SONY

DIGITAL TIME BASE CORRECTOR

BVT-800

OPERATION AND MAINTENANCE MANUAL

1st Edition (Revised 5)

Serial No. 10001 and Higher

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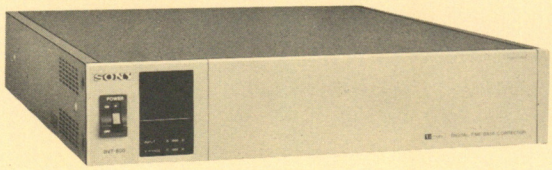
DIGITAL TIME BASE CORRECTOR

BVT-800



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WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

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SECTION 1
OPERATION

The BVT-800 is a digital time base corrector for use with a color-under system VTR equipped with a capstan servo system which can upgrade the playback signal to satisfy broadcasting standards.

1-1. FEATURES

A correction range of 15 H
A window of 15 H (p-p) permits a wide range of time base error to be corrected. Even if the error exceeds the correctable range, no horizontal movement nor sync fluctuation occurs.

Dynamic tracking of wide range of playback speed
When a BVU-820 U-matic videocassette recorder is connected by the multi-core cable, the playback of −1 to 3 times normal playback speed is possible without any guard band noise.

8 bits, × 3 fsc sampling
The playback signal is converted to a digital signal by sampling with 8 bits x 3 fsc, so no degradation of the picture of a duplicating tape occurs.

Built-in heterodyne color-process circuit
Thanks to the built-in heterodyne color-process circuit, the playback picture on a VTR with no return subcarrier facility is as of high a quality as a picture produced by the direct process mode.

High speed synchronized playback
With a BVU-800 or a BVU-820, a color picture up to 5 times normal playback speed can be synchronized with the reference signal. With a monochrome picture, synchronized playback from −40 to +40 times normal playback speed is possible.

Digital dropout compensator
An advanced digital dropout compensator replaces each luminance and chrominance dropout with the signal of the previous line. This signal replacement is performed digitally so that no signal degradation occurs.

DG compensation
Differential gain (DG) up to ±8% can be compensated to zero.

Built-in sync generator
The BVT-800 can operate with an external sync signal or with a sync signal from the built-in sync generator.
The internal or external sync system is automatically selected.

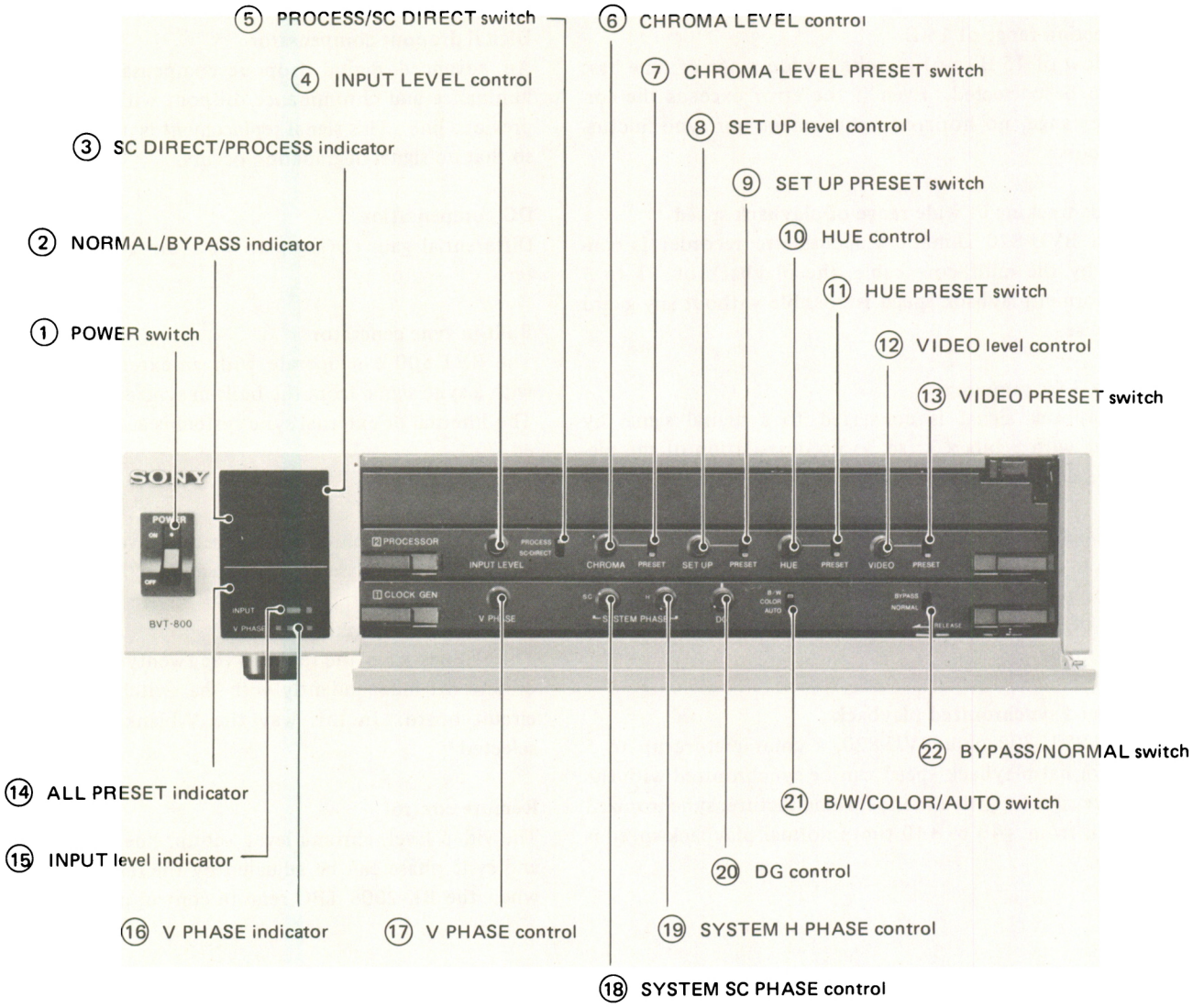
Video processor
The video level, chroma level, set-up level, hue, subcarrier phase and sync phase can be adjusted.

Selection of V-blanking
The H lines from the tenth to the twenty-first can be set to on and off independently with the switches on the built-in circuit board. In this way the V-blanking width can be selected.

Remote control
The video level, chroma level, set-up, hue, subcarrier phase and sync phase can be adjusted by the remote control unit when the BK-2006 TBC remote control unit is connected.

1-2. LOCATION AND FUNCTION OF PARTS AND CONTROLS

1-2-1. Control Panel



① POWER switch
Press the ON side to turn the power on.

② NORMAL/BYPASS indicator
NORMAL or BYPASS will light depending on the setting of the BYPASS/NORMAL switch ㉒

3 SC DIRECT/PROCESS indicator
SC DIRECT or PROCESS will light depending on the setting of the PROCESS/SC DIRECT switch ⑤

④ INPUT LEVEL control
The video input level can be adjusted within a range of ±3 dB. The correct level is indicated in green on the INPUT level indicator.

⑤ PROCESS/SC DIRECT switch
PROCESS: Use this position if the connected VTR is not equipped with a subcarrier input.
SC DIRECT: Use this position if a return subcarrier is connected to the VTR.

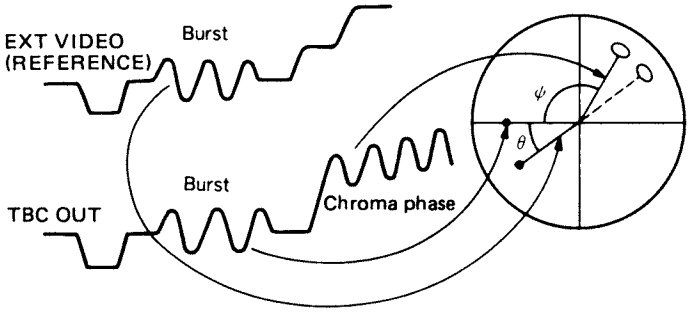
⑥ CHROMA LEVEL control
The chroma level of the output signal can be adjusted within a range of ±3 dB when the CHROMA LEVEL PRESET switch ⑦ is set to the upper (manual) position.

⑦ CHROMA LEVEL PRESET switch
Usually set to PRESET. In this position, the setting of the CHROMA LEVEL control ⑥ doesn't affect on the output signal. With this switch the upper (manual) position, the chroma level can be adjusted with the CHROMA LEVEL control.

⑧ SET UP level control
The set up level of the output signal can be adjusted from 0 to 15 IRE when the SET UP PRESET switch ⑨ is set to the upper (manual) position.

⑨ SET UP PRESET switch
Usually set to PRESET. In this position, the setting of the SET UP level control ⑧ doesn't affect on the output signal. With this switch the upper (manual) position, the set up level can be adjusted with the SET UP level control.

⑩ HUE control
The hue of the output signal can be adjusted within a range of ±25° (ψ in the illustration below) when the HUE PRESET switch ⑪ is set to the upper (manual) position. θ is constant in this case.



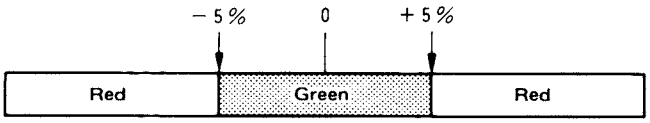
⑪ HUE PRESET switch
Usually set to PRESET. In this position, the setting of the HUE control ⑩ doesn't affect on the output signal. With this switch the upper (manual) position, the hue can be adjusted with the HUE control.

⑫ VIDEO level control
The video output level can be adjusted within the range of ±3 dB when the VIDEO PRESET switch ⑬ is set to the upper (manual) position. This control is effective only on the video signal but not on the sync signal.

⑬ VIDEO PRESET switch
Usually set to PRESET. In ths position, the setting of the VIDEO level control ⑫ doesn't affect on the output signal. With this switch the upper (manual) position, the video level can be adjusted with the VIDEO level control.

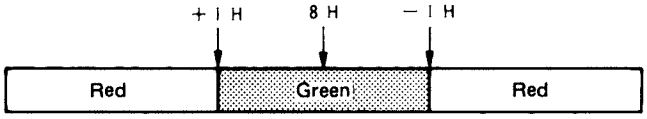
⑭ ALL PRESET indicator
When the CHROMA PRESET ⑦, SET UP PRESET ⑨, HUE PRESET ⑪ and VIDEO PRESET ⑬ switches are set to PRESET, this indicator lights.

⑮ INPUT level indicator
The proper input level is indicated in green on this indicator by observing the level of the sync signal.



⑯ V PHASE indicator

The BVT-800 delays the output signal by 8 H to the input signal so that the playback signal of the VTR is advanced by 8 H to the reference signal. If the delay of the playback signal is in the range of 8 H ±1 H, the green part of this indicator will light. Adjust the V PHASE control ⑰ so that the green part lights.



⑰ V PHASE control

The playback signal can be adjusted so that it advances by 8 H to the reference signal. The proper level is indicated in green on the V PHASE indicator ⑯

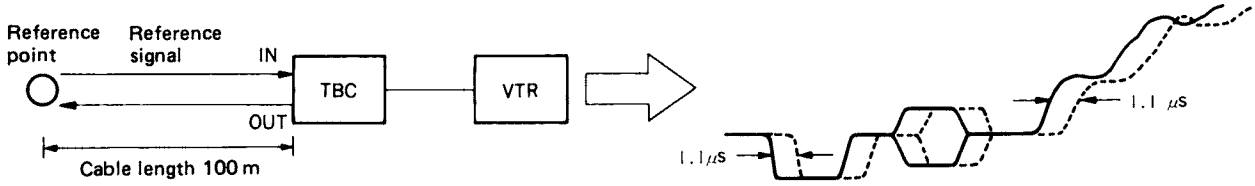
⑱ SYSTEM SC PHASE control

The subcarrier phase of the output signal can be adjusted to that of the reference signal. The adjustable range is 360°. This control does not effect on the video and sync phase.

⑲ SYSTEM H PHASE control

The delay between the playback signal and the reference signal caused by the cable length can be compensated for by adjusting the system H phase with this control. The adjustable range is from −1 μsec. to +3 μsec.

In the following illustration, the signal delay between the reference point and the input on the TBC is 550 nsec. The TBC OUT signal will be delayed an additional 550 nsec to return to the reference point so that the phase must be advanced by 1.1 μsec.



⑳ DG (differential gain) control

The DG of the U-matic VTR can be adjusted within a range of ±8%.

㉑ B/W/COLOR/AUTO switch

Set this switch to the position which corresponds to the signal connected to the OFF TAPE VIDEO input connector.

B/W: The input signal is treated as a monochrome signal.

COLOR: The input signal is treated as a color signal.

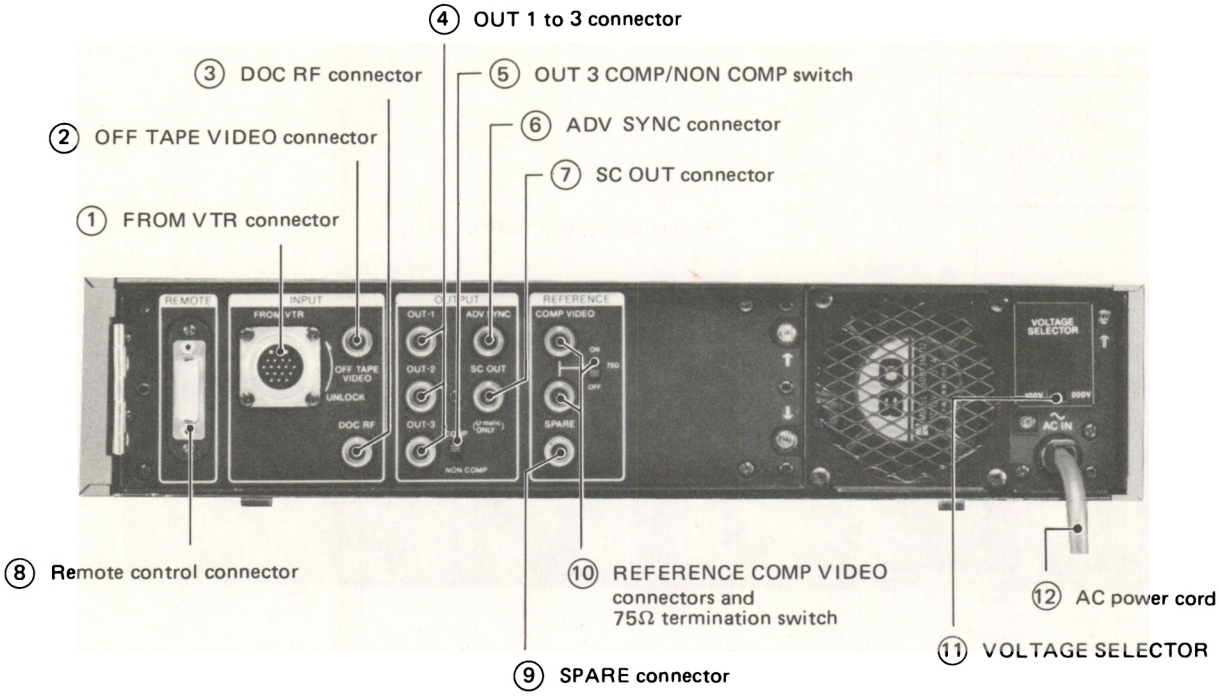
AUTO: The input signal is identified as a monochrome signal or a color signal by its burst signal level of 40 IRE −16 ± 5 dB.

㉒ BYPASS/NORMAL switch

BYPASS: The input signal bypasses the circuit and will be fed out.

NORMAL: Normally set to this position. The time base error of the input signal is corrected before the signal is fed out.

1-2-2. Connector Panel



① **FROM VTR connector** (16 pin) (for BVU-800, BVU-820 ONLY)
Connect to the TBC connector on the BVU-800 or BVU-820 with the supplied multi-core cable. This connection cuts the input to the OFF TAPE VIDEO connector ②. If signals are connected both to the DOC RF and the FROM VTR connectors, both signals are fed in.

② **OFF TAPE VIDEO input connector** (BNC type)
Connect to the video output on the VTR.

③ **DOC RF input connector** (BNC type)
Connect to the RF (OFF TAPE) connector on the VTR.

④ **OUT 1 to 3 connectors** (BNC type)
These connectors output the video signals. Connect to the video input on the equipment to be used. The output of the OUT 3 connector can be set to composite video or non-composite video by the COMP/NON COMP switch ⑤.

⑤ **OUT 3 COMP/NON COMP switch**
The output signal of the OUT 3 connector can be changed with this switch.
COMP: A composite video signal (VBS, the same as the OUT 1 and 2) is output.
NON COMP: A non-composite video signal (VB) is output.

⑥ **ADV SYNC (advanced sync) output connector** (BNC type)
The sync signal which has been advanced by 8 H against the reference signal is output here. Connect to the sync input on the VTR.

⑦ **SC OUT connector** (BNC type)
The subcarrier is output here. Connect to the subcarrier input on the VTR.

⑧ **Remote control connector**
To control the BVT-800 remotely, connect the BK-2006 TBC remote control unit. For the remote-control operation, the setting of the LOCAL/REMOTE switch is required. Refer to "2-12 remote control".

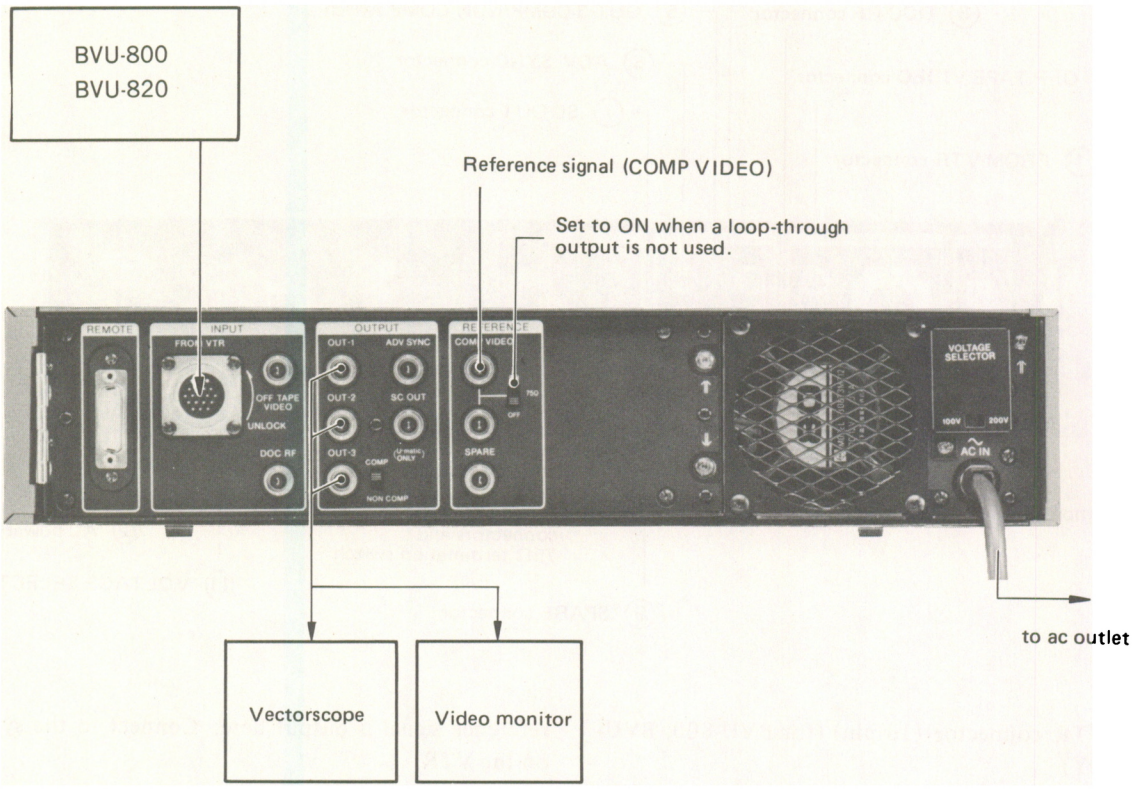
⑨ **SPARE connector** (BNC type)
No connections inside.

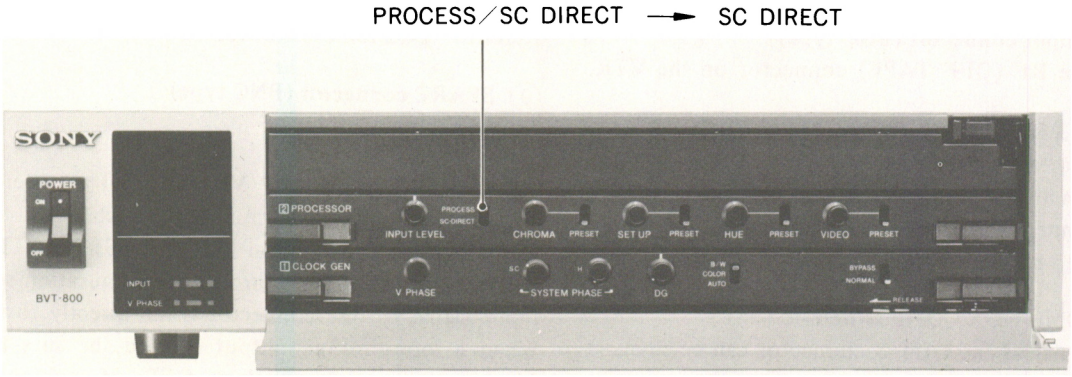
⑩ **REFERENCE COMP VIDEO input connectors** (BNC type) and 75-ohm termination switch
Connect a reference signal (BS or VBS) here. These two connectors are in "loop-through" configuration so that the input signal to one connector is fed directly to the other. When a loop-through output is used, be sure to set the 75-ohm termination switch to OFF. If such an output is not used, set the switch to ON.

⑪ **VOLTAGE SELECTOR**
Set to your local power voltage. If the selector must be reset, remove the cover, press the voltage selector switch, and replace the cover.

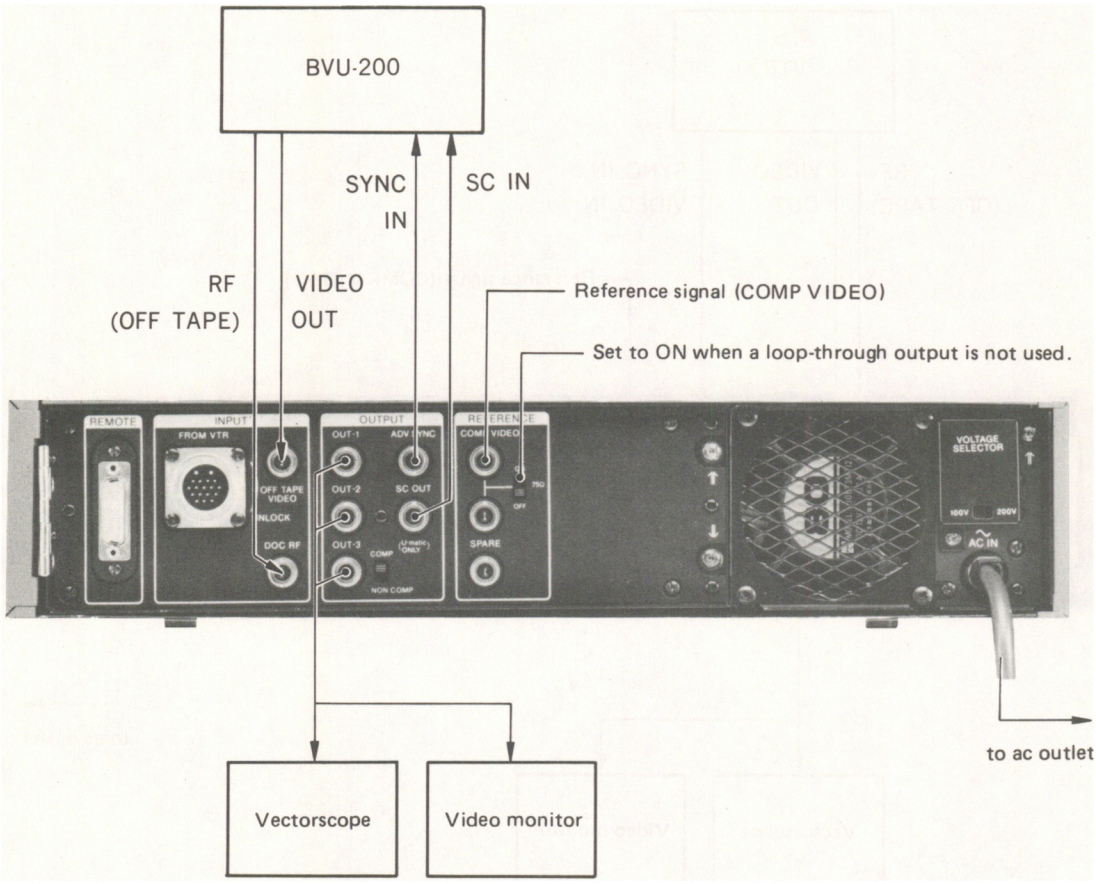
1-3. CONNECTIONS AND OPERATION

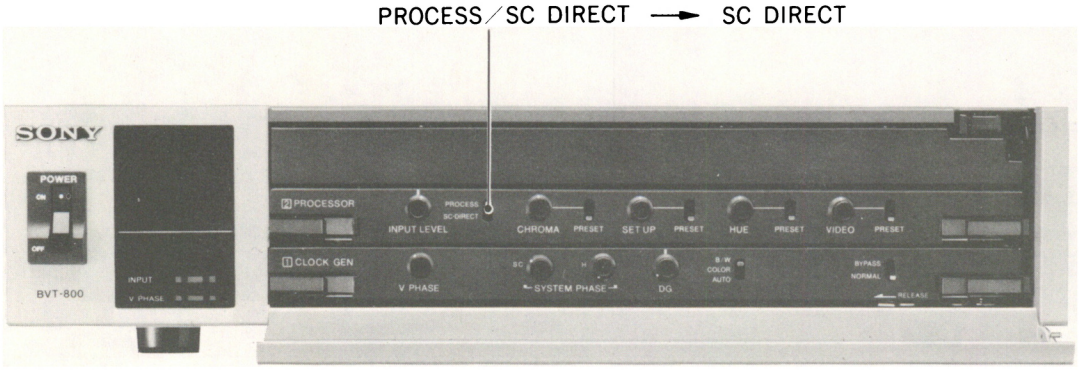
1-3-1. Connection with the BVU-800 and BVU-820



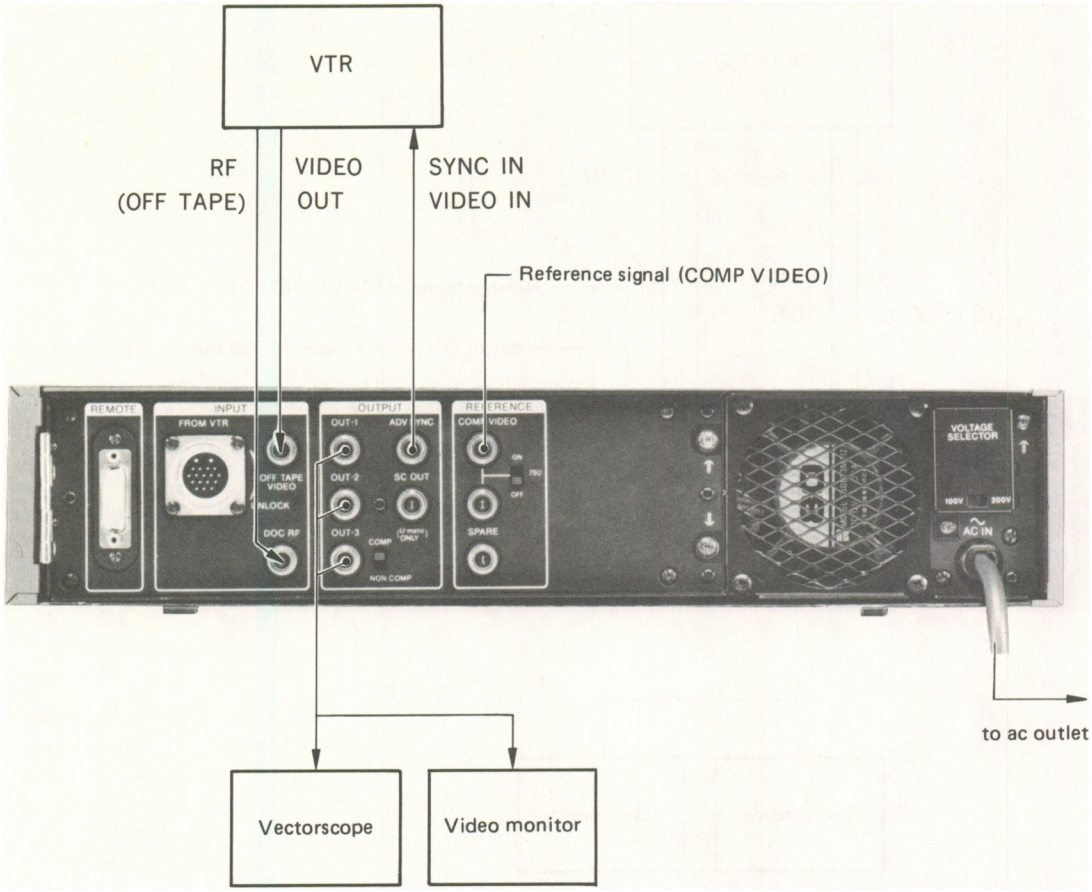


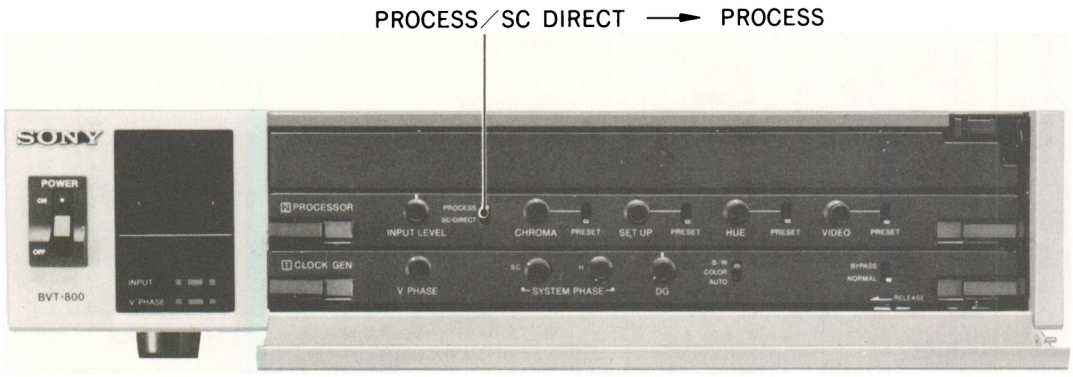
1-3-2. Connection with the BVU-200



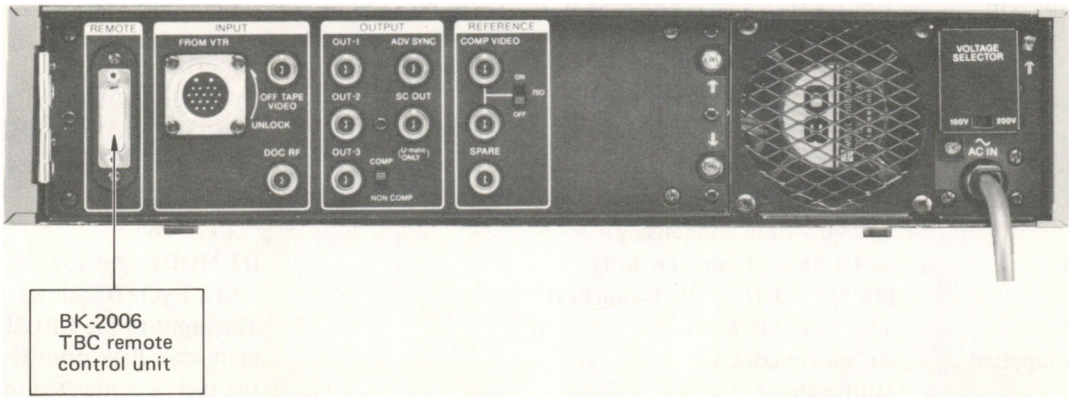


1-3-3. Connection with a VTR which has not a Subcarrier Input Connector

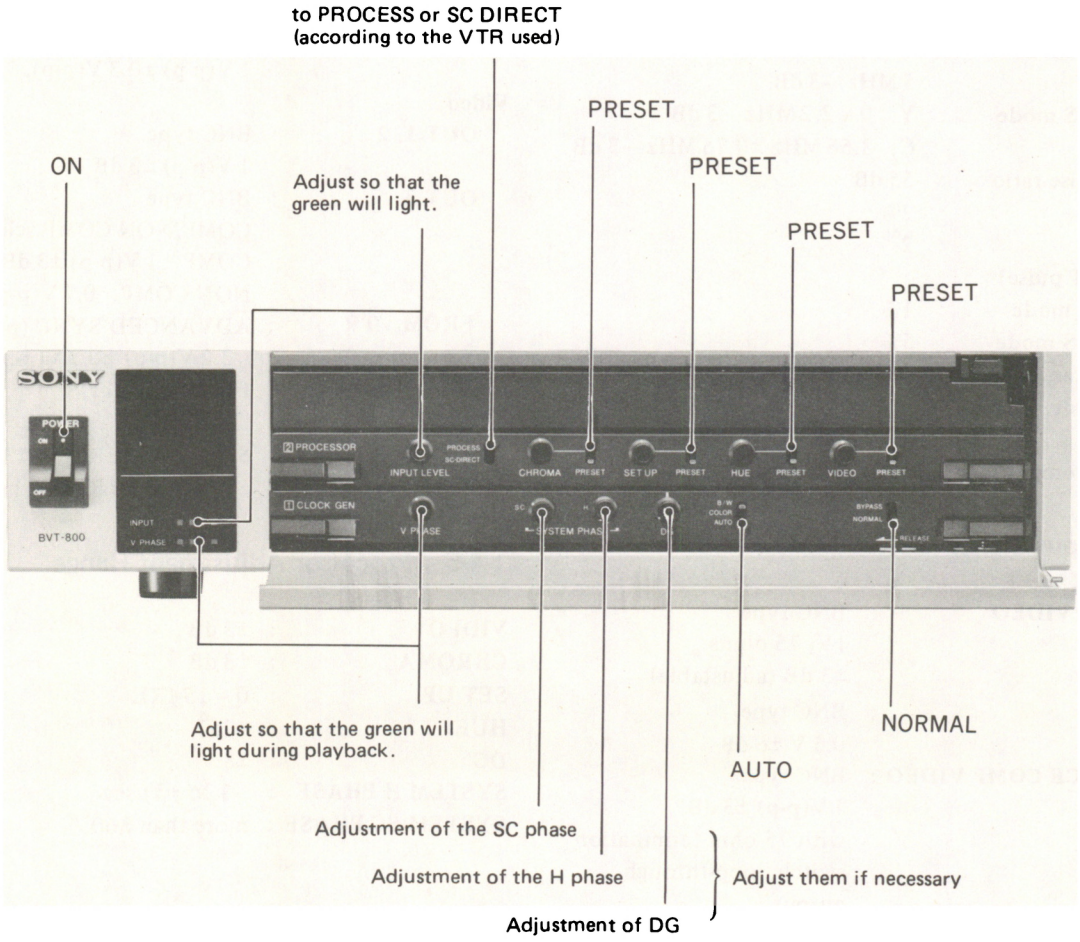




1-3-4. Connection with the Remote Control Unit



1-3-5. Standard Setting



- For the standard setting of the remote-control operation, refer to 2-12.

1-4. SPECIFICATIONS

1-4-1. General

Power requirement	:	100 - 120 V (90 - 132 V)/220 - 240 V (198 - 264 V) ac selectable 50/60 Hz (48 - 62 Hz)
Power consumption	:	90 W
Operating temperature	:	0°C to 40°C (32°F to 104°F)
Storage temperature	:	−10°C to +60°C (14°F to 140°F)
Humidity	:	10 - 90% (non condensing)
Dimensions	:	424 x 88 x 515 mm (w/h/d) (16 3/4 x 3 1/2 x 20 3/8 inches)
Weight	:	11.5 kg (25 lb 6 oz)
Accessories supplied	:	AC power cord 1 Multi-cable 1 Extension card 1 Operation and maintenance manual 1

1-4-2. Video

Bandwidth		
DIRECT mode	:	0 - 4.2 MHz ±0.4 dB 5 MHz −3 dB
PROCESS mode	:	Y: 0 - 2.2 MHz −3 dB C: 3.58 MHz ±0.75 MHz −3 dB
Signal to noise ratio	:	55 dB
DG	:	2%
DP	:	2°
K factor (2T pulse)		
DIRECT mode	:	1%
PROCESS mode	:	5%
Correction range	:	15 H(p-p)
Residual error		
Color	:	±2.5 nsec.
Monochrome	:	±15 nsec.

1-4-3. Input Signal

OFF TAPE VIDEO	:	BNC type 1 V, 75 ohms ±3 dB (adjustable)
DOC RF	:	BNC type 0.5 V ±6 dB
REFERENCE COMP VIDEO	:	BNC type 1 V(p-p) ±3 dB, with 75-ohm termination switch, loop-through output
FROM VTR	:	16 pin OFF TAPE VIDEO (pin 1, 2) 1 V(p-p), 50 ohms ±3 dB (adjustable) DT-V (pin 3, 4) TTL level DO PULSE (pin 6, 7) TTL level (Dropout: low) NORMAL/CONFIDENCE (pin 12) TTL level (Confidence: low) MULTI CN (pin 14) GND level DT MODE (pin 15) TTL level (DT: low) The input to the FROM VTR connector have priority over the signals connected to the BNC connectors.

1-4-4. Output Signal

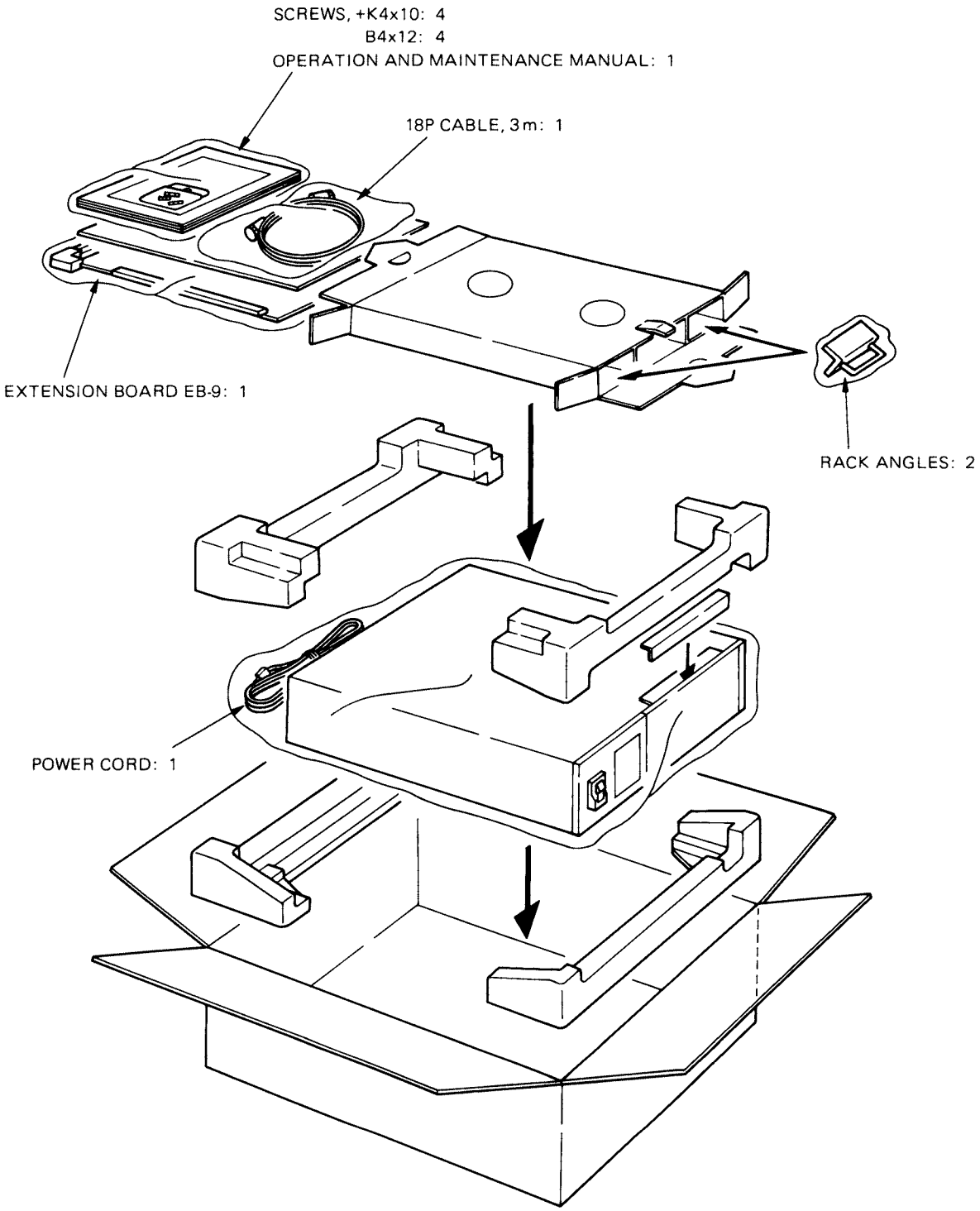
Advanced sync (ADV SYNC)		BNC type 2.2 V ±0.3 V, 75 ohms
Subcarrier (SC OUT)	:	BNC type 1 V(p-p) ±0.3 V(p-p), 75 ohms
Video		
OUT 1, 2	:	BNC type 1 V(p-p) ±3 dB
OUT 3	:	BNC type COMP/NON COMP selectable COMP: 1 V(p-p) ±3 dB NON COMP: 0.7 V(p-p) ±3 dB
FROM VTR	:	ADVANCED SYNC (pin A, B) 2.2 V(p-p) ±0.3 V(p-p), 75 ohms FH (pin 10, 11) TTL level SUBCARRIER (pin 13, B) 1 V(p-p) ±0.3 V(p-p), 75 ohms

1-4-5. Processor Adjustment Range

VIDEO	:	±3 dB
CHROMA	:	±3 dB
SET UP	:	0 - 15 IRE
HUE	:	±25°
DG	:	±8%
SYSTEM H PHASE	:	−1 to +3 μsec.
SYSTEM SC PHASE	:	more than 360°

SECTION 2
INSTALLATION

2-1. UNPACKING AND REPACKING



2-2. OPERATING CONDITIONS

(1) Use in a dry, well ventilated place.
(2) Not to be exposed to high temperatures or place near sources of heat.
(3) Dust and vibration to be avoided.
(4) Strong electric and magnetic fields to be avoided.
(5) Sunlight and strong direct light such as flash light to be avoided.

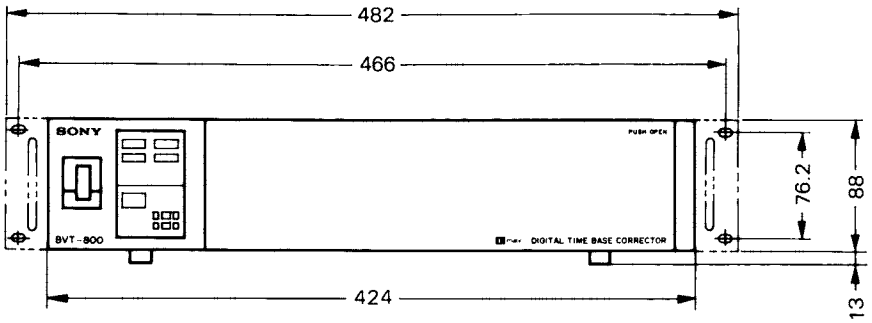
2-3. INSTALLATION SPACE

2-3-1. Installation Conditions

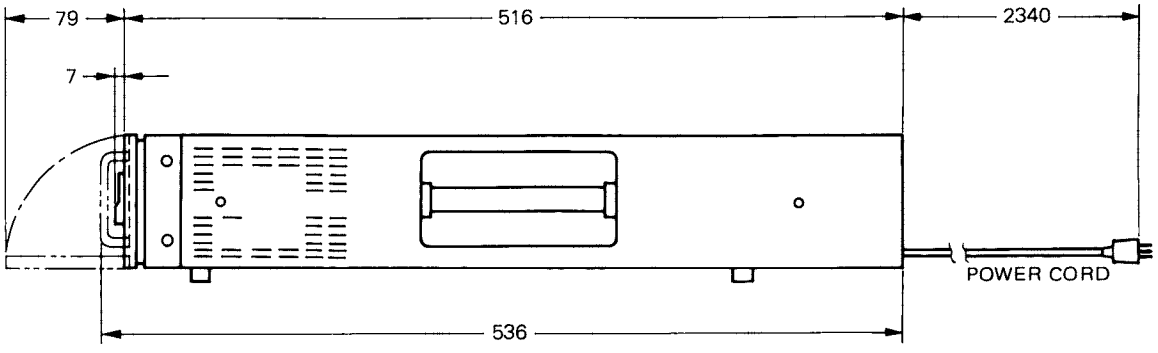
(1) Allow 15 cm or more behind the connector panel.
(2) Cables and other items should not be allowed to obstruct the fan screen on the rear panel.
(3) Do not place on heat generating objects such as power supplies.

2-3-2. External Dimensions

Front

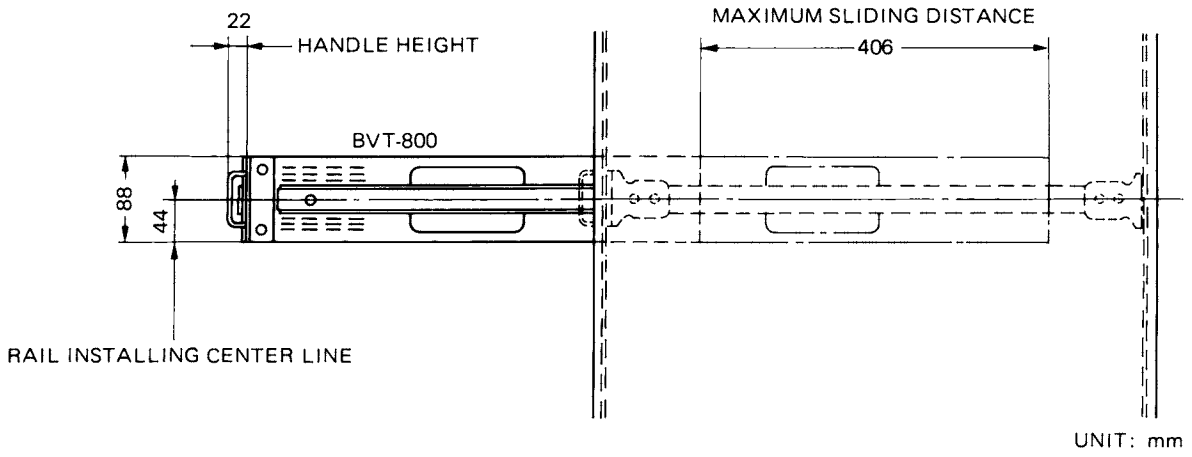


Right Side

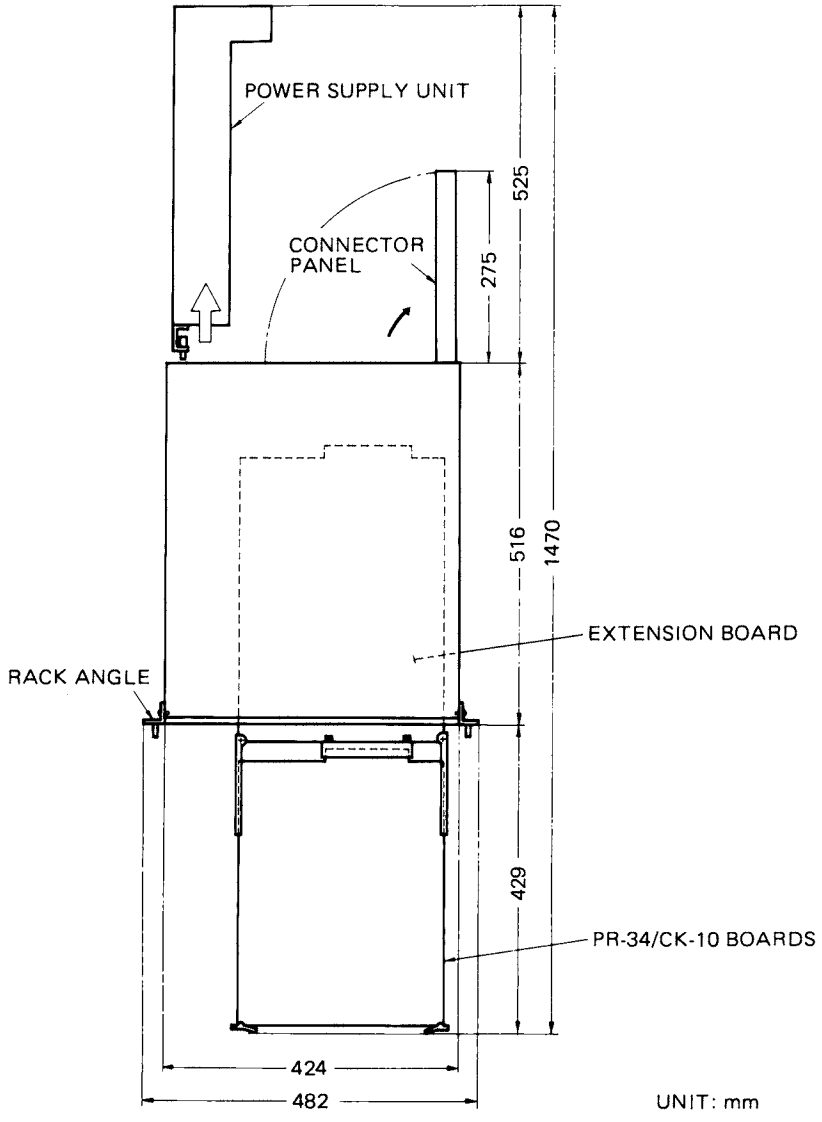


UNIT: mm

Rack Mounting



Working Space



2-4. POWER REQUIREMENTS

Power Line Voltage	AC100-120/220-240 V switchable
100-120 V mode	AC90 to 132 V
220-240 V mode	AC198 to 264 V
Power Line Frequency	48 to 62 Hz
Power Consumption	90 W

2-5. SUPPLIED ACCESSORIES

Extension Board EB-9: 1
Used for checking and repairing PR-34 and CK-10 boards.
Rack Angles: 2
Screws, B4x12: 4
+K4x10: 4
One set of rack angles and screws is necessary for rack mounting.
18P Cable: 1
3 meter long 18P CCY cable for connection of BVT-800 and VTR.
Operation and Maintenance Manual: 1
BVT-800 operation manual and service manual

2-6. OPTIONAL ACCESSORIES

Sliding Rails for Rack Mounting: 1 pair
ACCURIDE Model 203
Brackets for Rack Mounting: 4
ACCURIDE #5507-2
Rails and brackets for mounting BVT-800 to the rack.
The above parts should be ordered directly from the manufacturer:

STANDARD PRECISION INC.
12311 S, SHOEMAKER AVENUE SANTA
FE SPRINGS, CALIFORNIA 90670
TEL (213) 944-6236

Remote Controller:
SONY Remote Control Unit BK-2006

2-7. MATCHING CONNECTOR AND CABLE

VTR Connector
Use 18P CCY cable supplied (length 3 m) and no other cables.
REMOTE Connector
Use the cable supplied with SONY Remote Control Unit BK-2006.
Other connectors are all BNC type.

2-8. RACK MOUNTING METHOD

Parts to be prepared

Slide Rails for Rack Mounting: 1 pair
(consisting of two inner members and two outer members)
ACCURIDE Model 203, length 22" (559 mm)

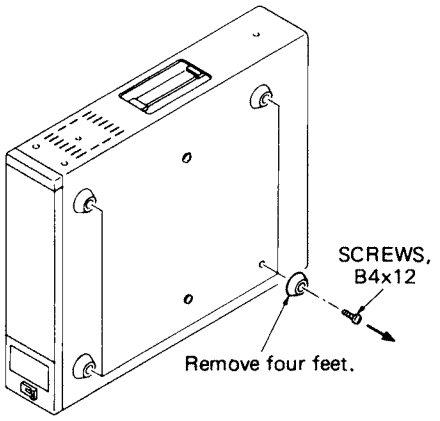
Brackets for Rack Mounting: 4
ACCURIDE #5507-2

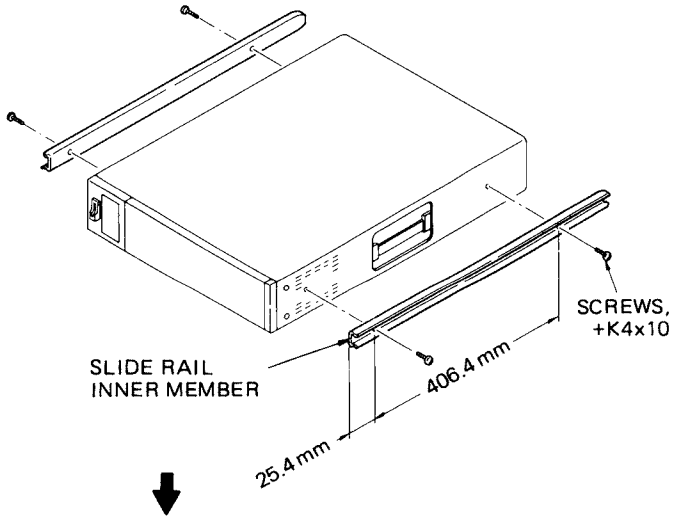
Slide Rail/Inner Member Connecting Screws: 4
Supplied accessory +K4x10

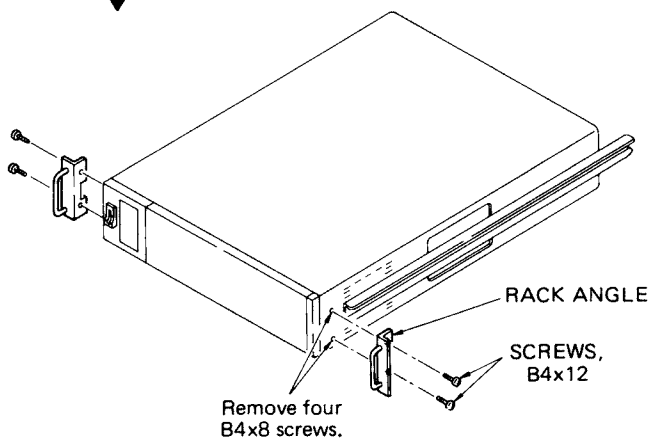
Rack Angles: 2
Supplied accessory

Rack Angle Mounting Screws: 4
Supplied accessory B4x12

Rack Mounting Procedure

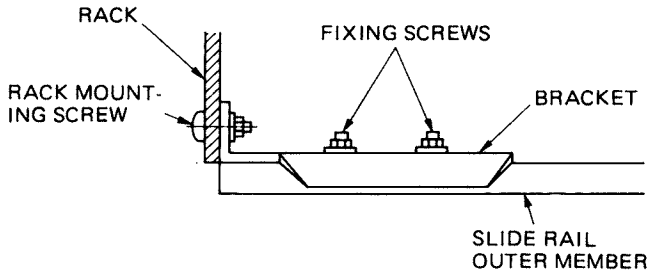




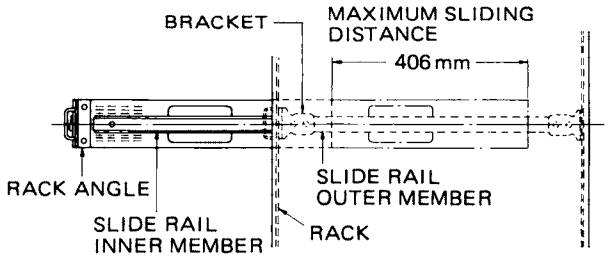


Fix the bracket to the outer member and mount the bracket to the rack as follows.

Note:
Use the fixing screws and rack mounting screws recommended by the slide rail manufacturer.

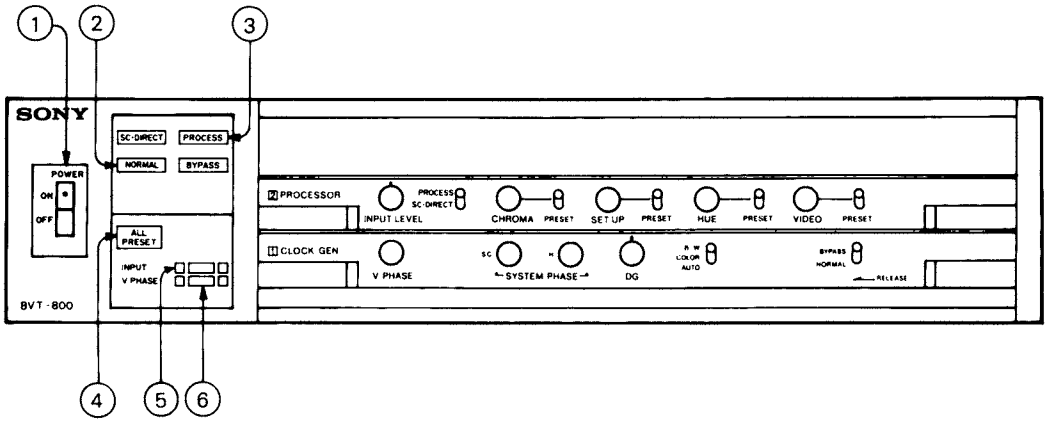


Mount the BVT-800 to the rack.



2-9. SWITCH AND CONTROL SETTING

2-9-1. Indicator Panel



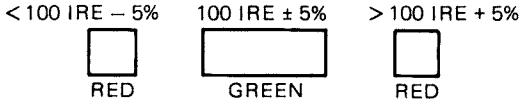
① **POWER Switch**
Power ON/OFF switch

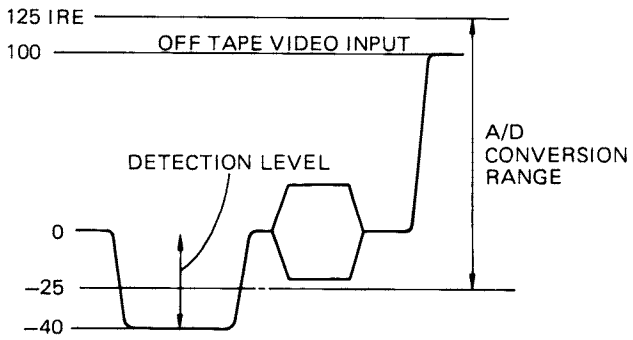
② **NORMAL/BYPASS Indicator**
Lamps light corresponding to the ㉒ BYPASS/NORMAL switch.

③ **SC • DIRECT/PROCESS Indicator**
Lamps light corresponding to the ⑧ SC • DIRECT/PROCESS switch.

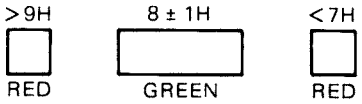
④ **ALL PRESET Indicator**
ALL PRESET lamp lights when the switches ⑫ CHROMA PRESET, ⑭ SET UP PRESET, ⑯ HUE PRESET and ⑱ VIDEO PRESET are all set to PRESET.

⑤ **INPUT Indicator**
This indicates the level of the sync signal portion of the off tape video input as the level of the off tape video signal. In other words, it indicates a sync signal level 40 IRE as an off tape video input level 100 IRE (without SYNC). Adjustment is done with the ⑦ INPUT LEVEL control.



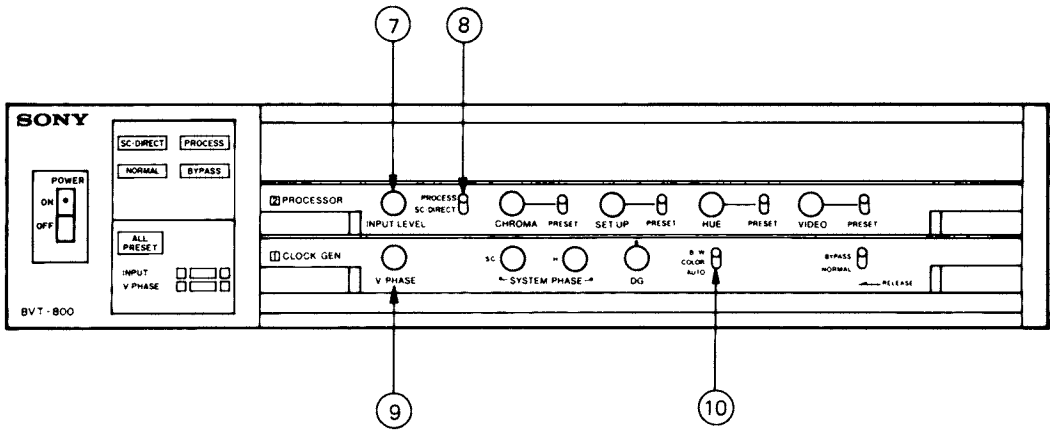


⑥ **V PHASE Indicator**
When the VTR is in the normal playback mode, these lamps indicate whether the off tape video input is in advance of the reference signal by 8H or not. The green lamp indicates the correct phase, 8H±1H. Adjustment is by the ⑨ V PHASE control.



Note:
When the VTR is in the E-E mode, off tape video signal and reference signal become in phase; the red lamp indicating 'less than 7H' lights.

2-9-2. Input System



PR-34 Board

⑦ INPUT LEVEL Control

Control for level adjusting of the off tape video signal; the adjusting range is ±3 dB. The level is indicated on ⑤. The green lamp lights when the level is correct (100 IRE ±5%).

⑧ SC • DIRECT/PROCESS Switch

In SC • DIRECT mode, the TBC processes signals without Y/C-separation, while in PROCESS mode, signals are Y/C-separated in the TBC. SC • DIRECT mode produces better picture than PROCESS mode, but SC should be sent to the VTR from the TBC so as to perform SC • DIRECT processing. If there is no SC input terminal on the VTR, the PROCESS mode should be used. The SC to the VTR is outputted from the SC OUT connector or the 18-pin "FROM VTR" connector.

CK-10 Board

⑨ V PHASE Control

When the VTR is in the normal playback mode, this adjusts the off tape video signal so that it is 8H in advance of the reference signal. The green lamp ⑥ lights when the phase is 8H±1H in advance.

⑩ B/W, COLOR, AUTO Switch

The TBC operates in COLOR or B/W mode depending on the combination of the off tape video signal contents and this switch. Normally set to AUTO.

B/W: Regardless whether the input signal is color or black/white, the TBC takes it as a black/white signal.

COLOR: Regardless of whether the input signal is color or black/white, the TBC takes it as a color signal. However, if the input signal is black/white (i.e., no burst), in COLOR mode the TBC may not operate correctly.

AUTO: The TBC decides automatically COLOR or B/W depending on the input signal burst level. The signal is judged to be B/W if its burst level is below the reference level (40 IRE) by 16±5 dB.

Note:

TBC OUT burst can be ON/OFF controlled by the PR-34 circuit board S501.

TBC OUT burst and details of each switch mode is as follows:

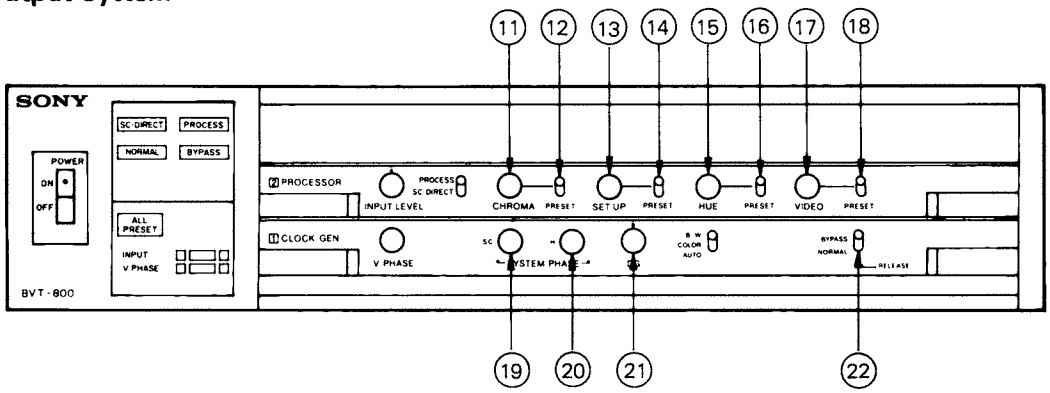
OFF TAPE VIDEO IN signal		No Burst		With Burst	
PR-34 Board S501		ON	OFF	ON	OFF
CK-10 Board B/W, COLOR, AUTO switch	B/W mode	○	△	○	△
	COLOR mode	X	X	○	○
	AUTO mode	○	△	○	○

○ : With burst on TBC OUT

△ : No burst on TBC OUT

X : Possibility of erroneous operation. Not applicable.

2-9-3. Output System



PR-34 Board

⑪ **CHROMA Level Control**

⑫ **CHROMA Level Manual/PRESET Switch**

Manual: The output signal chroma level is adjustable by the CHROMA level control within the range of ±3 dB.

PRESET: Irrespective of the CHROMA level control position, the output chroma level becomes identical to the input chroma level.

⑬ **SET UP Level Control**

⑭ **SET UP Level Manual/PRESET Switch**

Manual: The output signal set up level is adjustable by the SET UP level control within the range from 0 to +15 IRE against the input signal.

PRESET: Irrespective of the SET UP level control position, the output set up level becomes identical to the input set up level.

⑮ **HUE Control**

⑯ **HUE Manual/PRESET Switch**

Manual: The output signal hue is adjustable by the HUE control within the range of ±25°. Rotating the HUE control does not affect the phase relationship between the reference video burst and the TBC out burst.

PRESET: Irrespective of the HUE control position, the output signal hue becomes identical to the input signal hue.

⑰ **VIDEO Level Control**

⑱ **VIDEO Level Manual/PRESET Switch**

Manual: The output signal video level is adjustable by the VIDEO level control within the range of ±3 dB. The sync signal portion level is constant at 40 IRE.

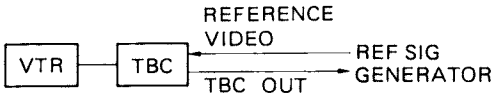
PRESET: Irrespective of the VIDEO level control position, the output signal video level becomes identical to the input signal video level. The sync signal portion level is constant at 40 IRE.

CK-10 Board

⑲ **SYSTEM SC PHASE Control**

⑳ **SYSTEM H PHASE Control**

These two controls are used for correcting the delay of sync and SC (burst) due to the cable between the reference signal generator and the TBC. It is used, for example, when it is required to equalize the TBC output sync and SC (burst) phase to the reference signal phase by sending the TBC output back to the reference signal generator.



SYSTEM H PHASE can be adjusted in the range of −1 to +3μs. SYSTEM SC PHASE control has the adjustable range of 360° so as to be able to adjust any phase to the reference. The SYSTEM SC PHASE control does not affect the H PHASE.

㉑ **DG Control**

The TBC output DG is adjustable by this control within the range of ±8%. DG compensation is 0 at the mechanical center.

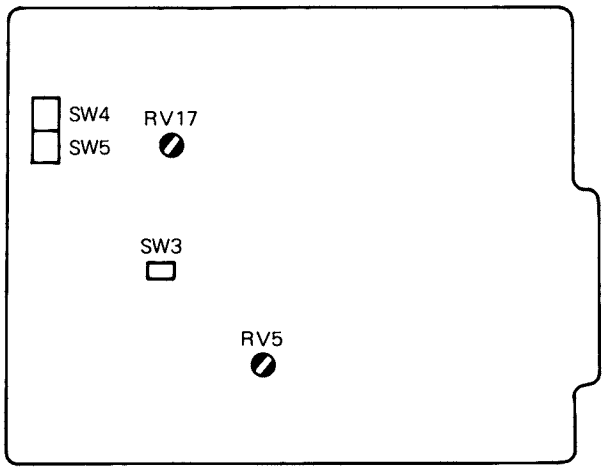
㉒ **BYPASS/NORMAL Switch**

BYPASS: The bypassed output appears at the TBC output and the ② BYPASS lamp lights. In the BYPASS mode, the sync signal of VIDEO OUT 3 is not ON/OFF controlled by the COMP/NON COMP switch. When the TBC power is OFF, the BYPASS output goes off too.

NORMAL: The time base corrected output with the shaped sync and burst signals appears at the TBC output and the ② NORMAL lamp lights.

2-9-4. Inside the Boards

CK-10 Board



SW 3: FH Switch

Turns the FH signal ON/OFF which is sent to the VTR. This is concerned only in the DT play mode.

ON: The FH signal synchronizes the DT V signal in the VTR and as a result, the video signal of the line 14 and up appears at the TBC output. It is not guaranteed whether any line signal of the off tape video signal is outputted in the line 13 or less.

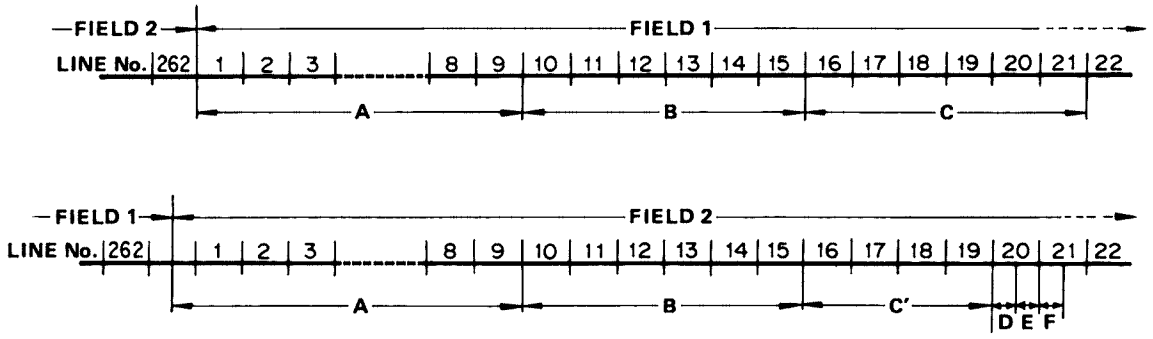
OFF: The FH signal does not synchronize the DT V signal in the VTR and the video signal of the line 16 and up appears at the TBC output. It is not guaranteed whether any line signal of the off tape video signal is outputted in the line 15 or less.

When a tape with poor S/N ratio is used in the DT play mode, the TBC is rather stable when set to OFF, however, if the line 14 signal such as VITC is necessary as the TBC output, set the FH switch to ON.

It is set OFF when shipped from the factory.

SW4, 5: V Blanking Line Select Switch

The blanking of any line up to lines 10 – 21 of the TBC output signal can be turned ON/OFF.



It is set as below when shipped from the factory.

SW 4: Lines 10 to 15 ON
SW 5: Lines 16 to 20 ON
Line 21 OFF

A: Having no connection with SW 4, 5, blanking is always performed.

B: Blanking of any line is turned ON/OFF by SW 4.

