



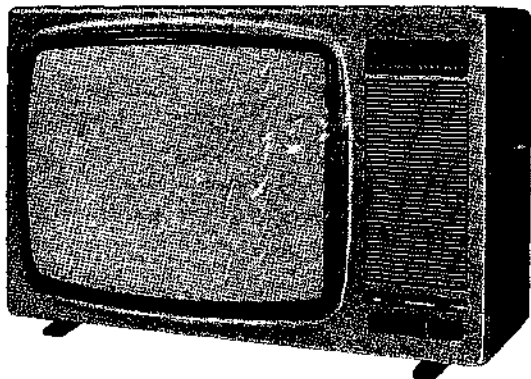
# HITACHI

# CTP-207

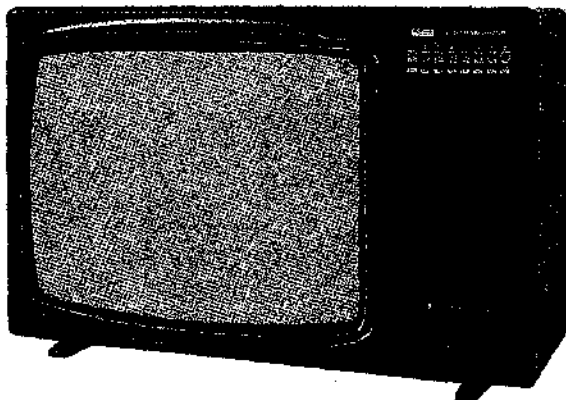
## SERVICE MANUAL No.322 NP6A Chassis

### CAUTION

Before servicing this chassis, it is important that the service technician read the "Safety Precaution" and "Product Safety Notices" in this Service Manual.



(Germany)



(Swiss, Sweden)

*This is a preliminary service manual that shows only essential items.*

*Our complete service manual including "alignment procedure", "printed circuit boards" and "replacement parts list" will be published soon.*

*We hope you will make the best of this for the time being.*

### TECHNICAL SPECIFICATIONS

TV standard	CCIR-B and G system
Channel coverage	VHF (Band I, III) 2-12ch UHF (Band IV, V) 21-68ch
Aerial input impedance	75 ohm asymmetrical
Intermediate frequencies	
I.F. luminance	38,90 MHz
I.F. sound	33,40 MHz
I.F. chrominance	34,47 MHz
F.M. sound	5,5 MHz
Colour subcarrier	4,43 MHz
Convergence	Self-convergence
Focusing	Electro-static
Picture tube	20", Inline
Programme selectors	8 programme sensor
IC.s	5
Transistors	53
Diodes	90
Thick film-module	1
Speaker	10 x 15cm, 8-ohm
Headphone jack	DIN type No. 45327
Sound output	max. 3,0W
Mains voltage	220V 50Hz
Power consumption	115W
Fuse	
Mains input	2A/T x 2
Regulate line	1A/T x 1
Dimension (W x H x D)	65 x 43 x 39cm
Weight	appr. 26kg

## SOLID STATE COLOUR TELEVISION

July 1976

## SAFETY PRECAUTIONS

**WARNING:** Since the chassis of this receiver is connected to one side of the Mains Supply during operation, service should not be attempted by anyone unfamiliar with the precautions necessary when working on this type of equipment.

The following precautions should be observed:

1. Do not install, remove, or handle the picture tube in any manner unless shatter-proof goggles are worn. People not so equipped should be kept away while picture tubes are handled. Keep picture tube away from the body while handling.
2. When service is required, an isolation transformer should be inserted between power line and the receiver before any service is performed on a "HOT" chassis receiver.
3. When replacing a chassis in the cabinet, always replace all the protective devices are put back in place, such as; barriers, non-metallic knobs, adjustment and compartment cover or shields, isolation resistor-capacitor, etc.
4. When service is required, observe the original lead dress. Extra precaution should be taken to assure correct lead dress in the high voltage circuitry area.
5. Always use the manufacturer's replacement component. Especially critical components as indicated on the circuit diagram should not be replaced by other makes.  
Furthermore where a short circuit has occurred, replace those components that indicate evidence of overheating.
6. Before returning a serviced receiver to the customer, the service technician must thoroughly test the unit to be certain the it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the instrument by the manufacturer has become defective, or inadvertently defeated during servicing.  
Therefore, the following checks are recommended for the continued protection of the customers and service technicians.

### INSULATION

Insulation resistance should not be less than 7M at 500V DC between the mains poles and any accessible metal parts. Also, no flashover or breakdown should occur during the dielectric strength test, to apply 4kV AC for one minute between the mains poles and any accessible metal parts.

### HIGH VOLTAGE

High voltage should always be kept at rated value of the chassis, no-higher. Operating at higher voltage may cause a failure of the picture tube or high voltage supply and,

also, under certain circumstances could produce X-radiation moderately in excess of design levels. The high voltage must not, under any circumstances, exceed 27kV on the chassis.

### X-RADIATION

**TUBES:** The primary source of X-radiation in this receiver is the picture tube.

The tube utilized for the above mentioned function in this chassis is specially constructed to limit X-radiation emissions.

For continued X-radiation protection, the replacement tube must be the same type as the original, HITACHI approved type.

### PRODUCT SAFETY NOTICES

Many electrical and mechanical parts in HITACHI television receiver have special safety related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a  $\Delta$  on the circuit diagram and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the HITACHI recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, X-radiation, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current HITACHI Service Manual. A subscription to, or additional copies of, HITACHI Service Manual may be obtained at a nominal charge from your HITACHI SALES CORPORATION.

