39 ADD BAL** to minimize the trace shift. (see Fig. 4-9-2.)

4-10-2-1 ATT balance (SS-7611/SS-7607)

Item	Description
Procedure	1. Set the **VERT MODE** to **CH1.** 2. Activate the AIS mode and select AIS number 23. (see section 4-4.) 3. Changing the **CH1 VOLTS/DIV** between 0.1 V and 50 mV, adjust complement value with the **CURSOR** knob to minimize the CH1 trace shift. 4. If step 3 fails to minimize the trace shift, set complement value to 0.000 V and adjust **1R25 CH1 ATT BAL** to minimize the CH1 trace shift while changing the **CH1 VOLTS/DIV** between 0.1 V and 50 mV. (see Fig. 4-10-1.) 5. Set the **VERT MODE** to **CH2** and select AIS number 27. 6. Changing the **CH2 VOLTS/DIV** between 0.1 V and 50 mV, adjust complement value with the **CURSOR** knob to minimize the CH2 trace shift. 7. If step 6 fails to minimize the trace shift, set complement value to 0.000 V and adjust **1R75 CH2 ATT BAL** to minimize the CH2 trace shift while changing the **CH2 VOLTS/DIV** between 0.1 V and 50 mV. (see Fig. 4-10-1.) 8. Push the **OFF** key for the **FUNCTION** to register the complement value.

CAUTION

Pushing the **OFF** key in the AIS mode sets the new complement value and quit the AIS mode. You can push the **OFF** key at the end of all calibrations. But be careful to do so, because the unintended wrong complement value, if happened, are also registered.

4-10-2-2 ATT balance (SS-7610/SS-7606)

Item	Description
Procedure	1. Set the **VERT MODE** to **CH1**. 2. Adjust **1R25 CH1 ATT BAL** to minimize the CH1 trace shift while changing the **CH1 VOLTS/DIV** between 0.1 V and 50 mV. (see Fig. 4-10-1.) 3. Set the **VERT MODE** to **CH2**. 4. Adjust **1R75 CH2 ATT BAL** to minimize the CH2 trace shift while changing the **CH2 VOLTS/DIV** between 0.1 V and 50 mV. (see Fig. 4-10-1.)

4-10-3-1 ×5 balance (SS-7611/SS-7607)

Item	Description
Setting	CH1 and CH2 VOLTS/DIV : 5 mV
Procedure	1. Set the **VERT MODE** to **CH1**. 2. Activate the AIS mode and select AIS number 24. (see section 4-4.) 3. Changing the **CH1 ×5 MAG** on and off, adjust complement value with the **CURSOR** knob to minimize the CH1 trace shift. 4. Set the **VERT MODE** to **CH2** and select AIS number 28. 5. Changing the **CH2 ×5 MAG** on and off, adjust complement value with the **CURSOR** knob to minimize the CH2 trace shift. 6. Push the **OFF** key for the **FUNCTION** to register the complement value.

CAUTION

Pushing the **OFF** key in the AIS mode sets the new complement value and quit the AIS mode. You can push the **OFF** key at the end of all calibrations. But be careful to do so, because the unintended wrong complement value, if happened, are also registered.

4-10-3-2 ×5 balance (SS-7610/SS-7606)

Item	Description
Setting	CH1 and CH2 VOLTS/DIV : 5 mV
Procedure	1. Set the **VERT MODE** to **CH1.** 2. Changing the **CH1 ×5 MAG** on and off, adjust **4R47A ×5 BAL** to minimize the CH1 trace shift. (see Fig. 4-10-1.) 3. Set the **VERT MODE** to **CH2.** 4. Changing the **CH2 ×5 MAG** on and off, adjust **5R47A ×5 BAL** to minimize the CH2 trace shift. (see Fig. 4-10-1.)

4-10-4-1 5 mV/div balance (SS-7611/SS-7607)

Item	Description
Procedure	1. Set the **VERT MODE** to **CH1.** 2. Activate the AIS mode and select AIS number 25. (see section 4-4.) 3. Changing the **CH1 VOLTS/DIV** between 5 mV and 10 mV, adjust complement value with the **CURSOR** knob to minimize the CH1 trace shift. 4. Set the **VERT MODE** to **CH2** and select AIS number 29. 5. Changing the **CH2 VOLTS/DIV** between 5 mV and 10 mV, adjust complement value with the **CURSOR** knob to minimize the CH2 trace shift. 6. Push the **OFF** key for the **FUNCTION** to register the complement value.

CAUTION

Pushing the **OFF** key in the AIS mode sets the new complement value and quit the AIS mode. You can push the **OFF** key at the end of all calibrations. But be careful to do so, because the unintended wrong complement value, if happened, are also registered.

4-10-4-2 5 mV／div balance (SS-7610／SS-7606)

Item	Description
Procedure	1. Set the **VERT MODE** to **CH1**. 2. Changing the **CH1 VOLTS／DIV** between 5 mV and 10 mV, adjust **4R56A 5mV BAL** to minimize the CH1 trace shift. (see Fig. 4-10-1.) 3. Set the **VERT MODE** to **CH2**. 4. Changing the **CH2 VOLTS／DIV** between 5 mV and 10 mV, adjust **5R56A 5mV BAL** to minimize the CH2 trace shift. (see Fig. 4-10-1.)

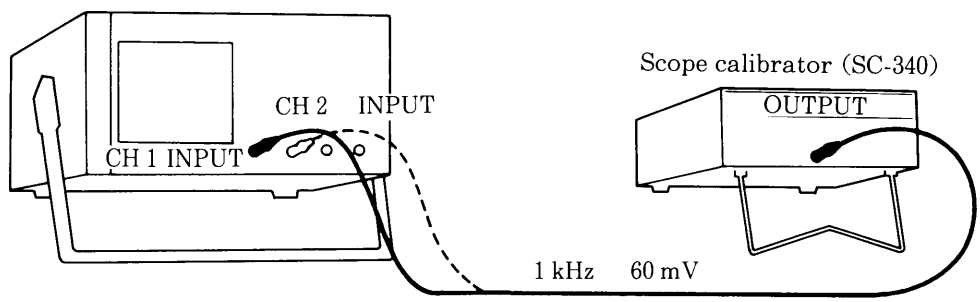
4-10-5 Variable balance

Item	Description
Procedure	1. Set the **VERT MODE** to **CH1** and **UNCAL** mode on, or variable gain. 2. Adjust **4R93 VAR BAL** to minimize the CH1 trace shift while changing variable gain between minimum and maximum. (see Fig. 4-10-1.) 3. Set the **VERT MODE** to **CH2** and **UNCAL** mode on, or variable gain. 4. Adjust **5R93 VAR BAL** to minimize the CH2 trace shift while changing variable gain between minimum and maximum. (see Fig. 4-10-1.)

4-10-6 Position Center

Item	Description
Procedure	1. Set the **VERT MODE** to **CH1** and CH1 position knob to midpoint. 2. Adjust **4R125 POSI CENT** to position the CH1 trace to the vertical scale center on the screen. (see Fig. 4-10-1.) 3. Set the **VERT MODE** to **CH2** and CH2 position knob to midpoint. 4. Adjust **5R125 POSI CENT** to position the CH2 trace to the vertical scale center on the screen. (see Fig. 4-10-1.)

4-10-7 Low Frequency Response

Item	Description
Connecting	
Setting and Procedure	1. Apply 1 kHz and 60 mV square wave signal into CH1 input. 2. Set **CH1 VOLTS/DIV** to 10 mV and **DC** input coupling. 3. Adjust **4R42 X1 LF COMP** to obtain flat signal display over 1 ms/div through 0.1 ms/div sweep rate. (see Fig. 4-10-1.) 4. Apply the square wave signal into CH2 input. 5. Set **CH2 VOLTS/DIV** to 10 mV and **DC** input coupling. 6. Adjust **5R42 X1 LF COMP** to obtain flat signal display over 1 ms/div through 0.1 ms/div sweep rate.

4-10-8-1 Sensitivity (SS-7611/SS-7607)

Item	Description
Rating	2 %
Connecting	Same connecting as in 4-10-7.
Setting and Procedure	1. Apply 1 kHz and 60 mV square wave signal into CH1input. 2. Set **CH1 VOLTS/DIV** to 10mV and **DC** input coupling. 3. Adjust **4R103A CH1 GAIN** to obtain the display amplitude within the specification. (see Fig. 4-10-1.) 4. If step 3 fails to assure the specification, set the **4R103A** to midpoint and adjust **8R41 A MAIN GAIN ADJ** for 6.5 divisions screen amplitude. Then repeat step 3. (see Fig. 4-9-2.) 5. Check the other attenuator positions over 10 mV/div up to 5 V/div for the specification. 6. Apply the signal into CH2 input and set **VERT MODE** to **CH2.** 7. Set **CH1 VOLTS/DIV** to 10 mV and **DC** input coupling. 8. Adjust **5R103A CH2 GAIN** to obtain the display amplitude within the specification. (see Fig. 4-10-1.) 9. Check the other attenuator positions over 10 mV/div up to 5 V/div for the specification.

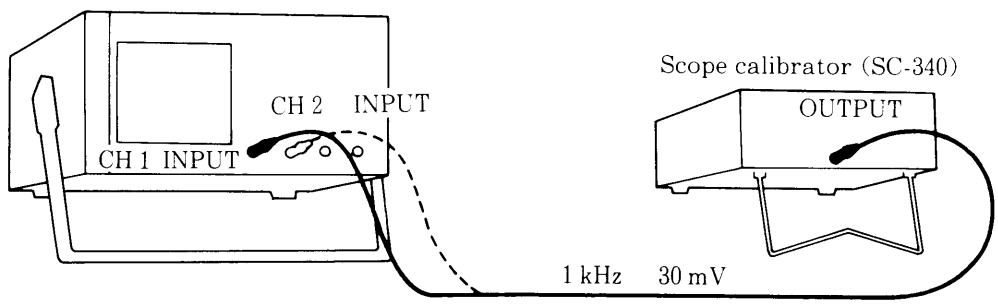
CAUTION

Pushing the **OFF** key in the AIS mode sets the new complement value and quit the AIS mode. You can push the **OFF** key at the end of all calibrations. But be careful to do so, because the unintended wrong complement value, if happened, are also registered.

4-10-8-2 Sensitivity (SS-7610/SS-7606)

Item	Description
Rating	2 %
Connecting	Same connecting as in 4-10-7.
Setting and Procedure	1. Apply 1 kHz and 60 mV square wave signal into CH1input. 2. Set **CH1 VOLTS/DIV** to 10mV and **DC** input coupling. 3. Adjust **4R103A CH1 GAIN** to obtain the display amplitude within the specification. (see Fig. 4-10-1.) 4. If step 3 fails to assure the specification, set the **4R103A** to midpoint and adjust **8R41 A MAIN GAIN ADJ** for 6.5 divisions screen amplitude. Then repeat step 3. (see Fig. 4-9-2.) 5. Check the other attenuator positions over 10 mV/div up to 5 V/div for the specification. 6. Apply the signal into CH2 input and set **VERT MODE** to **CH2.** 7. Set **CH1 VOLTS/DIV** to 10 mV and **DC** input coupling. 8. Adjust **5R103A CH2 GAIN** to obtain the display amplitude within the specification. (see Fig. 4-10-1.) 9. Check the other attenuator positions over 10 mV/div up to 5 V/div for the specification.

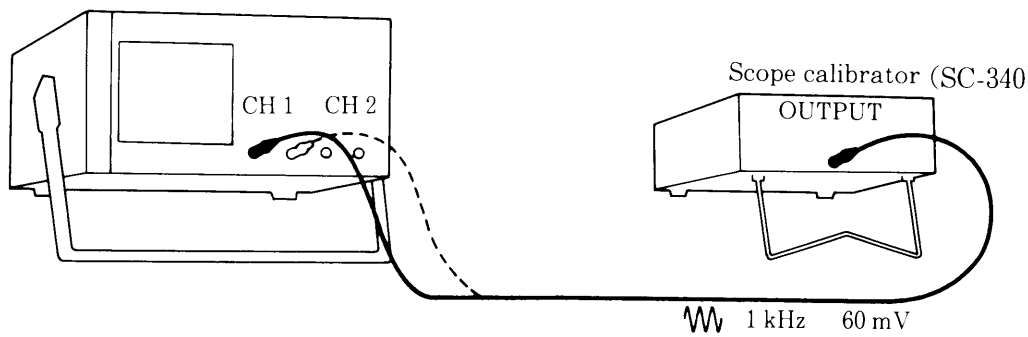
4-10-9 5 mV／div Sensitivity

Item	Description
Rating	2 %
Connecting	
Setting and Procedure	1. Apply 1 kHz and 30 mV square wave signal into CH1 input. 2. Set **CH1 VOLTS／DIV** to 5mV and **DC** input coupling. 3. Adjust **4R82 A 5mV GAIN** for the 6-division screen amplitude within 2 % accuracy. (see Fig. 4-10-1.) 4. Apply the signal into CH2 input and set **VERT MODE** to **CH2.** 5. Set **CH2 VOLTS／DIV** to 5mV and **DC** input coupling. 6. Adjust **5R82 B 5mV GAIN** for the 6-division screen amplitude within 2 % accuracy. (see Fig. 4-10-1.)

4-10-10 1 mV／div Low Frequency Response

Item	Description
Rating	4 %
Connecting	The same connecting as in section 4-10-9.
Setting and Procedure	1. Apply 1 kHz and 6 mV square wave signal into CH1 input. 2. Set **CH1 VOLTS／DIV** to 1 mV and **DC** input coupling. 3. Adjust **4R10 X5 LF COMP** to obtain flat signal display over 1 ms／div through 0. 1 ms／div sweep rate. (see Fig. 4-10-1.) 4. Apply the signal into CH2 input and set **VERT MODE** to **CH2.** 5. Set **CH2 VOLTS／DIV** to 1 mV and **DC** input coupling. 6. Adjust **5R10 X5 LF COMP** to obtain flat signal display over 1 ms／div through 0. 1 ms／div sweep rate. (see Fig. 4-10-1.)

4-10-11 Variable Range

Item	Description
Rating	1/2.5 or less
Connecting	
Setting and Procedure	1. Apply 1 kHz and 60 mV square wave signal into CH1 input. 2. Set **CH1 VOLTS/DIV** to 10 mV and **DC** input coupling. 3. Decrease the display amplitude to its minimum limit. 4. If the display amplitude is over 2.4 divisions, activate the AIS mode and select AIS number 31. Then change complement value with the **CURSOR** knob to obtain 2-division display amplitude. 5. Apply the signal into CH2 input and set **VERT MODE** to **CH2**. 6. Set **CH2 VOLTS/DIV** to 10 mV and **DC** input coupling. 7. Decrease the display amplitude to its minimum limit. 8. If the display amplitude is over 2.4 divisions, activate the AIS mode and select AIS number 33. Then change complement value with the **CURSOR** knob to obtain 2-division display amplitude. 9. Push the **OFF** key for the **FUNCTION** to register the complement value.

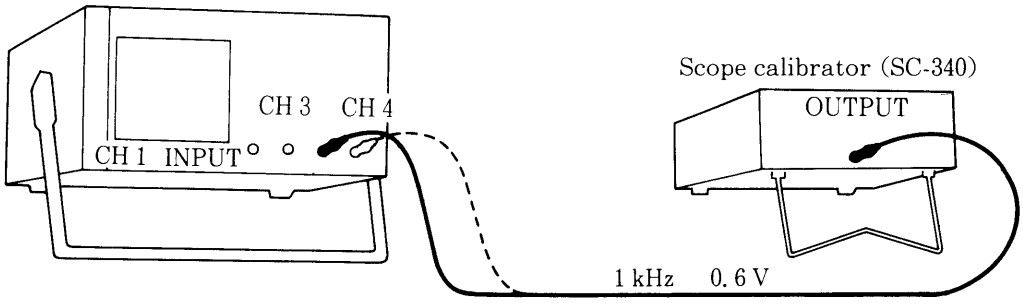
CAUTION

Pushing the **OFF** key in the AIS mode sets the new complement value and quit the AIS mode. You can push the **OFF** key at the end of all calibrations. But be careful to do so, because the unintended wrong complement value, if happened, are also registered.

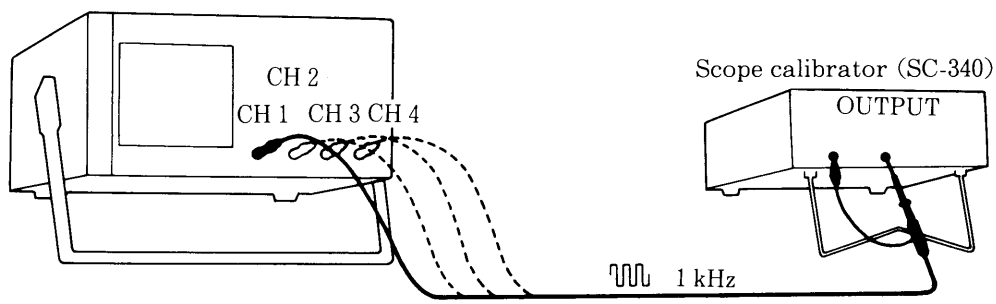
4-10-12 CH3／CH4 ATT Balance

Item	Description
Procedure	1. Set the **VERT MODE** to **CH3.** 2. Changing the **CH3 VOLTS／DIV** between 0.1 V and 0.5 V, adjust **2R8 CH3 ATT BAL** to minimize the CH3 trace shift. (see Fig. 4-10-2.) 3. Set the **VERT MODE** to **CH4.** 4. Changing the **CH4 VOLTS／DIV** between 0.1 V and 0.5 V, adjust **2R58 CH4 ATT BAL** to minimize the CH4 trace shift. (see Fig. 4-10-2.)

4-10-13 CH3／CH4 Sensitivity

Item	Description
Rating	4 %
Connecting	
Setting	VERT MODE : CH3 and CH4
Procedure	1. Apply 1 kHz and 600 mV square wave signal into CH3 input. 2. Set **CH3 VOLTS／DIV** to 0. 1 V and **DC** input coupling. 3. Adjust **2R36 CH3 GAIN** for the 6-division screen amplitude within 4 % accuracy. (see Fig. 4-10-1.) 4. Change **CH3 VOLTS／DIV** to 0. 5 V and the input signal amplitude to 1. 2 V. 5. Check the screen amplitude for the specification. 6. Apply the 600 mV signal into CH4 input. 7. Set **CH4 VOLTS／DIV** to 0. 1V and **DC** input coupling. 8. Adjust **2R86 CH4 GAIN** for the 6-division screen amplitude within 4 % accuracy. (see Fig. 4-10-1.) 9. Change **CH4 VOLTS／DIV** to 0. 5 V and the input signal amplitude to 1. 2 V. 10. Check the screen amplitude for the specification.

4-10-14 Attenuator Compensation

Item	Description
Rating	CH1 and CH2 : 1. 5 % without probe 2 % with 10:1 probe CH3 and CH4 : 2 % without probe 2. 5 % with 10:1 probe
Connecting	
Procedure	**CH1 and CH2** 1. Set **VERT MODE** to **CH1** and **CH1 VOLTS/DIV** to 0. 1 V. 2. Apply 6-division amplitude square wave signal via 50Ω coaxial cable. 3. Adjust **1C6** to minimize the distortion. (see Fig. 4-10-2.) 4. Set **CH1 VOLTS/DIV** to 1 V and increase generator amplitude to obtain 6-division screen amplitude. 5. Adjust **1C9** to minimize the distortion. (see Fig. 4-10-2.) 6. Set **CH1 VOLTS/DIV** to 10 mV/div and apply 6-division screen amplitude with 10:1 probe. Adjust probe adjustment to minimize the distortion. 7. Set **CH1 VOLTS/DIV** to 0. 1 V and increase generator amplitude to obtain 6-division screen amplitude. 8. Adjust **1C5** to minimize the distortion. (see Fig. 4-10-2.) 9. Set **CH1 VOLTS/DIV** to 1 V and increase generator amplitude to obtain 6-division screen amplitude. 10. Adjust **1C8** to minimize the distortion. (see Fig. 4-10-2.) 11. Set **VERT MODE** to **CH2** and **CH2 VOLTS/DIV** to 0. 1 V. 12. Apply 6-division amplitude square wave signal via 50Ω coaxial cable. 13. Adjust **1C36** to minimize the distortion. (see Fig. 4-10-2.) 14. Set **CH2 VOLTS/DIV** to 1 V and increase generator amplitude to obtain 6-division screen amplitude.

4-10-14 Attenuator Compensation (continued)

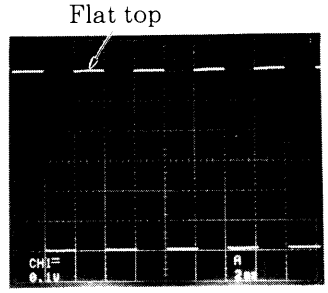
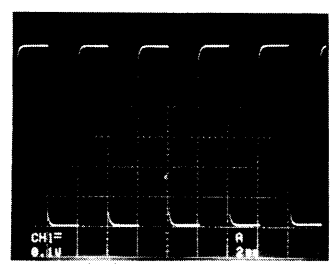
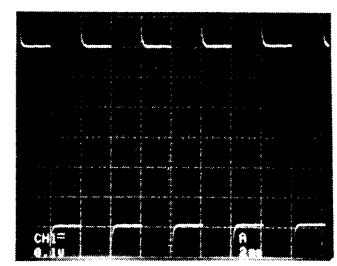
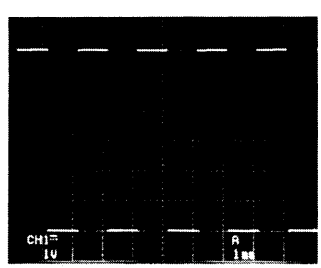
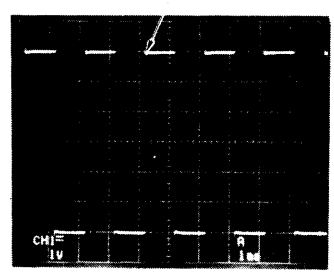
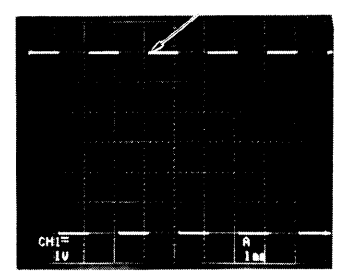
Item	Description
Procedure	15. Adjust **1C39** to minimize the distortion. (see Fig. 4-10-2.) 16. Set **CH2 VOLTS/DIV** to 10 mV/div and apply 6-division screen amplitude with 10:1 probe. Adjust probe adjustment to minimize the distortion. 17. Set **CH2 VOLTS/DIV** to 0. 1 V and increase generator amplitude to obtain 6-division screen amplitude. 18. Adjust **1C35** to minimize the distortion. (see Fig. 4-10-2.) 19. Set **CH2 VOLTS/DIV** to 1 V and increase generator amplitude to obtain 6-division screen amplitude. 20. Adjust **1C38** to minimize the distortion. (see Fig. 4-10-2.) **CH3 and CH4** 21. Set **VERT MODE** to **CH3** and **CH3 VOLTS/DIV** to 0. 1 V. 22. Apply 6-division amplitude square wave signal via 50Ω coaxial cable. 23. Adjust **2C6** to minimize the distortion. (see Fig. 4-10-2.) 24. Set **VERT MODE** to **CH4** and **CH4 VOLTS/DIV** to 0. 1 V. 25. Apply 6-division amplitude square wave signal via 50Ω coaxial cable. 26. Adjust **2C56** to minimize the distortion. (see Fig. 4-10-2.)
Waveform on screen	Using 10:1 probe Flat top  Correct compensation  Over compensation  Under compensation Direct connection (without 10:1 probe) Overshoot Rounding  Correct compensation  Over compensation  Under compensation

Fig. 4-10-1 Bottom view

a. SS-7611/SS-7607 (see next page for SS-7610/SS-7606.)

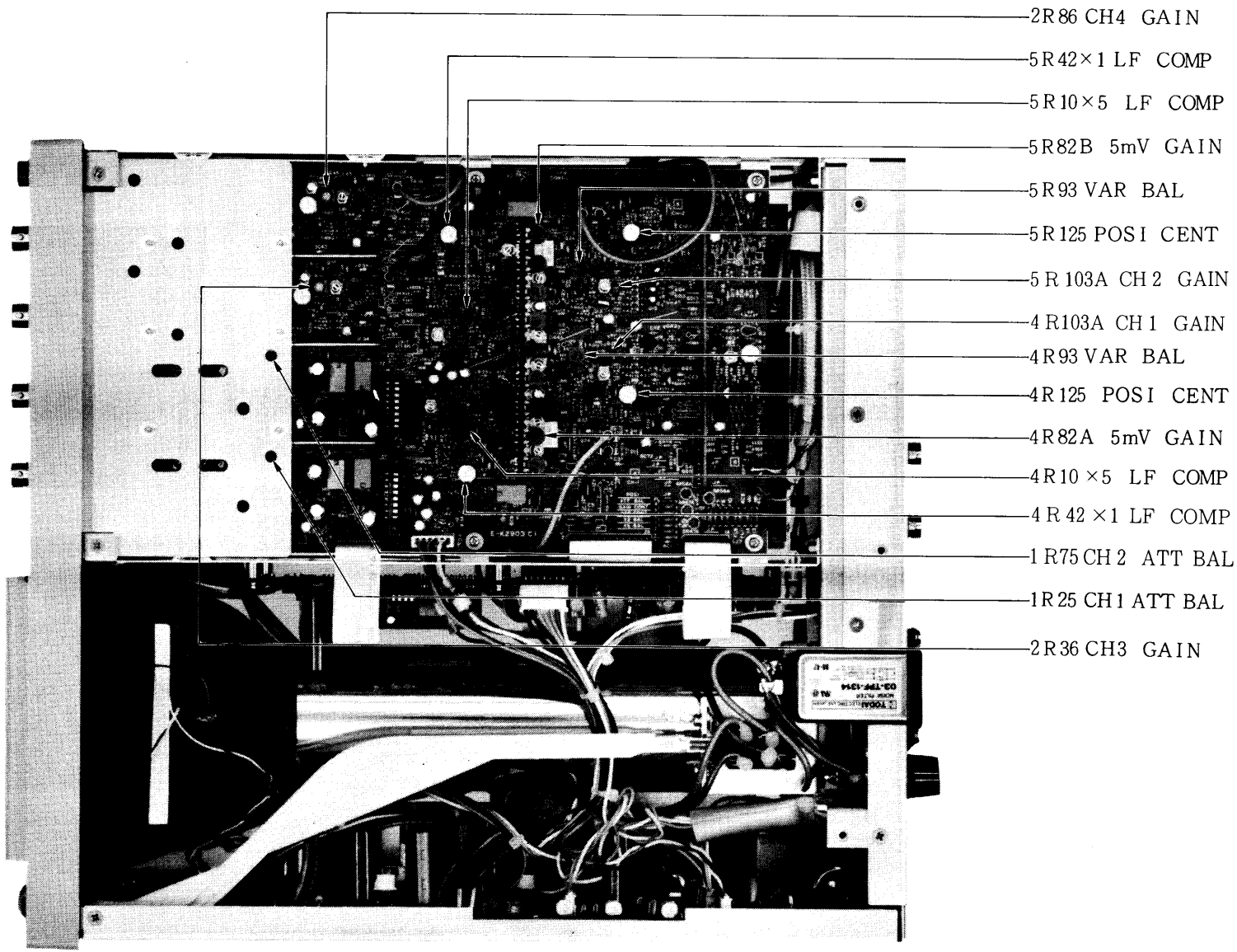


Fig. 4-10-1 Bottom view (continued)

b. SS-7610/SS-7606 (see previous page for SS-7611/SS-7607.)

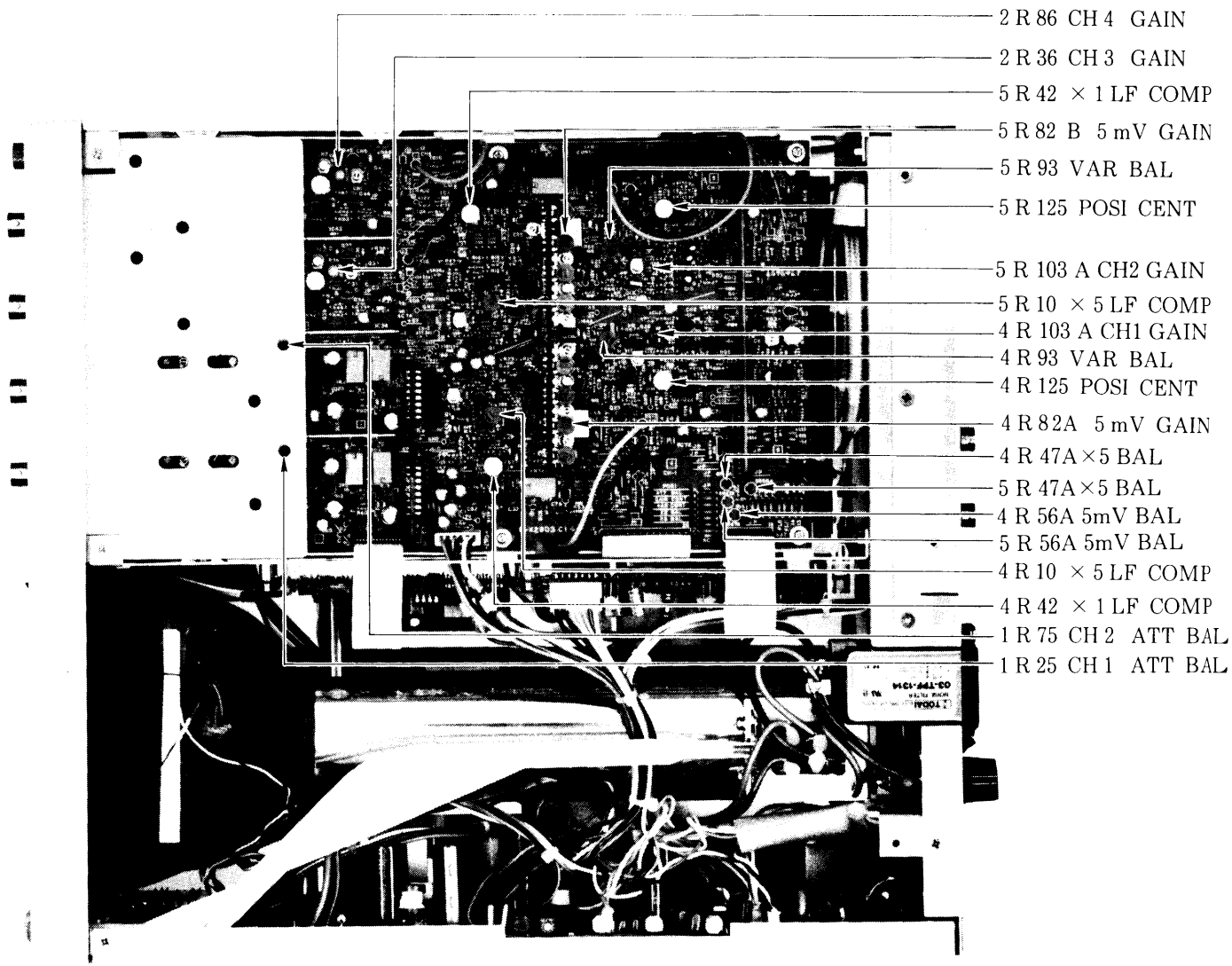
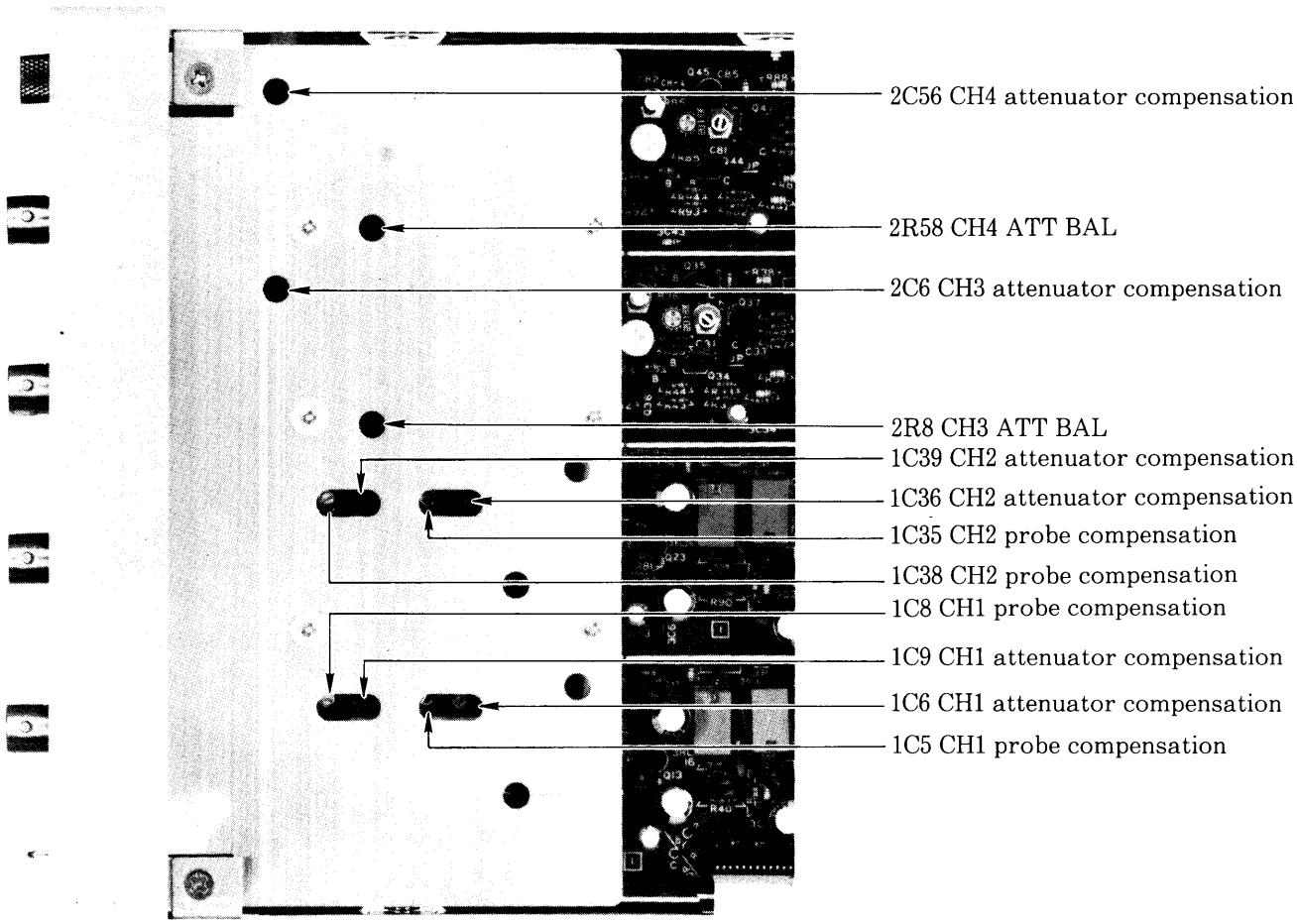
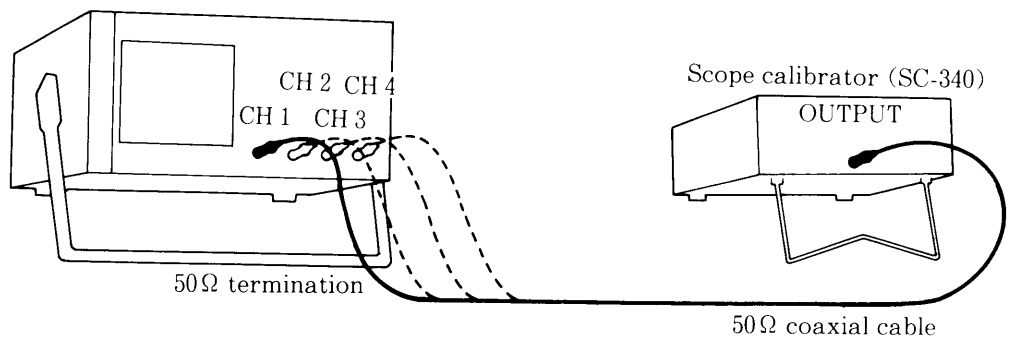
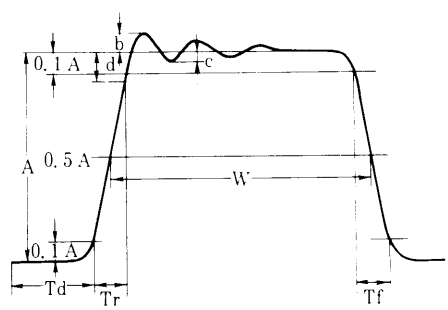


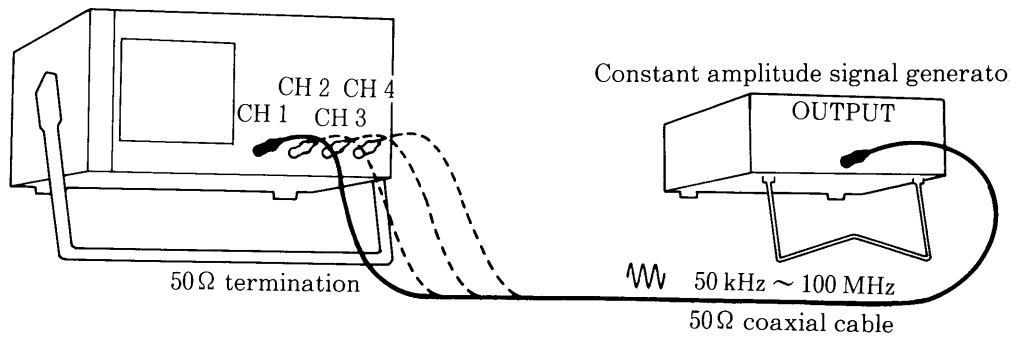
Fig. 4-10-2 Attenuator adjustments



4-10-15 Step Response

Item	Description
Rating	CH1 and CH2 at 10 mV／div Overshoot : 3 % Other distortion : 3 % CH3 and CH4 at 0. 1 V／div Overshoot : 7 % Other distortion : 5 %
Connecting	
Procedure	1. Set CH1 and CH2 VOLTS／DIVs to 10 mV and check the distortion of the each input channel. 2. Set CH3 and CH4 VOLTS／DIVs to 0. 1 V and check the distortion of the each input channel.
Definition	 A : Base amplitude b／A : Overshoot c／A : Ringing W : Pulse width Tr : Rise time Tf : Fall time d／A : Rounding Td : Delay time

4-10-16 Frequency Response

Item	Description
Rating	<SS-7611/SS-7610> CH1 and CH2 DC to 50 MHz ; −3 dB at 1 mV/div and 2 mV/div DC to 100 MHz ; −3 dB at 10 mV/div through 2 V/div DC to 100 MHz ; −3. 5 dB at 5 mV/div and 5 V/div CH3 and CH4 DC to 100 MHz ; −3 dB at 0. 1 V/div DC to 100 MHz ; −3. 5 dB at 0. 5 V/div <SS-7607/SS-7606> CH1 and CH2 DC to 30 MHz ; −3 dB at 1 mV/div and 2 mV/div DC to 60 MHz ; −3 dB at 5 mV/div through 2 V/div DC to 60 MHz ; −3. 5 dB at 5 V/div CH3 and CH4 DC to 60 MHz ; −3 dB at 0. 1 V/div DC to 60 MHz ; −3. 3 dB at 0. 5 V/div
Connecting	

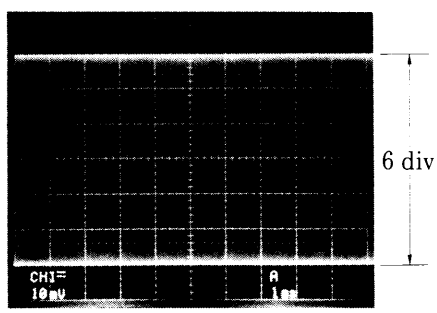
4-10-16 Frequency Response (continued)

Item	Description
Procedure	1. Set **VERT MODE** to **CH1**. 2. Set **CH1 VOLTS／DIV** to 1 mV／div through 5 V／div and check the each band width by following the bandwidth checking procedure described below. 3. Set **VERT MODE** to **CH2** and check the bandwidth. 4. Set **VERT MODE** to **CH3** and check the bandwidth. 5. Set **VERT MODE** to **CH4** and check the bandwidth. **Checking bandwidth** a. Apply the 6-division screen amplitude and 50 kHz reference signal via 50 Ω coaxial cable. b. Increase the generator frequency to the upper limit frequency, e. g. 60 MHz, 100 MHz or the like, with the constant amplitude. c. Check that the screen amplitude is greater than the specification listed below. Specification required based on 6-division reference screen amplitude

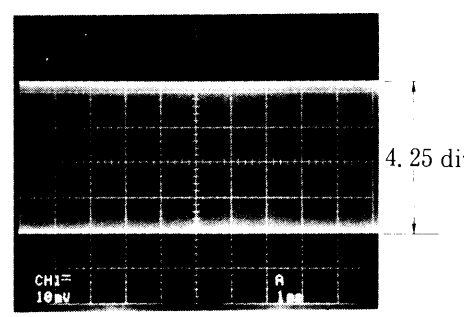
Screen amplitude (division)	6.0	4.25	4.0
Bandwidth (dB)	0.0	−3.0	−3.5

Waveform on screen

50 kHz reference signal

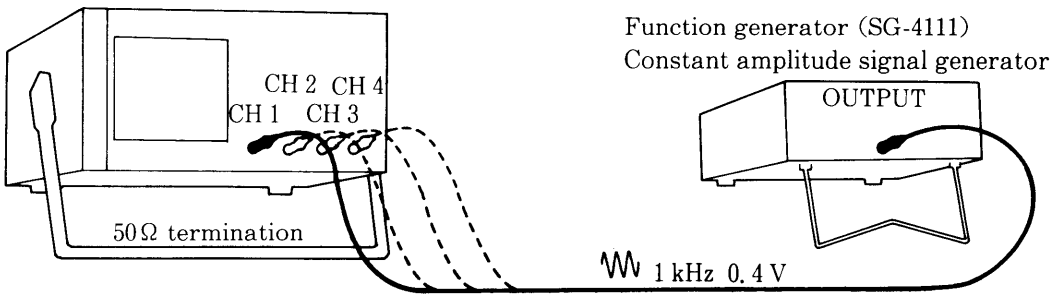


−3 dB upper limit frequency signal



4-11 TRIGGERING SYSTEM

4-11-1 A Triggering

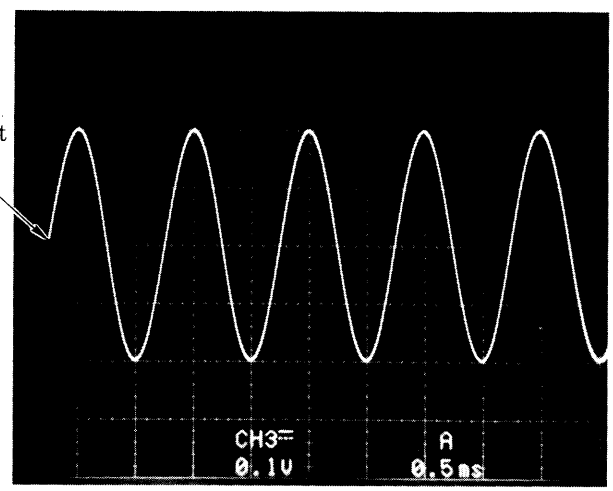
<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Rating</td><td>
<table>
<tr><th>COUPL</th><th>Triggering
Frequency</th><th>Triggering
Sensitivity</th></tr>
<tr><td>DC</td><td>DC to 10 MHz
10 MHz to 100 (60) MHz</td><td>0. 4 divisions
1 division</td></tr>
<tr><td>FIX</td><td>100 Hz to 10 MHz
10 MHz to 60 MHz</td><td>1 division
2 divisions</td></tr>
</table>
<Note>
The number in the parentheses is for the SS-7607/SS-7606.
At AC coupling, lowest frequency is limited to 100 Hz.
At FIX coupling, the input signal is supposed to be sine wave.
</td></tr>
<tr><td>Connecting</td><td>


</td></tr>
<tr><td>Setting</td><td>
CH1/CH2/CH3/CH4 VOLTS/DIV : 0. 1V
HORIZ DISPLAY : A
A/B MODE : A
TRIGGER SOURCE : CH1
TRIGGER COUPLING : FIX
TRIGGER SLOPE : +
</td></tr>
</table>

4-11-1 A Triggering (continued)

Item	Description
Procedure	**FIX level** 1. Apply 1 KHz sine wave to CH1 input and adjust amplitude for 4 divisions. 2. Activate the AIS mode and select AIS number 16. 3. Adjust complement value with the **CURSOR** knob to obtain the triggering at the midpoint of the display signal amplitude. (see the photo in the waveform on screen.) 4. Turn **TRIG LEVEL** knob and check that the trigger point does not change. **Trigger level** 5. Set the trigger coupling to **AC** and adjust the **TRIG LEVEL** knob to midpoint. 6. Set the trigger coupling to **DC** and adjust **9R73 CH1 TRIG LEVEL** to trigger at the same point as in **AC** coupling. (see Fig. 2-9-1.) **CH2 trigger level** 7. Set **VERT MODE** to **CH2** and trigger source to **CH2**. 8. Apply the sine wave signal to CH2 input. 9. Set the trigger coupling to **AC** and adjust the **TRIG LEVEL** knob to midpoint. 10. Set the trigger coupling to **DC** and adjust **9R93 CH2 TRIG LEVEL** to trigger at the same point as in **AC** coupling. (see Fig. 2-9-1.) **CH3 trigger level** 11. Set **VERT MODE** to **CH3** and trigger source to **CH3**. 12. Apply the sine wave signal to CH3 input. 13. Set the trigger coupling to **AC** and adjust the **TRIG LEVEL** knob to midpoint. 14. Set the trigger coupling to **DC** and adjust **9R6 CH2 TRIG LEVEL** to trigger at the same point as in **AC** coupling. (see Fig. 2-9-1.) **CH4 trigger level** 15. Set **VERT MODE** to **CH4** and trigger source to **CH4**. 16. Apply the sine wave signal to CH4 input. 17. Set the trigger coupling to **AC** and adjust the **TRIG LEVEL** knob to midpoint. 18. Set the trigger coupling to **DC** and adjust **9R5 CH4 TRIG LEVEL** to trigger at the same point as in **AC** coupling. (see Fig. 2-9-1.)

4-11-1 A Triggering (continued)

Item	Description
Procedure	**Trigger sensitivity check** 19. Set as follows: VERT MODE : CH1 TRIG SOURCE : CH1 HORIZ DISPLAY : A 20. Check A trigger sensitivity. 21. Push the **OFF** key for the **FUNCTION** to register the complement value.
Waveform on screen	Trigger level adjustment Trigger point  Input signal : 1 KHz and 4-division sine wave

CAUTION

Pushing the **OFF** key in the AIS mode sets the new complement value and quit the AIS mode. You can push the **OFF** key at the end of all calibrations. But be careful to do so, because the unintended wrong complement value, if happened, are also registered.

4-11-2 B Triggering

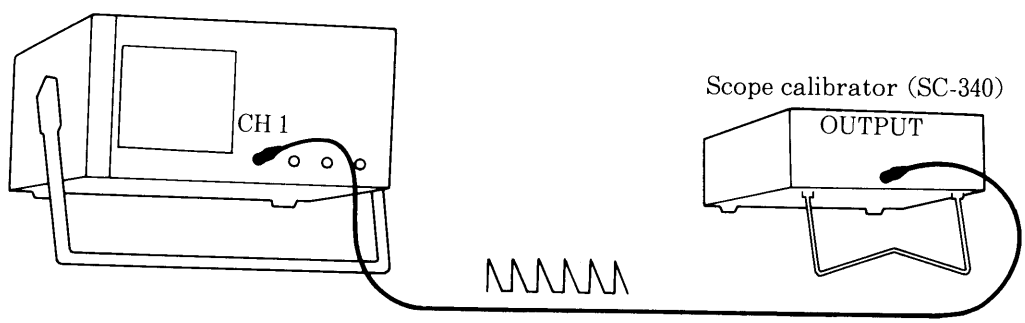
Item	Description
Rating	The same as A triggering. See section 4-11-1.
Connecting	The same as A triggering. See section 4-11-1.
Setting	CH1/CH2/CH3/CH4 VOLTS/DIV : 0.1V HORIZ DISPLAY : B A/B MODE : B TRIGGER SOURCE : CH1 TRIGGER COUPLING : FIX TRIGGER SLOPE : +
Procedure	**FIX level** 1. Apply 1KHz sine wave to CH1 input and adjust amplitude for 4 divisions. 2. Activate the AIS mode and select AIS number 17. 3. Adjust complement value with the **CURSOR** knob to obtain the triggering at the midpoint of the display signal amplitude. (see the photo in the waveform on screen in section 4-11-1.) 4. Turn **TRIG LEVEL** knob and check that the trigger point does not change. **Trigger level** 5. Set the trigger coupling to **AC** and adjust the **TRIG LEVEL** knob to midpoint. 6. Set the trigger coupling to **DC** and adjust **10R51 B TRIG LEVEL** to trigger at the same point as in **AC** coupling. (see Fig. 2-9-1.) **Trigger sensitivity check** 7. Check B trigger sensitivity. 8. Check CH2, CH3 and CH4 trigger sources. 9. Push the **OFF** key for the **FUNCTION** to register the complement value.

CAUTION

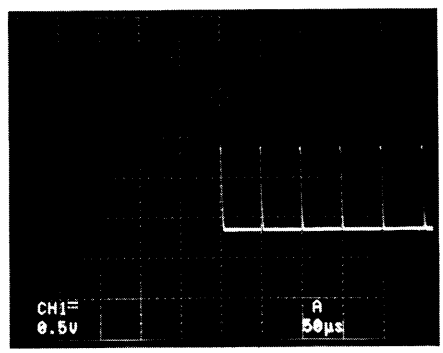
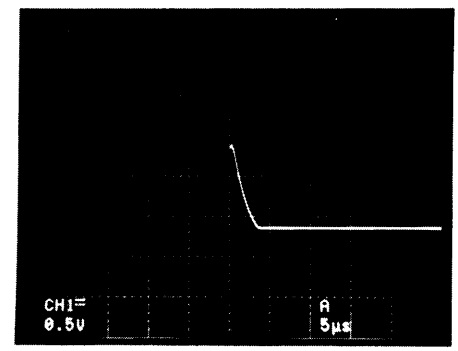
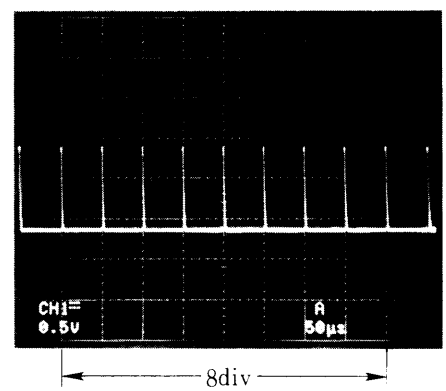
Pushing the **OFF** key in the AIS mode sets the new complement value and quit the AIS mode. You can push the **OFF** key at the end of all calibrations. But be careful to do so, because the uni ntended wrong complement value, if happened, are also registered.

4-12 HORIZONTAL DEFLECTION SYSTEM

4-12-1 Sweep Rate and Magnification

Item	Description
Rating	Accuracy at **NORM** (X1) over 8 horizontal center screen divisions (+10 ℃ to +35 ℃) A time base : 2 % (at 20 ns/div to 1. 25 s/div) B time base : 2 % (at 20 ns/div to 50 ms/div) Accuracy at **MAG** (X10) over 8 horizontal center screen divisions (+10 ℃ to +35 ℃) A and B time bases : 5 % (at 20 ns/div to 50 ns/div) : 3 % (at 0. 1 μs/div to 0. 5 s/div)
Connecting	
Procedure	——— **MAG center** ——— 1. Set **HORIZ DISPLAY** to **A** and **A SEC/DIV** to 50 μs. 2. Apply 20 kHz pulse train into CH1 input. 3. Using the horizontal position knob, position the sweep start to the horizontal center screen. 4. Push the horizontal position knob and set the **MAG X10** on. 5. Adjust **19R21 MAG CENTER** (see Fig. 4-8-1.) to position the magnified sweep start to the same location as in step 3, or horizontal center screen. (see the photo in waveform on screen in the next page.)

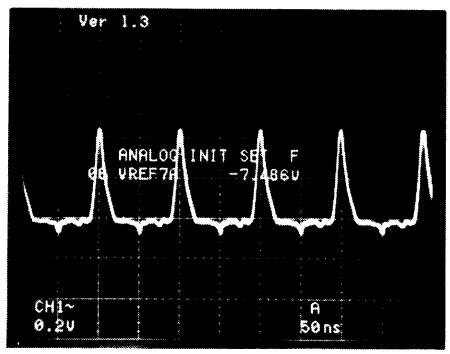
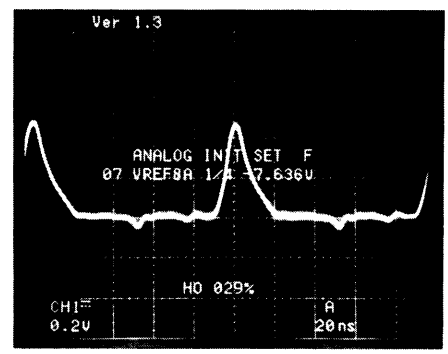
4-12-1 Sweep Rate and Magnification (continued)

Item	Description
Waveform on screen	With MAG X10 off  With MAG X10 on 
Procedure	**A time base** 1. Set **A SEC/DIV** to 50 µs. 2. Apply 50 µs repetition rate pulse train into CH1 input. 3. Activate the AIS mode and select AIS number 00. 4. Adjust complement value with the **CURSOR** knob to obtain the correct sweep rate on the screen. 5. If step 4 fails, set complement value to −7.500 V and adjust **19R18 NORM GAIN** to obtain the correct sweep rate. (see Fig. 4-8-1.)  6. Set **A SEC/DIV** to 0.1 ms and pulse train repetition rate to 0.1 ms. 7. Select AIS number 01 and adjust complement value to obtain the correct sweep rate. 8. Set **A SEC/DIV** to 0.2 ms and pulse train repetition rate to 0.2 ms. 9. Select AIS number 02 and adjust complement value to obtain the correct sweep rate. 10. Set **A SEC/DIV** to 0.5 ms and pulse train repetition rate to 0.5 ms. 11. Select AIS number 03 and adjust complement value to obtain the correct sweep rate. 12. Set **A SEC/DIV** to 0.5 µs and pulse train repetition rate to 0.5 µs. 13. Adjust **16C14** to obtain the correct sweep rate. (see Fig. 4-8-2.) 14. Set **A SEC/DIV** to 0.2 µs and pulse train repetition rate to 0.2 µs. 15. Select AIS number 04 and adjust complement value to obtain the correct sweep rate.

4-12-1 Sweep Rate and Magnification (continued)

Item	Description
Procedure	16. Set **A SEC/DIV** to 0. 1 μs and pulse train repetition rate to 0. 1 μs. 17. Select AIS number 05 and adjust complement value to obtain the correct sweep rate. 18. Set **A SEC/DIV** to 50 ns. 19. Select AIS number 06 and adjust complement value to obtain the correct sweep rate. (see the photo in waveform on screen in the next page.) 20. Set **A SEC/DIV** to 20 ns. 21. Select AIS number 07 and adjust complement value to obtain the correct sweep rate. (see the photo in waveform on screen in the next page.) <Note> Do not stop here and continue through B time base and **MAG X10 ON** check procedures. ——— **B time base** ——— 1. Set **HORIZE DISPLAY** to **B**, and time base selection to **B**. 2. Set **B SEC/DIV** to 50 μs. 3. Apply 20 kHz pulse train into CH1 input. 4. Select AIS number 08 and adjust complement value with the **CURSOR** knob to obtain the correct sweep rate on the screen. 5. Set **B SEC/DIV** to 0. 1 ms and pulse train repetition rate to 0. 1 ms. 6. Select AIS number 09 and adjust complement value to obtain the correct sweep rate. 7. Set **B SEC/DIV** to 0. 2 ms and pulse train repetition rate to 0. 2 ms. 8. Select AIS number 10 and adjust complement value to obtain the correct sweep rate. 9. Set **B SEC/DIV** to 0. 5 ms and pulse train repetition rate to 0. 5 ms. 10. Select AIS number 11 and adjust complement value to obtain the correct sweep rate. 11. Set **B SEC/DIV** to 0. 5 μs and pulse train repetition rate to 0. 5 μs. 12. Adjust **17C14** to obtain the correct sweep rate. (see Fig. 4-8-2.) 13. Set **B SEC/DIV** to 0. 2 μs and pulse train repetition rate to 0. 2 μs. 14. Select AIS number 12 and adjust complement value to obtain the correct sweep rate. 15. Set **B SEC/DIV** to 0. 1 μs and pulse train repetition rate to 0. 1 μs. 16. Select AIS number 13 and adjust complement value to obtain the correct sweep rate. 17. Set **B SEC/DIV** to 50 ns. 18. Select AIS number 14 and adjust complement value to obtain the correct sweep rate. (see the photo in waveform on screen below.)

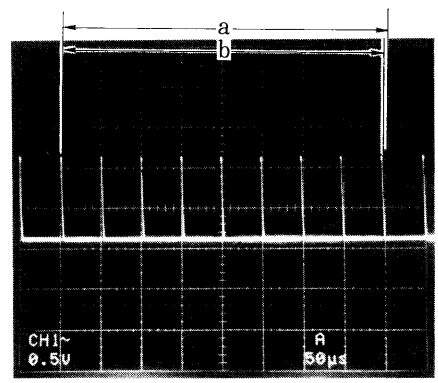
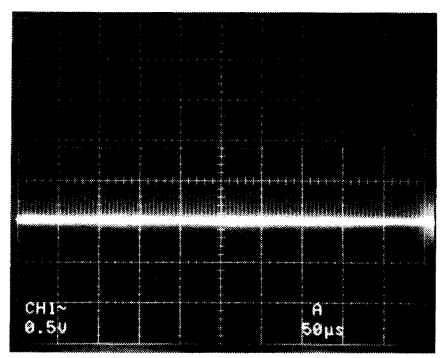
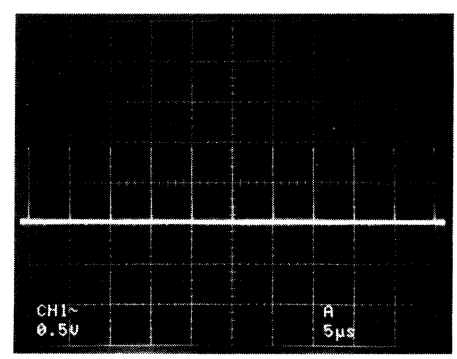
4-12-1 Sweep Rate and Magnification (continued)

Item	Description
Procedure	19. Set **B SEC/DIV** to 20 ns. 20. Select AIS number 15 and adjust complement value to obtain the correct sweep rate. (see the photo in waveform on screen below.) <Note> Do not stop here and continue through **MAG X10 ON** check procedure.
Waveform on screen	50 ns/div sweep rate  20 ns/div sweep rate 
Procedure	**MAG X10 ON** 1. Set **HORIZE DISPLAY** to **A**, and time base selection to **A**. 2. Set **A SEC/DIV** to 50 μs and pulse train repetition rate to 5 μs. 3. Push horizontal position control knob and set **MAG X10** on. 4. Adjust **19R13 MAG GAIN** to obtain the correct sweep rate. (see Fig. 4-8-1.) 5. Set **A SEC/DIV** to 0.5 μs through 20 ns and pulse train repetition rate to 20 ns or 10 ns. 6. Adjust **20C27** and **20C39** to obtain the correct sweep rate over 50 ns/div through 2 ns/div magnified sweep rate. (see Fig. 4-9-2.) 7. Push the **OFF** key for the **FUNCTION** to register the complement value.

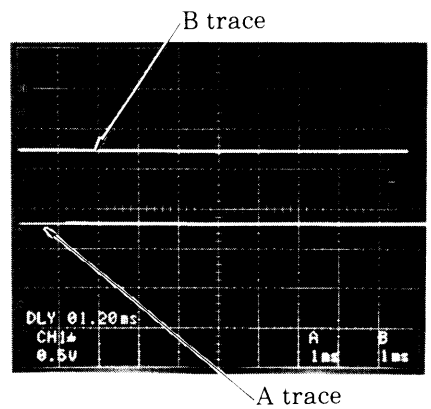
CAUTION

Pushing the **OFF** key in the AIS mode sets the new complement value and quit the AIS mode. You can push the **OFF** key at the end of all calibrations. But be careful to do so, because the unintended wrong complement value, if happened, are also registered.

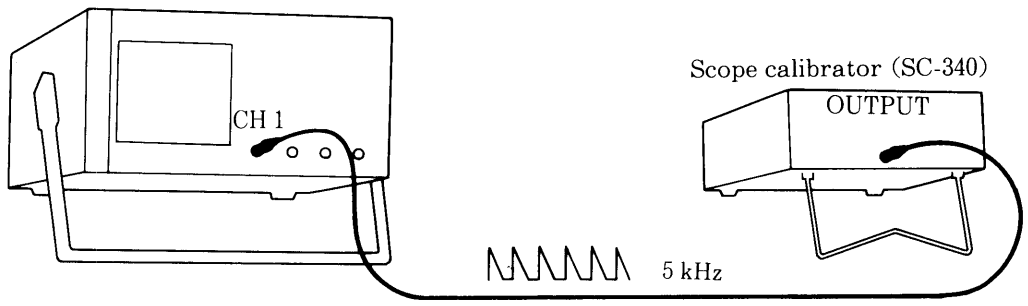
4-12-1 Sweep Rate and Magnification (continued)

Item	Description
Waveform on screen and Definition	Sweep rate error over 8 divisions = ((a-b)/a) × 100 (%) where a : 8 divisions b : measurement in division from 2 nd to 10 th pulse The pulse repetition rate is equal to the sweep rate setting. example a : 8 divisions b : 7. 9 divisions error = ((8 − 7. 9)/8) × 100 =1. 25 %  50 µs/div, NORM (× 1)  50 µs/div, MAG ON (×10) 

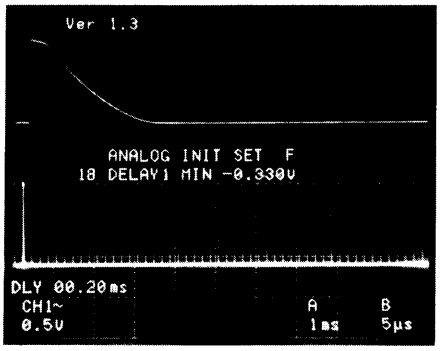
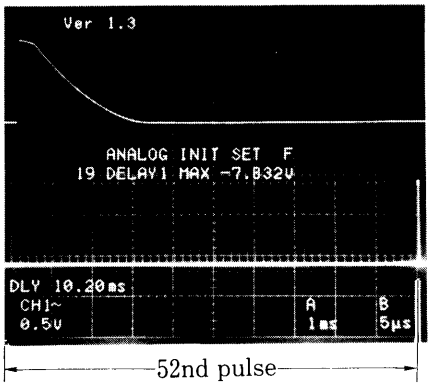
4-12-2 Sweep Start

Item	Description
Setting	HORIZ DISPLAY : ALT B TRIGGER SOURCE : RUNS AFTER A SEC/DIV : 1 ms B SEC/DIV : 1 ms DLY : 01. 20 ms HORIZONTAL MAG X10 : ON
Procedure	1. Using trace separation control, separate the A and B traces vertically. 2. Using horizontal position control, position the A trace start to the leftmost scale. 3. Adjust **18R17 B START ADJ** to position the B trace start to the leftmost scale.
Waveform on screen	The photo shows A and B traces separated each other with trace separation control. 

4-12-3 Delay Time

Item	Description
Rating	0. 5 % of reading 1 % of full scale −30 ns over 1 s/div through 0. 5 s/div
Connecting	
Setting	HORIZ DISPLAY : ALT B TRIGGER SOURCE : RUNS AFTER A SEC/DIV : 1 ms B SEC/DIV : 1 μs
Procedure	1. Apply 200 μs repetition rate pulse train into CH1 input. 2. Activate the AIS mode and select AIS number 18. 3. Set **DLY** value to 00. 20 ms. 4. Adjust complement value with the **CURSOR** knob to let the B trace start at the 2nd pulse in the A trace. <Note> Adjusting the complement value does not change the display automatically. Therefore follow the next steps. a. Adjust complement value slightly. b. Turn the **RANGE** knob counterclockwise and display the B trace with the new complement value. If you turn the **RANGE** knob clockwise, turn it counterclockwise and set the **DLY** value to 00. 20 ms. c. Repeat steps a and b until the B trace starts at 2nd pulse. Increasing the absolute value of complement value lets B trace start at longer delayed time, i. e. B starts late. Typical complement value is −0. 330 V. 5. Set **DLY** value to 10. 20ms and select AIS number 19. 6. Adjust complement value with the **CURSOR** knob to let the B trace start at the 52nd pulse in the A trace. Follow the procedures in the step 4 and the typical complement value is −7. 800 V.

4-12-3 Delay Time (continued)

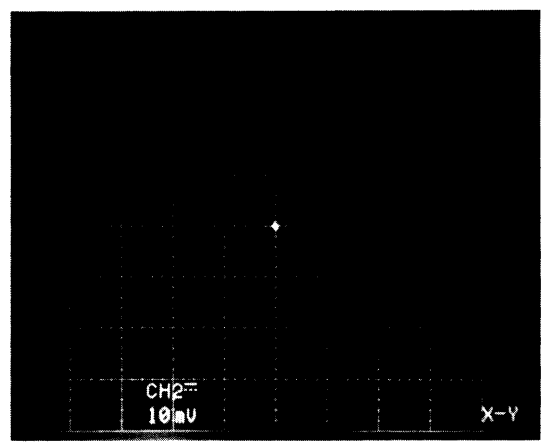
Item	Description
Procedure	7. Push the **OFF** key for the **FUNCTION** to register the complement value.
Waveform on screen	DLY : 00. 20 ms AIS : 18  DLY : 19. 20 ms AIS : 19 

CAUTION

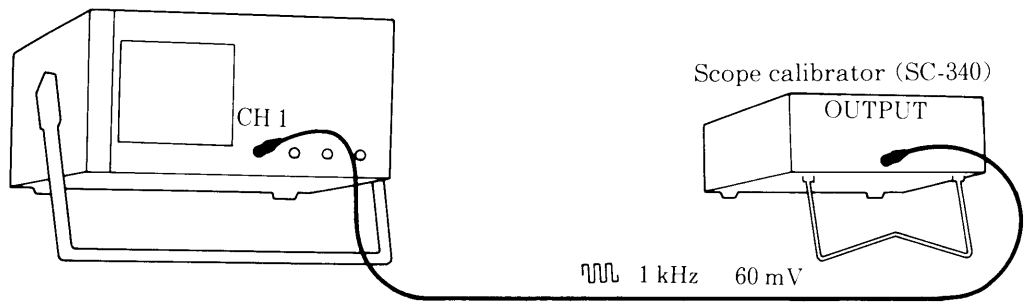
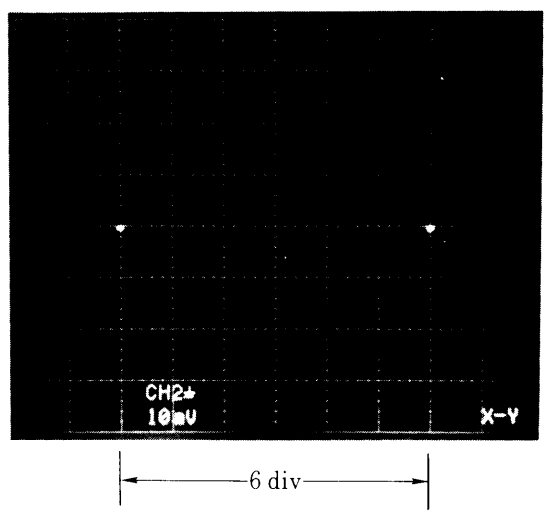
Pushing the **OFF** key in the AIS mode sets the new complement value and quit the AIS mode. You can push the **OFF** key at the end of all calibrations. But be careful to do so, because the unintended wrong complement value, if happened, are also registered.

4-13 X-Y OPERATION

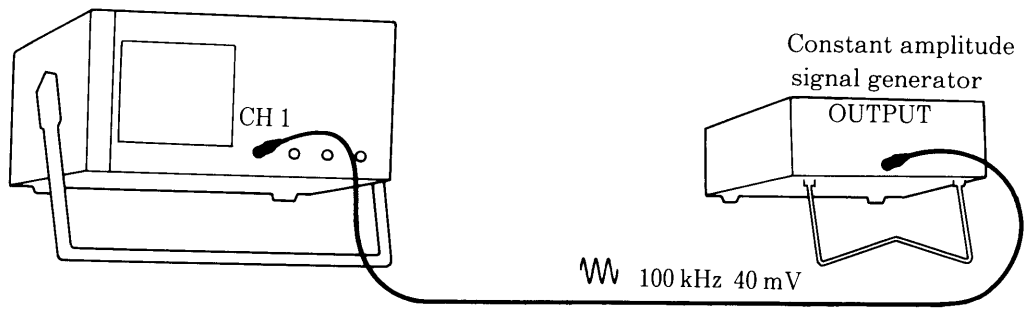
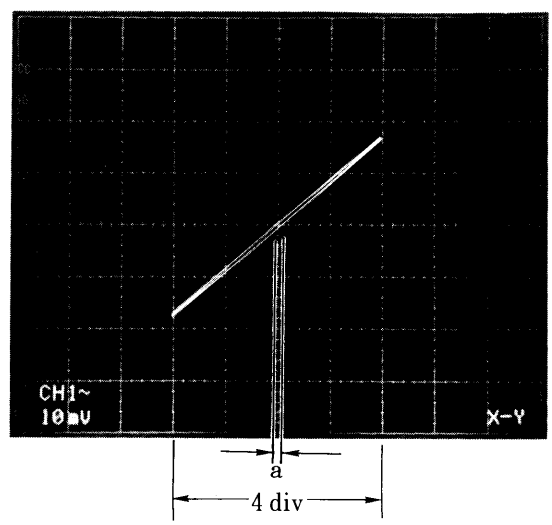
4-13-1 X-Y Position

Item	Description
Setting	VERT MODE : CH2 and X-Y CH1 VOLTS/DIV : 10 mV CH1 COUPLING : GND
Procedure	1. Set the horizontal position control to midpoint. 2. Adjust **9R22 X-Y POSITION** to position the X-Y dot to horizontal screen center. (see Fig. 4-9-1.)
Waveform on screen	

4-13-2 Sensitivity

Item	Description
Rating	3 %
Connecting	
Setting	VERT MODE : CH2 and X-Y CH1 VOLTS/DIV : 10mV CH1 COUPLING : AC
Procedure	1. Apply 1 kHz and 60 mV square pulse into CH1 input. 2. Adjust **9R15 X-Y GAIN** to obtain 6-division horizontal screen amplitude. (see Fig. 4-9-1.)
Waveform on screen	 Input signal : Square wave : 1 kHz : 60 mV

4-13-3 Phase Shift

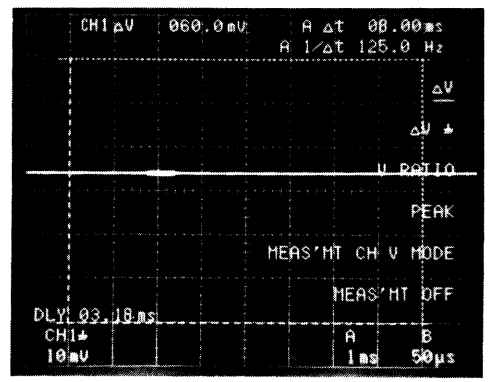
Item	Description
Rating	3° over DC through 100kHz sine wave
Connecting	
Setting	VERT MODE : CH1 and X-Y CH1 VOLTS/DIV : 10 mV CH1 COUPLING : DC
Procedure	1. Apply 100 kHz and 40 mV sine wave signal into CH1 input. 2. Check that the displacement "a" shown below is narrower that 0. 2 divisions.
Waveform on screen	 Input signal : Sine wave : 100 kHz : 40 mV

4-14 CHARACTER AND CURSOR READOUT

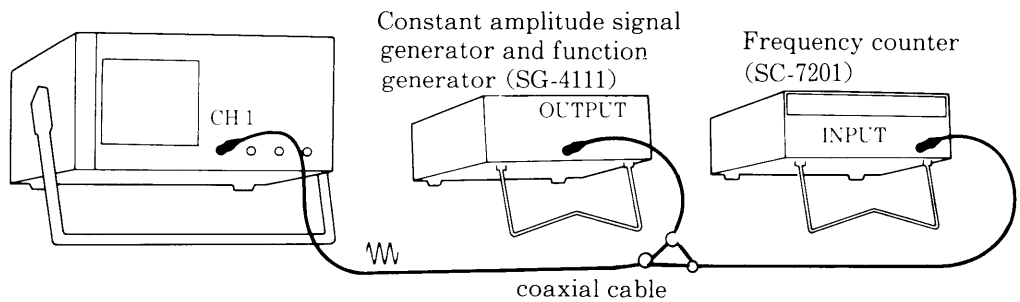
4-14-1 Cursor and Character Position

Item	Description
Setting	VERT MODE : CH1 CH1 VOLTS/DIV : 10 mV HORIZ DISPLAY : ALT A SEC/DIV : 1 ms B SEC/DIV : 50 μs
Procedure	1. Set the cursor measurement to **△V** measurement. 2. Position voltage cursors 1 and 2 to the bottom screen and check that the **△V** measurement reading is 000. 0 mV. 3. Enable the cursor 1 and push **CURSOR** knob once. This makes the cursor 1 jump one division from the bottom screen. The **△V** measurement reading will be −010. 0 mV. Enable the cursor 2 and push **CURSOR** knob seven times. This sets the cursor 2 to seventh division from the bottom screen. The **△V** measurement reading will be 060. 0 mV. 4. If step 2 and or 3 fails, adjust **8R97 V CHARA BAL ADJ** and **8R93 V CHARA GAIN ADJ** to set the cursor 1 to second scale and the cursor 2 to seventh scale from the bottom screen. (see Fig. 4-9-2.) 5. Set the cursor measurement to **△t** measurement. 6. Position time cursors 1 and 2 to the leftmost scale and check that the **△t** measurement reading is 00. 00 ms. 7. Enable the cursor 1 and push **CURSOR** knob once. This makes the cursor 1 jump one division from the leftmost scale. The **△t** measurement reading will be −01. 00 ms. Enable the cursor 2 and push **CURSOR** knob nine times. This sets the cursor 2 to ninth division from the leftmost screen. The **△t** measurement reading will be 08. 00 ms. 8. If step 6 and or 7 fails, adjust **20R53 H CHARA BAL ADJ** and **20R60 H CHARA GAIN ADJ** to set the cursor 1 to second scale and the cursor 2 to ninth scale from the leftmost scale. (see Fig. 4-9-2.) 9. Adjust **24R125** and change the vertical character position to obtain the best character display. (see Fig. 2-8-2.)

4-14-1 Cursor and Character Position (continued)

Item	Description
Waveform on screen	

4-14-2 Counter (SS-5711/SS-5707 only)

Item	Description
Rating	10 MHz or higher, or 0.1 μs or faster Base oscillator accuracy ± 1 count 10 MHz or lower, or 0.1 s or slower Base oscillator accuracy ± (trigger error ± 1 base oscillator period)/(input frequency × 0.1 s)
Setting	
Procedure	1. Apply the generator output to the oscilloscope and the frequency counter. 2. Check the oscilloscope counter reading for its specification.

4-14-3 Character Sway

Item	Description
Setting	A SEC/DIV : 10 ms HORIZONTAL MAG X10 : ON
Procedure	1. Check the character sway. 2. If sway is big, adjust **20C8** to minimize the horizontal sway.

4-14-4 Cursor Track Mode (SS-7611/SS-7607 only)

Item	Description
Setting	CH1 and CH2 VOLTS/DIV : 10mV CH1 and CH2 COUPLING : GND
Procedure	1. Set **VERT MODE** to **CH1.** 2. Position the CH1 (or CH2) trace to half division up from the bottom scale. 3. Activate the AIS mode and select AIS number 50 (52 for CH2). 4. Turn the **CURSOR** knob back and forth several times and renew the current CH1 (or CH2) position complement value for the tracking mode. 5. Position the CH1 (or CH2) trace to half division down from the top scale. 6. Select AIS number 51 (53 for CH2). 7. Turn the **CURSOR** knob back and forth several times and renew the current CH1 (or CH2) position complement value for the tracking mode. 8. Push the **OFF** key for the **FUNCTION** and quit the AIS mode to register the new complement value. 9. Set the cursor measurement to ΔV measurement. 10. Set the CURSOR POSI TRACK ON/OFF in the menu to **ON.** 11. Using the **CURSOR** knob, position the cursor 1 to the CH1 (or CH2) trace position. 12. While changing the CH1 (or CH2) trace up and down over six center screen division , check that the cursor 1 tracks the CH1 (or CH2) trace. 13. Set **VERT MODE** to **CH2** and repeat step 2 through step 12. Note that AIS number in step 2 is 52 and AIS number in step 6 is 53. 14. Push the **OFF** key for the **FUNCTION** to register the complement value.

CAUTION

Pushing the **OFF** key in the AIS mode sets the new complement value and quit the AIS mode. You can push the **OFF** key at the end of all calibrations. But be careful to do so, because the unintended wrong complement value, if happened, are also registered.

