

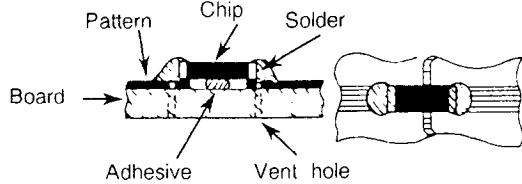
REPLACEMENT OF CHIP COMPONENTS

- CHIPS ARE NOT USED ON CERTAIN MODELS. REFER TO THE DESCRIPTIONS ON THIS PAGE ONLY WHEN WORKING ON MODELS ON WHICH CHIPS ARE EMPLOYED.

Replacement of the chip on printed circuit board can be performed easily as follows.

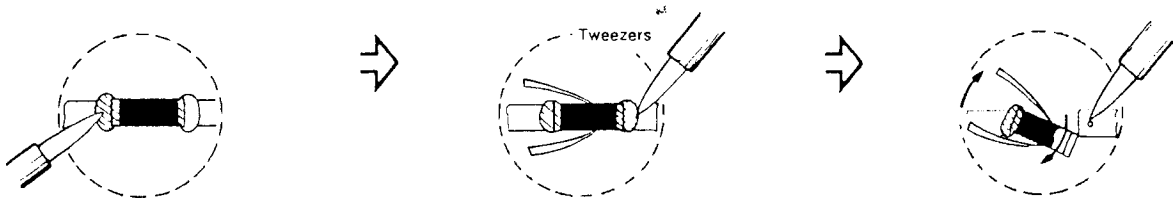
1 When mounted

[Resistor · Capacitor]



2 Removal of the chip

- (1) Remove either of the soldered contacts.
- (2) Hold the chip with tweezers and remove the other contact.
- (3) Work the chip free from the adhesive with tweezers.

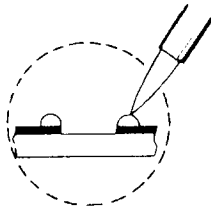


3 Preheating and soldering of chip pieces

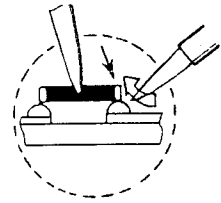
Be sure to preheat chip pieces (except the transistor) especially the capacitor before soldering with hot air, about 150°C (hair dryer or such can be used) for about 2 minutes. Then, immediately solder with an iron of about 30W.

4 Replacing the chip pieces

- (1) Apply the solder to the board first.



- (2) Hold the chip with tweezers and solder it in place, hold the iron at a 45° angle when soldering.

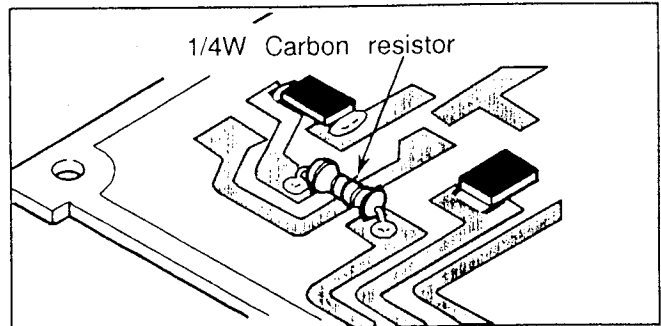


- Discrete parts can be substitutionally mounted as shown in the figure on the right.

Mounting is also possible by passing the wires from the board front side (parts side) through the chip soldering hole (vent hole of registration part).

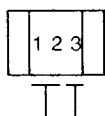
Substitute parts are as follows.

- Chip Metal Glaze Resistor
→ Carbon Resistor 1/4W ±5%
- Chip Ceramic Capacitor
→ Ceramic Capacitor 50V ±5%



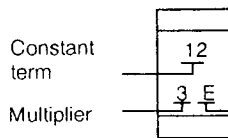
- Decoding of chip parts constant terms

< Chip Metal Glaze Resistor >



Constant Multiplier term
 $12 \times 10^3 = 12000\Omega$
 $= 12k\Omega$

< Chip Ceramic Capacitor >



Constant term
Multiplier

$12 \times 10^3 = 12000pF$
 $= 0.012\mu F$

K, M, Z, P Tolerance of ordinary type
 C, P, R, S, T, U Temperature coefficient of temperature compensation type

