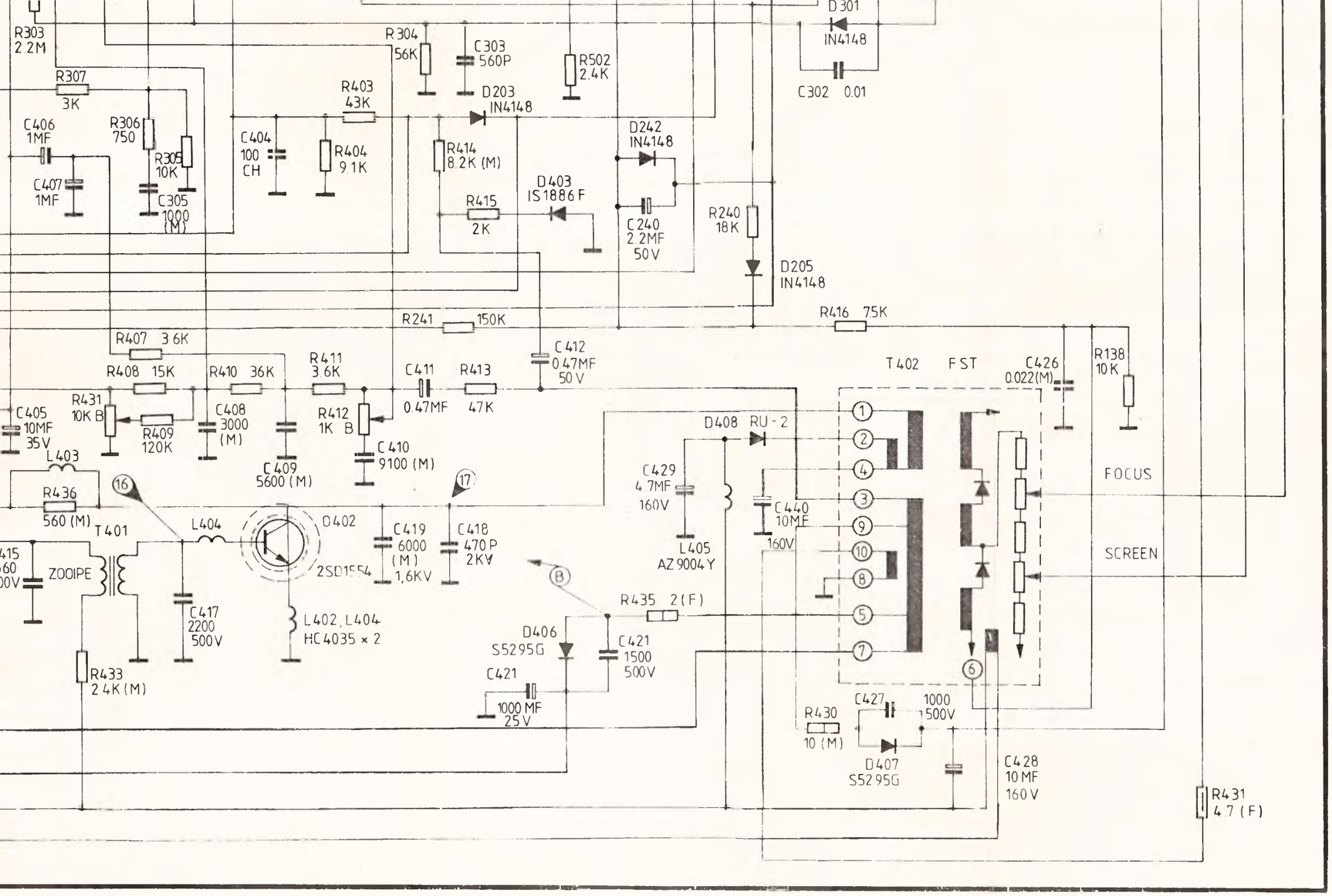
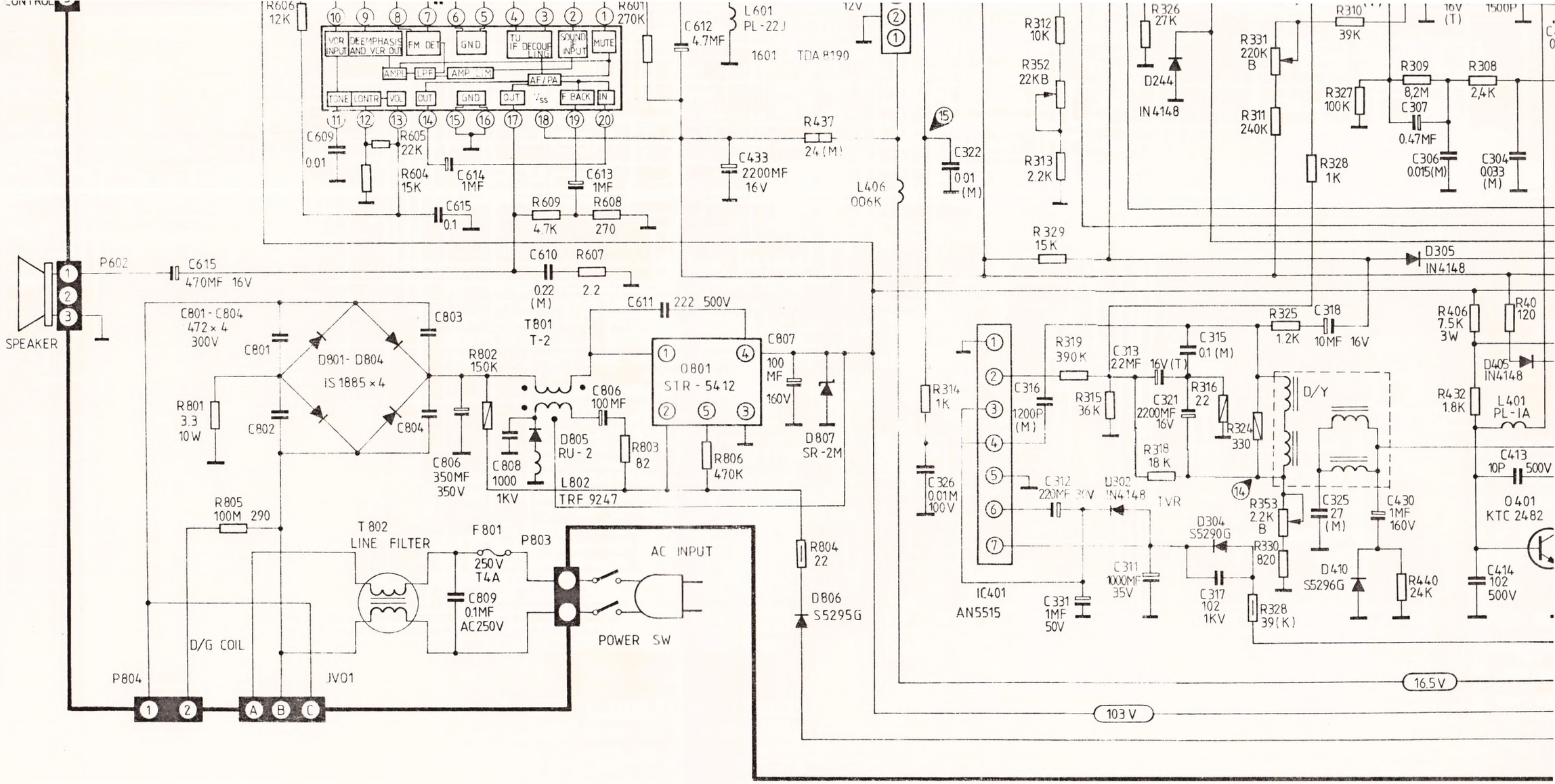
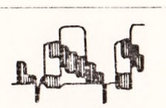
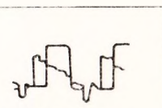
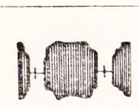
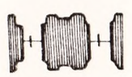
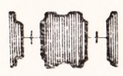