Section 5 Schematic Diagrams

VERTICAL DEFLECTION SYSTEM

CH1／CH2 ATT 1
CH3／CH4 ATT PREAMP 2
ATT CONTROL 3
CH1 PREAMP 4
CH2 PREAMP 5
DELAY CABLE DRIVER 6
VERTICAL CONTROL CAL 7
VERT OUTPUT AMP 8

TRIGGERING

A TRIG SELECT 9
B TRIG SELECT 10
PEAK HOLD 11
A／B TRIG AMP 12
TV SYNC SEP 13

HORIZONTAL DEFLECTION SYSTEM

A SWEEP GENERATOR 14
B SWEEP GENERATOR 15
A TIMING CIRCUIT 16
B TIMING CIRCUIT 17
HORIZ CONTROL 18
HORIZ AMP 〈1〉 19
HORIZ AMP 〈2〉 20
Z AXIS CIRCUIT 21
CRT CIRCUIT 22

CPU CIRCUIT

CPU 23
CPU－DA 24
CPU－I／O 25
COUNTER 26
KEY LED 27
VR BOARD 28

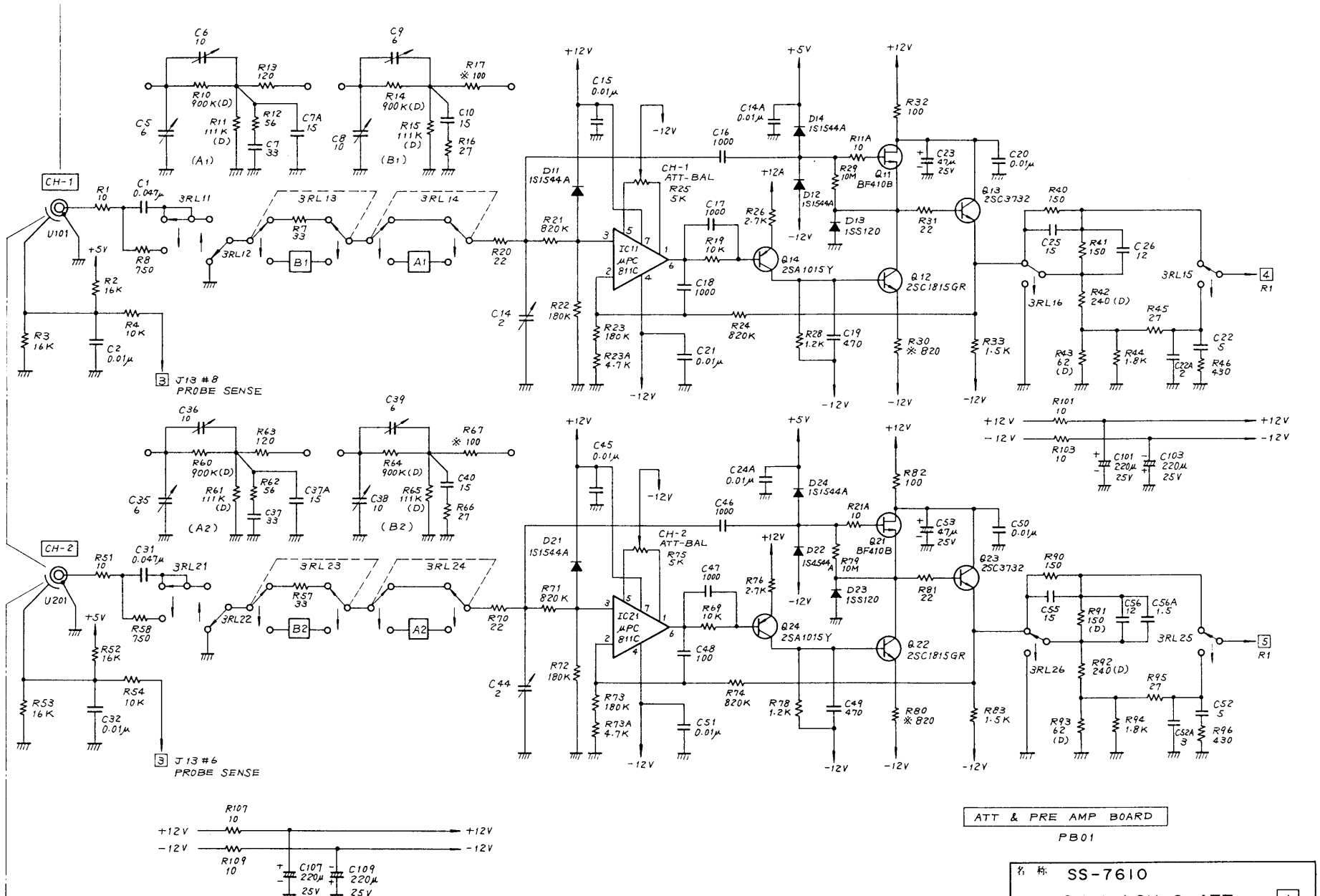
POWER SUPPLIES

LOW VOLTAGE POWER 29
HIGH VOLTAGE POWER 30

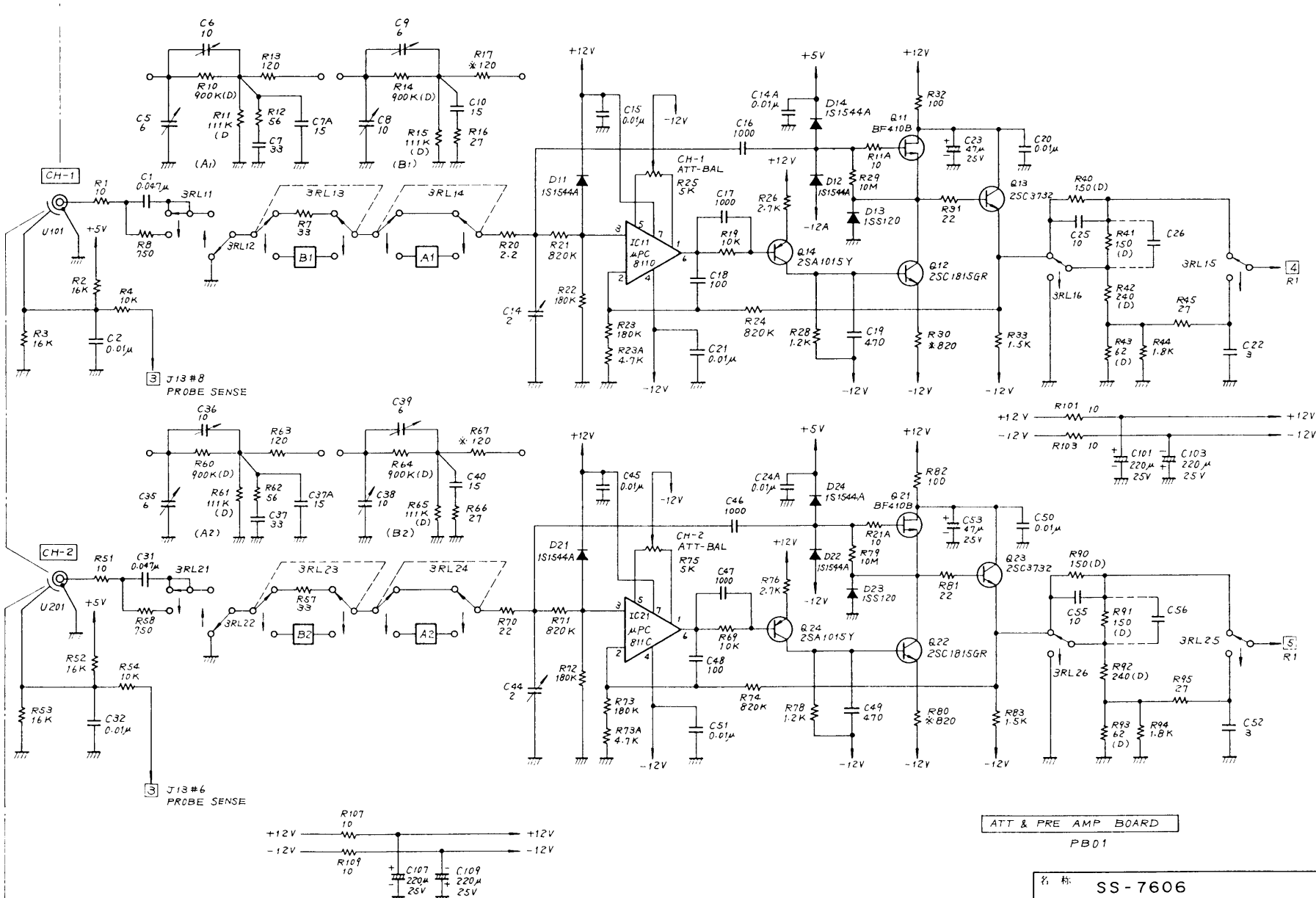
MISCELLANEOUS

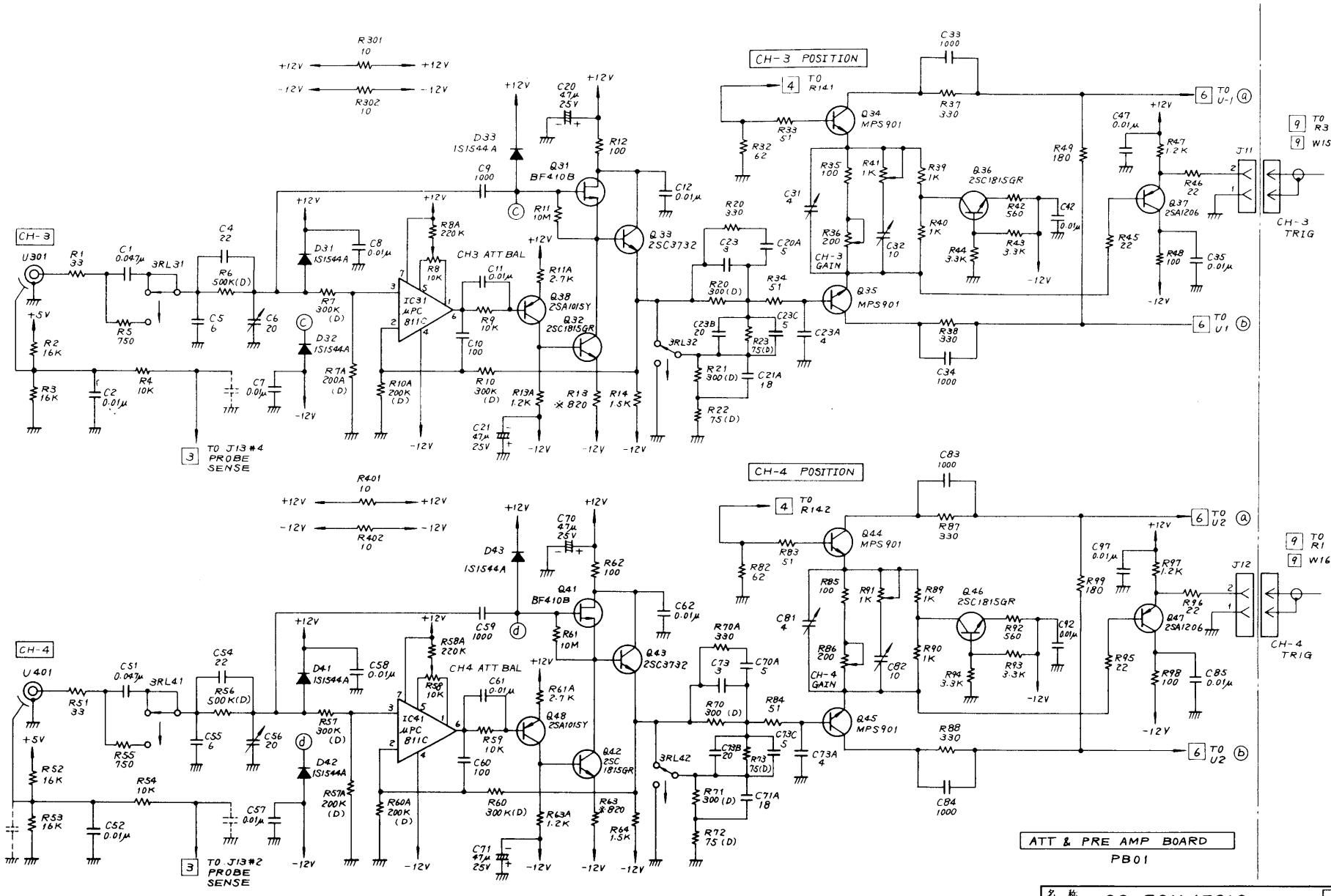
RANDOM PULSE－GEN 31
PEAK－MINI 32
BOARDS ON SWEEP GEN B. 33
BOARDS ON TRIG AMP B. 34

SS-7611	SS-7607	SS-7610	SS-7606
BBWSS24255106	BBWSS24233106	BBWSS24244106	BBWSS24222106
BBWSS24256106	BBWSS24234106	BBWSS24256106	BBWSS24234106
BBWSS10082106	BBWSS10082106	BBWSS10082106	BBWSS10082106
BBWSS24249106	BBWSS24227106	BBWSS24238106	BBWSS24216106
BBWSS24250106	BBWSS24228106	BBWSS24239106	BBWSS24217106
BBWSS24251106	BBWSS24229106	BBWSS24251106	BBWSS24229106
BBWSS10079107	BBWSS10079107	BBWSS10071107	BBWSS10071107
BBWSS24252106	BBWSS24230106	BBWSS24241106	BBWSS24219106
BBWSS10080106	BBWSS10064106	BBWSS10072106	BBWSS10056106
BBWSS10081106	BBWSS10081106	BBWSS10073106	BBWSS10073106
BBWSS33006106	BBWSS33006106	Not available	Not available
BBWSS34038106	BBWSS34038106	BBWSS34038106	BBWSS34038106
BBWSS34039106	BBWSS34039106	BBWSS34039106	BBWSS34039106
BBWSS20097106	BBWSS20097106	BBWSS20097106	BBWSS20082106
BBWSS20098106	BBWSS20098106	BBWSS20093106	BBWSS20093106
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BBWSS10084106	BBWSS10084106	BBWSS10076106	BBWSS10076106
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BBWSS31009106	BBWSS31009106	BBWSS31008106	BBWSS31006106
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BBWSS08059106	BBWSS08059106	BBWSS08059106	BBWSS08059106
BBWSS08059107	BBWSS08059107	BBWSS08059107	BBWSS08059107
BBWSS20107106	BBWSS20107106	Not available	Not available
BBWSS33007106	BBWSS33007106	Not available	Not available
BBWSS20106106	BBWSS20106106	BBWSS20106106	BBWSS20106106
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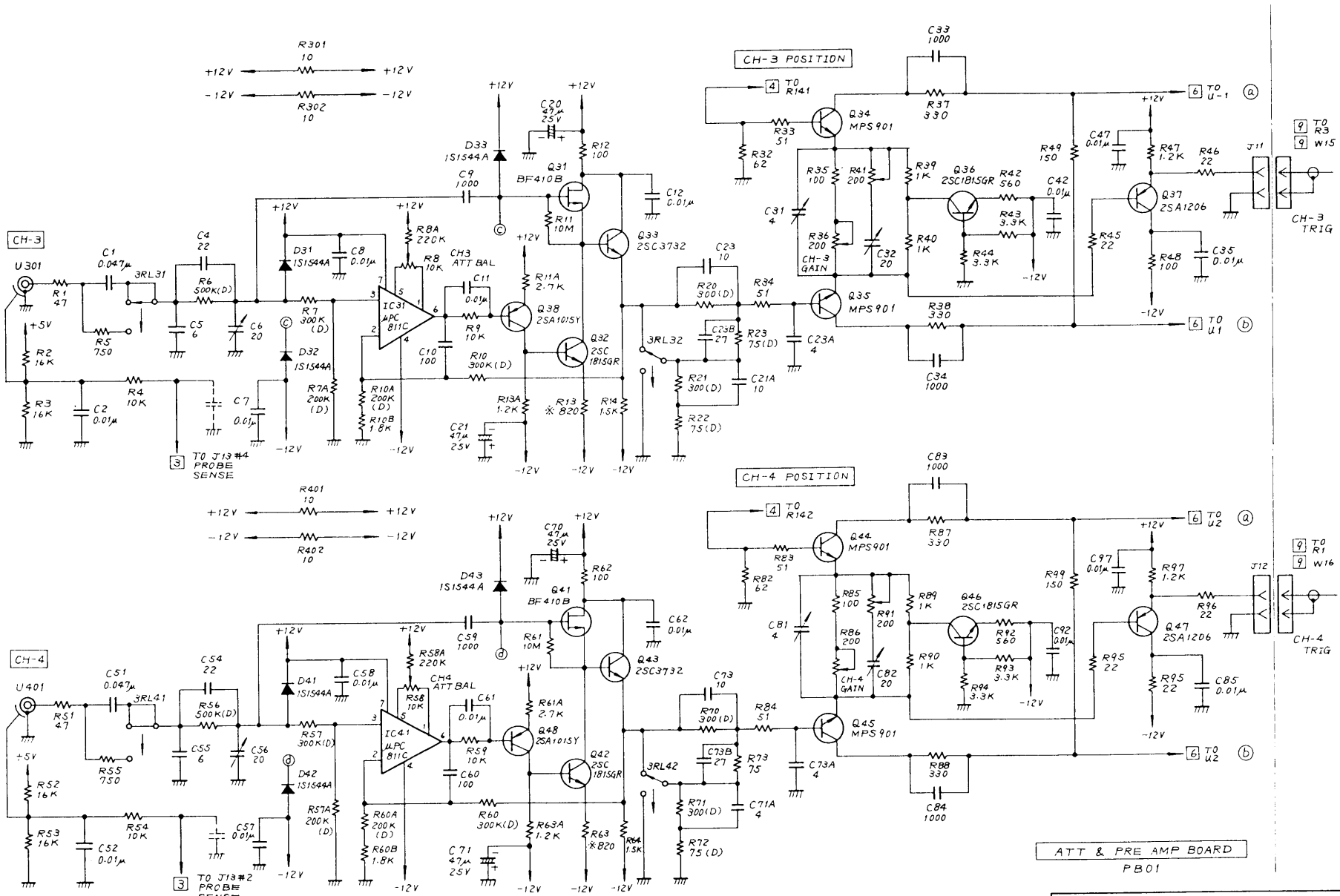


名称	SS-7610
	CH-1 / CH-2 ATT 1
図番	BBWSS 24244106 3

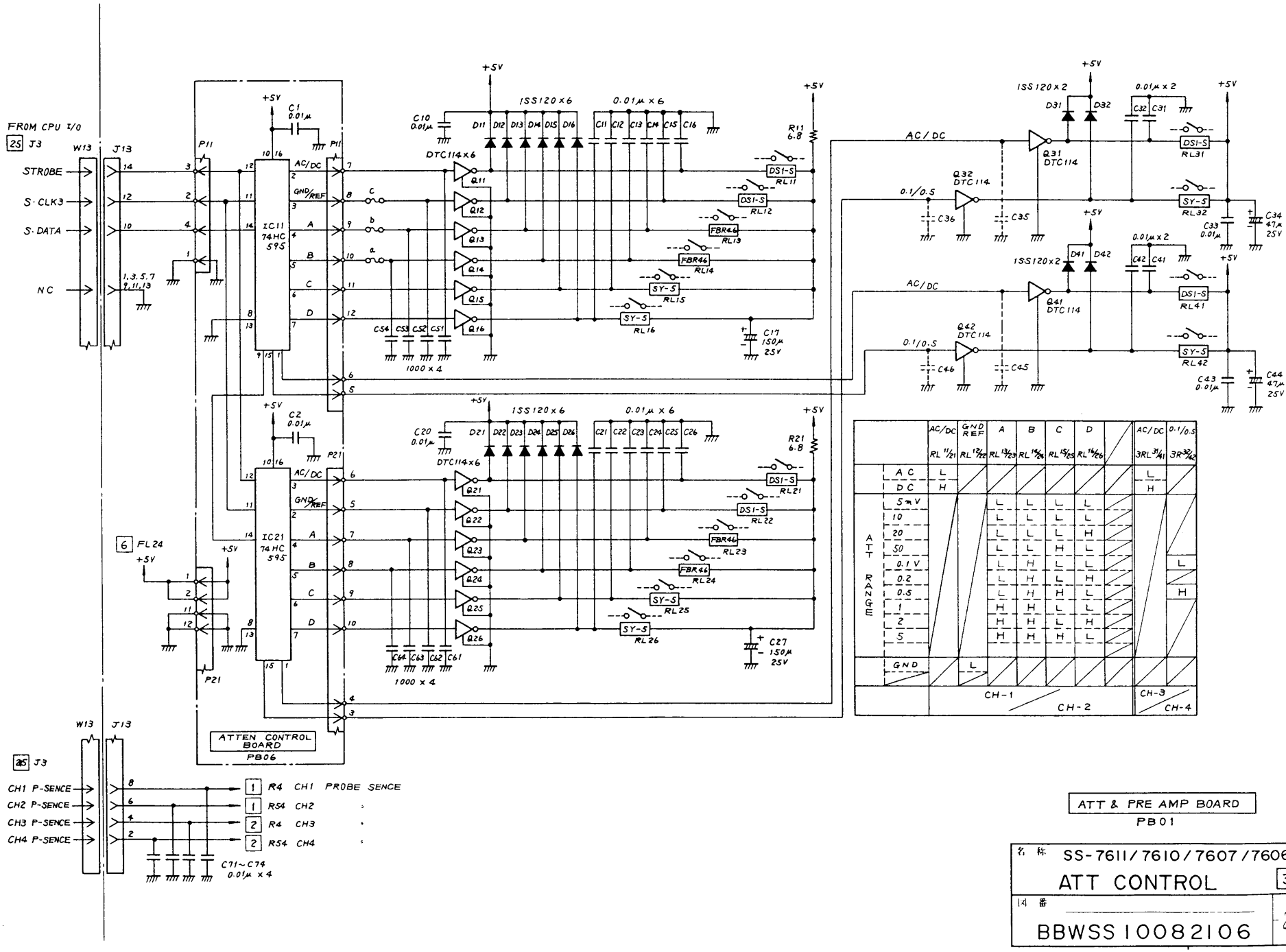

CH-1
CH-2
U101
U201
IC11 μPC 8110
IC21 μPC 811C
CH-1 ATT-BAL
CH-2 ATT-BAL
3RL11
3RL12
3RL13
3RL14
3RL15
3RL16
3RL21
3RL22
3RL23
3RL24
3RL25
3RL26
B1
A1
B2
A2
(A1)
(B1)
(A2)
(B2)
+12V
-12V
+5V
-12A
J13 #8
PROBE SENSE
J13 #6
PROBE SENSE
ATT & PRE AMP BOARD
PB01
SS-7606
CH-1 / CH-2 ATT
BBWSS 24222106



名称	SS-7611/7610 [2]
	CH-3/CH-4 ATT PRE AMP
図番	BBWSS24256106 [3]

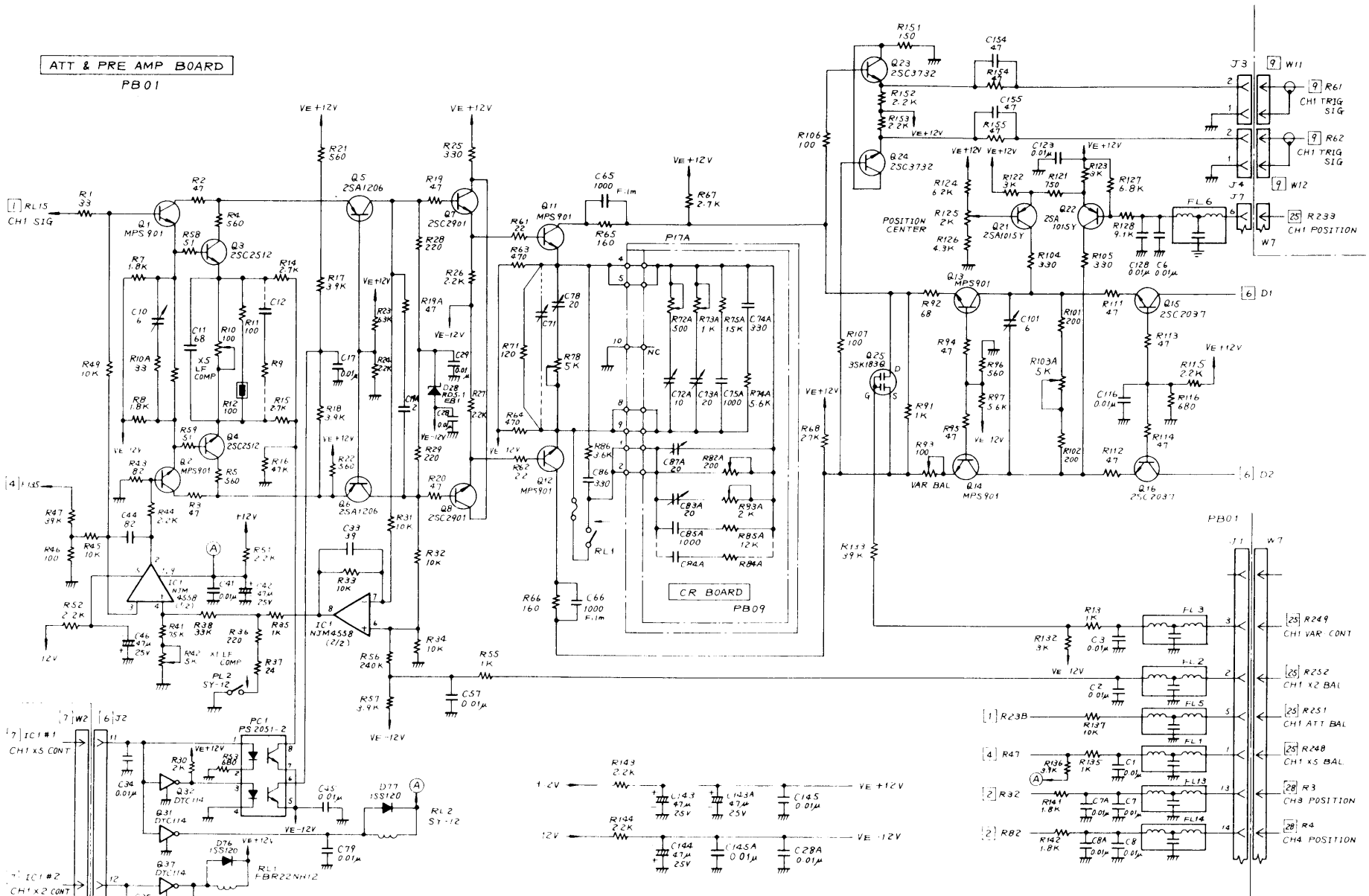


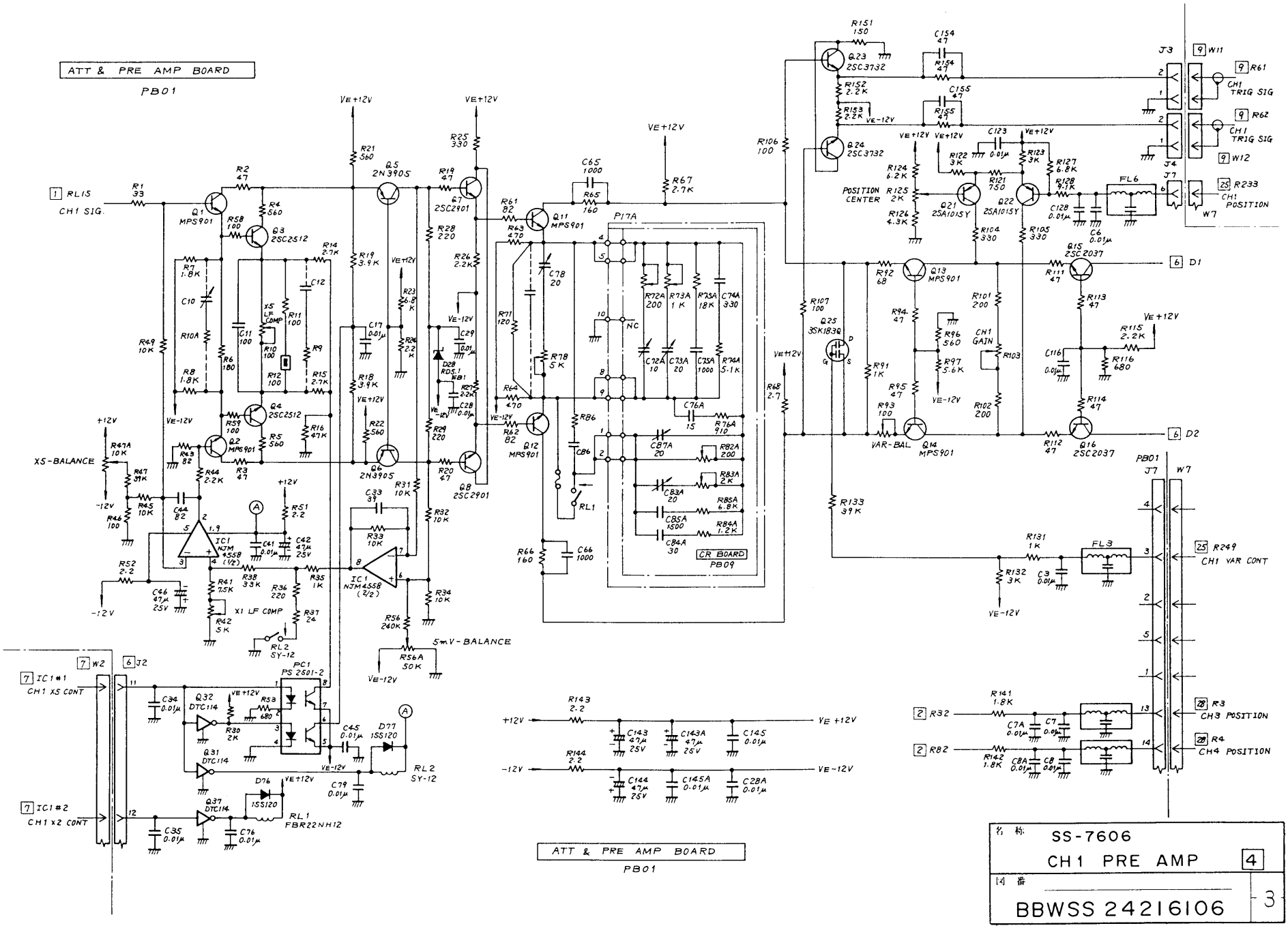
名称	SS-7607/7606
	CH-3 / CH-4 ATT & PRE AMP 2
図番	BBWSS 24234106 2

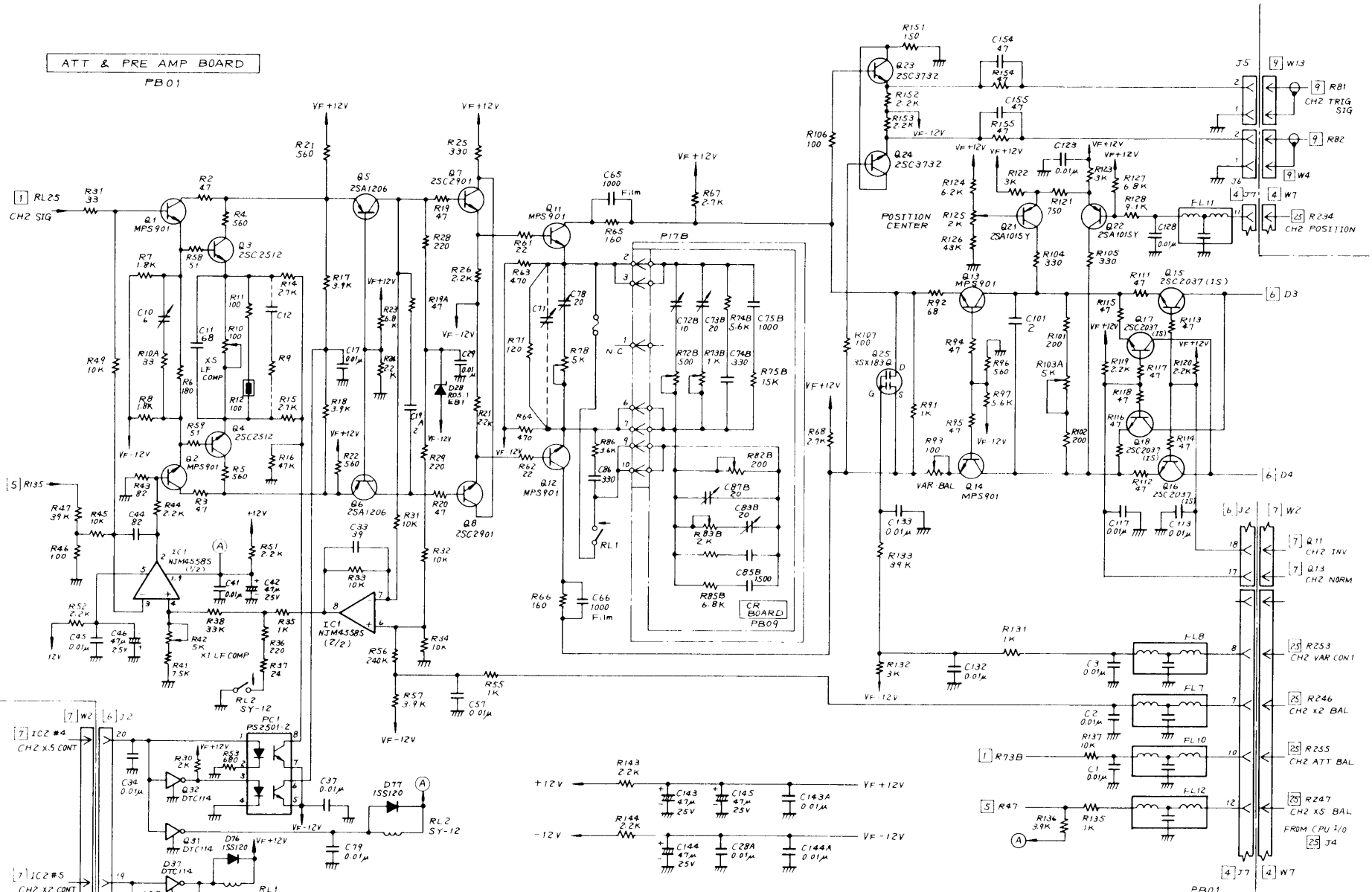


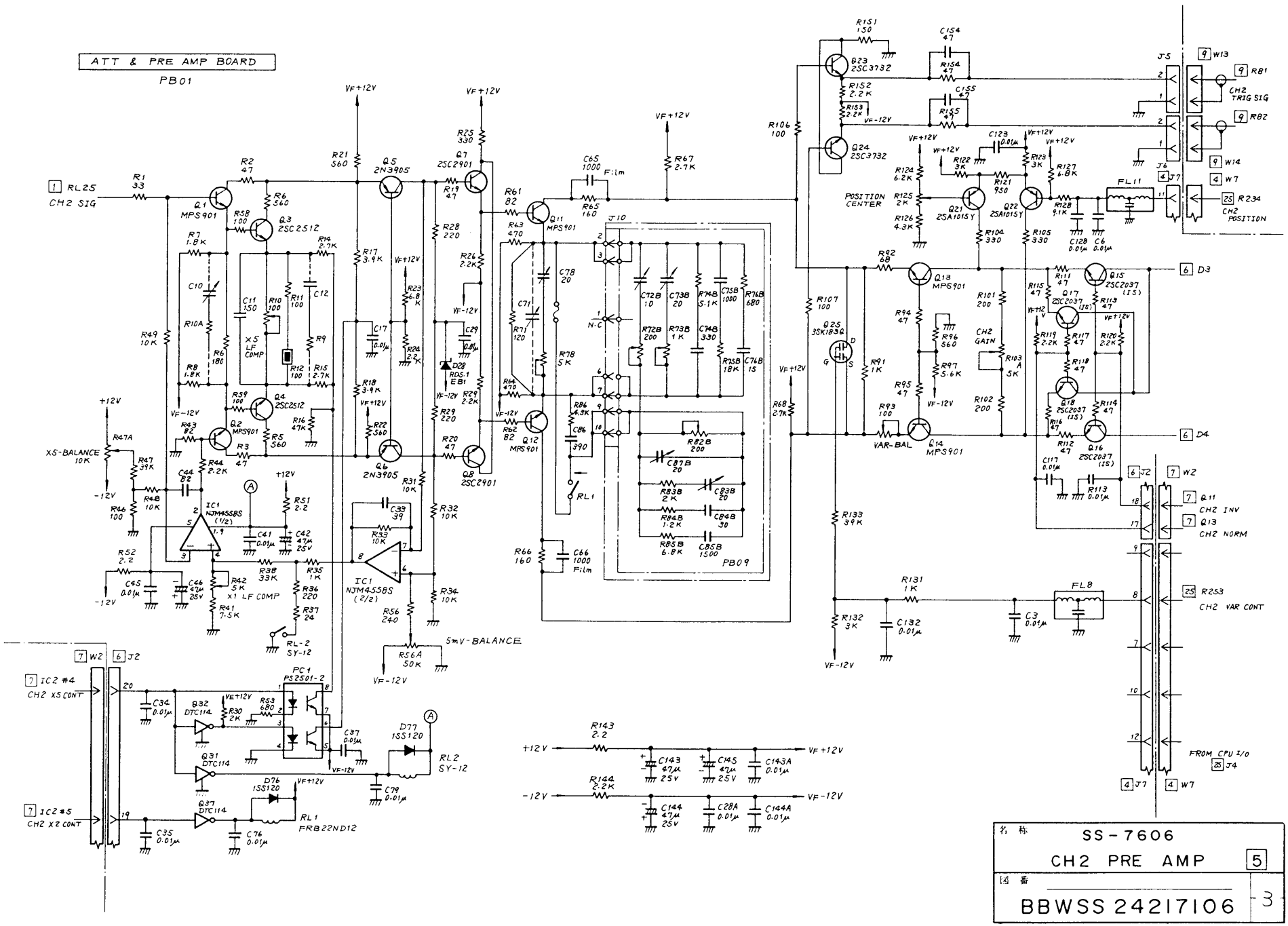
ATT & PRE AMP BOARD
PB01

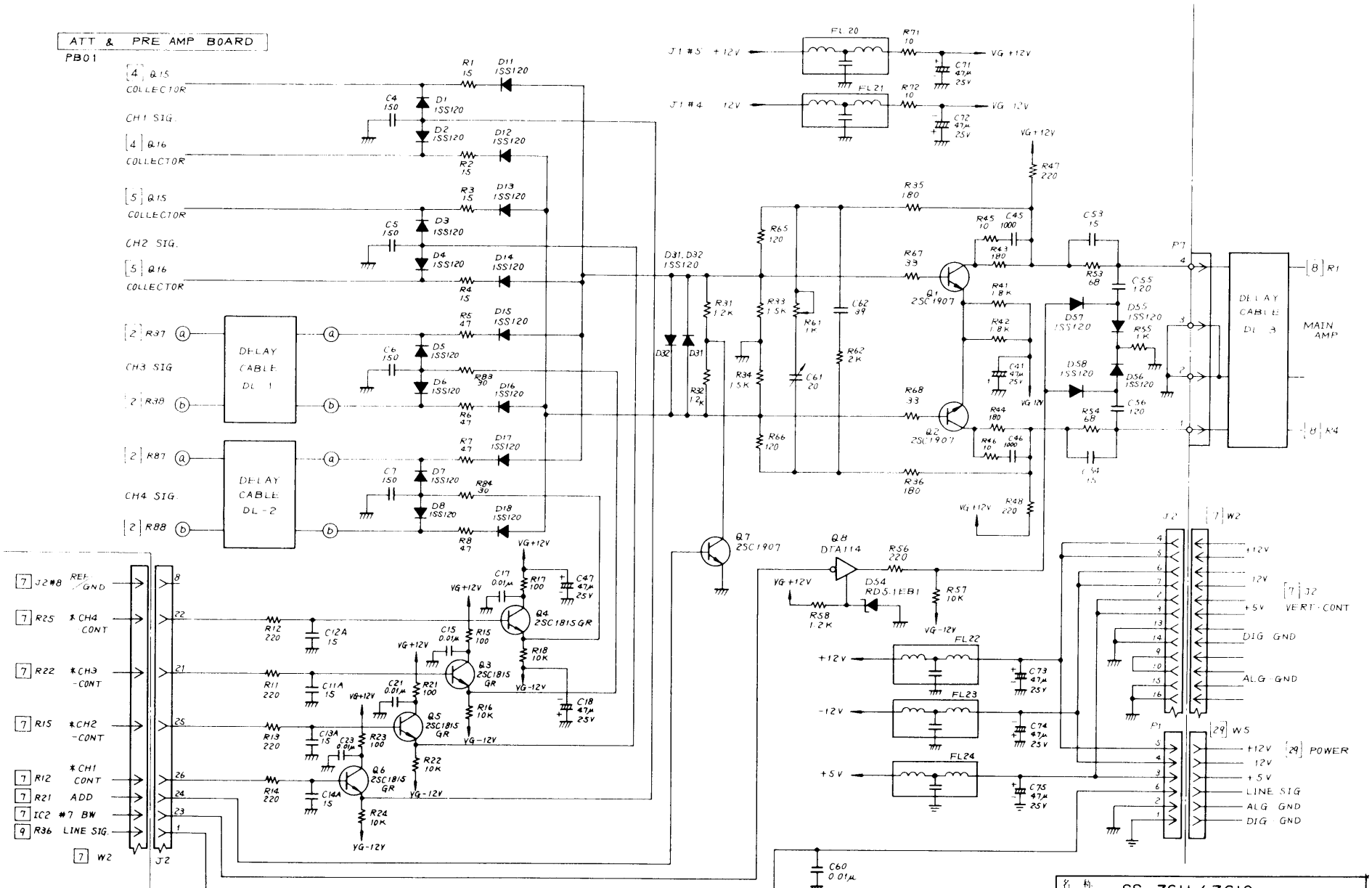
名称	SS-7611/7610/7607/7606
	ATT CONTROL 3
図番	BBWSS10082106 2


ATT & PRE AMP BOARD
PB01
CH1 SIG
CH1 x5 CONT
CH1 x2 CONT
CR BOARD
PB09
POSITION CENTER
CH1 TRIG SIG
CH1 TRIG SIG
CH1 POSITION
CH1 VAR CONT
CH1 x2 BAL
CH1 ATT BAL
CH1 x5 BAL
CH3 POSITION
CH4 POSITION
VAR BAL
SS-7611
CH1 PRE AMP
4
BBWSS 24249106


ATT & PRE AMP BOARD
PB01
CH1 SIG.
CH1 X5 CONT
CH1 X2 CONT
X5-BALANCE
X1 LF COMP
5mV-BALANCE
POSITION CENTER
CH1 GAIN
VAR-BAL
CR BOARD PB09
CH1 TRIG SIG
CH1 POSITION
CH1 VAR CONT
CH3 POSITION
CH4 POSITION
SS-7606
CH1 PRE AMP
BBWSS 24216106
3


ATT & PRE AMP BOARD
PB01
CH2 SIG
CH2 TRIG SIG
CH2 POSITION
POSITION CENTER
CH2 X.5 CONT
CH2 X2 CONT
CH2 VAR CONT
CH2 X2 BAL
CH2 ATT BAL
CH2 X5 BAL
FROM CPU I/O
CH2 INV
CH2 NORM
VAR BAL
CR BOARD PB09
SS-7611
CH2 PRE AMP
BBWSS24250106

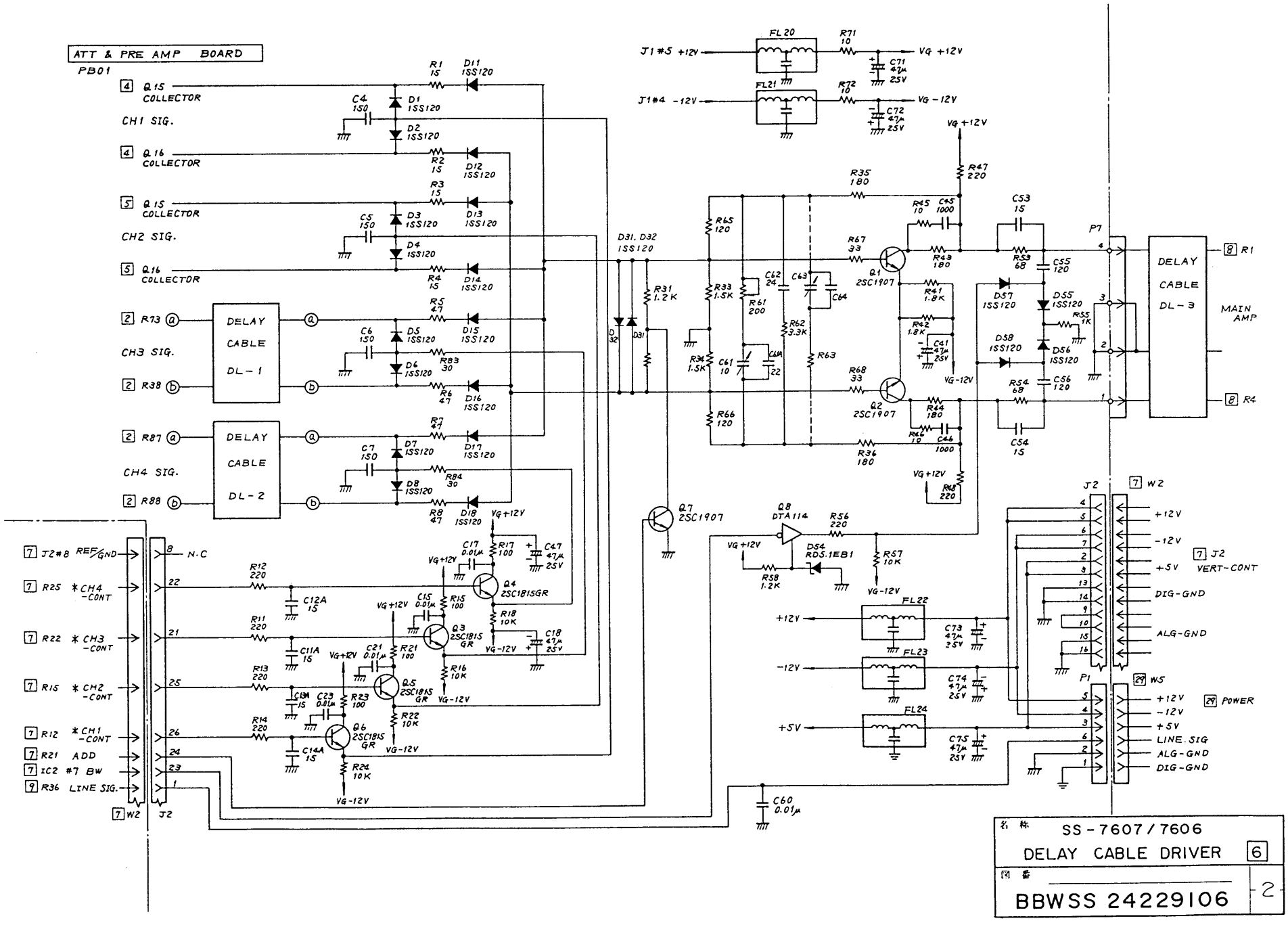

ATT & PRE AMP BOARD
PB01
CH2 SIG
CH2 TRIG SIG
CH2 POSITION
POSITION CENTER
CH2 GAIN
VAR-BAL
CH2 INV
CH2 NORM
CH2 VAR CONT
FROM CPU I/O
X5-BALANCE
5mV-BALANCE
X5 LF COMP
X1 LF COMP
CH2 X5 CONT
CH2 X2 CONT
PB09
SS-7606
CH2 PRE AMP
BBWSS 24217106



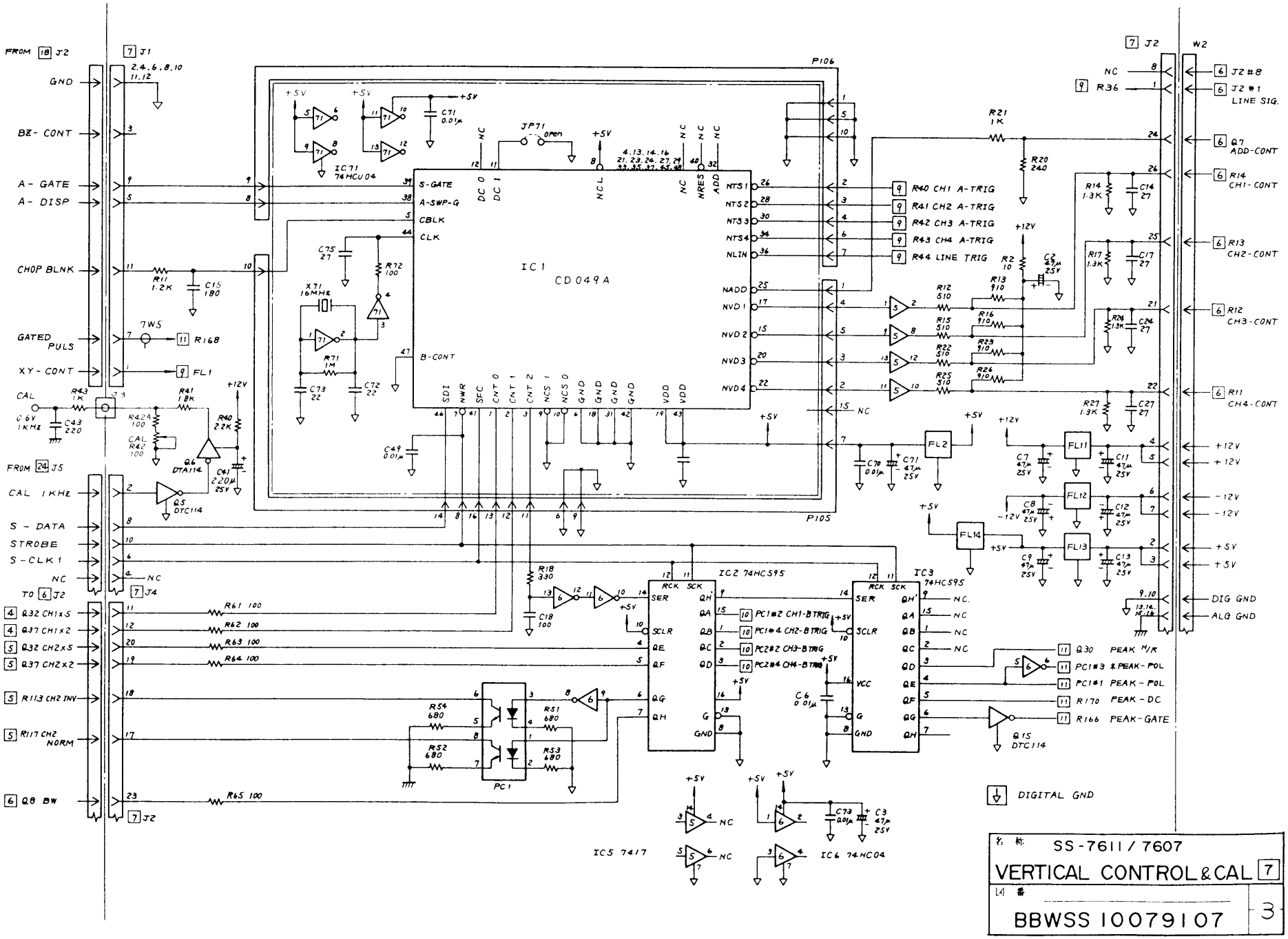
SS-7611/7610

DELAY CABLE DRIVER 6

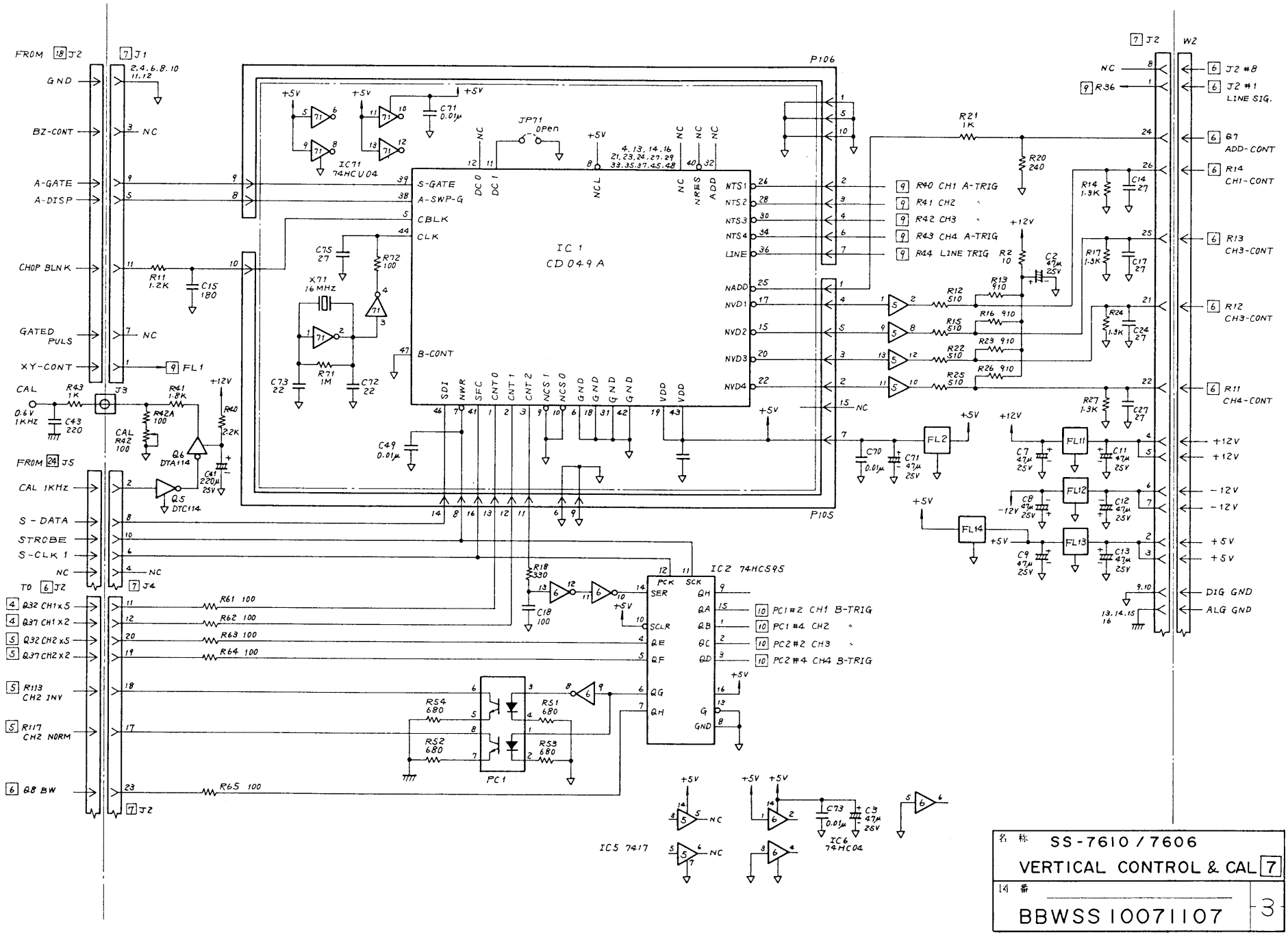
BBWSS 24251106 2



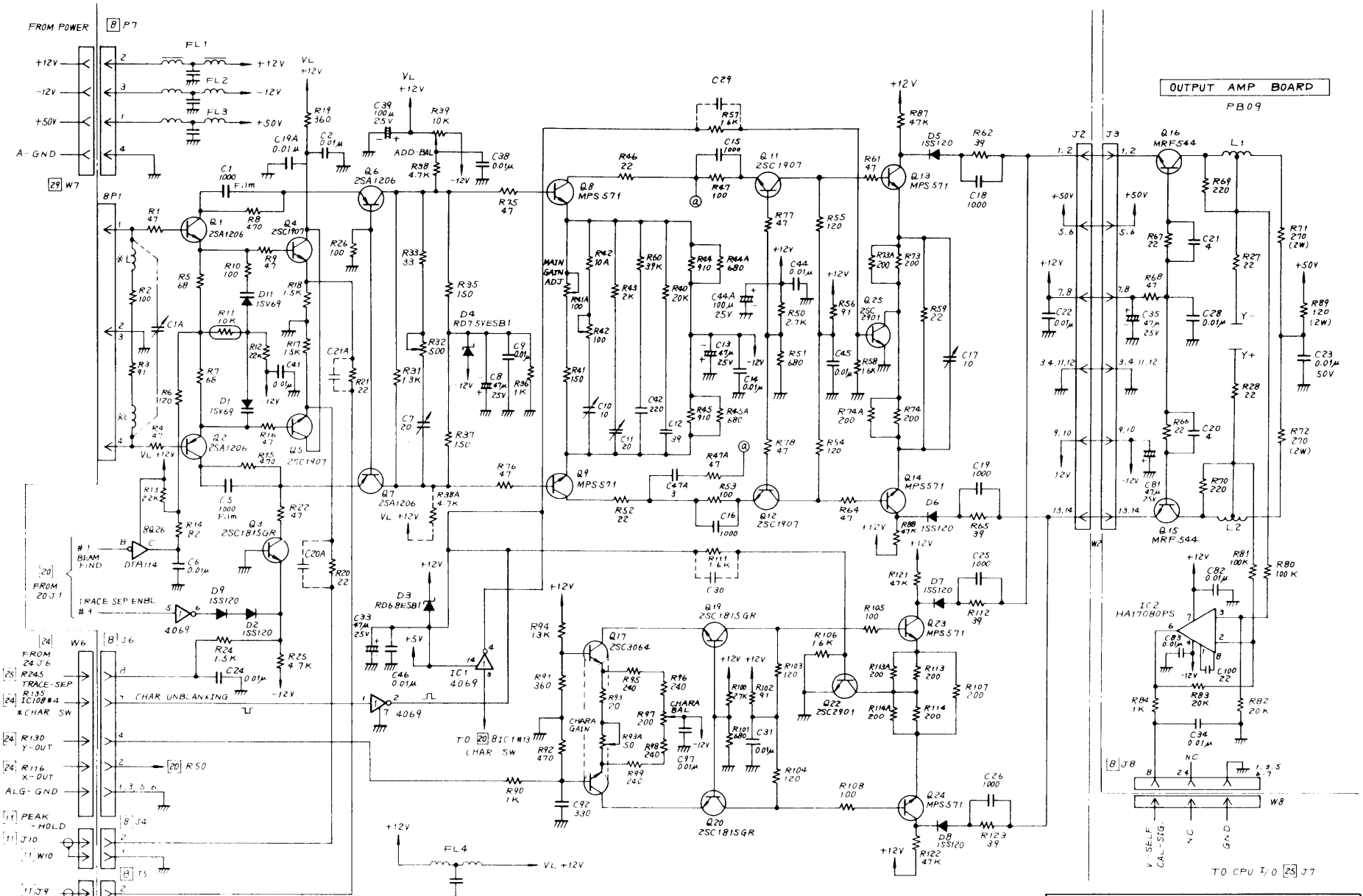
名称	SS-7607/7606
	DELAY CABLE DRIVER 6
図番	BBWSS 24229106
	2

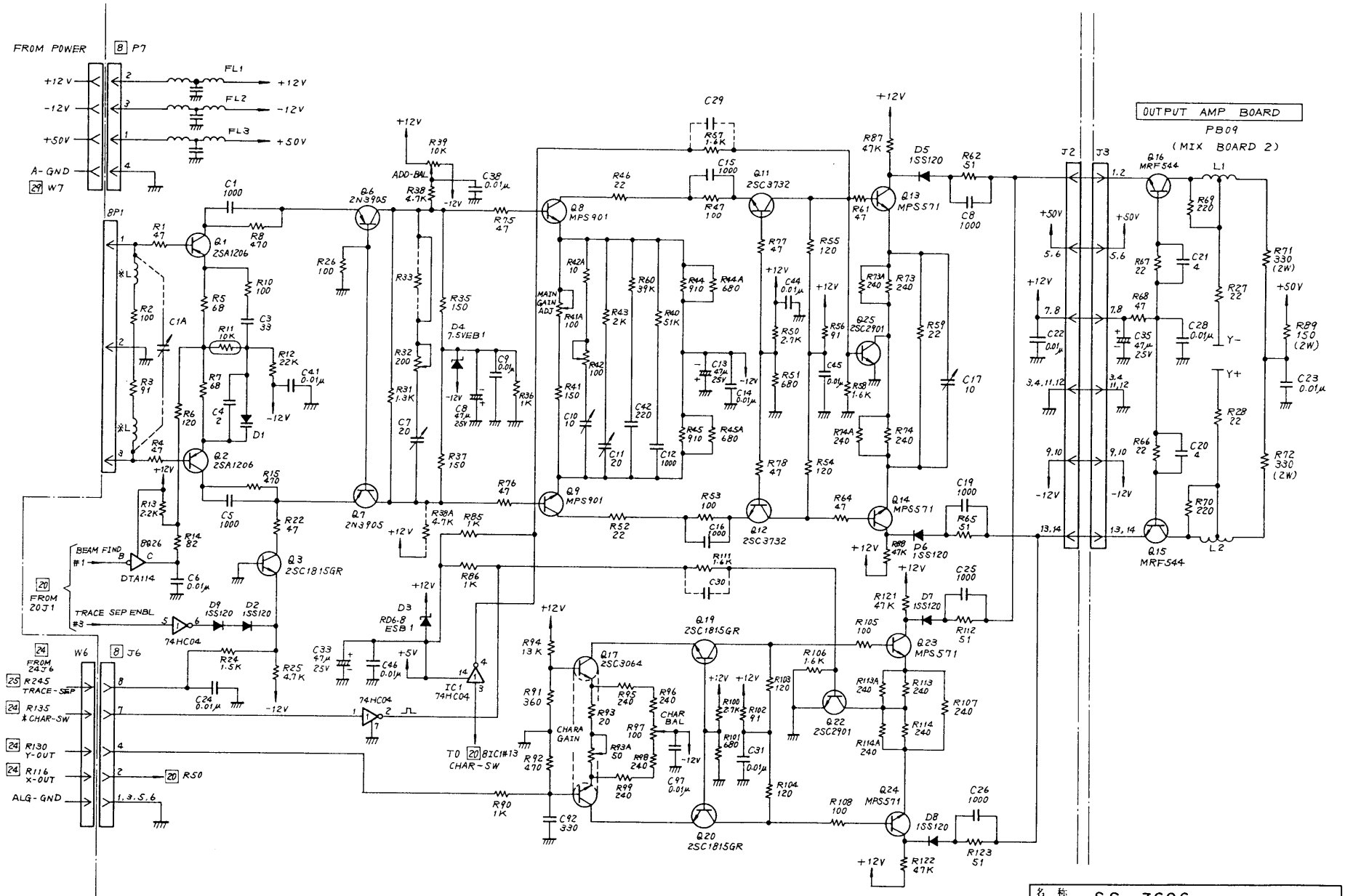


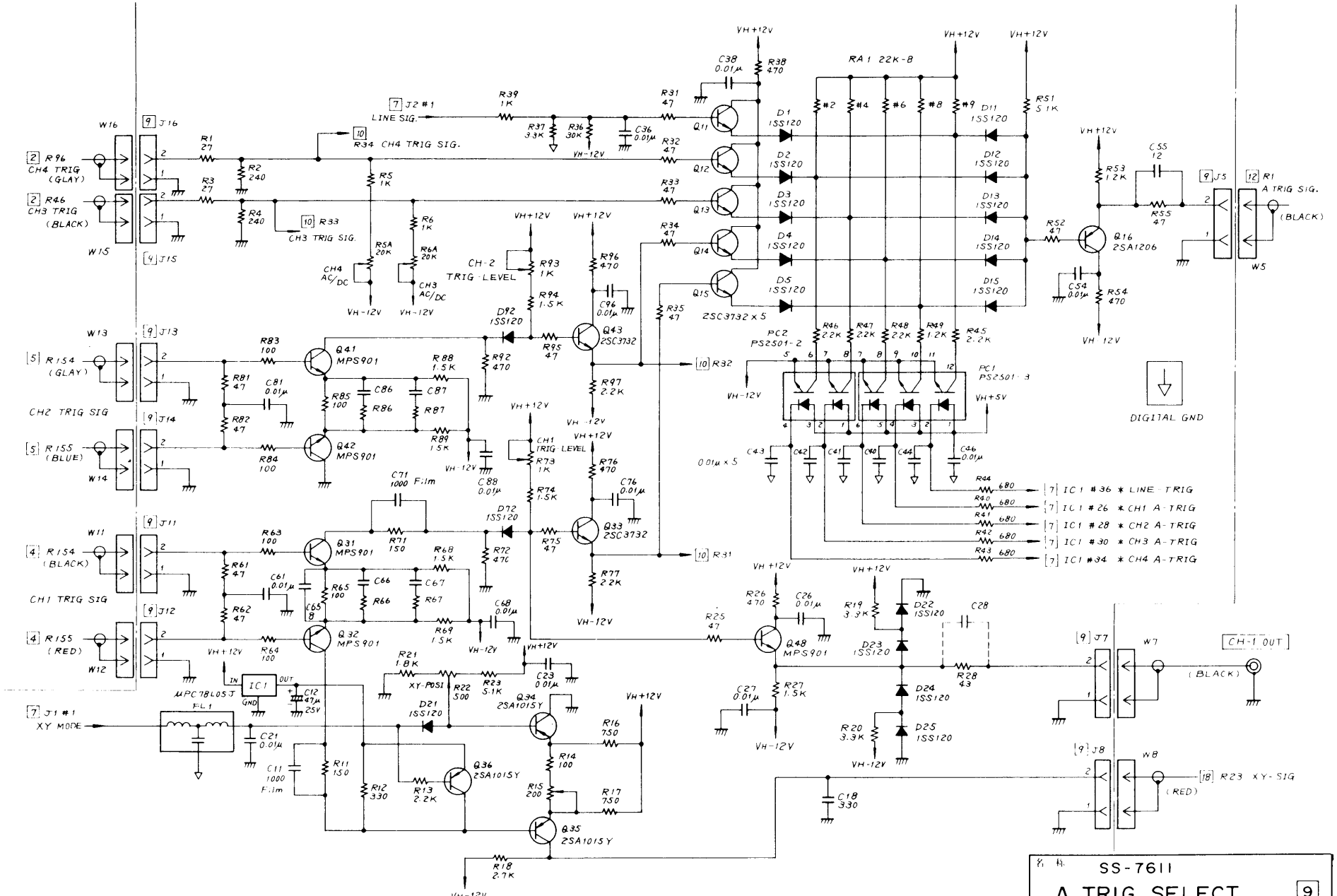
名称	SS-7611 / 7607
	VERTICAL CONTROL & CAL 7
图号	BBWSS 10079107 3

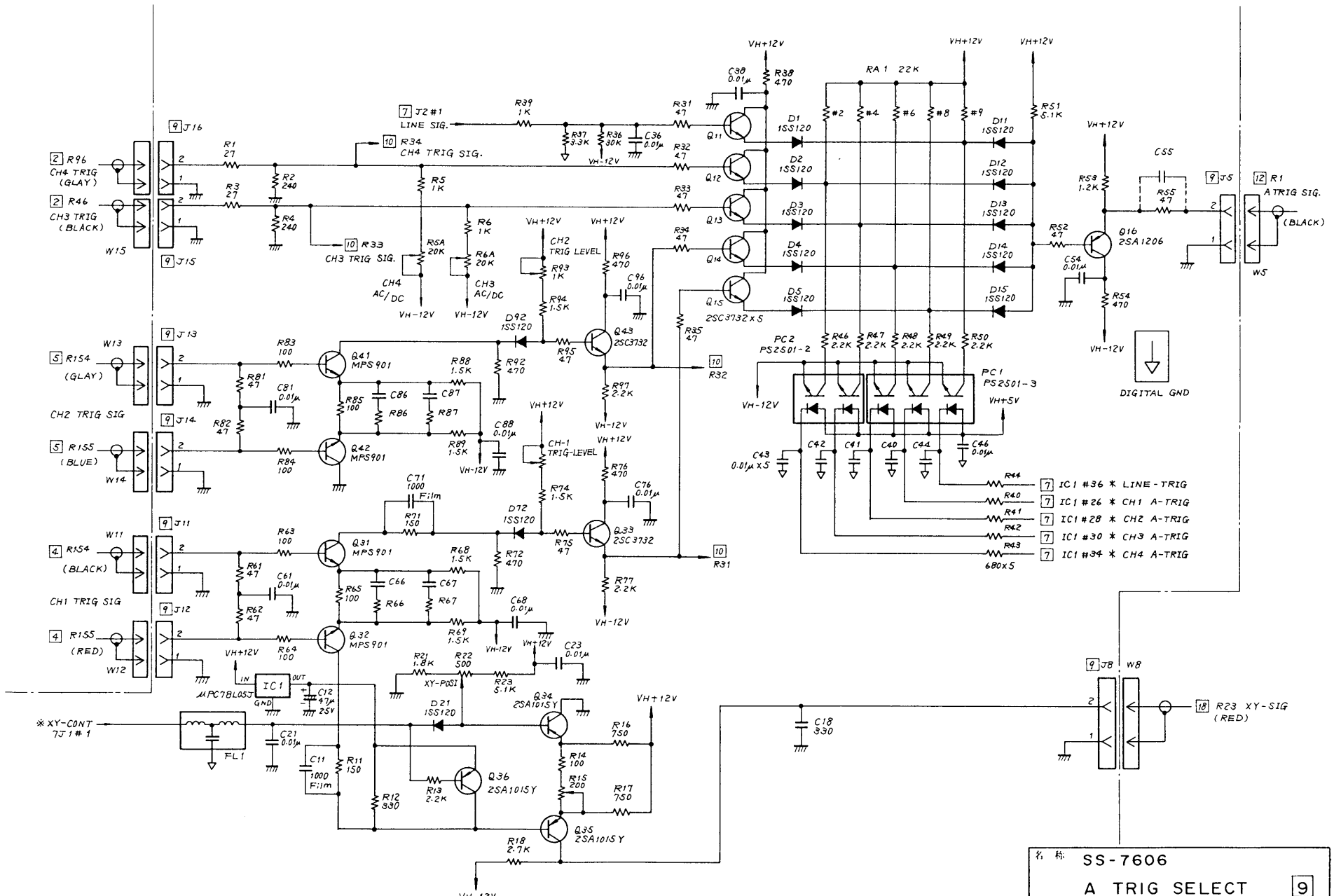


名称	SS-7610 / 7606
	VERTICAL CONTROL & CAL 7
图号	BBWSS10071107 3

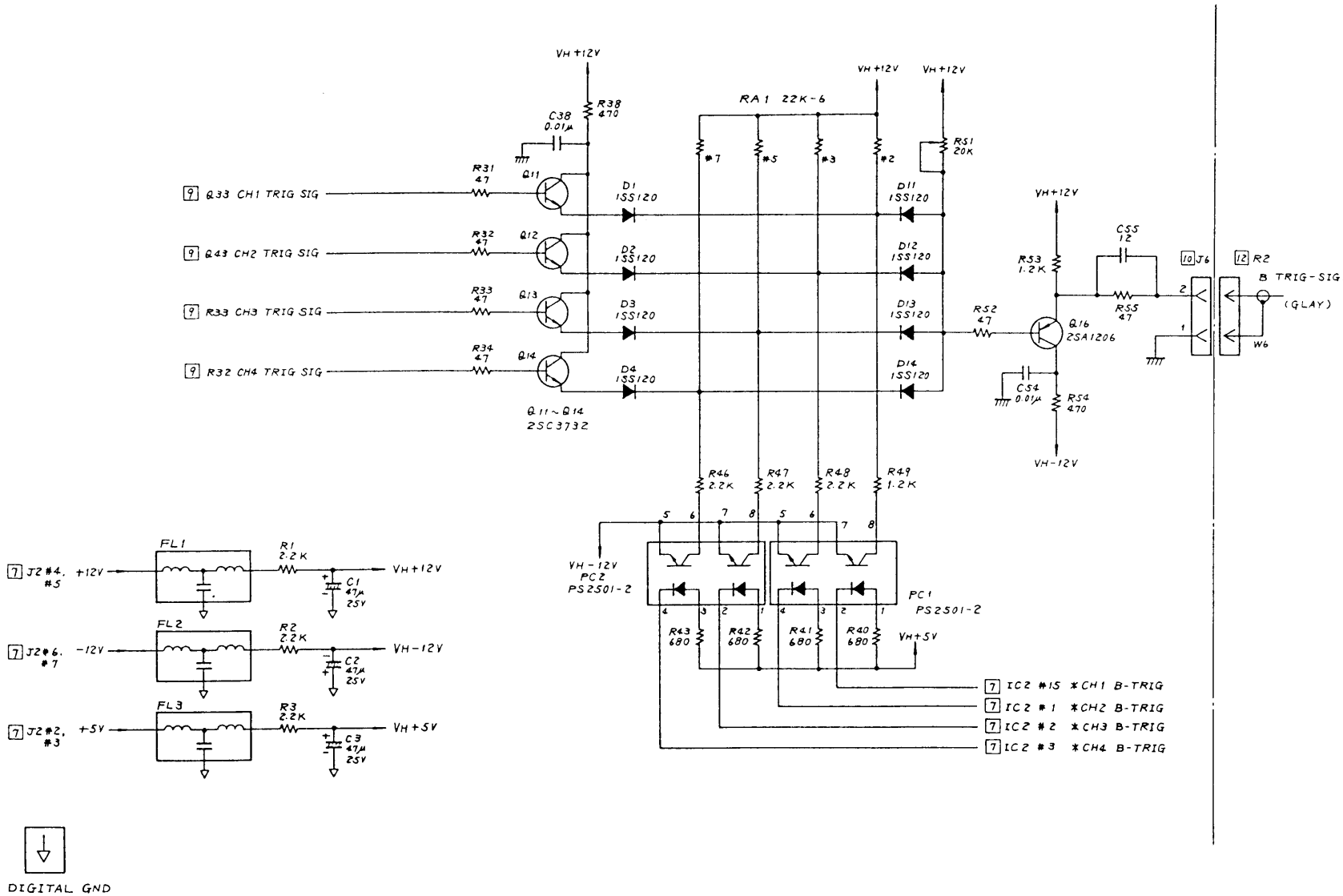

FROM POWER
8 P7
+12V
-12V
+50V
A-GND
29 W7
FL1
FL2
FL3
VL +12V
BP1
Q1 2SA1206
Q2 2SA1206
Q3 2SC1815GR
Q4 2SC1907
Q5 2SC1907
Q6 2SA1206
Q7 2SA1206
Q8 MPS571
Q9 MPS571
Q11 2SC1907
Q12 2SC1907
Q13 MPS571
Q14 MPS571
Q15 MRF544
Q16 MRF544
Q17 2SC3064
Q19 2SC1815GR
Q20 2SC1815GR
Q22 2SC2901
Q23 MPS571
Q24 MPS571
Q25 2SC2901
D1 1SV69
D2 1SS120
D3 RD6.8ESB1
D4 RD7.5VESB1
D5 1SS120
D6 1SS120
D7 1SS120
D8 1SS120
D9 1SS120
D11 1SV69
IC1 4069
IC2 HA1770BOPS
FL4
MAIN GAIN ADJ
ADD-BAL
CHARA GAIN
CHARA BAL
#1 BEAM FIND
#2 TRACE SEP ENBL
CHAR UNBLANKING
CHAR SW
TRACE-SEP
Y-OUT
X-OUT
ALG-GND
PEAK-HOLD
TO 20 R50
TO 20 BIC1#13
FROM 20 J1
FROM 24 J6
TO 11 J10
TO 11 W10
TO 11 J9
TO 11 W9
8 J6
8 J4
8 J5
8 J8
W6
W8
J2
J3
OUTPUT AMP BOARD
PB09
MAIN AMP BOARD
PB05
V-SELF CAL-SIG
N.C
GND
TO CPU I/O 25 J7
SS-7611
VERT OUTPUT AMP
8
BBWSS24252106


FROM POWER
8 P7
+12V
-12V
+50V
A-GND
29 W7
FL1
FL2
FL3
OUTPUT AMP BOARD
PB09
(MIX BOARD 2)
MAIN AMP BOARD
PB05
(MIX BOARD 1)
名称 SS-7606
VERT-OUTPUT AMP 8
図番 BBWSS 24219106 3

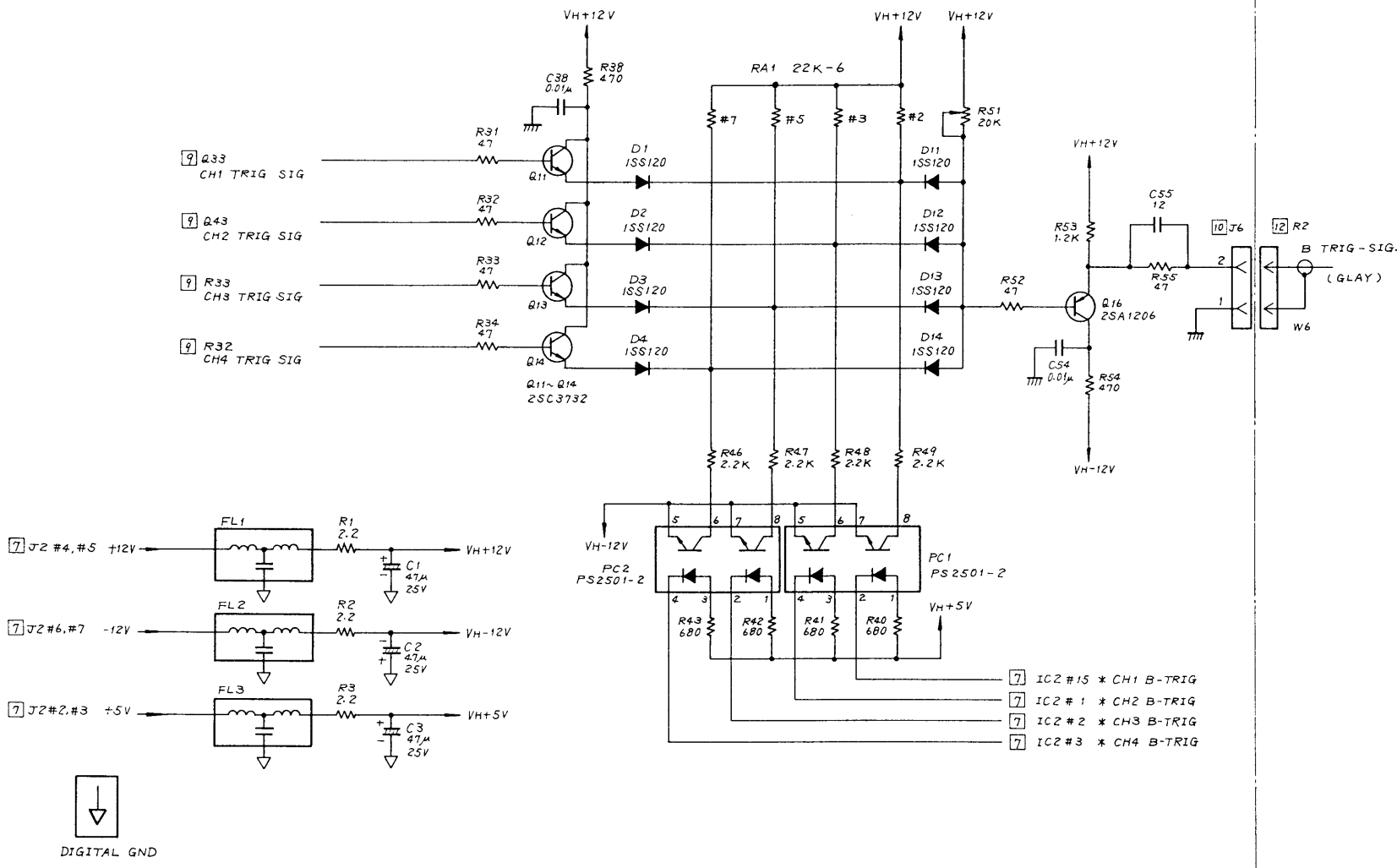

SS-7611
A TRIG SELECT
9
BBWSS10080106
2



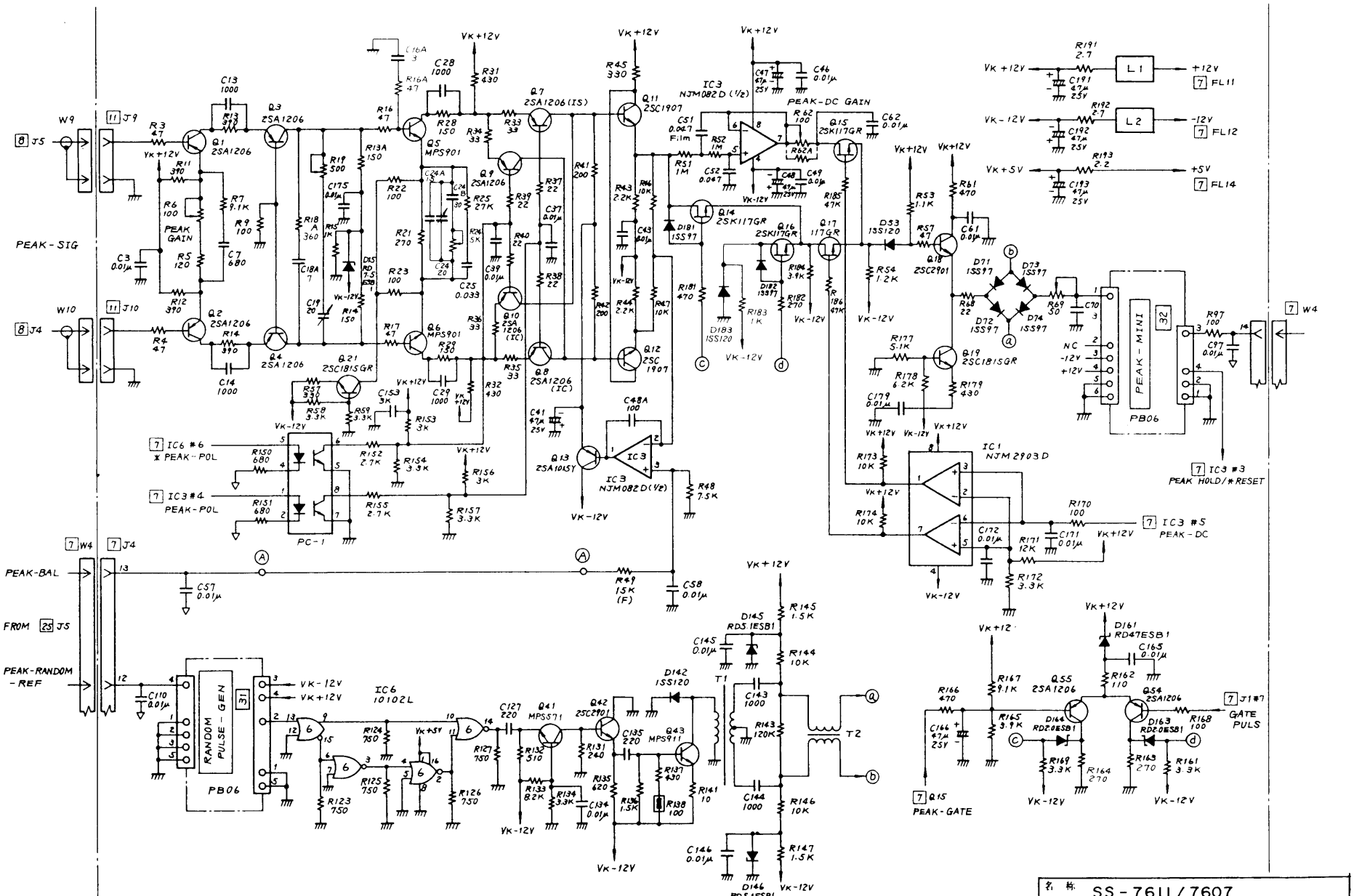
名称	SS-7606
	A TRIG SELECT 9
図番	BBWSS10056106 2



名称	SS-7611 / 7607
	B TRIG SELECT 10
図番	BBWSS10081106 1



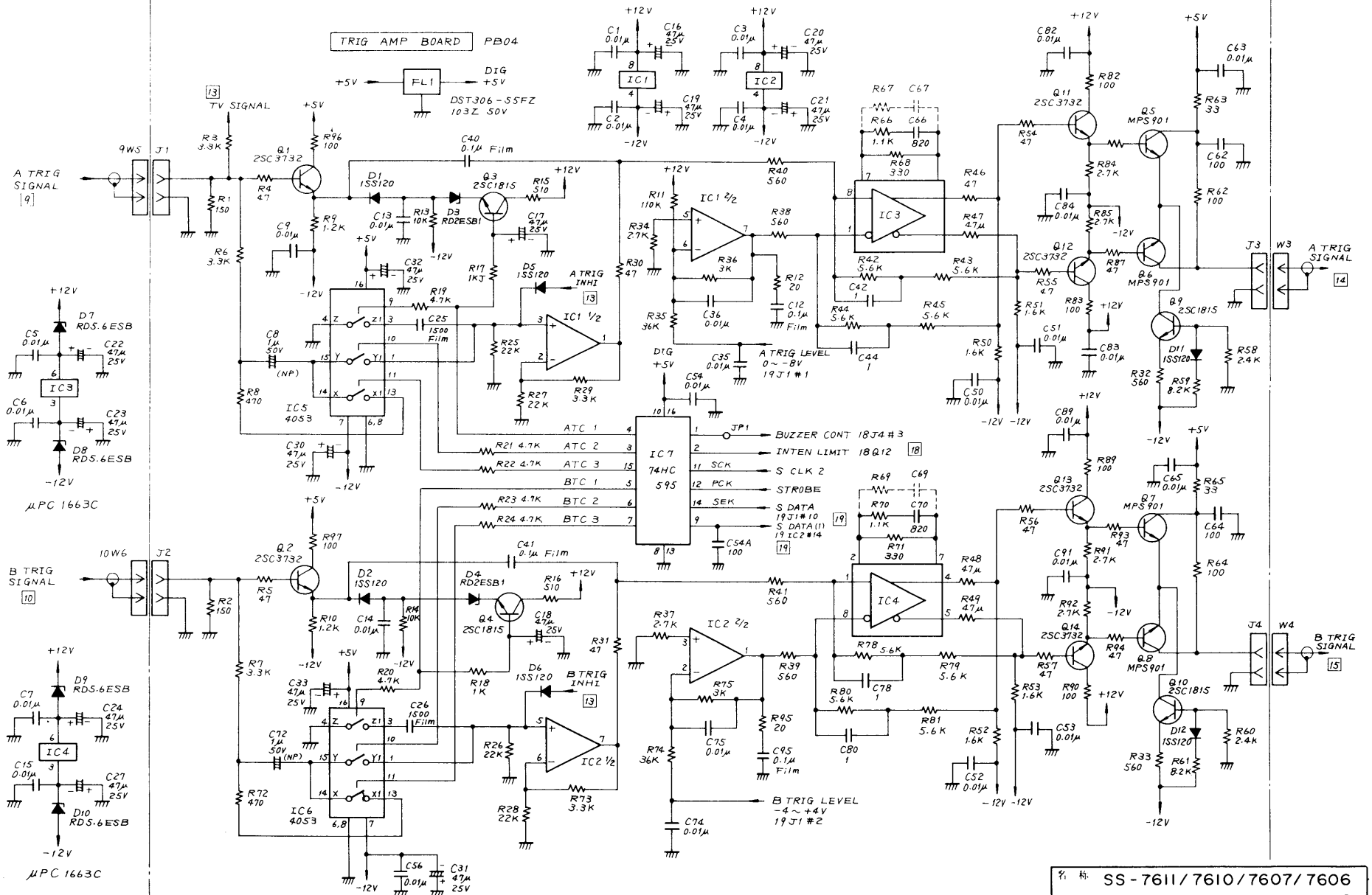
名称	SS-7610/7606
	B TRIG SELECT 10
図番	BBWSS10073106 1



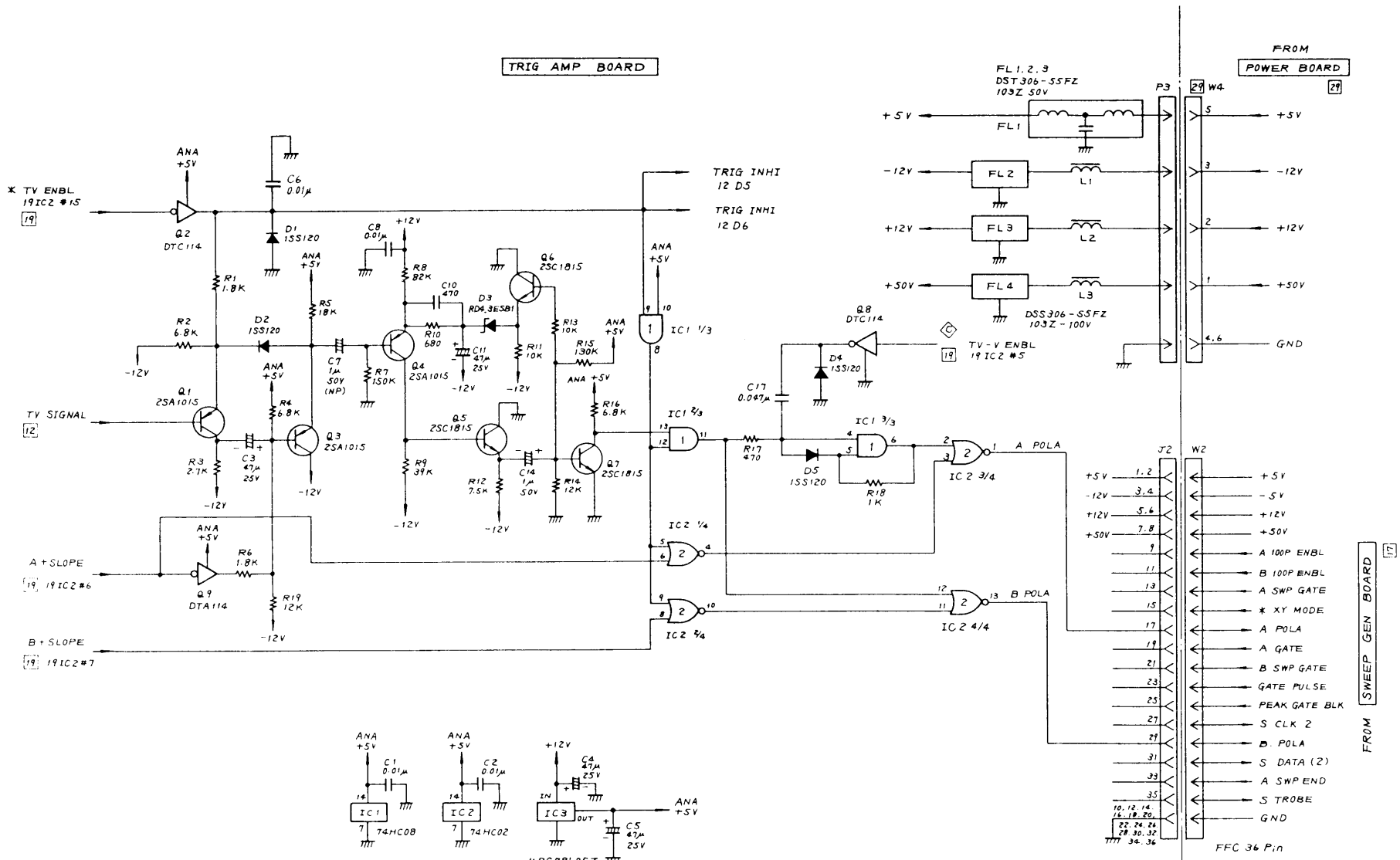
名称	SS-7611/7607
	PEAK HOLD
図番	BBWSS 33006106

11

2



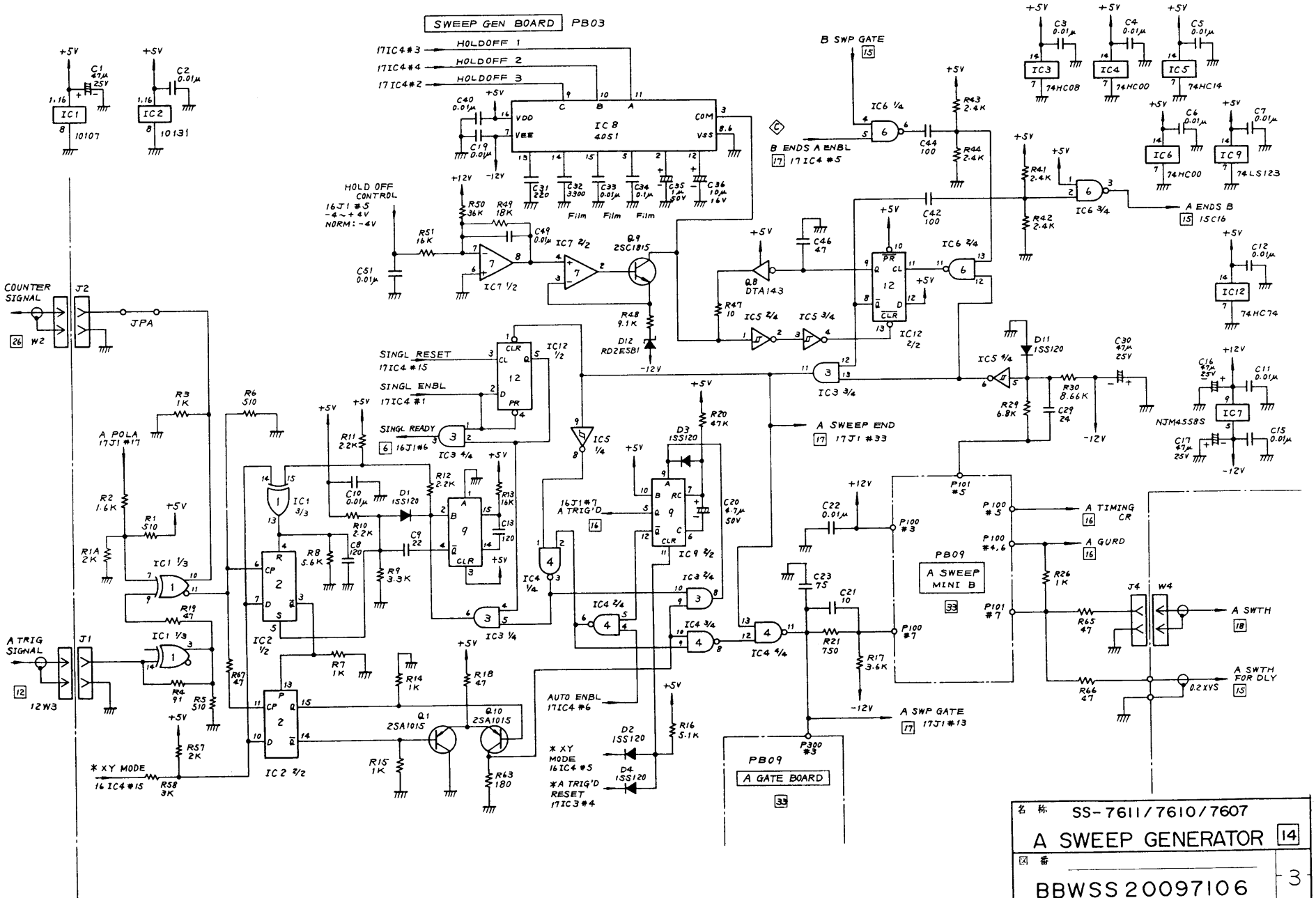
名称	SS-7611/7610/7607/7606
	A/B TRIG AMP 12
図番	BBWSS34038106 3