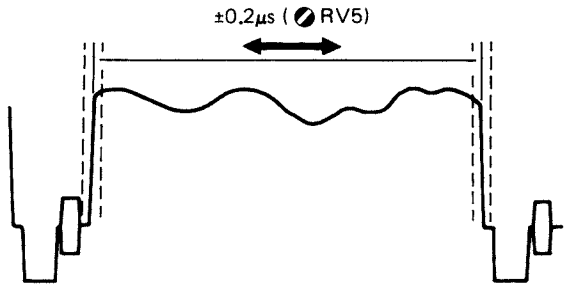
C, C': Blanking of any line is turned ON/OFF by SW 5.

D, E, F: When line 20 of SW 5 is turned ON and line 21 OFF, the D portion is blanked.
When lines 20 & 21 of SW 5 are turned ON, the D, E & F portions are blanked.
When line 20 of SW 5 is turned OFF and line 21 ON, the E & F portions are blanked but the D portion is not, so this setting should be avoided.

RV 5: VIDEO PHASE Adjustment Control

The video phase of the TBC output signal can be continuously varied ±0.2μs.

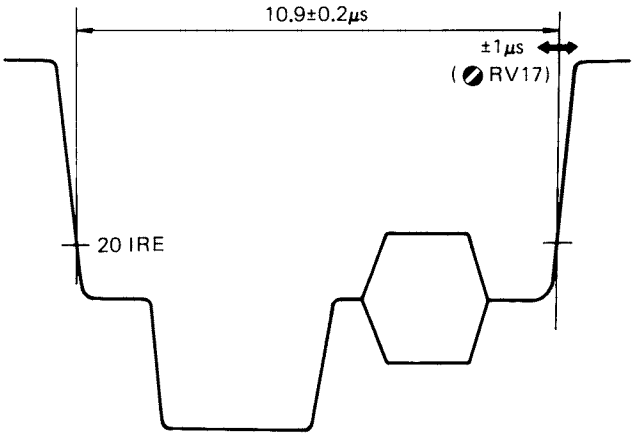
It is set to coincide with the bypass output video phase when shipped from the factory.



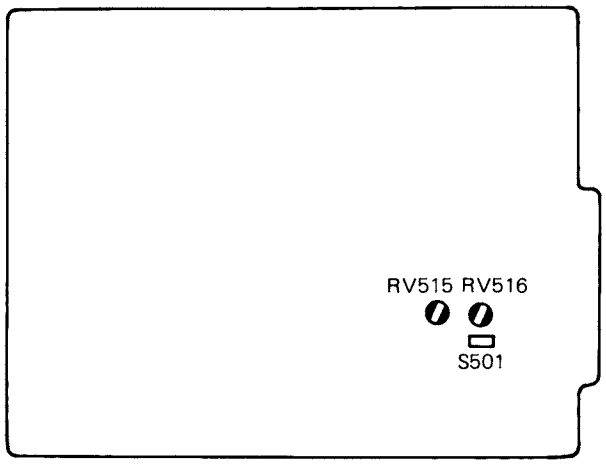
RV 17: H Blanking Width Adjustment Control

The H blanking width of the TBC output signal can be varied ±1μs.

The H blanking width is set to 10.9 ± 0.2μs when shipped from the factory.



PR-34 Board



RV 515: Burst Position Adjustment Control

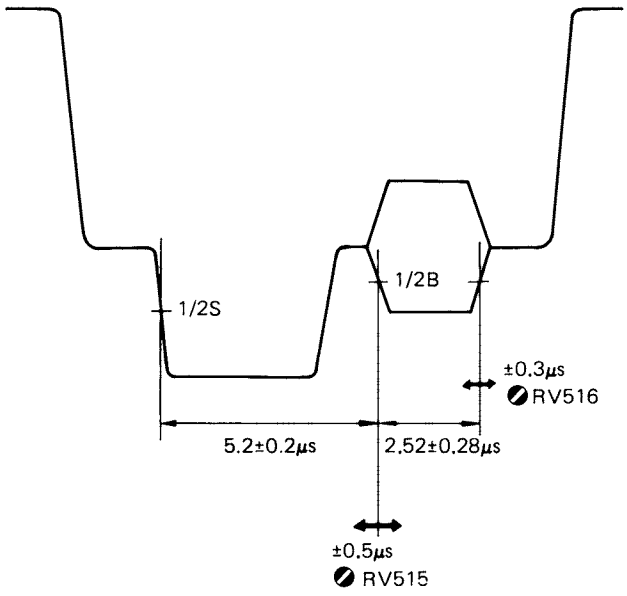
The burst position of the TBC output signal can be varied ±0.5μs.

It is set to 5.2 ± 0.2μs (as shown in the figure below) when shipped from the factory.

RV 516: Burst Width Adjustment Control

The burst width of the TBC output signal can be varied ±0.3μs.

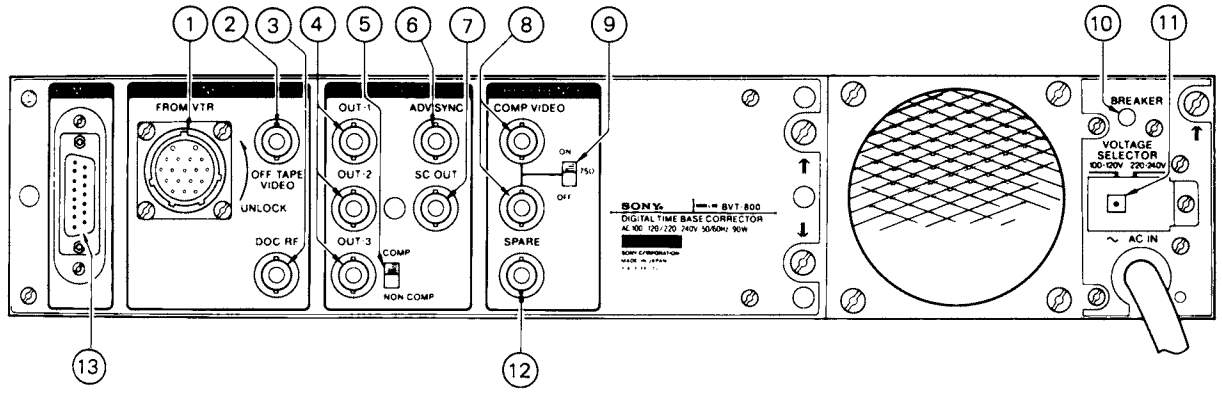
The burst width is set to 2.52 ± 0.28μs when shipped from the factory.



S501: Burst ON/OFF Switch

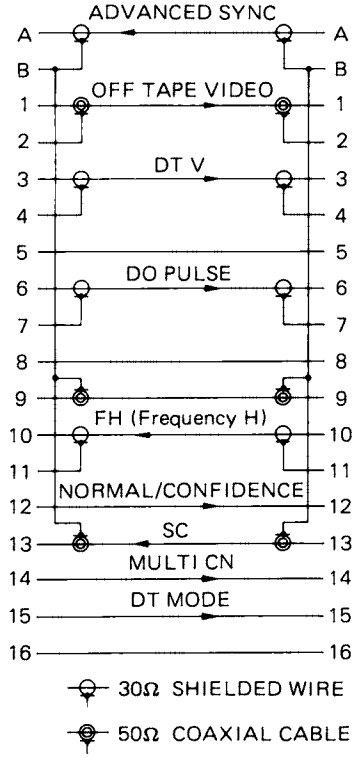
See Section 2-9-2 " ⑩ B/W, COLOR, AUTO Switch".

2-9-5. Connector Panel

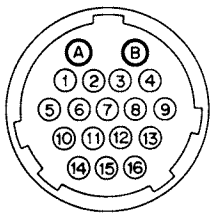


① **FROM VTR Connector** (18-pin male multi-connector) Connector between a VTR equipped with multi-connector (BVU-800, 820) and this equipment. Use the accessory 18-pin cable (3 m). Do not use cable longer than 3 m.

VTR 18-PIN CABLE BVT-800



RECEPTACLE ON BVT-800 (OUTSIDE VIEW)



BVT-800 Output Signal

ADVANCED SYNC

2.2 Vp-p ± 0.3 Vp-p
75 ohm
Composite
Negative polarity
The phase is in advance of the reference signal by 8H and ±1H adjusted by V PHASE control.
In the CONFIDENCE mode, the phase is not guaranteed.

FH TTL level
ON/OFF switched by SW3 on the CK-10 board.

SC 1 Vp-p ± 0.3 Vp-p
75 ohm
Sine wave
It has the same time base error as the luminance signal of the off tape video.
It is not outputted in the PROCESS or BYPASS mode.

BVT-800 Input Signal

OFF TAPE VIDEO

1 Vp-p 50 ohm
± 3 dB adjustable
Sync negative
When the pin 14 "MULTI CN" signal is grounded at the VTR, BVT-800 gives priority automatically to the off tape video signal over BNC connector.

DT V TTL level
Negative edge reference

DO PULSE TTL level
Dropout: LOW
When the 18-pin multi cable is used, the "DOC RF" signal is not needed.

NORMAL/CONFIDENCE
TTL level
CONFIDENCE mode (simultaneous playback): LOW

MULTI CN Grounded at VTR

DT MODE TTL level
DT mode: LOW

② **OFF TAPE VIDEO IN Connector** (BNC Connector)
1 Vp-p 75 ohm, ± 3 dB adjustable, sync negative
Connector for inputting the VTR's video output. When the 18-pin multi cable is connected, the off tape video signal from the multi cable is given priority.

③ **DOC RF IN Connector** (BNC Connector)
0.5 Vp-p ± 6 dB 75 ohm
Connector for inputting the off tape RF signal.
Connected to the OFF TAPE RF connector of the VTR.
When the 18-pin multi cable is used, the "DOC RF" signal is not needed.

④ **VIDEO OUT 1, 2, 3** (BNC Connectors)

⑤ **COMP/NON COMP Switch**
1 Vp-p 75 ohm, sync negative
VIDEO OUT connector on TBC. Sync signal of VIDEO OUT 3 is ON/OFF controlled by the COMP/NON COMP switch, however, in the BYPASS mode, the composite signal is always outputted.

⑥ **ADV SYNC OUT Connector** (BNC Connector)
2.2 Vp-p ± 0.5 Vp-p 75 ohm, negative polarity
This is the composite sync signal connector for transmitting to the VTR from the TBC advanced by 8H more than the reference signal. The "ADV SYNC" phase is in advance of the reference signal by 8H and ±1H adjusted by V PHASE control. In the CONFIDENCE mode, the phase is not guaranteed.
Connect to the SYNC IN or VIDEO IN connector on the VTR. When an 18-pin multi cable is used, the BNC connector is not needed.

⑦ **SC OUT Connector** (BNC Connector)
1 Vp-p ± 0.3 Vp-p 75 ohm
This connector is for the subcarrier sent from the TBC to the VTR, for processing the VTR output by the SC DIRECT mode in the TBC.
This subcarrier has the same time base error as the luminance signal of the off tape video. It is not outputted in the PROCESS or BYPASS mode.
Connect to the SC IN connector on the VTR. When a 18-pin multi cable is used, the BNC connector is not needed.

⑧ **REFERENCE COMP VIDEO IN/OUT Connector** (BNC Connector)

⑨ **75 ohm ON/OFF Switch**
NTSC composite VIDEO signal or black burst signal 1 Vp-p ± 3 dB (SYNC: 40 IRE ± 3 dB, BURST: 40 IRE ± 3 dB) 75 ohm, sync negative.
TBC reference signal input connector.
When looping, switch to 75 ohm OFF and when terminating, switch to 75 ohm ON. If no signal is inputted, the TBC operates with its internal reference signal.

⑩ **BREAKER**
AC 250 V 1.6 A
When the current exceeds the rated value, the BREAKER button turns OFF and the circuit opens. Depressing the button again, it is reset.

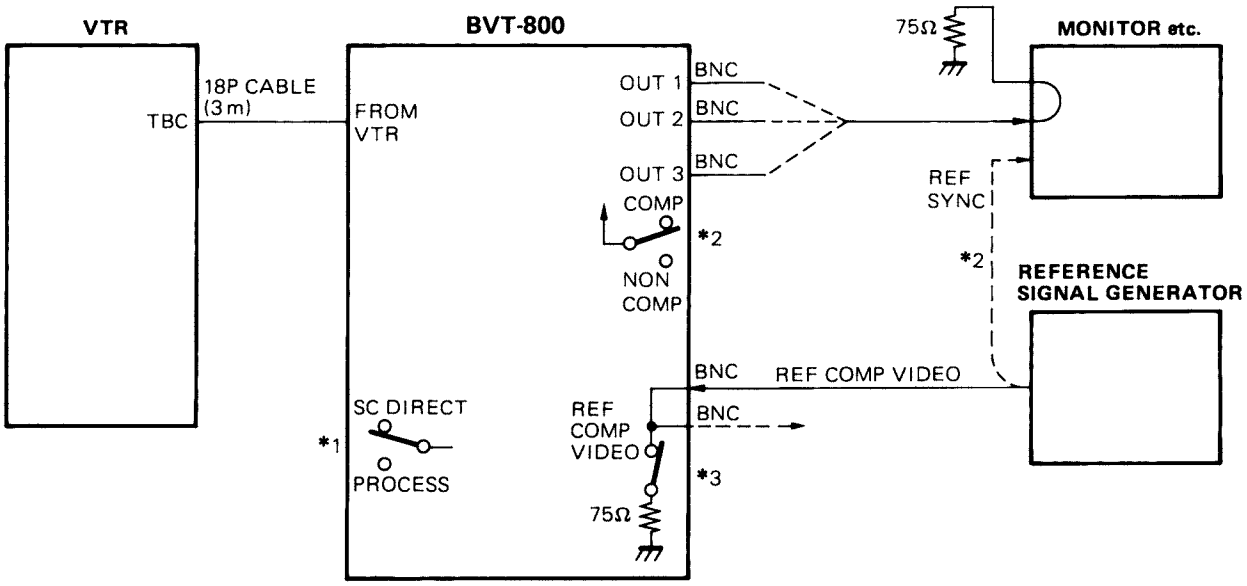
⑪ **VOLTAGE SELECTOR**
Power supply voltage switch.
Switch the voltage according to the power supply used. When the supply voltage is between AC 90 to 132 V, set to AC 100-120 V, when it is AC 198 to 264 V, set to AC 220-240 V.

⑫ **SPARE Connector** (BNC Connector)
It is not wired to the inside circuit. Use it when necessary to the modification.

⑬ **REMOTE Connector (D-SUB 15-pin male connector)**
Connected to SONY Remote Control Unit BK-2006. Cable is supplied with BK-2006.

2-10. Connection Examples

Connection 1: U-matic VTR with an 18-pin connector for connecting the TBC (Ex.: BVU-800, 820)

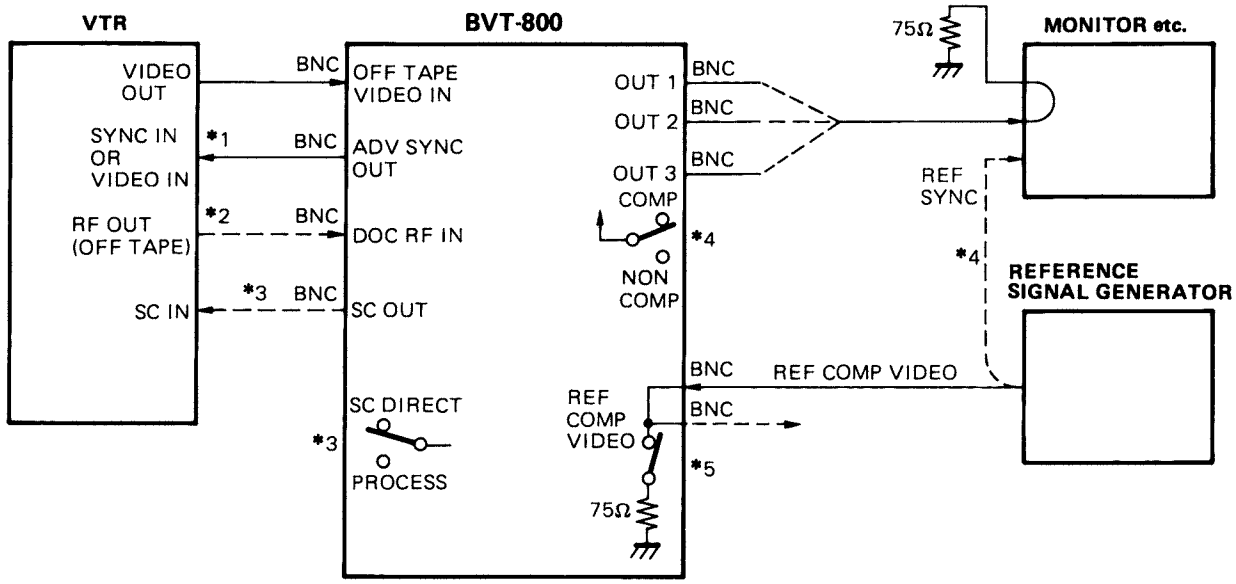


*1: **PROCESS/SC · DIRECT;**
Use SC DIRECT mode.
Can be operated in the PROCESS mode, but then the picture quality is inferior.

*2: **OUT 3;**
When it is set to NON COMP, the reference sync input is needed for MONITOR, etc. In the BYPASS mode, OUT 3 also outputs the composite signal.

*3: **REF COMP VIDEO;**
When looping the NTSC composite VIDEO signal or black burst signal, set the 75 ohm to OFF and when terminating it, set it to ON.
If no signal is inputted, the TBC operates with its internal reference signal.

Connection 2: VTR equipped with a capstan servo without 18-pin multi connector for connecting the TBC.



***1: ADV SYNC OUT;**

When the VTR has no SYNC IN connector, connect to the VIDEO IN connector.

***2: DOC RF IN;**

DOC in the TBC is impossible unless the off tape RF signal of the VTR is connected.

***3: PROCESS/SC • DIRECT;**

When the SC is sent to the VTR, the SC DIRECT mode is used.

Can be operated in the PROCESS mode, but then the picture quality is inferior.

***4: OUT 3;**

When it is set to NON COMP, the reference sync input is needed for MONITOR, etc. In the BYPASS mode, OUT 3 also outputs the composite signal.

***5: REF COMP VIDEO;**

When looping the NTSC composite VIDEO signal or black burst signal, set the 75 ohm to OFF and when terminating it, set it to ON.

If no signal is inputted, the TBC operates with its internal reference signal.

2-11. SPECIFICATIONS

GENERAL

Dimensions 424 (w) x 88 (h) x 516 (d) mm

Weight 11.5 kg

Power Requirements

AC100-120/220-240 V switchable
100-120 V mode: AC90 to 132 V
220-240 V mode: AC198 to 264 V
48 to 62 Hz
90 W

Ambient Operating Conditions

Temperature 0°C to +40°C

Humidity 10% to 90% (noncondensing)

VIDEO

Bandwidth

DIRECT Mode

±0.4 dB at 0 to 4.2 MHz
Less than 3 dB down at 5 MHz

PROCESS Mode

Y: Less than 3 dB down at 2.2 MHz
C: Less than 3 dB down at 3.58 MHz ± 0.75 MHz

K Factor

DIRECT Mode

1%

PROCESS Mode

5%

Signal-to-Noise Ratio

More than 55 dB
(peak-to-peak video to rms noise)

Differential Gain

2% (non-lock)

Differential Phase

2° (non-lock)

Y/C Delay

DIRECT Mode

25ns

PROCESS Mode

25ns

Correction Range

15H p-p

Residual Error

COLOR ±2.5ns

B/W ±15ns

Input Signals

Off Tape Video

1 Vp-p 75 ohm, ± 3 dB adjustable, sync negative

DOC RF 0.5 Vp-p ± 6 dB 75 ohm

Reference Composite Video

NTSC, 1 Vp-p ± 3 dB 75 ohm, sync negative
Burst: 40 IRE ± 3 dB
Sync: 40 IRE ± 3 dB
75 ohm ON/OFF, Looping is possible.

Output Signals

Advanced Sync

2.2 Vp-p ± 0.3 Vp-p
75 ohm, negative polarity

Subcarrier (to VTR)

1 Vp-p ± 0.3 Vp-p 75 ohm
This subcarrier has the same time base error as the luminance signal of the off tape video.

Video Out 1, 2, 3

1 Vp-p 75 ohm, sync negative
Sync signal of VIDEO OUT 3 is ON/OFF controlled by the COMP/NON COMP switch.

Note: For the "FROM VTR" multi-connector signals, see Section 2-9-5 "Connector Panel".

2-12. REMOTE CONTROL

2-12-1. General

The following functions can be remote-controlled from the BK-2006.

1. VIDEO Level
2. CHROMA Level
3. SET UP Level
4. HUE
5. SYSTEM H PHASE
6. SYSTEM SC PHASE

Note: Take notice that the ALL PRESET indicator on the BVT-800 has no relation to the setting of the remote controller.
The above controls and the manual/PRESET switches are not controlled from the BVT-800 due to the modifications.

Steps 1 to 11 in Section 2-12-2 must be performed for the units with Serial No. 10001 to 10699. The parts for the modifications are supplied as the BVT-KIT 6.
Steps 9 to 11 in Section 2-12-2 must be performed for the units with Serial No. 10701 and up.

2-12-2. Modification Procedure

Step 1. Prepare the BVT-KIT 6.

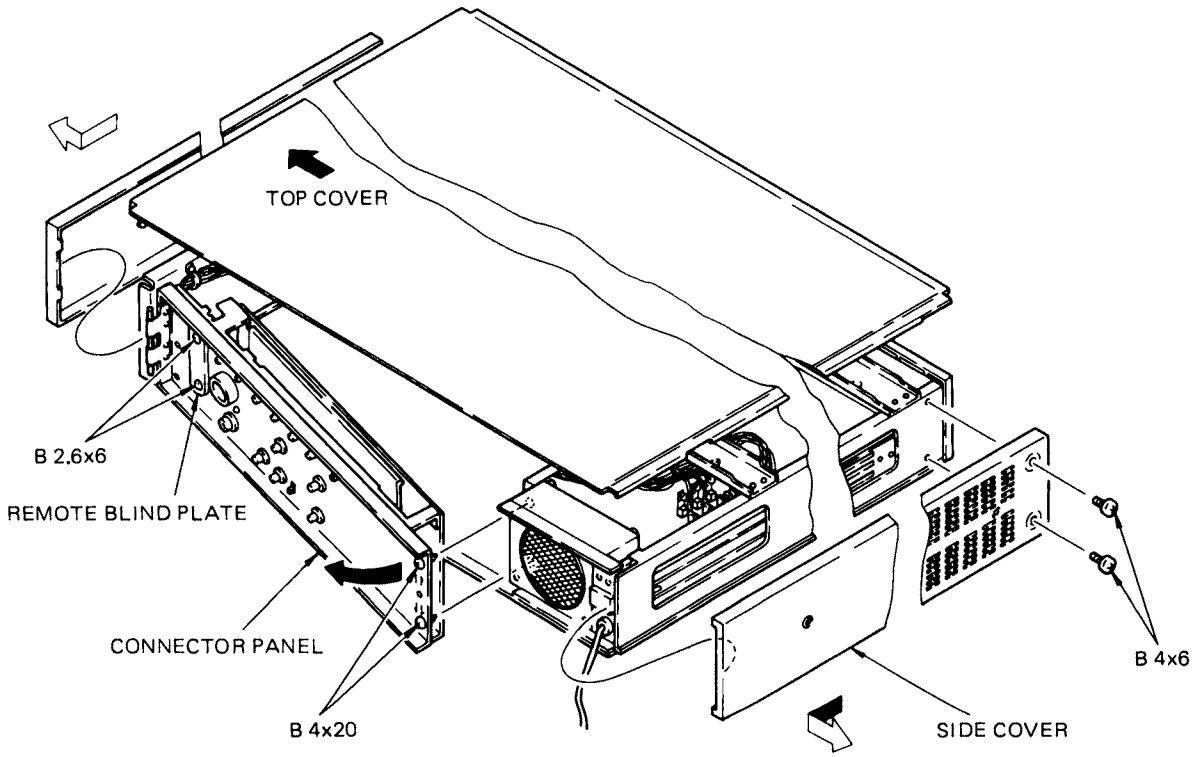
The BVT-KIT 6 is composed of the following parts.

Q'ty	Part No.	Description
2 pcs	1-213-131-00	RES, METAL 100 5% 1W
2 pcs	3-673-910-00	SCREW, CONNECTOR
1 pc	———	HARNESS (W)*
1 pc	———	PLATE, CONNECTOR
1 pc	———	JUMPER, RED, 65 mm
1 pc	———	JUMPER, VIOLET, 150 mm
1 pc	———	BAND, BINDING

*: The harness (W) is composed of the following parts.

1 pc	1-560-495-00	RECEPTACLE, D-SUB, 15P, MALE
1 pc	1-561-485-00	PLUG, HOUSING, 20P
15 pcs	1-560-037-00	CONTACT, FEMALE

Step 2. Remove the side covers and top cover, open the connector panel, and then take off the remote blind plate.



Step 3. Modify the MB-16 board as follows.

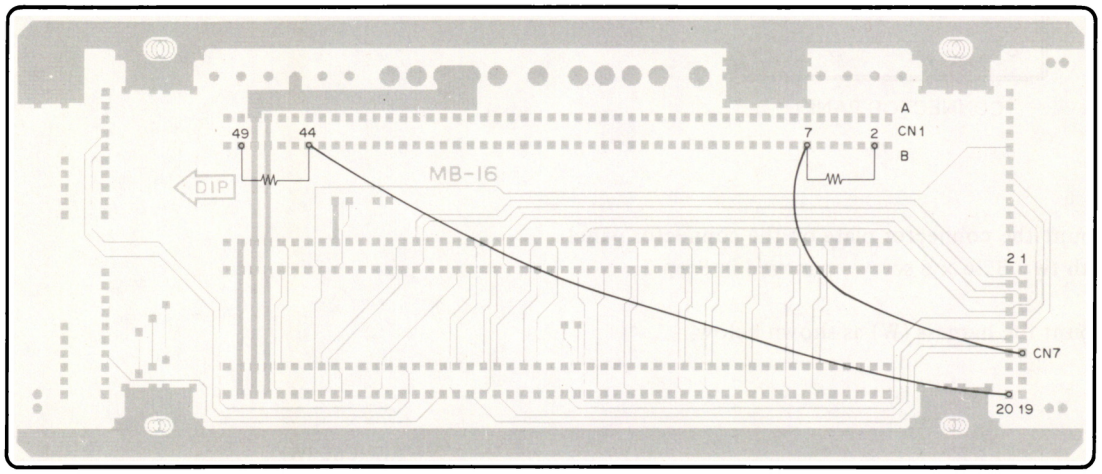
Add the two resistors.

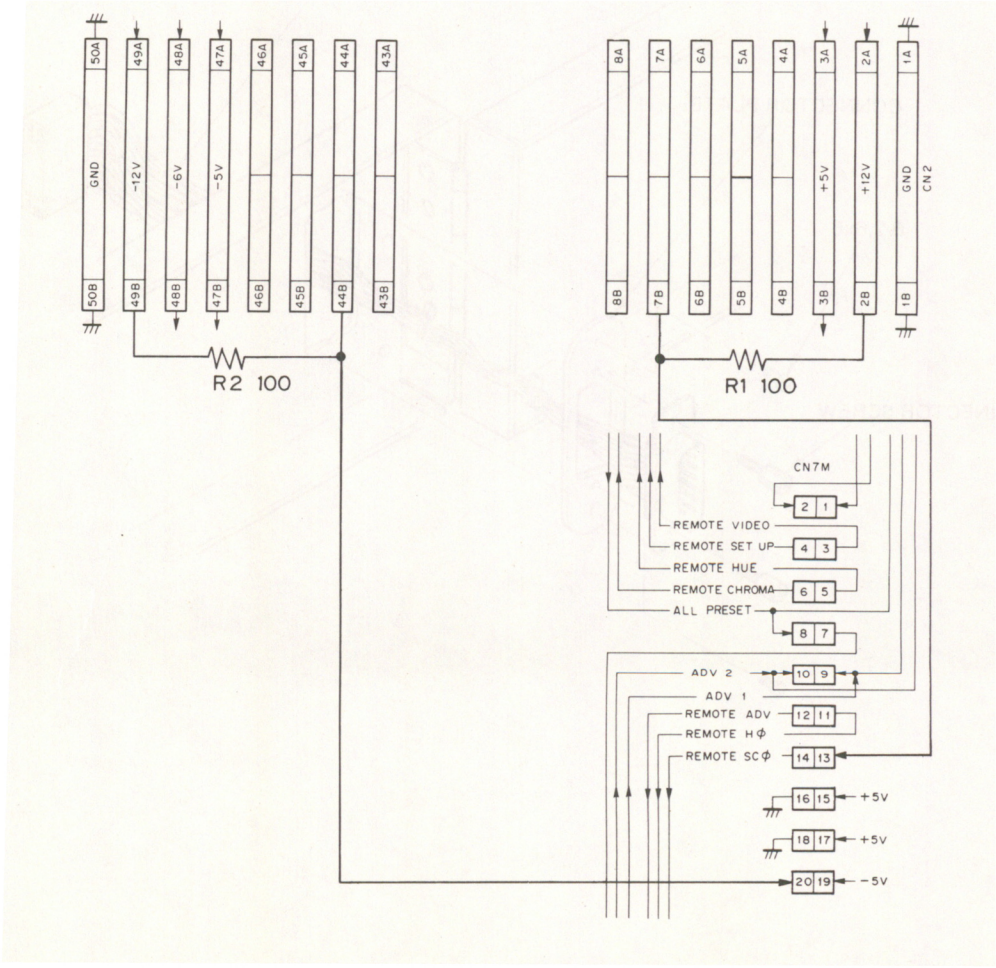
R1	100 Ω	CN1 pin 2B	⟷ CN1 pin 7B
R2	100 Ω	CN1 pin 44B	⟷ CN1 pin 49B

Connect the two jumpers.

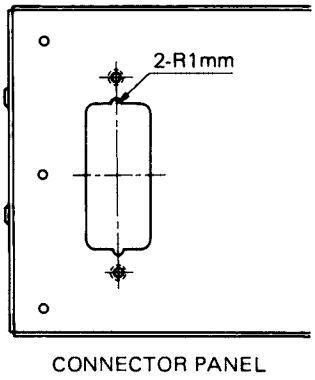
Red	65 mm	CN1 pin 7B	⟷ CN7 pin 13
Violet	150 mm	CN1 pin 44B	⟷ CN7 pin 20

MB-16 BOARD (1-605-403-11) Solder Side



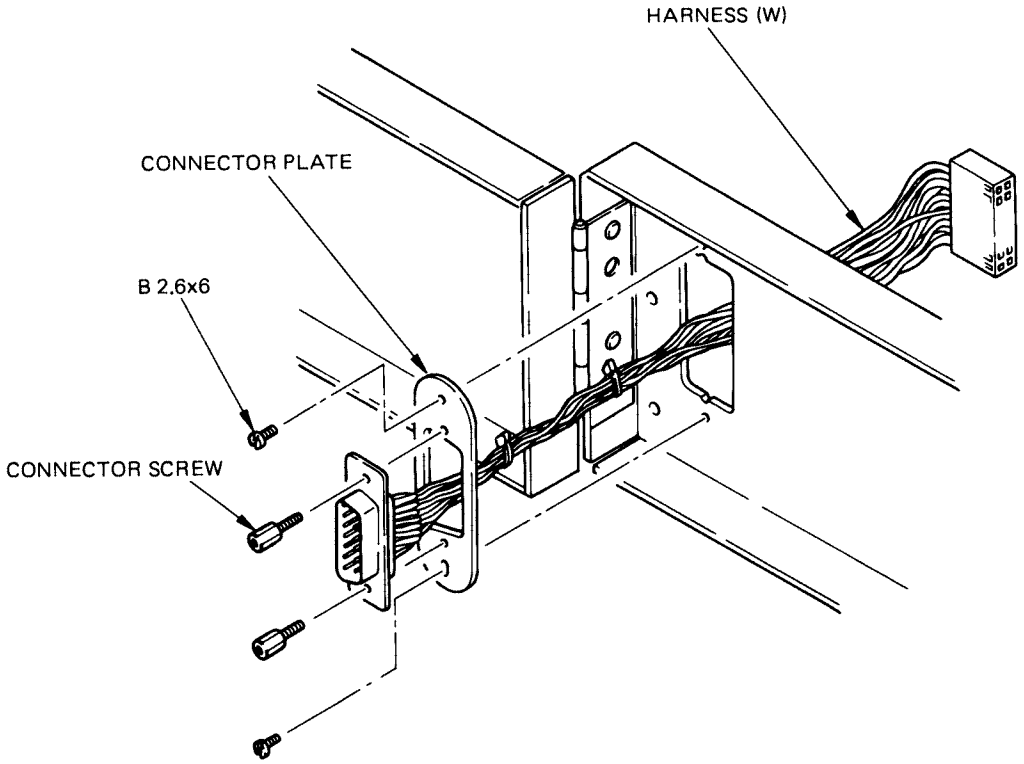


Step 4. Make a cutout of 1 mm radius on the top and bottom of the remote connector hole.



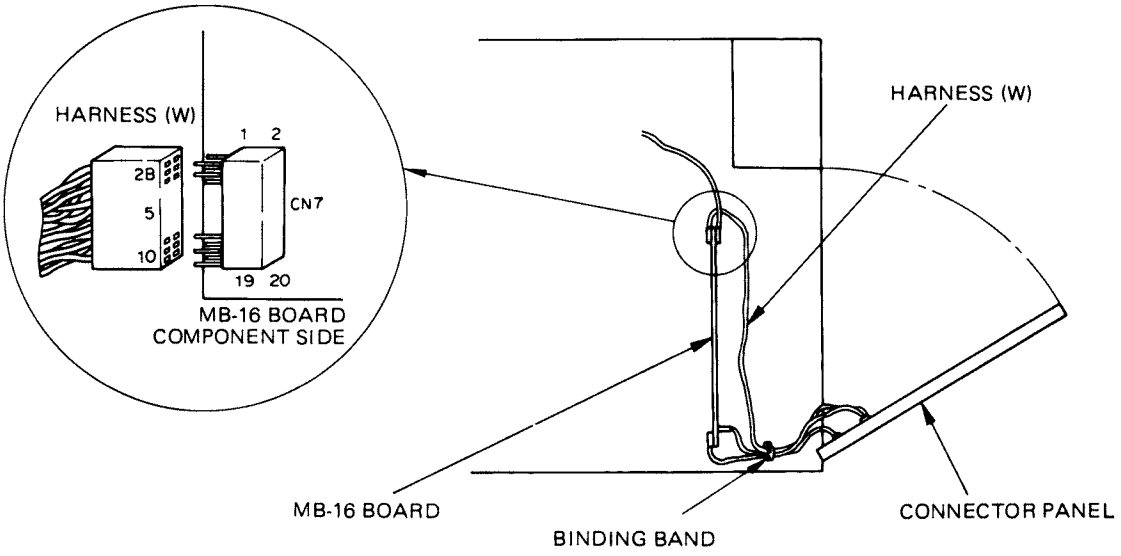
Step 5. Mount the connector plate on the connector panel with two B2.6 x 6 screws removed in Step 2.

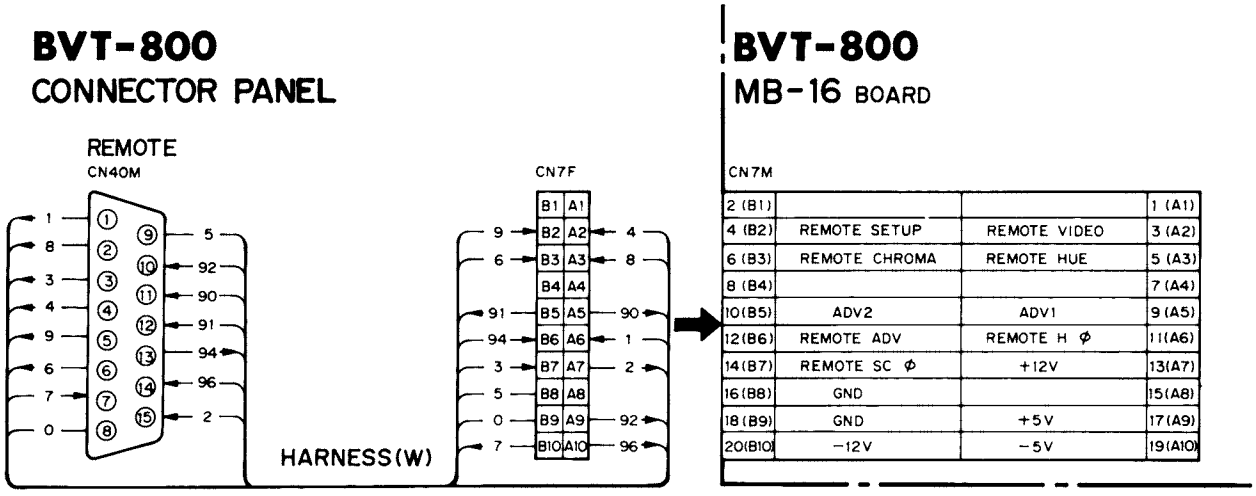
Step 6. Mount the harness (W) as shown below.



Step 7. Put the 20-pin plug of the harness (W) in the CN7 receptacle on the MB-16 board.

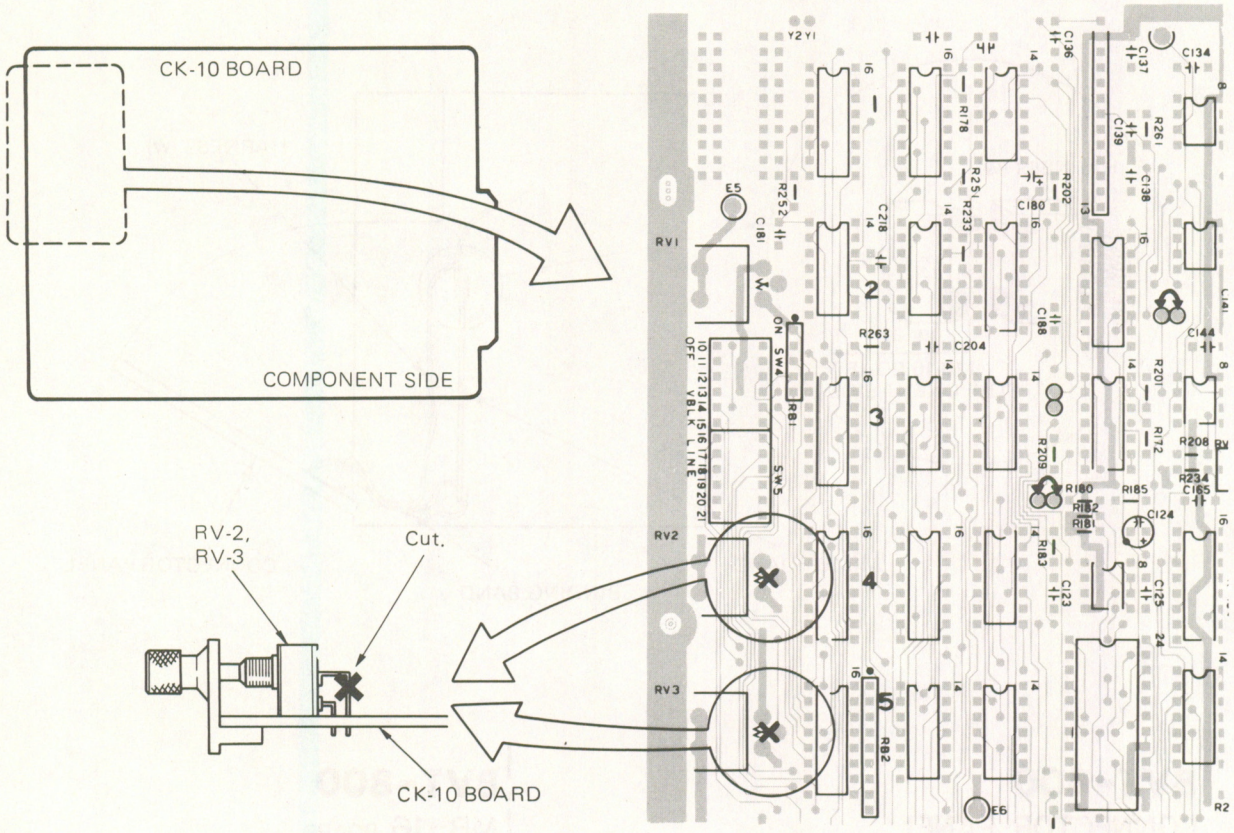
Step 8. Keep the harness (W) and other harness together with the binding band.

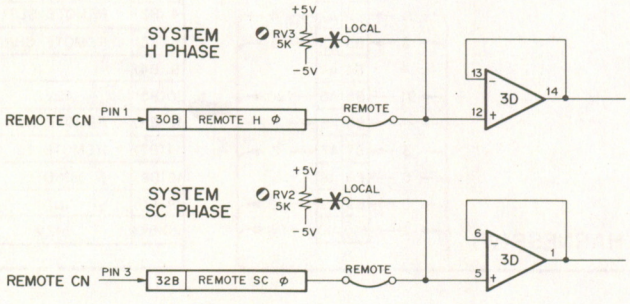




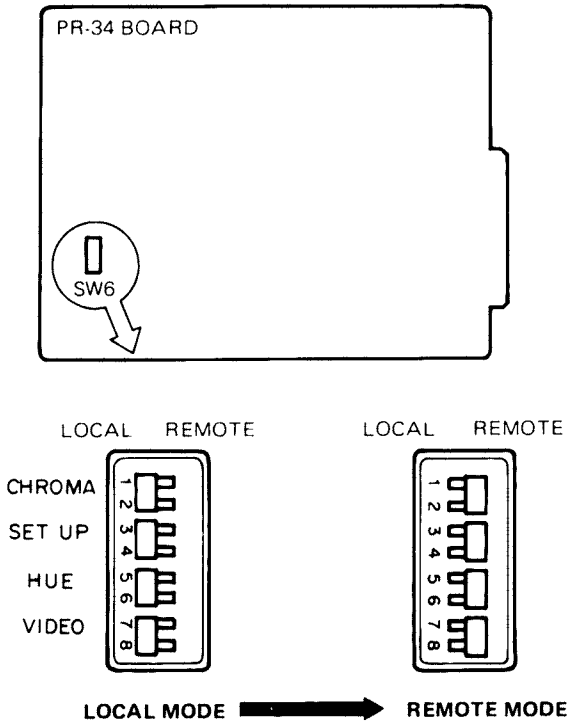
2 (B1)			1 (A1)
4 (B2)	REMOTE SETUP	REMOTE VIDEO	3 (A2)
6 (B3)	REMOTE CHROMA	REMOTE HUE	5 (A3)
8 (B4)			7 (A4)
10 (B5)	ADV2	ADV1	9 (A5)
12 (B6)	REMOTE ADV	REMOTE H Φ	11 (A6)
14 (B7)	REMOTE SC Φ	+12V	13 (A7)
16 (B8)	GND		15 (A8)
18 (B9)	GND	+5V	17 (A9)
20 (B10)	−12V	−5V	19 (A10)

Step 9. Cut off the center terminals of RV2 (SYSTEM SC PHASE) and RV3 (SYSTEM H PHASE) on the CK-10 board. Next, connect the two jumpers on the lands marked arrows as shown below.

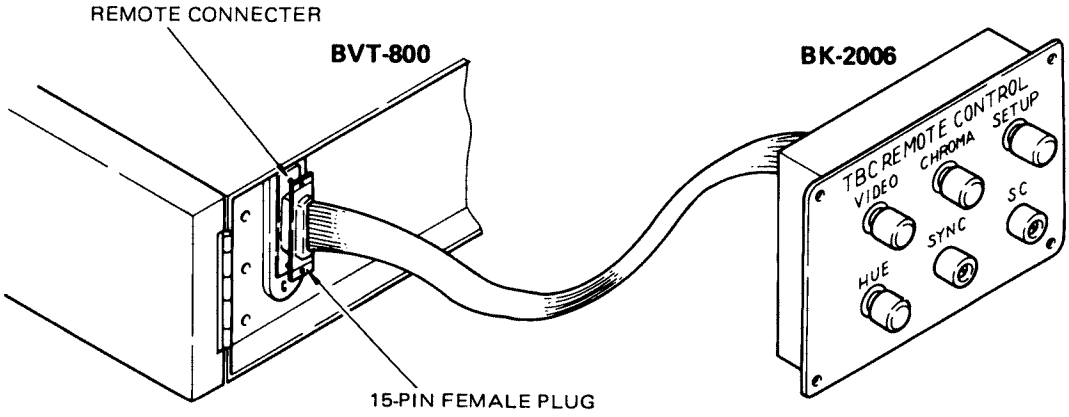




Step 10. Set the SW6 LOCAL/REMOTE switch on the PR-34 board to REMOTE.



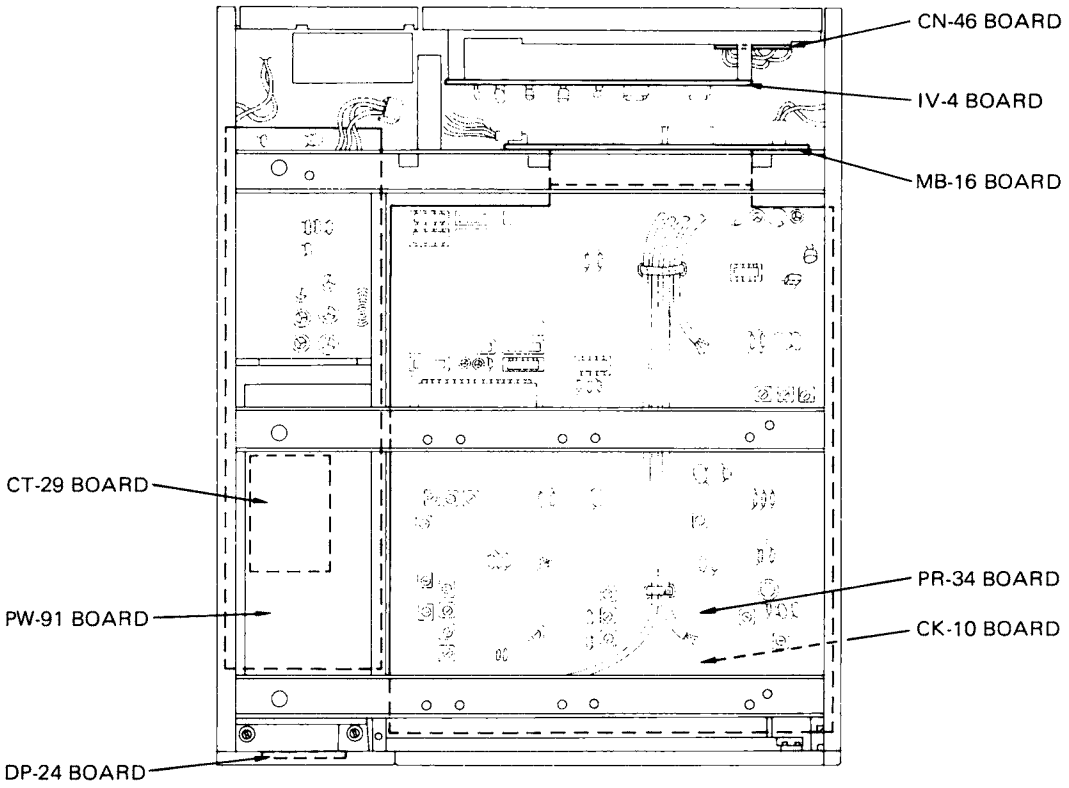
Step 11. Put the 15-pin female plug of BK-2006 connecting cable in the BVT-800 REMOTE connector.



Now you can remote-control the BVT-800 from the BK-2006.

SECTION 3
SERVICE INFORMATION

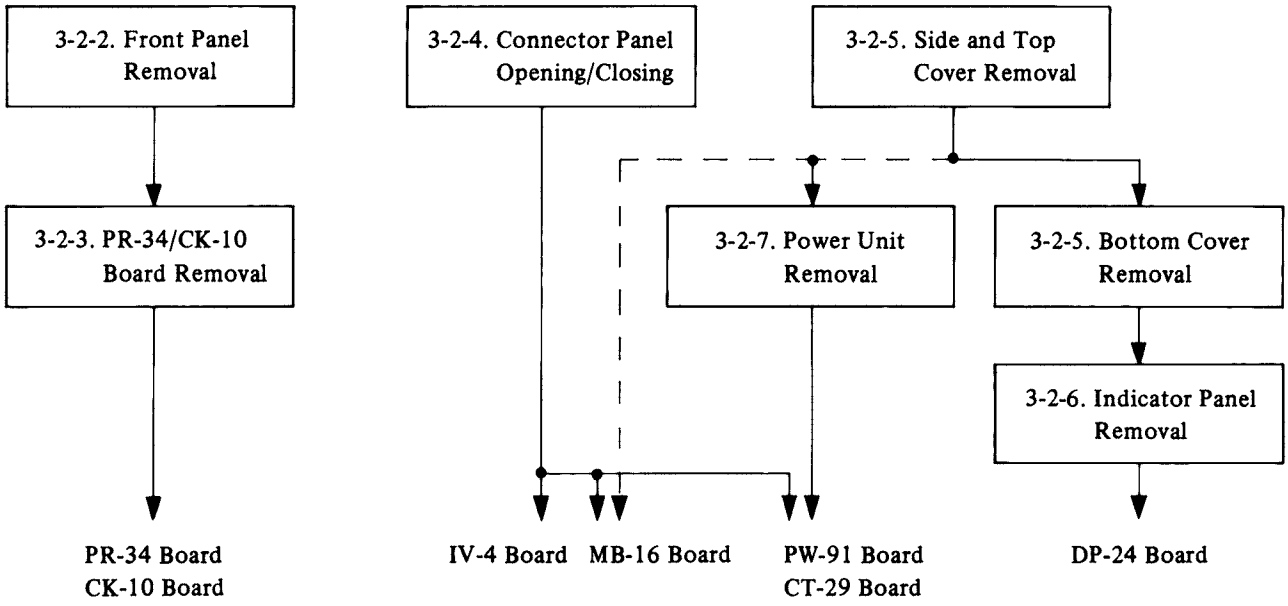
3-1. PRINTED CIRCUIT BOARD LOCATION



3-2. CABINET REMOVAL

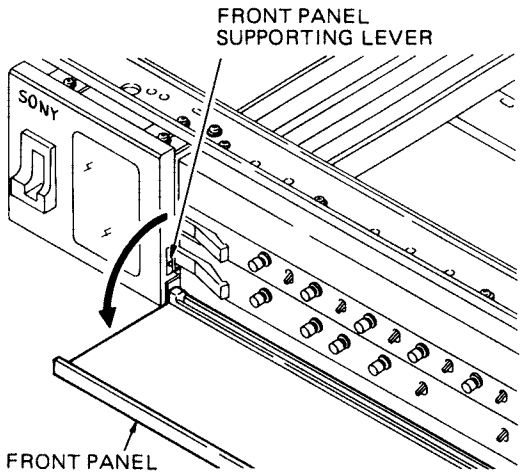
3-2-1. Cabinet Removal Flow Chart

The following is the working procedure necessary for checking each printed circuit board. Process indicated by dotted lines is optional:



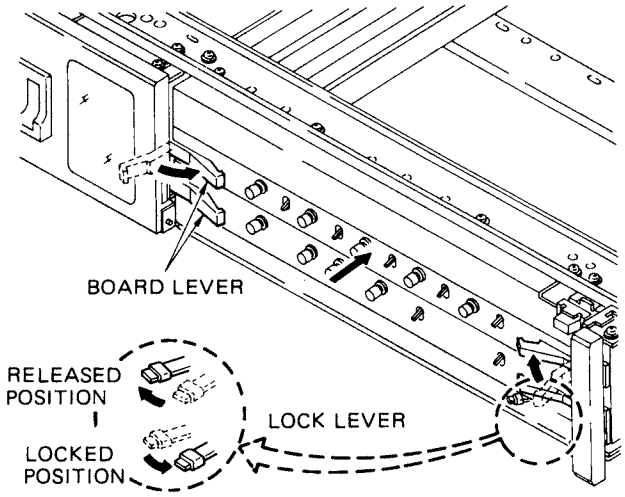
3-2-2. Front Panel Removal

Push the upper part of the front panel to open it and push it again to close it. The front panel is designed to be removable so that the equipment may be used without it.
Push the front panel supporting lever using the finger or tip of a screwdriver to remove it.



Installation

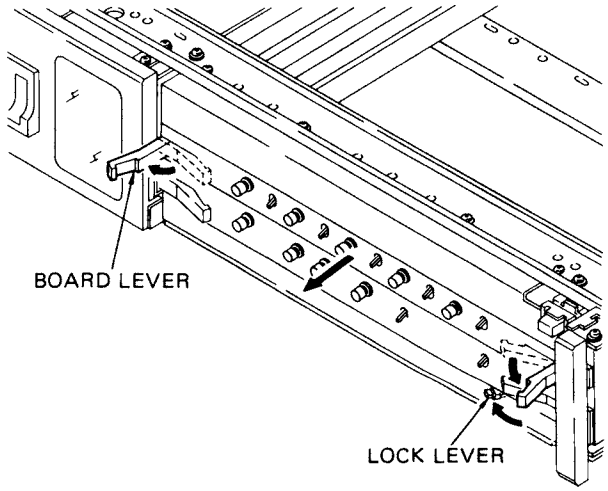
(1) Leave the lock lever moved in the direction indicated.
(2) Push in the boards leaving the board levers lifted and lay the levers inside when the boards are set.
(3) Move the lock lever to the right.



3-2-3. PR-34/CK-10 Board Removal

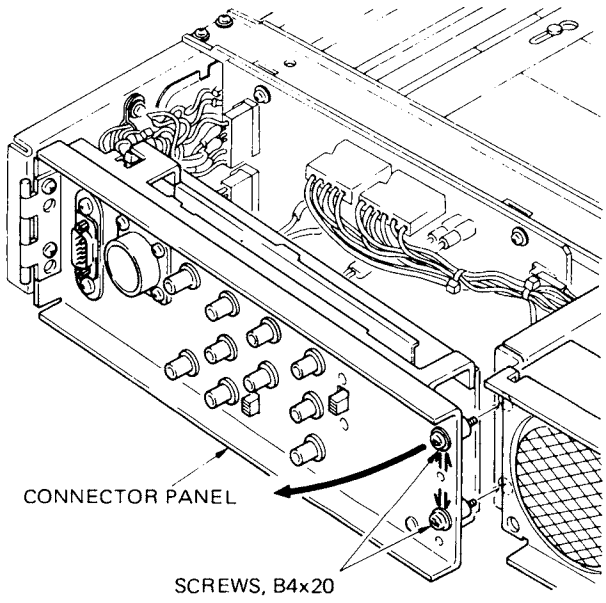
Removal

(1) Move the lock lever in the direction indicated.
(2) Lift both left and right board levers.
(3) Pull out the boards.



3-2-4. Connector Panel Opening/Closing

Loosen the two screws and open the connector panel as shown below.

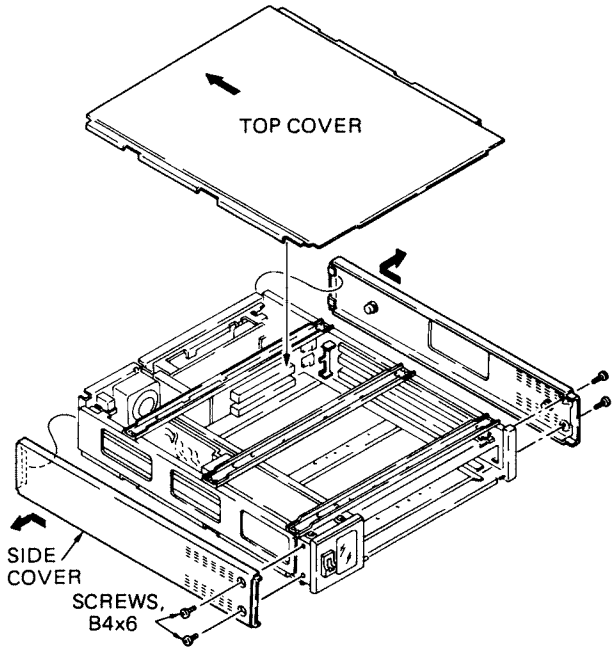


3-2-5. Side, Top and Bottom Cover Removal

Side and Top Cover Removal

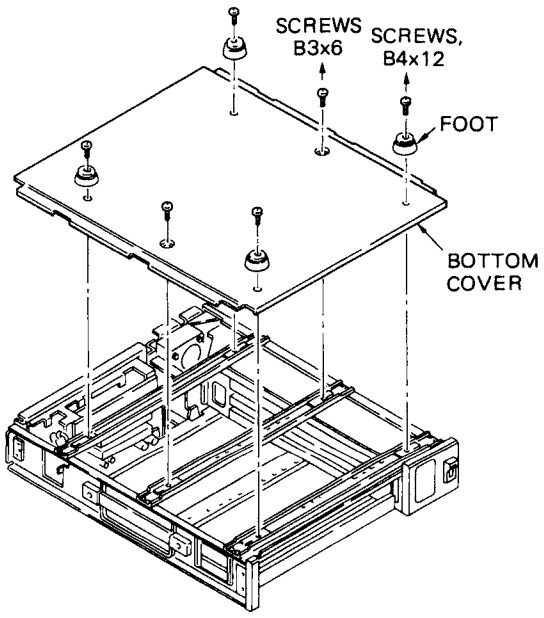
(1) Remove the B4x6 screws (two on each side) and then remove side covers as shown below.

(2) Pull the top cover in the direction indicated.



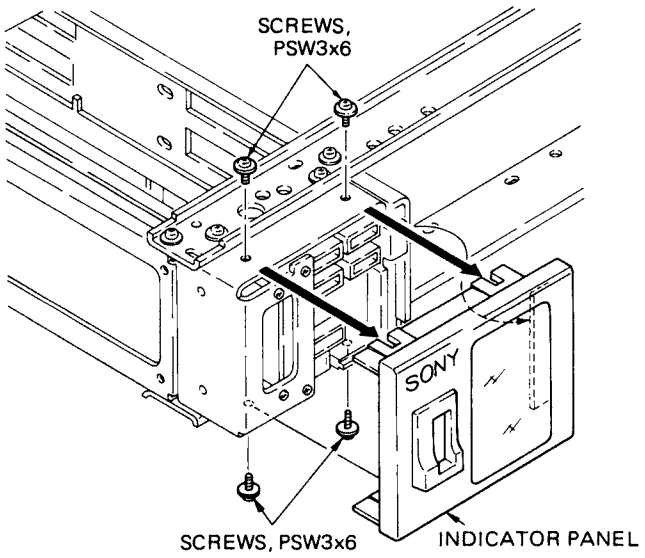
Bottom Cover Removal

(3) Remove the four feet and the two B3x6 screws.



3-2-6. Indicator Panel Removal

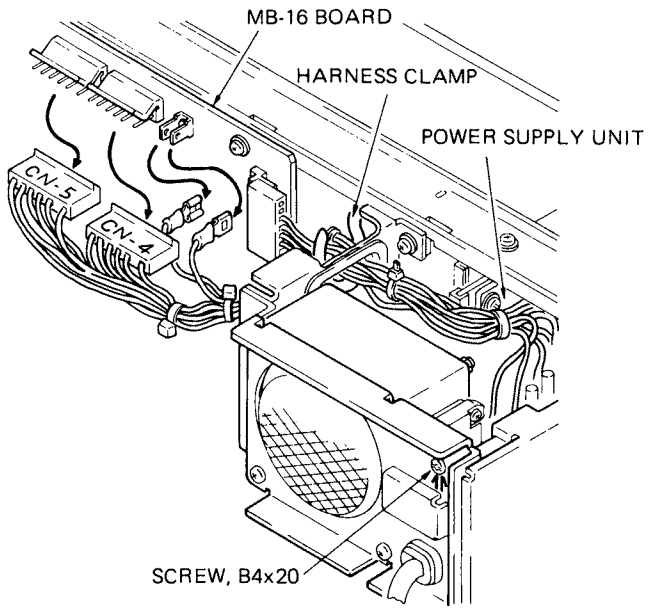
After removing top and bottom covers, remove the four PSW3x6 screws as shown below.



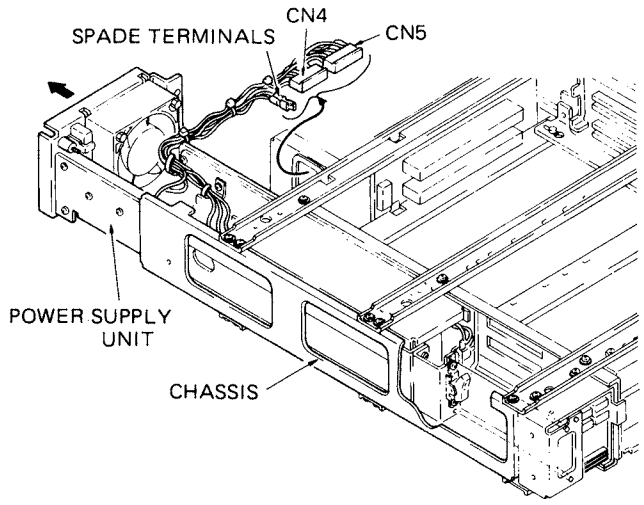
3-2-7. Power Supply Unit Removal

Open the connector panel and pull out the power supply unit following the procedure below:

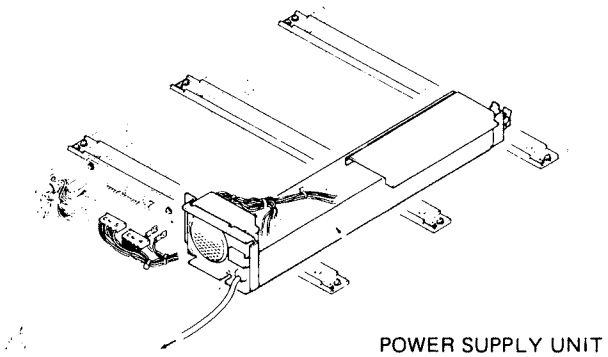
(1) Loosen the B4x20 screw.
(2) Disconnect CN4, CN5 and the two spade terminals from the MB-16 board.
(3) Loosen the harness clamp and push into the power supply unit.



(4) Pull out the power supply unit in the direction indicated.



(5) **Power supply unit checking method**
After removing the power supply unit, place it on the equipment and connect CN4, CN5 and spade terminals to the MB-16 board. Then switch on the power supply in this condition.



3-3. NOTES ON SERVICING

3-3-1. PR-34/CK-10 Board Lock Mechanism

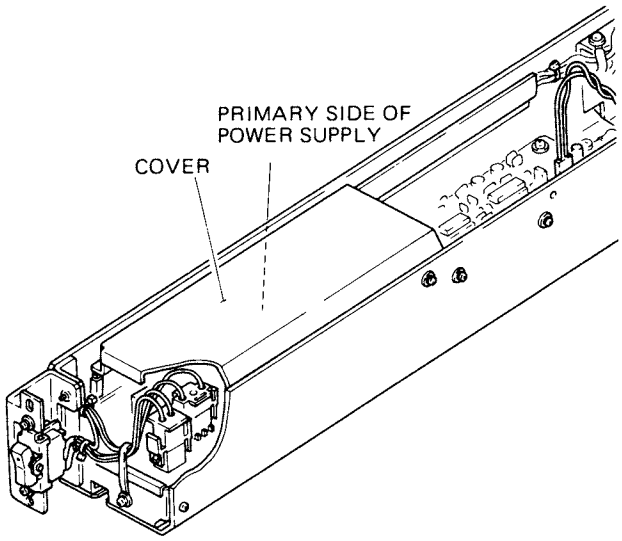
This model is equipped with a lock mechanism to avoid detaching the PR-34 and CK-10 boards. Move the lock lever to the left to release the boards and to the right to lock them. When loading or detaching a board, first unlock and then use the board levers. See Section 3-2-3 "PR-34/CK-10 Board Removal".

3-3-2. Extension Board LED Lighting

When loading PR-34 or CK-10 board through the extension board, the DC power supply (+12 V, +5 V, −12 V, −6 V, −5 V) is confirmed by the respective LEDs lighting.

3-3-3. Notes on the Power Supply Unit

(1) Most of the circuits are in the primary side as this model's power supply is a switching regulator, so be careful to avoid electric shock. The primary is the area protected with a cover in the following figure.



(2) There is a danger of shock even after switching off the power, due to remaining charge in the capacitors. Care is needed for about one minute after switching off.

(3) Perform checks with CN4, CN5 and two spade terminals connected to MB-16 board as operation of the power supply unit with no load could damage it.

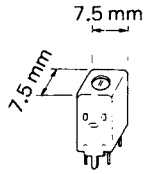
(4) A breaker functions when the equipment is powered at AC220-240 V with its voltage selector set to AC100-120 V.

(5) The equipment does not operate if the input voltage is below the rated value, i.e., it will not operate at AC110-120 V with its power voltage selector set at AC220-240 V.

(6) If the power supply stops generating during use due to abnormal conditions, it will not restart unless switched on again. One minute or more must be allowed for restarting.

3-3-4. Note on Square Fixed Inductor

The following square fixed inductor appears similar to variable inductors, but those mounted on the printed circuit boards and those in stock as the repair parts are all set at the factory and must not be re-adjusted in the field.



3-3-5. Notes on Repair Parts

(1) **Safety Related Components Warning.**

Components identified by shading marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose part numbers appear in this manual or in service bulletins and service manual supplements published by Sony.

(2) **Standardization of Parts**

Repair parts supplied from Sony Parts Center may not be always identical with the parts which actually in use due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts."

This manual's exploded views and electrical spare parts lists are indicating the parts numbers of "the standardized genuine parts at present".

Regarding engineering parts changes in our engineering department, refer to Sony service bulletins and service manual supplements.

(3) **Change of Parts**

Regarding engineering parts changes, refer to Section E. "CHANGED PARTS".

(4) **Stock of Parts**

Printed Components in Bold-Face type on the exploded views and electrical spare parts list are normally stocked for replacement purposes. The remaining parts are not normally required for routine service work. Orders for parts not shown in Bold-Face type will be processed, but allow for additional delivery time.

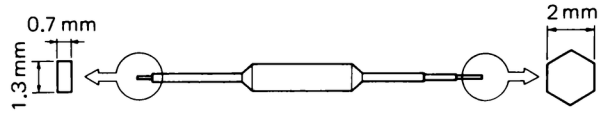
(5) **Units for Capacitors, Inductors and Resistors**

The following units are assumed in the schematic diagram and electrical parts list unless otherwise specified:

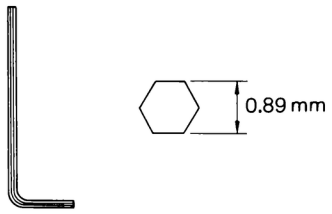
Capacitors: μF
Inductors: μH
Resistors: ohm

3-4. SERVICE TOOLS

Adjusting Screwdriver Sony Part No. 7-700-733-01

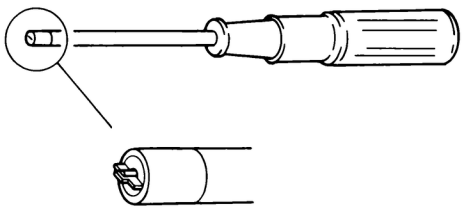


Hexagonal Wrench Sony Part No. 7-700-736-06



"TOTSU" Screwdriver

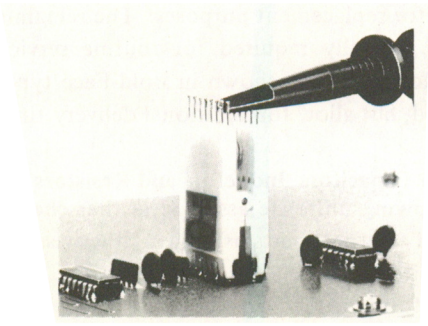
3 mm DIA Sony Part No. 7-721-050-63
4 mm DIA Sony Part No. 7-721-050-64



IC Test Clip

Type TC-16 Sony Part No. J-6041-770-A
Type TC-20 Sony Part No. J-6041-780-A
Manufacturer;
AP PRODUCTS INCORPORATED
Box 697 72 Corwin Drive
Painesville, Ohio 44077, USA
TEL; 216-354-2101

When connecting the test probe to the terminal of DIP integrated circuit, these clips are convenient. Type TC-16 is for DIP 14-pin or 16-pin IC and Type TC-20 is for 18-pin or 20-pin IC.



3-5. SAFETY CHECK-OUT

Applicable to Serial Numbers: 12301 and up

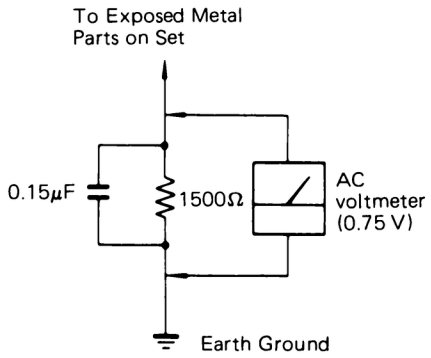
After correcting the original service problem, perform the following safety checks before releasing the set.

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

Leakage Test

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. See the following figure.



SECTION 4
THEORY OF OPERATION

4-1. OUTLINE OF BVT-800

BVT-800 is a TBC designed for SC low frequency conversion type VTRs such as U-matic. It has a wide correction range of 15H p-p, applicable for DT play and BIDIREX play also. The VTR must be able to V-lock to an external signal while playing back.

In the BVT-800, the off tape video signal from VTR is processed in roughly the following way:

The off tape video signal is first sent to the heterodyne color circuit, where the same time-base error as that of the luminance signal is given to the chroma signal. A subcarrier with the same time-base error as that of the luminance signal is formed from the horizontal sync signal. The chroma signal is modulated/demodulated by the subcarrier and the time-base error is given to the chroma signal.

In the SC DIRECT mode, this subcarrier is sent to the VTR and the time-base error is given to the chroma signal in the VTR. In the TBC, it is directly sent to the A-D converter.