R303 2.2M
R307 3K
C406 1MF
C407 1MF
R306 750
R305 10K
C305 1000 (M)
R304 56K
C303 560P
R403 43K
C404 100 CH
R404 9.1K
D203 IN4148
R414 8.2K (M)
R415 2K
D403 IS1886F
R502 2.4K
D301 IN4148
C302 0.01
D242 IN4148
C240 2.2MF 50V
R240 18K
D205 IN4148
R241 150K
R416 75K
R407 3.6K
R408 15K
R410 36K
R411 3.6K
C411 0.47MF
R413 47K
C412 0.47MF 50V
R431 10K B
R409 120K
C408 3000 (M)
R412 1K B
C410 9100 (M)
C409 5600 (M)
C405 10MF 35V
L403
R436 560 (M)
T401
L404
Q402
2SD1554
C419 6000 (M) 1.6KV
C418 470P 2KV
ZOOIPE
C417 2200 500V
L402, L404 HC4035 x 2
R433 2.4K (M)
D408 RU-2
C429 4.7MF 160V
L405 AZ9004Y
C440 10MF 160V
R435 2(F)
D406 S5295G
C421 1500 500V
C421 1000 MF 25V
T402 FST
C426 0.022(M)
R138 10K
FOCUS
SCREEN
R430 10 (M)
C427 1000 1500V
D407 S5295G
C428 10MF 160V
R431 4.7 (F)