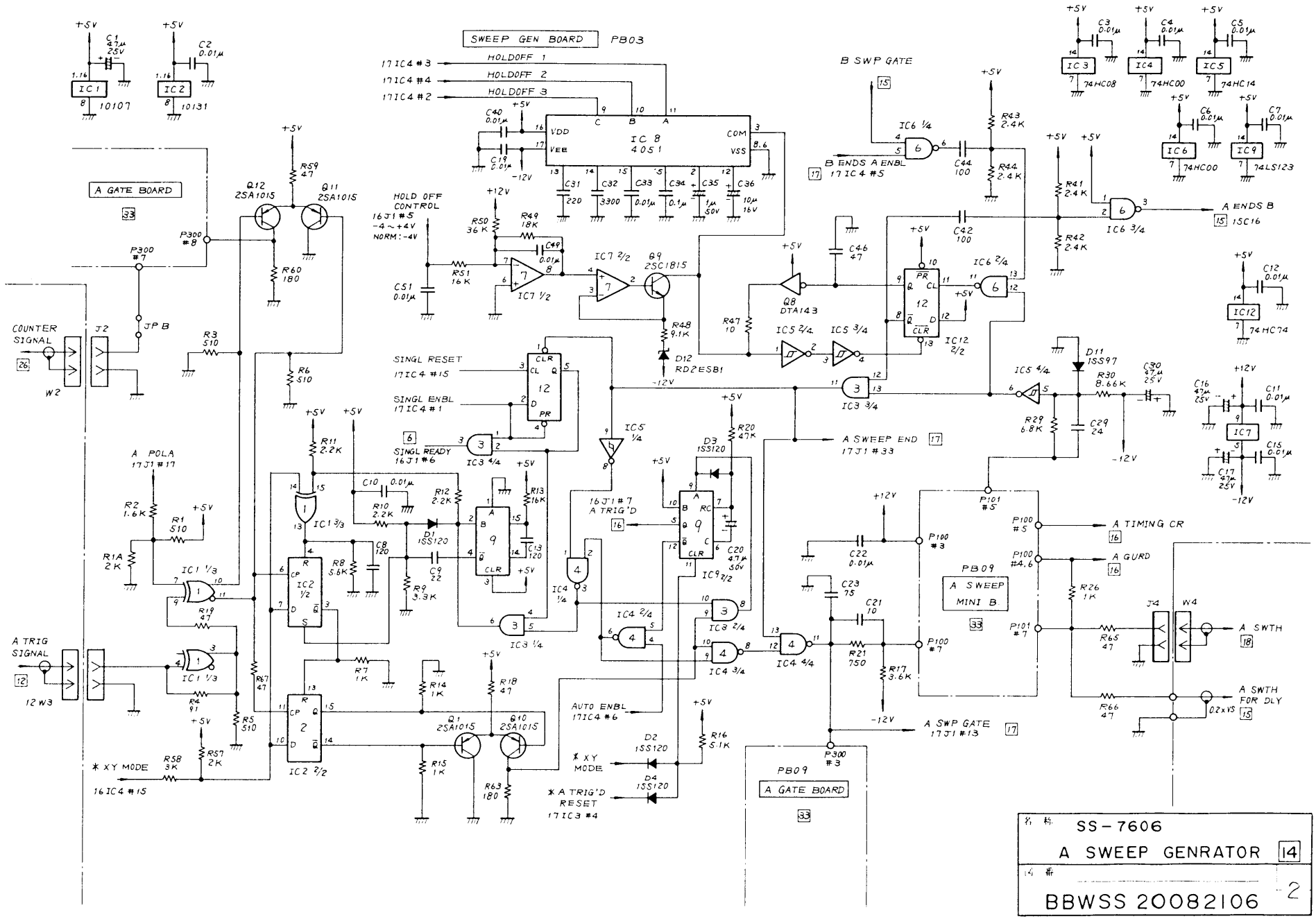


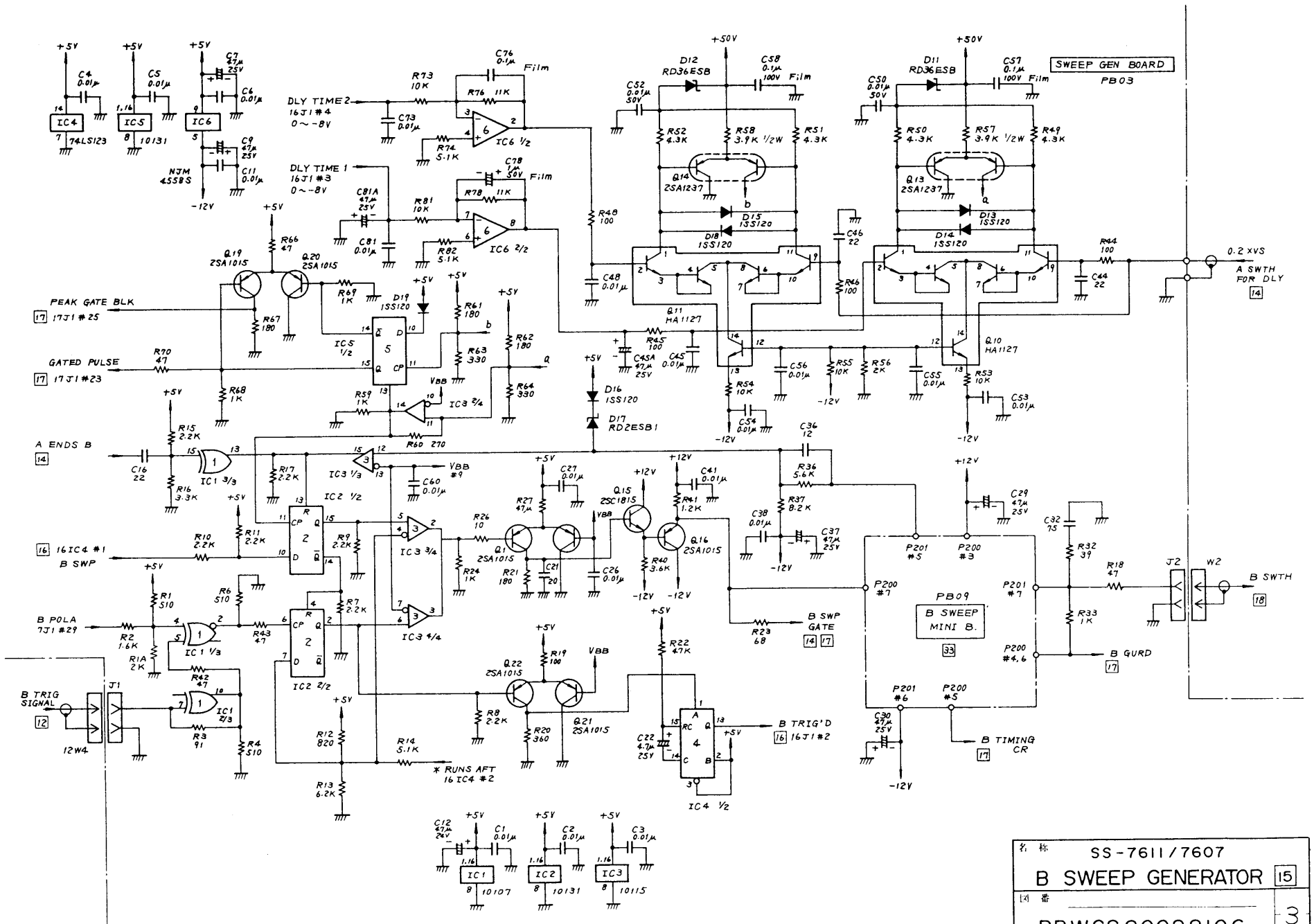
SS-7611/7610/7607/7606

TV SYNC SEP 13

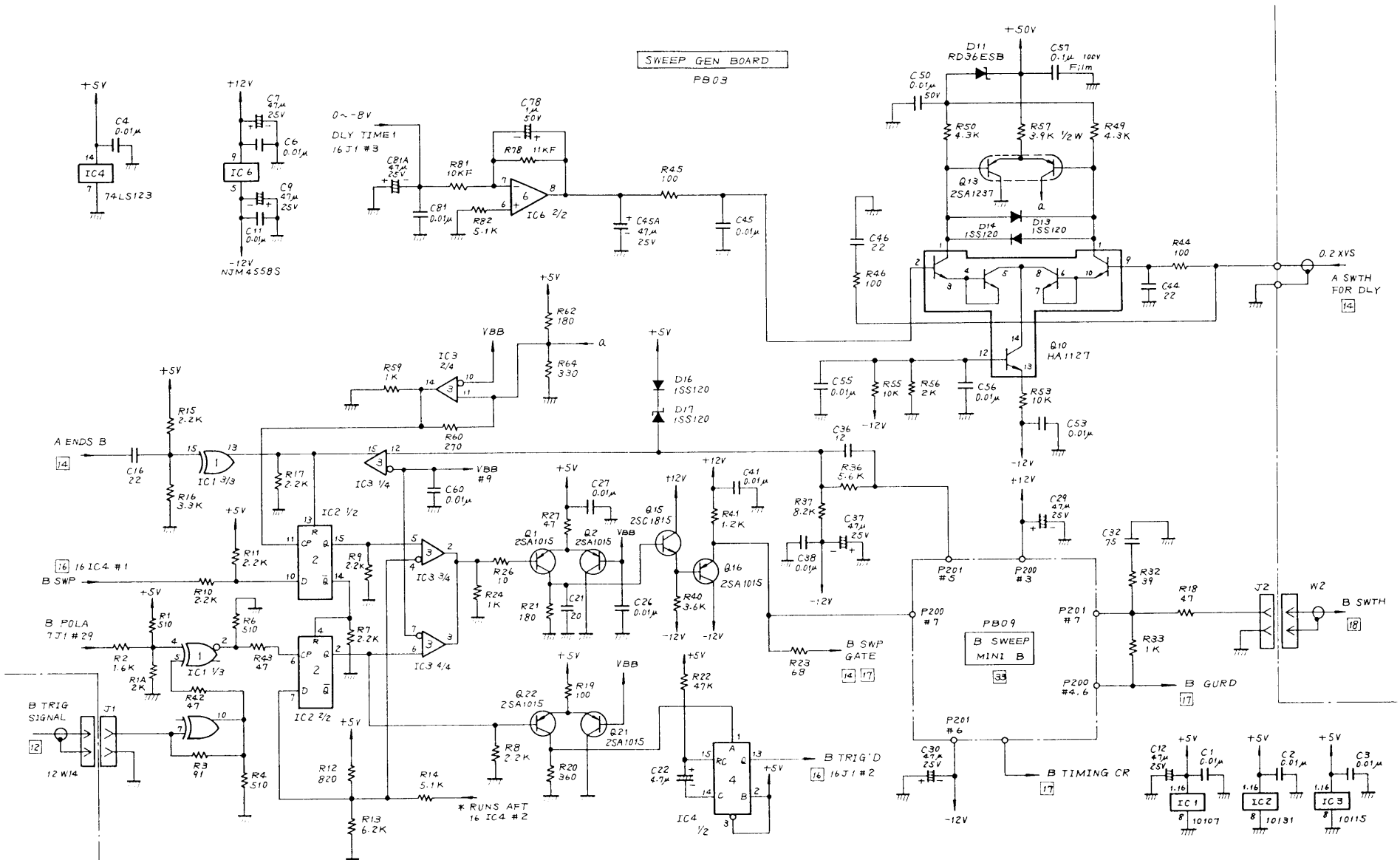
BBWSS 34039106 2


SWEEP GEN BOARD PB03
HOLDOFF 1
HOLDOFF 2
HOLDOFF 3
IC8 4051
HOLD OFF CONTROL
B SWP GATE
B ENDS A ENBL
A ENDS B
COUNTER SIGNAL
A TRIG SIGNAL
A POLA
SINGL RESET
SINGL ENBL
SINGL READY
A SWEEP END
A TRIG'D
AUTO ENBL
* XY MODE
*A TRIG'D RESET
A SWP GATE
A TIMING
A GURD
A SWTH
A SWTH FOR DLY
PB09 A SWEEP MINI B
PB09 A GATE BOARD
NJM4558S
74HC08
74HC00
74HC14
74LS123
74HC74
名称 SS-7611/7610/7607
A SWEEP GENERATOR 14
図番 BBWSS20097106
3

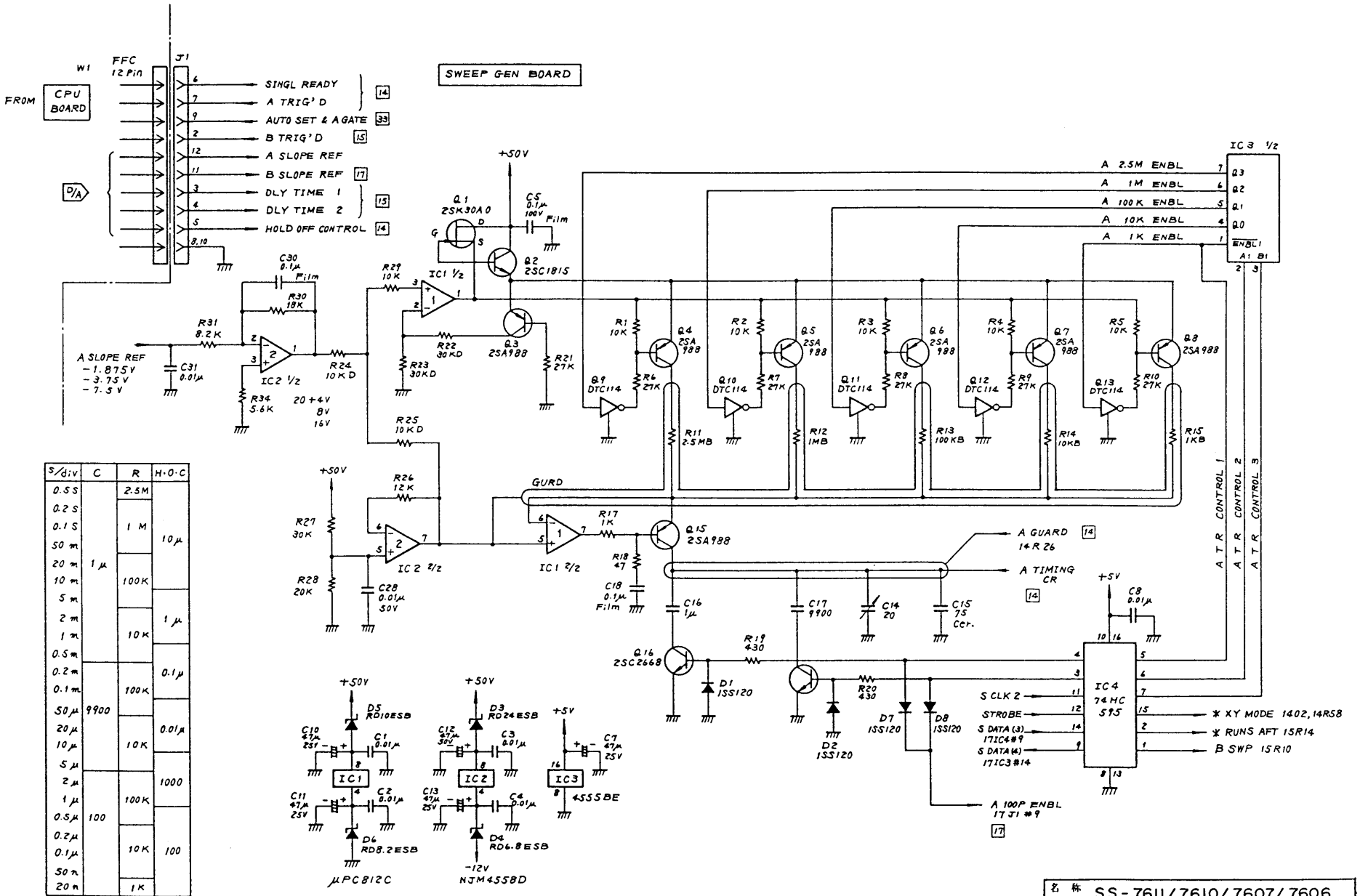

SWEEP GEN BOARD PB03
A GATE BOARD
HOLDOFF 1
HOLDOFF 2
HOLDOFF 3
HOLD OFF CONTROL
B SWP GATE
B ENDS A ENBL
A ENDS B
SINGL RESET
SINGL ENBL
SINGL READY
A SWEEP END
A TIMING CR
A GURD
A SWTH
A SWTH FOR DLY
A SWP GATE
A TRIG SIGNAL
COUNTER SIGNAL
A POLA
AUTO ENBL
XY MODE
A TRIG'D RESET
PB09
A SWEEP MINI B
A GATE BOARD
SS-7606
A SWEEP GENRATOR
BBWSS 20082106



名称	SS-7611/7607
	B SWEEP GENERATOR 15
図番	BBWSS20098106 3

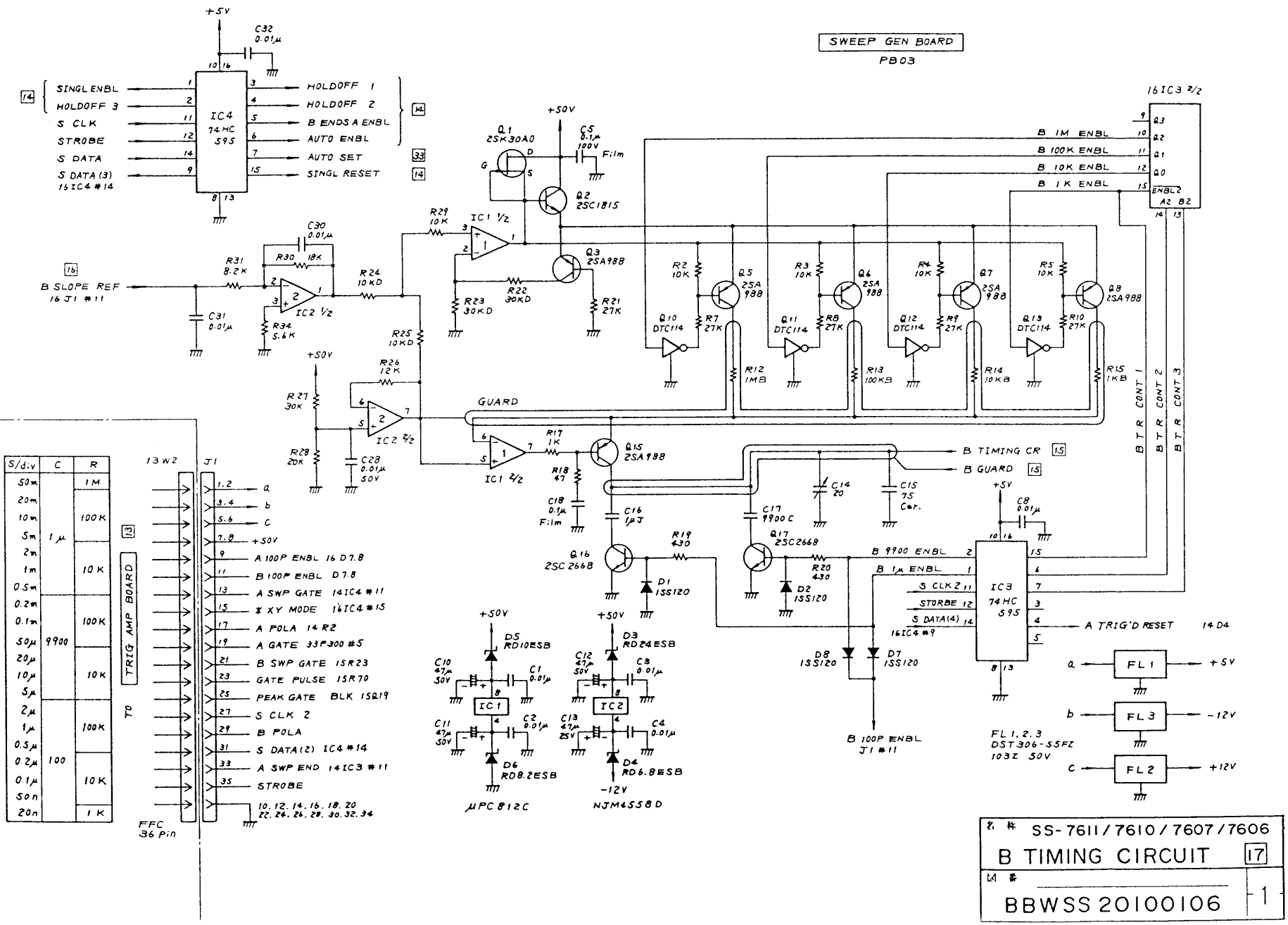


型名	SS-7610 / 7606
	B SWEEP GENERATOR 15
番号	BBWSS 20093106 - 2

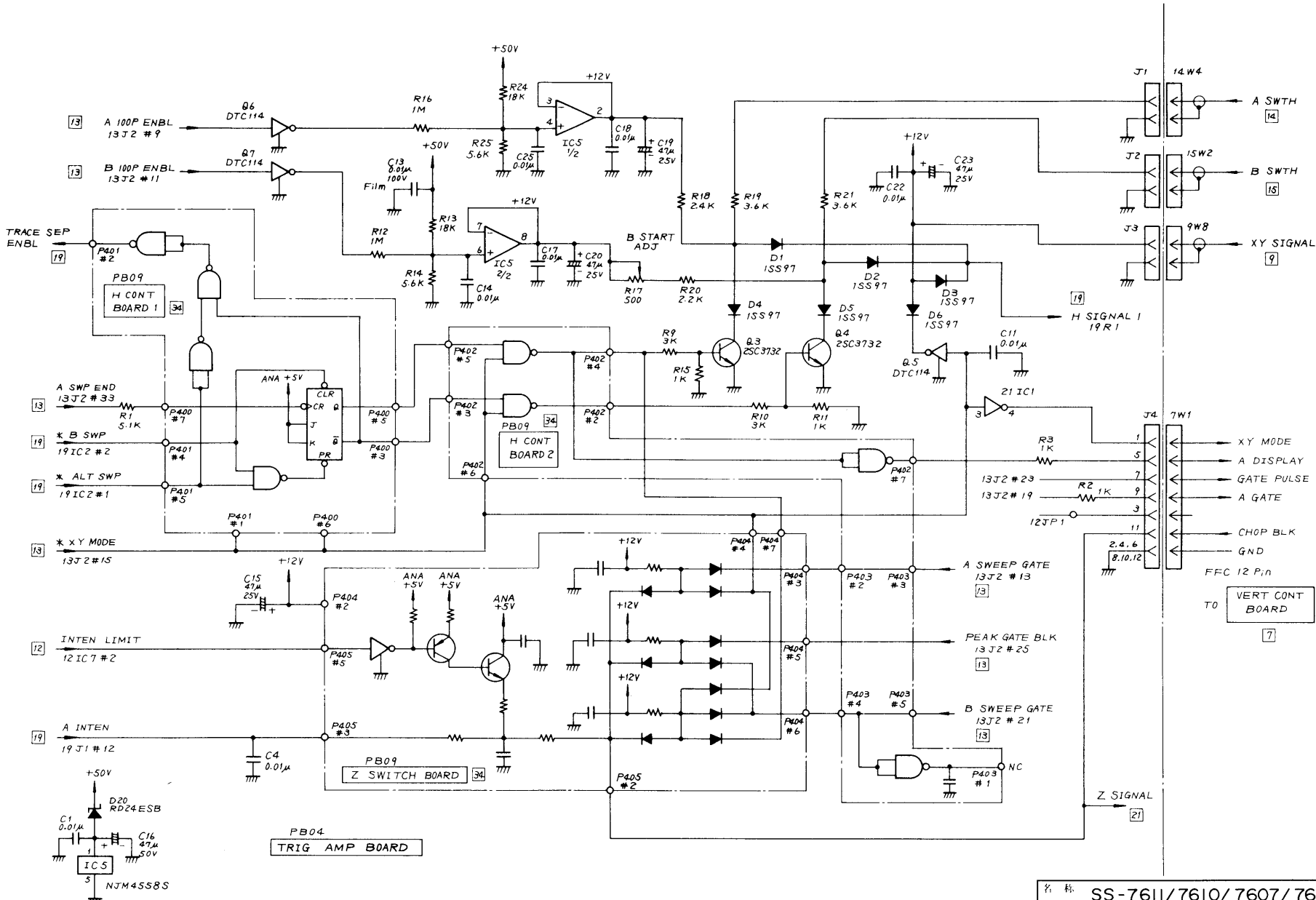


S/div	C	R	H·O·C
0.5 S	1 μ	2.5M	10 μ
0.2 S			
0.1 S		1 M	
50 m			
20 m		100K	
10 m			1 μ
5 m		10K	
2 m			
1 m			0.1 μ
0.5 m			
0.2 m	9900	100K	
0.1 m			
50 μ			0.01 μ
20 μ		10K	
10 μ			
5 μ			1000
2 μ	100	100K	
1 μ			
0.5 μ			100
0.2 μ		10K	
0.1 μ			
50 n			
20 n		1K	

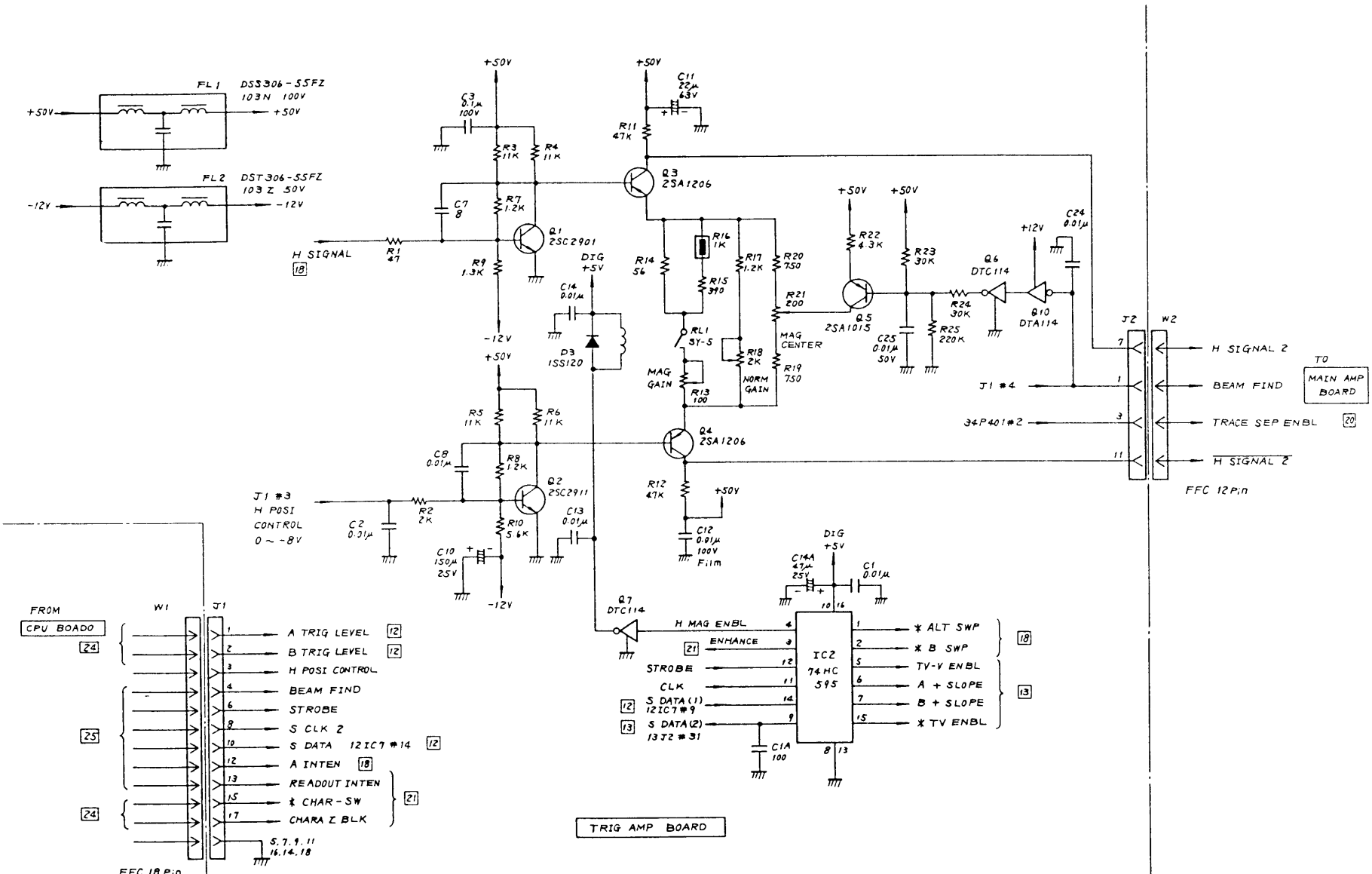
名称	SS-7611/7610/7607/7606
	A TIMING CIRCUIT 16
図番	BBWSS 20099106 1



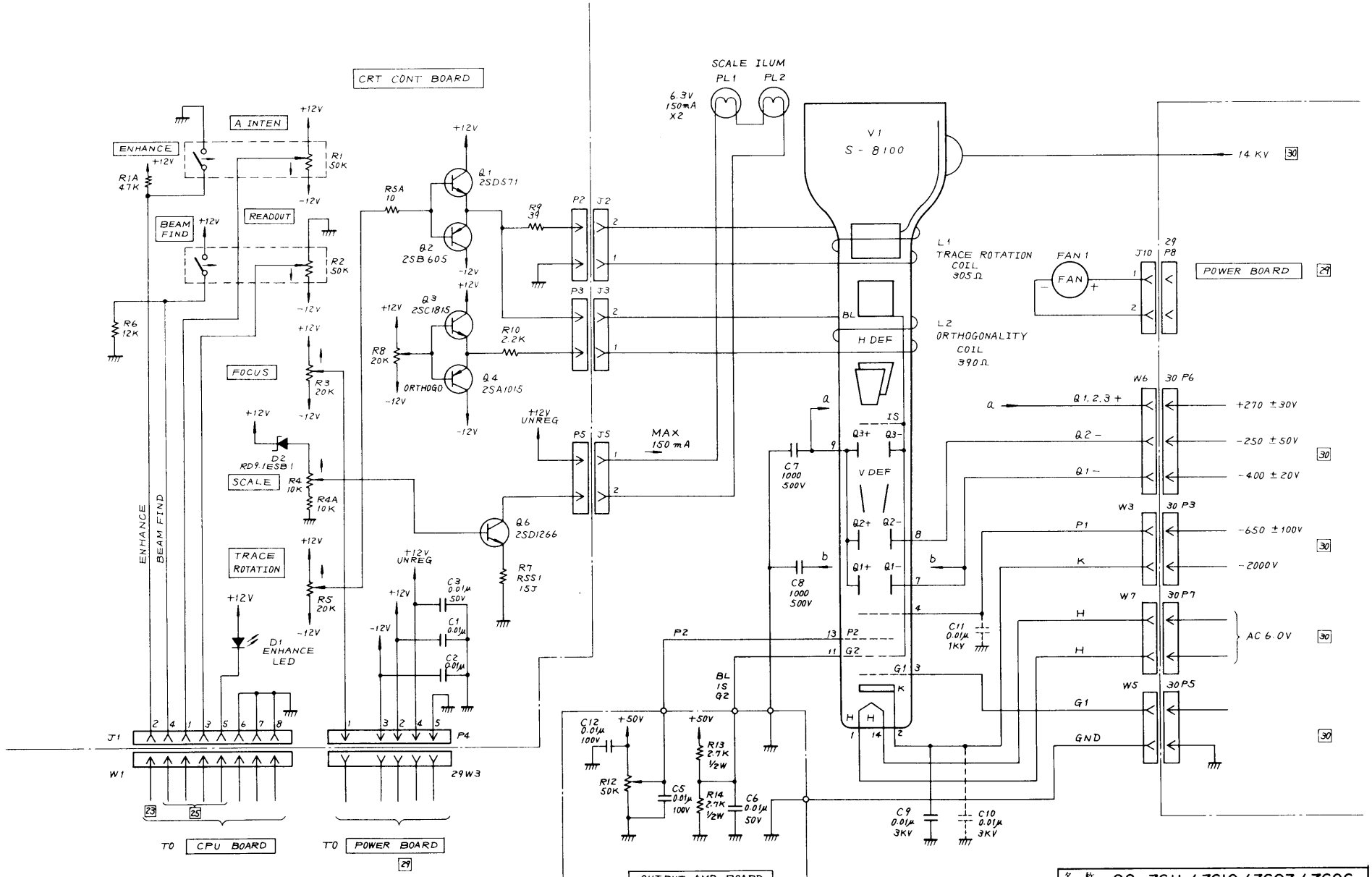
名 称	SS-7611/7610/7607/7606
	B TIMING CIRCUIT 17
図 番	BBWSS 20100106 1



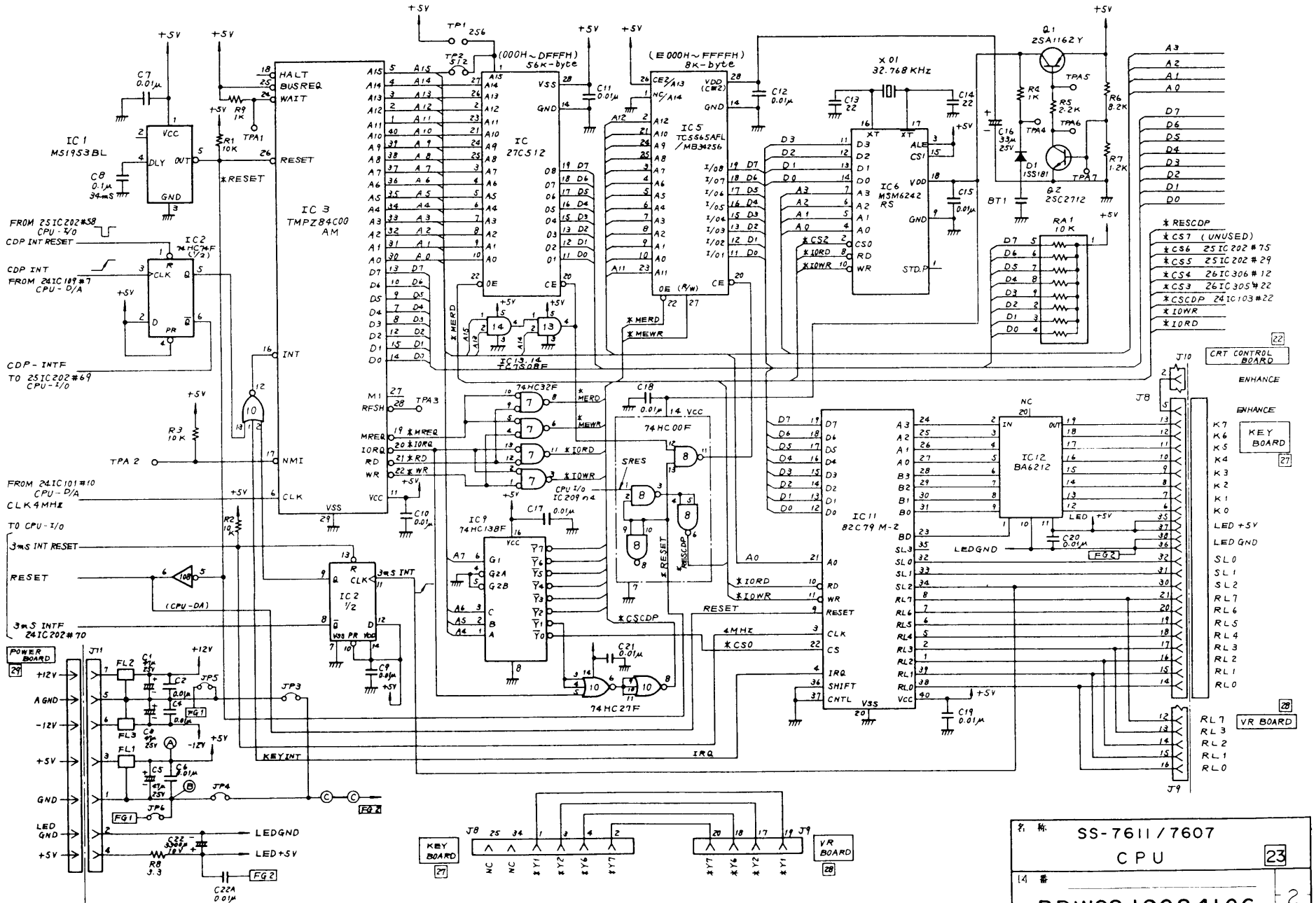
名称	SS-7611/7610/7607/7606 HORIZ CONTROL 18
図番	BBWSS10086106 3

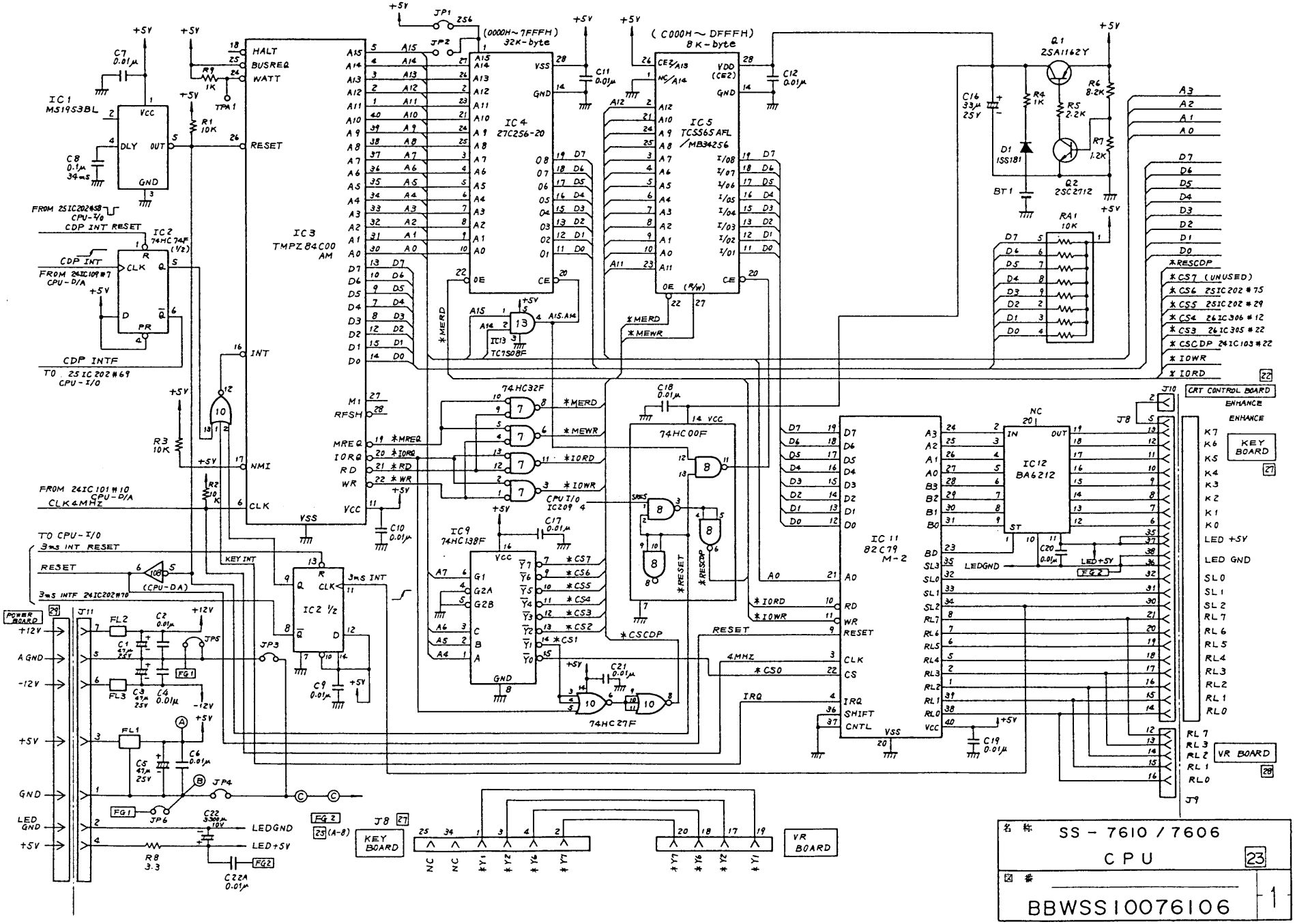


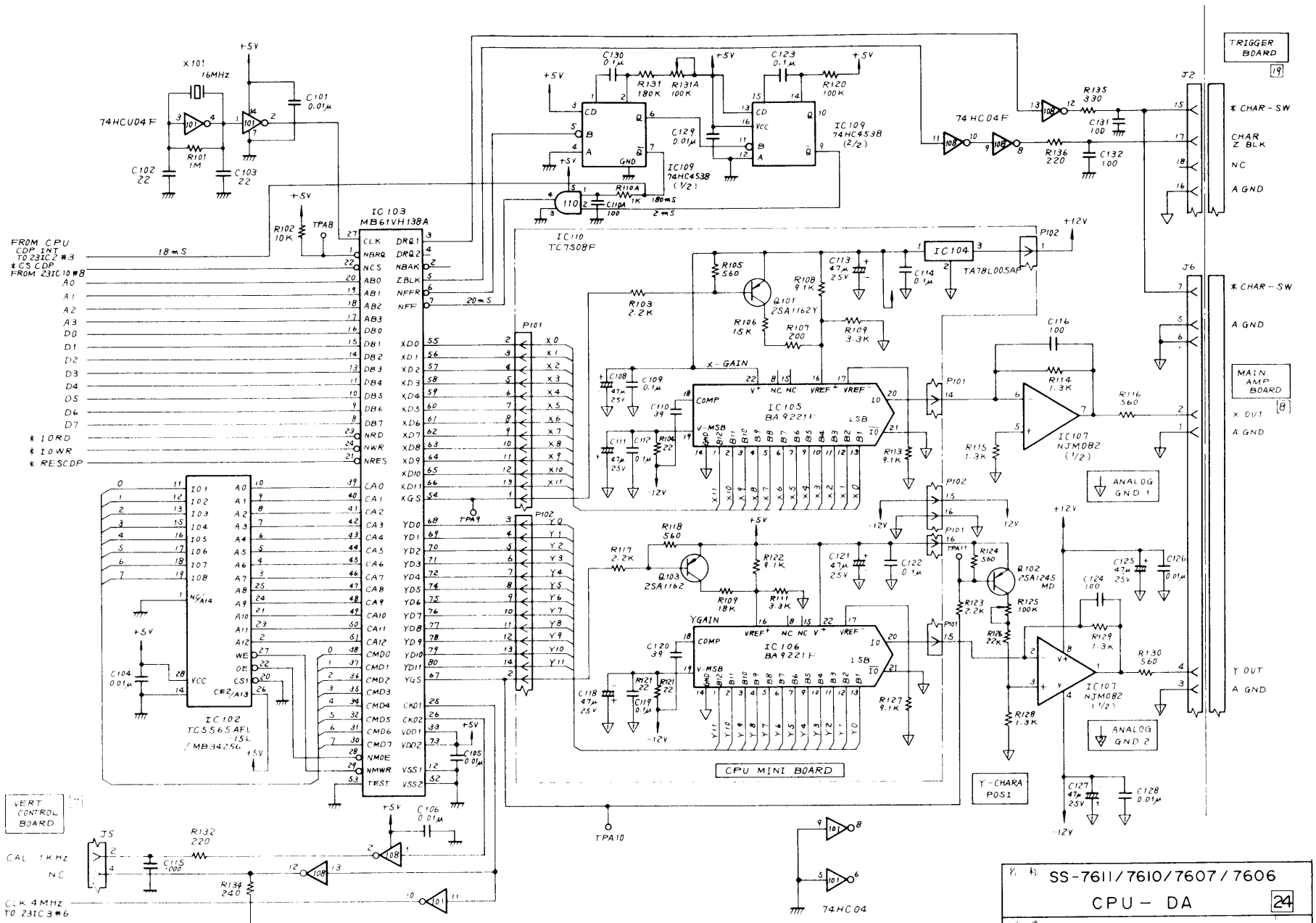
名称	SS-7611/7610/7607/7606
	HORIZ AMP <1> 19
図番	BBWSS24253106 1

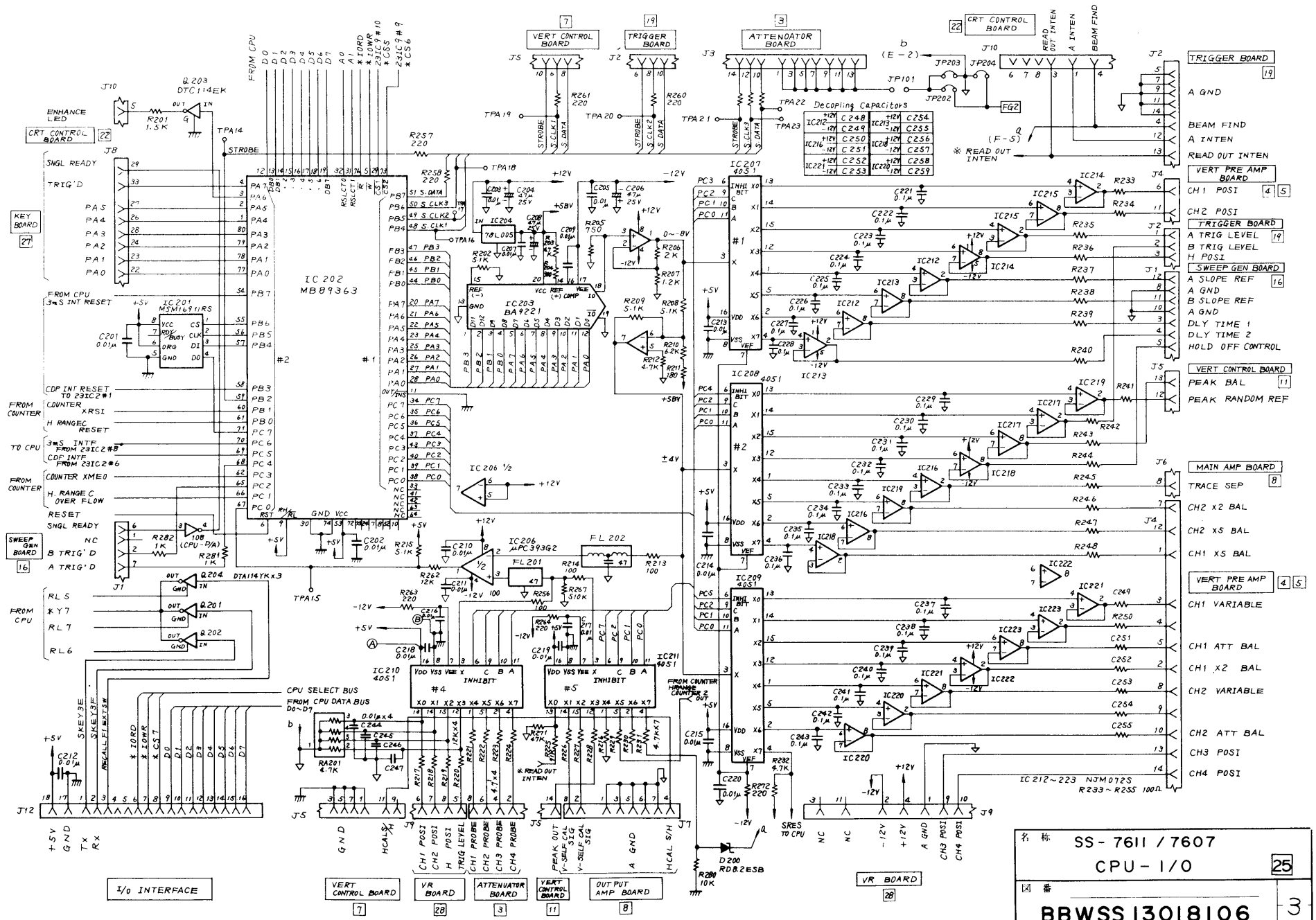


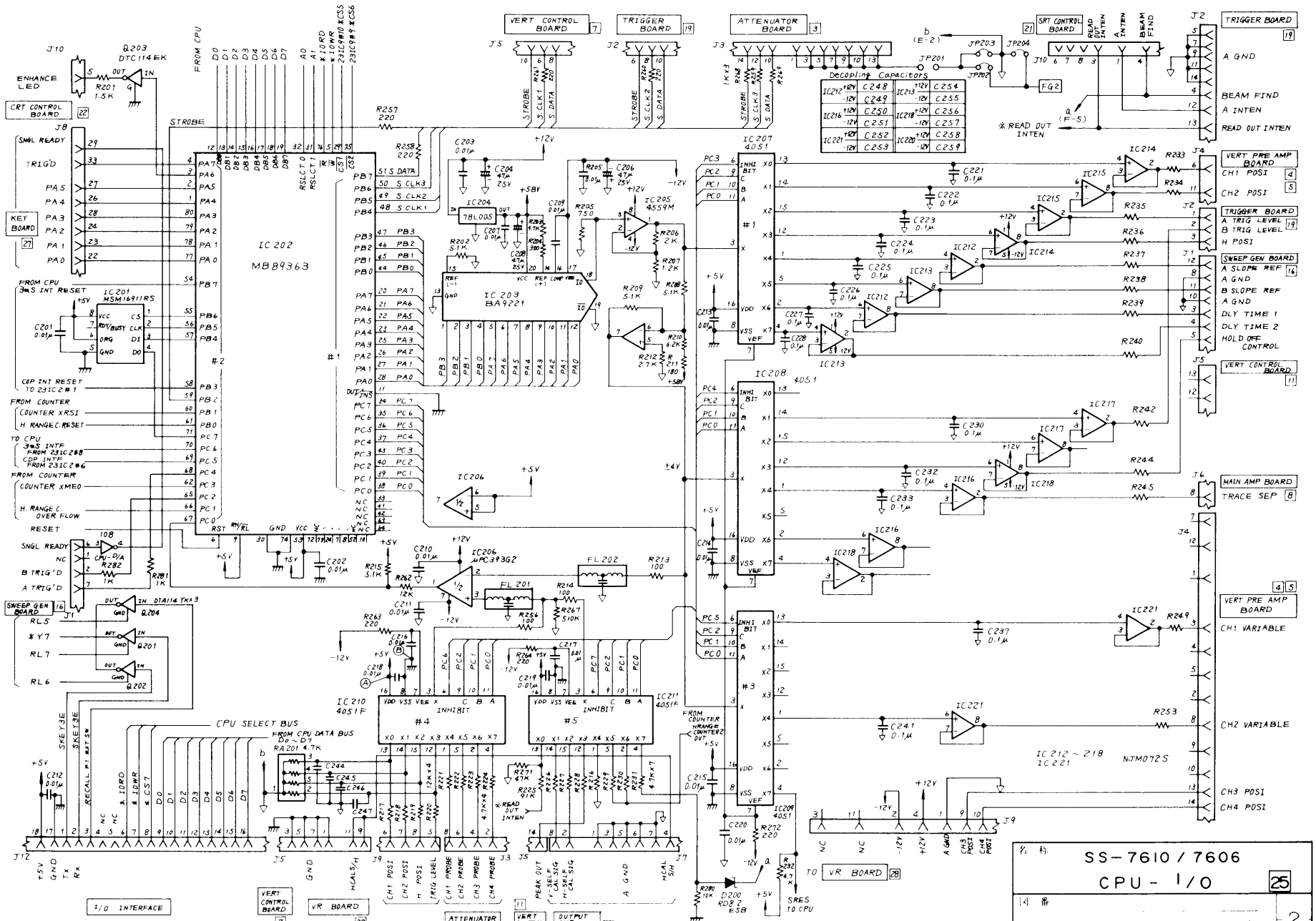
名称	SS-7611 / 7610 / 7607 / 7606
	CRT CIRCUIT 22
図番	BBWSS 41025106 3

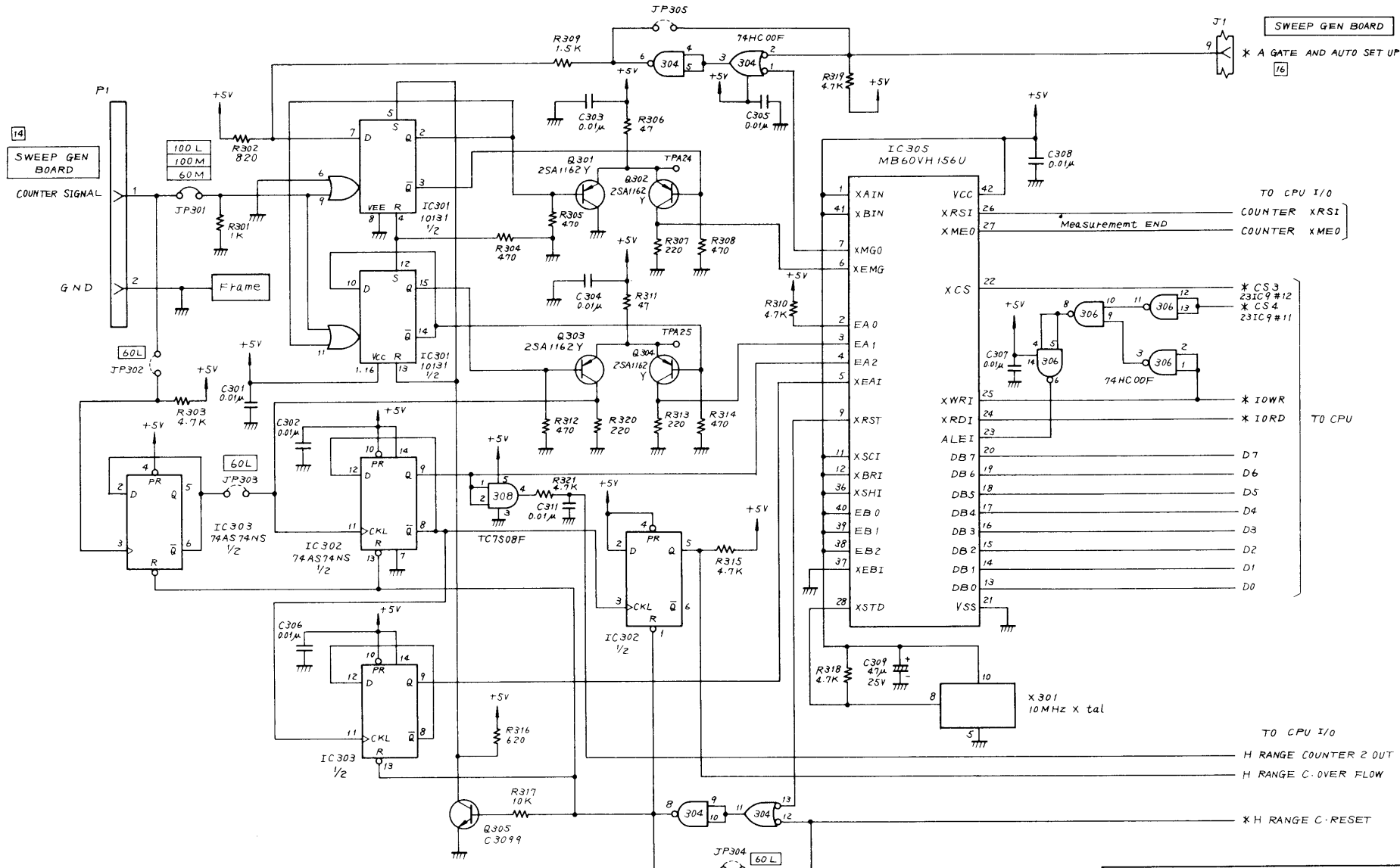

IC 1 MS1953BL
IC 2 74HC74F (1/2)
IC 3 TMPZ84C00 AM
IC 27C512
IC 5 TC5565AFL /MB84256
IC 6 MSM6242 RS
IC 9 74HC138F
IC 11 82C79 M-2
IC 12 BA6212
IC 13, 14 TC74S08F
74HC32F
74HC00F
74HC27F
X01 32.768 KHz
Q1 2SA1162Y
Q2 2SC2712
D1 1SS181
BT1
RA1 10K
HALT
BUSREQ
WAIT
RESET
*RESET
INT
NMI
CLK
VSS
M1
RFSH
MREQ
IORQ
RD
WR
*MERD
*MEWR
*IORD
*IOWR
*CS0
*CS2
*CSCDP
*RESCDP
*CS7 (UNUSED)
*CS6 25IC202#75
*CS5 25IC202#29
*CS4 26IC306#12
*CS3 26IC305#22
*CSCDP 24IC103#22
*IOWR
*IORD
SRES
4MHz
IRQ
KEY INT
LEDGND
LED+5V
LED GND
CRT CONTROL BOARD
ENHANCE
KEY BOARD
VR BOARD
POWER BOARD
FROM 25IC202#58 CPU-I/O
CDP INT RESET
CDP INT
FROM 24IC189#7 CPU-D/A
CDP-INTF
TO 25IC202#69 CPU-I/O
FROM 24IC101#10 CPU-D/A
CLK 4MHz
TO CPU-I/O
3mS INT RESET
3mS INTF 24IC202#70
(CPU-DA)
CPU I/O IC209 no4
(000H~DFFFH) 56K-byte
(E000H~FFFFH) 8K-byte
+5V
+12V
-12V
AGND
GND
LED GND
LED+5V
FG1
FG2
SS-7611/7607
CPU
23
BBWSS10084106
2


IC1 MS1953BL
IC2 74HC74F (1/2)
IC3 TMPZ84C00 AM
IC4 27C256-20
IC5 TCS565AFL/MB34256
(0000H~7FFFH) 32K-byte
(C000H~DFFFH) 8K-byte
IC9 74HC138F
IC11 82C79 M-2
IC12 BA6212
Q1 2SA1162Y
Q2 2SC2712
D1 1SS181
BT1
RA1 10K
74HC32F
74HC00F
74HC27F
CPU I/O IC209 4
CDP INT RESET
CDP INT
CDP INTF
FROM 24IC109#7 CPU-D/A
TO 25IC202#69 CPU-I/O
FROM 24IC101#10 CPU-D/A
CLK4MHz
TO CPU-I/O
3mS INT RESET
3mS INTF 24IC202#10
KEY INT
RESET
4MHz
IRQ
*MERD
*MEWR
*IORD
*IOWR
*RD
*WR
*MREQ
*IORQ
*CS0
*CS1
*CS2
*CS3
*CS4
*CS5
*CS6
*CS7
*CSCDP
*RESCDP
*RESET
*RSCDP
*CS7 (UNUSED)
*CS6 25IC202#75
*CS5 25IC202#29
*CS4 24IC306#12
*CS3 24IC305#22
*CSCDP 24IC103#22
*IOWR
*IORD
CRT CONTROL BOARD
ENHANCE
KEY BOARD
VR BOARD
POWER BOARD
+12V
A GND
-12V
+5V
GND
LED GND
LED+5V
LEDGND
FG1
FG2
JP1
JP2
JP3
JP4
JP5
JP6
名称 SS-7610/7606
CPU
23
BBWSS10076106
1

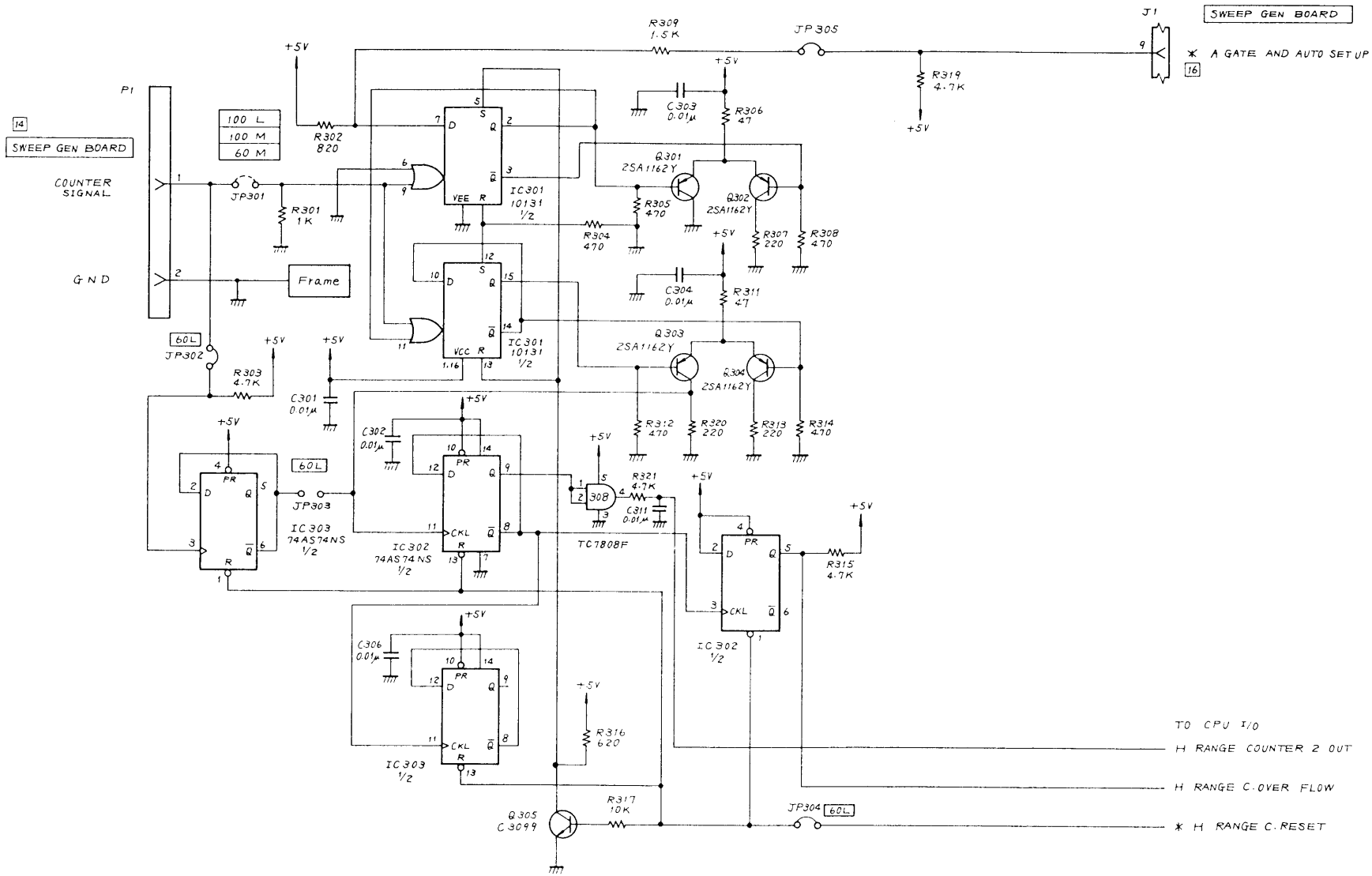

TRIGGER BOARD
19
J2
* CHAR - SW
CHAR Z BLK
NC
A GND
J6
* CHAR - SW
A GND
MAIN AMP BOARD
8
X OUT
A GND
Y OUT
A GND
FROM CPU CDP INT TO 231C2 #3
* CS CDP FROM 231C10 #8
A0
A1
A2
A3
D0
D1
D2
D3
D4
D5
D6
D7
* IORD
* IOWR
* RESCDP
18 mS
20 mS
2 mS
180 mS
IC103 MB61VH138A
IC102 TC5565AFL-15L / MB84256
IC105 BA9221F
IC106 BA9221F
IC107 NJM082 (1/2)
IC109 74HC4538 (1/2)
IC110 TC7S08F
IC104 TA78L005AP
74HC04F
74HC04
Q101 2SA1162Y
Q102 2SA1245 MD
Q103 2SA1162
X-GAIN
Y-GAIN
ANALOG GND 1
ANALOG GND 2
CPU MINI BOARD
Y-CHARA POSI
VERT CONTROL BOARD
CAL 1KHZ
NC
CLK 4MHZ TO 231C3 #6
TPA8
TPA9
TPA10
TPA11
+5V
+12V
-12V
SS-7611/7610/7607/7606
CPU - DA
24
BBWSS10085106
2


I/O INTERFACE
VERT CONTROL BOARD
VR BOARD
ATTENUATOR BOARD
VERT CONTROL BOARD
OUTPUT AMP BOARD
VR BOARD
IC202 MB89363
IC203 BA9221
IC204 78L05
IC205 MSM6911RS
IC206 μPC393G2
IC207 4051
IC208 4051
IC209 4051
IC210 4051
IC211 4051
IC212~223 NJM0725
R233~R255 100Ω
SS-7611/7607
CPU-I/O
BBWSS13018106

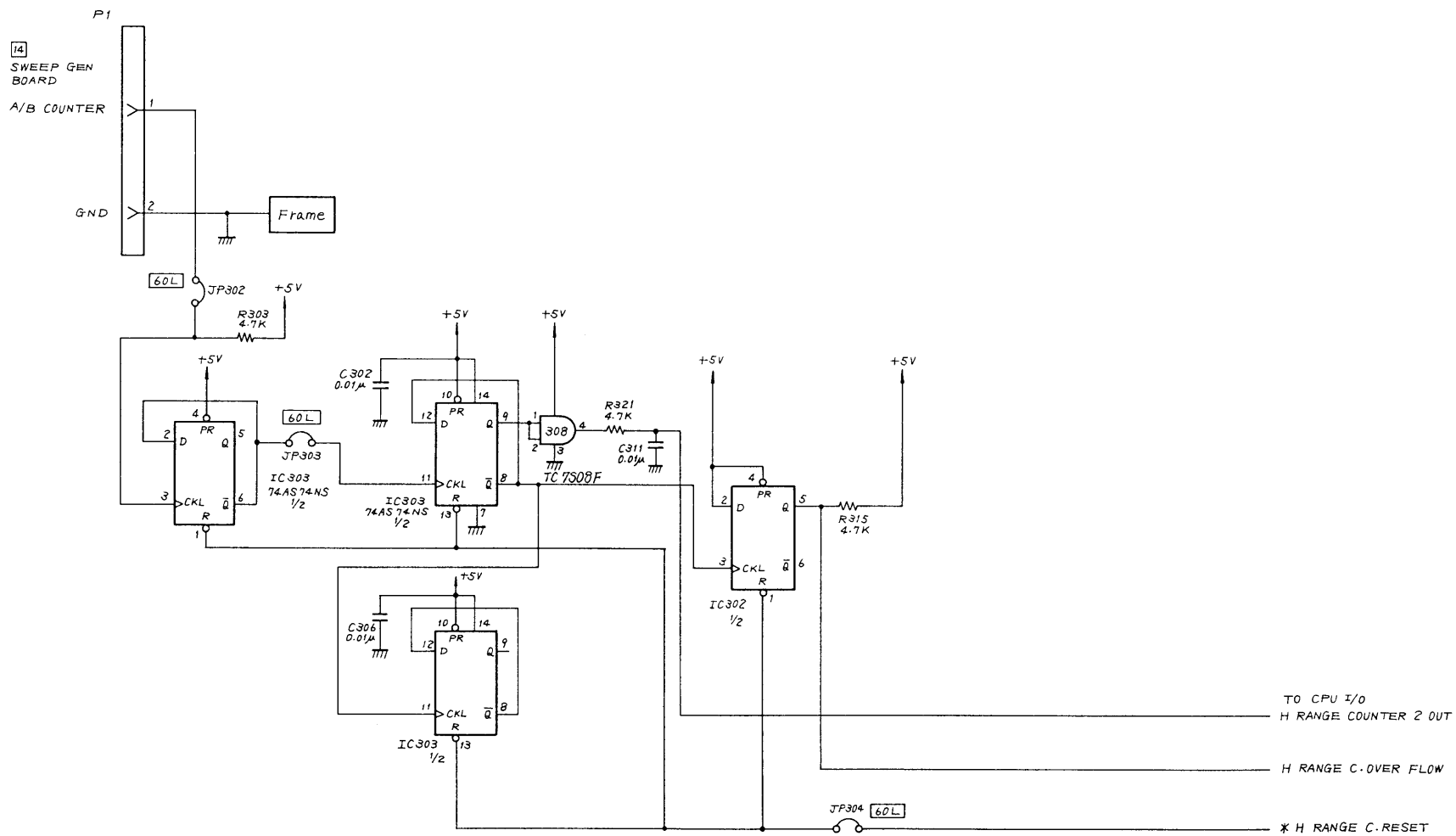

SS-7610 / 7606
CPU - I/O
25
BBWSS13017106
2
IC 202
MB89363
IC 203
BA9221
IC 201
MSM16911RS
IC 204
7BL005
IC 205
4559M
IC 206
μPC393G2
IC 207
4051
IC 208
4051
IC 209
4051
IC 210
4051F
IC 211
4051F
IC 212 ~ 218
IC 221
NJM072S
Q203
DTC114EK
Q204
Q201
Q202
D200
RD8.2 ESB
FL 201
FL 202
CPU SELECT BUS
FROM CPU DATA BUS
D0 ~ D7
STROBE
S.CLK1
S.DATA
S.CLK2
S.CLK3
VERT CONTROL BOARD
TRIGGER BOARD
ATTENUATOR BOARD
SRT CONTROL BOARD
TRIGGER BOARD
VERT PRE AMP BOARD
SWEEP GEN BOARD
MAIN AMP BOARD
KEY BOARD
CRT CONTROL BOARD
I/O INTERFACE
VR BOARD
OUTPUT AMP BOARD
TO VR BOARD
A GND
BEAM FIND
A INTEN
READ OUT INTEN
CH1 POSI
CH2 POSI
A TRIG LEVEL
B TRIG LEVEL
H POSI
A SLOPE REF
B SLOPE REF
DLY TIME 1
DLY TIME 2
HOLD OFF CONTROL
CH1 VARIABLE
CH2 VARIABLE
CH3 POSI
CH4 POSI
TRACE SEP
ENHANCE LED
SNGL READY
TRIG'D
A TRIG'D
B TRIG'D
RESET
FROM CPU
3mS INT RESET
CDP INT RESET TO 231C2#1
FROM COUNTER
COUNTER XRST
H. RANGE C. RESET
TO CPU
3mS INTF FROM 231C2#8
CDP INTF FROM 231C2#6
COUNTER XMEO
H. RANGE C. OVER FLOW
CPU-D/A
RL5
RL7
RL6
SKEY3E
RECALL #1 RST SW
Decoupling Capacitors



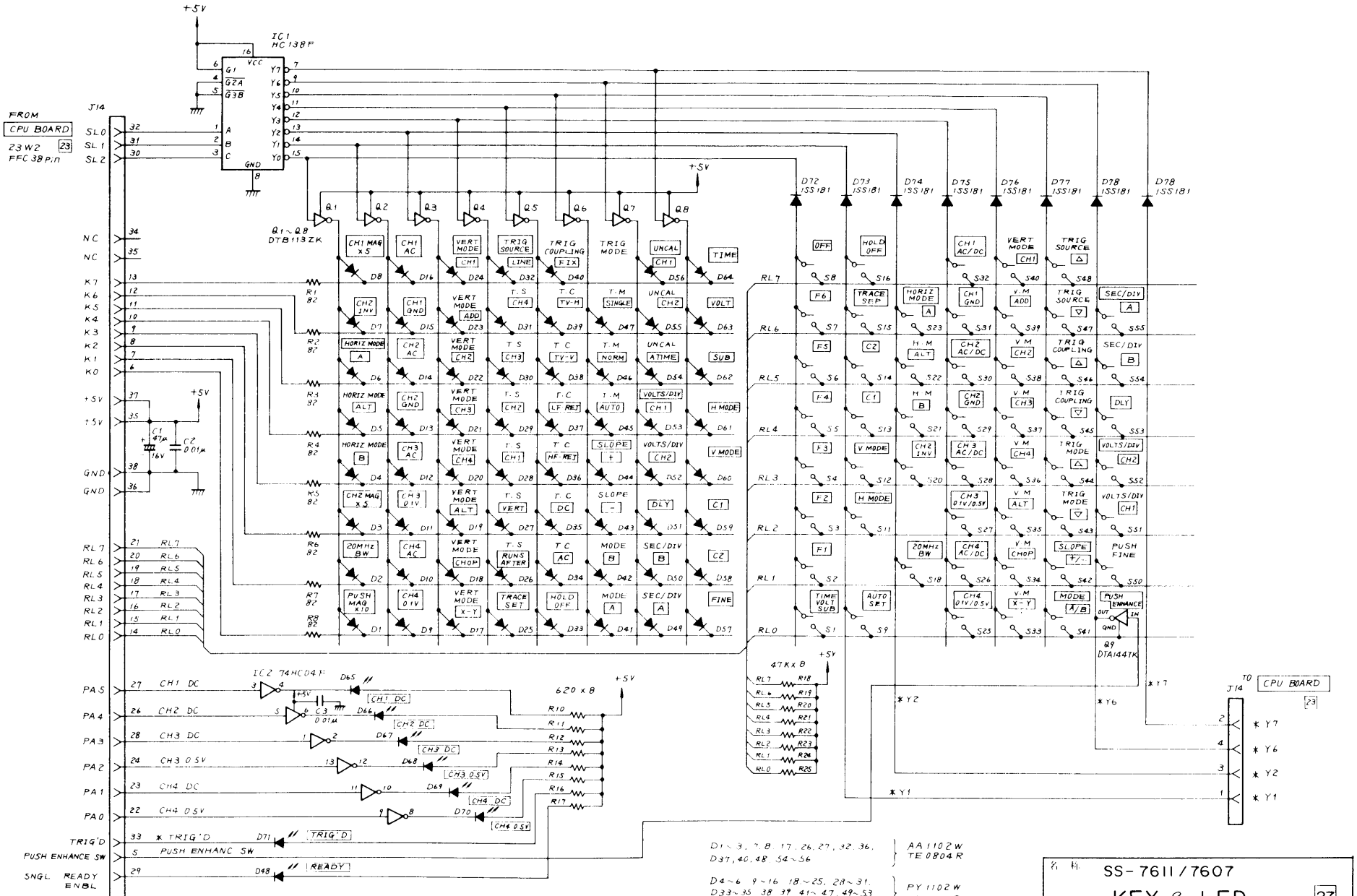
名称	SS-7611 / 7607
	COUNTER 26
図番	BBWSS31009106 - 2



名称	SS-7610
	COUNTER 26
番号	BBWSS31008106 2



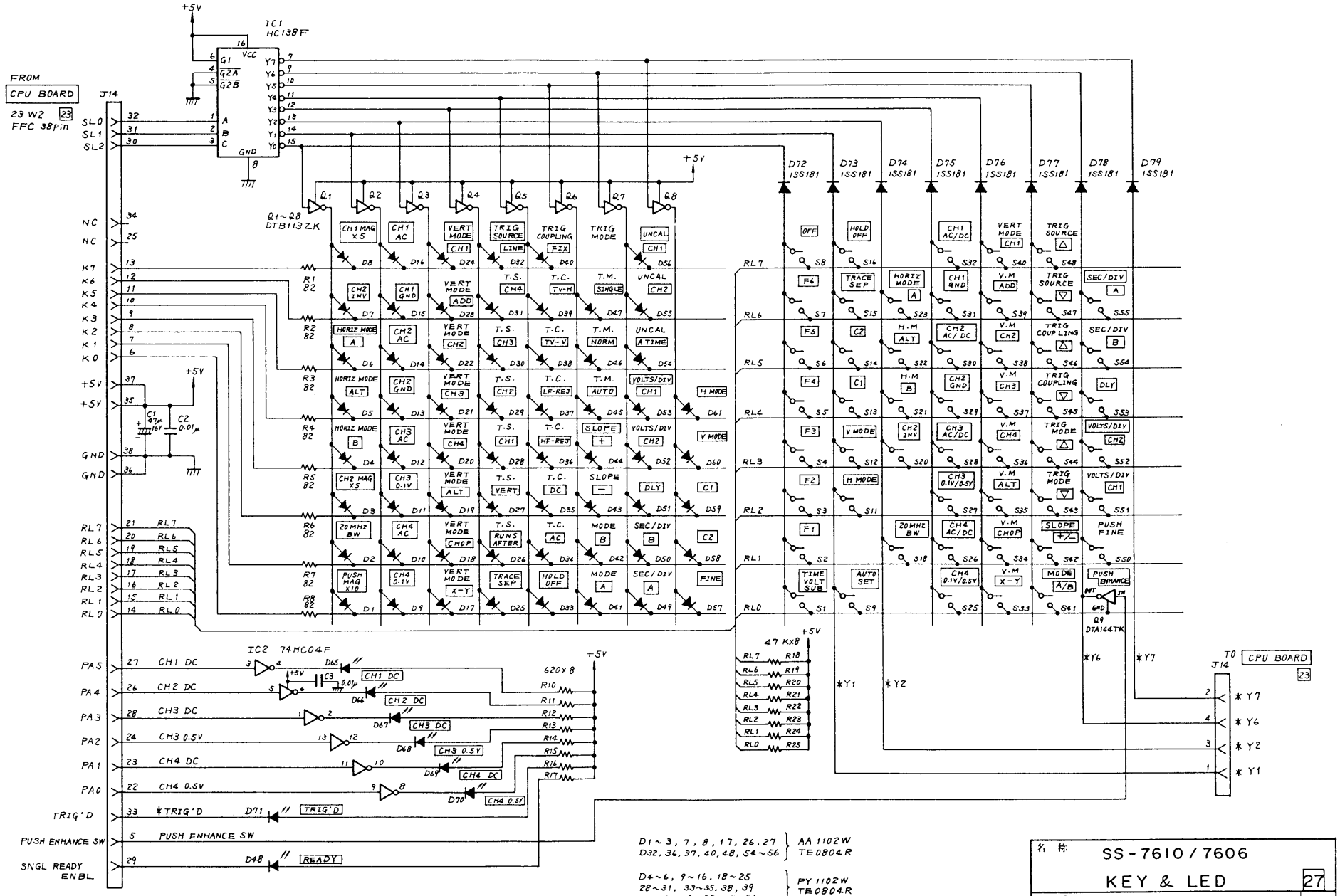
名称	SS-7606 COUNTER 26
図番	BBWSS 31006106 2



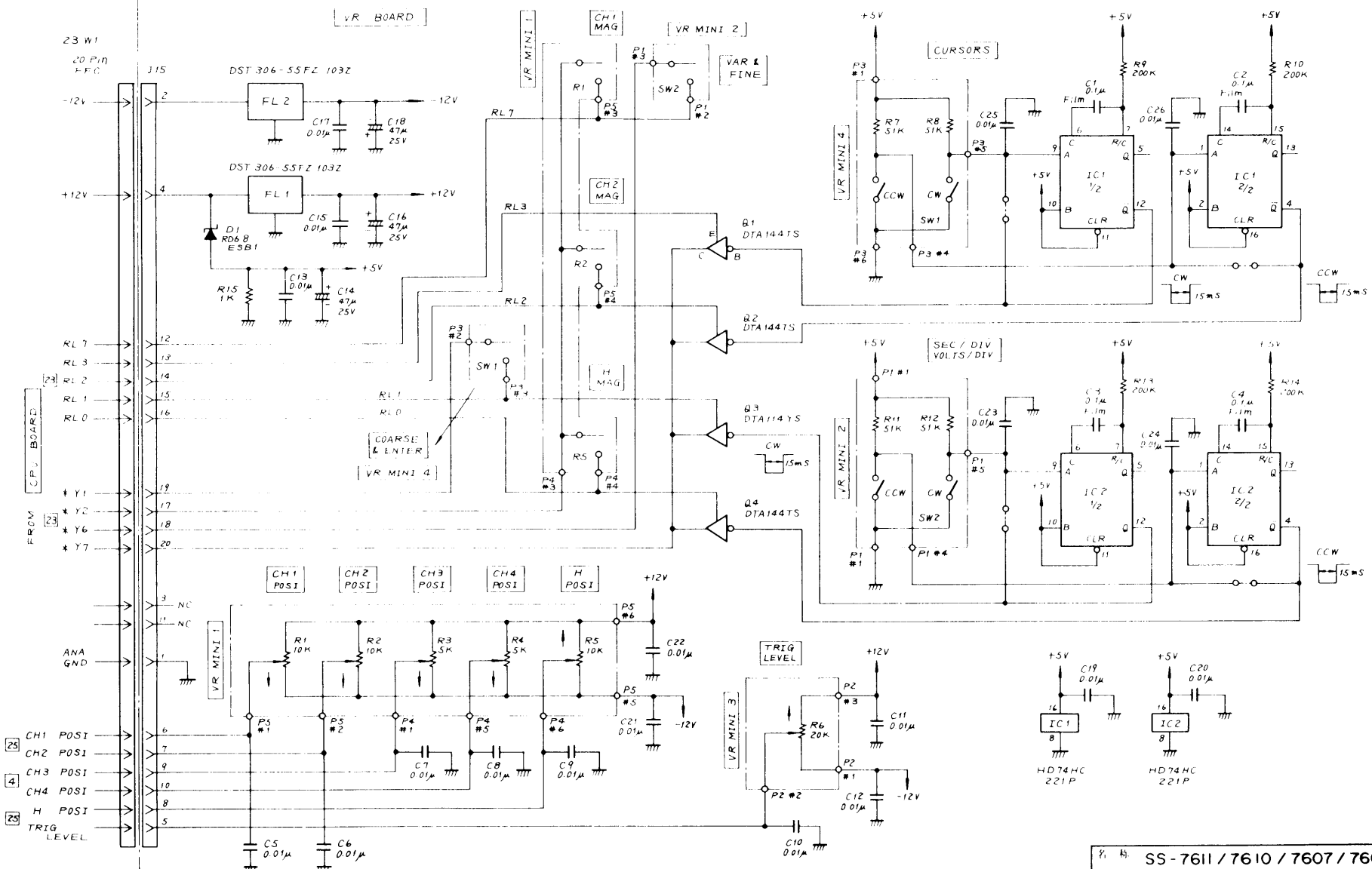
SS-7611/7607

KEY & LED 27

BBWSS11015106 2



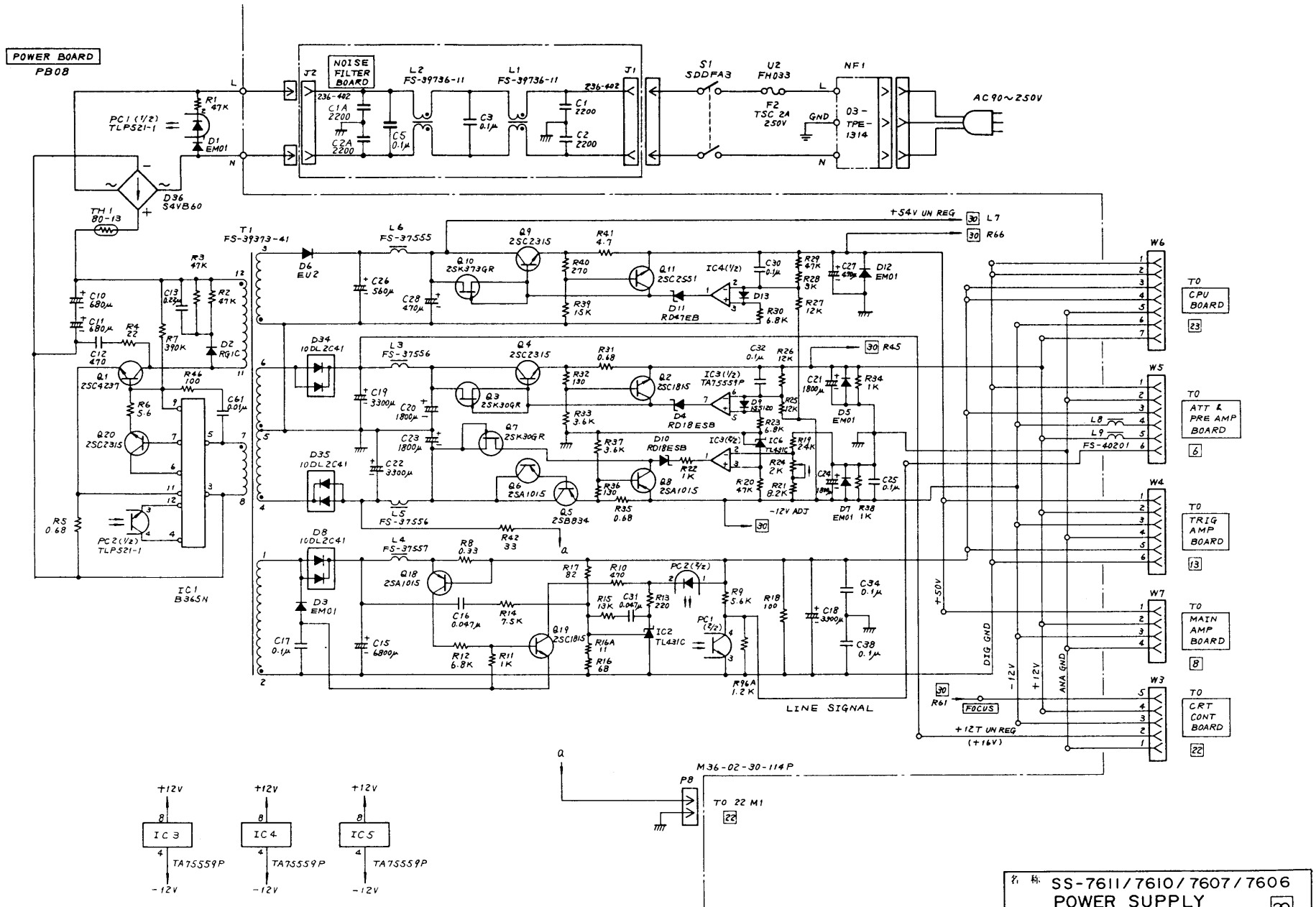
名称	SS-7610/7606
	KEY & LED 27
図番	BBWSS11014106 2



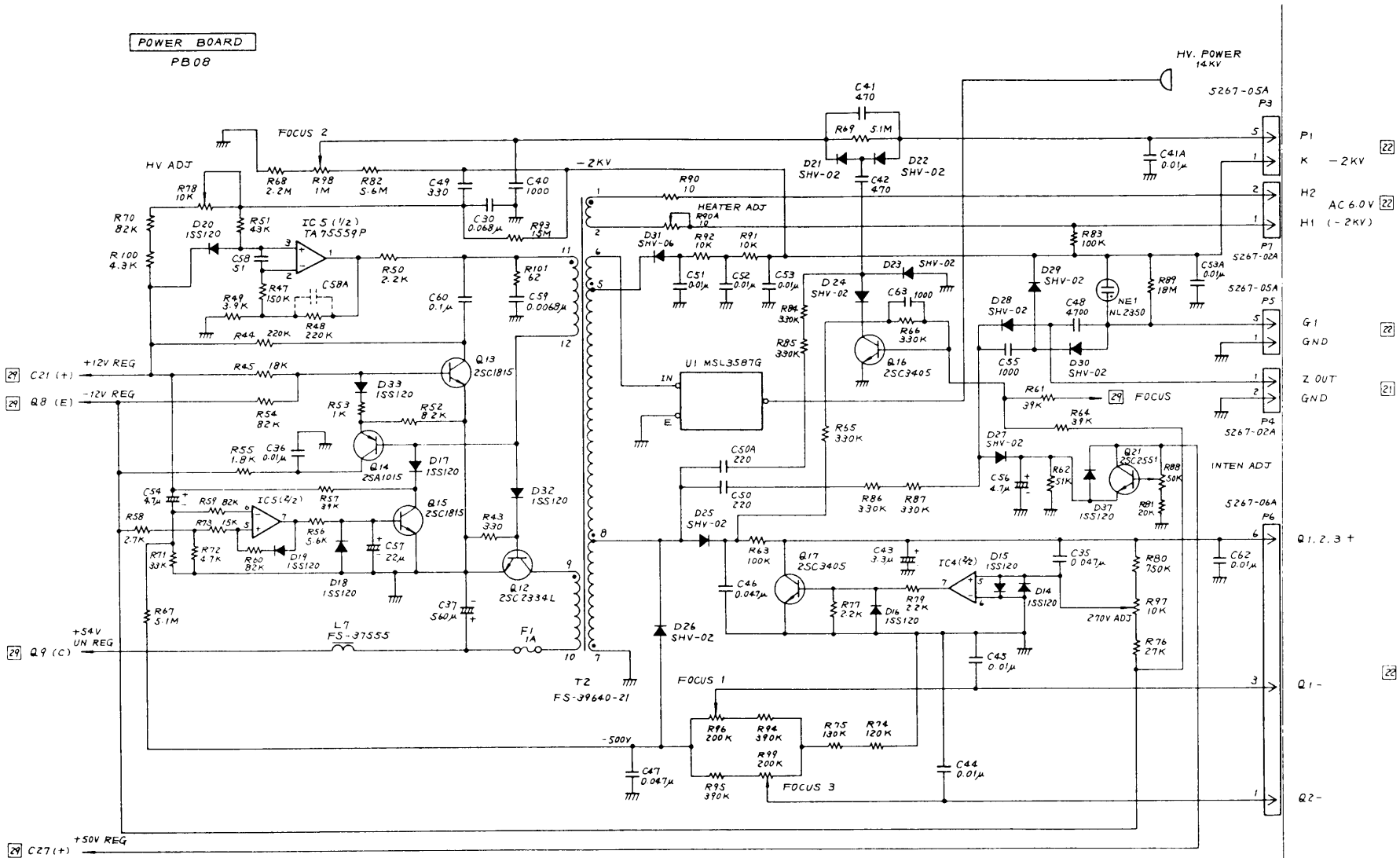
SS-7611 / 7610 / 7607 / 7606

VR BOARD 28

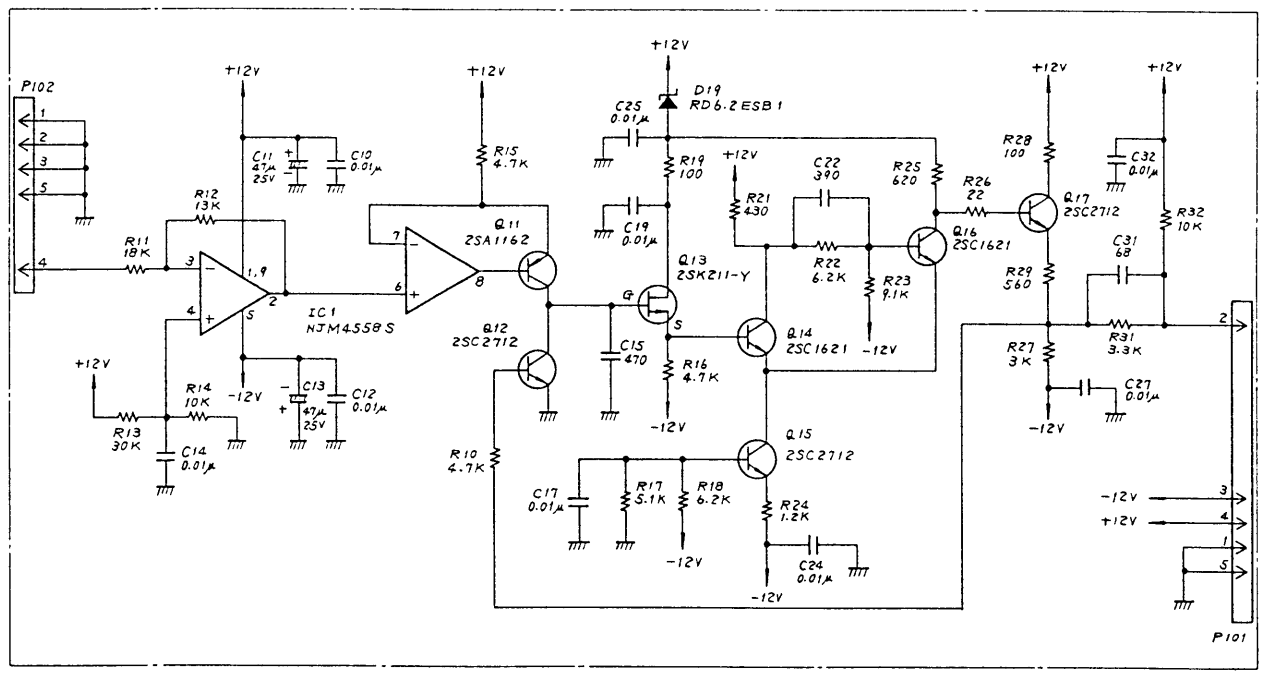
BBWSS11016106 2



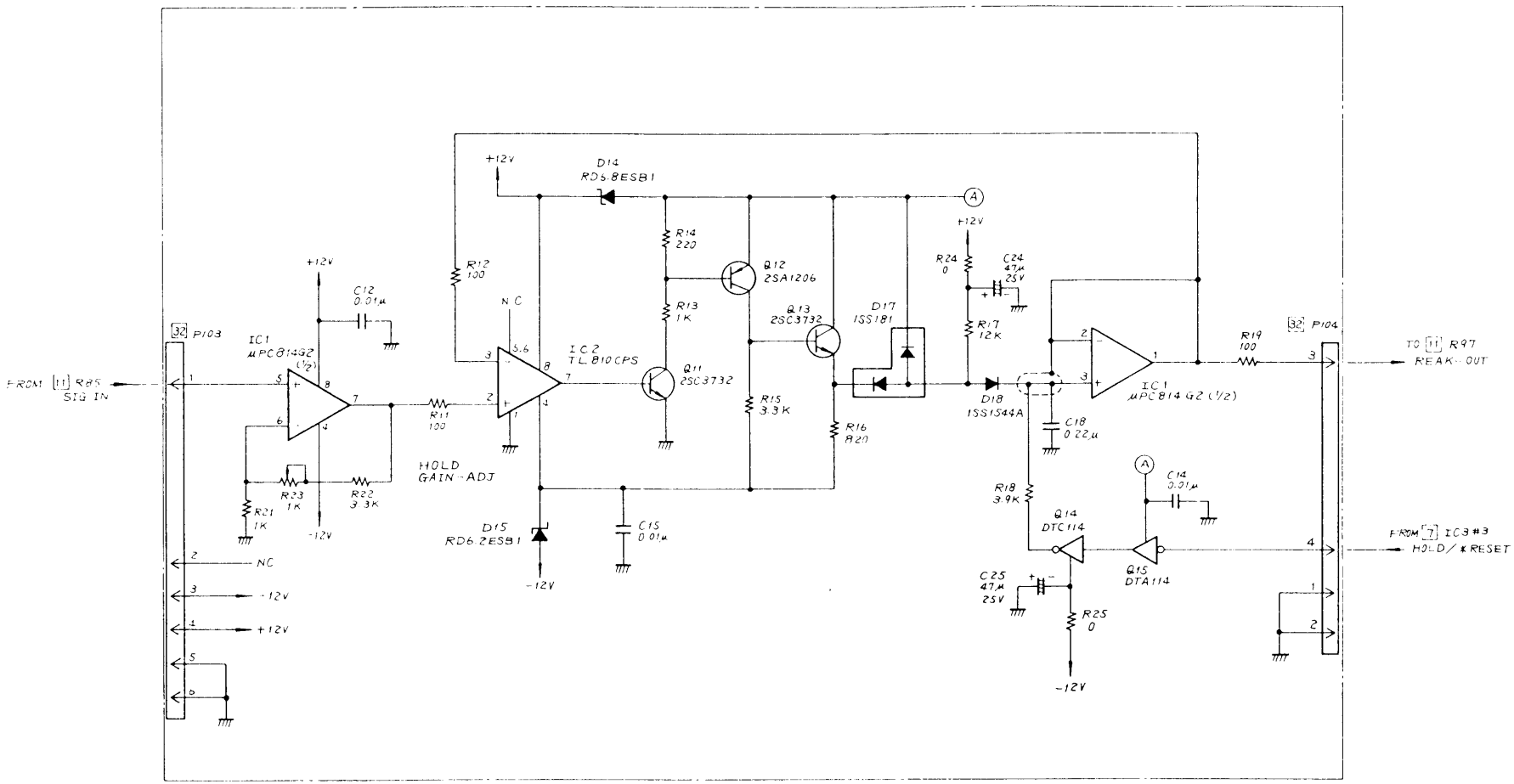
名称	SS-7611/7610/7607/7606 POWER SUPPLY (LOW VOLTAGE POWER) 29
図番	BBWSS08059106 3