ADJUSTING STEP

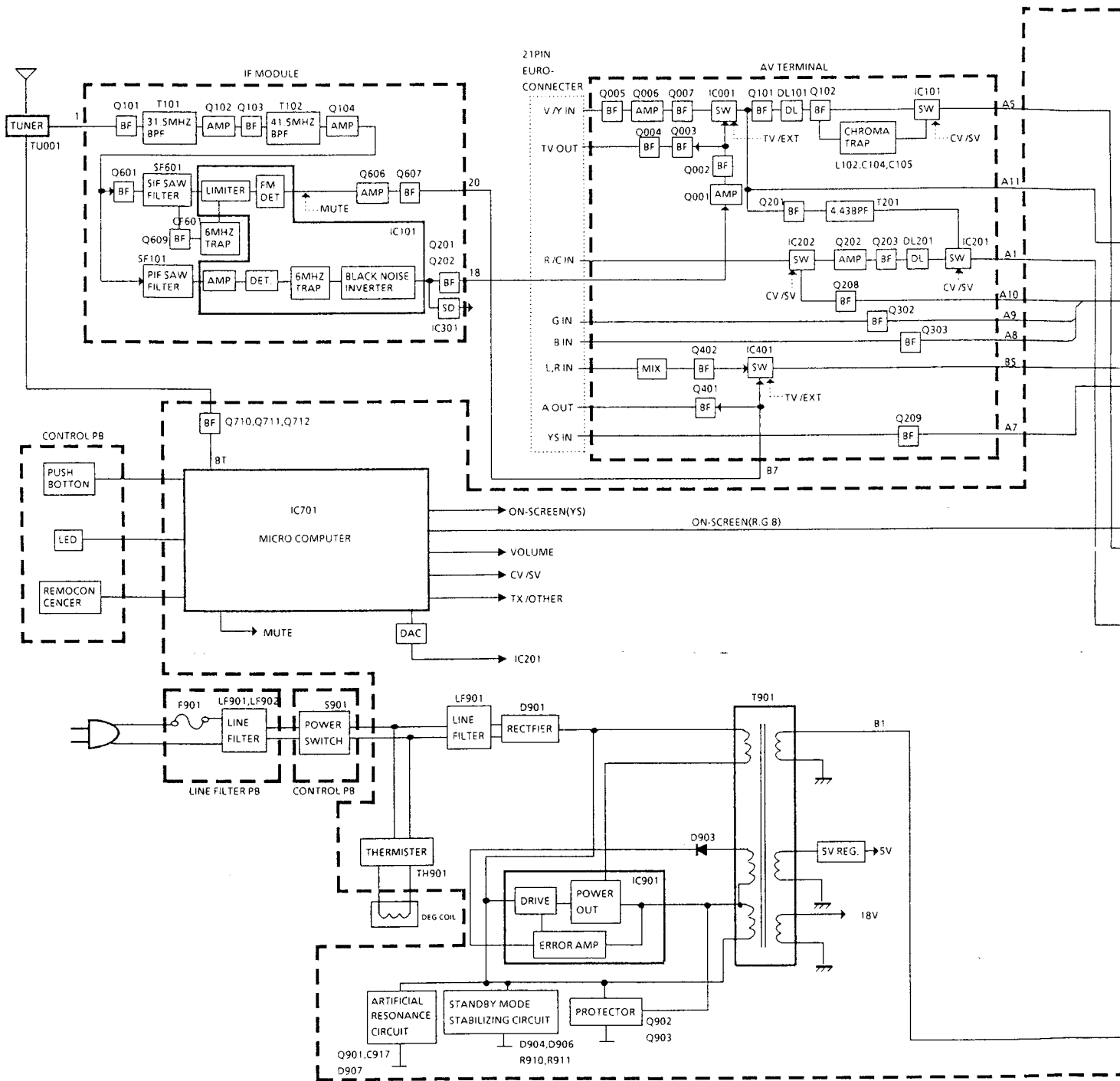
Item	Measuring instrument	Test point	Adjustment part	Description
B1 VOLTAGE	PATTERN GENERATOR DC VOLTMETER or DIGITAL VOLTMETER	TP-91 TP-E (↗)	B1 ADJ. (R916)	<ol style="list-style-type: none"> 1. Receive a black level signal. 2. Move the service switch to S position and adjust the screen VR to cut off the picture. 3. Adjust the B1 ADJ. VR (R916) so that the voltage between TP-91 and TP-E (↗) becomes DC 119.0 ± 0.5 V. 4. Adjust the screen VR to obtain the original brightness of the horizontal line, then return the service switch to N. 5. Confirm that the B1 voltage is stable over a wide range of inputs.
Checking for the HIGH VOLTAGE	PATTERN GENERATOR HIGH VOLTAGE METER	CRT anode		<ol style="list-style-type: none"> 1. Connect the earth probe of high voltage meter to the chassis, then connect the high voltage meter to the anode of CRT. 2. Receive a black field pattern signal. 3. Change the service switch to S and while adjusting the screen VR, cut off the picture. 4. Confirm that the high voltage falls within $26.5 \pm 1.3\text{kV}$. 5. Disconnect the probe of high voltage meter from the anode of CRT, then disconnect the earth probe from the chassis. 6. Adjust the screen VR to obtain the original brightness of the horizontal line, then return the service switch to N.
NOISE			NOISE VR (R103)	<ol style="list-style-type: none"> 1. Turn the noise VR (R103) until the picture is noisy. 2. Turn R103 in the opposite direction until the noise just disappears. 3. Check on all channels, and if necessary make a compromise adjustment.
SUB BRIGHT SUB CONTRAST			SUB BRIGHT (R216) SUB CONTRAST (R208)	<ol style="list-style-type: none"> 1. Set the standard setting by pressing VSM STD of the remote control. 2. Obtain optimum pictures by adjusting SUB BRIGHT VR (R216) and SUB CONTRAST VR (R208). <p>* Avoid excessive brightness.</p>
SUB COLOUR	PATTERN GENERATOR		SUB COLOUR (R314)	<ol style="list-style-type: none"> 1. Set the standard setting by pressing VSM STD of the remote control. 2. Receive a PAL colour bar signal. 3. Adjust the SUB COLOUR VR (R314) until natural colour density is obtained.
SUB TINT (NTSC)	VCR (NTSC:4.43MHz)		SUB TINT (R342)	<ol style="list-style-type: none"> 1. Set the standard setting by pressing VSM STD of the remote control. 2. Input a NTSC (4.43MHz) signal from VCR to the 21pin connector. 3. Adjust the SUB TINT VR (R342) until natural tint is obtained.