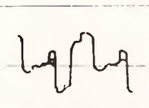
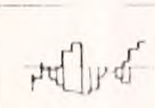
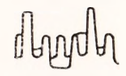
ROYAL 5104

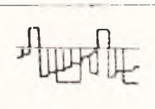
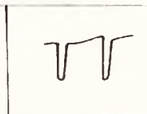
J804
9 B
8 G
R
7
3 2 1 4
RASTER TIP
5
C831 330
R835 270
C839 330
R833 270
C825 22MF 16V
R832 3.9K
C821 220P
C826 1MF
R836 3.3K
R834 3.3K
C824 22MF 16 V
C820 1000P
R827 470
21 20 19 18 17 16
G-Y DC
G-Y OUT
R-Y DC
R-Y OUT
PAL R-Y IN
SECAM R-Y IN
IB01 M51397
R-Y DEMO OUT
B-Y SECAM IN
PAL B-Y IN
10 11 12 13 14 15
C817 39
R823 1.5K
R824 10K
R826 3.3K
T803 TRF 363
R820 680
C816 22MF 16V
R825 680
C823 22MF 16V
C819 0.01
C822 330MF 16V
C899 330
L599 100µH
R822 680
C814 102
R810 10
R830 3.3K
C815 220P
C809 10MF 16V
R814 100
C504 1MF 50V
R504 56K
C527 10MF 16V
C523 473
R210 1.8K
C204 0.47MF
Dℓ 01
R203 1,6K
C552 5603
C512 120P
C513 0.01
C511 0.01
C506 0.01
L501 33UH
C502 10P
R209 36K
R208 820 K
C501 16 CH
4 2 3
10 9 8 7 6 5 4 3 2 1
BURST CLEANING
HUE CONTROL
CHROMA OUT
COLOR CONTROL
ACC FILTER
CHROMA IN
BRIGHTNESS CONTROL
CLAMP IN
V_{CC}
EMITER PEAKING
C210 180 CH
L201 10µH
R204 820
R207 330
R501 820
R331 100K
D240 IN4148
R301 750
D204 IN4148
D206 IN4148
R219 240 (M)
D201 KTA562TMY
R217 300
R242 56
R315 36K
R376 10K B
R298 270K
COLOR
R256 10K B
R247 3,9K
R399 24K
R213 27K
C206 22MF 16V
R238 10K B CONT.
R246 7.5K
R219 12K
R257 500 B
C207 22MF
R212 1.2K
R255 4.7K B
R214 4.7K
D241 IN4148
R302 560K
C301 1MF
H V_{CC}
H_{osc} TIMING
AFC OUT
SYNC SEP OUT
SYNC SEP IN
H PULSE IN GATE
INV
INV OUT
CONTRAST CONTROL
CONTR. OUT
33 34 35 36 37 38 39 40 41 42
0551 - 0553 KTC - 2482
R566 3.3K
10
R567 15K (M)
R552 150
C551 102
R555 120
R554 10K B
R568 3.3 K
11
0552
R569 15K (M)
R560 220 B
R557 150
C552 102
R559 10K B
R570 3.3K
12
0553
R571 15K (M)
R563 R562 150
C553 102
R564 10K B
L501 180µH
R559 270
CRT
C555 103 1KV
6 7 8
1 2 3
180V
HEATER
G
G S FOCUS

