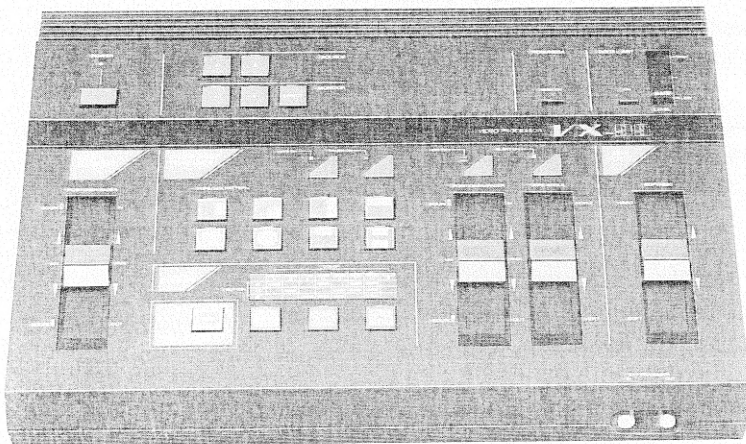


SERVICE MANUAL

VIDEO PROCESSOR

SANSUI VX-99

<NTSC/PAL>



CAUTION

1. Parts identified by the \triangle symbol on the schematic diagram and the parts list are critical for safety. Use only replacement parts that have critical characteristics recommended by the manufacturer.
2. Make leakage-current or resistance measurements to determine that exposed parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

•SPECIFICATIONS

<NTSC>

VIDEO INPUT sensitivity/Impedance	1.0 Vp-p/75 ohms
VIDEO OUTPUT level/Impedance	1.0 Vp-p/75 ohms
AUDIO INPUT sensitivity/Impedance	-6 dBs/47 kohms
AUDIO OUTPUT level/Impedance	-6 dBs/10 kohms
Frequency response	
VIDEO IN→MONITOR	
OUT	5 Hz ~ 7 MHz, ± 2 dB
AUDIO IN→MONITOR	
OUT	20 Hz ~ 100 kHz -3 dB

Others

Power requirements	120/220/240V
	50/60 Hz
	For U.S.A. and Canada 120V (60 Hz)
Power consumption	20 watts Rated
Dimensions	360 mm (14-3/16")W
	103 mm (4-1/16")H
	280 mm (11-1/16")D
Weight	3.0 kg (6.6 lbs) net
	4.0 kg (8.8 lbs) packed

<PAL>

VIDEO INPUT sensitivity/Impedance	1.0 Vp-p/75 ohms
VIDEO OUTPUT level/impedance	1.0 Vp-p/75 ohms
AUDIO INPUT sensitivity/Impedance	-6 dBs/47 kohms
AUDIO OUTPUT level/Impedance	-6 dBs/10 kohms
Frequency response	
VIDEO IN→MONITOR	
OUT	5 Hz ~ 7 MHz, ± 2 dB
AUDIO IN→MONITOR	
OUT	20 Hz ~ 100 kHz -3 dB

Others

Power requirements	220/240V
	50/60 Hz
	For Saudi Arabia 127/220V
Power consumption	20 watts Rated
Dimensions	360 mm (14-3/16")W
	103 mm (4-1/16")H
	280 mm (11-1/16")D
Weight	3.0 kg (6.6 lbs) net
	4.0 kg (8.8 lbs) packed

* Design and specifications subject to changes without notice for improvements.

* Due to local laws and regulations, this unit sold in some areas are not equipped with variable voltage selectors.



SANSUI ELECTRIC CO., LTD.

NOTE

1. The symbols, UL, CSA, SA, BS, UK, EU, AS, SS, XX <EXPORT> and XX-V <EXPORT(V)> on the parts list and the schematic diagram mean followings respectively.

- UL..... Manufactured for U.S.A market.
(Underwriters Laboratories approved model.)
- CSA Manufactured for Canadian market.
- SA..... Manufactured for South African market.
- BS, UK..... Manufactured for United Kingdom market.
- EU Manufactured for European market.
- AS..... Manufactured for Australian market.
- SS..... Manufactured for Saudi Arabia market.
- XX <EXPORT>..... Standard Version with Inner Voltage Selector.
- XX-V <EXPORT(V)> .. Standard Version with Outer Voltage Selector.
- NON MARK Common Parts.

2. Some printed circuit boards are not supplied assembled. To separate these in this service manual, the stock numbers are not indicated for these boards. However, stock numbers for individual parts are indicated.

3. Since some capacitors and resistors are omitted from parts lists in this service manual, refer to the Common Parts List for capacitors and resistors, which was issued on February 1983.

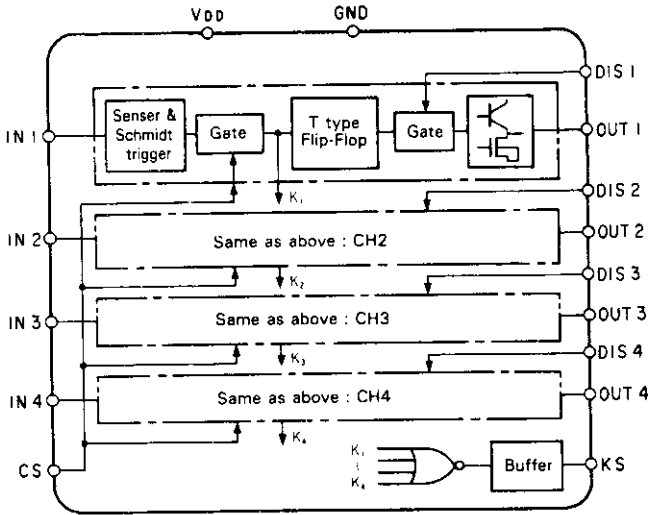
4. Abbreviations in this service manual are as follows.

•Abbreviations List

C.R. : Carbon Resistor	E.B.L. : Low Leak Bi-Polar Electrolytic Capacitor
S.R. : Solid Resistor	Ta.C. : Tantalum Capacitor
Ce.R. : Cement Resistor	F.C. : Film Capacitor
M.R. : Metal Film Resistor	M.P. : Metalized Paper Capacitor
F.R. : Fusing Resistor	P.C. : Polystyrene Capacitor
N.I.R. : Non-Inflammable Resistor	G.C. : Gimmic Capacitor
A.R. : Array Resistor	A.C. : Array Capacitor
C.C. : Ceramic Capacitor	V.R. : Variable Resistor
C.T. : Ceramic Capacitor, Temperature Compensation	S.V.R. : Semi Variable Resistor
E.C. : Electrolytic Capacitor	SW. : Switch
E.L. : Low Leak Electrolytic Capacitor	Chip R. : Chip Resistor
E.B. : Bi-Polar Electrolytic Capacitor	Chip C. : Chip Capacitor

1. INTERIOR BLOCK DIAGRAM & TERMINAL FUNCTION OF IC

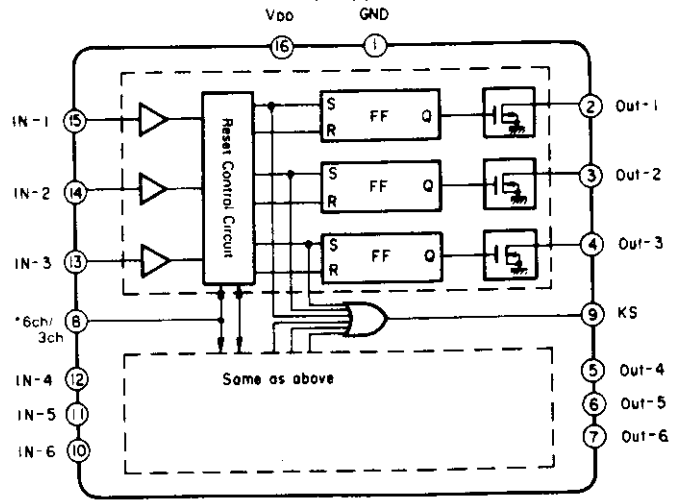
• TC9130P (Cyclic Type Flip-Flop)



•Function Table (MB84013BM)

Pin No.	Symbols	Terminal Name	Function and Operation
15 to 12	IN-1 IN-4	Input signal terminals	When a voltage applied to these terminals changes from "H" to "L", the output of the corresponding channel is inverted.
1, 3, 5, 7	OUT-1 OUT-4	Output terminals	Whenever the corresponding input terminal changes from "H" to "L", the output level is inverted. The output circuit is of complementary type of bipolar NPN transistor and Nch MOS FET.
2, 4, 6, 9	DIS-1 DIS-4	Output-disable terminal	If this terminal is set to "L", the corresponding output terminal is fixed at "L" irrespective of the internal flip-flop condition. In this case, an input signal is receivable as usual.
10	CS	Input-disable terminal	If this terminal is set to "L", all the inputs from IN1 to 4 are disabled and the internal flip-flop condition is held.
11	KS	Input detection terminal	When a "L" signal is given to any one of the input terminals IN1 to 4, this terminal is changed to "L" level.
16	V _{DD}	Power voltage terminal	
8	GND	Ground terminal	

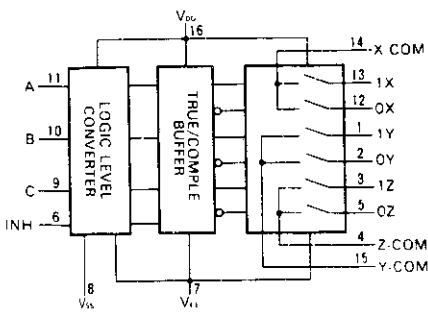
• TC9135P (6-ch Mutually Type Flip-Flop)



•Function Table (TC4053BP)

Pin Nos.	Symbols	Terminal Name	Function and Operation
10 to 15	IN-1 to IN-6	Input signal terminals:	When a voltage applied to any of input terminals IN-1 to IN-6 changes in level from "H" to "L", the Nch FET at the output terminal corresponding to the "L" input terminal is turned on, the other terminal outputs being turned off. These terminals can respond to both a mechanical key of feather touch type and a touch switch of touch sensor type.
2 to 7	Out-1 to Out-6	Output terminals:	When a voltage applied to the corresponding input terminal changes to "L", the Nch FET at the output terminal is turned on to change the output level to "L". This output status is kept at "L" level, even if the corresponding input terminal is returned to "H". However, when an input signal is applied to the other channels, the released Nch FET is turned off, the output being returned to "open" status. A maximum of 30 mA current can be passed through the Nch FET at the output, so that it is possible to directly drive an LED or a small relay.
9	KS	Input detection signal terminal:	The KS terminal output is kept at "H" level only while a "L" level signal is applied to any of the input terminals IN1 to IN6.
8	6/3	6ch/3chx2 Switch input terminal:	When this terminal is at "H" level, all the flip-flops in the six internal circuits are connected to each other as a mutually reset circuit. However, when at "L" level, the circuit is separated into two 3ch-mutually-reset circuits for IN-1 to IN-3 and IN-4 to IN-6.
16	V _{DD}	Power voltage terminal	
1	GND	Ground terminal:	

• TC4053BP (Triple 2-channel Multiplexer)

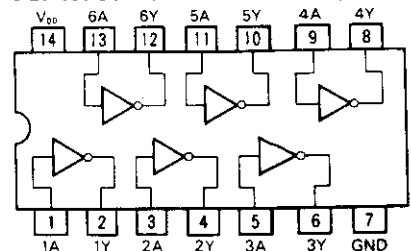


• Function Table <TC4053BP>

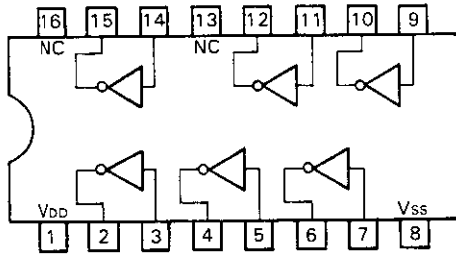
CONTROL INPUT				"ON" CHANNEL
INHIBIT	C	B	A	
L	L	L	L	0X, 0Y, 0Z
L	L	L	H	1X, 0Y, 0Z
L	L	H	L	0X, 1Y, 0Z
L	L	H	H	1X, 1Y, 0Z
L	H	L	L	0X, 0Y, 1Z
L	H	L	H	1X, 0Y, 1Z
L	H	H	L	0X, 1Y, 1Z
L	H	H	H	1X, 1Y, 1Z
H	x	x	x	NONE

x = Don't Care

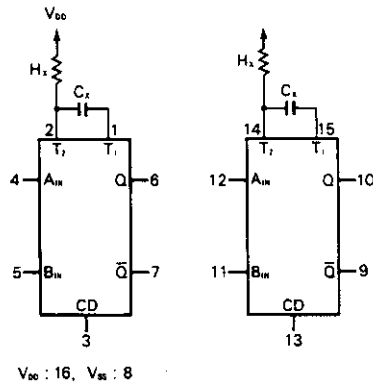
• TC74HC04P/HD74HC04P (Hex Inverter)



• MSM4049BRS/TC4049BP (Hex Inverter)



• MSM4538RS/TC4538BP (Multivibrators)

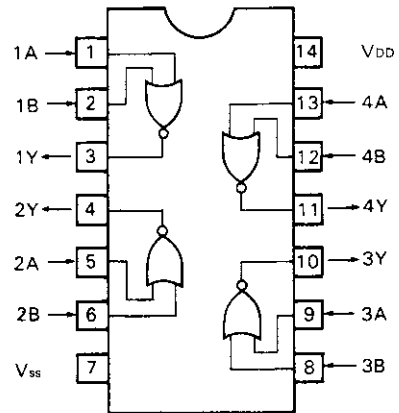


• Function Table <MSM4538RS/TC4538BP>

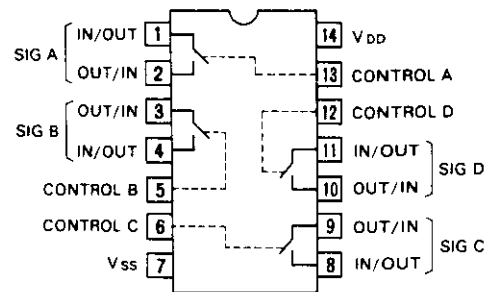
INPUT			OUTPUT		NOTE
A _{IN}	B _{IN}	CD	Q	Q̄	
f	H	H			OUTPUT ENABLE
f	L	H	L	H	INHIBIT
H	f	H	L	H	INHIBIT
L	f	H			OUTPUT ENABLE
*	*	L	L	H	INHIBIT

* : Don't Care

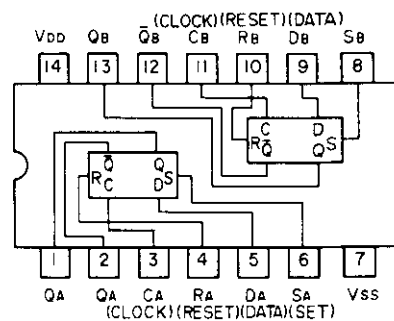
• BU4001B/MSM4001BRS/TC4001P (Quad NOR)



• BU4066B/MSM4066BRS/TC4066BP (Quad Analog Switch)



• MB84013BM (Dual D-Type Flip-Flop)

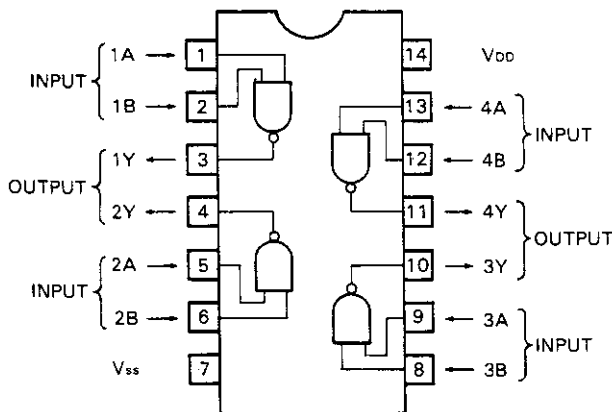


• Function Table <MB84013BM>

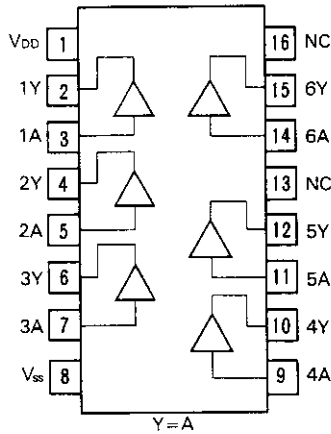
INPUT				OUTPUT	
CLOCK	DATA	SET	RESET	Q _{n+1}	Q̄ _{n+1}
	L	L	L	L	H
	H	L	L	H	L
	X	L	L	Q _n	Q̄ _n
X	X	L	H	L	H
X	X	H	L	H	L
X	X	H	H	L	L