### NOTICE

#### SENSOR OPERATION

1. The sensor programme selectors might misoperate if the metal plates of them are bridged with moisture and/or dirt. Please wipe out moisture and/or dirt from the metal plates completely.
2. Sensor programme selectors might not function correctly, if the insulating resistance between human body and ground is too small, for example when operating them with standing on the damp floor with the bare feet. Please put on a dry foot-wear and operate sensor programme selectors with standing on the dry floor.

## TECHNICAL PRECAUTIONS

### 1. Power supply circuit (HT1 stabilizing circuit)

Power supply circuit incorporated in NP6A chassis is a newly developed switching mode stabilizing power supply. New features of this circuit also include adjustment-free of HT1 voltage setting and HV (EHT) limit circuit.

#### 1.1 Circuit function

The block diagram of this power supply circuit is shown in Fig. 1.

AC mains voltage is rectified by CR901 ~ 904 and turned to unstabilized DC voltage. This DC voltage is converted to line frequent square wave by TR906 and T902. The output from the secondary winding of T902 is rectified by CR908 and supplied to the load as HT1 voltage.

The fluctuation of the HT1 voltage is detected by the error detector (CP901 and TR907), and this output is fed to pulse width modulator (TR904). The pulse width modulator varies the duration of the driving pulse and the drive circuit (TR905) controls the switching circuit (TR906).

#### 1.2 Error detector

The newly developed thick film module is used in the error amplifier for HT1 voltage setting.

The module includes two functions, voltage divider and reference voltage stage as shown in Fig. 2(b).

Fig. 2(a) shows a conventional error detector.

HT1 output is divided by the resistors R1 and R2, and compared with the reference voltage produced by CR1. The amount of error is amplified and fed back to stabilize the HT1.

The conventional type has a potentiometer R2, which absorbs the component's tolerances as of resistor R1 etc., and alter the dividing ratio, therefore stabilized HT1 is derived.

Fig. 2(b) shows a error detector with the voltage setting module incorporated.

HT1 is applied to the voltage divider (between terminal 1 and 5) and divided voltage is derived at terminal

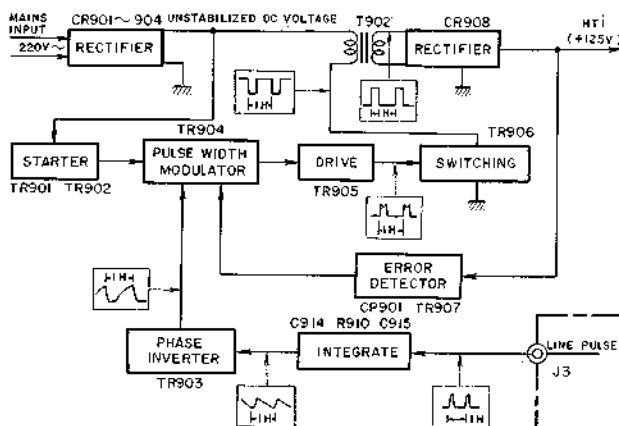


Fig. 1 Block diagram of power supply circuit

3. Between terminal 2 and 4, the reference voltage is produced. The amount of error is amplified and fed back to stabilize HT1.

The voltage divider, whose resistors are printed and trimmed, is preadjusted and fixed to obtain nominal HT1 value.

Therefore no adjustment procedure is necessary.

#### 1.3 Replacement

If the replacement of any component listed below is necessary, no spare parts should be replaced but those approved and appointed by HITACHI.

Component	Circuit No.
Voltage setting module	CP901
Error amp. transistor	TR907
Resistor	R928

After the replacement has been carried out, be sure to check and see that HT1 output is within  $123,0 \pm 2V$ .

#### 1.4 Diagnosis

The power supply circuit in NP6A chassis does not operate if either the power supply circuit or the line stages are defective. If the receiver does not work, it is important to find defective circuit according to the steps below.

- 1) Turn off the receiver.
- 2) See that fuses F901, 902 (2A/T) and F903 (1A/T) are not blown.
- 3) Check TR906.
- 4) Disconnect G and J connectors from the boards. Short circuit across C910 by a short link. Turn on the mains switch.
  - a) If no HT1 voltage is derived, the power supply circuit is defective.
  - b) If HT1 voltage is +80 ~ 110V, connect J connector.
    - i) If line output pulse is derived at J3, the power supply circuit is defective.
    - ii) If no line output pulse is derived at J3, the line stages are defective.

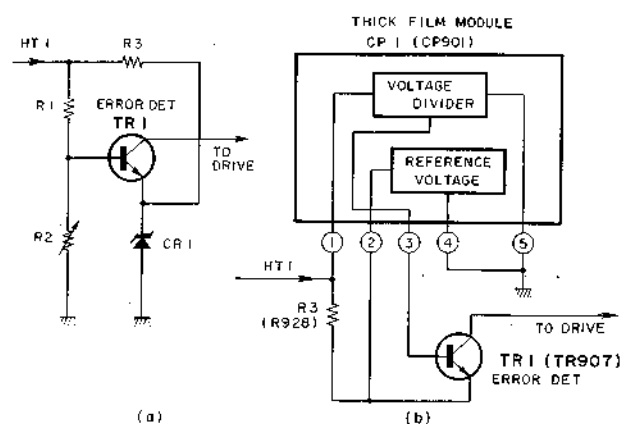


Fig. 2 Error detector circuit

## 2. HV (EHT) limit circuit

### 2.1 Circuit function

HV (EHT) limit circuit reduces EHT to zero potential when the EHT value exceeds the threshold level in case of a fault condition of the circuits.