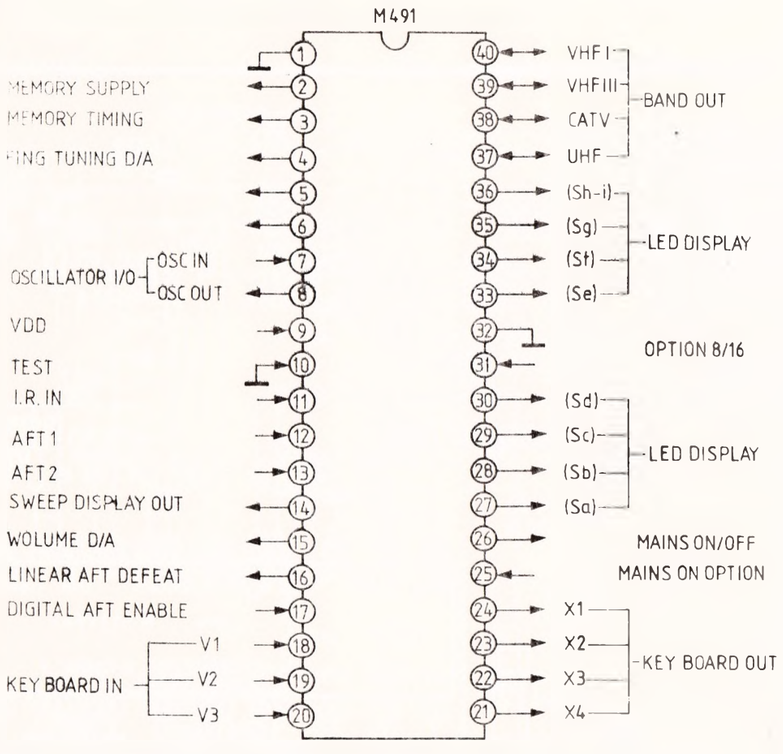
P102
103V BU VT BH BL
P104
P102
P104
R127 82K
C 162 4.7 MF
C125 22MF 16V
C128 1MF
4.7MF
C127 0.1MF
R116 100K
IF BU BM VT BH BL AGC AFT
TUNER
R120 1K
R121 51K
R106 220
C126 4.7MF
R114 300
C111 24P
R104 5.6K
R105 470
L102 TRF-12018
C102 0.01
R101 100
C101 0.01
Q101
R102 1K
R103 27
L101 TRF-9223
KTA38ATM
C103 0.01
Z101
SAW FILTER
C104 1000P
R107 820
L103 TRF-1448
R507 10K
Q805
R857 3.3K
R811 4.7K
R859 1K
C809
R809 4.7K
R853 3.9K
R812
R854 18K
Q807
R868 100
R869 10K
R801 680
C801 270M
T801 TRF364
R870 1K
R802 4.7K
C805 4.7MF
R804 10K
R872 27K
R840 150K
T801 TRF-364
C833 0.47MF 50V
C840 4700
R839 150K
Q801 KTC-1815Y
R841 47K
C829 330
R837 270
T804 TRF-5425A
C827 1MF
R838 3.3K
C832 0.01
C835 0.01
R847 100
C834 0.01
R551 1K B
R117 1.8K
R118 360
T101 TRF-1444
R115 820K
C115 047MF
L105 PL-13J
C105 0.01
R108 3.9K
C 114 2P
IF AGC
VIDEO DET
VIDEO AMP
IF AMP
LIMIT
AFT DET
NOISE INVERTER
RF AGC
B NOISE INWERTER
C109 0.01
C108 0.01
C113 2P
C107 0.01
C106 0.01
T 102 TRF-1445
R152 4.7KB
R119 1K
C110 0.01
12V
C431 470MF 16V
L106 PL-12J
Z102
R552 1K
R522 2.7K
1801 M 51397AP
GATE PULSE
PAL IN
BYPASS
SECAM SIG IN
IDENT FILTR
IDENT DISCR
GND
B-Y DC
B-Y OUTPUT
BLANK COLOR OUT
GND
DELAY IN
COLOR CONT.
B-Y DISCR
B-Y DEMO OUT
V_{CC}
R816 1K
D803 IS1888
Q805 KTC-1815Y
R805 1.2K
C804 0.01
R806 100
C808 0.01
R813 330
C812 39
C813 39
R818 1.5K
R819
6.8K
R821 3.3K
R810 10
C810 47 MF
L502 2.2UH
IN DL
X502
L551 TRF 3705
T802 TRF 363
R806 33K
R861 390
Q804 KTC-1815Y
R804 10K
R523 12K
R509 390
C510 0.01
R510 680
R506 1.5K
R552 84.7K
R519 27K
R518 27K
R520 1.2K
C509 0.01
R517 52K
C518 4.7MF
C519, C520 0.022 × 2
R516 220
C516 20 CH
C515 20 CH
R515 820
X501
R514 510
C517 30P
C514 0.47
R527 8.2K
R:Y OUT
G-Y OUT
DELAY IN
APC FILTER2
DIRECT IN
APC FILTER1
45° IN
0° IN
X-tal DRIVE
KILLER IDENT.FILTER
GND VIDEO CHROMA
I501 TA76
B-Y OUT
Y OUT
V DRIVE OUT
V SIZE
NFB
RAMP CAP
V TRIG
V OSC TIMING
X-RAY PROTECTOR
GND DEFLECTION
H DRIVE OUT
JA03
L651 TRF-6783
R603 10K
C603 0.01
C604 12
C602 0.1MF
R602 560
Z602
Z601
R691 560
C692 56P
C691 56P
C309 22MF
C308
C402