H: High Level
L: Low Level
X: H or L
Q_n : Output before clockpulse
Q_{n+1}: Output Signal after clockpulse

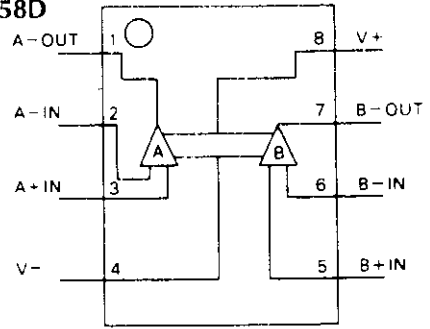
• BU4011B/MSM4011BRS/TC4011P (Quad NAND)



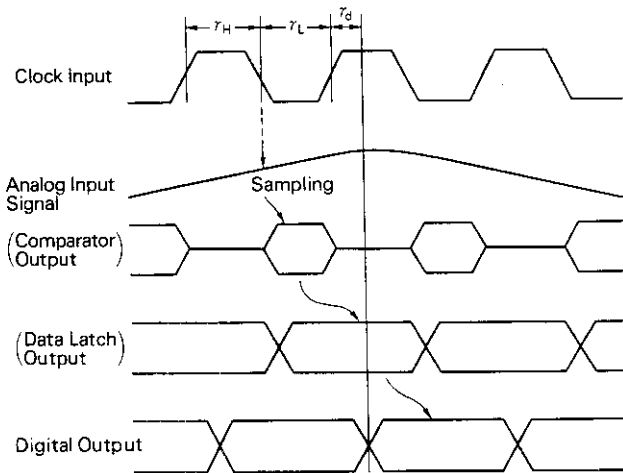
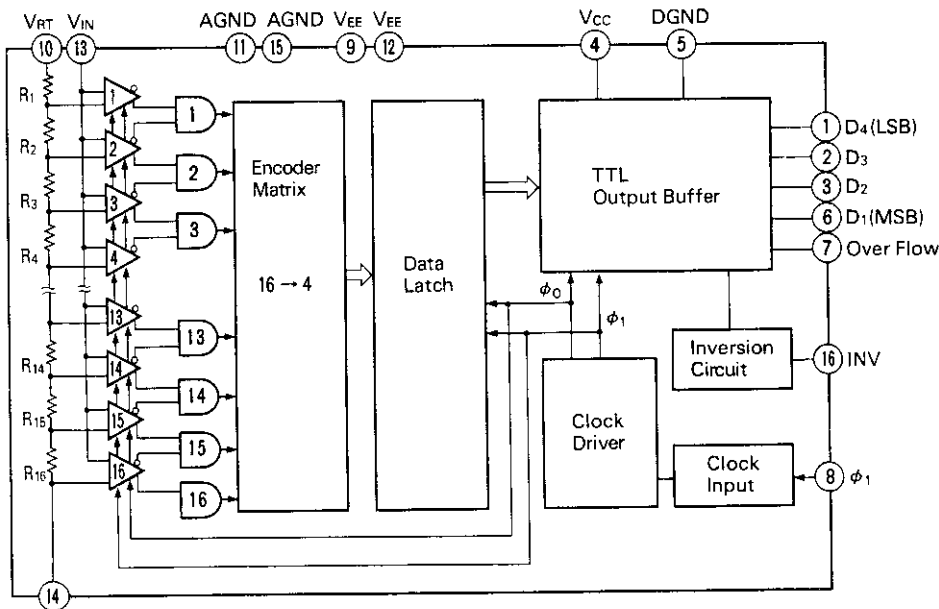
• MB84050 (Buffer Amp.)



• M5218/M5216L/M5219/M5532 (OP Amp.)
NJM4558D



• AN6855 (A/D Converter)

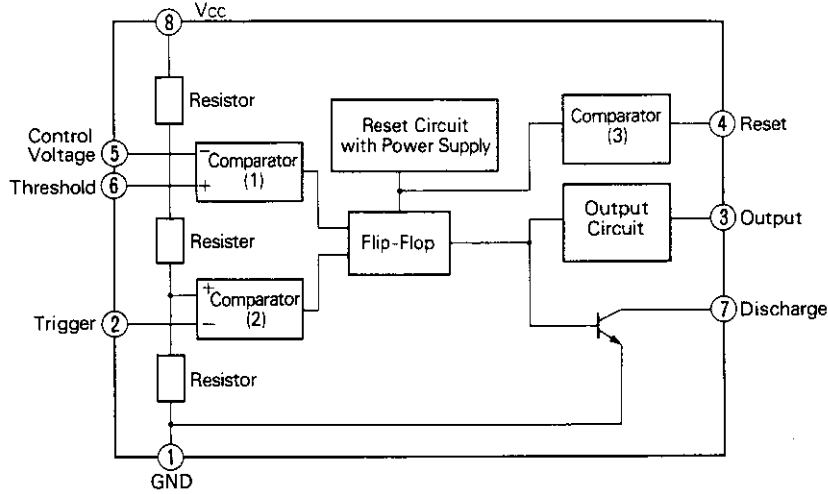


Note: Comparator and Data Latch Output have not EXT terminal as they are internal signal.

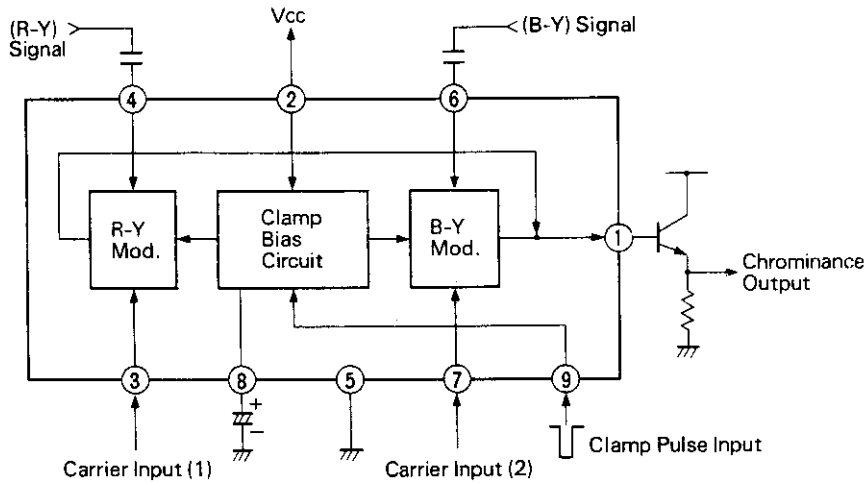
• Function Table <AN6855>

Pin No.	Pin Name
1	4th bit (LSB)
2	3rd bit
3	2nd bit
4	V _{CC}
5	Digital GND
6	1st bit (MSB)
7	Over Flow
8	Clock Input
9	V _{EE}
10	Ref. High Level
11	Analog GND
12	V _{EE}
13	Analog Input
14	Ref. Low Level
15	Analog GND
16	Output Inversion

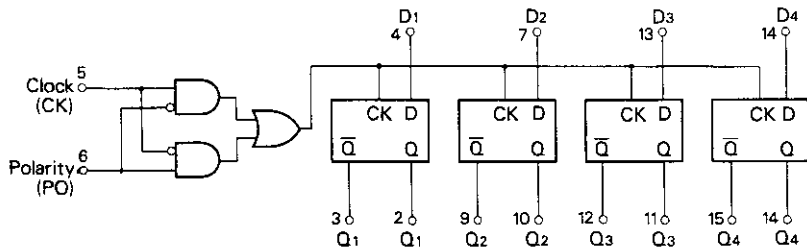
• AN1555 (Precision Timer)



• AN6040 (Color Encoder)



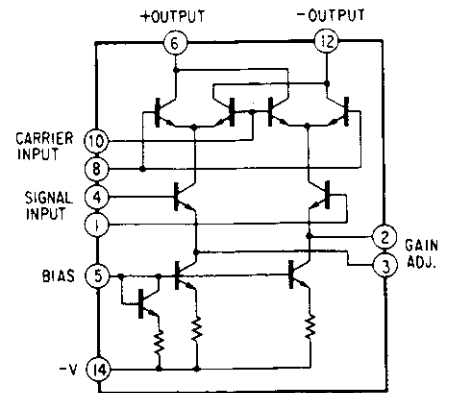
• μ PD4042BC (Quad Clocked "D" Latch)



• Function Table <rPD4042BC>

Clock	Polarity	Q
L	L	DATA
	L	LATCH
H	H	DATA
	H	LATCH

• NJM1496D (Double Balance Mixer)



2. PARTS LIST OF CIRCUIT BOARD

2-1. F-5649 Color Function Switching Board

(Stock No. 01032401)

Parts No.	Stock No.	Description
fVR6	48779400	2kΩ (B) V.R., ANGLE
fVR12	48779400	2kΩ (B) V.R., POSITION
fVR13	48351500	10kΩ (B) V.R., SOFTNES
jVR1	48779300	50kΩ (B) V.R., FADAR, MIX
•Transistor		
nQ1	46367001	2SA1115
nQ2	46367001	2SA1115
nQ3	46367001	2SA1115
nQ4	46367101	2SC2603
nQ5	46367001	2SA1115
nQ6	46367101	2SC2603
nQ7	46367101	2SC2603
nQ8	46367001	2SA1115
nQ9	46367001	2SA1115
nQ10	46367001	2SA1115
nQ11	48183400	DTA114YS
nQ12	48183400	DTA114YS
nQ13	48183400	DTA114YS
nQ14	48183400	DTA114YS
nQ15	48183400	DTA114YS
•IC		
nIC1	48109600	TC9135P
nIC2	48239100	TC9130P
nIC3	48239100	TC9130P
nIC4	48109600	TC9135P
nIC5	03611900	MSM4050RS
	or 98004100	MB84050BM
nIC6	46505400	μPD4042BC
nIC7	46505400	μPD4042BC
nIC8	03604100	TC4011P
	or 48050100	MSM4011BRS
	or 48063700	BU4011B
nIC9	46160500	TC4049BP
•Diode		
nD1	03117600	1S2473T77
	or 46086000	1S1588TP-3
nD2	03117600	1S2473T77
	or 46086000	1S1588TP-3
nD3	03117600	1S2473T77
	or 46086000	1S1588TP-3
nD4	03117600	1S2473T77
	or 46086000	1S1588TP-3
nD5	03117600	1S2473T77
	or 46086000	1S1588TP-3
nD6	03117600	1S2473T77
	or 46086000	1S1588TP-3
nD7	03117600	1S2473T77
	or 46086000	1S1588TP-3
nD8	03117600	1S2473T77
	or 46086000	1S1588TP-3
nD9	03117600	1S2473T77
	or 46086000	1S1588TP-3
nD10	03117600	1S2473T77
	or 46086000	1S1588TP-3
nD12	03117600	1S2473T77
	or 46086000	1S1588TP-3
•LED		
nLD1	46470300	SEL2410E, EFFECT
nLD2	46470300	SEL2410E, MONITOR B
nLD3	46470300	SEL2410E, MONITOR A
nLD4	46470300	SEL2410E, SOURCE B
nLD5	46470300	SEL2410E, SOURCE A
nLD6	46470300	SEL2410E, R
nLD7	46470300	SEL2410E, G
nLD8	46470300	SEL2410E, B
nLD9	46470300	SEL2410E, MIX
nLD12	48126300	SEL2210S, SLANT
nLD13	48126300	SEL2210S, ART
nLD14	48126300	SEL2210S, N/P
nLD15	48126300	SEL2210S, WIPE
nLD16	48126300	SEL2210S, FADA

Parts No.	Stock No.	Description
nLD17	48126300	SEL2210S, NOR/REV
nLD18	46470300	SEL2410E, <input type="checkbox"/>
nLD19	46470300	SEL2410E, <input checked="" type="checkbox"/>
nLD20	46470300	SEL2410E, <input type="checkbox"/>
nLD21	46470300	SEL2410E, <input type="checkbox"/>
nLD22	46470300	SEL2410E, <input type="checkbox"/>
nLD23	46470300	SEL2410E, <input type="checkbox"/>
nLD24	46470300	SEL2410E, <input checked="" type="checkbox"/>
nLD25	46470300	SEL2410E, <input type="checkbox"/>
nLD26	48126300	SEL2210S,
oS7	46708100	Push SW., A SOURCE
oS8	46708100	Push SW., B SOURCE
oS9	46708100	Push SW., A MONITOR
oS10	46708100	Push SW., B MONITOR
oS11	46708100	Push SW., EFFECT MONITOR
oS12	46708100	Push SW., NOR/REV
oS13	46708100	Push SW., DIGITAL ART
oS14	46708100	Push SW., WIPE
oS15	46708100	Push SW., FADA
oS16	46708100	Push SW., N/P
oS17	46708100	Push SW., SLANT
oS18	46708100	Push SW., R
oS19	46708100	Push SW., G
oS20	46708100	Push SW., B
oS21	46708100	Push SW., MIX
oS24	46708100	Push SW., <input checked="" type="checkbox"/>
oS25	46708100	Push SW., <input type="checkbox"/>
oS26	46708100	Push SW., <input type="checkbox"/>
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oS28	46708100	Push SW., <input type="checkbox"/>
oS29	46708100	Push SW., <input checked="" type="checkbox"/>
oS30	46708100	Push SW., <input type="checkbox"/>
oS31	46708100	Push SW., <input type="checkbox"/>
rVR4	48828500	3kΩ (B) V.R., DIGITAL ART

2-2. F-5650 Color Management Board

(Stock No. 01032501 = NTSC System/01050805 = PAL System)

Parts No.	Stock No.	Description
•Transistor		
fQ6	46367101	2SC2603
fQ7	46367101	2SC2603
fQ8	46367101	2SC2603
fQ9	46367001	2SA1115
fQ10	46367001	2SA1115
fQ11	46367101	2SC2603
fQ12	46367101	2SC2603
•IC		
fIC13	48781100	HA11465A
fIC14	48780600	AN1555
fIC15	46122900	MSM4538RS
	or 46160800	TC4538BP
fIC16	46122900	MSM4538RS
	or 46160800	TC4538BP
fIC17	03604100	TC4011P
	or 48050100	MSM4011BRS
	or 48063700	BU4011B
fIC18	46122900	MSM4538RS
	or 46160800	TC4538BP
fL1	46204500	Inductor 10μH
fVR14	46634100	4.7kΩ S.V.R., H Blanking
fVR15	46739000	100kΩ S.V.R., V Blanking
fVR16	48849500	68kΩ S.V.R., V Blanking
fVR17	48849600	33kΩ S.V.R., H Blanking
fVR18	46738600	4.7kΩ S.V.R., H Blanking
fVR19	46738600	4.7kΩ S.V.R., H SYNC
fVR20	46738600	4.7kΩ S.V.R., H SYNC