名称	SS-7611 / 7610 / 7607 / 7606 POWE SUPPLY (HIGH VOLTAGE POWER) 30
图号	BBWSS 08059107 2

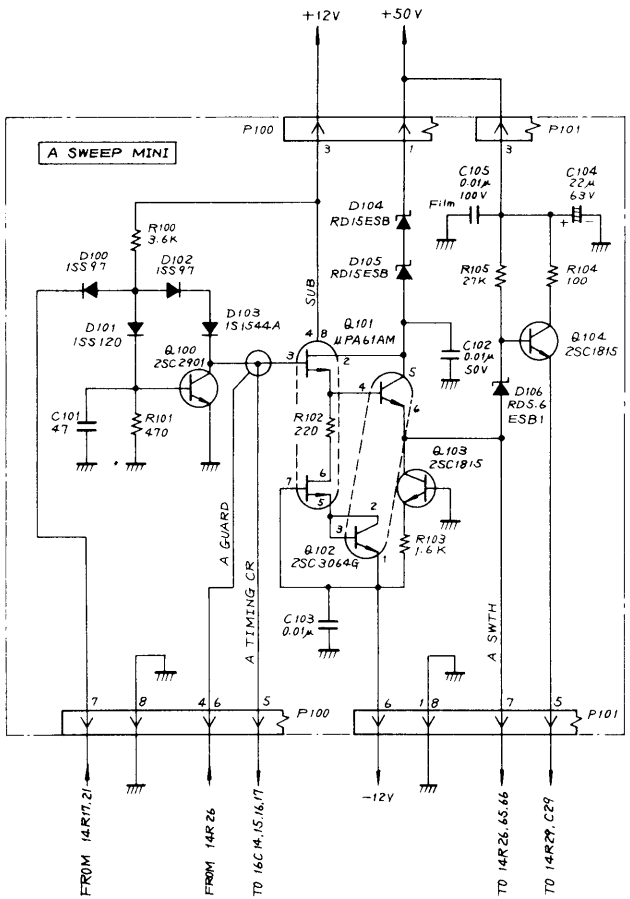


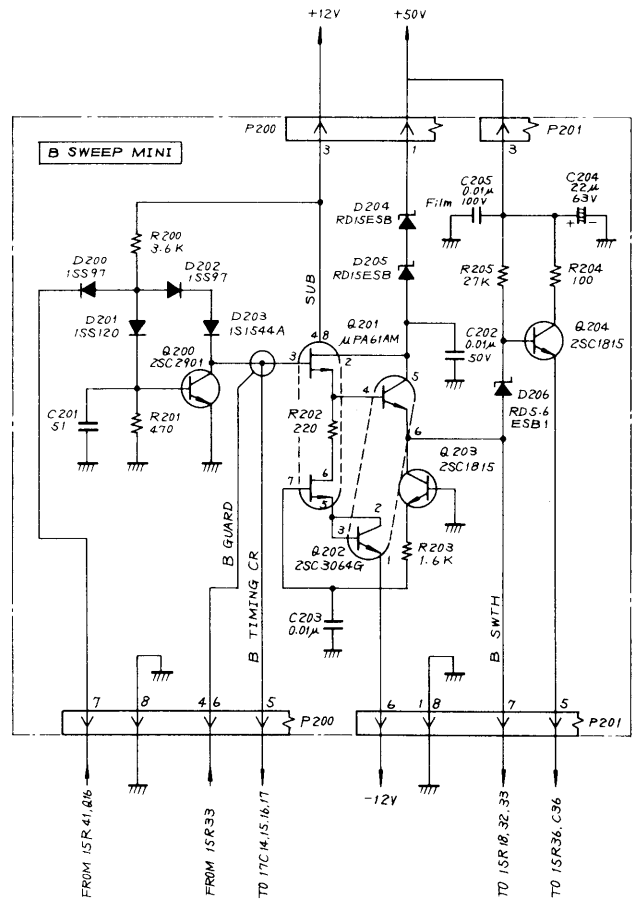
名称	SS-7611/7607
	RANDOM PULSE-GEN 31
図番	BBWSS 20107106 1

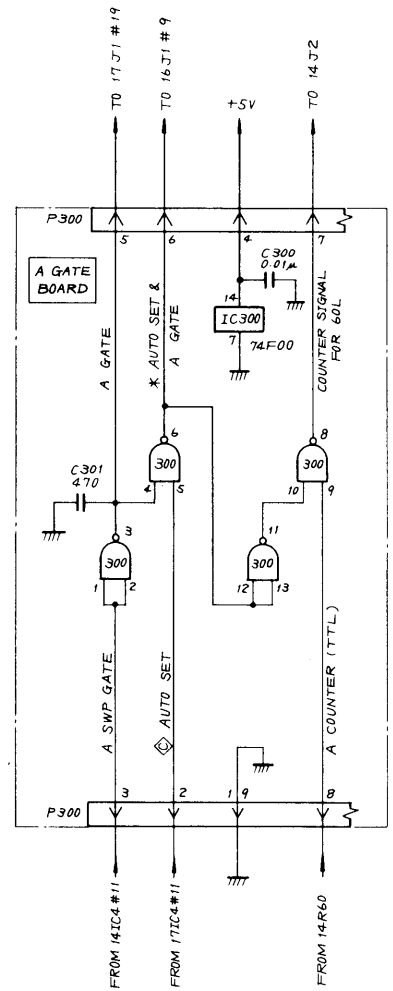


名称	SS-7611/7607
	PEAK-MINI 32
图号	BBWSS 33007106 1

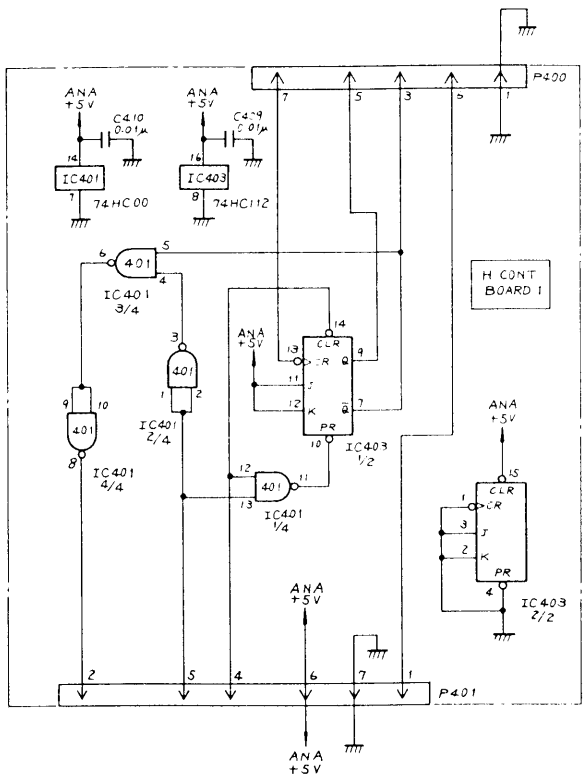
A SWEEP GEN BOARD

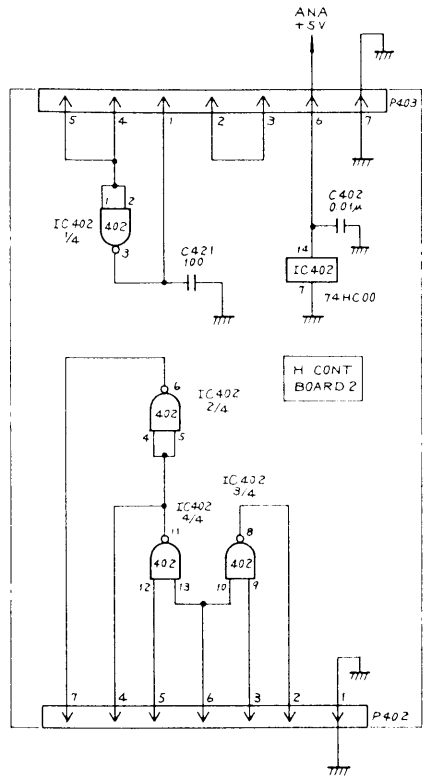


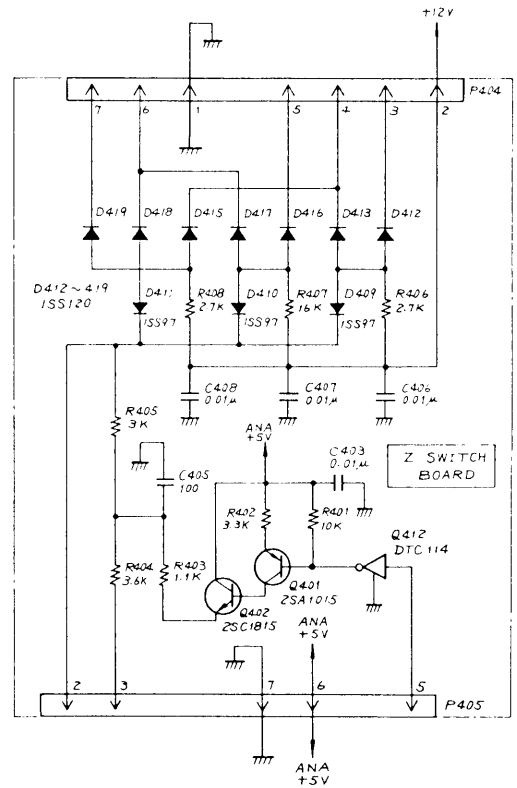


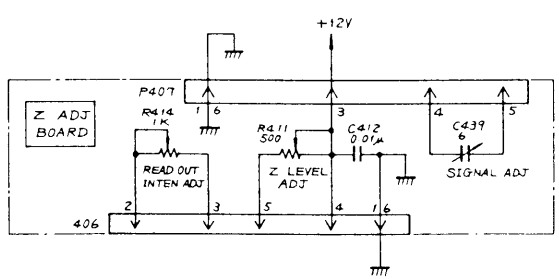


名称	SS-7611/7610/7607/7606
BOARDS ON SWEEP GEN B.	33
図番	BBWSS 20106106 — 2









機種 SS-7611/7610/7607/7606

BOARDS ON TRIG AMP B. 34

[4] 番

BBWSS10092106 1

MEMO

Section 6 Electrical Parts List

Ordering Information

Replacement parts are ordered through an IWATSU representative or directly from the factory. To be certain of receiving the proper parts, always include the following information with the order :

a. Model Number and serial number of the instrument on which the parts will be replaced.
b. Circuit reference number and subassembly name, if applicable for which the part is replaced.
c. Iwatsu part number

For factory repair, contact the IWATSU representative or factory directly and include the following information before shipping the instrument :

a. Model number and serial number of the instrument on which the work is to be performed.
b. Details of the malfunction.

The return authorization will be sent to you as soon as possible, when the returning request is qualified.

Abbreviations

Cap	Capacitor
Cer	Ceramic
Poly	Polyester film
Elect	Electrolytic
Elect. tan	Tantalum
Res	Resistor
W. W	Wire wound
Comp	Composition
FET	Field effect transistor
IC	Integrated circuit
Var	Variable

VERTICAL DEFLECTION SYSTEM

		SS-7611	SS-7607	SS-7610	SS-7606	Page
CH1 CH2 ATT	1	X	X	X	X	6-5
CH3 CH4 ATT PREAMP	2	X	X	X	X	6-13
ATT CONTROL	3	X	same as SS-7611	same as SS-7611	same as SS-7611	6-17
CH1 PREAMP	4	X	X	X	X	6-19
CH2 PREAMP	5	X	X	X	X	6-29
DELAY CABLE DRIVER	6	X	X	same as SS-7611	same as SS-7607	6-39
VERTICAL CONTROL & CAL	7	X	same as SS-7611	X	same as SS-7610	6-42
VERT OUTPUT AMP	8	X	X	X	X	6-44

TRIGGERING

		SS-7611	SS-7607	SS-7610	SS-7606	Page
A TRIG SELECT	9	X	X	X	X	6-54
B TRIG SELECT	10	X	same as SS-7611	X	same as SS-7610	6-62
PEAK HOLD	11	X	same as SS-7611	not available	not available	6-64
A B TRIG AMP	12	X	same as SS-7611	same as SS-7611	same as SS-7611	6-67
TV SYNC SEP	13	X	same as SS-7611	same as SS-7611	same as SS-7611	6-70

HORIZONTAL DEFLECTION SYSTEM

		SS-7611	SS-7607	SS-7610	SS-7606	Page
A SWEEP GENERATOR	14	X	same as SS-7611	same as SS-7611	X	6-71
B SWEEP GENERATOR	15	X	same as SS-7611	X	same as SS-7610	6-74
A TIMING CIRCUIT	16	X	same as SS-7611	same as SS-7611	same as SS-7611	6-77
B TIMING CIRCUIT	17	X	same as SS-7611	same as SS-7611	same as SS-7611	6-78
HORIZ CONTROL	18	X	same as SS-7611	same as SS-7611	same as SS-7611	6-79
HORIZ AMP 〈1〉	19	X	same as SS-7611	same as SS-7611	same as SS-7611	6-80
HORIZ AMP 〈2〉	20	X	same as SS-7611	same as SS-7611	same as SS-7611	6-81
Z AXIS CIRCUIT	21	X	same as SS-7611	same as SS-7611	same as SS-7611	6-83
CRT CIRCUIT	22	X	same as SS-7611	same as SS-7611	same as SS-7611	6-84

CPU CIRCUIT

		SS-7611	SS-7607	SS-7610	SS-7606	Page
CPU	23	X	same as SS-7611	X	same as SS-7610	6-85
CPU-DA	24	X	same as SS-7611	same as SS-7611	same as SS-7611	6-87
CPU-I／O	25	X	same as SS-7611	X	same as SS-7610	6-89
COUNTER	26	X	same as SS-7611	X	X	6-93
KEY & LED	27	X	same as SS-7611	X	same as SS-7610	6-95
VR BOARD	28	X	same as SS-7611	same as SS-7611	same as SS-7611	6-98

POWER SUPPLIES

		SS-7611	SS-7607	SS-7610	SS-7606	Page
LOW VOLTAGE POWER	29 and 30	X	same as SS-7611	same as SS-7611	same as SS-7611	6-99

MISCELLANEOUS

		SS-7611	SS-7607	SS-7610	SS-7606	Page
RANDOM PULSE-GEN	31	X	same as SS-7611	not available	not available	6-103
PEAK-MINI	32	X	same as SS-7611	not available	not available	6-104
BOARDS ON SWEEP GEN B.	33	X	same as SS-7611	same as SS-7611	same as SS-7611	6-104
BOARDS ON TRIG AMP B.	34	X	same as SS-7611	same as SS-7611	same as SS-7611	6-105
Printed Circuit Board		X	same as SS-7611	same as SS-7611	same as SS-7611	6-106

CH1／CH2 ATT [1]

SS-7611

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCF168011	Cap,0,01u,+/−10%,400V,Flm
C2	DCC139511	Cap,2200p,+/−20%,50V,Cer
C5	DCV019612	Cap,8p,Var,250V,Cer
C6	DCV019602	Cap,12p,Var,250V,Cer
C7A	DCC239221	Cap,15p,+/−5%,50V,Cer
C7	DCC239011	Cap,33p,+/−5%,50V,Cer
C8	DCV019602	Cap,12p,Var,250V,Cer
C9	DCV019612	Cap,8p,Var,250V,Cer
C10	DCC239221	Cap,15p,+/−5%,50V,Cer
C14	DCV019672	Cap,3p,Var,250V,Cer
C14A	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C15	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C16	DCC159011	Cap,1000p,+/−10%,500V,Cer
C17	DCC139051	Cap,1000p,+/−10%,50V,Cer
C18	DCC239051	Cap,100p,+/−5%,50V,Cer
C19	DCC239151	Cap,470,+/−5%,50V,Cer
C20	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C21	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C22	DCC239301	Cap,5p,+/−0. 25p,50V,Cer
C22A	DCC239061	Cap,2p,+/−0. 25p,50V,Cer
C23	DCE229201	Cap,47u,+/−20%,25V,Ele
C24A	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C25	DCC239221	Cap,15p,+/−5%,50V,Cer
C26	DCC239321	Cap,12p,+/−5%,50V,Cer
C31	DCF168011	Cap,0,01u,+/−10%,400V,Flm
C32	DCC139511	Cap,2200p,+/−20%,50V,Cer
C35	DCV019612	Cap,8p,Var,250V,Cer
C36	DCV019602	Cap,12p,Var,250V,Cer
C37A	DCC239221	Cap,15p,+/−5%,50V,Cer
C37	DCC239011	Cap,33p,+/−5%,50V,Cer
C38	DCV019602	Cap,12p,Var,250V,Cer
C39	DCV019612	Cap,8p,Var,250V,Cer
C40	DCC239221	Cap,15p,+/−5%,50V,Cer
C44	DCV019672	Cap,3p,Var,250V,Cer
C45	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C46	DCC159011	Cap,1000p,+/−10%,500V,Cer
C47	DCC139051	Cap,1000p,+/−10%,50V,Cer
C48	DCC239051	Cap,100p,+/−5%,50V,Cer
C49	DCC239151	Cap,470,+/−5%,50V,Cer
C50	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C51	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C52	DCC239301	Cap,5p,+/−0. 25p,50V,Cer
C52A	DCC239071	Cap,3p,+/−0. 25p,50V,Cer
C53	DCE229201	Cap,47u,+/−20%,25V,Ele
C55	DCC239221	Cap,15p,+/−5%,50V,Cer
C56A	DCC230401	Cap,1. 5p,+/−5%,50V,Cer
C56	DCC239321	Cap,12p,+/−5%,50V,Cer
C101	DCE229221	Cap,220u,+/−20%,25V,Ele
C103	DCE229221	Cap,220u,+/−20%,25V,Ele
C107	DCE229221	Cap,220u,+/−20%,25V,Ele
C109	DCE229221	Cap,220u,+/−20%,25V,Ele
D11	DDD010801	Diode,1S1544A
D12	DDD010801	Diode,1S1544A
D13	DDD019071	Diode,1SS 120
D14	DDD010801	Diode,1S1544A
D21	DDD010801	Diode,1S1544A
D22	DDD010801	Diode,1S1544A
D23	DDD019071	Diode,1SS 120
D24	DDD010801	Diode,1S1544A
IC11	DIC614331	IC,u-PC 811C(NEC)
IC21	DIC614331	IC,u-PC 811C(NEC)
Q11	DTR295421	Tr,BF 410F
Q12	DTR139011	Tr,2SC 1815GR TPER1
Q13	DTR139321	Tr,2SC 3732K-T
Q14	DTR119011	Tr,2SA 1015Y TPER1
Q21	DTR295421	Tr,BF 410F
Q22	DTR139011	Tr,2SC 1815GR TPER1
Q23	DTR139321	Tr,2SC 3732K-T
Q24	DTR119011	Tr,2SA 1015Y TPER1
R1	DRD137161	Res,3. 9,+/−5%,1/4W,Carbon
R2	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R3	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R4	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R7	DRD137281	Res,33,+/−5%,1/4W,Carbon
R8	DRD137611	Res,750,+/−5%,1/4W,Carbon
R10	DRE139721	Res,390K,+/−1%,1/2W,Mtl
R11	DRE233941	Res,110K,+/−5%,1/4W,Mtl
R11A	DRD137161	Res,3. 9,+/−5%,1/4W,Carbon
R12	DRD137341	Res,56,+/−5%,1/4W,Carbon
R13	DRD137421	Res,120,+/−5%,1/4W,Carbon
R14	DRE139721	Res,390K,+/−1%,1/2W,Mtl
R15	DRE233941	Res,110K,+/−5%,1/4W,Mtl

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R15A	DRE137721	Res,220K,+/−5%,1/4W,Mtl
R16	DRD137261	Res,27,+/−5%,1/4W,Carbon
R17	DRD137401	Res,100,+/−5%,1/4W,Carbon
R19	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R20	DRD137241	Res,22,+/−5%,1/4W,Carbon
R21	DRE930791	Res,820K,+/−0.25%,1/4W,Mtl
R21A	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R22	DRE930781	Res,180K,+/−0.25%,1/4W,Mtl
R23	DRE930781	Res,180K,+/−0.25%,1/4W,Mtl
R23A	DRE138041	Res,4.7K,+/−1%,1/4W,Mtl
R23B	DRE137421	Res,120,+/−5%,1/4W,Carbon
R24	DRE930791	Res,820K,+/−0.25%,1/4W,Mtl
R25	DRV412051	Res,5K,+/−20%,1/3W,Mtl
R26	DRD137741	Res,2.7K,+/−5%,1/4W,Carbon
R28	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R29	DRG939011	Res,10M,+/−5%,1/4W,MG
R30	DRD137621	Res,820,+/−5%,1/4W,Carbon
R31	DRD137241	Res,22,+/−5%,1/4W,Carbon
R32	DRD137401	Res,100,+/−5%,1/4W,Carbon
R33	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R40	DRE990571	Res,150,+/−5%,1/5W,Mtl
R41	DRE990571	Res,150,+/−5%,1/5W,Mtl
R42	DRE990581	Res,240,+/−5%,1/5W,Mtl
R43	DRE990551	Res,62,+/−5%,1/5W,Mtl
R44	DRD137941	Res,1.8K,+/−5%,1/4W,Carbon
R45	DRD137261	Res,27,+/−5%,1/4W,Carbon
R46	DRD137551	Res,430,+/−5%,1/4W,Carbon
R51	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R52	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R53	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R54	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R57	DRD137281	Res,33,+/−5%,1/4W,Carbon
R58	DRD137611	Res,750,+/−5%,1/4W,Carbon
R60	DRE139721	Res,390K,+/−1%,1/2W,Mtl
R61	DRE233941	Res,110K,+/−5%,1/4W,Mtl
R62	DRD137341	Res,56,+/−5%,1/4W,Carbon
R63	DRD137421	Res,120,+/−5%,1/4W,Carbon
R64	DRE139721	Res,390K,+/−1%,1/2W,Mtl
R65	DRE233941	Res,110K,+/−5%,1/4W,Mtl
R65A	DRE137721	Res,220,+/−1%,1/4W,Mtl
R66	DRD137261	Res,27,+/−5%,1/4W,Carbon
R67	DRD137401	Res,100,+/−5%,1/4W,Carbon
R69	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R70	DRD137241	Res,22,+/−5%,1/4W,Carbon
R71	DRE930791	Res,820K,+/−0.25%,1/4W,Mtl
R72	DRE930781	Res,180,+/−0.25%,1/4W,Mtl
R73	DRE930781	Res,180,+/−0.25%,1/4W,Mtl
R73A	DRE138041	Res,4.7K,+/−1%,1/4W,Mtl
R73B	DRE137421	Res,12,+/−1%,1/4W,Mtl
R74	DRE930791	Res,820K,+/−0.25%,1/4W,Mtl
R75	DRV412051	Res,5K,+/−20%,1/3W,Mtl
R76	DRD137741	Res,2.7K,+/−5%,1/4W,Carbon
R78	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R79	DRG939011	Res,10M,+/−5%,1/4W,MG
R80	DRD137621	Res,820,+/−5%,1/4W,Carbon
R81	DRD137241	Res,22,+/−5%,1/4W,Carbon
R82	DRD137401	Res,100,+/−5%,1/4W,Carbon
R83	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R90	DRE990571	Res,150,+/−5%,1/5W,Mtl
R91	DRE990571	Res,150,+/−5%,1/5W,Mtl
R92	DRE990581	Res,240,+/−5%,1/5W,Mtl
R93	DRE990551	Res,62,+/−5%,1/5W,Mtl
R94	DRD137941	Res,1.8K,+/−5%,1/4W,Mtl
R95	DRD137261	Res,27,+/−5%,1/4W,Carbon
R96	DRD137551	Res,430,+/−5%,1/4W,Carbon
R101	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R103	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R107	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R109	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
U101	DCN041171	Connector,L235
U201	DCN041171	Connector,L235

CH1／CH2 ATT [1]
SS-7607

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCF168011	Cap,0,01u,+/−10%,400V,Flm
C2	DCC139511	Cap,2200p,+/−20%,50V,Cer
C5	DCV019612	Cap,8p,Var,250V,Cer
C6	DCV019602	Cap,12p,Var,250V,Cer
C7A	DCC239221	Cap,15p,+/−5%,50V,Cer
C7	DCC239011	Cap,33p,+/−5%,50V,Cer
C8	DCV019602	Cap,12p,Var,250V,Cer
C9	DCV019612	Cap,8p,Var,250V,Cer
C10	DCC239221	Cap,15p,+/−5%,50V,Cer
C14	DCV019672	Cap,3p,Var,250V,Cer
C14A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C15	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C16	DCC159011	Cap,1000p,+/−10%,500V,Cer
C17	DCC139051	Cap,1000p,+/−10%,50V,Cer
C18	DCC239051	Cap,100p,+/−5%,50V,Cer
C19	DCC239151	Cap,470,+/−5%,50V,Cer
C20	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C21	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C22	DCC239071	Cap,3p,+/−0.5p,50V,Cer
C23	DCE229201	Cap,47u,+/−20%,25V,Ele
C24A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C25	DCC239041	Cap,10p,+/−0.5p,50V,Cer
C31	DCF168011	Cap,0,01u,+/−10%,400V,Flm
C32	DCC139511	Cap,2200p,+/−20%,50V,Cer
C35	DCV019612	Cap,8p,Var,250V,Cer
C36	DCV019602	Cap,12p,Var,250V,Cer
C37A	DCC239221	Cap,15p,+/−5%,50V,Cer
C37	DCC239011	Cap,33p,+/−5%,50V,Cer
C38	DCV019602	Cap,12p,Var,250V,Cer
C39	DCV019612	Cap,8p,Var,250V,Cer
C40	DCC239221	Cap,15p,+/−5%,50V,Cer
C44	DCV019672	Cap,3p,Var,250V,Cer
C45	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C46	DCC159011	Cap,1000p,+/−10%,500V,Cer
C47	DCC139051	Cap,1000p,+/−10%,50V,Cer
C48	DCC239051	Cap,100p,+/−5%,50V,Cer
C49	DCC239151	Cap,470,+/−5%,50V,Cer
C50	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C51	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C52	DCC239071	Cap,3p,+/−0.5p,50V,Cer
C53	DCE229201	Cap,47u,+/−20%,25V,Ele
C55	DCC239041	Cap,10p,+/−0.5p,50V,Cer
C101	DCE229221	Cap,150u,+/−20%,25V,Ele
C103	DCE229221	Cap,150u,+/−20%,25V,Ele
C107	DCE229221	Cap,150u,+/−20%,25V,Ele
C109	DCE229221	Cap,150u,+/−20%,25V,Ele
D11	DDD010801	Diode,1S1544A
D12	DDD010801	Diode,1S1544A
D13	DDD019071	Diode,1SS 120
D14	DDD010801	Diode,1S1544A
D21	DDD010801	Diode,1S1544A
D22	DDD010801	Diode,1S1544A
D23	DDD019071	Diode,1SS 120
D24	DDD010801	Diode,1S1544A
IC11	DIC614331	IC,u-PC 811C(NEC)
IC21	DIC614331	IC,u-PC 811C(NEC)
Q11	DTR295421	Tr,BF 410F
Q12	DTR139011	Tr,2SC 1815GR TPER1
Q13	DTR139321	Tr,2SC 3732K-T
Q14	DTR119011	Tr,2SA 1015Y TPER1
Q21	DTR295421	Tr,BF 410F
Q22	DTR139011	Tr,2SC 1815GR TPER1
Q23	DTR139321	Tr,2SC 3732K-T
Q24	DTR119011	Tr,2SA 1015Y TPER1
R1	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R2	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R3	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R4	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R7	DRD137281	Res,33,+/−5%,1/4W,Carbon
R8	DRD137611	Res,750,+/−5%,1/4W,Carbon
R10	DRE139721	Res,390K,+/−1%,1/2W,Mtl
R11	DRE233941	Res,110K,+/−5%,1/4W,Mtl
R11A	DRD137161	Res,10,+/−5%,1/4W,Carbon
R12	DRD137341	Res,56,+/−5%,1/4W,Carbon
R13	DRD137421	Res,120,+/−5%,1/4W,Carbon
R14	DRE139721	Res,390K,+/−1%,1/2W,Mtl
R15	DRE233941	Res,110K,+/−5%,1/4W,Mtl
R15A	DRE137721	Res,220,+/−1%,1/4W,Mtl
R16	DRD137261	Res,27,+/−5%,1/4W,Carbon
R17	DRD137421	Res,120,+/−5%,1/4W,Carbon
R19	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R20	DRD137241	Res,22,+/−5%,1/4W,Carbon

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R21	DRE930791	Res,820K,+/−0.25%,1/4W,Mtl
R21A	DRD137161	Res,10,+/−5%,1/4W,Carbon
R22	DRE930781	Res,180K,+/−0.25%,1/4W,Mtl
R23	DRE930781	Res,180K,+/−0.25%,1/4W,Mtl
R23A	DRE138041	Res,4.7K,+/−1%,1/4W,Mtl
R23B	DRE137421	Res,12,+/−1%,1/4W,Mtl
R24	DRE930791	Res,820K,+/−0.25%,1/4W,Mtl
R25	DRV412051	Res,5K,+/−20%,1/3W,Mtl
R26	DRD137741	Res,2.7K,+/−5%,1/4W,Carbon
R28	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R29	DRG939011	Res,10M,+/−5%,1/4W,MG
R30	DRD137621	Res,820,+/−5%,1/4W,Carbon
R31	DRD137241	Res,22,+/−5%,1/4W,Carbon
R32	DRD137401	Res,100,+/−5%,1/4W,Carbon
R33	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R40	DRE990571	Res,150,+/−5%,1/5W,Mtl
R41	DRE990571	Res,150,+/−5%,1/5W,Mtl
R42	DRE990581	Res,240,+/−5%,1/5W,Mtl
R43	DRE990551	Res,62,+/−5%,1/5W,Mtl
R44	DRE137941	Res,1.8K,+/−5%,1/4W,Mtl
R45	DRD137261	Res,27,+/−5%,1/4W,Carbon
R51	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R52	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R53	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R54	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R57	DRD137281	Res,33,+/−5%,1/4W,Carbon
R58	DRD137611	Res,750,+/−5%,1/4W,Carbon
R60	DRE139721	Res,390K,+/−1%,1/2W,Mtl
R61	DRE233941	Res,110K,+/−5%,1/4W,Mtl
R62	DRD137341	Res,56,+/−5%,1/4W,Carbon
R63	DRD137421	Res,120,+/−5%,1/4W,Carbon
R64	DRE139721	Res,390K,+/−1%,1/2W,Mtl
R65	DRE233941	Res,110K,+/−5%,1/4W,Mtl
R65A	DRE137721	Res,220,+/−1%,1/4W,Mtl
R66	DRD137261	Res,27,+/−5%,1/4W,Carbon
R67	DRD137421	Res,120,+/−5%,1/4W,Carbon
R69	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R70	DRD137241	Res,22,+/−5%,1/4W,Carbon
R71	DRE930791	Res,820K,+/−0.25%,1/4W,Mtl
R72	DRE930781	Res,180,+/−0.25%,1/4W,Mtl
R73	DRE930781	Res,180,+/−0.25%,1/4W,Mtl
R73A	DRE138041	Res,4.7K,+/−1%,1/4W,Mtl
R73B	DRE137421	Res,12,+/−1%,1/4W,Mtl
R74	DRE930791	Res,820K,+/−0.25%,1/4W,Mtl
R75	DRV412051	Res,5K,+/−20%,1/3W,Mtl
R76	DRD137741	Res,2.7K,+/−5%,1/4W,Carbon
R78	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R79	DRG939011	Res,10M,+/−5%,1/4W,MG
R80	DRD137621	Res,820,+/−5%,1/4W,Carbon
R81	DRD137241	Res,22,+/−5%,1/4W,Carbon
R82	DRD137401	Res,100,+/−5%,1/4W,Carbon
R83	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R90	DRE990571	Res,150,+/−5%,1/5W,Mtl
R91	DRE990571	Res,150,+/−5%,1/5W,Mtl
R92	DRE990581	Res,240,+/−5%,1/5W,Mtl
R93	DRE990551	Res,62,+/−5%,1/5W,Mtl
R94	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R95	DRD137261	Res,27,+/−5%,1/4W,Carbon
R101	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R103	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R107	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R109	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
U101	DCN041171	Connector,L235
U201	DCN041171	Connector,L235

CH1／CH2 ATT [1]
SS-7610

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCF168011	Cap,0,01u,+/−10%,400V,Flm
C2	DCC139511	Cap,2200p,+/−20%,50V,Cer
C5	DCV019612	Cap,8p,Var,250V,Cer
C6	DCV019602	Cap,12p,Var,250V,Cer
C7A	DCC239221	Cap,15p,+/−5%,50V,Cer
C7	DCC239011	Cap,33p,+/−5%,50V,Cer
C8	DCV019602	Cap,12p,Var,250V,Cer
C9	DCV019612	Cap,8p,Var,250V,Cer
C10	DCC239221	Cap,15p,+/−5%,50V,Cer
C14	DCV019672	Cap,3p,Var,250V,Cer
C14A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C15	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C16	DCC159011	Cap,1000p,+/−10%,500V,Cer
C17	DCC139051	Cap,1000p,+/−10%,50V,Cer
C18	DCC239051	Cap,100p,+/−5%,50V,Cer
C19	DCC239151	Cap,470,+/−5%,50V,Cer
C20	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C21	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C22	DCC239301	Cap,5p,+/−0.25p,50V,Cer
C22A	DCC239061	Cap,2p,+/−0.25p,50V,Cer
C23	DCE229201	Cap,47u,+/−20%,25V,Ele
C24A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C25	DCC239221	Cap,15p,+/−5%,50V,Cer
C26	DCC239321	Cap,12p,+/−5%,50V,Cer
C31	DCF168011	Cap,0,01u,+/−10%,400V,Flm
C32	DCC139511	Cap,2200p,+/−20%,50V,Cer
C35	DCV019612	Cap,8p,Var,250V,Cer
C36	DCV019602	Cap,12p,Var,250V,Cer
C37A	DCC239221	Cap,15p,+/−5%,50V,Cer
C37	DCC239011	Cap,33p,+/−5%,50V,Cer
C38	DCV019602	Cap,12p,Var,250V,Cer
C39	DCV019612	Cap,8p,Var,250V,Cer
C40	DCC239221	Cap,15p,+/−5%,50V,Cer
C44	DCV019672	Cap,3p,Var,250V,Cer
C45	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C46	DCC159011	Cap,1000p,+/−10%,500V,Cer
C47	DCC139051	Cap,1000p,+/−10%,50V,Cer
C48	DCC239051	Cap,100p,+/−5%,50V,Cer
C49	DCC239151	Cap,470,+/−5%,50V,Cer
C50	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C51	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C52	DCC239301	Cap,5p,+/−0.25p,50V,Cer
C52A	DCC239071	Cap,2p,+/−0.25p,50V,Cer
C53	DCE229201	Cap,47u,+/−20%,25V,Ele
C55	DCC239221	Cap,15p,+/−5%,50V,Cer
C56	DCC239321	Cap,12p,+/−5%,50V,Cer
C56A	DCC230401	Cap,1.5p,+/−5%,50V,Cer
C101	DCE229221	Cap,220u,+/−20%,25V,Ele
C103	DCE229221	Cap,220u,+/−20%,25V,Ele
C107	DCE229221	Cap,220u,+/−20%,25V,Ele
C109	DCE229221	Cap,220u,+/−20%,25V,Ele
D11	DDD010801	Diode,1S1544A
D12	DDD010801	Diode,1S1544A
D13	DDD019071	Diode,1SS 120
D14	DDD010801	Diode,1S1544A
D21	DDD010801	Diode,1S1544A
D22	DDD010801	Diode,1S1544A
D23	DDD019071	Diode,1SS 120
D24	DDD010801	Diode,1S1544A
IC11	DIC614331	IC,u-PC 811C(NEC)
IC21	DIC614331	IC,u-PC 811C(NEC)
Q11	DTR295421	Tr,BF 410F
Q12	DTR139011	Tr,2SC 1815GR TPER1
Q13	DTR139321	Tr,2SC 3732K-T
Q14	DTR119011	Tr,2SA 1015Y TPER1
Q21	DTR295421	Tr,BF 410F
Q22	DTR139011	Tr,2SC 1815GR TPER1
Q23	DTR139321	Tr,2SC 3732K-T
Q24	DTR119011	Tr,2SA 1015Y TPER1
R1	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R2	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R3	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R4	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R7	DRD137281	Res,33,+/−5%,1/4W,Carbon
R8	DRD137611	Res,750,+/−5%,1/4W,Carbon
R10	DRE139721	Res,390K,+/−1%,1/2W,Mtl
R11	DRE233941	Res,110K,+/−5%,1/4W,Mtl
R11A	DRD137161	Res,10,+/−5%,1/4W,Mtl
R12	DRD137341	Res,56,+/−5%,1/4W,Carbon
R13	DRD137421	Res,120,+/−5%,1/4W,Carbon
R14	DRE139721	Res,390K,+/−1%,1/2W,Mtl
R15	DRE233941	Res,110K,+/−5%,1/4W,Mtl

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R15A	DRE137721	Res,220,+/−1%,1/4W,Mtl
R16	DRD137261	Res,27,+/−5%,1/4W,Carbon
R17	DRD137401	Res,100,+/−5%,1/4W,Carbon
R19	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R20	DRD137241	Res,22,+/−5%,1/4W,Carbon
R21	DRE930791	Res,820K,+/−0.25%,1/4W,Mtl
R21A	DRD137161	Res,10,+/−5%,1/4W,Mtl
R22	DRE930781	Res,180K,+/−0.25%,1/5W,Mtl
R23	DRE930781	Res,180K,+/−0.25%,1/4W,Mtl
R23A	DRE138041	Res,4.7K,+/−1%,1/4W,Mtl
R24	DRE930791	Res,820K,+/−0.25%,1/4W,Mtl
R25	DRV412051	Res,5K,+/−20%,1/3W,Mtl
R26	DRD137741	Res,2.7K,+/−5%,1/4W,Carbon
R28	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R29	DRG939011	Res,10M,+/−5%,1/4W,MG
R30	DRD137621	Res,820,+/−5%,1/4W,Carbon
R31	DRD137241	Res,22,+/−5%,1/4W,Carbon
R32	DRD137401	Res,100,+/−5%,1/4W,Carbon
R33	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R40	DRE990571	Res,150,+/−5%,1/5W,Mtl
R41	DRE990571	Res,150,+/−5%,1/5W,Mtl
R42	DRE990581	Res,240,+/−5%,1/5W,Mtl
R43	DRE990551	Res,62,+/−5%,1/5W,Mtl
R44	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R45	DRD137261	Res,27,+/−5%,1/4W,Carbon
R46	DRD137551	Res,430,+/−5%,1/4W,Carbon
R51	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R52	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R53	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R54	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R57	DRD137281	Res,33,+/−5%,1/4W,Carbon
R58	DRD137611	Res,750,+/−5%,1/4W,Carbon
R60	DRE139721	Res,390K,+/−1%,1/2W,Mtl
R61	DRE233941	Res,110K,+/−5%,1/4W,Mtl
R62	DRD137341	Res,56,+/−5%,1/4W,Carbon
R63	DRD137421	Res,120,+/−5%,1/4W,Carbon
R64	DRE139721	Res,390K,+/−1%,1/2W,Mtl
R65	DRE233941	Res,110K,+/−5%,1/4W,Mtl
R65A	DRE137721	Res,220,+/−1%,1/4W,Mtl
R66	DRD137261	Res,27,+/−5%,1/4W,Carbon
R67	DRD137401	Res,100,+/−5%,1/4W,Carbon
R69	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R70	DRD137241	Res,22,+/−5%,1/4W,Carbon
R71	DRE930791	Res,820K,+/−0.25%,1/4W,Mtl
R72	DRE930781	Res,180K,+/−0.25%,1/4W,Mtl
R73	DRE930781	Res,180K,+/−0.25%,1/4W,Mtl
R73A	DRE138041	Res,4.7K,+/−1%,1/4W,Mtl
R74	DRE930791	Res,820K,+/−0.25%,1/4W,Mtl
R75	DRV412051	Res,5K,+/−20%,1/3W,Mtl
R76	DRD137741	Res,2.7K,+/−5%,1/4W,Carbon
R78	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R79	DRG939011	Res,10M,+/−5%,1/4W,MG
R80	DRD137621	Res,820,+/−5%,1/4W,Carbon
R81	DRD137241	Res,22,+/−5%,1/4W,Carbon
R82	DRD137401	Res,100,+/−5%,1/4W,Carbon
R83	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R90	DRE990571	Res,150,+/−5%,1/5W,Mtl
R91	DRE990571	Res,150,+/−5%,1/5W,Mtl
R92	DRE990581	Res,240,+/−5%,1/5W,Mtl
R93	DRE990551	Res,62,+/−5%,1/5W,Mtl
R94	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R95	DRD137261	Res,27,+/−5%,1/4W,Carbon
R96	DRD137551	Res,430,+/−5%,1/4W,Carbon
R101	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R103	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R107	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R109	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
U101	DCN041171	Connector,L235
U201	DCN041171	Connector,L235

CH1／CH2 ATT [1]

SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCF168011	Cap,0,01u,+/−10%,400V,Flm
C2	DCC139511	Cap,2200p,+/−20%,50V,Cer
C5	DCV019612	Cap,8p,Var,250V,Cer
C6	DCV019602	Cap,12p,Var,250V,Cer
C7A	DCC239221	Cap,15p,+/−5%,50V,Cer
C7	DCC239011	Cap,33p,+/−5%,50V,Cer
C8	DCV019602	Cap,12p,Var,250V,Cer
C9	DCV019612	Cap,8p,Var,250V,Cer
C10	DCC239221	Cap,15p,+/−5%,50V,Cer
C14	DCV019672	Cap,3p,Var,250V,Cer
C14A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C15	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C16	DCC159011	Cap,1000p,+/−10%,500V,Cer
C17	DCC139051	Cap,1000p,+/−10%,50V,Cer
C18	DCC239051	Cap,100p,+/−5%,50V,Cer
C19	DCC239151	Cap,470,+/−5%,50V,Cer
C20	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C21	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C22	DCC239071	Cap,3p,+/−0.5p,50V,Cer
C23	DCE229201	Cap,47u,+/−20%,25V,Ele
C24A	DCC929031	Cap,0.01%,+/−30%,16V,Cer
C25	DCC239041	Cap,10p,+/−0.5p,50V,Cer
C31	DCF168011	Cap,0,01u,+/−10%,400V,Flm
C32	DCC139511	Cap,2200p,+/−20%,50V,Cer
C35	DCV019612	Cap,8p,Var,250V,Cer
C36	DCV019602	Cap,12p,Var,250V,Cer
C37A	DCC239221	Cap,15p,+/−5%,50V,Cer
C37	DCC239011	Cap,33p,+/−5%,50V,Cer
C38	DCV019602	Cap,12p,Var,250V,Cer
C39	DCV019612	Cap,8p,Var,250V,Cer
C40	DCC239221	Cap,15p,+/−5%,50V,Cer
C44	DCV019672	Cap,3p,Var,250V,Cer
C45	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C46	DCC159011	Cap,1000p,+/−10%,500V,Cer
C47	DCC139051	Cap,1000p,+/−10%,50V,Cer
C48	DCC239051	Cap,100p,+/−5%,50V,Cer
C49	DCC239151	Cap,470,+/−5%,50V,Cer
C50	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C51	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C52	DCC239071	Cap,3p,+/−0.5p,50V,Cer
C53	DCE229201	Cap,47u,+/−20%,25V,Ele
C55	DCC239041	Cap,10p,+/−0.5p,50V,Cer
C101	DCE229221	Cap,150u,+/−20%,25V,Ele
C103	DCE229221	Cap,150u,+/−20%,25V,Ele
C107	DCE229221	Cap,150u,+/−20%,25V,Ele
C109	DCE229221	Cap,150u,+/−20%,25V,Ele
D11	DDD010801	Diode,1S1544A
D12	DDD010801	Diode,1S1544A
D13	DDD019071	Diode,1SS 120
D14	DDD010801	Diode,1S1544A
D21	DDD010801	Diode,1S1544A
D22	DDD010801	Diode,1S1544A
D23	DDD019071	Diode,1SS 120
D24	DDD010801	Diode,1S1544A
IC11	DIC614331	IC,u-PC 811C(NEC)
IC21	DIC614331	IC,u-PC 811C(NEC)
Q11	DTR295421	Tr,BF 410F
Q12	DTR139011	Tr,2SC 1815GR TPER1
Q13	DTR139321	Tr,2SC 3732K-T
Q14	DTR119011	Tr,2SA 1015Y TPER1
Q21	DTR295421	Tr,BF 410F
Q22	DTR139011	Tr,2SC 1815GR TPER1
Q23	DTR139321	Tr,2SC 3732K-T
Q24	DTR119011	Tr,2SA 1015Y TPER1
R1	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R2	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R3	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R4	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R7	DRD137281	Res,33,+/−5%,1/4W,Carbon
R8	DRD137611	Res,750,+/−5%,1/4W,Carbon
R10	DRE139721	Res,390K,+/−1%,1/2W,Mtl
R11	DRE233941	Res,110K,+/−5%,1/4W,Mtl
R11A	DRD137161	Res,10,+/−5%,1/4W,Carbon
R12	DRD137341	Res,56,+/−5%,1/4W,Carbon
R13	DRD137421	Res,120,+/−5%,1/4W,Carbon
R14	DRE139721	Res,390K,+/−1%,1/2W,Mtl
R15	DRE233941	Res,110K,+/−5%,1/4W,Mtl
R15A	DRE137721	Res,220,+/−1%,1/4W,Mtl
R16	DRD137261	Res,27,+/−5%,1/4W,Carbon
R17	DRD137421	Res,120,+/−5%,1/4W,Carbon
R19	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R20	DRD137241	Res,22,+/−5%,1/4W,Carbon

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R21	DRE930791	Res,820K,+/−0.25%,1/4W,Mtl
R21A	DRD137161	Res,10,+/−5%,1/4W,Carbon
R22	DRE930781	Res,150,+/−5%,1/5W,Mtl
R23	DRE930781	Res,150,+/−5%,1/5W,Mtl
R23A	DRE138041	Res,4.7K,+/−1%,1/4W,Mtl
R24	DRE930791	Res,820K,+/−0.25%,1/4W,Mtl
R25	DRV412051	Res,5K,+/−20%,1/3W,Mtl
R26	DRD137741	Res,2.7K,+/−5%,1/4W,Carbon
R28	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R29	DRG939011	Res,10M,+/−5%,1/4W,MG
R30	DRD137621	Res,820,+/−5%,1/4W,Carbon
R31	DRD137241	Res,22,+/−5%,1/4W,Carbon
R32	DRD137401	Res,100,+/−5%,1/4W,Carbon
R33	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R40	DRE990571	Res,150,+/−5%,1/5W,Mtl
R41	DRE990571	Res,150,+/−5%,1/5W,Mtl
R42	DRE990581	Res,240,+/−5%,1/5W,Mtl
R43	DRE990551	Res,62,+/−5%,1/5W,Mtl
R44	DRE137941	Res,1.8K,+/−5%,1/4W,Mtl
R45	DRD137261	Res,27,+/−5%,1/4W,Carbon
R51	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R52	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R53	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R54	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R57	DRD137281	Res,33,+/−5%,1/4W,Carbon
R58	DRD137611	Res,750,+/−5%,1/4W,Carbon
R60	DRE139721	Res,390K,+/−1%,1/2W,Mtl
R61	DRE233941	Res,110K,+/−5%,1/4W,Mtl
R62	DRD137341	Res,56,+/−5%,1/4W,Carbon
R63	DRD137421	Res,120,+/−5%,1/4W,Carbon
R64	DRE139721	Res,390K,+/−1%,1/2W,Mtl
R65	DRE233941	Res,110K,+/−5%,1/4W,Mtl
R65A	DRE137721	Res,220,+/−5%,1/4W,Mtl
R66	DRD137261	Res,27,+/−5%,1/4W,Carbon
R67	DRD137421	Res,120,+/−5%,1/4W,Carbon
R69	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R70	DRD137241	Res,22,+/−5%,1/4W,Carbon
R71	DRE930791	Res,820K,+/−0.25%,1/4W,Mtl
R72	DRE930781	Res,150,+/−5%,1/5W,Mtl
R73	DRE930781	Res,150,+/−5%,1/5W,Mtl
R73A	DRE138041	Res,4.7K,+/−1%,1/4W,Mtl
R74	DRE930791	Res,820K,+/−0.25%,1/4W,Mtl
R75	DRV412051	Res,5K,+/−20%,1/3W,Mtl
R76	DRD137741	Res,2.7K,+/−5%,1/4W,Carbon
R78	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R79	DRG939011	Res,10M,+/−5%,1/4W,MG
R80	DRD137621	Res,820,+/−5%,1/4W,Carbon
R81	DRD137241	Res,22,+/−5%,1/4W,Carbon
R82	DRD137401	Res,100,+/−5%,1/4W,Carbon
R83	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R90	DRE990571	Res,150,+/−5%,1/5W,Mtl
R91	DRE990571	Res,150,+/−5%,1/5W,Mtl
R92	DRE990581	Res,240,+/−5%,1/5W,Mtl
R93	DRE990551	Res,62,+/−5%,1/5W,Mtl
R94	DRE137941	Res,1.8K,+/−5%,1/4W,Mtl
R95	DRD137261	Res,27,+/−5%,1/4W,Carbon
R101	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R103	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R107	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R109	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
U101	DCN041171	Connector,L235
U201	DCN041171	Connector,L235

CH3／CH4 ATT PREAMP [2]

SS-7611

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCF168011	Cap,0,01u,+/−10%,400V,Flm
C2	DCC139511	Cap,2200p,+/−20%,50V,Cer
C4	DCC252401	Cap,22p,+/−10%,500V,Cer
C5	DCC251001	Cap,6p,+/−0.5p,500V,Cer
C6	DCV019592	Cap,20p,Var,250V,Cer
C7	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C8	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C9	DCC159011	Cap,1000p,+/−10%,500V,Cer
C10	DCC239051	Cap,100p,+/−5%,50V,Cer
C11	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C12	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C20A	DCC230901	Cap,5p,+/−30%,16V,Cer
C20	DCE229201	Cap,47u,+/−20%,25V,Ele
C21A	DCC232201	Cap,0.01u,+/−30%,16V,Cer
C21	DCE229201	Cap,47u,+/−20%,25V,Ele
C23A	DCC239201	Cap,4p,+/−0.25p,50V,Cer
C23	DCC239071	Cap,3p,+/−0.5p,50V,Cer
C23B	DCC232301	Cap,20p,+/−0.25p,50V,Cer
C23C	DCC239301	Cap,5p,+/−0.25p,50V,Cer
C31	DCV019851	Cap,5.5p,Var,250V,Cer
C32	DCV019602	Cap,12p,Var,250V,Cer
C33	DCF121201	Cap,1000p,+/−5%,50V,Flm
C34	DCF121201	Cap,1000p,+/−5%,50V,Flm
C35	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C42	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C47	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C51	DCF168011	Cap,0,01u,+/−10%,400V,Flm
C52	DCC139511	Cap,2200p,+/−20%,50V,Cer
C54	DCC252401	Cap,22p,+/−10%,500V,Cer
C55	DCC251001	Cap,6p,+/−0.5p,500V,Cer
C56	DCV019592	Cap,20p,Var,250V,Cer
C57	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C58	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C59	DCC159011	Cap,1000p,+/−10%,500V,Cer
C60	DCC239051	Cap,100p,+/−5%,50V,Cer
C61	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C62	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C70	DCE229201	Cap,47u,+/−20%,25V,Ele
C70A	DCC230901	Cap,5p,+/−5%,50V,Cer
C71A	DCC232201	Cap,0.01u,+/−30%,16V,Cer
C71	DCE229201	Cap,47u,+/−20%,25V,Ele
C72A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C73A	DCC239201	Cap,4p,+/−0.25p,50V,Cer
C73	DCC239071	Cap,3p,+/−0.5p,50V,Cer
C73B	DCC232301	Cap,20p,+/−0.25p,50V,Cer
C73C	DCC239301	Cap,5p,+/−0.25p,50V,Cer
C81	DCV019851	Cap,5.5p,Var,250V,Cer
C82	DCV019602	Cap,12p,Var,250V,Cer
C83	DCF121201	Cap,1000p,+/−5%,50V,Flm
C84	DCF121201	Cap,1000p,+/−5%,50V,Flm
C85	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C92	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C97	DCC929031	Cap,0.01u,+/−30%,16V,Cer
D31	DDD010801	Diode,1S1544A
D32	DDD010801	Diode,1S1544A
D33	DDD010801	Diode,1S1544A
D41	DDD010801	Diode,1S1544A
D42	DDD010801	Diode,1S1544A
D43	DDD010801	Diode,1S1544A
IC31	DIC614331	IC,u-PC 811C(NEC)
IC41	DIC614331	IC,u-PC 811C(NEC)
J11	KHB095411	Small Socket
J12	KHB095411	Small Socket
Q31	DTR295421	Tr,BF 410F
Q32	DTR139011	Tr,2SC 1815GR TPER1
Q33	DTR139321	Tr,2SC 3732K-T
Q34	DTR191361	Tr,MPS 901
Q35	DTR191361	Tr,MPS 901
Q36	DTR139011	Tr,2SC 1815GR TPER1
Q37	DTR119041	Tr,2SA 1206 TRC
Q38	DTR119011	Tr,2SA 1015Y TPER1
Q41	DTR295421	Tr,BF 410F
Q42	DTR139011	Tr,2SC 1815GR TPER1
Q43	DTR139321	Tr,2SC 3732K-T
Q44	DTR191361	Tr,MPS 901
Q45	DTR191361	Tr,MPS 901
Q46	DTR139011	Tr,2SC 1815GR TPER1
Q47	DTR119041	Tr,2SA 1206 TRC
Q48	DTR119011	Tr,2SA 1015Y TPER1
R1	DRD137281	Res,33,+/−5%,1/4W,Carbon
R2	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R3	DRD137931	Res,16K,+/−5%,1/4W,Carbon

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R4	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R5	DRD137611	Res,750,+/−5%,1/4W,Carbon
R6	DRE938071	Res,500,+/−0.5%,1/4W,Mtl
R7	DRE990691	Res,300K,+/−5%,1/5W,Mtl
R7A	DRE990681	Res,200K,+/−0.5%,Mtl
R8A	DRD138201	Res,220K,+/−5%,1/4W,Carbon
R8	DRV411991	Res,10K,+/−20%,1/3W,MG
R9	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R10	DRE990691	Res,300K,+/−5%,1/5W,Mtl
R10A	DRE990681	Res,200K,+/−0.5%,Mtl
R11A	DRD137741	Res,2.7K,+/−5%,1/4W,Carbon
R11	DRG939011	Res,10M,+/−5%,1/2W,MG
R12	DRD137401	Res,100,+/−5%,1/4W,Carbon
R13	DRD137621	Res,820,+/−5%,1/4W,Carbon
R13A	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R14	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R20	DRE990591	Res,300,+/−5%,1/5W,Mtl
R20A	DRD137521	Res,330,+/−5%,1/4W,Carbon
R21	DRE990591	Res,300,+/−5%,1/5W,Mtl
R22	DRE990561	Res,75,+/−5%,1/5W,Mtl
R23	DRE990561	Res,75,+/−5%,1/5W,Mtl
R32	DRD137351	Res,62,+/−5%,1/4W,Carbon
R33	DRD137331	Res,51,+/−5%,1/4W,Carbon
R34	DRD137331	Res,51,+/−5%,1/4W,Carbon
R35	DRE137641	Res,100,+/−1%,1/4W,Mtl
R36	DRV410511	Res,200,,Var,1/2W,Crm
R37	DRD137521	Res,330,+/−5%,1/4W,Carbon
R38	DRD137521	Res,330,+/−5%,1/4W,Carbon
R39	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R40	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R41	DRV412031	Res,1K,+/−20%,1/3W,Mtl
R42	DRE137821	Res,560,+/−1%,1/4W,Mtl
R43	DRE138001	Res,3.3K,+/−1%,1/4W,Mtl
R44	DRE138001	Res,3.3K,+/−1%,1/4W,Mtl
R45	DRD137241	Res,22,+/−5%,1/4W,Carbon
R46	DRD137241	Res,22,+/−5%,1/4W,Carbon
R47	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R48	DRD137401	Res,100,+/−5%,1/4W,Carbon
R49	DRE137701	Res,180,+/−1%,1/4W,Mtl
R51	DRD137281	Res,33,+/−5%,1/4W,Carbon
R52	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R53	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R54	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R55	DRD137611	Res,750,+/−5%,1/4W,Carbon
R56	DRE938071	Res,500,0.5%,1/4W,Mtl
R57	DRE990691	Res,300K,+/−5%,1/5W,Mtl
R57A	DRE990681	Res,200K,+/−0.5%,Mtl
R58A	DRD138201	Res,220K,+/−5%,1/4W,Carbon
R58	DRV411991	Res,10K,+/−20%,1/3W,MG
R59	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R60	DRE990691	Res,300K,+/−5%,1/5W,Mtl
R60A	DRE990681	Res,200K,+/−0.5%,Mtl
R61A	DRD137741	Res,2.7K,+/−5%,1/4W,Carbon
R61	DRG939011	Res,10M,+/−5%,1/2W,MG
R62	DRD137401	Res,100,+/−5%,1/4W,Carbon
R63	DRD137621	Res,820,+/−5%,1/4W,Carbon
R63A	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R64	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R70	DRE990591	Res,300,+/−5%,1/5W,Mtl
R70A	DRD137521	Res,330,+/−5%,1/4W,Carbon
R71	DRE990591	Res,300,+/−5%,1/5W,Mtl
R72	DRE990561	Res,75,+/−5%,1/5W,Mtl
R73	DRE990561	Res,75,+/−5%,1/5W,Mtl
R82	DRD137351	Res,62,+/−5%,1/4W,Carbon
R83	DRD137331	Res,51,+/−5%,1/4W,Carbon
R84	DRD137331	Res,51,+/−5%,1/4W,Carbon
R85	DRE137641	Res,100,+/−1%,1/4W,Mtl
R86	DRV410511	Res,200,,Var,1/2W,Crm
R87	DRD137521	Res,330,+/−5%,1/4W,Carbon
R88	DRD137521	Res,330,+/−5%,1/4W,Carbon
R89	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R90	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R91	DRV412031	Res,1K,+/−20%,1/3W,Mtl
R92	DRE137821	Res,560,+/−1%,1/4W,Mtl
R93	DRE138001	Res,3.3K,+/−1%,1/4W,Mtl
R94	DRE138001	Res,3.3K,+/−1%,1/4W,Mtl
R95	DRD137241	Res,22,+/−5%,1/4W,Carbon
R96	DRD137241	Res,22,+/−5%,1/4W,Carbon
R97	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R98	DRD137401	Res,100,+/−5%,1/4W,Carbon
R99	DRE137701	Res,180,+/−1%,1/4W,Mtl
R301	DRD137161	Res,3.9,+/−5%,1/4W,Carbon

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R302	DRD137161	Res,3. 9,+/−5%,1/4W,Carbon
R401	DRD137161	Res,3. 9,+/−5%,1/4W,Carbon
R402	DRD137161	Res,3. 9,+/−5%,1/4W,Carbon
U301	DCN041171	Connector,L235
U401	DCN041171	Connector,L235

CH3／CH4 ATT PREAMP [2]
SS-7607 and SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCF168011	Cap,0,01u,+/−10%,400V,Flm
C2	DCC139511	Cap,2200p,+/−20%,50V,Cer
C4	DCC252401	Cap,22p,+/−10%,500V,Cer
C5	DCC251001	Cap,6p,+/−0. 5p,500V,Cer
C6	DCV019592	Cap,20p,Var,250V,Cer
C7	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C8	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C9	DCC159011	Cap,1000p,+/−10%,500V,Cer
C10	DCC239051	Cap,100p,+/−5%,50V,Cer
C11	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C12	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C20	DCE229201	Cap,47u,+/−20%,25V,Ele
C21	DCE229201	Cap,47u,+/−20%,25V,Ele
C21A	DCC231701	Cap,10p,+/−0. 25p,50V,Cer
C23A	DCC239201	Cap,4p,+/−0. 25p,50V,Cer
C23	DCC239041	Cap,10p,+/−0. 5p,50V,Cer
C23B	DCC232601	Cap,27,+/−5%,50V,Cer
C31	DCV019851	Cap,5. 5p,Var,250V,Cer
C32	DCV019592	Cap,12p,Var,250V,Cer
C33	DCF121201	Cap,1000p,+/−5%,50V,Flm
C34	DCF121201	Cap,1000p,+/−5%,50V,Flm
C35	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C42	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C47	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C51	DCF168011	Cap,0,01u,+/−10%,400V,Flm
C52	DCC139511	Cap,2200p,+/−20%,50V,Cer
C54	DCC252401	Cap,22p,+/−10%,500V,Cer
C55	DCC251001	Cap,6p,+/−0. 5p,500V,Cer
C56	DCV019592	Cap,20p,Var,250V,Cer
C57	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C58	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C59	DCC159011	Cap,1000p,+/−10%,500V,Cer
C60	DCC239051	Cap,100p,+/−5%,50V,Cer
C61	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C62	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C70	DCE229201	Cap,47u,+/−20%,25V,Ele
C71	DCE229201	Cap,47u,+/−20%,25V,Ele
C71A	DCC231701	Cap,10p,+/−0. 25p,50V,Cer
C73A	DCC239201	Cap,4p,+/−0. 25p,50V,Cer
C73	DCC239041	Cap,10p,+/−0. 5p,50V,Cer
C73B	DCC232601	Cap,27p,+/−5%,50V,Cer

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C73C	DCC230501	Cap,2p,+/−0.25p,50V,Cer
C81	DCV019851	Cap,5.5p,Var,250V,Cer
C82	DCV019592	Cap,12p,Var,250V,Cer
C83	DCF121201	Cap,1000p,+/−5%,50V,Flm
C84	DCF121201	Cap,1000p,+/−5%,50V,Flm
C85	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C92	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C97	DCC929031	Cap,0.01u,+/−30%,16V,Cer
D31	DDD010801	Diode,1S1544A
D32	DDD010801	Diode,1S1544A
D33	DDD010801	Diode,1S1544A
D41	DDD010801	Diode,1S1544A
D42	DDD010801	Diode,1S1544A
D43	DDD010801	Diode,1S1544A
IC31	DIC614331	IC,u-PC 811C(NEC)
IC41	DIC614331	IC,u-PC 811C(NEC)
J11	KHB095411	Small Socket
J12	KHB095411	Small Socket
Q31	DTR295421	Tr,BF 410F
Q32	DTR139011	Tr,2SC 1815GR TPER1
Q33	DTR139321	Tr,2SC 3732K-T
Q34	DTR191361	Tr,MPS 901
Q35	DTR191361	Tr,MPS 901
Q36	DTR139011	Tr,2SC 1815GR TPER1
Q37	DTR119041	Tr,2SA 1206 TRC
Q38	DTR119011	Tr,2SA 1015Y TPER1
Q41	DTR295421	Tr,BF 410F
Q42	DTR139011	Tr,2SC 1815GR TPER1
Q43	DTR139321	Tr,2SC 3732K-T
Q44	DTR191361	Tr,MPS 901
Q45	DTR191361	Tr,MPS 901
Q46	DTR139011	Tr,2SC 1815GR TPER1
Q47	DTR119041	Tr,2SA 1206 TRC
Q48	DTR119011	Tr,2SA 1015Y TPER1
R1	DRD137321	Res,47,+/−5%,1/4W,Carbon
R2	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R3	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R4	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R5	DRD137611	Res,750,+/−5%,1/4W,Carbon
R6	DRE938071	Res,500,+/−0.5%,1/4W,Mtl
R7	DRE990691	Res,300K,+/−5%,1/5W,Mtl
R7A	DRE990681	Res,200K,+/−0.5%,1/5W,Mtl
R8A	DRD138201	Res,220K,+/−5%,1/4W,Carbon
R8	DRV411991	Res,10K,+/−20%,1/3W,MG
R9	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R10	DRE990691	Res,300K,+/−5%,1/5W,Mtl
R10A	DRE990681	Res,200K,+/−0.5%,Mtl
R11	DRG939011	Res,10M,+/−5%,1/4W,MG
R11A	DRD137741	Res,2.7K,+/−5%,1/4W,Carbon
R12	DRD137401	Res,100,+/−5%,1/4W,Carbon
R13	DRD137621	Res,820,+/−5%,1/4W,Carbon
R13A	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R14	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R20	DRE990591	Res,300,+/−5%,1/5W,Mtl
R21	DRE990591	Res,300,+/−5%,1/5W,Mtl
R22	DRE990561	Res,75,+/−5%,1/5W,Mtl
R23	DRE990561	Res,75,+/−5%,1/5W,Mtl
R32	DRD137351	Res,62,+/−5%,1/4W,Carbon
R33	DRD137331	Res,51,+/−5%,1/4W,Carbon
R34	DRD137331	Res,51,+/−5%,1/4W,Carbon
R35	DRE137641	Res,100,+/−1%,1/4W,Mtl
R36	DRV410511	Res,200,,Var,1/2W,Crm
R37	DRD137521	Res,330,+/−5%,1/4W,Carbon
R38	DRD137521	Res,330,+/−5%,1/4W,Carbon
R39	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R40	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R41	DRV410511	Res,200,Var,1/2W.Crm
R42	DRE137821	Res,560,+/−1%,1/4W,Mtl
R43	DRE138001	Res,3.3K,+/−1%,1/4W,Mtl
R44	DRE138001	Res,3.3K,+/−1%,1/4W,Mtl
R45	DRD137241	Res,22,+/−5%,1/4W,Carbon
R46	DRD137241	Res,22,+/−5%,1/4W,Carbon
R47	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R48	DRD137401	Res,100,+/−5%,1/4W,Carbon
R49	DRE137681	Res,150,+/−1%,1/4W,Mtl
R51	DRD137321	Res,47,+/−5%,1/4W,Carbon
R52	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R53	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R54	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R55	DRD137611	Res,750,+/−5%,1/4W,Carbon
R56	DRE938071	Res,500,+/−0.5%,1/4W,Mtl
R57	DRE990691	Res,300K,+/−5%,1/5W,Mtl

ATT CONTROL [3]

SS-7611／SS-7607, SS-7610／SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R57A	DRE990681	Res,200K,+/−0.5%,1/5W,Mtl
R58A	DRD138201	Res,220K,+/−5%,1/4W,Carbon
R58	DRV411991	Res,10K,+/−20%,1/3W,MG
R59	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R60	DRE990691	Res,300K,+/−5%,1/5W,MG
R60A	DRE990681	Res,200K,+/−0.5%,1/5W,Mtl
R61	DRG939011	Res,10M,+/−5%,1/4W,MG
R61A	DRD137741	Res,2.7K,+/−5%,1/4W,Carbon
R62	DRD137401	Res,100,+/−5%,1/4W,Carbon
R63	DRD137621	Res,820,+/−5%,1/4W,Carbon
R63A	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R64	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R70	DRE990591	Res,300,+/−5%,1/5W,Mtl
R71	DRE990591	Res,300,+/−5%,1/5W,Mtl
R72	DRE990561	Res,75,+/−5%,1/5W,Mtl
R73	DRE990561	Res,75,+/−5%,1/5W,Mtl
R82	DRD137351	Res,62,+/−5%,1/4W,Carbon
R83	DRD137331	Res,51,+/−5%,1/4W,Carbon
R84	DRD137331	Res,51,+/−5%,1/4W,Carbon
R85	DRE137641	Res,100,+/−1%,1/4W,Mtl
R86	DRV410511	Res,200,,Var,1/2W,Crm
R87	DRD137521	Res,330,+/−5%,1/4W,Carbon
R88	DRD137521	Res,330,+/−5%,1/4W,Carbon
R89	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R90	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R91	DRV410511	Res,200,Var,1/2W,Crm
R92	DRE137821	Res,560,+/−1%,1/4W,Mtl
R93	DRE138001	Res,3.3K,+/−1%,1/4W,Mtl
R94	DRE138001	Res,3.3K,+/−1%,1/4W,Mtl
R95	DRD137241	Res,22,+/−5%,1/4W,Carbon
R96	DRD137241	Res,22,+/−5%,1/4W,Carbon
R97	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R98	DRD137401	Res,100,+/−5%,1/4W,Carbon
R99	DRE137681	Res,150,+/−1%,1/4W,Mtl
R301	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R302	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R401	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R402	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
U301	DCN041171	Connector,L235
U401	DCN041171	Connector,L235

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C10	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C11	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C12	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C13	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C14	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C15	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C16	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C17	DCE925881	Cap,150u,+/−20%,25V,Ele
C20	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C21	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C22	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C23	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C24	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C25	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C26	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C27	DCE925881	Cap,150u,+/−20%,25V,Ele
C31	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C32	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C33	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C34	DCE229201	Cap,47u,+/−20%,25V,Ele
C41	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C42	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C43	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C44	DCE229201	Cap,47u,+/−20%,25V,Ele
C51	DCC139051	Cap,1000p,+/−10%,50V,Cer
C52	DCC139051	Cap,1000p,+/−10%,50V,Cer
C53	DCC139051	Cap,1000p,+/−10%,50V,Cer
C54	DCC139051	Cap,1000p,+/−10%,50V,Cer
C61	DCC139051	Cap,1000p,+/−10%,50V,Cer
C62	DCC139051	Cap,1000p,+/−10%,50V,Cer
C63	DCC139051	Cap,1000p,+/−10%,50V,Cer
C64	DCC139051	Cap,1000p,+/−10%,50V,Cer
C71	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C72	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C73	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C74	DCC929031	Cap,0.01u,+/−30%,16V,Cer
D11	DDD019071	Diode,1SS 120
D12	DDD019071	Diode,1SS 120
D13	DDD019071	Diode,1SS 120
D14	DDD019071	Diode,1SS 120
D15	DDD019071	Diode,1SS 120

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
D16	DDD019071	Diode,1SS 120
D21	DDD019071	Diode,1SS 120
D22	DDD019071	Diode,1SS 120
D23	DDD019071	Diode,1SS 120
D24	DDD019071	Diode,1SS 120
D25	DDD019071	Diode,1SS 120
D26	DDD019071	Diode,1SS 120
D31	DDD019071	Diode,1SS 120
D32	DDD019071	Diode,1SS 120
D41	DDD019071	Diode,1SS 120
D42	DDD019071	Diode,1SS 120
J13	DCN115731	Connector,HLEM14S-1
Q11	DTR199351	Tr,DTC 114ES TP
Q12	DTR199351	Tr,DTC 114ES TP
Q13	DTR199351	Tr,DTC 114ES TP
Q14	DTR199351	Tr,DTC 114ES TP
Q15	DTR199351	Tr,DTC 114ES TP
Q16	DTR199351	Tr,DTC 114ES TP
Q21	DTR199351	Tr,DTC 114ES TP
Q22	DTR199351	Tr,DTC 114ES TP
Q23	DTR199351	Tr,DTC 114ES TP
Q24	DTR199351	Tr,DTC 114ES TP
Q25	DTR199351	Tr,DTC 114ES TP
Q26	DTR199351	Tr,DTC 114ES TP
Q31	DTR199351	Tr,DTC 114ES TP
Q32	DTR199351	Tr,DTC 114ES TP
Q41	DTR199351	Tr,DTC 114ES TP
Q42	DTR199351	Tr,DTC 114ES TP
R11	DRD137121	Res,6.8,+/−5%,1/4W,Carbon
R21	DRD137121	Res,6.8K,+/−5%,1/4W,Carbon
RL11	DKD028001	Relay,DS1-S-DC5V
RL12	DKD028001	Relay,DS1-S-DC5V
RL13	DKD025631	Relay,FBR46N D005-P
RL14	DKD025631	Relay,FBR46N D005-P
RL15	DKD027771	Relay,SY-5W-K
RL16	DKD027771	Relay,SY-5W-K
RL21	DKD028001	Relay,DS1-S-DC5V
RL22	DKD028001	Relay,DS1-S-DC5V
RL23	DKD025631	Relay,FBR46N D005-P
RL24	DKD025631	Relay,FBR46N D005-P
RL25	DKD027771	Relay,SY-5W-K
RL26	DKD027771	Relay,SY-5W-K
RL31	DKD028001	Relay,DS1-S-DC5V
RL32	DKD027771	Relay,SY-5W-K
RL41	DKD028001	Relay,DS1-S-DC5V
RL42	DKD027771	Relay,SY-5W-K
W13	KHB097911	Flat Cable,TWVF14-65

CH1 PREAMP [4]
SS-7611

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C2	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C3	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C6	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C7A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C7	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C8A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C8	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C10	DCV019612	Cap,8p,Var,250V,Cer
C11	DCC239311	Cap,150p,+/−5%,50V,Cer
C17	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C19A	DCC239061	Cap,2p,+/−0.25p,50V,Cer
C28	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C28A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C29	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C33	DCC239131	Cap,39p,+/−5%,50V,Cer
C34	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C35	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C41	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C42	DCE229201	Cap,47u,+/−20%,25V,Ele
C44	DCC239141	Cap,82p,+/−5%,50V,Cer
C45	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C46	DCE229201	Cap,47u,+/−20%,25V,Ele
C57	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C65	DCF121201	Cap,1000p,+/−5%,50V,Flm
C66	DCF121201	Cap,1000p,+/−5%,50V,Flm
C76	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C78	DCV019871	Cap,20p,Var,250V,Cer
C79	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C86	DCC239181	Cap,330p,+/−5%,50V,Cer
C101	DCV019612	Cap,8p,Var,250V,Cer
C116	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C123	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C128	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C143A	DCE229201	Cap,47u,+/−20%,25V,Ele
C143	DCE229201	Cap,47u,+/−20%,25V,Ele
C144	DCE229201	Cap,47u,+/−20%,25V,Ele
C145A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C145	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C154	DCC239031	Cap,47p,+/−5%,50V,Cer
C155	DCC239031	Cap,47p,+/−5%,50V,Cer

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
D28	DDD038921	Diode,5.1ESB1 TA21R
D76	DDD019071	Diode,1SS 120
D77	DDD019071	Diode,1SS 120
FL5	DHF039041	Filter,DST306-91FZ103Z50V
FL13	DHF039041	Filter,DST306-91FZ103Z50V
FL14	DHF039041	Filter,DST306-91FZ103Z50V
IC1	DIC614321	IC,NJM 4558S(JRC)
J3	KHB095411	Small Socket
J4	KHB095411	Small Socket
J7	DCN115731	Connector,HLEM14S-1
PC1	DFB030631	Photo Coupler,PS-2501-2
Q1	DTR191521	Tr,SRFJ 1018
Q2	DTR191521	Tr,SRFJ 1018
Q3	DTR139361	Tr,2SC 2412 TZ
Q4	DTR139361	Tr,2SC 2412 TZ
Q5	DTR119041	Tr,2SA 1206 TRC
Q6	DTR119041	Tr,2SA 1206 TRC
Q7	DTR139351	Tr,2SC 2901-T
Q8	DTR139351	Tr,2SC 2901-T
Q11	DTR191361	Tr,MPS 901
Q12	DTR191361	Tr,MPS 901
Q13	DTR191361	Tr,MPS 901
Q14	DTR191361	Tr,MPS 901
Q15	DTR139441	Tr,2SC 2037-T
Q16	DTR139441	Tr,2SC 2037-T
Q21	DTR119011	Tr,2SA 1015Y TPER1
Q22	DTR119011	Tr,2SA 1015Y TPER1
Q23	DTR139321	Tr,2SC 3732K-T
Q24	DTR139321	Tr,2SC 3732K-T
Q25	DTR230201	Tr,3SK 183-Q
Q26	DTR230201	Tr,3SK 183-Q
Q31	DTR199351	Tr,DTC 114ES TP
Q32	DTR199351	Tr,DTC 114ES TP
Q37	DTR199351	Tr,DTC 114ES TP
R1	DRD137281	Res,33,+/−5%,1/4W,Carbon
R2	DRD137321	Res,47,+/−5%,1/4W,Carbon
R3	DRD137321	Res,47,+/−5%,1/4W,Carbon
R4	DRD137581	Res,560,+/−5%,1/4W,Carbon
R5	DRD137581	Res,560,+/−5%,1/4W,Carbon
R6	DRE137701	Res,180,+/−1%,1/4W,Mtl
R7	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R8	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R10A	DRD137281	Res,33,+/−5%,1/4W,Carbon
R10	DRV411721	Res,100,+/−20%,1/3W,MG
R11	DRE137641	Res,100,+/−1%,1/4W,Mtl
R12	DDD080331	Th,112101-2
R14	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R15	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R16	DRD138041	Res,47K,+/−5%,1/4W,Carbon
R17	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R18	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R19	DRD137321	Res,47,+/−5%,1/4W,Carbon
R19A	DRD137321	Res,47,+/−5%,1/4W,Carbon
R20	DRD137321	Res,47,+/−5%,1/4W,Carbon
R21	DRE137821	Res,560,+/−1%,1/4W,Mtl
R22	DRE137821	Res,560,+/−1%,1/4W,Mtl
R23	DRE138081	Res,6.8K,+/−1%,1/4W,Mtl
R24	DRE137961	Res,2.2K,+/−1%,1/4W,Mtl
R25	DRD137521	Res,330,+/−5%,1/4W,Carbon
R26	DRD137691	Res,1.6K,+/−5%,1/4W,Carbon
R27	DRD137691	Res,1.6K,+/−5%,1/4W,Carbon
R28	DRE137721	Res,220,+/−1%,1/4W,Mtl
R29	DRE137721	Res,220,+/−1%,1/4W,Mtl
R30	DRD137711	Res,20K,+/−5%,1/4W,Carbon
R31	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R32	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R33	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R34	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R35	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R36	DRE137721	Res,220,+/−1%,1/4W,Mtl
R37	DRE137491	Res,24,+/−1%,1/4W,Mtl
R38	DRE138241	Res,33K,+/−1%,1/4W,Mtl
R41	DRE138091	Res,7.5K,+/−1%,1/4W,Mtl
R42	DRV412051	Res,5K,+/−20%,1/3W,Mtl
R43	DRD137381	Res,82,+/−5%,1/4W,Carbon
R44	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R45	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R46	DRE137641	Res,100,+/−1%,1/4W,Mtl
R47	DRE138261	Res,39K,+/−1%,1/4W,Mtl
R49	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R51	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R52	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R53	DRD137601	Res,680,+/−5%,1/4W,Carbon
R55	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R56	DRD138211	Res,240K,+/−5%,1/4W,Carbon
R57	DRE138021	Res,3.9K,+/−1%,1/4W,Mtl
R58	DRD137331	Res,51,+/−5%,1/4W,Carbon
R59	DRD137331	Res,51,+/−5%,1/4W,Carbon
R61	DRD137241	Res,22,+/−5%,1/4W,Carbon
R62	DRD137241	Res,22,+/−5%,1/4W,Carbon
R63	DRE137801	Res,470,+/−1%,1/4W,Mtl
R64	DRE137801	Res,470,+/−1%,1/4W,Mtl
R65	DRD137451	Res,160,+/−5%,1/4W,Carbon
R66	DRD137451	Res,160,+/−5%,1/4W,Carbon
R67	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R68	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R71	DRE137661	Res,120,+/−1%,1/4W,Mtl
R78	DRV411891	Res,5K,Var,1/4W,MG
R86	DRD137771	Res,3.6K,+/−5%,1/4W,Carbon
R91	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R92	DRE137601	Res,68,+/−1%,1/4W,Mtl
R93	DRV411721	Res,100,+/−20%,1/3W,MG
R94	DRD137321	Res,47,+/−5%,1/4W,Carbon
R95	DRD137321	Res,47,+/−5%,1/4W,Carbon
R96	DRE137821	Res,560,+/−1%,1/4W,Mtl
R97	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R101	DRE137711	Res,200,+/−1%,1/4W,Mtl
R102	DRE137711	Res,200,+/−1%,1/4W,Mtl
R103A	DRV410551	Res,5K,Var,1/4W,MG
R104	DRD137521	Res,330,+/−5%,1/4W,Carbon
R105	DRD137521	Res,330,+/−5%,1/4W,Carbon
R106	DRD137401	Res,100,+/−5%,1/4W,Carbon
R107	DRD137401	Res,100,+/−5%,1/4W,Carbon
R111	DRD137321	Res,47,+/−5%,1/4W,Carbon
R112	DRD137321	Res,47,+/−5%,1/4W,Carbon
R113	DRD137321	Res,47,+/−5%,1/4W,Carbon
R114	DRD137321	Res,47,+/−5%,1/4W,Carbon
R115	DRE137961	Res,2.2K,+/−1%,1/4W,Mtl
R116	DRE137841	Res,680,+/−1%,1/4W,Mtl
R121	DRE137851	Res,750,+/−1%,1/4W,Mtl
R122	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R123	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R124	DRE138071	Res,6.2K,+/−1%,1/4W,Mtl

CH1 PREAMP [4]

SS-7607

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R125	DRV412041	Res,2K,+/−20%,1/3W,MG
R126	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R127	DRE138081	Res,6.8K,1%,+/−1/4W,Mtl
R128	DRE138111	Res,9.1K,+/−1%,1/4W,Mtl
R131	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R132	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R133	DRD138021	Res,39K,+/−5%,1/4W,Carbon
R135	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R136	DRE138021	Res,3.9K,+/−1%,1/4W,Mtl
R137	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R141	DRD137701	Res,1.8K,+/−5%,1/4W,Carbon
R142	DRD137701	Res,1.8K,+/−5%,1/4W,Carbon
R143	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R144	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R151	DRD137441	Res,150,+/−5%,1/4W,Carbon
R152	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R153	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R154	DRD137321	Res,47,+/−5%,1/4W,Carbon
R155	DRD137321	Res,47,+/−5%,1/4W,Carbon
RL1	DKD025931	Relay,FBR22N H12-P
RL2	DKD027781	Relay,SY-12W-K
W7	KHB097911	Flat Cable,TWVF14-65

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCC929031	Cap,0.01u,+/−5%,50V,Cer
C2	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C3	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C6	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C7A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C7	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C8A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C10	DCC239071	Cap,3p,+/−0.25p,50V,Cer
C11	DCC239051	Cap,150p,+/−5%,50V,Cer
C17	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C28A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C28	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C29	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C33	DCC239131	Cap,39p,+/−5%,50V,Cer
C34	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C35	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C41	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C42	DCE229201	Cap,47u,+/−20%,25V,Ele
C44	DCC239141	Cap,82p,+/−5%,50V,Cer
C45	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C46	DCE229201	Cap,47u,+/−20%,25V,Ele
C57	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C65	DCF121201	Cap,1000p,+/−5%,50V,Flm
C66	DCF121201	Cap,1000p,+/−5%,50V,Flm
C76	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C78	DCV019871	Cap,20p,Var,250V,Cer
C79	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C86	DCC239371	Cap,390p,+/−5%,50V,Cer
C116	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C123	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C128	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C143A	DCE229201	Cap,47u,+/−20%,25V,Ele
C143	DCE229201	Cap,47u,+/−20%,25V,Ele
C144	DCE229201	Cap,47u,+/−20%,25V,Ele
C145A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C145	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C154	DCC239031	Cap,47p,+/−5%,50V,Cer
C155	DCC239031	Cap,47p,+/−5%,50V,Cer
D28	DDD038921	Diode,5.6ESB1 TA21R
D76	DDD019071	Diode,1SS 120
D77	DDD019071	Diode,1SS 120

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
FL5	DHF039041	Filter,DST306-55FZ103Z50V
FL13	DHF039041	Filter,DST306-55FZ103Z50V
FL14	DHF039041	Filter,DST306-55FZ103Z50V
IC1	DIC614321	IC,NJM 4558S(JRC)
J3	KHB095411	Small Socket
J4	KHB095411	Small Socket
J7	DCN115731	Connector,HLEM14S-1
PC1	DFB030631	Photo Coupler,PS-2501-2
Q1	DTR191521	Tr,SRFJ 1018
Q2	DTR191521	Tr,SRFJ 1018
Q3	DTR139361	Tr,2SC 2412 TZ
Q4	DTR139361	Tr,2SC 2412 TZ
Q5	DTR155131	Tr,2N 3905
Q6	DTR155131	Tr,2N 3905
Q7	DTR139351	Tr,2SC 2901-T
Q8	DTR139351	Tr,2SC 2901-T
Q11	DTR191361	Tr,MPS 901
Q12	DTR191361	Tr,MPS 901
Q13	DTR191361	Tr,MPS 901
Q14	DTR191361	Tr,MPS 901
Q15	DTR139441	Tr,2SC 2037-T
Q16	DTR139441	Tr,2SC 2037-T
Q21	DTR119011	Tr,2SA 1015Y TPER1
Q22	DTR119011	Tr,2SA 1015Y TPER1
Q23	DTR139321	Tr,2SC 3732K-T
Q24	DTR139321	Tr,2SC 3732K-T
Q25	DTR230201	Tr,3SK 183-Q
Q26	DTR230201	Tr,3SK 183-Q
Q31	DTR199351	Tr,DTC 114ES TP
Q32	DTR199351	Tr,DTC 114ES TP
Q37	DTR199351	Tr,DTC 114ES TP
R1	DRD137281	Res,33,+/−5%,1/4W,Carbon
R2	DRD137321	Res,47,+/−5%,1/4W,Carbon
R3	DRD137321	Res,47,+/−5%,1/4W,Carbon
R4	DRD137581	Res,560,+/−5%,1/4W,Carbon
R5	DRD137581	Res,560,+/−5%,1/4W,Carbon
R6	DRE137701	Res,180,+/−1%,1/4W,Mtl
R7	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R8	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R10	DRV411721	Res,100,+/−20%,1/3W,MG
R10A	DRD137281	Res,33,+/−5%,1/4W,Carbon