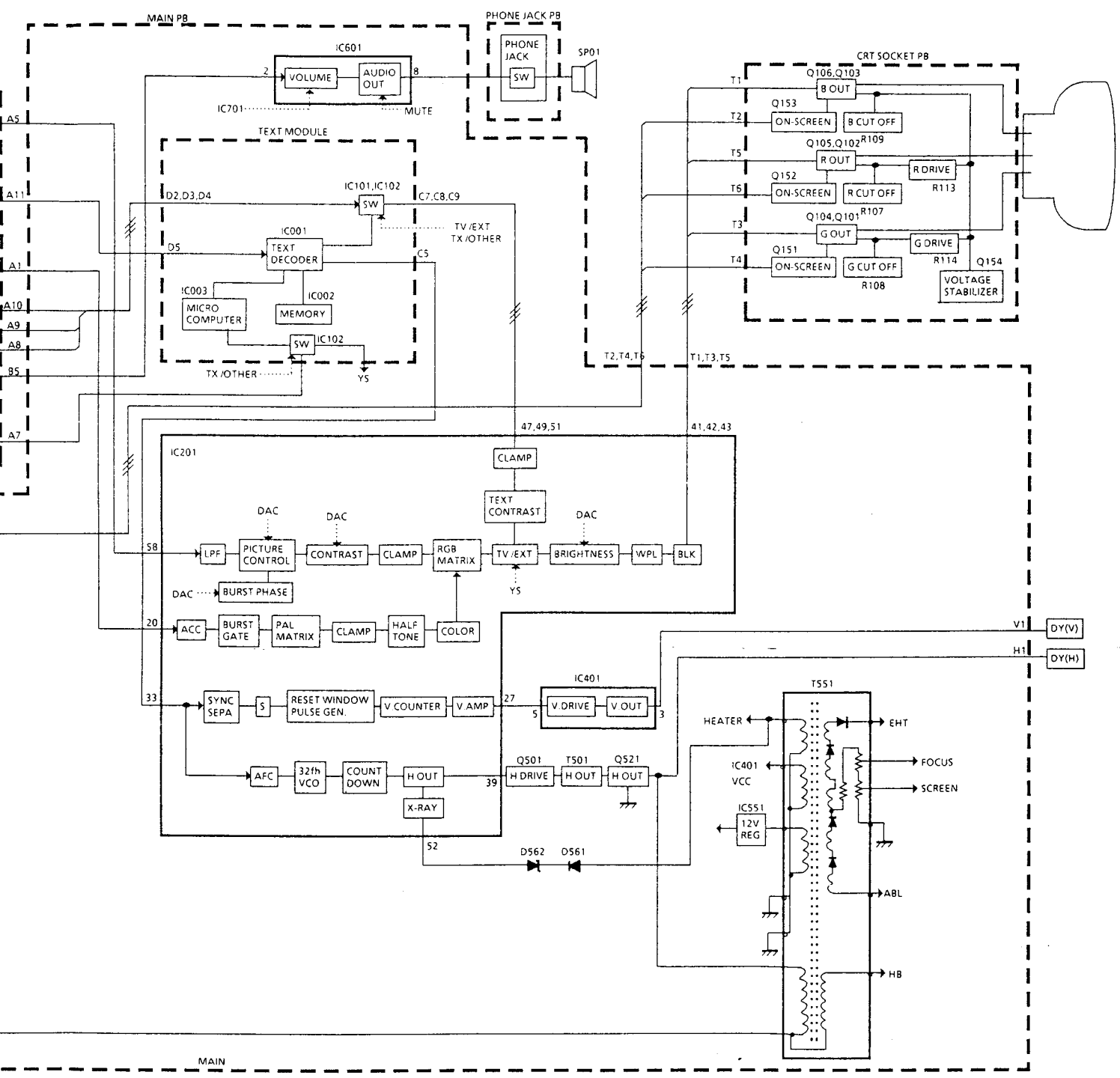
Item	Measuring instrument	Test point	Adjustment part	Description
V.HEIGHT V.LINEARITY	PATTERN GENERATOR		V.HEIGHT (R416) V. LINEARITY (R405)	<ol style="list-style-type: none"> 1. Supply a crosshatch pattern. 2. Reduce the vertical size with the V. HEIGHT VR (R416). 3. Adjust the vertical symmetry with the V.LINEARITY VR (R405). 4. Readjust the V. HEIGHT VR (R416) to return the picture to normal size. <p>* Confirm good linearity with crosshatch and circle test patterns.</p>
H. CENTRE	PATTERN GENERATOR		H.CENTER (R504)	<ol style="list-style-type: none"> 1. Centring is completed at the factory, although it may become distorted when picture tube is changed. In such case, adjusting the H CENTRE VR (R504). <p>* Conform good linearity with crosshatch and circle test patterns.</p>
Y TRAP	PATTERN GENERATOR		C104	<ol style="list-style-type: none"> 1. Receive a PAL colour bar signal. 2. Connect an oscilloscope to TP-Y. 3. Adjust the C104 so that the CHROMA component becomes minimum.
FOCUS			FOCUS VR	<ol style="list-style-type: none"> 1. Adjust the FOCUS VR of HVT to obtain clear pictures. 2. Check that pictures have been adjusted to optimum appearance in both central and peripheral areas of the screen.
WHITE BALANCE (CUTOFF)	PATTERN GENERATOR		R CUT OFF (R3107) G CUT OFF (R3108) B CUT OFF (R3109) SCREEN VR	<ul style="list-style-type: none"> • Continue running for 30 minutes or more. <ol style="list-style-type: none"> 1. Receive a black level signal. 2. Change the service switch to S. 3. Turn the CUT OFF VRs (R3107, R3108 and R3109) on the CRT SOCKET PWB fully in counterclockwise direction. 4. While turning the SCREEN VR gradually in clockwise direction from full counterclockwise direction, check which colour is the first to appear. 5. Turn the CUT OFF VRs, with which the color has appeared first in the Step 4, slightly in clockwise direction. 6. Adjust the CUT OFF VRs for the other two colours until the line is white. <p>7. Return the service switch to N.</p>
WHITE BALANCE (DRIVE)	PATTERN GENERATOR		R DRIVE (R3113) G DRIVE (R3114)	<ul style="list-style-type: none"> • Continue running for 30 minutes or more. • This adjustment should be performed after WHITE BALANCE (CUTOFF). <ol style="list-style-type: none"> 1. Receive a white field pattern signal. 2. Adjust the R and G DRIVE VRs (R3113 and R3114) on the CRT SOCKET PWB to a position where the entire screen becomes white. 3. While turning the CONTRAST VR and BRIGHT VR, make sure that correct white balance is obtained.