Parts No.	Stock No.	Description
•Transistor		
rQ1	46367101	2SC2603
rQ2	46367101	2SC2603
rQ3	46367101	2SC2603
rQ4	46367001	2SA1115
rQ5	46367101	2SC2603
rQ6	46367101	2SC2603
rQ7	46367101	2SC2603
rQ8	46367101	2SC2603
rQ9	46367101	2SC2603
rQ10	46367101	2SC2603
rQ11	46367001	2SA1115
rQ12	46367101	2SC2603
rQ13	46367101	2SC2603
rQ14	46367101	2SC2603
rQ15	46367101	2SC2603
rQ16	46367101	2SC2603
rQ17	46367101	2SC2603
rQ18	46367101	2SC2603
rQ19	46367101	2SC2603
rQ20	46367101	2SC2603
rQ21	46367101	2SC2603
rQ22	46367101	2SC2603
rQ23	46367101	2SC2603
rQ27	46367101	2SC2603
rQ28	46367001	2SA1115
rQ29	46367101	2SC2603
rQ30	46367001	2SA1115
rQ31	46367101	2SC2603
rQ32	46367101	2SC2603
rQ33	46367101	2SC2603
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rQ36	46367101	2SC2603
rQ37	46367101	3SC2603
rQ38	46367101	2SC2603
rQ39	46367101	2SC2603
rQ40	46367001	2SA1115
rQ41	46367101	2SC2603
rQ42	46367101	2SC2603
rQ43	46367101	3SC2603
rQ44	46367001	2SA1115
rQ45	03064901	2SC1583
rQ46	46367001	2SA1115
rQ47	46367101	2SC2603
rQ48	46367101	2SC2603
rQ51	46367001	2SA1115
rQ52	46393201	2SC3786
•IC		
rIC1	48781000	TA7193P
rIC2	48780800	AN6855
rIC3	48423400	TC74HC04P
	or 48723600	μPD74HC04C
rIC4	07207300	MB84013BM
rIC5	07207300	MB84013BM
rIC6	46545800	TC4053BP
rIC7	46545800	TC4053BP
rIC9	46545800	TC4053BP
rIC10	46545800	TC4053BP
rIC11	45545800	TC4053BP
rIC12	48780700	AN6040
rIC13	46723700	NJM1496D
rIC14	03610500	TC4001BP
	or 48050000	MSM4001BRS
	or 48067200	BU4001B
rX01	48865800	Quartz Element NR-18 <NTSC>
	48780500	Quartz Element NR-18 <PAL>
rX02	48835000	Quartz Element NR-18 <NTSC>
	48780400	Quartz Element NR-18 <PAL>
•Diode		
rD1	03117600	1S2473T77
	or 46086000	1S1588TP-3

Parts No.	Stock No.	Description
•Zener Diode		
rDZ1	46112100	05Z6.8-Y
rDZ2	46111800	05Z6.2-Y
rDZ3	46111200	05Z5.1-Y
rDZ4	46111200	05Z5.1-Y
rDZ5	46112900	05Z9.1-X
rDZ6	46110800	05Z4.7-X
rDZ7	46111800	05Z6.2-Y
rTC2	46437600	Trimmer Capacitor 40pF
rL1	48453000	Peaking Coil 12μH <NTSC>
	46204500	Inductor 10μH <PAL>
rL2	48452200	Peaking Coil 680μH
rL3	48452200	Peaking Coil 680μH
rL4	46205000	Inductor 68μH
rL5	46204500	Inductor 10μH
rL8	46205100	Inductor 100μH
rL9	46204500	Inductor 10μH
rT1	48350000	Trap Filter <NTSC>
	48780200	Trap Filter <PAL>
rT2	48350100	Trap Filter <NTSC>
	48780300	Trap Filter <PAL>
rT3	48350100	Trap Filter <NTSC>
rVR1	46634300	10kΩ S.V.R., POST Level
rVR2	46634300	10kΩ S.V.R., NEGA Level
rVR3	46633900	2.2kΩ S.V.R., SET UP Level
rVR5	46634100	4.7kΩ S.V.R., DIGITAL ART Level
rVR6	46738600	4.7kΩ S.V.R., Original Signal
rVR8	46634100	4.7kΩ S.V.R., White V Position
rVR9	46634100	4.7kΩ S.V.R., White V Position
rVR10	46738500	2.2kΩ S.V.R., Burst Level
rVR11	46634500	22kΩ S.V.R., H SYNC Level
rVR12	46633500	470Ω S.V.R., Black Level
rVR13	46738800	22kΩ S.V.R., White V Position
rVR14	46738800	22kΩ S.V.R., White H Position
rVR15	48399200	3.3kΩ S.V.R., Color Amplitude
rVR16	46634300	10kΩ S.V.R., Black V Position
rVR17	46634300	10kΩ S.V.R., H Position
rVR18	46634300	10kΩ S.V.R., Black Level
rVR19	46633700	1kΩ (B) S.V.R., White Level
rVR20	48399200	3.3kΩ S.V.R., Green Phase
rVR22	46738500	3.3kΩ S.V.R., Burst Phase

2-3. F-5651 Input/Output Switching Board
(Stock No. 01032701 = NTSC/01051005 = PAL)

Parts No.	Stock No.	Description
•Transistor		
fQ1	46367001	2SA1115
fQ2	46367001	2SA1115
fQ3	46367101	2SC2603
fQ4	46367101	2SC2603
fQ5	46367101	2SC2603
fQ13	46367101	2SC2603
•IC		
fIC1	46122900	MSM4538RS
	or 46160800	TC4538BP
fIC2	46545800	TC4053BP
fIC3	07224800	TC4066BP
	or 48054500	MSM4066BRS
	or 48063800	BU4066B
fIC4	46545800	TC4053BP
fIC5	07224800	TC4066BP
	or 48054500	MSM4066BRS
	or 48063800	BU4066B
fIC6	46545800	TC4053BP
fIC7	46545800	TC4053BP
fIC8	46122900	MSM4538RS
	or 46160800	TC4538BP
fIC9 ~ 12	46545100	M5221P

to be continued ▶

<F-5651>

Parts No.	Stock No.	Description
•Diode		
fD1	03117600	1S2473T77
	or 46086000	1S1588TP-3
fD2	03117600	1S2473T77
	or 46086000	1S1588TP-3
fD3	03117600	1S2473T77
	or 46086000	1S1588TP-3
fD4	03117600	1S2473T77
	or 46086000	1S1588TP-3
fD5	03117600	1S2473T77
	or 46086000	1S1588TP-3
fC1	46693600	2200pF 50V F.C.
fC2	46673200	0.22μF 63V M.M. Capacitor
fC3	46693000	1200pF 50V F.C.
fC4	46693000	1200pF 50V F.C.
fC5	46693600	2200pF 50V F.C.
fC6	46697600	0.1μF 50V F.C.
fC7	46697600	0.1μF 50V F.C.
fC8	46696000	0.022μF 50V F.C.
fC10	48103700	4.7μF 50V E.B.
fVR1	46738700	10kΩ S.V.R., } <input checked="" type="checkbox"/> wipe position
fVR2	46738700	10kΩ S.V.R., } <input checked="" type="checkbox"/> wipe position
fVR3	46634500	22kΩ S.V.R., } <input type="checkbox"/> wipe position
fVR4	46633700	1kΩ (B) S.V.R., } <input checked="" type="checkbox"/> wipe position
fVR5	46633700	1kΩ (B) S.V.R., } <input checked="" type="checkbox"/> wipe position
fVR7	46634300	10kΩ S.V.R., } <input checked="" type="checkbox"/> wipe position
fVR8	46634700	47kΩ S.V.R., } <input checked="" type="checkbox"/> wipe position
fVR9	46635100	220kΩ S.V.R., } <input checked="" type="checkbox"/> wipe position
fVR10	46633700	1kΩ (B) S.V.R., } <input checked="" type="checkbox"/> wipe position
fVR11	46634300	10kΩ S.V.R., } <input checked="" type="checkbox"/> wipe position
•Transistor		
jQ1	46367101	2SC2603
jQ2	46367101	2SC2603
jQ3	46367101	2SC2603
jQ4	46367101	2SC2603
jQ5	46393201	2SC2786
jQ6	46367001	2SA1115
jQ7	46367101	2SC2603
jQ8	46367101	2SC2603
jQ9	46367101	2SC2603
jQ10	46393201	2SC2786
jQ11	46367001	2SA1115
jQ12	46367101	2SC2603
jQ13	46393201	2SC2786
jQ14	46367001	2SA1115
jQ15	46367101	2SC2603
jQ16	46367101	2SC2603
jQ17	46367101	2SC2603
jQ18	46367101	2SC2603
•IC		
jIC1	46545800	TC4053BP
jIC2	46545800	TC4053BP
jIC3	46545800	TC4053BP
jIC4	07224800	TC4066BP
	or 48054500	MSM4066BRS
	or 48063800	BU4066B
jIC5	07224800	TC4066BP
	or 48054500	MSM4066BRS
	or 48063800	BU4066B
jIC6	07224800	TC4066BP
	or 48054500	MSM4066BRS
	or 48063800	BU4066B
jIC7	07208900	NJM4558D-X
	or 46580100	M5218P
jIC8	07208900	NJM4558D-X
	or 46580100	M5218P
jIC9	07208900	NJM4558D-X
	or 46580100	M5218P
jIC10	07208900	NJM4558D-X
	or 46580100	M5218P
•Diode		
jD1	03117600	1S2473T77
	or 46086000	1S1588TP-3

Parts No.	Stock No.	Description
jD2	03117600	1S2473T77
	or 46086000	1S1588TP-3
jD3	48731500	Varistor SV-03YS
jD4	48731500	Varistor SV-03YS
jD5	48731500	Varistor SV-03YS
jD6	48731500	Varistor SV-03YS
jDZ1	46111200	05Z5.1Y
nD13	03117600	1S2473T77
	or 46086000	1S1588TP-3
oS1	48392300	3P Terminal, SOURCE <NTSC>
oS2	48392300	3P Terminal, SOURCE <NTSC>
oS3	48310000	3P Terminal, REC <NTSC>
oS4	48310000	3P Terminal, REC <NTSC>
oS32	48778700	BNC CONECTOR, LOOP OUT <NTSC>

2-4. F-5652 Input/Output Terminal Board (PAL)

Parts No.	Stock No.	Description
jIC	07224800	TC4066BP
	or 48054500	MSM4066BRS
oS1 ~ 4	48778600	Connector Socket
oS32	48778800	Connector

2-5. F-5653 EXT Processor Board

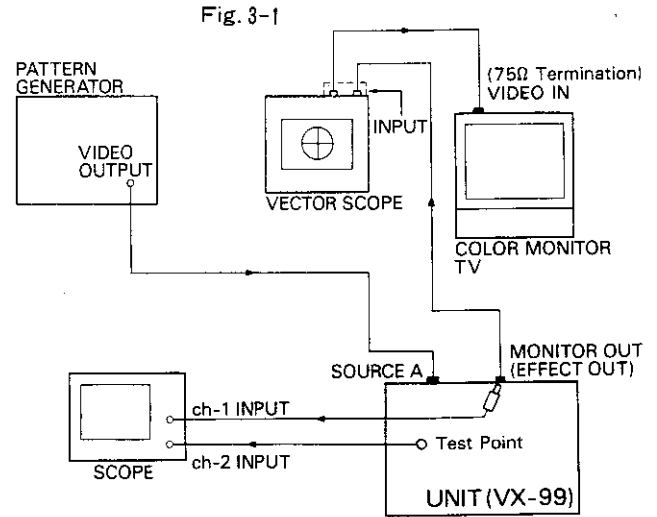
Parts No.	Stock No.	Description
oS5	48354200	1P Pin Terminal, EXT PROCESSOR
oS6	48354200	1P Pin Terminal, EXT PROCESSOR

2-6. F-5696 Power Supply Board (Stock No. 01040401)

Parts No.	Stock No.	Description
•Transistor		
mQ1	46367001	2SA1115
mQ2	46367001	2SA1115
mQ5	46367001	2SA1115
mQ6	48150801	2SB1015
•IC		
mIC1	48116100	SI-3122V
•Diode		
mD1	46260300	10E2
mD2	03117600	1S2473T77
	or 46086000	1S1588TP-3
mD3	46273600	DBB10B
	or 46273700	DBB10C
	or 48192000	DBB10E
	or 48192100	DBB10G
mD4	46273600	DBB10B
	or 46273700	DBB10C
	or 48192000	DBB10E
	or 48192100	DBB10G
•Zener Diode		
mDZ1	46113200	05Z10-X
mDZ3	46114100	05Z13-X
△pC1	46371700	4700pF 400V C.C.
△pS1	46413900	Push SW., POWER

3. ADJUSTMENTS

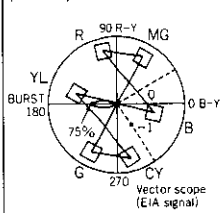
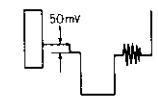
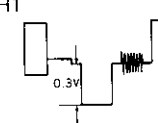
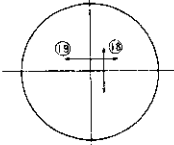
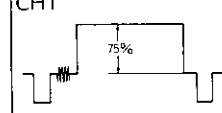
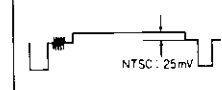
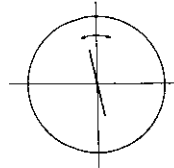
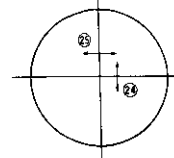
- Conditions:** 1. Remove front panel assembly from bottom cover assembly.
 2. Arrange the connection as shown in Fig. 3-1. When no vector scope is used, connect MONITOR EFFECT terminal of the unit (VX-99) to VIDEO IN terminal of a color monitor TV.
 3. See F-5650, F-5651 parts location on page 13, 14 for ADJUST. and CHECK POSI..

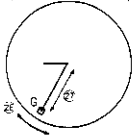
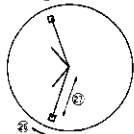
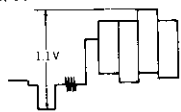


3-1. SYNC & Set-up Level Adjustment

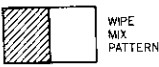
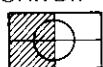

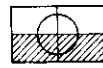

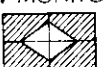

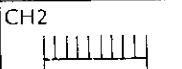


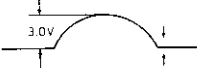

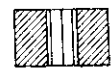
STEP	ADJUST ITEM	SETTING	ADJUST	CHECK POSI.	SYNC SIG.	HOW TO ADJUST	
1	H SYNC Pulse Width	INPUT SOURCE A: EIA color bar Scope CH1: MONI. OUT (75 ohm termination) WIPE ANGLE: HORIZ. SOFTNESS: SHARP SOURCE: A MONITOR: EFFECT FADER/POSI: A	① (fVR19)	Ⓐ JW86 (F-5650) Scope CH2	H	CH1 CH2 8 waves a b	Set point a of TP signal to color burst start in monitor OUT waveform. Set point b of TP signal as leftward as possible.
2			② (fVR20)				
3	H Blanking Pulse Width	INPUT SOURCE A: RASTER MONITOR: A Scope CH1: MONI. OUT	③ (fVR18)	Ⓑ JW3 (F-5650) Scope CH2	H	CH1 CH2 1.0-1.2 μsec 0.2 μsec in PAL c d	Set point c to a position 0.2μsec behind from modulation start. Set point d to a position 1.0 to 1.2μsec before from modulation end, but to blue end in PAL system.
4			④ (fVR17)				Turn fVR14 full counterclockwise.
5			⑤ (fVR14)				
6	V Blanking Pulse Width	INPUT SOURCE A: RASTER MONITOR: A Scope CH1: MONI. OUT	⑥ (fVR15)	Ⓒ JW20 (F-5650) Scope CH2	V	CH1 CH2 e f	Set point e to video signal (modulation) end. Set point f to video signal (modulation) start.
7			⑦ (fVR16)				
8	Set Up Level (Pedestal Level)	INPUT SOURCE A: FULL FIELD COLOR BAR (CHROMA: OFF)	⑧ (rVR3)	Ⓓ JW66 (F-5650) Scope CH1	H	CH1 0V -1.8V	Set oscilloscope to 0V in DC and adjust set-up level to 1.8V.
9	Black Level POGI	INPUT SOURCE A: FULL FIELD COLOR BAR (CHROMA: OFF)	⑨ (rVR1)			CH1 0-50mV	Set color bar black level to a position 0 to 50mV higher than the set-up level.
10	Black Level NEGA	POGI/NEGA: ON Turn off after adjustment.	⑩ (rVR2)			CH1 0-50mV	Turn on NEGA and set black level in NEGA to a position 0 to 50mV higher than the set-up level.
11	VXO	INPUT SOURCE B: No signal	⑪ (rTC2)	Ⓔ TP5 (F-5650) freq. counter	(NTSC) 3.579545MHz ± 50Hz (PAL) 4.433619MHz ± 50Hz		Set frequencies as shown left by adjusting trimmer.