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R11	DRE137641	Res,100,+/−1%,1/4W,Mtl
R12	DDD080331	Th,112101-2
R14	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R15	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R16	DRD138041	Res,47K,+/−5%,1/4W,Carbon
R17	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R18	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R19	DRD137321	Res,47,+/−5%,1/4W,Carbon
R20	DRD137321	Res,47,+/−5%,1/4W,Carbon
R21	DRE137821	Res,560,+/−1%,1/4W,Mtl
R22	DRE137821	Res,560,+/−1%,1/4W,Mtl
R23	DRE138081	Res,6.8K,+/−1%,1/4W,Mtl
R24	DRE137961	Res,2.2K,+/−1%,1/4W,Mtl
R25	DRD137521	Res,330,+/−5%,1/4W,Carbon
R26	DRD137691	Res,1.6K,+/−5%,1/4W,Carbon
R27	DRD137691	Res,1.6K,+/−5%,1/4W,Carbon
R28	DRE137721	Res,220,+/−1%,1/4W,Mtl
R29	DRE137721	Res,220,+/−1%,1/4W,Mtl
R30	DRD137711	Res,20K,+/−5%,1/4W,Carbon
R31	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R32	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R33	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R34	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R35	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R36	DRE137721	Res,220,+/−1%,1/4W,Mtl
R37	DRE137491	Res,24,+/−1%,1/4W,Mtl
R38	DRE138241	Res,33K,+/−1%,1/4W,Mtl
R41	DRE138091	Res,7.5K,+/−1%,1/4W,Mtl
R42	DRV412051	Res,5K,+/−20%,1/3W,Mtl
R43	DRD137381	Res,82,+/−5%,1/4W,Carbon
R44	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R45	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R46	DRE137641	Res,100,+/−1%,1/4W,Mtl
R47	DRE138261	Res,39K,+/−1%,1/4W,Mtl
R49	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R51	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R52	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R53	DRD137601	Res,680,+/−5%,1/4W,Carbon
R55	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R56	DRD138211	Res,240K,+/−5%,1/4W,Carbon
R57	DRE138021	Res,3.9K,+/−1%,1/4W,Mtl

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R58	DRD137401	Res,100,+/−5%,1/4W,Carbon
R59	DRD137401	Res,100,+/−5%,1/4W,Carbon
R61	DRD137381	Res,82,+/−5%,1/4W,Carbon
R62	DRD137381	Res,82,+/−5%,1/4W,Carbon
R63	DRE137801	Res,470,+/−1%,1/4W,Mtl
R64	DRE137801	Res,470,+/−1%,1/4W,Mtl
R65	DRD137451	Res,160,+/−5%,1/4W,Carbon
R66	DRD137451	Res,160,+/−5%,1/4W,Carbon
R67	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R68	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R71	DRE137661	Res,120,+/−1%,1/4W,Mtl
R78	DRV411891	Res,1K,+/−20%,1/3W,Mtl
R86	DRD137791	Res,4.3K,+/−5%,1/4W,Carbon
R91	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R92	DRE137601	Res,68,+/−1%,1/4W,Mtl
R93	DRV411721	Res,100,+/−20%,1/3W,MG
R94	DRD137321	Res,47,+/−5%,1/4W,Carbon
R95	DRD137321	Res,47,+/−5%,1/4W,Carbon
R96	DRE137821	Res,560,+/−1%,1/4W,Mtl
R97	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R101	DRE137711	Res,200,+/−1%,1/4W,Mtl
R102	DRE137711	Res,200,+/−1%,1/4W,Mtl
R103A	DRV410551	Res,5K,Var,1/4W,MG
R104	DRD137521	Res,330,+/−5%,1/4W,Carbon
R105	DRD137521	Res,330,+/−5%,1/4W,Carbon
R106	DRD137401	Res,100,+/−5%,1/4W,Carbon
R107	DRD137401	Res,100,+/−5%,1/4W,Carbon
R111	DRD137321	Res,47,+/−5%,1/4W,Carbon
R112	DRD137321	Res,47,+/−5%,1/4W,Carbon
R113	DRD137321	Res,47,+/−5%,1/4W,Carbon
R114	DRD137321	Res,47,+/−5%,1/4W,Carbon
R115	DRE137961	Res,2.2K,+/−1%,1/4W,Mtl
R116	DRE137841	Res,680,+/−1%,1/4W,Mtl
R121	DRE137851	Res,750,+/−1%,1/4W,Mtl
R122	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R123	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R124	DRE138071	Res,6.2K,+/−1%,1/4W,Mtl
R125	DRV412041	Res,2K,+/−20%,1/3W,MG
R126	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R127	DRE138081	Res,6.8K,+/−1%,1/4W,Mtl
R128	DRE138111	Res,9.1K,+/−1%,1/4W,Mtl

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R131	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R132	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R133	DRD138021	Res,39K,+/−5%,1/4W,Carbon
R135	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R136	DRE138021	Res,3.9K,+/−1%,1/4W,Mtl
R137	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R141	DRD137701	Res,1.8K,+/−5%,1/4W,Carbon
R142	DRD137701	Res,1.8K,+/−5%,1/4W,Carbon
R143	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R144	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R151	DRD137441	Res,150,+/−5%,1/4W,Carbon
R152	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R153	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R154	DRD137321	Res,47,+/−5%,1/4W,Carbon
R155	DRD137321	Res,47,+/−5%,1/4W,Carbon
RL1	DKD025931	Relay,SY-12W-K
RL2	DKD025931	Relay,SY-12W-K
W7	KHB097911	Flat Cable,TWVF14-65

CH1 PREAMP [4]

SS-7610

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C2	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C3	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C6	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C7A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C7	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C8A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C8	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C10	DCV019612	Cap,8p,Var,250V,Cer
C11	DCC239331	Cap,68p,+/−5%,50V,Cer
C17	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C19A	DCC239061	Cap,2p,+/−0.25p,50V,Cer
C28	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C28A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C29	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C33	DCC239131	Cap,39p,+/−5%,50V,Cer
C34	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C35	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C41	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C42	DCE229201	Cap,47u,+/−20%,25V,Ele
C44	DCC239141	Cap,82p,+/−5%,50V,Cer
C45	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C46	DCE229201	Cap,47u,+/−20%,25V,Ele
C65	DCF121201	Cap,1000p,+/−5%,50V,Flm
C66	DCF121201	Cap,1000p,+/−5%,50V,Flm
C76	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C78	DCV019871	Cap,20p,Var,16V,Cer
C79	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C86	DCC239181	Cap,330p,+/−5%,50V,Cer
C101	DCV019612	Cap,8p,Var,250V,Cer
C116	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C123	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C128	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C143A	DCE229201	Cap,47u,+/−20%,25V,Ele
C143	DCE229201	Cap,47u,+/−20%,25V,Ele
C144	DCE229201	Cap,47u,+/−20%,25V,Ele
C145A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C145	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C154	DCC239031	Cap,47p,+/−5%,50V,Cer
C155	DCC239031	Cap,47p,+/−5%,50V,Cer
D28	DDD038921	Diode,5.1ESB1 TA21R
D76	DDD019071	Diode,1SS 120
D77	DDD019071	Diode,1SS 120
FL13	DHF039041	Filter,DST306-91FZ103Z50V
FL14	DHF039041	Filter,DST306-91FZ103Z50V
IC1	DIC614321	IC,NJM 4558S(JRC)
J3	KHB095411	Small Socket
J4	KHB095411	Small Socket
J7	DCN115731	Connector,HLEM14S-1
PC1	DFB030631	Photo Coupler,PC827
Q1	DTR191521	Tr,SRFJ 1018
Q2	DTR191521	Tr,SRFJ 1018
Q3	DTR139361	Tr,2SC 2412 TZ
Q4	DTR139361	Tr,2SC 2412 TZ
Q5	DTR119041	Tr,2SA 1206 TRC
Q6	DTR119041	Tr,2SA 1206 TRC
Q7	DTR139351	Tr,2SC 2901-T
Q8	DTR139351	Tr,2SC 2901-T
Q11	DTR191361	Tr,MPS 901
Q12	DTR191361	Tr,MPS 901
Q13	DTR191361	Tr,MPS 901
Q14	DTR191361	Tr,MPS 901
Q15	DTR137441	Tr,2SC 2037-T
Q16	DTR137441	Tr,2SC 2037-T
Q21	DTR119011	Tr,2SA 1015Y TPER1
Q22	DTR119011	Tr,2SA 1015Y TPER1
Q23	DTR139321	Tr,2SC 3732K-T
Q24	DTR139321	Tr,2SC 3732K-T
Q25	DTR230201	Tr,3SK 183-Q
Q31	DTR199351	Tr,DTC 114ES TP
Q32	DTR199351	Tr,DTC 114ES TP
Q37	DTR199351	Tr,DTC 114ES TP
R1	DRD137281	Res,33,+/−5%,1/4W,Carbon
R2	DRD137321	Res,47,+/−5%,1/4W,Carbon
R3	DRD137321	Res,47,+/−5%,1/4W,Carbon
R4	DRD137581	Res,560,+/−5%,1/4W,Carbon
R5	DRD137581	Res,560,+/−5%,1/4W,Carbon
R6	DRE137701	Res,180,+/−1%,1/4W,Mtl
R7	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R8	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R10A	DRD137281	Res,33,+/−5%,1/4W,Carbon
R10	DRV411721	Res,100,+/−20%,1/3W,MG

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R11	DRE137641	Res,100,+/−1%,1/4W,Mtl
R12	DDD080331	Th,112101-2
R14	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R15	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R16	DRD138041	Res,47K,+/−5%,1/4W,Carbon
R17	DRE138021	Res,3.9K,+/−1%,1/4W,Mtl
R18	DRE138021	Res,3.9K,+/−1%,1/4W,Mtl
R19A	DRD137321	Res,47,+/−5%,1/4W,Carbon
R19	DRD137321	Res,47,+/−5%,1/4W,Carbon
R20	DRD137321	Res,47,+/−5%,1/4W,Carbon
R21	DRE137821	Res,560,+/−1%,1/4W,Mtl
R22	DRE137821	Res,560,+/−1%,1/4W,Mtl
R23	DRE138081	Res,6.8K,+/−1%,1/4W,Mtl
R24	DRE137961	Res,2.2K,+/−1%,1/4W,Mtl
R25	DRD137521	Res,330,+/−5%,1/4W,Carbon
R26	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R27	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R28	DRE137721	Res,220,+/−1%,1/4W,Mtl
R29	DRE137721	Res,220,+/−1%,1/4W,Mtl
R30	DRD137711	Res,20K,+/−5%,1/4W,Carbon
R31	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R32	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R33	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R34	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R35	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R36	DRE137721	Res,220,+/−1%,1/4W,Mtl
R37	DRE137491	Res,24,+/−1%,1/4W,Mtl
R38	DRE138241	Res,33K,+/−1%,1/4W,Mtl
R41	DRE138091	Res,7.5K,+/−1%,1/4W,Mtl
R42	DRV412051	Res,5K,+/−20%,1/3W,Mtl
R43	DRD137381	Res,82,+/−5%,1/4W,Carbon
R44	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R45	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R46	DRE137641	Res,100,+/−1%,1/4W,Mtl
R47	DRE138261	Res,39K,+/−1%,1/4W,Mtl
R47A	DRV412621	Res,10K,+/−20%,1/4W,Mtl
R49	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R51	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R52	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R53	DRD137601	Res,680,+/−5%,1/4W,Carbon
R56	DRD138211	Res,240K,+/−5%,1/4W,Carbon
R56A	DRV412621	Res,10K,Var,1/2W,Crm
R56B	DRE138071	Res,6.2K,+/−5%,1/4W,Mtl
R58	DRD137331	Res,51,+/−5%,1/4W,Carbon
R59	DRD137331	Res,51,+/−5%,1/4W,Carbon
R61	DRD137241	Res,22,+/−5%,1/4W,Carbon
R62	DRD137241	Res,22,+/−5%,1/4W,Carbon
R63	DRE137801	Res,470,+/−1%,1/4W,Mtl
R64	DRE137801	Res,470,+/−1%,1/4W,Mtl
R65	DRD137451	Res,160,+/−5%,1/4W,Carbon
R66	DRD137451	Res,160,+/−5%,1/4W,Carbon
R67	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R68	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R71	DRE137661	Res,120,+/−1%,1/4W,Mtl
R78	DRV411891	Res,5K,Var,1/4W,MG
R86	DRD137771	Res,3.6K,+/−5%,1/4W,Carbon
R91	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R92	DRE137601	Res,68,+/−1%,1/4W,Mtl
R93	DRV411721	Res,100,+/−20%,1/3W,MG
R94	DRD137321	Res,47,+/−5%,1/4W,Carbon
R95	DRD137321	Res,47,+/−5%,1/4W,Carbon
R96	DRE137821	Res,560,+/−1%,1/4W,Mtl
R97	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R101	DRE137711	Res,200,+/−1%,1/4W,Mtl
R102	DRE137711	Res,200,+/−1%,1/4W,Mtl
R103A	DRV410551	Cap,5K,Var,1/2W,Crm
R104	DRD137521	Res,330,+/−5%,1/4W,Carbon
R105	DRD137521	Res,330,+/−5%,1/4W,Carbon
R106	DRD137401	Res,100,+/−5%,1/4W,Carbon
R107	DRD137401	Res,100,+/−5%,1/4W,Carbon
R111	DRD137321	Res,47,+/−5%,1/4W,Carbon
R112	DRD137321	Res,47,+/−5%,1/4W,Carbon
R113	DRD137321	Res,47,+/−5%,1/4W,Carbon
R114	DRD137321	Res,47,+/−5%,1/4W,Carbon
R115	DRE137961	Res,2.2K,+/−1%,1/4W,Mtl
R116	DRE137841	Res,680,+/−1%,1/4W,Mtl
R121	DRE137851	Res,750,+/−1%,1/4W,Mtl
R122	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R123	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R124	DRE138071	Res,6.2K,+/−1%,1/4W,Mtl
R125	DRV412041	Res,2K,+/−20%,1/3W,MG
R126	DRE138031	Res,4.3K,+/−1%,14W,Mtl

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R127	DRE138081	Res,6.8K,+/−1%,1/4W,Mtl
R128	DRE138111	Res,9.1K,+/−1%,1/4W,Mtl
R131	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R132	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R133	DRD138021	Res,39K,+/−5%,1/4W,Carbon
R135	DRE138161	Res,15K,+/−1%,1/4W,Mtl
R136	DRE138231	Res,30K,+/−1%,1/4W,Mtl
R141	DRD137701	Res,1.8K,+/−5%,1/4W,Carbon
R142	DRD137701	Res,1.8K,+/−5%,1/4W,Carbon
R143	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R144	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R151	DRD137441	Res,150,+/−5%,1/4W,Carbon
R152	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R153	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R154	DRD137321	Res,47,+/−5%,1/4W,Carbon
R155	DRD137321	Res,47,+/−5%,1/4W,Carbon
RL1	DKD025931	Relay,FBR22N H12-P
RL2	DKD027781	Relay,SY-12W-K
W7	KHB097911	Flat Cable,TWVF14-65

CH1 PREAMP [4]

SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C2	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C3	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C6	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C7A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C7	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C8A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C8	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C10	DCC239071	Cap,3p,+/−0.25p,50V,Cer
C11	DCC239051	Cap,100p,+/−5%,50V,Cer
C17	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C28	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C28A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C29	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C33	DCC239131	Cap,39p,+/−5%,50V,Cer
C34	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C35	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C41	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C42	DCE229201	Cap,47u,+/−20%,25V,Ele
C44	DCC239141	Cap,82p,+/−5%,50V,Cer
C45	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C46	DCE229201	Cap,47u,+/−20%,25V,Ele
C65	DCF121201	Cap,1000p,+/−5%,50V,Flm
C66	DCF121201	Cap,1000p,+/−5%,50V,Flm
C76	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C78	DCV019871	Cap,20p,Var,16V,Cer
C79	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C86	DCC239371	Cap,390p,+/−5%,50V,Cer
C116	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C123	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C128	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C143	DCE229201	Cap,47u,+/−20%,25V,Ele
C143A	DCE229201	Cap,47u,+/−20%,25V,Ele
C144	DCE229201	Cap,47u,+/−20%,25V,Ele
C145A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C145	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C154	DCC239031	Cap,47p,+/−5%,50V,Cer
C155	DCC239031	Cap,47p,+/−5%,50V,Cer
D28	DDD038921	Diode,5.1ESB1 TA21R
D76	DDD019071	Diode,1SS 120
D77	DDD019071	Diode,1SS 120

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
FL13	DHF039041	Filter,DST306-91FZ103Z50V
FL14	DHF039041	Filter,DST306-91FZ103Z50V
IC1	DIC614321	IC,NJM 4558S(JRC)
J3	KHB095411	Small Socket
J4	KHB095411	Small Socket
J7	DCN115731	Connector,HLEM14S-1
PC1	DFB030631	Photo Coupler,PC827
Q1	DTR191521	Tr,SRFJ 1018
Q2	DTR191521	Tr,SRFJ 1018
Q3	DTR139361	Tr,2SC 2412 TZ
Q4	DTR139361	Tr,2SC 2412 TZ
Q5	DTR155131	Tr,2N 3905
Q6	DTR155131	Tr,2N 3905
Q7	DTR139351	Tr,2SC 2901-T
Q8	DTR139351	Tr,2SC 2901-T
Q11	DTR191361	Tr,MPS 901
Q12	DTR191361	Tr,MPS 901
Q13	DTR191361	Tr,MPS 901
Q14	DTR191361	Tr,MPS 901
Q15	DTR139441	Tr,2SC 2037-T
Q16	DTR139441	Tr,2SC 2037-T
Q21	DTR119011	Tr,2SA 1015Y TPER1
Q22	DTR119011	Tr,2SA 1015Y TPER1
Q23	DTR139321	Tr,2SC 3732K-T
Q24	DTR139321	Tr,2SC 3732K-T
Q25	DTR230201	Tr,3SK 183-Q
Q31	DTR199351	Tr,DTC 114ES TP
Q32	DTR199351	Tr,DTC 114ES TP
Q37	DTR199351	Tr,DTC 114ES TP
R1	DRD137281	Res,33,+/−5%,1/4W,Carbon
R2	DRD137321	Res,47,+/−5%,1/4W,Carbon
R3	DRD137321	Res,47,+/−5%,1/4W,Carbon
R4	DRD137581	Res,560,+/−5%,1/4W,Carbon
R5	DRD137581	Res,560,+/−5%,1/4W,Carbon
R6	DRE137701	Res,180,+/−1%,1/4W,Mtl
R7	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R8	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R10	DRV411721	Res,100,+/−20%,1/3W,MG
R10A	DRD137281	Res,33,+/−5%,1/4W,Carbon
R11	DRE137641	Res,100,+/−1%,1/4W,Mtl
R12	DDD080331	Th,112101-2
R14	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R15	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R16	DRD138041	Res,47K,+/−5%,1/4W,Carbon
R17	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R18	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R19	DRD137321	Res,47,+/−5%,1/4W,Carbon
R20	DRD137321	Res,47,+/−5%,1/4W,Carbon
R21	DRE137821	Res,560,+/−1%,1/4W,Mtl
R22	DRE137821	Res,560,+/−1%,1/4W,Mtl
R23	DRE138081	Res,6.8K,+/−1%,1/4W,Mtl
R24	DRE137961	Res,2.2K,+/−1%,1/4W,Mtl
R25	DRD137521	Res,330,+/−5%,1/4W,Carbon
R26	DRD137691	Res,1.6K,+/−5%,1/4W,Carbon
R27	DRD137691	Res,1.6K,+/−5%,1/4W,Carbon
R28	DRE137721	Res,220,+/−1%,1/4W,Mtl
R29	DRE137721	Res,220,+/−1%,1/4W,Mtl
R30	DRD137711	Res,20K,+/−5%,1/4W,Carbon
R31	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R32	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R33	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R34	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R35	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R36	DRE137721	Res,220,+/−1%,1/4W,Mtl
R37	DRE137491	Res,24,+/−1%,1/4W,Mtl
R38	DRE138241	Res,33K,+/−1%,1/4W,Mtl
R41	DRE138091	Res,7.5K,+/−1%,1/4W,Mtl
R42	DRV412051	Res,5K,+/−20%,1/3W,Mtl
R43	DRD137381	Res,82,+/−5%,1/4W,Carbon
R44	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R45	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R46	DRE137641	Res,100,+/−1%,1/4W,Mtl
R47	DRE138261	Res,39K,+/−1%,1/4W,Mtl
R47A	DRV412621	Res,10K,+/−20%,1/2W,Crm
R49	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R51	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R52	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R53	DRD137601	Res,680,+/−5%,1/4W,Carbon
R56	DRD138211	Res,240K,+/−5%,1/4W,Carbon
R56A	DRV412621	Res,10K,+/−50%,1/2W,Crm
R56B	DRE138071	Res,6.2K,+/−5%,1/4W,Mtl
R58	DRD137401	Res,100,+/−5%,1/4W,Carbon

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R59	DRD137401	Res,100,+/−5%,1/4W,Carbon
R61	DRD137381	Res,82,+/−5%,1/4W,Carbon
R62	DRD137381	Res,82,+/−5%,1/4W,Carbon
R63	DRE137801	Res,470,+/−1%,1/4W,Mtl
R64	DRE137801	Res,470,+/−1%,1/4W,Mtl
R65	DRD137451	Res,160,+/−5%,1/4W,Carbon
R66	DRD137451	Res,160,+/−5%,1/4W,Carbon
R67	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R68	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R71	DRE137661	Res,120,+/−1%,1/4W,Mtl
R78	DRV411891	Res,5K,+/−20%,1/3W,MG
R86	DRD137791	Res,4.3K,+/−5%,1/4W,Carbon
R91	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R92	DRE137601	Res,68,+/−1%,1/4W,Mtl
R93	DRV411721	Res,100,+/−20%,1/3W,MG
R94	DRD137321	Res,47,+/−5%,1/4W,Carbon
R95	DRD137321	Res,47,+/−5%,1/4W,Carbon
R96	DRE137821	Res,560,+/−1%,1/4W,Mtl
R97	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R101	DRE137711	Res,200,+/−1%,1/4W,Mtl
R102	DRE137711	Res,200,+/−1%,1/4W,Mtl
R103A	DRV410551	Res,5K,Var,1/2W,Crm
R104	DRD137521	Res,330,+/−5%,1/4W,Carbon
R105	DRD137521	Res,330,+/−5%,1/4W,Carbon
R106	DRD137401	Res,100,+/−5%,1/4W,Carbon
R107	DRD137401	Res,100,+/−5%,1/4W,Carbon
R111	DRD137321	Res,47,+/−5%,1/4W,Carbon
R112	DRD137321	Res,47,+/−5%,1/4W,Carbon
R113	DRD137321	Res,47,+/−5%,1/4W,Carbon
R114	DRD137321	Res,47,+/−5%,1/4W,Carbon
R115	DRE137961	Res,2.2K,+/−1%,1/4W,Mtl
R116	DRE137841	Res,680,+/−1%,1/4W,Mtl
R121	DRE137851	Res,750,+/−1%,1/4W,Mtl
R122	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R123	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R124	DRE138071	Res,6.2K,+/−1%,1/4W,Mtl
R125	DRV412041	Res,2K,+/−20%,1/3W,MG
R126	DRE138031	Res,4.3K,+/−1%,14W,Mtl
R127	DRE138081	Res,6.8K,+/−1%,1/4W,Mtl
R128	DRE138111	Res,9.1K,+/−1%,1/4W,Mtl
R131	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R132	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R133	DRD138021	Res,39K,+/−5%,1/4W,Carbon
R135	DRE137161	Res,15K,+/−1%,1/4W,Mtl
R136	DRE138231	Res,30K,+/−1%,1/4W,Mtl
R141	DRD137701	Res,1.8K,+/−5%,1/4W,Carbon
R142	DRD137701	Res,1.8K,+/−5%,1/4W,Carbon
R143	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R144	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R151	DRD137441	Res,150,+/−5%,1/4W,Carbon
R152	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R153	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R154	DRD137321	Res,47,+/−5%,1/4W,Carbon
R155	DRD137321	Res,47,+/−5%,1/4W,Carbon
RL1	DKD025931	Relay,FBR 22N H12-P
RL2	DKD027781	Relay,SY-12W-K
W7	KHB097911	Flat Cable,TWVF14-65

CH2 PREAMP 5
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CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C2	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C3	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C10	DCV019612	Cap,8p,Var,250V,Cer
C11	DCC239311	Cap,68p,+/−5%,50V,Cer
C17	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C19A	DCC239061	Cap,2p,+/−0.25p,50V,Cer
C28A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C29	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C33	DCC239131	Cap,39p,+/−5%,50V,Cer
C34	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C35	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C37	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C41	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C42	DCE229201	Cap,47u,+/−20%,25V,Ele
C44	DCC239141	Cap,82p,+/−5%,50V,Cer
C45	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C46	DCE229201	Cap,47u,+/−20%,25V,Ele
C57	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C65	DCF121201	Cap,1000p,+/−5%,50V,Flm
C66	DCF121201	Cap,1000p,+/−5%,50V,Flm
C76	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C78	DCV019871	Cap,20p,Var,16V,Cer
C79	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C86	DCC239181	Cap,330p,+/−5%,50V,Cer
C101	DCC239061	Cap,2p,+/−0.25p,Cer
C113	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C117	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C123	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C128	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C132	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C143A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C143	DCE229201	Cap,47u,+/−20%,25V,Ele
C144A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C144	DCE229201	Cap,47u,+/−20%,25V,Ele
C145	DCE229201	Cap,47u,+/−20%,25V,Ele
C154	DCC239031	Cap,47p,+/−5%,50V,Cer
C155	DCC239031	Cap,47p,+/−5%,50V,Cer
D28	DDD038921	Diode,5.1ESB1 TA21R
D76	DDD019071	Diode,1SS 120
D77	DDD019071	Diode,1SS 120

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
FL12	DHF039041	Filter,DST306-91FZ103Z50V
IC1	DIC614321	IC,NJM 4558S(JRC)
J5	KHB095411	Small Socket
J6	KHB095411	Small Socket
PC1	DFB030631	Coupler,PS2501-2
Q1	DTR191521	Tr,SRFJ 1018
Q2	DTR191521	Tr,SRFJ 1018
Q3	DTR139361	Tr,2SC 2412 TZ
Q4	DTR139361	Tr,2SC 2412 TZ
Q5	DTR119041	Tr,2SA 1206 TRC
Q6	DTR119041	Tr,2SA 1206 TRC
Q7	DTR139351	Tr,2SC 2901-T
Q8	DTR139351	Tr,2SC 2901-T
Q11	DTR191361	Tr,MPS 901
Q12	DTR191361	Tr,MPS 901
Q13	DTR191361	Tr,MPS 901
Q14	DTR191361	Tr,MPS 901
Q15	DTR137711	Tr,2SC 2037
Q16	DTR137711	Tr,2SC 2037
Q17	DTR137711	Tr,2SC 2037
Q18	DTR137711	Tr,2SC 2037
Q21	DTR119011	Tr,2SA 1015Y TPER1
Q22	DTR119011	Tr,2SA 1015Y TPER1
Q23	DTR139321	Tr,2SC 3732K-T
Q24	DTR139321	Tr,2SC 3732K-T
Q25	DTR230201	Tr,3SK 183-Q
Q26	DTR230201	Tr,3SK 183-Q
Q31	DTR199351	Tr,DTC 114ES TP
Q32	DTR199351	Tr,DTC 114ES TP
Q37	DTR199351	Tr,DTC 114ES TP
R1	DRD137281	Res,33,+/−5%,1/4W,Carbon
R2	DRD137321	Res,47,+/−5%,1/4W,Carbon
R3	DRD137321	Res,47,+/−5%,1/4W,Carbon
R4	DRD137581	Res,560,+/−5%,1/4W,Carbon
R5	DRD137581	Res,560,+/−5%,1/4W,Carbon
R6	DRE137701	Res,180,+/−1%,1/4W,Mtl
R7	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R8	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R10A	DRD137281	Res,33,+/−5%,1/4W,Carbon
R10	DRV411721	Res,100,+/−20%,1/3W,MG
R11	DRE137641	Res,100,+/−1%,1/4W,Mtl

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R12	DDD080331	Th,112101-2
R14	DRE137981	Res,2. 7K,+/−1%,1/4W,Mtl
R15	DRE137981	Res,2. 7K,+/−1%,1/4W,Mtl
R16	DRD138041	Res,47K,+/−5%,1/4W,Carbon
R17	DRE138031	Res,4. 3K,+/−1%,1/4W,Mtl
R18	DRE138031	Res,4. 3K,+/−1%,1/4W,Mtl
R19	DRD137321	Res,47,+/−5%,1/4W,Carbon
R19A	DRD137321	Res,47,+/−5%,1/4W,Carbon
R20	DRD137321	Res,47,+/−5%,1/4W,Carbon
R21	DRE137821	Res,560,+/−1%,1/4W,Mtl
R22	DRE137821	Res,560,+/−1%,1/4W,Mtl
R23	DRE138081	Res,6. 8K,+/−1%,1/4W,Mtl
R24	DRE137961	Res,2. 2K,+/−1%,1/4W,Mtl
R25	DRD137521	Res,330,+/−5%,1/4W,Carbon
R26	DRD137691	Res,1. 6K,+/−5%,1/4W,Carbon
R27	DRD137691	Res,1. 6K,+/−5%,1/4W,Carbon
R28	DRE137721	Res,220,+/−1%,1/4W,Mtl
R29	DRE137721	Res,220,+/−1%,1/4W,Mtl
R30	DRD137711	Res,20K,+/−5%,1/4W,Carbon
R31	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R32	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R33	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R34	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R35	DRE137881	Res,1. 0K,+/−1%,1/4W,Mtl
R36	DRE137721	Res,220,+/−1%,1/4W,Mtl
R37	DRE137491	Res,24,+/−1%,1/4W,Mtl
R38	DRE138241	Res,33K,+/−1%,1/4W,Mtl
R41	DRE138091	Res,7. 5K,+/−1%,1/4W,Mtl
R42	DRV412051	Res,5K,+/−20%,1/3W,Mtl
R43	DRD137381	Res,82,+/−5%,1/4W,Carbon
R44	DRD137721	Res,2. 2K,+/−5%,1/4W,Carbon
R45	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R46	DRE137641	Res,100,+/−1%,1/4W,Mtl
R47	DRE138261	Res,39K,+/−1%,1/4W,Mtl
R49	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R51	DRD137001	Res,2. 2,+/−5%,1/4W,Carbon
R52	DRD137001	Res,2. 2,+/−5%,1/4W,Carbon
R53	DRD137601	Res,680,+/−5%,1/4W,Carbon
R55	DRE137881	Res,1. 0K,+/−1%,1/4W,Mtl
R56	DRD138211	Res,240K,+/−5%,1/4W,Carbon
R57	DRE138021	Res,3. 9K,+/−1%,1/4W,Mtl

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R58	DRD137331	Res,51,+/−5%,1/4W,Carbon
R59	DRD137331	Res,51,+/−5%,1/4W,Carbon
R61	DRD137241	Res,22,+/−5%,1/4W,Carbon
R62	DRD137241	Res,22,+/−5%,1/4W,Carbon
R63	DRE137801	Res,470,+/−1%,1/4W,Mtl
R64	DRE137801	Res,470,+/−1%,1/4W,Mtl
R65	DRD137451	Res,160,+/−5%,1/4W,Carbon
R66	DRD137451	Res,160,+/−5%,1/4W,Carbon
R67	DRE138031	Res,4. 3K,+/−1%,1/4W,Mtl
R68	DRE138031	Res,4. 3K,+/−1%,1/4W,Mtl
R71	DRE137661	Res,120,+/−1%,1/4W,Mtl
R78	DRV411891	Res,5K,+/−20%,1/3W,MG
R86	DRD137771	Res,3. 6K,+/−5%,1/4W,Carbon
R91	DRE137881	Res,1. 0K,+/−1%,1/4W,Mtl
R92	DRE137601	Res,68,+/−1%,1/4W,Mtl
R93	DRV411721	Res,100,+/−20%,1/3W,MG
R94	DRD137321	Res,47,+/−5%,1/4W,Carbon
R95	DRD137321	Res,47,+/−5%,1/4W,Carbon
R96	DRE137821	Res,560,+/−1%,1/4W,Mtl
R97	DRE138061	Res,5. 6K,+/−1%,1/4W,Mtl
R101	DRE137711	Res,200,+/−1%,1/4W,Mtl
R102	DRE137711	Res,200,+/−1%,1/4W,Mtl
R103A	DRV410551	Res,5K,Var,1/4W,MG
R104	DRD137521	Res,330,+/−5%,1/4W,Carbon
R105	DRD137521	Res,330,+/−5%,1/4W,Carbon
R106	DRD137401	Res,100,+/−5%,1/4W,Carbon
R107	DRD137401	Res,100,+/−5%,1/4W,Carbon
R111	DRD137321	Res,47,+/−5%,1/4W,Carbon
R112	DRD137321	Res,47,+/−5%,1/4W,Carbon
R113	DRD137321	Res,47,+/−5%,1/4W,Carbon
R114	DRD137321	Res,47,+/−5%,1/4W,Carbon
R115	DRD137321	Res,47,+/−5%,1/4W,Carbon
R116	DRD137321	Res,47,+/−5%,1/4W,Carbon
R117	DRD137321	Res,47,+/−5%,1/4W,Carbon
R118	DRD137321	Res,47,+/−5%,1/4W,Carbon
R119	DRD137961	Res,2. 2K,+/−5%,1/4W,Carbon
R120	DRD137961	Res,2. 2K,+/−5%,1/4W,Carbon
R121	DRE137851	Res,750,+/−1%,1/4W,Mtl
R122	DRE137991	Res,3. 0K,+/−1%,1/4W,Mtl
R123	DRE137991	Res,3. 0K,+/−1%,1/4W,Mtl
R124	DRE138071	Res,6. 2K,+/−1%,1/4W,Mtl

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R125	DRV412041	Res,2K,+/−20%,1/3W,MG
R126	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R127	DRE138081	Res,6.8K,+/−1%,1/4W,Mtl
R128	DRE138111	Res,9.1K,+/−1%,1/4W,Mtl
R131	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R132	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R133	DRD138021	Res,39K,+/−5%,1/4W,Carbon
R135	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R136	DRE138021	Res,3.9K,+/−1%,1/4W,Mtl
R137	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R143	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R144	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R151	DRD137441	Res,150,+/−5%,1/4W,Carbon
R152	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R153	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R154	DRD137321	Res,47,+/−5%,1/4W,Carbon
R155	DRD137321	Res,47,+/−5%,1/4W,Carbon
RL1	DKD025931	Relay,FBR22N H12-P
RL2	DKD027781	Relay,SY-12W-K

CH2 PREAMP [5]

SS-7607

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C2	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C3	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C10	DCC239071	Cap,3p,+/−0.25p,50V,Cer
C11	DCC239051	Cap,100p,+/−5%,50V,Cer
C17	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C28A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C29	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C33	DCC239131	Cap,39p,+/−5%,50V,Cer
C34	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C35	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C37	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C41	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C42	DCE229201	Cap,47u,+/−20%,25V,Ele
C44	DCC239141	Cap,82p,+/−5%,50V,Cer
C45	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C46	DCE229201	Cap,47u,+/−20%,25V,Ele
C57	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C65	DCF121201	Cap,1000p,+/−5%,50V,Flm
C66	DCF121201	Cap,1000p,+/−5%,50V,Flm
C76	DCC929031	Cap,10p,+/−5%,50V,Cer
C78	DCV019871	Cap,20p,Var,16V,Cer
C79	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C86	DCC239371	Cap,390p,+/−5%,50V,Cer
C113	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C117	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C123	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C128	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C132	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C143A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C143	DCE229201	Cap,47u,+/−20%,25V,Ele
C144A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C144	DCE229201	Cap,47u,+/−20%,25V,Ele
C145	DCE229201	Cap,47u,+/−20%,25V,Ele
C154	DCC239031	Cap,47p,+/−5%,50V,Cer
C155	DCC239031	Cap,47p,+/−5%,50V,Cer
D28	DDD038921	Diode,5.6ESB1 TA21R
D76	DDD019071	Diode,1SS 120
D77	DDD019071	Diode,1SS 120
FL12	DHF039041	Filter,DST 306-55FZ103Z50V
IC1	DIC614321	IC,NJM 4558S(JRC)

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
J5	KHB095411	Small Socket
J6	KHB095411	Small Socket
PC1	DFB030631	Coupler,PS2501-2
Q1	DTR191521	Tr,SRFJ 1018
Q2	DTR191521	Tr,SRFJ 1018
Q3	DTR139361	Tr,2SC 2412 TZ
Q4	DTR139361	Tr,2SC 2412 TZ
Q5	DTR155131	Tr,2N 3905
Q6	DTR155131	Tr,2N 3905
Q7	DTR139351	Tr,2SC 2901-T
Q8	DTR139351	Tr,2SC 2901gT
Q11	DTR191361	Tr,MPS 901
Q12	DTR191361	Tr,MPS 901
Q13	DTR191361	Tr,MPS 901
Q14	DTR191361	Tr,MPS 901
Q15	DTR137711	Tr,2SC 2037
Q16	DTR137711	Tr,2SC 2037
Q17	DTR137711	Tr,2SC 2037
Q18	DTR137711	Tr,2SC 2037
Q21	DTR119011	Tr,2SA 1015Y TPER1
Q22	DTR119011	Tr,2SA 1015Y TPER1
Q23	DTR139321	Tr,2SC 3732K-T
Q24	DTR139321	Tr,2SC 3732K-T
Q25	DTR230201	Tr,3SK 183-Q
Q26	DTR230201	Tr,3SK 183-Q
Q31	DTR199351	Tr,DTC 114ES TP
Q32	DTR199351	Tr,DTC 114ES TP
Q37	DTR199351	Tr,DTC 114ES TP
R1	DRD137281	Res,33,+/−5%,1/4W,Carbon
R2	DRD137321	Res,47,+/−5%,1/4W,Carbon
R3	DRD137321	Res,47,+/−5%,1/4W,Carbon
R4	DRD137581	Res,560,+/−5%,1/4W,Carbon
R5	DRD137581	Res,560,+/−5%,1/4W,Carbon
R6	DRE137701	Res,180,+/−1%,1/4W,Mtl
R7	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R8	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R10	DRV411721	Res,100,Var,1/3W,MG
R10A	DRD137281	Res,33,+/−5%,1/4W,Carbon
R11	DRE137641	Res,100,+/−1%,1/4W,Mtl
R12	DDD080331	Th,112101-2
R14	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R15	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R16	DRD138041	Res,47K,+/−5%,1/4W,Carbon
R17	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R18	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R19	DRD137321	Res,47,+/−5%,1/4W,Carbon
R20	DRD137321	Res,47,+/−5%,1/4W,Carbon
R21	DRE137821	Res,560,+/−1%,1/4W,Mtl
R22	DRE137821	Res,560,+/−1%,1/4W,Mtl
R23	DRE138081	Res,6.8K,+/−1%,1/4W,Mtl
R24	DRE137961	Res,2.2K,+/−1%,1/4W,Mtl
R25	DRD137521	Res,330,+/−5%,1/4W,Carbon
R26	DRD137691	Res,1.6K,+/−5%,1/4W,Carbon
R27	DRD137691	Res,1.6K,+/−5%,1/4W,Carbon
R28	DRE137721	Res,220,+/−1%,1/4W,Mtl
R29	DRE137721	Res,220,+/−1%,1/4W,Mtl
R30	DRD137711	Res,20K,+/−5%,1/4W,Carbon
R31	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R32	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R33	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R34	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R35	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R36	DRE137721	Res,220,+/−1%,1/4W,Mtl
R37	DRE137491	Res,24,+/−1%,1/4W,Mtl
R38	DRE138241	Res,33K,+/−1%,1/4W,Mtl
R41	DRE138091	Res,7.5K,+/−1%,1/4W,Mtl
R42	DRV412051	Res,5K,+/−20%,1/3W,Mtl
R43	DRD137381	Res,82,+/−5%,1/4W,Carbon
R44	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R45	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R46	DRE137641	Res,100,+/−1%,1/4W,Mtl
R47	DRE138261	Res,39K,+/−1%,1/4W,Mtl
R49	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R51	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R52	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R53	DRD137601	Res,680,+/−5%,1/4W,Carbon
R55	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R56	DRD138211	Res,240K,+/−5%,1/4W,Carbon
R57	DRE138021	Res,3.9K,+/−1%,1/4W,Mtl
R58	DRD137401	Res,100,+/−5%,1/4W,Carbon
R59	DRD137401	Res,100,+/−5%,1/4W,Carbon
R61	DRD137381	Res,82,+/−5%,1/4W,Carbon

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R62	DRD137381	Res,82,+/−5%,1/4W,Carbon
R63	DRE137801	Res,470,+/−1%,1/4W,Mtl
R64	DRE137801	Res,470,+/−1%,1/4W,Mtl
R65	DRD137451	Res,160,+/−5%,1/4W,Carbon
R66	DRD137451	Res,160,+/−5%,1/4W,Carbon
R67	DRE138031	Res,2.7K,+/−1%,1/4W,Mtl
R68	DRE138031	Res,2.7K,+/−1%,1/4W,Mtl
R71	DRE137661	Res,120,+/−1%,1/4W,Mtl
R78	DRV411891	Res,5K,Var,1/4W,MG
R86	DRD137791	Res,3.6K,+/−5%,1/4W,Carbon
R91	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R92	DRE137601	Res,68,+/−1%,1/4W,Mtl
R93	DRV411721	Res,100,+/−20%,1/3W,MG
R94	DRD137321	Res,47,+/−5%,1/4W,Carbon
R95	DRD137321	Res,47,+/−5%,1/4W,Carbon
R96	DRE137821	Res,560,+/−1%,1/4W,Mtl
R97	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R101	DRE137711	Res,200,+/−1%,1/4W,Mtl
R102	DRE137711	Res,200,+/−1%,1/4W,Mtl
R103A	DRV410551	Res,5K,Var,1/4W,MG
R104	DRD137521	Res,330,+/−5%,1/4W,Carbon
R105	DRD137521	Res,330,+/−5%,1/4W,Carbon
R106	DRD137401	Res,100,+/−5%,1/4W,Carbon
R107	DRD137401	Res,100,+/−5%,1/4W,Carbon
R111	DRD137321	Res,47,+/−5%,1/4W,Carbon
R112	DRD137321	Res,47,+/−5%,1/4W,Carbon
R113	DRD137321	Res,47,+/−5%,1/4W,Carbon
R114	DRD137321	Res,47,+/−5%,1/4W,Carbon
R115	DRD137321	Res,47,+/−5%,1/4W,Carbon
R116	DRD137321	Res,47,+/−5%,1/4W,Carbon
R117	DRD137321	Res,47,+/−5%,1/4W,Carbon
R118	DRD137321	Res,47,+/−5%,1/4W,Carbon
R119	DRE137961	Res,2.2K,+/−5%,1/4W,Mtl
R120	DRE137961	Res,2.2K,+/−5%,1/4W,Mtl
R121	DRE137851	Res,750,+/−1%,1/4W,Mtl
R122	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R123	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R124	DRE138071	Res,6.2K,+/−1%,1/4W,Mtl
R125	DRV412041	Res,2K,+/−20%,1/3W,MG
R126	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R127	DRE138081	Res,6.8K,+/−1%,1/4W,Mtl
R128	DRE138111	Res,9.1K,+/−1%,1/4W,Mtl
R131	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R132	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R133	DRD138021	Res,39K,+/−5%,1/4W,Carbon
R135	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R136	DRE138021	Res,3.9K,+/−1%,1/4W,Mtl
R137	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R143	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R144	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R151	DRD137441	Res,150,+/−5%,1/4W,Carbon
R152	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R153	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R154	DRD137321	Res,47,+/−5%,1/4W,Carbon
R155	DRD137321	Res,47,+/−5%,1/4W,Carbon
RL1	DKD025931	Relay,FBR22N H12-P
RL2	DKD027781	Relay,SY-12W-K

CH2 PREAMP [5]

SS-7610

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C2	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C3	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C10	DCV019612	Cap,8p,Var,250V,Cer
C11	DCC239311	Cap,68p,+/−5%,50V,Cer
C17	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C19A	DCC239061	Cap,2p,+/−0. 25p,50V,Cer
C28A	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C29	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C33	DCC239131	Cap,39p,+/−5%,50V,Cer
C34	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C35	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C37	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C41	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C42	DCE229201	Cap,47u,+/−20%,25V,Ele
C44	DCC239141	Cap,82p,+/−5%,50V,Cer
C45	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C46	DCE229201	Cap,47u,+/−20%,25V,Ele
C65	DCF121201	Cap,1000p,+/−5%,50V,Flm
C66	DCF121201	Cap,1000p,+/−5%,50V,Flm
C76	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C78	DCV019871	Cap,20p,Var,16V,Cer
C79	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C86	DCC239181	Cap,330p,+/−5%,50V,Cer
C101	DCC239061	Cap,2p,+/−0. 25p,Cer
C113	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C117	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C123	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C128	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C132	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C143A	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C143	DCE229201	Cap,47u,+/−20%,25V,Ele
C144A	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C144	DCE229201	Cap,47u,+/−20%,25V,Ele
C145	DCE229201	Cap,47u,+/−20%,25V,Ele
C154	DCC239031	Cap,47p,+/−5%,50V,Cer
C155	DCC239031	Cap,47p,+/−5%,50V,Cer
D28	DDD038921	Diode,5. 1ESB1 TA21R
D76	DDD019071	Diode,1SS 120
D77	DDD019071	Diode,1SS 120
IC1	DIC614321	IC,NJM 4558S(JRC)
J5	KHB095411	Small Socket
J6	KHB095411	Small Socket
PC1	DFB030631	Coupler,PC827
Q1	DTR191521	Tr,SRFJ 1018
Q2	DTR191521	Tr,SRFJ 1018
Q3	DTR139361	Tr,2SC 2412 TZ
Q4	DTR139361	Tr,2SC 2412 TZ
Q5	DTR119041	Tr,2SA 1206 TRC
Q6	DTR119041	Tr,2SA 1206 TRC
Q7	DTR139351	Tr,2SC 2901-T
Q8	DTR139351	Tr,2SC 2901-T
Q11	DTR191361	Tr,MPS 901
Q12	DTR191361	Tr,MPS 901
Q13	DTR191361	Tr,MPS 901
Q14	DTR191361	Tr,MPS 901
Q15	DTR137711	Tr,2SC 2037
Q16	DTR137711	Tr,2SC 2037
Q17	DTR137711	Tr,2SC 2037
Q18	DTR137711	Tr,2SC 2037
Q21	DTR119011	Tr,2SA 1015Y TPER1
Q22	DTR119011	Tr,2SA 1015Y TPER1
Q23	DTR139321	Tr,2SC 3732K-T
Q24	DTR139321	Tr,2SC 3732K-T
Q25	DTR230201	Tr,3SK 183-Q
Q31	DTR199351	Tr,DTC 114ES TP
Q32	DTR199351	Tr,DTC 114ES TP
Q37	DTR199351	Tr,DTC 114ES TP
R1	DRD137281	Res,33,+/−5%,1/4W,Carbon
R2	DRD137321	Res,47,+/−5%,1/4W,Carbon
R3	DRD137321	Res,47,+/−5%,1/4W,Carbon
R4	DRD137581	Res,560,+/−5%,1/4W,Carbon
R5	DRD137581	Res,560,+/−5%,1/4W,Carbon
R6	DRE137701	Res,180,+/−1%,1/4W,Mtl
R7	DRE137941	Res,1. 8K,+/−1%,1/4W,Mtl
R8	DRE137941	Res,1. 8K,+/−1%,1/4W,Mtl
R10A	DRD137281	Res,33,+/−5%,1/4W,Carbon
R10	DRV411721	Res,100,+/−20%,1/3W,MG
R11	DRE137641	Res,100,+/−1%,1/4W,Mtl
R12	DDD080331	Th,112101-2
R14	DRE137981	Res,2. 7K,+/−1%,1/4W. Mtl
R15	DRE137981	Res,2. 7K,+/−1%,1/4W. Mtl
R16	DRD138041	Res,47K,+/−5%,1/4W,Carbon

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R17	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R18	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R19A	DRD137321	Res,47,+/−5%,1/4W,Carbon
R19	DRD137321	Res,47,+/−5%,1/4W,Carbon
R20	DRD137321	Res,47,+/−5%,1/4W,Carbon
R21	DRE137821	Res,560,+/−1%,1/4W,Mtl
R22	DRE137821	Res,560,+/−1%,1/4W,Mtl
R23	DRE138081	Res,6.8K,+/−1%,1/4W,Mtl
R24	DRE137961	Res,2.2K,+/−1%,1/4W,Mtl
R25	DRD137521	Res,330,+/−5%,1/4W,Carbon
R26	DRD137691	Res,1.6K,+/−5%,1/4W,Carbon
R27	DRD137691	Res,1.6K,+/−5%,1/4W,Carbon
R28	DRE137721	Res,220,+/−1%,1/4W,Mtl
R29	DRE137721	Res,220,+/−1%,1/4W,Mtl
R30	DRD137711	Res,20K,+/−5%,1/4W,Carbon
R31	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R32	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R33	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R34	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R35	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R36	DRE137721	Res,220,+/−1%,1/4W,Mtl
R37	DRE137491	Res,24,+/−1%,1/4W,Mtl
R38	DRE138241	Res,33K,+/−1%,1/4W,Mtl
R41	DRE138091	Res,7.5K,+/−1%,1/4W,Mtl
R42	DRV412051	Res,5K,+/−20%,1/3W,Mtl
R43	DRD137381	Res,82,+/−5%,1/4W,Carbon
R44	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R45	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R46	DRE137641	Res,100,+/−1%,1/4W,Mtl
R47	DRE138261	Res,39K,+/−1%,1/4W,Mtl
R47A	DRV412621	Res,10K,+/−20%,1/2W,Crm
R49	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R51	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R52	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R53	DRD137601	Res,680,+/−5%,1/4W,Carbon
R56	DRD138211	Res,240K,+/−5%,1/4W,Carbon
R56A	DRV412621	Res,50K,+/−20%,1/2W,Crm
R58	DRD137331	Res,51K,+/−5%,1/4W,Carbon
R59	DRD137331	Res,51K,+/−5%,1/4W,Carbon
R61	DRD137241	Res,22,+/−5%,1/4W,Carbon
R62	DRD137241	Res,22,+/−5%,1/4W,Carbon
R63	DRE137801	Res,470,+/−1%,1/4W,Mtl
R64	DRE137801	Res,470,+/−1%,1/4W,Mtl
R65	DRD137451	Res,160,+/−5%,1/4W,Carbon
R66	DRD137451	Res,160,+/−5%,1/4W,Carbon
R67	DRE138031	Res,4.3K,+/−1%,1/4W.Mtl
R68	DRE138031	Res,4.3K,+/−1%,1/4W.Mtl
R71	DRE137661	Res,120,+/−1%,1/4W,Mtl
R78	DRV411891	Res,5K,+/−5%,1/3W,MG
R86	DRD137771	Res,3.6K,+/−5%,1/4W,Carbon
R91	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R92	DRE137601	Res,68,+/−1%,1/4W,Mtl
R93	DRV411721	Res,100,+/−20%,1/3W,MG
R94	DRD137321	Res,47,+/−5%,1/4W,Carbon
R95	DRD137321	Res,47,+/−5%,1/4W,Carbon
R96	DRE137821	Res,560,+/−1%,1/4W,Mtl
R97	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R101	DRE137711	Res,200,+/−1%,1/4W,Mtl
R102	DRE137711	Res,200,+/−1%,1/4W,Mtl
R103A	DRV410551	Res,5K,Var,1/2W,Crm
R104	DRD137521	Res,330,+/−5%,1/4W,Carbon
R105	DRD137521	Res,330,+/−5%,1/4W,Carbon
R106	DRD137401	Res,100,+/−5%,1/4W,Carbon
R107	DRD137401	Res,100,+/−5%,1/4W,Carbon
R111	DRD137321	Res,47,+/−5%,1/4W,Carbon
R112	DRD137321	Res,47,+/−5%,1/4W,Carbon
R113	DRD137321	Res,47,+/−5%,1/4W,Carbon
R114	DRD137321	Res,47,+/−5%,1/4W,Carbon
R115	DRD137321	Res,47,+/−5%,1/4W,Carbon
R116	DRD137321	Res,47,+/−5%,1/4W,Carbon
R117	DRD137321	Res,47,+/−5%,1/4W,Carbon
R118	DRD137321	Res,47,+/−5%,1/4W,Carbon
R119	DRE137961	Res,2.2K,+/−1%,1/4W,Mtl
R120	DRE137961	Res,2.2K,+/−1%,1/4W,Mtl
R121	DRE137851	Res,750,+/−1%,1/4W,Mtl
R122	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R123	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R124	DRE138071	Res,6.2K,+/−1%,1/4W,Mtl
R125	DRV412041	Res,2K,+/−20%,1/3W,MG
R126	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R127	DRE138081	Res,6.8K,+/−1%,1/4W,Mtl
R128	DRE138111	Res,9.1K,+/−1%,1/4W,Mtl

CH2 PREAMP [5]

SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R131	DRE137881	Res,1. 0K,+/−1%,1/4W,Mtl
R132	DRE137991	Res,3. 0K,+/−1%,1/4W,Mtl
R133	DRD138021	Res,39K,+/−5%,1/4W,Carbon
R135	DRE138161	Res,15K,+/−1%,1/4W,Mtl
R136	DRE138231	Res,30K,+/−1%,1/4W,Mtl
R143	DRD137001	Res,2. 2,+/−5%,1/4W,Carbon
R144	DRD137001	Res,2. 2,+/−5%,1/4W,Carbon
R151	DRD137441	Res,150,+/−5%,1/4W,Carbon
R152	DRD137721	Res,2. 2K,+/−5%,1/4W,Carbon
R153	DRD137721	Res,2. 2K,+/−5%,1/4W,Carbon
R154	DRD137321	Res,47,+/−5%,1/4W,Carbon
R155	DRD137321	Res,47,+/−5%,1/4W,Carbon
RL1	DKD025931	Relay,FBR22N H12-P
RL2	DKD027781	Relay,SY-12W-K

CIRCUIT REFERENCE	IWATU PART NO.	DESCRIPTION
C2	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C3	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C10	DCC239071	Cap,3p,+/0. 25p,50V,Cer
C11	DCC239051	Cap,100p,+/−5%,50V,Cer
C17	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C28A	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C29	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C33	DCC239131	Cap,39p,+/−5%,50V,Cer
C34	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C35	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C37	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C41	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C42	DCE229201	Cap,47u,+/−20%,25V,Ele
C44	DCC239141	Cap,82p,+/−5%,50V,Cer
C45	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C46	DCE229201	Cap,47u,+/−20%,25V,Ele
C65	DCF121201	Cap,1000p,+/−5%,50V,Flm
C66	DCF121201	Cap,1000p,+/−5%,50V,Flm
C76	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C78	DCV019871	Cap,2p,Var,16V,Cer
C79	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C86	DCC239371	Cap,390p,+/−5%,50V,Cer
C113	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C117	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C123	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C128	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C132	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C143A	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C143	DCE229201	Cap,47u,+/−20%,25V,Ele
C144A	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C144	DCE229201	Cap,47u,+/−20%,25V,Ele
C145	DCE229201	Cap,47u,+/−20%,25V,Ele
C154	DCC239031	Cap,47p,+/−5%,50V,Cer
C155	DCC239031	Cap,47p,+/−5%,50V,Cer
D28	DDD038921	Diode,5. 1ESB1 TA21R
D76	DDD019071	Diode,1SS 120
D77	DDD019071	Diode,1SS 120
IC1	DIC614321	IC,NJM 4558S(JRC)
J5	KHB095411	Small Socket
J6	KHB095411	Small Socket
PC1	DFB030631	Coupler,PC827

CIRCUIT REFERENCE	IWATU PART NO.	DESCRIPTION
Q1	DTR191521	Tr,SRFJ 1018
Q2	DTR191521	Tr,SRFJ 1018
Q3	DTR139361	Tr,2SC 2412 TZ
Q4	DTR139361	Tr,2SC 2412 TZ
Q5	DTR155131	Tr,2N 3905
Q6	DTR155131	Tr,2N 3905
Q7	DTR139351	Tr,2SC 2901-T
Q8	DTR139351	Tr,2SC 2901-T
Q11	DTR191361	Tr,MPS 901
Q12	DTR191361	Tr,MPS 901
Q13	DTR191361	Tr,MPS 901
Q14	DTR191361	Tr,MPS 901
Q15	DTR137711	Tr,2SC 2037
Q16	DTR137711	Tr,2SC 2037
Q17	DTR137711	Tr,2SC 2037
Q18	DTR137711	Tr,2SC 2037
Q21	DTR119011	Tr,2SA 1015Y TPER1
Q22	DTR119011	Tr,2SA 1015Y TPER1
Q23	DTR139321	Tr,2SC 3732K-T
Q24	DTR139321	Tr,2SC 3732K-T
Q25	DTR230201	Tr,3SK 183-Q
Q31	DTR199351	Tr,DTC 114ES TP
Q32	DTR199351	Tr,DTC 114ES TP
Q37	DTR199351	Tr,DTC 114ES TP
R1	DRD137281	Res,33,+/−5%,1/4W,Carbon
R2	DRD137321	Res,47,+/−5%,1/4W,Carbon
R3	DRD137321	Res,47,+/−5%,1/4W,Carbon
R4	DRD137581	Res,560,+/−5%,1/4W,Carbon
R5	DRD137581	Res,560,+/−5%,1/4W,Carbon
R6	DRE137701	Res,180,+/−1%,1/4W,Mtl
R7	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R8	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R10	DRV411721	Res,100,Var,1/3W,MG
R10A	DRD137281	Res,33,+/−5%,1/4W,Carbon
R11	DRE137641	Res,100,+/−1%,1/4W,Mtl
R12	DDD080331	Th,112101-2
R14	DRE137981	Res,2.7K,+/−1%,1/4W. Mtl
R15	DRE137981	Res,2.7K,+/−1%,1/4W. Mtl
R16	DRD138041	Res,47K,+/−5%,1/4W,Carbon
R17	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R18	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl

CIRCUIT REFERENCE	IWATU PART NO.	DESCRIPTION
R19	DRD137321	Res,47,+/−5%,1/4W,Carbon
R20	DRD137321	Res,47,+/−5%,1/4W,Carbon
R21	DRE137821	Res,560,+/−1%,1/4W,Mtl
R22	DRE137821	Res,560,+/−1%,1/4W,Mtl
R23	DRE138081	Res,6.8K,+/−1%,1/4W,Mtl
R24	DRE137961	Res,2.2K,+/−1%,1/4W,Mtl
R25	DRD137521	Res,330,+/−5%,1/4W,Carbon
R26	DRD137691	Res,1.6K,+/−5%,1/4W,Carbon
R27	DRD137691	Res,1.6K,+/−5%,1/4W,Carbon
R28	DRE137721	Res,220,+/−1%,1/4W,Mtl
R29	DRE137721	Res,220,+/−1%,1/4W,Mtl
R30	DRD137711	Res,20K,+/−5%,1/4W,Carbon
R31	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R32	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R33	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R34	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R35	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R36	DRE137721	Res,220,+/−1%,1/4W,Mtl
R37	DRE137491	Res,24,+/−1%,1/4W,Mtl
R38	DRE138241	Res,33K,+/−1%,1/4W,Mtl
R41	DRE138091	Res,7.5K,+/−1%,1/4W,Mtl
R42	DRV412051	Res,5K,+/−20%,1/3W,Mtl
R43	DRD137381	Res,82,+/−5%,1/4W,Carbon
R44	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R45	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R46	DRE137641	Res,100,+/−1%,1/4W,Mtl
R47	DRE138261	Res,39K,+/−1%,1/4W,Mtl
R47A	DRV412621	Res,10K,+/−10%,1/2W,Crm
R49	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R51	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R52	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R53	DRD137601	Res,680,+/−5%,1/4W,Carbon
R56	DRD138211	Res,240K,+/−5%,1/4W,Carbon
R56A	DRV412621	Res,50K,+/−10%,1/2W,Crm
R58	DRD137401	Res,100,+/−5%,1/4W,Carbon
R59	DRD137401	Res,100,+/−5%,1/4W,Carbon
R61	DRD137381	Res,82,+/−5%,1/4W,Carbon
R62	DRD137381	Res,82,+/−5%,1/4W,Carbon
R63	DRE137801	Res,470,+/−1%,1/4W,Mtl
R64	DRE137801	Res,470,+/−1%,1/4W,Mtl
R65	DRD137451	Res,160,+/−5%,1/4W,Carbon

CIRCUIT REFERENCE	IWATU PART NO.	DESCRIPTION
R66	DRD137451	Res,160,+/−5%,1/4W,Carbon
R67	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R68	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R71	DRE137661	Res,120,+/−1%,1/4W,Mtl
R78	DRV411891	Res,5K,Var,1/4W,MG
R86	DRD137791	Res,4.3K,+/−5%,1/4W,Carbon
R91	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R92	DRE137601	Res,68,+/−1%,1/4W,Mtl
R93	DRV411721	Res,100,+/−20%,1/3W,MG
R94	DRD137321	Res,47,+/−5%,1/4W,Carbon
R95	DRD137321	Res,47,+/−5%,1/4W,Carbon
R96	DRE137821	Res,560,+/−1%,1/4W,Mtl
R97	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R101	DRE137711	Res,200,+/−1%,1/4W,Mtl
R102	DRE137711	Res,200,+/−1%,1/4W,Mtl
R103A	DRV410551	Res,5K,Var,1/2W,Crm
R104	DRD137521	Res,330,+/−5%,1/4W,Carbon
R105	DRD137521	Res,330,+/−5%,1/4W,Carbon
R106	DRD137401	Res,100,+/−5%,1/4W,Carbon
R107	DRD137401	Res,100,+/−5%,1/4W,Carbon
R111	DRD137321	Res,47,+/−5%,1/4W,Carbon
R112	DRD137321	Res,47,+/−5%,1/4W,Carbon
R113	DRD137321	Res,47,+/−5%,1/4W,Carbon
R114	DRD137321	Res,47,+/−5%,1/4W,Carbon
R115	DRD137321	Res,47,+/−5%,1/4W,Carbon
R116	DRD137321	Res,47,+/−5%,1/4W,Carbon
R117	DRD137321	Res,47,+/−5%,1/4W,Carbon
R118	DRD137321	Res,47,+/−5%,1/4W,Carbon
R119	DRE137961	Res,2.2K,+/−1%,1/4W,Mtl
R120	DRE137961	Res,2.2K,+/−1%,1/4W,Mtl
R121	DRE137851	Res,750,+/−1%,1/4W,Mtl
R122	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R123	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R124	DRE138071	Res,6.2K,+/−1%,1/4W,Mtl
R125	DRV412041	Res,2K,+/−20%,1/3W,MG
R126	DRE138031	Res,4.3K,+/−1%,1/4W,Mtl
R127	DRE138081	Res,6.8K,+/−1%,1/4W,Mtl
R128	DRE138111	Res,9.1K,+/−1%,1/4W,Mtl
R131	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R132	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R133	DRD138021	Res,39K,+/−5%,1/4W,Carbon
R135	DRE138161	Res,15K,+/−1%,1/4W,Carbon
R136	DRE138231	Res,30K,+/−1%,1/4W,Mtl
R143	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R144	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R151	DRD137441	Res,150,+/−5%,1/4W,Carbon
R152	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R153	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R154	DRD137321	Res,47,+/−5%,1/4W,Carbon
R155	DRD137321	Res,47,+/−5%,1/4W,Carbon
RL1	DKD025931	Relay,FBR22N H12-P
RL2	DKD027781	Relay,SY-12W-K

DELAY CABLE DRIVER [6]

SS-7611 and SS-7610

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C6	DCC239021	Cap,150p,+/−5%,50V,Cer
C7	DCC239021	Cap,150p,+/−5%,50V,Cer
C11A	DCC239221	Cap,15p,+/−5%,50V,Cer
C12A	DCC239221	Cap,15p,+/−5%,50V,Cer
C15	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C17	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C18	DCE229201	Cap,47u,+/−20%,25V,Ele
C21	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C23	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C41	DCE229201	Cap,47u,+/−20%,25V,Ele
C45	DCF121201	Cap,1000p,+/−5%,50V,Flm
C46	DCF121201	Cap,1000p,+/−5%,50V,Flm
C47	DCE229201	Cap,47u,+/−20%,25V,Ele
C53	DCC239221	Cap,15p,+/−5%,50V,Cer
C54	DCC239221	Cap,15p,+/−5%,50V,Cer
C55	DCC239261	Cap,120p,+/−5%,50V,Cer
C56	DCC239261	Cap,120p,+/−5%,50V,Cer
C60	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C61	DCV019871	Cap,20p,Var,16V,Cer
C62	DCC239131	Cap,39p,+/−5%,50V,Cer
C71	DCE229201	Cap,47u,+/−20%,25V,Ele
C72	DCE229201	Cap,47u,+/−20%,25V,Ele
C73	DCE229201	Cap,47u,+/−20%,25V,Ele
C74	DCE229201	Cap,47u,+/−20%,25V,Ele
C75	DCE229201	Cap,47u,+/−20%,25V,Ele
C80	DCC929031	Cap,0.01u,+/−30%,16V,Cer
D1	DDD019071	Diode,1SS 120
D2	DDD019071	Diode,1SS 120
D3	DDD019071	Diode,1SS 120
D4	DDD019071	Diode,1SS 120
D5	DDD019071	Diode,1SS 120
D6	DDD019071	Diode,1SS 120
D7	DDD019071	Diode,1SS 120
D8	DDD019071	Diode,1SS 120
D11	DDD019071	Diode,1SS 120
D12	DDD019071	Diode,1SS 120
D13	DDD019071	Diode,1SS 120
D14	DDD019071	Diode,1SS 120
D15	DDD019071	Diode,1SS 120
D16	DDD019071	Diode,1SS 120
D17	DDD019071	Diode,1SS 120
D18	DDD019071	Diode,1SS 120
D31	DDD019071	Diode,1SS 120
D32	DDD019071	Diode,1SS 120
D54	DDD038921	Diode,RD5.1ESB1 TA21R
D55	DDD019071	Diode,1SS 120
D56	DDD019071	Diode,1SS 120
D57	DDD019071	Diode,1SS 120
D58	DDD019071	Diode,1SS 120
DL1	KHB109621	Delay Cable,SU1PVC10CM
DL2	KHB109621	Delay Cable,SU1PVC10CM
DL3	KHB048111	Delay Cable,CD3APE80CM
FL20	DHF032021	Filter,DST306-55FZ103Z50V
FL21	DHF032021	Filter,DST306-55FZ103Z50V
FL22	DHF032021	Filter,DST306-55FZ103Z50V
FL23	DHF032021	Filter,DST306-55FZ103Z50V
FL24	DHF032021	Filter,DST306-55FZ103Z50V
J2	DCN115771	Connector,HLEM26S-1
P1	DCN990901	Connector,5267-06A
P7	DCN034651	Connector,M33-03-30-114P
Q1	DTR139061	Tr,2SC 1907 TR
Q2	DTR139061	Tr,2SC 1907 TR
Q3	DTR139011	Tr,2SC 1815GR TPER1
Q4	DTR139011	Tr,2SC 1815GR TPER1
Q5	DTR139011	Tr,2SC 1815GR TPER1
Q6	DTR139011	Tr,2SC 1815GR TPER1
Q7	DTR139061	Tr,2SC 1907 TR
Q8	DTR199331	Tr,DTA 114ES TP
R1	DRD137201	Res,15,+/−5%,1/4W,Carbon
R2	DRD137201	Res,15,+/−5%,1/4W,Carbon
R3	DRD137201	Res,15,+/−5%,1/4W,Carbon
R4	DRD137201	Res,15,+/−5%,1/4W,Carbon
R5	DRD137321	Res,47,+/−5%,1/4W,Carbon
R6	DRD137321	Res,47,+/−5%,1/4W,Carbon
R7	DRD137321	Res,47,+/−5%,1/4W,Carbon
R8	DRD137321	Res,47,+/−5%,1/4W,Carbon
R11	DRD137481	Res,220,+/−5%,1/4W,Carbon
R12	DRD137481	Res,220,+/−5%,1/4W,Carbon
R13	DRD137481	Res,220,+/−5%,1/4W,Carbon
R14	DRD137481	Res,220,+/−5%,1/4W,Carbon
R15	DRD137161	Res,10,+/−5%,1/4W,Carbon
R16	DRD137881	Res,10K,+/−5%,1/4W,Carbon

DELAY CABLE DRIVER [6]

SS-7607 and SS-7606

CIRCUIT REFERENCE	IWATU PART NO.	DESCRIPTION
R17	DRD137161	Res,10,+/−5%,1/4W,Carbon
R18	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R21	DRD137161	Res,10,+/−5%,1/4W,Carbon
R22	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R23	DRD137161	Res,10,+/−5%,1/4W,Carbon
R24	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R31	DRE137861	Res,820,+/−1%,1/4W,Mtl
R32	DRE137861	Res,820,+/−1%,1/4W,Mtl
R33	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R34	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R35	DRE137701	Res,180,+/−1%,1/4W,Mtl
R36	DRE137701	Res,180,+/−1%,1/4W,Mtl
R41	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R42	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R43	DRE137701	Res,180,+/−1%,1/4W,Mtl
R44	DRE137701	Res,180,+/−1%,1/4W,Mtl
R45	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R46	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R47	DRE137721	Res,220,+/−1%,1/4W,Mtl
R48	DRE137721	Res,220,+/−1%,1/4W,Mtl
R53	DRD137361	Res,68,+/−5%,1/4W,Carbon
R54	DRD137361	Res,68,+/−5%,1/4W,Carbon
R55	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R56	DRD137481	Res,220,+/−5%,1/4W,Carbon
R57	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R58	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R61	DRV412031	Res,1K,+/−20%,1/3W,Mtl
R62	DRD137711	Res,20K,+/−5%,1/4W,Carbon
R65	DRE137661	Res,120,+/−1%,1/4W,Mtl
R66	DRE137661	Res,120,+/−1%,1/4W,Mtl
R67	DRD137281	Res,33,+/−5%,1/4W,Carbon
R68	DRD137281	Res,33,+/−5%,1/4W,Carbon
R71	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R72	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R80	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R83	DRD137271	Res,30,+/−5%,1/4W,Carbon
R84	DRD137271	Res,30,+/−5%,1/4W,Carbon

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C6	DCC239021	Cap,150p,+/−5%,50V,Cer
C7	DCC239021	Cap,150p,+/−5%,50V,Cer
C11A	DCC239221	Cap,15p,+/−5%,50V,Cer
C12A	DCC239221	Cap,15p,+/−5%,50V,Cer
C15	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C17	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C18	DCE229201	Cap,47u,+/−20%,25V,Ele
C21	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C23	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C41	DCE229201	Cap,47u,+/−20%,25V,Ele
C45	DCF121201	Cap,1000p,+/−5%,50V,Flm
C46	DCF121201	Cap,1000p,+/−5%,50V,Flm
C47	DCE229201	Cap,47u,+/−20%,25V,Ele
C53	DCC239221	Cap,15p,+/−5%,50V,Cer
C54	DCC239221	Cap,15p,+/−5%,50V,Cer
C55	DCC239261	Cap,120p,+/−5%,50V,Cer
C56	DCC239261	Cap,120p,+/−5%,50V,Cer
C60	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C61A	DCC239121	Cap,22p,+/−5%,50V,Cer
C61	DCV019471	Cap,10p,Var,250V,Cer
C62	DCC239231	Cap,24p,+/−5%,50V,Cer
C71	DCE229201	Cap,47u,+/−20%,25V,Ele
C72	DCE229201	Cap,47u,+/−20%,25V,Ele
C73	DCE229201	Cap,47u,+/−20%,25V,Ele
C74	DCE229201	Cap,47u,+/−20%,25V,Ele
C75	DCE229201	Cap,47u,+/−20%,25V,Ele
C80	DCC929031	Cap,0.01u,+/−30%,16V,Cer
D1	DDD019071	Diode,1SS 120
D2	DDD019071	Diode,1SS 120
D3	DDD019071	Diode,1SS 120
D4	DDD019071	Diode,1SS 120
D5	DDD019071	Diode,1SS 120
D6	DDD019071	Diode,1SS 120
D7	DDD019071	Diode,1SS 120
D8	DDD019071	Diode,1SS 120
D11	DDD019071	Diode,1SS 120
D12	DDD019071	Diode,1SS 120
D13	DDD019071	Diode,1SS 120
D14	DDD019071	Diode,1SS 120
D15	DDD019071	Diode,1SS 120
D16	DDD019071	Diode,1SS 120

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
D17	DDD019071	Diode,1SS 120
D18	DDD019071	Diode,1SS 120
D31	DDD019071	Diode,1SS 120
D32	DDD019071	Diode,1SS 120
D54	DDD038921	Diode,RD5. 1ESB1 TA21R
D55	DDD019071	Diode,1SS 120
D56	DDD019071	Diode,1SS 120
D57	DDD019071	Diode,1SS 120
D58	DDD019071	Diode,1SS 120
DL1	KHB109621	Delay Cable,SU1PVC11CM
DL2	KHB109621	Delay Cable,SU1PVC11CM
DL3	KHB048111	Delay Cable,CD3APE80CM
FL20	DHF032021	Filter,DST306-55FZ103Z50V
FL21	DHF032021	Filter,DST306-55FZ103Z50V
FL22	DHF032021	Filter,DST306-55FZ103Z50V
FL23	DHF032021	Filter,DST306-55FZ103Z50V
FL24	DHF032021	Filter,DST306-55FZ103Z50V
J2	DCN115771	Connector,HLEM26S-1
P1	DCN990901	Connector,5267-06A
P7	DCN034651	Connector,M33-03-30-114P
Q1	DTR139061	Tr,2SC 1907 TR
Q2	DTR139061	Tr,2SC 1907 TR
Q3	DTR139011	Tr,2SC 1815GR TPER1
Q4	DTR139011	Tr,2SC 1815GR TPER1
Q5	DTR139011	Tr,2SC 1815GR TPER1
Q6	DTR139011	Tr,2SC 1815GR TPER1
Q7	DTR139061	Tr,2SC 1907 TR
Q8	DTR199331	Tr,DTA 114ES TP
R1	DRD137201	Res,15,+/−5%,1/4W,Carbon
R2	DRD137201	Res,15,+/−5%,1/4W,Carbon
R3	DRD137201	Res,15,+/−5%,1/4W,Carbon
R4	DRD137201	Res,15,+/−5%,1/4W,Carbon
R5	DRD137321	Res,47,+/−5%,1/4W,Carbon
R6	DRD137321	Res,47,+/−5%,1/4W,Carbon
R7	DRD137321	Res,47,+/−5%,1/4W,Carbon
R8	DRD137321	Res,47,+/−5%,1/4W,Carbon
R11	DRD137481	Res,220,+/−5%,1/4W,Carbon
R12	DRD137481	Res,220,+/−5%,1/4W,Carbon
R13	DRD137481	Res,220,+/−5%,1/4W,Carbon
R14	DRD137481	Res,220,+/−5%,1/4W,Carbon
R15	DRD137161	Res,10,+/−5%,1/4W,Carbon
R16	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R17	DRD137161	Res,10,+/−5%,1/4W,Carbon
R18	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R21	DRD137161	Res,10,+/−5%,1/4W,Carbon
R22	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R23	DRD137161	Res,10,+/−5%,1/4W,Carbon
R24	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R31	DRE137861	Res,820,+/−1%,1/4W,Mtl
R32	DRE137861	Res,820,+/−1%,1/4W,Mtl
R33	DRE137981	Res,2. 7K,+/−1%,1/4W Mtl
R34	DRE137981	Res,2. 7K,+/−1%,1/4W Mtl
R35	DRE137701	Res,180,+/−1%,1/4W,Mtl
R36	DRE137701	Res,180,+/−1%,1/4W,Mtl
R41	DRE137941	Res,1. 8K,+/−1%,1/4W,Mtl
R42	DRE137941	Res,1. 8K,+/−1%,1/4W,Mtl
R43	DRE137701	Res,180,+/−1%,1/4W,Mtl
R44	DRE137701	Res,180,+/−1%,1/4W,Mtl
R45	DRD137161	Res,3. 9,+/−5%,1/4W,Carbon
R46	DRD137161	Res,3. 9,+/−5%,1/4W,Carbon
R47	DRE137721	Res,220,+/−1%,1/4W,Mtl
R48	DRE137721	Res,220,+/−1%,1/4W,Mtl
R53	DRD137361	Res,68,+/−5%,1/4W,Carbon
R54	DRD137361	Res,68,+/−5%,1/4W,Carbon
R55	DRD137641	Res,1. 0K,+/−5%,1/4W,Carbon
R56	DRD137481	Res,220,+/−5%,1/4W,Carbon
R57	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R58	DRD137661	Res,1. 2K,+/−5%,1/4W,Carbon
R61	DRV410511	Res,1K,+/−20%,1/3W,Mtl
R62	DRD137761	Res,3. 3K,+/−5%,1/4W,Carbon
R65	DRE137661	Res,120,+/−1%,1/4W,Mtl
R66	DRE137661	Res,120,+/−1%,1/4W,Mtl
R67	DRD137281	Res,33,+/−5%,1/4W,Carbon
R68	DRD137281	Res,33,+/−5%,1/4W,Carbon
R71	DRD137161	Res,3. 9,+/−5%,1/4W,Carbon
R72	DRD137161	Res,3. 9,+/−5%,1/4W,Carbon
R80	DRD137161	Res,3. 9,+/−5%,1/4W,Carbon
R83	DRD137271	Res,30,+/−5%,1/4W,Carbon
R84	DRD137271	Res,30,+/−5%,1/4W,Carbon

VERTICAL CONTROL & CAL [7]

SS-7611 and SS-7607

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C2	DCE229201	Cap,47u,+/−20%,25V,Ele
C3	DCE229201	Cap,47u,+/−20%,25V,Ele
C6	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C7	DCE229201	Cap,47u,+/−20%,25V,Ele
C8	DCE229201	Cap,47u,+/−20%,25V,Ele
C9	DCE229201	Cap,47u,+/−20%,25V,Ele
C11	DCE229201	Cap,47u,+/−20%,25V,Ele
C12	DCE229201	Cap,47u,+/−20%,25V,Ele
C13	DCE229201	Cap,47u,+/−20%,25V,Ele
C14	DCC239051	Cap,100p,+/−5%,50V,Cer
C15	DCC239271	Cap,180p,+/−5%,50V,Cer
C17	DCC239051	Cap,100p,+/−5%,50V,Cer
C18	DCC239051	Cap,100p,+/−5%,50V,Cer
C24	DCC239241	Cap,27p,+/−5%,50V,Cer
C27	DCC239241	Cap,27p,+/−5%,50V,Cer
C41	DCE229221	Cap,220u,+/−20%,25V,Ele
C43	DCC234501	Cap,220p,+/−5%,50V,Cer
C70	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C71	DCE229201	Cap,47u,+/−20%,25V,Ele
C73	DCC929031	Cap,0.01u,+/−30%,16V,Cer
FL2	DHF039041	Filter,DST 306-91FZ103Z50V
FL11	DHF039021	Filter,DSS 306-91FZ23
FL12	DHF039021	Filter,DSS 306-91FZ23
FL13	DHF039021	Filter,DSS 306-91FZ23
FL14	DHF039021	Filter,DSS 306-91FZ23
IC2	DIC445961	IC,MC 74HC595N
IC3	DIC445961	IC,MC 74HC595N
IC5	DIC110181	IC,SN 7417N
IC6	DIC440051	IC,MC 74HC04N
J1	DCN115721	Connector,HLEM12S-1
J2	DCN115771	Connector,HLEM26S-1
J3	DCN033821	Wire Post,WP22-1B
J4	DCN115731	Connector,HLEM14S-1
P105	DCN116141	Connector,A4-16PA-2DSA(1)0
P106	DCN116081	Connector,A4-10PA-2DSA(1)
PC1	DFB030631	Photo Coupler,PC827
Q5	DTR199351	Tr,DTC 114ES TP
Q6	DTR199331	Tr,DTA 114ES TP
Q15	DTR199351	Tr,DTC 114ES TP
R2	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R11	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R12	DRD137571	Res,510,+/−5%,1/4W,Carbon
R13	DRD137631	Res,910,+/−5%,1/4W,Carbon
R14	DRD137671	Res,1.3K,+/−5%,1/4W,Carbon
R15	DRD137571	Res,510,+/−5%,1/4W,Carbon
R16	DRD137631	Res,910,+/−5%,1/4W,Carbon
R17	DRD137671	Res,1.3K,+/−5%,1/4W,Carbon
R18	DRE137761	Res,330,+/−1%,1/4W,Mtl
R20	DRD137491	Res,240,+/−5%,1/4W,Carbon
R20A	DRD137521	Res,330,+/−5%,1/4W,Carbon
R21	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R22	DRD137571	Res,510,+/−5%,1/4W,Carbon
R23	DRD137631	Res,910,+/−5%,1/4W,Carbon
R24	DRD137671	Res,1.3K,+/−5%,1/4W,Carbon
R25	DRD137571	Res,510,+/−5%,1/4W,Carbon
R26	DRD137631	Res,910,+/−5%,1/4W,Carbon
R27	DRD137671	Res,1.3K,+/−5%,1/4W,Carbon
R40	DRE137961	Res,2.2K,+/−5%,1/4W,Carbon
R41	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R42	DRV415501	Res,100,Var,1/4W,Crm
R42A	DRE137641	Res,100,+/−1%,1/4W,Mtl
R43	DRD134831	Res,1K,+/−5%,1/4W,Carbon
R51	DRD137601	Res,680,+/−5%,1/4W,Carbon
R52	DRE137841	Res,680,+/−1%,1/4W,Mtl
R53	DRD137601	Res,680,+/−5%,1/4W,Carbon
R54	DRE137841	Res,680,+/−1%,1/4W,Mtl
R61	DRD137401	Res,100,+/−5%,1/4W,Carbon
R62	DRD137401	Res,100,+/−5%,1/4W,Carbon
R63	DRD137401	Res,100,+/−5%,1/4W,Carbon
R64	DRD137401	Res,100,+/−5%,1/4W,Carbon
R65	DRD137401	Res,100,+/−5%,1/4W,Carbon
W1	KHB097711	Flat Cable,TWVF12-280
W2	KHB098711	Flat Cable,TWVF26-60
W4	KHB098011	Flat Cable,TWVF14-95
W5	KHB114811	Gated Pulse Cable,7W5

VERTICAL CONTROL & CAL [7]

SS-7610 and SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C2	DCE229201	Cap,47u,+/−20%,25V,Ele
C3	DCE229201	Cap,47u,+/−20%,25V,Ele
C7	DCE229201	Cap,47u,+/−20%,25V,Ele
C8	DCE229201	Cap,47u,+/−20%,25V,Ele
C9	DCE229201	Cap,47u,+/−20%,25V,Ele
C11	DCE229201	Cap,47u,+/−20%,25V,Ele
C12	DCE229201	Cap,47u,+/−20%,25V,Ele
C13	DCE229201	Cap,47u,+/−20%,25V,Ele
C14	DCC239051	Cap,100p,+/−5%,50V,Cer
C15	DCC239271	Cap,19p,+/−5%,50V,Cer
C17	DCC239051	Cap,100p,+/−5%,50V,Cer
C18	DCC239051	Cap,100p,+/−5%,50V,Cer
C24	DCC239241	Cap,27p,+/−5%,50V,Cer
C27	DCC239241	Cap,27p,+/−5%,50V,Cer
C41	DCE229221	Cap,220u,+/−20%,25V,Ele
C43	DCC234501	Cap,220p,+/−5%,50V,Cer
C70	DCC929031	Cap,0.01u,+/−5%,50V,Cer
C71	DCE229201	Cap,47u,+/−20%,25V,Ele
C73	DCC929031	Cap,0.01u,+/−5%,50V,Cer
FL2	DHF039041	Filter,DST 306-91FZ103Z50V
FL11	DHF032021	Filter,DSS 306-55FZ23
FL12	DHF032021	Filter,DSS 306-55FZ23
FL13	DHF032021	Filter,DSS 306-55FZ23
FL14	DHF032021	Filter,DSS 306-55FZ23
IC2	DIC445961	IC,MC 74HC595N
IC5	DIC110181	IC,SN 7417N
IC6	DIC440051	IC,MC 74HC04N
J1	DCN115721	Connector,HLEM12S-1
J2	DCN115771	Connector,HLEM26S-1
J3	DCN033821	Wire Post,WP22-1B
J4	DCN115731	Connector,HLEM14S-1
P105	DCN116141	Connector,A4-16PA-2DSA(1)0
P106	DCN116081	Connector,A4-10PA-2DSA(1)
PC1	DFB031051	Photo Coupler,PC827
Q5	DTR199351	Tr,DTC 114ES TP
Q6	DTR199331	Tr,DTA 114ES TP
R2	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R11	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R12	DRD137571	Res,510,+/−5%,1/4W,Carbon
R13	DRD137631	Res,910,+/−5%,1/4W,Carbon
R14	DRD137671	Res,1.3K,+/−5%,1/4W,Carbon
R15	DRD137571	Res,510,+/−5%,1/4W,Carbon
R16	DRD137631	Res,910,+/−5%,1/4W,Carbon
R17	DRD137671	Res,1.3K,+/−5%,1/4W,Carbon
R18	DRE137761	Res,330,+/−1%,1/4W,Mtl
R20	DRD137491	Res,240,+/−5%,1/4W,Carbon
R20A	DRD137521	Res,330,+/−5%,1/4W,Carbon
R21	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R22	DRD137571	Res,510,+/−5%,1/4W,Carbon
R23	DRD137631	Res,910,+/−5%,1/4W,Carbon
R24	DRD137671	Res,1.3K,+/−5%,1/4W,Carbon
R25	DRD137571	Res,510,+/−5%,1/4W,Carbon
R26	DRD137631	Res,910,+/−5%,1/4W,Carbon
R27	DRD137671	Res,1.3K,+/−5%,1/4W,Carbon
R40	DRE137961	Res,2.2K,+/−1%,1/4W,Mtl
R41	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R42	DRV415501	Res,100,Var,1/4W,Crm
R42A	DRE137641	Res,100,+/−1%,1/4W,Mtl
R43	DRD134831	Res,1K,+/−5%,1/4W,Carbon
R51	DRD137601	Res,680,+/−5%,1/4W,Carbon
R52	DRE137841	Res,680,+/−1%,1/4W,Mtl
R53	DRD137601	Res,680,+/−5%,1/4W,Carbon
R54	DRE137841	Res,680,+/−1%,1/4W,Mtl
R61	DRD137401	Res,100,+/−5%,1/4W,Carbon
R62	DRD137401	Res,100,+/−5%,1/4W,Carbon
R63	DRD137401	Res,100,+/−5%,1/4W,Carbon
R64	DRD137401	Res,100,+/−5%,1/4W,Carbon
R65	DRD137401	Res,100,+/−5%,1/4W,Carbon
W1	KHB097711	Flat Cable,TWVF12-280
W2	KHB098711	Flat Cable,TWVF26-60
W4	KHB098011	Flat Cable,TWVF14-95

VERT OUTPUT AMP [8]