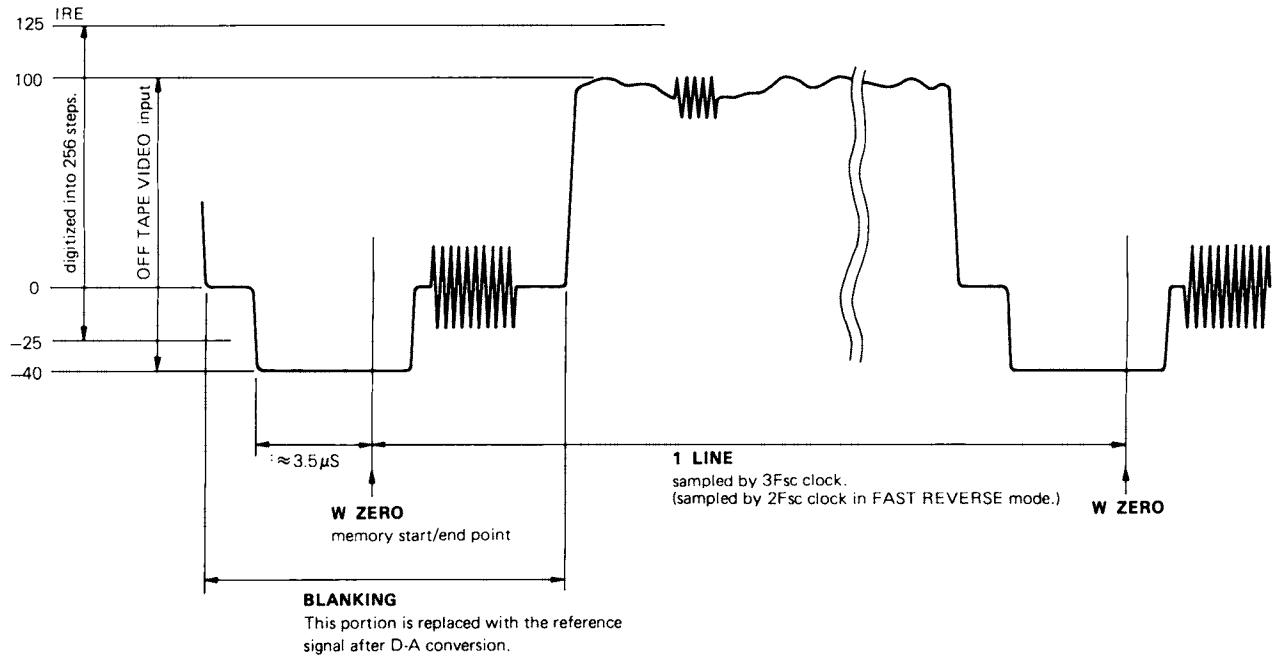
In the PROCESS mode, the off tape video signal is separated into Y and C signals in the TBC, the subcarrier described above gives time-base error to the chroma signal. The chroma signal is then mixed with Y signal and sent to the A-D converter.

Next, the off tape video signal is sampled by the clock (WRITE CLOCK) formed from the horizontal sync signal in the off tape video signal and converted into 8-bit binary code (A-D conversion). The sampling frequency (clock frequency) is normally 3Fsc but in the FAST REVERSE mode (the reverse play of the x7 to x8 or more speed) only, it is 2Fsc.

The digitized off tape video signal is then sent to the DOC (Drop-Out Compensator). Normally the DOC is bypassed, but when a dropout occurs in the VTR, the affected part is replaced with the signal before 1H. The DOC comprises a digital filter which separates the digitized off tape video signal into Y and C signals and a one-line memory for Y and C respectively.

Next, the 8-bit digital video signal is written into a 16-line memory, which has a capacity large enough even for DT play. The written data is then read out by a clock (READ CLOCK) made from a reference signal which has no time-base error. It is then sent to a D-A converter and reconverted into an analog video signal.

After D-A conversion, the signal is blanked, burst and sync signals are added and it is sent out as an output signal.



4-2. OUTLINE OF PRINTED CIRCUIT BOARDS

Principal circuits of the BVT-800 are placed on the "PROCESSOR" PR-34 board and the "CLOCK GEN" CK-10 board. Apart from these, there are six other boards; IV-4, DP-24, CN-46, PW-91, CT-29 and the Mother-Board MB-16.

The "PROCESSOR" PR-34 board contains an A-D converter, a DOC, a D-A converter and a processor. The heterodyne color circuit is divided into both PR-34 board and CK-10 board.

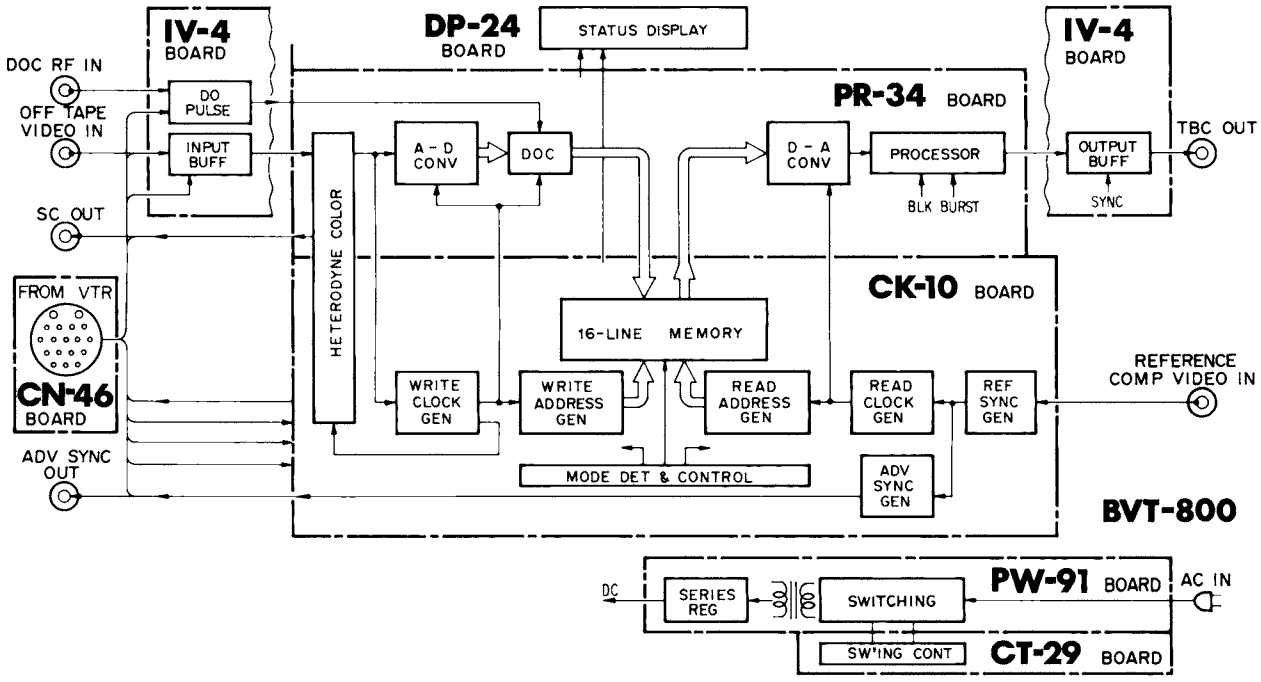
The 16-line memory is on the "CLOCK GEN" CK-10 board. The CK-10 board also contains the reference sync signal generator, the WRITE/READ CLOCK generator and the VTR mode detection circuit and it controls the timing of each part.

The IV-4 board contains the video signal input/output buffer and the dropout pulse detection circuit. 18-pin connector/BNC connector input signal selection, output signal NORMAL/BYPASS switching and the addition of sync signal are all performed on the IV-4 board.

The DP-24 board indicates the input level, NORMAL/BYPASS mode, etc.

The CN-46 board is for 18-pin VTR connector relay purpose.

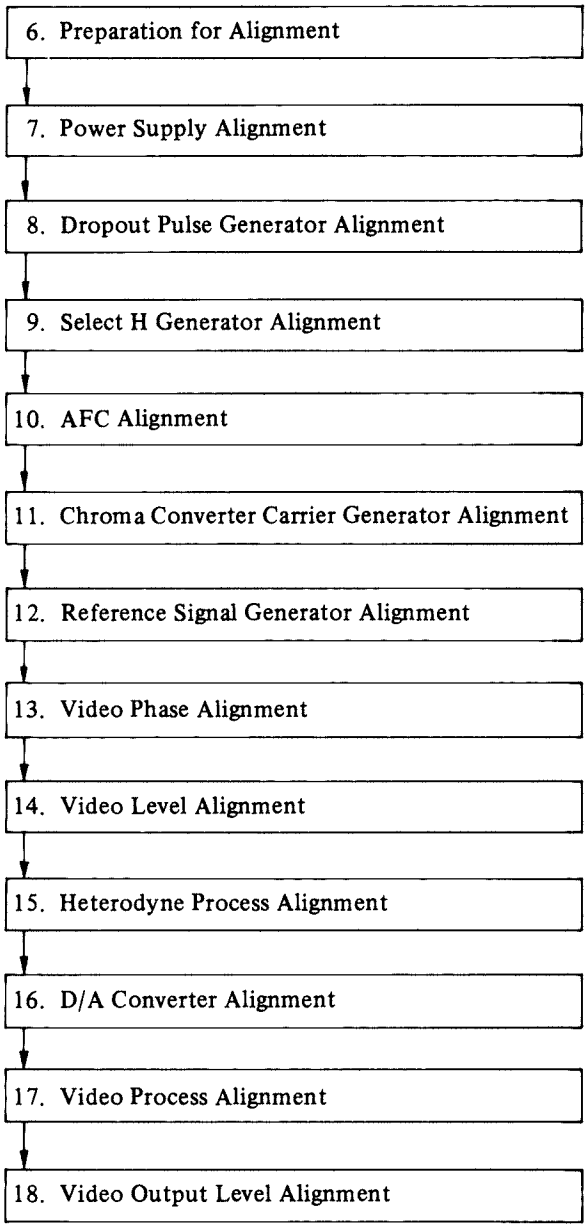
The PW-91 board is a DC regulator; in this model, a switching regulator is used. The CT-29 board controls the PW-91 board switching.



SECTION 5
GENERAL INFORMATION FOR ALIGNMENT

5-1. INDEX OF ADJUSTMENT COMPONENTS

5-2. ALIGNMENT SEQUENCE



5-3. ADJUSTMENTS AFTER BOARD REPLACEMENT

When the following circuit board has been replaced, the relative adjustments must be performed.

Board	Required Adjustment
CK-10	(1) The value of R275 If the Board No. of PR-34 board is 1-605-402-14 & up, make sure that R275 on CK-10 board is 270 kΩ. R275 1 MΩ has been mounted on the former CK-10 board. If R275 is 1 MΩ, replace it by 270 kΩ. (2) 11-3. HUE Control Offset Adjustment (3) 13-1. Video Phase Adjustment
PR-34	(1) When PR-34 board of Board Number 1-605-402-11, 12, 13 is replaced with that of 1-605-402-14 & up, make sure that R275 on CK-10 board is 270 kΩ. R275 1 MΩ has been mounted on the former CK-10 board. If R275 is 1 MΩ, replace it by 270 kΩ.
IV-4	(1) 18-2. Normal Video Output Level Adjustment (2) 18-3. Video Output SYNC Level Adjustment

SECTION 6
PREPARATION FOR ALIGNMENT

6-1. TEST EQUIPMENT

(1) NTSC Test Signal Generator

TEKTRONIX 1410 or Equivalent

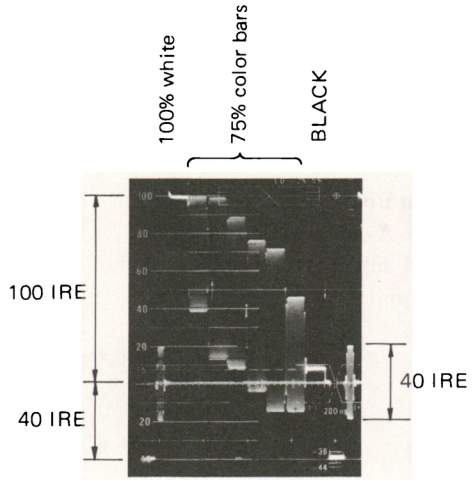
Plug In Unit	SYNC GENERATOR	SPG2
	COLOR BARS	TSG1
	LINEARITY	TSG3
	PULSE & BAR	TSG5
	MULTIBURST	TSG6

The above Model 1410 generates the following signals which are necessary for most of the BVT-800 adjustments.

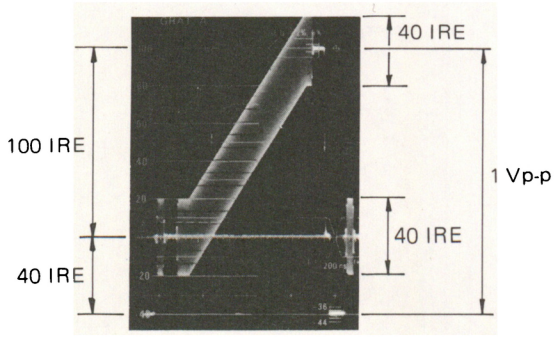
Specifications:

Subcarrier frequency accuracy should be within 3.579545 MHz ± 50 Hz.

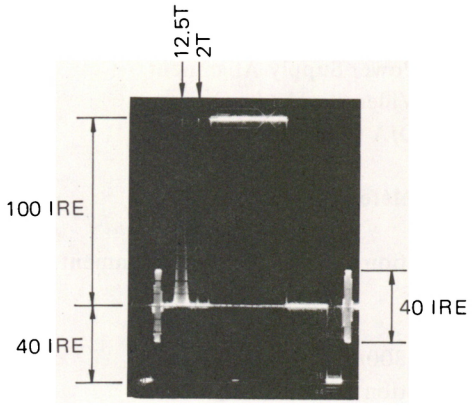
Color bars



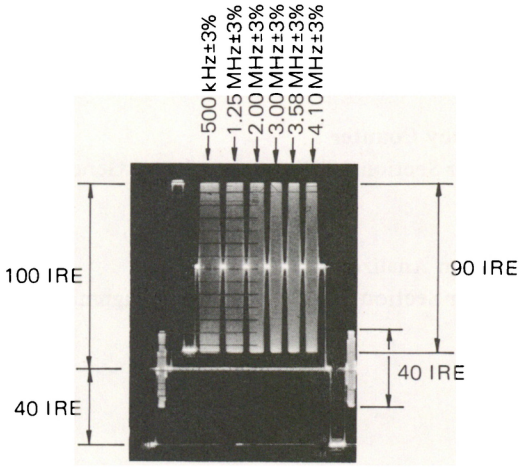
Ramp linearity



Modulated 12.5T



Multiburst (low range)



(2) Oscilloscope and Probe Adapter

Oscilloscope

Band Width; 200 MHz

TEKTRONIX 475 or Equivalent

Probe Adapter

Probe tip for grounding

TEKTRONIX Part No. 013-0085-00

(3) NTSC Vectorscope

TEKTRONIX 520A or Equivalent

Used for the following alignments.

Section 11. Chroma Converter Carrier Generator Alignment

Section 17. Video Process Alignment

(4) NTSC Waveform Monitor

TEKTRONIX 1480 or Equivalent

Used for the following alignments.

Section 17. Video Process Alignment

Section 18. Video Output Level Alignment

(5) Digital DC Voltmeter
Effective digits; more than 4½ digits.
Accuracy; Less than 0.02% ±1 count
Used for the following alignments.
Section 7. Power Supply Alignment
Section 14. Video Level Alignment
Section 16. D/A Converter Alignment

(6) DC Current Meter
10A range
Used for Section 7. Power Supply Alignment.

(7) VTR
SONY BVU-800/820
Used for Section 10. AFC Alignment.

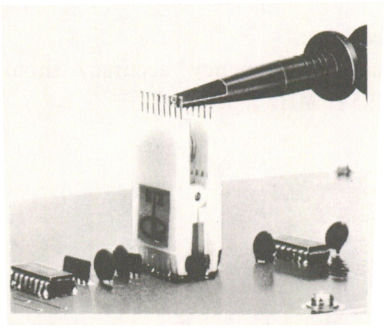
(8) Standard Signal Generator
Sine wave, 5 MHz
Used for Section 8. Dropout Pulse Generator Alignment.

(9) Frequency Counter
Used for Section 12. Reference Signal Generator Alignment.

(10) Spectrum Analizer
Used for Section 17. Video Process Alignment.

(11) IC Test Clip
Type TC-16 Sony Part No. J-6041-770-A
Type TC-20 Sony Part No. J-6041-780-A
Manufacturer;
AP PRODUCTS INCORPORATED
Box 697 72 Corwin Drive
Painesville, Ohio 44077, USA
TEL; 216-354-2101

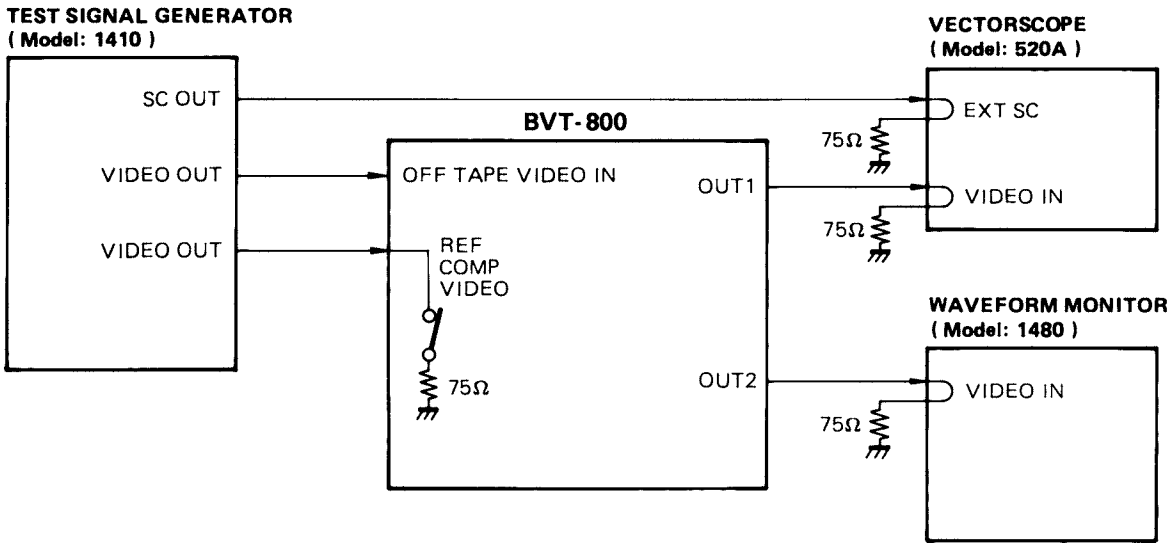
When connecting the test probe to the terminal of DIP integrated circuit, these clips are convenient. Type TC-16 is for DIP 14-pin or 16-pin IC and Type TC-20 is for 18-pin or 20-pin IC.



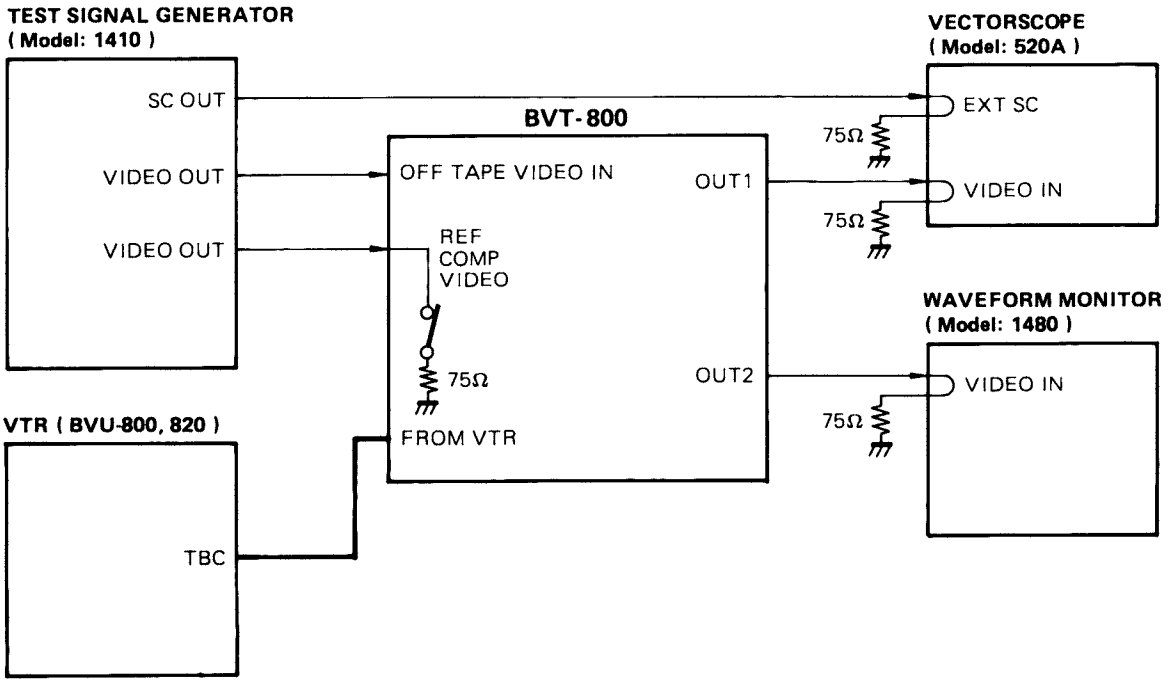
(12) EB-9 Extension Board
SONY Part No. A-6252-047-A
Used for PR-34 and CK-10 boards.
One EB-9 is supplied with the BVT-800.

6-2. EQUIPMENT CONNECTION

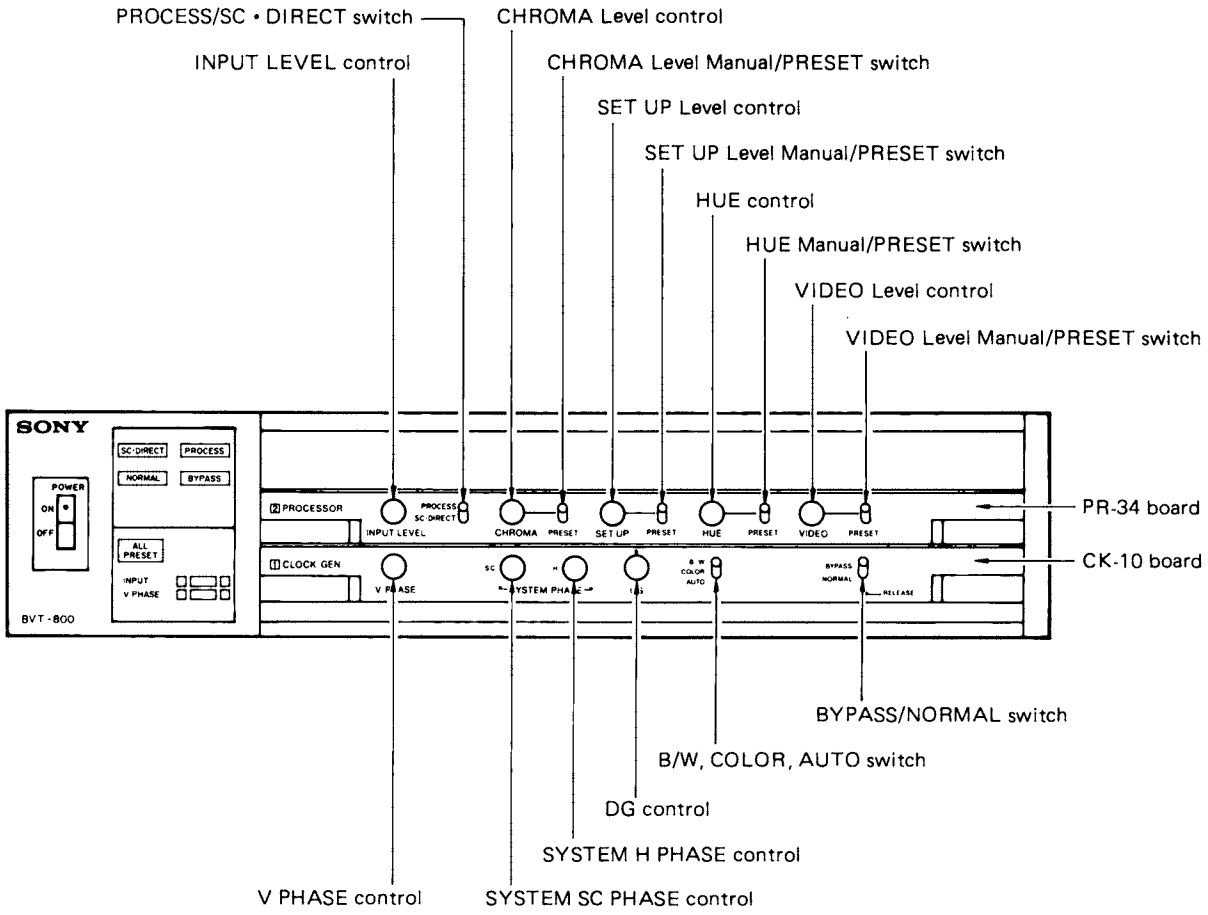
Connection 1.



Connection 2.



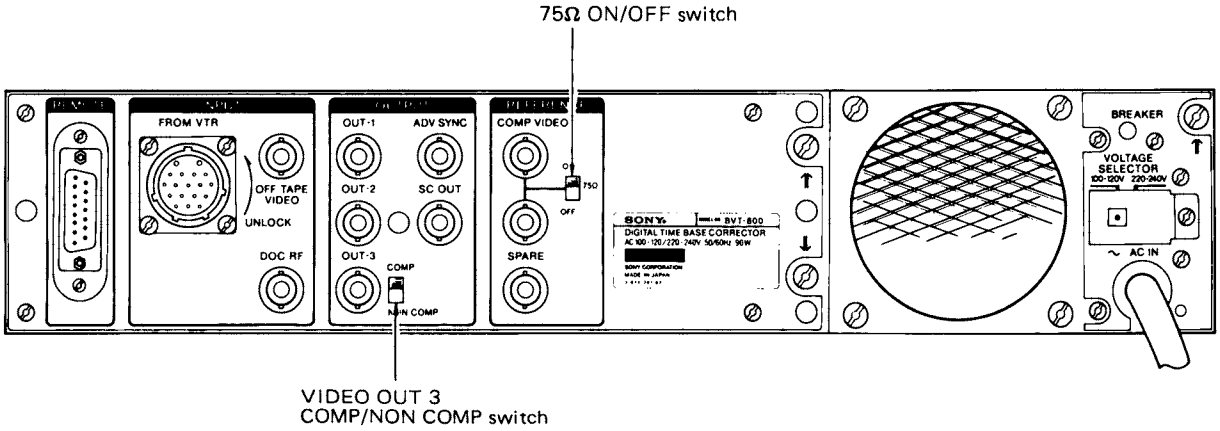
6-3. INITIAL SETTING OF SWITCHES & CONTROLS



Connector Panel

SW1, 75Ω ON/OFF switch; ON

SW3, VIDEO OUT 3 COMP/NON COMP switch; COMP



PR-34 Board

S1, PROCESS/SC • DIRECT switch; SC • DIRECT

* S2, CHROMA Level Manual/PRESET switch; PRESET
* S3, SET UP Level Manual/PRESET switch; PRESET
* S4, HUE Manual/PRESET switch; PRESET
* S5, VIDEO Level Manual/PRESET switch; PRESET

*: When controlling the BVT-800 with the BK-2006 Sony Remote Control Unit, set the corresponding switches of the BK-2006 to PRESET.

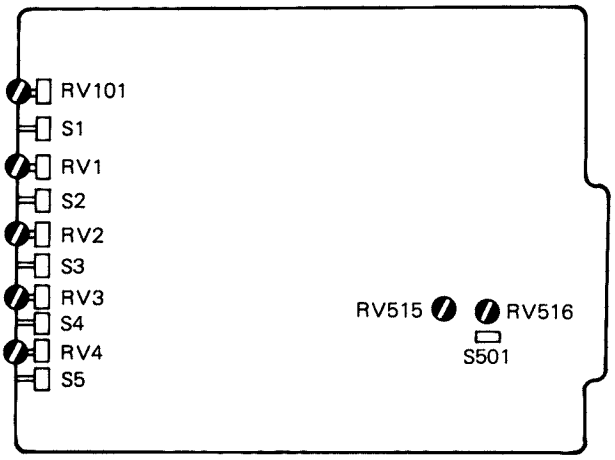
S501, BURST ON/OFF switch; ON

RV1, CHROMA Level control; free
RV2, SET UP Level control; free
RV3, HUE control; free
RV4, VIDEO Level control; free

RV101, INPUT Level control;
Adjust so that the green lamp on the INPUT indicator can light up.

RV515, Burst Position Adjustment control; free
Refer to Section 2-9-4.

RV516, Burst Width Adjustment control; free
Refer to Section 2-9-4.



CK-10 Board

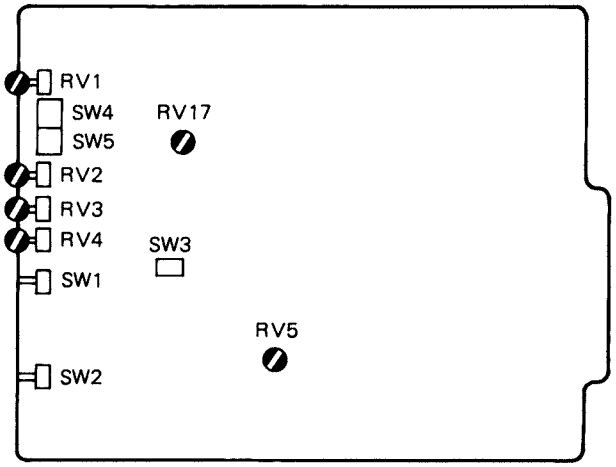
SW1, B/W, COLOR, AUTO switch; AUTO
SW2, BYPASS/NORMAL switch; NORMAL
SW3, FH switch; OFF
SW4, SW5 } V Blanking Line Select switch;
SW4: Lines 10 to 15 All ON
SW5: Lines 16 to 20 ON
Line 21 OFF

RV1, V PHASE control; When using the VTR, adjust so that the green lamp on the V PHASE indicator can light up. When not using the VTR, the position is free.
Refer to Section 2-9-4.

RV2, SYSTEM SC PHASE control; free
RV3, SYSTEM H PHASE control; free
RV4, DG control; mechanical center

RV5, VIDEO PHASE control;
Set to the position when shipped from the factory.
Refer to Section 2-9-4.

RV17, H Blanking Width Adjustment control;
Set to the position when shipped from the factory.
Refer to Section 2-9-4.



SECTION 7
POWER SUPPLY ALIGNMENT

CAUTION
Do not attempt any adjustment to the power supply if there is no need for adjustment. If the output voltage of the regulated power supplies is changed, the functions of the various circuits are affected, in result, the performance of the unit becomes inferior or the whole adjustment is required.

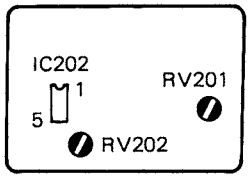
7-1. POWER SUPPLY ADJUSTMENT WITHOUT LOAD

CAUTION
Remove the following circuit boards from the MB-16 board before performing each power supply adjustment.
1) PR-34 Board (Remove the board from the MB-16 board.)
2) CK-10 Board (Remove the board from the MB-16 board.)
3) IV-4 Board (Remove the CN22 connector.)
4) DP-24 Board (Remove the CN6 connector on the MB-16 board.)

7-1-1. Switching Pulse Duty Adjustment without Load

Equipment; Digital DC Voltmeter

Adjustment
CT-29 Board
IC202 pin 1 = +5.00±0.05 Vdc
⊘ RV202

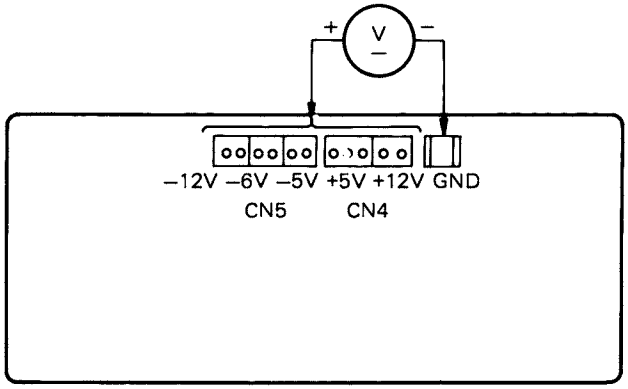


CT-29 Board
— solder side —

7-1-2. Voltage Adjustment without Load

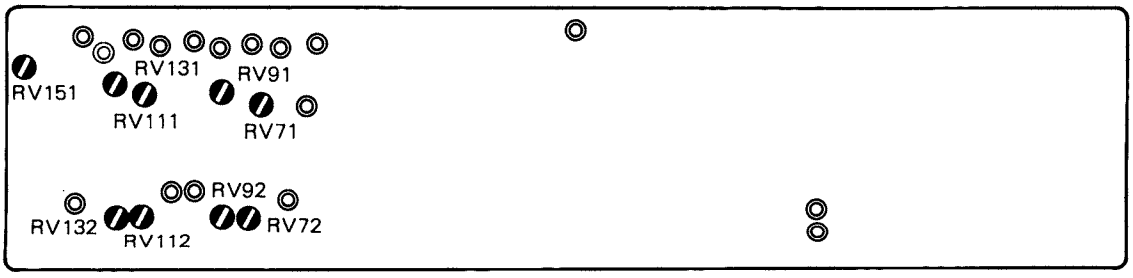
Equipment; Digital DC Voltmeter

Caution
Insert the probe of the DC voltmeter into the terminal pin of the CN4 or CN5 connector and ground the GND tab.



MB-16 Board — solder side —

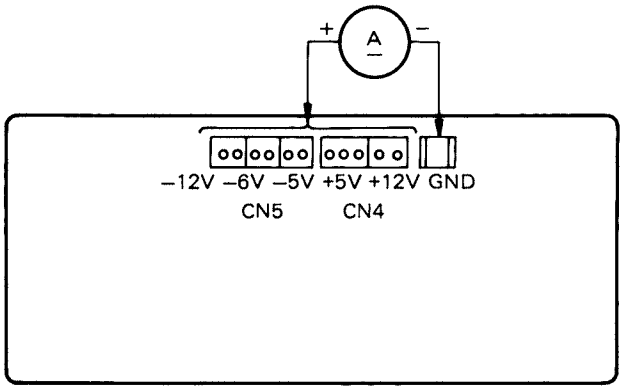
Step 1. +12 V Adjustment
MB-16 Board: CN4 pin 1 or 2 = +12.0±0.1 Vdc
PW-91 Board: ⊘RV92
Step 2. +5 V Adjustment
MB-16 Board: CN4 pin 3, 4 or 5 = +5.00±0.05 Vdc
PW-91 Board: ⊘RV72
Step 3. −5 V Adjustment
MB-16 Board: CN5 pin 1 or 2 = −5.00±0.05 Vdc
PW-91 Board: ⊘RV151
Step 4. −6 V Adjustment
MB-16 Board: CN5 pin 3 or 4 = −6.00±0.06 Vdc
PW-91 Board: ⊘RV112
Step 5. −12 V Adjustment
MB-16 Board: CN5 pin 5 or 6 = −12.0±0.1 Vdc
PW-91 Board: ⊘RV132



PW-91 Board — component side —

7-1-3. Short Current Adjustment without Load

Equipment; DC Current Meter



MB-16 Board — solder side —

Step 1. +12 V Adjustment
MB-16 Board: CN4 pin 1 or 2 = 0.60±0.06A
PW-91 Board: ⊘RV91

Step 2. +5 V Adjustment
MB-16 Board: CN4 pin 3, 4, or 5 = 2.0±0.2A
PW-91 Board; ⊘RV71

Step 3. −5 V Adjustment
MB-16 Board: CN5 pin 1 or 2 = 0.80±0.08A
PW-91 Board: ⊘RV111

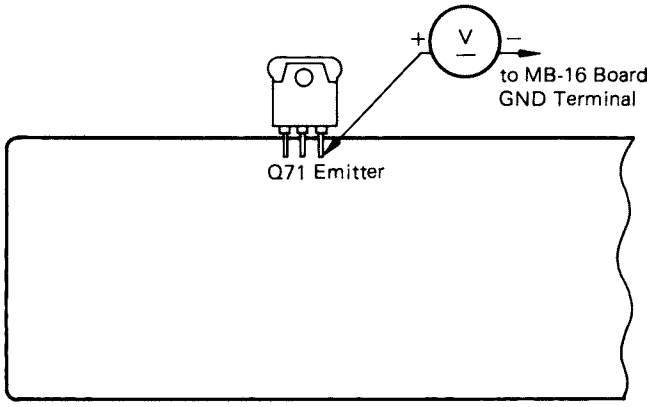
Step 4. −6 V Adjustment
MB-16 Board: CN5 pin 3 or 4 = 0.80±0.08A
PW-91 Board: ⊘RV111

Step 5. −12 V Adjustment
MB-16 Board: CN5 pin 5 or 6 = 0.60±0.06A
PW-91 Board: ⊘RV131

CAUTION
Connect the following circuit boards to the MB-16 board after performing the above power supply adjustment.

7-2. REGULATOR OUTPUT VOLTAGE ADJUSTMENT WITH LOAD

Equipment; Digital DC Voltmeter



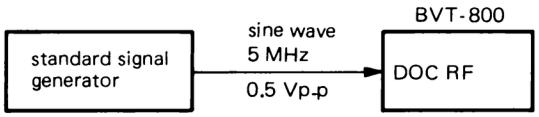
PW-91 Board — component side —

Adjustment
PW-91 Board: Q71 emitter = +6.00±0.05 Vdc
CT-29 Board: ⊘RV201

SECTION 8
DROPOUT PULSE GENERATOR ALIGNMENT

8-1. RF AGC LEVEL ADJUSTMENT

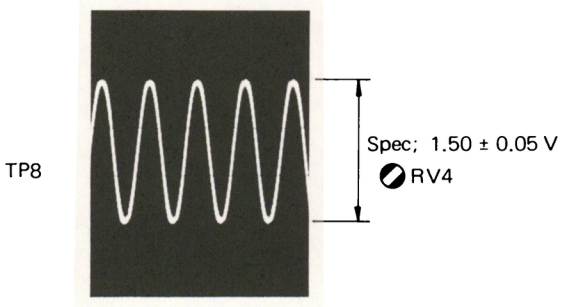
Connection;



Equipment; Oscilloscope
Input; DC
Switches & Controls Setting;
Same as Section 6-3.

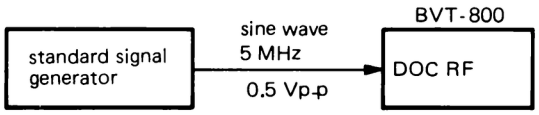
Step 1. Setting of Signal Generator
Frequency; 5 MHz
Amplitude; 0.5 Vp-p
(Measured at TP7 on the IV-4 board.)

Step 2. Adjustment
IV-4 Board



8-2. DOC KILLER ADJUSTMENT

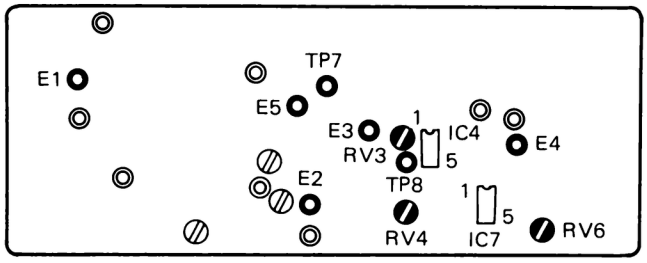
Connection;



Equipment; Oscilloscope
Input; DC
Switches & Controls Setting;
Same as Section 6-3.

Step 1. Setting of Signal Generator
Frequency; 5 MHz
Amplitude; 0.5 Vp-p
(Measured at TP7 on the IV-4 board.)

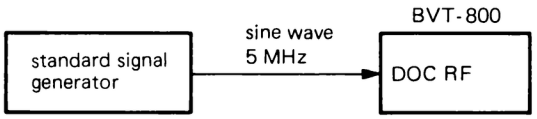
Step 2. Adjustment
IV-4 Board
Spec; IC7 pin 1 < 0 V
IC7 pin 6 = Voltage at IC7 pin 1 x 1.8 Vdc
RV6



IV-4 Board – component side –

8-3. DO LEVEL SENSITIVITY ADJUSTMENT

Connection;



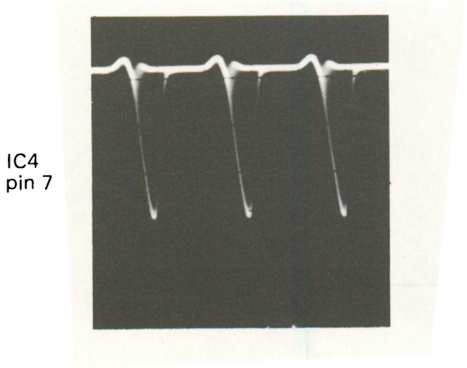
Equipment; Oscilloscope
Input; DC
Switches & Controls Setting;
Same as Section 6-3.

Step 1. Setting of Signal Generator

Frequency; 5 MHz
Amplitude; 0.5 Vp-p
(Measured at TP8 on the IV-4 board.)

Step 2. Adjustment

Turn RV3 on the IV-4 board fully clockwise. IC4 pin 7 shows HIGH level (approx. +4 Vdc). Next, turning RV3 counterclockwise slowly, the negative pulse appears as shown below. Stop RV3 immediately after this pulse appears.

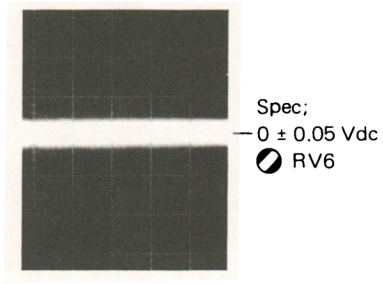


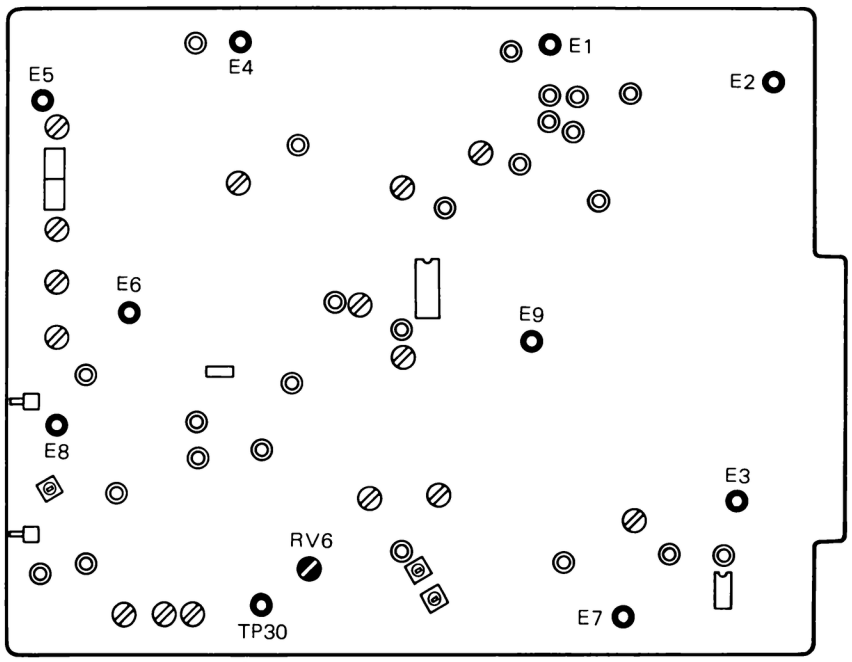
SECTION 9
SELECT H GENERATOR ALIGNMENT

9-1. SELECT H GENERATOR ADJUSTMENT

Connection; Same as Section 6-2, Connection 1.
Equipment; Oscilloscope
Input; DC
Switches & Controls Setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Color bars

Adjustment
CK-10 Board





CK-10 Board — component side —

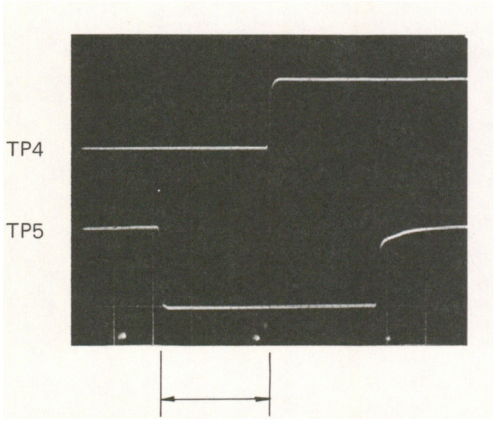
SECTION 10
AFC ALIGNMENT

10-1. SAWTOOTH WAVE SLOPE ADJUSTMENT

Connection; Same as Section 6-2, Connection 1.
Equipment; Oscilloscope
Input; DC
Switches & Controls Setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Color bars

Adjustment

CK-10 Board



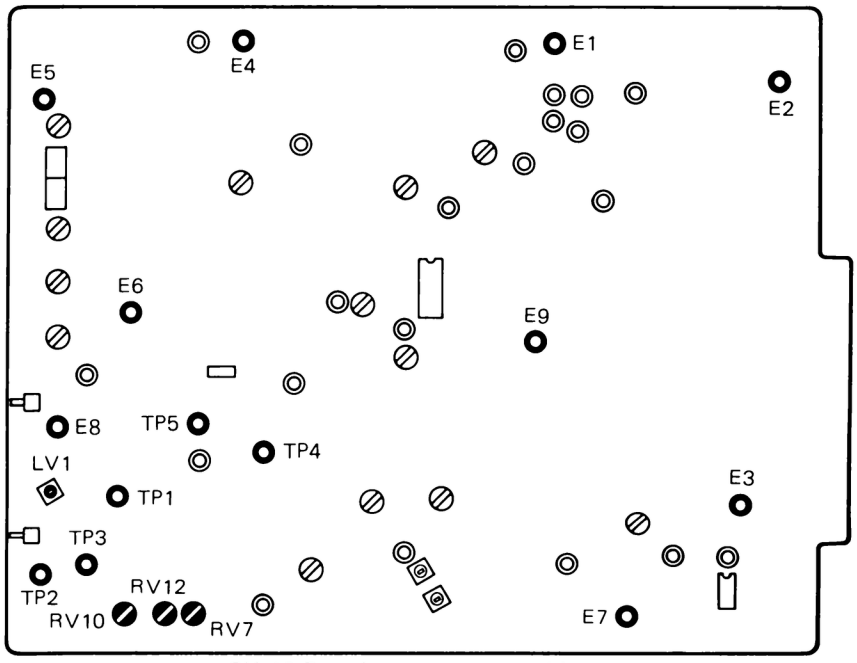
Spec; 560 ± 40 ns
RV10

10-2. NARROW RANGE VCO ADJUSTMENT

Connection; Same as Section 6-2, Connection 1.
Equipment; Oscilloscope
Input; DC
Switches & Controls Setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Color bars

Adjustment

CK-10 Board
Spec; TP2 = −4.0 ± 0.2 Vdc
LV1



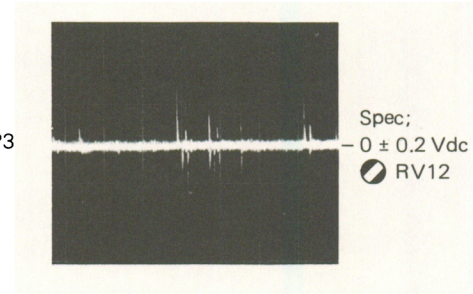
CK-10 Board — component side —

10-3. WIDE RANGE VCO ADJUSTMENT

Connection; Same as Section 6-2, Connection 2.
VTR Mode; PLAY → F. FWD → REW
Equipment; Oscilloscope
Input; DC
Switches & Controls setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Color bars

Step 1. Offset Adjustment (PLAY mode)

Set the VTR to PLAY mode.
CK-10 Board
Short-circuit the TP1 and GND.

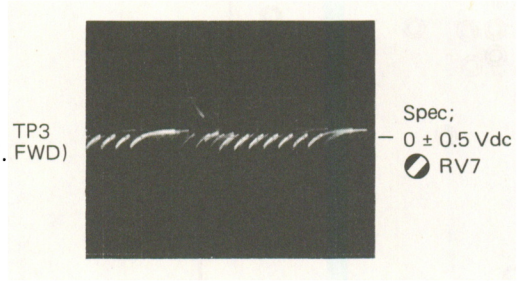


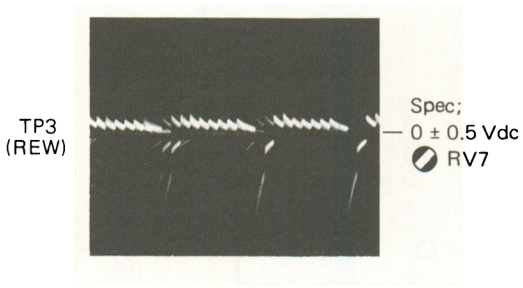
Remove the short circuit between the TP1 and GND.

Step 2. Gain Adjustment (F. FWD and REW modes)

Set the VTR to the F. FWD and REW modes and adjust RV7 to obtain the following values in each mode.

CK-10 Board



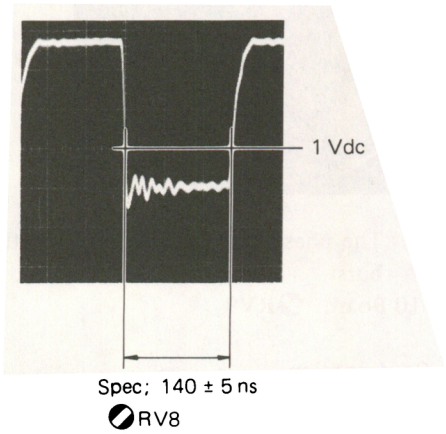


SECTION 11
CHROMA CONVERTER CARRIER GENERATOR ALIGNMENT

11-1. SC PULSE WIDTH ADJUSTMENT

Connection; Same as Section 6-2, Connection 1.
Equipment; Oscilloscope
Input; DC
Switches & Controls Setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Color bars

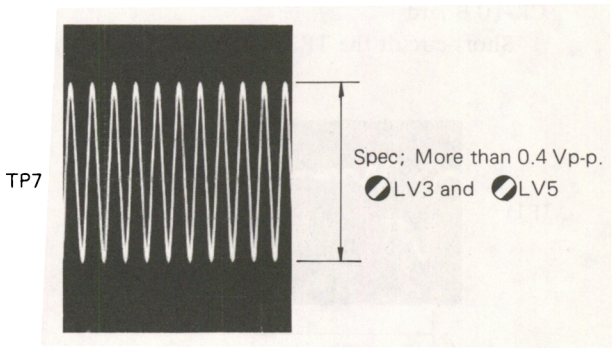
Adjustment
CK-10 Board

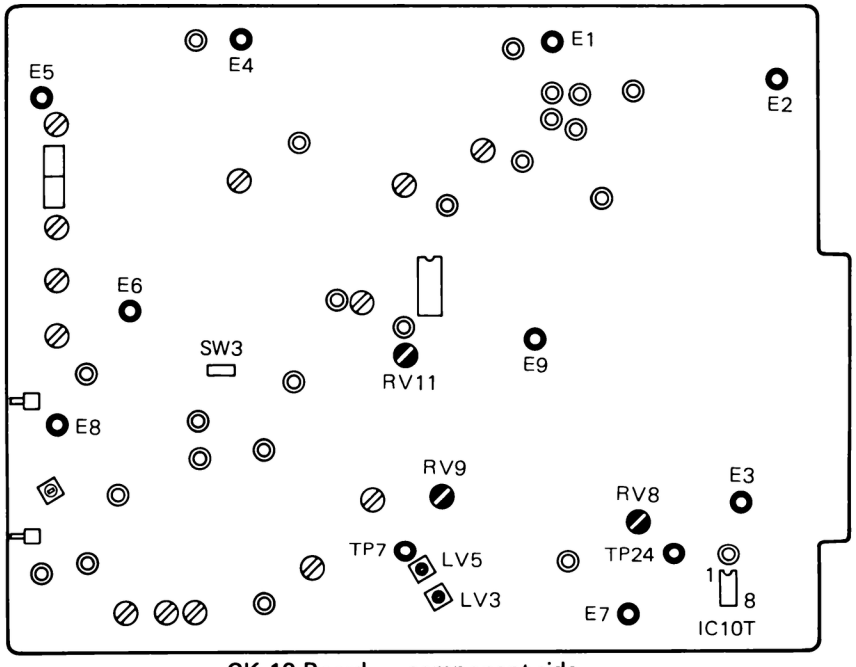


11-2. 5/2 Fsc TUNING

Connection; Same as Section 6-2, Connection 1.
Equipment; Oscilloscope
Input; DC
Switches & Controls Setting;
Same as Sec. 6-3.
Input Signal (OFF TAPE VIDEO IN);
Color bars

Adjustment
CK-10 Board



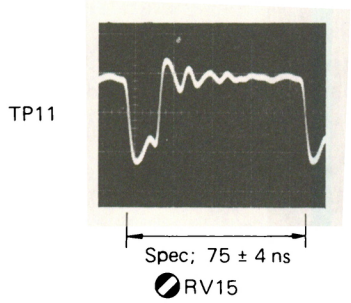


CK-10 Board — component side —

11-3. HUE CONTROL OFFSET ADJUSTMENT

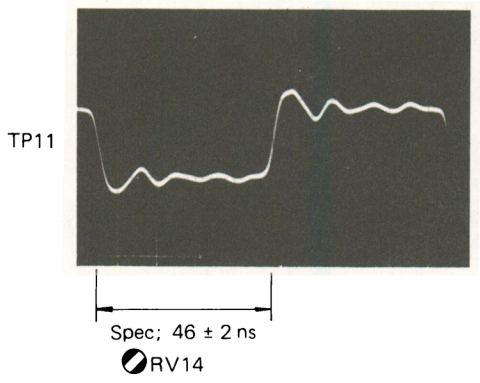
Connection; Same as Section 6-2, Connection 1.
Equipment; Oscilloscope
Input; DC
Vectorscope
ϕREF: BURST
Switches & Controls Setting;
Same as Section 6-3 except the following.
B/W/COLOR/AUTO switch; COLOR
Input Signal (OFF TAPE VIDEO IN);
Color bars

Step 1. Error Limiter Adjustment
CK-10 Board
Short-circuit the TP25 and GND.

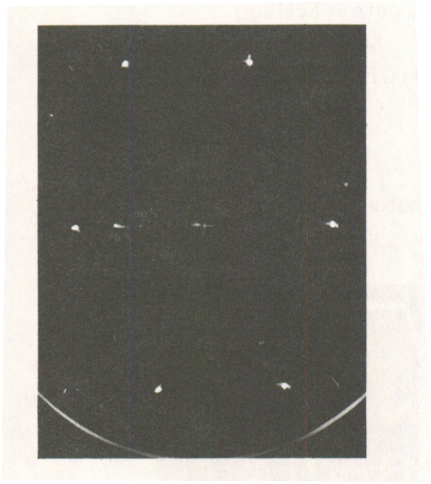


Remove the short circuit between the TP25 and GND.

Step 2. HUE Control Adjustment
CK-10 Board

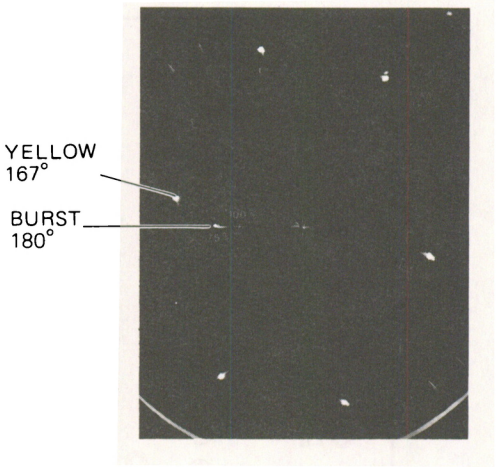


Step 3. Hue Control Offset Adjustment
Put the CK-10 board on the extension board and plug in.
OUT 1 (BVT-800)



Spec; The phase of yellow coincides with that of burst.
CK-10 Board RV9

Step 4. Confirmation
Remove the extension board and insert the CK-10 board directly into the BVT-800.
OUT 1 (BVT-800)



Spec; Check that the phases of yellow and burst are in the above positions.

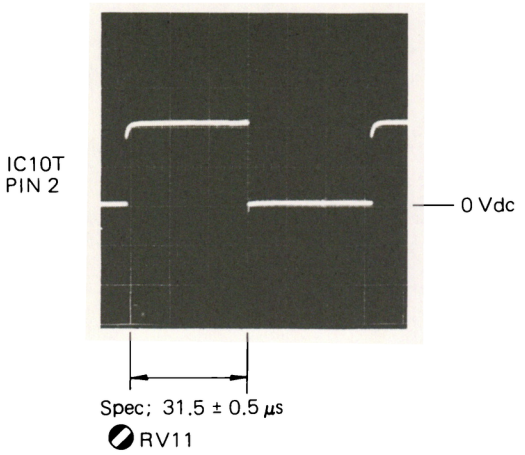
11-4. F_H GENERATOR ADJUSTMENT

Connection; Same as Section 6-2, Connection 1.
Equipment; Oscilloscope
Input; DC
Switches & Controls Setting;
Same as Section 6-3 except the following.
CK-10 Board SW3, FH switch; ON
Input Signal (OFF TAPE VIDEO IN);
Color bars

Adjustment

CK-10 Board

Set SW3 on.



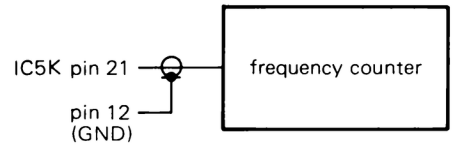
Set SW3 off.

SECTION 12
REFERENCE SIGNAL GENERATOR ALIGNMENT

12-1. REFERENCE SYNC GENERATOR ADJUSTMENT

Connection; Same as Section 6-2, Connection 1 except the following.
Remove the REF COMP VIDEO signal.
Equipment; Frequency Counter
Switches & Controls Setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Color bars

Adjustment
CK-10 Board

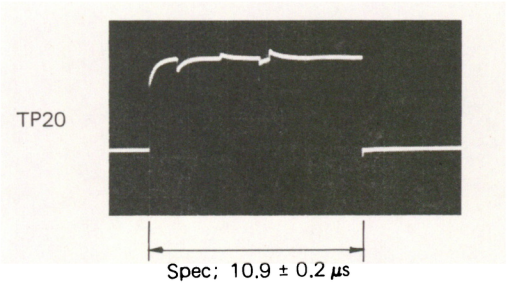


Spec; IC5K pin 21 = 14,318,180 ± 50 Hz
RV13

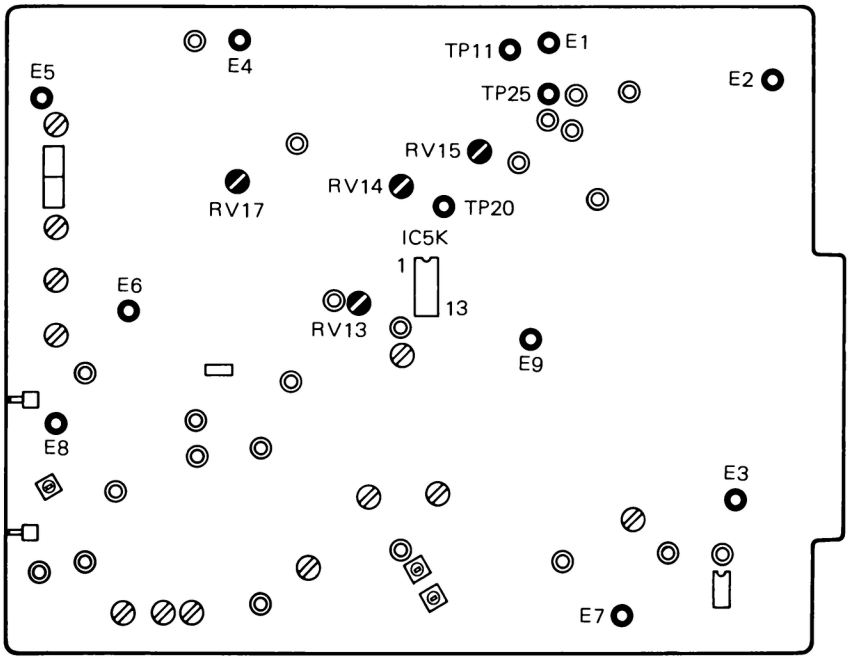
12-2. BLANKING GENERATOR ADJUSTMENT

Connection; Same as Section 6-2, Connection 1.
Equipment; Oscilloscope
Input; DC
Switches & Controls Setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Color bars

Adjustment
CK-10 Board



Spec; 10.9 ± 0.2 μs
RV17



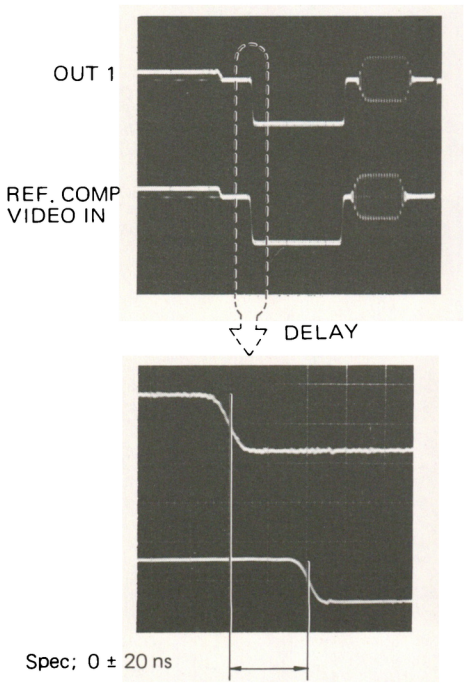
CK-10 Board — component side —

SECTION 13
VIDEO PHASE ALIGNMENT

13-1. VIDEO PHASE ADJUSTMENT

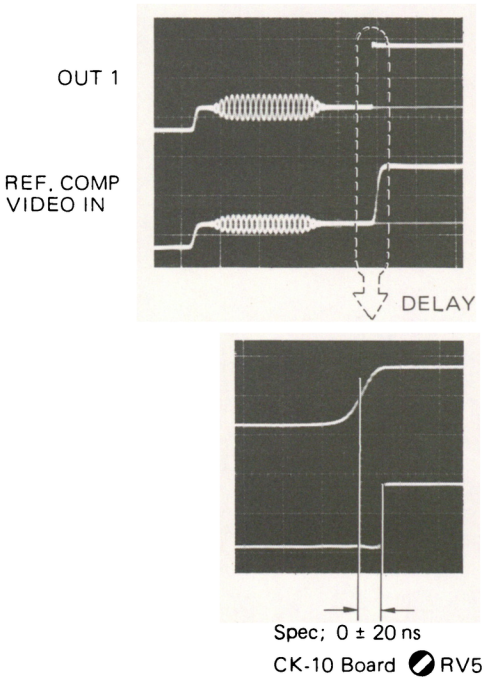
Connection; Same as Section 6-2, Connection 1.
Equipment; Oscilloscope
Input; DC
Switches & Controls Setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Color bars

Step 1. SYSTEM H PHASE Control Adjustment

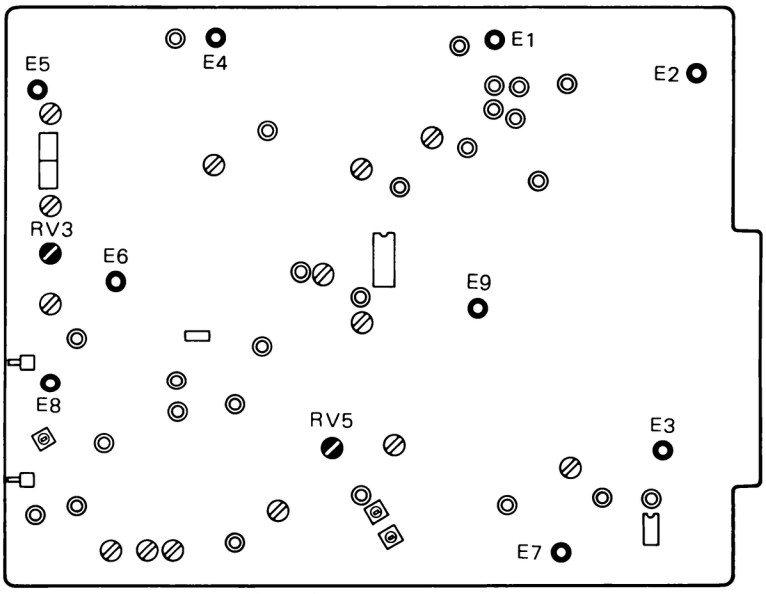


CK-10 Board RV3 (SYSTEM H PHASE control)

Step 2. Video Phase Adjustment



CK-10 Board RV5



CK-10 Board — component side —

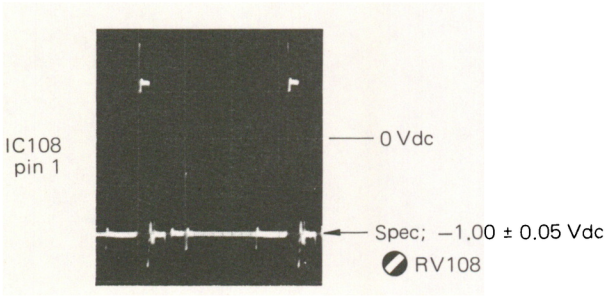
SECTION 14
VIDEO LEVEL ALIGNMENT

14-1. PEDESTAL LEVEL & VIDEO LEVEL ADJUSTMENTS

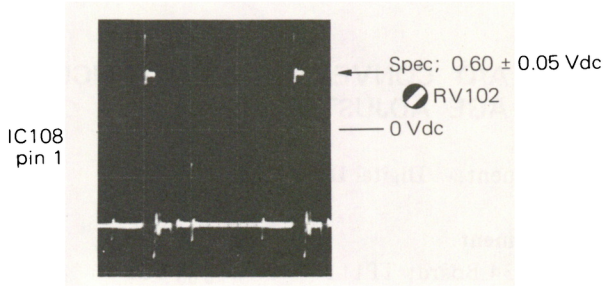
Connection; Same as Section 6-2, Connection 1.
Equipment; Oscilloscope
Input; DC
Switches & Controls Setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Color bars

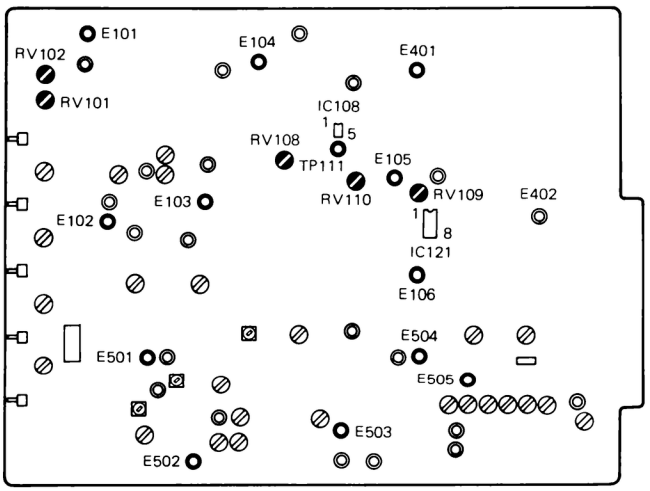
Step 1. Check that the dot on the PR-34 Board ⊘ RV101 (INPUT LEVEL control) is in the middle position.

Step 2. Pedestal Level Adjustment
PR-34 Board

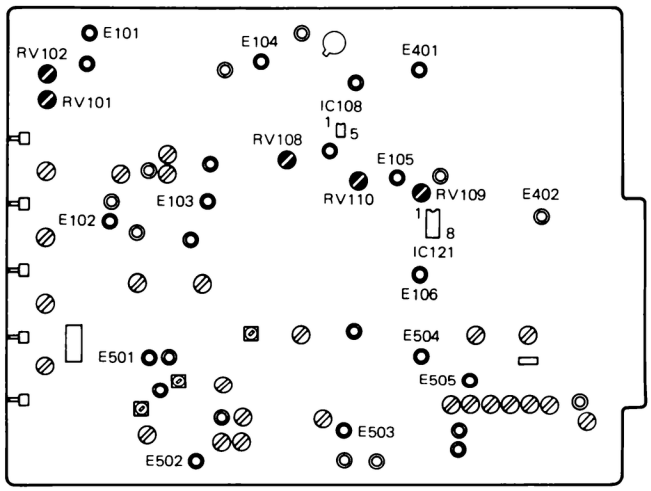


Step 3. Video Level Adjustment
PR-34 Board





PR-34 Board — component side —
NO. 1-605-402-11, 12 & 13

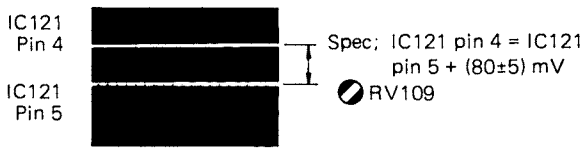


PR-34 Board — component side —
NO. 1-605-402-14 & UP

14-2. INPUT LEVEL INDICATOR CALIBRATION

Connection; Same as Section 6-2, Connection 1.
Equipment; Oscilloscope
Input; DC
Switches & Controls Setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Color bars

Adjustment
PR-34 Board



14-3. A/D CONVERTER REFERENCE VOLTAGE ADJUSTMENT

Equipment; Digital DC Voltmeter

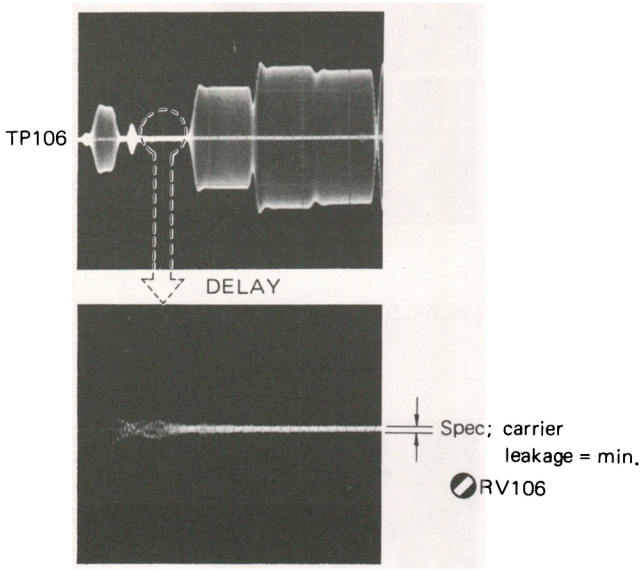
Adjustment
PR-34 Board; TP111 = $-2.00^{+0.02}_{-0.00}$ Vdc
RV110

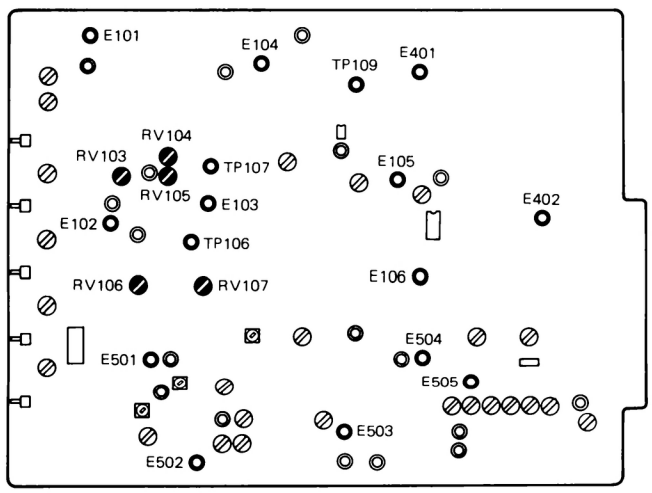
SECTION 15
HETERODYNE PROCESS ALIGNMENT

15-1. UP CONVERTER CARRIER LEAKAGE ADJUSTMENT

Connection; Same as Section 6-2, Connection 1.
Equipment; Oscilloscope
Input; DC
Trigger; HD (test signal generator)
Switches & Controls Setting;
Same as Section 6-3 except the following.
PROCESS/SC • DIRECT switch; PROCESS
Input Signal (OFF TAPE VIDEO IN);
Color bars

Adjustment
PR-34 Board



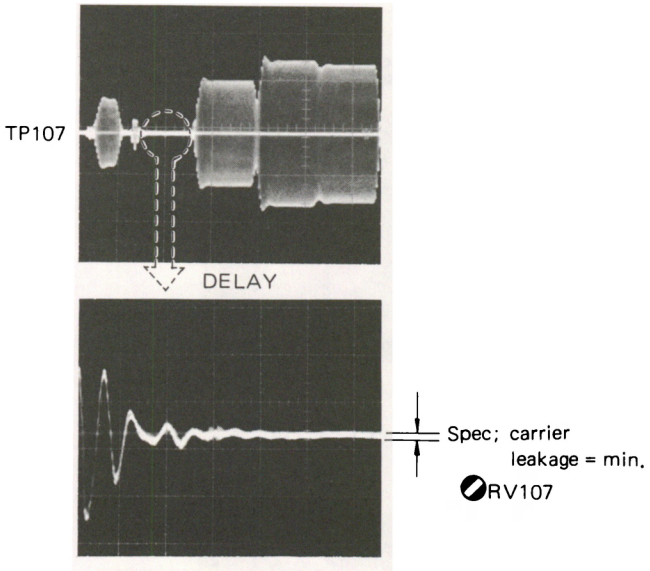


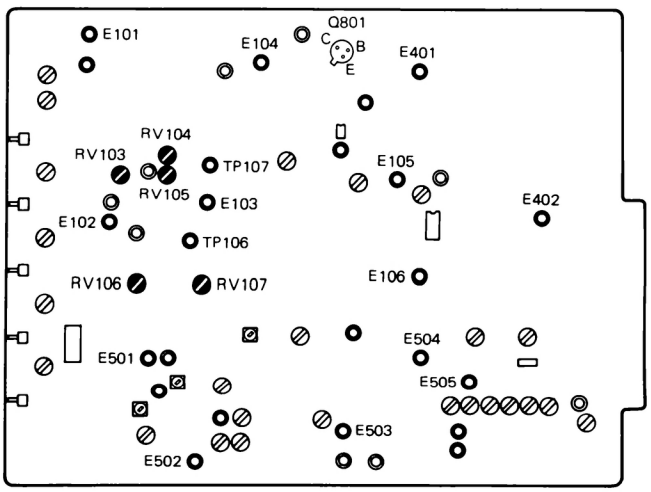
PR-34 Board — component side —
NO. 1-605-402-11, 12 & 13

15-2. DOWN CONVERTER CARRIER LEAKAGE ADJUSTMENT

Connection; Same as Section 6-2, Connection 1.
Equipment; Oscilloscope
Input; DC
Trigger; HD (test signal generator)
Switches & Controls Setting;
Same as Section 6-3 except the following.
PROCESS/SC • DIRECT switch; PROCESS
Input Signal (OFF TAPE VIDEO IN);
Color bars

Adjustment
PR-34 Board





PR-34 Board — component side —
NO. 1-605-402-14 & UP

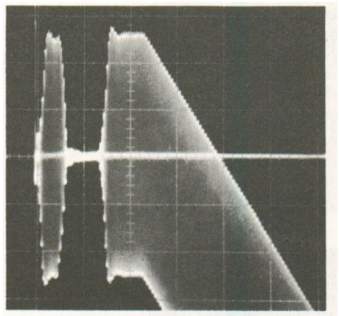
15-3. CHROMA LEVEL ADJUSTMENT

Connection; Same as Section 6-2, Connection 1.
Equipment; Oscilloscope
Input; DC
Trigger; HD (test signal generator)
Switches & Controls Setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Ramp linearity 1 Vp-p,
40 IRE subcarrier ON

Adjustment

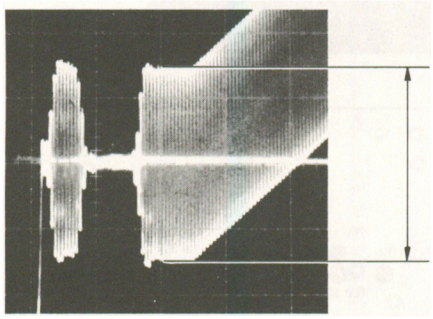
Switch over the PROCESS/SC • DIRECT switch and adjust so that the chroma level in the PROCESS mode corresponds with that in the SC • DIRECT mode.
PR-34 Board (1-605-402-11, 12 & 13)

TP109



PR-34 Board (1-605-402-14 & UP)

Q801
base



Spec; $\frac{\text{Chroma level in PROCESS mode}}{\text{Chroma level in SC • DIRECT mode}} = \frac{100\pm1}{100}$

RV105

After performing the above-mentioned adjustment, set the PROCESS/SC • DIRECT switch to SC • DIRECT.