This function assures to protect from excessive EHT and to maintain safety of the receiver.

Fig. 3 shows this circuit, adopted in NP6A chassis. Rectified peak voltage from the LT1 winding of the LOPT is fed to internal voltage divider of CP902 (between terminals 1 and 5), which is identical to CP901 (Fig. 2).

Divided voltage at the terminal 3 is applied to reference voltage stage of CP902 (between terminals 2 and 4) and additional resistor R931.

The voltage at the terminal 1 is proportional to the EHT value, since both voltages being derived from the windings of the LOPT.

When the voltage at the terminal 2 exceeds the reference voltage due to the increased voltage at the terminal 1, the current starts flowing through R931 and causes the base potential of TR908 to increase and TR908 to conduct.

Due to Thyristor (SCR) connection, once TR908 conducts TR909 also conducts and both transistors maintain their conduction.

Therefore, this HV (EHT) limit circuit ground the emitter of pre drive transistor TR904 through R441, and TR904 stops operating, then no output voltage is derived on the HT1 line.

From the circuit function described as above, this circuit is not operating at normal condition, but the reliable operation is required when the EHT rises excessively. Therefore CP902 is designed and produced to operate properly, absorbing normal tolerances of the components.

### 2.2 Replacement

If the replacement of any component listed below is necessary, no spare parts should be replaced but those approved and appointed by HITACHI.

Component	Circuit No.
Voltage setting module	CP902
LOPT	T705
EHT limit transistor	TR908
EHT limit transistor	TR909
LT1 rectifying diode	CR709
Rectifying diode	CR714
Resistor	R931
Resistor	R934
Resistor	R939
Smoothing capacitor	C749
Smoothing capacitor	C932
LT1 filter coil	L711

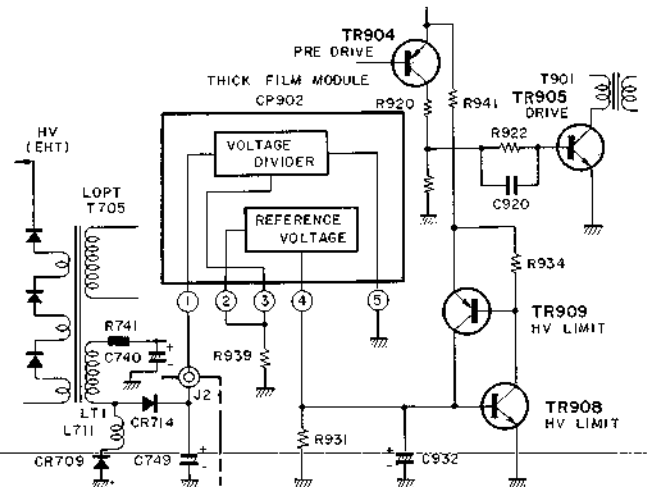


Fig. 3 HV (EHT) limit circuit

### 2.3 Operation checking

Check the operation of the HV (EHT) limit circuit as described below, after the replacement is carried out.

- 1) Connect J2 with a intermediate point between R939 and terminal 2 - 3 of CP902 by a resistor  $91K\Omega \pm 5\%$ . - Fig. 4
- 2) See that the HV (EHT) limit circuit operates and HV (EHT) is ceased.
- 3) Turn off the mains switch and disconnect the resistor  $91K\Omega$ . Leave the receiver at least 60 seconds.
- 4) See that the receiver operates normally when the set is turned on again.

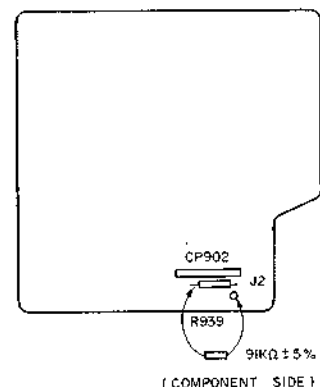


Fig. 4 Power supply board

### 3. Line oscillator circuit

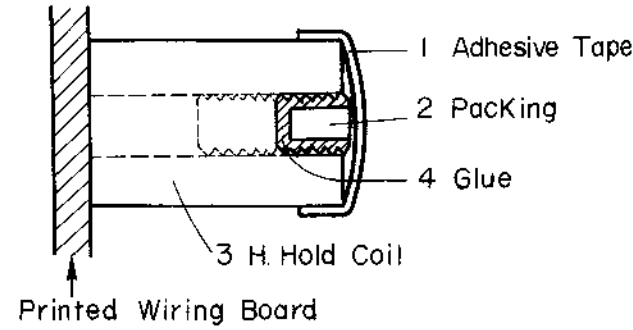
Line oscillator coil (H. Hold coil – T701) is fixed with glue at the factory to prevent the H. Hold coil from being maladjusted for lower frequency resulting abnormal EHT in the receiver. Therefore when you service the receiver, don't try to adjust or break the fixed H. Hold coil. Please observe the following procedure when the adjustment of H. Hold is necessary.

The adjustment is required when any of the following parts have been replaced.