SS-7611

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCF121601	Cap,1000p,+/−5%,50V,Flm
C2	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C5	DCF121601	Cap,1000p,+/−5%,50V,Flm
C6	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C7	DCV019871	Cap,20p,Var,250V,Cer
C8	DCE229201	Cap,47u,+/−20%,25V,Ele
C9	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C10	DCV019471	Cap,12p,Var,250V,Cer
C11	DCV019871	Cap,20p,Var,250V,Cer
C12	DCC239131	Cap,39p,+/−5%,50V,Cer
C13	DCE229201	Cap,47u,+/−20%,25V,Ele
C14	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C15	DCF121601	Cap,1000p,+/−5%,50V,Flm
C16	DCF121601	Cap,1000p,+/−5%,50V,Flm
C17	DCV019471	Cap,12p,Var,250V,Cer
C18	DCF121601	Cap,1000p,+/−5%,50V,Flm
C19	DCF121601	Cap,1000p,+/−5%,50V,Flm
C19A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C20	DCC239201	Cap,4p,+/−0.25p,50V,Cer
C21	DCC239201	Cap,4p,+/−0.25p,50V,Cer
C22	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C23	DCC139501	Cap,0.01u,+/−10%,500V,Cer
C24	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C25	DCF121601	Cap,1000p,+/−5%,50V,Flm
C26	DCF121601	Cap,1000p,+/−5%,50V,Flm
C28	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C31	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C33	DCE229201	Cap,47u,+/−20%,25V,Ele
C34	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C35	DCE229201	Cap,47u,+/−20%,25V,Ele
C38	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C39	DCE229211	Cap,0.01u,+/−30%,16V,Cer
C41	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C42	DCC239171	Cap,220p,+/−5%,50V,Cer
C44	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C44A	DCE229211	Cap,100u,+/−20%,25V,Ele
C45	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C46	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C47A	DCC239071	Cap,3p,+/−0.5p,50V,Cer
C81	DCE229201	Cap,47u,+/−20%,25V,Ele
C82	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C83	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C92	DCC239181	Cap,330p,+/−5%,50V,Cer
C97	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C100	DCC239121	Cap,22p,+/−10%,50V,Cer
D1	DDD019011	Diode,1SV69 TA21R
D2	DDD019071	Diode,1SS 120
D3	DDD039091	Diode,RD6.8ESB1 TA21R
D4	DDD038331	Diode,RD7.5ESB1 TA21R
D5	DDD019071	Diode,1SS 120
D6	DDD019071	Diode,1SS 120
D7	DDD019071	Diode,1SS 120
D8	DDD019071	Diode,1SS 120
D9	DDD019071	Diode,1SS 120
D11	DDD019011	Diode,1SV69 TA21R
FL1	DCL152581	Choke Coil,LHB 0812-303
FL2	DHF039041	Filter,DST 306-91FZ103Z50
FL3	DHF039021	Filter,DSS 306-55FZ23
FL4	DHF039041	Filter,DST 306-91FZ103Z50
IC1	DIC424161	IC,CD 4069BE(RCA)
IC2	DIC613832	IC,HA17080PS(IS)/TL080ACP
J2	DCN115731	Connector,HLEM14S-1
J3	DCN115731	Connector,HLEM14S-1
J4	KHB095411	Small Socket
J5	KHB095411	Small Socket
J6	DCN115701	Connector,HLEM8S-1
J8	DCN115701	Connector,HLEM8S-1
L1	DCL151301	Peaking Coil
L2	DCL151301	Peaking Coil
P1	DCN034651	Connector,M33-03-30-114P
P7	DCN990891	Connector,5267-04A
Q1	DTR119041	Tr,2SA 1206 TRC
Q2	DTR119041	Tr,2SA 1206 TRC
Q3	DTR139011	Tr,2SC 1815GR TPER1
Q4	DTR139061	Tr,2SC 1907 TR
Q5	DTR139061	Tr,2SC 1907 TR
Q6	DTR119041	Tr,2SA 1206 TRC
Q7	DTR119041	Tr,2SA 1206 TRC
Q8	DTR191521	Tr,SRFJ 1018
Q9	DTR191521	Tr,SRFJ 1018
Q11	DTR139061	Tr,2SC 1907 TR
Q12	DTR139061	Tr,2SC 1907 TR

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
Q13	DTR191521	Tr,SRFJ 1018
Q14	DTR191521	Tr,SRFJ 1018
Q15	DTR191331	Tr,MRF 544
Q16	DTR191331	Tr,MRF 544
Q17	DTR135871	Tr,2SC 3064
Q19	DTR139011	Tr,2SC 1815GR TPER1
Q20	DTR139011	Tr,2SC 1815GR TPER1
Q22	DTR139351	Tr,2SC 2901-T
Q23	DTR191521	Tr,SRFJ 1018
Q24	DTR191521	Tr,SRFJ 1018
Q25	DTR139351	Tr,2SC 2901-T
Q26	DTR199331	Tr,DTA 114ES TP
R1	DRD137321	Res,47,+/−5%,1/4W,Carbon
R4	DRD137321	Res,47,+/−5%,1/4W,Carbon
R8	DRD137561	Res,470,+/−5%,1/4W,Carbon
R9	DRD137321	Res,47,+/−5%,1/4W,Carbon
R10	DRD137401	Res,100,+/−5%,1/4W,Carbon
R11	DDD080431	Th,112103-2
R12	DRE138201	Res,22K,+/−1%,1/4W,Mtl
R14	DRD137381	Res,82,+/−5%,1/4W,Carbon
R15	DRD137561	Res,470,+/−5%,1/4W,Carbon
R16	DRD137321	Res,47,+/−5%,1/4W,Carbon
R17	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R18	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R19	DRD137531	Res,360,+/−5%,1/4W,Carbon
R20	DRD137241	Res,22,+/−5%,1/4W,Carbon
R21	DRD137241	Res,22,+/−5%,1/4W,Carbon
R22	DRD137321	Res,47,+/−5%,1/4W,Carbon
R24	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R26	DRD137401	Res,100,+/−5%,1/4W,Carbon
R27	DRD137241	Res,22,+/−5%,1/4W,Carbon
R28	DRD137241	Res,22,+/−5%,1/4W,Carbon
R32	DRV411921	Res,500K,+/−20%,1/3W,MG
R33	DRD137281	Res,33,+/−5%,1/4W,Carbon
R39	DRV411991	Res,10K,+/−20%,1/3W,MG
R40	DRD137951	Res,20K,+/−5%,1/4W,Carbon
R41A	DRV410501	Res,10K,Var,1/2W,Crm
R42A	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R42	DRV410501	Res,10K,Var,1/2W,Crm
R43	DRD137711	Res,20K,+/−5%,1/4W,Carbon
R44	DRE137871	Res,910,+/−1%,1/4W,Mtl
R45	DRE137871	Res,910,+/−1%,1/4W,Mtl
R46	DRD137241	Res,22,+/−5%,1/4W,Carbon
R47A	DRD137321	Res,47,+/−5%,1/4W,Carbon
R47	DRD137401	Res,100,+/−5%,1/4W,Carbon
R52	DRD137241	Res,22,+/−5%,1/4W,Carbon
R53	DRD137401	Res,100,+/−5%,1/4W,Carbon
R57	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R58	DRD137691	Res,1.6K,+/−5%,1/4W,Carbon
R61	DRD137321	Res,47,+/−5%,1/4W,Carbon
R62	DRD137301	Res,39,+/−5%,1/4W,Carbon
R64	DRD137321	Res,47,+/−5%,1/4W,Carbon
R65	DRD137301	Res,39,+/−5%,1/4W,Carbon
R66	DRD137241	Res,22,+/−5%,1/4W,Carbon
R67	DRD137241	Res,22,+/−5%,1/4W,Carbon
R68	DRD137321	Res,47,+/−5%,1/4W,Carbon
R69	DRD137481	Res,220,+/−5%,1/4W,Carbon
R70	DRD137481	Res,220,+/−5%,1/4W,Carbon
R71	DRS330381	Res,270,+/−5%,2W,Mtl
R72	DRS330381	Res,270,+/−5%,2W,Mtl
R75	DRD137321	Res,47,+/−5%,1/4W,Carbon
R76	DRD137321	Res,47,+/−5%,1/4W,Carbon
R77	DRD137321	Res,47,+/−5%,1/4W,Carbon
R78	DRD137321	Res,47,+/−5%,1/4W,Carbon
R80	DRE138361	Res,100K,+/−1%,1/4W,Mtl
R81	DRE138361	Res,100K,+/−1%,1/4W,Mtl
R82	DRE138191	Res,20K,+/−1%,1/4W,Mtl
R83	DRE138191	Res,20K,+/−1%,1/4W,Mtl
R84	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R87	DRE138281	Res,74,+/−1%,1/4W,Mtl
R88	DRE138281	Res,74,+/−1%,1/4W,Mtl
R89	DRS330341	Res,120,+/−5%,2W,Mtl
R93A	DRV410491	Res,200,,Var,1/2W,Crm
R94	DRE138151	Res,13K,+/−1%,1/4W,Mtl
R97	DRV410511	Res,10K,Var,1/2W,Crm
R105	DRD137401	Res,100,+/−5%,1/4W,Carbon
R106	DRD137691	Res,1.6K,+/−5%,1/4W,Carbon
R108	DRD137401	Res,100,+/−5%,1/4W,Carbon
R111	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R112	DRD137301	Res,39,+/−5%,1/4W,Carbon
R121	DRE138281	Res,74,+/−1%,1/4W,Mtl
R122	DRE138281	Res,74,+/−1%,1/4W,Mtl

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R123	DRD137301	Res,39,+/−5%,1/4W,Carbon
W2	KHB097811	Flat Cable,TWVF14-40
W6	KHB097411	Flat Cable,TWVF8-300
W8	KHB097211	Flat Cable,TWVF8-80

VERT OUTPUT AMP [8]

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CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCF121601	Cap,1000p,+/−5%,50V,Flm
C2	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C3	DCC239011	Cap,33p,+/−5%,50V,Cer
C4	DCC239061	Cap,2p,+/−0.25%,50V,Cer
C5	DCF121601	Cap,1000p,+/−5%,50V,Flm
C6	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C7	DCV019871	Cap,20p,Var,250V,Cer
C8	DCE229201	Cap,47u,+/−20%,25V,Ele
C9	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C10	DCV019471	Cap,12p,Var,250V,Cer
C11	DCV019871	Cap,20p,Var,250V,Cer
C12	DCC239131	Cap,39p,+/−5%,50V,Cer
C13	DCE229201	Cap,47u,+/−20%,25V,Ele
C14	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C15	DCF121601	Cap,1000p,+/−5%,50V,Flm
C16	DCF121601	Cap,1000p,+/−5%,50V,Flm
C17	DCV019471	Cap,12p,Var,250V,Cer
C18	DCF121601	Cap,1000p,+/−5%,50V,Flm
C19	DCF121601	Cap,1000p,+/−5%,50V,Flm
C19A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C20	DCC239201	Cap,4p,+/−0.25p,50V,Cer
C21	DCC239201	Cap,4p,+/−0.25p,50V,Cer
C22	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C23	DCC139501	Cap,0.01u,+/−10%,500V,Cer
C24	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C25	DCF121601	Cap,1000p,+/−5%,50V,Flm
C26	DCF121601	Cap,1000p,+/−5%,50V,Flm
C28	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C31	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C33	DCE229201	Cap,47u,+/−20%,25V,Ele
C34	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C35	DCE229201	Cap,47u,+/−20%,25V,Ele
C38	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C39	DCE229211	Cap,10u,+/−20%,25V,Ele
C41	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C42	DCC239171	Cap,220p,+/−5%,50V,Cer
C44	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C44A	DCE229211	Cap,10u,+/−20%,25V,Ele
C45	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C46	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C81	DCE229201	Cap,47u,+/−20%,25V,Ele

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C82	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C83	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C92	DCC239181	Cap,330p,+/−5%,50V,Cer
C97	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C100	DCC239121	Cap,22p,+/−5%,50V,Cer
D1	DDD019011	Diode,1SV69 TA21R
D2	DDD019071	Diode,1SS 120
D3	DDD039091	Diode,RD6.8ESB1 TA21R
D4	DDD038331	Diode,RD7.5ESB1 TA21R
D5	DDD019071	Diode,1SS 120
D6	DDD019071	Diode,1SS 120
D7	DDD019071	Diode,1SS 120
D8	DDD019071	Diode,1SS 120
D9	DDD019071	Diode,1SS 120
FL1	DCL152581	Choke coil,LHB 0812-303
FL2	DHF039041	Filter,DST 306-91FZ103Z50
FL3	DHF039021	Filter,DSS 306-55FZ23
FL4	DHF039041	Filter,DST 306-91FZ103Z50
IC1	DIC424161	IC,CD 4069UBE(RCA)
IC2	DIC613832	IC,HA17080PS(IS) TL080ACP
J2	DCN115731	Connector,HLEM14S-1
J3	DCN115731	Connector,HLEM14S-1
J4	KHB095411	Small Socket
J5	KHB095411	Small Socket
J6	DCN115701	Connector,HLEM8S-1
J8	DCN115701	Connector,HLEM8S-1
L1	DCL151301	Peaking Coil
L2	DCL151301	Peaking Coil
P1	DCN034651	Connector,M33-03-30-114P
P7	DCN990891	Connector,5267-04A
Q1	DTR119041	Tr,2SA 1206 TRC
Q2	DTR119041	Tr,2SA 1206 TRC
Q3	DTR139011	Tr,2SC 1815GR TPER1
Q4	DTR139061	Tr,2SC 1907 TR
Q5	DTR139061	Tr,2SC 1907 TR
Q6	DTR155131	Tr,2N 3905
Q7	DTR155131	Tr,2N 3905
Q8	DTR191361	Tr,MPS 901
Q9	DTR191361	Tr,MPS 901
Q11	DTR139321	Tr,2SC 3732K-T
Q12	DTR139321	Tr,2SC 3732K-T
Q13	DTR191521	Tr,SRFJ 1018
Q14	DTR191521	Tr,SRFJ 1018
Q15	DTR191331	Tr,MRF 544
Q16	DTR191331	Tr,MRF 544
Q17	DTR135871	Tr,2SC 3064
Q19	DTR139011	Tr,2SC 1815GR TPER1
Q20	DTR139011	Tr,2SC 1815GR TPER1
Q22	DTR139351	Tr,2SC 2901-T
Q23	DTR191521	Tr,SRFJ 1018
Q24	DTR191521	Tr,SRFJ 1018
Q25	DTR139351	Tr,2SC 2901-T
Q26	DTR199331	Tr,DTA 114ES TP
R1	DRD137321	Res,47,+/−5%,1/4W,Carbon
R2	DRE137641	Res,100,+/−1%,1/4W,Mtl
R3	DRE137631	Res,91,+/−1%,1/4W,Mtl
R4	DRD137321	Res,47,+/−5%,1/4W,Carbon
R5	DRE137601	Res,68,+/−1%,1/4W,Mtl
R6	DRE137661	Res,120,+/−1%,1/4W,Mtl
R7	DRE137601	Res,68,+/−1%,1/4W,Mtl
R8	DRD137561	Res,470,+/−5%,1/4W,Carbon
R9	DRD137321	Res,47,+/−5%,1/4W,Carbon
R10	DRD137401	Res,100,+/−5%,1/4W,Carbon
R11	DDD080431	Th,112103-2
R12	DRE138201	Res,22K,+/−1%,1/4W,Mtl
R13	DRE137961	Res,2.2K,+/−1%,1/4W,Mtl
R14	DRD137381	Res,82,+/−5%,1/4W,Carbon
R15	DRD137561	Res,470,+/−5%,1/4W,Carbon
R16	DRD137321	Res,47,+/−5%,1/4W,Carbon
R17	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R18	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R19	DRD137531	Res,360,+/−5%,1/4W,Carbon
R20	DRD137241	Res,22,+/−5%,1/4W,Carbon
R21	DRD137241	Res,22,+/−5%,1/4W,Carbon
R22	DRD137321	Res,47,+/−5%,1/4W,Carbon
R24	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R25	DRD137801	Res,4.7K,+/−5%,1/4W,Carbon
R26	DRD137401	Res,100,+/−5%,1/4W,Carbon
R27	DRD137241	Res,22,+/−5%,1/4W,Carbon
R28	DRD137241	Res,22,+/−5%,1/4W,Carbon
R31	DRE137911	Res,1.3K,+/−1%,1/4W,Mtl
R32	DRV411731	Res,200K,+/−20%,1/3W,MG

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R35	DRE137681	Res,150,+/−1%,1/4W,Mtl
R36	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R37	DRE137681	Res,150,+/−1%,1/4W,Mtl
R38	DRD137801	Res,4.7K,+/−5%,1/4W,Carbon
R39	DRV411991	Res,10K,+/−20%,1/3W,MG
R40	DRD137951	Res,20K,+/−5%,1/4W,Carbon
R41	DRE137711	Res,200,+/−1%,1/4W,Mtl
R41A	DRV410501	Res,10K,Var,1/2W,Crm
R42A	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R42	DRV410501	Res,10K,Var,1/2W,Crm
R43	DRD137711	Res,20K,+/−5%,1/4W,Carbon
R44A	DRE137841	Res,680,+/−1%,1/4W,Mtl
R44	DRE137871	Res,910,+/−1%,1/4W,Mtl
R45A	DRE137841	Res,680,+/−1%,1/4W,Mtl
R45	DRE137871	Res,910,+/−1%,1/4W,Mtl
R46	DRD137241	Res,22,+/−5%,1/4W,Carbon
R47	DRD137401	Res,100,+/−5%,1/4W,Carbon
R50	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R51	DRE137841	Res,680,+/−1%,1/4W,Mtl
R52	DRD137241	Res,22,+/−5%,1/4W,Carbon
R53	DRD137401	Res,100,+/−5%,1/4W,Carbon
R54	DRE137661	Res,120,+/−1%,1/4W,Mtl
R55	DRE137661	Res,120,+/−1%,1/4W,Mtl
R56	DRE137631	Res,91,+/−1%,1/4W,Mtl
R57	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R58	DRD137691	Res,1.6K,+/−5%,1/4W,Carbon
R59	DRE137481	Res,22,+/−1%,1/4W,Carbon
R60	DRD138021	Res,39K,+/−5%,1/4W,Carbon
R61	DRD137321	Res,47,+/−5%,1/4W,Carbon
R62	DRD137331	Res,51,+/−5%,1/4W,Carbon
R64	DRD137321	Res,47,+/−5%,1/4W,Carbon
R65	DRD137331	Res,51,+/−5%,1/4W,Carbon
R66	DRD137241	Res,22,+/−5%,1/4W,Carbon
R67	DRD137241	Res,22,+/−5%,1/4W,Carbon
R68	DRD137321	Res,47,+/−5%,1/4W,Mtl
R69	DRD137481	Res,220,+/−5%,1/4W,Carbon
R70	DRD137481	Res,220,+/−5%,1/4W,Carbon
R71	DRS330391	Res,330,+/−5%,2W,Mtl
R72	DRS330391	Res,330,+/−5%,2W,Mtl
R73	DRE137731	Res,200,+/−1%,1/4W,Mtl
R73A	DRE137731	Res,240,+/−1%,1/4W,Mtl
R74	DRE137731	Res,240,+/−1%,1/4W,Mtl
R74A	DRE137731	Res,240,+/−1%,1/4W,Mtl
R75	DRD137321	Res,47,+/−5%,1/4W,Carbon
R76	DRD137321	Res,47,+/−5%,1/4W,Carbon
R77	DRD137321	Res,47,+/−5%,1/4W,Carbon
R78	DRD137321	Res,47,+/−5%,1/4W,Carbon
R80	DRE138361	Res,100K,+/−1%,1/4W,Mtl
R81	DRE138361	Res,100K,+/−1%,1/4W,Mtl
R82	DRE138191	Res,20K,+/−1%,1/4W,Mtl
R83	DRE138191	Res,20K,+/−1%,1/4W,Mtl
R84	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R87	DRE138281	Res,74,+/−1%,1/4W,Mtl
R88	DRE138281	Res,74,+/−1%,1/4W,Mtl
R89	DRS330351	Res,150,+/−5%,2W,Mtl
R90	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R91	DRE137771	Res,360,+/−1%,1/4W,Mtl
R92	DRE137801	Res,470,+/−1%,1/4W,Mtl
R93	DRE137471	Res,20,+/−1%,1/4W,Mtl
R93A	DRV410491	Res,50,,Var,1/2W,Crm
R94	DRE138151	Res,13K,+/−1%,1/4W,Mtl
R95	DRE137731	Res,240,+/−1%,1/4W,Mtl
R96	DRE137731	Res,240,+/−1%,1/4W,Mtl
R97	DRV410511	Res,200,Var,1/2W,Crm
R98	DRE137731	Res,240,+/−1%,1/4W,Mtl
R99	DRE137731	Res,240,+/−1%,1/4W,Mtl
R100	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R101	DRE137841	Res,680,+/−1%,1/4W,Mtl
R102	DRE137631	Res,91,+/−1%,1/4W,Mtl
R103	DRE137661	Res,120,+/−1%,1/4W,Mtl
R104	DRE137661	Res,120,+/−1%,1/4W,Mtl
R105	DRD137401	Res,100,+/−5%,1/4W,Carbon
R106	DRD137691	Res,1.6K,+/−5%,1/4W,Carbon
R107	DRE137731	Res,240+/−1%,1/4W,Mtl
R108	DRD137401	Res,100,+/−5%,1/4W,Carbon
R111	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R112	DRD137331	Res,51,+/−5%,1/4W,Carbon
R113	DRE137731	Res,240,+/−1%,1/4W,Mtl
R113A	DRE137731	Res,240,+/−1%,1/4W,Mtl
R114	DRE137731	Res,240,+/−1%,1/4W,Mtl
R114A	DRE137731	Res,240,+/−1%,1/4W,Mtl
R121	DRE138281	Res,74,+/−1%,1/4W,Mtl

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R122	DRE138281	Res,74,+/−1%,1/4W,Mtl
R123	DRD137331	Res,51,+/−5%,1/4W,Carbon
W2	KHB097811	Flat Cable,TWVF14-40
W6	KHB097411	Flat Cable,TWVF8-300
W8	KHB097211	Flat Cable,TWVF8-80

VERT OUTPUT AMP [8]

SS-7610

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCF121601	Cap,1000p,+/−5%,50V,Flm
C5	DCF121601	Cap,1000p,+/−5%,50V,Flm
C6	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C7	DCV019871	Cap,20p,Var,16V,Cer
C8	DCE229201	Cap,47u,+/−20%,25V,Ele
C9	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C10	DCV019471	Cap,10p,Var,16V,Cer
C11	DCV019871	Cap,20p,Var,16V,Cer
C12	DCC239131	Cap,39p,+/−5%,50V,Cer
C13	DCE229201	Cap,47u,+/−20%,25V,Ele
C14	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C15	DCF121601	Cap,1000p,+/−5%,50V,Flm
C16	DCF121601	Cap,1000p,+/−5%,50V,Flm
C17	DCV019471	Cap,10p,Var,16V,Cer
C18	DCF121601	Cap,1000p,+/−5%,50V,Flm
C19	DCF121601	Cap,1000p,+/−5%,50V,Flm
C20	DCC239201	Cap,4p,+/−0.25p,50V,Cer
C21	DCC239201	Cap,4p,+/−0.25p,50V,Cer
C22	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C23	DCC139501	Cap,0.01u,+/−10%,500V,Cer
C24	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C25	DCF121601	Cap,1000p,+/−5%,50V,Flm
C26	DCF121601	Cap,1000p,+/−5%,50V,Flm
C28	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C31	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C33	DCE229201	Cap,47u,+/−20%,25V,Ele
C35	DCE229201	Cap,47u,+/−20%,25V,Ele
C38	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C41	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C42	DCC239171	Cap,220p,+/−5%,50V,Cer
C44	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C45	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C46	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C47A	DCC239071	Cap,3p,0.5p,50V,Cer
C92	DCC239181	Cap,330p,+/−5%,50V,Cer
C97	DCC929031	Cap,0.01u,+/−30%,16V,Cer
D1	DDD019011	Diode,1SV69 TA21R
D2	DDD019071	Diode,1SS 120
D3	DDD039091	Diode,RD6.8ESB1 TA21R
D4	DDD038331	Diode,RD7.5ESB1 TA21R
D5	DDD019071	Diode,1SS 120

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
D6	DDD019071	Diode,1SS 120
D7	DDD019071	Diode,1SS 120
D8	DDD019071	Diode,1SS 120
D9	DDD019071	Diode,1SS 120
D11	DDD019011	Diode,1SV69 TA21R
FL1	DHF039041	Filter,DST 306-91FZ103Z50
FL2	DHF039041	Filter,DST 306-91FZ103Z50
FL3	DHF039021	Filter,DSS 306-91FZ103N100
IC1	DIC440051	IC,MC 74HC04N
J2	DCN115731	Connector,HLEM14S-1
J3	DCN115731	Connector,HLEM14S-1
J6	DCN115701	Connector,HLEM8S-1
L1	DCL151301	Peaking Coil
L2	DCL151301	Peaking Coil
P1	DCN034651	Connector,M33-03-30-114P
P7	DCN990891	Connector,5267-04A
Q1	DTR119041	Tr,2SA 1206 TRC
Q2	DTR119041	Tr,2SA 1206 TRC
Q3	DTR139011	Tr,2SC 1815GR TPER1
Q6	DTR119041	Tr,2SA 1206 TRC
Q7	DTR119041	Tr,2SA 1206 TRC
Q8	DTR191521	Tr,SRFJ 1018
Q9	DTR191521	Tr,SRFJ 1018
Q11	DTR139061	Tr,2SC 1907 TR
Q12	DTR139061	Tr,2SC 1907 TR
Q13	DTR191521	Tr,SRFJ 1018
Q14	DTR191521	Tr,SRFJ 1018
Q15	DTR191331	Tr,MRF 544
Q16	DTR191331	Tr,MRF 544
Q17	DTR135871	Tr,2SC 3064
Q19	DTR139011	Tr,2SC 1815GR TPER1
Q20	DTR139011	Tr,2SC 1815GR TPER1
Q22	DTR139351	Tr,2SC 2901-T
Q23	DTR191521	Tr,SRFJ 1018
Q24	DTR191521	Tr,SRFJ 1018
Q25	DTR139351	Tr,2SC 2901-T
Q26	DTR199331	Tr,DTA 114ES TP
R1	DRD137321	Res,47,+/−5%,1/4W,Carbon
R2	DRE137641	Res,100,+/−1%,1/4W,Mtl
R3	DRE137631	Res,91,+/−1%,1/4W,Mtl
R4	DRD137321	Res,47,+/−5%,1/4W,Carbon
R5	DRE137601	Res,68,+/−1%,1/4W,Mtl
R6	DRE137661	Res,120,+/−1%,1/4W,Mtl
R7	DRE137601	Res,68,+/−1%,1/4W,Mtl
R8	DRD137561	Res,470,+/−5%,1/4W,Carbon
R10	DRD137401	Res,100,+/−5%,1/4W,Carbon
R11	DDD080431	Th,112103-2
R12	DRE138201	Res,22K,+/−1%,1/4W,Mtl
R13	DRE137961	Res,2.2K,+/−1%,1/4W,Mtl
R14	DRD137381	Res,82,+/−5%,1/4W,Carbon
R15	DRD137561	Res,470,+/−5%,1/4W,Carbon
R22	DRD137321	Res,47,+/−5%,1/4W,Carbon
R24	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R25	DRD137801	Res,4.7K,+/−5%,1/4W,Carbon
R26	DRD137401	Res,100,+/−5%,1/4W,Carbon
R27	DRD137241	Res,22,+/−5%,1/4W,Carbon
R28	DRD137241	Res,22,+/−5%,1/4W,Carbon
R31	DRE137911	Res,1.3K,+/−1%,1/4W,Mtl
R32	DRV411921	Res,500K,+/−20%,1/3W,MG
R33	DRD137281	Res,33,+/−5%,1/4W,Carbon
R35	DRE137681	Res,150,+/−1%,1/4W,Mtl
R36	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R37	DRE137681	Res,150,+/−1%,1/4W,Mtl
R38	DRD137801	Res,4.7K,+/−5%,1/4W,Carbon
R39	DRV411991	Res,10K,+/−20%,1/3W,MG
R40	DRD137951	Res,20K,+/−5%,1/4W,Carbon
R41	DRE137681	Res,150,+/−1%,1/4W,Mtl
R41A	DRV410501	Res,10K,Var,1/2W,Crm
R42A	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R42	DRV410501	Res,10K,Var,1/2W,Crm
R43	DRD137711	Res,20K,+/−5%,1/4W,Carbon
R44A	DRE137841	Res,680,+/−1%,1/4W,Mtl
R44	DRE137871	Res,910,+/−1%,1/4W,Mtl
R45A	DRE137841	Res,680,+/−1%,1/4W,Mtl
R45	DRE137871	Res,910,+/−1%,1/4W,Mtl
R46	DRD137241	Res,22,+/−5%,1/4W,Carbon
R47A	DRD137321	Res,47,+/−5%,1/4W,Carbon
R47	DRD137401	Res,100,+/−5%,1/4W,Mtl
R50	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R51	DRE137841	Res,680,+/−1%,1/4W,Mtl
R52	DRD137241	Res,22,+/−5%,1/4W,Carbon
R53	DRD137401	Res,100,+/−5%,1/4W,Carbon

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R54	DRE137661	Res,120,+/−1%,1/4W,Mtl
R55	DRE137661	Res,120,+/−1%,1/4W,Mtl
R56	DRE137631	Res,91,+/−1%,1/4W,Mtl
R57	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R58	DRD137691	Res,1.6K,+/−5%,1/4W,Carbon
R59	DRE137481	Res,22,+/−1%,1/4W,Carbon
R60	DRD138021	Res,39K,+/−5%,1/4W,Carbon
R61	DRD137321	Res,47,+/−5%,1/4W,Carbon
R62	DRD137301	Res,39,+/−5%,1/4W,Carbon
R64	DRD137321	Res,47,+/−5%,1/4W,Carbon
R65	DRD137301	Res,39,+/−5%,1/4W,Carbon
R66	DRD137241	Res,22,+/−5%,1/4W,Carbon
R67	DRD137241	Res,22,+/−5%,1/4W,Carbon
R68	DRD137321	Res,47,+/−5%,1/4W,Mtl
R69	DRD137481	Res,220,+/−5%,1/4W,Carbon
R70	DRD137481	Res,220,+/−5%,1/4W,Carbon
R71	DRS330381	Res,270,+/−5%,2W,Mtl
R72	DRS330381	Res,270,+/−5%,2W,Mtl
R73A	DRE137711	Res,200,+/−1%,1/4W,Mtl
R73	DRE137711	Res,200,+/−1%,1/4W,Mtl
R74A	DRE137711	Res,200,+/−1%,1/4W,Mtl
R74	DRE137711	Res,200,+/−1%,1/4W,Mtl
R75	DRD137321	Res,47,+/−5%,1/4W,Carbon
R76	DRD137321	Res,47,+/−5%,1/4W,Carbon
R77	DRD137321	Res,47,+/−5%,1/4W,Carbon
R78	DRD137321	Res,47,+/−5%,1/4W,Carbon
R85	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R86	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R87	DRE138281	Res,74,+/−1%,1/4W,Mtl
R88	DRE138281	Res,74,+/−1%,1/4W,Mtl
R89	DRS330341	Res,120,+/−5%,2W,Mtl
R90	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R91	DRE137771	Res,470,+/−1%,1/4W,Mtl
R92	DRE137801	Res,470,+/−1%,1/4W,Mtl
R93	DRE137471	Res,20,+/−1%,1/4W,Mtl
R93A	DRV410491	Res,50,,Var,1/2W,Crm
R94	DRE138151	Res,13K,+/−1%,1/4W,Mtl
R95	DRE137731	Res,240,+/−1%,1/4W,Mtl
R96	DRE137731	Res,240,+/−1%,1/4W,Mtl
R97	DRV410511	Res,200,Var,1/2W,Crm
R98	DRE137731	Res,240,+/−1%,1/4W,Mtl
R99	DRE137731	Res,240,+/−1%,1/4W,Mtl
R100	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R101	DRE137841	Res,680,+/−1%,1/4W,Mtl
R102	DRE137631	Res,91,+/−1%,1/4W,Mtl
R103	DRE137661	Res,120,+/−1%,1/4W,Mtl
R104	DRE137661	Res,120,+/−1%,1/4W,Mtl
R105	DRD137401	Res,100,+/−5%,1/4W,Carbon
R106	DRD137691	Res,1.6K,+/−5%,1/4W,Carbon
R107	DRE137771	Res,200,+/−1%,1/4W,Carbon
R108	DRD137401	Res,100,+/−5%,1/4W,Carbon
R111	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R112	DRD137301	Res,39,+/−5%,1/4W,Carbon
R113A	DRE137711	Res,200,+/−1%,1/4W,Mtl
R113	DRE137711	Res,200,+/−1%,1/4W,Mtl
R114A	DRE137711	Res,200,+/−1%,1/4W,Mtl
R114	DRE137711	Res,200,+/−1%,1/4W,Mtl
R121	DRE138281	Res,74,+/−1%,1/4W,Mtl
R122	DRE138281	Res,74,+/−1%,1/4W,Mtl
R123	DRD137301	Res,39,+/−5%,1/4W,Carbon
W2	KHB097811	Flat Cable,TWVF14-40
W6	KHB097411	Flat Cable,TWVF8-300

VERT OUTPUT AMP [8]

SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCF121601	Cap,1000p,+/−5%,50V,Flm
C3	DCC239011	Cap,33p,+/−5%,50V,Cer
C4	DCC239061	Cap,2p,+/−0.25p,50V,Cer
C5	DCF121601	Cap,1000p,+/−5%,50V,Flm
C6	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C7	DCV019871	Cap,20p,Var,16V,Cer
C8	DCE229201	Cap,47u,+/−20%,25V,Ele
C9	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C10	DCV019471	Cap,10p,Var,16V,Cer
C11	DCV019871	Cap,20p,Var,16V,Cer
C12	DCC239131	Cap,39p,+/−5%,50V,Cer
C13	DCE229201	Cap,47u,+/−20%,25V,Ele
C14	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C15	DCF121601	Cap,1000p,+/−5%,50V,Flm
C16	DCF121601	Cap,1000p,+/−5%,50V,Flm
C17	DCV019471	Cap,10p,Var,16V,Cer
C18	DCF121601	Cap,1000p,+/−5%,50V,Flm
C19	DCF121601	Cap,1000p,+/−5%,50V,Flm
C20	DCC239201	Cap,4p,+/−0.25p,50V,Cer
C21	DCC239201	Cap,4p,+/−0.25p,50V,Cer
C22	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C23	DCC139501	Cap,0.01u,+/−10%,500V,Cer
C24	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C25	DCF121601	Cap,1000p,+/−5%,50V,Flm
C26	DCF121601	Cap,1000p,+/−5%,50V,Flm
C28	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C31	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C33	DCE229201	Cap,47u,+/−20%,25V,Ele
C35	DCE229201	Cap,47u,+/−20%,25V,Ele
C38	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C41	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C42	DCC239171	Cap,220p,+/−5%,50V,Cer
C44	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C45	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C46	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C92	DCC239181	Cap,330p,+/−5%,50V,Cer
C97	DCC929031	Cap,0.01u,+/−30%,16V,Cer
D1	DDD019011	Diode,1SV69 TA21R
D2	DDD019071	Diode,1SS 120
D3	DDD039091	Diode,RD6.8ESB1 TA21R
D4	DDD038331	Diode,RD7.5ESB1 TA21R
D5	DDD019071	Diode,1SS 120
D6	DDD019071	Diode,1SS 120
D7	DDD019071	Diode,1SS 120
D8	DDD019071	Diode,1SS 120
D9	DDD019071	Diode,1SS 120
FL1	DHF039041	Filter,DST 306-91FZ103Z50
FL2	DHF039041	Filter,DST 306-91FZ103Z50
FL3	DHF039021	Filter,DSS 306-91FZ103N100
IC1	DIC440051	IC,MC 74HC04N
J2	DCN115731	Connector,HLEM14S-1
J3	DCN115731	Connector,HLEM14S-1
J6	DCN115701	Connector,HLEM8S-1
L1	DCL151301	Peaking Coil
L2	DCL151301	Peaking Coil
P1	DCN034651	Connector,M33-03-30-114P
P7	DCN990891	Connector,5267-04A
Q1	DTR119041	Tr,2SA 1206 TRC
Q2	DTR119041	Tr,2SA 1206 TRC
Q3	DTR139011	Tr,2SC 1815GR TPER1
Q6	DTR155131	Tr,2N 3905
Q7	DTR155131	Tr,2N 3905
Q8	DTR191361	Tr,MPS 901
Q9	DTR191361	Tr,MPS 901
Q11	DTR139321	Tr,2SC 3732-T
Q12	DTR139321	Tr,2SC 3732-T
Q13	DTR191521	Tr,SRFJ 1018
Q14	DTR191521	Tr,SRFJ 1018
Q15	DTR191331	Tr,MRF 544
Q16	DTR191331	Tr,MRF 544
Q17	DTR135871	Tr,2SC 3064
Q19	DTR139011	Tr,2SC 1815GR TPER1
Q20	DTR139011	Tr,2SC 1815GR TPER1
Q22	DTR139351	Tr,2SC 2901-T
Q23	DTR191521	Tr,SRFJ 1018
Q24	DTR191521	Tr,SRFJ 1018
Q25	DTR139351	Tr,2SC 2901-T
Q26	DTR199331	Tr,DTA 114ES TP
R1	DRD137321	Res,47,+/−5%,1/4W,Carbon
R2	DRE137641	Res,100,+/−1%,1/4W,Mtl
R3	DRE137631	Res,91,+/−1%,1/4W,Mtl
R4	DRD137321	Res,47,+/−5%,1/4W,Carbon

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R5	DRE137601	Res,68,+/−1%,1/4W,Mtl
R6	DRE137661	Res,120,+/−1%,1/4W,Mtl
R7	DRE137601	Res,68,+/−1%,1/4W,Mtl
R8	DRD137561	Res,470,+/−5%,1/4W,Carbon
R10	DRD137401	Res,100,+/−5%,1/4W,Carbon
R11	DDD080431	Th,112103-2
R12	DRE138201	Res,22K,+/−1%,1/4W,Mtl
R13	DRE137961	Res,2.2K,+/−1%,1/4W,Mtl
R14	DRD137381	Res,82,+/−5%,1/4W,Carbon
R15	DRD137561	Res,470,+/−5%,1/4W,Carbon
R22	DRD137321	Res,47,+/−5%,1/4W,Carbon
R24	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R25	DRD137801	Res,4.7K,+/−5%,1/4W,Carbon
R26	DRD137401	Res,100,+/−5%,1/4W,Carbon
R27	DRD137241	Res,22,+/−5%,1/4W,Carbon
R28	DRD137241	Res,22,+/−5%,1/4W,Carbon
R31	DRE137911	Res,1.3K,+/−1%,1/4W,Mtl
R32	DRV411731	Res,200,+/−20%,1/3W,MG
R35	DRE137681	Res,150,+/−1%,1/4W,Mtl
R36	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R37	DRE137681	RES,150,+/−1%,1/4W,Mtl
R38	DRD137801	Res,4.7K,+/−5%,1/4W,Carbon
R39	DRV411991	Res,10K,+/−20%,1/3W,MG
R40	DRD137951	Res,20K,+/−5%,1/4W,Carbon
R41	DRE137711	Res,200,+/−1%,1/4W,Mtl
R41A	DRV410501	Res,10K,Var,1/2W,Crm
R42A	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R42	DRV410501	Res,10K,Var,1/2W,Crm
R43	DRD137711	Res,20K,+/−5%,1/4W,Carbon
R44A	DRE137841	Res,680,+/−1%,1/4W,Mtl
R44	DRE137871	Res,910,+/−1%,1/4W,Mtl
R45A	DRE137841	Res,680,+/−1%,1/4W,Mtl
R45	DRE137871	Res,910,+/−1%,1/4W,Mtl
R46	DRD137241	Res,22,+/−5%,1/4W,Carbon
R47	DRD137401	Res,100,+/−5%,1/4W,Carbon
R50	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R51	DRE137841	Res,680,+/−1%,1/4W,Mtl
R52	DRD137241	Res,22,+/−5%,1/4W,Carbon
R53	DRD137401	Res,100,+/−5%,1/4W,Carbon
R54	DRE137661	Res,120,+/−1%,1/4W,Mtl
R55	DRE137661	Res,120,+/−1%,1/4W,Mtl
R56	DRE137631	Res,91,+/−1%,1/4W,Mtl
R57	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R58	DRD137691	Res,1.6K,+/−5%,1/4W,Carbon
R59	DRE137481	Res,22,+/−1%,1/4W,Carbon
R60	DRD138021	Res,39K,+/−5%,1/4W,Carbon
R61	DRD137321	Res,47,+/−5%,1/4W,Carbon
R62	DRD137331	Res,51,+/−5%,1/4W,Carbon
R64	DRD137321	Res,47,+/−5%,1/4W,Carbon
R65	DRD137331	Res,51,+/−5%,1/4W,Carbon
R66	DRD137241	Res,22,+/−5%,1/4W,Carbon
R67	DRD137241	Res,22,+/−5%,1/4W,Carbon
R68	DRD137321	Res,47,+/−5%,1/4W,Carbon
R69	DRD137481	Res,220,+/−5%,1/4W,Carbon
R70	DRD137481	Res,220,+/−5%,1/4W,Carbon
R71	DRS330391	Res,330,+/−5%,2W,Mtl
R72	DRS330391	Res,330,+/−5%,2W,Mtl
R73	DRE137731	Res,240,+/−1%,1/4W,Mtl
R73A	DRE137731	Res,240,+/−1%,1/4W,Mtl
R74	DRE137731	Res,240,+/−1%,1/4W,Mtl
R74A	DRE137731	Res,240,+/−1%,1/4W,Mtl
R75	DRD137321	Res,47,+/−5%,1/4W,Carbon
R76	DRD137321	Res,47,+/−5%,1/4W,Carbon
R77	DRD137321	Res,47,+/−5%,1/4W,Carbon
R78	DRD137321	Res,47,+/−5%,1/4W,Carbon
R85	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R86	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R87	DRE138281	Res,74,+/−1%,1/4W,Mtl
R88	DRE138281	Res,74,+/−1%,1/4W,Mtl
R89	DRS330351	Res,150,+/−5%,2W,Mtl
R90	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R91	DRE137771	Res,360,+/−1%,1/4W,Mtl
R92	DRE137801	Res,470,+/−1%,1/4W,Mtl
R93	DRE137471	Res,20,+/−1%,1/4W,Mtl
R93A	DRV410491	Res,50,,Var,1/2W,Crm
R94	DRE138151	Res,13K,+/−1%,1/4W,Mtl
R95	DRE137731	Res,240,+/−1%,1/4W,Mtl
R96	DRE137731	Res,240,+/−1%,1/4W,Mtl
R97	DRV410511	Res,200,Var,1/2W,Crm
R98	DRE137751	Res,300,+/−1%,1/4W,Mtl
R99	DRE137731	Res,240,+/−1%,1/4W,Mtl
R100	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl

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CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R101	DRE137841	Res,680,+/−1%,1/4W,Mtl
R102	DRE137631	Res,91,+/−1%,1/4W,Mtl
R103	DRE137661	Res,120,+/−1%,1/4W,Mtl
R104	DRE137661	Res,120,+/−1%,1/4W,Mtl
R105	DRD137401	Res,100,+/−5%,1/4W,Carbon
R106	DRD137691	Res,1.6K,+/−5%,1/4W,Carbon
R107	DRE137731	Res,240,+/−1%,1/4W,Mtl
R108	DRD137401	Res,100,+/−5%,1/4W,Carbon
R111	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R112	DRD137331	Res,51,+/−5%,1/4W,Carbon
R113A	DRE137731	Res,240,+/−1%,1/4W,Mtl
R113	DRE137731	Res,240,+/−1%,1/4W,Mtl
R114	DRE137731	Res,240,+/−1%,1/4W,Mtl
R114A	DRE137731	Res,240,+/−1%,1/4W,Mtl
R121	DRE138281	Res,74,+/−1%,1/4W,Mtl
R122	DRE138281	Res,74,+/−1%,1/4W,Mtl
R123	DRD137331	Res,51,+/−5%,1/4W,Carbon
W2	KHB097811	Flat Cable,TWVF14-40
W6	KHB097411	Flat Cable,TWVF8-300

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C11	DCF121201	Cap,1000p,+/−5%,50V,Flm
C12	DCE229201	Cap,47u,+/−20%,25V,Ele
C18	DCC239181	Cap,330p,+/−5%,50V,Cer
C21	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C23	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C26	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C27	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C36	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C38	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C40	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C41	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C42	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C43	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C44	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C46	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C54	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C55	DCC239321	Cap,12p,+/−5%,50V,Cer
C61	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C65	DCC239211	Cap,8p,+/−0.25p,50V,Cer
C68	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C71	DCF121201	Cap,1000p,+/−5%,50V,Flm
C76	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C81	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C88	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C96	DCC929031	Cap,0.01u,+/−30%,16V,Cer
D1	DDD019071	Diode,1SS 120
D2	DDD019071	Diode,1SS 120
D3	DDD019071	Diode,1SS 120
D4	DDD019071	Diode,1SS 120
D5	DDD019071	Diode,1SS 120
D11	DDD019071	Diode,1SS 120
D12	DDD019071	Diode,1SS 120
D13	DDD019071	Diode,1SS 120
D14	DDD019071	Diode,1SS 120
D15	DDD019071	Diode,1SS 120
D21	DDD019071	Diode,1SS 120
D22	DDD019071	Diode,1SS 120
D23	DDD019071	Diode,1SS 120
D24	DDD019071	Diode,1SS 120
D25	DDD019071	Diode,1SS 120
D72	DDD019071	Diode,1SS 120

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
D92	DDD019071	Diode,1SS 120
FL1	DHF039041	Filter,DST 306-91FZ103Z50V
IC1	DIC652541	IC,u-PC 78L05(NEC)
J5	KHB095411	Small Socket
J7	KHB095411	Small Socket
J8	KHB095411	Small Socket
J11	KHB095411	Small Socket
J12	KHB095411	Small Socket
J13	KHB095411	Small Socket
J14	KHB095411	Small Socket
J15	KHB095411	Small Socket
J16	KHB095411	Small Socket
PC1	DFB030991	Photo Coupler,PS2501-3
PC2	DFB030631	Photo Coupler,PC827
Q11	DTR139321	Tr,2SC 3732K-T
Q12	DTR139321	Tr,2SC 3732K-T
Q13	DTR139321	Tr,2SC 3732K-T
Q14	DTR139321	Tr,2SC 3732K-T
Q15	DTR139321	Tr,2SC 3732K-T
Q16	DTR119041	Tr,2SA 1206 TRC
Q31	DTR191361	Tr,MPS 901
Q32	DTR191361	Tr,MPS 901
Q33	DTR139321	Tr,2SC 3732K-T
Q34	DTR119011	Tr,2SA 1015Y TPER1
Q35	DTR119011	Tr,2SA 1015Y TPER1
Q36	DTR119011	Tr,2SA 1015Y TPER1
Q41	DTR191361	Tr,MPS 901
Q42	DTR191361	Tr,MPS 901
Q43	DTR139321	Tr,2SC 3732K-T
Q48	DTR191361	Tr,MPS 901
R1	DRD137261	Res,27,+/−5%,1/4W,Carbon
R2	DRD137491	Res,240,+/−5%,1/4W,Carbon
R3	DRD137261	Res,27,+/−5%,1/4W,Carbon
R4	DRD137491	Res,240,+/−5%,1/4W,Carbon
R5	DRD137641	Res,7.5K,+/−5%,1/4W,Carbon
R5A	DRV412101	Res,20K,Var,1/4W,MG
R6	DRD137641	Res,7.5K,+/−5%,1/4W,Carbon
R6A	DRV412101	Res,20K,Var,1/4W,MG
R11	DRD137441	Res,150,+/−5%,1/4W,Carbon
R12	DRE137761	Res,330,+/−1%,1/4W,Mtl
R13	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R14	DRE137641	Res,100,+/−1%,1/4W,Mtl
R15	DRV415511	Res,200,+/−20%,1/4W,Crm
R16	DRE137851	Res,750K,+/−1%,1/4W,Mtl
R17	DRE137851	Res,750K,+/−1%,1/4W,Mtl
R18	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R19	DRD137761	Res,3.3K,+/−5%,1/4W,Carbon
R20	DRD137761	Res,3.3K,+/−5%,1/4W,Carbon
R21	DRE137941	Res,1.8K,+/−1%,1/4W Mtl
R22	DRV415521	Res,500,+/−20%,1/3W,MG
R23	DRE138051	Res,5.1K,+/−1%,1/4W,Mtl
R25	DRD137321	Res,47,+/−5%,1/4W,Carbon
R26	DRD137561	Res,470,+/−5%,1/4W,Carbon
R27	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R28	DRD137311	Res,43,+/−5%,1/4W,Carbon
R31	DRD137321	Res,47,+/−5%,1/4W,Carbon
R32	DRD137321	Res,47,+/−5%,1/4W,Carbon
R33	DRD137321	Res,47,+/−5%,1/4W,Carbon
R34	DRD137321	Res,47,+/−5%,1/4W,Carbon
R35	DRD137321	Res,47,+/−5%,1/4W,Carbon
R36	DRD137991	Res,30K,+/−5%,1/4W,Carbon
R37	DRD137761	Res,3.3K,+/−5%,1/4W,Carbon
R38	DRD137561	Res,470,+/−5%,1/4W,Carbon
R39	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R40	DRD137601	Res,680,+/−5%,1/4W,Carbon
R41	DRD137601	Res,680,+/−5%,1/4W,Carbon
R42	DRD137601	Res,680,+/−5%,1/4W,Carbon
R43	DRD137601	Res,680,+/−5%,1/4W,Carbon
R44	DRD137601	Res,680,+/−5%,1/4W,Carbon
R45	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R46	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R47	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R48	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R49	DRD137611	Res,750,+/−5%,1/4W,Carbon
R51	DRD137811	Res,5.2K,+/−5%,1/4W,Carbon
R52	DRD137321	Res,47,+/−5%,1/4W,Carbon
R53	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R54	DRD137561	Res,470,+/−5%,1/4W,Carbon
R55	DRD137321	Res,47,+/−5%,1/4W,Carbon
R61	DRD137321	Res,47,+/−5%,1/4W,Carbon
R62	DRD137321	Res,47,+/−5%,1/4W,Carbon
R63	DRD137401	Res,100,+/−5%,1/4W,Carbon

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CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R64	DRD137401	Res,100,+/−5%,1/4W,Carbon
R65	DRE137641	Res,100,+/−1%,1/4W,Mtl
R68	DRE137921	Res,1.5K,+/−1%,1/4W Mtl
R69	DRE137921	Res,1.5K,+/−1%,1/4W Mtl
R71	DRD137441	Res,150,+/−5%,1/4W,Carbon
R72	DRE137801	Res,470,+/−1%,1/4W,Mtl
R73	DRV412081	Res,1K,+/−20%,1/3W,MG
R74	DRE137921	Res,1.5K,+/−1%,1/4W Mtl
R75	DRD137321	Res,47,+/−5%,1/4W,Carbon
R76	DRD137561	Res,470,+/−5%,1/4W,Carbon
R77	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R81	DRD137321	Res,47,+/−5%,1/4W,Carbon
R82	DRD137321	Res,47,+/−5%,1/4W,Carbon
R83	DRD137401	Res,100,+/−5%,1/4W,Carbon
R84	DRD137401	Res,100,+/−5%,1/4W,Carbon
R85	DRE137641	Res,100,+/−1%,1/4W,Mtl
R88	DRE137921	Res,1.5K,+/−1%,1/4W Mtl
R89	DRE137921	Res,1.5K,+/−1%,1/4W Mtl
R92	DRE137801	Res,470,+/−1%,1/4W,Mtl
R93	DRV412081	Res,1K,+/−20%,1/3W,MG
R94	DRE137921	Res,1.5K,+/−1%,1/4W Mtl
R95	DRD137321	Res,47,+/−5%,1/4W,Carbon
R96	DRD137561	Res,470,+/−5%,1/4W,Carbon
R97	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
RA	DFB015641	RArray,22K,+/−5%,1/8W
W5	KHB099711	Coaxial Cable,75VH01300
W7	KHB100511	Coaxial Cable,75VH05000
W8	KHB099911	Coaxial Cable,75VH02202
W11	KHB100111	Coaxial Cable,75VH02600
W12	KHB100011	Coaxial Cable,75VH02602
W13	KHB100311	Coaxial Cable,75VH02606
W14	KHB100211	Coaxial Cable,75VH02600
W15	KHB099511	Coaxial Cable,75VH01200
W16	KHB099611	Coaxial Cable,75VH01208

CIRCUIT REFERENCE	IWASTU PART NO.	DESCRIPTION
C11	DCF121201	Cap,1000p,+/−5%,50V,Flm
C12	DCE229201	Cap,47u,+/−20%,25V,Ele
C18	DCC239181	Cap,330p,+/−5%,50V,Cer
C21	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C23	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C26	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C27	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C36	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C38	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C40	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C41	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C42	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C43	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C44	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C46	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C54	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C61	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C68	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C71	DCF121201	Cap,1000p,+/−5%,50V,Flm
C76	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C81	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C88	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C96	DCC929031	Cap,0.01u,+/−30%,16V,Cer
D1	DDD019071	Diode,1SS 120
D2	DDD019071	Diode,1SS 120
D3	DDD019071	Diode,1SS 120
D4	DDD019071	Diode,1SS 120
D5	DDD019071	Diode,1SS 120
D11	DDD019071	Diode,1SS 120
D12	DDD019071	Diode,1SS 120
D13	DDD019071	Diode,1SS 120
D14	DDD019071	Diode,1SS 120
D15	DDD019071	Diode,1SS 120
D21	DDD019071	Diode,1SS 120
D22	DDD019071	Diode,1SS 120
D23	DDD019071	Diode,1SS 120
D24	DDD019071	Diode,1SS 120
D25	DDD019071	Diode,1SS 120
D72	DDD019071	Diode,1SS 120
D92	DDD019071	Diode,1SS 120
FL1	DHF039041	Filter,DST 306-91FZ103Z50V

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
IC1	DIC652541	IC,u-PC 78L05(NEC)
J5	KHB095411	Small Socket
J7	KHB095411	Small Socket
J8	KHB095411	Small Socket
J11	KHB095411	Small Socket
J12	KHB095411	Small Socket
J13	KHB095411	Small Socket
J14	KHB095411	Small Socket
J15	KHB095411	Small Socket
J16	KHB095411	Small Socket
PC1	DFB030991	Photo Coupler,PS2501-3
PC2	DFB030631	Photo Coupler,PC827
Q11	DTR139321	Tr,2SC 3732K-T
Q12	DTR139321	Tr,2SC 3732K-T
Q13	DTR139321	Tr,2SC 3732K-T
Q14	DTR139321	Tr,2SC 3732K-T
Q15	DTR139321	Tr,2SC 3732K-T
Q16	DTR119041	Tr,2SA 1206 TRC
Q31	DTR191361	Tr,MPS 901
Q32	DTR191361	Tr,MPS 901
Q33	DTR139321	Tr,2SC 3732K-T
Q34	DTR119011	Tr,2SA 1015Y TPER1
Q35	DTR119011	Tr,2SA 1015Y TPER1
Q36	DTR119011	Tr,2SA 1015Y TPER1
Q41	DTR191361	Tr,MPS 901
Q42	DTR191361	Tr,MPS 901
Q43	DTR139321	Tr,2SC 3732K-T
Q48	DTR191361	Tr,MPS 901
R1	DRD137261	Res,27,+/−5%,1/4W,Carbon
R2	DRD137491	Res,240,+/−5%,1/4W,Carbon
R3	DRD137261	Res,27,+/−5%,1/4W,Carbon
R4	DRD137491	Res,240,+/−5%,1/4W,Carbon
R5	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R5A	DRV412101	Res,20K,Var,1/4W,MG
R6	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R6A	DRV412101	Res,20K,Var,1/4W,MG
R11	DRD137441	Res,150,+/−5%,1/4W,Carbon
R12	DRE137761	Res,330,+/−1%,1/4W,Mtl
R13	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R14	DRE137641	Res,100,+/−1%,1/4W,Mtl
R15	DRV415511	Res,200,+/−20%,1/4W,Crm
R16	DRE137851	Res,750,+/−1%,1/4W,Mtl
R17	DRE137851	Res,750,+/−1%,1/4W,Mtl
R18	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R19	DRD137761	Res,3.3K,+/−5%,1/4W,Carbon
R20	DRD137761	Res,3.3K,+/−5%,1/4W,Carbon
R21	DRE137941	Res,1.8K,+/−1%,1/4W Mtl
R22	DRV415521	Res,500,+/−20%,1/3W,MG
R23	DRE138051	Res,5.1K,+/−1%,1/4W,Mtl
R25	DRD137321	Res,47,+/−5%,1/4W,Carbon
R26	DRD137561	Res,470,+/−5%,1/4W,Carbon
R27	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R28	DRD137311	Res,43,+/−5%,1/4W,Carbon
R31	DRD137321	Res,47,+/−5%,1/4W,Carbon
R32	DRD137321	Res,47,+/−5%,1/4W,Carbon
R33	DRD137321	Res,47,+/−5%,1/4W,Carbon
R34	DRD137321	Res,47,+/−5%,1/4W,Carbon
R35	DRD137321	Res,47,+/−5%,1/4W,Carbon
R36	DRD137991	Res,30K,+/−5%,1/4W,Carbon
R37	DRD137761	Res,3.3K,+/−5%,1/4W,Carbon
R38	DRD137561	Res,470,+/−5%,1/4W,Carbon
R39	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R40	DRD137601	Res,680,+/−5%,1/4W,Carbon
R41	DRD137601	Res,680,+/−5%,1/4W,Carbon
R42	DRD137601	Res,680,+/−5%,1/4W,Carbon
R43	DRD137601	Res,680,+/−5%,1/4W,Carbon
R44	DRD137601	Res,680,+/−5%,1/4W,Carbon
R45	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R46	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R47	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R48	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R49	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R51	DRD137811	Res,5.2K,+/−5%,1/4W,Carbon
R52	DRD137321	Res,47,+/−5%,1/4W,Carbon
R53	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R54	DRD137561	Res,470,+/−5%,1/4W,Carbon
R55	DRD137321	Res,47,+/−5%,1/4W,Carbon
R61	DRD137321	Res,47,+/−5%,1/4W,Carbon
R62	DRD137321	Res,47,+/−5%,1/4W,Carbon
R63	DRD137401	Res,100,+/−5%,1/4W,Carbon
R64	DRD137401	Res,100,+/−5%,1/4W,Carbon
R65	DRE137641	Res,100,+/−1%,1/4W,Mtl

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CIRCUIT REFERENCE	IWASTU PART NO.	DESCRIPTION
R68	DRE137921	Res,1. 5K,+/−1%,1/4W Mtl
R69	DRE137921	Res,1. 5K,+/−1%,1/4W Mtl
R71	DRD137441	Res,150,+/−5%,1/4W,Carbon
R72	DRE137801	Res,470,+/−1%,1/4W,Mtl
R73	DRV412081	Res,1K,+/−20%,1/3W,MG
R74	DRE137921	Res,1. 5K,+/−1%,1/4W Mtl
R75	DRD137321	Res,47,+/−5%,1/4W,Carbon
R76	DRD137561	Res,470,+/−5%,1/4W,Carbon
R77	DRD137721	Res,2. 2K,+/−5%,1/4W,Carbon
R81	DRD137321	Res,47,+/−5%,1/4W,Carbon
R82	DRD137321	Res,47,+/−5%,1/4W,Carbon
R83	DRD137401	Res,100,+/−5%,1/4W,Carbon
R84	DRD137401	Res,100,+/−5%,1/4W,Carbon
R85	DRE137641	Res,100,+/−1%,1/4W,Mtl
R88	DRE137921	Res,1. 5K,+/−1%,1/4W Mtl
R89	DRE137921	Res,1. 5K,+/−1%,1/4W Mtl
R92	DRE137801	Res,470,+/−1%,1/4W,Mtl
R93	DRV412081	Res,1K,+/−20%,1/3W,MG
R94	DRE137921	Res,1. 5K,+/−1%,1/4W Mtl
R95	DRD137321	Res,47,+/−5%,1/4W,Carbon
R96	DRD137561	Res,470,+/−5%,1/4W,Carbon
R97	DRD137721	Res,2. 2K,+/−5%,1/4W,Carbon
RA1	DFB015641	RArray,22K,+/−5%,1/8W
W5	KHB099711	Coaxial Cable,75VH01300
W7	KHB100511	Coaxial Cable,75VH05000
W8	KHB099911	Coaxial Cable,75VH02202
W11	KHB100111	Coaxial Cable,75VH02600
W12	KHB100011	Coaxial Cable,75VH02602
W13	KHB100311	Coaxial Cable,75VH02606
W14	KHB100211	Coaxial Cable,75VH02600
W15	KHB099511	Coaxial Cable,75VH01200
W16	KHB099611	Coaxial Cable,75VH01208

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C11	DCF121201	Cap,1000p,+/−5%,50V,Flm
C12	DCE229201	Cap,47u,+/−20%,25V,Ele
C18	DCC239181	Cap,330p,+/−5%,50V,Cer
C21	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C23	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C26	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C36	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C38	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C40	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C41	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C42	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C43	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C44	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C46	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C54	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C55	DCC239321	Cap,12p,+/−5%,50V,Cer
C61	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C65	DCC239211	Cap,8p,+/−0. 5p,50V,Cer
C68	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C71	DCF121201	Cap,1000p,+/−5%,50V,Flm
C76	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C81	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C88	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C96	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
D1	DDD019071	Diode,1SS 120 TA21R
D2	DDD019071	Diode,1SS 120 TA21R
D3	DDD019071	Diode,1SS 120 TA21R
D4	DDD019071	Diode,1SS 120 TA21R
D5	DDD019071	Diode,1SS 120 TA21R
D11	DDD019071	Diode,1SS 120 TA21R
D12	DDD019071	Diode,1SS 120 TA21R
D13	DDD019071	Diode,1SS 120 TA21R
D14	DDD019071	Diode,1SS 120 TA21R
D15	DDD019071	Diode,1SS 120 TA21R
D21	DDD019071	Diode,1SS 120 TA21R
D72	DDD019071	Diode,1SS 120 TA21R
D92	DDD019071	Diode,1SS 120 TA21R
FL1	DHF039041	Filter,DST 306-91FZ103Z50V
IC1	DIC652541	IC,u-PC 78L05(NEC)
J5	KHB095411	Small Socket
J8	KHB095411	Small Socket

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
J11	KHB095411	Small Socket
J12	KHB095411	Small Socket
J13	KHB095411	Small Socket
J14	KHB095411	Small Socket
J15	KHB095411	Small Socket
J16	KHB095411	Small Socket
PC1	DFB030991	Photo Coupler,PS2501-3
PC2	DFB030631	Photo Coupler,PC827
Q11	DTR139321	Tr,2SC 3732K-T
Q12	DTR139321	Tr,2SC 3732K-T
Q13	DTR139321	Tr,2SC 3732K-T
Q14	DTR139321	Tr,2SC 3732K-T
Q15	DTR139321	Tr,2SC 3732K-T
Q16	DTR119041	Tr,2SA 1206 TRC
Q31	DTR191361	Tr,MPS 901
Q32	DTR191361	Tr,MPS 901
Q33	DTR139321	Tr,2SC 3732K-T
Q34	DTR119011	Tr,2SA 1015Y TPER1
Q35	DTR119011	Tr,2SA 1015Y TPER1
Q36	DTR119011	Tr,2SA 1015Y TPER1
Q41	DTR191361	Tr,MPS 901
Q42	DTR191361	Tr,MPS 901
Q43	DTR139321	Tr,2SC 3732K-T
R1	DRD137261	Res,27,+/−5%,1/4W,Carbon
R2	DRD137491	Res,240,+/−5%,1/4W,Carbon
R3	DRD137261	Res,27,+/−5%,1/4W,Carbon
R4	DRD137491	Res,240,+/−5%,1/4W,Carbon
R5	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R5A	DRV412101	Res,20K,+/−20%,1/3W,MG
R6	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R6A	DRV412101	Res,20K,+/−20%,1/3W,MG
R11	DRD137441	Res,150,+/−5%,1/4W,Carbon
R12	DRE137761	Res,330,+/−1%,1/4W,Mtl
R13	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R14	DRE137641	Res,100,+/−1%,1/4W,Mtl
R15	DRV415511	Res,200,+/−20%,1/4W,Crm
R16	DRE137851	Res,750,+/−1%,1/4W,Mtl
R17	DRE137851	Res,750,+/−1%,1/4W,Mtl
R18	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R21	DRE137941	Res,1.8K,+/−1%,1/4W Mtl
R22	DRV415521	Res,500,+/−20%,1/4W,Crm

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R23	DRE138051	Res,5.1K,+/−1%,1/4W,Mtl
R31	DRD137321	Res,47,+/−5%,1/4W,Carbon
R32	DRD137321	Res,47,+/−5%,1/4W,Carbon
R33	DRD137321	Res,47,+/−5%,1/4W,Carbon
R34	DRD137321	Res,47,+/−5%,1/4W,Carbon
R35	DRD137321	Res,47,+/−5%,1/4W,Carbon
R36	DRD137991	Res,30K,+/−5%,1/4W,Carbon
R37	DRD137761	Res,3.3K,+/−5%,1/4W,Carbon
R38	DRD137561	Res,470,+/−5%,1/4W,Carbon
R39	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R40	DRD137601	Res,680,+/−5%,1/4W,Carbon
R41	DRD137601	Res,680,+/−5%,1/4W,Carbon
R42	DRD137601	Res,680,+/−5%,1/4W,Carbon
R43	DRD137601	Res,680,+/−5%,1/4W,Carbon
R44	DRD137601	Res,680,+/−5%,1/4W,Carbon
R45	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R46	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R47	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R48	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R49	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R51	DRD137811	Res,5.2K,+/−5%,1/4W,Carbon
R52	DRD137321	Res,47,+/−5%,1/4W,Carbon
R53	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R54	DRD137561	Res,470,+/−5%,1/4W,Carbon
R55	DRD137321	Res,47,+/−5%,1/4W,Carbon
R61	DRD137321	Res,47,+/−5%,1/4W,Carbon
R62	DRD137321	Res,47,+/−5%,1/4W,Carbon
R63	DRD137401	Res,100,+/−5%,1/4W,Carbon
R64	DRD137401	Res,100,+/−5%,1/4W,Carbon
R65	DRE137641	Res,100,+/−1%,1/4W,Mtl
R68	DRE137921	Res,1.5K,+/−1%,1/4W Mtl
R69	DRE137921	Res,1.5K,+/−1%,1/4W Mtl
R71	DRD137441	Res,150,+/−5%,1/4W,Carbon
R72	DRE137801	Res,470,+/−1%,1/4W,Mtl
R73	DRV412081	Res,1K,+/−20%,1/3W,MG
R74	DRE137921	Res,1.5K,+/−1%,1/4W Mtl
R75	DRD137321	Res,47,+/−5%,1/4W,Carbon
R76	DRD137561	Res,470,+/−5%,1/4W,Carbon
R77	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R81	DRD137321	Res,47,+/−5%,1/4W,Carbon
R82	DRD137321	Res,47,+/−5%,1/4W,Carbon

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R83	DRD137401	Res,100,+/−5%,1/4W,Carbon
R84	DRD137401	Res,100,+/−5%,1/4W,Carbon
R85	DRE137641	Res,100,+/−1%,1/4W,Mtl
R88	DRE137921	Res,1.5K,+/−1%,1/4W Mtl
R89	DRE137921	Res,1.5K,+/−1%,1/4W Mtl
R92	DRE137801	Res,470,+/−1%,1/4W,Mtl
R93	DRV412081	Res,1K,+/−20%,1/3W,MG
R94	DRE137921	Res,1.5K,+/−1%,1/4W Mtl
R95	DRD137321	Res,47,+/−5%,1/4W,Carbon
R96	DRD137561	Res,470,+/−5%,1/4W,Carbon
R97	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
RA1	DFB015641	RArray,22K,+/−5%,1/8W
W5	KHB099711	Coaxial Cable,75VH01300
W8	KHB099911	Coaxial Cable,75VH02202
W11	KHB100111	Coaxial Cable,75VH02600
W12	KHB100011	Coaxial Cable,75VH02602
W13	KHB100311	Coaxial Cable,75VH02606
W14	KHB100211	Coaxial Cable,75VH02600
W15	KHB099511	Coaxial Cable,75VH01200
W16	KHB099611	Coaxial Cable,75VH01208

A TRIG SELECT [9]

SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C11	DCF121201	Cap,1000p,+/−5%,50V,Flm
C12	DCE229201	Cap,47u,+/−20%,25V,Ele
C18	DCC239181	Cap,330p,+/−5%,50V,Cer
C21	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C23	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C36	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C38	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C40	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C41	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C42	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C43	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C44	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C46	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C54	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C61	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C68	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C71	DCF121201	Cap,1000p,+/−5%,50V,Flm
C76	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C81	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C88	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C96	DCC929031	Cap,0.01u,+/−30%,16V,Cer
D1	DDD019071	Diode,1SS 120
D2	DDD019071	Diode,1SS 120
D3	DDD019071	Diode,1SS 120
D4	DDD019071	Diode,1SS 120
D5	DDD019071	Diode,1SS 120
D11	DDD019071	Diode,1SS 120
D12	DDD019071	Diode,1SS 120
D13	DDD019071	Diode,1SS 120
D14	DDD019071	Diode,1SS 120
D15	DDD019071	Diode,1SS 120
D21	DDD019071	Diode,1SS 120
D72	DDD019071	Diode,1SS 120
D92	DDD019071	Diode,1SS 120
FL1	DHF039041	Filter,DST 306-91FZ103Z50V
IC1	DIC652541	IC,u-PC 78L05(NEC)
J5	KHB095411	Small Socket
J8	KHB095411	Small Socket
J11	KHB095411	Small Socket
J12	KHB095411	Small Socket
J13	KHB095411	Small Socket

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
J14	KHB095411	Small Socket
J15	KHB095411	Small Socket
J16	KHB095411	Small Socket
PC1	DFB030991	Photo Coupler,PS2501-3
PC2	DFB030631	Photo Coupler,PC827
Q11	DTR139321	Tr,2SC 3732K-T
Q12	DTR139321	Tr,2SC 3732K-T
Q13	DTR139321	Tr,2SC 3732K-T
Q14	DTR139321	Tr,2SC 3732K-T
Q15	DTR139321	Tr,2SC 3732K-T
Q16	DTR119041	Tr,2SA 1206 TRC
Q31	DTR191361	Tr,MPS 901
Q32	DTR191361	Tr,MPS 901
Q33	DTR139321	Tr,2SC 3732K-T
Q34	DTR119011	Tr,2SA 1015Y TPER1
Q35	DTR119011	Tr,2SA 1015Y TPER1
Q36	DTR119011	Tr,2SA 1015Y TPER1
Q41	DTR191361	Tr,MPS 901
Q42	DTR191361	Tr,MPS 901
Q43	DTR139321	Tr,2SC 3732K-T
R1	DRD137261	Res,27,+/−5%,1/4W,Carbon
R2	DRD137491	Res,240,+/−5%,1/4W,Carbon
R3	DRD137261	Res,27,+/−5%,1/4W,Carbon
R4	DRD137491	Res,440,+/−5%,1/4W,Carbon
R5	DRD137641	Res,1K,+/−20%,1/3W,MG
R5A	DRV412101	Res,20K,Var,1/4W,MG
R6	DRD137641	Res,1K,+/−20%,1/3W,MG
R6A	DRV412101	Res,20K,Var,1/4W,MG
R11	DRD137441	Res,150,+/−5%,1/4W,Carbon
R12	DRE137761	Res,330,+/−1%,1/4W,Mtl
R13	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R14	DRE137641	Res,100,+/−1%,1/4W,Mtl
R15	DRV415511	Res,200,+/−20%,1/4W,Crm
R16	DRE137851	Res,750,+/−1%,1/4W,Mtl
R17	DRE137851	Res,750,+/−1%,1/4W,Mtl
R18	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R21	DRE137941	Res,1.8K,+/−1%,1/4W Mtl
R22	DRV415521	Res,500,+/−20%,1/3W,MG
R23	DRE138051	Res,5.1K,+/−1%,1/4W,Mtl
R31	DRD137321	Res,47,+/−5%,1/4W,Carbon
R32	DRD137321	Res,47,+/−5%,1/4W,Carbon
R33	DRD137321	Res,47,+/−5%,1/4W,Carbon
R34	DRD137321	Res,47,+/−5%,1/4W,Carbon
R35	DRD137321	Res,47,+/−5%,1/4W,Carbon
R36	DRD137991	Res,30K,+/−5%,1/4W,Carbon
R37	DRD137761	Res,3.3K,+/−5%,1/4W,Carbon
R38	DRD137561	Res,470,+/−5%,1/4W,Carbon
R39	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R40	DRD137601	Res,680,+/−5%,1/4W,Carbon
R41	DRD137601	Res,680,+/−5%,1/4W,Carbon
R42	DRD137601	Res,680,+/−5%,1/4W,Carbon
R43	DRD137601	Res,680,+/−5%,1/4W,Carbon
R44	DRD137601	Res,680,+/−5%,1/4W,Carbon
R45	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R46	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R47	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R48	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R49	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R51	DRD137811	Res,5.2K,+/−5%,1/4W,Carbon
R52	DRD137321	Res,47,+/−5%,1/4W,Carbon
R53	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R54	DRD137561	Res,470,+/−5%,1/4W,Carbon
R55	DRD137321	Res,47,+/−5%,1/4W,Carbon
R61	DRD137321	Res,47,+/−5%,1/4W,Carbon
R62	DRD137321	Res,47,+/−5%,1/4W,Carbon
R63	DRD137401	Res,100,+/−5%,1/4W,Carbon
R64	DRD137401	Res,100,+/−5%,1/4W,Carbon
R65	DRE137641	Res,100,+/−1%,1/4W,Mtl
R68	DRE137921	Res,1.5K,+/−1%,1/4W Mtl
R69	DRE137921	Res,1.5K,+/−1%,1/4W Mtl
R71	DRD137441	Res,150,+/−5%,1/4W,Carbon
R72	DRE137801	Res,470,+/−1%,1/4W,Mtl
R73	DRV412081	Res,1K,+/−20%,1/3W,MG
R74	DRE137921	Res,1.5K,+/−1%,1/4W Mtl
R75	DRD137321	Res,47,+/−5%,1/4W,Carbon
R76	DRD137561	Res,470,+/−5%,1/4W,Carbon
R77	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R81	DRD137321	Res,47,+/−5%,1/4W,Carbon
R82	DRD137321	Res,47,+/−5%,1/4W,Carbon
R83	DRD137401	Res,100,+/−5%,1/4W,Carbon
R84	DRD137401	Res,100,+/−5%,1/4W,Carbon
R85	DRE137641	Res,100,+/−1%,1/4W,Mtl

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R88	DRE137921	Res,1. 5K,+/−1%,1/4W Mtl
R89	DRE137921	Res,1. 5K,+/−1%,1/4W Mtl
R92	DRE137801	Res,470,+/−1%,1/4W,Mtl
R93	DRV412081	Res,1K,+/−20%,1/3W,MG
R94	DRE137921	Res,1. 5K,+/−1%,1/4W Mtl
R95	DRD137321	Res,47,+/−5%,1/4W,Carbon
R96	DRD137561	Res,470,+/−5%,1/4W,Carbon
R97	DRD137721	Res,2. 2K,+/−5%,1/4W,Carbon
RA1	DFB015641	RArray,22K,+/−5%,1/8W
W5	KHB099711	Coaxial Cable,75VH01300
W8	KHB099911	Coaxial Cable,75VH02202
W11	KHB100111	Coaxial Cable,75VH02600
W12	KHB100011	Coaxial Cable,75VH02602
W13	KHB100311	Coaxial Cable,75VH02606
W14	KHB100211	Coaxial Cable,75VH02600
W15	KHB099511	Coaxial Cable,75VH01200
W16	KHB099611	Coaxial Cable,75VH01208

B TRIG SELECT [10]

SS-7611 and SS-7607

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCE229201	Cap,47u,+/−20%,25V,Ele
C2	DCE229201	Cap,47u,+/−20%,25V,Ele
C3	DCE229201	Cap,47u,+/−20%,25V,Ele
C38	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C54	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C55	DCC239321	Cap,12p,+/−5%,50V,Cer
D1	DDD019071	Diode,1SS 120
D2	DDD019071	Diode,1SS 120
D3	DDD019071	Diode,1SS 120
D4	DDD019071	Diode,1SS 120
D11	DDD019071	Diode,1SS 120
D12	DDD019071	Diode,1SS 120
D13	DDD019071	Diode,1SS 120
D14	DDD019071	Diode,1SS 120
FL1	DHF039041	Filter,DST 306-91FZ103Z50V
FL2	DHF039041	Filter,DST 306-91FZ103Z50V
FL3	DHF039041	Filter,DST 306-91FZ103Z50V
J6	KHB095411	Small Socket
PC1	DFB030631	Photo Coupler,PC827
PC2	DFB030631	Photo Coupler,PC827
Q11	DTR139321	Tr,2SC 3732K-T
Q12	DTR139321	Tr,2SC 3732K-T
Q13	DTR139321	Tr,2SC 3732K-T
Q14	DTR139321	Tr,2SC 3732K-T
Q16	DTR119041	Tr,2SA 1206 TRC
R1	DRD137001	Res,2. 2,+/−5%,1/4W,Carbon
R2	DRD137001	Res,2. 2,+/−5%,1/4W,Carbon
R3	DRD137001	Res,2. 2,+/−5%,1/4W,Carbon
R31	DRD137321	Res,47,+/−5%,1/4W,Carbon
R32	DRD137321	Res,47,+/−5%,1/4W,Carbon
R33	DRD137321	Res,47,+/−5%,1/4W,Carbon
R34	DRD137321	Res,47,+/−5%,1/4W,Carbon
R38	DRD137561	Res,470,+/−5%,1/4W,Carbon
R40	DRD137601	Res,680,+/−5%,1/4W,Carbon
R41	DRD137601	Res,680,+/−5%,1/4W,Carbon
R42	DRD137601	Res,680,+/−5%,1/4W,Carbon
R43	DRD137601	Res,680,+/−5%,1/4W,Carbon
R46	DRD137721	Res,2. 2K,+/−5%,1/4W,Carbon
R47	DRD137721	Res,2. 2K,+/−5%,1/4W,Carbon
R48	DRD137721	Res,2. 2K,+/−5%,1/4W,Carbon
R49	DRD137611	Res,750,+/−5%,1/4W,Carbon

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R51	DRV412101	Res,20K,Var,1/4W,MG
R52	DRD137321	Res,47,+/−5%,1/4W,Carbon
R53	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R54	DRD137561	Res,470,+/−5%,1/4W,Carbon
R55	DRD137321	Res,47,+/−5%,1/4W,Carbon
RA1	DFB018051	RArray,22K,+/−5%,1/6W
W6	KHB099811	Coaxial Cable,75VH01608

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SS-7610 and SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCE229201	Cap,47u,+/−20%,25V,Ele
C2	DCE229201	Cap,47u,+/−20%,25V,Ele
C3	DCE229201	Cap,47u,+/−20%,25V,Ele
C38	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C54	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C55	DCC239321	Cap,12p,+/−5%,50V,Cer
D1	DDD019071	Diode,1SS 120
D2	DDD019071	Diode,1SS 120
D3	DDD019071	Diode,1SS 120
D4	DDD019071	Diode,1SS 120
D11	DDD019071	Diode,1SS 120
D12	DDD019071	Diode,1SS 120
D13	DDD019071	Diode,1SS 120
D14	DDD019071	Diode,1SS 120
FL1	DHF039041	Filter,DST 306-91FZ103Z50V
FL2	DHF039041	Filter,DST 306-91FZ103Z50V
FL3	DHF039041	Filter,DST 306-91FZ103Z50V
J6	KHB095411	Small Socket
PC1	DFB030631	Photo Coupler,PC827
PC2	DFB030631	Photo Coupler,PC827
Q11	DTR139321	Tr,2SC 3732K-T
Q12	DTR139321	Tr,2SC 3732K-T
Q13	DTR139321	Tr,2SC 3732K-T
Q14	DTR139321	Tr,2SC 3732K-T
Q16	DTR119041	Tr,2SA 1206 TRC
R1	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R2	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R3	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
R31	DRD137321	Res,47,+/−5%,1/4W,Carbon
R32	DRD137321	Res,47,+/−5%,1/4W,Carbon
R33	DRD137321	Res,47,+/−5%,1/4W,Carbon
R34	DRD137321	Res,47,+/−5%,1/4W,Carbon
R38	DRD137561	Res,470,+/−5%,1/4W,Carbon
R40	DRD137601	Res,680,+/−5%,1/4W,Carbon
R41	DRD137601	Res,680,+/−5%,1/4W,Carbon
R42	DRD137601	Res,680,+/−5%,1/4W,Carbon
R43	DRD137601	Res,680,+/−5%,1/4W,Carbon
R46	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R47	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R48	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R49	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R51	DRV412101	Res,20K,+/−20%,1/3W,MG
R52	DRD137321	Res,47,+/−5%,1/4W,Carbon
R53	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R54	DRD137561	Res,470,+/−5%,1/4W,Carbon
R55	DRD137321	Res,47,+/−5%,1/4W,Carbon
RA1	DFB018051	RArray,22K,+/−5%,1/6W
W6	KHB099811	Coaxial Cable,75VH01608

PEAK HOLD [11]

SS-7611 and SS-7607

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C3	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C7	DCC139041	Cap,680p,+/−5%,50V,Flm
C13	DCF121201	Cap,1000p,+/−5%,50V,Flm
C14	DCF121201	Cap,1000p,+/−5%,50V,Flm
C18A	DCC239101	Cap,7p,+/−0.25p,50V,Cer
C19	DCV019681	Cap,20.5p,Var,250V,Cer
C24A	DCC232001	Cap,15p,+/−5%,50V,Cer
C24B	DCC239341	Cap,30p,+/−5%,50V,Cer
C24	DCV019681	Cap,20.5p,Var,250V,Cer
C25	DCF121781	Cap,0.33u,+/−5%,5OV,Flm
C28	DCF121201	Cap,1000p,+/−5%,50V,Flm
C29	DCF121201	Cap,1000p,+/−5%,50V,Flm
C37	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C39	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C41	DCE229201	Cap,47u,+/−20%,25V,Ele
C43	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C46	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C47	DCE229201	Cap,47u,+/−20%,25V,Ele
C48A	DCC239051	Cap,100p,+/−5%,50V,Cer
C48	DCE229201	Cap,47u,+/−20%,25V,Ele
C51	DCF121401	Cap,0.047u,+/−10%,50V,Flm
C52	DCF121401	Cap,0.047u,+/−10%,50V,Flm
C57	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C58	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C61	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C62	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C70	DCC239071	Cap,3p,+/−0.5p,50V,Cer
C97	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C110	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C127	DCC239171	Cap,220p,+/−5%,50V,Cer
C134	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C135	DCC239171	Cap,220p,+/−5%,50V,Cer
C143	DCF121201	Cap,1000p,+/−5%,50V,Flm
C144	DCF121201	Cap,1000p,+/−5%,50V,Flm
C145	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C146	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C153	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C165	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C171	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C172	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C175	DCC929031	Cap,0.01u,+/−30%,16V,Cer

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C179	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C191	DCE229201	Cap,47u,+/−20%,25V,Ele
C192	DCE229201	Cap,47u,+/−20%,25V,Ele
C193	DCE229201	Cap,47u,+/−20%,25V,Ele
D15	DDD038331	Diode,RD7. 5ESB1 TA21R
D53	DDD019071	Diode,1SS 120
D71	DDD010451	Diode,1SS 97
D72	DDD010451	Diode,1SS 97
D73	DDD010451	Diode,1SS 97
D74	DDD010451	Diode,1SS 97
D142	DDD019071	Diode,1SS 120
D145	DDD038921	Diode,RD5. 1ESB1 TA21R
D146	DDD038921	Diode,RD5. 1ESB1 TA21R
D161	DDD038311	Diode,RD4. 7ESB1 TA21R
D163	DDD038301	Diode,RD2. 0ESB1 TA21R
D164	DDD038301	Diode,RD2. 0ESB1 TA21R
D181	DDD010451	Diode,1SS 97
D182	DDD010451	Diode,1SS 97
D183	DDD038921	Diode,1SS 120 TA21R
IC1	DIC630791	IC,NJM 2903D(JRC)
IC3	DIC614101	IC,NJM 082D(JRC)
IC6	DIC322051	IC,MC10102L(MTL)
J9	KHB095411	Small Socket
J10	KHB095411	Small Socket
L1	DCL152581	Choke Coil,A FS-40200
L2	DCL152581	Choke Coil,A FS-40200
PC1	DFB030631	Photo Coupler,PC827
Q1	DTR119041	Tr,2SA 1206 TRC
Q2	DTR119041	Tr,2SA 1206 TRC
Q3	DTR119041	Tr,2SA 1206 TRC
Q4	DTR119041	Tr,2SA 1206 TRC
Q5	DTR191361	Tr,MPS 901
Q6	DTR191361	Tr,MPS 901
Q7	DTR115321	Tr,2SA 1206
Q8	DTR115321	Tr,2SA 1206
Q9	DTR115321	Tr,2SA 1206
Q10	DTR115321	Tr,2SA 1206
Q11	DTR139061	Tr,2SC 1907 TR
Q12	DTR139061	Tr,2SC 1907 TR
Q13	DTR119011	Tr,2SA 1015Y TPER1
Q14	DTR215311	Tr,2SK 117-GR
Q15	DTR215311	Tr,2SK 117-GR
Q16	DTR215311	Tr,2SK 117-GR
Q17	DTR215311	Tr,2SK 117-GR
Q18	DTR139351	Tr,2SC 2901-T
Q19	DTR139011	Tr,2SC 1815GR TPER1
Q21	DTR139011	Tr,2SC 1815GR TPER1
Q41	DTR191521	Tr,SRFJ 1018
Q42	DTR139351	Tr,2SC 2901-T
Q43	DTR191371	Tr,MPS 911
Q54	DTR119041	Tr,2SA 1206 TRC
Q55	DTR119041	Tr,2SA 1206 TRC
R3	DRD137321	Res,47,+/−5%,1/4W,Carbon
R4	DRD137321	Res,47,+/−5%,1/4W,Carbon
R5	DRE137661	Res,120,+/−1%,1/4W,Mtl
R6	DRV415501	Res,100,+/−5%,1/3W,MG
R7	DRD137871	Res,9. 1K,+/−5%,1/4W,Carbon
R9	DRD137401	Res,100,+/−5%,1/4W,Carbon
R11	DRE137781	Res,390,+/−1%,1/4W,Mtl
R12	DRE137781	Res,390,+/−1%,1/4W,Mtl
R13	DRD137541	Res,390,+/−5%,1/4W,Carbon
R13A	DRE137681	Res,150,+/−1%,1/4W,Mtl
R14	DRD137541	Res,390,+/−5%,1/4W,Carbon
R14A	DRE137681	Res,150,+/−1%,1/4W,Mtl
R15	DRE137881	Res,1. 0K,+/−1%,1/4W,Mtl
R16	DRD137321	Res,47,+/−5%,1/4W,Carbon
R17	DRD137321	Res,47,+/−5%,1/4W,Carbon
R18A	DRD137531	Res,360,+/−5%,1/4W,Carbon
R19	DRV415521	Res,500,+/−20%,1/4W,Crm
R21	DRE137741	Res,270,+/−1%,1/4W,Mtl
R22	DRE137641	Res,100,+/−1%,1/4W,Mtl
R23	DRE137641	Res,100,+/−1%,1/4W,Mtl
R24	DRV412081	Res,5K,+/−20%,1/3W,MG
R25	DRD137981	Res,27K,+/−5%,1/4W,Carbon
R28	DRD137441	Res,150,+/−5%,1/4W,Carbon
R29	DRD137441	Res,150,+/−5%,1/4W,Carbon
R31	DRE137791	Res,430,+/−1%,1/4W,Mtl
R32	DRE137791	Res,430,+/−1%,1/4W,Mtl
R33	DRD137281	Res,33,+/−5%,1/4W,Carbon
R34	DRD137281	Res,33,+/−5%,1/4W,Carbon
R35	DRD137281	Res,33,+/−5%,1/4W,Carbon
R36	DRD137281	Res,33,+/−5%,1/4W,Carbon