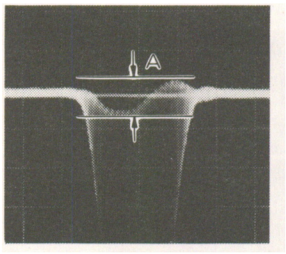
15-4. Y/C DELAY ADJUSTMENT

Connection; Same as Section 6-2, Connection 1.
Equipment; Oscilloscope
Input; DC
Trigger; HD (test signal generator)
Switches & Controls Setting;
Same as Section 6-3 except the following.
PROCESS/SC • DIRECT switch; PROCESS
Input Signal (OFF TAPE VIDEO IN);
Modulated 12.5T

Step 1. Adjustment

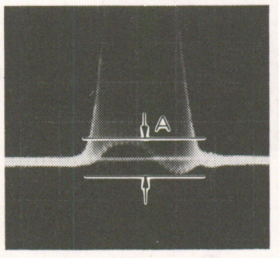
PR-34 Board (1-605-402-11, 12 & 13)

TP109



PR-34 Board (1-605-402-14 & UP)

Q801 base



Spec; A becomes minimum.
RV104

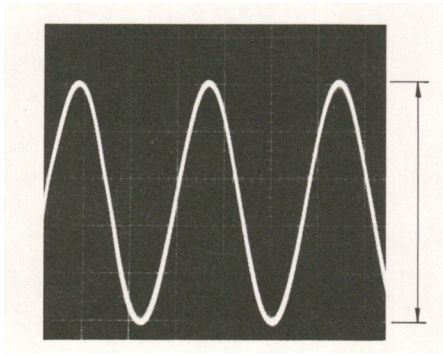
Step 2. Check again Section 15-3. Chroma Level Adjustment.

Step 3. Set the PROCESS/SC • DIRECT switch to SC • DIRECT.

15-5. RETURN SC LEVEL ADJUSTMENT

Connection; Same as Section 6-2, Connection 1.
Equipment; Oscilloscope
Input; AC
Switches & Controls Setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Color bars

Adjustment
SC OUT (BVT-800)



Spec; 1.0 ± 0.2 V (75Ω Terminated.)
PR-34 Board ◐RV103

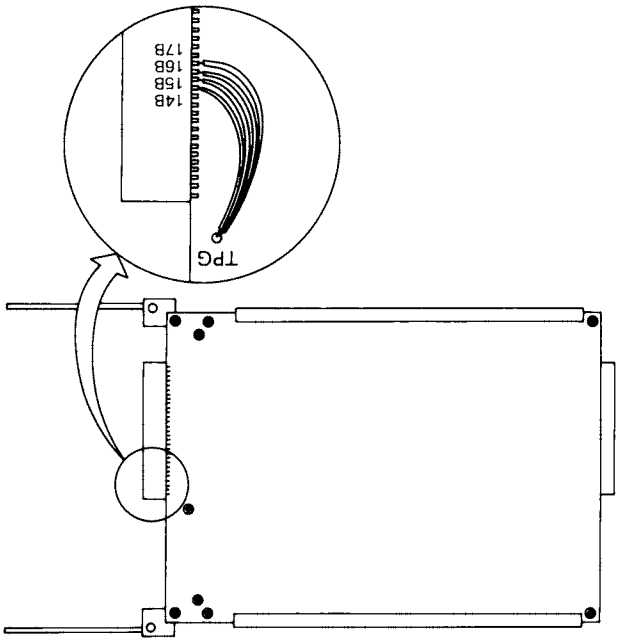
SECTION 16
D/A CONVERTER ALIGNMENT

16-1. D/A CONVERTER ADJUSTMENT

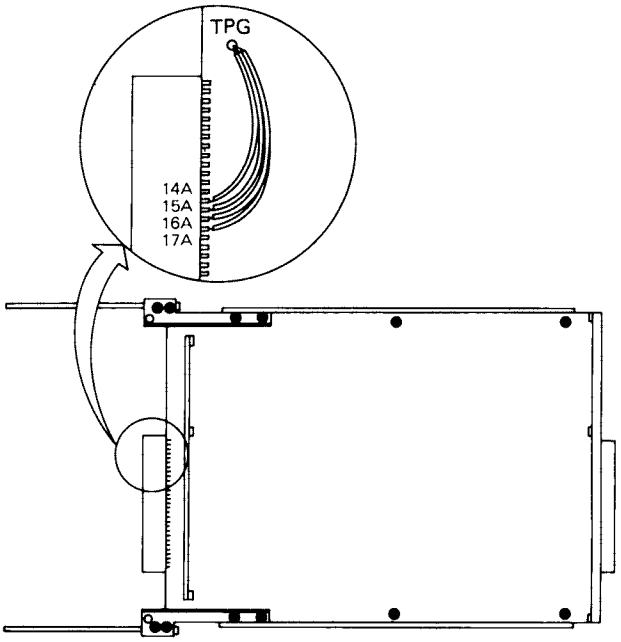
Connection; Same as Section 6-2, Connection 1.
Equipment; Digital DC Voltmeter
Switches & Controls Setting;
Same as Section 6-3 except the following.
VIDEO Level Manual/PRESET switch;
MANUAL
Input Signal (OFF TAPE VIDEO IN);
Color bars

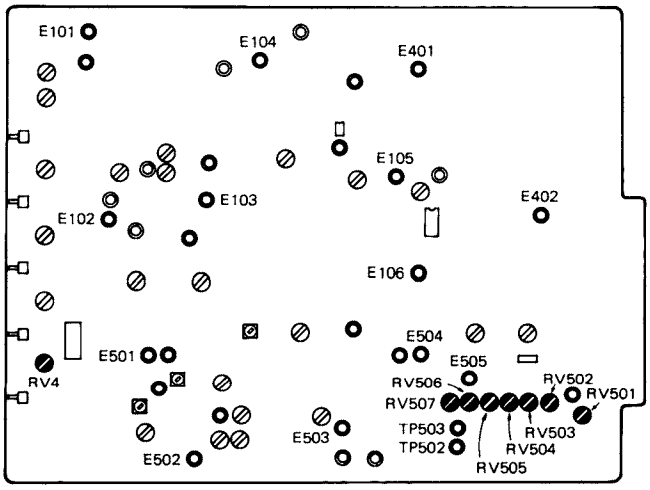
Step 1. Unsolder the eight connector pins on the EB-9 board.
pin 14B, 15B, 16B, 17B
pin 14A, 15A, 16A, 17A
Connect the jumper between the unsoldered pins and TPG (GND).

EB-9 Board (B side)

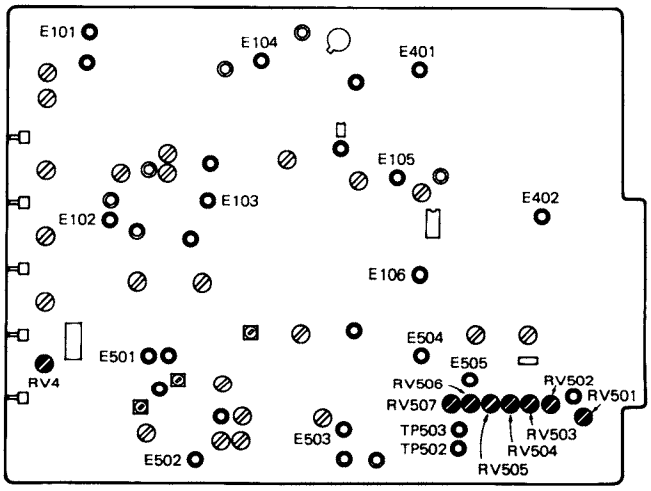


EB-9 Board (A side)





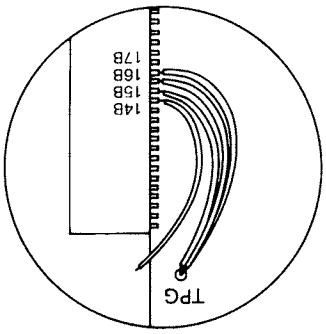
PR-34 Board — component side —
NO. 1-605-402-11, 12 & 13



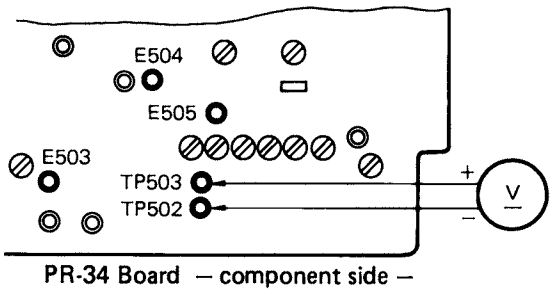
PR-34 Board — component side —
NO. 1-605-402-14 & UP

Step 2. 2^7 Adjustment

1) Remove the jumper of pin 14B from TPG.



2)



Spec; 0.6400 ± 0.01 Vdc
PR-34 Board RV4
(VIDEO Level control)

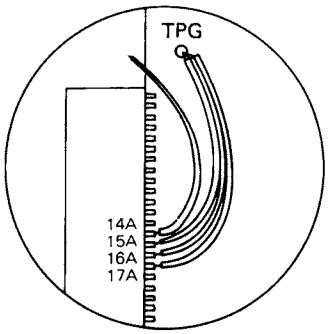
3) Spec; 0.6400 ± 0.001 Vdc
PR-34 Board RV501

4) Spec; 0.6400 ± 0.0003 Vdc
PR-34 Board RV507

5) Connect the jumper of pin 14B to TPG again.

Step 3. 2^6 Adjustment

1) Remove the jumper of pin 14A from TPG.

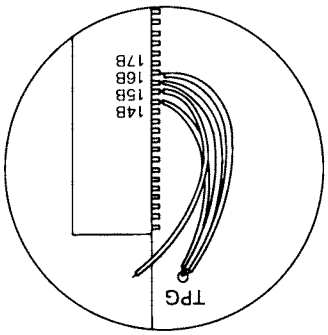


2) Spec; 0.3200 ± 0.0003 Vdc
PR-34 Board RV506

3) Connect the jumper of pin 14A to TPG again.

Step 4. 2^5 Adjustment

1) Remove the jumper of pin 15B from TPG.

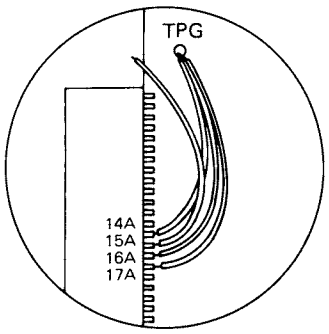


2) Spec; 0.1600 ± 0.0003 Vdc
PR-34 Board RV505

3) Connect the jumper of pin 15B to TPG again.

Step 5. 2^4 Adjustment

1) Remove the jumper of pin 15A from TPG.

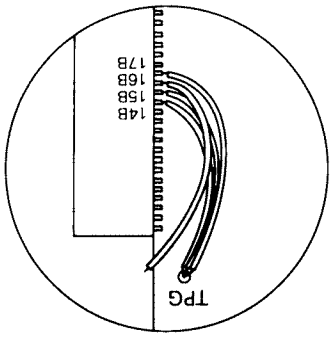


2) Spec; 0.0800 ± 0.0003 Vdc
PR-34 Board RV504

3) Connect the jumper of pin 15A to TPG again.

Step 6. 2^3 Adjustment

1) Remove the jumper of pin 16B from TPG.

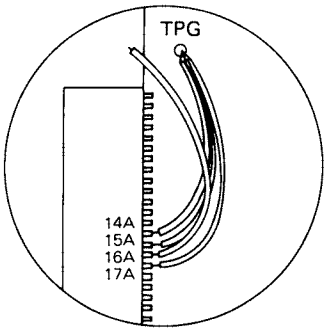


2) Spec; 0.0400 ± 0.0003 Vdc
PR-34 Board RV503

3) Connect the jumper of pin 16B to TPG again.

Step 7. 2^2 Adjustment

1) Remove the jumper of pin 16A from TPG.



2) Spec; 0.0200 ± 0.0003 Vdc
PR-34 Board ◐RV502

3) Connect the jumper of pin 16A to TPG again.

Step 8. $2'$, 2° Adjustment

$2'$: Spec. 0.0100 ± 0.0003 Vdc

2° : Spec. 0.0050 ± 0.0003 Vdc

If the $2'$ and 2° are out of the specified value, adjust ◐ RV501 to obtain the specified value and repeat steps 2 through 8.

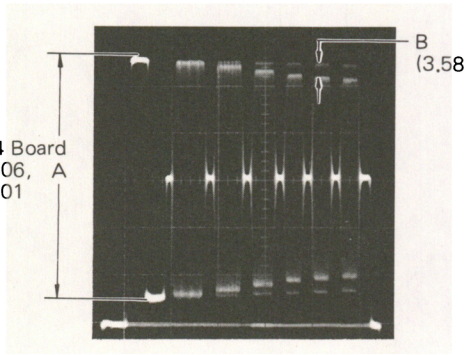
CAUTION; When the above-mentioned adjustment has been finished, Video Level Adjustment in Section 17-7 must be performed.

SECTION 17
VIDEO PROCESS ALIGNMENT

17-1. FREQUENCY RESPONSE ADJUSTMENT

Connection; Same as Section 6-2, Connection 1.
Equipment; Oscilloscope
Input; DC
Trigger; HD (Test signal generator)
Switches & Controls Setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Multiburst signal (low range)

Step 1. Setting of the Oscilloscope



Setting of the Oscilloscope; A = 5 divisions
Oscilloscope ◐CH-1 VOLT/DIV control
Oscilloscope ◐CH-2 VOLT/DIV control

Step 2. Adjustment

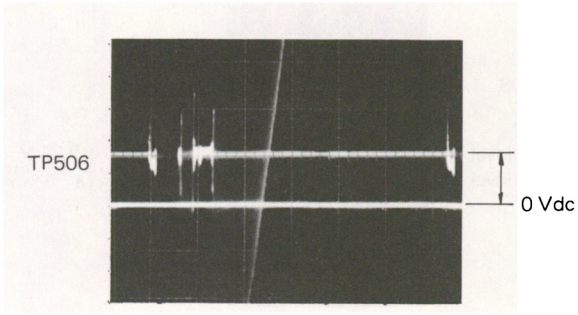
Spec; B (3.58 MHz) = 0
PR-34 Board ◐RV510

17-2. PEDESTAL LEVEL ADJUSTMENT

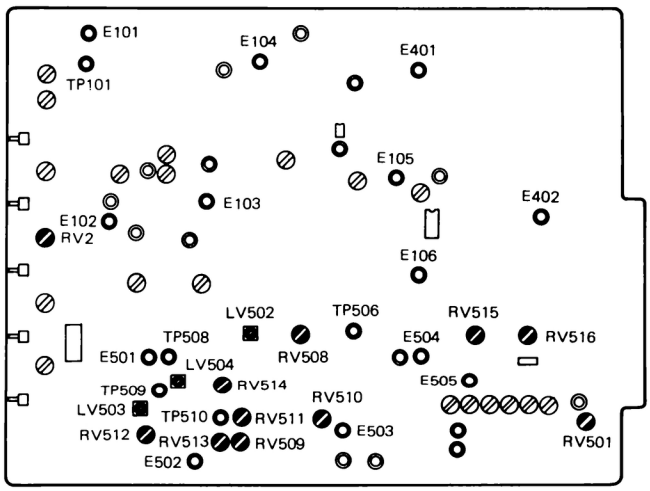
Connection; Same as Section 6-2, Connection 1.
Equipment; Oscilloscope
Input; DC
Trigger; HD (test signal generator)
Switches & Controls Setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Ramp linearity 1 Vp-p,
40 IRE subcarrier ON

Adjustment

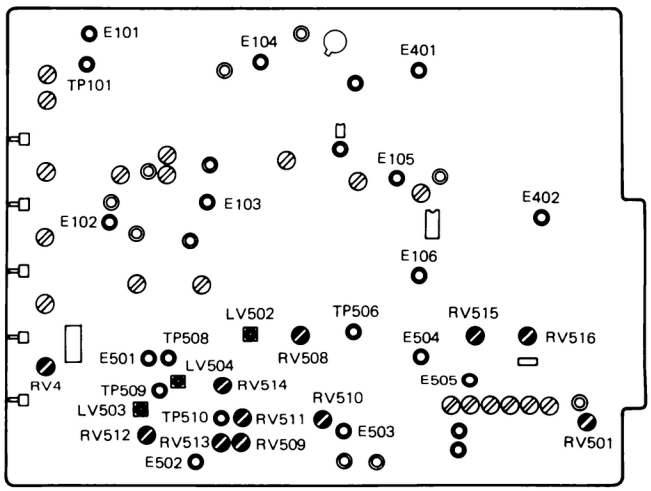
PR-34 Board



Spec; 50 ± 5 mV
◐RV509



PR-34 Board — component side —
NO. 1-605-402-11, 12 & 13

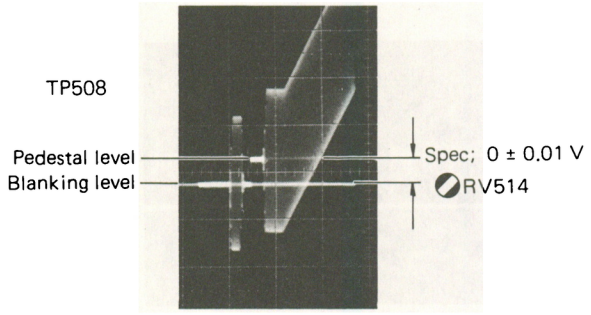


PR-34 Board — component side —
NO. 1-605-402-14 & UP

17-3. BLANKING LEVEL ADJUSTMENT

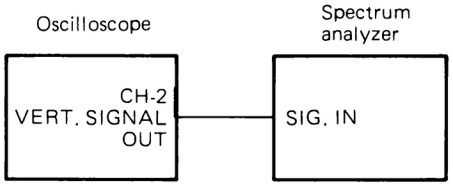
Connection; Same as Section 6-2, Connection 1.
Equipment; Oscilloscope
Input; DC
Trigger; HD (test signal generator)
Switches & Controls Setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Ramp linearity 1 Vp-p,
40 IRE subcarrier ON

Adjustment
PR-34 Board



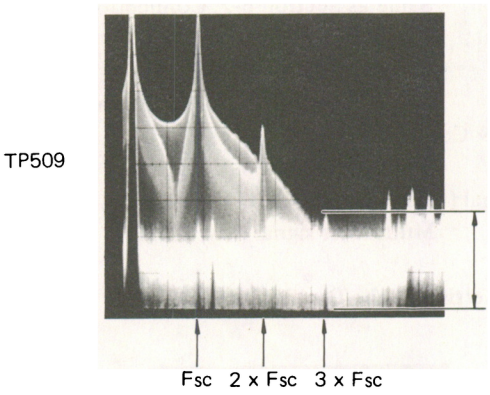
17-4. PROCESS SC FILTER ADJUSTMENT

Connection; Same as Section 6-2, Connection 1 except the following.



Equipment; Oscilloscope
Input; AC
Spectrum Analyzer
Switches & Controls Setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Color bars

Adjustment
PR-34 Board

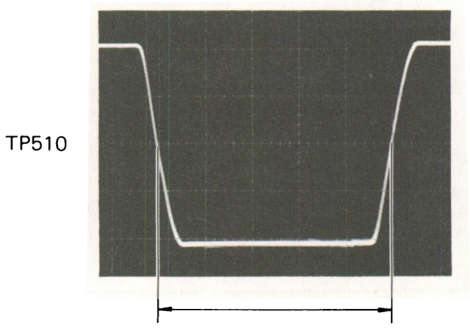


Spec; 3 x Fsc = min.
LV503

17-5. BURST WIDTH ADJUSTMENT

Connection; Same as Section 6-2, Connection 1.
Equipment; Oscilloscope
Input; DC
Switches & Controls Setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Color bars

Adjustment
PR-34 Board

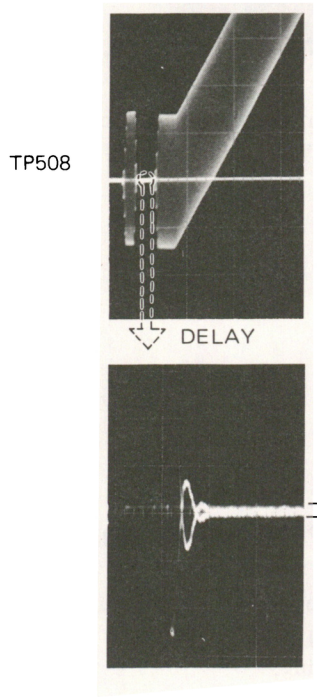


Spec; 2.52 ± 0.05 μs
RV516

17-6. SC LEAKAGE ADJUSTMENT

Connection; Same as Section 6-2, Connection 1.
Equipment; Oscilloscope
Input; DC
Trigger; HD (test signal generator)
Switches & Controls Setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Ramp linearity 1 Vp-p,
40 IRE subcarrier ON

Adjustment
PR-34 Board

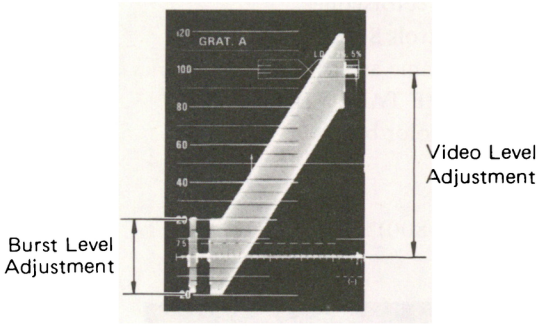


Spec; SC leakage = min.
⊘RV513

17-7. BURST/VIDEO LEVEL ADJUSTMENT

Connection; Same as Section 6-2, Connection 1.
Equipment; Waveform Monitor
Switches & Controls Setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Ramp linearity 1 Vp-p,
40 IRE subcarrier ON

Adjustment
OUT-1 (BVT-800)

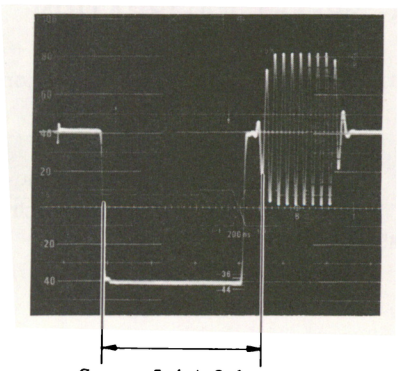


Burst Level Adjustment
Spec; 40 ± 0.5 IRE
PR-34 Board ⊘RV512
Video Level Adjustment
Spec; 100 ± 1 IRE
PR-34 Board ⊘RV501

17-8. BURST POSITION ADJUSTMENT

Connection; Same as Section 6-2, Connection 1.
Equipment; Waveform Monitor
Switches & Controls Setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Color bars

Adjustment
OUT-1 (BVT-800)

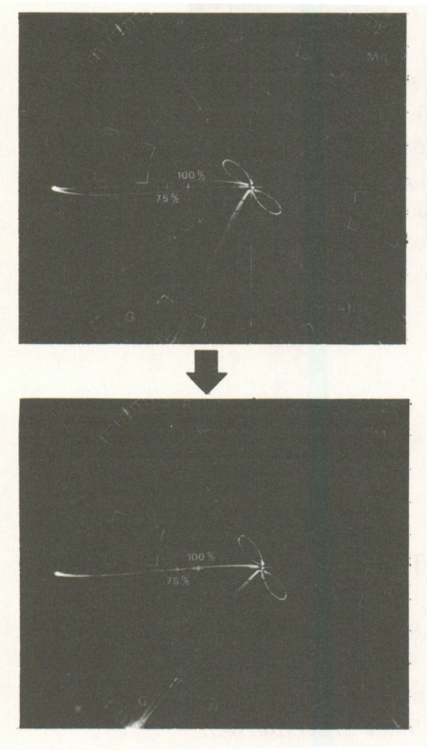


Spec; 5.4 ± 0.1 μs
PR-34 Board ⊘RV515

17-9. BURST TUNING

Connection; Same as Section 6-2, Connection 1.
Equipment; Vectorscope
Switches & Controls Setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Color bars

Adjustment
OUT-1 (BVT-800)

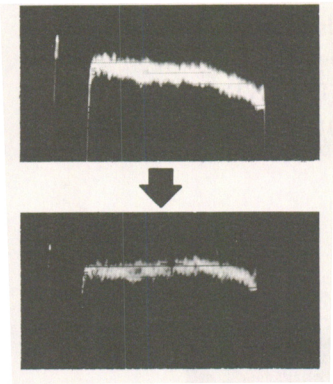


Spec; Adjust so that the locus of the burst comes in line.
PR-34 Board ⊘LV504

17-10. DG PRESET CALIBRATION

Connection; Same as Section 6-2, Connection 1.
Equipment; Vectorscope
Switches & Controls Setting;
Same as Section 6-3 except the following.
PROCESS/SC • DIRECT switch; PROCESS
Input Signal (OFF TAPE VIDEO IN);
Ramp linearity 1 Vp-p,
40 IRE subcarrier ON

Step 1. Check that the dot on the CK-10 Board ⊘RV4 (DG control) is in the middle position.
Step 2. Adjustment
OUT-1 (BVT-800)

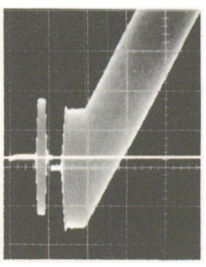


Spec; Adjust so that the waveform becomes flattest.
PR-34 Board ⊘RV511

17-11. DARK CLIPPER DG/DP ADJUSTMENT

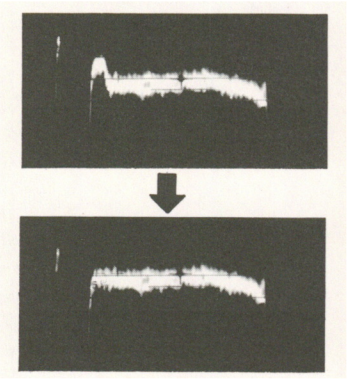
Connection; Same as Section 6-2, Connection 1.
Equipment; Vectorscope
Switches & Controls Setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Ramp linearity 1 Vp-p,
40 IRE subcarrier ON

Step 1. Turn ⊘RV509 (Pedestal Level control) on the PR-34 board fully counterclockwise and make the SET UP to negative.
OUT-1 (BVT-800)



Step 2. DG Adjustment

OUT-1 (BVT-800)

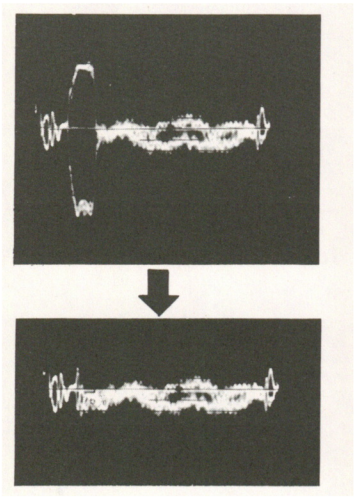


Spec; Adjust so that the waveform becomes flattest.

RV508

Step 3. DP Adjustment

OUT-1 (BVT-800)



Spec; Adjust so that the waveform becomes flattest.

LV502

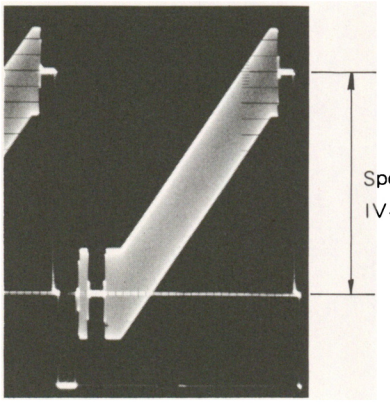
Step 4. Perform "17-2. Pedestal Level Adjustment."

SECTION 18
VIDEO OUTPUT LEVEL ALIGNMENT

18-1. BYPASS VIDEO OUTPUT LEVEL ADJUSTMENT

Connection; Same as Section 6-2, Connection 1.
Equipment; Waveform Monitor
Switches & Controls Setting;
Same as Section 6-3 except the following.
BYPASS/NORMAL switch; BYPASS
Input Signal (OFF TAPE VIDEO IN);
Ramp linearity 1 Vp-p,
40 IRE subcarrier ON

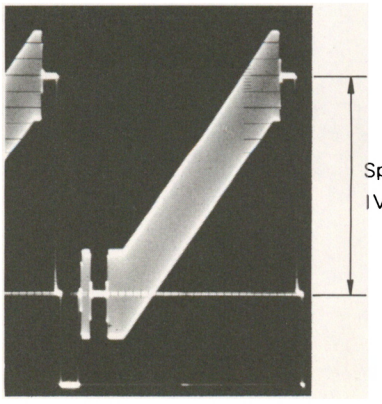
Adjustment
OUT-1 (BVT-800)



18-2. NORMAL VIDEO OUTPUT LEVEL ADJUSTMENT

Connection; Same as Section 6-2, Connection 1.
Equipment; Waveform Monitor
Switches & Controls Setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Ramp linearity 1 Vp-p,
40 IRE subcarrier ON

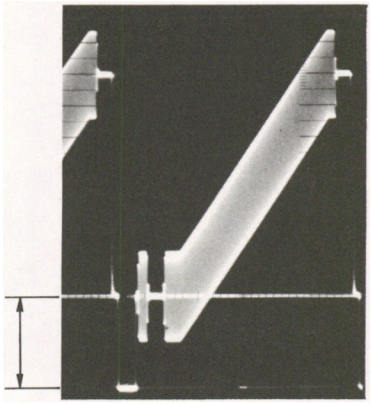
Adjustment
OUT-1 (BVT-800)

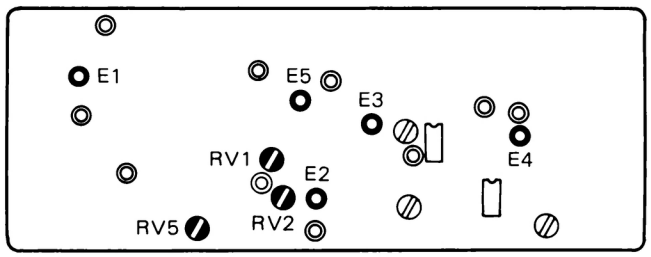


18-3. VIDEO OUTPUT SYNC LEVEL ADJUSTMENT

Connection; Same as Section 6-2, Connection 1.
Equipment; Waveform Monitor
Switches & Controls Setting;
Same as Section 6-3.
Input Signal (OFF TAPE VIDEO IN);
Ramp linearity 1 Vp-p,
40 IRE subcarrier ON

Adjustment
OUT-1 (BVT-800)

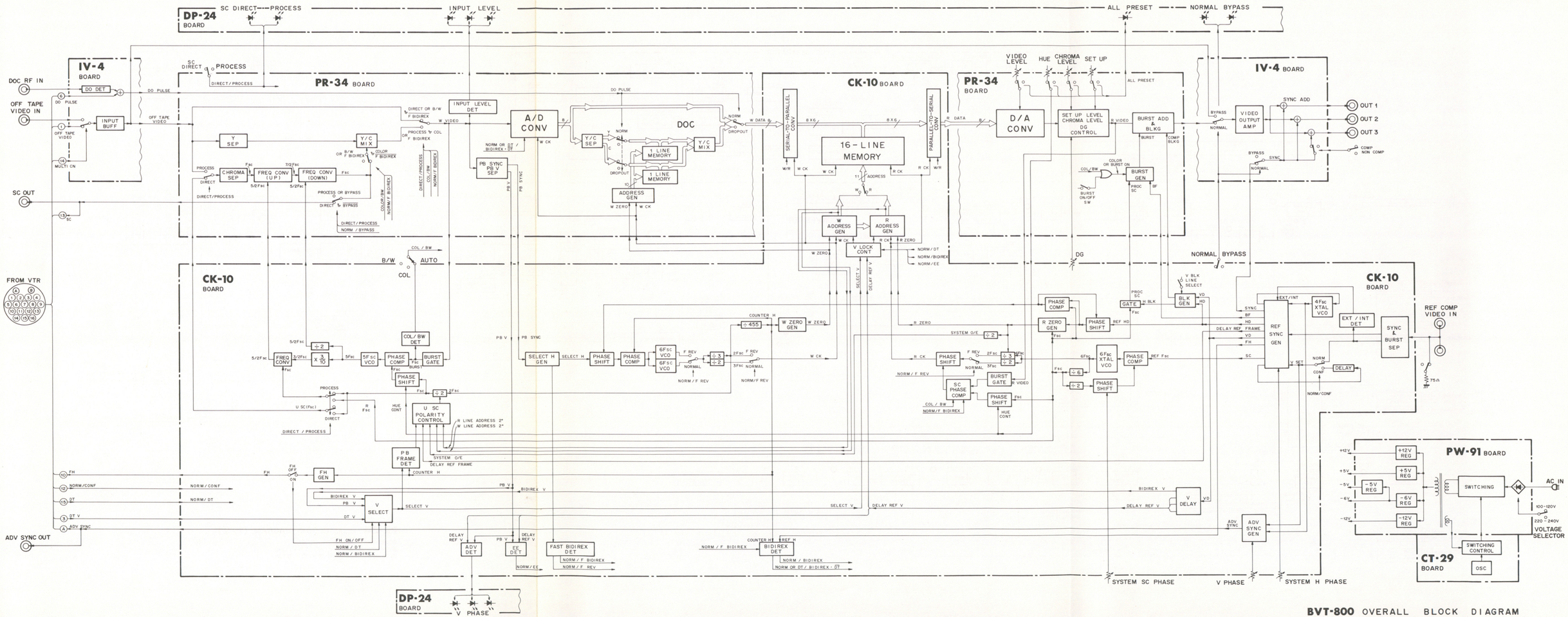




IV-4 Board — component side —

SECTION A
BLOCK DIAGRAMS

OVERALL BLOCK DIAGRAM



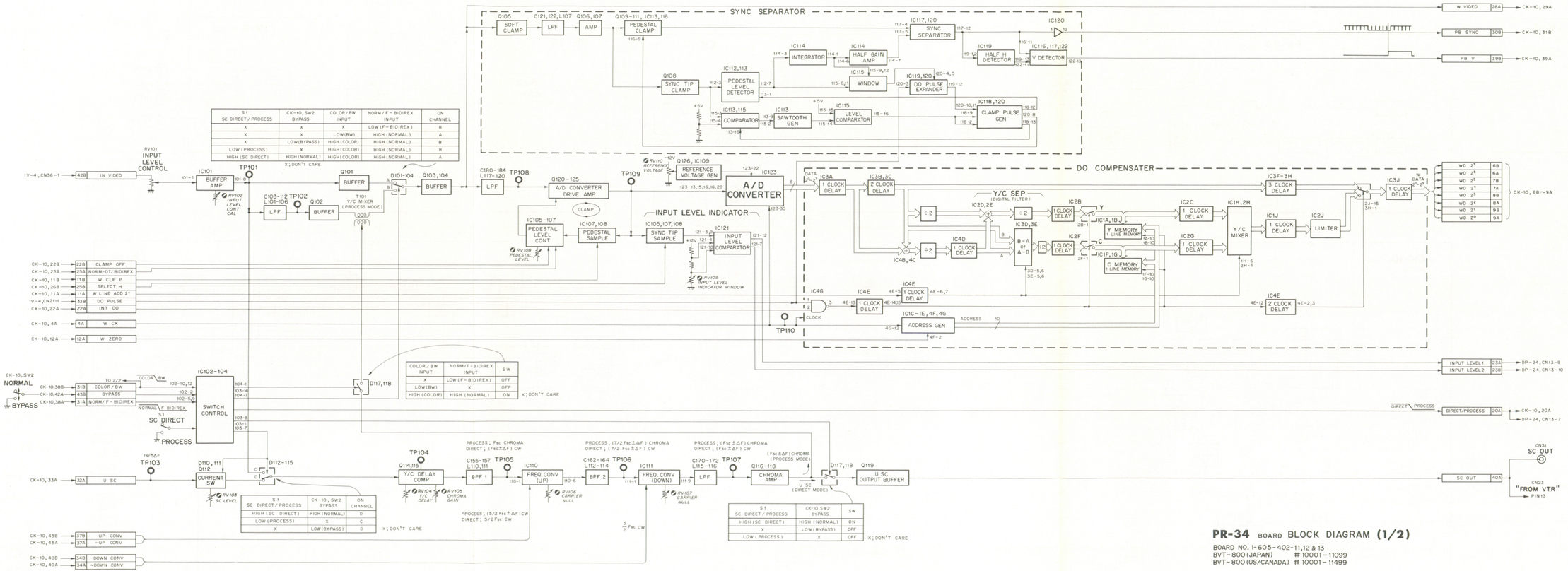
BVT-800 OVERALL BLOCK DIAGRAM

1-605-402-11, 12 & 13 BLOCK DIAGRAM PR-34 (1/2)

PR-34 (1/2) BLOCK DIAGRAM 1-605-402-11, 12 & 13

PR-34 BOARD (1/2); PROCESSOR

Heterodyne Color
A/D Converter
Dropout Compensator
Sync Separator



S1 SC DIRECT/PROCESS	CK-10, SW2 BYPASS	COLOR/BW INPUT	NORM/F-BIDIREX INPUT	ON CHANNEL
X	X	X	LOW (F-BIDIREX)	B
X	X	LOW (BW)	HIGH (NORMAL)	A
X	LOW (BYPASS)	HIGH (COLOR)	HIGH (NORMAL)	B
LOW (PROCESS)	X	HIGH (COLOR)	HIGH (NORMAL)	B
HIGH (SC DIRECT)	HIGH (NORMAL)	HIGH (COLOR)	HIGH (NORMAL)	A

X ; DON'T CARE

COLOR/BW INPUT	NORM/F-BIDIREX INPUT	SW
X	LOW (F-BIDIREX)	OFF
LOW (BW)	X	OFF
HIGH (COLOR)	HIGH (NORMAL)	ON

X ; DON'T CARE

S1 SC DIRECT/PROCESS	CK-10, SW2 BYPASS	ON CHANNEL
HIGH (SC DIRECT)	HIGH (NORMAL)	D
LOW (PROCESS)	X	C
X	LOW (BYPASS)	D

X ; DON'T CARE

S1 SC DIRECT/PROCESS	CK-10, SW2 BYPASS	SW
HIGH (SC DIRECT)	HIGH (NORMAL)	ON
X	LOW (BYPASS)	OFF
LOW (PROCESS)	X	OFF

X ; DON'T CARE

PR-34 BOARD BLOCK DIAGRAM (1/2)

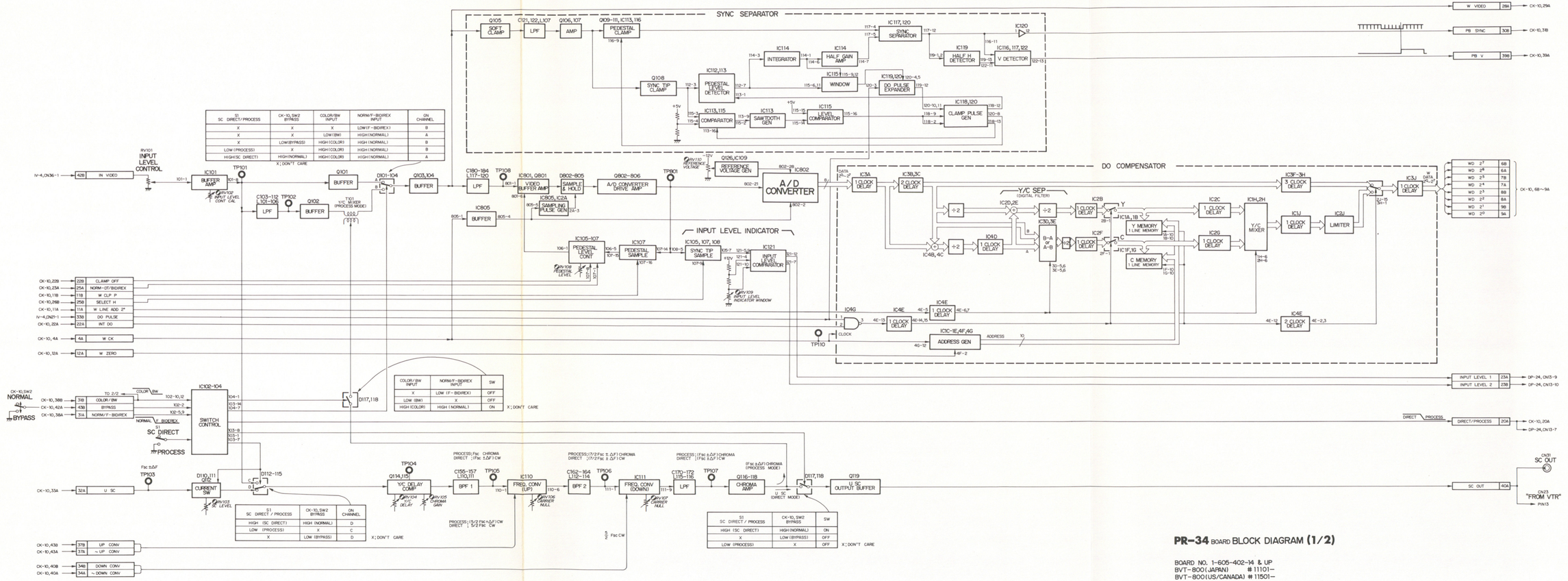
BOARD NO. 1-605-402-11, 12 & 13
BVT-800 (JAPAN) # 10001 - 11099
BVT-800 (US/CANADA) # 10001 - 11499

PR-34 (1/2) BLOCK DIAGRAM 1-605-402-14 & UP

1-605-402-14 & UP BLOCK DIAGRAM PR-34 (1/2)

PR-34 BOARD (1/2); PROCESSOR

Heterodyne Color
A/D Converter
Dropout Compensator
Sync Separator

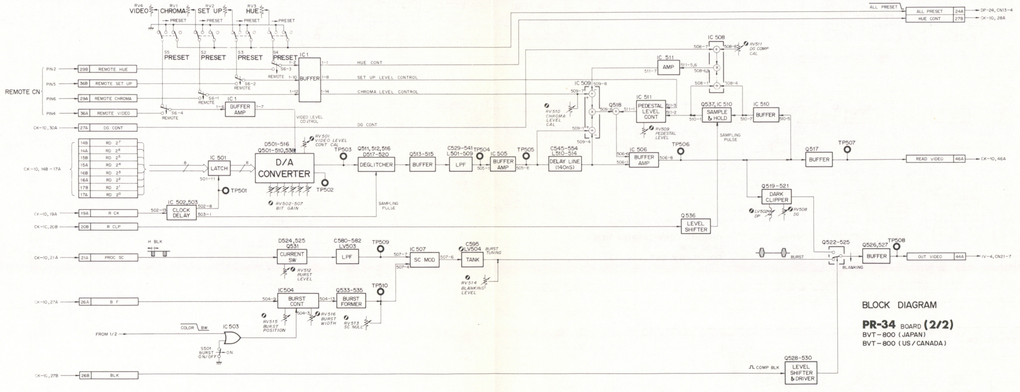


PR-34 BOARD BLOCK DIAGRAM (1/2)

BOARD NO. 1-605-402-14 & UP
BVT-800 (JAPAN) # 11101-
BVT-800 (US/CANADA) # 11501-

PR-34 BOARD (2/2); PROCESSOR

D/A Converter
Processor



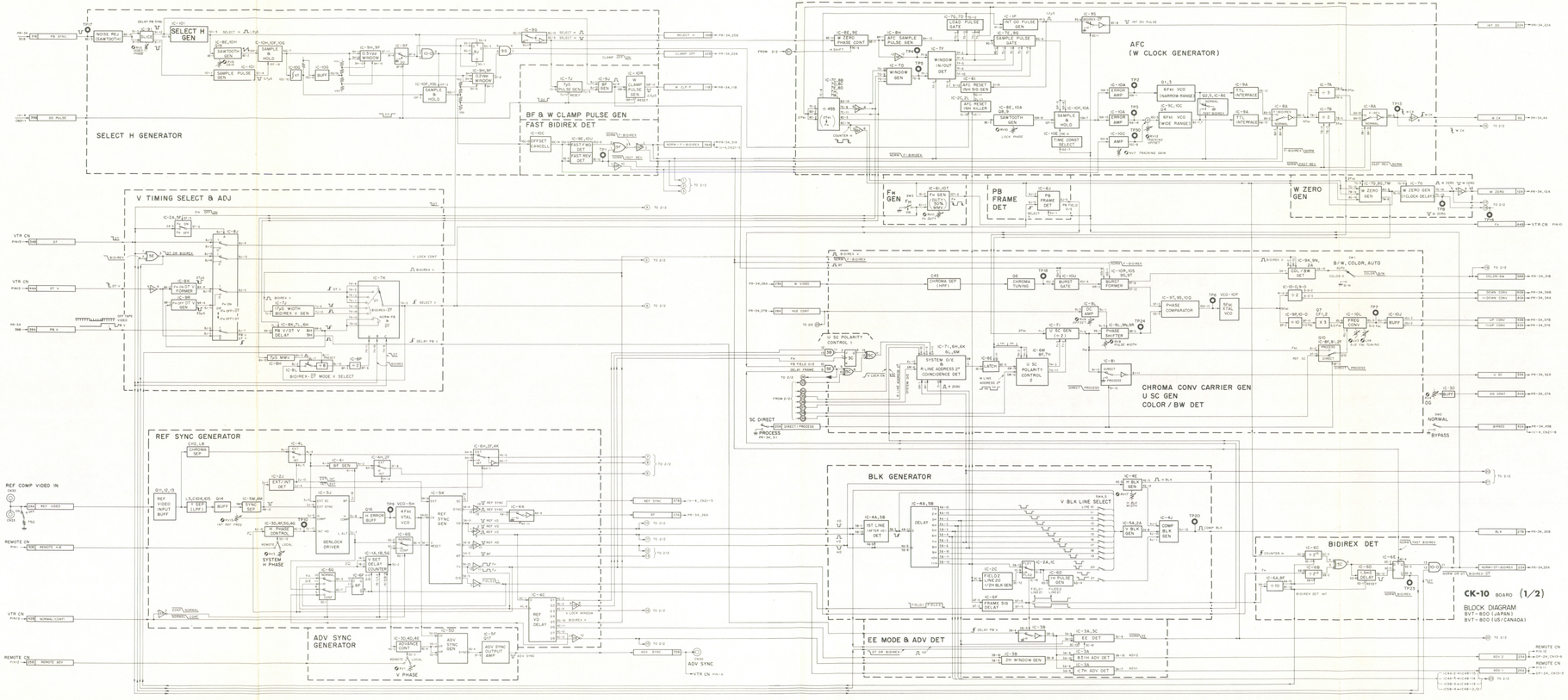
BLOCK DIAGRAM

PR-34 BOARD **(2/2)**

BVT-800 (JAPAN)
BVT-800 (US/CANADA)

CK-10 BOARD(1/2); CLOCK GEN

- Select H Generator
- BF & W Clamp Pulse Generator
- Fast Bidirex Detector
- AFC (W Clock Generator)
- W Zero Generator
- FH Generator
- PB Frame Detector
- V Timing Select & Adj.
- Chroma Conv Carrier Generator
- U SC Generator
- Color/BW Detector
- Reference Sync Generator
- Advanced Sync Generator
- BLK Generator
- EE Mode & Advance Detector
- Bidirex Detector

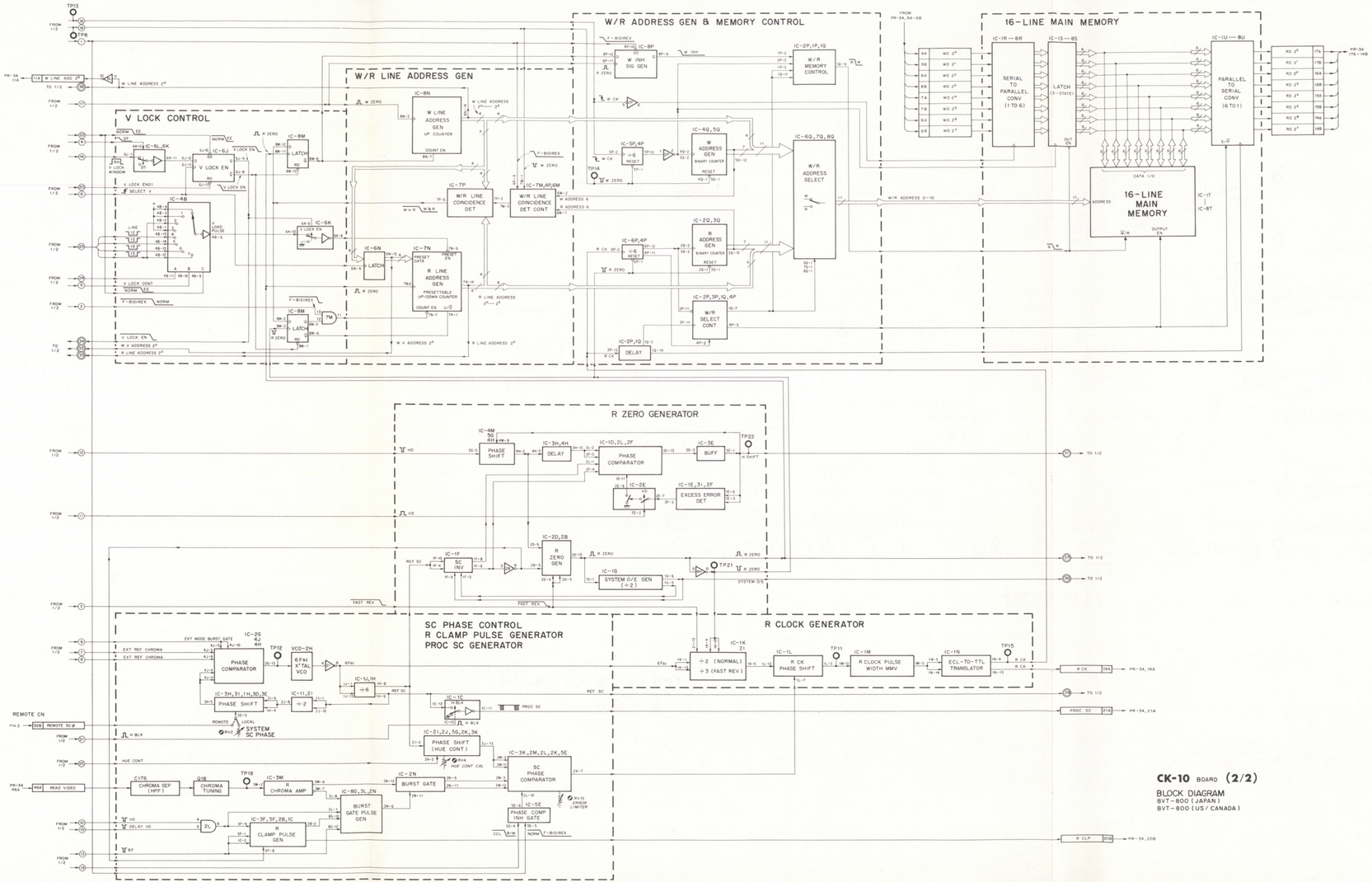


CK-10 (2/2) BLOCK DIAGRAM

BLOCK DIAGRAM **CK-10 (2/2)**

CK-10 BOARD (2/2); CLOCK GEN

- V Lock Control
- W/R Line Address Generator
- W/R Address Generator
- Memory Control
- 16-Line Main Memory
- R Clock Generator
- R Zero Generator
- SC Phase Control
- R Clamp Pulse Generator
- Proc SC Generator

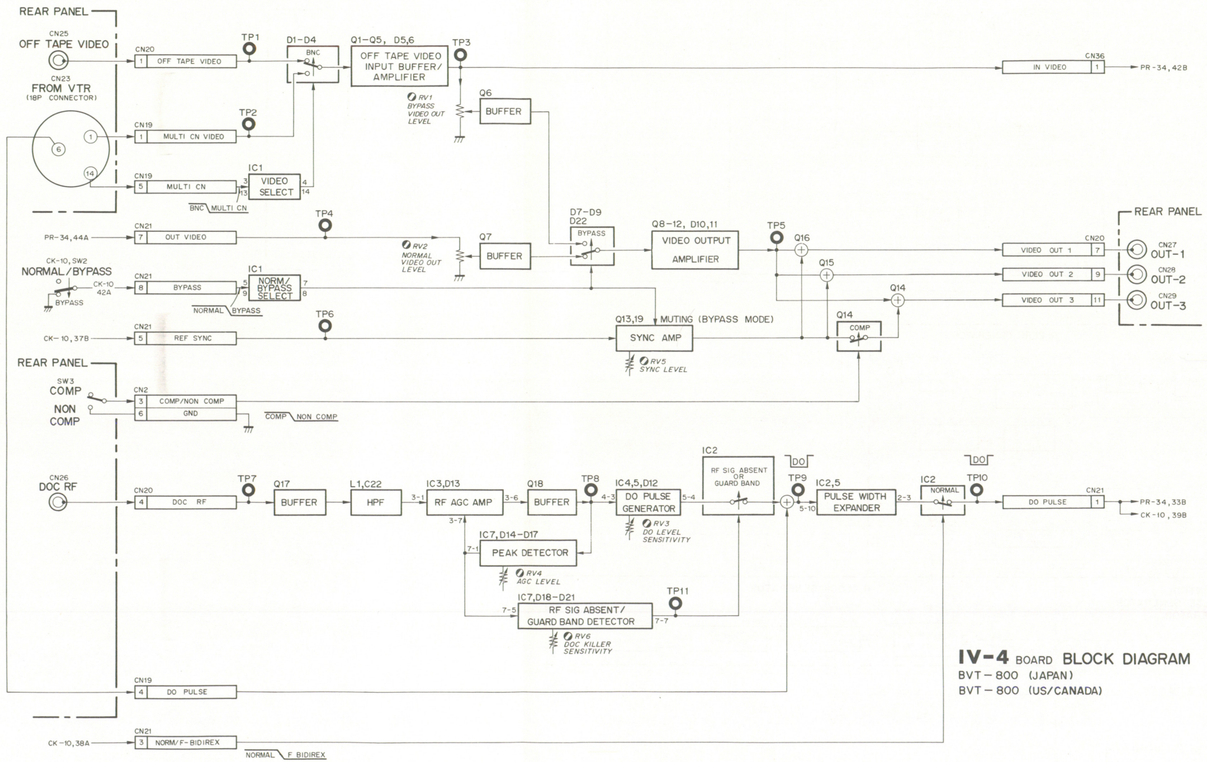


CK-10 BOARD (2/2)
BLOCK DIAGRAM
BVT-800 (JAPAN)
BVT-800 (US/CANADA)

IV-4 BLOCK DIAGRAM

IV-4 BOARD

Video Input Buffer
Video Output Buffer
DO Pulse Generator



IV-4 BOARD BLOCK DIAGRAM
BVT-800 (JAPAN)
BVT-800 (US/CANADA)

SECTION B
SEMICONDUCTOR PIN ASSIGNMENTS

1T25

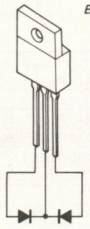
BOTTOM VIEW

2N2369A
2SC689H

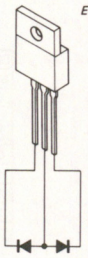
BOTTOM VIEW

2SA530H

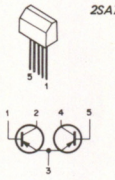
ESAC25-02C



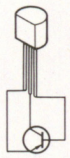
ESAC25-02N



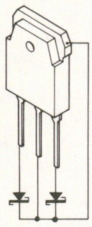
2SA798



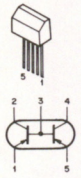
2SA925



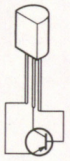
ESAD83



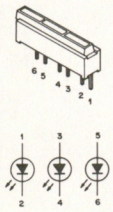
2SA995



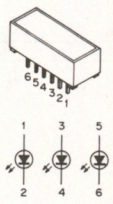
2SA1013



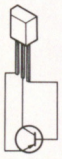
LD003



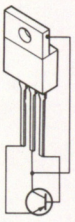
LT9010H
LT9010N



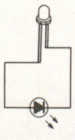
2SA1027R



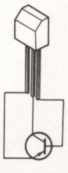
2SB507HP



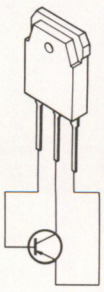
TLR124



2SB733

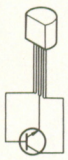


2SB757



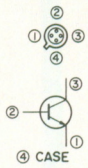
BVT-800

2SC1128



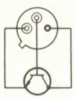
BOTTOM VIEW

2SC1199
2SC1275

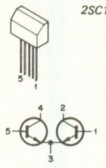


BOTTOM VIEW

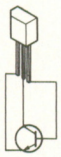
2SC1252



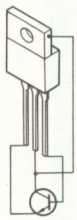
2SC1583



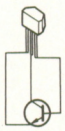
2SC1636



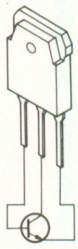
2SC2335



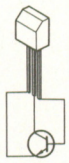
2SC2603
2SC2724



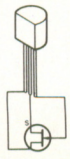
2SC2625
2SD847



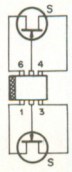
2SD773



2SK43



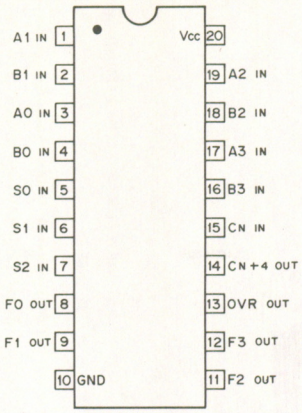
2SK58

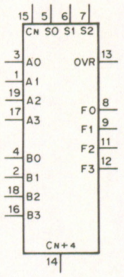


AM25LS2517PC (ADVANCED MICRO DEVICES)

TTL ARITHMETIC LOGIC UNIT/FUNCTION GENERATOR

— TOP VIEW —





FUNCTION TABLE

SELECTION			ARITHMETIC/LOGIC OPERATION
S2	S1	S0	
0	0	0	CLEAR
0	0	1	B MINUS A (SUBTRACTION)
0	1	0	A MINUS B (SUBTRACTION)
0	1	1	A PLUS B (ADDITION)
1	0	0	A ⊕ B (EXCLUSIVE OR)
1	0	1	A + B (OR)
1	1	0	AB (AND)
1	1	1	PRESET

1 ; HIGH LEVEL
0 ; LOW LEVEL

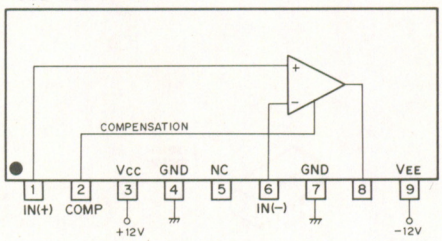
A0 – A3 ; DATA A INPUTS
B0 – B3 ; DATA B INPUTS
CN ; CARRY INPUT
CN+4 ; CARRY OUTPUT
F0 – F3 ; DATA OUTPUTS OF ALU
OVR ; OVERFLOW OUTPUT*
S0 – S2 ; FUNCTION SELECT INPUTS

* THIS PIN IS LOGICALLY THE EXCLUSIVE-OR OF THE CARRY-IN AND CARRY-OUT OF THE MSB OF THE ALU.