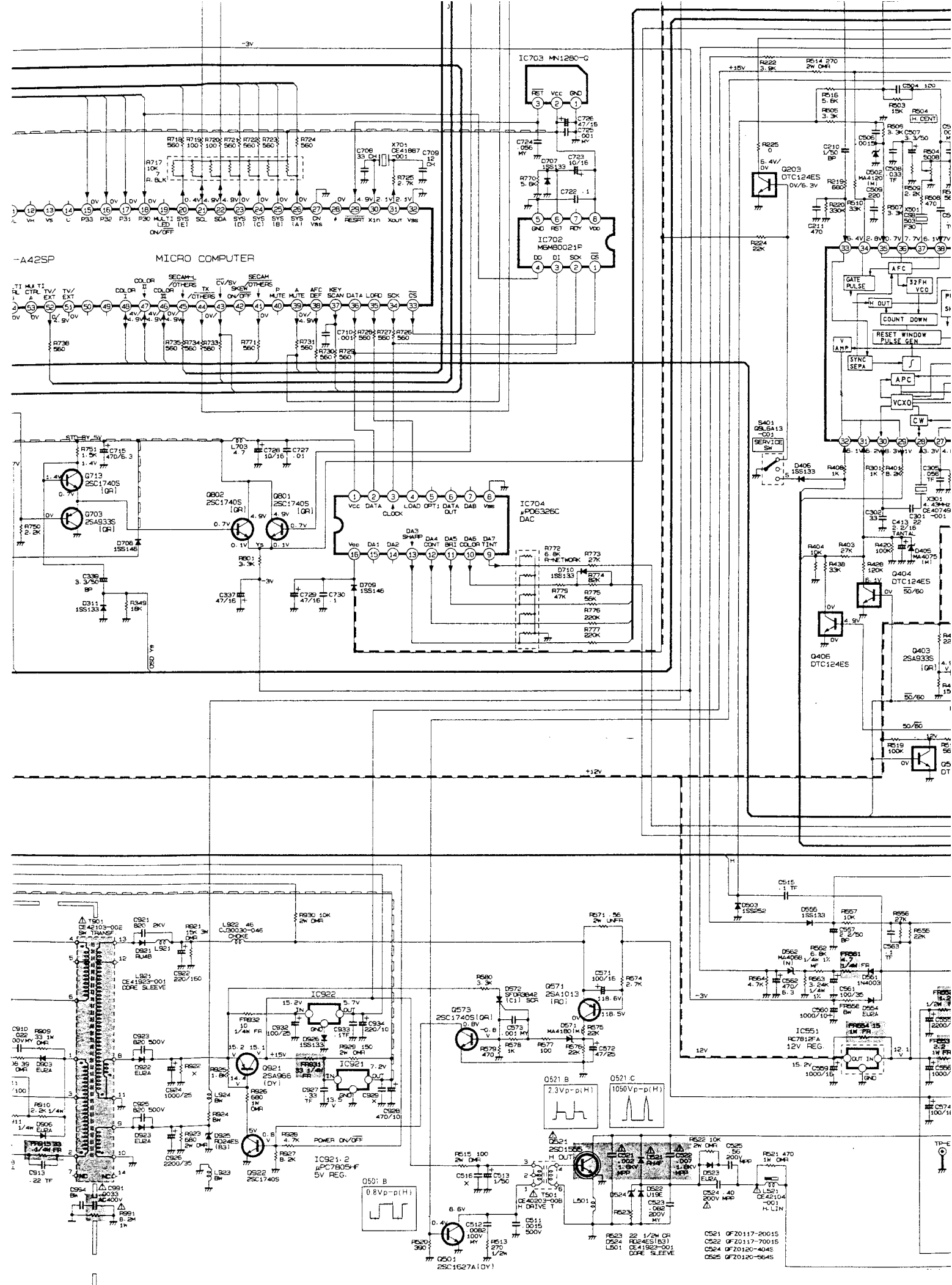
△ Symbol No.	Part No.	Part Name	Description	Local
C A P A C I T O R				
C1932	QEHC1EM-107MZ	E CAP.	100 μ F 25V M	*
C1933	QFV71HJ-104MZ	TF CAP.	0.1 μ F 50V J	*
△ C1991	QCZ9036-332M	C CAP.	3300 p FAC400V M	*
△ C1992	QCZ9036-102M	C CAP.	1000 p FAC400V K	*
△ C1993	QCZ9036-102M	C CAP.	1000 p FAC400V K	*
△ C1995	QCZ9036-102M	C CAP.	1000 p FAC400V K	*
△ C1996	QCZ9036-102M	C CAP.	1000 p FAC400V K	*
T R A N S F O R M E R				
T1302	CELT016-009J1	DL.PHASE TRANSF.		*
T1501	CE40203-00B	DRIVE TRANSF.		*
△ T1901	CE42103-002J1	SW TRANSF.		*
C O I L				
L1003	CELP026-120ZJ3	PEAKING COIL		*
L1201	CELP026-220ZJ3	PEAKING COIL		*
L1301	CELP026-8R2ZJ3	PEAKING COIL		*
L1501	CE41923-001	CORE SLEEVE		*
L1521	CE42104-001	LINEARITY COIL		*
L1551	CJ30030-070	HEATER CHOKE		*
L1601	CELC026-100	CHOKE COIL		*
L1602	CE41832-001	LEAD CORE		*
L1701	CELP026-120ZJ3	PEAKING COIL		*
L1702-03	CELP026-4R7ZJ3	PEAKING COIL		*
L1921	CE41923-001	CORE SLEEVE		*
L1922	CJ30030-046	HEATER CHOKE		*
D I O D E				
D1001	UPC574J(MS)	I.C.(MONO-ANA)		*
D1201-02	1SS133-T2	SI.DIODE		*
D1301-06	1SS133-T2	SI.DIODE		*
D1307-09	MA4033(M)-T2	ZENER DIODE		*
D1311-15	1SS133-T2	SI.DIODE		*
D1401	1N4003-T2	SI.DIODE		*
D1402	MA4120(M)-T2	ZENER DIODE		*
D1405	MA4075(M)-T2	ZENER DIODE		*
D1406	1SS133-T2	SI.DIODE		*
D1501	MA4091(M)-T2	ZENER DIODE		*
D1502	MA4120(M)-T2	ZENER DIODE		*
D1503	1SS252-T2	SI.DIODE		*
△ D1521	RH4F-C1	SI.DIODE		*
D1522	U19E-C2	SI.DIODE		*
D1523	EU2A-T3	SI.DIODE		*
D1524	RD24ES(B3)-T2	ZENER DIODE		*
D1551	RH1S-T3	SI.DIODE		*
D1552	DFA1A4-T3	SI.DIODE		*
D1553	U19E-C2	SI.DIODE		*
D1554	EU2A-T3	SI.DIODE		*
D1555	1SS133-T2	SI.DIODE		*
D1561	1N4003-T2	SI.DIODE		*
D1562	MA4068(N)C1-T2	ZENER DIODE		*
D1571	MA4180(M)-T2	ZENER DIODE		*
D1572	SF0R3B42(C1)-T	S C R		*
D1601	1SS133-T2	SI.DIODE		*
D1604	1SS133-T2	SI.DIODE		*
D1701-02	MA700-T2	SI.DIODE		*
D1703-05	1SS133-T2	SI.DIODE		*
D1706	1SS146-T2	SI.DIODE		*
D1707	1SS133-T2	SI.DIODE		*
D1708-09	1SS146-T2	SI.DIODE		*
D1710	1SS133-T2	SI.DIODE		*
△ D1901	LB-156-C1	BRIDGE DIODE		*
D1903-05	EU2A-T3	SI.DIODE		*
△ D1906	EU2A-T3	SI.DIODE		*
D1907	W06B-T3	SI.DIODE		*
D1908	EU2A-T3	SI.DIODE		*