3-2. Original Color & Back Color Adjustment

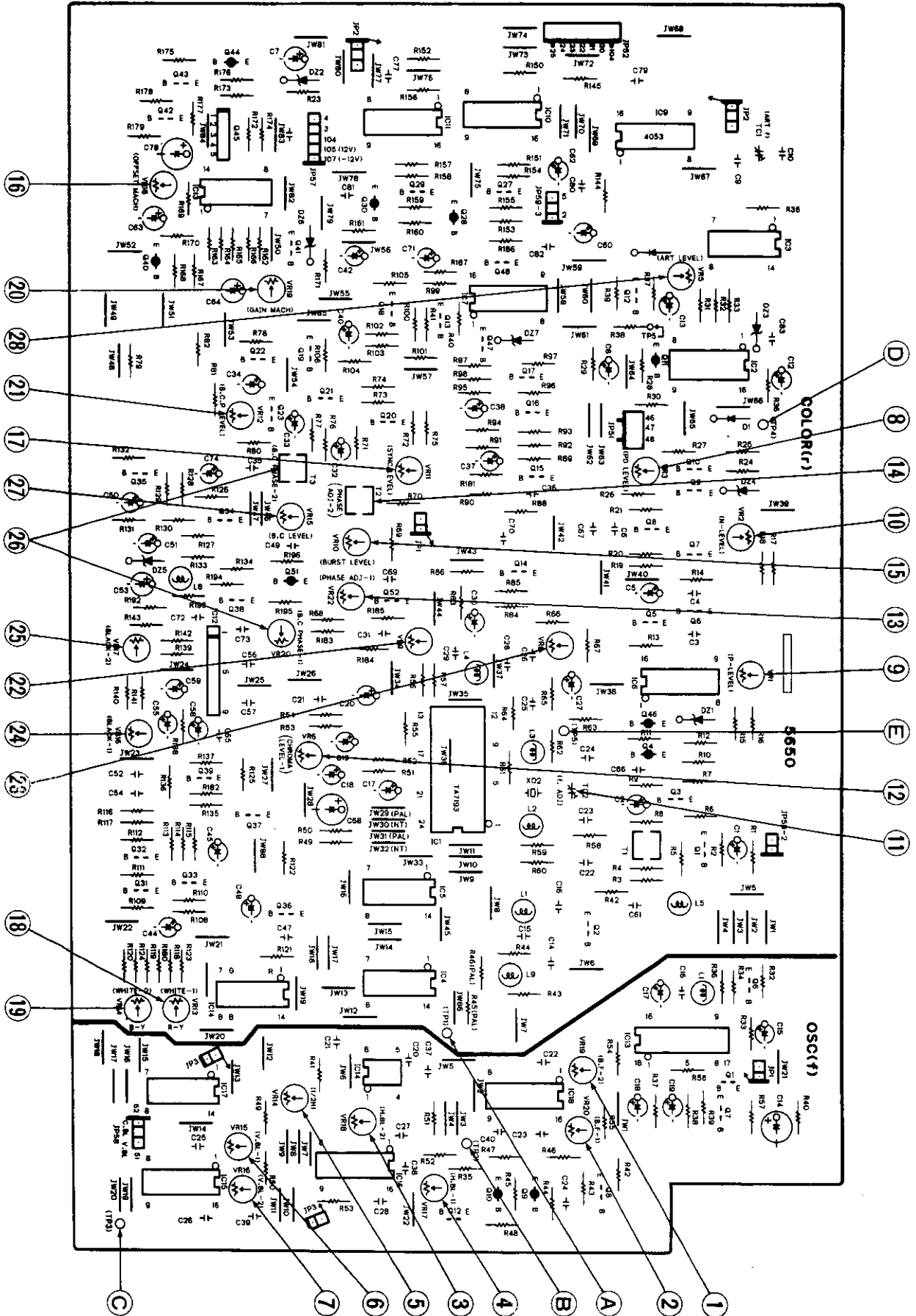
STEP	ADJUST ITEM	SETTING	ADJUST	CHECK POSI.	SYNC SIG.	HOW TO ADJUST	
1	Original Color Adjustment (Amplitude: Color Density)	FADER/POSITION: IN MONITOR: FROM A to EFFECT Vector scope: INPUT-A, SYNC-φA, GAIN-CAL'D	⑫ (rVR6)	MONITOR OUT Vector scope		(NTSC) 	Adjust amplitude, phase of vector scope with MONITOR set to A. Adjust amplitude as shown left by rVR6 with MONITOR set to EFFECT. Adjust so that each color enters within on vector scope.
2	Original Color Adjustment (Phase: Color Difference)	OUTPUT-75ohm termination SATURATION: 75% INPUT SOURCE A: EIA color bar	⑬ (rVR22)				Adjust burst phase with rVR22, after setting the same as above. When impossible with rVR22, proceed to Item 3 as it is.
3			⑭ (rT2)				When impossible in Item 2, use rT2.
4	Original Color Adjustment (Burst Level)		⑮ (rVR10)				Adjust burst level so as to be located at the 75% center on vector scope.
5	Original Color Black Level Adjustment	FADER/POSITION: ON MONITOR: EFFECT INPUT SOURCE A: EIA color bar	⑯ (rVR18)	MONITOR OUT Scope CH1	H	CH1 	(NTSC): Set color bar last black to a position 50mV higher than pedestal level. (PAL): Set the same to the pedestal level.
6	Original Color H-sync Level Adjustment		⑰ (rVR11)			CH1 	Set horizontal sync signal to a level 0.3V lower than pedestal level.
7	Back Color (White)	FADER/POSITION: OUT MONITOR: EFFECT COLOR: R, G, B are all ON INPUT SOURCE A: EIA color bar	⑱ (rVR13)	MONITOR OUT Vector scope CH1	H	Vector Scop 	Set vertical line to the center with rVR13 on vector scope.
8			⑲ (rVR14)				Set horizontal line to the center with rVR14 on the vector scope.
9			⑳ (rVR19)			CH1 	Adjust white level 75% in white. The level is the same as EIA color bar white (75%) of monitor A output.
10	Back Color (Black)	FADER/POSITION: OUT MONITOR: EFFECT COLOR: R, G, B are all ON INPUT SOURCE A: EIA color bar	㉑ (rVR12)	MONITOR OUT Scope CH1	H	CH1 	Adjust black level to 25mV in NTSC and to pedestal level in PAL. In adjustment, switch FADER from IN to OUT or vice versa to alternately adjust original and back color black.
11	Color Difference Basic Axis Adjustment (White Axis)	FADER/POSITION: OUT MONITOR: EFFECT COLOR: R, G, B are all ON INPUT SOURCE A: EIA color bar	㉒ (rVR9)	MONITOR OUT Vector scope		Temporary setting Vector scope 	Turn rVR19 full clockwise. Turn rVR18. If white axis moving direction is off-set from the vertical axis, adjust rVR9 so that axis moves along the vertical axis.
12			㉓ (rVR8)				Set rVR8 to the mechanical central position.
13	Color Difference Basic Axis Adjustment (Black Axis)	FADER/POSITION: OUT MONITOR: EFFECT COLOR: R, G, B are all OFF INPUT SOURCE A: EIA color bar	㉔ (rVR16)	MONITOR OUT Vector scope		Vector scope 	Set black axis to be vertical axis center on vector scope.
14			㉕ (rVR17)				Set black axis to the horizontal axis center on vector scope.

STEP	ADJUST ITEM	SETTING	ADJUST	CHECK POSI.	SYNC SIG.	HOW TO ADJUST	
15	Color Adjustment (Phase: Color Difference)	FADER/POSITION: OUT MONITOR: EFFECT COLOR: only G is ON INPUT SOURCE A: EIA color bar	⑳ (rVR20) (rT3)	MONITOR OUT Vector scope		(NTSC) Vector scope  (PAL) 	Upon checking burst phase and amplitude, adjust G phase with rVR20. If impossible, use rT3. Adjust both two in PAL.
16	Color Adjustment (Amplitude: Color Density)		㉑ (rVR15)				Adjust G amplitude with rVR15. Switch back color from white to black or vice versa. If basic axis is offset, repeat the above items 22 to 25.
17	Digital Art	INPUT SOURCE A: EIA color bar MONITOR: EFFECT DIGITAL ART: ON LEVEL: HIGH FADER: IN	㉒ (rVR5)	MONITOR OUT Scope CH1	H	CH1 	Adjust voltage between the bottom of horizontal sync. signal and the top of modulation to 1.1V.

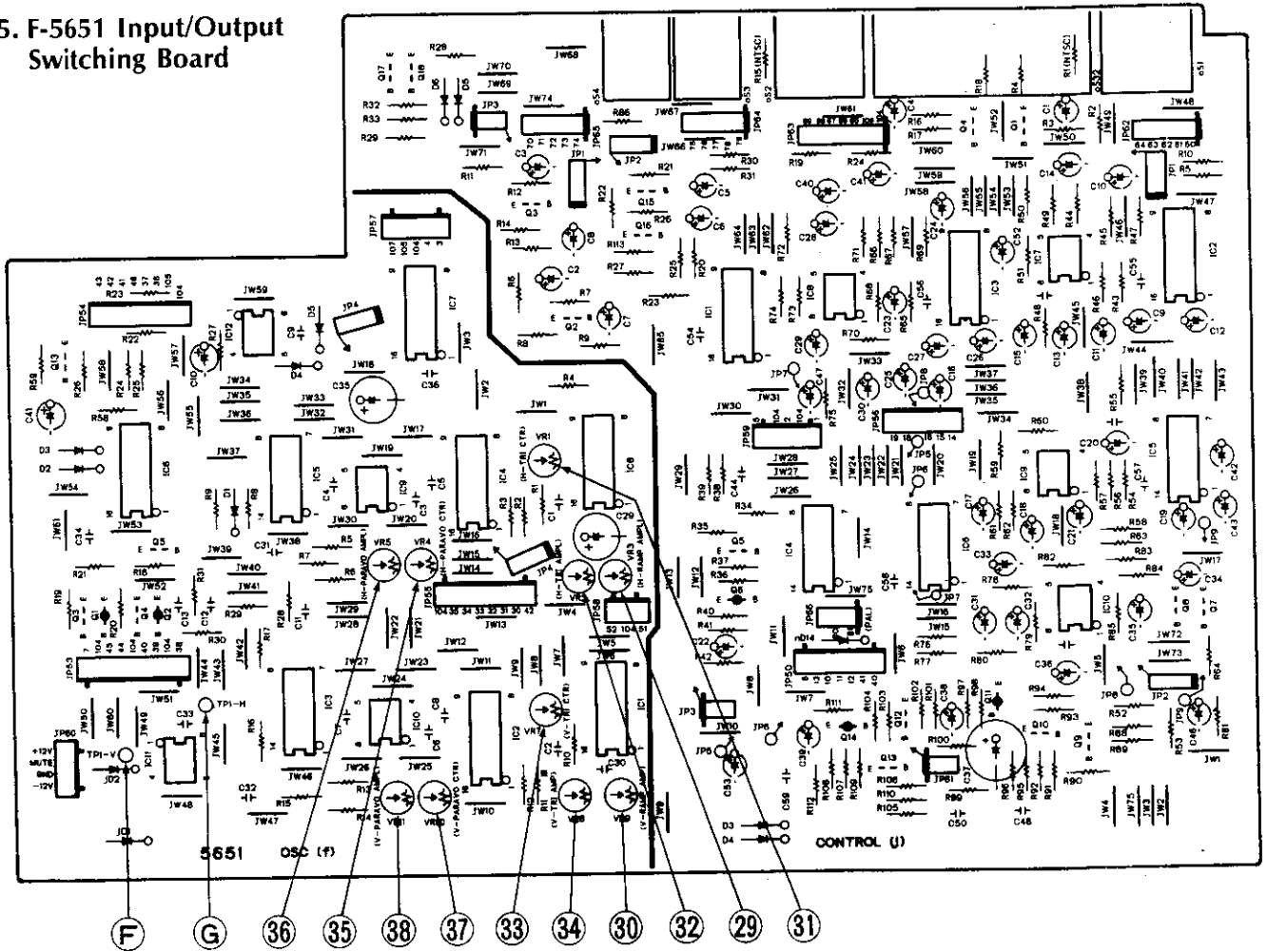
3-3. Wipe Mix Pattern Adjustment

STEP	ADJUST ITEM	SETTING	ADJUST	CHECK POSI.	SYNC SIG.	HOW TO ADJUST	
1	Wipe Generator (RAMP)	MONITOR: EFFECT FADER/POSITION & WIPE ANGLE: CENTER INPUT SOURCE A: ALIGNMENT WIPE: ON 	㉓ (fVR3)	MONITOR OUT TV MONITOR		TV MONITOR 	Adjust circle to and fro with fVR3 to obtain wipe center.
2			㉔ (fRV9)			TV MONITOR 	Adjust circle up and down with fVR9 to obtain wipe center.
3	Wipe Generator Triangle Adjustment	MONITOR: EFFECT FADER/POSITION & WIPE ANGLE: CENTER INPUT SOURCE A: ALIGNMENT WIPE: ON SLANT: ON 	㉕ (fVR1)	㉕ (F-5651) Scope CH1	H	TV MONITOR 	Adjust rhombus horizontal width to the center with fVR1.
4			㉖ (fVR2)	MONITOR OUT TV MONITOR		Scope CH2 	Adjust oscillo wave form amplitude to 3.4V with fVR2.
5			㉗ (fVR7)	㉗ (F-5651) Scope CH1	V	CH2 	Adjust rhombus vertical width to the center with fVR7.
6			㉘ (fVR8)	MONITOR OUT TV MONITOR		Scope CH2 	Adjust oscillo wave form amplitude to 3.4V with fVR8.
7	Wipe Generator Parabola	INPUT SOURCE A NTSC: ALIGNMENT PAL: CONVERGENCE MONITOR: EFFECT FADER/POSITION & WIPE ANGLE: CENTER WIPE: ON 	㉙ (fVR4)	㉙ (F-5651) Scope CH1	H	CH1 	Set parabola start and end to the same level with fVR4.
8			㉚ (fVR5)				Set the height to 3.0V with fVR5.
9			㉛ (fVR10)	㉛ (F-5651) Scope CH1	V		Set parabola V-side start and end to the same level with fVR10.
10			㉜ (fVR11)				Set the height to 3.0V with fVR11.
11	WIPE ANGLE HORIZ.		㉝ (fVR11)	MONITOR OUT TV MONITOR		TV MONITOR 	Set wipe angle to HORIZ. AC side and adjust FADER to obtain three horizontal lines with fVR11.
	WIPE ANGLE VERT.					TV MONITOR 	Set wipe angle to VERT. and adjust FADER to obtain three vertical lines with fVR11. * A small offset of circle center from input signal center may be allowed.