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R37	DRD137241	Res,22,+/−5%,1/4W,Carbon
R38	DRD137241	Res,22,+/−5%,1/4W,Carbon
R39	DRD137241	Res,22,+/−5%,1/4W,Carbon
R40	DRD137241	Res,22,+/−5%,1/4W,Carbon
R41	DRE137711	Res,200,+/−1%,1/4W,Mtl
R42	DRE137711	Res,200,+/−1%,1/4W,Mtl
R43	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R44	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R45	DRD137521	Res,330,+/−5%,1/4W,Carbon
R46	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R47	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R48	DRE138091	Res,7.5K,+/−1%,1/4W,Mtl
R49	DRE138161	Res,15K,+/−1%,1/4W,Mtl
R51	DRD138361	Res,1.0M,+/−5%,1/4W,Carbon
R52	DRD138361	Res,1.0M,+/−5%,1/4W,Carbon
R53	DRD137651	Res,1.1K,+/−5%,1/4W,Carbon
R54	DRD137661	Res,1.2K,+/−5%,1/4W,Carbon
R57	DRD137321	Res,47,+/−5%,1/4W,Carbon
R57A	DRE137761	Res,330,+/−1%,1/4W,Mtl
R58	DRE138001	Res,3.3K,+/−1%,1/4W,Mtl
R59	DRE138001	Res,3.3K,+/−1%,1/4W,Mtl
R61	DRD137561	Res,470,+/−5%,1/4W,Carbon
R62	DRV415501	Res,100,+/−5%,1/3W,MG
R68	DRD137241	Res,22,+/−5%,1/4W,Carbon
R69	DRV415501	Res,50,+/−20%,1/3W,MG
R97	DRD137401	Res,100,+/−5%,1/4W,Carbon
R123	DRD137611	Res,750,+/−5%,1/4W,Carbon
R124	DRD137611	Res,750,+/−5%,1/4W,Carbon
R125	DRD137611	Res,750,+/−5%,1/4W,Carbon
R126	DRD137611	Res,750,+/−5%,1/4W,Carbon
R127	DRD137611	Res,750,+/−5%,1/4W,Carbon
R131	DRD137491	Res,240,+/−5%,1/4W,Carbon
R132	DRD137571	Res,510,+/−5%,1/4W,Carbon
R133	DRE138101	Res,8.2K,+/−1%,1/4W,Mtl
R134	DRE138001	Res,3.3K,+/−1%,1/4W,Mtl
R135	DRD137591	Res,620,+/−5%,1/4W,Carbon
R136	DRE137921	Res,1.5K,+/−1%,1/4W Mtl
R137	DRE137791	Res,430,+/−1%,1/4W,Mtl
R138	DDD080331	Th,112101-2
R141	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R143	DRE138381	Res,120K,+/−1%,1/4W,Mtl
R144	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R145	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R146	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R147	DRD137681	Res,1.5K,+/−5%,1/4W,Carbon
R150	DRD137601	Res,680,+/−5%,1/4W,Carbon
R151	DRD137601	Res,680,+/−5%,1/4W,Carbon
R152	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R153	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R154	DRE138001	Res,3.3K,+/−1%,1/4W,Mtl
R155	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R156	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R157	DRE138001	Res,3.3K,+/−1%,1/4W,Mtl
R161	DRE138001	Res,3.3K,+/−1%,1/4W,Mtl
R162	DRD137411	Res,110,+/−5%,1/4W,Carbon
R163	DRD137501	Res,270,+/−5%,1/4W,Carbon
R164	DRD137501	Res,270,+/−5%,1/4W,Carbon
R165	DRE138021	Res,3.9K,+/−1%,14W,Mtl
R166	DRD137561	Res,470,+/−5%,1/4W,Carbon
R167	DRE138111	Res,9.1K,+/−1%,1/4W,Mtl
R168	DRD137401	Res,100,+/−5%,1/4W,Carbon
R169	DRE138001	Res,3.3K,+/−1%,1/4W,Mtl
R170	DRD137401	Res,100,+/−5%,1/4W,Carbon
R171	DRD137901	Res,12K,+/−5%,1/4W,Carbon
R172	DRD137761	Res,3.3K,+/−5%,1/4W,Carbon
R173	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R174	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R177	DRE138051	Res,5.1K,+/−1%,1/4W,Mtl
R178	DRE138071	Res,6.2K,+/−1%,1/4W,Mtl
R179	DRE137791	Res,430,+/−1%,1/4W,Mtl
R181	DRE137801	Res,470,+/−1%,1/4W,Mtl
R182	DRE137741	Res,270,+/−15,1/4W,Mtl
R183	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R184	DRE138021	Res,3.9K,+/−1%,1/4W,Mtl
R185	DRD138041	Res,47K,+/−5%,1/4W,Carbon
R186	DRD138041	Res,47K,+/−5%,1/4W,Carbon
R191	DRD137021	Res,2.7,+/−5%,1/4W,Carbon
R192	DRD137021	Res,2.7,+/−5%,1/4W,Carbon
R193	DRD137001	Res,2.2,+/−5%,1/4W,Carbon
T1	DCL152431	Coil,29-88045
T2	DCL152031	Coil,K5 T5-10-2.5(8TX8T)
TP1	DTA010531	Terminal,OK-001-S

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
TP2	DTA010531	Terminal,OK-001-S
W9	KHB099311	Coaxial Cable,75VH01100
W10	KHB099411	Coaxial Cable,75VH01108

A／B TRIG AMP 12

SS-7611, SS-7607, SS-7610, SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C2	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C3	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C4	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C5	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C6	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C7	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C8	DCE244711	Cap,4.7u,+/−20%,50V,Ele
C9	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C12	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C13	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C14	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C15	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C16	DCE229201	Cap,47u,+/−20%,25V,Ele
C17	DCE229201	Cap,47u,+/−20%,25V,Ele
C18	DCE229201	Cap,47u,+/−20%,25V,Ele
C19	DCE229201	Cap,47u,+/−20%,25V,Ele
C20	DCE229201	Cap,47u,+/−20%,25V,Ele
C21	DCE229201	Cap,47u,+/−20%,25V,Ele
C22	DCE229201	Cap,47u,+/−20%,25V,Ele
C23	DCE229201	Cap,47u,+/−20%,25V,Ele
C24	DCE229201	Cap,47u,+/−20%,25V,Ele
C25	DCF121621	Cap,1500p,+/−5%,50V,Flm
C26	DCF121621	Cap,1500p,+/−5%,50V,Flm
C27	DCE229201	Cap,47u,+/−20%,25V,Ele
C30	DCE229201	Cap,47u,+/−20%,25V,Ele
C31	DCE229201	Cap,47u,+/−20%,25V,Ele
C32	DCE229201	Cap,47u,+/−20%,25V,Ele
C33	DCE229201	Cap,47u,+/−20%,25V,Ele
C35	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C36	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C40	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C41	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C42	DCC239191	Cap,1p,0.25p,50V,Cer
C44	DCC239191	Cap,1p,0.25p,50V,Cer
C50	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C51	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C52	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C53	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C54	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C54A	DCC239051	Cap,100p,+/−5%,50V,Cer

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C56	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C62	DCC239051	Cap,100p,+/−5%,50V,Cer
C63	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C64	DCC239051	Cap,100p,+/−5%,50V,Cer
C65	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C66	DCC139111	Cap,820p,+/−10%,50V,Cer
C70	DCC139111	Cap,820p,+/−10%,50V,Cer
C72	DCE244711	Cap,4. 7u,+/−20%,50V,Ele
C74	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C75	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C78	DCC239191	Cap,1p,0. 25p,50V,Cer
C80	DCC239191	Cap,1p,0. 25p,50V,Cer
C82	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C83	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C84	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C89	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C91	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C95	DCF121441	Cap,0. 1u,+/−10%,50V,Flm
D1	DDD019071	Diode,1SS 120
D2	DDD019071	Diode,1SS 120
D3	DDD038301	Diode,RD2. 0ESB1 TA21R
D4	DDD038301	Diode,RD2. 0ESB1 TA21R
D5	DDD019071	Diode,1SS 120
D6	DDD019071	Diode,1SS 120
D7	DDD038321	Diode,5. 6ESB1 TA21R
D8	DDD038321	Diode,5. 6ESB1 TA21R
D9	DDD038321	Diode,5. 6ESB1 TA21R
D10	DDD038321	Diode,5. 6ESB1 TA21R
D11	DDD019071	Diode,1SS 120
D12	DDD019071	Diode,1SS 120
FL1	DHF039041	Filter,DST 306-91FZ103Z50
IC1	DIC613031	IC,NJM 4558D(JRC)
IC2	DIC613031	IC,NJM 4558D(JRC)
IC3	DIC623361	IC,u-PC 1663C(NEC)
IC4	DIC623361	IC,u-PC 1663C(NEC)
IC5	DIC410521	IC,CD 4053BE
IC6	DIC410521	IC,CD 4053BE
IC7	DIC445961	IC,MC 74HC595N
J1	KHB095411	Small Socket
J2	KHB095411	Small Socket
J3	KHB095411	Small Socket
J4	KHB095411	Small Socket
Q1	DTR139321	Tr,2SC 3732K-T
Q2	DTR139321	Tr,2SC 3732K-T
Q3	DTR139011	Tr,2SC 1815GR TPER1
Q4	DTR139011	Tr,2SC 1815GR TPER1
Q5	DTR191361	Tr,MPS 901
Q6	DTR191361	Tr,MPS 901
Q7	DTR191361	Tr,MPS 901
Q8	DTR191361	Tr,MPS 901
Q9	DTR139011	Tr,2SC 1815GR TPER1
Q10	DTR139011	Tr,2SC 1815GR TPER1
Q11	DTR139321	Tr,2SC 3732K-T
Q12	DTR139321	Tr,2SC 3732K-T
Q13	DTR139321	Tr,2SC 3732K-T
Q14	DTR139321	Tr,2SC 3732K-T
R1	DRE137681	Res,150,+/−1%,1/4W,Mtl
R2	DRE137681	Res,150,+/−1%,1/4W,Mtl
R3	DRE138001	Res,3. 3K,+/−1%,1/4W,Mtl
R4	DRD137321	Res,47,+/−5%,1/4W,Carbon
R5	DRD137321	Res,47,+/−5%,1/4W,Carbon
R6	DRE138001	Res,3. 3K,+/−1%,1/4W,Mtl
R7	DRE138001	Res,3. 3K,+/−1%,1/4W,Mtl
R8	DRE137801	Res,470,+/−1%,1/4W,Mtl
R9	DRD137661	Res,1. 2K,+/−5%,1/4W,Carbon
R10	DRD137661	Res,1. 2K,+/−5%,1/4W,Carbon
R11	DRE138371	Res,110K,+/−1%,1/4W,Mtl
R12	DRD137231	Res,20,+/−5%,1/4W,Carbon
R13	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R14	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R15	DRD137571	Res,510,+/−5%,1/4W,Carbon
R16	DRD137571	Res,510,+/−5%,1/4W,Carbon
R17	DRD137641	Res,1. 0K,+/−5%,1/4W,Carbon
R18	DRD137641	Res,1. 0K,+/−5%,1/4W,Carbon
R19	DRD137801	Res,4. 7K,+/−5%,1/4W,Carbon
R20	DRD137801	Res,4. 7K,+/−5%,1/4W,Carbon
R21	DRD137801	Res,4. 7K,+/−5%,1/4W,Carbon
R22	DRD137801	Res,4. 7K,+/−5%,1/4W,Carbon
R23	DRD137801	Res,4. 7K,+/−5%,1/4W,Carbon
R24	DRD137801	Res,4. 7K,+/−5%,1/4W,Carbon
R25	DRE138201	Res,22K,+/−1%,1/4W,Mtl
R26	DRE138201	Res,22K,+/−1%,1/4W,Mtl

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R27	DRE138201	Res,22K,+/−1%,1/4W,Mtl
R28	DRE138201	Res,22K,+/−1%,1/4W,Mtl
R29	DRE138001	Res,3.3K,+/−1%,1/4W,Mtl
R30	DRE137561	Res,47,+/−1%,1/4W,Mtl
R31	DRE137561	Res,47,+/−1%,1/4W,Mtl
R32	DRE137821	Res,560,+/−1%,1/4W,Mtl
R33	DRE137821	Res,560,+/−1%,1/4W,Mtl
R34	DRD137741	Res,2.7K,+/−5%,1/4W,Carbon
R35	DRE138251	Res,36K,+/−1%,1/4W,Mtl
R36	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R37	DRD137741	Res,2.7K,+/−5%,1/4W,Carbon
R38	DRE137821	Res,560,+/−1%,1/4W,Mtl
R39	DRE137821	Res,560,+/−1%,1/4W,Mtl
R40	DRE137821	Res,560,+/−1%,1/4W,Mtl
R41	DRE137821	Res,560,+/−1%,1/4W,Mtl
R42	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R43	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R44	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R45	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R46	DRE137561	Res,47,+/−1%,1/4W,Mtl
R47	DRE137561	Res,47,+/−1%,1/4W,Mtl
R48	DRE137561	Res,47,+/−1%,1/4W,Mtl
R49	DRE137561	Res,47,+/−1%,1/4W,Mtl
R50	DRE137931	Res,1.6K,+/−1%,1/4W,Mtl
R51	DRE137931	Res,1.6K,+/−1%,1/4W,Mtl
R52	DRE137931	Res,1.6K,+/−1%,1/4W,Mtl
R53	DRE137931	Res,1.6K,+/−1%,1/4W,Mtl
R54	DRD137321	Res,47,+/−5%,1/4W,Carbon
R55	DRD137321	Res,47,+/−5%,1/4W,Carbon
R56	DRD137321	Res,47,+/−5%,1/4W,Carbon
R57	DRD137321	Res,47,+/−5%,1/4W,Carbon
R58	DRE137971	Res,2.4K,+/−1%,1/4W,Mtl
R59	DRE138101	Res,8.2K,+/−1%,1/4W,Mtl
R60	DRE137971	Res,2.4K,+/−1%,1/4W,Mtl
R61	DRE138101	Res,8.2K,+/−1%,1/4W,Mtl
R62	DRE137641	Res,100,+/−1%,1/4W,Mtl
R63	DRE137521	Res,24,+/−1%,1/4W,Carbon
R64	DRE137641	Res,100,+/−1%,1/4W,Mtl
R65	DRE137521	Res,24,+/−1%,1/4W,Carbon
R66	DRD137651	Res,1.1K,+/−5%,1/4W,Carbon
R68	DRE137761	Res,330,+/−1%,1/4W,Mtl
R70	DRD137651	Res,1.1K,+/−5%,1/4W,Carbon
R71	DRE137761	Res,330,+/−1%,1/4W,Mtl
R72	DRE137801	Res,470,+/−1%,1/4W,Mtl
R73	DRE138001	Res,3.3K,+/−1%,1/4W,Mtl
R74	DRE138251	Res,36K,+/−1%,1/4W,Mtl
R75	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R78	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R79	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R80	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R81	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R82	DRD137401	Res,100,+/−5%,1/4W,Carbon
R83	DRD137401	Res,100,+/−5%,1/4W,Carbon
R84	DRD137741	Res,2.7K,+/−5%,1/4W,Carbon
R85	DRD137741	Res,2.7K,+/−5%,1/4W,Carbon
R86	DRD137321	Res,47,+/−5%,1/4W,Carbon
R87	DRD137321	Res,47,+/−5%,1/4W,Carbon
R89	DRD137401	Res,100,+/−5%,1/4W,Carbon
R90	DRD137401	Res,100,+/−5%,1/4W,Carbon
R91	DRD137741	Res,2.7K,+/−5%,1/4W,Carbon
R92	DRD137741	Res,2.7K,+/−5%,1/4W,Carbon
R93	DRD137321	Res,47,+/−5%,1/4W,Carbon
R94	DRD137321	Res,47,+/−5%,1/4W,Carbon
R95	DRD137231	Res,20,+/−5%,1/4W,Carbon
R96	DRD137401	Res,100,+/−5%,1/4W,Carbon
R97	DRD137401	Res,100,+/−5%,1/4W,Carbon
W3	KHB098911	Coaxial Cable,75VV01308
W4	KHB099111	Coaxial Cable,75VV02108

TV SYNC SEP 13

SS-7611, SS-7607, SS-7610, SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C2	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C3	DCE229201	Cap,47u,+/−20%,25V,Ele
C4	DCE229201	Cap,47u,+/−20%,25V,Ele
C5	DCE229201	Cap,47u,+/−20%,25V,Ele
C6	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C7	DCE244711	Cap,4.7u,+/−20%,50V,Ele
C8	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C10	DCC239151	Cap,470,+/−5%,50V,Cer
C11	DCE229201	Cap,47u,+/−20%,25V,Ele
C14	DCE249311	Cap,1u,+/−20%,50V,Ele
C17	DCF121801	Cap,0,47u,+/−5%,50V,Flm
D1	DDD019071	Diode,1SS 120
D2	DDD019071	Diode,1SS 120
D3	DDD038311	Diode,RD4.7ESB1 TA21R
D4	DDD019071	Diode,1SS 120
D5	DDD019071	Diode,1SS 120
FL1	DHF039041	Filter,DST 306-91FZ103Z50V
FL2	DHF039041	Filter,DST 306-91FZ103Z50V
FL3	DHF039041	Filter,DST 306-91FZ103Z50V
FL4	DHF039021	Filter,DSS 306-91FZ23
IC1	DIC440091	IC,MC 74HC08N
IC2	DIC440031	IC,MC 74HC02N
IC3	DIC652541	IC,u-PC 78L05(NEC)
J2	DCN115781	Connector,HLEM36S-1
L1	DCL152581	Choke Coil,LHB0812-303
L2	DCL152581	Choke Coil,LHB0812-303
L3	DCL152581	Choke Coil,LHB0812-303
P3	DCN990901	Connector,5267-06A
Q1	DTR119011	Tr,2SA 1015Y TPER1
Q2	DTR199331	Tr,DTA 114ES TP
Q3	DTR119011	Tr,2SA 1015Y TPER1
Q4	DTR119011	Tr,2SA 1015Y TPER1
Q5	DTR139011	Tr,2SC 1815GR TPER1
Q6	DTR139011	Tr,2SC 1815GR TPER1
Q7	DTR139011	Tr,2SC 1815GR TPER1
Q8	DTR199351	Tr,DTC 114ES TP
Q9	DTR199331	Tr,DTA 114ES TP
R1	DRD137701	Res,1.8K,+/−5%,1/4W,Carbon
R2	DRD137841	Res,6.8K,+/−5%,1/4W,Carbon
R3	DRD137741	Res,2.7K,+/−5%,1/4W,Carbon
R4	DRD137841	Res,6.8K,+/−5%,1/4W,Carbon
R5	DRD137941	Res,18K,+/−5%,1/4W,Carbon
R6	DRD137701	Res,1.8K,+/−5%,1/4W,Carbon
R7	DRD138161	Res,150K,+/−5%,1/4W,Carbon
R8	DRD138101	Res,82K,+/−5%,1/4W,Carbon
R9	DRD138021	Res,39K,+/−5%,1/4W,Carbon
R10	DRD137601	Res,680,+/−5%,1/4W,Carbon
R11	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R12	DRD137851	Res,7.5K,+/−5%,1/4W,Carbon
R13	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R14	DRD137901	Res,12K,+/−5%,1/4W,Carbon
R15	DRD138151	Res,130K,+/−5%,1/4W,Carbon
R16	DRD137841	Res,6.8K,+/−5%,1/4W,Carbon
R17	DRD137561	Res,470,+/−5%,1/4W,Carbon
R18	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R19	DRD137901	Res,12K,+/−5%,1/4W,Carbon
W2	KHB098311	Flat Cable,TWVF36-60

A SWEEP GENERATOR 14
SS-7611, SS-7607, SS-7610

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCE229201	Cap,47u,+/−20%,25V,Ele
C2	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C3	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C4	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C5	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C6	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C7	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C8	DCC239261	Cap,120p,+/−5%,50V,Cer
C9	DCC239121	Cap,22p,+/−5%,50V,Cer
C10	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C11	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C12	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C13	DCC239261	Cap,120p,+/−5%,50V,Cer
C15	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C16	DCE229201	Cap,47u,+/−20%,25V,Ele
C17	DCE229201	Cap,47u,+/−20%,25V,Ele
C19	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C20	DCE249341	Cap,4.7u,+/−20%,50V,Cer
C21	DCC239041	Cap,10p,+/−0.5p,50V,Cer
C22	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C23	DCC239351	Cap,75p,+/−5%,50V,Cer
C29	DCC239231	Cap,24p,+/−5%,50V,Cer
C30	DCE229201	Cap,47u,+/−20%,25V,Ele
C31	DCC239171	Cap,220p,+/−5%,50V,Cer
C32	DCF121261	Cap,3300p+/−10%,50V,Flm
C33	DCF121321	Cap,0.01u,+/−10%,50V,Flm
C34	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C35	DCE249311	Cap,1u,+/−20%,50V,Ele
C36	DCE229241	Cap,100u,+/−20%,16V,Ele
C40	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C42	DCC239051	Cap,100p,+/−5%,50V,Cer
C44	DCC239051	Cap,100p,+/−5%,50V,Cer
C46	DCC239031	Cap,47p,+/−5%,50V,Cer
C49	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C51	DCC929031	Cap,0.01u,+/−30%,16V,Cer
D1	DDD019071	Diode,1SS 120
D2	DDD019071	Diode,1SS 120
D3	DDD019071	Diode,1SS 120
D4	DDD019071	Diode,1SS 120
D11	DDD019101	Diode,1SS 97 TA21R
D12	DDD038301	Diode,RD2.0ESB1 TA21R

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
IC1	DIC310051	IC,F10107DC
IC2	DIC310081	IC,F1013DC(FC)
IC3	DIC440091	IC,MC 74HC08N
IC4	DIC440011	IC,MC 74HC00N
IC5	DIC493421	IC,TC 74HC14P(TSB)
IC6	DIC440011	IC,MC 74HC00N
IC7	DIC614321	IC,NJM 4558S(JRC)
IC8	DIC410501	IC,CD 4051BE
IC9	DIC141181	IC,74LS122N
IC12	DIC440751	IC,MC 74HC74N
J1	KHB095411	Small Socket
J2	KHB095411	Small Socket
J4	KHB095411	Small Socket
JP1	KHB096911	UL 20348-10-710,16 OTBS-80
Q1	DTR119011	Tr,2SA 1015Y TPER1
Q8	DTR199401	Tr,DTA 143ES TP
Q9	DTR139011	Tr,2SC 1815GR TPER1
Q10	DTR119011	Tr,2SA 1015Y TPER1
R1	DRD137571	Res,510,+/−5%,1/4W,Carbon
R1A	DRD137711	Res,2K,+/−5%,1/4W,Carbon
R2	DRD137691	Res,1.6K,+/−5%,1/4W,Carbon
R3	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R4	DRD137391	Res,91,+/−5%,1/4W,Carbon
R5	DRD137571	Res,510,+/−5%,1/4W,Carbon
R6	DRD137571	Res,510,+/−5%,1/4W,Carbon
R7	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R8	DRD137821	Res,5.6K,+/−5%,1/4W,Carbon
R9	DRD137761	Res,3.3K,+/−5%,1/4W,Carbon
R10	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R11	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R12	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R13	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R14	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R15	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R16	DRD137811	Res,5.2K,+/−5%,1/4W,Carbon
R17	DRE138011	Res,3.6K,+/−1%,1/4W,Mtl
R18	DRE137561	Res,47,+/−1%,1/4W,Mtl
R19	DRD137321	Res,47,+/−5%,1/4W,Carbon
R20	DRD138041	Res,47K,+/−5%,1/4W,Carbon
R21	DRE137851	Res,750,+/−1%,1/4W,Mtl
R26	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R29	DRE138081	Res,6. 8K,+/−1%,1/4W,Mtl
R30	DRE138111	Res,9. 1K,+/−1%,1/4W,Mtl
R41	DRD137731	Res,2. 4K,+/−5%,1/4W,Carbon
R42	DRD137731	Res,2. 4K,+/−5%,1/4W,Carbon
R43	DRD137731	Res,2. 4K,+/−5%,1/4W,Carbon
R44	DRD137731	Res,2. 4K,+/−5%,1/4W,Carbon
R47	DRD137161	Res,3. 9,+/−5%,1/4W,Carbon
R48	DRE138111	Res,9. 1K,+/−1%,1/4W,Mtl
R49	DRE138181	Res,18K,+/−1%,1/4W,Mtl
R50	DRE138251	Res,36K,+/−1%,1/4W,Mtl
R51	DRE138171	Res,10K,+/−1%,1/4W,Mtl
R57	DRD137711	Res,20K,+/−5%,1/4W,Carbon
R58	DRD137751	Res,3. 0K,+/−5%,1/4W,Carbon
R63	DRE137701	Res,180,+/−1%,1/4W,Mtl
R65	DRD137321	Res,47,+/−5%,1/4W,Carbon
R66	DRD137321	Res,47,+/−5%,1/4W,Carbon
R67	DRD137321	Res,47,+/−5%,1/4W,Carbon
W2	KHB101011	Small Socket
W4	KHB099011	Coaxial Cable,75VV02000
W5	KHB114911	A Sawtooth Cable,14W5

A SWEEP GENERATOR 14

SS-7606

CIRCUIT REFERENCE	IWASTU PART NO.	DESCRIPTION
C1	DCE229201	Cap,47u,+/−20%,25V,Ele
C2	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C3	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C4	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C5	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C6	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C7	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C8	DCC239261	Cap,120p,+/−5%,50V,Cer
C9	DCC239121	Cap,22p,+/−5%,50V,Cer
C10	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C11	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C12	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C13	DCC239261	Cap,120p,+/−5%,50V,Cer
C15	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C16	DCE229201	Cap,47u,+/−20%,25V,Ele
C17	DCE229201	Cap,47u,+/−20%,25V,Ele
C19	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C20	DCE249341	Cap,4. 7u,+/−20%,50V,Cer
C21	DCC239041	Cap,10p,+/−0. 5p,50V,Cer
C22	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C23	DCC239351	Cap,75p,+/−5%,50V,Cer
C29	DCC239231	Cap,24p,+/−5%,50V,Cer
C30	DCE229201	Cap,47u,+/−20%,25V,Ele
C31	DCC239171	Cap,220p,+/−5%,50V,Cer
C32	DCF121261	Cap,3300p+/−10%,50V,Flm
C33	DCF121321	Cap,0. 01u,+/−10%,50V,Flm
C34	DCF121441	Cap,0. 1u,+/−10%,50V,Flm
C35	DCE249311	Cap,1u,+/−20%,50V,Ele
C36	DCE229241	Cap,100u,+/−20%,16V,Ele
C40	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C42	DCC239051	Cap,100p,+/−5%,50V,Cer
C44	DCC239051	Cap,100p,+/−5%,50V,Cer
C46	DCC239031	Cap,47p,+/−5%,50V,Cer
C49	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C51	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
D1	DDD019071	Diode,1SS 120
D2	DDD019071	Diode,1SS 120
D3	DDD019071	Diode,1SS 120
D4	DDD019071	Diode,1SS 120
D11	DDD019101	Diode,1SS 97 TA21R
D12	DDD038601	Diode,RD2. 0ESB HZS2. 0NB

CIRCUIT REFERENCE	IWASTU PART NO.	DESCRIPTION
IC1	DIC310051	IC,F10107DC
IC2	DIC310081	IC,F1013DC(FC)
IC3	DIC440091	IC,MC 74HC08N
IC4	DIC440011	IC,MC 74HC00N
IC5	DIC493421	IC,TC 74HC14P(TSB)
IC6	DIC440011	IC,MC 74HC00N
IC7	DIC614321	IC,NJM 4558S(JRC)
IC8	DIC410501	IC,CD 4051BE
IC9	DIC141181	IC,74LS122N
IC12	DIC440751	IC,MC 74HC74N
J1	KHB095411	Small Socket
J2	KHB095411	Small Socket
J4	KHB095411	Small Socket
JP1	KHB096911	Small Socket
Q1	DTR119011	Tr,2SA 1015Y TPER1
Q8	DTR199401	Tr,DTA 143ES TP
Q9	DTR139011	Tr,2SC 1815GR TPER1
Q10	DTR119011	Tr,2SA 1015Y TPER1
Q11	DTR119011	Tr,2SA 1015Y TPER1
Q12	DTR119011	Tr,2SA 1015Y TPER1
R1	DRD137571	Res,510,+/−5%,1/4W,Carbon
R1A	DRD137711	Res,2K,+/−5%,1/4W,Carbon
R2	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R3	DRD137571	Res,510,+/−5%,1/4W,Carbon
R4	DRD137391	Res,91,+/−5%,1/4W,Carbon
R5	DRD137571	Res,510,+/−5%,1/4W,Carbon
R6	DRD137571	Res,510,+/−5%,1/4W,Carbon
R7	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R8	DRD137821	Res,5.6K,+/−5%,1/4W,Carbon
R9	DRD137761	Res,3.3K,+/−5%,1/4W,Carbon
R10	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R11	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R12	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R13	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R14	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R15	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R16	DRD137811	Res,5.2K,+/−5%,1/4W,Carbon
R17	DRE138011	Res,3.6K,+/−1%,1/4W,Mtl
R18	DRE137561	Res,47,+/−1%,1/4W,Mtl
R19	DRD137321	Res,47,+/−5%,1/4W,Carbon
R20	DRD138041	Res,47K,+/−5%,1/4W,Carbon

CIRCUIT REFERENCE	IWASTU PART NO.	DESCRIPTION
R21	DRE137851	Res,750,+/−1%,1/4W,Mtl
R26	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R29	DRE138081	Res,6.8K,+/−1%,1/4W,Mtl
R30	DRE138111	Res,9.1K,+/−1%,1/4W,Mtl
R41	DRD137731	Res,2.4K,+/−5%,1/4W,Carbon
R42	DRD137731	Res,2.4K,+/−5%,1/4W,Carbon
R43	DRD137731	Res,2.4K,+/−5%,1/4W,Carbon
R44	DRD137731	Res,2.4K,+/−5%,1/4W,Carbon
R47	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R48	DRE138111	Res,9.1K,+/−1%,1/4W,Mtl
R49	DRE138181	Res,18K,+/−1%,1/4W,Mtl
R50	DRE138251	Res,36K,+/−1%,1/4W,Mtl
R51	DRE138171	Res,10K,+/−1%,1/4W,Mtl
R57	DRD137711	Res,20K,+/−5%,1/4W,Carbon
R58	DRD137751	Res,3.0K,+/−5%,1/4W,Carbon
R59	DRE137561	Res,47,+/−1%,1/4W,Mtl
R60	DRE137701	Res,180,+/−1%,1/4W,Mtl
R63	DRE137701	Res,180,+/−1%,1/4W,Mtl
R65	DRD137321	Res,47,+/−5%,1/4W,Carbon
R66	DRD137321	Res,47,+/−5%,1/4W,Carbon
R67	DRD137321	Res,47,+/−5%,1/4W,Carbon
W2	KHB101011	Small Socket
W4	KHB099011	Coaxial Cable,75VV02000
W5	KHB114911	Cable,A SAWTOOTH CABLE14W5

B SWEEP GENERATOR 15

SS-7611 and SS-7607

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C2	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C3	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C4	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C5	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C6	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C7	DCE229201	Cap,47u,+/−20%,25V,Ele
C9	DCE229201	Cap,47u,+/−20%,25V,Ele
C11	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C12	DCE229201	Cap,47u,+/−20%,25V,Ele
C16	DCC239121	Cap,22p,+/−5%,50V,Cer
C21	DCC239331	Cap,20p,+/−5%,50V,Cer
C22	DCE249341	Cap,4. 7u,+/−20%,50V,Cer
C26	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C27	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C29	DCE229201	Cap,47u,+/−20%,25V,Ele
C30	DCE229201	Cap,47u,+/−20%,25V,Ele
C32	DCC239351	Cap,75p,+/−5%,50V,Cer
C36	DCC239321	Cap,12p,+/−5%,50V,Cer
C37	DCE229201	Cap,47u,+/−20%,25V,Ele
C38	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C41	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C44	DCC239121	Cap,22p,+/−5%,50V,Cer
C45	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C45A	DCE229201	Cap,47u,+/−20%,25V,Ele
C46	DCC239121	Cap,22p,+/−5%,50V,Cer
C48	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C50	DCC139501	Cap,0. 01u,+/−10%,500V,Cer
C52	DCC139501	Cap,0. 01u,+/−10%,500V,Cer
C53	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C54	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C55	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C56	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C57	DCF132161	Cap,0. 1u,+/−10%,100V,Flm
C58	DCF132161	Cap,0. 1u,+/−10%,100V,Flm
C60	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C73	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C76	DCF121441	Cap,0. 1u,+/−10%,50V,Flm
C78	DCE249311	Cap,1u,+/−20%,50V,Ele
C81	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C81A	DCE229201	Cap,47u,+/−20%,25V,Ele

CIRCUIT REFERENCE	IWASTU PART NO.	DESCRIPTION
D11	DDD038901	Diode,RD36ESB HZS36NB
D12	DDD038901	Diode,RD36ESB HZS36NB
D13	DDD019071	Diode,1SS 120
D14	DDD019071	Diode,1SS 120
D15	DDD019071	Diode,1SS 120
D16	DDD019071	Diode,1SS 120
D17	DDD038301	Diode,RD2. 0ESB1 TA21R
D18	DDD019071	Diode,1SS 120
D19	DDD019071	Diode,1SS 120
IC1	DIC310051	IC,F10107DC
IC2	DIC310081	IC,F1013DC(FC)
IC3	DIC310191	IC,F10115DC
IC4	DIC141181	IC,74LS122N
IC5	DIC310081	IC,F1013DC(FC)
IC6	DIC614321	IC,NJM 4558S(JRC)
J1	KHB095411	Small Socket
J2	KHB095411	Small Socket
Q1	DTR119011	Tr,2SA 1015Y TPER1
Q2	DTR119011	Tr,2SA 1015Y TPER1
Q10	DTR190631	Tr,HA 1127
Q11	DTR190631	Tr,HA 1127
Q13	DTR116321	Tr,2SA 1237G
Q14	DTR116321	Tr,2SA 1237G
Q15	DTR139011	Tr,2SC 1815GR TPER1
Q16	DTR119011	Tr,2SA 1015Y TPER1
Q19	DTR119011	Tr,2SA 1015Y TPER1
Q20	DTR119011	Tr,2SA 1015Y TPER1
Q21	DTR119011	Tr,2SA 1015Y TPER1
Q22	DTR119011	Tr,2SA 1015Y TPER1
R1	DRD137571	Res,510,+/−5%,1/4W,Carbon
R1A	DRD137711	Res,2K,+/−5%,1/4W,Carbon
R2	DRD137691	Res,1. 6K,+/−5%,1/4W,Carbon
R3	DRD137391	Res,91,+/−5%,1/4W,Carbon
R4	DRD137571	Res,510,+/−5%,1/4W,Carbon
R6	DRD137571	Res,510,+/−5%,1/4W,Carbon
R7	DRD137721	Res,2. 2K,+/−5%,1/4W,Carbon
R8	DRD137721	Res,2. 2K,+/−5%,1/4W,Carbon
R9	DRD137721	Res,2. 2K,+/−5%,1/4W,Carbon
R10	DRD137721	Res,2. 2K,+/−5%,1/4W,Carbon
R11	DRD137721	Res,2. 2K,+/−5%,1/4W,Carbon
R12	DRD137621	Res,820,+/−5%,1/4W,Carbon

CIRCUIT REFERENCE	IWASTU PART NO.	DESCRIPTION
R13	DRD137831	Res,6. 2K,+/−5%,1/4W,Carbon
R14	DRD137811	Res,5. 2K,+/−5%,1/4W,Carbon
R15	DRD137721	Res,2. 2K,+/−5%,1/4W,Carbon
R16	DRD137761	Res,3. 3K,+/−5%,1/4W,Carbon
R17	DRD137721	Res,2. 2K,+/−5%,1/4W,Carbon
R18	DRD137321	Res,47,+/−5%,1/4W,Carbon
R19	DRE137641	Res,100,+/−1%,1/4W,Mtl
R20	DRE137771	Res,360,+/−1%,1/4W,Mtl
R21	DRE137701	Res,180,+/−1%,1/4W,Mtl
R22	DRD138041	Res,47K,+/−5%,1/4W,Carbon
R23	DRD137361	Res,68,+/−5%,1/4W,Carbon
R24	DRD137641	Res,1. 0K,+/−5%,1/4W,Carbon
R26	DRD137161	Res,3. 9,+/−5%,1/4W,Carbon
R27	DRE137561	Res,47,+/−1%,1/4W,Mtl
R32	DRD137301	Res,39,+/−5%,1/4W,Carbon
R33	DRD137641	Res,1. 0K,+/−5%,1/4W,Carbon
R36	DRE138061	Res,5. 6K,+/−1%,1/4W,Mtl
R37	DRE138101	Res,8. 2K,+/−1%,1/4W,Mtl
R40	DRD137771	Res,3. 6K,+/−5%,1/4W,Carbon
R41	DRD137661	Res,1. 2K,+/−5%,1/4W,Carbon
R42	DRD137321	Res,47,+/−5%,1/4W,Carbon
R43	DRD137321	Res,47,+/−5%,1/4W,Carbon
R44	DRD137401	Res,100,+/−5%,1/4W,Carbon
R45	DRD137401	Res,100,+/−5%,1/4W,Carbon
R46	DRD137401	Res,100,+/−5%,1/4W,Carbon
R48	DRD137401	Res,100,+/−5%,1/4W,Carbon
R49	DRE138031	Res,4. 3K,+/−1%,14W,Mtl
R50	DRE138031	Res,4. 3K,+/−1%,14W,Mtl
R51	DRE138031	Res,4. 3K,+/−1%,14W,Mtl
R52	DRE138031	Res,4. 3K,+/−1%,14W,Mtl
R53	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R54	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R55	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R56	DRE137951	Res,2. 0K,+/−1%,1/4W,Mtl
R57	DRE140971	Res,100,+/−1%,1/2W,Mtl
R58	DRE140971	Res,100,+/−1%,1/2W,Mtl
R59	DRD137641	Res,1. 0K,+/−5%,1/4W,Carbon
R60	DRE137741	Res,270,+/−15,1/4W,Mtl
R61	DRD137461	Res,180,+/−5%,1/4W,Carbon
R62	DRD137461	Res,180,+/−5%,1/4W,Carbon
R63	DRD137521	Res,330,+/−5%,1/4W,Carbon
R64	DRD137521	Res,330,+/−5%,1/4W,Carbon
R66	DRE137561	Res,47,+/−1%,1/4W,Mtl
R67	DRE137701	Res,180,+/−1%,1/4W,Mtl
R68	DRD137641	Res,1. 0K,+/−5%,1/4W,Carbon
R69	DRD137641	Res,1. 0K,+/−5%,1/4W,Carbon
R70	DRD137321	Res,47,+/−5%,1/4W,Carbon
R73	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R74	DRD137811	Res,5. 2K,+/−5%,1/4W,Carbon
R76	DRE138131	Res,11K,+/−1%,1/4W,Mtl
R78	DRE138131	Res,11K,+/−1%,1/4W,Mtl
R81	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R82	DRD137811	Res,5. 2K,+/−5%,1/4W,Carbon
W2	KHB099211	Coaxial Cable,75VV02208

B SWEEP GENERATOR 15

SS-7610 and SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C2	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C3	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C4	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C5	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C6	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C7	DCE229201	Cap,47u,+/−20%,25V,Ele
C9	DCE229201	Cap,47u,+/−20%,25V,Ele
C11	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C12	DCE229201	Cap,47u,+/−20%,25V,Ele
C16	DCC239121	Cap,22p,+/−5%,50V,Cer
C21	DCC239331	Cap,20p,+/−5%,50V,Cer
C22	DCE249341	Cap,4. 7u,+/−20%,50V,Cer
C26	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C27	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C29	DCE229201	Cap,47u,+/−20%,25V,Ele
C30	DRE229201	Cap,47u,+/−20%,25V,Ele
C32	DCC239351	Cap,75p,+/−5%,50V,Cer
C36	DCC239321	Cap,12p,+/−5%,50V,Cer
C37	DCE229201	Cap,47u,+/−20%,25V,Ele
C38	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C41	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C44	DCC239121	Cap,22p,+/−5%,50V,Cer
C45	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C45A	DCE229201	Cap. 47u,+/−20%,25V,Ele
C46	DCC239121	Cap,22p,+/−5%,50V,Cer
C50	DCC139501	Cap,0. 01u,+/−10%,500V,Cer
C53	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C55	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C56	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C57	DCF132161	Cap,0. 1u,+/−10%,100V,Flm
C60	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C78	DCE249311	Cap,1u,+/−20%,50V,Ele
C81	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C81A	DCE229201	Cap. 47u,+/−20%,25V,Ele
D11	DDD038901	Diode,RD36ESB HZS36NB
D13	DDD019071	Diode,1SS 120
D14	DDD019071	Diode,1SS 120
D16	DDD019071	Diode,1SS 120
D17	DDD038301	Diode,RD2. 0ESB1 TA21R
IC1	DIC310051	IC,F10107DC
IC2	DIC310081	IC,F1013DC(FC)
IC3	DIC310191	IC,F10115DC
IC4	DIC141181	IC,74LS122N
IC6	DIC614321	IC,NJM 4558S(JRC)
J1	KHB095411	Small Socket
J2	KHB095411	Small Socket
Q1	DTR119011	Tr,2SA 1015Y TPER1
Q2	DTR119011	Tr,2SA 1015Y TPER1
Q10	DTR190631	Tr,HA 1127
Q13	DTR116321	Tr,2SA 1237G
Q15	DTR139011	Tr,2SC 1815GR TPER1
Q16	DTR119011	Tr,2SA 1015Y TPER1
Q21	DTR119011	Tr,2SA 1015Y TPER1
Q22	DTR119011	Tr,2SA 1015Y TPER1
R1	DRD137571	Res,510,+/−5%,1/4W,Carbon
R1A	DRD137711	Res,2. 0K,+/−5%,1/4W,Carbon
R2	DRD137691	Res,1. 6K,+/−5%,1/4W,Carbon
R3	DRD137391	Res,91,+/−5%,1/4W,Carbon
R4	DRD137571	Res,510,+/−5%,1/4W,Carbon
R6	DRD137571	Res,510,+/−5%,1/4W,Carbon
R7	DRD137721	Res,2. 2K,+/−5%,1/4W,Carbon
R8	DRD137721	Res,2. 2K,+/−5%,1/4W,Carbon
R9	DRD137721	Res,2. 2K,+/−5%,1/4W,Carbon
R10	DRD137721	Res,2. 2K,+/−5%,1/4W,Carbon
R11	DRD137721	Res,2. 2K,+/−5%,1/4W,Carbon
R12	DRD137621	Res,820,+/−5%,1/4W,Carbon
R13	DRD137831	Res,6. 2K,+/−5%,1/4W,Carbon
R14	DRD137811	Res,5. 2K,+/−5%,1/4W,Carbon
R15	DRD137721	Res,2. 2K,+/−5%,1/4W,Carbon
R16	DRD137761	Res,3. 3K,+/−5%,1/4W,Carbon
R17	DRD137721	Res,2. 2K,+/−5%,1/4W,Carbon
R18	DRD137321	Res,47,+/−5%,1/4W,Carbon
R19	DRE137641	Res,100,+/−1%,1/4W,Mtl
R20	DRE137771	Res,360,+/−1%,1/4W,Mtl
R21	DRE137701	Res,180,+/−1%,1/4W,Mtl
R22	DRD138041	Res,47K,+/−5%,1/4W,Carbon
R23	DRD137361	Res,68,+/−5%,1/4W,Carbon
R24	DRD137641	Res,1. 0K,+/−5%,1/4W,Carbon
R26	DRD137161	Res,3. 9,+/−5%,1/4W,Carbon
R27	DRE137561	Res,47,+/−1%,1/4W,Mtl
R32	DRD137301	Res,39,+/−5%,1/4W,Carbon

CIRCUIT REFERENCE	IWASTU PART NO.	DESCRIPTION
R33	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R36	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R37	DRE138101	Res,8.2K,+/−1%,1/4W,Mtl
R40	DRD137771	Res,3.6K,+/−5%,1/4W,Carbon
R41	DRD137661	Res,3.6K,+/−5%,1/4W,Carbon
R42	DRD137321	Res,47,+/−5%,1/4W,Carbon
R43	DRD137321	Res,47,+/−5%,1/4W,Carbon
R44	DRD137401	Res,100,+/−5%,1/4W,Carbon
R45	DRD137401	Res,100,+/−5%,1/4W,Carbon
R46	DRD137401	Res,100,+/−5%,1/4W,Carbon
R49	DRE138031	Res,4.3K,+/−1%,14W,Mtl
R50	DRE138031	Res,4.3K,+/−1%,14W,Mtl
R53	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R55	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R56	DRE137951	Res,2.0K,+/−1%,1/4W,Mtl
R57	DRE140971	Res,3.9K,+/−1%,1/2W,Mtl
R59	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R60	DRE137741	Res,270,+/−15,1/4W,Mtl
R62	DRD137461	Res,180,+/−5%,1/4W,Carbon
R64	DRD137521	Res,330,+/−5%,1/4W,Carbon
R78	DRE138131	Res,11K,+/−1%,1/4W,Mtl
R81	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R82	DRD137811	Res,5.2K,+/−5%,1/4W,Carbon
W2	KHB099211	Coaxial Cable,75VV02208

A TIMING CIRCUIT 16

SS-7611, SS-7607, SS-7610, SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCC139501	Cap,0.01u,+/−10%,500V,Cer
C2	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C3	DCC139501	Cap,0.01u,+/−10%,500V,Cer
C4	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C5	DCF132161	Cap,0.1u,+/−10%,100V,Flm
C7	DCE229201	Cap,47u,+/−20%,25V,Ele
C8	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C10	DCE249381	Cap,47u,+/−20%,50V,Cer
C11	DCE229201	Cap,47u,+/−20%,25V,Ele
C12	DCE249381	Cap,47u,+/−20%,50V,Cer
C13	DCE229201	Cap,47u,+/−20%,25V,Ele
C14	DCV019871	Cap,20p,Var,250V,Cer
C15	DCM133061	Cap,74p,+/−5%,50V,Mica
C16	DCF420401	Cap,1u,+/−5%,63V,Flm
C17	DCF125791	Cap,9900,+/−5%,50V,Flm
C18	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C28	DCC139501	Cap,0.01u,+/−10%,500V,Cer
C30	DCF121441	Cap,0.1u,+/−20%,50V,Flm
C31	DCC929031	Cap,0.01u,+/−5%,50V,Cer
D1	DDD019071	Diode,1SS 120
D2	DDD019071	Diode,1SS 120
D3	DDD038861	Diode,RD24ESB HZ24NB
D4	DDD039091	Diode,RD6.8ESB1 TA21R
D5	DDD038351	Diode,RD10ESB1 TA21R
D6	DDD038981	Diode,RD8.2ESB1 TA21R
D7	DDD019071	Diode,1SS 120
D8	DDD019071	Diode,1SS 120
IC1	DIC613911	IC,LE 353N(NS)
IC2	DIC613031	IC,NJM 4558D(JRC)
IC3	DIC414111	IC,CD 4555BE
IC4	DIC445961	IC,MC 74HC595N
J1	DCN115721	Connector,HLEM12S-1
Q1	DTR219011	Tr,2SK 30ATM-0 TPER1
Q2	DTR139011	Tr,2SC 1815GR TPER1
Q3	DTR139011	Tr,2SC 1815GR TPER1
Q4	DTR139011	Tr,2SC 1815GR TPER1
Q5	DTR139011	Tr,2SC 1815GR TPER1
Q6	DTR139011	Tr,2SC 1815GR TPER1
Q7	DTR139011	Tr,2SC 1815GR TPER1
Q8	DTR139011	Tr,2SC 1815GR TPER1
Q9	DTR199351	Tr,DTC 114ES TP

CIRCUIT REFERENCE	IWASTU PART NO.	DESCRIPTION
Q10	DTR199351	Tr,DTC 114ES TP
Q11	DTR199351	Tr,DTC 114ES TP
Q12	DTR199351	Tr,DTC 114ES TP
Q13	DTR199351	Tr,DTC 114ES TP
Q15	DTR119051	Tr,2SA 988EA／FA TRB
Q16	DTR139381	Tr,2SC 2668-Y TPE4
Q17	DTR139381	Tr,2SC 2668-Y TPE4
R1	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R2	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R3	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R4	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R5	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R6	DRD137981	Res,27K,+/−5%,1/4W,Carbon
R7	DRD137981	Res,27K,+/−5%,1/4W,Carbon
R8	DRD137981	Res,27K,+/−5%,1/4W,Carbon
R9	DRD137981	Res,27K,+/−5%,1/4W,Carbon
R10	DRD137981	Res,27K,+/−5%,1/4W,Carbon
R11	DRE948041	Res,2.5M,+/−5%,1/2W,Mtl
R12	DRE930681	Res,1.0M,+/−0.1%,1/4W,Mtl
R13	DRE930671	Res,100K,+/−0.1%,1/4W,Mtl
R14	DRE930661	Res,10K,+/−0.1%,1/4W,Mtl
R15	DRE930651	Res,1K,+/−0.1%,1/4W,Mtl
R17	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R18	DRD137321	Res,47,+/−5%,1/4W,Carbon
R19	DRD137551	Res,430,+/−5%,1/4W,Carbon
R20	DRD137551	Res,430,+/−5%,1/4W,Carbon
R21	DRD137981	Res,27K,+/−5%,1/4W,Carbon
R22	DRE990621	Res,30K,+/−0.5%,1/5W,Mtl
R23	DRE990621	Res,30K,+/−0.5%,1/5W,Mtl
R24	DRE990601	Res,10K,+/−5%,1/5W,Mtl
R25	DRE990601	Res,10K,+/−5%,1/5W,Mtl
R26	DRD137901	Res,12K,+/−5%,1/4W,Carbon
R27	DRE138231	Res,30K,+/−1%,1/4W,Mtl
R28	DRE138191	Res,20K,+/−1%,1/4W,Mtl
R29	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R30	DRE138181	Res,18K,+/−1%,1/4W,Mtl
R31	DRE138101	Res,8.2K,+/−1%,1/4W,Mtl
R34	DRD137821	Res,5.6K,+/−5%,1/4W,Carbon
W1	KHB097511	Flat Cable,TWVF12-60

B TIMING CIRCUIT 17

SS-7611, SS-7607, SS-7610, SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCC139501	Cap,0.01u,+/−10%,500V,Cer
C2	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C3	DCC139501	Cap,0.01u,+/−10%,500V,Cer
C4	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C5	DCF132161	Cap,0.1u,+/−10%,100V,Flm
C8	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C10	DCE249381	Cap,47u,+/−20%,50V,Cer
C11	DCE229201	Cap,47u,+/−20%,25V,Ele
C12	DCE249381	Cap,47u,+/−20%,50V,Cer
C13	DCE229201	Cap,47u,+/−20%,25V,Ele
C14	DCV019871	Cap,20p,Var,250V,Cer
C15	DCM133061	Cap,74p,+/−5%,50V,Mica
C16	DCF420401	Cap,1u,+/−5%,63V,Flm
C17	DCF125791	Cap,9900,+/−5%,50V,Flm
C18	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C28	DCC139501	Cap,0.01u,+/−10%,500V,Cer
C30	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C31	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C32	DCC929031	Cap,0.01u,+/−30%,16V,Cer
D1	DDD019071	Diode,1SS 120
D2	DDD019071	Diode,1SS 120
D3	DDD038861	Diode,RD24ESB HZ24NB
D4	DDD039091	Diode,RD6.8ESB1 TA21R
D5	DDD038351	Diode,RD10ESB1 TA21R
D6	DDD038981	Diode,RD8.2ESB1 TA21R
D7	DDD019071	Diode,1SS 120
D8	DDD019071	Diode,1SS 120
FL1	DHF039041	Filter,DST 306-91FZ103Z50V
FL2	DHF039041	Filter,DST 306-91FZ103Z50V
FL3	DHF039041	Filter,DST 306-91FZ103Z50V
IC1	DIC613911	IC,LF 353N(NS)
IC2	DIC613031	IC,NJM 4558D(JRC)
IC3	DIC445961	IC,MC 74HC595N
IC4	DIC445961	IC,MC 74HC595N
J1	DCN115781	Connector,HLEM36S-1
Q1	DTR219011	Tr,2SK 30ATM-0 TPER1
Q2	DTR139051	Tr,2SA 988EA／FA TRB
Q3	DTR119051	Tr,2SA 988EA／FA TRB
Q5	DTR119051	Tr,2SA 988EA／FA TRB
Q6	DTR119051	Tr,2SA 988EA／FA TRB
Q7	DTR119051	Tr,2SA 988EA／FA TRB

CIRCUIT REFERENCE	IWASTU PART NO.	DESCRIPTION
Q8	DTR119051	Tr,2SA 988EA／FA TRB
Q10	DTR199351	Tr,DTC 114ES TP
Q11	DTR199351	Tr,DTC 114ES TP
Q12	DTR199351	Tr,DTC 114ES TP
Q13	DTR199351	Tr,DTC 114ES TP
Q15	DTR119051	Tr,2SA 988EA／FA TRB
Q16	DTR139381	Tr,2SC 2668-Y TPE4
Q17	DTR139381	Tr,2SC 2668-Y TPE4
R2	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R3	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R4	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R5	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R7	DRD137981	Res,27K,+/−5%,1/4W,Carbon
R8	DRD137981	Res,27K,+/−5%,1/4W,Carbon
R9	DRD137981	Res,27K,+/−5%,1/4W,Carbon
R10	DRD137981	Res,27K,+/−5%,1/4W,Carbon
R12	DRE930681	Res,1M,0 1%,1/4W,Mtl
R13	DRE930671	Res,100K,+/−0.1%,1/4W,Mtl
R14	DRE930661	Res,10K,+/−0.1%,1/4W,Mtl
R15	DRE930651	Res,1K,+/−0.1%,1/4W,Mtl
R17	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R18	DRD137321	Res,47,+/−5%,1/4W,Carbon
R19	DRD137551	Res,430,+/−5%,1/4W,Carbon
R20	DRD137551	Res,430,+/−5%,1/4W,Carbon
R21	DRD137981	Res,27K,+/−5%,1/4W,Carbon
R22	DRE990621	Res,30K,+/−0.5%,1/5W,Mtl
R23	DRE990621	Res,30K,+/−0.5%,1/5W,Mtl
R24	DRE990601	Res,10K,+/−5%,1/5W,Mtl
R25	DRE990601	Res,10K,+/−5%,1/5W,Mtl
R26	DRD137901	Res,12K,+/−5%,1/4W,Carbon
R27	DRE138231	Res,30K,+/−1%,1/4W,Mtl
R28	DRE138191	Res,20K,+/−1%,1/4W,Mtl
R29	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R30	DRE138181	Res,18K,+/−1%,1/4W,Mtl
R31	DRE138101	Res,8.2K,+/−1%,1/4W,Mtl
R34	DRD137821	Res,5.6K,+/−5%,1/4W,Carbon

HORIZ CONTROL 18

SS-7611, SS-7607, SS-7610, SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCC139501	Cap,0.01u,+/−10%,500V,Cer
C4	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C11	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C13	DCF139011	Cap,O.O1u,+/−10%,100V,Flm
C14	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C15	DCE229201	Cap,47u,+/−20%,25V,Ele
C16	DCE249381	Cap,47u,+/−20%,50V,Cer
C17	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C18	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C19	DCE229201	Cap,47u,+/−20%,25V,Ele
C20	DCE229201	Cap,47u,+/−20%,25V,Ele
C22	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C23	DCE229201	Cap,47u,+/−20%,25V,Ele
C25	DCC929031	Cap,0.01u,+/−30%,16V,Cer
D1	DDD019101	Diode,1SS 97 TA21R
D2	DDD019101	Diode,1SS 97 TA21R
D3	DDD019101	Diode,1SS 97 TA21R
D4	DDD019101	Diode,1SS 97 TA21R
D5	DDD019101	Diode,1SS 97 TA21R
D6	DDD019101	Diode,1SS 97 TA21R
D20	DDD038861	Diode,RD24ESB HZ24NB
IC5	DIC614321	IC,NJM 4558S(JRC)
J1	KHB095411	Small Socket
J2	KHB095411	Small Socket
J3	KHB095411	Small Socket
J4	DCN115721	Connector,HLEM12S-1
Q3	DTR139321	Tr,2SC 3732K-T
Q4	DTR139321	Tr,2SC 3732K-T
Q5	DTR199351	Tr,DTC 114ES TP
Q6	DTR199351	Tr,DTC 114ES TP
Q7	DTR199351	Tr,DTC 114ES TP
R1	DRD137811	Res,5.2K,+/−5%,1/4W,Carbon
R2	DRD137641	Res,1K,+/−5%,1/4W,Carbon
R3	DRD137641	Res,1K,+/−5%,1/4W,Carbon
R9	DRD137751	Res,3.0K,+/−5%,1/4W,Carbon
R10	DRD137751	Res,3.0K,+/−5%,1/4W,Carbon
R11	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
R12	DRE138601	Res,1.0M,+/−1%,1/4W,Mtl
R13	DRE138181	Res,18K,+/−1%,1/4W,Mtl
R14	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R15	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R16	DRE138601	Res,1. 0M,+/−1%,1/4W,Mtl
R17	DRV415521	Res,500,+/−20%,1/4W,Crm
R18	DRE137971	Res,2. 4K,+/−1%,1/4W,Mtl
R19	DRE138011	Res,3. 6K,+/−1%,1/4W,Mtl
R20	DRE137961	Res,2. 2K,+/−1%,1/4W,Mtl
R21	DRE138011	Res,3. 6K,+/−1%,1/4W,Mtl
R24	DRE138181	Res,18K,+/−1%,1/4W,Mtl
R25	DRE138061	Res,5. 6K,+/−1%,1/4W,Mtl

HORIZONTAL AMP 〈1〉 19

SS-7611, SS-7607, SS-7610, SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C1A	DCC239051	Cap,100p,+/−5%,50V,Cer
C2	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C3	DCF139011	Cap,O. O1u,+/−10%,100V,Flm
C7	DCC239211	Cap,8p,+/−0. 25p,50V,Cer
C8	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C10	DCE229221	Cap,220u,+/−20%,25V,Ele
C11	DCE243311	Cap,22u,+/−20%,63V,Ele
C12	DCF139011	Cap,O. O1u,+/−10%,100V,Flm
C13	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C14	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C14A	DCE229201	Cap,47u,+/−20%,25V,Ele
C24	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C25	DCC139501	Cap,0. 01u,+/−30%,16V,Cer
D3	DDD019071	Diode,1SS 120
FL1	DHF039021	Filter,DSS 306-91FZ103N100
FL2	DHF039041	Filter,DST 306-91FZ103Z50V
IC2	DIC445961	IC,MC 74HC595N
J1	DCN115751	Connector,HLEM18S-1
J2	DCN115721	Connector,HLEM12S-1
Q1	DTR139351	Tr,2SC 2901-T
Q2	DTR139351	Tr,2SC 2901-T
Q3	DTR119041	Tr,2SA 1206 TRC
Q4	DTR119041	Tr,2SA 1206 TRC
Q5	DTR119011	Tr,2SA 1015Y TPER1
Q6	DTR199351	Tr,DTC 114ES TP
Q7	DTR199351	Tr,DTC 114ES TP
Q10	DTR199331	Tr,DTA 114ES TP
R1	DRD137321	Res,47,+/−5%,1/4W,Carbon
R2	DRE137951	Res,2. 0K,+/−1%,1/4W,Mtl
R3	DRE138131	Res,11K,+/−1%,1/4W,Mtl
R4	DRE138131	Res,11K,+/−1%,1/4W,Mtl
R5	DRE138131	Res,11K,+/−1%,1/4W,Mtl
R6	DRE138131	Res,11K,+/−1%,1/4W,Mtl
R7	DRE137901	Res,1. 2K,+/−1%,1/4W,Mtl
R8	DRE137901	Res,1. 2K,+/−1%,1/4W,Mtl
R9	DRE137911	Res,1. 3K,+/−1%,1/4W,Mtl
R10	DRE138061	Res,5. 6K,+/−1%,1/4W,Mtl
R11	DRE138281	Res,74,+/−1%,1/4W,Mtl
R12	DRE138281	Res,74,+/−1%,1/4W,Mtl
R13	DRV415501	Res,100,+/−5%,1/3W,MG

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R14	DRE137581	Res,56,+/−1%,1/4W,Mtl
R15	DRE137781	Res,390,+/−1%,1/4W,Mtl
R16	DDD080421	Th,112102-2
R17	DRE137901	Res,1.2K,+/−1%,1/4W,Mtl
R18	DRV412171	Res,2K,+/−20%,1/3W,MG
R19	DRE137851	Res,750,+/−1%,1/4W,Mtl
R20	DRE137851	Res,750,+/−1%,1/4W,Mtl
R21	DRV415511	Res,200,+/−20%,1/4W,Crm
R22	DRE138031	Res,4.3K,+/−1%,14W,Mtl
R23	DRD137991	Res,30K,+/−5%,1/4W,Carbon
R24	DRD137991	Res,30K,+/−5%,1/4W,Carbon
R25	DRD138201	Res,220K,+/−5%,1/4W,Carbon
RL1	DKD027771	Relay,SY-5W-K
W1	KHB098111	Flat Cable,TWVF18-90
W2	KHB097611	Flat Cable,TWVF12-140

HORIZ AMP 〈2〉 20

SS-7611, SS-7607, SS-7610, SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C5	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C8	DCC230501	Cap,2p,+/−0.25p,50V,Cer
C9	DCC239321	Cap,12p,+/−5%,50V,Cer
C15	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C16	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C18	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C19	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C20	DCF121321	Cap,0.01u,+/−10%,50V,Flm
C22	DCF139011	Cap,0.01u,+/−10%,100V,Flm
C27	DCV019861	Cap,7p,Var,250V,Cer
C28	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C29	DCE229201	Cap,47u,+/−20%,25V,Ele
C31	DCF121321	Cap,0.01u,+/−10%,50V,Flm
C32	DCE243311	Cap,22u,+/−20%,63V,Ele
C33	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C34	DCE229201	Cap,47u,+/−20%,25V,Ele
C39	DCV019861	Cap,7p,Var,250V,Cer
C40	DCC239201	Cap,4p,+/−0.25p,50V,Cer
C41	DCF132161	Cap,0.1u,+/−10%,100V,Flm
C56	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C57	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C58	DCE229201	Cap,47u,+/−20%,25V,Ele
C63	DCF132161	Cap,0.1u,+/−10%,100V,Flm
C65	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C66	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C68	DCC239201	Cap,4p,+/−0.25p,50V,Cer
D1	DDD019071	Diode,1SS 120
D2	DDD019071	Diode,1SS 120
D3	DDD038981	Diode,RD8.2ESB1 TA21R
J1	DCN115721	Connector,HLEM12S-1
J3	DCN033821	Wire Post,WP22-1B
J4	DCN033821	Wire Post,WP22-1B
L1	DCL119361	Bead Inductor,BL02RN2-R62
L2	DCL119361	Bead Inductor,BL02RN2-R62
Q1	DTR119011	Tr,2SA 1015Y TPER1
Q2	DTR119011	Tr,2SA 1015Y TPER1
Q3	DTR119011	Tr,2SA 1015Y TPER1
Q4	DTR119011	Tr,2SA 1015Y TPER1
Q5	DTR139321	Tr,2SC 3732K-T
Q6	DTR139321	Tr,2SC 3732K-T
Q8	DTR139321	Tr,2SC 3732K-T

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
Q9	DTR119011	Tr,2SA 1015Y TPER1
Q10	DTR139011	Tr,2SC 1815GR TPER1
Q11	DTR139321	Tr,2SC 3732K-T
Q12	DTR139011	Tr,2SC 1815GR TPER1
Q13	DTR119011	Tr,2SA 1015Y TPER1
Q14	DTR136001	Tr,2SC 3064G(DP6A)
Q15	DTR119011	Tr,2SA 1015Y TPER1
Q16	DTR119011	Tr,2SA 1015Y TPER1
Q17	DTR119011	Tr,2SA 1015Y TPER1
Q18	DTR119011	Tr,2SA 1015Y TPER1
R1	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R2	DRD137161	Res,3.9,+/−5%,1/4W,Carbon
R3	DRD137321	Res,47,+/−5%,1/4W,Carbon
R4	DRD137321	Res,47,+/−5%,1/4W,Carbon
R5	DRE137751	Res,300,+/−1%,1/4W,Mtl
R6	DRE137751	Res,300,+/−1%,1/4W,Mtl
R7	DRD137321	Res,47,+/−5%,1/4W,Carbon
R8	DRE138601	Res,1.0M,+/−1%,1/4W,Mtl
R9	DRE137861	Res,820,+/−1%,1/4W,Mtl
R10	DRE137841	Res,680,+/−1%,1/4W,Mtl
R13	DRE137841	Res,680,+/−1%,1/4W,Mtl
R14	DRD137321	Res,47,+/−5%,1/4W,Carbon
R15	DRD137561	Res,470,+/−5%,1/4W,Carbon
R16	DRD137431	Res,130,+/−5%,1/4W,Carbon
R18	DRD137421	Res,120,+/−5%,1/4W,Carbon
R19	DRD137741	Res,2.7K,+/−5%,1/4W,Carbon
R20	DRE138261	Res,39K,+/−1%,1/4W,Mtl
R21	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R22	DRE137861	Res,820,+/−1%,1/4W,Mtl
R25	DRD137321	Res,47,+/−5%,1/4W,Carbon
R27	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R28	DRE138041	Res,4.7K,+/−1%,1/4W,Mtl
R28	DRE138041	Res,4.7K,+/−1%,1/4W,Mtl
R29	DRE138041	Res,4.7K,+/−1%,1/4W,Mtl
R30	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R31	DRE138261	Res,39K,+/−1%,1/4W,Mtl
R32	DRE137861	Res,820,+/−1%,1/4W,Mtl
R33	DRD137421	Res,120,+/−5%,1/4W,Carbon
R34	DRD137741	Res,2.7K,+/−5%,1/4W,Carbon
R37	DRD137321	Res,47,+/−5%,1/4W,Carbon
R39	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R40	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R41	DRD137821	Res,5.6K,+/−5%,1/4W,Carbon
R50	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R51	DRE137801	Res,470,+/−1%,1/4W,Mtl
R52	DRD137781	Res,3.9K,+/−5%,1/4W,Carbon
R53	DRV412041	Res,2K,+/−5%,1/3W,MG
R54	DRD137931	Res,16K,+/−5%,1/4W,Carbon
R55	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R56	DRE137801	Res,470,+/−1%,1/4W,Mtl
R57	DRE138041	Res,4.7K,+/−1%,1/4W,Mtl
R58	DRE138041	Res,4.7K,+/−1%,1/4W,Mtl
R59	DRE137681	Res,150,+/−1%,1/4W,Mtl
R60	DRV410511	Res,200,,Var,1/2W,Crm
R61	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R62	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R63	DRD137821	Res,5.6K,+/−5%,1/4W,Carbon
R64	DRD137831	Res,6.2K,+/−5%,1/4W,Carbon
R65	DRD137881	Res,10k,+/−5%,1/4W,Carbon
R66	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R67	DRD137831	Res,6.2K,+/−5%,1/4W,Carbon
R68	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R70	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon

Z AXIS CIRCUIT 21

SS-7611, SS-7607, SS-7610, SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C2	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C3	DCE229201	Cap,47u,+/−20%,25V,Ele
C10	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C17	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C18	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C19	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C21	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C22	DCE229201	Cap,47u,+/−20%,25V,Ele
C23	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C25	DCF121321	Cap,0. 01u,+/−10%,50V,Flm
C27A	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C28	DCE229201	Cap,47u,+/−20%,25V,Ele
C29	DCF132141	Cap,0. 047u,+/−5%,100V,Flm
C30	DCF139011	Cap,O. O1u,+/−10%,100V,Flm
C31	DCF132161	Cap,0. 1u,+/−10%,100V,Flm
C32	DCE243311	Cap,22u,+/−20%,63V,Ele
C33	DCE229201	Cap,47u,+/−20%,25V,Ele
C34	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C36	DCC239031	Cap,47p,+/−5%,50V,Cer
C37	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C55	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
D1	DDD019071	Diode,1SS 120
D2	DDD019101	Diode,1SS 97 TA21R
D3	DDD029341	Diode,SM-1XS20 TA21R
D4	DDD038921	Diode,RD5. 1ESB1 TA21R
D5	DDD019071	Diode,1SS 120
D6	DDD019071	Diode,1SS 120
D7	DDD019071	Diode,1SS 120
IC1	DIC440051	IC,MC 74HC04N
J1	KHB095411	Small Socket
J3	DCN040801	Connector,BCN Receptacle
P2	DCN990871	Connector,5267-02A
Q1	DTR139011	Tr,2SC 1815GR TPER1
Q2	DTR139011	Tr,2SC 1815GR TPER1
Q3	DTR199351	Tr,DTC 114ES TP
Q4	DTR139011	Tr,2SC 1815GR TPER1
Q5	DTR139011	Tr,2SC 1815GR TPER1
Q6	DTR119011	Tr,2SA 1015Y TPER1
Q7	DTR139011	Tr,2SC 1815GR TPER1
Q8	DTR139011	Tr,2SC 1815GR TPER1
Q9	DTR119011	Tr,2SA 1015Y TPER1
Q10	DTR135091	Tr,2SC 1845-U
Q11	DTR115591	Tr,2SA 992F E
Q13	DTR139011	Tr,2SC 1815GR TPER1
R1	DRD138001	Res,33K,+/−5%,1/4W,Carbon
R2	DRD137741	Res,2. 7K,+/−5%,1/4W,Carbon
R3	DRD137741	Res,2. 7K,+/−5%,1/4W,Carbon
R4	DRD137811	Res,5. 2K,+/−5%,1/4W,Carbon
R5	DRE138031	Res,4. 3K,+/−1%,14W,Mtl
R6	DRE138031	Res,4. 3K,+/−1%,14W,Mtl
R7	DRD137551	Res,430,+/−5%,1/4W,Carbon
R8	DRD137471	Res,200,+/−5%,1/4W,Carbon
R9	DRE138021	Res,3. 9K,+/−1%,1/4W,Mtl
R10	DRE137881	Res,1. 0K,+/−1%,1/4W,Mtl
R12	DRE137821	Res,560,+/−1%,1/4W,Mtl
R13	DRD137321	Res,47,+/−5%,1/4W,Carbon
R15	DRE137811	Res,510,+/−1%,1/4W,Mtl
R16	DRE137881	Res,1. 0K,+/−1%,1/4W,Mtl
R17	DRD137971	Res,24K,+/−5%,1/4W,Carbon
R18	DRD137991	Res,30K,+/−5%,1/4W,Carbon
R19	DRD138021	Res,39K,+/−5%,1/4W,Carbon
R20	DRE138101	Res,8. 2K,+/−1%,1/4W,Mtl
R21	DRE137961	Res,2. 2K,+/−1%,1/4W,Mtl
R22	DRE138101	Res,8. 2K,+/−1%,1/4W,Mtl
R23	DRE137961	Res,2. 2K,+/−1%,1/4W,Mtl
R24	DRD137601	Res,680,+/−5%,1/4W,Carbon
R25	DRD137641	Res,1. 0K,+/−5%,1/4W,Carbon
R26A	DRE138361	Res,100K,+/−1%,1/4W,Mtl
R27	DRD137621	Res,820,+/−5%,1/4W,Carbon
R27A	DRD137651	Res,1. 1K,+/−5%,1/4W,Carbon
R28	DRE138271	Res,43K,+/−1%,1/4W,Mtl
R29	DRE138041	Res,4. 7K,+/−1%,1/4W,Mtl
R30	DRD137551	Res,430,+/−5%,1/4W,Carbon
R31	DRD137701	Res,1. 8K,+/−5%,1/4W,Carbon
R32	DRD137701	Res,1. 8K,+/−5%,1/4W,Carbon
R33	DRD137701	Res,1. 8K,+/−5%,1/4W,Carbon
R34	DRD137641	Res,1. 0K,+/−5%,1/4W,Carbon
R35	DRD137161	Res,3. 9,+/−5%,1/4W,Carbon
R36	DRD137531	Res,360,+/−5%,1/4W,Carbon
R37	DRE138031	Res,4. 3K,+/−1%,14W,Mtl
R38	DRE138031	Res,4. 3K,+/−1%,14W,Mtl

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R39	DRE138051	Res,5. 1K,+/−1%,1/4W,Mtl
R53	DRE138061	Res,5. 6K,+/−1%,1/4W,Mtl
R54	DRE137851	Res,750,+/−1%,1/4W,Mtl
R55	DRE137961	Res,2. 2K,+/−1%,1/4W,Mtl
R56	DRE138061	Res,5. 6K,+/−1%,1/4W,Mtl
R57	DRE137851	Res,750,+/−1%,1/4W,Mtl
R58	DRE137961	Res,2. 2K,+/−1%,1/4W,Mtl
W1	KHB100411	Coaxial Cable,75VH02008
W2	KHB110411	Z Output Cable,21W2

CRT CIRCUIT 22

SS-7611, SS-7607, SS-7610, SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C2	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C3	DCC139501	Cap,0. 01u,+/−10%,500V,Cer
C5	DCF139011	Cap,0. 01u,+/−10%,100V,Flm
C6	DCC139501	Cap,0. 01u,+/−10%,500V,Cer
C7	DCC151801	Cap,1000p,+/−10%,500V,Cer
C8	DCC151801	Cap,1000p,+/−10%,500V,Cer
C9	DCC173501	Cap,0. 01u,+80/−20%,Cer
C12	DCF139011	Cap,0. 01u,+/−10%,100V,Flm
D1	DDD072891	LED,AA5541K
D2	DDD038341	Diode,RD9. 1ESB1 TA21R
FAN1	DMT620401	Fan Mortor,0185-12
J1	DCN115801	Connector,HLEM8R-1
J2	DCN034601	Connector,M36m87-02
J3	DCN034601	Connector,M36m87-02
J5	DCN034601	Connector,M36m87-02
J10	DCN034601	Connector,M36m87-02
L1	DCL140452	Trace Rotation Coil
L2	DCL140462	Orthogonality Coil
P2	DCN034901	Connector,M36-02-30-134P
P3	DCN034901	Connector,M36-02-30-134P
P4	DCN994181	Connector,5268-05A
P5	DCN034901	Connector,M36-02-30-134P
PL1	DLP016092	Lamp,BQ064-22012A
PL2	DLP016092	Lamp,BQ064-22012A
Q1	DTR149011	Tr,2SD 571K L TRB
Q2	DTR129011	Tr,2SB 605K L TRB
Q3	DTR139011	Tr,2SC 1815GR TPER1
Q4	DTR119011	Tr,2SA 1015Y TPER1
Q6	DTR145851	Tr,2SD 1266P Q
R1	DRV120801	Res,50K,Var,1/2W,Crm
R1A	DRD138041	Res,47K,+/−5%,1/4W,Carbon
R2	DRV120801	Res,50K,Var,1/2W,Crm
R3	DRV120611	Res,20K,Var,1/2W,Crm
R4	DRV120601	Res,10K,Var,1/2W,Crm
R4A	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R5	DRV120611	Res,20K,Var,1/2W,Crm
R5A	DRD137161	Res,10,+/−5%,1/4W,Carbon
R6	DRD137901	Res,12K,+/−5%,1/4W,Carbon
R7	DRS320231	Res,15,+/−1%,1W,Mtl
R8	DRV412101	Res,20K,+/−20%,1/3W,MG

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R9	DRD137301	Res,39,+/−5%,1/4W,Carbon
R10	DRD137721	Res,2.2K,+/−5%,1/4W,Carbon
R12	DRV412111	Res,50K,+/−20%,1/3W,MG
R13	DRD147741	Res,2.7K,+/−5%,1/2W,Carbon
R14	DRD147741	Res,2.7K,+/−5%,1/2W,Carbon
V1	DET016161	Crt,S-8100
W1	KHB097311	Flat Cable,TWVF8-140
W3	KHB102221	Crt Cable,22W3
W5	KHB102021	Crt Cable,22W5
W6	KHB102121	Crt Cable,22W6
W7	KHB102321	Crt Cable,22W7

CPU 23
SS-7611 and SS-7607

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
BT1	DES011021	LithiumBattery,ER17 33N4
C1	DCE229201	Cap,47u,+/−20%,25V,Ele
C2	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C3	DCE229201	Cap,47u,+/−20%,25V,Ele
C4	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C5	DCE229021	Cap,47u,+/−20%,25V,Ele
C6	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C7	DCE810511	Cap,0.01u,+80/−20%,50V,Cer
C8	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C9	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C10	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C11	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C12	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C13	DCC815661	Cap,22p,+/−5%,50V,Cer
C14	DCC815661	Cap,22p,+/−5%,50V,Cer
C15	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C16	DCE229251	Cap,33u,+/−20%,25V,Ele
C17	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C19	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C20	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C21	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C22	DCE213141	Cap,1000u,+/−20%,6.3V,Ele
C22A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
D1	DDD810061	Diode,1SS 181 TE85L
FL1	DHF039041	Filter,DST 306-91FZ103Z50V
FL2	DHF039041	Filter,DST 306-91FZ103Z50V
FL3	DHF039041	Filter,DST 306-91FZ103Z50V
IC1	DIC690351	IC,M51953BL(MIT)
IC2	DIC447741	IC,MC 74HC74F
IC3	DIC552931	IC,TMPZ84C00AM(TSB)
IC4	DIC525501	IC,EPRUM 27C512(MAX250NS)
IC5	DIC516261	IC,TC 5565AFL-15L(TSB)
IC6	DIC492361	IC,MSM 6242RS(OKI)
IC7	DIC447321	IC,MC 74HC32F
IC8	DIC447001	IC,MC 74HC00F
IC9	DIC448381	IC,MC 74HC138F
IC10	DIC447271	IC,MC 74HC27F
IC11	DIC556171	IC,TMP 82C79M-2(TSB)
IC12	DTR191291	Tr,BA 6121
IC13	DIC889041	IC,TC 7S08F TE0804L
IC14	DIC889041	IC,TC 7S08F TE0804L

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
J8	DCN115821	Connector,HLEM38R-1
J9	DCN115811	Connector,HLEM20R-1
J11	DCN990911	Connector,5267-07A
JP2	DRZ831501	Res,0,Chip,Jumper
JP6	DRZ831501	Res,0,Chip,Jumper
Q1	DTR810041	Tr,2SA 1162Y TE85L
Q2	DTR830051	Tr,2SC 2712G TE85L
R1	DRZ830361	Res,10K,+/−5%,1/10W,MG
R2	DRZ830361	Res,10K,+/−5%,1/10W,MG
R3	DRZ830361	Res,10K,+/−5%,1/10W,MG
R4	DRZ830211	Res,1K,+/−5%,1/10W,MG
R5	DRZ830391	Res,2.2K,+/−5%,1/10W,MG
R6	DRZ830351	Res,8.2K,+/−5%,1/10W,MG
R7	DRZ830641	Res,1.2K,+/−5%,1/10W,MG
R8	DRD137041	Res,3.3,+/−5%,1/4W,Carbon
R9	DRZ830211	Res,1K,+/−5%,1/10W,MG
RA1	DFB015631	RArray,10K,+/−5%,1/8W
W1	KHB098211	Flat Cable,TWVF20-110
W2	KHB098411	Flat Cable,TWVF38-280
X1	DHF012081	Crystal,MX-38T 32.768

CPU 23

SS-7610 and SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
BT1	DES011021	LithiumBattery,ER17 33N4
C1	DCE229201	Cap,47u,+/−20%,25V,Ele
C2	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C3	DCE229201	Cap,47u,+/−20%,25V,Ele
C4	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C5	DCE229201	Cap,47u,+/−20%,25V,Ele
C6	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C7	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C8	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C9	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C10	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C11	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C12	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C15	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C16	DCE229251	Cap,33u,+/−20%,25V,Ele
C17	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C19	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C20	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C21	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C22	DCE213141	Cap,1000u,+/−20%,6.3V,Ele
C22A	DCC929031	Cap,0.01u,+/−30%,16V,Cer
D1	DDD810061	Diode,1SS 181 TE85L
FL1	DHF039041	Filter,DST 306-91FZ103Z50V
FL2	DHF039041	Filter,DST 306-91FZ103Z50V
FL3	DHF039041	Filter,DST 306-91FZ103Z50V
IC1	DIC690351	IC,M51953BL(MIT)
IC2	DIC447741	IC,MC 74HC74F
IC3	DIC552931	IC,TMPZ84C00AM(TSB)
IC4	DIC525531	IC,EPRUM 27C256(MAX250NS)
IC5	DIC516261	IC,TC 5565AFL-15L(TSB)
IC7	DIC447321	IC,MC 74HC32F
IC8	DIC447001	IC,MC 74HC00F
IC9	DIC448381	IC,MC 74HC138F
IC10	DIC447271	IC,MC 74HC27F
IC11	DIC556171	IC,TMP 82C79M-2(TSB)
IC12	DTR191291	Tr,BA 6121
IC13	DIC889041	IC,TC 7S08F TE0804L
IC14	DIC889041	IC,TC 7S08F TE0804L
J8	DCN115821	Connector,HLEM38R-1
J9	DCN115811	Connector,HLEM20R-1
J11	DCN990911	Connector,5267-07A

CPU-DA 24
SS-7611, SS-7607, SS-7610, SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
JP1	DRZ831501	MCR10 00E TD84N
JP6	DRZ831501	MCR10 00E TD84N
Q1	DTR810041	Tr,2SA 1162Y TE85L
Q2	DTR830051	Tr,2SC 2712G TE85L
R1	DRZ830361	Res,10K,+/−5%,1/10W,MG
R2	DRZ830361	Res,10K,+/−5%,1/10W,MG
R3	DRZ830361	Res,10K,+/−5%,1/10W,MG
R4	DRZ830211	Res,1K,+/−5%,1/10W,MG
R5	DRZ830391	Res,2.2K,+/−5%,1/10W,MG
R6	DRZ830351	Res,8.2K,+/−5%,1/10W,MG
R7	DRZ830641	Res,1.2K,+/−5%,1/10W,MG
R8	DRD137041	Res,3.3,+/−5%,1/4W,Carbon
R9	DRZ830211	Res,1K,+/−5%,1/10W,MG
RA1	DFB015631	RArray,10K,+/−5%,1/8W
W1	KHB098211	Flat Cable,TWVF20-110
W2	KHB098411	Flat Cable,TWVF38-280

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C101	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C102	DCC815661	Cap,22p,+/−5%,50V,Cer
C103	DCC815661	Cap,22p,+/−5%,50V,Cer
C104	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C105	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C106	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C108	DCE229201	Cap,47u,+/−20%,25V,Ele
C109	DCC810571	Cap,0.1u,+80/−20%,25V,Cer
C110	DCC815691	Cap,39p,+/−5%,50V,Cer
C110A	DCC815741	Cap,100p,+/−5%,50V,Cer
C111	DCE229201	Cap,47u,+/−20%,25V,Ele
C112	DCC810571	Cap,0.1u,+80/−20%,25V,Cer
C113	DCE229201	Cap,47u,+/−20%,25V,Ele
C114	DCC810571	Cap,0.1u,+80/−20%,25V,Cer
C115	DCC815861	Cap,1000p,+/−5%,50V,Cer
C116	DCC815741	Cap,100p,+/−5%,50V,Cer
C118	DCE229201	Cap,47u,+/−20%,25V,Ele
C119	DCC810571	Cap,0.1u,+80/−20%,25V,Cer
C120	DCC815691	Cap,39p,+/−5%,50V,Cer
C121	DCE229201	Cap,47u,+/−20%,25V,Ele
C122	DCC139251	Cap,0.1u,+80/−20%,50V,Cer
C123	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C124	DCC815741	Cap,100p,+/−5%,50V,Cer
C125	DCE229201	Cap,47u,+/−20%,25V,Ele
C126	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C127	DCE229201	Cap,47u,+/−20%,25V,Ele
C128	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C129	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C130	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C131	DCC815741	Cap,100p,+/−5%,50V,Cer
C132	DCC815741	Cap,100p,+/−5%,50V,Cer
IC101	DIC494151	IC,TC74HCU04F/u-PD74HCUO4G
IC102	DIC516261	IC,TC 5565AFL-15L(TSB)
IC103	DIC492552	IC,MB 61VH138A(FUJ)
IC104	DIC659011	IC,TA 78L005AP TPE5
IC105	DIC641111	IC,BA 9221F(ROM)
IC106	DIC641111	IC,BA 9221F(ROM)
IC107	DIC614401	IC,NJM 082M(JRC)
IC108	DIC447041	IC,MC 74HC04F
IC109	DIC495201	IC,MC 74HC4538F(MTL)
IC110	DIC889041	IC,TC 7S08F TE0804L

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
J6	DCN115701	Connector,HLEM8S-1
P101	DCN116291	Connector,A4-16PA-2DS(1)
P102	DCN116291	Connector,A4-16PA-2DS(1)
Q101	DIR810041	Tr,2SA 1162Y TE85L
Q102	DTR810021	Tr,2SK 1245MD TE85L
Q103	DIR810041	Tr,2SA 1162Y TE85L
R101	DRZ831061	Res,1M,+/−5%,1/10W,MG
R102	DRZ830361	Res,10K,+/−5%,1/10W,MG
R103	DRZ830391	Res,2. 2K,+/−5%,1/10W,MG
R104	DRZ830121	Res,22,+/−5%,1/10W,MG
R105	DRZ830571	Res,560,+/−5%,1/10W,MG
R106	DRZ832531	Res,15K,+/−1%,1/10W,MG
R107	DRZ830501	Res,200,+/−5%,1/10W,MG
R108	DRZ832481	Res,9. 1K,+/−1%,1/10W,MG
R109	DRZ830691	Res,3. 3K,+/−5%,1/10W,MG
R110A	DRZ830211	Res,1K,+/−5%,1/10W,MG
R111	DRZ830691	Res,3. 3K,+/−5%,1/10W,MG
R112	DRZ830921	Res,82K,+/−5%,1/10W,MG
R113	DRZ830881	Res,9. 1K,+/−5%,1/10W,MG
R114	DRZ830281	Res,1. 8K,+/−5%,1/10W,MG
R115	DRZ830281	Res,1. 8K,+/−5%,1/10W,MG
R116	DRZ830571	Res,560,+/−5%,1/10W,MG
R117	DRZ830391	Res,2. 2K,+/−5%,1/10W,MG
R118	DRZ830571	Res,560,+/−5%,1/10W,MG
R119	DRZ832551	Res,18K,+/−1%,1/10W,MG
R120	DRZ830731	Res,100K,+/−5%,1/10W,MG
R121	DRZ830121	Res,22,+/−5%,1/10W,MG
R122	DRZ832481	Res,9. 1K,+/−1%,1/10W,MG
R123	DRZ830391	Res,2. 2K,+/−5%,1/10W,MG
R124	DRZ830571	Res,560,+/−5%,1/10W,MG
R125	DRV412181	Res,100K,+/−20%,1/3W,MG
R126	DRZ830761	Res,22K,+/−5%,1/10W,MG
R127	DRZ830881	Res,9. 1K,+/−5%,1/10W,MG
R128	DRZ830281	Res,1. 8K,+/−5%,1/10W,MG
R129	DRZ830281	Res,1. 8K,+/−5%,1/10W,MG
R130	DRZ830571	Res,560,+/−5%,1/10W,MG
R131	DRZ832771	Res,150K,+/−5%,1/10W,MG
R131A	DRV412181	Res,100K,Var,1/4W,MG
R132	DRZ830511	Res,220,+/−5%,1/10W,MG
R134	DRZ830521	Res,240,+/−5%,1/10W,MG
R135	DRZ830531	Res,330,+/−5%,1/10W,MG
R136	DRZ830511	Res,220,+/−5%,1/10W,MG
TP100	DTA010531	Terminal,K-001-S
X101	DHF012961	Crystal,AT-51 16000MHZ

CPU-I/O 25
SS-7611 and SS-7607

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C201	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C202	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C203	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C204	DCE229201	Cap,47u,+/−20%,25V,Ele
C205	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C206	DCE229201	Cap,47u,+/−20%,25V,Ele
C207	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C208	DCE229201	Cap,47u,+/−20%,25V,Ele
C209	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C210	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C211	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C212	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C213	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C214	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C215	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C216	DCC810571	Cap,0.1u,+80/−20%,50V,Cer
C217	DCC810571	Cap,0.1u,+80/−20%,50V,Cer
C218	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C219	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C220	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C221	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C222	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C223	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C224	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C225	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C226	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C227	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C228	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C229	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C230	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C231	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C232	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C233	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C234	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C235	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C236	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C237	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C238	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C239	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C240	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C241	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C242	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C243	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C244	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C245	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C246	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C247	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C248	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C249	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C250	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C251	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C252	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C253	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C254	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C255	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C256	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C257	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C258	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C259	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
D200	DDD038981	Diode,RD8.2ESB1 TA21R
FL201	DHF039031	Filter,DST 306-91B101M 50V
FL202	DHF039031	Filter,DST 306-91B101M 50V
IC201	DIC526031	IC,MSM 16911RS(OKI)
IC202	DIC556211	IC,MB89363(FUJ)
IC203	DIC641101	IC,BA 9221(ROM)
IC204	DIC659011	IC,TA 78L005AP TPE5
IC205	DIC614391	IC,NJM 4559M(JRC)
IC206	DIC630981	IC,u-PC 393G2(NEC)
IC207	DIC494631	IC,MC 14051BCP(MTL)
IC208	DIC494631	IC,MC 14051BCP(MTL)
IC209	DIC494631	IC,MC 14051BCP(MTL)
IC210	DIC494621	IC,4051BF(TSB)
IC211	DIC494621	IC,4051BF(TSB)
IC212	DIC614111	IC,NJM 072S(JRS)
IC213	DIC614111	IC,NJM 072S(JRS)
IC214	DIC614111	IC,NJM 072S(JRS)
IC215	DIC614111	IC,NJM 072S(JRS)
IC216	DIC614111	IC,NJM 072S(JRS)
IC217	DIC614111	IC,NJM 072S(JRS)
IC218	DIC614111	IC,NJM 072S(JRS)
IC219	DIC614111	IC,NJM 072S(JRS)
IC220	DIC614111	IC,NJM 072S(JRS)