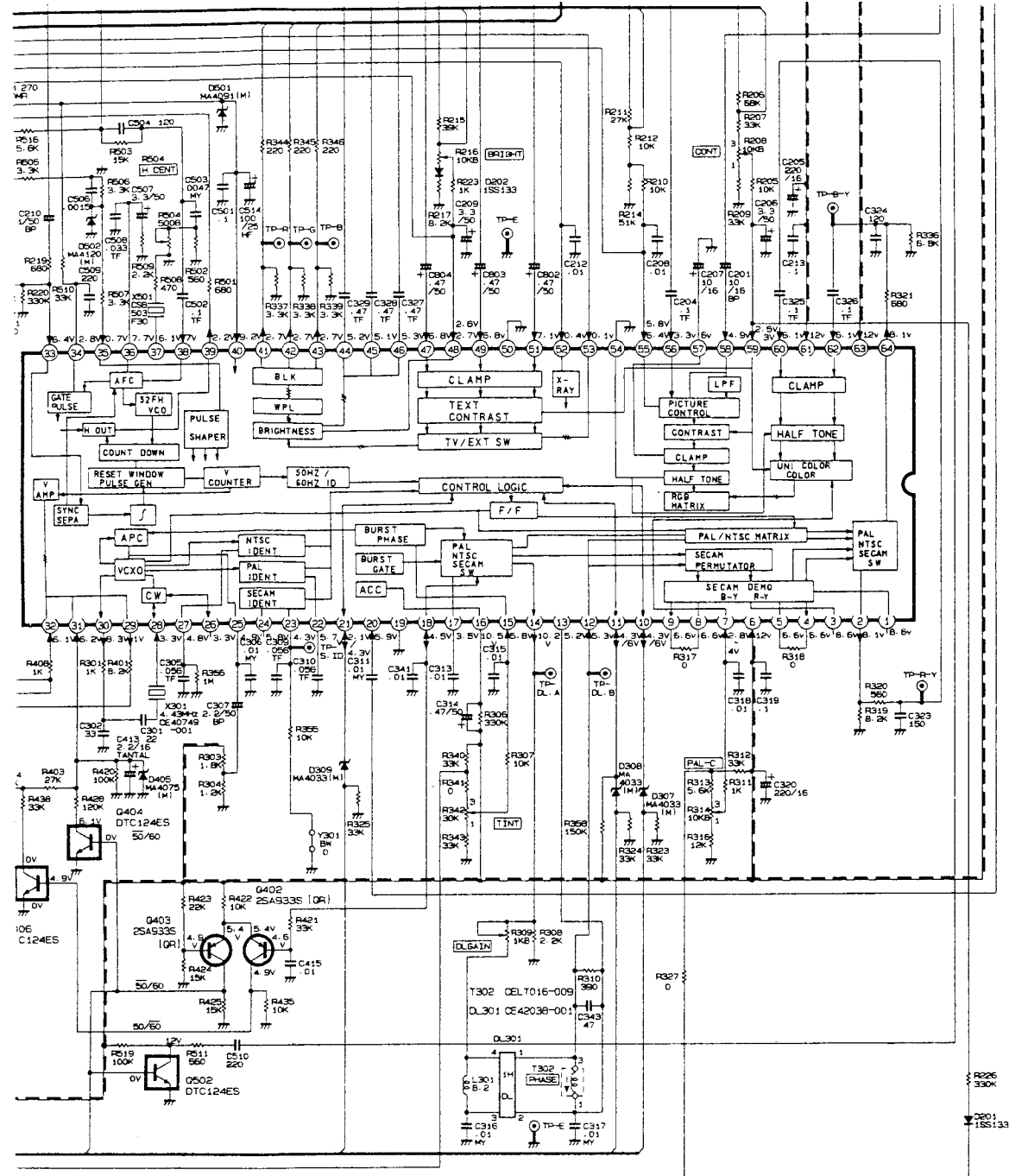
△ Symbol No.	Part No.	Part Name	Description	Local
D I O D E				
	D1921	RU4B-C1	SI.DIODE	
	D1922-23	EU2A-T3	SI.DIODE	
	D1925	RD24ES(B3)-T2	ZENER DIODE	
	D1926	1SS133-T2	SI.DIODE	*
T R A N S I S T O R				
	Q1201	2SC1740S(QR)-T	SI.TRANSISTOR	*
	Q1203	DTC124ES-T	DIGI.TRANSISTOR	*
	Q1301	2SC1740S(QR)-T	SI.TRANSISTOR	*
	Q1302	2SC1740(QR)	SI.TRANSISTOR	
	Q1402-03	2SA933S(QR)-T	SI.TRANSISTOR	*
	Q1404	DTC124ES-T	DIGI.TRANSISTOR	*
	Q1406	DTC124ES-T	DIGI.TRANSISTOR	*
	Q1501	2SC1627A(OY)-T	SI.TRANSISTOR	*
	Q1502	DTC124ES-T	DIGI.TRANSISTOR	*
△	Q1521	2SD1555-C1	POWER TRANSISTOR	*
	Q1571	2SA1013(RO)-T	SI.TRANSISTOR	
	Q1573	2SC1740S(QR)-T	SI.TRANSISTOR	*
	Q1601	DTC124ES-T	DIGI.TRANSISTOR	*
	Q1701-02	2SC1740S(QR)-T	SI.TRANSISTOR	*
	Q1703-06	2SA933S(QR)-T	SI.TRANSISTOR	*
	Q1710	2SC1740S(QR)-T	SI.TRANSISTOR	*
	Q1711	2SA933S(QR)-T	SI.TRANSISTOR	*
	Q1712-13	2SC1740S(QR)-T	SI.TRANSISTOR	*
	Q1801-02	2SC1740S(QR)-T	SI.TRANSISTOR	*
	Q1901	2SC2655(Y)-T	SI.TRANSISTOR	*
	Q1902	2SA966(OY)-T	SI.TRANSISTOR	*
	Q1903	2SC2655(Y)-T	SI.TRANSISTOR	*
	Q1921	2SA966(OY)-T	SI.TRANSISTOR	*
	Q1922	2SC1740S(QR)-T	SI.TRANSISTOR	*