3-4. F-5650 Color Management Board

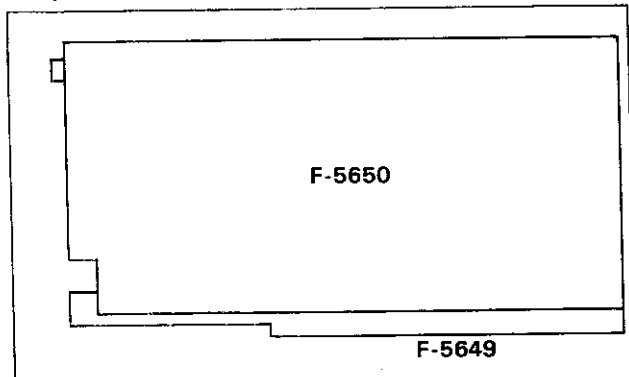


3-5. F-5651 Input/Output Switching Board



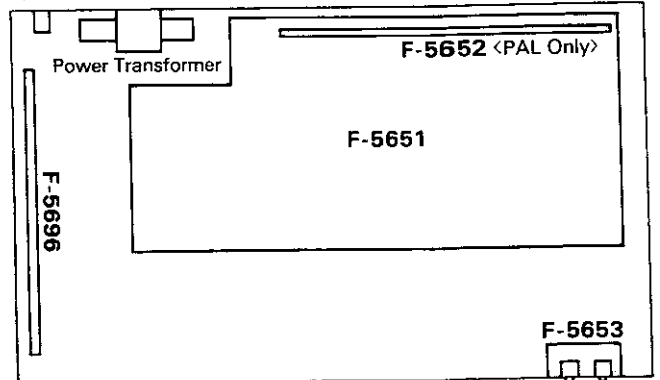
3-6. Location of Circuit Board

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Rear Side

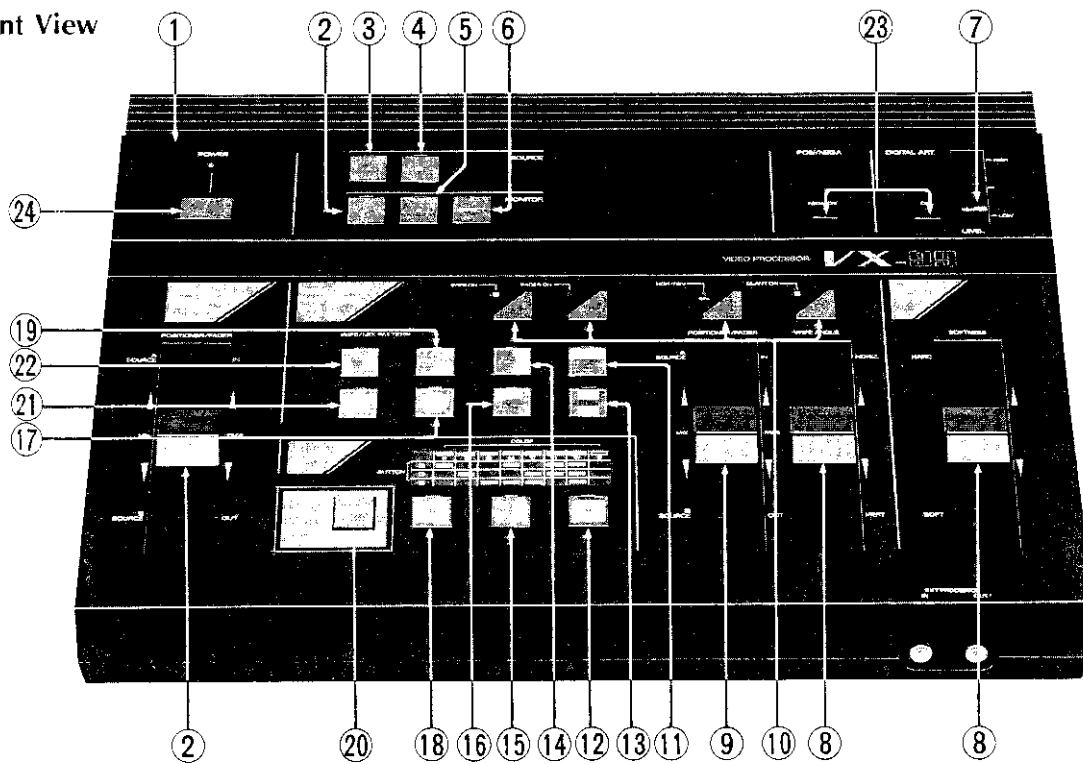
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Front Side

4. OTHER PARTS

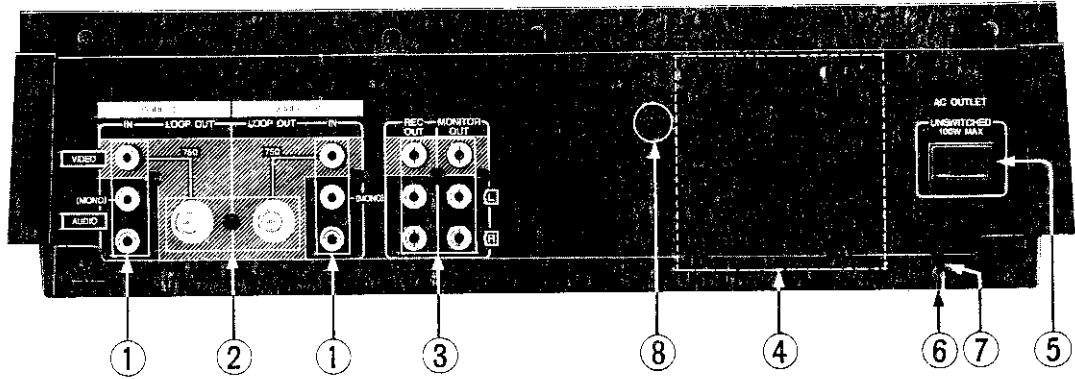
4-1. Front View



• Parts List

Parts No.	Stock No.	Description
1	27342700	Front Panel Ass'y (XX-V, CSA, EU, SS, UK)
	27342800	Front Panel Ass'y (UL)
2	27339200	Knob, MONITOR A
3	27339100	Knob, SOURCE A
4	27339300	Knob, SOURCE B
5	27339400	Knob, MONITOR B
6	27339500	Knob, MONITOR EFFECT
7	27097800	Knob, Ass'y DIGITAL ART LEVEL
8	27097600	Slide VR Knob Ass'y
9	27339000	Side Ass'y, FADAR/POSITION
10	27095900	Push Switch Knob
11	27340300	Knob, [Symbol]
12	27391100	Knob, Color B
13	27339700	Knob, [Symbol]
14	27340000	Knob, [Symbol]
15	27391000	Knob, Color G
16	27340100	Knob, [Symbol]
17	27099600	Knob, [Symbol]
18	27390900	Knob, Color R
19	27339900	Knob, [Symbol]
20	27339600	Knob, COLOR MIX
21	27340200	Knob, [Symbol]
22	27339800	Knob, [Symbol]
23	27095200	Knob, NEGA ON/DIGITAL ART ON
24	27039800	Knob, POWER

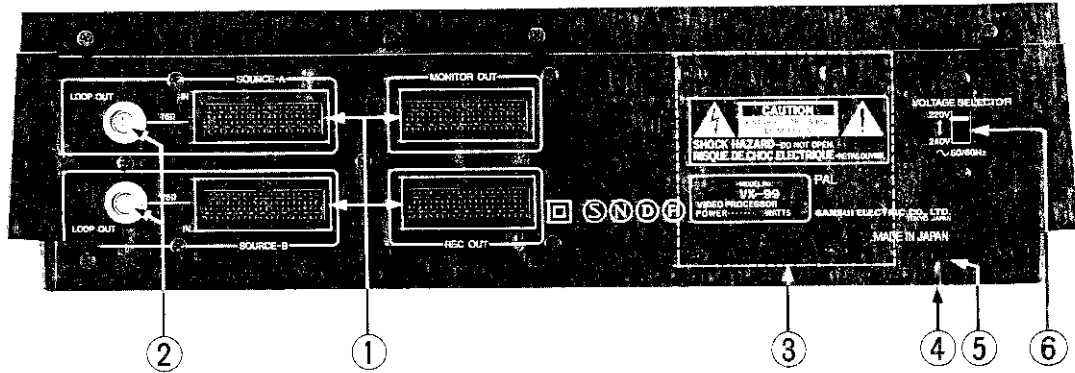
4-2. Rear View <NTSC System>



• Parts List

Parts No.	Stock No.	Description
1	48392300	3P Source A, B Terminal
2	48778700	75Ω Loop Out Terminal
3	48310000	3P REC/MONITOR Terminal
△4	15028709	Power Transformer (XX-V)
△4	15028702	Power Transformer (UL, CSA)
△5	46364900	AC Outlet (XX-V)
△	48184000	AC Outlet Polarized (XX-V, UL, CSA)
△6	38004800	Power Supply Cord (XX V)
△	48187800	Power Supply Cord (UL)
△	48187500	Power Supply Cord (CSA)
△	48585000	Power Supply Cord Polarized (XX-V)
7	47770900	AC Cord Cover
△8	48175200	Voltage Selector

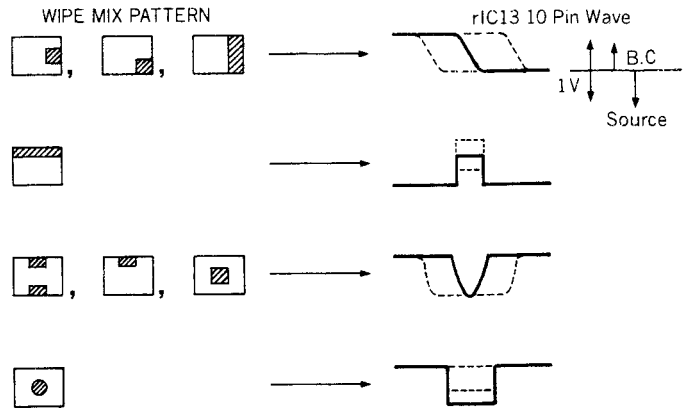
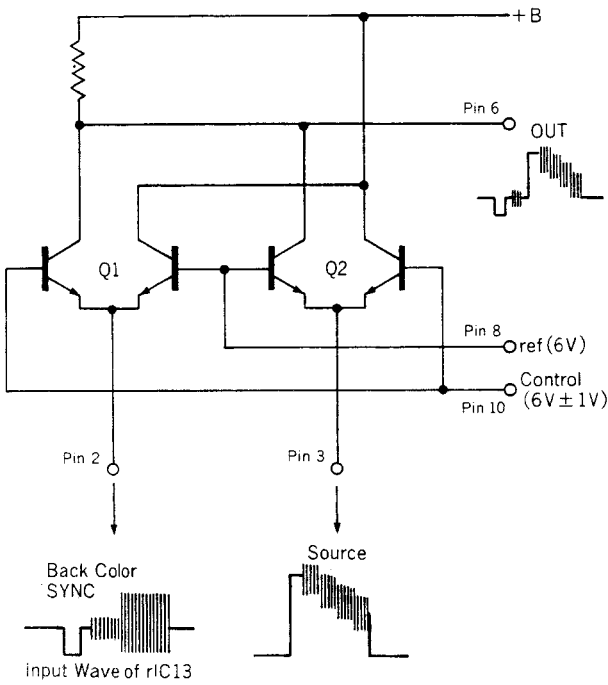
4-3. Rear View <PAL System>



• Parts List

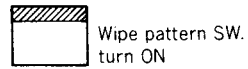
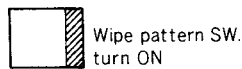
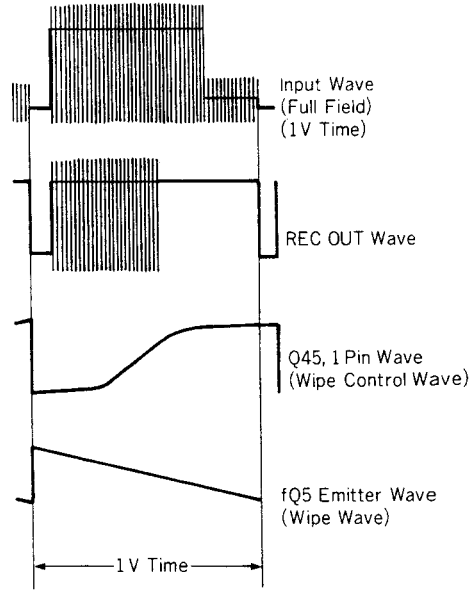
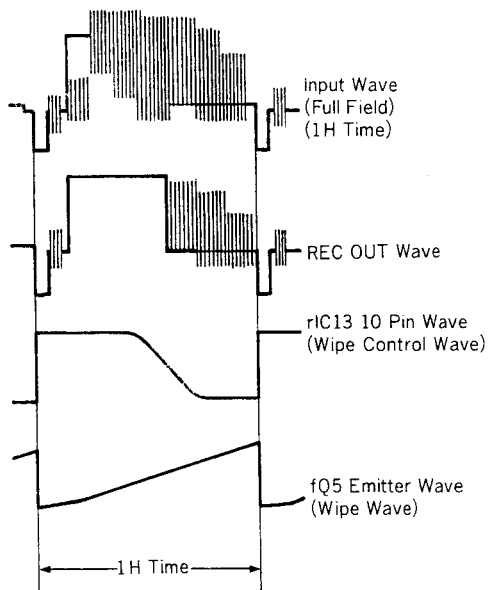
Parts No.	Stock No.	Description
1	48778600	21P Connector Socket
2	48778800	75Ω Loop Out Terminal
△3	15029805	Power Transformer (EU, UK)
△	15029901	Power Transformer (SS)
△4	48837700	Power Supply Cord (SS)
△	38004500	Power Supply Cord (EU)
△	38004300	Power Supply Cord (UK)
5	47770900	AC Cord Cover
△6	07204700	Voltage Selector

5. OPERATION OF BALANCE MIXER rIC13, NJM1496D (Refer to Schematic Diagram)



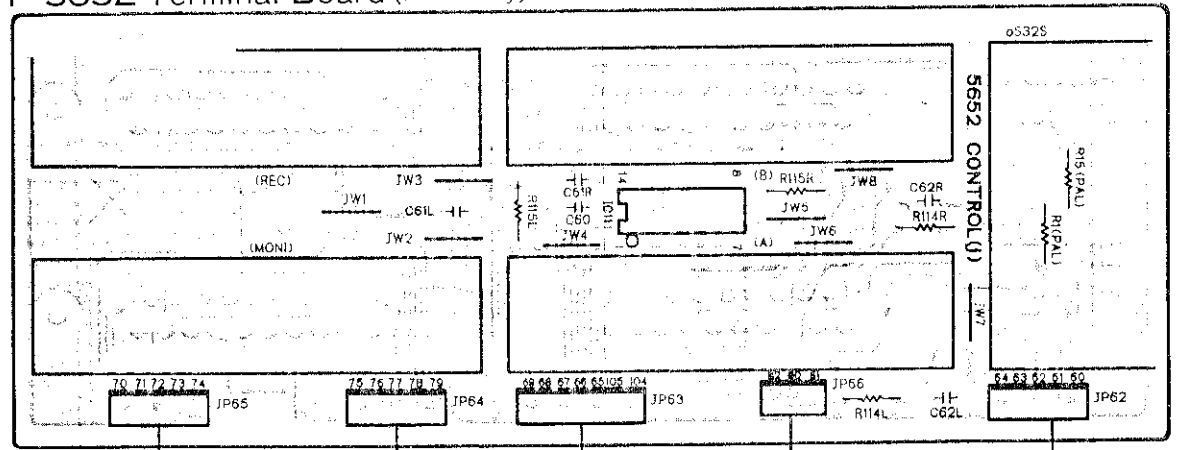
- Description :**
- SOURCE A → FULL Field
 - SOFTNESS → SHARP
 - COLOR → 6 FF
 - MONITOR → EFFECT
 - WIPE ON → ON
 - ROR/REV → OFF
 - CLANT → OFF