BX365A (SONY)

VIDEO AMPLIFIER

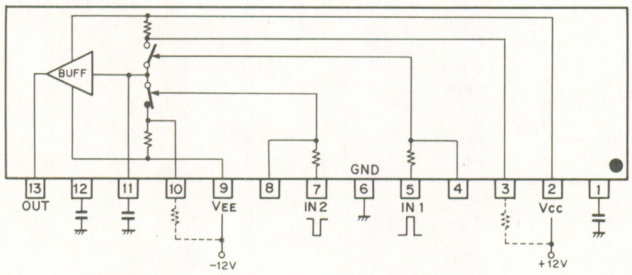
– SIDE VIEW –

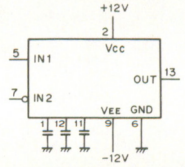


BX381 (SONY)

PHASE COMPARATOR

– SIDE VIEW –



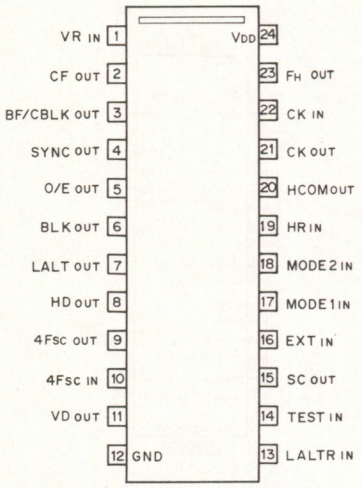


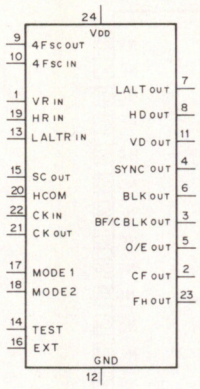
BVT-800

CX773A (SONY)

C-MOS SYNC GENERATOR (NTSC, PAL-M, PAL, SECAM)

—TOP VIEW—





O/E : ODD/EVEN FIELD
CF : COLOUR FRAME PULSE
HCOM : H COMPARATOR

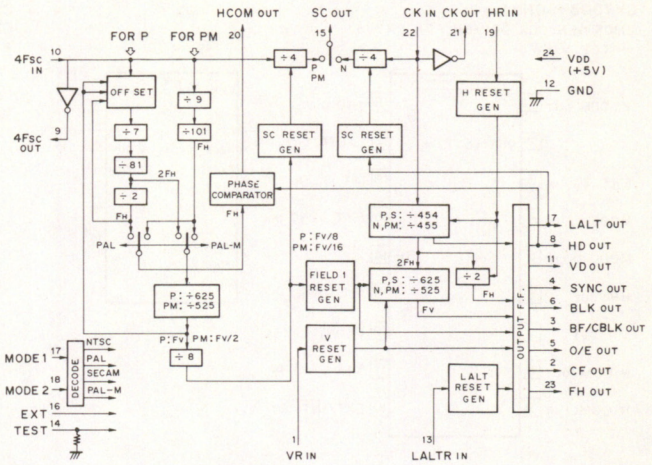
SYSTEM	4Fsc	CLOCK
NTSC	910 FH	910FH
PAL	1135FH+2Fv	908FH
PALM	909FH	910FH
SECAM	——	908FH

INPUTS		SYSTEM
MODE 1	MODE 2	
0	0	NTSC
0	1	SECAM
1	0	PALM
1	1	PAL

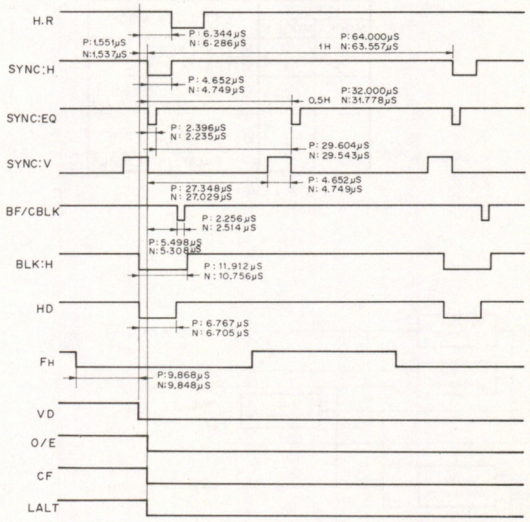
0 ; LOW LEVEL (GND)
1 ; HIGH LEVEL (VDD)

INPUTS		FUNCTION
EXT	TEST	
0	0	INTERNAL
0	1	INVALID
1	0	EXT
1	1	TEST

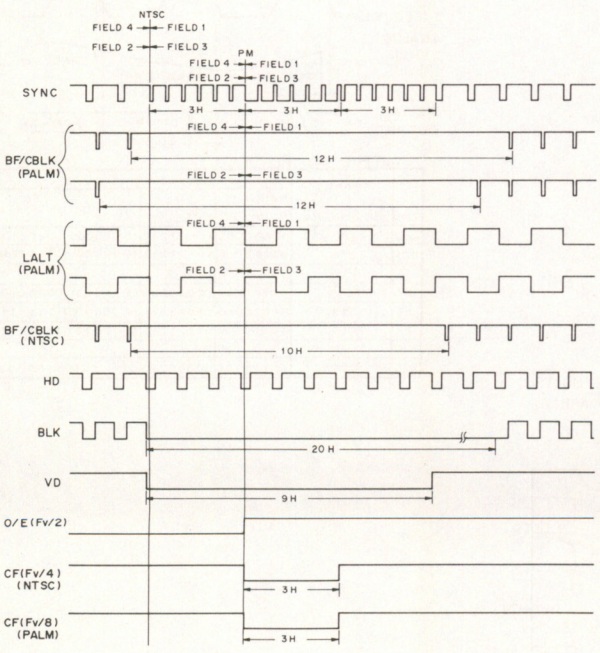
TEST "0": OPEN
(INTERNALLY PULLED DOWN)



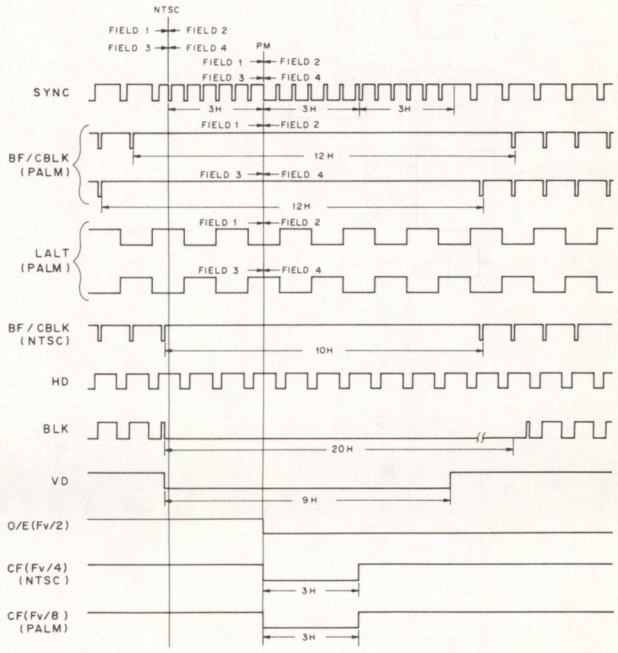
P: PAL, SECAM
N: NTSC, PALM

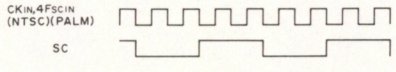


NTSC, PAL-M (FIELD 1,3)



NTSC, PAL-M (FIELD 2,4)



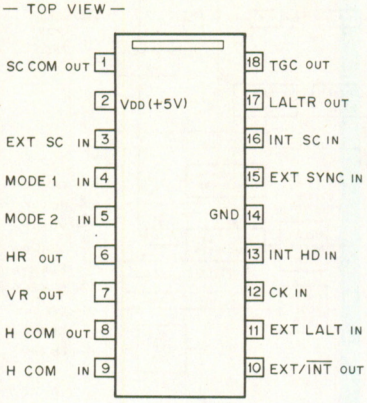


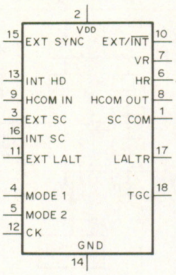
BVT-800

CX7903 (SONY)

CMOS GENLOCK DRIVER FOR CX773

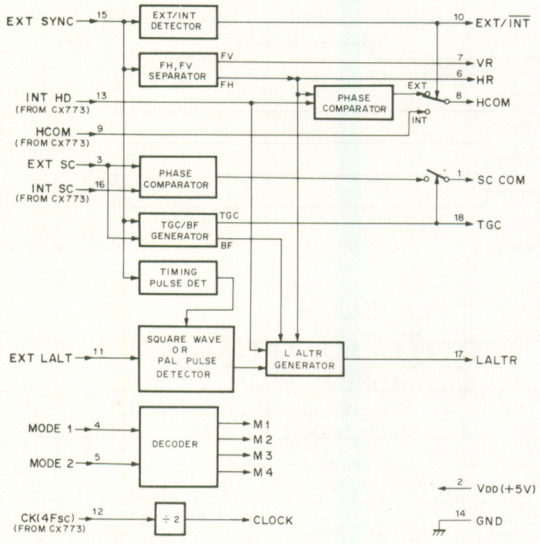
— TOP VIEW —





INPUTS		EXT LOCK MODE	
MODE 2	MODE 1		
0	0	M1	PAL: VBS
0	1	M2	PALM: VBS
1	0	M3	PAL : VS/SC/LALT
			SECAM: VS/SC/LALT
1	1	M4	NTSC: VBS
			NTSC: VS/SC
			PALM: VS/SC/LALT

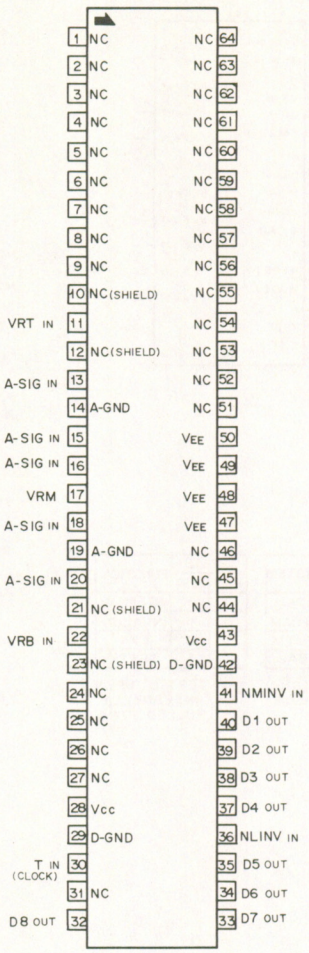
0 ; LOW LEVEL
1 ; HIGH LEVEL

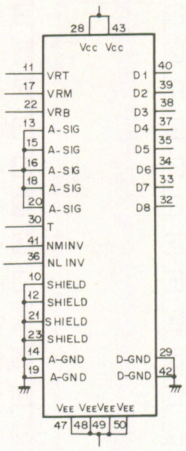


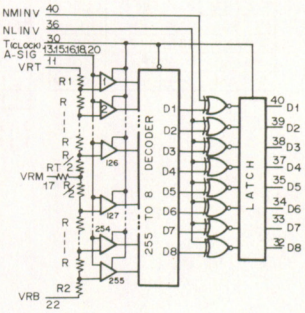
CX20016 (SONY)
CX20016A (SONY)

BIPOLAR/TTL 8-BIT VIDEO A/D CONVERTER

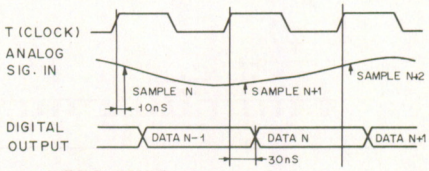
—TOP VIEW—







TIMING DIAGRAM



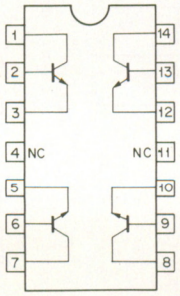
OUTPUT CODING

STEP	RANGE Ex. 2.000 V FULL SCALE	OUTPUTS NMINV= 1 NL INV= 1	0 0	0 1	1 0
000	0.0000 V	00 00 00 00	11 11 11 11	10 000000	01 11 11 11
001	-0.0078 V	0000 0001	11 11 11 10	10 000001	01 11 11 10
⋮	⋮	⋮	⋮	⋮	⋮
127	-0.9961 V	0111 11 11	10 000000	11 11 11 11	0000 0000
128	-1.0039 V	1000 0000	01 11 11 11	00 000000	11 11 1111
129	-1.0118	1 0000001	01 11 11 10	00 00 0001	11 11 1110
⋮	⋮	⋮	⋮	⋮	⋮
255	-2.0000 V	11 11 11 11	0000 00 00	01 11 11 11	10 000000

FT5709M (FUJITSU)

TRANSISTOR ARRAY

—TOP VIEW—

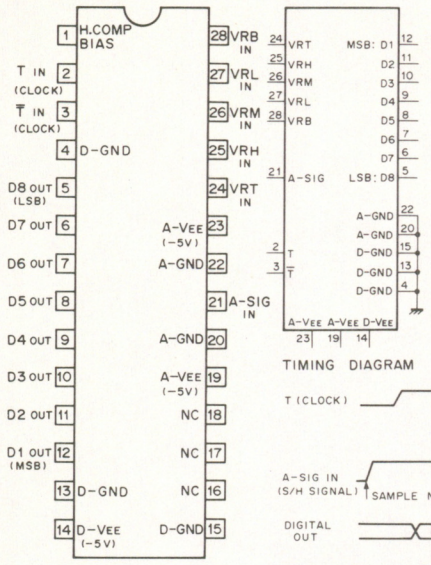


BVT-800

CX20052 (SONY)

8-BIT FEED-FORWARD TYPE A/D CONVERTER (ECL OUTPUT)

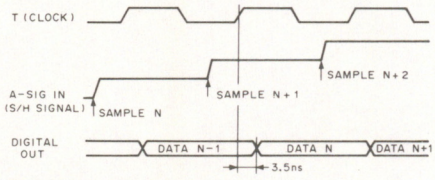
—TOP VIEW—



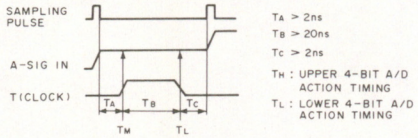
OUTPUT CODING

STEP	RANGE EX. 2.000V FULL SCALE	OUTPUTS MSB LSB
000	0.0000V	11111111
001	-0.0078V	11111110
⋮	⋮	⋮
127	-0.9961V	10000000
128	-1.0039V	01111111
129	-1.0118V	01111110
⋮	⋮	⋮
255	-2.0000V	00000000

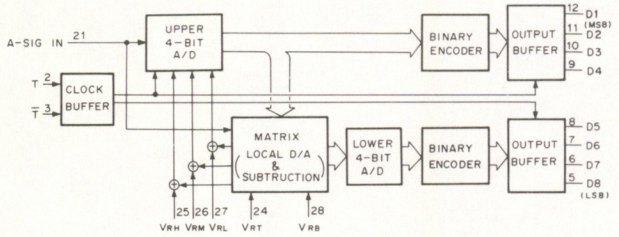
TIMING DIAGRAM



TIMING CONDITION OF ANALOG SIGNAL



TA > 2ns
TB > 20ns
TC > 2ns
TH : UPPER 4-BIT A/D ACTION TIMING
TL : LOWER 4-BIT A/D ACTION TIMING

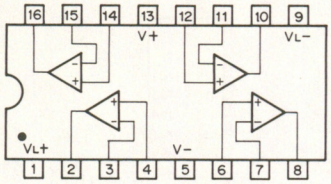


BVT-800

HA1-4905 (HARRIS)

VOLTAGE COMPARATOR

—TOP VIEW—



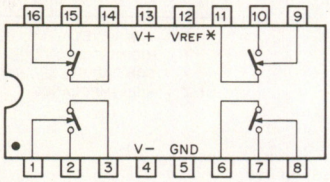
NOTE: V+ AND V− DETERMINE THE ALLOWABLE INPUT SIGNAL RANGE.

VL+ AND VL− DETERMINE THE OUTPUT SWING.

HI1-201 (HARRIS)

C-MOS ANALOG SWITCH

—TOP VIEW—



CONT IN	SW
0	
1	

0 ; LOW LEVEL
1 ; HIGH LEVEL

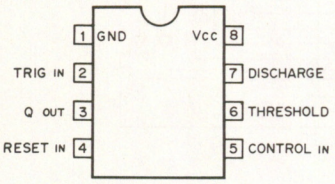
* NOTE

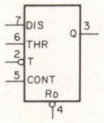
INTERFACE	VREF CONNECTION
TTL	OPEN
C-MOS	VDD ≦ 5.5V ; OPEN
	VDD > 5.5V ; TO VDD

M51841P (MITSUBISHI)

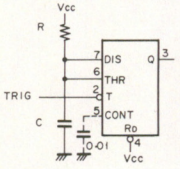
TIMER

—TOP VIEW—



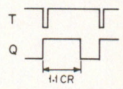


MONOSTABLE MULTIVIBRATOR

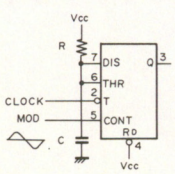


INPUTS		OUT
RD	T	Q
0	X	0
1	⌐	⌐

0 , LOW LEVEL
1 , HIGH LEVEL
X , DON'T CARE



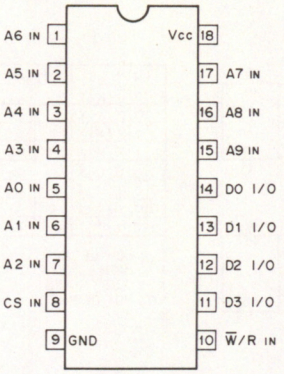
PULSE WIDTH MODULATOR

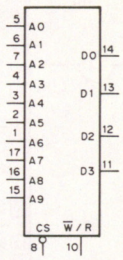


MB8149L-70 (FUJITSU)

N-MOS 4096-BIT(1024 x 4) STATIC RAM WITH 3-STATE OUTPUT

—TOP VIEW—



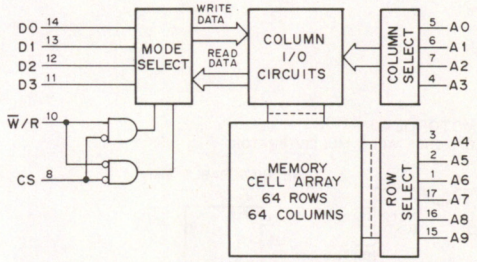


FUNCTION TABLE

CS	W/R	MODE	I/O
0	0	WRITE	INPUT
0	1	READ	OUTPUT
1	X	INHIBIT	HIGH Z

AO — A9 ; ADDRESS INPUTS
CS ; CHIP SELECT INPUT
DO — D3 ; DATA INPUT/OUTPUT (3-STATE)
W/R ; WRITE/READ ENABLE INPUT

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HIGH Z ; HIGH IMPEDANCE

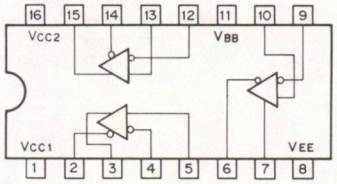


TYPE	-45	-55	-70	L-55	L-70
ADDRESS ACCESS TIME (MAX)	45nS	55nS	70nS	55nS	70nS
CHIP SELECT ACCESS TIME (MAX)	20nS	25nS	30nS	25nS	30nS
Icc (MAX)	180mA	180mA	180mA	125mA	125mA

MC10116L (MOTOROLA)
HD10116 (HITACHI)

ECL DIFFERENTIAL OR/NOR LINE RECEIVER

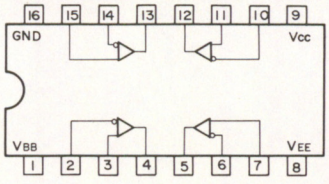
-TOP VIEW-



MC10125L (MOTOROLA)
HD10125 (HITACHI)

ECL ECL-TO-TTL TRANSLATOR

—TOP VIEW—

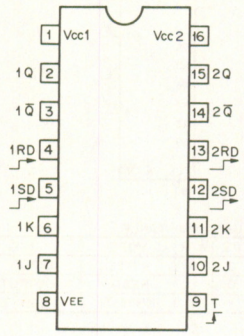


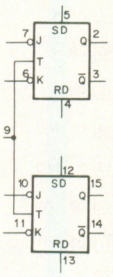
BVT-800

MC10135L (MOTOROLA)
HD10135 (HITACHI)

ECL J-K FLIP-FLOP

—TOP VIEW—





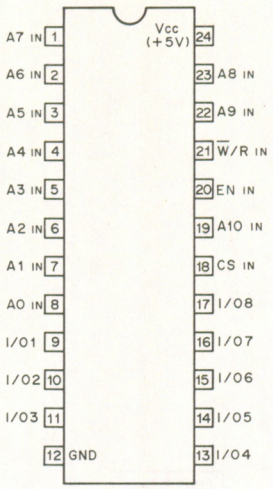
INPUTS					OUTPUTS	
$\overline{S_D}$	$\overline{R_D}$	J	K	T	Q_{n+1}	$\overline{Q_{n+1}}$
1	0	X	X	X	1	0
0	1	X	X	X	0	1
1	1	X	X	X	ND	ND
0	0	0	0	↓	$\overline{Q_n}$	Q_n
0	0	1	0	↓	0	1
0	0	0	1	↓	1	0
0	0	1	1	↓	Q_n	$\overline{Q_n}$

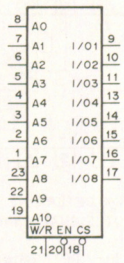
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
ND ; NOT DEFINED

MSM2128-15RS (OKI) (ACCESS TIME = 150nS)

N-MOS 16384(2048 x 8)-BIT STATIC RAM

— TOP VIEW —

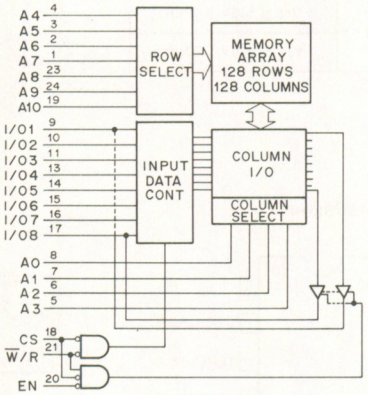




INPUTS			FUNCTION	POWER
CS	W/R	EN		
0	0	X	WRITE	ACTIVE
0	1	0	READ	ACTIVE
0	1	1	DISABLE	ACTIVE
1	X	X	OUTPUT=HI-Z	STANDBY

0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE
HI-Z : HIGH IMPEDANCE

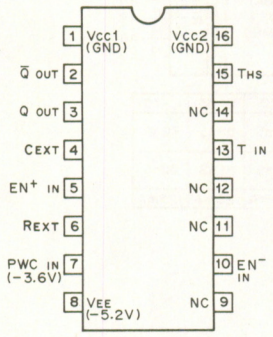
A0 - A10 ; ADDRESS INPUTS
W/R ; WRITE / READ ENABLE
EN ; OUTPUT ENABLE
CS ; CHIP SELECT
I/01 - I/08 ; DATA INPUTS / OUTPUTS



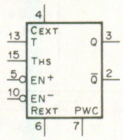
MC10198L (MOTOROLA)

RETRIGGERABLE MONOSTABLE MULTIVIBRATOR

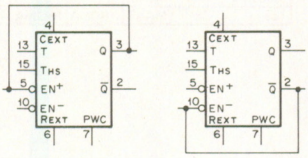
— TOP VIEW —



RETRIGGERABLE MMV



NON-RETRIGGERABLE MMV



T : CLOCK TRIGGER INPUT
THS : HIGH-SPEED CLOCK TRIGGER INPUT
EN+ : TRIGGER POSITIVE ENABLE
EN- : TRIGGER NEGATIVE ENABLE
PWC : EXTERNAL PULSE WIDTH CONTROL

FUNCTION TABLE

EN+	EN-	TRIG. SLOPE
0	0	↓
0	1	↓
1	0	↑
1	1	DISABLE

0 ; LOW LEVEL
1 ; HIGH LEVEL

OUTPUT PULSE WIDTH : PWQ

$PWQ = 1.19 \cdot C_{EXT} (R_{EXT} + 284)$

WHERE

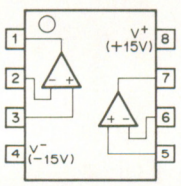
PWQ = SEC
CEXT = FARADS
REXT = OHMS
VEE = -5.2V
PWC = -3.6V

NOTE ; · SELECT REXT RANGING FROM ZERO TO 16K OHMS.
· SELECT CEXT GREATER THAN 20PF.

NJM4560D (JRC)
NJM4560DD (JRC)
NJM4560DN (JRC)
NJM4560DX (JRC)

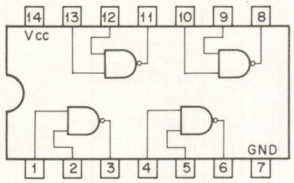
OPERATIONAL AMPLIFIER

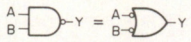
— TOP VIEW —



BVT-800

SN7400N (TI)
M53200P (MITSUBISHI)
SN74S00N (TI)
SN74LS00N (TI)
HD74LS00P (HITACHI)
TTL NAND GATE
— TOP VIEW —



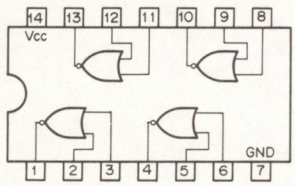


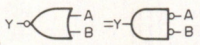
$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0; LOW LEVEL
1; HIGH LEVEL

SN7402N (TI)
M53202P (MITSUBISHI)
SN74S02N (TI)
SN74LS02N (TI)
TTL 2-INPUT POSITIVE-NOR GATE
— TOP VIEW —



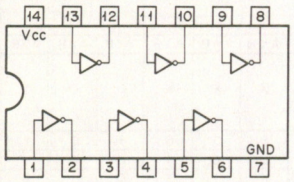


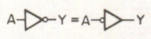
$Y = \overline{A + B} = \overline{A} \cdot \overline{B}$

A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

0: LOW LEVEL
1; HIGH LEVEL

SN7404N (TI)
M53204P (MITSUBISHI)
SN74L04N (TI)
SN74S04N (TI)
SN74LS04N (TI)
HD74LS04P (HITACHI)
TTL INVERTER
— TOP VIEW —



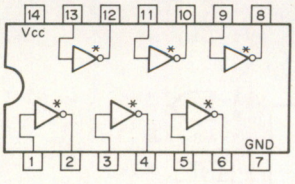


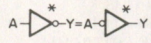
$Y = \overline{A}$

A	Y
0	1
1	0

0; LOW LEVEL
1; HIGH LEVEL

SN7406N (TI)
M53206P (MITSUBISHI)
TTL INVERTER BUFFER/DRIVER
WITH OPEN-COLLECTOR
— TOP VIEW —



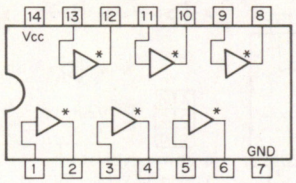


$Y = \overline{A}$

A	Y
0	1
1	0

0; LOW LEVEL
1; HIGH LEVEL
*; OPEN COLLECTOR

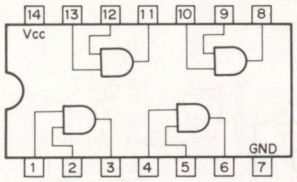
SN7407N (TI)
TTL BUFFER / DRIVER
WITH OPEN - COLLECTOR
— TOP VIEW —

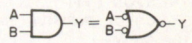


A	X
0	0
1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL
* ; OPEN COLLECTOR

SN7408N (TI)
SN74S08N (TI)
SN74LS08N (TI)
HD74LS08P (HITACHI)
TTL 2-INPUT POSITIVE-AND GATE
— TOP VIEW —



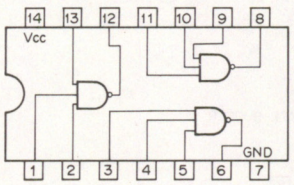


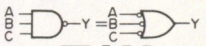
$Y = A \cdot B = \overline{\overline{A} + \overline{B}}$

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0; LOW LEVEL
1; HIGH LEVEL

SN7410N (TI)
SN74L10N (TI)
SN74S10N (TI)
SN74LS10N (TI)
HD74LS10P (HITACHI)
TTL 3-INPUT POSITIVE NAND GATE
— TOP VIEW —



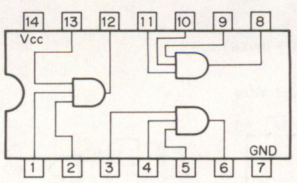


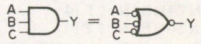
$Y = \overline{ABC} = \overline{A} + \overline{B} + \overline{C}$

A	B	C	Y
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	0

0 : LOW LEVEL
1 : HIGH LEVEL

SN74H11N (TI)
SN74S11N (TI)
SN74LS11N (TI)
TTL 3-INPUT POSITIVE-AND GATE
— TOP VIEW —





$Y = A \cdot B \cdot C = \overline{\overline{A} + \overline{B} + \overline{C}}$

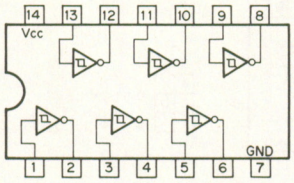
A	B	C	Y
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	1

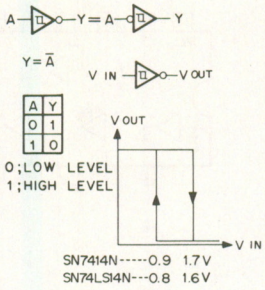
0;LOW LEVEL
1;HIGH LEVEL

BVT-800

SN7414N (TI)
SN74LS14N (TI)

TTL SCHMITT TRIGGER INVERTER
— TOP VIEW —





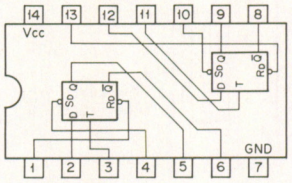
A	Y
0	1
1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

SN7414N-----0.9 1.7V
SN74LS14N---0.8 1.6V

SN7474N (TI)
M53274P (MITSUBISHI)
SN74H74N (TI)
SN74L74N (TI)
SN74S74N (TI)
SN74LS74AN (TI)
HD74LS74P (HITACHI)

TTL D-TYPE FLIP FLOP WITH DIRECT SET/RESET
— TOP VIEW —

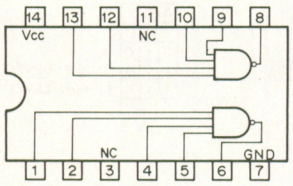


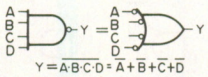
INPUTS				OUTPUTS	
Sd	Rd	T	D	Qn+1	Qn+1
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	1*	1*
1	1	↓	1	1	0
1	1	↓	0	0	1
1	1	0	X	Qn	Qn

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
1* ; NONSTABLE

SN7420N (TI)
SN74S20N (TI)
SN74LS20N (TI)

TTL 4-INPUT POSITIVE NAND GATE
— TOP VIEW —



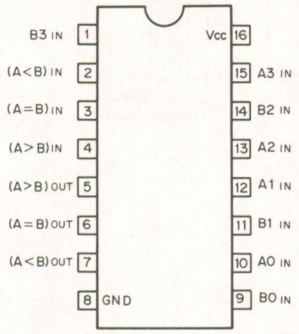


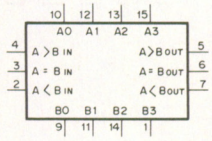
A	B	C	D	Y
0	0	0	0	1
0	0	0	1	1
0	0	1	0	1
0	0	1	1	1
0	1	0	0	1
:	:	:	:	:
1	1	0	1	1
1	1	1	0	1
1	1	1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

SN7485N (TI)
SN74S85N (TI)
SN74LS85N (TI)

TTL 4-BIT MAGNITUDE COMPARATOR
— TOP VIEW —



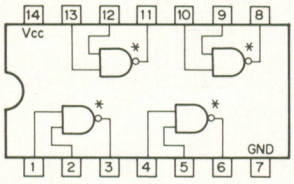


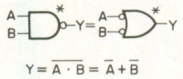
INPUTS								OUTPUTS		
DATA COMPARING					CASCADING					
	A3, B3	A2, B2	A1, B1	A0, B0	A<B	A=B	A>B	A<B	A=B	A>B
A>B	A3>B3	X	X	X	X	X	X	0	0	1
	A3=B3	A2>B2	X	X						
	A3=B3	A2=B2	A1>B1	X						
	A3=B3	A2=B2	A1=B1	A0>B0						
A=B	A3=B3	A2=B2	A1=B1	A0=B0	0	0	0	1	0	1
					0	0	1	0	0	1
					X	1	X	0	1	0
					1	0	0	1	0	0
					1	0	1	0	0	0
A<B	A3=B3	A2=B2	A1=B1	A0<B0	X	X	X	1	0	0
	A3=B3	A2=B2	A1<B1	X						
	A3=B3	A2<B2	X	X						
	A3<B3	X	X	X						

0 ; LOW LEVEL 1 ; HIGH LEVEL X ; DON'T CARE

SN7438N (TI)
SN74S38N (TI)
SN74LS38N (TI)

TTL 2-INPUT POSITIVE-NAND GATE BUFFER WITH OPEN-COLLECTOR
— TOP VIEW —



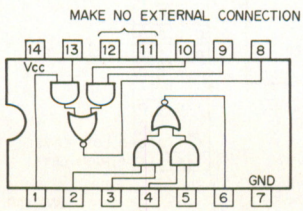


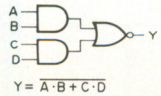
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL
* ; OPEN COLLECTOR

SN7451N (TI)
SN74H51N (TI)
SN74S51N (TI)

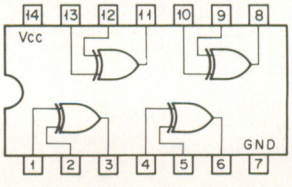
TTL 2-WIDE 2-INPUT AND-OR-INVERT GATE
— TOP VIEW —

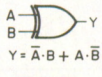




SN7486N (TI)
SN74S86N (TI)
SN74LS86N (TI)
HD74LS86P (HITACHI)

TTL EXCLUSIVE OR GATE
— TOP VIEW —



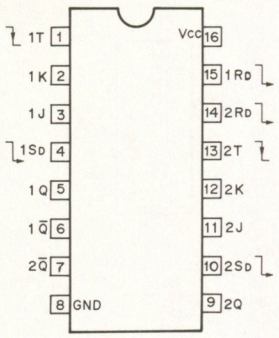


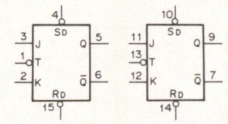
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

BVT-800

SN74S112N (TI)
SN74LS112AN (TI)
TTL J-K FLIP-FLOP WITH DIRECT SET/RESET
—TOP VIEW—

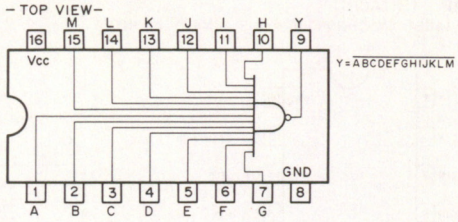




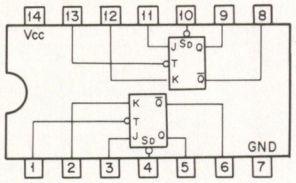
INPUTS					OUTPUTS	
SD	RD	T	J	K	Qn+1	Q̄n+1
0	1	X	X	X	1	0
1	0	X	X	X	0	1
0	0	X	X	X	1*	1*
1	1	↓	0	0	Qn	Q̄n
			0	1	0	1
			1	0	1	0
			1	1	Q̄n	Qn
1	1	1	X	X	Qn	Q̄n

0; LOW LEVEL X; DON'T CARE
1; HIGH LEVEL *; NONSTABLE

SN74S133N (TI)
TTL 13-INPUT NAND GATE
—TOP VIEW—



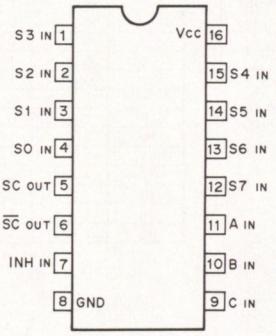
SN74S113N (TI)
SN74LS113N (TI)
SN74LS113AN (TI)
TTL J-K FLIP FLOP WITH DIRECT SET
—TOP VIEW—

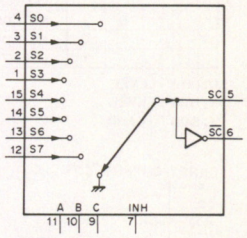


INPUTS				OUTPUTS	
SD	T	J	K	Qn+1	Q̄n+1
0	X	X	X	1	0
1	↓	0	0	Qn	Q̄n
1	↓	0	1	0	1
1	↓	1	0	1	0
1	↓	1	1	Q̄n	Qn
1	1	X	X	Qn	Q̄n

0; LOW LEVEL X; DON'T CARE
1; HIGH LEVEL

SN74151AN (TI)
SN74S151N (TI)
SN74LS151N (TI)
TTL 8-LINE-TO-1-LINE DATA SELECTOR/MULTIPLEXER
—TOP VIEW—

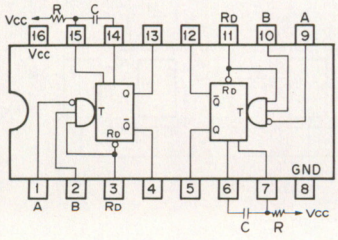




CONTROL INPUTS				ON CHANNEL
INH	C	B	A	
0	0	0	0	0
0	0	0	1	1
0	0	1	0	2
0	0	1	1	3
0	1	0	0	4
0	1	0	1	5
0	1	1	0	6
0	1	1	1	7
1	X	X	X	GND

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

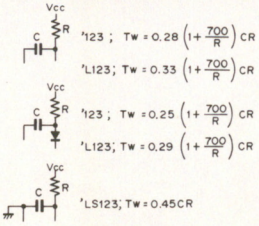
SN74123N (TI)
SN74L123N (TI)
SN74LS123N (TI)
SN74LS123NS(TI)
HD74LS123P (HITACHI)
TTL RETRIGGERABLE MONOSTABLE MULTIVIBRATOR WITH DIRECT RESET
—TOP VIEW—



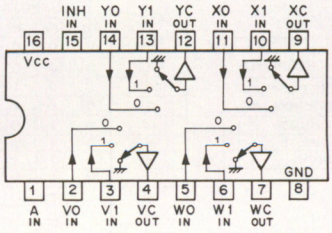
INPUTS			OUTPUTS	
RD	A	B	Q	Q̄
0	X	X	0	1
X	1	X	0	1
X	X	1	0	1
1	0	↑	⊓	⊔
1	↓	1	⊓	⊔
↑	0	1	⊓	⊔

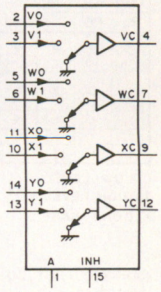
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

OUTPUT PULSE WIDTH



SN74157N (TI)
SN74L157N (TI)
SN74S157N (TI)
SN74LS157N (TI)
HD74LS157P (HITACHI)
MB74LS157 (FUJITSU)
M74LS157P (MITSUBISHI)
TTL 2-LINE-TO-1-LINE DATA SELECTOR/MULTIPLEXER
—TOP VIEW—



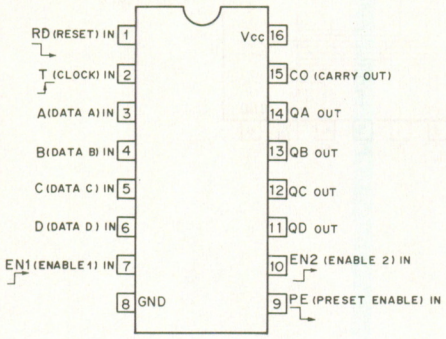


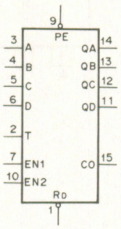
CONT. IN		ON CHANNEL
INH	A	
0	0	0
0	1	1
1	X	GND

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

BVT-800

SN74161N (TI)
SN74LS161AN (TI)
HD74LS161P (HITACHI)
TTL PRESETTABLE SYNCHRONOUS 4-BIT BINARY COUNTER
– TOP VIEW –





MODE SELECTION

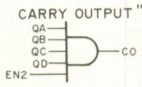
CONTROL INPUTS				MODE
RD	PE	EN1	EN2	
0	X	X	X	RESET (ASYNCHRONOUS)
1	0	X	X	PRESET (SYNCHRONOUS)
1	1	0	X	NO COUNT
1	1	X	0	NO COUNT
1	1	1	1	COUNT

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

COUNT SEQUENCE

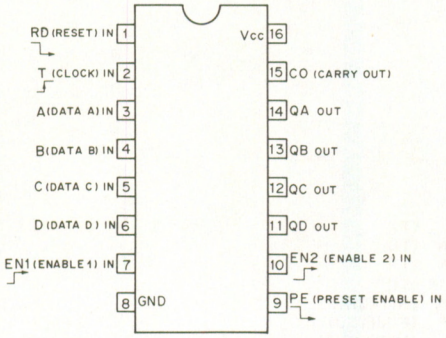
COUNT	OUTPUTS			
	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

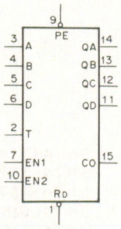
CARRY OUTPUT "CO"



CO IS HIGH WHEN EN2 INPUT IS HIGH AND COUNT IS "15".

SN74163N (TI)
SN74S163N (TI)
SN74LS163AN (TI)
HD74LS163P (HITACHI)
TTL PRESETTABLE SYNCHRONOUS 4-BIT BINARY COUNTER
– TOP VIEW –





MODE SELECTION

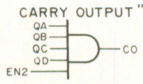
CONTROL INPUTS				MODE
RD	PE	EN1	EN2	
0	X	X	X	RESET (SYNCHRONOUS)
1	0	X	X	PRESET (SYNCHRONOUS)
1	1	0	X	NO COUNT
1	1	X	0	NO COUNT
1	1	1	1	COUNT

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

COUNT SEQUENCE

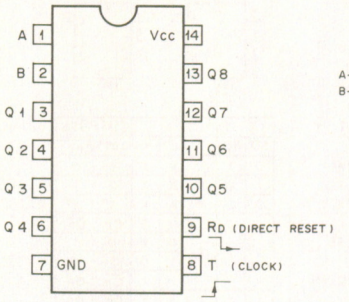
COUNT	OUTPUTS			
	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

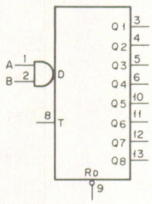
CARRY OUTPUT "CO"



CO IS HIGH WHEN EN2 INPUT IS HIGH AND COUNT IS "15".

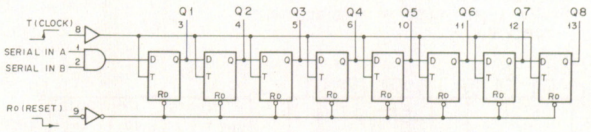
SN74164N (TI)
SN74L164N (TI)
SN74LS164N (TI)
HD74LS164P (HITACHI)
TTL 8-BIT PARALLEL-OUT SERIAL SHIFT REGISTER
—TOP VIEW—





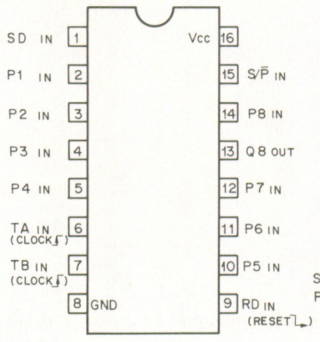
INPUTS				OUTPUTS			
RD	T	A	B	Q1	Q2	----	Q8
0	X	X	X	0	0	0	0
1	0	X	X	Q1o	Q2o	----	Q8o
1	↑	1	1	1	Q1n	----	Q7n
1	↑	0	X	0	Q1n	----	Q7n
1	↑	X	0	0	Q1n	----	Q7n

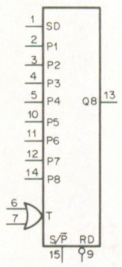
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE



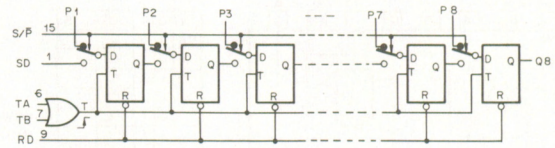
SN74166N (TI)
SN74LS166N (TI)
TTL 8-BIT SHIFT REGISTER

—TOP VIEW—



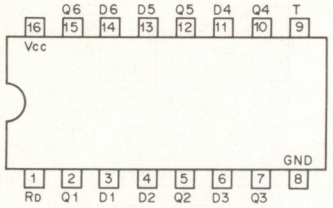


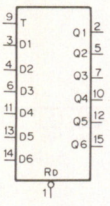
SD; SERIAL DATA INPUT
P1~P8; PARALLEL DATA INPUTS

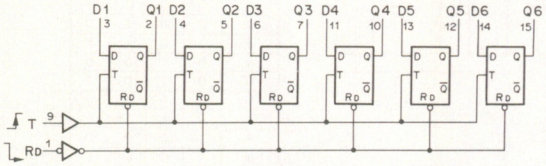


BVT-800

SN74174N (TI)
SN74S174N (TI)
SN74LS174N (TI)
HD74LS174P (HITACHI)
MB74LS174 (FUJITSU)
M74LS174P (MITSUBISHI)
TTL D-TYPE FLIP-FLOP WITH DIRECT RESET
— TOP VIEW —





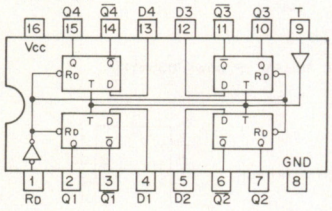


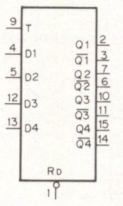
EACH FLIP-FLOP

INPUTS			OUT
RD	T	D	Q
0	X	X	0
1	↓	0	0
1	↓	1	1
1	0	X	Q0

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

SN74175N (TI)
SN74S175N (TI)
SN74LS175N (TI)
HD74LS175P (HITACHI)
TTL D-TYPE FLIP-FLOP WITH CLEAR
— TOP VIEW —

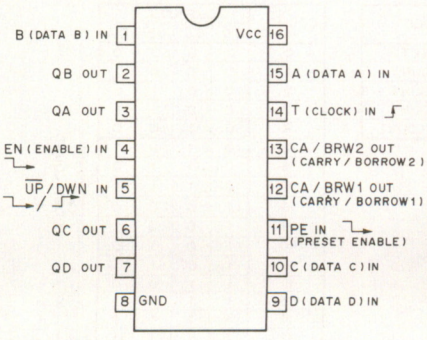


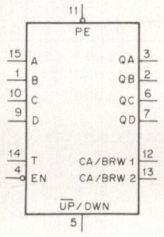


RD	T	D	Q	$\overline{Q}$
0	X	X	0	1
1	↓	1	1	0
1	↓	0	0	1
1	0	X	Q0	$\overline{Q}$0

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

SN74191N (TI)
SN74LS191N (TI)
TTL PRESETTABLE SYNCHRONOUS 4-BIT BINARY UP/DOWN COUNTER
— TOP VIEW —





MODE SELECTION

CONTROL INPUTS			MODE
PE	EN	UP/DWN	
0	X	X	PRESET (ASYNCHRONOUS)
1	1	X	NO COUNT
1	0	0	UP COUNT
1	0	1	DOWN COUNT

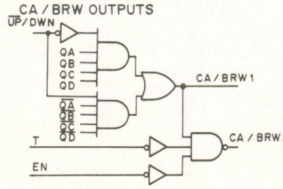
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE.

COUNT SEQUENCE

COUNT	OUTPUTS			
	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

UP COUNT
DOWN COUNT

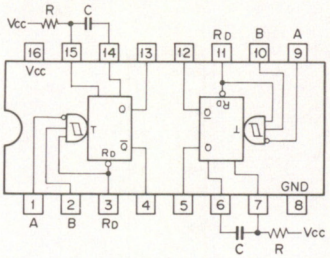
CA/BRW OUTPUTS



CA/BRW1 OUTPUT IS HIGH WHEN COUNT IS "15" AT UP-COUNT OR WHEN COUNT IS "0" AT DOWN COUNT.

CA/BRW2 OUTPUT IS LOW WHEN BOTH THE CLOCK AND EN INPUTS ARE LOW AND CA/BRW1 OUTPUT IS HIGH.

SN74221N (TI)
SN74LS221N (TI)
HD74LS221P (HITACHI)
TTL MONOSTABLE MULTIVIBRATOR WITH SCHMITT TRIGGER INPUT
— TOP VIEW —

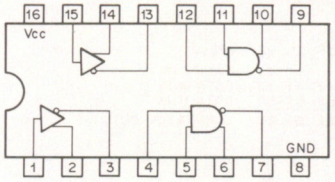


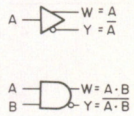
INPUTS			OUTPUTS	
RD	A	B	Q	$\overline{Q}$
0	X	X	0	1
X	1	X	0	1
X	X	0	0	1
1	0	↑	⊓	⊔
1	↓	1	⊓	⊔
↑	0	1	⊓	⊔

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

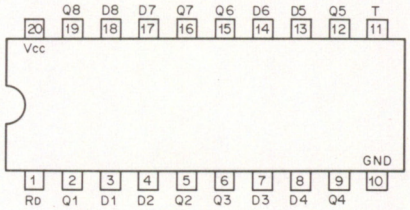
OUTPUT PULSE WIDTH = 0.7CR

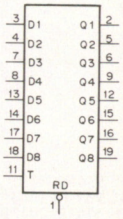
SN74265N (TI)
TTL COMPLEMENTARY-OUTPUT ELEMENT
— TOP VIEW —





SN74273N (TI)
SN74LS273N (TI)
M74LS273P (MITSUBISHI)
TTL D-TYPE FLIP-FLOP WITH DIRECT RESET
— TOP VIEW —

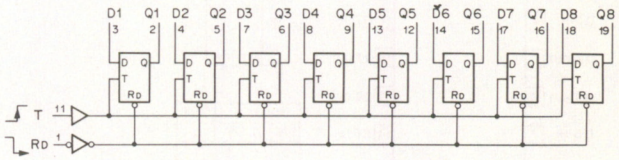




EACH FLIP-FLOP

INPUTS			OUT
RD	T	D	Q
0	X	X	0
1	↓	0	0
1	↓	1	1
1	0	X	Q0

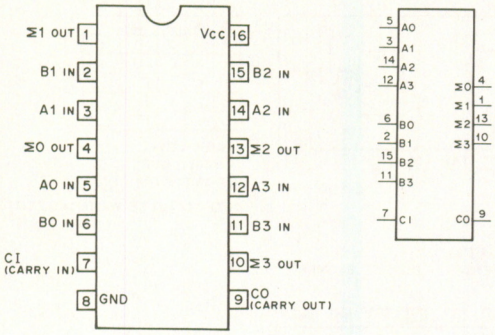
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE



SN74283N (TI)
SN74S283N (TI)
SN74LS283N (TI)
HD74LS283P (HITACHI)

TTL 4-BIT BINARY FULL ADDER

—TOP VIEW—

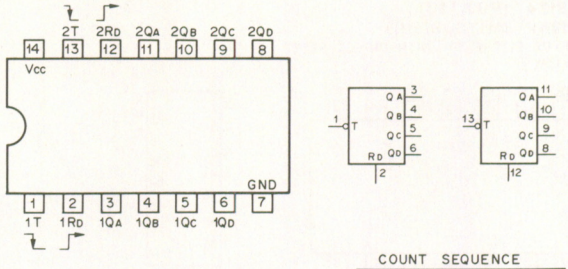


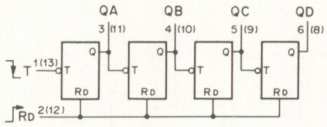
	2^4	2^3	2^2	2^1	2^0	DIGIT
					CI	CARRY IN
	A3	A2	A1	A0		DATA A IN
+	B3	B2	B1	B0		DATA B IN
	CO	Σ3	Σ2	Σ1	Σ0	CARRY&SUM OUT
EX.					1	CI
	1	0	1	1		A
+	1	0	1	0		B
	1	0	1	1	0	OUTPUTS
	CO	Σ3	Σ2	Σ1	Σ0	

SN74393N (TI)
SN74LS393N (TI)

TTL 4-BIT BINARY COUNTER

—TOP VIEW—





RESET/COUNT FUNCTION

RD	QD	QC	QB	QA
1	0	0	0	0
0	COUNT			

0; LOW LEVEL
1; HIGH LEVEL

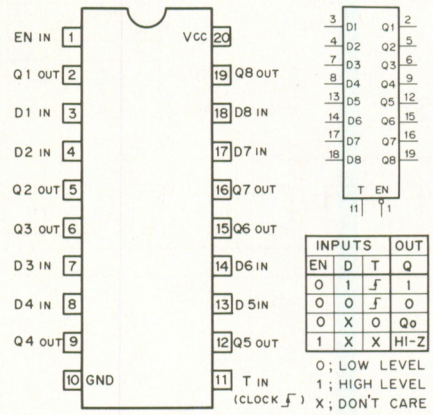
COUNT SEQUENCE

COUNT	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

SN74S374N (TI)
SN74LS374N (TI)

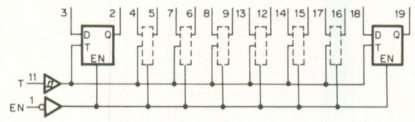
TTL 3-STATE OUTPUTS OCTAL D-TYPE FLIP-FLOP

- TOP VIEW-



INPUTS			OUT
EN	D	T	Q
0	1	↓	1
0	0	↓	0
0	X	0	Qo
1	X	X	HI-Z

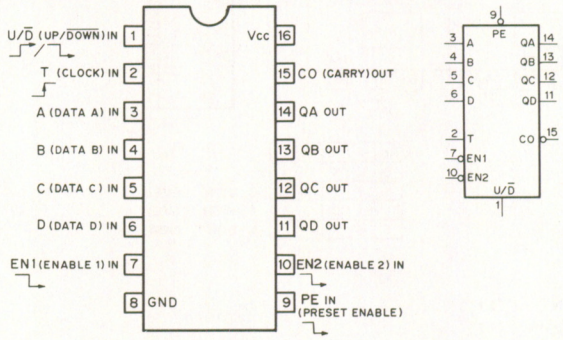
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE
HI-Z; HIGH IMPEDANCE



SN74LS669N (TI)

TTL PRESETTABLE SYNCHRONOUS 4-BIT BINARY UP/DOWN COUNTER

—TOP VIEW—



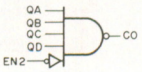
MODE SELECTION

INPUTS				MODE
PE	EN1	EN2	U/D̄	
0	X	X	X	PRESET
X	1	X	X	NO COUNT
X	X	1	X	NO COUNT
1	0	0	1	UP COUNT
1	0	0	0	DOWN COUNT

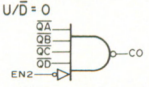
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

CARRY OUTPUTS "CO"

AT U/D̄ = 1



AT U/D̄ = 0



COUNT SEQUENCE

COUNT	OUTPUTS			
	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

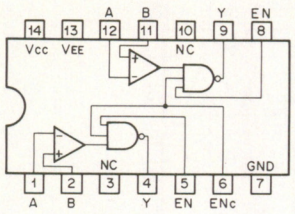
UP COUNT
DOWN COUNT

BVT-800

SN75207BN (TI)

BIPOLAR LINE RECEIVER (TTL COMPATIBLE)

—TOP VIEW—



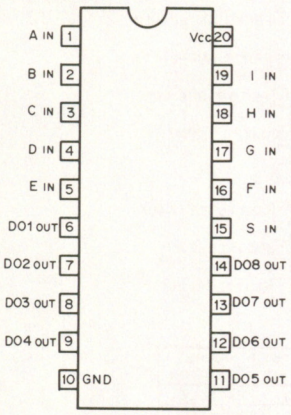
INPUTS			OUT
B − A	EN	ENc	Y
B − A ≧ 10mV	X	0	1
	0	X	1
	1	1	0
|B − A| < 10mV	X	0	1
	0	X	1
	1	1	?
B − A ≦ −10mV	X	X	1

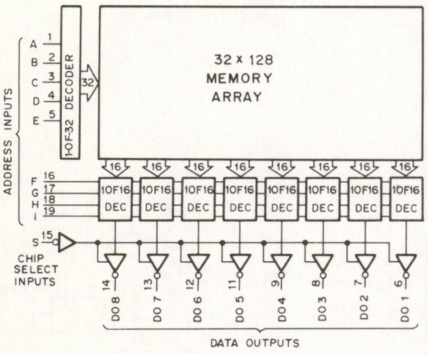
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

TBP28S42N (TI)

4096-BIT (512 x 8) PROM (3-STATE OUTPUT)

—TOP VIEW—





WORD/ADDRESS TABLE

WORD	ADDRESS INPUT							
	I	H	G	F	E	D	C	B	A
0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	1
2	0	0	0	0	0	0	0	1	0
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
509	1	1	1	1	1	1	1	0	1
510	1	1	1	1	1	1	1	1	0
511	1	1	1	1	1	1	1	1	1

0; LOW LEVEL
1; HIGH LEVEL

OUTPUT MODE

CHIP SEL	OUTPUT
S	
0	ENABLE
1	HI-Z

0; LOW LEVEL
1; HIGH LEVEL
HI-Z; HIGH IMPEDANCE

DATA CODE/ACTUAL DATA

DATA CODE		ACTUAL DATA							
		DO8	DO7	DO6	DO5	DO4	DO3	DO2	DO1
0	00	0	0	0	0	0	0	0	0
1	01	0	0	0	0	0	0	0	1
2	02	0	0	0	0	0	0	1	0
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
8	08	0	0	0	0	1	0	0	0
9	09	0	0	0	0	1	0	0	1
10	0A	0	0	0	0	1	0	1	0
11	0B	0	0	0	0	1	0	1	1
12	0C	0	0	0	0	1	1	0	0
13	0D	0	0	0	0	1	1	0	1
14	0E	0	0	0	0	1	1	1	0
15	0F	0	0	0	0	1	1	1	1
16	10	0	0	0	1	0	0	0	0
17	11	0	0	0	1	0	0	0	1
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
238	EE	1	1	1	0	1	1	1	0
239	EF	1	1	1	0	1	1	1	1
240	F0	1	1	1	1	0	0	0	0
241	F1	1	1	1	1	0	0	0	1
242	F2	1	1	1	1	0	0	1	0
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
248	F8	1	1	1	1	1	0	0	0
249	F9	1	1	1	1	1	0	0	1
250	FA	1	1	1	1	1	0	1	0
251	FB	1	1	1	1	1	0	1	1
252	FC	1	1	1	1	1	1	0	0
253	FD	1	1	1	1	1	1	0	1
254	FE	1	1	1	1	1	1	1	0
255	FF	1	1	1	1	1	1	1	1

IN HEXADECIMAL
IN DECIMAL

TBP28S42N-DOC1

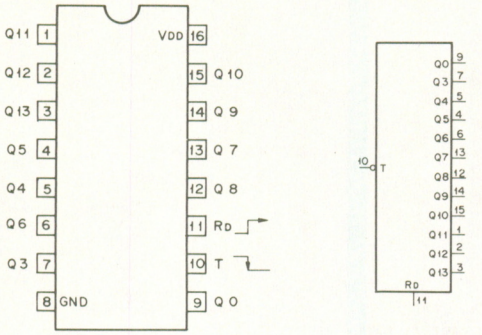
PROGRAMMED DATA

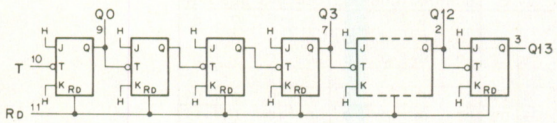
WORD (ADDRESS)	DATA OUTPUTS (IN HEXADECIMAL)
0 – 15	00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00.
16 – 31	00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00.
32 – 47	00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00.
48 – 63	00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00.
64 – 79	00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00.
80 – 95	00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00.
96 – 111	00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00.
112 – 127	00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00. 00.
128 – 143	00. 01. 02. 04. 05. 06. 08. 09. 0A. 0C. 0D. 0E. 10. 11. 12. 14.
144 – 159	15. 16. 18. 19. 1A. 1C. 1D. 1E. 20. 21. 22. 24. 25. 26. 28. 29.
160 – 175	2A. 2C. 2D. 2E. 30. 31. 32. 34. 35. 36. 38. 39. 3A. 3C. 3D. 3E.
176 – 191	40. 41. 42. 44. 45. 46. 48. 49. 4A. 4C. 4D. 4E. 50. 51. 52. 54.
192 – 207	55. 56. 58. 59. 5A. 5C. 5D. 5E. 60. 61. 62. 64. 65. 66. 68. 69.
208 – 223	6A. 6C. 6D. 6E. 70. 71. 72. 74. 75. 76. 78. 79. 7A. 7C. 7D. 7E.
224 – 239	80. 81. 82. 84. 85. 86. 88. 89. 8A. 8C. 8D. 8E. 90. 91. 92. 94.
240 – 255	95. 96. 98. 99. 9A. 9C. 9D. 9E. A0. A1. A2. A4. A5. A6. A8. A9.
256 – 271	AA. AC. AD. AE. B0. B1. B2. B4. B5. B6. B8. B9. BA. BC. BD. BE.
272 – 287	C0. C1. C2. C4. C5. C6. C8. C9. CA. CC. CD. CE. D0. D1. D2. D4.
288 – 303	D5. D6. D8. D9. DA. DC. DD. DE. E0. E1. E2. E4. E5. E6. E8. E9.
304 – 319	EA. EC. ED. EE. F0. F1. F2. F4. F5. F6. F8. F9. FA. FC. FD. FE.
320 – 335	FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF.
336 – 351	FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF.
352 – 367	FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF.
368 – 383	FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF.
384 – 399	FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF.
400 – 415	FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF.
416 – 431	FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF.
432 – 447	FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF.
448 – 463	FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF.
464 – 479	FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF.
480 – 495	FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF.
496 – 511	FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF. FF.

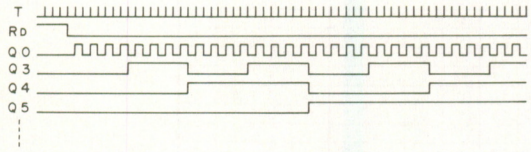
BVT-800

TC4020BP (TOSHIBA)
μPD4020C (NEC)
CD4020AE/BE (RCA)
MC14020BCP (MOTOROLA)

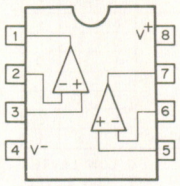
C-MOS 14-STAGE RIPPLE-CARRY BINARY COUNTER/DRIVER
— TOP VIEW —



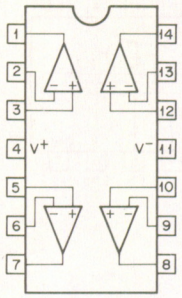




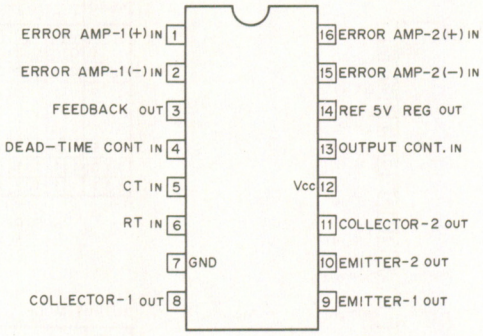
TL082CP (TI)
OPERATIONAL AMPLIFIER
(JFET-INPUT)
- TOP VIEW -

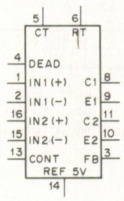


TL084CN (TI)
OPERATIONAL AMPLIFIER
(JFET-INPUT)
— TOP VIEW —



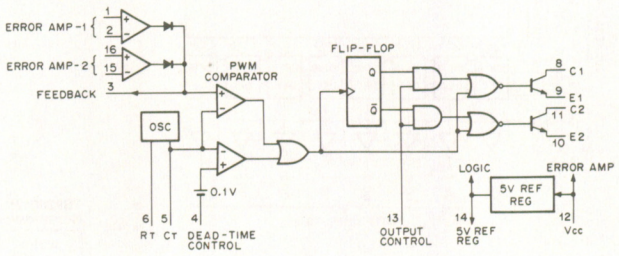
TL494CN (TI)
PWM POWER CONTROL
— TOP VIEW —



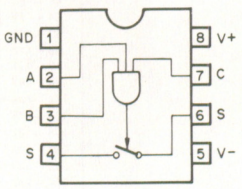


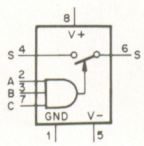
OUTPUT CONTROL	OUTPUT FUNCTION
0	PARALLEL
1	PUSH-PULL

0 ; GROUNDED
1 ; CONNECTED TO PIN 14



TL610CP (TI)
MOS ANALOG SWITCH
- TOP VIEW -



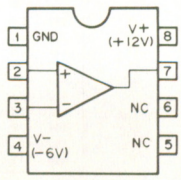


CONT IN			S
A	B	C	
0	X	X	OFF(OPEN)
X	0	X	OFF(OPEN)
X	X	0	OFF(OPEN)
1	1	1	ON(CLOSED)

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

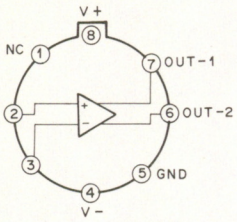
TL710CP (TI)
VOLTAGE COMPARATOR

— TOP VIEW —

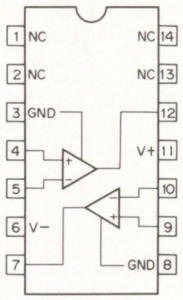


BVT-800

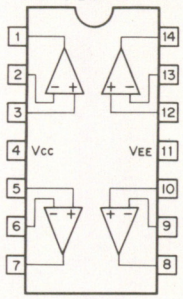
μA760HC(FSC)
HIGH SPEED VOLTAGE COMPARATOR
-TOP VIEW-



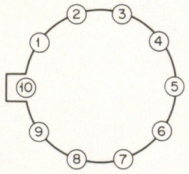
μPC 319C (NEC)
DUAL VOLTAGE COMPARATOR
- TOP VIEW-



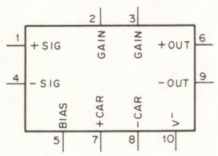
μPC324C (NEC)
LM324 (NSC)
CA324 (RCA)
QUAD. OP AMPLIFIER
- TOP VIEW-



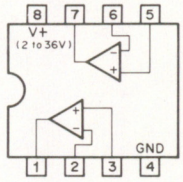
μA796HC (FSC)
DOUBLE-BALANCED MOD/DEMOD.
- BOTTOM VIEW-



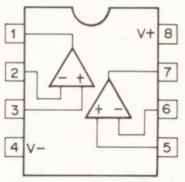
1 +SIGNAL INPUT
2 GAIN ADJUST
3 GAIN ADJUST
4 -SIGNAL INPUT
5 BIAS
6 +OUTPUT
7 +CARRIER INPUT
8 -CARRIER INPUT
9 -OUTPUT
10 V-



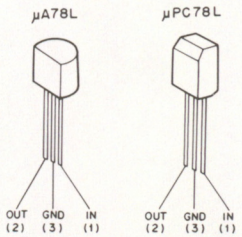
μPC393C (NEC)
VOLTAGE COMPARATOR
-TOP VIEW-



μPC4557C (NEC)
OPERATIONAL AMPLIFIER
(WIDE BAND, LOW NOISE)
-TOP VIEW-



μPC78L□□A (NEC)
μPC78L□□ (NEC)
μA78L□□AWV (FSC)
μA78L□□ACL (TI)
POSITIVE VOLTAGE REGULATOR(100mA)



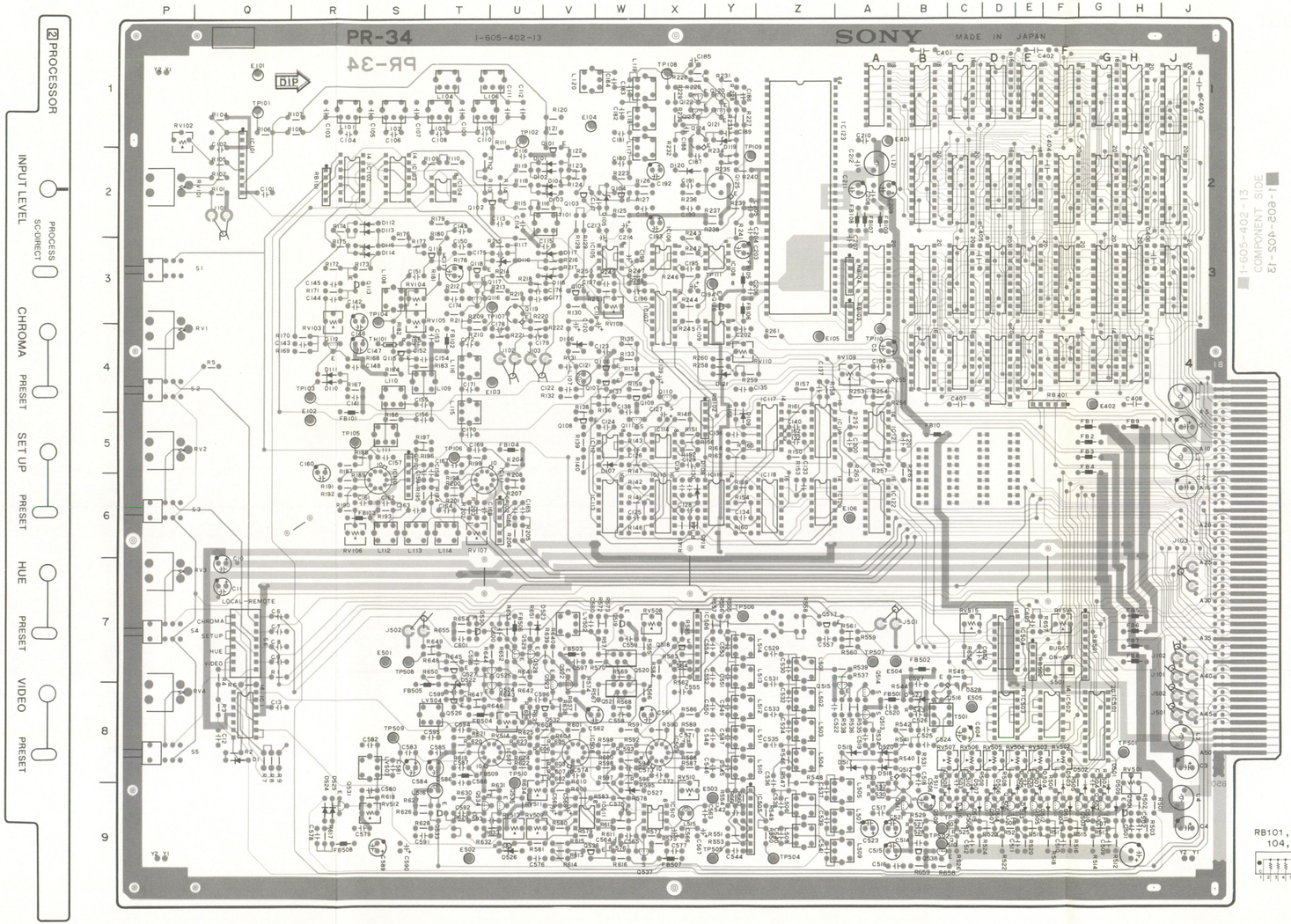
2.6V	μA78L26AWV	μA78L02ACL	
5V	μA78L05AWV	μA78L05ACL	μPC78L05(A)
6.2V	μA78L62AWV	μA78L06ACL	
8V		μA78L08ACL	μPC78L08
8.2V	μA78L82AWV		
9V	μA78L09AWV	μA78L09ACL	
10V		μA78L10ACL	
12V	μA78L12AWV	μA78L12ACL	μPC78L12
15V	μA78L15AWV	μA78L15ACL	μPC78L15
18V	μA78L18AWV		
24V	μA78L24AWV		

BVT-800

SECTION C
SCHEMATIC DIAGRAM & BOARD LAYOUT

PR-34 BOARD (1-605-402-13)

Component Side



PR-34(1-605-402-13)

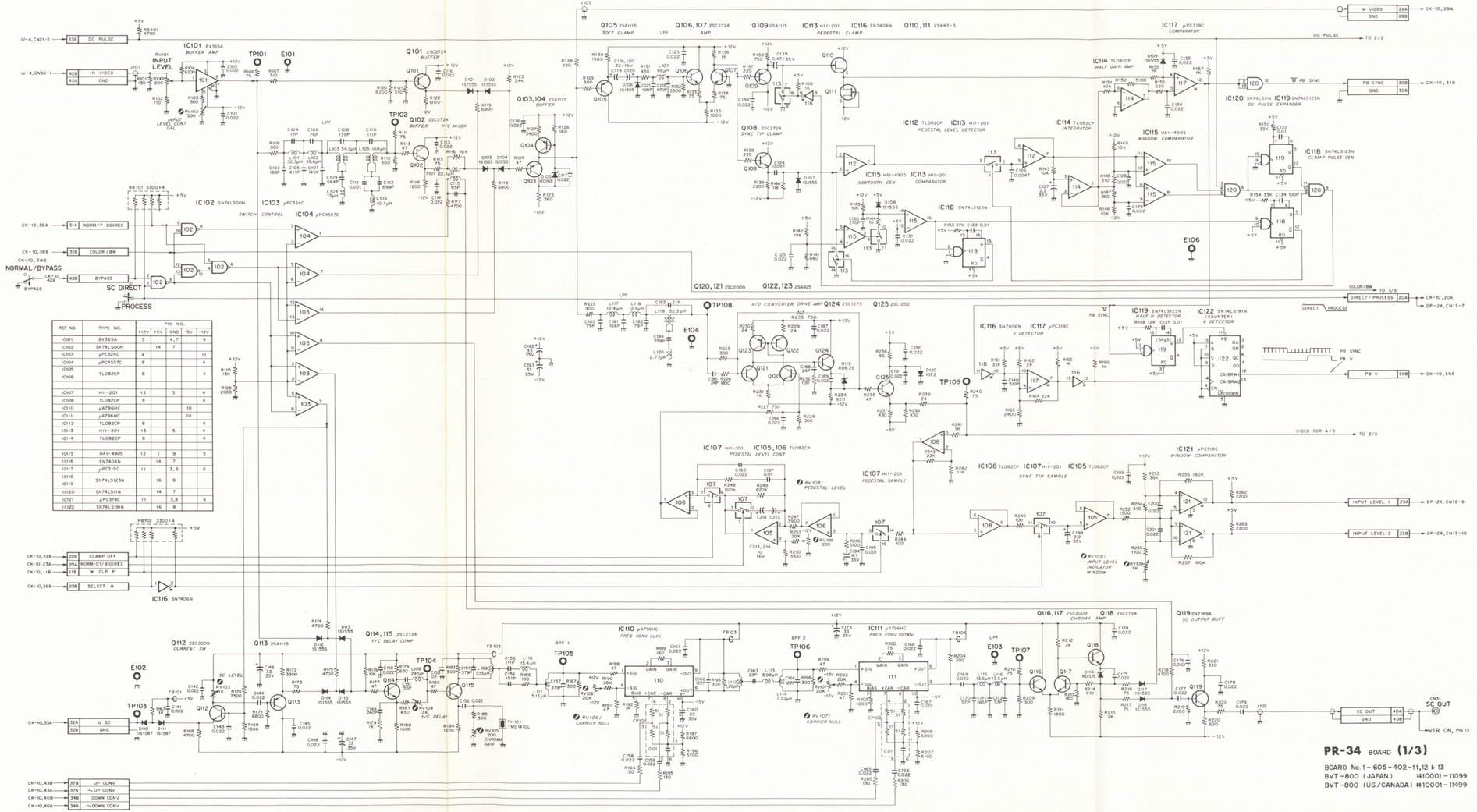
BVT-800 (JE)
BVT-800 (UC)

D1	8G	IC501	8G	TP101	1Q
D101	2V	IC502	8F	TP102	1U
D102	2V	IC503	8D	TP103	4R
D103	2V	IC504	7D	TP104	3S
D104	2V	IC505	9V	TP105	5R
D105	2W	IC506	7X	TP106	5T
D106	4V	IC507	8T	TP107	3T
D107	5W	IC508	8V	TP108	1X
D108	6X	IC509	8X	TP109	2Y
D109	5Y	IC510	9X	TP110	4A
D110	4R	IC511	9V	TP111	3Y
D111	4R			TP501	8H
D112	2S	LVS02	7V	TP502	9B
D113	2S	LVS03	8S	TP503	9B
D114	3S	LVS04	8T	TP504	9Z
D115	3S			TP505	9Y
D116	3U	G101	2V	TP506	7Y
D117	3V	G102	2T	TP507	7A
D118	3V	G103	2V	TP508	7S
D119	1Y	G104	2W	TP509	8S
D120	2X	G105	3V	TP510	9U
D121	4Y	G106	4W		
D501	9G	G107	4W		
D502	9G	G108	5V		
D503	9F	G109	4W		
D504	9E	G110	4X		
D505	9E	G111	5W		
D506	9D	G112	4R		
D507	9C	G113	3R		
D508	9C	G114	3T		
D509	9G	G115	4S		
D510	9G	G116	3T		
D511	9F	G117	3T		
D512	9F	G118	3U		
D513	9E	G119	3U		
D514	9D	G120	1Y		
D515	9C	G121	1Y		
D516	9C	G122	1X		
D517	8A	G123	1X		
D518	8A	G124	1X		
D519	8A	G125	2Y		
D520	8A	G126	3Y		
D521	8B	G501	9H		
D522	8T	G502	9G		
D523	7U	G503	9F		
D524	9R	G504	9F		
D525	9R	G505	9E		
D526	9U	G506	9D		
D527	9W	G507	9D		
		G508	9C		
E101	1Q	G509	9B		
E102	5R	G510	9B		
E103	4T	G511	9B		
E104	1V	G512	9B		
E105	4Z	G513	8A		
E106	6A	G514	8A		
E401	1A	G515	8A		
E402	4G	G516	8B		
E501	7S	G517	7Z		
E502	9T	G518	7X		
E503	9Y	G519	7W		
E504	7A	G520	7W		
E505	8C	G521	8W		
		G522	8V		
IC1	8Q	G523	8V		
IC-1A		G524	8T		
IC-1B		G525	7T		
IC-1C		G526	8T		
IC-1D		G527	7T		
IC-1E		G528	7U		
IC-1F		G529	7U		
IC-1G		G530	7T		
IC-1H		G531	9R		
IC-1J		G532	8U		
IC-2B		G533	9T		
IC-2C		G534	9T		
IC-2D		G535	9U		
IC-2E		G536	9V		
IC-2F		G537	9W		
IC-2G		G538	9B		
IC-2H					
IC-2J		RV1	4P		
IC-3A		RV2	5P		
IC-3B		RV3	7P		
IC-3C		RV4	8P		
IC-3D		RV101	2P		
IC-3E		RV102	1P		
IC-3F		RV103	3R		
IC-3G		RV104	3S		
IC-3H		RV105	3S		
IC-3J		RV106	6R		
IC-4B		RV107	6T		
IC-4C		RV108	3W		
IC-4D		RV109	4A		
IC-4E		RV110	4Y		
IC-4F		RV501	9H		
IC-4G		RV502	8F		
IC-4H		RV503	8E		
IC101	2Q	RV504	8E		
IC102	2R	RV505	8D		
IC103	2S	RV506	8C		
IC104	2T	RV507	8C		
IC105	3W	RV508	7X		
IC106	3X	RV509	9U		
IC107	3X	RV510	9X		
IC108	3Y	RV511	9U		
IC109	4Y	RV512	9S		
IC110	6S	RV513	9U		
IC111	6T	RV514	8U		
IC112	5W	RV515	7C		
IC113	8W	RV516	7F		
IC114	5X				
IC115	6X	S1	3P		
IC116	6Y	S2	4P		
IC117	5Z	S3	6P		
IC118	6Z	S4	7P		
IC119	5Z	S5	8P		
IC120	6Z	S6	7Q		
IC121	5A	SS01	7F		
IC122	6A				
IC123	2Z				