T701	R715	R717	C714
TR703	R716	CR713	C715

#### Adjustment procedure

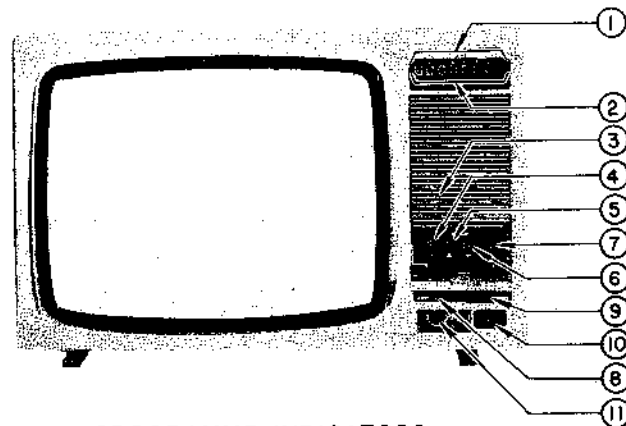
- Step 1: Replace the fixed H. Hold coil (T701) with new one.
- Step 2: Turn the core of H. Hold coil until its bottom end reaches the printed wiring board.
- Step 3: Defeat the line synchronization by following method. Ground TR702 with an electrolytic capacitor, 10 $\mu$ F/50V.
- Step 4: Obtain the line synchronization by turning the core of H. Hold coil (T701).
- Step 5: Release the capacitor connected at Step 3.
- Step 6: Fix the H. Hold coil with glue as shown below.



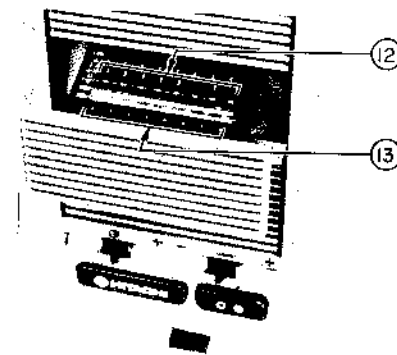
Step 7: Confirm that the HV (EHT) limit circuit works correctly.

(Refer the checking method in 2, 3)

### CONTROLS



1. PROGRAMME INDICATORS
2. PROGRAMME SENSORS
3. PROGRAMME MEMORY DRAWER
4. BRIGHTNESS CONTROL
5. COLOUR CONTROL
6. TINT CONTROL
7. TONE CONTROL



8. CONTRAST CONTROL
9. VOLUME CONTROL
10. MAINS SWITCH
11. HEADPHONE JACK
12. BAND SELECTORS/CHANNEL POINTERS
13. CHANNEL TUNING KNOBS

### TECHNICAL FEATURES

#### 1. NEW COLOUR PICTURE TUBE

New HITACHI inline picture tube has been developed with high precision technology and skill.

- a. Self-convergence tube system in 110° deflection technique.
- b. Sharp and crisp picture due to 110° deflection angle in addition to the precision gun and the large electron lenses.
- c. Enhanced brightness and contrast due to Black Matrix.

#### 2. IC/TRANSISTORIZED CIRCUITS

With the long experience of solid state technology and the developments of colour television skill, HITACHI colour television incorporates IC/transistor circuits for stable quality, less power consumption and high reliability.

#### 3. SENSOR TUNING

Desired station is selected by only touching the programme selector.

Automatic frequency control (AFC) keeps the receiver in correct tune for an extended period of time.

This function is automatically defeated at channel preset adjustment.

#### 4. QUICK START

Quick start colour picture tube provides "Quick Start" feature without preheating method.

After switching on the set, the picture comes out in around five seconds.

#### 5. STABILIZED POWER SUPPLY CIRCUIT

Stabilized power supply circuit assures stable operation against mains voltage fluctuation.

#### 6. HIGH RELIABILITY AND SAFETY

Highly printed circuits, stabilized power supply, vertical chassis and various protection circuits assure highly reliable receiver performance.

Adjustment-free aspect on stabilized high tension and excessive EHT limit circuit assure highly safe operation.

#### 7. HIGH SERVICEABILITY

Main chassis unit can be rested at any three positions for easier access at servicing.

Four function modules (tuner, V-IF, chrominance and sound circuits) realize easier diagnosis and quicker replacement.

#### 8. NEWLY ADOPTED TECHNIQUES

- a. Newly developed saddle-toroidal type scan coil enables self-convergence system in 110° deflection technique.
- b. Newly developed diode split type LOPT realizes higher efficiency and better reliability.
- c. Newly developed switching mode power supply circuit provides stabilized power supply, realizes enhanced stability and saves power consumption.
- d. Newly developed one-chip monolithic chroma processing IC with automatic colour contrast control function realizes enhanced colour performance.