• Operation Wave of Each Point

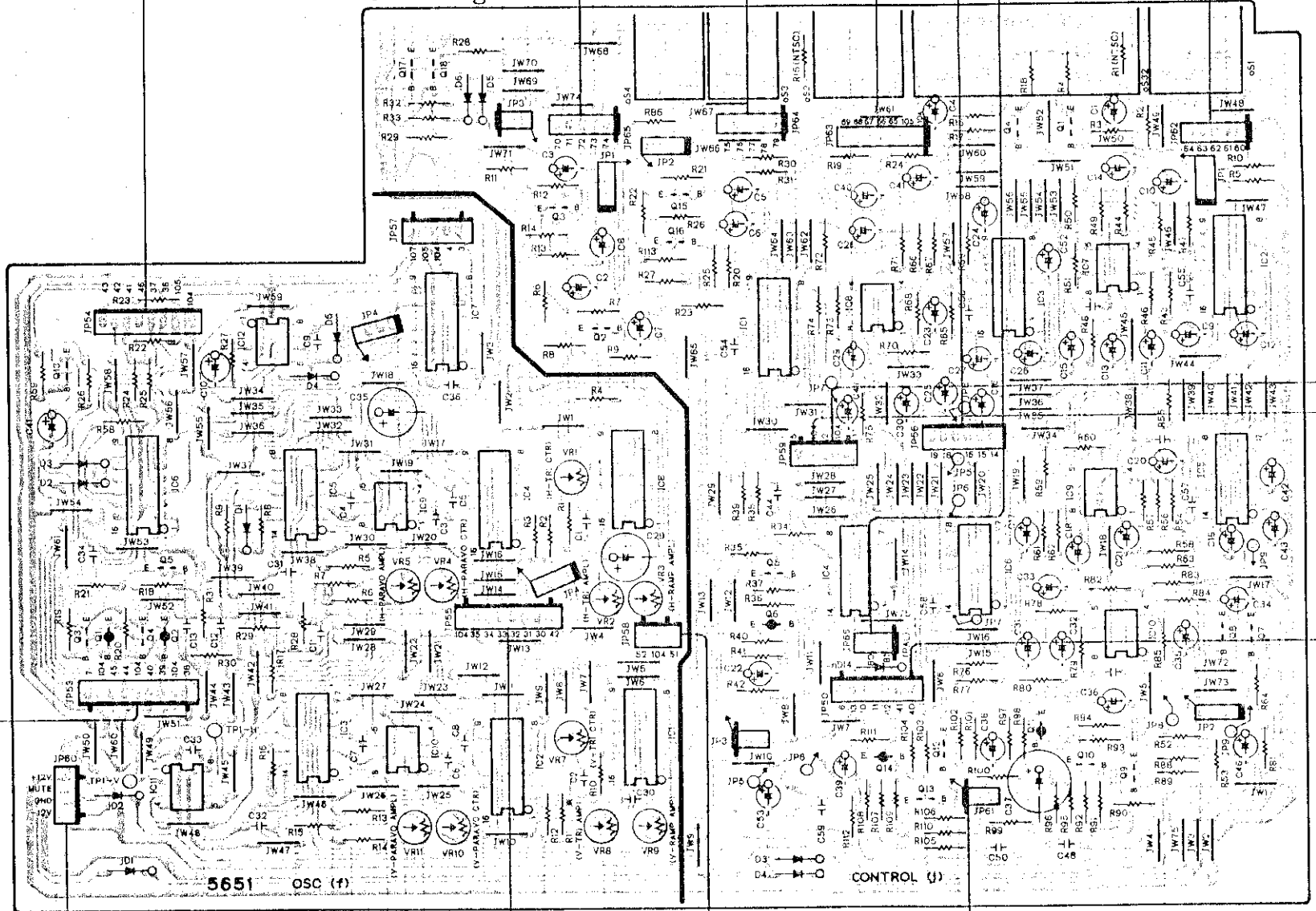


C. OVERALL WIRING & PARTS LOCATION ON PRINTED CIRCUIT BOARD

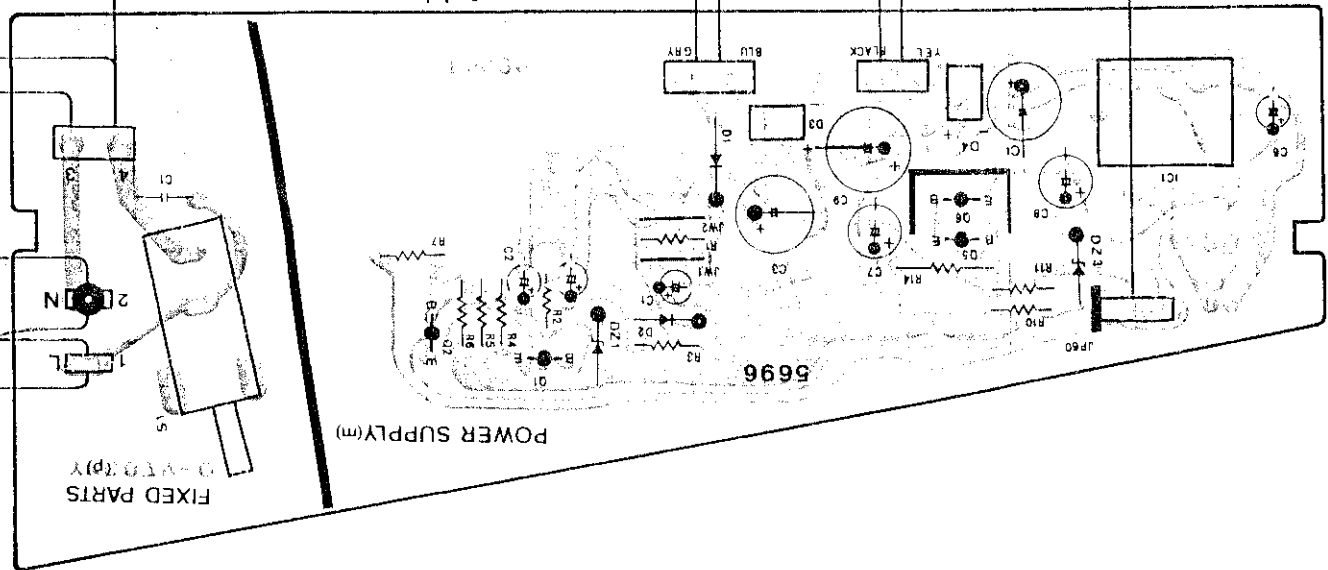
F-5652 Terminal Board (PAL Only)



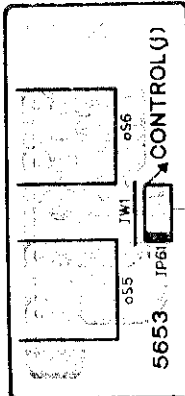
F-5651 Input/Output Switching Board



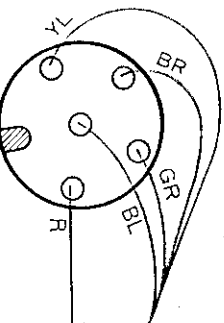
F-5696 Power Supply Board



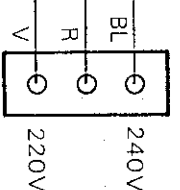
F-5653 EXT PR
CESSOR Board



VOLTAGE SELECTOR (NTSC Only)



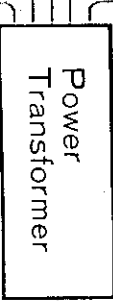
VOLTAGE SELECTOR (PAL Only)



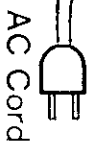
AC Outlet (NTSC Only)

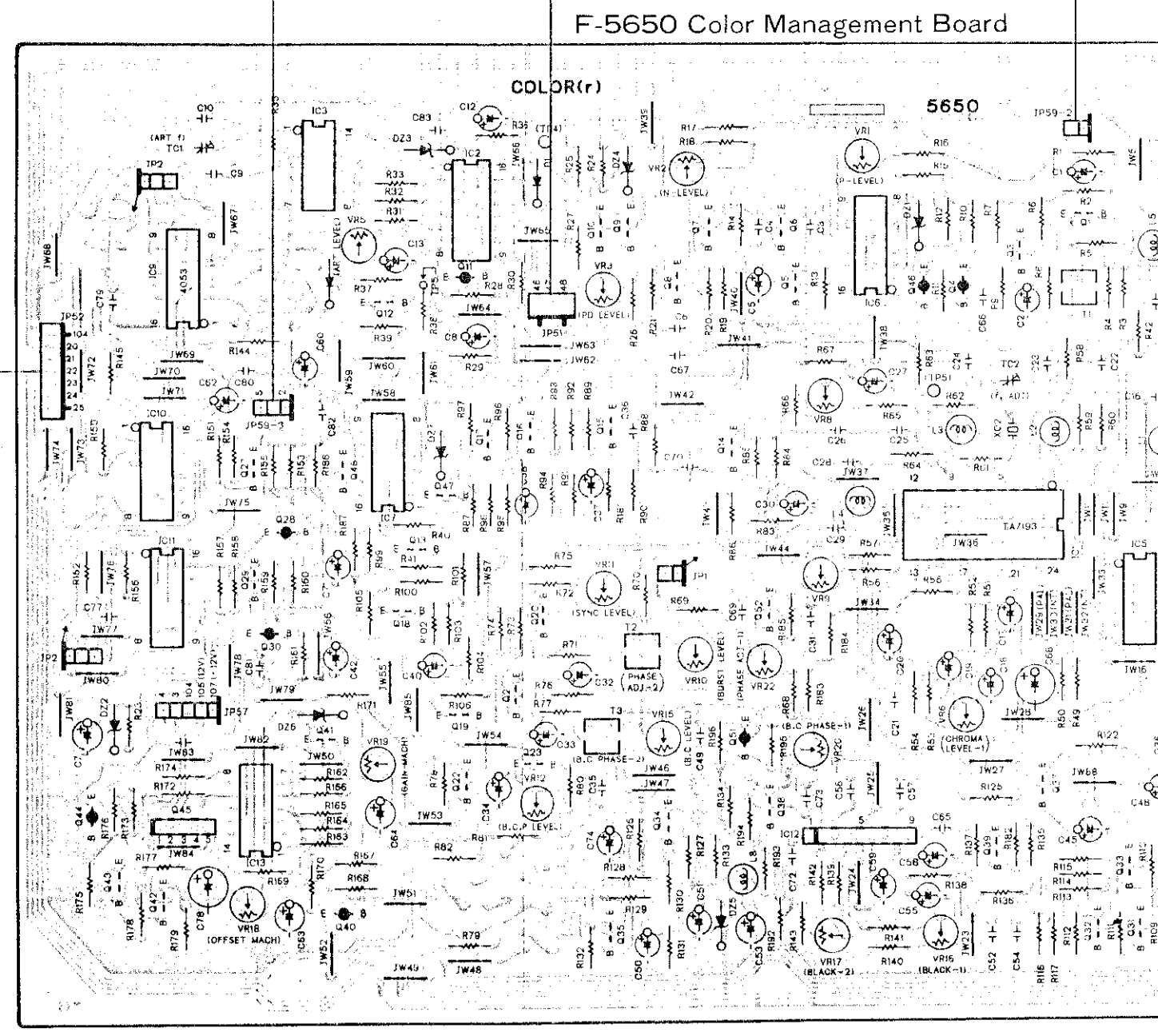
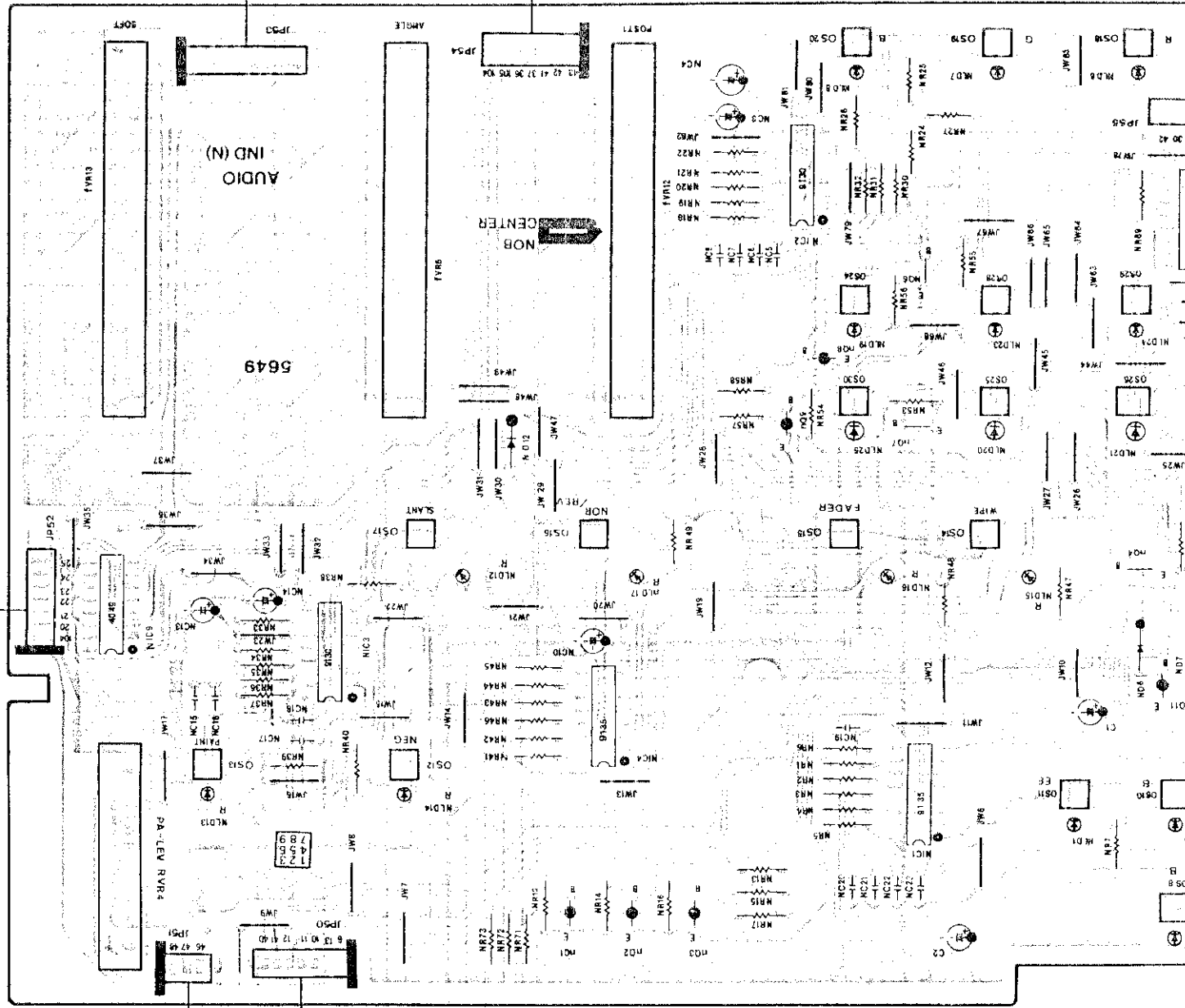
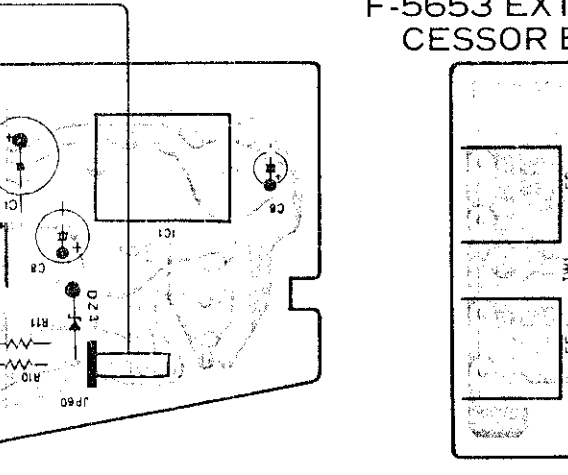
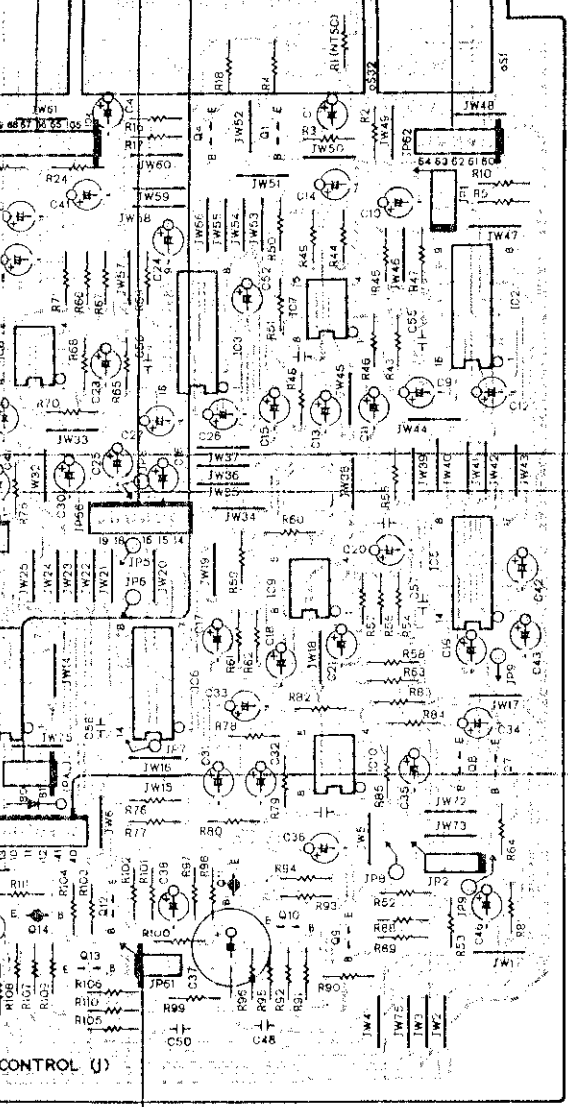
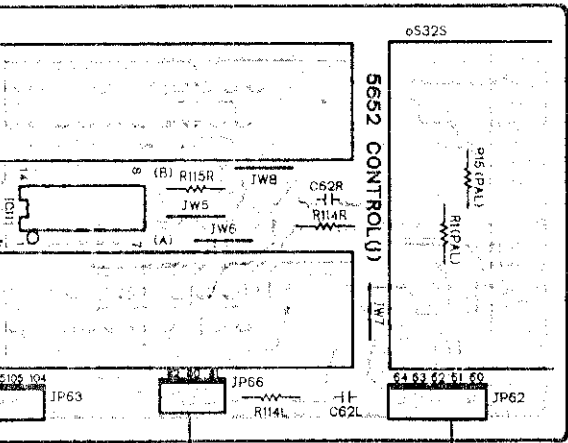
AC Cord