RB101,102,103
104,401,502

RB501

CP101,102



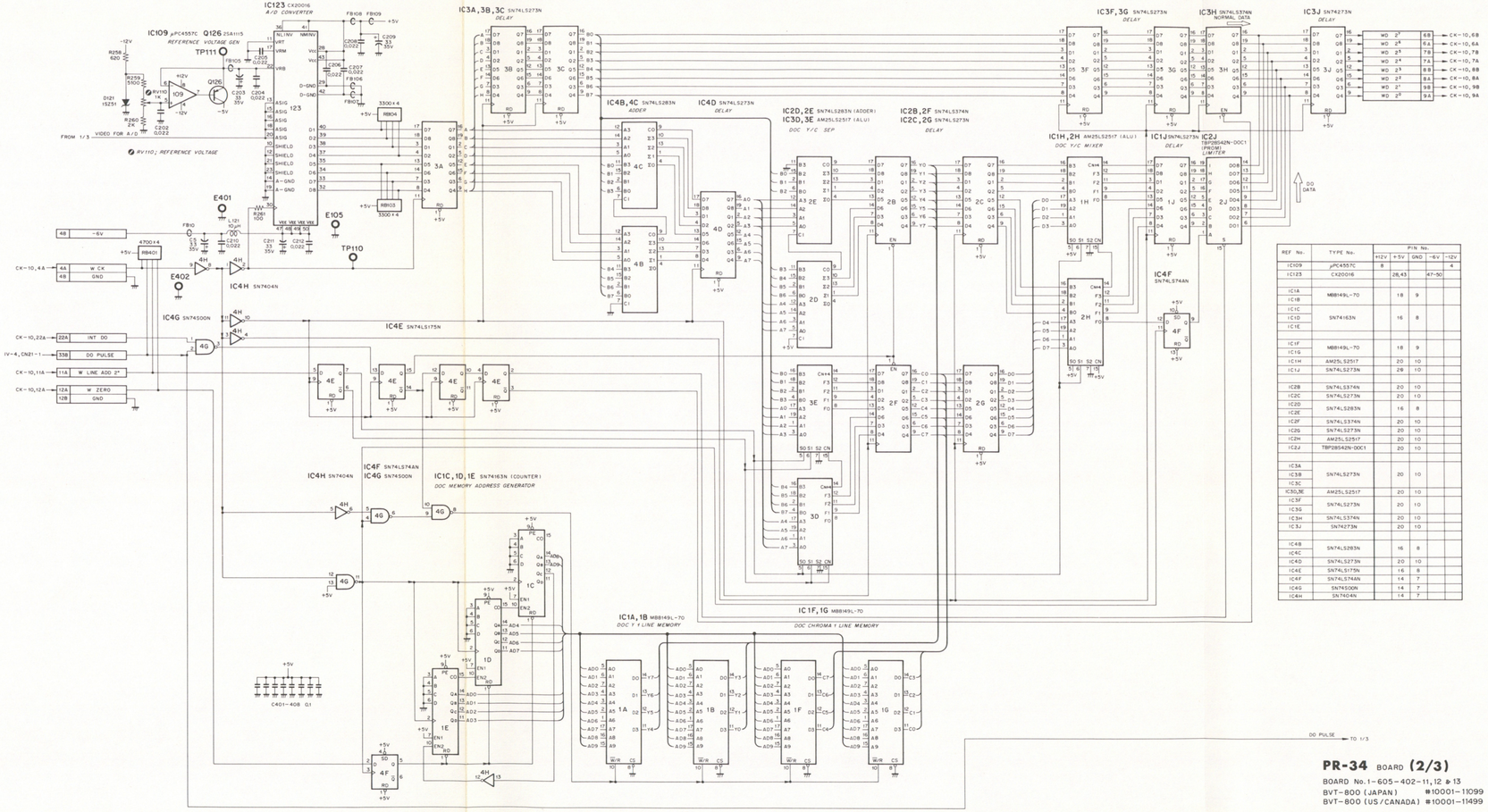
REF NO.	TYPE NO.	PIN NO.				
		+12V	+5V	GND	-5V	-12V
IC101	BX365A	3		4, 7		9
IC102	SN74LS00N		14	7		
IC103	µPC324C	4				11
IC104	µPC4557C	8				4
IC105 IC106	TL082CP	8				4
IC107	HI1-201	13		5		4
IC108	TL082CP	8				4
IC110	µA796HC				10	
IC111	µA796HC				10	
IC112	TL082CP	8				4
IC113	HI1-201	13		5		4
IC114	TL082CP	8				4
IC115	HA1-4905	13	1	9		5
IC116	SN7406N		14	7		
IC117	µPC319C	11		3, 8		6
IC118	SN74LS123N		16	8		
IC119						
IC120	SN74LS11N		14	7		
IC121	µPC319C	11		3, 8		6
IC122	SN74LS191N	16	4			

PR-34 BOARD (1/3)

BOARD No. 1-605-402-11, 12 & 13
BVT-800 (JAPAN) #10001-11099
BVT-800 (US/CANADA) #10001-11499

PR-34 BOARD (2/3); PROCESSOR

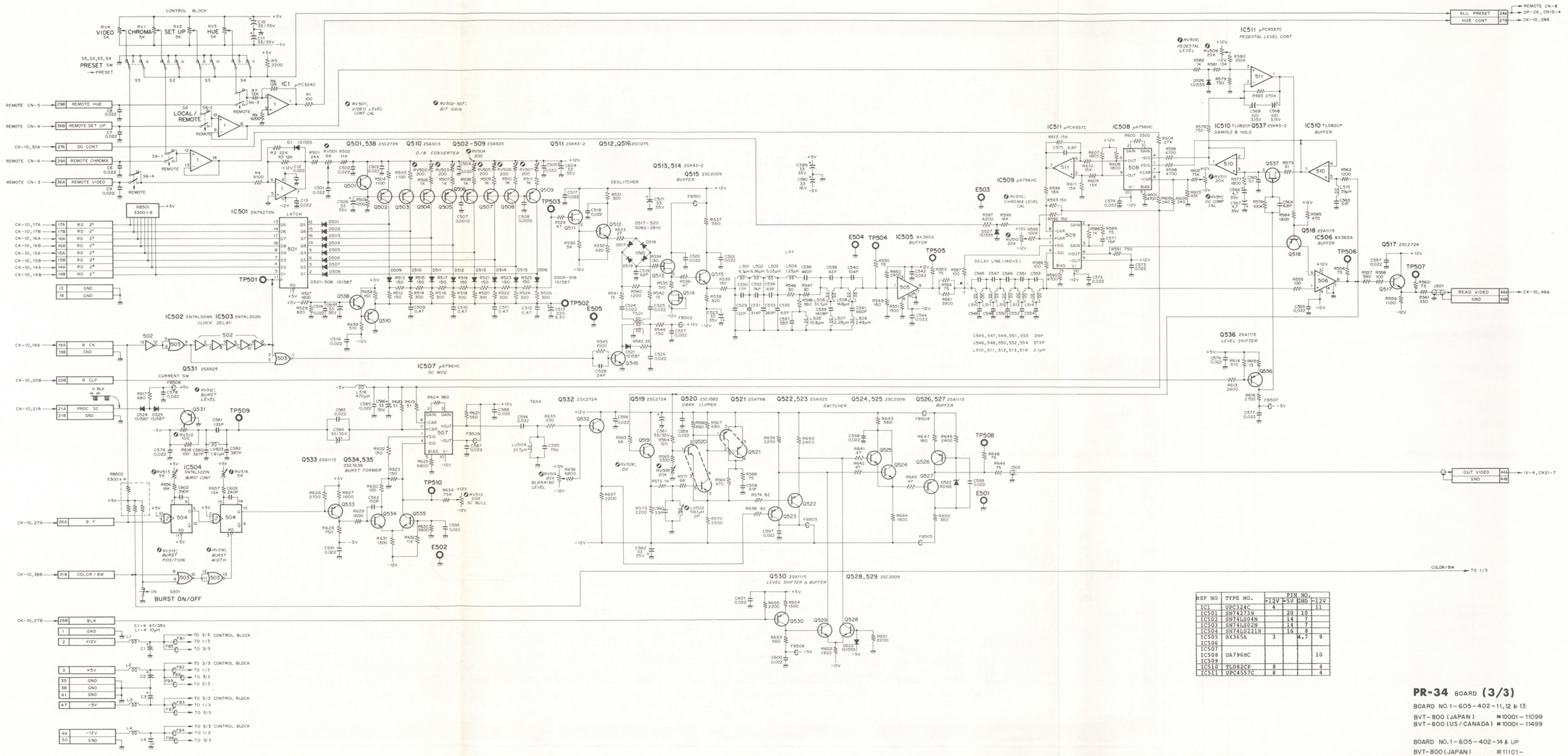
A/D Converter
Dropout Compensator



REF No.	TYPE No.	PIN No. +12V	+5V	GND	-6V	-12V
IC109	μPC4557C	8				4
IC123	CX20016		28,43		47~50	
IC1A	MB8149L-70		18	9		
IC1B						
IC1C	SN74163N		16	8		
IC1D						
IC1E						
IC1F	MB8149L-70		18	9		
IC1G						
IC1H	AM25LS2517		20	10		
IC1J	SN74LS273N		20	10		
IC2B	SN74LS374N		20	10		
IC2C	SN74LS273N		20	10		
IC2D	SN74LS283N		16	8		
IC2E						
IC2F	SN74LS374N		20	10		
IC2G	SN74LS273N		20	10		
IC2H	AM25LS2517		20	10		
IC2J	TBP28S42N-DOC1		20	10		
IC3A	SN74LS273N		20	10		
IC3B						
IC3C						
IC3D,3E	AM25LS2517		20	10		
IC3F	SN74LS273N		20	10		
IC3G						
IC3H	SN74LS374N		20	10		
IC3J	SN74273N		20	10		
IC4B	SN74LS283N		16	8		
IC4C						
IC4D	SN74LS273N		20	10		
IC4E	SN74LS175N		16	8		
IC4F	SN74LS74AN		14	7		
IC4G	SN74S00N		14	7		
IC4H	SN7404N		14	7		

PR-34 BOARD (2/3)

BOARD No.1-605-402-11,12 & 13
BVT-800 (JAPAN) #10001-11099
BVT-800 (US/CANADA) #10001-11499



REF NO	TYPE NO.	PIN NO. +12V	+5V	GND	-12V
IC1	UPC324C	4		11	
IC501	SN74273N		20	10	
IC502	SN74LS04N		14	7	
IC503	SN74LS02N		14	7	
IC504	SN74LS221N		16	8	
IC505	BX365A	3		4,7	9
IC506					
IC507					
IC508	UA796HC				10
IC509					
IC510	TL082CP	8			4
IC511	UPC4557C	8			4

PR-34 BOARD (3/3)

BOARD NO.1-605-402-11, 12 & 13

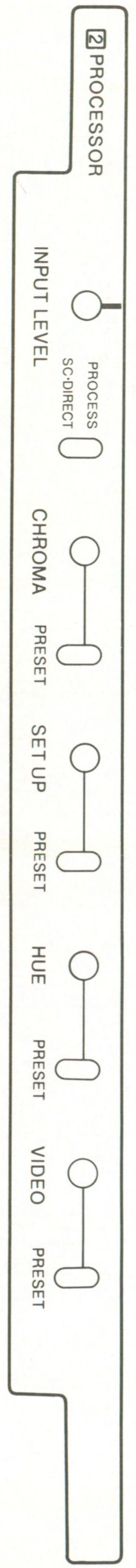
BVT-800 (JAPAN) #10001-11099
BVT-800 (US/CANADA) #10001-11499

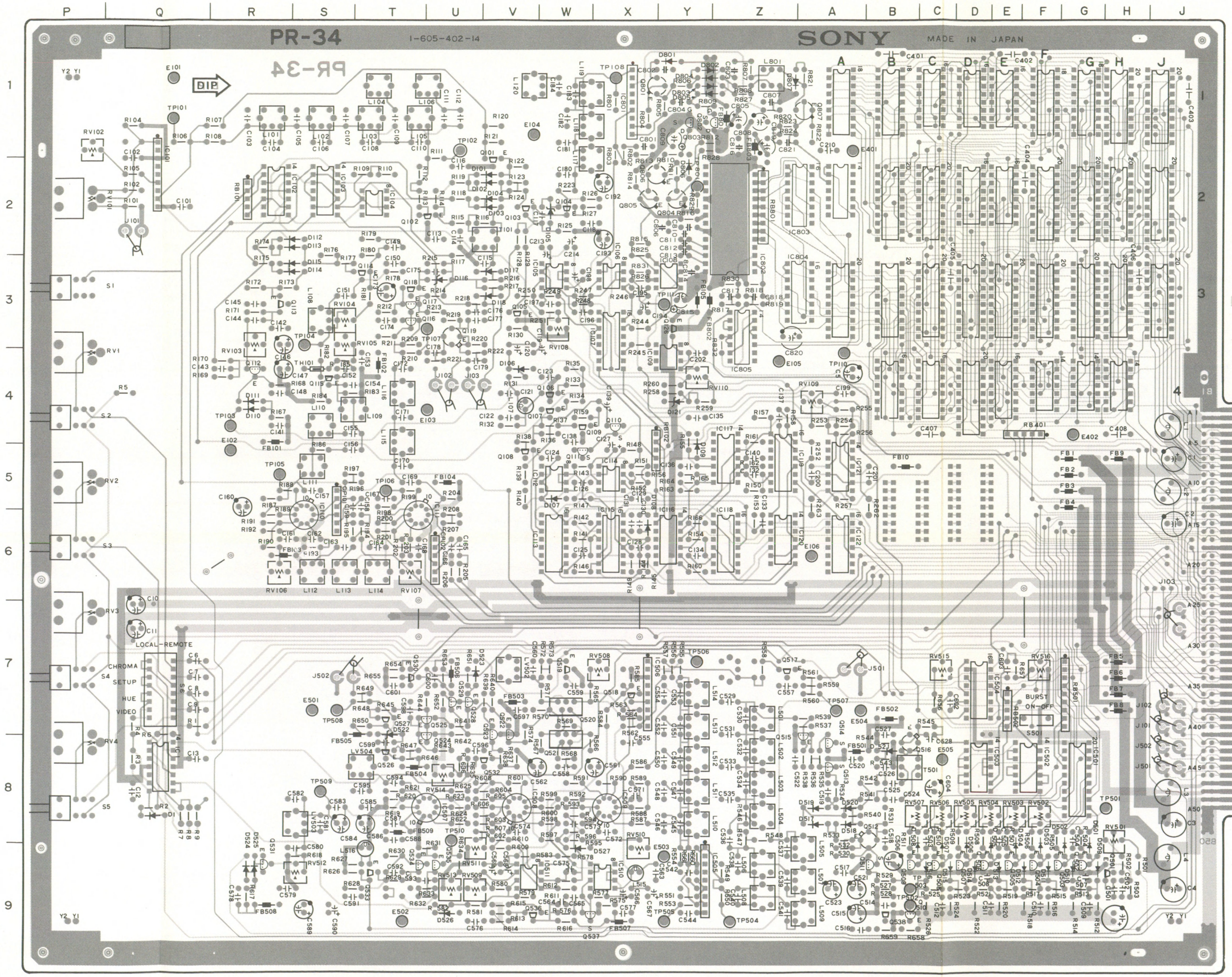
BOARD NO.1-605-402-14 & UP

BVT-800 (JAPAN) #11101-
BVT-800 (US/CANADA) #11501-

PR-34 BOARD (1-605-402-14)

Dropout Compensator

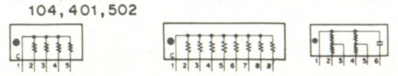




PR-34 (1-605-402-14)

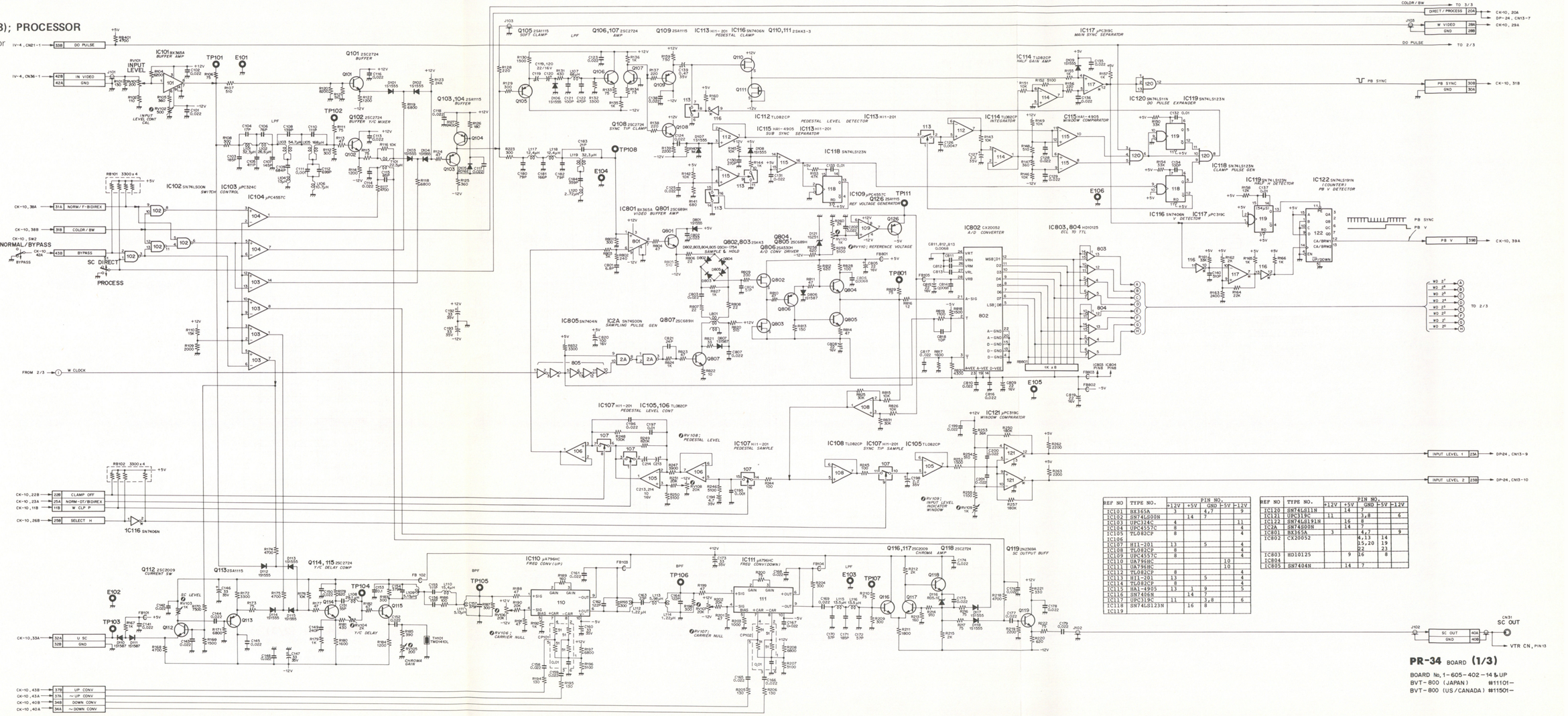
BVT-800 (J)
BVT-800 (U/C)

D1	8Q	IC118	6Z	RV516	7F
D101	2V	IC119	5Z		
D102	2V	IC120	6Z	S1	3P
D103	2V	IC121	5A	S2	4P
D104	2V	IC122	6A	S3	6P
D105	2W	IC501	8G	S4	7P
D106	4V	IC502	8F	S5	8P
D107	5W	IC503	8D	S6	7Q
D108	6X	IC504	7D	S501	7F
D109	5Y	IC505	9Y		
D110	4R	IC506	7X	TP101	1Q
D111	4R	IC507	8U	TP102	1U
D112	2S	IC508	8V	TP103	4R
D113	2S	IC509	8X	TP104	3S
D114	3S	IC510	9X	TP105	5R
D115	3S	IC511	9V	TP106	5T
D116	3U	IC801	1X	TP107	3U
D117	3V	IC802	2Z	TP108	1X
D118	3V	IC803	2A	TP110	4A
D121	4Y	IC804	3A	TP111	3Y
D501	9G	IC805	3Z	TP501	8H
D502	9G			TP502	9B
D503	9F	LV502	7V	TP503	9B
D504	9E	LV503	8S	TP504	9Z
D505	9E	LV504	8T	TP505	9Y
D506	9D			TP506	7Y
D507	9C	Q101	2V	TP507	7A
D508	9C	Q102	2U	TP508	7S
D509	9G	Q103	2V	TP509	8S
D510	9G	Q104	2W	TP510	9U
D511	9F	Q105	3V	TP801	2Y
D512	9F	Q106	4W		
D513	9E	Q107	4W		
D514	9D	Q108	5V		
D515	9C	Q109	4W		
D516	9C	Q110	4X		
D517	8A	Q111	5W		
D518	8A	Q112	4R		
D519	8A	Q113	3R		
D520	8A	Q114	3T		
D521	8B	Q115	4S		
D522	8T	Q116	3T		
D523	7U	Q117	3T		
D524	9R	Q118	3T		
D525	9R	Q119	3U		
D526	9U	Q126	3Y		
D527	9W	Q501	9H		
D801	1Y	Q502	9G		
D802	1Z	Q503	9F		
D803	1Z	Q504	9F		
D804	1Z	Q505	9E		
D805	1Z	Q506	9D		
D806	2Y	Q507	9D		
D807	1A	Q508	9C		
		Q509	9B		
E101	1Q	Q510	9B		
E102	5R	Q511	9B		
E103	4U	Q512	9B		
E104	1V	Q513	8A		
E105	4Z	Q514	8A		
E106	6A	Q515	8A		
E401	1A	Q516	8B		
E402	4G	Q517	7Z		
E501	7S	Q518	7X		
E502	9T	Q519	7W		
E503	9Y	Q520	7W		
E504	7A	Q521	8W		
E505	8C	Q522	8V		
		Q523	8V		
IC1	8Q	Q524	8U		
IC - 1A		Q525	7U		
IC - 1B		Q526	8T		
IC - 1C		Q527	7T		
IC - 1D		Q528	7U		
IC - 1E		Q529	7U		
IC - 1F		Q530	7T		
IC - 1G		Q531	9R		
IC - 1H		Q532	8V		
IC - 1J		Q533	9T		
IC - 2A		Q534	9T		
IC - 2B		Q535	9U		
IC - 2C		Q536	9V		
IC - 2D		Q537	9X		
IC - 2E		Q538	9B		
IC - 2F		Q801	1Y		
IC - 2G		Q802	1Z		
IC - 2H		Q803	1Y		
IC - 2J		Q804	2Y		
IC - 3A		Q805	2X		
IC - 3B		Q806	2Y		
IC - 3C		Q807	1A		
IC - 3D					
IC - 3E		RV1	4P		
IC - 3F		RV2	5P		
IC - 3G		RV3	7P		
IC - 3H		RV4	8P		
IC - 3J		RV101	2P		
IC - 4B		RV102	1P		
IC - 4C		RV103	3R		
IC - 4D		RV104	3S		
IC - 4E		RV105	3S		
IC - 4F		RV106	6R		
IC - 4G		RV107	6T		
IC - 4H		RV108	3W		
IC101	2Q	RV109	4A		
IC102	2R	RV110	4Y		
IC103	2S	RV501	9H		
IC104	2T	RV502	8F		
IC105	3W	RV503	8E		
IC106	3X	RV504	8E		
IC107	3X	RV505	8D		
IC108	3Y	RV506	8C		
IC109	4Y	RV507	8C		
IC110	6S	RV508	7X		
IC111	6U	RV509	9U		
IC112	5W	RV510	9X		
IC113	6W	RV511	9U		
IC114	5X	RV512	9S		
IC115	6X	RV513	9U		
IC116	6Y	RV514	8U		
IC117	5Z	RV515	7C		



PR-34 BOARD (1/3); PROCESSOR

Heterodyne Color
Sync Separator
A/D Converter



REF NO	TYPE NO.	PIN NO. +12V	+5V	GND	-5V	-12V
IC101	BX365A	3	4,7			5
IC102	SN74LS00N		14	7		
IC103	UPC324C	4			11	
IC104	UPC4557C	8				4
IC105	TL082CP	8				4
IC106						
IC107	HI1-201	13		5		4
IC108	TL082CP	8				4
IC109	UPC4557C	8				4
IC110	UA796HC				10	
IC111	UA796HC				10	
IC112	TL082CP	8				4
IC113	HI1-201	13		5		4
IC114	TL082CP	8				4
IC115	HA1-4905	13	1	9		5
IC116	SN7406N		14	7		
IC117	UPC319C	11		3,8		6
IC118	SN74LS123N		16	8		
IC119						

REF NO	TYPE NO.	PIN NO. +12V	+5V	GND	-5V	-12V
IC120	SN74LS11N		14	7		
IC121	UPC319C	11		3,8		6
IC122	SN74LS191N		16	8		
IC2A	SN74S00N		14	7		
IC801	BX365A	3		4,7		9
IC802	CX20052			4,13	14	
				15,20	19	
				22	23	
IC803	HD10125		9	16	8	
IC804						
IC805	SN7404N		14	7		

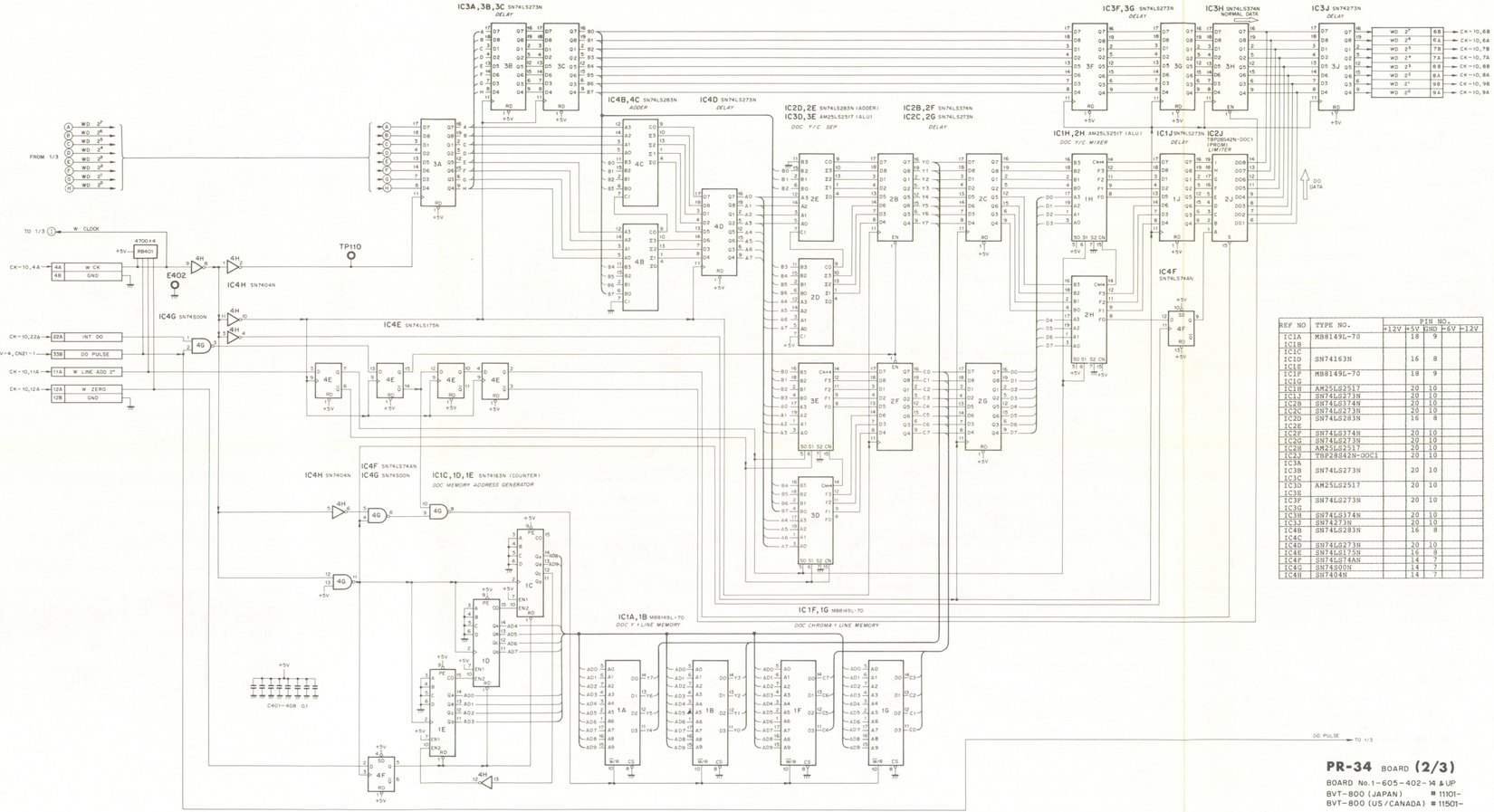
PR-34 BOARD (1/3)

BOARD No. 1-605-402-14 & UP
BVT-800 (JAPAN) #11101-
BVT-800 (US/CANADA) #11501-

1-605-402-14 & UP PR-34 (2/3) PR-34 (2/3) 1-605-402-14 & UP

PR-34 BOARD (2/3); PROCESSOR

Component Side



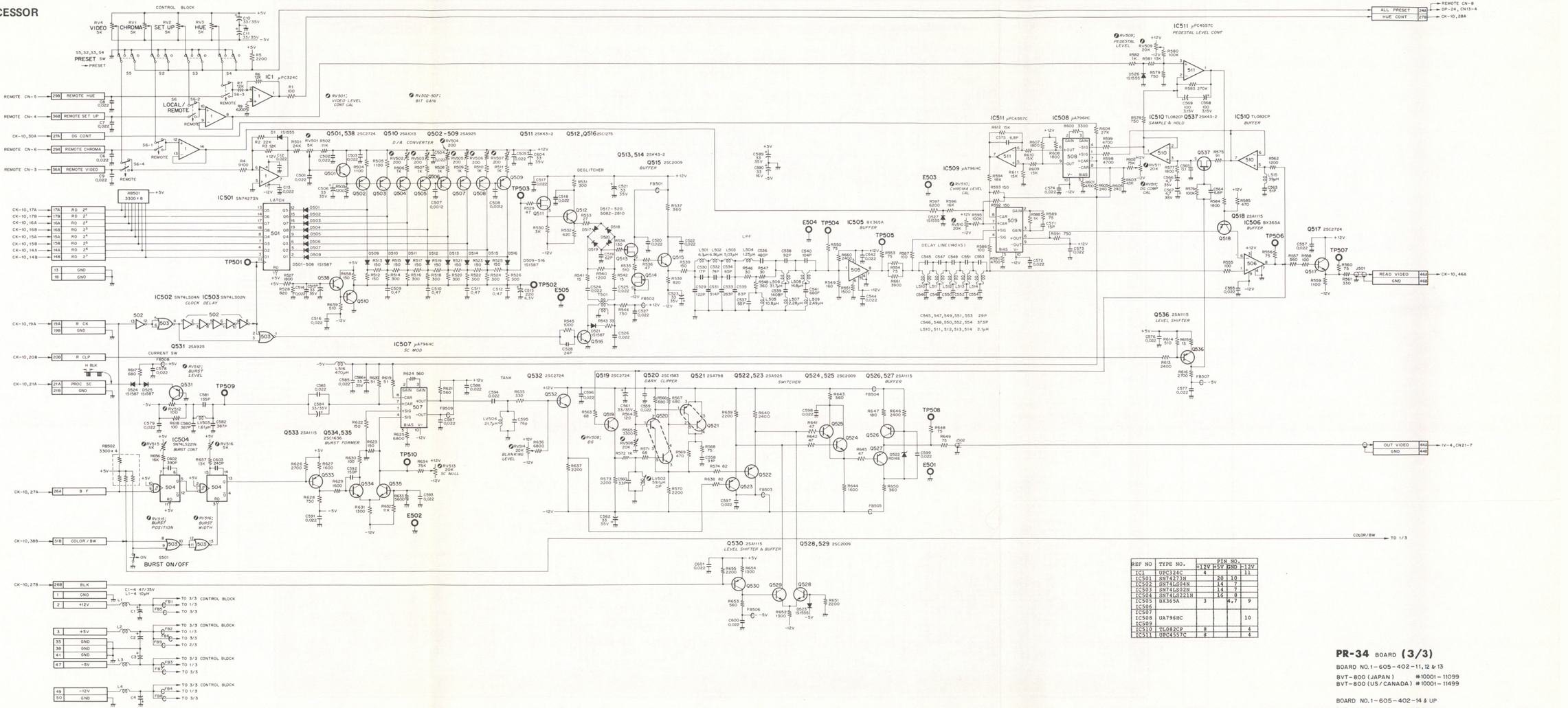
REF NO	TYPE NO.	PIN NO. +12V	+5V	GND	-6V	-12V
IC1A	MB8149L-70		18	9		
IC1B						
IC1C						
IC1D	SN74163N		16	8		
IC1E						
IC1F	MB8149L-70		18	9		
IC1G						
IC1H	AM25LS2517		20	10		
IC1J	SN74LS273N		20	10		
IC2B	SN74LS374N		20	10		
IC2C	SN74LS273N		20	10		
IC2D	SN74LS283N		16	8		
IC2E						
IC2F	SN74LS374N		20	10		
IC2G	SN74LS273N		20	10		
IC2H	AM25LS2517		20	10		
IC2J	TBP28S42N-DOC1		20	10		
IC3A						
IC3B	SN74LS273N		20	10		
IC3C						
IC3D	AM25LS2517		20	10		
IC3E						
IC3F	SN74LS273N		20	10		
IC3G						
IC3H	SN74LS374N		20	10		
IC3J	SN74273N		20	10		
IC4B	SN74LS283N		16	8		
IC4C						
IC4D	SN74LS273N		20	10		
IC4E	SN74LS175N		16	8		
IC4F	SN74LS74AN		14	7		
IC4G	SN74S00N		14	7		
IC4H	SN7404N		14	7		

PR-34 BOARD (2/3)

BOARD No.1-605-402-14 & UP
BVT-800 (JAPAN) # 11101-
BVT-800 (US/CANADA) # 11501-

PR-34 BOARD (3/3); PROCESSOR

D/A Converter
Processor



REF NO	TYPE NO.	PIN NO. +12V	+5V	GND	-12V
IC1	UPC324C	4			11
IC501	SN74273N		20	10	
IC502	SN74LS04N		14	7	
IC503	SN74LS02N		14	7	
IC504	SN74LS221N		16	8	
IC505	BX365A	3		4,7	9
IC506					
IC507	UA796HC				10
IC508	μA796HC				
IC509					
IC510	TL082CP	8			4
IC511	UPC4557C	8			4

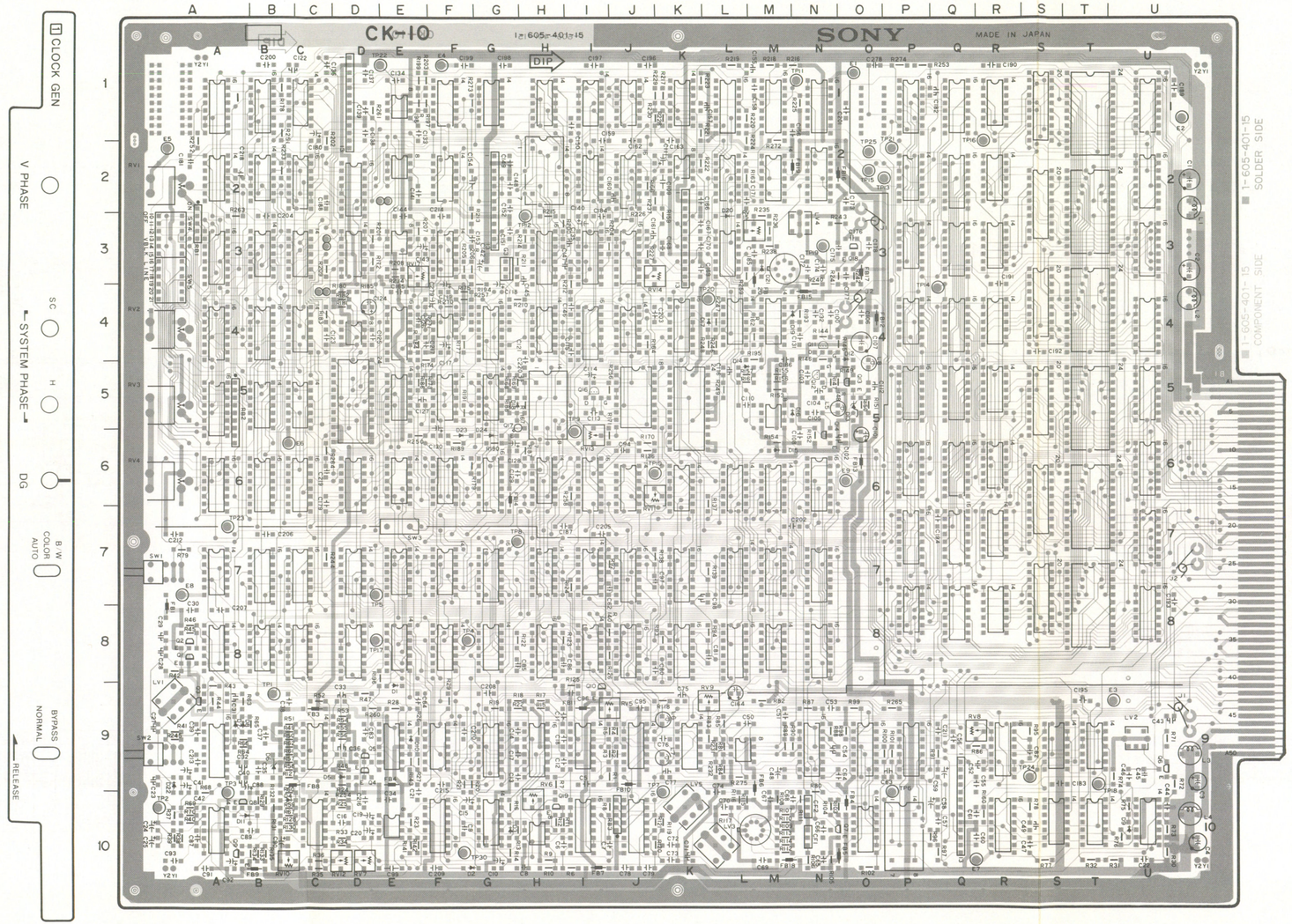
PR-34 BOARD (3/3)

BOARD NO. 1-605-402-11, 12 & 13
BVT-800 (JAPAN) #10001-11099
BVT-800 (US/CANADA) #10001-11499

BOARD NO. 1-605-402-14 & UP
BVT-800 (JAPAN) #11101-
BVT-800 (US/CANADA) #11501-

CK-10 BOARD (1-605-401-15)

Component Side



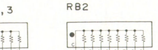
CK-10(1-605-401-11 to 15)

BV-T 800 (J)
BV-T 800 (UC)

D1	9E	IC-5P		RV1	2A
D2	10G	IC-5Q		RV2	4A
D3	10G	IC-5R		RV3	5A
D4	10B	IC-5S		RV4	6A
D5	9D	IC-5T		RV5	9J
D6	9B	IC-5U		RV6	10H
D7	9A	IC-6A		RV7	10D
D8	9B	IC-6B		RV8	9O
D9	10J	IC-6C		RV9	9L
D10	9E	IC-6D		RV10	10B
D11	10B	IC-6E		RV11	6K
D12	4O	IC-6F		RV12	10D
D13	5O	IC-6G		RV13	6I
D14	5L	IC-6H		RV14	3K
D15	6M	IC-6I		RV15	3M
D16	5N	IC-6J		RV17	3E
D17	4L	IC-6K			
D18	5H	IC-6L		SW1	7A
D19	4M	IC-6M		SW2	9A
D20	3L	IC-6N		SW3	7E
D21	3M	IC-6P		SW4	3A
D22	9A	IC-6Q		SW5	3A
D23	6F	IC-6R			
D24	6G	IC-6S		TP1	9B
		IC-6T		TP2	10A
E1	1O	IC-6U		TP3	10A
E2	1U	IC-7A		TP4	8F
E3	9T	IC-7B		TP5	7D
E4	1F	IC-7C		TP6	10P
E5	2A	IC-7D		TP7	10K
E6	6B	IC-7E		TP8	7H
E7	10Q	IC-7F		TP9	6I
E8	7A	IC-7G		TP10	6K
E9	6O	IC-7H		TP11	1N
		IC-7I		TP12	3H
IC-1A		IC-7J		TP13	2O
IC-1B		IC-7K		TP14	4O
IC-1C		IC-7L		TP15	2O
IC-1D		IC-7M		TP16	1R
IC-1E		IC-7N		TP17	8D
IC-1F		IC-7P		TP18	9T
IC-1G		IC-7Q		TP19	3N
IC-1H		IC-7R		TP20	4L
IC-1I		IC-7U		TP21	2F
IC-1J		IC-8A		TP22	1E
IC-1K		IC-8B		TP23	7A
IC-1L		IC-8C		TP24	9S
IC-1M		IC-8D		TP25	2O
IC-1N		IC-8E		TP30	10F
IC-1P		IC-8F			
IC-1Q		IC-8G		VCO-2H	
IC-1R		IC-8H		VCO-5H	
IC-1S		IC-8I		VCO-10P	
IC-1T		IC-8J			
IC-1U		IC-8K			
IC-2A		IC-8L			
IC-2B		IC-8M			
IC-2C		IC-8N			
IC-2D		IC-8P			
IC-2E		IC-8Q			
IC-2F		IC-8R			
IC-2G		IC-8S			
IC-2I		IC-8T			
IC-2J		IC-8U			
IC-2K		IC-9A			
IC-2L		IC-9C			
IC-2M		IC-9E			
IC-2N		IC-9F			
IC-2P		IC-9G			
IC-2Q		IC-9H			
IC-2R		IC-9I			
IC-2S		IC-9J			
IC-2T		IC-9K			
IC-2U		IC-9L			
IC-3A		IC-9N			
IC-3B		IC-9O			
IC-3C		IC-9P			
IC-3D		IC-9S			
IC-3E		IC-9T			
IC-3F		IC-10A			
IC-3G		IC-10C			
IC-3H		IC-10E			
IC-3I		IC-10F			
IC-3J		IC-10G			
IC-3K		IC-10H			
IC-3L		IC-10I			
IC-3M		IC-10J			
IC-3P		IC-10L			
IC-3Q		IC-10O			
IC-3R		IC-10Q			
IC-3U		IC-10R			
IC-4A		IC-10S			
IC-4B		IC-10T			
IC-4C		IC-10U			
IC-4D					
IC-4E		LV1	9A		
IC-4F		LV3	10L		
IC-4G		LV5	10K		
IC-4H					
IC-4I		Q1	8A		
IC-4J		Q2	8A		
IC-4K		Q3	9A		
IC-4L		Q4	9D		
IC-4M		Q5	9D		
IC-4P		Q6	9U		
IC-4Q		Q7	10O		
IC-4R		Q8	10A		
IC-4S		Q9	10A		
IC-4T		Q10	9I		
IC-4U		Q11	4N		
IC-5A		Q12	5N		
IC-5B		Q13	5O		
IC-5C		Q14	6N		
IC-5D		Q16	5I		
IC-5E		Q17	5H		
IC-5F		Q18	3O		
IC-5G		Q19	10H		
IC-5J					
IC-5K					
IC-5M					

RB1,3

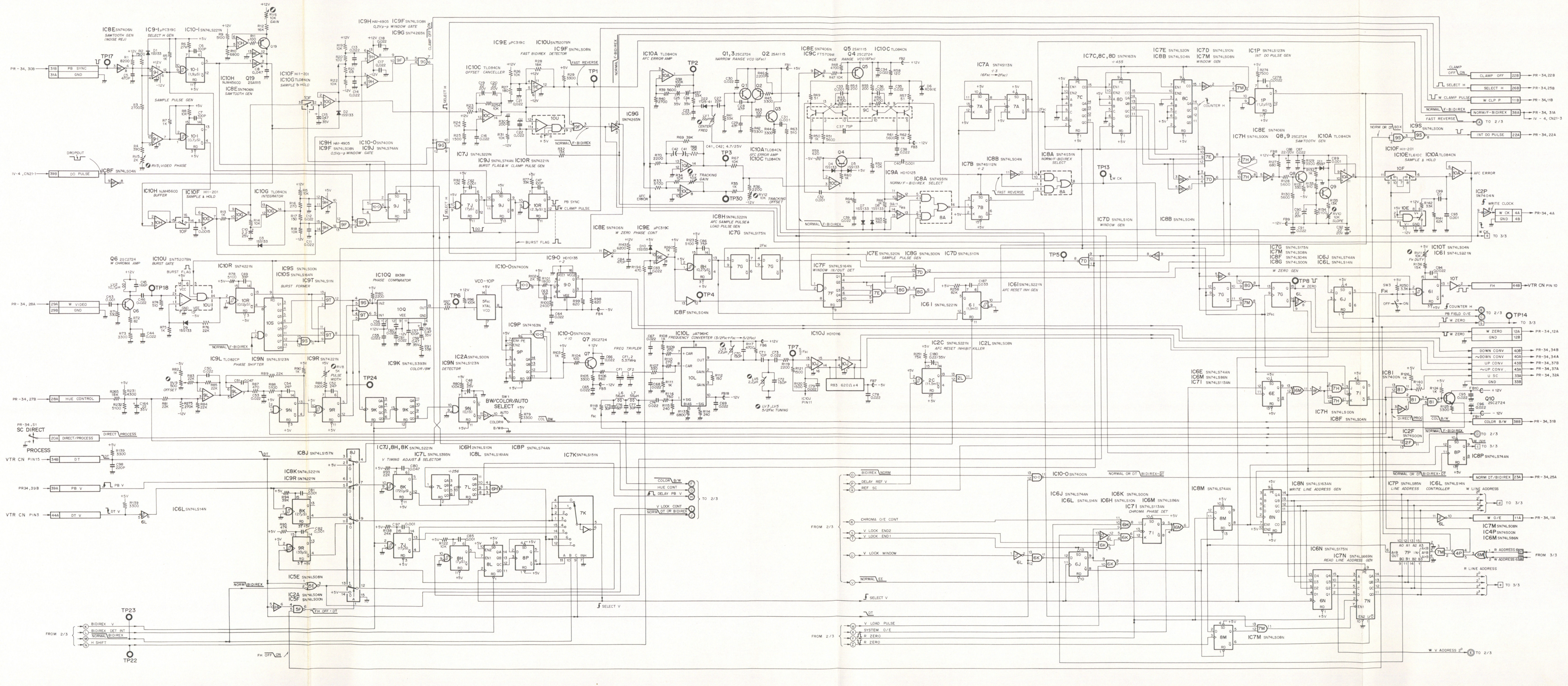
R82



CK-10 (1/3) CK-10 (1/3)

CK-10 BOARD (1/3); CLOCK GEN

- Select H Generator
- BF & W Clamp Pulse Generator
- Fast Bidirex Detector
- AFC (W Clock Generator)
- W Zero Generator
- FH Generator
- PB Frame Detector
- V Timing Selector & Adj.
- Chroma Conv Carrier Generator
- U SC Generator
- Color/BW Detector
- V Lock Control
- W/R Line Address Generator



REF NO.	TYPE	PIN NO. +12V	+5V	GND	−5V	−12V
IC1P	SN74LS123N		16	8		
IC2A	SN74LS04N		14	7		
IC2C	SN74LS221N		16	8		
IC2F	SN74S00N		14	7		
IC2L	SN74LS08N		14	7		
IC2P	SN7404N		14	7		
IC4P	SN74S00N		14	7		
IC5E	SN74LS08N		14	7		
IC5F	SN74LS00N		14	7		
IC6E	SN74LS74AN		14	7		
IC6H	SN74LS10N		14	7		
IC6I	SN74LS221N		16	8		
IC6J	SN74LS74AN		14	7		
IC6K	SN74LS00N		14	7		
IC6L	SN74LS14N		14	7		
IC6M	SN74LS86N		14	7		
IC6N	SN74LS175N		16	8		
IC7A	SN74S113N		14	7		
IC7B	SN74S112N		16	8		
IC7C	SN74163N		16	8		
IC7D	SN74LS10N		14	7		
IC7E	SN74LS20N		14	7		
IC7F	SN74LS164N		14	7		
IC7G	SN74LS175N		16	8		
IC7H	SN74LS00N		14	7		
IC7I	SN74LS113AN		14	7		
IC7J	SN74LS221N		16	8		
IC7K	SN74LS151N		16	8		
IC7L	SN74LS393N		14	7		
IC7M	SN74LS08N		14	7		
IC7N	SN74LS669N		16	8		
IC7P	SN74LS85N		16	8		
IC8A	SN74S51N		14	7		
IC8B	SN74LS04N		14	7		
IC8C IC8D	SN74163N		16	8		
IC8E	SN7406N		14	7		
IC8F	SN74LS04N		14	7		
IC8G	SN74LS00N		14	7		
IC8H	SN74LS221N		16	8		
IC8I	SN7400N		14	7		
IC8J	SN74LS157N		16	8		
IC8K	SN74LS221N		16	8		
IC8L	SN74LS161AN		16	8		
IC8M	SN74LS74AN		14	7		
IC8N	SN74LS163AN		16	8		
IC8P	SN74LS74AN		14	7		
IC9A	HD10125		9	16	8	
IC9E	μPC319C	11		3,8		6
IC9F	SN74LS08N		14	7		
IC9G	SN74265N		16	8		
IC9H	HA1-4905	13	1	9		5
IC9I	μPC319C	11		3,8		6
IC9J	SN74LS74AN		14	7		
IC9K	SN74LS393N		14	7		
IC9L	TL082CP	8				4
IC9N	SN74LS123N		16	8		
IC9O	HD10135			1,16	8	
IC9P	SN74163N		16	8		
IC9R	SN74221N		16	8		
IC9S	SN74LS00N		14	7		
IC9T	SN74LS11N		14	7		
IC10A IC10C	TL084CN	4				11
IC10E	TL610C	8		1		5
IC10F	HI1-201	13		5		4
IC10G	TL084CN	4				11
IC10H	NJM4560D	8				4
IC10I	SN74LS221N		16	8		
IC10J	HD10116			1,16	8	
IC10L	μA796HC					10
IC10-O	SN7400N		14	7		
IC10Q	BX381	2		6		9
IC10R	SN74221N		16	8		
IC10S	SN74LS164N		14	7		
IC10T	SN74LS04N		14	7		
IC10U	SN75207BN		14	7	13	

CK-10 BOARD (1/3)

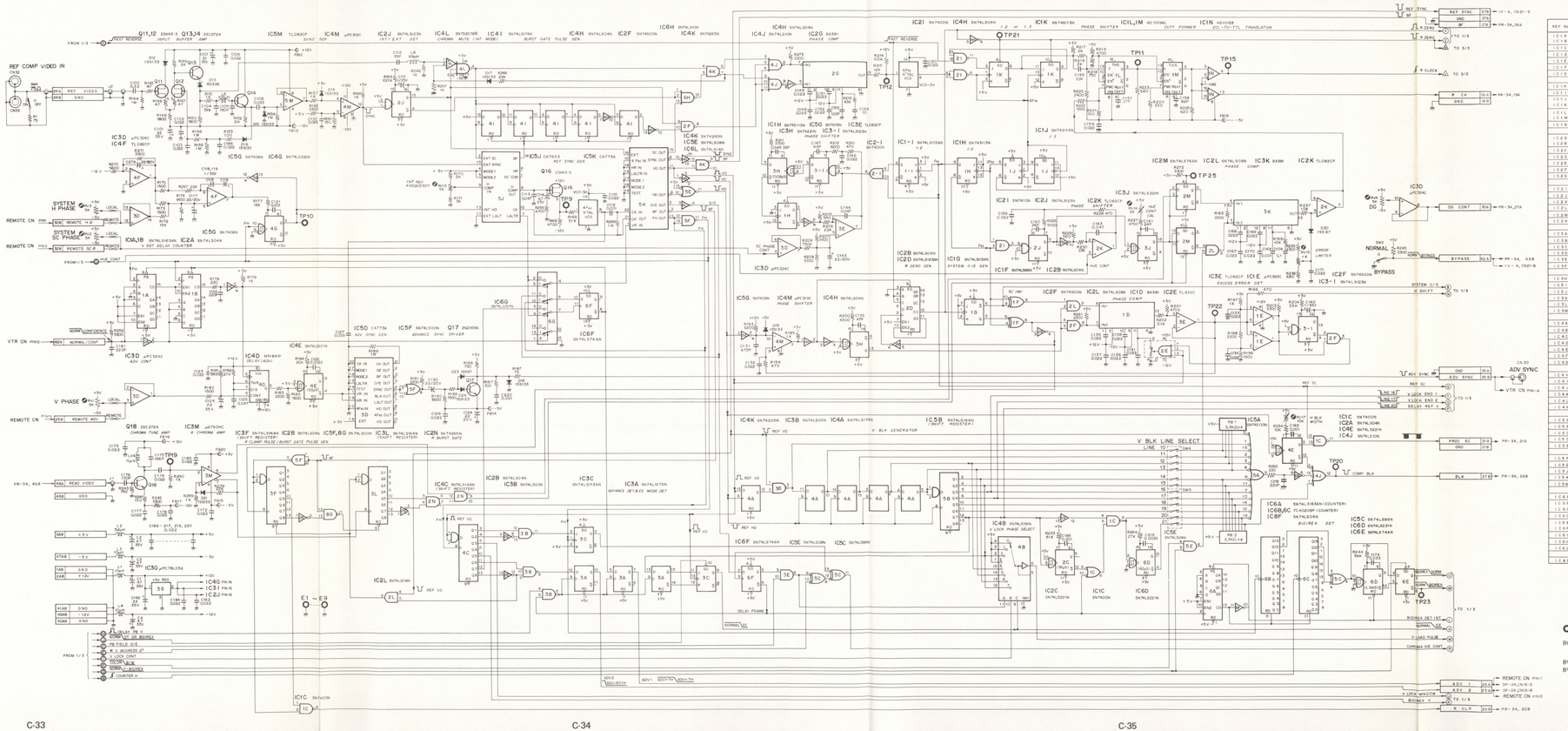
BOARD NO. 1-605-401-11,12,13,14 & UP

BVT-800 (JAPAN) #10001-

BVT-800 (US/CANADA) #10001-

CK-10 BOARD (2/3); CLOCK GEN

- Reference Sync Generator
- Advanced Sync Generator
- BLK Generator
- EE Mode Detector
- Advance Detector
- Bidirex Detector
- V Lock Control
- R Zero Generator
- R Clock Generator
- SC Phase Control
- R Clamp Pulse Generator
- Proc SC Generator



CK-10 (2/3) CK-10 (2/3)

REF. No.	TYPE	PIN No.			
		+12V	+5V	GND	-5V
IC1A	SN74LS163AN	16	9		
IC1B					
IC1C	SN7400N	14	7		
IC1D	8X381	8		1	9
IC1E	μPC393C	8		4	
IC1F	SN74LS86N		14	7	
IC1G	SN74LS11AN		14	7	
IC1H	SN74S133N		14	7	
IC1I	SN74LS133AN		14	7	
IC1J	SN74S113N		14	7	
IC1K					
IC1L, 1M	MC10198L		1,16	8	
IC1N	HD10125		9	16	8
IC2A	SN74LS04N		14	7	
IC2B					
IC2C	SN74LS221N		16	8	
IC2D	SN74LS153AN		16	8	
IC2E	TL610CP	8		1	4
IC2F	SN74S00N		14	7	
IC2G	8X381	2		8	9
IC2I	SN7400N		14	7	
IC2J	SN74LS123N		16	8	
IC2K	TL082CP	8		4	4
IC2L	SN74LS08N		14	7	
IC2M	SN74LS74AN		14	7	
IC2N	SN74S265N		16	8	
IC3A	SN74LS175N		16	8	
IC3B	SN74LS151N		16	8	
IC3C	SN74LS151AN		16	8	
IC3D	μPC324C	4		11	
IC3E	TL082CP	8		4	
IC3F	SN74LS164N		14	7	
IC3H	SN74S32N		14	7	
IC3I	SN74LS123N		16	8	
IC3J	SN74LS221N		16	8	
IC3K	8X381	2		8	9
IC3L	SN74LS164N		14	7	
IC3M	μPA76HC	8		4	
IC4A	SN74LS174N		16	8	
IC4B	SN74LS151N		16	8	
IC4C	SN74LS164N		14	7	
IC4D	M51849P	6		1	
IC4E	SN74LS221N		16	8	
IC4F	TL082CP	8		4	
IC4G	SN74LS221N		16	8	
IC4H	SN74LS04N		14	7	
IC4I	SN74LS174N		16	8	
IC4J	SN74LS10N		14	7	
IC4K	SN74S55N		16	8	
IC4L	SN75107BN		14	7	5
IC4M	μPC393C	11		3	6
IC5A	SN74S133N		16	8	
IC5B	SN74LS164N		14	7	
IC5C	SN74LS86N		14	7	
IC5D	CX775A	24	12		
IC5E	SN74LS30N		14	7	
IC5F	SN74LS00N		14	7	
IC5G	SN74S08N		14	7	
IC5J	CX780A	2	14		
IC5K	CX775A	24	12		
IC5M	TL082CP	8		4	4
IC6A	SN74LS163AN		16	8	
IC6B	TC4020BP		16	8	
IC6C					
IC6D	SN74LS221N		16	8	
IC6E	SN74LS74AN		14	7	
IC6G	SN74LS14N		14	7	
IC6I	SN74LS157N		16	8	
IC6J	SN74LS10N		14	7	
IC6L	SN74LS14N		14	7	
IC6F	SN74LS04N		14	7	

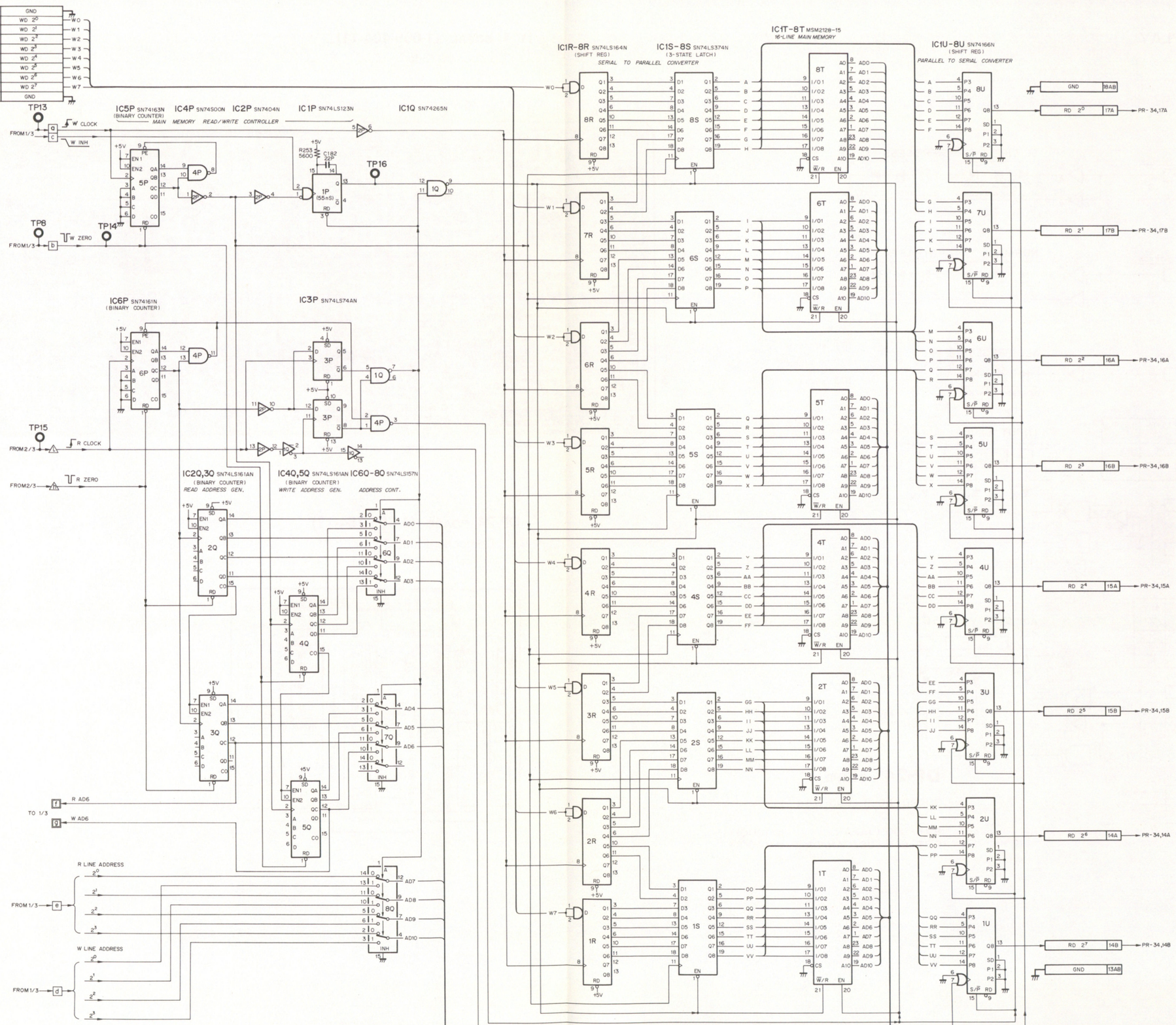
CK-10 BOARD (2/3)

BOARD NO.1-605-401-11,12,13,14 & UP

BVT-800 (JAPAN) ■10001 –
BVT-800 (US/CANADA) ■10001 –

CK-10 BOARD (3/3); CLOCK GEN

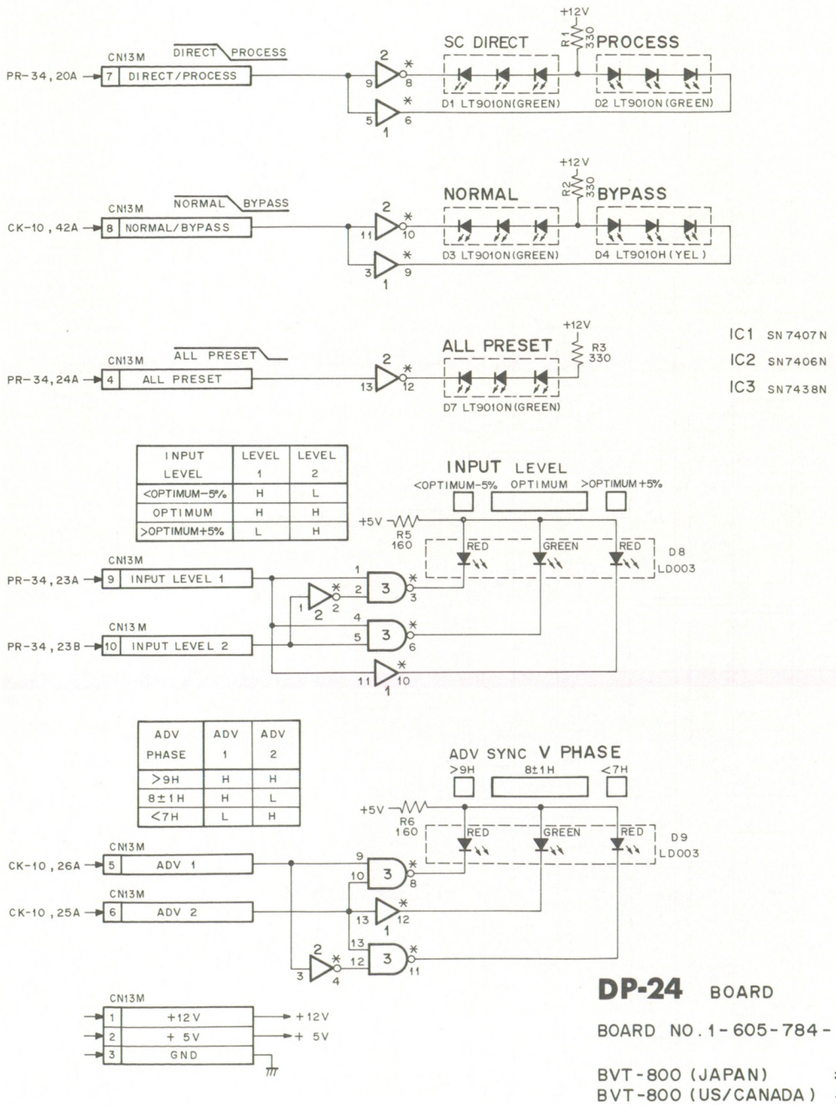
W/R Address Generator
Memory Control
16-Line Main Memory



REF NO.	TYPE	PIN NO. +5V	PIN NO. GND
IC1P	SN74LS123N	16	8
IC1Q	SN74265N	16	8
IC1R	SN74LS164N	14	7
IC1S	SN74LS374N	20	10
IC1T	MSM2128-15	24	12
IC1U	SN74166N	16	8
IC2P	SN7404N	14	7
IC2Q	SN74LS161AN	16	8
IC2R	SN74LS164N	14	7
IC2S	SN74LS374N	20	10
IC2T	MSM2128-15	24	12
IC2U	SN74166N	16	8
IC3P	SN74LS74AN	14	7
IC3Q	SN74LS161AN	16	8
IC3R	SN74LS164N	14	7
IC3U	SN74166N	16	8
IC4P	SN74S00N	14	7
IC4Q	SN74LS161AN	16	8
IC4R	SN74LS164N	14	7
IC4S	SN74LS374N	20	10
IC4T	MSM2128-15	24	12
IC4U	SN74166N	16	8
IC5P	SN74163N	16	8
IC5Q	SN74LS161AN	16	8
IC5R	SN74LS164N	14	7
IC5S	SN74LS374N	20	10
IC5T	MSM2128-15	24	12
IC5U	SN74166N	16	8
IC6P	SN74161N	16	8
IC6Q	SN74LS157N	16	8
IC6R	SN74LS164N	14	7
IC6S	SN74LS374N	20	10
IC6T	MSM2128-15	24	12
IC6U	SN74166N	16	8
IC7Q	SN74LS157N	16	8
IC7R	SN74LS164N	14	7
IC7U	SN74166N	16	8
IC8Q	SN74LS157N	16	8
IC8R	SN74LS164N	14	7
IC8S	SN74LS374N	20	10
IC8T	MSM2128-15	24	12
IC8U	SN74166N	16	8

CK-10 BOARD (3/3)
BOARD NO 1-605-401-11,12,13 & U
BVT-800 (JAPAN) #10001-
BVT-800 (US/CANADA) #10001-

DP-24 BOARD ; DISPLAY



INPUT LEVEL	LEVEL 1	LEVEL 2
<OPTIMUM-5%	H	L
OPTIMUM	H	H
>OPTIMUM+5%	L	H

ADV PHASE	ADV 1	ADV 2
>9H	H	H
8±1H	H	L
<7H	L	H

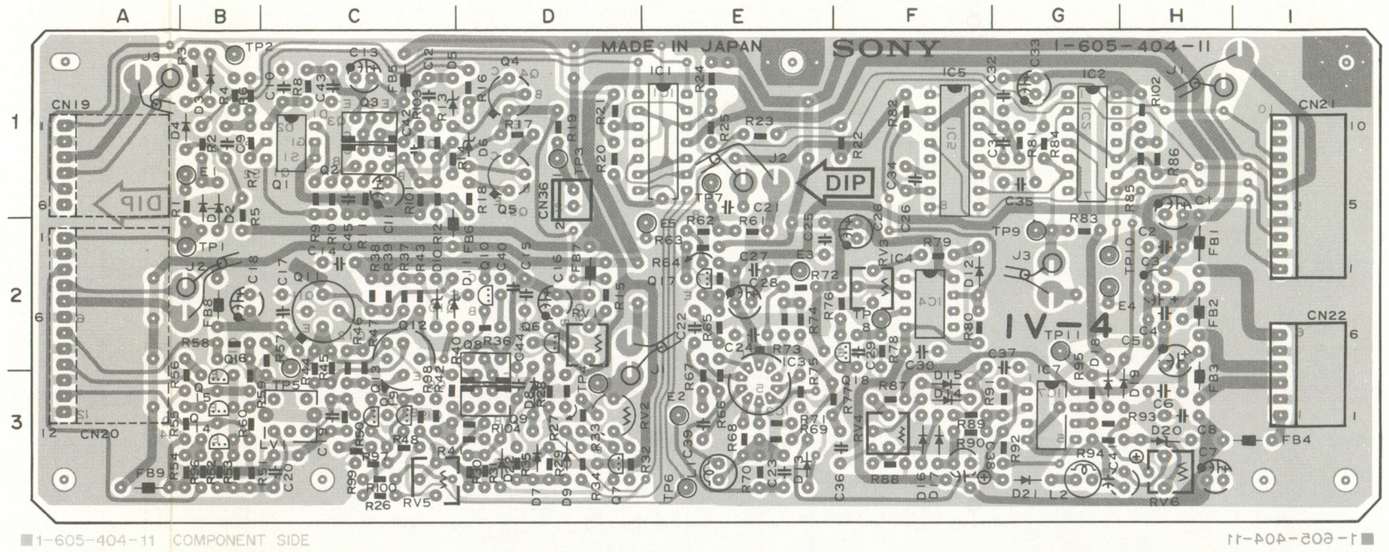
DP-24 BOARD

BOARD NO. 1-605-784-11

BVT-800 (JAPAN) # 10001-
BVT-800 (US/CANADA) # 10001-

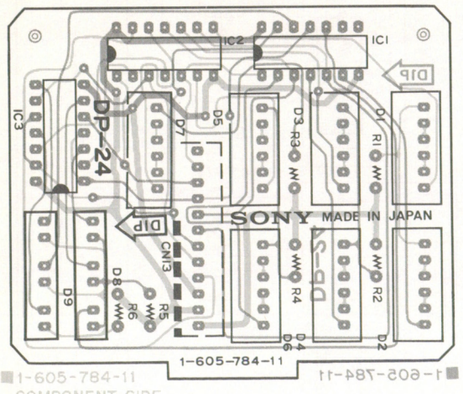
IV-4 BOARD (1-605-404-11)