		
1. 2.3Vp-p (M)	2. 0.55Vp-p (H)	3. 1.4Vp-p (H)
		
4. 0.6Vp-p (H)	5. 1.7Vp-p (H)	6. 0.15Vp-p (H)

		
7. 3.2Vp-p (H)	8. 1.8Vp-p (H)	9. 4.0Vp-p (H)
		
10. 85Vp-p (H)	11. 90Vp-p (H)	12. 90Vp-p (H)

		
13. 5.8Vp-p (H)	14. 30Vp-p (H)	15. 0.8Vp-p (H)
		
16. 10Vp-p (H)	17. 890Vp-p (H)	



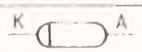
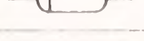
LOCATION	IC TYPE	WOLTAGE (PIN NO)										
I101	TA7606AP	1	2	3	4	5	6	7	8	9	10	11
		4.6	4.6	6.4	3.9	2.2	5.2	3.2	7.9	3.2	3.2	11.5
		12	13	14	15	16						
		3.6	0	7.3	4.6	4.6						
I501	TA7698AP	1	2	3	4	5	6	7	8	9	10	11
		4.2	11.3	4.25	4.2	1	9.0	5.0	9.3	5.7	7.1	0
		12	13	14	15	16	17	18	19	20	21	22
		8.6	9.0	3.3	3.3	7.8	3.8	8.0	3.9	7.6	6.9	
		23	24	25	26	27	28	29	30	31	32	33
		6.3	0.5	3.74	7.9	0.44	2.6	–	0	0.4	0.4	8.5
		34	35	36	37	38	40	41	42			
		4.8	4.9	3.3	–	–	2.8	–	6.8	7.1		
IV01	M491	1	2	3	4	5	6	7	8	9	10	11
		0	26	8	1	1.5	–	–	5	–	13.2	
		12	13	14	15	16	17	18	19	20	21	22
		–	–	15.1	1	0.4	0	3.5	3.5	3.5	0.4	0.4
		23	24	25	26	27	28	29	30	31	32	33
		0.4	0.4	2.4	0.4	1.5	1.5	1.5	1.5	0.8	0	1.5
		34	35	36	37	38	39	40				
		1.5	1.5	1.5	3	0	3	3				
IB01	M51397AP	1	2	3	4	5	6	7	8	9	10	11
		2.3	5.3	0	–	5.4	4.6	2.3	7.6	11	4.6	2.3
		12	13	14	15	16	17	18	19	20	21	22
		7.6	11.2	2.6	2.6	2.6	2.6	6.7	3.4	6.7	3.5	0
		23	24	25	26	27	28	20	30			
		3.5	0	2.7	7.1	5.3	5.3	4.6	–			
I301	AN5515	1	2	3	4	5	6	7				
		0	–	25	6	0	3	25				
I601	TDA8190	1	2	3	4	5	6	7	8	9	10	11
		4.7	3.4	3.6	3.4	0	0	3.45	–	4.0	4.5	7.4
		12	13	14	15	16	17	18	19	20		
		6.0	5.4	4.3	0	0	0.8	–	–	–		