I C				
	IC1201	TA8759AN	I.C.(MONO-ANA)	*
	IC1401	UPC1488H	I.C.(MONO-ANA)	
	IC1551	RC7812FA	I.C.(MONO-ANA)	
	IC1601	AN5265	I.C.	*
	IC1701	M37201M6-A42SP	I.C.(MICRO-COMP)	
	IC1702	M6M80021P	I.C.(EP.ROM)	
	IC1703	MN1280-Q	I.C.(DIGI-MOS)	*
	IC1704	UPD6326C	I.C.(DIGI-MOS)	
	IC1901	STR54041S	I.C.(H)	
	IC1921-22	UPC7805HF	I.C.(MONO-ANA)	
O T H E R S				
	DL1301	SMY-F901A-MU3	IF MODULE PC BOA	*
	CE42038-001J1		DELAY LINE	*
△	FR1005	QRZ0054-150M	F R	15 Ω 1/4W J *
△	FR1011	QRZ0054-150M	F R	15 Ω 1/4W J *
△	FR1105	QRZ0054-5R6M	F R	5.6 Ω 1/4W J *
△	FR1551	QRH017J-220M	F R	22 Ω 1W J *
△	FR1552	QRH127J-1R2M	F R	1.2 Ω 1/2W J *
△	FR1553	QRH017J-2R2M	F R	2.2 Ω 1W J *
△	FR1554	QRH017J-150M	F R	15 Ω 1W J *
△	FR1561	QRZ0054-4R7M	F R	4.7 Ω 1/4W J *
△	FR1610	QRH017J-120M	F R	12 Ω 1W J *
△	FR1915	QRZ0054-330M	F R	33 Ω 1/4W J *
△	FR1931	QRZ0054-330M	F R	33 Ω 1/4W J *
△	FR1932	QRZ0054-100M	F R	10 Ω 1/4W J *
△	LF1901	CE42144-001J1	LINE FILTER	*
	S1401	QSL6A13-C01J2	LEVER SWITCH	*
△	TH1901	CEKP002-001	W POSISTOR	
	TU1001	CEEM320-A01-G	UHF TUNER	*
	X1301	CE40749-001J1	X TAL	*
	X1501	CSB503F30	C RESONATOR	
	X1701	CE41887-001	CRYSTAL	