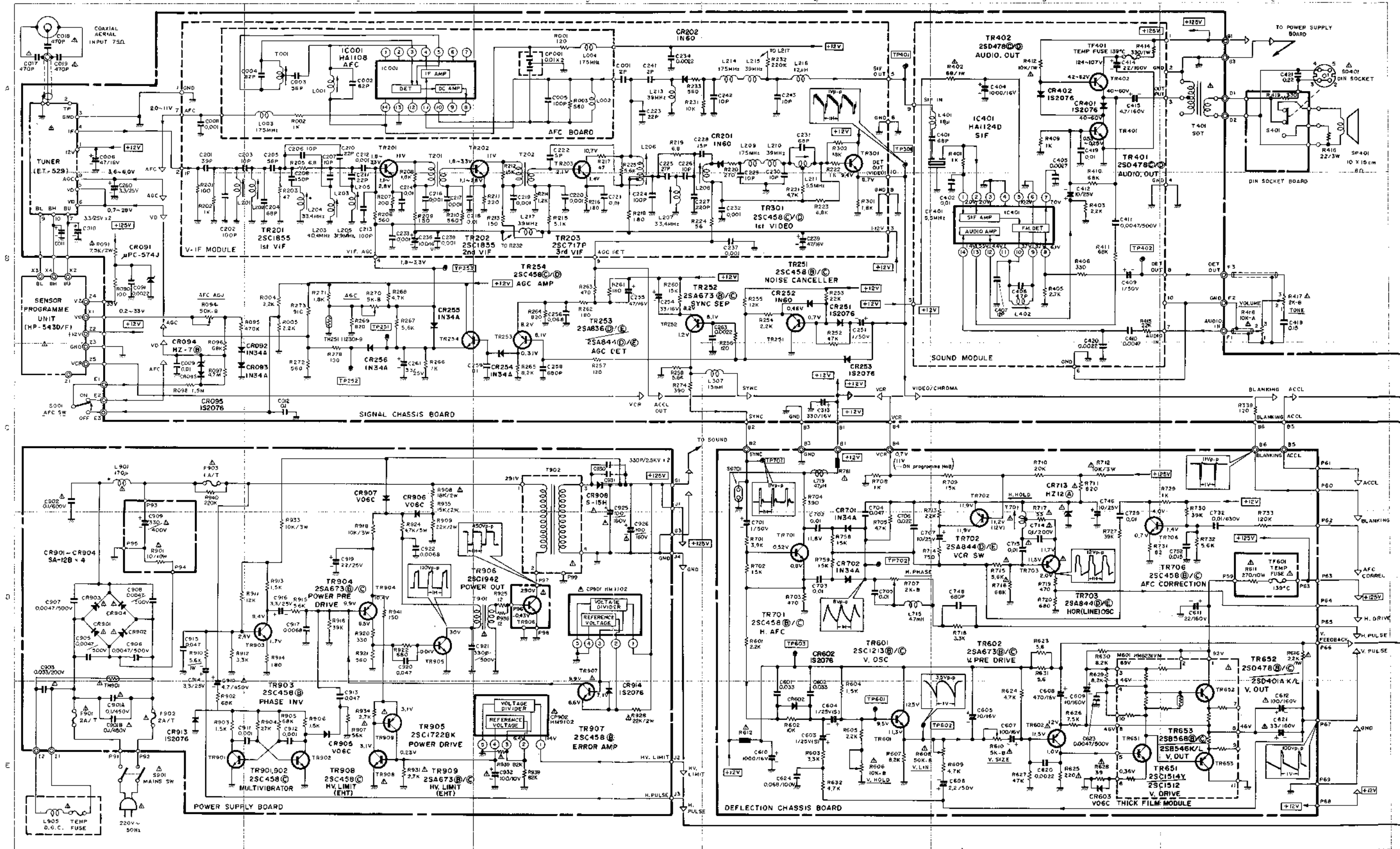
#### 9. WIDE UTILITY

- a. AV function (for audio visual equipment e.g. VCR, Teldec etc.) is provided at programme No. 8.
- b. Headphone jack (DIN type No. 45 327) is provided for private listening.

#### 10. EASY OPERATION

- a. Push-push type mains switch.
- b. Front operation of all the controls.

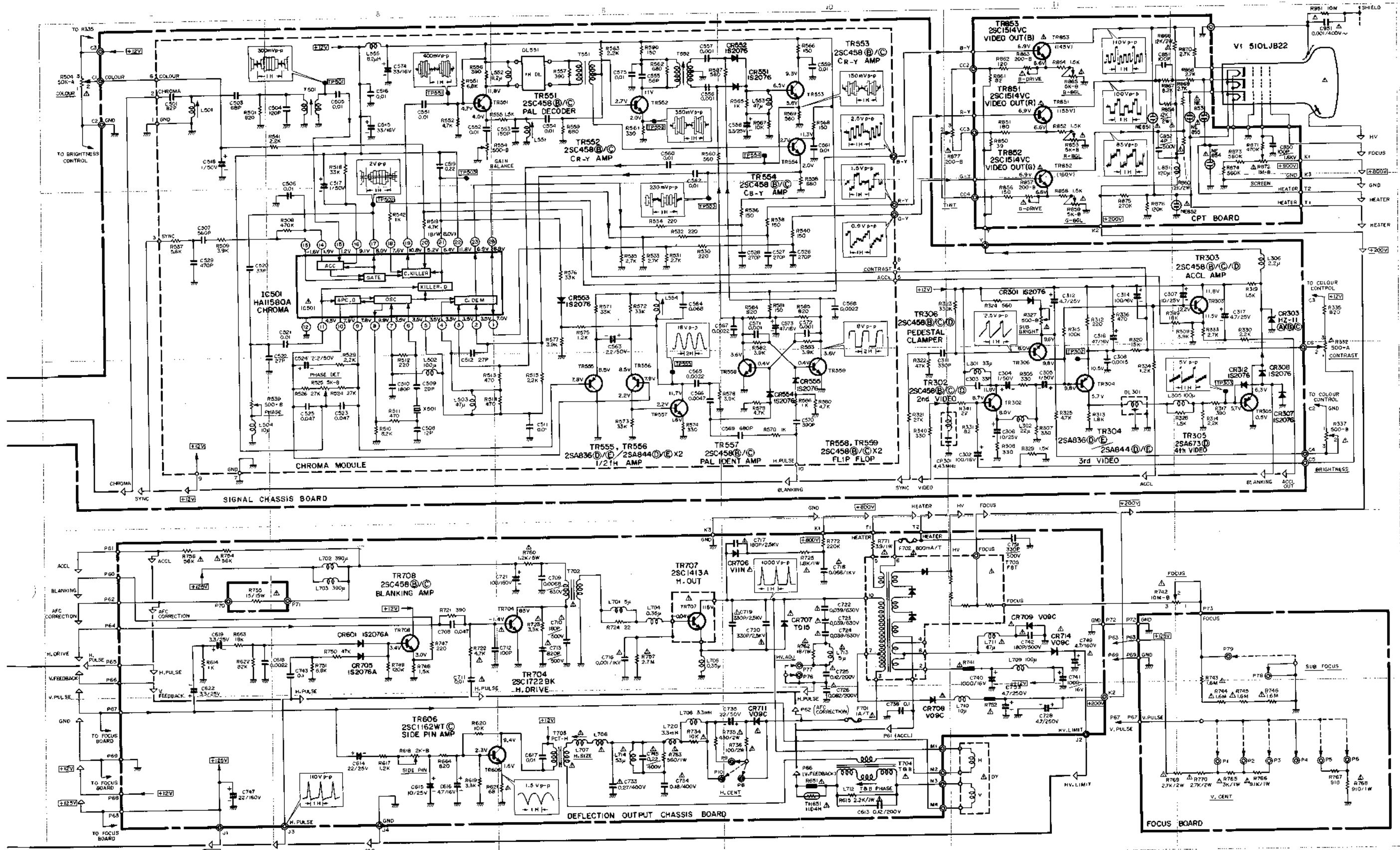
BASIC CIRCUIT SCHEMATIC DIAGRAM (CTP-207)