TRANSISTORS

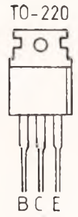
TYPE	Description and application	U_{CBO} V	U_{CEO} V	U_{EBO} V	$I_{C\,max}$ A	P_D W	f_T MHz	h_{FE}	CASE	Equiwalent
2SD1554	NPN-Si, Horiz Out. DAMPER DIODE	1500	800	7	5	120	3	8 min	TO-3PJ	BU508D S2055AF
KTC2482	NPN-Si, HV Video OUTPUT	300	300	6	1	9 T_A=25°C	50 min	100 min	T-16	BF299 BF420 BF393
KTC1815V KTC1959C	NPN-Si, Sw GEN. PURP. AMP.	70	70	4	0.4	0.6	200 min	120 min	TO-92	BC184 BC384 BC414, BC550
KTA562TMY KTA1015Y	PNP-Si, AF Pwr. AMP./COMPL. TO KTC2120/	100	80	5	0.5	0.5 T_A=25°C	120	100 min	TO-92	BC177, BC204 BC213, BC307 BC251
KTC2073	NPN-Si VERT. DEFL. AF AMP.	200	150	6	3	25	8	150 TYP	TO-220	
KTC2120	NPN-Si, AFP AMP/COMPL TO KTA5621MY	100	80	0.5	0.5 T_A=25°C	120	100 min	100 min	TO-92	
KTD880V	NPN-Si, AF P OUTPUT	60	60	5	7	50	10	60 TYP	TO-220	

TYPE	Description and application	TRANSCONDUCTANCE gfs TYP μmhos	GATE TO SOURCE CUTOFF VOLTAGE $V_{GS\,off\,max}$ (V)	Zero-GATE VOLTAGE DRAIN GURP. I_{DSS} (mA) Min — Max	GATE TO SOURCE BREAKDOWN VOLTAGE $BV_{GSS\,min}$ (V)	INPUT CAPACIT. $C_{iss\,max}$ (pF)	CASE	$P_{D\,max}$ (mW)
KTK 30A	I_{FET} N-Ch AF AMP. CHOPPER, Sw	4500	6	2 10	50	6	TO-72	300

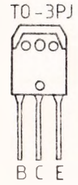
NOTES

TYPE	Description	PEAK REVERSE VOLTAGE $U_{R\,max}$ /V/	AVERAGE FORWARD CURRENT $I_{o\,max}$	FORWARD CURRENT REPATITIVE PEAK $I_{FRM\,max}$	REVERSE RECOVERY TIME t_{rr}	FORWARD VOLTAGE DROP $V_{F\,max}$	CASE
1N414B	FAS Sw, DCT-Si	200	160 mA	250 mA	50 ns	1.0 at 100 mA	
1N4148	FAST Sw, Si	100	200mA	450 mA	4 ns	1.0 at 100 mA	
RU-2 SS29SG	GEN.PURP. RECT. FART RECOVERY-Si	600	1 A		200 ns	1.5 V	

TO-220



TO-3PJ



TO-92.T-16

TO-72

LOC NO	14,16 INCH	20 INCH	LOC NO	14,16 INCH	20 INCH
0402	2SD1554	2SD1555	R240	1/4 24K OHM	1/4 18K OHM
T402	FBT KFS 60226B	KFS 60266	R241	1/4 180K OHM	1/4 150K OHM
C325	0 36 200V (M)	0 47 200V (M)	C419	6000P I 6KV (M)	8200P I 6KV (M)
L403	L-125 125uH	L-102 102uH	CRT	14"A34 JLL 70 x 01	20"A48 JLL 70 x 02
				16"A38 JLL 70 x 04	

SAFETY CAUTION:

BEFORE SERVICING THIS CHASSIS, IT IS IMPORTANT THAT THE SERVICE TECHNICIAN READ AND FOLLOW THE X-RAY RADIATION PRECAUTION, "SAFETY PRECAUTIONS" AND "PRODUCT SAFETY NOTICE" IN THE SERVICE MANUAL

1. WAVEFORMS TAKEN USING SIGNAL FROM A STANDARD COLOR BAR GENERATOR
2. ◑► INDICATES WAVEFORM CHECK POINT.

NOTES:

1. RESISTANCE VALUES ARE IN OHMS K 1000, M 1,000,000
2. CAPACITANCE VALUES 1.0 AND ABOVE ARE IN pF, THOSE BELOW ARE IN µF EXCEPT AS INDICATED
3. INDUCTOR VALUES IN µH EXCEPT AS INDICATED
4. VOLTAGES ARE MEASURED FROM CHASSIS GROUND TO POINT INDICATED WITH A "VTVM" WHILE RECEIVING A COLOR BAR SIGNAL WITH ALL CONTROLS SET TO THE MAXIMUM POSITION (FOR A NOMINAL LINE VOLTAGE AC 110 240V 50HZ).
5. SINCE THE CIRCUIT DIAGRAM IS A STANDARD ONE, THE CIRCUIT AND CIRCUIT CONSTANTS MAY BE SUBJECT TO CHANGE FOR IMPROVEMENT WITHOUT ANY NOTICE

PRODUCT SAFETY NOTI

SHADED COMPONENTS HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY AND SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ORIGINAL OR SPECIFIED IN THE PARTS LIST
DON'T DEGRADE THE SAFETY OF THE SET THROUGH IMPROPER SERVICING.