BLOCK DIAGRAM

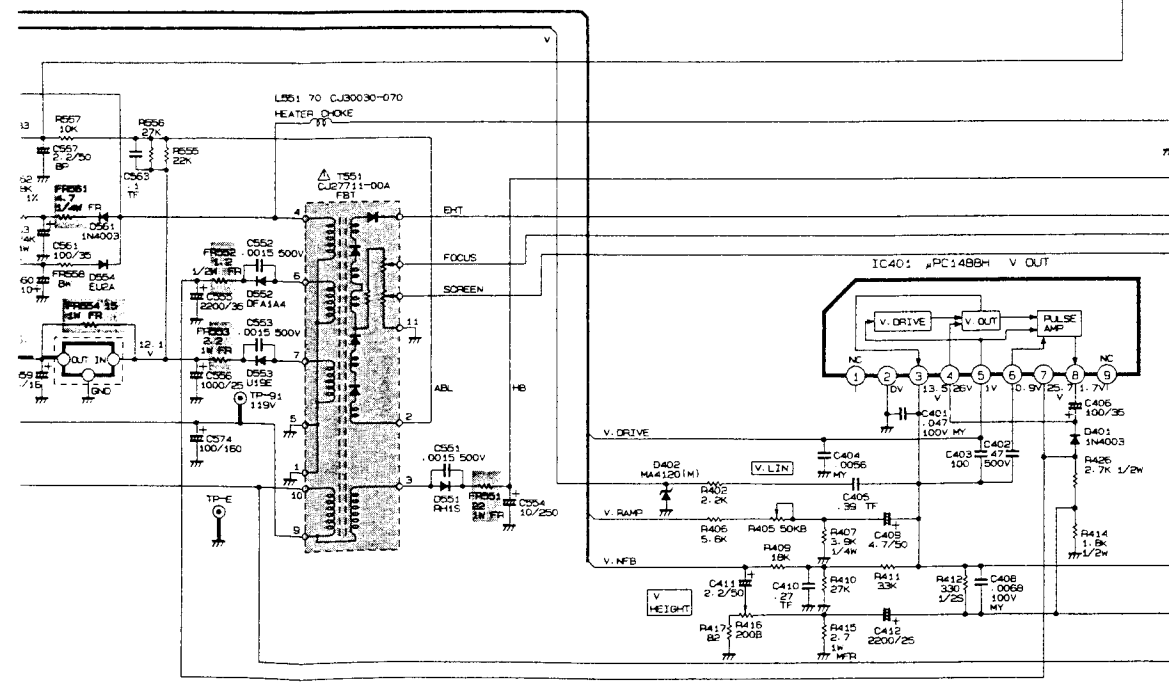








- IC201 32 1.3 Vp-p(H)
- IC201 33 0.8 Vp-p(H)
- IC201 34 2.2 Vp-p(H)
- IC201 35 0.3 Vp-p(H)
- IC201 36 4.4 Vp-p(H)
- IC201 37 4.4 Vp-p(H)
- IC201 38 4.4 Vp-p(H)
- IC201 39 1.2 Vp-p(H)
- IC201 40 0.8 Vp-p(H)



- IC401 5 1.0 Vp-p(V)

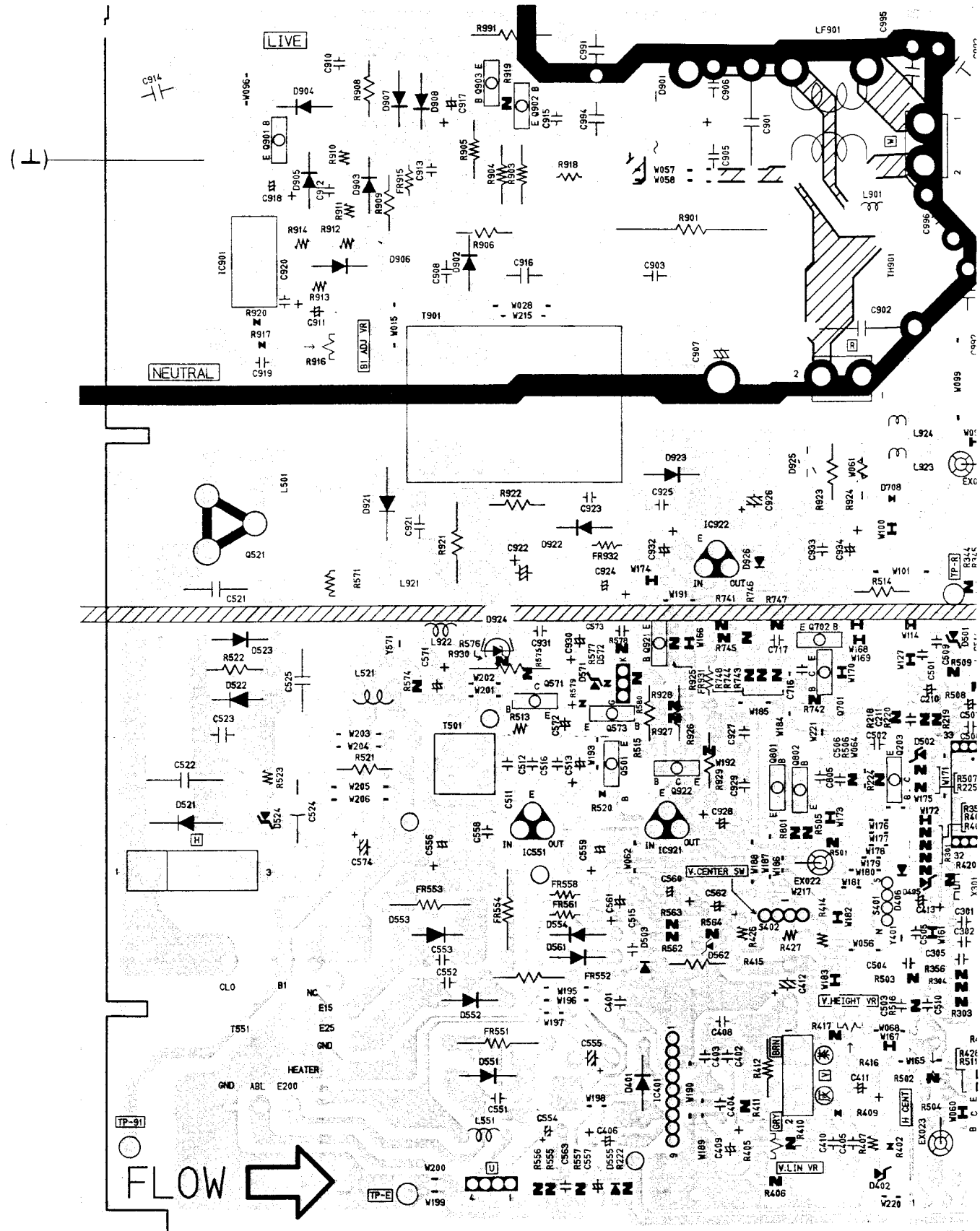
MAIN PCB ASS'Y SMY-1901A-U2 (CR:CS11378S)