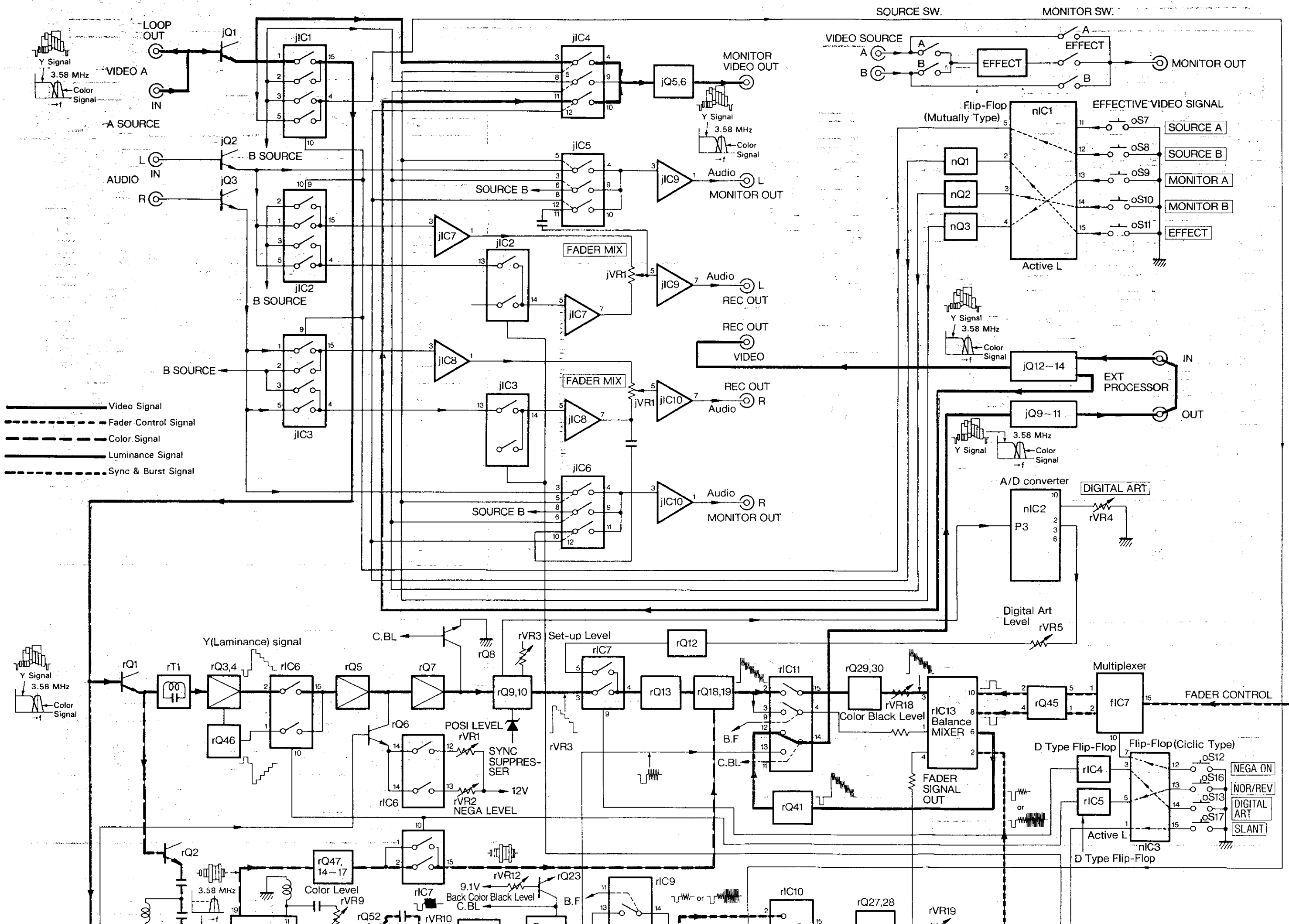
Power Transformer

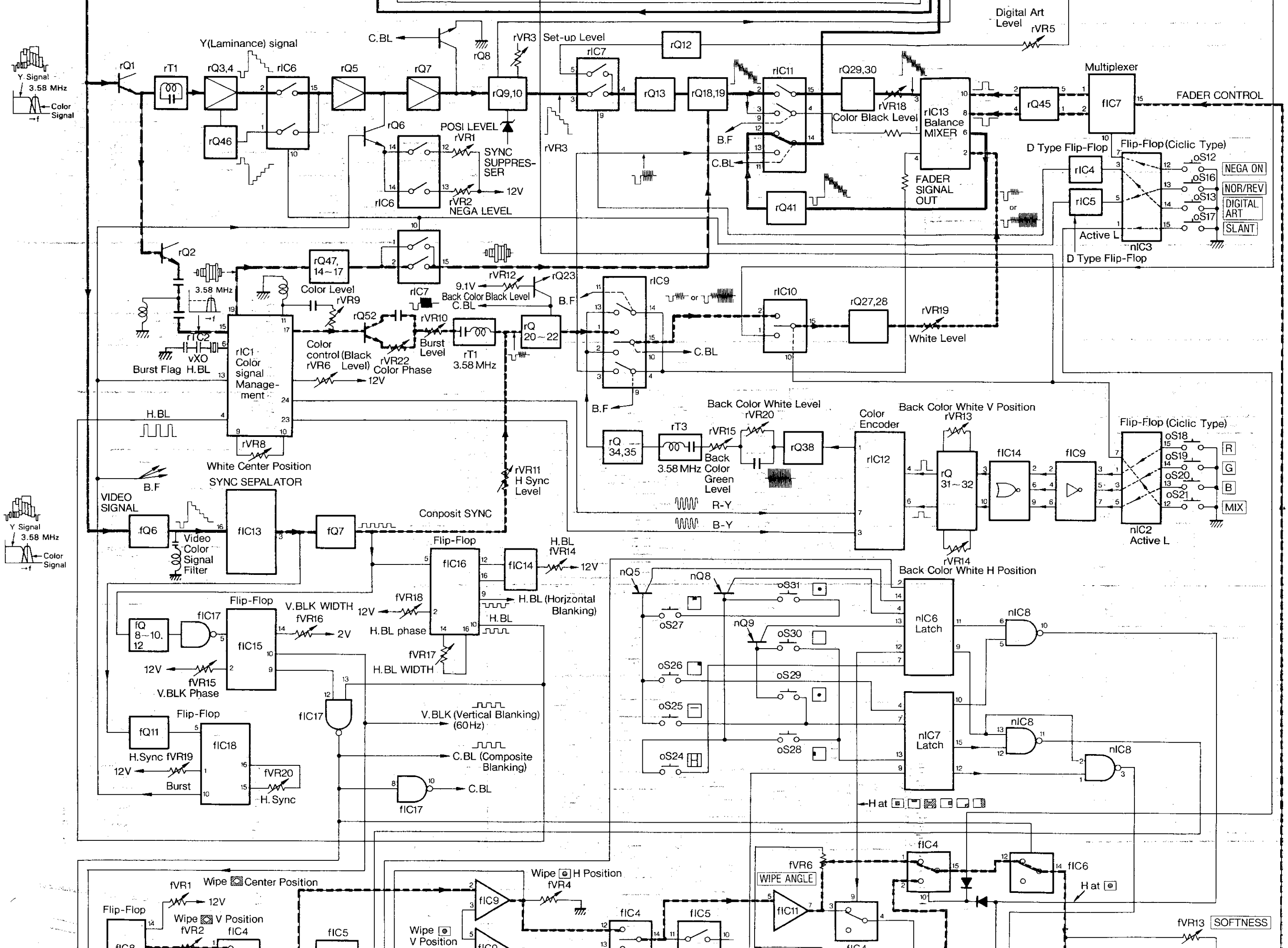


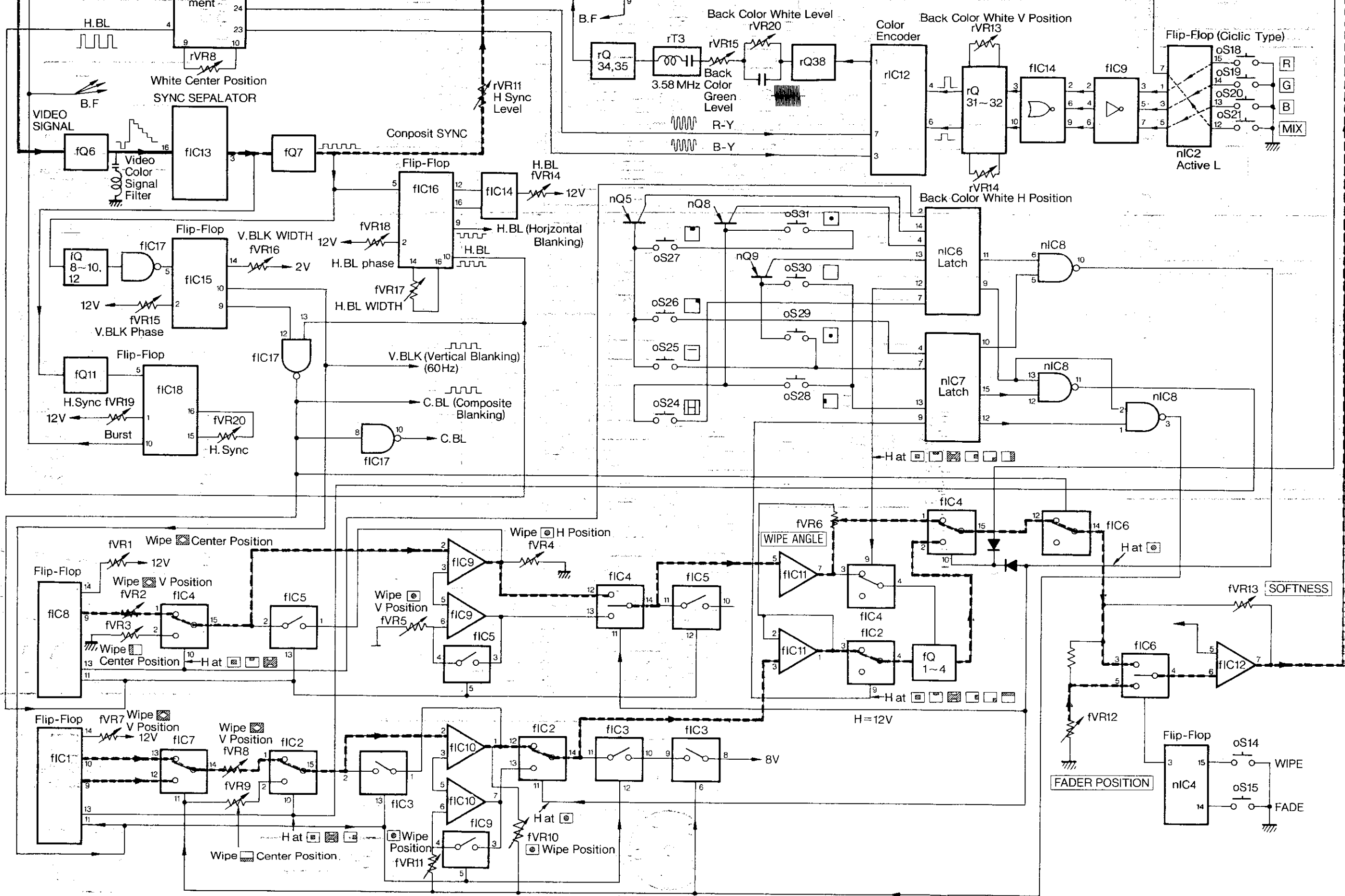
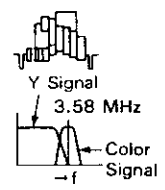
FIXED PARTS





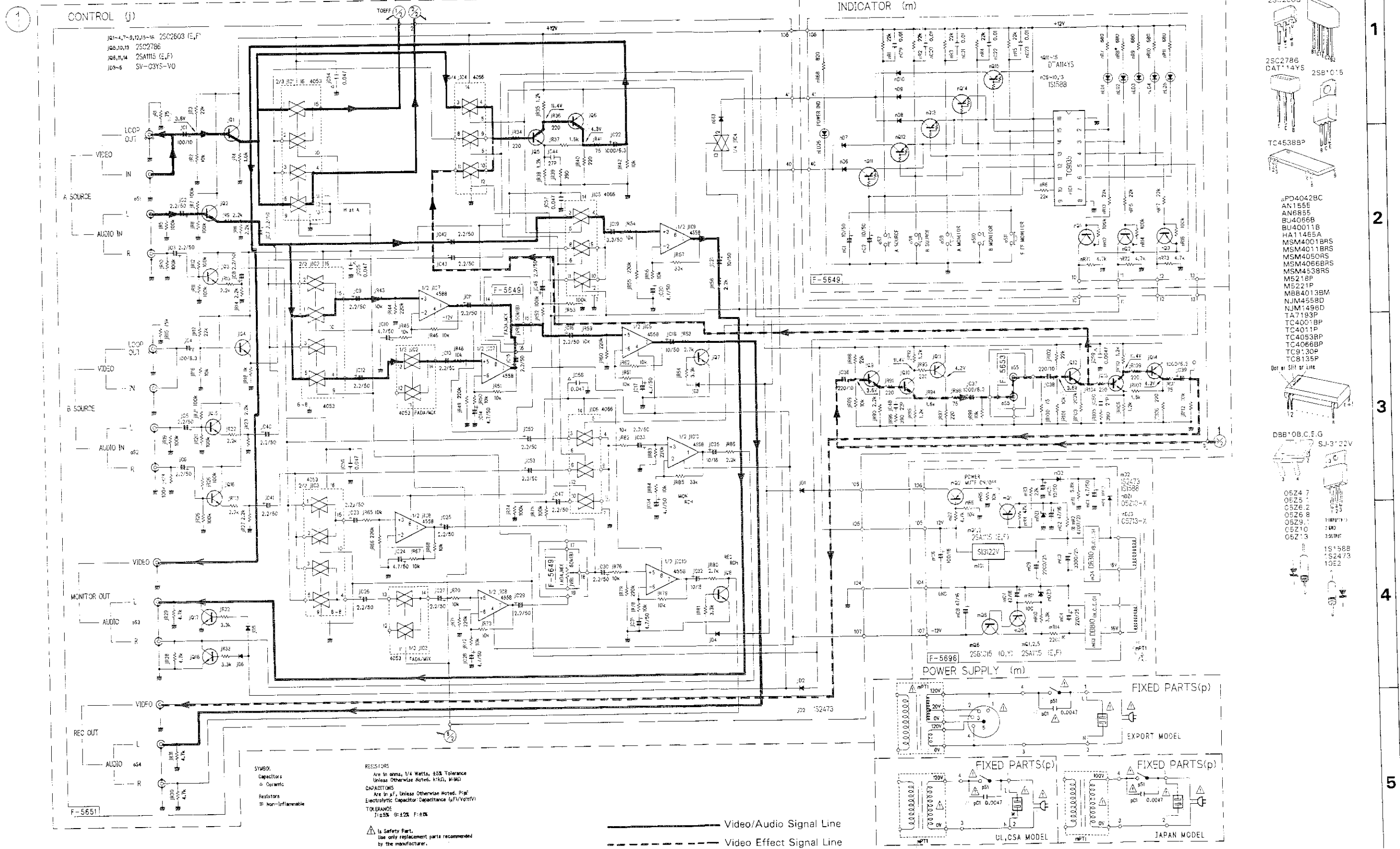






8. SCHEMATIC DIAGRAM 8-1. Input Switching & Audio Section < NTSC System >

• Design and specifications subject to change without notice for improvement.
 • La présentation et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
 • Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.