COLOR CONTROL

MAIN BOARD

VIDEO DRIVE BOARD

AUDIO IN

VOLUME UP/DOWN
CHANNEL UP/DOWN
SEARCH UP/DOWN
MEMORY
BAND
POWER (ON/OFF)
MAIN POWER
AUDIO VIDEO(SW)
AFT SW

CONTROL BOARD

IC03 (MC 14053)

VIDEO IN

SOUND OUTPUT

VIDEO OUT

UHV TUNER

0101 PIX IF PRE-AMP

Z101 PIX IF FILTER

IC101
PIX IF AGC
AFT. NOISE
CANCELLER
VIDEO AMP

AGC

AFT

PIF

TUNING

SOUND OUT

I601 SOUND DET AMP

Z102
L106
SIF TRAP

RED OUTPUT KTC 2482

GREEN OUTPUT KTC 2482

BLUE OUTPUT KTC 2482

CRT

MUTING

A/V BOARD

PRE AMP
IP01
TDA 2320A

SPEKAER

IC501 ABL.,
PEDESTAL CLAMP
CHAROMA AMP., ACC.,
BURST AMP., MATRIX
DEMODULATOR. V.C.O.
APC. KILLER, VIDEO AMP
VERT HORIZ. OSC.,
AFC. SYNC. AMP.
VERT. DRIVER

CONTRAST
BRIGHT
COLOR
V-HOLD
CONTROL

ABL

0201 VIDEO DRIVER

D402 HORIZ. OUT

I301 VERT OUTPUT

BLANKING CIRCUIT

D401, T401 HORIZ. DRIVE

REMOTE PRE-AMP BOARD

INFRARED RAYS

REMOTE CONTROL TRANSMITTER
IT01
M708 AB1

KEY BOARD

TRANSMITTER BOARD

LED DISPLAY BOARD

IV01 (M491)

AC

F801

T802 LINE FILTER

RECTIFIER IN4004×4

12V

RELAY

TUNING BOARD

RECTIFIER IS1888×4

F802

0801 STR5412

25V

D301 25V RCT

+103V

T402 FLY BACK TRANS

SCREEN

D406 16.5V RCT

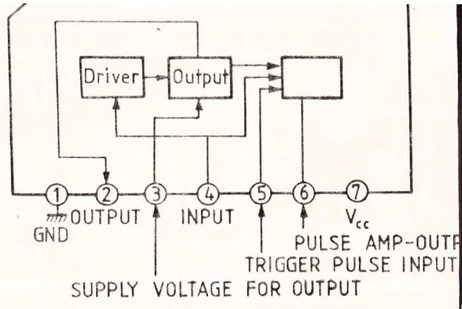
16.5V

D407 180V RCT

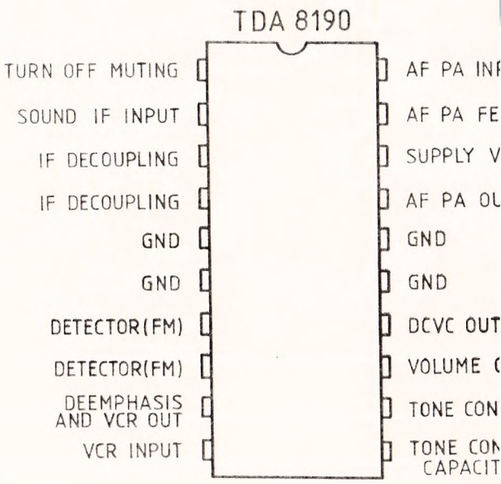
180V

FOCUS

H.V



TDA 8190



IB01
SECAM DECODER
PAL/SECAM SW
MATRIX
DC REGENERATION

MAIN BOARD

BLOCK DIAGRAM

AN 5515