NOTE) F903 Replacement - When F903 blows, switch off the set and wait 2 ~ 3 minutes to allow C909 to discharge.

PRODUCT SAFETY NOTE

Components marked with a  $\Delta$  and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the "Product safety notices" of this service manual. Don't degrade the safety of the receiver through improper servicing.



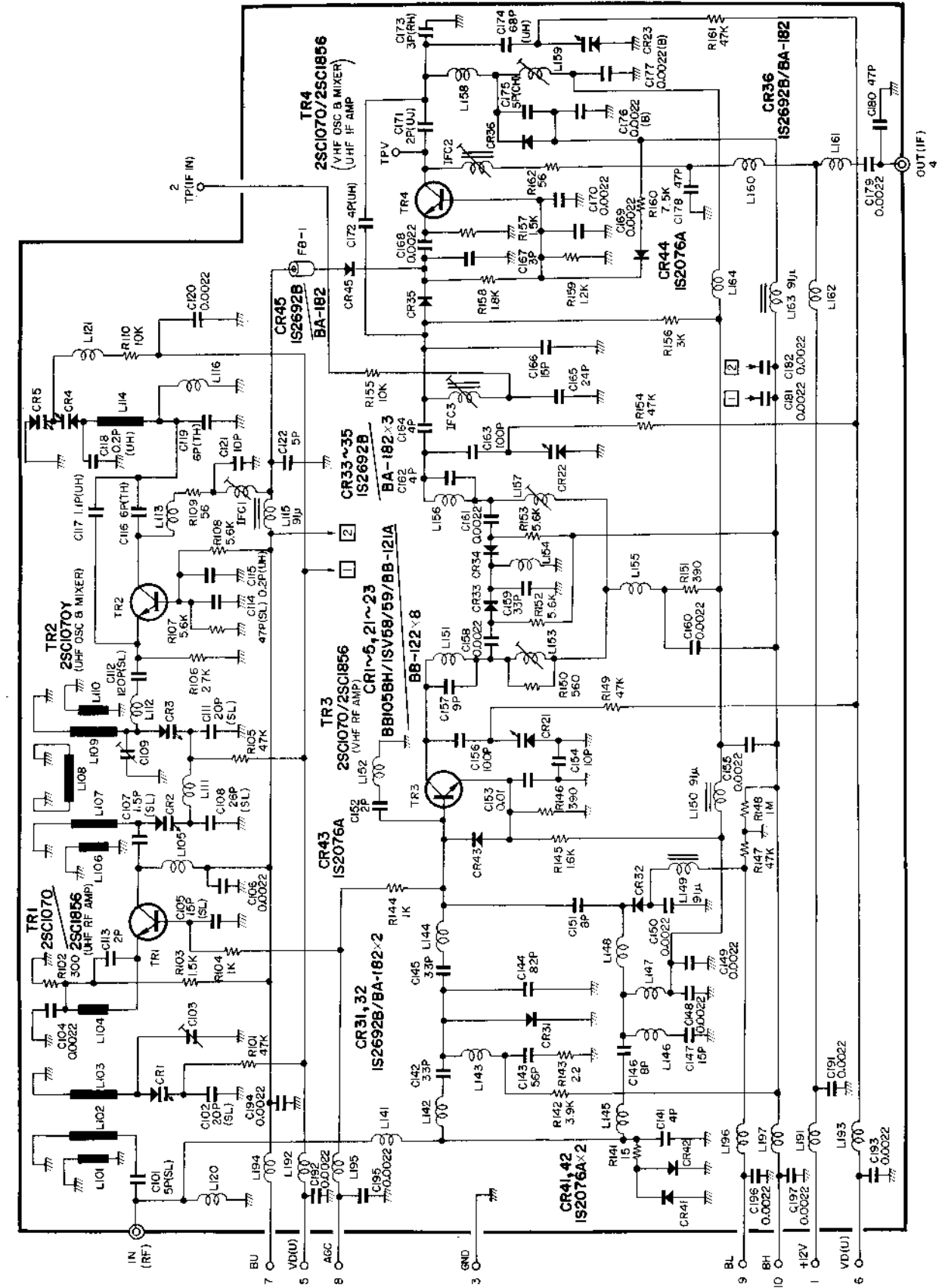
- All resistors are in ohms. K=1,000 M=1,000K
- All capacitors are in  $\mu$ F, unless otherwise noted. P= $\mu$ F
- $\text{---}$  indicates a fuse resistor.

- All voltages are measured by a meter (100K $\Omega$ /V) on a normal condition with receiving a colour bar test signal.
- Since this is the basic circuit diagram, it is subject to alter by improvement etc.