Component Side



DP-24 BOARD (1-605-784-11)

Component Side



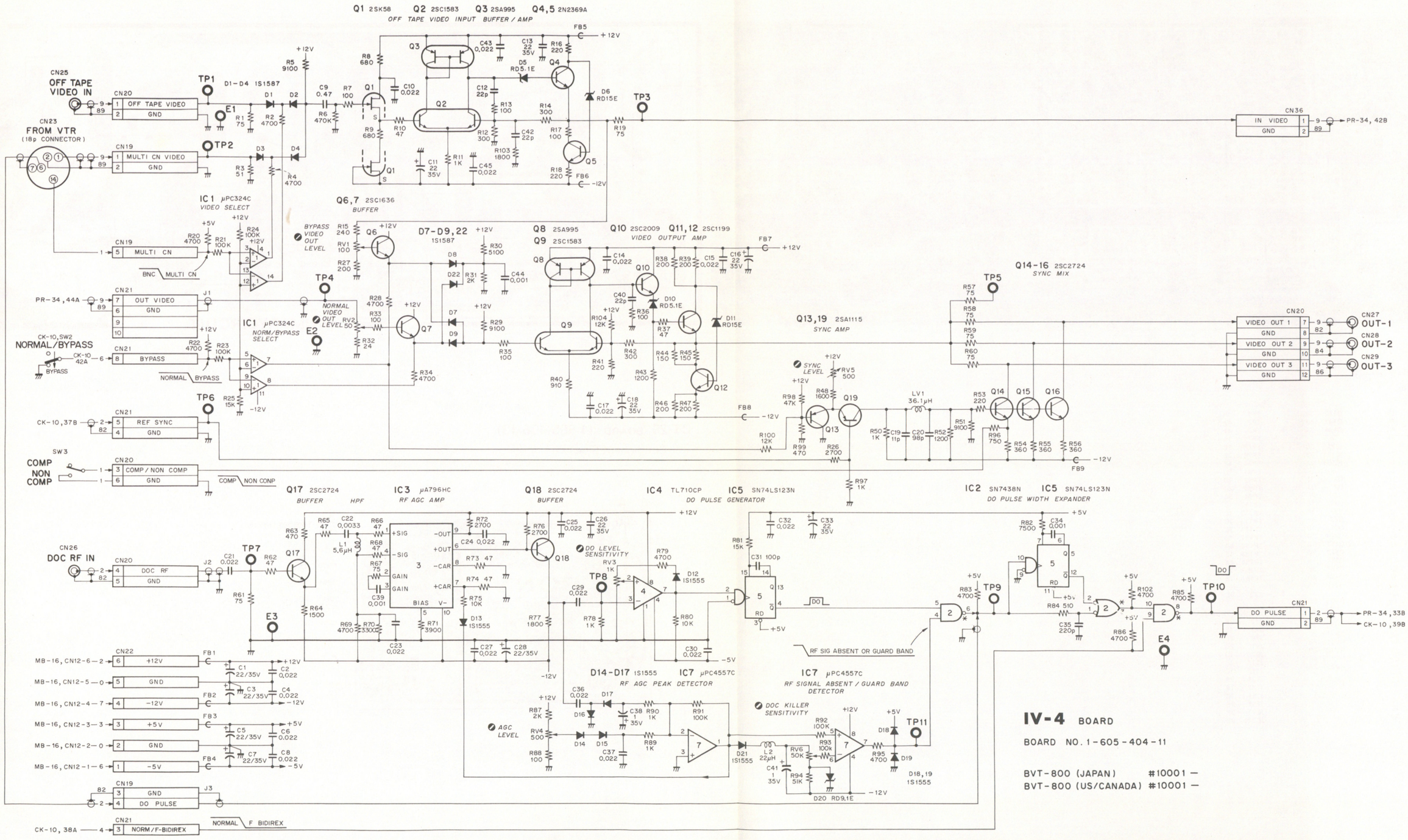
IV-4 (1-605-404-11)

BVT-800 (J)
BVT-800 (U/C)

CN19	1A	IC1	1E	TP1	2B
CN20	2A	IC2	1G	TP2	1B
CN21	1I	IC3	3E	TP3	1D
CN22	2I	IC4	2F	TP4	3D
CN36	1D	IC5	1F	TP5	2C
		IC7	3G	TP6	3E
D1	1B			TP7	1E
D2	1B	Q1	1C	TP8	2F
D3	1B	Q2	1C	TP9	2G
D4	1B	Q3	1C	TP10	2G
D5	1C	Q4	1D	TP11	2G
D6	1D	Q5	1D		
D7	3D	Q6	2D		
D8	3D	Q7	3D		
D9	3D	Q8	2D		
D10	2C	Q9	3D		
D11	2C	Q10	2D		
D12	2F	Q11	2C		
D13	3E	Q12	2C		
D14	3F	Q13	3C		
D15	3F	Q14	3B		
D16	3F	Q15	3B		
D17	3F	Q16	3B		
D18	3G	Q17	2E		
D19	3H	Q18	2F		
D20	3H	Q19	3C		
D21	3G				
D22	3D	RV1	2D		
		RV2	3D		
E1	1B	RV3	2F		
E2	3E	RV4	3F		
E3	2E	RV5	3C		
E4	2G	RV6	3H		
E5	2E				

IV-4 BOARD

Input Video Amplifier
Output Video Amplifier
DO Pulse Generator



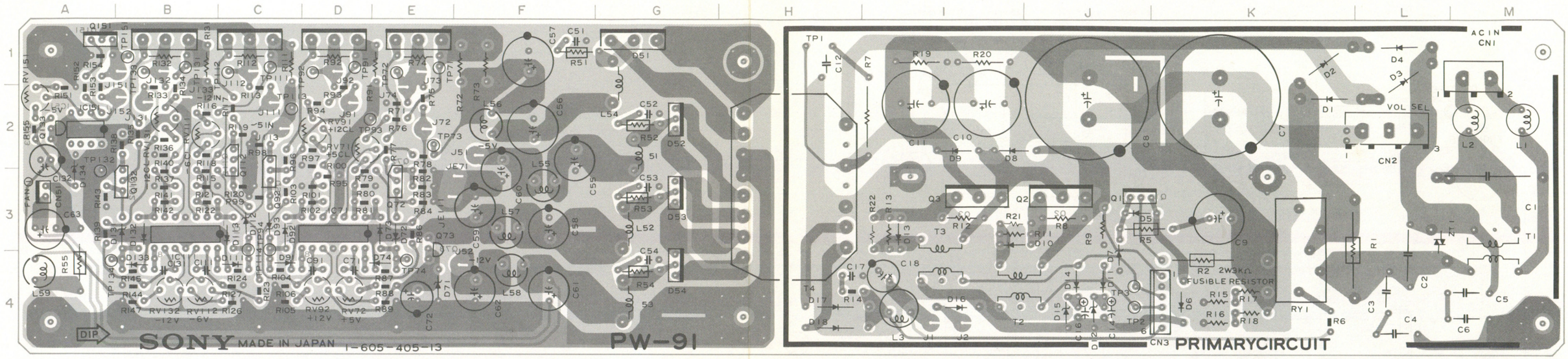
IV-4 BOARD

BOARD NO. 1-605-404-11

BVT-800 (JAPAN) #10001 —
BVT-800 (US/CANADA) #10001 —

PW-91 BOARD (1-605-405-13)

Component Side



■1-605-405-13 COMPONENT SIDE ■1-605-405-13

PW-91 (1-605-405-13)

BVT-800 (J)
BVT-800 (U/C)

CN1 1M
CN2 2L
CN3 4K
CN51 3A

D1 2K
D2 1K
D3 2L
D4 1L
D5 3J
D6 4K
D7 4J
D8 2I
D9 2I
D10 3I
D11 4J
D12 4J
D13 3I
D14 4J
D15 4J
D16 4I
D17 4H
D18 4H
D51 1G
D52 2G
D53 3G
D54 4G
D71 4E
D72 3E
D73 3E
D74 4E
D91 4C
D92 3C
D93 3C
D111 4C
D112 3C
D113 3C
D131 3B
D132 3B
D133 4B
D134 3A

IC71 3D
IC111 3B
IC151 2A

Q1 3J
Q2 3J
Q3 3I
Q71 1E
Q72 3E
Q73 3E
Q91 1D
Q92 3C
Q111 1C
Q112 2C
Q131 1B
Q132 3B
Q133 2A
Q151 1A

RV71 2D
RV72 4D
RV91 2D
RV92 4D
RV111 2B
RV112 4B
RV131 2B
RV132 4B
RV151 2A

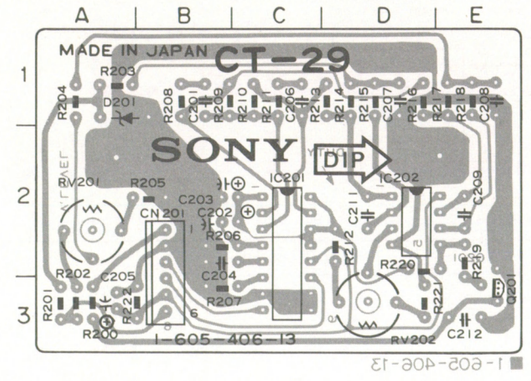
TP1 1H
TP2 4J
TP3 4J
TP71 1E
TP72 1E
TP73 2E
TP74 4E
TP91 1D
TP92 1D
TP93 2D
TP94 3C
TP111 1C
TP112 1C
TP113 2C
TP114 3C
TP131 1B
TP132 3A
TP133 1B
TP134 4A
TP151 1B
TP151 1B

ZT1 3L

WIRING TERMINAL
J72 2E
J73 1E
J74 2E
J91 2D
J92 1D
J111 2C
J112 1C
J131 2B
J132 1B
J151 1B
J152 2B
JE71 3F
JE111 3E

CT-29 BOARD (1-605-406-13)

Component Side



■1-605-406-13

CT-29 (1-605-406-11 to 13)

BVT-800 (J)
BVT-800 (U/C)

CN201 2B

D201 1A

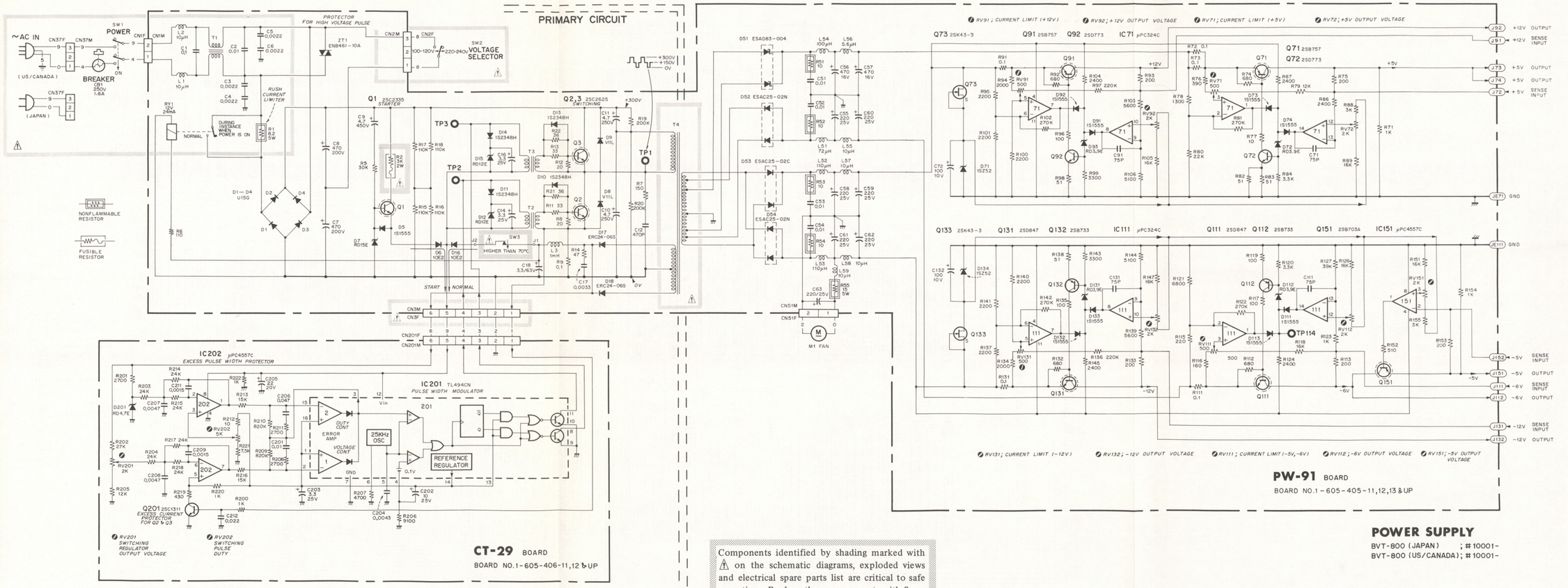
IC201 2C
IC202 2D

Q201 3E

RV201 2A
RV202 3D

POWER SUPPLY PW-91, CT-29

PW-91, CT-29 POWER SUPPLY

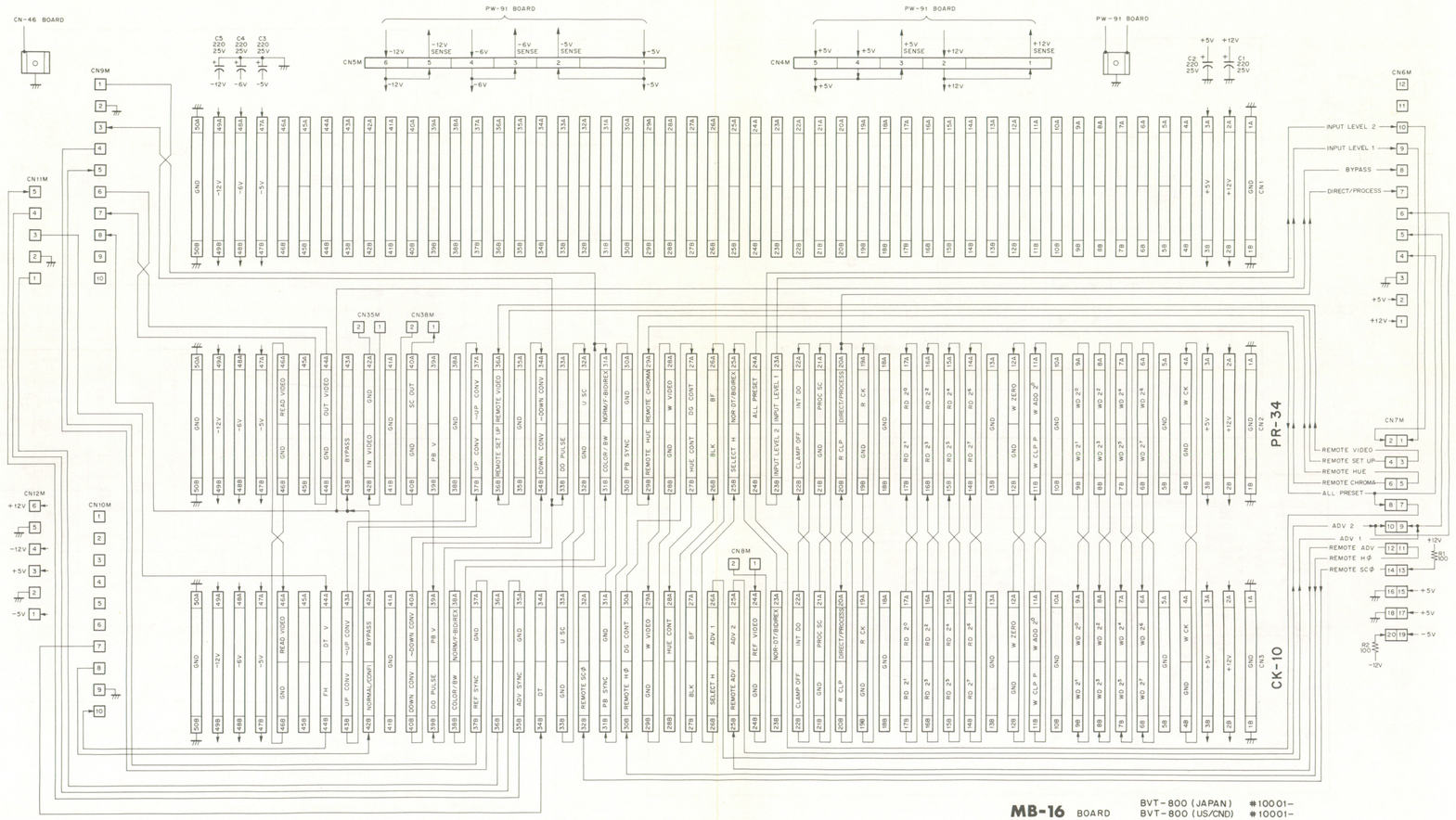


POWER SUPPLY

BVT-800 (JAPAN) ; # 10001-
BVT-800 (US/CANADA); # 10001-

Components identified by shading marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose part numbers appear in this manual or in service bulletins and service manual supplements published by Sony.

MB-16 BOARD; MOTHER BOARD

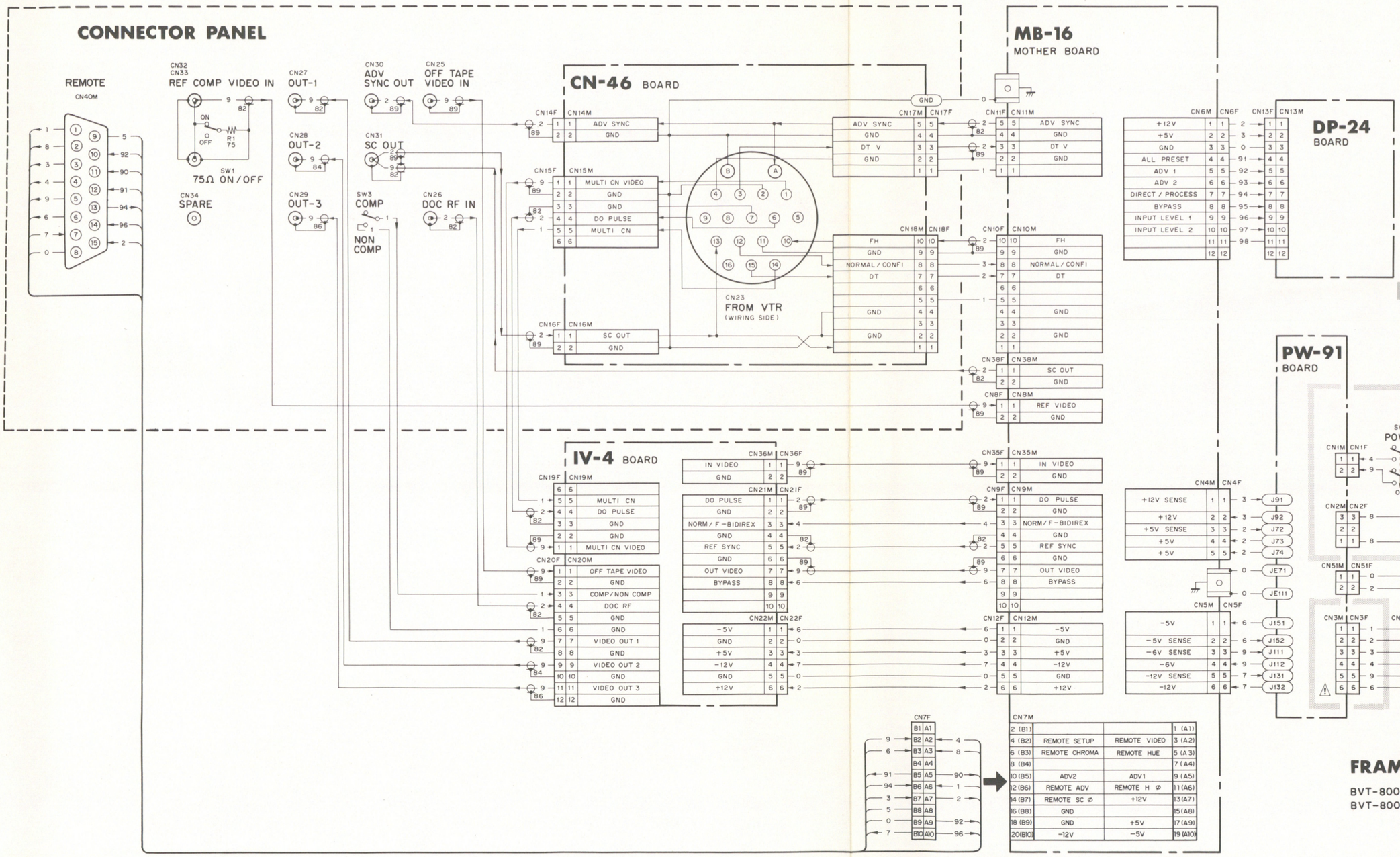


MB-16 BOARD BVT-800 (JAPAN) #10001-
BVT-800 (US/CND) #10001-

BOARD NO. 1-605-403-11, 12 & UP

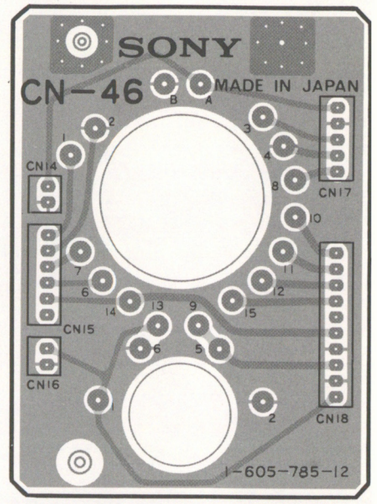
FRAME WIRING

CN-46 BOARD



CN-46 BOARD (1-605-785-12)

Component Side



1-605-785-12
COMPONENT SIDE

1-605-785-12

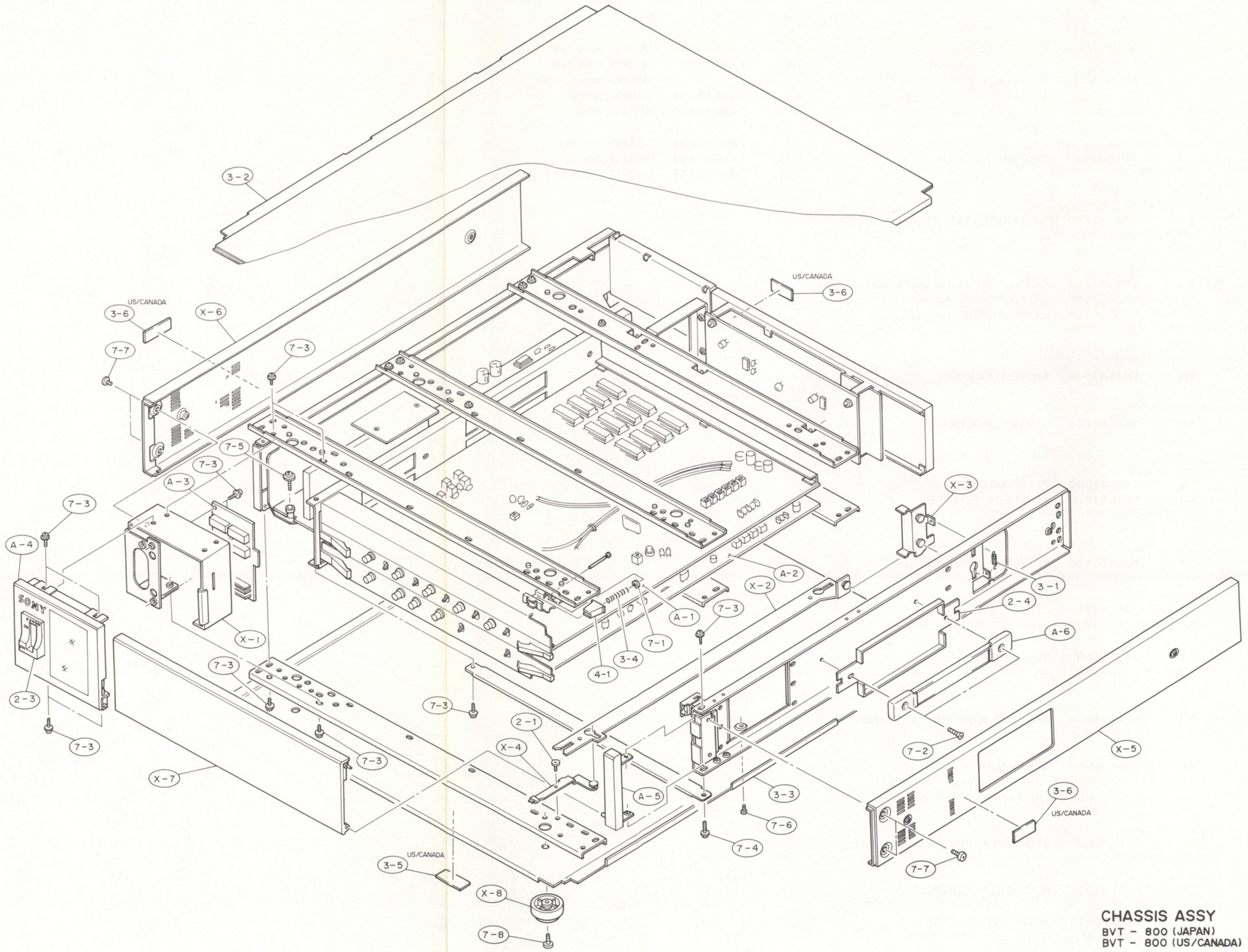
FRAME WIRING

BVT-800 (JAPAN) #10001–
BVT-800 (US/CANADA) #10001–

SECTION D
REPLACEABLE PARTS & OPTIONAL FIXTURES

CHASSIS ASSY (BVT-800)

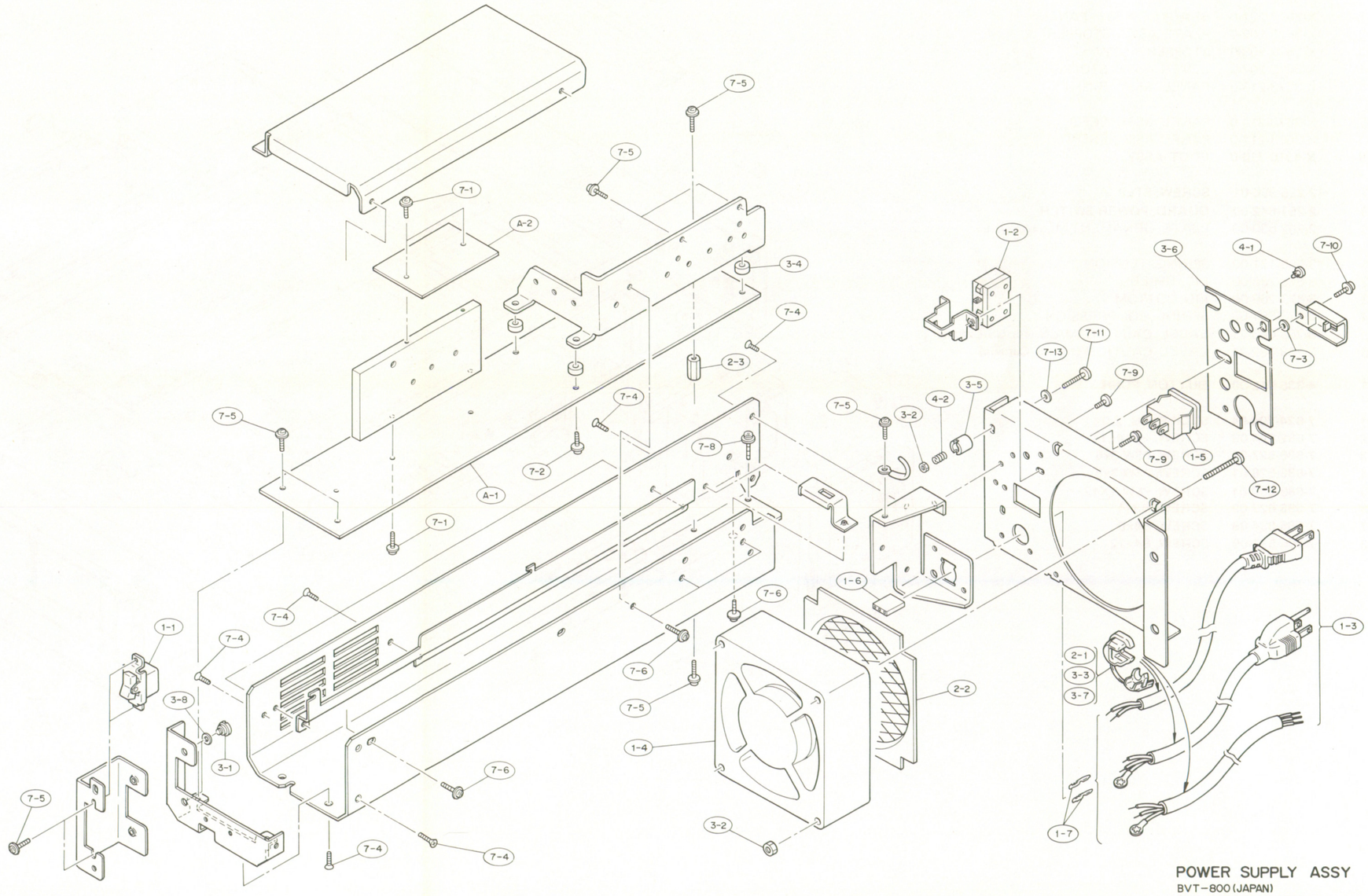
Ref. No.	Part No.	Description
A-1	A-6257-102-A	COMPLETE PCB, PR-34
A-2	A-6259-195-A	COMPLETE PCB, CK-10
A-3	A-6265-045-A	COMPLETE PCB, DP-24
A-4	A-6273-066-A	PANEL ASSY, INDICATOR
A-5	A-6273-067-A	PROTECTOR ASSY
A-6	**X-2275-501-0**	**HANDLE ASSY**
X-1	X-3673-201-0	BRACKET ASSY, PANEL
X-2	X-3673-202-0	PLATE ASSY, STOPPER
X-3	X-3673-203-0	STOPPER ASSY
X-4	X-3673-207-0	LEVER ASSY, STOPPER
X-5	X-3673-213-0	PANEL ASSY, RIGHT
X-6	X-3673-214-0	PANEL ASSY, LEFT
X-7	X-3673-217-0	PANEL ASSY, FRONT
X-8	**X-4310-310-0**	**FOOT ASSY**
2-1	**2-236-956-01**	**SCREW, STEP**
2-3	**2-251-642-00**	**GUARD, POWER SWITCH**
2-4	2-252-630-00	PLATE, ORNAMENTAL, HANDLE
3-1	3-555-121-00	SPRING, TENSION
3-2	3-673-268-00	LID, UPPER
3-3	3-673-269-00	LID, BOTTOM
3-4	3-673-281-00	SPRING, COMPRESSION
3-5	3-703-043-21	LABEL, CAUTION, MAIN (for US/Canada)
3-6	3-703-082-21	LABEL, CAUTION (for US/Canada)
4-1	**4-335-962-00**	**BUTTON, PUSH**
7-1	**7-624-104-04**	**STOP RING, 2.0**
7-2	**7-682-264-09**	**SCREW, + K 4x14**
7-3	**7-686-527-01**	**SCREW, PSW 3x6**
7-4	**7-686-528-01**	**SCREW, PSW 3x8**
7-5	**7-686-530-01**	**SCREW, PSW 3X12**
7-6	**7-686-622-09**	**SCREW, B3x4**
7-7	**7-686-634-09**	**SCREW, B4x6**
7-8	**7-686-637-09**	**SCREW, B4x12**



CHASSIS ASSY
BVT - 800 (JAPAN)
BVT - 800 (US/CANADA)

POWER SUPPLY ASSY (BVT-800/PS)

Ref. No.	Part No.	Description
A-1	A-6263-036-A	COMPLETE PCB, PW-91 (for Japan, US/Canada)
	A-6263-042-A	COMPLETE PCB, PW-91A (for AEP)
A-2	A-6263-037-A	COMPLETE PCB, CT-29
⚠ 1-1	1-516-379-00	**SWITCH, ROCKER**
⚠ 1-2	1-532-534-00	**BREAKER, CIRCUIT, AC250V, 1.6A**
⚠ 1-3	1-534-517-81	**CORD, POWER (for US/Canada)**
	1-534-535-24	**CORD, POWER (for Japan)**
	1-556-559-31	**CORD, POWER (for AEP)**
1-4	1-541-170-00	**MOTOR, FAN, DC**
⚠ 1-5	1-554-011-00	**SWITCH, ROCKER**
⚠ 1-6	1-508-682-00	**PLUG, HOUSING, 3P**
⚠ 1-7	1-535-072-00	**CONTACT, FEMALE**
⚠ 2-1	2-234-904-00	**STOPPER, CORD (for Japan)**
2-2	2-252-609-00	COVER, FAN
2-3	2-280-622-11	SUPPORT, HEXAGON
3-1	3-630-415-00	**SCREW, STEP**
3-2	3-648-057-00	NUT, U
⚠ 3-3	3-649-728-00	**STOPPER, CORD (for US/Canada)**
3-4	3-650-188-00	**COLLAR, 6mm DIA**
3-5	3-651-849-00	SPACER, PANEL
3-6	3-673-211-00	PANEL, RIGHT CONNECTOR
⚠ 3-7	3-673-298-00	**STOPPER, CORD (for AEP)**
3-8	3-701-443-21	**WASHER, NYLON, 5**
4-1	4-812-134-11	**RIVET, NYLON, 3.5**
4-2	4-823-115-00	SPRING, COMPRESSION
7-1	7-621-981-25	**SCREW, PSW 2.6x8**
7-2	7-621-981-35	**SCREW, PSW 2.6x10**
7-3	7-623-923-11	**WASHER, NYLON, 2.6**
7-4	7-682-247-09	**SCREW, + K 3x6**
7-5	7-686-527-01	**SCREW, PSW 3x6**
7-6	7-686-528-01	**SCREW, PSW 3x8**
7-8	7-686-548-01	**SCREW, PSW 4x8 (for US/Canada, AEP)**
7-9	7-686-623-09	**SCREW, B3x5**
7-10	7-686-624-09	**SCREW, B3x6**
7-11	7-686-640-09	**SCREW, B4x20**
7-12	7-686-643-09	**SCREW, B4x40**
7-13	7-688-004-12	**WASHER, MIDDLE, 4**

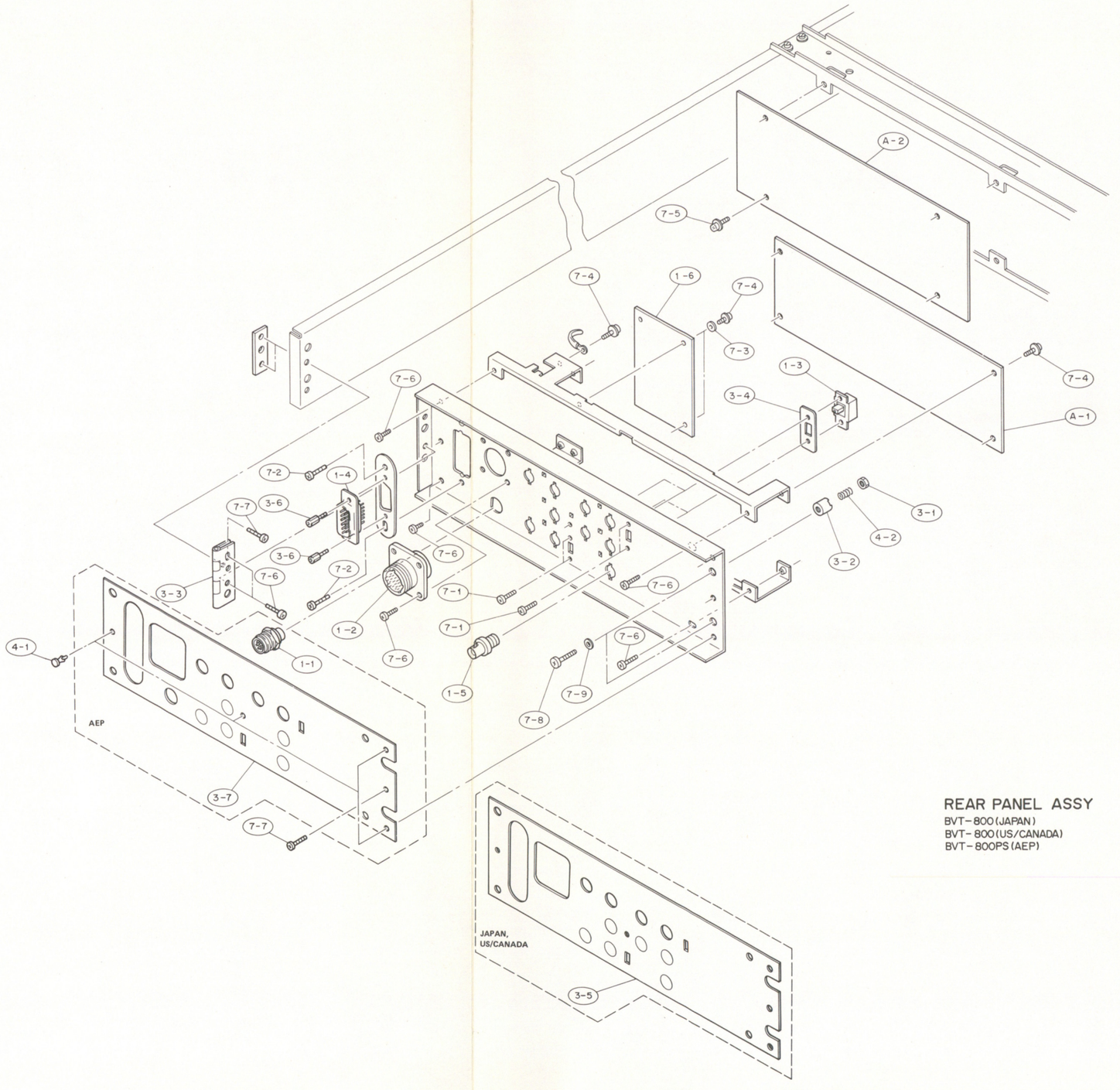


POWER SUPPLY ASSY
BVT-800 (JAPAN)
BVT-800 (US/CANADA)
BVT-800PS (AEP)

REAR PANEL ASSY (BVT-800/PS)

Ref. No.	Part No.	Description
A-1	A-6257-101-A	COMPLETE PCB, IV-4 (for Japan, US/Canada)
	A-6257-112-A	COMPLETE PCB, IV-4A (for AEP)
A-2	A-6265-046-A	COMPLETE PCB, MB-16 (for Japan, US/Canada)
	A-6265-050-A	COMPLETE PCB, MB-35 (for AEP)
1-1	**1-508-945-00**	**RECEPTACLE, 7P, MALE**
1-2	**1-509-470-00**	**RECEPTACLE, 18P, MALE**
1-3	**1-552-822-00**	**SWITCH, SLIDE**
1-4	**1-560-495-00**	**RECEPTACLE, D-SUB 15P, MALE**
1-5	**1-561-781-21**	**RECEPTACLE, BNC**
1-6	1-605-785-00	PC BOARD, CN-46
3-1	3-648-057-00	NUT, U
3-2	3-651-849-00	SPACER, PANEL
3-3	3-658-816-00	HINGE, FRONT
3-4	3-673-205-00	SPACER, SWITCH
3-5	3-673-261-00	PANEL, CONNECTOR (for Japan, US/Canada)
3-6	3-673-910-00	SCREW, CONNECTOR
3-7	3-678-501-00	PANEL, CONNECTOR (for AEP)
4-1	**4-812-134-11**	**RIVET, NYLON, 3.5**
4-2	4-823-115-00	SPRING, COMPRESSION
7-1	**7-621-555-30**	**SCREW, + K 2x5**
7-2	**7-621-912-30**	**SCREW, B2.6x6**
7-3	**7-623-924-11**	**WASHER, NYLON, 3**
7-4	**7-686-527-01**	**SCREW, PSW 3x6**
7-5	**7-686-528-01**	**SCREW, PSW 3x8**
7-6	**7-686-623-09**	**SCREW, B3x5**
7-7	**7-686-624-09**	**SCREW, B3x6**
7-8	**7-686-640-09**	**SCREW, B4x20**
7-9	**7-688-004-12**	**WASHER, MIDDLE, 4**

REAR PANEL ASSY



REAR PANEL ASSY
BVT-800 (JAPAN)
BVT-800 (US/CANADA)
BVT-800PS (AEP)

PR-34 BOARD (BVT-800)

Board No; 1-605-402-11, 12, 13
Serial No; Up to 11099 (for Japan)
Up to 11500 (for US/Canada)

1pc A-6257-102-A COMPLETE PCB, PR-34
(This assembly includes the following parts.)

If A-6257-102-A is not available, order A-6257-102-B.
In this case, make sure that R275 on CK-10 board is 270 kΩ.
If R275 is 1 MΩ, replace it by 270 kΩ.

Ref. No. or Q'ty	Part No.	Description
1 PC	A-6257-102-A	COMPLETE PCB, PR-34
C564, 575	1-107-048-00	CAP, MICA 6.8PF ± 0.5PF 500V
C571	1-107-206-00	CAP, MICA 15PF 5% 500V
C185, 188, 528	1-107-211-00	CAP, MICA 24PF 5% 500V
C195	1-108-555-00	CAP, MYLAR 0.001 5% 50V
C126	1-108-571-00	CAP, MYLAR 0.0047 5% 50V
C132, 133, 137, 197	1-108-579-00	CAP, MYLAR 0.01 5% 50V
C196	1-108-587-00	CAP, MYLAR 0.022 5% 50V
C563	1-109-528-00	CAP, MICA 51PF 5% 100V
C519	1-109-530-00	CAP, MICA 62PF 5% 100V
C558	1-109-534-00	CAP, MICA 91PF 5% 100V
C121, 134	1-109-535-00	CAP, MICA 100PF 5% 100V
C592	1-109-539-00	CAP, MICA 150PF 5% 100V
C149, 603	1-109-543-00	CAP, MICA 240PF 5% 100V
C130	1-109-545-00	CAP, MICA 270PF 5% 100V
C602	1-109-549-00	CAP, MICA 390PF 5% 100V
C122	1-109-553-00	CAP, MICA 470PF 5% 100V
C140	1-109-554-00	CAP, MICA 510PF 5% 100V
C104, 530	1-109-745-00	CAP, MICA 17PF ± 0.5PF 100V
C163	1-109-747-00	CAP, MICA 23PF 0.5PF 100V
C183	1-109-748-00	CAP, MICA 21PF 0.5PF 100V
C560	1-109-749-00	CAP, MICA 33PF 0.5PF 100V
C545, 547, 549, 551, 553	1-109-750-00	CAP, MICA 29PF 0.5PF 100V
C151, 537	1-109-751-00	CAP, MICA 55PF 1% 100V
C107	1-109-752-00	CAP, MICA 145PF 1% 100V
C170, 172	1-109-753-00	CAP, MICA 57PF 1% 100V
C534	1-109-754-00	CAP, MICA 65PF 1% 100V
C532	1-109-755-00	CAP, MICA 74PF 1% 100V
C106, 595	1-109-756-00	CAP, MICA 76PF 1% 100V
C180, 182	1-109-757-00	CAP, MICA 79PF 1% 100V
C535	1-109-758-00	CAP, MICA 83PF 1% 100V
C538	1-109-761-00	CAP, MICA 92PF 1% 100V
C540	1-109-762-00	CAP, MICA 104PF 1% 100V
C110, 155	1-109-763-00	CAP, MICA 111PF 1% 100V
C162, 164, 529	1-109-764-00	CAP, MICA 122PF 1% 100V
C581	1-109-766-00	CAP, MICA 135PF 1% 100V
C156	1-109-767-00	CAP, MICA 151PF 1% 100V

Ref. No. or Q'ty	Part No.	Description
(PR-34 BOARD, BVT-800)		
(Board No. 1-605-402-11, 12, 13)		
C108	1-109-768-00	CAP, MICA 153PF 1% 100V
C181	1-109-769-00	CAP, MICA 166PF 1% 100V
C103, 171	1-109-770-00	CAP, MICA 185PF 1% 100V
C115	1-109-771-00	CAP, MICA 200PF 1% 100V
C533	1-109-772-00	CAP, MICA 283PF 1% 100V
C531	1-109-773-00	CAP, MICA 314PF 1% 100V
C184	1-109-774-00	CAP, MICA 359PF 1% 100V
C546, 548, 550, 552, 554	1-109-775-00	CAP, MICA 373PF 1% 100V
C154, 157	1-109-776-00	CAP, MICA 379PF 1% 100V
C580, 582	1-109-777-00	CAP, MICA 387PF 1% 100V
C105	1-109-778-00	CAP, MICA 411PF 1% 100V
C536	1-109-779-00	CAP, MICA 480PF 1% 100V
C541	1-109-780-00	CAP, MICA 660PF 1% 100V
C109	1-109-781-00	CAP, MICA 684PF 1% 100V
C112	1-109-782-00	CAP, MICA 699PF 1% 100V
C111	1-109-783-00	CAP, MICA 1000PF 1% 100V
C539	1-109-784-00	CAP, MICA 1408PF 1% 100V
C513	1-123-296-00	CAP, ELECT 220 20% 6.3V
C5, 10, 11, 146, 147, 160, 173, 192, 193, 203, 209, 211, 506, 515, 521, 523, 561, 562, 584, 586, 589, 604	1-123-343-00	CAP, ELECT 33 20% 35V
C1, 2, 3, 4	1-123-344-00	CAP, ELECT 47 20% 35V
C139	1-131-345-00	CAP, TANT 0.47 10% 35V
C127, 198	1-131-349-00	CAP, TANT 2.2 10% 35V
C194, 566, 567	1-131-351-00	CAP, TANT 4.7 10% 35V
C213, 214	1-131-371-00	CAP, TANT 10 10% 16V
C119, 120	1-131-373-00	CAP, TANT 22 10% 16V
C590	1-131-374-00	CAP, TANT 33 10% 16V
C568, 569	1-131-395-00	CAP, TANT 100 10% 3.15V
C507, 508	1-161-040-00	CAP, CERAMIC 0.0012 10% 50V
C6, 7, 8, 9, 12, 13, 101, 102, 113, 114, 116, 117, 118, 123, 124, 125, 128, 129, 131, 135, 136, 138, 141, 142, 143, 144, 145, 148, 150, 152, 158, 159, 161, 165, 166, 167, 168, 169, 174, 175, 176, 177, 178, 179, 186, 187, 189, 190, 191, 199, 200, 201, 202, 204, 205, 206, 207, 208, 210, 212, 501, 502, 503, 504, 505, 514, 516, 517, 518, 520, 522, 524, 525, 526, 527, 542, 544, 555, 557, 559, 572, 573, 574, 576, 577, 578, 579, 583, 585, 587, 588, 591, 593, 594, 596, 597, 598, 599, 600, 601	1-161-055-00	CAP, CERAMIC 0.022 10% 50V
C401, 402, 403, 404, 405, 406, 407, 408	1-161-879-00	CAP, CERAMIC 0.1 20% 50V
C153, 565	1-161-894-00	CAP, CERAMIC 0.1 50V
C509, 510, 511, 512	1-161-898-00	CAP, CERAMIC 0.47 50V

Ref. No. or Q'ty	Part No.	Description
(PR-34 BOARD, BVT-800)		
(Board No. 1-605-402-11, 12, 13)		
R615	1-214-087-00	RES, METAL 13 1/4W 1%
R541, 542	1-214-088-00	RES, METAL 15 1/4W 1%
R229, 230, 239	1-214-093-00	RES, METAL 24 1/4W 1%
R533	1-214-094-00	RES, METAL 27 1/4W 1%
R546, 547	1-214-095-00	RES, METAL 30 1/4W 1%
R543	1-214-096-00	RES, METAL 33 1/4W 1%
R113, 124, 177, 182, 188, 191, 199, 201, 235, 529, 536, 641, 642, 645	1-214-100-00	RES, METAL 47 1/4W 1%
R619, 620	1-214-101-00	RES, METAL 51 1/4W 1%
R236	1-214-102-00	RES, METAL 56 1/4W 1%
R563, 571	1-214-104-00	RES, METAL 68 1/4W 1%
R106, 111, 115, 133, 134, 173, 200, 210, 216, 217, 222, 240, 550, 553, 554, 556, 560, 568, 589, 648, 649	1-214-105-00	RES, METAL 75 1/4W 1%
R574, 638	1-214-106-00	RES, METAL 82 1/4W 1%
R575	1-214-107-00	RES, METAL 91 1/4W 1%
R1, 186, 232, 244, 245, 261, 555, 558, 586, 587, 618, 630	1-214-108-00	RES, METAL 100 1/4W 1%
R102	1-214-109-00	RES, METAL 110 1/4W 1%
R564	1-214-110-00	RES, METAL 120 1/4W 1%
R101, 194, 195, 205, 206, 534	1-214-111-00	RES, METAL 130 1/4W 1%
R512, 513, 515, 517, 519, 521, 523, 525, 539, 592, 593, 622, 623, 658	1-214-112-00	RES, METAL 150 1/4W 1%
R189, 213, 549	1-214-113-00	RES, METAL 160 1/4W 1%
R126, 647	1-214-114-00	RES, METAL 180 1/4W 1%
R128, 137, 138, 156	1-214-116-00	RES, METAL 220 1/4W 1%
R605, 606	1-214-117-00	RES, METAL 240 1/4W 1%
R108, 112, 129, 183, 187, 193, 198, 204, 209, 223, 225, 228, 514, 516, 518, 520, 522, 524, 526, 531	1-214-119-00	RES, METAL 300 1/4W 1%
R221, 561, 635	1-214-120-00	RES, METAL 330 1/4W 1%
R105, 125, 147, 537, 548, 650	1-214-121-00	RES, METAL 360 1/4W 1%
R185	1-214-122-00	RES, METAL 390 1/4W 1%
R131, 181, 237, 238	1-214-123-00	RES, METAL 430 1/4W 1%
R569, 585	1-214-124-00	RES, METAL 470 1/4W 1%
R107, 121, 148, 254, 535, 614, 659	1-214-125-00	RES, METAL 510 1/4W 1%
R557, 621, 624, 643, 653	1-214-126-00	RES, METAL 560 1/4W 1%
R178, 220, 234, 258, 532	1-214-127-00	RES, METAL 620 1/4W 1%
R141, 566, 567, 617	1-214-128-00	RES, METAL 680 1/4W 1%
R159, 227, 233, 544, 578, 579, 591, 628	1-214-129-00	RES, METAL 750 1/4W 1%
R528, 538	1-214-130-00	RES, METAL 820 1/4W 1%
R214	1-214-131-00	RES, METAL 910 1/4W 1%
R135, 136, 144, 155, 157, 160, 165, 166, 167, 179, 192, 203, 231, 241, 506, 507, 508, 509, 510, 511, 545, 572, 582, 588	1-214-132-00	RES, METAL 1K 1/4W 1%
R255, 504, 505, 559	1-214-133-00	RES, METAL 1.1K 1/4W 1%
R114, 122, 184, 503, 540, 562	1-214-134-00	RES, METAL 1.2K 1/4W 1%
R631, 652, 654	1-214-135-00	RES, METAL 1.3K 1/4W 1%
R130, 169, 551	1-214-136-00	RES, METAL 1.5K 1/4W 1%
R180, 627, 629, 644	1-214-137-00	RES, METAL 1.6K 1/4W 1%
R211, 226, 527, 577, 584, 607, 608	1-214-138-00	RES, METAL 1.8K 1/4W 1%
R109, 162, 212, 215, 252, 260	1-214-139-00	RES, METAL 2K 1/4W 1%

Ref. No. or Q'ty	Part No.	Description
(PR-34 BOARD, BVT-800)		
(Board No. 1-605-402-11, 12, 13)		
R5, 139, 219, 262, 263, 570, 573, 637, 639, 651, 655	1-214-140-00	RES, METAL 2.2K 1/4W 1%
R127, 163, 613, 640, 646, 660	1-214-141-00	RES, METAL 2.4K 1/4W 1%
R616, 626	1-214-142-00	RES, METAL 2.7K 1/4W 1%
R530	1-214-143-00	RES, METAL 3K 1/4W 1%
R132, 172, 565, 600	1-214-144-00	RES, METAL 3.3K 1/4W 1%
R247, 661	1-214-146-00	RES, METAL 3.9K 1/4W 1%
R117, 168, 174, 175, 218, 590, 598, 599, 601	1-214-148-00	RES, METAL 4.7K 1/4W 1%
R152, 196, 207, 246, 250, 259	1-214-149-00	RES, METAL 5.1K 1/4W 1%
R633	1-214-150-00	RES, METAL 5.6K 1/4W 1%
R9, 104, 597	1-214-151-00	RES, METAL 6.2K 1/4W 1%
R118, 119, 171, 197, 208, 625, 636	1-214-152-00	RES, METAL 6.8K 1/4W 1%
R170	1-214-153-00	RES, METAL 7.5K 1/4W 1%
R120	1-214-154-00	RES, METAL 8.2K 1/4W 1%
R4	1-214-155-00	RES, METAL 9.1K 1/4W 1%
R116, 142, 143, 145, 146, 149, 151, 176	1-214-156-00	RES, METAL 10K 1/4W 1%
R242, 502, 632	1-214-157-00	RES, METAL 11K 1/4W 1%
R3, 6, 7, 158	1-214-158-00	RES, METAL 12K 1/4W 1%
R581, 657	1-214-159-00	RES, METAL 13K 1/4W 1%
R110, 609, 610, 611, 612, 656	1-214-160-00	RES, METAL 15K 1/4W 1%
R596	1-214-161-00	RES, METAL 16K 1/4W 1%
R594	1-214-162-00	RES, METAL 18K 1/4W 1%
R190, 202, 251	1-214-163-00	RES, METAL 20K 1/4W 1%
R2, 164, 243	1-214-164-00	RES, METAL 22K 1/4W 1%
R123, 501	1-214-165-00	RES, METAL 24K 1/4W 1%
R604	1-214-166-00	RES, METAL 27K 1/4W 1%
R150, 154, 161	1-214-168-00	RES, METAL 33K 1/4W 1%
R253	1-214-169-00	RES, METAL 36K 1/4W 1%
R603	1-214-171-00	RES, METAL 43K 1/4W 1%
R153	1-214-172-00	RES, METAL 47K 1/4W 1%
R602, 634	1-214-177-00	RES, METAL 75K 1/4W 1%
R248, 576, 580, 595	1-214-180-00	RES, METAL 100K 1/4W 1%
RV512	1-228-288-00	RES, VAR, METAL 100
RV105, 502, 503, 504, 505, 506, 507	1-228-289-00	RES, VAR, METAL 200
RV102	1-228-290-00	RES, VAR, METAL 500
RV103, 109, 110	1-228-291-00	RES, VAR, METAL 1K
RV104	1-228-292-00	RES, VAR, METAL 2K
RV501, 515, 516	1-228-293-00	RES, VAR, METAL 5K
RV106, 107, 108, 508, 509, 510, 511, 513, 514	1-228-295-00	RES, VAR, METAL 20K
RV101	1-228-531-00	RES, VAR, COMP 200
RV1, 2, 3, 4	1-228-532-00	RES, VAR, COMP 5K
RB501	1-231-450-00	RES BLOCK, 3.3K x 8
RB101, 102, 103, 104, 502	1-231-521-00	RES BLOCK, 3.3K x 4
RB401	1-231-525-00	RES BLOCK, 4.7K x 4
CP101, 102	1-235-102-00	CR BLOCK
R256, 257	1-246-810-00	RES, CARBON 180K 1/8W 5%
R583	1-247-046-00	RES, CARBON 270 1/8W 5%
R249	1-247-052-00	RES, CARBON 820K 1/8W 5%
R140	1-247-053-00	RES, CARBON 1M 1/8W 5%
L515	1-407-164-XX	INDUCTOR, MICRO 39 5%
L107	1-407-167-XX	INDUCTOR, MICRO 68 5%
L516	1-407-177-XX	INDUCTOR, MICRO 470 5%
L504	1-408-624-00	INDUCTOR 1.25
LV503	1-408-625-00	INDUCTOR, 1.61
L507	1-408-626-00	INDUCTOR, 2.28
L509	1-408-627-00	INDUCTOR, 2.49
L120	1-408-628-00	INDUCTOR, 2.72
L503	1-408-629-00	INDUCTOR, 5.03
L113	1-408-630-00	INDUCTOR, 5.98
L501	1-408-631-00	INDUCTOR, 6.3
L502	1-408-632-00	INDUCTOR, 6.36
L505	1-408-633-00	INDUCTOR, 10.8
L106	1-408-634-00	INDUCTOR, 10.7
L117, 118,	1-408-635-00	INDUCTOR, 12.4

Ref. No. or Q'ty	Part No.	Description
(PR-34 BOARD, BVT-800) (Board No. 1-605-402-11, 12, 13)		
L115, 116	**1-408-636-00**	**INDUCTOR, 13.5**
L104	**1-408-637-00**	**INDUCTOR, 13**
L110	**1-408-638-00**	**INDUCTOR, 15.4**
LV504	**1-408-639-00**	**INDUCTOR, 21.7**
L102	**1-408-640-00**	**INDUCTOR, 26.6**
L108	**1-408-641-00**	**INDUCTOR, 29.1**
L101	**1-408-642-00**	**INDUCTOR, 32.3**
LV502	**1-408-644-00**	**INDUCTOR, 59.1**
L112, 114	**1-408-645-00**	**INDUCTOR, 1.22**
L510, 511, 512, 513, 514	**1-408-646-00**	**INDUCTOR, 2.1**
L109, 111	**1-408-647-00**	**INDUCTOR, 5.13**
L508	**1-408-648-00**	**INDUCTOR, 14.8**
L506	**1-408-649-00**	**INDUCTOR, 31.7**
L119	**1-408-650-00**	**INDUCTOR, 32.3**
L103	**1-408-651-00**	**INDUCTOR, 54.7**
L105	**1-408-652-00**	**INDUCTOR, 168**
T101	**1-408-653-00**	**INDUCTOR, 22.5**
L1, 2, 3, 4, 121	**1-421-329-00**	**COIL, CHOKE**
T501	**1-446-330-00**	**TRANSFORMER, PULSE**
FB1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 101, 102, 103, 104, 105, 106, 107, 108, 109, 501, 502, 503, 504, 505, 506, 507, 508, 509	**1-535-178-00**	**FERRITE BEAD**
S501	**1-552-509-00**	**SWITCH, DIP**
S1, 2, 3, 4, 5	**1-554-010-00**	**SWITCH, TOGGLE**
S6	**1-554-012-00**	**SWITCH, DIP**
TH101	**1-806-335-00**	**THERMISTOR TMD1410H**
5 PCS	**2-282-313-11**	**KNOB, CONTROL**
	7-621-737-08	**SETSCREW, HEX. 2.6 x 3**
TP101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510 E101, 102, 103, 104, 105, 106, 401, 402, 501, 502, 503, 504, 505	3-657-235-00	TERMINAL, TP
2 PCS	3-673-249-00	LEVER, PC BOARD
	7-626-320-11	PIN, SPRING 3 x 8
11 PCS	**7-621-981-15**	**SCREW, PSW 2.6 x 6**
D121	**8-719-102-51**	**DIODE 1SZ51**
D105, 522	**8-719-116-07**	**DIODE RD16E-B**
D116	**8-719-151-07**	**DIODE RD5.1E-B**
D119	**8-719-162-07**	**DIODE RD6.2E**
D120	**8-719-200-02**	**DIODE 10E2**

Ref. No. or Q'ty	Part No.	Description
(PR-34 BOARD, BVT-800) (Board No. 1-605-402-11, 12, 13)		
D1, 101, 102, 103, 104, 106, 107, 108, 109, 112, 113, 114, 115, 117, 118, 523, 526, 527	**8-719-815-55**	**DIODE 1S1555**
D110, 111, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 521, 524, 525	**8-719-815-80**	**DIODE 1S1587**
D517, 518, 519, 520	**8-719-908-10**	**FOUR DIODES QSCH-1754**
	These diodes are supplied as a set of four diodes. Replace four diodes at the same time.	
Q110, 111, 511, 513, 514, 537	**8-723-303-20**	**TRANSISTOR 2SK43-3A**
Q112, 116, 117, 120, 121, 515, 524, 525, 528, 529	**8-725-800-00**	**TRANSISTOR 2SC1128**
Q119	**8-729-023-69**	**TRANSISTOR 2N2369A**
Q124, 512, 516	**8-729-100-87**	**TRANSISTOR 2SC1275**
Q125	**8-729-125-20**	**TRANSISTOR 2SC1252**
Q510	**8-729-201-32**	**TRANSISTOR 2SA1013**
Q103, 104, 105, 109, 113, 126, 518, 526, 527, 530, 533, 536	**8-729-612-77**	**TRANSISTOR 2SA1027R**
Q520	**8-729-658-32**	**TRANSISTOR 2SC1583**
Q101, 102, 106, 107, 108, 114, 115, 118, 501, 517, 519, 532, 538	**8-729-672-43**	**TRANSISTOR 2SC2724**
Q521	**8-729-679-82**	**TRANSISTOR 2SA798**
IC101, 505, 506	**8-749-936-51**	**IC BX365A; SONY**
IC123	**8-752-001-61**	**IC CX20016A; SONY**
IC117, 121	**8-759-103-19**	**IC μPC319C; NEC**
IC1, 103	**8-759-132-40**	**IC μPC324C (LM324; NSC)**
IC104, 109, 511	**8-759-145-57**	**IC μPC4557C; NEC**
IC102	**8-759-900-00**	**IC SN74LS00N, TTL; TI**
IC503	**8-759-900-02**	**IC SN74LS02N, TTL; TI**
IC502	**8-759-900-04**	**IC SN74LS04N, TTL; TI**
IC120	**8-759-900-11**	**IC SN74LS11N, TTL; TI**
IC1H, 2H, 3D, 3E	**8-759-900-56**	**IC AM25LS2517, TTL; AMD**

Ref. No. or Q'ty	Part No.	Description
(PR-34 BOARD, BVT-800)		
(Board No. 1-605-402-11, 12, 13)		
IC115	8-759-900-58	IC HA1-4905, HARRIS
IC107, 113	8-759-900-59	IC HI1-201, C-MOS; HARRIS
IC1A, 1B, 1F, 1G	8-759-900-60	IC MB8149L-70, N-MOS; FUJITSU
IC4F	8-759-900-74	IC SN74LS74AN, TTL; TI
IC118, 119	8-759-901-23	IC SN74LS123N, TTL; TI
IC4E	8-759-901-75	IC SN74LS175N, TTL; TI
IC122	8-759-901-91	IC SN74LS191N, TTL; TI
IC504	8-759-902-21	IC SN74LS221N, TTL; TI
IC1J, 2C, 2G, 3A, 3B, 3C, 3F, 3G, 4D	8-759-902-73	IC SN74LS273N, TTL; TI
IC2D, 2E, 4B, 4C	8-759-902-83	IC SN74LS283N, TTL; TI
IC2B, 2F, 3H	8-759-903-74	IC SN74LS374N, TTL; TI
IC110, 111, 507, 508, 509	8-759-907-93	IC μA796HC-B; FSC
IC4G	8-759-910-00	IC SN74S00N, TTL; TI
IC2J	8-759-755-09	IC TBP28S42N-DOC1, PROM
IC1C, 1D, 1E	8-759-941-63	IC SN74163N, TTL; TI
IC3J, 501	8-759-942-73	IC SN74273N, TTL; TI
IC4H	8-759-974-04	IC SN7404N, TTL; TI
IC116	8-759-974-06	IC SN7406N, TTL; TI
IC105, 106, 108, 112, 114, 510	8-759-990-82	IC TL082CP; TI
Q534, 535	8-761-622-00	TRANSISTOR 2SC1636
Q122, 123, 502, 503, 504, 505, 506, 507, 508, 509, 522, 523, 531	8-765-212-20	TRANSISTOR 2SA925

Ref. No. or Q'ty	Part No.	Description

PR-34 BOARD (BVT-800)

Board No; 1-605-402-14 & UP
Serial No; 11101 & UP (for Japan)
11501 & UP (for US/Canada)

1 PC	A-6257-102-B	COMPLETE PCB, PR-34
(This assembly includes the following parts.)		
C564, 575, 801	1-107-048-00	CAP, MICA 6.8PF ±0.5PF 500V
C818	1-107-202-00	CAP, MICA 10PF 5% 500V
C571	1-107-206-00	CAP, MICA 15PF 5% 500V
C528, 821	1-107-211-00	CAP, MICA 24PF 5% 500V
C195	1-108-555-00	CAP, MYLAR 0.001 5% 50V
C126	1-108-571-00	CAP, MYLAR 0.0047 5% 50V
C132, 133, 137, 197	1-108-579-00	CAP, MYLAR 0.01 5% 50V
C196	1-108-587-00	CAP, MYLAR 0.022 5% 50V
C563, 804	1-109-528-00	CAP, MICA 51PF 5% 100V
C519	1-109-530-00	CAP, MICA 62PF 5% 100V
C558	1-109-534-00	CAP, MICA 91PF 5% 100V
C121, 134	1-109-535-00	CAP, MICA 100PF 5% 100V
C592	1-109-539-00	CAP, MICA 150PF 5% 100V
C149, 603	1-109-543-00	CAP, MICA 240PF 5% 100V
C130	1-109-545-00	CAP, MICA 270PF 5% 100V
C602	1-109-549-00	CAP, MICA 390PF 5% 100V
C122	1-109-553-00	CAP, MICA 470PF 5% 100V
C140	1-109-554-00	CAP, MICA 510PF 5% 100V
C530, 104	1-109-745-00	CAP, MICA 17PF ±0.5PF 100V
C163	1-109-747-00	CAP, MICA 23PF ±0.5PF 100V
C183	1-109-748-00	CAP, MICA 21PF 0.5PF 100V
C560	1-109-749-00	CAP, MICA 33PF 0.5PF 100V
C545, 547, 549, 551, 553	1-109-750-00	CAP, MICA 29PF 0.5PF 100V
C151, 537	1-109-751-00	CAP, MICA 55PF 1% 100V
C107	1-109-752-00	CAP, MICA 145PF 1% 100V
C170, 172	1-109-753-00	CAP, MICA 57PF 1% 100V
C534	1-109-754-00	CAP, MICA 65PF 1% 100V
C532	1-109-755-00	CAP, MICA 74PF 1% 100V
C106, 595	1-109-756-00	CAP, MICA 76PF 1% 100V
C180, 182	1-109-757-00	CAP, MICA 79PF 1% 100V
C535	1-109-758-00	CAP, MICA 83PF 1% 100V
C538	1-109-761-00	CAP, MICA 92PF 1% 100V
C540	1-109-762-00	CAP, MICA 104PF 1% 100V

Ref. No. or Q'ty	Part No.	Description
(PR-34 BOARD, BVT-800) (Board No. 1-605-402-14 & up)		
C110, 155	1-109-763-00	CAP, MICA 111PF 1% 100V
C162, 164, 529	1-109-764-00	CAP, MICA 122PF 1% 100V
C581	1-109-766-00	CAP, MICA 135PF 1% 100V
C156	1-109-767-00	CAP, MICA 151PF 1% 100V
C108	1-109-768-00	CAP, MICA 139PF 1% 100V
C181	1-109-769-00	CAP, MICA 166PF 1% 100V
C103, 171	1-109-770-00	CAP, MICA 185PF 1% 100V
C115	1-109-771-00	CAP, MICA 85PF 1% 100V
C533	1-109-772-00	CAP, MICA 283PF 1% 100V
C531	1-109-773-00	CAP, MICA 314PF 1% 100V
C184	1-109-774-00	CAP, MICA 359PF 1% 100V
C546, 548, 550, 552, 554	1-109-775-00	CAP, MICA 373PF 1% 100V
C154, 157	1-109-776-00	CAP, MICA 379PF 1% 100V
C580, 582	1-109-777-00	CAP, MICA 387PF 1% 100V
C105	1-109-778-00	CAP, MICA 411PF 1% 100V
C536	1-109-779-00	CAP, MICA 480PF 1% 100V
C541	1-109-780-00	CAP, MICA 660PF 1% 100V
C109	1-109-781-00	CAP, MICA 684PF 1% 100V
C112	1-109-782-00	CAP, MICA 699PF 1% 100V
C111	1-109-783-00	CAP, MICA 1000PF 1% 100V
C539	1-109-784-00	CAP, MICA 1408PF 1% 100V
C513	1-123-296-00	CAP, ELECT 220 20% 6.3V
C805, 808, 809, 815, 819	1-123-317-00	CAP, ELECT 22 20% 16V
C820	1-123-320-00	CAP, ELECT 100 20% 16V
C5, 10, 11, 146, 147, 160, 173, 192, 193, 506, 515, 521, 523, 561, 562, 584, 586, 589, 604	1-123-343-00	CAP, ELECT 33 20% 35V
C1, 2, 3, 4	1-123-344-00	CAP, ELECT 47 20% 35V
C139	1-131-345-00	CAP, TANT 0.47 10% 35V
C127, 198	1-131-349-00	CAP, TANT 2.2 10% 35V
C194, 566, 567	1-131-351-00	CAP, TANT 4.7 10% 35V
C213, 214	1-131-371-00	CAP, TANT 10 10% 16V
C119, 120	1-131-373-00	CAP, TANT 22 10% 16V
C590	1-131-374-00	CAP, TANT 33 10% 16V
C568, 569	1-131-395-00	CAP, TANT 100 10% 3.15V
C507, 508	1-161-040-00	CAP, CERAMIC 0.0012 10% 50V

Ref. No. or Q'ty	Part No.	Description
(PR-34 BOARD, BVT-800) (Board No. 1-605-402-14 & up)		
C806, 811, 812, 813, 814	1-161-049-00	CAP, CERAMIC 0.0068 10% 50V
C6, 7, 8, 9, 12, 13, 101, 102, 113, 114, 116, 117, 118, 123, 124, 125, 128, 129, 131, 135, 136, 138, 141, 142, 143, 144, 145, 148, 150, 152, 158, 159, 161, 165, 166, 167, 168, 169, 174, 175, 176, 177, 178, 179, 199, 200, 201, 202, 501, 502, 503, 504, 505, 514, 516, 517, 518, 520, 522, 524, 525, 526, 527, 542, 544, 555, 557, 559, 572, 573, 574, 576, 577, 578, 579, 583, 585, 587, 588, 591, 593, 594, 596, 597, 598, 599, 600, 601, 802, 803, 807, 810, 816, 817	1-161-055-00	CAP, CERAMIC 0.022 10% 50V
C401, 402, 403, 404, 405, 406, 407, 408	1-161-879-00	CAP, CERAMIC 0.1 20% 50V
C153, 565	1-161-894-00	CAP, CERAMIC 0.1 50V
C509, 510, 511, 512	1-161-898-00	CAP, CERAMIC 0.47 50V
R822	1-214-084-00	RES, METAL 10 1/4W 1%
R816	1-214-086-00	RES, METAL 12 1/4W 1%
R615	1-214-087-00	RES, METAL 13 1/4W 1%
R541, 542	1-214-088-00	RES, METAL 15 1/4W 1%
R806, 807, 808	1-214-092-00	RES, METAL 22 1/4W 1%
R533	1-214-094-00	RES, METAL 27 1/4W 1%
R546, 547	1-214-095-00	RES, METAL 30 1/4W 1%
R543, 821	1-214-096-00	RES, METAL 33 1/4W 1%
R113, 124, 177, 182, 188, 191, 199, 201, 529, 536, 641, 642, 645, 804, 810, 811, 814, 823	1-214-100-00	RES, METAL 47 1/4W 1%
R619, 620	1-214-101-00	RES, METAL 51 1/4W 1%
R236	1-214-102-00	RES, METAL 56 1/4W 1%
R563, 571	1-214-104-00	RES, METAL 68 1/4W 1%