V. DRIVE BY INCL. IN ITC 1481E/50011

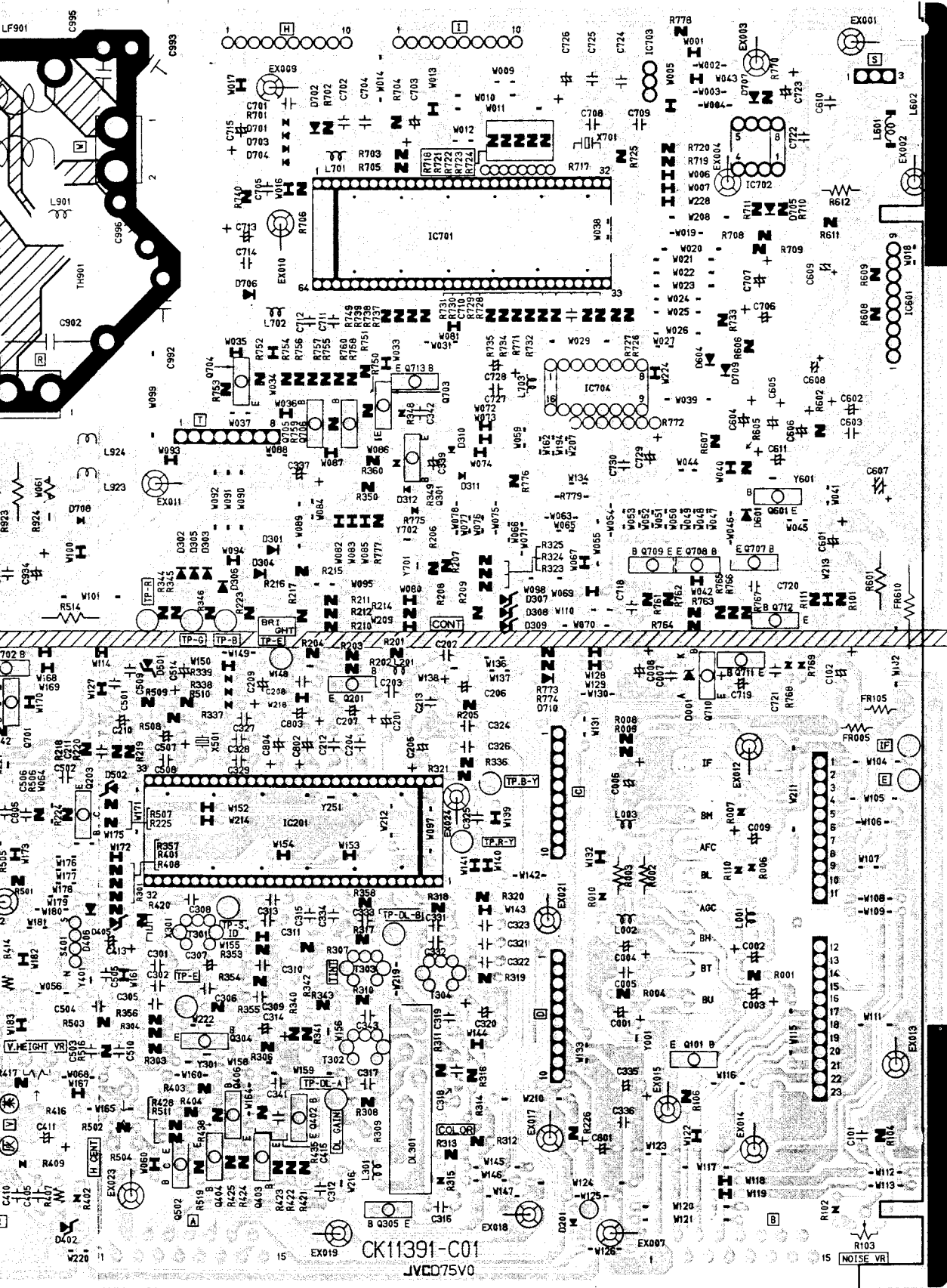
MAIN PWB PATTERN

(SMY-1901A-U2)

↑ FRONT



FRONT



NOTE

EX... :