TRANSISTORS, IC VIEW

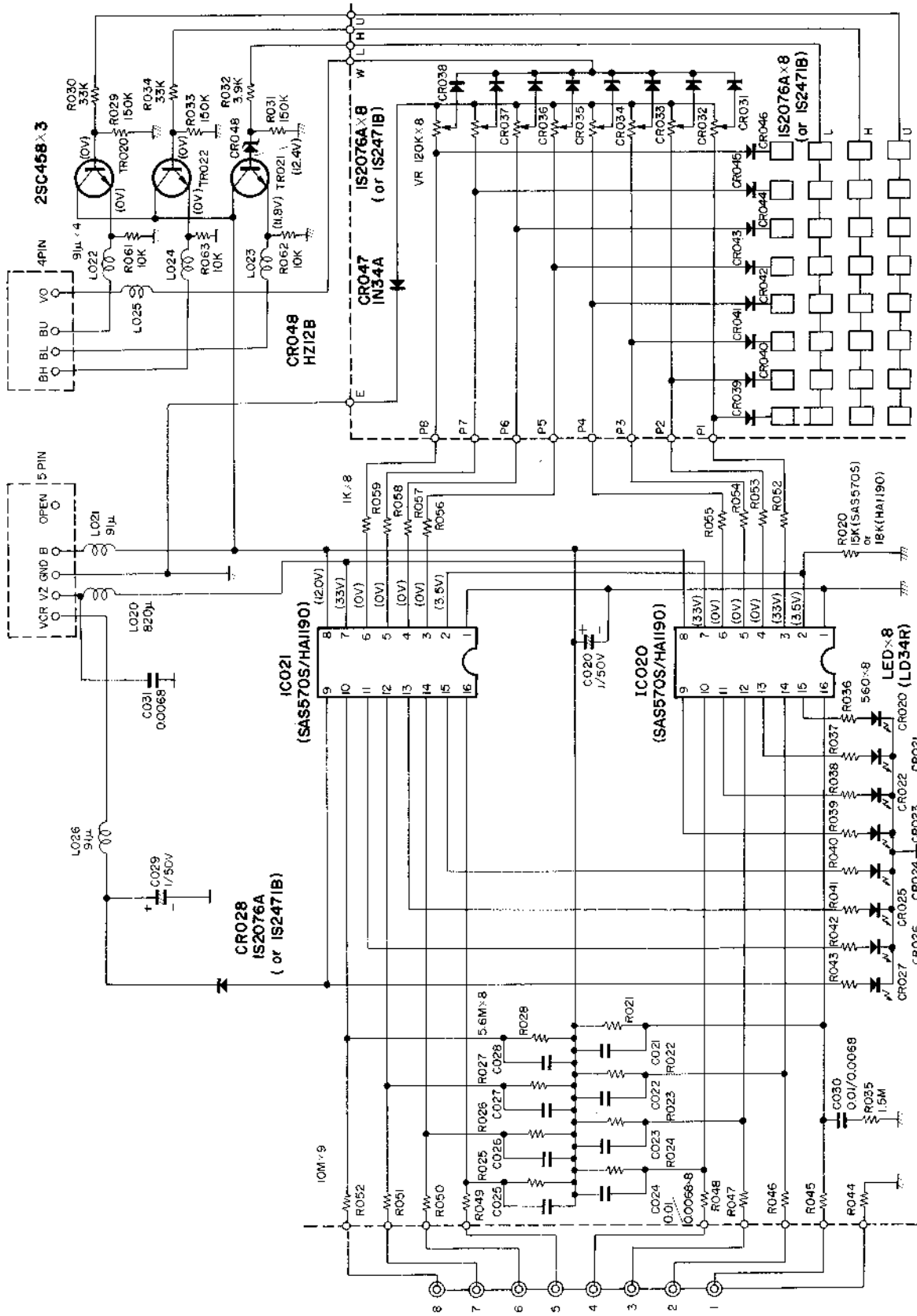
VIEW	TYPE	VIEW	TYPE
	2SC458 2SC1213 2SA673 2SA836 2SA844		2SC1162WT
	2SC1855 2SC1856		2SC1070 2SC1070Y
	2SC717P		HA1108 HA1124D
	2SC1413A 2SC1942		HA1190 SAS570S
	2SC1722BK 2SD478		HA11580A
	2SC1514VC		

TUNER CIRCUIT SCHEMATIC DIAGRAM (ET-529)





# PROGRAMME UNIT (HP-543D/F)



NOTE: DC VOLTAGE SHOWN IN ( ) ARE FOR SERVICE PURPOSE WHEN RECEIVED VHF LOW CHANNEL AT PROGRAMME NO.1.

## REPLACEMENT PARTS LIST

This replacement parts list shows only special characteristics components. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICES of this Service Manual. Don't degrade the safety of the receiver.