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
IC221	DIC614111	IC,NJM 072S(JRS)
IC222	DIC614111	IC,NJM 072S(JRS)
IC223	DIC614111	IC,NJM 072S(JRS)
J1	DCN115721	Connector,HLEM12S-1
J2	DCN115751	Connector,HLEM18S-1
J3	DCN115751	Connector,HLEM18S-1
J4	DCN115751	Connector,HLEM18S-1
J5	DCN115751	Connector,HLEM18S-1
J7	DCN115701	Connector,HLEM8S-1
J10	DCN115701	Connector,HLEM8S-1
JP204	DRZ831501	Res,0,Chip Jummper
Q201	DTR890061	Tr,DTA 114YK T96
Q202	DTR890061	Tr,DTA 114YK T96
Q203	DTR890011	Tr,DTC 114EK T-96
Q204	DTR890061	Tr,DTA 114YK T96
R201	DRZ830651	Res,1.5K,+/−5%,1/10W,MG
R202	DRZ832421	Res,5.1K,+/−1%,1/10W,MG
R203	DRZ832411	Res,4.7K,+/−1%,1/10W,MG
R204	DRZ832121	Res,300,+/−1%,1/10W,MG
R205	DRE137851	Res,750,+/−1%,1/4W,Mtl
R206	DRE137951	Res,2.0K,+/−1%,1/4W,Mtl
R207	DRE137901	Res,1.2K,+/−1%,1/4W,Mtl
R208	DRE138051	Res,5.1K,+/−1%,1/4W,Mtl
R209	DRE138051	Res,5.1K,+/−1%,1/4W,Mtl
R210	DRE138071	Res,6.2K,+/−1%,1/4W,Mtl
R211	DRE137701	Res,180,+/−1%,1/4W,Mtl
R212	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R213	DRZ830261	Res,100,+/−5%,1/10W,MG
R214	DRZ830261	Res,100,+/−5%,1/10W,MG
R215	DRZ831161	Res,5.1K,+/−5%,1/10W,MG
R216	DRZ830701	Res,4.7K,+/−5%,1/10W,MG
R217	DRZ832511	Res,12K,+/−5%,1/10W,MG
R218	DRZ832511	Res,12K,+/−5%,1/10W,MG
R219	DRZ832511	Res,12K,+/−5%,1/10W,MG
R220	DRZ832511	Res,12K,+/−5%,1/10W,MG
R221	DRZ830701	Res,4.7K,+/−5%,1/10W,MG
R222	DRZ830701	Res,4.7K,+/−5%,1/10W,MG
R223	DRZ830701	Res,4.7K,+/−5%,1/10W,MG
R224	DRZ830701	Res,4.7K,+/−5%,1/10W,MG
R225	DRZ831231	Res,91K,+/−5%,1/10W,MG
R226	DRZ830701	Res,4.7K,+/−5%,1/10W,MG
R227	DRZ830701	Res,4.7K,+/−5%,1/10W,MG
R228	DRZ830701	Res,4.7K,+/−5%,1/10W,MG
R229	DRZ830701	Res,4.7K,+/−5%,1/10W,MG
R230	DRZ830701	Res,4.7K,+/−5%,1/10W,MG
R231	DRZ830701	Res,4.7K,+/−5%,1/10W,MG
R232	DRZ830701	Res,4.7K,+/−5%,1/10W,MG
R233	DRZ830261	Res,100,+/−5%,1/10W,MG
R234	DRZ830261	Res,100,+/−5%,1/10W,MG
R235	DRZ830261	Res,100,+/−5%,1/10W,MG
R236	DRZ830261	Res,100,+/−5%,1/10W,MG
R237	DRZ830261	Res,100,+/−5%,1/10W,MG
R238	DRZ830261	Res,100,+/−5%,1/10W,MG
R239	DRZ830261	Res,100,+/−5%,1/10W,MG
R240	DRZ830261	Res,100,+/−5%,1/10W,MG
R241	DRZ830261	Res,100,+/−5%,1/10W,MG
R242	DRZ830261	Res,100,+/−5%,1/10W,MG
R243	DRZ830261	Res,100,+/−5%,1/10W,MG
R244	DRZ830261	Res,100,+/−5%,1/10W,MG
R245	DRZ830261	Res,100,+/−5%,1/10W,MG
R246	DRZ830261	Res,100,+/−5%,1/10W,MG
R247	DRZ830261	Res,100,+/−5%,1/10W,MG
R248	DRZ830261	Res,100,+/−5%,1/10W,MG
R249	DRZ830261	Res,100,+/−5%,1/10W,MG
R250	DRZ830261	Res,100,+/−5%,1/10W,MG
R251	DRZ830261	Res,100,+/−5%,1/10W,MG
R252	DRZ830261	Res,100,+/−5%,1/10W,MG
R253	DRZ830261	Res,100,+/−5%,1/10W,MG
R254	DRZ830261	Res,100,+/−5%,1/10W,MG
R255	DRZ830261	Res,100,+/−5%,1/10W,MG
R256	DRZ830261	Res,100,+/−5%,1/10W,MG
R257	DRZ830511	Res,220,+/−5%,1/10W,MG
R258	DRZ830511	Res,220,+/−5%,1/10W,MG
R259	DRZ830211	Res,1K,+/−5%,1/10W,MG
R260	DRZ830511	Res,220,+/−5%,1/10W,MG
R261	DRZ830511	Res,220,+/−5%,1/10W,MG
R262	DRZ830721	Res,12K,+/−5%,1/10W,MG
R263	DRZ830511	Res,220,+/−5%,1/10W,MG
R264	DRZ830511	Res,220,+/−5%,1/10W,MG
R267	DRZ831051	Res,510K,+/−5%,1/10W,MG
R268	DRZ830211	Res,1K,+/−5%,1/10W,MG
R269	DRZ830211	Res,1K,+/−5%,1/10W,MG

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R271	DRZ830811	Res,9. 1K,+/−5%,1/10W,MG
R272	DRZ830511	Res,220,+/−5%,1/10W,MG
R280	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R281	DRZ830211	Res,1. 0K,+/−5%,1/4W,Carbon
R282	DRZ830211	Res,1. 0K,+/−5%,1/4W,Carbon
RA201	DFB015851	RArray,4. 7K,+/−5%,1/4W

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CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C201	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C202	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C203	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C204	DCE229201	Cap,47u,+/−20%,25V,Ele
C205	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C206	DCE229201	Cap,47u,+/−20%,25V,Ele
C207	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C208	DCE229201	Cap,47u,+/−20%,25V,Ele
C209	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C210	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C211	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C212	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C213	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C214	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C215	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C216	DCC810571	Cap,0. 1u,+80/−20%,50V,Cer
C217	DCC810571	Cap,0. 1u,+80/−20%,50V,Cer
C218	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C219	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C220	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C221	DCF121441	Cap,0. 1u,+/−10%,50V,Flm
C222	DCF121441	Cap,0. 1u,+/−10%,50V,Flm
C223	DCF121441	Cap,0. 1u,+/−10%,50V,Flm
C224	DCF121441	Cap,0. 1u,+/−10%,50V,Flm
C225	DCF121441	Cap,0. 1u,+/−10%,50V,Flm
C226	DCF121441	Cap,0. 1u,+/−10%,50V,Flm
C227	DCF121441	Cap,0. 1u,+/−10%,50V,Flm
C228	DCF121441	Cap,0. 1u,+/−10%,50V,Flm
C230	DCF121441	Cap,0. 1u,+/−10%,50V,Flm
C232	DCF121441	Cap,0. 1u,+/−10%,50V,Flm
C233	DCF121441	Cap,0. 1u,+/−10%,50V,Flm
C237	DCF121441	Cap,0. 1u,+/−10%,50V,Flm
C241	DCF121441	Cap,0. 1u,+/−10%,50V,Flm
C244	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C245	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C246	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C247	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C248	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C249	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C250	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C251	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C252	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C253	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C254	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C255	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C256	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C257	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C258	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C259	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
D200	DDD038981	Diode,RD8. 2ESB1 TA21R
FL201	DHF039031	Filter,DST 306-91B101M 50V
FL202	DHF039031	Filter,DST 306-91B101M 50V
IC201	DIC526031	IC,MSM 16911RS(OKI)
IC202	DIC556211	IC,MB89363(FUJ)
IC203	DIC641101	IC,BA 9221(ROM)
IC204	DIC659011	IC,TA 78L005AP TPE5
IC205	DIC614391	IC,NJM 4559M(JRC)
IC206	DIC630981	IC,u-PC 393G2(NEC)
IC207	DIC494631	IC,MC 14051BCP(MTL)
IC208	DIC494631	IC,MC 14051BCP(MTL)
IC209	DIC494631	IC,MC 14051BCP(MTL)
IC210	DIC494621	IC,4051BF(TSB)
IC211	DIC494621	IC,4051BF(TSB)
IC212	DIC614111	IC,NJM 072S(JRS)
IC213	DIC614111	IC,NJM 072S(JRS)
IC214	DIC614111	IC,NJM 072S(JRS)
IC215	DIC614111	IC,NJM 072S(JRS)
IC216	DIC614111	IC,NJM 072S(JRS)
IC217	DIC614111	IC,NJM 072S(JRS)
IC218	DIC614111	IC,NJM 072S(JRS)
IC221	DIC614111	IC,NJM 072S(JRS)
J1	DCN115721	Connector,HLEM12S-1
J2	DCN115751	Connector,HLEM18S-1
J3	DCN115731	Connector,HLEM14S-1
J4	DCN115731	Connector,HLEM14S-1
J5	DCN115731	Connector,HLEM14S-1
J10	DCN115701	Connector,HLEM8S-1
JP204	DRZ831501	Res,0,Chip Jummper
Q201	DTR890061	Tr,DTA 114YK T96
Q202	DTR890061	Tr,DTA 114YK T96
Q203	DTR890011	Tr,DTC 114EK T-96
Q204	DTR890061	Tr,DTA 114YK T96

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R201	DRZ830651	Res,1. 5K,+/−5%,1/10W,MG
R202	DRZ832421	Res,5. 1K,+/−1%,1/10W,MG
R203	DRZ832411	Res,4. 7K,+/−1%,1/10W,MG
R204	DRZ832121	Res,300,+/−1%,1/10W,MG
R205	DRE137851	Res,750,+/−1%,1/4W,Mtl
R206	DRE137951	Res,2. 0K,+/−1%,1/4W,Mtl
R207	DRE137901	Res,1. 2K,+/−1%,1/4W,Mtl
R208	DRE138051	Res,5. 1K,+/−1%,1/4W,Mtl
R209	DRE138051	Res,5. 1K,+/−1%,1/4W,Mtl
R210	DRE138071	Res,6. 2K,+/−1%,1/4W,Mtl
R211	DRE137701	Res,180,+/−1%,1/4W,Mtl
R212	DRE137941	Res,1. 8K,+/−1%,1/4W,Mtl
R213	DRZ830261	Res,100,+/−5%,1/10W,MG
R214	DRZ830261	Res,100,+/−5%,1/10W,MG
R215	DRZ831161	Res,5. 1K,+/−5%,1/10W,MG
R216	DRZ830701	Res,4. 7K,+/−5%,1/10W,MG
R217	DRZ832511	Res,12K,+/−1%,1/10W,MG
R218	DRZ832511	Res,12K,+/−1%,1/10W,MG
R219	DRZ832511	Res,12K,+/−1%,1/10W,MG
R220	DRZ832511	Res,12K,+/−1%,1/10W,MG
R221	DRZ830701	Res,4. 7K,+/−5%,1/10W,MG
R222	DRZ830701	Res,4. 7K,+/−5%,1/10W,MG
R223	DRZ830701	Res,4. 7K,+/−5%,1/10W,MG
R224	DRZ830701	Res,4. 7K,+/−5%,1/10W,MG
R225	DRZ831231	Res,91K,+/−5%,1/10W,MG
R226	DRZ830701	Res,4. 7K,+/−5%,1/10W,MG
R227	DRZ830701	Res,4. 7K,+/−5%,1/10W,MG
R228	DRZ830701	Res,4. 7K,+/−5%,1/10W,MG
R229	DRZ830701	Res,4. 7K,+/−5%,1/10W,MG
R230	DRZ830701	Res,4. 7K,+/−5%,1/10W,MG
R231	DRZ830701	Res,4. 7K,+/−5%,1/10W,MG
R232	DRZ830701	Res,4. 7K,+/−5%,1/10W,MG
R233	DRZ830261	Res,100,+/−5%,1/10W,MG
R234	DRZ830261	Res,100,+/−5%,1/10W,MG
R235	DRZ830261	Res,100,+/−5%,1/10W,MG
R236	DRZ830261	Res,100,+/−5%,1/10W,MG
R237	DRZ830261	Res,100,+/−5%,1/10W,MG
R238	DRZ830261	Res,100,+/−5%,1/10W,MG
R239	DRZ830261	Res,100,+/−5%,1/10W,MG
R240	DRZ830261	Res,100,+/−5%,1/10W,MG
R242	DRZ830261	Res,100,+/−5%,1/10W,MG

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R244	DRZ830261	Res,100,+/−5%,1/10W,MG
R245	DRZ830261	Res,100,+/−5%,1/10W,MG
R249	DRZ830261	Res,100,+/−5%,1/10W,MG
R253	DRZ830261	Res,100,+/−5%,1/10W,MG
R256	DRZ830261	Res,100,+/−5%,1/10W,MG
R257	DRZ830511	Res,220,+/−5%,1/10W,MG
R258	DRZ830511	Res,220,+/−5%,1/10W,MG
R259	DRZ830211	Res,1K,+/−5%,1/10W,MG
R260	DRZ830511	Res,220,+/−5%,1/10W,MG
R261	DRZ830511	Res,220,+/−5%,1/10W,MG
R262	DRZ830721	Res,12K,+/−5%,1/10W,MG
R263	DRZ830511	Res,220,+/−5%,1/10W,MG
R264	DRZ830511	Res,220,+/−5%,1/10W,MG
R267	DRZ831051	Res,510K,+/−5%,1/10W,MG
R268	DRZ830211	Res,1K,+/−5%,1/10W,MG
R269	DRZ830211	Res,1K,+/−5%,1/10W,MG
R271	DRZ830811	Res,9.1K,+/−5%,1/10W,MG
R272	DRZ830511	Res,220,+/−5%,1/10W,MG
R280	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R281	DRZ830211	Res,1K,+/−5%,1/10W,MG
R282	DRD130211	Res,1.0K,+/−5%,1/10W,MG
RA201	DFB015851	RArray,4.7K,+/−5%,1/4W

COUNTER 26
SS-7611 and SS-7607

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C301	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C302	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C303	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C304	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C305	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C306	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C307	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C308	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C309	DCE229201	Cap,47u,+/−20%,25V,Ele
C311	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
IC301	DIC322141	IC,MC 10131L(MTL)
IC302	DIC194021	IC,SN 74A74NS(TEX)
IC303	DIC194021	IC,SN 74A74NS(TEX)
IC304	DIC447001	IC,MC 74HC00F
IC305	DIC492451	IC,MB 60VH156U(FUJ)
IC306	DIC447001	IC,MC 74HC00F
IC308	DIC889041	IC,TC 7S08F TE0804L
JP301	DRZ831501	Res,0,Chip,Jumper
P1	KHB095411	Small Socket
Q301	DTR810041	Tr,2SA 1162Y TE85L
Q302	DTR810041	Tr,2SA 1162Y TE85L
Q303	DTR810041	Tr,2SA 1162Y TE85L
Q304	DTR810041	Tr,2SA 1162Y TE85L
Q305	DTR830091	Tr,2SC 3099 TE85L
R301	DRZ830211	Res,1K,+/−5%,1/10W,MG
R302	DRZ830611	Res,820,+/−5%,1/10W,MG
R303	DRZ830701	Res,4.7K,+/−5%,1/10W,MG
R304	DRZ830201	Res,470,+/−5%,1/10W,MG
R305	DRZ830201	Res,470,+/−5%,1/10W,MG
R306	DRZ830241	Res,47,+/−5%,1-10W,MG
R307	DRZ830511	Res,220,+/−5%,1/10W,MG
R308	DRZ830201	Res,470,+/−5%,1/10W,MG
R309	DRZ830651	Res,1.5K,+/−5%,1/10W,MG
R310	DRZ830701	Res,4.7K,+/−5%,1/10W,MG
R311	DRZ830241	Res,47,+/−5%,1-10W,MG
R312	DRZ830201	Res,470,+/−5%,1/10W,MG
R313	DRZ830511	Res,220,+/−5%,1/10W,MG
R314	DRZ830201	Res,470,+/−5%,1/10W,MG
R315	DRZ830701	Res,4.7K,+/−5%,1/10W,MG
R316	DRZ830581	Res,10K,+/−5%,1/10W,MG
R317	DRZ830361	Res,620,+/−5%,1/10W,MG

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R318	DRZ830701	Res,4. 7K,+/−5%,1/10W,MG
R319	DRZ830701	Res,4. 7K,+/−5%,1/10W,MG
R320	DRZ830511	Res,220,+/−5%,1/10W,MG
R321	DRZ830701	Res,4. 7K,+/−5%,1/10W,MG
X301	DHF013191	Crystal,QCG553B-10. 00

COUNTER 26
SS-7610

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C301	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C302	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C303	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C304	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C306	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C311	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
IC301	DIC322141	IC,MC 10131L(MTL)
IC302	DIC194021	IC,SN 74A74NS(TEX)
IC303	DIC194021	IC,SN 74A74NS(TEX)
IC308	DIC889041	IC,TC 7S08F TE0804L
JP301	DRZ831501	Res,0,Chip,Jumper
JP304	DRZ831501	Res,0,Chip,Jumper
JP305	DRZ831501	Res,0,Chip,Jumper
P1	KHB095411	Small Socket
Q301	DTR810041	Tr,2SA 1162Y TE85L
Q302	DTR810041	Tr,2SA 1162Y TE85L
Q303	DTR810041	Tr,2SA 1162Y TE85L
Q304	DTR810041	Tr,2SA 1162Y TE85L
Q305	DTR830091	Tr,2SC 3099 TE85L
R301	DRZ830211	Res,1K,+/−5%,1/10W,MG
R302	DRZ830611	Res,820,+/−5%,1/10W,MG
R303	DRZ830701	Res,4. 7K,+/−5%,1/10W,MG
R304	DRZ830201	Res,470,+/−5%,1/10W,MG
R305	DRZ830201	Res,470,+/−5%,1/10W,MG
R306	DRZ830241	Res,47,+/−5%,1-10W,MG
R307	DRZ830511	Res,220,+/−5%,1/10W,MG
R308	DRZ830201	Res,470,+/−5%,1/10W,MG
R309	DRZ830651	Res,1. 5K,+/−5%,1/10W,MG
R311	DRZ830241	Res,47,+/−5%,1-10W,MG
R312	DRZ830201	Res,470,+/−5%,1/10W,MG
R313	DRZ830511	Res,220,+/−5%,1/10W,MG
R314	DRZ830201	Res,470,+/−5%,1/10W,MG
R315	DRZ830701	Res,4. 7K,+/−5%,1/10W,MG
R316	DRZ830581	Res,620,,+/−5%,1/10W,MG
R317	DRZ830361	Res,10K,,+/−5%,1/10W,MG
R319	DRZ830701	Res,4. 7K,+/−5%,1/10W,MG
R320	DRZ830511	Res,220,+/−5%,1/10W,MG
R321	DRZ830701	Res,4. 7K,+/−5%,1/10W,MG

COUNTER 26
SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C302	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C306	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C311	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
IC302	DIC194021	IC,SN 74A74NS(TEX)
IC303	DIC194021	IC,SN 74A74NS(TEX)
IC308	DIC889041	IC,TC 7S08F TE0804L
JP302	DRZ831501	Res,0,Chip,Jumper
JP303	DRZ831501	Res,0,Chip,Jumper
JP304	DRZ831501	Res,0,Chip,Jumper
P1	KHB095411	Small Socket
R303	DRZ830701	Res,4. 7K,+/−5%,1/10W,MG
R305	DRZ830201	Res,470,+/−5%,1/10W,MG
R321	DRZ830701	Res,4. 7K,+/−5%,1/10W,MG

KEY & LED 27
SS-7611 and SS-7607

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCE929091	Cap,47u,+/−20%,16V,Ele
C2	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C3	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
D1	DDD870101	Diode,AA1102W TE0804R
D2	DDD870101	Diode,AA1102W TE0804R
D3	DDD870101	Diode,AA1102W TE0804R
D4	DDD870121	Diode,PY1102W TE0804R
D5	DDD870121	Diode,PY1102W TE0804R
D6	DDD870121	Diode,PY1102W TE0804R
D7	DDD870101	Diode,AA1102W TE0804R
D8	DDD870101	Diode,AA1102W TE0804R
D9	DDD870121	Diode,PY1102W TE0804R
D10	DDD870121	Diode,PY1102W TE0804R
D11	DDD870121	Diode,PY1102W TE0804R
D12	DDD870121	Diode,PY1102W TE0804R
D13	DDD870121	Diode,PY1102W TE0804R
D14	DDD870121	Diode,PY1102W TE0804R
D15	DDD870121	Diode,PY1102W TE0804R
D16	DDD870121	Diode,PY1102W TE0804R
D17	DDD870101	Diode,AA1102W TE0804R
D18	DDD870121	Diode,PY1102W TE0804R
D19	DDD870121	Diode,PY1102W TE0804R
D20	DDD870121	Diode,PY1102W TE0804R
D21	DDD870121	Diode,PY1102W TE0804R
D22	DDD870121	Diode,PY1102W TE0804R
D23	DDD870121	Diode,PY1102W TE0804R
D24	DDD870121	Diode,PY1102W TE0804R
D25	DDD870121	Diode,PY1102W TE0804R
D26	DDD870101	Diode,AA1102W TE0804R
D27	DDD870101	Diode,AA1102W TE0804R
D28	DDD870121	Diode,PY1102W TE0804R
D29	DDD870121	Diode,PY1102W TE0804R
D30	DDD870121	Diode,PY1102W TE0804R
D31	DDD870121	Diode,PY1102W TE0804R
D32	DDD870101	Diode,AA1102W TE0804R
D33	DDD870121	Diode,PY1102W TE0804R
D34	DDD870121	Diode,PY1102W TE0804R
D35	DDD870121	Diode,PY1102W TE0804R
D36	DDD870101	Diode,AA1102W TE0804R
D37	DDD870101	Diode,AA1102W TE0804R
D38	DDD870121	Diode,PY1102W TE0804R

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
D39	DDD870121	Diode,PY1102W TE0804R
D40	DDD870101	Diode,AA1102W TE0804R
D41	DDD870121	Diode,PY1102W TE0804R
D42	DDD870121	Diode,PY1102W TE0804R
D43	DDD870121	Diode,PY1102W TE0804R
D44	DDD870121	Diode,PY1102W TE0804R
D45	DDD870121	Diode,PY1102W TE0804R
D46	DDD870121	Diode,PY1102W TE0804R
D47	DDD870121	Diode,PY1102W TE0804R
D48	DDD870101	Diode,AA1102W TE0804R
D49	DDD870121	Diode,PY1102W TE0804R
D50	DDD870121	Diode,PY1102W TE0804R
D51	DDD870121	Diode,PY1102W TE0804R
D52	DDD870121	Diode,PY1102W TE0804R
D53	DDD870121	Diode,PY1102W TE0804R
D54	DDD870101	Diode,AA1102W TE0804R
D55	DDD870101	Diode,AA1102W TE0804R
D56	DDD870101	Diode,AA1102W TE0804R
D57	DDD870121	Diode,PY1102W TE0804R
D58	DDD870121	Diode,PY1102W TE0804R
D59	DDD870121	Diode,PY1102W TE0804R
D60	DDD870121	Diode,PY1102W TE0804R
D61	DDD870121	Diode,PY1102W TE0804R
D62	DDD870121	Diode,PY1102W TE0804R
D63	DDD870121	Diode,PY1102W TE0804R
D64	DDD870121	Diode,PY1102W TE0804R
D65	DDD870121	Diode,PY1102W TE0804R
D66	DDD870121	Diode,PY1102W TE0804R
D67	DDD870121	Diode,PY1102W TE0804R
D68	DDD870121	Diode,PY1102W TE0804R
D69	DDD870121	Diode,PY1102W TE0804R
D70	DDD870121	Diode,PY1102W TE0804R
D71	DDD870121	Diode,PY1102W TE0804R
D72	DDD081061	Sensor,P51
D73	DDD081061	Sensor,P51
D74	DDD081061	Sensor,P51
D75	DDD081061	Sensor,P51
D76	DDD081061	Sensor,P51
D77	DDD081061	Sensor,P51
D78	DDD081061	Sensor,P51
D79	DDD081061	Sensor,P51

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
IC1	DIC448381	IC,MC 74HC138F
IC2	DIC447041	IC,MC 74HC04F
J14	DCN115791	Connector,HLEM38S-1
Q1	DTR890051	Tr,DTB 113ZK T96
Q2	DTR890051	Tr,DTB 113ZK T96
Q3	DTR890051	Tr,DTB 113ZK T96
Q4	DTR890051	Tr,DTB 113ZK T96
Q5	DTR890051	Tr,DTB 113ZK T96
Q6	DTR890051	Tr,DTB 113ZK T96
Q7	DTR890051	Tr,DTB 113ZK T96
Q8	DTR890051	Tr,DTB 113ZK T96
Q9	DTR890071	Tr,DTA 144TK T96
R1	DRZ830461	Res,82,+/−5%,1/10W,MG
R2	DRZ830461	Res,82,+/−5%,1/10W,MG
R3	DRZ830461	Res,82,+/−5%,1/10W,MG
R4	DRZ830461	Res,82,+/−5%,1/10W,MG
R5	DRZ830461	Res,82,+/−5%,1/10W,MG
R6	DRZ830461	Res,82,+/−5%,1/10W,MG
R7	DRZ830461	Res,82,+/−5%,1/10W,MG
R8	DRZ830461	Res,82,+/−5%,1/10W,MG
R10	DRZ830581	Res,620,+/−5%,1/10W,MG
R11	DRZ830581	Res,620,+/−5%,1/10W,MG
R12	DRZ830581	Res,620,+/−5%,1/10W,MG
R13	DRZ830581	Res,620,+/−5%,1/10W,MG
R14	DRZ830581	Res,620,+/−5%,1/10W,MG
R15	DRZ830581	Res,620,+/−5%,1/10W,MG
R16	DRZ830581	Res,620,+/−5%,1/10W,MG
R17	DRZ830581	Res,620,+/−5%,1/10W,MG
R18	DRZ830811	Res,22K,+/−5%,1/10W,MG
R19	DRZ830811	Res,22K,+/−5%,1/10W,MG
R20	DRZ830811	Res,22K,+/−5%,1/10W,MG
R21	DRZ830811	Res,22K,+/−5%,1/10W,MG
R22	DRZ830811	Res,22K,+/−5%,1/10W,MG
R23	DRZ830811	Res,22K,+/−5%,1/10W,MG
R24	DRZ830811	Res,22K,+/−5%,1/10W,MG
R25	DRZ830811	Res,22K,+/−5%,1/10W,MG

KEY & LED 27
SS-7610 and SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCE929091	Cap,47u,+/−20%,16V,Ele
C2	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C3	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
D1	DDD870101	Diode,AA1102W TE0804R
D2	DDD870101	Diode,AA1102W TE0804R
D3	DDD870101	Diode,AA1102W TE0804R
D4	DDD870121	Diode,PY1102W TE0804R
D5	DDD870121	Diode,PY1102W TE0804R
D6	DDD870121	Diode,PY1102W TE0804R
D7	DDD870101	Diode,AA1102W TE0804R
D8	DDD870101	Diode,AA1102W TE0804R
D9	DDD870121	Diode,PY1102W TE0804R
D10	DDD870121	Diode,PY1102W TE0804R
D11	DDD870121	Diode,PY1102W TE0804R
D12	DDD870121	Diode,PY1102W TE0804R
D13	DDD870121	Diode,PY1102W TE0804R
D14	DDD870121	Diode,PY1102W TE0804R
D15	DDD870121	Diode,PY1102W TE0804R
D16	DDD870121	Diode,PY1102W TE0804R
D17	DDD870101	Diode,AA1102W TE0804R
D18	DDD870121	Diode,PY1102W TE0804R
D19	DDD870121	Diode,PY1102W TE0804R
D20	DDD870121	Diode,PY1102W TE0804R
D21	DDD870121	Diode,PY1102W TE0804R
D22	DDD870121	Diode,PY1102W TE0804R
D23	DDD870121	Diode,PY1102W TE0804R
D24	DDD870121	Diode,PY1102W TE0804R
D25	DDD870121	Diode,PY1102W TE0804R
D26	DDD870101	Diode,AA1102W TE0804R
D27	DDD870101	Diode,AA1102W TE0804R
D28	DDD870121	Diode,PY1102W TE0804R
D29	DDD870121	Diode,PY1102W TE0804R
D30	DDD870121	Diode,PY1102W TE0804R
D31	DDD870121	Diode,PY1102W TE0804R
D32	DDD870101	Diode,AA1102W TE0804R
D33	DDD870121	Diode,PY1102W TE0804R
D34	DDD870121	Diode,PY1102W TE0804R
D35	DDD870121	Diode,PY1102W TE0804R
D36	DDD870101	Diode,AA1102W TE0804R
D37	DDD870101	Diode,AA1102W TE0804R
D38	DDD870121	Diode,PY1102W TE0804R
D39	DDD870121	Diode,PY1102W TE0804R
D40	DDD870101	Diode,AA1102W TE0804R
D41	DDD870121	Diode,PY1102W TE0804R
D42	DDD870121	Diode,PY1102W TE0804R
D43	DDD870121	Diode,PY1102W TE0804R
D44	DDD870121	Diode,PY1102W TE0804R
D45	DDD870121	Diode,PY1102W TE0804R
D46	DDD870121	Diode,PY1102W TE0804R
D47	DDD870121	Diode,PY1102W TE0804R
D48	DDD870101	Diode,AA1102W TE0804R
D49	DDD870121	Diode,PY1102W TE0804R
D50	DDD870121	Diode,PY1102W TE0804R
D51	DDD870121	Diode,PY1102W TE0804R
D52	DDD870121	Diode,PY1102W TE0804R
D53	DDD870121	Diode,PY1102W TE0804R
D54	DDD870101	Diode,AA1102W TE0804R
D55	DDD870101	Diode,AA1102W TE0804R
D56	DDD870101	Diode,AA1102W TE0804R
D57	DDD870121	Diode,PY1102W TE0804R
D58	DDD870121	Diode,PY1102W TE0804R
D59	DDD870121	Diode,PY1102W TE0804R
D60	DDD870121	Diode,PY1102W TE0804R
D61	DDD870121	Diode,PY1102W TE0804R
D65	DDD870121	Diode,PY1102W TE0804R
D66	DDD870121	Diode,PY1102W TE0804R
D67	DDD870121	Diode,PY1102W TE0804R
D68	DDD870121	Diode,PY1102W TE0804R
D69	DDD870121	Diode,PY1102W TE0804R
D70	DDD870121	Diode,PY1102W TE0804R
D71	DDD870121	Diode,PY1102W TE0804R
D72	DDD810061	ISS 181TE85C
D73	DDD810061	ISS 181TE85C
D74	DDD810061	ISS 181TE85C
D75	DDD810061	ISS 181TE85C
D76	DDD810061	ISS 181TE85C
D77	DDD810061	ISS 181TE85C
D78	DDD810061	ISS 181TE85C
D79	DDD810061	ISS 181TE85C
IC1	DIC448381	IC,MC 74HC138F
IC2	DIC447041	IC,MC 74HC04F
J14	DCN115791	Connector,HLEM38S-1

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
Q1	DTR890051	Tr,DTB 113ZK T96
Q2	DTR890051	Tr,DTB 113ZK T96
Q3	DTR890051	Tr,DTB 113ZK T96
Q4	DTR890051	Tr,DTB 113ZK T96
Q5	DTR890051	Tr,DTB 113ZK T96
Q6	DTR890051	Tr,DTB 113ZK T96
Q7	DTR890051	Tr,DTB 113ZK T96
Q8	DTR890051	Tr,DTB 113ZK T96
Q9	DTR890071	Tr,DTA 144TK T96
R1	DRZ830461	Res,82,+/−5%,1/10W,MG
R2	DRZ830461	Res,82,+/−5%,1/10W,MG
R3	DRZ830461	Res,82,+/−5%,1/10W,MG
R4	DRZ830461	Res,82,+/−5%,1/10W,MG
R5	DRZ830461	Res,82,+/−5%,1/10W,MG
R6	DRZ830461	Res,82,+/−5%,1/10W,MG
R7	DRZ830461	Res,82,+/−5%,1/10W,MG
R8	DRZ830461	Res,82,+/−5%,1/10W,MG
R10	DRZ830581	Res,620,+/−5%,1/10W,MG
R11	DRZ830581	Res,620,+/−5%,1/10W,MG
R12	DRZ830581	Res,620,+/−5%,1/10W,MG
R13	DRZ830581	Res,620,+/−5%,1/10W,MG
R14	DRZ830581	Res,620,+/−5%,1/10W,MG
R15	DRZ830581	Res,620,+/−5%,1/10W,MG
R16	DRZ830581	Res,620,+/−5%,1/10W,MG
R17	DRZ830581	Res,620,+/−5%,1/10W,MG
R18	DRZ830811	Res,47K,+/−5%,1/10W,MG
R19	DRZ830811	Res,47K,+/−5%,1/10W,MG
R20	DRZ830811	Res,47K,+/−5%,1/10W,MG
R21	DRZ830811	Res,47K,+/−5%,1/10W,MG
R22	DRZ830811	Res,47K,+/−5%,1/10W,MG
R23	DRZ830811	Res,47K,+/−5%,1/10W,MG
R24	DRZ830811	Res,47K,+/−5%,1/10W,MG
R25	DRZ830811	Res,47K,+/−5%,1/10W,MG

VR BOARD 28

SS-7611, SS-7607, SS-7610, SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C1	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C2	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C3	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C4	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C5	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C6	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C7	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C8	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C9	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C10	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C11	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C12	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C13	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C14	DCE229201	Cap,47u,+/−20%,25V,Ele
C15	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C16	DCE229201	Cap,47u,+/−20%,25V,Ele
C17	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C18	DCE229201	Cap,47u,+/−20%,25V,Ele
C19	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C20	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C21	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C22	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C23	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C24	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C25	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C26	DCC929031	Cap,0.01u,+/−30%,16V,Cer
D1	DDD038731	Diode,RD6.8ESB HZS6.8NB
FL1	DHF032021	Filter,DST306-55FZ103Z50V
FL2	DHF032021	Filter,DST306-55FZ103Z50V
IC1	DIC494691	IC,HD 74HC221P(HIT)
IC2	DIC494691	IC,HD 74HC221P(HIT)
J15	DCN115761	Connector,HLEM20S-1
P1	DCN116191	Connector,A4-6PA-2DS(1)
P2	DCN116161	Connector,A4-3PA-2DS(1)
P3	DCN116191	Connector,A4-6PA-2DS(1)
P4	DCN116191	Connector,A4-6PA-2DS(1)
P5	DCN116191	Connector,A4-6PA-2DS(1)
Q1	DTR199611	Tr,DTA 144TS TP
Q2	DTR199611	Tr,DTA 144TS TP
Q3	DTR199611	Tr,DTA 144TS TP
Q4	DTR199611	Tr,DTA 144TS TP

LOW VOLTAGE POWER 29, 30

SS-7611, SS-7607, SS-7610, SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R1	DRV131911	Res,10K,Var,1/2W,Crm
R2	DRV131911	Res,10K,Var,1/2W,Crm
R3	DRV131901	Res,5K,Var,1/2W,Crm
R4	DRV131901	Res,5K,Var,1/2W,Crm
R5	DRV131911	Res,10K,Var,1/2W,Crm
R6	DRV131412	Res,5K,Var,1/2W,Crm
R7	DRD138051	Res,51K,+/−5%,1/4W,Carbon
R8	DRD138051	Res,51K,+/−5%,1/4W,Carbon
R9	DRD138191	Res,200K,+/−5%,1/4W,Carbon
R10	DRD138191	Res,200K,+/−5%,1/4W,Carbon
R11	DRD138051	Res,51K,+/−5%,1/4W,Carbon
R12	DRD138051	Res,51K,+/−5%,1/4W,Carbon
R13	DRD138191	Res,200K,+/−5%,1/4W,Carbon
R14	DRD138191	Res,200K,+/−5%,1/4W,Carbon
R15	DRD137641	Res,1.0K,+/−5%,1/4W,Carbon
S1	DSW035552	Switch,SD12U2(SRB12C 90)
S2	DSW035552	Switch,SD12U2(SRB12C 90)

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C10	DCE965251	Cap,680,+/−20%,200V,Ele
C11	DCE965251	Cap,680,+/−20%,200V,Ele
C12	DCC163201	Cap,470p,+/−10%,2KV,Cer
C13	DCF168271	Cap,0.22u,+/−10%,400V,Flm
C15	DCE915631	Cap,3300u,+/−20%,10V,Ele
C16	DCF121401	Cap,0.047u,+/−10%,50V,Flm
C17	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C18	DCE915621	Cap,3300u,+/−20%,10V,Ele
C19	DCE925921	Cap,3300u,+/−20%,25V,Ele
C20	DCE925911	Cap,1800u,+/−20%,25V,Ele
C21	DCE925911	Cap,1800u,+/−20%,25V,Ele
C22	DCE925921	Cap,3300u,+/−20%,25V,Ele
C23	DCE925911	Cap,1800u,+/−20%,25V,Ele
C24	DCE925911	Cap,1800u,+/−20%,25V,Ele
C25	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C26	DCE945471	Cap,560u,+/−20%,63V,Ele
C27	DCE945461	Cap,470u,+/−20%,63V,Ele
C28	DCE945461	Cap,470u,+/−20%,63V,Ele
C30	DCF168221	Cap,0.1u,+/−10%,250V,Flm
C31	DCF121401	Cap,0.047u,+/−10%,50V,Flm
C32	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C34	DCF121441	Cap,0.1u,+/−10%,50V,Flm
C35	DCF168251	Cap,0.047u,+/−10%,400V,Flm
C36	DCF121721	Cap,0.01u,+/−5%,50V,Flm
C37	DCE945471	Cap,560u,+/−20%,63V,Ele
C39	DCF129241	Cap,0.068u,+/−10%,50V,Flm
C40	DCC171881	Cap,1000p,+/−105,3KV,Cer
C41	DCC163201	Cap,470p,+/−10%,2KV,Cer
C41A	DCC163141	Cap,0.01u,+80/−20%,1KV,Cer
C42	DCC163201	Cap,470p,+/−10%,2KV,Cer
C43	DCE285031	Cap,3.3u,+/−20%,400V,Ele
C44	DCF179041	Cap,0.1u,+/−10%,630V,Flm
C45	DCF179041	Cap,0.1u,+/−10%,630V,Flm
C46	DCF179061	Cap,0.047u,+/−10%,630V,Flm
C47	DCF179061	Cap,0.047u,+/−10%,630V,Flm
C48	DCC171841	Cap,4700p,+80/−20%,3KV,Cer
C49	DCC171861	Cap,1000p,+/−10%,3KV,Cer
C50A	DCC163171	Cap,220p,+/−10%,2KV,Cer
C50	DCC163171	Cap,220p,+/−10%,2KV,Cer
C51	DCC173501	Cap,0.01u,+80/−20%,Cer
C52	DCC173501	Cap,0.01u,+80/−20%,Cer

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C53A	DCC173501	Cap,0. 01u,+80/−20%,Cer
C53	DCC173501	Cap,0. 01u,+80/−20%,Cer
C54	DCE940781	Cap,4. 7u,+/−20%,50V,Cer
C55	DCC171881	Cap,1000p,+/−105,3KV,Cer
C56	DCE940781	Cap,4. 7u,+/−20%,50V,Cer
C57	DCE940801	Cap,22u,+/−20%,50V,Ele
C58	DCC239251	Cap,56p,+/−5%,50V,Cer
C59	DCF121701	Cap,2200p,+/−5%,50V,Flm
C60	DCF121441	Cap,0. 1u,+/−10%,50V,Flm
C61	DCF121721	Cap,0. 01u,+/−5%,50V,Flm
C62	DCF179041	Cap,0. 1u,+/−10%,630V,Flm
C63	DCC163221	Cap,1000p,+/−10%,1KV,Cer
D1	DDD029091	Diode,EM 01 TA21R
D2	DDD021481	Diode,RG1C
D3	DDD029091	Diode,EM 01 TA21R
D4	DDD038831	Diode,RD18ESB HZS18NB
D6	DDD023441	Diode,EU2
D7	DDD029091	Diode,EM 01 TA21R
D8	DDD023471	Diode,10DL2C41
D9	DDD019071	Diode,1SS 120
D10	DDD038831	Diode,RD18ESB HZS18NB
D11	DDD034341	Z Diode,RD47EB
D12	DDD029091	Diode,EM 01 TA21R
D13	DDD019071	Diode,1SS 120
D14	DDD019071	Diode,1SS 120
D15	DDD019071	Diode,1SS 120
D16	DDD019071	Diode,1SS 120
D17	DDD019071	Diode,1SS 120
D18	DDD019071	Diode,1SS 120
D19	DDD019071	Diode,1SS 120
D20	DDD019071	Diode,1SS 120
D21	DDD021541	Diode,SHV-02
D22	DDD021541	Diode,SHV-02
D23	DDD021541	Diode,SHV-02
D24	DDD021541	Diode,SHV-02
D25	DDD021541	Diode,SHV-02
D26	DDD021541	Diode,SHV-02
D27	DDD021541	Diode,SHV-02
D28	DDD021541	Diode,SHV-02
D29	DDD021541	Diode,SHV-02
D30	DDD021541	Diode,SHV-02
D31	DDD021451	Diode,SHV-06
D32	DDD019071	Diode,1SS 120
D33	DDD019071	Diode,1SS 120
D34	DDD021471	Diode,10DL2C41
D35	DDD021471	Diode,10DL2C41
D36	DDD023451	Diode,S4VB60
D37	DDD019071	Diode,1SS 120
F1	DFU020141	Fuse,FSA-1
F2	DFU025581	Fuse,MF2
IC1	DIC823651	IC,HIC B365N
IC2	DIC652091	IC,TL 431CLPB(TEX)
IC3	DIC613321	IC,TA 75559P(TSB)
IC4	DIC613321	IC,TA 75559P(TSB)
IC5	DIC613321	IC,TA 75559P(TSB)
IC6	DIC652091	IC,TL 431CLPB(TEX)
L3	DCL112561	Choke Coil,(3)FS37556
L4	DCL112461	Choke Coil,(4)FS37557
L5	DCL112561	Choke Coil,(3)FS37556
L6	DCL112551	Choke Coil,(2)FS37555
L7	DCL112551	Choke Coil,(2)FS37555
L8	DCL152591	Choke Coil,B FS-40201
L9	DCL152591	Choke Coil,B FS-40201
NE1	DLP025171	Neon Lamp,nl-235D
NF1	KHB124811	NoiseFiltar,03-TPF-1314
P3	DCN994241	Connector,5207-05A
P4	DCN990871	Connector,5267-02A
P5	DCN994241	Connector,5207-05A
P6	DCN990901	Connector,5267-06A
P7	DCN990871	Connector,5267-02A
P8	DCN034851	Connector,M36-02-30-114P
PC1	DFB030331	Photo Coupler,TLP521-1
PC2	DFB030331	Photo Coupler,TLP521-1
Q1	DTR137311	Tr,2SC 4237
Q2	DTR139011	Tr,2SC 1815GR TPER1
Q3	DTR215181	Tr,2SK 30ATM-GR
Q4	DTR136281	Tr,2SC 2315
Q5	DTR125481	Tr,2SB 834
Q6	DTR119011	Tr,2SA 1015Y TPER1
Q7	DTR215181	Tr,2SK 30ATM-GR
Q8	DTR119011	Tr,2SA 1015Y TPER1
Q9	DTR136281	Tr,2SC 2315

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
Q10	DTR215471	Tr,2SK 373GR
Q11	DTR136181	Tr,2SC 2551
Q12	DTR137621	Tr,2SC 2334L
Q13	DTR139011	Tr,2SC 1815GR TPER1
Q14	DTR119011	Tr,2SA 1015Y TPER1
Q15	DTR139011	Tr,2SC 1815GR TPER1
Q16	DTR137391	Tr,2SC 3405
Q17	DTR137391	Tr,2SC 3405
Q18	DTR119011	Tr,2SA 1015Y TPER1
Q19	DTR139011	Tr,2SC 1815GR TPER1
Q20	DTR136281	Tr,2SC 2315
Q21	DTR136181	Tr,2SC 2551
R1	DRS330651	Res,47K,+/−5%,2W,Mtl
R2	DRS330651	Res,47K,+/−5%,2W,Mtl
R3	DRS330651	Res,47K,+/−5%,2W,Mtl
R4	DRS330251	Res,22,+/−5%,2W,Mtl
R5	DRE990111	Res,0.68u,+/−10%,2W,Mtl
R6	DRS330181	Res,5.6K,+/−5%,2W,Mtl
R7	DRE141451	Res,110K,+/−0.5%,1/4W,Mtl
R8	DRE960151	Res,0.33u,+/−10%,2W,Mtl
R9	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R10	DRE137801	Res,470,+/−1%,1/4W,Mtl
R11	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R12	DRE138081	Res,6.8K,+/−1%,1/4W,Mtl
R13	DRE137721	Res,220,+/−1%,1/4W,Mtl
R14	DRE138091	Res,7.5K,+/−1%,1/4W,Mtl
R15	DRE138151	Res,13K,+/−1%,1/4W,Mtl
R16	DRE137601	Res,68,+/−1%,1/4W,Mtl
R16A	DRE137411	Res,11,+/−1%,1/4W,Carbon
R17	DRE137621	Res,82,+/−1%,1/4W,Mtl
R18	DRS320331	Res,100,+/−5%,1W,Mtl
R19	DRE137971	Res,2.4K,+/−1%,1/4W,Mtl
R20	DRE138041	Res,4.7K,+/−1%,1/4W,Mtl
R21	DRE138091	Res,7.5K,+/−1%,1/4W,Mtl
R22	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R23	DRE138081	Res,6.8K,+/−1%,1/4W,Mtl
R24	DRV415541	Res,1K,+/−20%,1/3W,MG
R25	DRE138141	Res,12K,+/−1%,1/4W,Mtl
R26	DRE138141	Res,12K,+/−1%,1/4W,Mtl
R27	DRE138141	Res,12K,+/−1%,1/4W,Mtl
R28	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R29	DRE138281	Res,74,+/−1%,1/4W,Mtl
R30	DRE138081	Res,6.8K,+/−1%,1/4W,Mtl
R31	DRE960171	Res,0.68u,+/−10%,5W,Mtl
R32	DRE137671	Res,130,+/−1%,1/4W,Mtl
R33	DRE138011	Res,3.6K,+/−1%,1/4W,Mtl
R34	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R35	DRE960171	Res,0.68u,+/−10%,5W,Mtl
R36	DRE137671	Res,130,+/−1%,1/4W,Mtl
R37	DRE138011	Res,3.6K,+/−1%,1/4W,Mtl
R38	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R39	DRE138161	Res,15K,+/−1%,1/4W,Mtl
R40	DRE137741	Res,270,+/−15,1/4W,Mtl
R41	DRS320171	Res,4.7,+/−5%,1W,Mtl
R42	DRS330251	Res,22,+/−5%,2W,Mtl
R43	DRE137761	Res,330,+/−1%,1/4W,Mtl
R44	DRE138441	Res,220,+/−1%,1/4W,Mtl
R45	DRE138181	Res,18K,+/−1%,1/4W,Mtl
R46	DRE137641	Res,100,+/−1%,1/4W,Mtl
R47	DRE138401	Res,150K,+/−15,1/4W,Mtl
R48	DRE138441	Res,220,+/−1%,1/4W,Mtl
R49	DRE138021	Res,3.9K,+/−1%,1/4W,Mtl
R50	DRE137961	Res,2.2K,+/−1%,1/4W,Mtl
R51	DRE138271	Res,43K,+/−1%,1/4W,Mtl
R52	DRE138101	Res,8.2K,+/−1%,1/4W,Mtl
R53	DRE137881	Res,1.0K,+/−1%,1/4W,Mtl
R54	DRE138341	Res,82K,+/−1%,1/4W,mtl
R55	DRE137941	Res,1.8K,+/−1%,1/4W,Mtl
R56	DRE138061	Res,5.6K,+/−1%,1/4W,Mtl
R57	DRE138261	Res,39K,+/−1%,1/4W,Mtl
R58	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R59	DRE138341	Res,82K,+/−1%,1/4W,mtl
R60	DRE138341	Res,82K,+/−1%,1/4W,mtl
R61	DRE138261	Res,39K,+/−1%,1/4W,Mtl
R62	DRE138291	Res,51K,+/−1%,1/4W,Mtl
R63	DRS330691	Res,100K,+/−5%,2W,Mtl
R64	DRE138261	Res,39K,+/−1%,1/4W,Mtl
R65	DRE138481	Res,330K,+/−1%,1/4W,Mtl
R66	DRE138481	Res,330K,+/−1%,1/4W,Mtl
R67	DRG940381	Res,5.1K,+/−5%,1/2W,MG
R68	DRG940311	Res,2.2M,+/−5%,1/2W,MG
R69	DRG940381	Res,5.1K,+/−5%,1/2W,MG

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R70	DRE138341	Res,82K,+/−1%,1/4W,mtl
R71	DRE138241	Res,33K,+/−1%,1/4W,Mtl
R73	DRE138161	Res,15K,+/−1%,1/4W,Mtl
R74	DRE138381	Res,120K,+/−1%,1/4W,Mtl
R75	DRE138391	Res,130K,+/−1%,1/4W,Mtl
R76	DRE138221	Res,27K,+/−1%,1/4W,Mtl
R77	DRE137961	Res,2. 2K,+/−1%,1/4W,Mtl
R78	DRV415561	Res,10K,+/−10%,1/2W,Mtl
R79	DRE137961	Res,2. 2K,+/−1%,1/4W,Mtl
R80	DRE930771	Res,750K,+/−1%,1/4W,Mtl
R81	DRE138191	Res,20K,+/−1%,1/4W,Mtl
R82	DRG940361	Res,5. 6M,+/−5%,1/2W,MG
R83	DRE138361	Res,100K,+/−1%,1/4W,Mtl
R84	DRE138481	Res,330K,+/−1%,1/4W,Mtl
R85	DRE138481	Res,330K,+/−1%,1/4W,Mtl
R86	DRE138481	Res,330K,+/−1%,1/4W,Mtl
R87	DRE138481	Res,330K,+/−1%,1/4W,Mtl
R88	DRV412111	Res,50K,+/−20%,1/3W,MG
R89	DRG940441	Res,18M,+/−5%,12W,Mtl
R90	DRE137421	Res,12,+/−1%,1/4W,Carbon
R90A	DRV415711	Res,10,+/−105,1/2W,Crm
R91	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R92	DRE138121	Res,10K,+/−1%,1/4W,Mtl
R93	DRG152001	Res,15M,+/−5%,1/2W,Mtl
R94	DRE138501	Res,390K,+/−1%,1/4W,Mtl
R95	DRE138501	Res,390K,+/−1%,1/4W,Mtl
R96A	DRE137901	Res,1. 2K,+/−1%,1/4W,Mtl
R96	DRV412191	Res,200K,+/−20%,1/3W,MG
R97	DRV415561	Res,5K,+/−10%,1/2W,Mtl
R98	DRV412231	Res,1M,+/−20%,1/3W,MG
R99	DRV412191	Res,200K,+/−20%,1/3W,MG
R100	DRE138031	Res,4. 3K,+/−1%,1/4W,Mtl
R101	DRE137591	Res,62,+/−1%,1/4W,Mtl
S1	DSW016602	Switch,SDDFA3
T1	DCL230773	Transformer,FS-39373-41
T2	DCL220413	H. V Transformer,FS-39640
TH1	DDD080391	Th,8D-13
U1	DES050731	High-VoltageBlock,MSL3587G
U2	DSK065361	Fuse Holder,FH033
W3	KHB112311	Power Cable,29W3
W4	KHB112411	Power Cable,29W4
W5	KHB112511	Power Cable,29W6
W6	KHB112611	Z Cable,21W2
W7	KHB112711	Power Cable,29W7

RANDOM PULSE-GEN 31

SS-7611 and SS-7607

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C10	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C11	DCE229201	Cap,47u,+/−20%,25V,Ele
C12	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C13	DCE229201	Cap,47u,+/−20%,25V,Ele
C14	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C15	DCC239151	Cap,470,+/−5%,50V,Cer
C17	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C19	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C22	DCC815811	Cap,390,+/−50%,50V,Cer
C24	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C25	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C27	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
C31	DCC815721	Cap,68p,+/−5%,50V,Cer
C32	DCC810511	Cap,0.01u,+80/−20%,50V,Cer
D19	DDD038961	Diode,RD6.2ESB1 TA21R
IC1	DIC614321	IC,NJM 4558S(JRC)
P101	DCN116181	Connector,A4-5PA-2DS(1)
P102	DCN116181	Connector,A4-5PA-2DS(1)
Q11	DTR810041	Tr,2SA 1162Y TE85L
Q12	DTR830051	Tr,2SC 2712G TE85L
Q13	DTR860041	Tr,2SK 211-Y TE85L
Q14	DTR830201	Tr,2SC 1621 T1B B3
Q15	DTR830051	Tr,2SC 2712G TE85L
Q16	DTR830201	Tr,2SC 1621 T1B B3
Q17	DTR830051	Tr,2SC 2712G TE85L
R10	DRZ830701	Res,4.7K,+/−5%,1/10W,MG
R11	DRZ830741	Res,18K,+/−5%,1/10W,MG
R12	DRZ830371	Res,13K,+/−5%,1/10W,MG
R13	DRZ831181	Res,30K,+/−5%,1/10W,MG
R14	DRZ830361	Res,10K,+/−5%,1/10W,MG
R15	DRZ830701	Res,4.7K,+/−5%,1/10W,MG
R16	DRZ832411	Res,4.7K,+/−1%,1/10W,MG
R17	DRZ832421	Res,5.1K,+/−1%,1/10W,MG
R18	DRZ832441	Res,6.2K,+/−1%,1/10W,MG
R19	DRZ830261	Res,100,+/−5%,1/10W,MG
R21	DRZ832161	Res,430,+/−1%,1/10W,MG
R22	DRZ832441	Res,6.2K,+/−1%,1/10W,MG
R23	DRZ832481	Res,9.1K,+/−1%,1/10W,MG
R24	DRZ832271	Res,1.2K,+/−1%,1/10W,MG
R25	DRZ832201	Res,620,+/−1%,1/10W,MG
R26	DRZ830121	Res,22,+/−5%,1/10W,MG
R27	DRZ832361	Res,3K,+/−1%,1/10W,MG
R28	DRZ830261	Res,100,+/−5%,1/10W,MG
R29	DRZ832191	Res,560,+/−1%,1/10W,MG
R31	DRZ832371	Res,3.3K,+/−1%,1/10W,MG
R32	DRZ832491	Res,10K,+/−1%,1/10W,MG

PEAK-MINI 32

SS-7611 and SS-7607

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C12	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C14	DCC810511	Cap,0. 01u,+80/−20%,50V,Cer
C15	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C18	DCF121881	Cap,0. 22u,+/−5%,50V,Flm
C24	DCE229201	Cap,47u,+/−20%,25V,Ele
C25	DCE229201	Cap,47u,+/−20%,25V,Ele
D14	DDD039091	Diode,RD6. 8ESB1 TA21R
D15	DDD038961	Diode,RD6. 2ESB1 TA21R
D17	DDD810061	Diode,1SS 181 TE85L
D18	DDD010801	Diode,1S 1544A
IC1	DIC614451	IC,u-PC 814G2(NEC)
IC2	DIC631051	IC,TL 810CPS(TEX)
P103	DCN116191	Connector,A4-6PA-2DS(1)
P104	DCN116171	Connector,A4-4PA-2DS(01)
Q11	DTR139321	Tr,2SC 3732K-T
Q12	DTR119041	Tr,2SA 1206 TRC
Q13	DTR139321	Tr,2SC 3732K-T
Q14	DTR199351	Tr,DTC 114ES TP
Q15	DTR199331	Tr,DTA 114ES TP
R11	DRD137401	Res,100,+/−5%,1/4W,Carbon
R12	DRD137401	Res,100,+/−5%,1/4W,Carbon
R13	DRE137881	Res,1. 0K,+/−1%,1/4W,Mtl
R14	DRE137721	Res,220,+/−1%,1/4W,Mtl
R15	DRZ830691	Res,3. 3K,+/−5%,1/10W,MG
R16	DRZ830611	Res,820,+/−5%,1/10W,MG
R17	DRZ830721	Res,12K,+/−5%,1/10W,MG
R18	DRD137781	Res,3. 9K,+/−5%,1/4W,Carbon
R19	DRD137401	Res,100,+/−5%,1/4W,Carbon
R21	DRZ832251	Res,1K,+/−5%,1/10W,MG
R22	DRZ832361	Res,3K,+/−1%,1/10W,MG
R23	DRV415531	Res,100,+/−20%,1/3W,MG
R24	DRZ831501	Res,0,Chip,Jumper
R25	DRZ831501	Res,0,Chip,Jumper
TP3	DTA010531	Terminal,OK-011-S

BOARDS ON SWEEP GEN B. 33

SS-7611, SS-7607, SS-7610, SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C101	DCC239031	Cap,47p,+/−5%,50V,Cer
C102	DCC139501	Cap,0. 01u,+/−10%,500V,Cer
C103	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C104	DCE243311	Cap,22u,+/−20%,63V,Ele
C105	DCF139011	Cap,0. 01u,+/−10%,100V,Flm
C201	DCC239161	Cap,51,+/−5%,50V,Cer
C202	DCC139501	Cap,0. 01u,+/−10%,500V,Cer
C203	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C204	DCE243311	Cap,22u,+/−20%,63V,Ele
C205	DCF139011	Cap,0. 01u,+/−10%,100V,Flm
C300	DCC929031	Cap,0. 01u,+/−30%,16V,Cer
C301	DCC239051	Cap,100p,+/−5%,50V,Cer
D100	DDD019101	Diode,1SS 97 TA21R
D101	DDD019071	Diode,1SS 120
D102	DDD019101	Diode,1SS 97 TA21R
D103	DDD010801	Diode,1S1544A
D104	DDD038811	Diode,RD15ESB HZS15NB
D105	DDD038811	Diode,RD15ESB HZS15NB
D106	DDD038321	Diode,5. 6ESB1 TA21R
D200	DDD019101	Diode,1SS 97 TA21R
D201	DDD019071	Diode,1SS 120
D202	DDD019101	Diode,1SS 97 TA21R
D203	DDD010801	Diode,1S1544A
D204	DDD038811	Diode,RD15ESB HZS15NB
D205	DDD038811	Diode,RD15ESB HZS15NB
D206	DDD038321	Diode,5. 6ESB1 TA21R
IC300	DIC198031	IC,74F00PC
P100	DCN116211	Connector,A4-8PA-2DS(1)
P101	DCN116211	Connector,A4-8PA-2DS(1)
P200	DCN116211	Connector,A4-8PA-2DS(1)
P201	DCN116211	Connector,A4-8PA-2DS(1)
P300	DCN116221	Connector,A4-9PA-2DS(1)
Q100	DTR135741	Tr,2SC 2901
Q101	DTR295281	Tr,u-PA-61AM
Q102	DTR136001	Tr,2SC 3064G(DP6A)
Q103	DTR139011	Tr,2SC 1815GR TPER1
Q104	DTR139011	Tr,2SC 1815GR TPER1
Q200	DTR135741	Tr,2SC 2901
Q201	DTR295281	Tr,u-PA-61AM
Q202	DTR136001	Tr,2SC 3064G(DP6A)
Q203	DTR139011	Tr,2SC 1815GR TPER1

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
Q204	DTR139011	Tr,2SC 1815GR TPER1
R100	DRE138011	Res,3.6K,+/−1%,1/4W,Mtl
R101	DRE137801	Res,470,+/−1%,1/4W,Mtl
R102	DRD137481	Res,220,+/−5%,1/4W,Carbon
R103	DRD137691	Res,1.6K,+/−5%,1/4W,Carbon
R104	DRD137401	Res,100,+/−5%,1/4W,Carbon
R105	DRD137981	Res,27K,+/−5%,1/4W,Carbon
R200	DRE138011	Res,3.6K,+/−1%,1/4W,Mtl
R201	DRE137801	Res,470,+/−1%,1/4W,Mtl
R202	DRD137481	Res,220,+/−5%,1/4W,Carbon
R203	DRD137691	Res,1.6K,+/−5%,1/4W,Carbon
R204	DRD137401	Res,100,+/−5%,1/4W,Carbon
R205	DRD137981	Res,27K,+/−5%,1/4W,Carbon

BOARDS ON TRIG AMP B. 34

SS-7611, SS-7607, SS-7610, SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
C402	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C403	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C405	DCC239051	Cap,100p,+/−5%,50V,Cer
C406	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C407	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C408	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C409	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C410	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C412	DCC929031	Cap,0.01u,+/−30%,16V,Cer
C421	DCC239051	Cap,100p,+/−5%,50V,Cer
C439	DCV019861	Cap,8p,Var,250V,Cer
D409	DDD019101	Diode,1SS 97 TA21R
D410	DDD019101	Diode,1SS 97 TA21R
D411	DDD019101	Diode,1SS 97 TA21R
D412	DDD019071	Diode,1SS 120
D413	DDD019071	Diode,1SS 120
D415	DDD019071	Diode,1SS 120
D416	DDD019071	Diode,1SS 120
D417	DDD019071	Diode,1SS 120
D418	DDD019071	Diode,1SS 120
D419	DDD019071	Diode,1SS 120
IC401	DIC440011	IC,MC 74HC00N
IC402	DIC440011	IC,MC 74HC00N
IC403	DIC441131	IC,MC 74HC112N
P400	DCN116201	Connector,A4-7PA-2DS(1)
P401	DCN116201	Connector,A4-7PA-2DS(1)
P402	DCN116201	Connector,A4-7PA-2DS(1)
P403	DCN116201	Connector,A4-7PA-2DS(1)
P404	DCN116201	Connector,A4-7PA-2DS(1)
P405	DCN116201	Connector,A4-7PA-2DS(1)
P406	DCN116191	Connector,A4-6PA-2DS(1)
P407	DCN116191	Connector,A4-6PA-2DS(1)
Q401	DTR119011	Tr,2SA 1015Y TPER1
Q402	DTR139011	Tr,2SC 1815GR TPER1
Q412	DTR199351	Tr,DTC 114ES TP
R401	DRD137881	Res,10K,+/−5%,1/4W,Carbon
R402	DRD137761	Res,3.3K,+/−5%,1/4W,Carbon
R403	DRE137891	Res,1.1K,+/−1%,1/4W,Mtl
R404	DRE138011	Res,3.6K,+/−1%,1/4W,Mtl
R405	DRE137991	Res,3.0K,+/−1%,1/4W,Mtl
R406	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
R407	DRE138171	Res,10K,+/−1%,1/4W,Mtl
R408	DRE137981	Res,2.7K,+/−1%,1/4W,Mtl
R411	DRV410521	Res,500,Var,1/2W,Crm
R414	DRV412031	Res,1K,+/−20%,1/3W,Mtl

Printed Circuit Boad

SS-7611, SS-7607, SS-7610, SS-7606

CIRCUIT REFERENCE	IWATSU PART NO.	DESCRIPTION
PB01	KPN290331	ATT & PRE AMP BOARD
PB02	KPN290431	VERT CONTROL BOARD
PB03	KPN290521	SWEEP GEN BOARD
PB04	KPN290621	TRIG AMP BOARD
PB05	KPN290721	MIX BOARD 1
PB06	KPN290831	CPU BOARD
PB07	KPN299511	KEY BOARD
PB08	KPN291031	POWER BOARD
PB09	KPN292631	MIX BOARD 2

Section 7 Mechanical Parts List and Board Locations

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Figure 7-3-(c) Printed Circuit Board Location
Bottom View 7-8

INDEX NO.	DESCRIPTION	IWATSU PART NO.
1	CR112560KW-PS	KCM109011
2	CR112560KW	KCM108911
3	CR302560KW	KCM108821
4	KB SWITCH	KCM620121
5	KEY BOARD (PRINT BOARD)	KPN290931
6	Front Chassis	KBA674031
7	KD 3 × 8	MKD130081
8	COVER	KBA675921
9	KH 3 × 8	KSQ003311
10	GEAR, Stator B	KBA591511
11	COVER HANDLE-H	KCM110311
12	HANDLE bar-H	KDA024611
13	PANEL, Rear	KCM108311
14	SM-5 3 × 16	MSM530161
15	COVER, handle arm	KCM059521
16	SUPPORT, Spring	KBA508131
17	SPRING, arm	KSR012611
18	GEAR, Stator	KCM059631
19	KD(+) 3 × 18S	MKD130181
20	HANDLE, arm	KCM070631
21	W-3	MWW130001
22	SW-3	MSW130006
23	TAP TITE 3 × 14S	MSQ900121

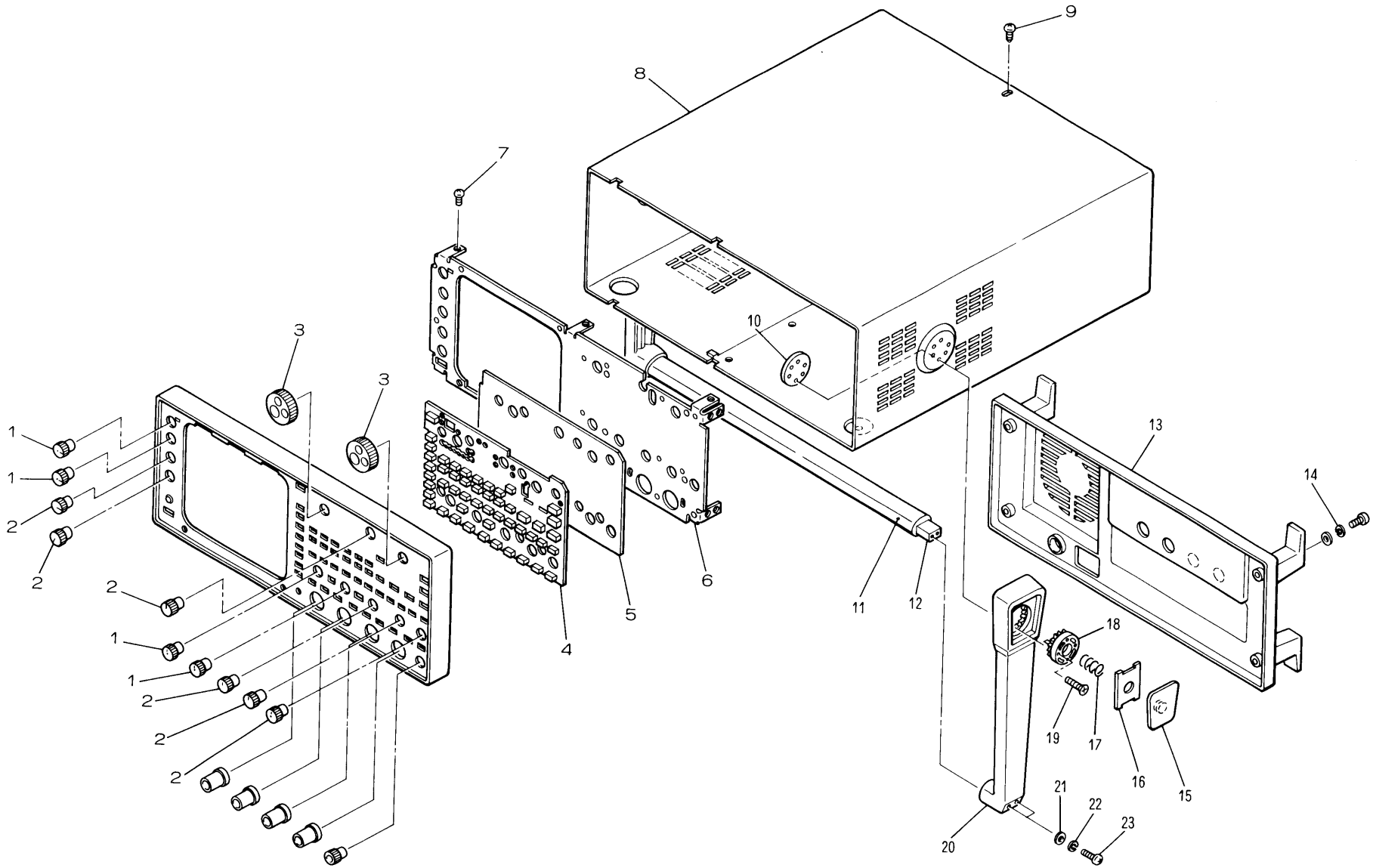
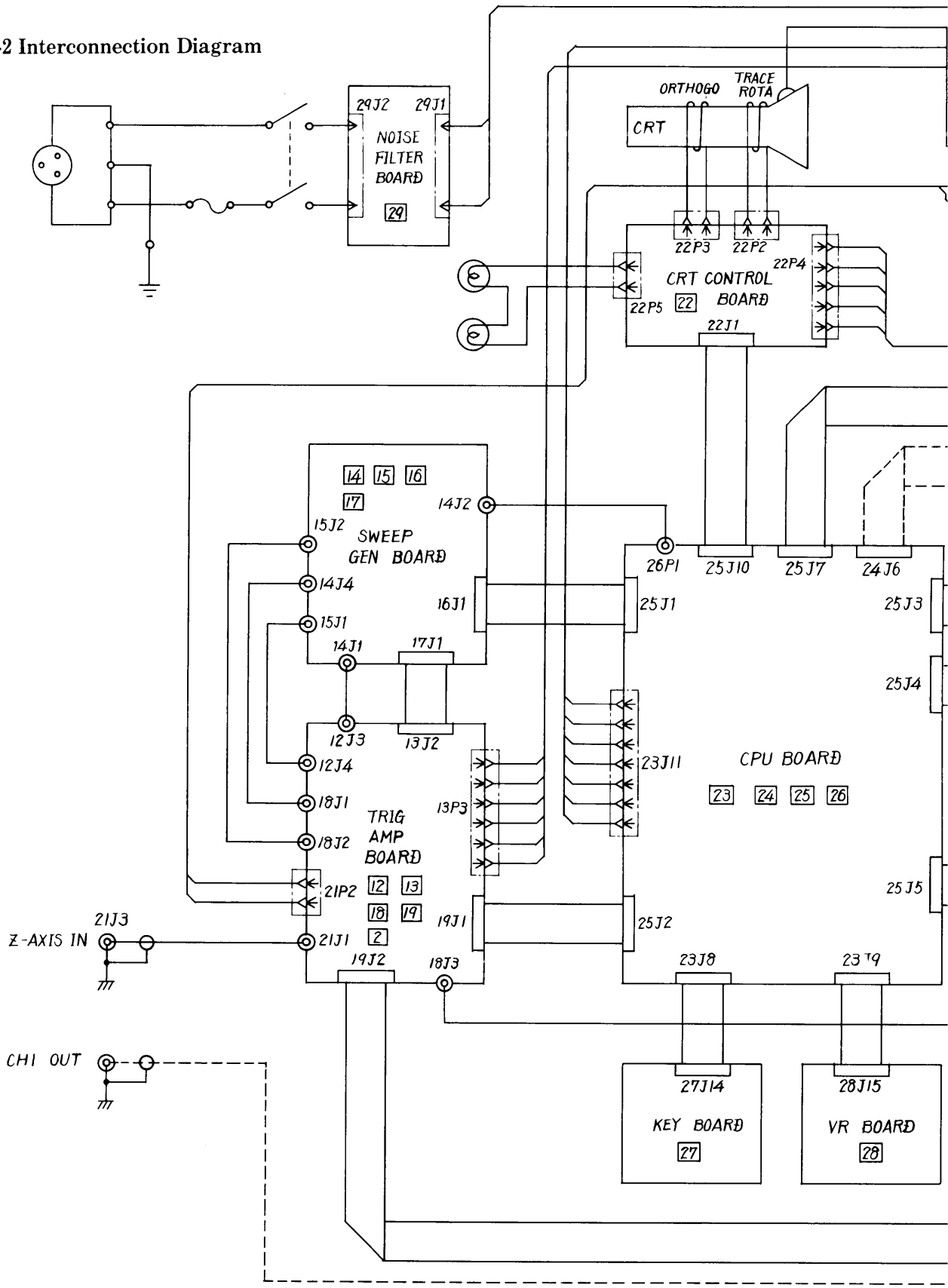


Fig. 7-1 Mechanical Drawing

Fig. 7-2 Interconnection Diagram



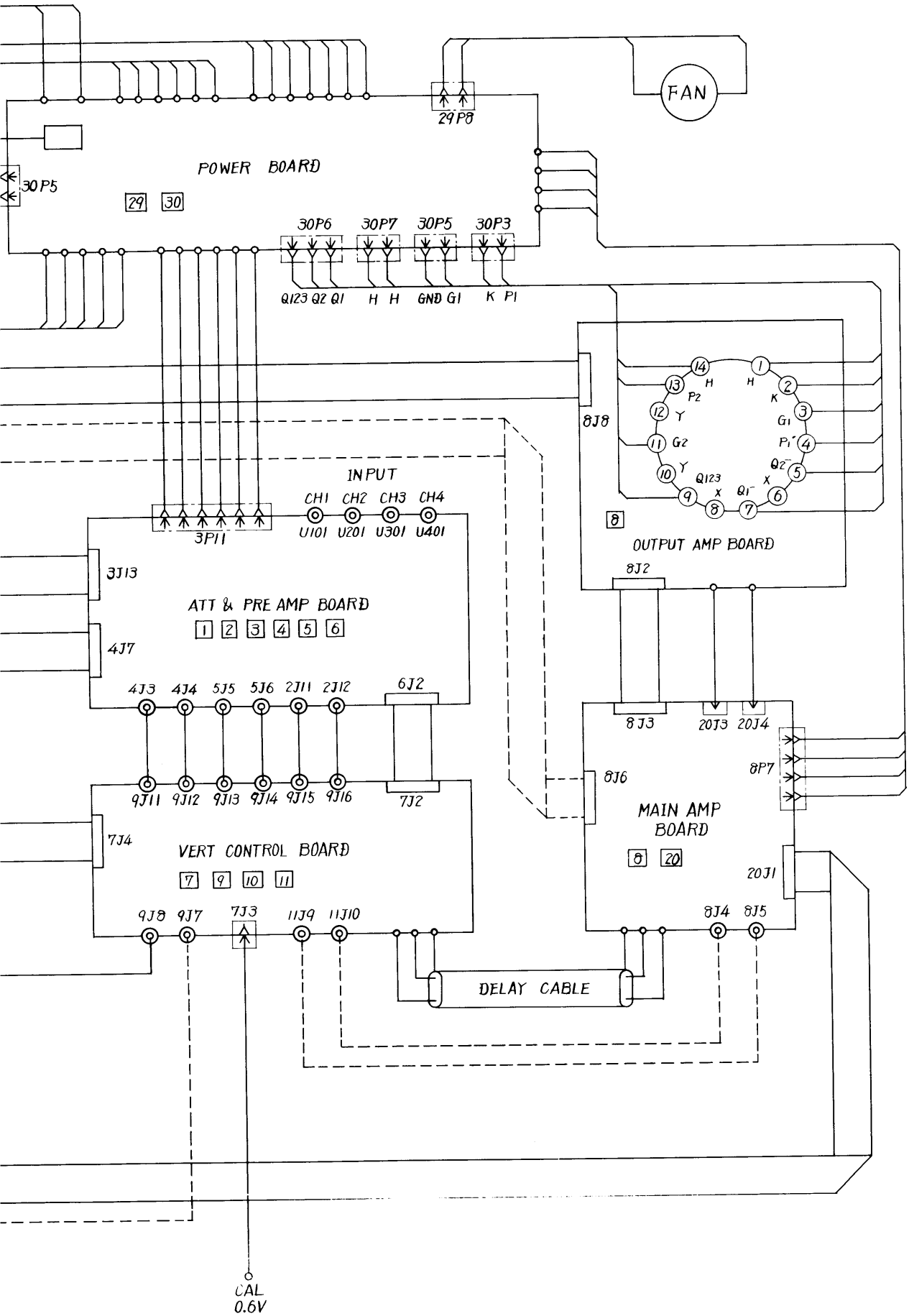

FAN
29P8
POWER BOARD
30P5
29
30
30P6
30P7
30P5
30P3
Q123 Q2 Q1
H H
GND G1
K P1
8J8
INPUT
CH1 CH2 CH3 CH4
U101 U201 U301 U401
3P11
3J13
ATT & PRE AMP BOARD
1 2 3 4 5 6
4J7
4J3 4J4 5J5 5J6 2J11 2J12
6J2
9J11 9J12 9J13 9J14 9J15 9J16
7J2
7J4
VERT CONTROL BOARD
7 9 10 11
9J8 9J7
7J3
11J9 11J10
8
OUTPUT AMP BOARD
8J2
8J3
20J3 20J4
8J6
MAIN AMP BOARD
8 20
8P7
20J1
8J4 8J5
DELAY CABLE
CAL
0.6V

Fig. 7-3-(a) Printed Circuit Board Location/Right Side View

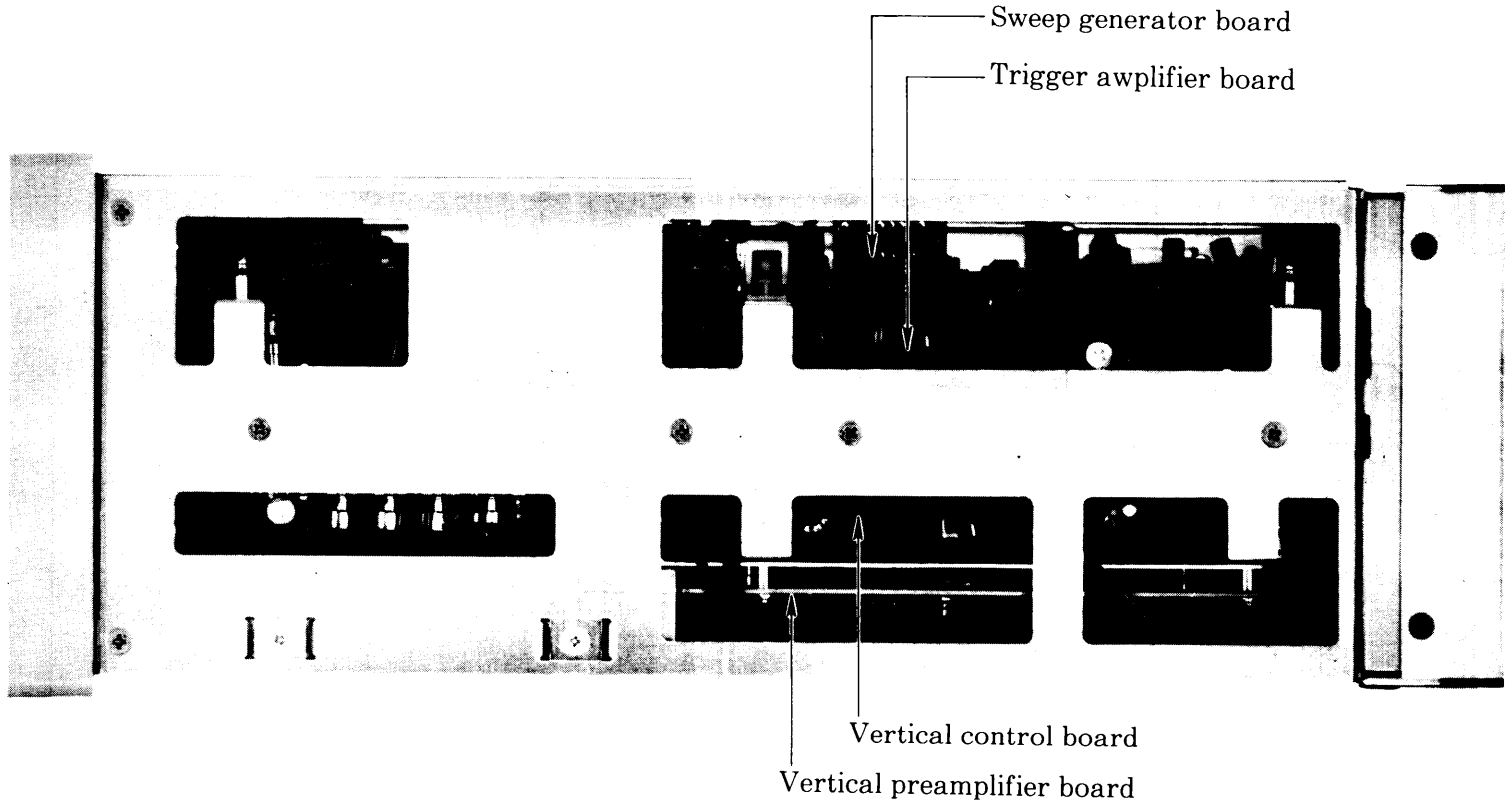


Fig. 7-3-(b) Printed Circuit Board Location/Top View

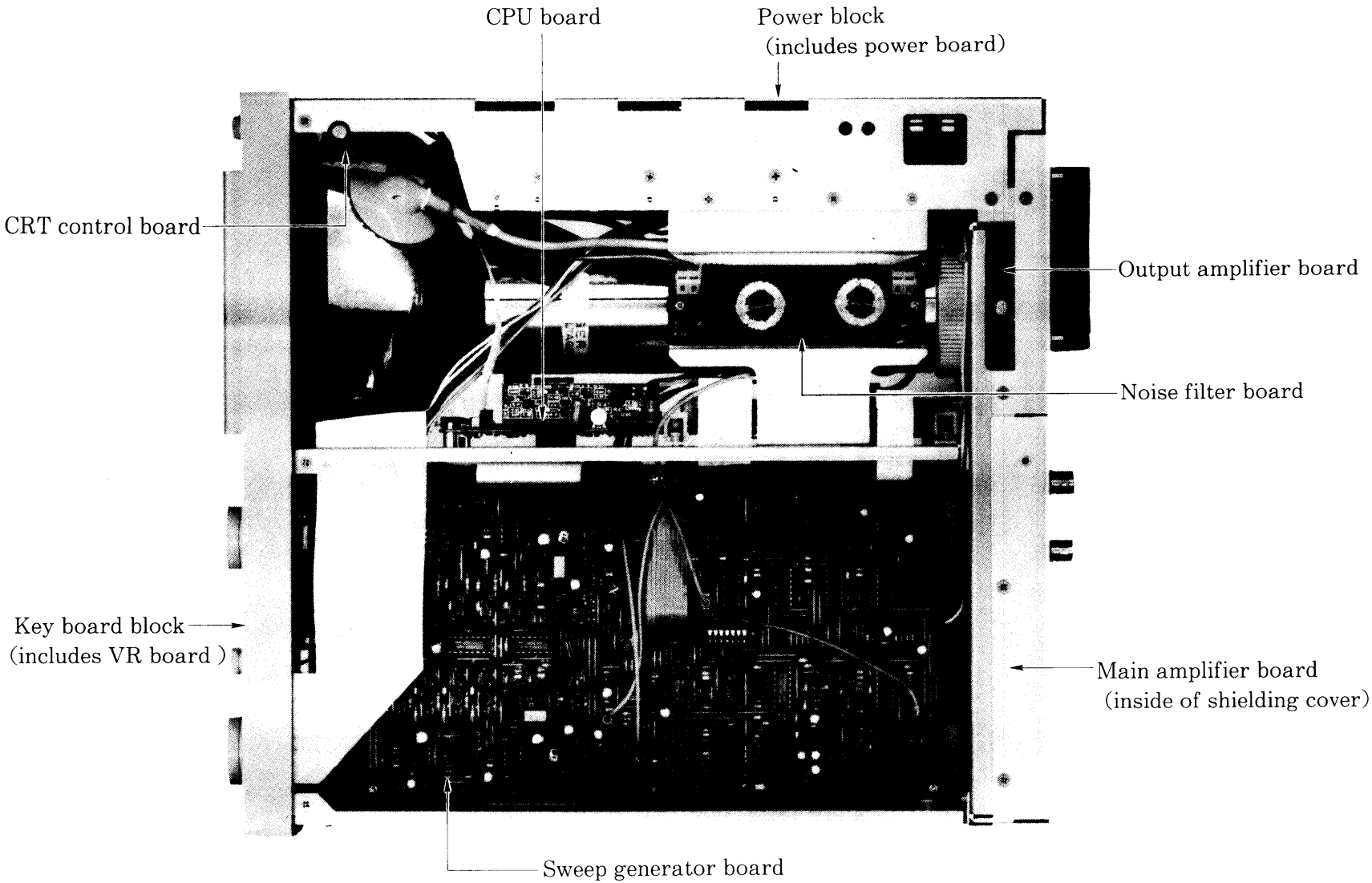
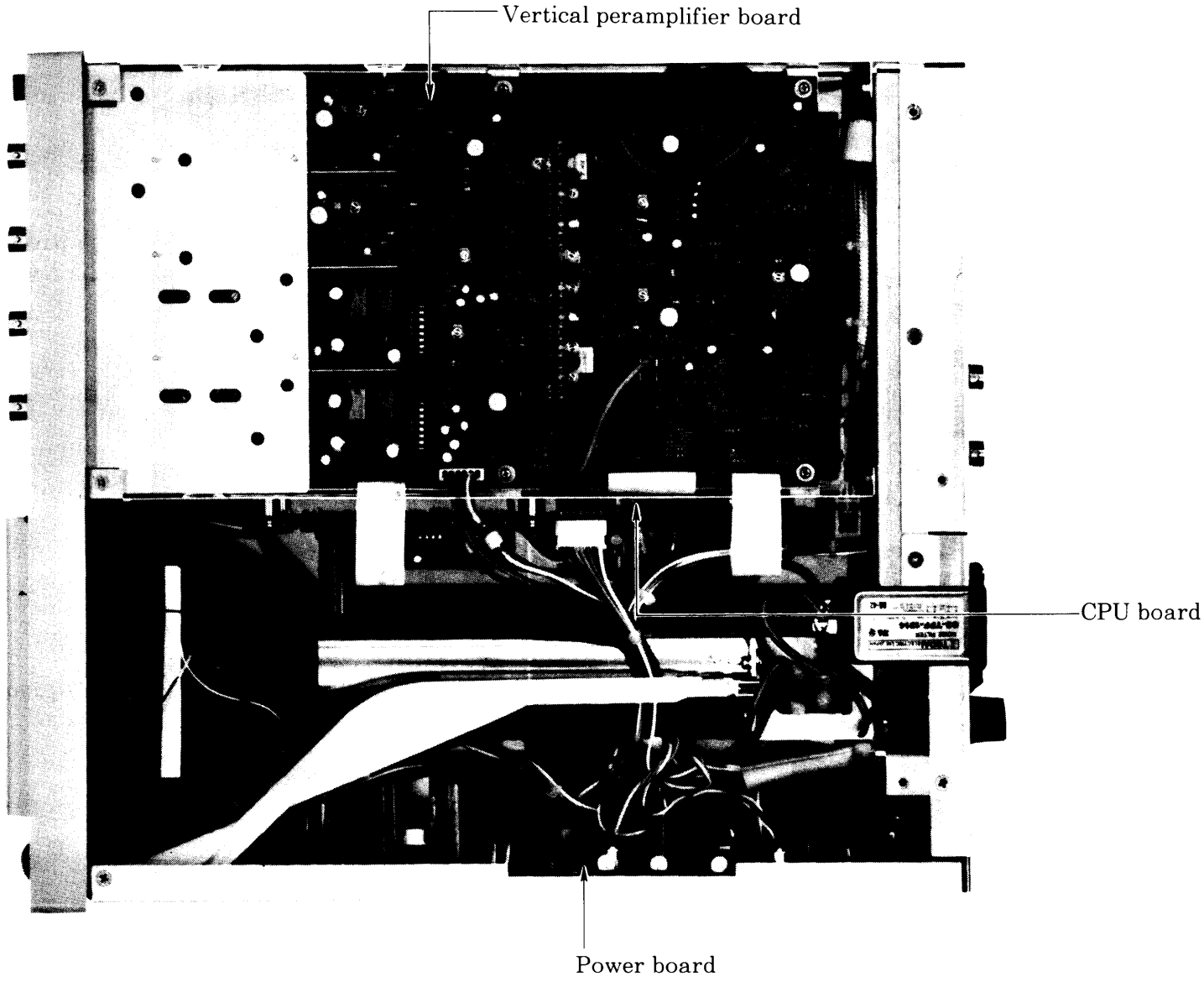


Figure 7-3-(c) Printed Circuit Board Location/Bottom view





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