Ref. No. or Q'ty	Part No.	Description
(PR-34 BOARD, BVT-800)		
(Board No. 1-605-402-14 & up)		
R106, 111, 115, 133, 134, 173, 200, 210, 216, 217, 222, 550, 553, 554, 556, 560, 568, 589, 648, 649, 829	1-214-105-00	RES, METAL 75 1/4W 1%
R574, 638	1-214-106-00	RES, METAL 82 1/4W 1%
R575	1-214-107-00	RES, METAL 91 1/4W 1%
R1, 186, 244, 245, 555, 558, 586, 587, 618, 630, 828	1-214-108-00	RES, METAL 100 1/4W 1%
R102	1-214-109-00	RES, METAL 110 1/4W 1%
R564	1-214-110-00	RES, METAL 120 1/4W 1%
R101, 194, 195, 205, 206, 534	1-214-111-00	RES, METAL 130 1/4W 1%
R512, 513, 515, 517, 519, 521, 523, 525, 539, 592, 593, 622, 623, 658, 813	1-214-112-00	RES, METAL 150 1/4W 1%
R189, 213, 549	1-214-113-00	RES, METAL 160 1/4W 1%
R127, 647	1-214-114-00	RES, METAL 180 1/4W 1%
R809	1-214-115-00	RES, METAL 200 1/4W 1%
R128, 137, 138, 156	1-214-116-00	RES, METAL 220 1/4W 1%
R605, 606, 802	1-214-117-00	RES, METAL 240 1/4W 1%
R108, 112, 129, 183, 187, 193, 198, 204, 209, 223, 514, 516, 518, 520, 522, 524, 526, 531, 801	1-214-119-00	RES, METAL 300 1/4W 1%
R221, 561, 635	1-214-120-00	RES, METAL 330 1/4W 1%
R105, 125, 147, 537, 548, 650	1-214-121-00	RES, METAL 360 1/4W 1%
R185	1-214-122-00	RES, METAL 390 1/4W 1%
R131, 181	1-214-123-00	RES, METAL 430 1/4W 1%
R569, 585	1-214-124-00	RES, METAL 470 1/4W 1%

Ref. No. or Q'ty	Part No.	Description
(PR-34 BOARD, BVT-800)		
(Board No. 1-605-402-14 & up)		
R107, 121, 148, 254, 535, 614, 659, 805, 820	1-214-125-00	RES, METAL 510 1/4W 1%
R557, 621, 624, 643, 653	1-214-126-00	RES, METAL 560 1/4W 1%
R178, 220, 258, 532, 812	1-214-127-00	RES, METAL 620 1/4W 1%
R141, 566, 567, 617	1-214-128-00	RES, METAL 680 1/4W 1%
R159, 544, 578, 579, 591, 628	1-214-129-00	RES, METAL 750 1/4W 1%
R528, 538	1-214-130-00	RES, METAL 820 1/4W 1%
R214	1-214-131-00	RES, METAL 910 1/4W 1%
R135, 136, 144, 155, 157, 160, 165, 166, 167, 179, 192, 203, 506, 507, 508, 509, 510, 511, 545, 572, 582, 588, 824, 827	1-214-132-00	RES, METAL 1K 1/4W 1%
R255, 504, 505, 559, 819	1-214-133-00	RES, METAL 1.1K 1/4W 1%
R114, 122, 184, 503, 540, 562	1-214-134-00	RES, METAL 1.2K 1/4W 1%
R631, 652, 654	1-214-135-00	RES, METAL 1.3K 1/4W 1%
R130, 169, 551, 818	1-214-136-00	RES, METAL 1.5K 1/4W 1%
R180, 627, 629, 644, 817	1-214-137-00	RES, METAL 1.6K 1/4W 1%
R211, 527, 577, 584, 607, 608	1-214-138-00	RES, METAL 1.8K 1/4W 1%
R109, 162, 212, 215, 252, 260	1-214-139-00	RES, METAL 2K 1/4W 1%
R5, 139, 219, 262, 263, 570, 573, 637, 639, 651, 655	1-214-140-00	RES, METAL 2.2K 1/4W 1%

Ref. No. or Q'ty	Part No.	Description
(PR-34 BOARD, BVT-800) (Board No. 1-605-402-14 & up)		
R126, 163, 613, 640, 646, 660	1-214-141-00	RES, METAL 2.4K 1/4W 1%
R616, 626	1-214-142-00	RES, METAL 2.7K 1/4W 1%
R530, 803	1-214-143-00	RES, METAL 3K 1/4W 1%
R132, 172, 565, 600, 832	1-214-144-00	RES, METAL 3.3K 1/4W 1%
R247, 661	1-214-146-00	RES, METAL 3.9K 1/4W 1%
R830	1-214-147-00	RES, METAL 4.3K 1/4W 1%
R117, 168, 174, 175, 218, 590, 598, 599, 601	1-214-148-00	RES, METAL 4.7K 1/4W 1%
R152, 196, 207, 246, 250, 259	1-214-149-00	RES, METAL 5.1K 1/4W 1%
R633	1-214-150-00	RES, METAL 5.6K 1/4W 1%
R9, 104, 597	1-214-151-00	RES, METAL 6.2K 1/4W 1%
R118, 119, 171, 197, 208, 625, 636	1-214-152-00	RES, METAL 6.8K 1/4W 1%
R170	1-214-153-00	RES, METAL 7.5K 1/4W 1%
R120	1-214-154-00	RES, METAL 8.2K 1/4W 1%
R4	1-214-155-00	RES, METAL 9.1K 1/4W 1%
R116, 142, 143, 145, 146, 149, 151, 176, 815, 826	1-214-156-00	RES, METAL 10K 1/4W 1%
R502, 632	1-214-157-00	RES, METAL 11K 1/4W 1%
R3, 6, 7, 158	1-214-158-00	RES, METAL 12K 1/4W 1%
R581, 657	1-214-159-00	RES, METAL 13K 1/4W 1%
R110, 609, 610, 611, 612, 656	1-214-160-00	RES, METAL 15K 1/4W 1%
R596	1-214-161-00	RES, METAL 16K 1/4W 1%
R594	1-214-162-00	RES, METAL 18K 1/4W 1%
R190, 202, 251	1-214-163-00	RES, METAL 20K 1/4W 1%

Ref. No. or Q'ty	Part No.	Description
(PR-34 BOARD, BVT-800) (Board No. 1-605-402-14 & up)		
R2, 164	1-214-164-00	RES, METAL 22K 1/4W 1%
R123, 501	1-214-165-00	RES, METAL 24K 1/4W 1%
R604	1-214-166-00	RES, METAL 27K 1/4W 1%
R825, 831	1-214-167-00	RES, METAL 30K 1/4W 1%
R150, 154, 161	1-214-168-00	RES, METAL 33K 1/4W 1%
R253	1-214-169-00	RES, METAL 36K 1/4W 1%
R603	1-214-171-00	RES, METAL 43K 1/4W 1%
R153	1-214-172-00	RES, METAL 47K 1/4W 1%
R602, 634	1-214-177-00	RES, METAL 75K 1/4W 1%
R248, 576, 580, 595	1-214-180-00	RES, METAL 100K 1/4W 1%
RV512	1-228-288-00	RES, VAR, METAL 100
RV105, 502, 503, 504, 505, 506, 507	1-228-289-00	RES, VAR, METAL 200
RV102	1-228-290-00	RES, VAR, METAL 500
RV103, 109, 110	1-228-291-00	RES, VAR, METAL 1K
RV104	1-228-292-00	RES, VAR, METAL 2K
RV501, 515, 516	1-228-293-00	RES, VAR, METAL 5K
RV106, 107, 108, 508, 509, 510, 511, 513, 514	1-228-295-00	RES, VAR, METAL 20K
RV101	1-228-531-00	RES, VAR, COMP 200
RV1, 2, 3, 4	1-228-532-00	RES, VAR, COMP 5K
RB801	1-231-405-00	RES BLOCK, 1KX8
RB501	1-231-450-00	RES BLOCK, 3.3KX8
RB101, 102, 502	1-231-521-00	RES BLOCK, 3.3KX4
RB401	1-231-525-00	RES BLOCK 4.7KX4
CP101, 102	1-235-102-00	CR BLOCK

Ref. No. or Q'ty	Part No.	Description
(PR-34 BOARD, BVT-800)		
(Board No. 1-605-402-14 & up)		
R256, 257	**1-246-810-00**	**RES, CARBON 180K 1/8W 5%**
R583	**1-247-046-00**	**RES, CARBON 270K 1/8W 5%**
R249	**1-247-052-00**	**RES, CARBON 820K 1/8W 5%**
R140	**1-247-053-00**	**RES, CARBON 1M 1/8W 5%**
L515	**1-407-164-XX**	**INDUCTOR, MICRO 39 5%**
L107	**1-407-167-XX**	**INDUCTOR, MICRO 68 5%**
L516	**1-407-177-XX**	**INDUCTOR, MICRO 470 5%**
L504	**1-408-624-00**	**INDUCTOR, 1.25**
LV503	**1-408-625-00**	**INDUCTOR, 1.61**
L507	**1-408-626-00**	**INDUCTOR, 2.28**
L509	**1-408-627-00**	**INDUCTOR, 2.49**
L120	**1-408-628-00**	**INDUCTOR, 2.72**
L503	**1-408-629-00**	**INDUCTOR, 5.03**
L113	**1-408-630-00**	**INDUCTOR, 5.98**
L501	**1-408-631-00**	**INDUCTOR, 6.3**
L502	**1-408-632-00**	**INDUCTOR, 6.36**
L505	**1-408-633-00**	**INDUCTOR, 10.8**
L106	**1-408-634-00**	**INDUCTOR, 10.7**
L117, 118	**1-408-635-00**	**INDUCTOR, 12.4**
L115, 116	**1-408-636-00**	**INDUCTOR, 13.5**
L104	**1-408-637-00**	**INDUCTOR, 13**
L110	**1-408-638-00**	**INDUCTOR, 15.4**
LV504	**1-408-639-00**	**INDUCTOR, 21.7**
L102	**1-408-640-00**	**INDUCTOR, 26.6**
L108	**1-408-641-00**	**INDUCTOR, 29.1**
L101	**1-408-642-00**	**INDUCTOR, 32.3**
LV502	**1-408-644-00**	**INDUCTOR, FIXED 59.1**
L112, 114	**1-408-645-00**	**INDUCTOR, 1.22**
L510, 511, 512, 513, 514		
	1-408-646-00	**INDUCTOR, 2.1**
L109, 111	**1-408-647-00**	**INDUCTOR, 5.13**
L508	**1-408-648-00**	**INDUCTOR, 14.8**
L506	**1-408-649-00**	**INDUCTOR, 31.7**
L119	**1-408-650-00**	**INDUCTOR, 32.3**
L103	**1-408-651-00**	**INDUCTOR, 54.7**
L105	**1-408-652-00**	**INDUCTOR, 168**
T101	**1-408-653-00**	**INDUCTOR, 22**
L1, 2, 3, 4	**1-421-329-00**	**COIL, CHOKE**
L801, T501	**1-446-330-00**	**TRANSFORMER, PULSE**

Ref. No. or Q'ty	Part No.	Description
(PR-34 BOARD, BVT-800)		
(Board No. 1-605-402-14 & up)		
FB1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 101, 102, 103, 104, 501, 502, 503, 504, 505, 506, 507, 508, 509, 801, 802, 803		
	1-535-178-00	**FERRITE BEAD**
S501	**1-552-509-00**	**SWITCH, DIP**
S1, 2, 3, 4, 5		
	1-554-010-00	**SWITCH, TOGGLE**
S6	**1-554-012-00**	**SWITCH, DIP**
TH101	**1-806-335-00**	**THERMISTOR TMD1410H**
5 PCS	**2-282-313-11**	**KNOB, CONTROL**
5 PCS	**7-621-737-08**	**SETSCREW, HEX. 2.6X3**
TP101, 102, 103, 104, 105, 106, 107, 108, 110, 111, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 801, E101, 102, 103, 104, 105, 106, 401, 402, 501, 502, 503, 504, 505		
	3-657-235-00	TERMINAL, TP
2 PCS	3-673-249-00	LEVER, PC BOARD
	7-626-320-11	PIN, SPRING 3X8
11 PCS	**7-621-981-15**	**SCREW, PSW 2.6X6**
D121	**8-719-102-51**	**DIODE 1SZ51**
D105, 522	**8-719-116-07**	**DIODE RD16E-B**
D116	**8-719-151-07**	**DIODE RD5.1E-B**
D1, 101, 102, 103, 104, 106, 107, 108, 109, 112, 113, 114, 115, 117, 118, 523, 526, 527, 801		
	8-719-815-55	**DIODE 1S1555**
D110, 111, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 521, 524, 525, 806, 807		
	8-719-815-80	**DIODE 1S1587**
D517, 518, 519 & 520		
D802, 803, 804 & 805		
	8-719-908-10	**DIODE QSCH-1754**
	These diodes are supplied as a set of four diodes. Replace four diodes at the same time.	

Ref. No. or Q'ty	Part No.	Description
(PR-34 BOARD, BVT-800) (Board No. 1-605-402-14 & up)		
Q110, 111, 511, 513, 514, 537, 802, 803	8-723-303-20	TRANSISTOR 2SK43-3A
Q112, 116, 117, 515, 524, 525, 528, 529	8-725-800-00	TRANSISTOR 2SC1128
Q119	8-729-023-69	TRANSISTOR 2N2369A
Q512, 516	8-729-100-87	TRANSISTOR 2SC1275
Q510	8-729-201-32	TRANSISTOR 2SA1013
Q806	8-729-353-00	TRANSISTOR 2SA530H
Q801, 804, 805, 807	8-729-368-90	TRANSISTOR 2SC689H
Q103, 104, 105, 109, 113, 126, 518, 526, 527, 530, 533, 536	8-729-612-77	TRANSISTOR 2SA1027R
Q520	8-729-658-32	TRANSISTOR 2SC1583
Q101, 102, 106, 107, 108, 114, 115, 118, 501, 517, 519, 532, 538	8-729-672-43	TRANSISTOR 2SC2724
Q521	8-729-679-82	TRANSISTOR 2SA798
IC101, 505, 506, 801	8-749-936-51	IC BX-365A; SONY
IC802	8-752-005-20	IC CX20052; SONY
IC117, 121	8-759-103-19	IC μPC319C; NEC
IC1, 103	8-759-132-40	IC μPC324C (LM324; NSC)
IC104, 109, 511	8-759-145-57	IC μPC4557C; NEC
IC803, 804	8-759-300-25	IC HD10125; HITACHI
IC2J	8-759-755-09	IC TBP28S42N-DOC1; PROM
IC102	8-759-900-00	IC SN74LS00N, TTL; TI
IC503	8-759-900-02	IC SN74LS02N, TTL; TI
IC502	8-759-900-04	IC SN74LS04N, TTL; TI
IC120	8-759-900-11	IC SN74LS11N, TTL; TI
IC1H, 2H, 3D, 3E	8-759-900-56	IC AM25LS2517, TTL; AMD

Ref. No. or Q'ty	Part No.	Description
(PR-34 BOARD, BVT-800) (Board No. 1-605-402-14 & up)		
IC115	8-759-900-58	IC HA1-4905, HARRIS
IC107, 113	8-759-900-59	IC HI1-201, C-MOS; HARRIS
IC1A, 1B, 1F, 1G	8-759-900-60	IC MB8149L-70, N-MOS; FUJITSU
IC4F	8-759-900-74	IC SN74LS74AN, TTL; TI
IC118, 119	8-759-901-23	IC SN74LS123N, TTL; TI
IC4E	8-759-901-75	IC SN74LS175N, TTL; TI
IC122	8-759-901-91	IC SN74LS191N, TTL; TI
IC504	8-759-902-21	IC SN74LS221N, TTL; TI
IC1J, 2C, 2G, 3A, 3B, 3C, 3F, 3G, 4D	8-759-902-73	IC SN74LS273N, TTL; TI
IC2D, 2E, 4B, 4C	8-759-902-83	IC SN74LS283N, TTL; TI
IC2B, 2F, 3H	8-759-903-74	IC SN74LS374N, TTL; TI
IC110, 111, 507, 508, 509	8-759-907-93	IC μA796HC-B; FSC
IC2A, 4G	8-759-910-00	IC SN74S00N, TTL; TI
IC1C, 1D, 1E	8-759-941-63	IC SN74163N, TTL; TI
IC3J, 501	8-759-942-73	IC SN74273N, TTL; TI
IC4H, 805	8-759-974-04	IC SN7404N, TTL; TI
IC116	8-759-974-06	IC SN7406N, TTL; TI
IC105, 106, 108, 112, 114, 510	8-759-990-82	IC TL082CP; TI
Q534, 535	8-761-622-00	TRANSISTOR 2SC1636
Q502, 503, 504, 505, 506, 507, 508, 509, 522, 523, 531	8-765-212-20	TRANSISTOR 2SA925

Ref. No. or Q'ty	Part No.	Description

CK-10 BOARD (BVT-800)

1 PC	A-6259-195-A	COMPLETE PCB, CK-10
C98, 122, 181, 218	**1-102-110-00**	**CAP, CERAMIC 220PF 10% 50V**
C37	**1-102-859-00**	**CAP, CERAMIC 75PF 5% 50V**
C157	**1-107-071-00**	**CAP, MICA 27PF 5% 50V**
C104	**1-107-075-00**	**CAP, MICA 39PF 5% 50V**
C145, 147	**1-107-076-00**	**CAP, MICA 43PF 5% 50V**
C28, 29, 135	**1-107-077-00**	**CAP, MICA 47PF 5% 50V**
C76	**1-107-080-00**	**CAP, MICA 62PF 5% 50V**
C86	**1-107-082-00**	**CAP, MICA 75PF 5% 50V**
C158	**1-107-083-00**	**CAP, MICA 82PF 5% 50V**
C6, 7, 47, 57, 153	**1-107-085-00**	**CAP, MICA 100PF 5% 50V**
C75, 77	**1-107-158-00**	**CAP, MICA 30PF 5% 500V**
C49, 112	**1-107-159-00**	**CAP, MICA 33PF 5% 500V**
C63, 71, 155	**1-107-202-00**	**CAP, MICA 10PF 5% 500V**
C27, 182	**1-107-210-00**	**CAP, MICA 22PF 5% 500V**
C52, 54, 160, 161	**1-107-211-00**	**CAP, MICA 24PF 5% 500V**
C62, 81, 82, 85, 97, 121, 168, 188	**1-108-555-00**	**CAP, MYLAR 0.001 5% 50V**
C94, 126, 278	**1-108-563-00**	**CAP, MYLAR 0.0022 5% 50V**
C108, 141, 179, 187	**1-108-591-00**	**CAP, MYLAR 0.033 5% 50V**
C51, 80, 113, 125, 144, 163	**1-108-595-00**	**CAP, MYLAR 0.047 5% 50V**
C99, 109, 154	**1-108-603-00**	**CAP, MYLAR 0.1 5% 50V**
C70, 72, 176	**1-109-539-00**	**CAP, MICA 150PF 5% 100V**
C105	**1-109-540-00**	**CAP, MICA 180PF 5% 100V**
C5, 84, 131	**1-109-553-00**	**CAP, MICA 470PF 5% 100V**
C89, 93, 165	**1-109-561-00**	**CAP, MICA 0.001 5% 100V**
C45, 175	**1-109-769-00**	**CAP, MICA 166PF 1% 100V**
C101, 107, 124, 142, 164	**1-123-342-00**	**CAP, ELECT 22 20% 35V**
C1, 2, 3, 4	**1-123-344-00**	**CAP, ELECT 47 20% 35V**
C219	**1-129-794-00**	**CAP, FILM 0.0033 2% 100V**
C9	**1-130-852-00**	**CAP, FILM 0.0015 5% 100V**
C8	**1-130-853-00**	**CAP, FILM 0.0047 5% 100V**
C180	**1-131-343-00**	**CAP, TANT 0.22 10% 35V**
C15, 58, 59	**1-131-345-00**	**CAP, TANT 0.47 10% 35V**
C24, 25, 111, 118, 119, 140	**1-131-347-00**	**CAP, TANT 1 10% 35V**

Ref. No. or Q'ty	Part No.	Description
(CK-10 BOARD, BVT-800)		
C10, 48	1-131-355-00	CAP, TANT 2.2 10% 25V
C41, 42, 114	1-131-357-00	CAP, TANT 4.7 10% 25V
C19, 20, 88, 90, 92, 117, 128, 130, 143, 279	1-131-367-00	CAP, TANT 22 10% 20V
C23, 31, 32, 33, 36, 40, 43, 116, 127, 220	1-161-039-00	CAP, CERAMIC 0.001 10% 50V
C11, 12, 13, 14, 16, 17, 18, 21, 22, 30, 34, 35, 38, 39, 44, 46, 50, 53, 55, 56, 60, 61, 64, 65, 66, 67, 68, 69, 73, 74, 78, 79, 83, 87, 91, 95, 96, 102, 103, 106, 110, 115, 123, 129, 132, 133, 134, 136, 137, 138, 139, 146, 148, 149, 150, 151, 152, 156, 159, 162, 166, 167, 169, 170, 171, 172, 173, 174, 177, 178, 183, 184, 185, 186, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220	1-161-055-00	CAP, CERAMIC 0.022 10% 50V
C100	1-161-897-00	CAP, CERAMIC 0.33 50V
R140	1-214-084-00	RES, METAL 10 1/4W 1%
R145, 146, 147	1-214-100-00	RES, METAL 47 1/4W 1%
R49, 57	1-214-101-00	RES, METAL 51 1/4W 1%
R21	1-214-104-00	RES, METAL 68 1/4W 1%
R187	1-214-105-00	RES, METAL 75 1/4W 1%
R72	1-214-106-00	RES, METAL 82 1/4W 1%
R11, 20, 43, 104, 153, 167	1-214-108-00	RES, METAL 100 1/4W 1%
R58	1-214-110-00	RES, METAL 120 1/4W 1%
R17, 112, 161, 241	1-214-112-00	RES, METAL 150 1/4W 1%
R27	1-214-114-00	RES, METAL 180 1/4W 1%
R30, 54, 55	1-214-115-00	RES, METAL 200 1/4W 1%
R178, 263	1-214-116-00	RES, METAL 220 1/4W 1%
R114, 115	1-214-117-00	RES, METAL 240 1/4W 1%
R16, 109, 110	1-214-118-00	RES, METAL 270 1/4W 1%
R221	1-214-119-00	RES, METAL 300 1/4W 1%
R71, 107, 131, 224	1-214-120-00	RES, METAL 330 1/4W 1%
R4	1-214-122-00	RES, METAL 390 1/4W 1%
R87, 194, 196, 210, 228	1-214-124-00	RES, METAL 470 1/4W 1%
R63, 74	1-214-125-00	RES, METAL 510 1/4W 1%

Ref. No. or Q'ty	Part No.	Description
(CK-10 BOARD, BVT-800)		
R65, 106, 205, 229	1-214-126-00	RES, METAL 560 1/4W 1%
R59, 98, 99, 223, 225	1-214-127-00	RES, METAL 620 1/4W 1%
R127, 236	1-214-128-00	RES, METAL 680 1/4W 1%
R116, 188, 218, 243	1-214-129-00	RES, METAL 750 1/4W 1%
R133	1-214-131-00	RES, METAL 910 1/4W 1%
R5, 7, 13, 35, 50, 60, 62, 64, 66, 75, 82, 90, 103, 108, 111, 118, 124, 126, 132, 151, 157, 164, 179, 195, 197, 240, 246, 247, 259, 260	1-214-132-00	RES, METAL 1K 1/4W 1%
R25, 120, 121, 173, 175, 180, 185, 189, 199, 222	1-214-136-00	RES, METAL 1.5K 1/4W 1%
R101, 148, 150	1-214-138-00	RES, METAL 1.8K 1/4W 1%
R102, 149, 152, 170, 217, 219	1-214-139-00	RES, METAL 2K 1/4W 1%
R36, 46, 70, 119, 160, 163, 183, 191, 198, 261, 273	1-214-140-00	RES, METAL 2.2K 1/4W 1%
R100, 220	1-214-141-00	RES, METAL 2.4K 1/4W 1%
R3, 40	1-214-142-00	RES, METAL 2.7K 1/4W 1%
R171	1-214-143-00	RES, METAL 3K 1/4W 1%
R29, 42, 44, 45, 73, 79, 105, 125, 129, 137, 139, 162, 203, 211, 242, 245, 250, 252, 272	1-214-144-00	RES, METAL 3.3K 1/4W 1%
R190	1-214-145-00	RES, METAL 3.6K 1/4W 1%
R86, 181, 271	1-214-146-00	RES, METAL 3.9K 1/4W 1%
R200, 231, 235	1-214-147-00	RES, METAL 4.3K 1/4W 1%
R48, 53, 56, 117, 168, 201, 216, 227, 256	1-214-148-00	RES, METAL 4.7K 1/4W 1%
R9, 33, 78, 88, 123, 134, 202, 207, 208, 226, 232	1-214-149-00	RES, METAL 5.1K 1/4W 1%

Ref. No. or Q'ty	Part No.	Description
(CK-10 BOARD, BVT-800)		
R39, 51, 61, 128, 130, 253, 270	1-214-150-00	RES, METAL 5.6K 1/4W 1%
R143, 193	1-214-151-00	RES, METAL 6.2K 1/4W 1%
R10, 113	1-214-152-00	RES, METAL 6.8K 1/4W 1%
R2, 209	1-214-153-00	RES, METAL 7.5K 1/4W 1%
R1, 212	1-214-154-00	RES, METAL 8.2K 1/4W 1%
R174	1-214-155-00	RES, METAL 9.1K 1/4W 1%
R8, 14, 15, 18, 19, 22, 23, 24, 26, 31, 34, 47, 52, 67, 68, 92, 122, 159, 234, 237, 254	1-214-156-00	RES, METAL 10K 1/4W 1%
R215	1-214-158-00	RES, METAL 12K 1/4W 1%
R32, 135	1-214-159-00	RES, METAL 13K 1/4W 1%
R136, 172	1-214-160-00	RES, METAL 15K 1/4W 1%
R12	1-214-161-00	RES, METAL 16K 1/4W 1%
R28, 177, 265	1-214-162-00	RES, METAL 18K 1/4W 1%
R76, 81, 83, 84, 85, 89, 93, 184, 206, 230, 238, 248, 257	1-214-164-00	RES, METAL 22K 1/4W 1%
R138	1-214-165-00	RES, METAL 24K 1/4W 1%
R6, 182, 264	1-214-166-00	RES, METAL 27K 1/4W 1%
R37, 41, 77, 91, 142, 204	1-214-168-00	RES, METAL 33K 1/4W 1%
R69, 94	1-214-170-00	RES, METAL 39K 1/4W 1%
R97, 213	1-214-171-00	RES, METAL 43K 1/4W 1%
R95	1-214-172-00	RES, METAL 47K 1/4W 1%
R169, 233	1-214-173-00	RES, METAL 51K 1/4W 1%
R244	1-214-174-00	RES, METAL 56K 1/4W 1%
R141	1-214-175-00	RES, METAL 62K 1/4W 1%
R251, 274	1-214-177-00	RES, METAL 75K 1/4W 1%
R258	1-214-178-00	RES, METAL 82K 1/4W 1%
R38, 80, 96, 166, 214	1-214-180-00	RES, METAL 100K 1/4W 1%
RV9	1-228-290-00	RES, VAR, METAL 500
RV15	1-228-291-00	RES, VAR, METAL 1K
RV5	1-228-292-00	RES, VAR, METAL 2K
RV8, 13, 14	1-228-293-00	RES, VAR, METAL 5K
RV6, 7, 10, 11, 12, 17	1-228-294-00	RES, VAR, METAL 10K
RV1, 2, 3, 4	1-228-532-00	RES, VAR, 5K
RB2	1-231-450-00	RES BLOCK, 3.3K x 8
RB3	1-231-504-00	RES BLOCK, 620 x 4
RB1	1-231-521-00	RES BLOCK, 3.3K x 4

Ref. No. or Q'ty	Part No.	Description
(CK-10 BOARD, BVT-800)		
R144, 154, 155, 156, 186, 249	1-247-053-00	RES, CARBON 1M 1/8W 5%
R275	1-247-889-00	RES, CARBON 270K 1/8W 5%
L6, 7	1-407-166-XX	INDUCTOR, MICRO 56 10%
L5	1-407-169-XX	INDUCTOR, MICRO 100 10%
LV1, 3, 5	1-407-565-00	COIL, VAR, 2.2
L8	1-408-020-00	INDUCTOR, MICRO 68 10%
LV2, 4	1-408-634-00	INDUCTOR, 11
L1, 3, 4	1-421-329-00	COIL, CHOKE
L2	1-421-459-00	COIL, CHOKE
CF1, 2	1-527-357-00	FILTER, CERAMIC, 5.36MHz
VCO5H	1-527-478-00	VCO, CRYSTAL; 14.31818MHz
VCO10P	1-527-928-00	VCO, CRYSTAL; 17.897725MHz
VCO2H	1-527-929-00	VCO, CRYSTAL; 21.47727MHz
FB1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20	1-535-178-00	FERRITE BEAD
SW3	1-552-509-00	SWITCH, DIP
SW1	1-554-009-00	SWITCH, TOGGLE
SW2	1-554-010-00	SWITCH, TOGGLE
SW4, 5	1-554-013-00	SWITCH, DIP
4 PCS	2-282-313-12	KNOB, CONTROL
	7-621-737-08	SETSCREW, HEX. 2.6 x 3
TP1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 30		
E1, 2, 3, 4, 5, 6, 7, 8, 9	3-657-235-00	TERMINAL, TP
2 PCS	3-673-249-00	LEVER, PC BOARD
	7-626-320-11	PIN, SPRING 3 x 8
11 PCS	7-621-981-15	SCREW, PSW 2.6 x 6
D22	8-712-540-06	DIODE 1T25-41
D11, 20, 23	8-719-101-98	DIODE 1SS97
D13	8-719-139-07	DIODE RD3.9E
D6	8-719-191-07	DIODE RD9.1E
D1, 2, 3, 4, 5, 7, 8, 9, 10, 12, 14, 15, 16, 17, 18, 19, 21, 24	8-719-911-19	DIODE 1SS119
Q11, 12, 16	8-723-303-20	TRANSISTOR 2SK43-3A
Q17	8-729-023-69	TRANSISTOR 2N2369A
Q2, 5, 19	8-729-612-77	TRANSISTOR 2SA1027R
Q1, 3, 4, 6, 7, 8, 9, 10, 13, 14, 18	8-729-672-43	TRANSISTOR 2SC2724
IC1D, 2G, 3K, 10Q	8-749-938-10	IC BX-381; SONY

Ref. No. or Q'ty	Part No.	Description
(CK-10 BOARD, BVT-800)		
IC5D, 5K	8-757-731-00	IC CX-773A, C-MOS; SONY
IC5J	8-757-903-00	IC CX-7903, C-MOS; SONY
IC10J	8-759-001-16	IC MC10116L, ECL; MOTOROLA
IC9O	8-759-001-35	IC MC10135L, ECL; MOTOROLA
IC1L, 1M	8-759-001-98	IC MC10198L, ECL; MOTOROLA
IC4M, 9E, 9I	8-759-103-19	IC μPC319C; NEC
IC1E	8-759-103-93	IC μPC393C; NEC
IC3G	8-759-108-05	IC μPC78L05A; NEC
IC3D	8-759-132-40	IC μPC324C (LM324; NSC)
IC6B, 6C	8-759-240-20	IC TC4020BP, C-MOS (MC14020BCP; MOTOROLA)
IC9A, 1N	8-759-300-25	IC HD10125, ECL (MC10125L; MOTOROLA)
IC4D	8-759-618-41	IC M51841P; MITSUBISHI
IC10H	8-759-745-60	IC NJM4560D; JRC
IC3B, 5F, 6K, 7H, 8G, 9S	8-759-900-00	IC SN74LS00N, TTL; TI
IC2A, 2B, 4H, 8B, 8F, 10T	8-759-900-04	IC SN74LS04N, TTL; TI
IC2L, 5E, 7M, 9F	8-759-900-08	IC SN74LS08N, TTL; TI
IC4J, 6H, 7D	8-759-900-10	IC SN74LS10N, TTL; TI
IC9T	8-759-900-11	IC SN74LS11N, TTL; TI
IC1G, 1I, 3C, 7I	8-759-900-13	IC 74LS113AN, TTL; TI
IC6L	8-759-900-14	IC SN74LS14N, TTL; TI
IC7E	8-759-900-20	IC SN74LS20N, TTL; TI
IC9H	8-759-900-58	IC HA1-4905; HARRIS
IC10F	8-759-900-59	IC HI1-201, C-MOS; HARRIS
IC2M, 3P, 6E, 6F, 6J, 8M, 8P, 9J	8-759-900-74	IC SN74LS74AN, TTL; TI
IC7P	8-759-900-85	IC SN74LS85N, TTL; TI
IC1F, 5C, 6M	8-759-900-86	IC SN74LS86N, TTL; TI
IC1H, 1J, 1K, 7A	8-759-901-13	IC SN74S113N, TTL; TI
IC1P, 2J, 3I, 9N	8-759-901-23	IC SN74LS123N, TTL; TI
IC4B, 7K	8-759-901-51	IC SN74LS151N, TTL; TI
IC6G, 6Q, 7Q, 8J, 8Q	8-759-901-57	IC SN74LS157N, TTL; TI

Ref. No. or Q'ty	Part No.	Description
(CK-10 BOARD, BVT-800)		
IC2Q, 3Q, 4Q, 5Q, 8L	8-759-901-61	IC SN74LS161AN, TTL; TI
IC1A, 1B, 2D, 6A, 8N	8-759-901-63	IC SN74LS163AN, TTL; TI
IC1R, 2R, 3F, 3L, 3R, 4C, 4R, 5B, 5R, 6R, 7F, 7R, 8R, 10S	8-759-901-64	IC SN74LS164N, TTL; TI
IC4A, 4I	8-759-901-74	IC SN74LS174N, TTL; TI
IC3A, 6N, 7G	8-759-901-75	IC SN74LS175N, TTL; TI
IC2C, 3J, 4E, 4G, 6D, 6I, 7J, 8H, 8K, 10I	8-759-902-21	IC SN74LS221N, TTL; TI
IC1S, 2S, 4S, 5S, 6S, 8S	8-759-903-74	IC SN74LS374N, TTL; TI
IC7L, 9K	8-759-903-93	IC SN74LS393N, TTL; TI
IC1T, 2T, 4T, 5T, 6T, 8T	8-759-905-23	IC MSM2128-15RS, N-MOS; OKI
IC7N	8-759-906-69	IC SN74LS669N, TTL; TI
IC3M	8-759-907-60	IC μA760HC; FSC
IC10L	8-759-907-93	IC μA796HC-B
IC2F, 4P	8-759-910-00	IC SN74S00N, TTL; TI
IC8A	8-759-910-51	IC SN74S51N, TTL; TI
IC7B	8-759-911-12	IC SN74S112N, TTL; TI
IC5A	8-759-911-33	IC SN74S133N, TTL; TI
IC1C, 2I, 8I, 10O	8-759-914-00	IC SN7400N, TTL; TI
IC2E, 10E	8-759-926-10	IC TL610CP; TI
IC6P	8-759-941-61	IC SN74161N, TTL; TI
IC5P, 7C, 8C, 8D, 9P	8-759-941-63	IC SN74163N, TTL; TI
IC1U, 2U, 3U, 4U, 5U, 6U, 7U, 8U	8-759-941-66	IC SN74166N, TTL; TI
IC3H, 9R, 10R	8-759-942-21	IC SN74221N, TTL; TI
IC1Q, 2N, 4K, 9G	8-759-942-65	IC SN74265N, TTL; TI
IC4L, 10U	8-759-952-07	IC SN75207BN; TI
IC9C	8-759-957-09	IC FT5709M; FUJITSU
IC2P	8-759-974-04	IC SN7404N, TTL; TI
IC5G, 8E	8-759-974-06	IC SN7406N, TTL; TI
IC2K, 3E, 4F, 5M, 9L	8-759-990-82	IC TL082CP; TI
IC10A, 10C, 10G	8-759-990-84	IC TL084CN; TI

MB-16 BOARD (BVT-800)

Ref. No. or Q'ty	Part No.	Description
1 PC	A-6265-046-A	COMPLETE PCB, MB-16
C1, 2, 3, 4, 5		
	1-123-334-00	**CAP, ELECT 220 20% 25V**
R1, 2	**1-213-131-00**	**RES, METAL 100 1W 5%**
CN4M	1-508-709-00	RECEPTACLE, 5P, MALE
CN5M	1-508-710-00	RECEPTACLE, 6P, MALE
CN2, 3	**1-508-892-00**	**CONNECTOR, PCB, 100P**
CN8M, 35M, 38M		
	1-508-900-00	RECEPTACLE, 2P, MALE
CN9M, 10M	1-508-906-00	RECEPTACLE, 10P, MALE
CN11M	1-508-935-00	RECEPTACLE, 5P, MALE
CN12M	1-508-936-00	RECEPTACLE, 6P, MALE
CN6M	1-508-997-00	RECEPTACLE, 12P, MALE
CN7M	1-560-190-00	RECEPTACLE, 20P, MALE
2 PCS	**7-621-259-52**	**SCREW, +P 2.6 x 8**
2 PCS	**7-622-207-05**	**NUT, 2.6**
2 PCS	**7-623-207-22**	**WASHER, SPRING, 2.6**
2 PCS	**7-688-002-11**	**WASHER, 2.6**

CN-46 BOARD (BVT-800)

CN17M	1-508-903-00	RECEPTACLE, 5P, MALE
CN18M	1-508-906-00	RECEPTACLE, 10P, MALE
CN14M, 16M		
	1-508-933-00	RECEPTACLE, 2P, MALE
CN15M	1-508-936-00	RECEPTACLE, 6P, MALE
1 PC	1-605-785-00	PC BOARD, CN-46

IV-4 BOARD (BVT-800)

Ref. No. or Q'ty	Part No.	Description
1 PC	A-6257-101-A	COMPLETE PCB, IV-4
C31	**1-107-085-00**	**CAP, MICA 100PF 5% 50V**
C12, 40, 42	**1-107-210-00**	**CAP, MICA 22PF 5% 500V**
C34, 39	**1-108-555-00**	**CAP, MYLAR 0.001 5% 50V**
C22	**1-108-567-00**	**CAP, MYLAR 0.0033 5% 50V**
C35	**1-109-542-00**	**CAP, MICA 220PF 5% 100V**
C19	**1-109-744-00**	**CAP, MICA 11PF ± 0.5PF 100V**
C20	**1-109-760-00**	**CAP, MICA 98PF 1% 100V**
C1, 3, 5, 7, 11, 13, 16, 18, 26, 28, 33		
	1-123-342-00	**CAP, ELECT 22 20% 35V**
C38, 41	**1-131-347-00**	**CAP, TANT 1 10% 35V**
C44	**1-161-039-00**	**CAP, CERAMIC 1000P 10% 50V**
C2, 4, 6, 8, 10, 14, 15, 17, 21, 23, 24, 25, 27, 29, 30, 32, 36, 37, 43, 45		
	1-161-055-00	**CAP, CERAMIC 0.022 10% 50V**
C9	**1-161-898-00**	**CAP, CERAMIC 0.47 50V**
R32	**1-214-093-00**	**RES, METAL 24 1/4W 1%**
R10, 37, 62, 65, 66, 68, 73, 74		
	1-214-100-00	**RES, METAL 47 1/4W 1%**
R3	**1-214-101-00**	**RES, METAL 51 1/4W 1%**
R1, 19, 57, 58, 59, 60, 61, 67		
	1-214-105-00	**RES, METAL 75 1/4W 1%**
R7, 13, 17, 33, 35, 36, 88		
	1-214-108-00	**RES, METAL 100 1/4W 1%**
R44, 45	**1-214-112-00**	**RES, METAL 150 1/4W 1%**
R27, 38, 39, 46, 47		
	1-214-115-00	**RES, METAL 200 1/4W 1%**
R16, 18, 41, 53		
	1-214-116-00	**RES, METAL 220 1/4W 1%**
R15	**1-214-117-00**	**RES, METAL 240 1/4W 1%**
R12, 14, 42	**1-214-119-00**	**RES, METAL 300 1/4W 1%**
R54, 55, 56	**1-214-121-00**	**RES, METAL 360 1/4W 1%**
R63, 99	**1-214-124-00**	**RES, METAL 470 1/4W 1%**
R84	**1-214-125-00**	**RES, METAL 510 1/4W 1%**
R8, 9	**1-214-128-00**	**RES, METAL 680 1/4W 1%**
R96	**1-214-129-00**	**RES, METAL 750 1/4W 1%**
R40	**1-214-131-00**	**RES, METAL 910 1/4W 1%**
R11, 50, 78, 89, 90, 97		
	1-214-132-00	**RES, METAL 1K 1/4W 1%**

Ref. No. or Q'ty	Part No.	Description
(IV-4 BOARD, BVT-800)		
R43, 52	**1-214-134-00**	**RES, METAL 1.2K 1/4W 1%**
R64	**1-214-136-00**	**RES, METAL 1.5K 1/4W 1%**
R48	**1-214-137-00**	**RES, METAL 1.6K 1/4W 1%**
R77, 103	**1-214-138-00**	**RES, METAL 1.8K 1/4W 1%**
R31, 87	**1-214-139-00**	**RES, METAL 2K 1/4W 1%**
R26, 72, 76	**1-214-142-00**	**RES, METAL 2.7K 1/4W 1%**
R70	**1-214-144-00**	**RES, METAL 3.3K 1/4W 1%**
R71	**1-214-146-00**	**RES, METAL 3.9K 1/4W 1%**
R2, 4, 20, 22, 28, 34, 69, 79, 83, 85, 86, 95, 102	**1-214-148-00**	**RES, METAL 4.7K 1/4W 1%**
R30	**1-214-149-00**	**RES, METAL 5.1K 1/4W 1%**
R82	**1-214-153-00**	**RES, METAL 7.5K 1/4W 1%**
R5, 29, 51	**1-214-155-00**	**RES, METAL 9.1K 1/4W 1%**
R75, 80	**1-214-156-00**	**RES, METAL 10K 1/4W 1%**
R100, 104	**1-214-158-00**	**RES, METAL 12K 1/4W 1%**
R25, 81	**1-214-160-00**	**RES, METAL 15K 1/4W 1%**
R98	**1-214-172-00**	**RES, METAL 47K 1/4W 1%**
R94	**1-214-173-00**	**RES, METAL 51K 1/4W 1%**
R21, 23, 24, 91, 92, 93	**1-214-180-00**	**RES, METAL 100K 1/4W 1%**
RV2	**1-224-978-00**	**RES, VAR, METAL 50**
RV1	**1-228-288-00**	**RES, VAR, METAL 100**
RV4, 5	**1-228-290-00**	**RES, VAR, METAL 500**
RV3	**1-228-291-00**	**RES, VAR, METAL 1K**
RV6	**1-228-296-00**	**RES, VAR, METAL 50K**
R6	**1-247-049-00**	**RES, CARBON 470K 1/8W 5%**
L2	**1-407-161-XX**	**INDUCTOR, MICRO 22 5%**
L1	**1-407-187-XX**	**INDUCTOR, MICRO 5.6 5%**
LV1	**1-408-643-00**	**INDUCTOR, 36.1**
CN36M	1-508-900-00	RECEPTACLE, 2P, MALE
CN19M, 22M	1-508-936-00	RECEPTACLE, 6P, MALE
CN21M	1-508-951-00	RECEPTACLE, 10P, MALE
CN20M	1-508-997-00	RECEPTACLE, 12P, MALE
FB1, 2, 3, 4, 5, 6, 7, 8, 9	**1-535-178-00**	**FERRITE BEAD**
TP1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 E1, 2, 3, 4	3-657-235-00	TERMINAL, TP
D6, 11	**8-719-115-07**	**DIODE RD15E**
D5, 10	**8-719-151-07**	**DIODE RD5.1E-B**
D20	**8-719-191-07**	**DIODE RD9.1E**
D12, 13, 14, 15, 16, 17, 18, 19, 21	**8-719-815-55**	**DIODE 1S1555**
D1, 2, 3, 4, 7, 8, 9, 22	**8-719-815-80**	**DIODE 1S1587**

Ref. No. or Q'ty	Part No.	Description
(IV-4 BOARD, BVT-800)		
Q10	**8-725-800-00**	**TRANSISTOR 2SC1128**
Q4, 5	**8-729-023-69**	**TRANSISTOR 2N2369A**
Q11, 12	**8-729-211-99**	**TRANSISTOR 2SC1199**
Q13, 19	**8-729-612-77**	**TRANSISTOR 2SA1027R**
Q2, 9	**8-729-658-32**	**TRANSISTOR 2SC1583**
Q14, 15, 16, 17, 18	**8-729-672-43**	**TRANSISTOR 2SC2724**
Q3, 8	**8-729-699-51**	**TRANSISTOR 2SA995**
IC1	**8-759-132-40**	**IC μPC324C (LM324; NSC)**
IC7	**8-759-145-57**	**IC μPC4557C; NEC**
IC5	**8-759-901-23**	**IC SN74LS123N, TTL; TI**
IC4	**8-759-907-10**	**IC TL710CP; TI**
IC3	**8-759-907-93**	**IC μA796HC-B**
IC2	**8-759-974-38**	**IC SN7438N, TTL; TI**
Q1	**8-761-510-10**	**TRANSISTOR 2SK58-1X**
Q6, 7	**8-761-622-00**	**TRANSISTOR 2SC1636**

DP-24 BOARD (BVT-800)

1 PC	A-6265-045-A	COMPLETE PCB, DP-24
R5, 6	**1-214-113-00**	**RES, METAL 160 1/4W 1%**
R1, 2, 3	**1-214-120-00**	**RES, METAL 330 1/4W 1%**
CN13M	1-508-949-00	RECEPTACLE, 12P, MALE
D8, 9	**8-719-901-34**	**LED, LD-003, RED/GREEN/RED**
D1, 2, 3, 7	**8-719-901-48**	**LED, LT-9010N, GREEN**
D4	**8-719-901-49**	**LED, LT-9010H, YELLOW**
IC2	**8-759-974-06**	**IC SN7406N, TTL; TI**
IC1	**8-759-974-07**	**IC SN7407N, TTL; TI**
IC3	**8-759-974-38**	**IC SN7438N, TTL; TI**

Ref. No. or Q'ty	Part No.	Description

PW-91 BOARD (BVT-800)

1 PC	A-6263-036-A	COMPLETE PCB, PW-91
(This assembly includes the following parts.)		
Q2, 3	X-3673-224-1	TRANSISTOR 2SC2625, 2 PCS
	This part is the kit of two transistors.	
	Replace Q2 & Q3 at the same time.	
C71, 91, 111, 131	1-107-082-00	CAP, MICA 75PF 5% 50V
C17	1-108-567-00	CAP, MYLAR 0.0033 5% 50V
C51, 52, 53, 54	1-108-579-00	CAP, MYLAR 0.01 5% 50V
C72, 132	1-123-307-00	CAP, ELECT 100 20% 10V
C55, 58, 59, 60, 61, 62, 63	1-123-824-00	CAP, ELECT 220 20% 25V
C9	1-123-981-00	CAP, ELECT 4.7 20% 450V
C18	1-123-982-00	CAP, ELECT 3.3 20% 63V
C56, 57	1-123-983-00	CAP, ELECT 470 20% 16V
C10, 11	1-123-984-00	CAP, ELECT 4.7 20% 250V
C7, 8	1-125-282-00	CAP, ELECT 470 20% 200V
⚠ C3, 4, 5, 6	1-130-854-00	CAP, FILM 0.0022 20% 250V
C14, 16	1-131-356-00	CAP, TANT 3.3 10% 25V
⚠ C2	1-136-210-00	CAP, FILM 0.01 20% 250V
⚠ C1	1-136-212-00	CAP, FILM 0.1 20% 250V
C12	1-161-740-00	CAP, CERAMIC 470PF 10% 400V
⚠ R1	1-205-739-00	RES, WIREWOUND 8.2 5W 10%
R5	1-211-673-00	RES, CARBON 30K 1/2W 5%
R11, 13	1-212-497-00	RES, METAL 33 1/2W 1%
R21, 22	1-212-498-00	RES, METAL 36 1/2W 1%
R15, 16, 17, 18	1-212-703-00	RES, METAL 110K 1/2W 1%
R77	1-214-084-00	RES, METAL 10 1/4W 1%
R14	1-214-100-00	RES, METAL 47 1/4W 1%
R82, 83, 98, 138	1-214-101-00	RES, METAL 51 1/4W 1%
R96, 117, 119, 135	1-214-108-00	RES, METAL 100 1/4W 1%
R6	1-214-109-00	RES, METAL 110 1/4W 1%
R116	1-214-113-00	RES, METAL 160 1/4W 1%
R75, 93, 113, 133, 153	1-214-115-00	RES, METAL 200 1/4W 1%
R115	1-214-116-00	RES, METAL 220 1/4W 1%
R76	1-214-122-00	RES, METAL 390 1/4W 1%
R152	1-214-125-00	RES, METAL 510 1/4W 1%
R71, 123, 154	1-214-132-00	RES, METAL 1K 1/4W 1%
R78	1-214-135-00	RES, METAL 1.3K 1/4W 1%
R94, 134	1-214-139-00	RES, METAL 2K 1/4W 1%
R95, 100, 101, 137, 140, 141	1-214-140-00	RES, METAL 2.2K 1/4W 1%
R86, 87, 104, 124, 145	1-214-141-00	RES, METAL 2.4K 1/4W 1%
R88, 155	1-214-143-00	RES, METAL 3K 1/4W 1%
R84, 99, 120, 143	1-214-144-00	RES, METAL 3.3K 1/4W 1%
R106, 144	1-214-149-00	RES, METAL 5.1K 1/4W 1%
R103, 139	1-214-150-00	RES, METAL 5.6K 1/4W 1%
R121	1-214-152-00	RES, METAL 6.8K 1/4W 1%
R79	1-214-158-00	RES, METAL 12K 1/4W 1%
R89, 105, 118, 126, 147, 151	1-214-161-00	RES, METAL 16K 1/4W 1%
R80	1-214-164-00	RES, METAL 22K 1/4W 1%
R127	1-214-170-00	RES, METAL 39K 1/4W 1%
R7	1-215-242-00	RES, METAL 150 3W 5%
R55	1-217-300-00	RES, WIREWOUND 15 5W 10%
R9, 72, 73, 91, 111, 131	1-217-621-00	RES, METAL 0.1 2W 10%
⚠ R2	1-217-623-00	RES, FUSIBLE 3K 2W 5%
RV71, 91, 111, 131	1-228-290-00	RES, VAR, METAL 500
RV72, 92, 112, 132, 151	1-228-292-00	RES, VAR, METAL 2K
R19, 20	1-244-928-00	RES, CARBON 200K 1/2W 5%
R8, 12	1-246-432-00	RES, CARBON 20 1/4W 5%
R74, 92, 112, 132	1-246-469-00	RES, CARBON 680 1/4W 5%
R97, 136	1-246-811-00	RES, CARBON 220K 1/8W 5%
R81, 102, 122, 142	1-247-046-00	RES, CARBON 270K 1/8W 5%
R51, 52, 53, 54	1-247-083-00	RES, CARBON 10 1/4W 5%

Ref. No. or Q'ty	Part No.	Description
(PW-91 BOARD, BVT-800)		
L3	**1-408-654-00**	**INDUCTOR, MICRO 1mH 5%**
L51	**1-413-089-00**	**COIL, SN**
L52, 53	**1-413-090-00**	**COIL, SN**
L54	**1-413-091-00**	**COIL, SN**
⚠ **L1, 2**	**1-421-329-00**	**COIL, CHOKE**
L55, 57, 58, 59	**1-421-329-00**	**COIL, CHOKE**
⚠ **T1**	**1-421-430-00**	**TRANSFORMER, LOW FREQ.**
L56	**1-421-459-00**	**COIL, CHOKE**
T2, 3	**1-437-109-00**	**TRANSFORMER, DRIVE**
⚠ **T4**	**1-447-229-00**	**TRANSFORMER, CONVERTER**
CN51M	1-508-900-00	RECEPTACLE, 2P, MALE
⚠ CN3M	1-508-904-00	RECEPTACLE, 6P, MALE
CN5F	1-509-704-00	PLUG, HOUSING, 6P
	1-535-100-00	CONTACT, FEMALE
CN4F	1-509-705-00	PLUG, HOUSING, 5P
	1-535-100-00	CONTACT, FEMALE
⚠ **RY1**	**1-515-451-21**	**RELAY, 12V 500 OHMS**
⚠ **SW3**	**1-554-058-21**	**SWITCH, THERMAL REED 70°C**
⚠ CN1M	1-560-176-00	RECEPTACLE, 2P, MALE
⚠ CN2M	1-560-723-00	RECEPTACLE, 3P, MALE
ZT1	**1-806-356-00**	**VARISTOR ENB461-10A**
2 PCS	**2-832-002-00**	**BUSHING, INSULATING**
5 PCS	**2-832-007-00**	**BUSHING, INSULATING**
3 PCS	**3-650-188-00**	**COLLAR, 6mm DIA**
TP1, 2, 3, 71, 72, 73, 74, 91, 92, 93, 94, 111, 112, 113, 114, 131, 132, 133, 134, 151	3-657-235-00	TERMINAL, TP
7 PCS	**7-621-981-25**	**SCREW, PSW 2.6 x 8**
4 PCS	**7-621-981-35**	**SCREW, PSW 2.6 x 10**
2 PCS	**7-686-527-01**	**SCREW, PSW 3 x 6**
2 PCS	**7-686-528-01**	**SCREW, PSW 3 x 8**
3 PCS	**7-686-529-01**	**SCREW, PSW 3 x 10**
2 PCS	**7-686-530-01**	**SCREW, PSW 3 x 12**
1 PC	**7-686-548-01**	**SCREW, PSW 4 x 8**
D71, 134	**8-719-102-52**	**DIODE 1SZ52**
D7	**8-719-115-07**	**DIODE RD15E**

Ref. No. or Q'ty	Part No.	Description
(PW-91 BOARD, BVT-800)		
D72, 93, 112, 131	**8-719-139-07**	**DIODE RD3.9E**
D6, 16	**8-719-200-02**	**DIODE 10E2**
D5, 73, 74, 91, 92, 111, 113, 132, 133	**8-719-815-55**	**DIODE 1S1555**
D8, 9	**8-719-901-17**	**DIODE V11L**
D51	**8-719-901-18**	**DIODE ESAD83**
D1, 2, 3, 4	**8-719-902-17**	**DIODE U15G**
D52, 54	**8-719-912-50**	**DIODE ESAC25-02N**
D53	**8-719-912-52**	**DIODE ESAC25-02C**
D10, 11, 13, 14	**8-719-923-48**	**DIODE 1S2348H**
D17, 18	**8-719-924-06**	**DIODE ERC24-06S**
D12, 15	**8-719-930-12**	**DIODE EQB01-12Z**
Q73, 133	**8-723-303-20**	**TRANSISTOR 2SK43-3A**
Q112, 132	**8-729-113-32**	**TRANSISTOR 2SB733**
Q1	**8-729-133-53**	**TRANSISTOR 2SC2335**
Q72, 92	**8-729-177-32**	**TRANSISTOR 2SD773**
Q151	**8-729-850-73**	**TRANSISTOR 2SB507HP-E**
Q71, 91	**8-729-900-07**	**TRANSISTOR 2SB757**
Q111, 131	**8-729-984-70**	**TRANSISTOR 2SD847**
IC71, 111	**8-759-132-40**	**IC μPC324C (LM324; NSC)**
IC151	**8-759-145-57**	**IC μPC4557C; NEC**

CT-29 BOARD (BVT-800)

Ref. No. or Q'ty	Part No.	Description
1 PC	A-6263-037-A	COMPLETE PCB, CT-29
C209, 211	**1-108-559-00**	**CAP, MYLAR 0.0015 5% 50V**
C204	**1-108-570-00**	**CAP, MYLAR 0.0043 5% 50V**
C207, 208	**1-108-571-00**	**CAP, MYLAR 0.0047 5% 50V**
C206	**1-108-595-00**	**CAP, MYLAR 0.047 5% 50V**
C203	**1-131-356-00**	**CAP, TANT 3.3 10% 25V**
C202	**1-131-359-00**	**CAP, TANT 10 10% 25V**
C205	**1-131-367-00**	**CAP, TANT 22 10% 20V**
C212	**1-161-055-00**	**CAP, CERAMIC 0.022 10% 50V**
C201	**1-161-888-00**	**CAP, CERAMIC 0.01 50V**
R212	**1-214-084-00**	**RES, METAL 10 1/4W 1%**
R219	**1-214-123-00**	**RES, METAL 430 1/4W 1%**
R200, 220, 222	**1-214-132-00**	**RES, METAL 1K 1/4W 1%**
R201, 208, 211	**1-214-142-00**	**RES, METAL 2.7K 1/4W 1%**
R207	**1-214-148-00**	**RES, METAL 4.7K 1/4W 1%**
R221	**1-214-153-00**	**RES, METAL 7.5K 1/4W 1%**
R206	**1-214-155-00**	**RES, METAL 9.1K 1/4W 1%**
R205	**1-214-158-00**	**RES, METAL 12K 1/4W 1%**
R213, 216	**1-214-160-00**	**RES, METAL 15K 1/4W 1%**
R203, 204, 214, 215, 217, 218	**1-214-165-00**	**RES, METAL 24K 1/4W 1%**
R202	**1-214-166-00**	**RES, METAL 27K 1/4W 1%**
RV201	**1-226-022-00**	**RES, VAR, METAL 2K**
RV202	**1-226-023-00**	**RES, VAR, METAL 5K**
R209, 210	**1-247-052-00**	**RES, CARBON 820K 1/8W 5%**
CN201M	1-508-904-00	RECEPTACLE, 6P, MALE
D201	**8-719-100-26**	**DIODE RD4.7E-B1**
Q201	**8-729-606-32**	**TRANSISTOR 2SC2603**
IC202	**8-759-145-57**	**IC μPC4557C; NEC**
IC201	**8-759-904-94**	**IC TL494CN; TI**

FRAME (BVT-800)

R1	**1-214-105-00**	**RES, METAL 75 1/4W 1%**
⚠ CN37F	1-508-681-00	PLUG, HOUSING, 3P
	1-535-072-00	CONTACT, FEMALE
⚠ CN37M	1-508-682-00	PLUG, HOUSING, 3P
	1-535-070-00	CONTACT, MALE
CN23	**1-509-470-00**	**RECEPTACLE, 18P, MALE**
CN8F, 14F, 16F, 35F, 36F, 38F, 51F	1-509-983-00	PLUG, HOUSING, 2P
	1-509-982-00	CONTACT, FEMALE
CN11F, 17F	1-509-986-00	PLUG, HOUSING, 5P
	1-509-982-00	CONTACT, FEMALE
CN3F, 12F, 15F, 19F, 22F, 201F	1-509-987-00	PLUG, HOUSING, 6P
	1-509-982-00	CONTACT, FEMALE
CN9F, 10F, 18F, 21F	1-509-989-00	PLUG, HOUSING, 10P
	1-509-982-00	CONTACT, FEMALE
⚠ **SW1**	**1-516-379-00**	**SWITCH, ROCKER**
⚠ **CB1**	**1-532-534-00**	**BREAKER, CIRCUIT, AC250V 1.6A**
⚠ **1 PC**	**1-534-517-81**	**CORD, POWER (for US/Canada)**
1 PC	**1-534-535-31**	**CORD, POWER (for Japan)**
M1	**1-541-170-00**	**MOTOR, FAN, DC**
SW3, 4	**1-552-822-00**	**SWITCH, SLIDE**
⚠ **SW2**	**1-554-011-00**	**SWITCH, ROCKER**
CN40M	**1-560-495-00**	**RECEPTACLE, D-SUB 15P, MALE**
CN6F, 13F, 20F	1-561-056-00	PLUG, HOUSING, 12P
	1-509-982-00	CONTACT, FEMALE
⚠ CN1F	1-561-069-00	PLUG, HOUSING, 2P
	1-535-206-00	CONTACT, FEMALE
CN7F	1-561-485-00	PLUG, HOUSING, 20P
	1-560-037-00	CONTACT, FEMALE
CN25, 26, 27, 28, 29, 30, 31, 32, 33, 34	**1-561-781-21**	**RECEPTACLE, BNC**
⚠ CN2F	1-561-828-00	PLUG, HOUSING, 3P
	1-535-206-00	CONTACT, FEMALE
CN4F	See PW-91 board.	
CN5F	See PW-91 board.	

ACCESSORIES SUPPLIED (BVT-800)

Ref. No. or Q'ty	Part No.	Description
1 PC	**A-6252-047-A**	**EXTENSION BOARD ASSY, EB-9**
R2, 3	**1-246-457-00**	**RES, CARBON 220 1/4W 5%**
R4	**1-246-460-00**	**RES, CARBON 300 1/4W 5%**
R1, 5	**1-246-469-00**	**RES, CARBON 680 1/4W 5%**
1 PC	**1-508-892-00**	**CONNECTOR, PCB, 100P**
2 PCS	3-657-235-00	TERMINAL, TP
10 PCS	**7-621-981-15**	**SCREW, PSW 2.6x6**
4 PCS	**7-621-981-25**	**SCREW, PSW 2.6x8**
8 PCS	**7-686-527-01**	**SCREW, PSW 3x6**
D1, 2, 3, 4, 5		
	8-719-812-41	**LED, TLR124, RED**
2 PCS	X-3673-210-0	ANGLE ASSY, RACK
1 PC	**1-556-155-00**	**CABLE ASSY, 18P, 3m**
	1-508-495-00	**PLUG, 18P, MALE**
	1-508-496-00	**PLUG, 18P, FEMALE**
4 PCS	**7-682-262-14**	**SCREW, +K 4x10**
4 PCS	**7-686-637-09**	**SCREW, B4x12**

PACKING MATERIAL (BVT-800)

1 PC	**3-701-616-00**	**BAG, POLYETHYLENE (FOR SCREWS)**
2 PCS	**3-701-619-00**	**BAG, POLYETHYLENE (FOR RACK ANGLE ASSY)**
2 PCS	**3-701-630-00**	**BAG, POLYETHYLENE (FOR MANUAL AND CABLE)**
1 PC	**3-701-634-00**	**BAG, POLYETHYLENE (FOR EB-9 BOARD)**
1 PC	**4-854-939-00**	**BAG, POLYETHYLENE (FOR BVT-800)**

OPTIONAL ACCESSORIES (BVT-800)

Ref. No. or Q'ty	Part No.	Description
CN7F	1-561-485-00	PLUG, HOUSING, 20P
	1-561-037-00	CONTACT, FEMALE

OPTIONAL FIXTURE (BVT-800)

7-700-733-01	**ALIGNMENT SCREWDRIVER, SLOTTED HEAD**
7-700-736-06	**HEXAGONAL WRENCH, L-SHAPED, 0.89mm**
7-721-050-63	**SCREWDRIVER, TOTSU, 3mm DIA.**
7-721-050-64	**SCREWDRIVER, TOTSU, 4mm DIA.**
J-6041-770-A	**IC TEST CLIP, TC-16**
J-6041-780-A	**IC TEST CLIP, TC-20**

Manufacturer;
AP Products Incorporated
BOX 697 72 Corwin Drive
Painesville, Ohio 44077, USA
TEL: 216-354-2101

SECTION E
CHANGED PARTS

UP TO #10099 (BVT-800 JAPAN)
UP TO #10199 (BVT-800 US/CANADA)

PR-34 BOARD

R101	1-214-108-00	RES, METAL 100 1/4W 1%	1-214-111-00	RES, METAL 130 1/4W 1%
R102	1-214-115-00	RES, METAL 200 1/4W 1%	1-214-109-00	RES, METAL 110 1/4W 1%
R103	1-214-126-00	RES, METAL 560 1/4W 1%	DELETED	
Q119	8-729-100-87	TRANSISTOR 2SC1275	8-729-023-69	TRANSISTOR 2N2369A

#10101 & UP (BVT-800 JAPAN)
#10201 & UP (BVT-800 US/CANADA)

UP TO #10299 (BVT-800 JAPAN)
UP TO #10500 (BVT-800 US/CANADA)

PR-34 BOARD

R3	1-214-159-00	RES, METAL 13K 1/4W 1%	1-214-158-00	RES, METAL 12K 1/4W 1%
R6	NOT IN USE		1-214-158-00	RES, METAL 12K 1/4W 1%
R7	NOT IN USE		1-214-158-00	RES, METAL 12K 1/4W 1%
R9	NOT IN USE		1-214-151-00	RES, METAL 6.2K 1/4W 1%
R656	1-214-161-00	RES, METAL 16K 1/4W 1%	1-214-160-00	RES, METAL 15K 1/4W 1%

CK-10 BOARD

R275	NOT IN USE		1-247-053-00	RES, CARBON 1M 1/8W 5%

PW-91 BOARD

R4	1-212-685-00	RES, METAL 20K 1/2W 1%	DELETED	
R5	1-244-897-00	RES, CARBON 10K 1/2W 5%	1-211-673-00	RES, CARBON 10K 1/2W 5%
C1	1-130-539-00	CAP, FILM 0.1 20% 250V	1-130-917-00	CAP, FILM 0.1 20% 250V

#10301 & UP (BVT-800 JAPAN)
#10501 & UP (BVT-800 US/CANADA)

UP TO #10499 (BVT-800 JAPAN)
UP TO #10699 (BVT-800 US/CANADA)

CK-10 BOARD

RV12	1-228-293-00	RES, VAR, METAL 5K	1-214-294-00	RES, VAR, METAL 10K

#10501 & UP (BVT-800 JAPAN)
#10701 & UP (BVT-800 US/CANADA)

UP TO #10699 (BVT-800 JAPAN)
UP TO #10999 (BVT-800 US/CANADA)

MB-16 BOARD

R1, 2	NOT IN USE	

#10701 & UP (BVT-800 JAPAN)
#11001 & UP (BVT-800 US/CANADA)

1-213-131-00	RES, METAL 100 1W 5%	

UP TO #11099 (BVT-800 JAPAN)
UP TO #11500 (BVT-800 US/CANADA)

PR-34 BOARD

A-6257-102-A	COMPLETE PCB, PR-34 If R275 on CK-10 board is 270 kΩ, A-6257-102-A can be replaced with A-6257-102-B.	

#11101 & UP (BVT-800 JAPAN)
#11501 & UP (BVT-800 US/CANADA)

A-6257-102-B	COMPLETE PCB, PR-34	

CK-10 BOARD

R275	1-247-053-00	RES, CARBON 1M 1/8W 5%

1-247-889-00	RES, CARBON 270K 1/8W 5%	

CT-29 BOARD

C204	1-108-571-00	CAP, MYLAR 0.0047 5% 50V
R222	NOT IN USE	

1-108-570-00	CAP, MYLAR 0.0043 5% 50V	
1-246-473-00	RES, CARBON 1K 1/4W 5%	

UP TO #11299 (BVT-800 JAPAN)
UP TO #11699 (BVT-800 US/CANADA)

CT-29 BOARD

R222	1-246-473-00	RES, CARBON 1K 1/4W 5%

#11301 & UP (BVT-800 JAPAN)
#11701 & UP (BVT-800 US/CANADA)

1-214-132-00	RES, METAL 1K 1/4W 1%	

UP TO #11499 (BVT-800 JAPAN)
UP TO #11799 (BVT-800 US/CANADA)

CK-10 BOARD

C157	1-107-075-00	CAP, MICA 39PF 5% 50V
R221	1-214-116-00	RES, METAL 220 1/4W 1%
R222	1-214-132-00	RES, METAL 1K 1/4W 1%

#11501 & UP (BVT-800 JAPAN)
#11801 & UP (BVT-800 US/CANADA)

1-107-071-00	CAP, MICA 27PF 5% 50V	
1-214-119-00	RES, METAL 300 1/4W 1%	
1-214-136-00	RES, METAL 1.5K 1/4W 1%	

UP TO #11599 (BVT-800 JAPAN)
UP TO #11899 (BVT-800 US/CANADA)

PW-91 BOARD

R8, 12	1-244-632-00	RES, CARBON 20 1/4W 5%	1-246-432-00	RES, CARBON 20 1/4W 5%
R74, 92, 112, 132	1-244-669-00	RES, CARBON 680 1/4W 5%	1-246-469-00	RES, CARBON 680 1/4W 5%

#11601 & UP (BVT-800 JAPAN)
#11901 & UP (BVT-800 US/CANADA)

UP TO #11799 (BVT-800 JAPAN)
UP TO #12299 (BVT-800 US/CANADA)

PW-91 BOARD

C2	1-130-455-00	CAP, FILM 0.01 20% 250V	1-136-210-00	CAP, FILM 0.01 20% 250V
C1	1-130-917-00	CAP, FILM 0.1 20% 250V	1-136-212-00	CAP, FILM 0.1 20% 250V
R55	1-212-507-00	RES, METAL 82 1/2W 1%	1-217-300-00	RES, WIREWOUND 15 5W 10%
R56, 57, 58, 59	1-212-507-00	RES, METAL 82 1/2W 1%	DELETED	
R51, 52, 53, 54	1-214-084-00	RES, METAL 10 1/4W 1%	1-247-083-00	RES, CARBON 10 1/4W 5%
R1	1-217-297-00	RES, WIREWOUND 8.2 5W 10%	1-205-739-00	RES, WIREWOUND 8.2 5W 10%
RY1	1-515-451-00	RELAY, 12V 500 OHMS	1-515-451-21	RELAY, 12V 500 OHMS
SW3	1-554-058-00	SWITCH, THERMAL REED 70°C	1-554-058-21	SWITCH, THERMAL REED 70°C
ZT2	1-806-355-00	VARISTOR ENB221-10A	DELETED	

#11801 & UP (BVT-800 JAPAN)
#12301 & UP (BVT-800 US/CANADA)

UP TO #11799 (BVT-800 JAPAN)
UP TO #12299 (BVT-800 US/CANADA)

FRAME

	1-534-517-31	CORD, POWER (for US/CANADA)	1-534-517-81	CORD, POWER (for US/CANADA)
CN37F	1-561-829-00	PLUG, HOUSING, 2P	1-508-681-00	PLUG, HOUSING, 3P
CN37M	1-561-830-00	PLUG, HOUSING, 2P	1-508-682-00	PLUG, HOUSING, 3P

#11801 & UP (BVT-800 JAPAN
#12301 & UP (BVT-800 US/CANADA)

BVT-800 (U/C)
3-673-283-16

Sony Corporation

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