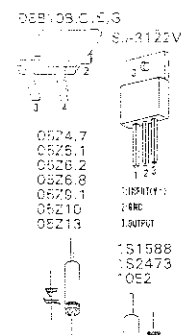
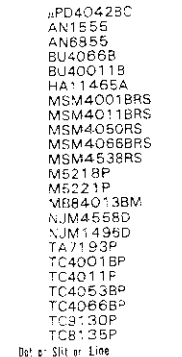
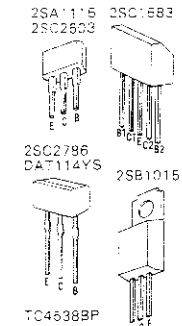
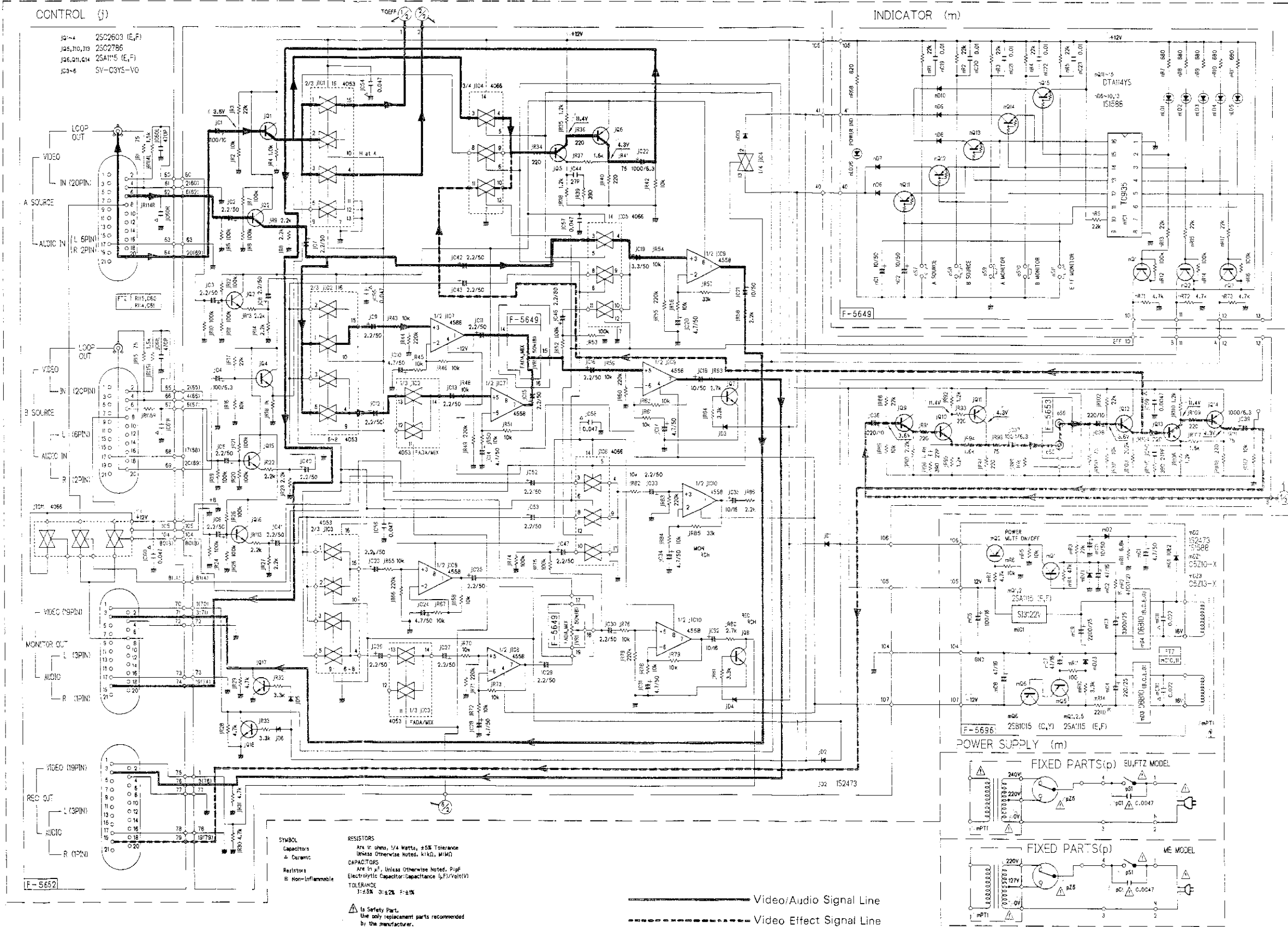
- 2SA1115
- 2SC2603
- 2SC2786
- CAT144YS
- 2SB1015
- TC4538BP
- PD4042BC
- AN155E
- AN6855
- BU4066B
- BU40011B
- HA11455A
- MSM4001BRS
- MSM4011BRS
- MSM4050RS
- MSM4066BRS
- MSM4538RS
- M5218P
- M5221P
- MB64013BM
- NJM4558D
- NJM1496D
- TA7193P
- TC4001BP
- TC4011P
- TC4053BP
- TC4066BP
- TC9130P
- TC8135P
- 001 #1 SHIP OF LINE
- DB610B.C.E.G
- SJ-3*22V
- 05Z4-7
- 05Z5
- 05Z6
- 05Z6
- 05Z9
- 05Z10
- 05Z13
- 1S156B
- 1S2473
- 10E2

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8-2. Input Switching & Audio Section <PAL System>

• Design and specifications subject to change without notice for improvement.
 • La présentation et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
 • Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.

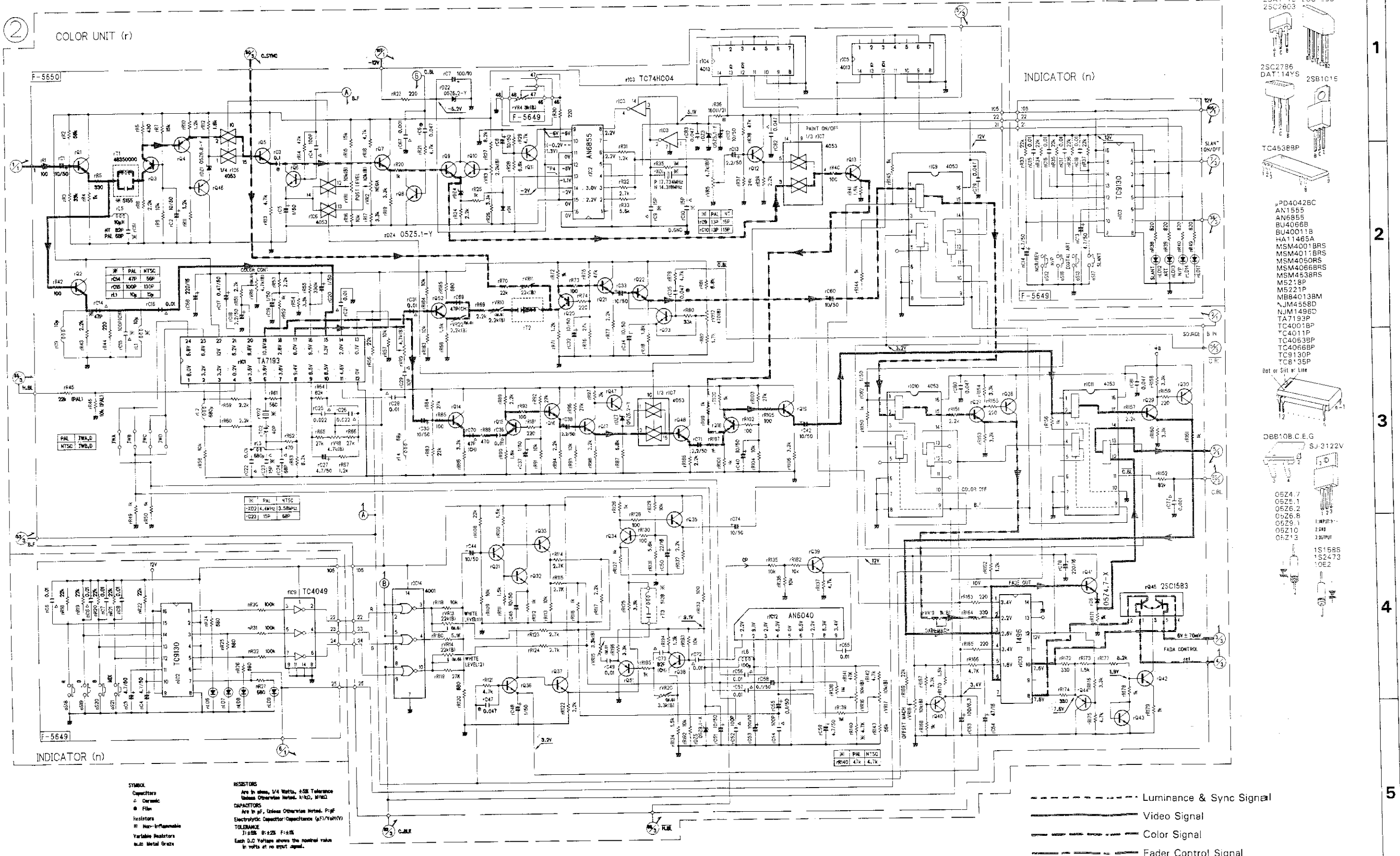
1



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8-3. Color Genarator & Controller

• Design and specifications subject to change without notice for improvement.
 • La présentation et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
 • Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.



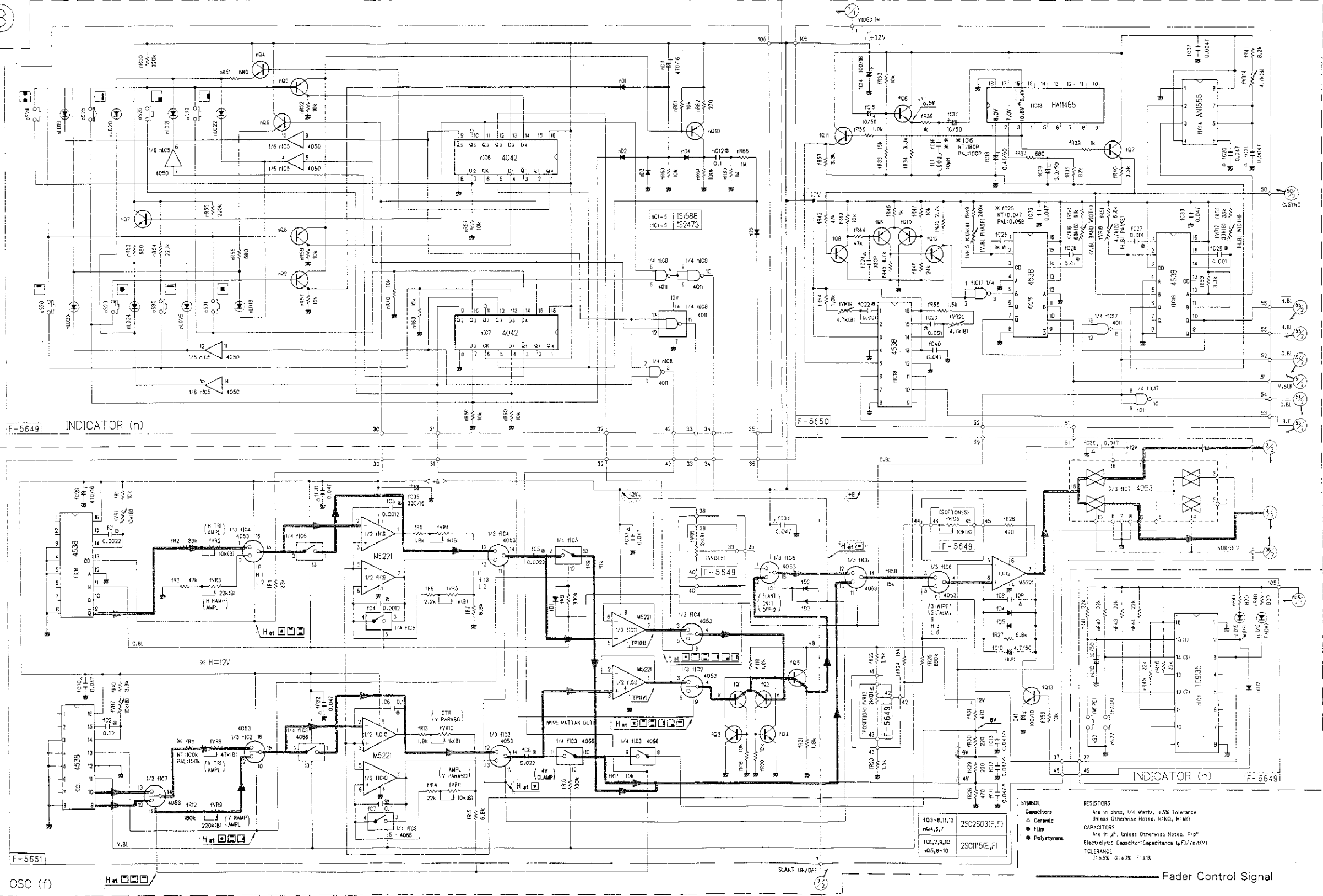
- 25A115
- 25C2603
- 25C2786
- DAT114YS
- 25B101E
- TC4538EP
- PD4042BC
- AN1555
- AN6855
- BU4066B
- BU40011B
- HA11465A
- MSM4001BRS
- MSM4011BRS
- MSM4050RS
- MSM4066BRS
- MSM4538RS
- M5218
- M5221P
- MBB4013BM
- NJM4558D
- NJM1496D
- TA7193P
- TC4001BP
- TC4011P
- TC4058BP
- TC4066BP
- TC9130P
- TC8135P
- Dot or Slot or Line
- DBB10B.C.E.G
- SJ-3122V
- 05Z4.7
- 05Z5.1
- 05Z6.2
- 05Z6.8
- 05Z9.1
- 05Z10
- 05Z12
- 1S1585
- 1S2473
- 1OE2

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8-4. Wipe pattern & SYNC Generator

Design and specifications subject to change without notice for improvement.
 La présentation et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
 Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.

3



- 2SA1115
 - 2SC1593
 - 2SC2603
 - 2SC2786
 - DAT 14YS
 - 2SB1015
 - TC4538BP
 - IPD4042BC
 - AN1555
 - AN6855
 - BU4066B
 - BU40011-B
 - HA11465A
 - MSM4001BR5
 - MSM4011BR5
 - MSM4050RS
 - MSM4066BR5
 - MSM4538RS
 - M5218P
 - M5221P
 - MB4013BM
 - NUM455RD
 - NUM496D
 - TA7193P
 - TC4001BP
 - TC4011P
 - TC4053BP
 - TC4066BP
 - TC9130P
 - TC8135P
- DBB10B C.E.G. S-3122V
- 0524.7
0525.1
0526.2
0526.5
0529.1
05210.1
05210.2
- 151588
152173
1052

1
2
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4
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SYMBOL
 Capacitors
 ▲ Ceramic
 ● Film
 ● Polystyrene

RESISTORS
 Are in ohms, 1/4 Watts, ±5% Tolerance
 Unless Otherwise Notes: K=KΩ, M=MΩ

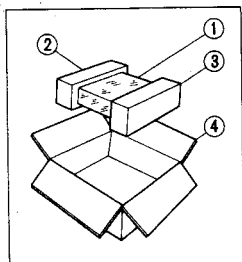
CAPACITORS
 Are in μF, Unless Otherwise Notes: P=pf
 Electrolytic Capacitor: Capacitance (μF/Volts/V)

TOLERANCES
 R=±5% G=±2% F=±1%

— Fader Control Signal

9. PACKING LIST

Parts No.	Stock No.	Description
1	47858600	Vinyl Bag
2	27096200	Styrofoam Packing (Left)
3	27096300	Styrofoam Packing (Right)
4	27338700	Carton Case NTSC System
	27396300	Carton Case PAL System



10. ACCESSORY LIST

Stock No.	Description
49022300	Operating Instruction NTSC System
49022400	Operating Instruction PAL System