PLACE	SYMBOL NO.	STOCK NO.	DESCRIPTION			PLACE	SYMBOL NO.	STOCK NO.	DESCRIPTION		
<b>CAPACITORS</b>											
A1	C017	0243433	Ceramic	470pF ±20%	AC250WV	E5	R625	0114139	Carbon film	220Ω ±5%	SRD¼P
A1	C018	0243433	Ceramic	470pF ±20%	AC250WV	E5	R628	0114055	Carbon film	39Ω ±5%	SRD¼P
A1	C019	0243433	Ceramic	470pF ±20%	AC250WV	E10	R651	0119508	Metal oxide film	56Ω ±5%	RN¼
A1	C017	0243436	Ceramic	470pF ±20%	AC400WV	C5	R711	0114153	Carbon film	820Ω ±5%	SRD¼P
A1	C018	0243436	Ceramic	470pF ±20%	AC400WV	C5	R712	0110369	Metal oxide film	10KΩ ±5%	RD3PB
A1	C019	0243436	Ceramic	470pF ±20%	AC400WV	D5	R715	0114179	Carbon film	5.6KΩ ±5%	SRD¼P
E6	C612	0258589	Electrolytic	100μF	DC160WV	D5	R716	0114221	Carbon film	68KΩ ±5%	SRD¼P
E6	C621	0258586	Electrolytic	33μF	DC160WV	D5	R717	0137529	Carbon film	33Ω ±5%	SRD¼P
D9	C710	0243504	Ceramic	180pF ±10%	DC500WV	D8	R722	0134097	Composition	4.7KΩ ±5%	RC½GF
D8	C711	0277013	Polyester film	0.01μF ±10%	DC50WV	D9	R723	0134093	Composition	3.3KΩ ±5%	RC½GF
D9	C713	0243512	Ceramic	820pF ±10%	DC500WV	D10	R725	0110151	Metal oxide film	1.8KΩ ±5%	RD1PB
D5	C714	0299961	Polyester film	0.1μF ±5%	DC200WV	E9	R734	0137651	Carbon film	10KΩ ±5%	SRD¼P
D5	C715	0277021	Polyester film	0.01μF ±5%	DC50WV	E9	R735	0110236	Metal oxide film	430Ω ±5%	RD2PB
D9	C716	0244436	Ceramic	0.001μF ±20%	DC1KWV	E10	R736	0110221	Metal oxide film	100Ω ±5%	RD2PB
D10	C717	0243839	Ceramic	180pF ±10%	DC2.5KWV	D11	R741	0119504	Wire wound	0.5Ω ±5%	RN¼
D10	C718	0215296	Paper	0.068μF ±10%	DC1KWV	D12	R742	0153258	Control	10MΩ-B	FOCUS
D10	C719	0243837	Ceramic	330pF ±10%	DC2.5KWV	D12	R743	0134207	Composition	1.6MΩ ±5%	RC½GF
D10	C720	0243837	Ceramic	330pF ±10%	DC2.5KWV	E12	R744	0134207	Composition	1.6MΩ ±5%	RC½GF
D10	C722	0299633	Polyester film	0.039μF ±10%	DC630WV	E12	R745	0134207	Composition	1.6MΩ ±5%	RC½GF
D10	C723	0299633	Polyester film	0.039μF ±10%	DC630WV	E12	R746	0134207	Composition	1.6MΩ ±5%	RC½GF
D10	C724	0299632	Polyester film	0.033μF ±10%	DC630WV	E11	R752	0119505	Carbon film	2.2Ω ±5%	RN¼
D10	C725	0299927	Polyester film	0.12μF ±10%	DC200WV	D7	R754	0114219	Carbon film	56KΩ ±5%	SRD¼P
E10	C726	0299925	Polyester film	0.082μF ±10%	DC200WV	D7	R755	0141055	Wire wound	15Ω ±5%	RWH-15
E9	C733	0299608	Polyester film	0.27μF ±10%	DC400WV	D7	R756	0114219	Carbon film	56KΩ ±5%	SRD¼P
E9	C734	0299606	Polyester film	0.18μF ±10%	DC400WV	D9	R757	0134212	Composition	2.7MΩ ±5%	RC½GF
D11	C742	0243504	Ceramic	180pF ±10%	DC500WV	D9	R760	0111778	Metal oxide film	1.2KΩ ±5%	RD5PY
D11	C749	0257537	Electrolytic	4.7μF	DC160WV	C4	R761	0119505	Carbon film	2.2Ω ±5%	RN¼
E9	C745	0299607	Polyester film	0.22μF ±10%	DC400WV	D10	R762	0110103	Metal oxide film	18Ω ±5%	RD1PB
E1	C901A	0214480	Paper	0.1μF ±20%	AC450WV	E9	R763	0110139	Metal oxide film	560Ω ±5%	RD1PB
E1	C901B	0214480	Paper	0.1μF ±20%	AC450WV	E12	R765	0110156	Metal oxide film	3KΩ ±5%	RD1PB
C1	C902	0219425	Paper	0.1μF ±20%	DC600WV	E12	R766	0110168	Metal oxide film	9.1KΩ ±5%	RD1PB
E1	C903	0299920	Polyester film	0.03μF ±10%	DC200WV	E12	R768	0110144	Metal oxide film	910Ω ±5%	RD1PB
D1	C909	0259834	Electrolytic	330μF	DC400WV	E12	R769	0110255	Metal oxide film	2.7KΩ ±5%	RD2PB
E1	C910	0258592	Electrolytic	4.7μF	DC400WV	E12	R770	0110255	Metal oxide film	2.7KΩ ±5%	RD2PB
D3	C925	0258589	Electrolytic	100μF	DC160WV	D10	R771	0190178	Wire wound	3.9Ω ±5%	RWH-1
D3	C926	0258589	Electrolytic	100μF	DC160WV	A11	R853	0151338	Control	5KΩ-B	R-BGL
E3	C932	0252621	Electrolytic	10μF	DC25WV	A11	R854	0110271	Metal oxide film	12KΩ ±5%	RD2PB
A12	C951	0243437	Ceramic	0.001μF ±10%	AC400WV	B11	R857	0151334	Control	200Ω-B	G-DRIVE
<b>RESISTORS</b>											
B1	R091	0110266	Metal oxide film	7.5KΩ ±5%	RD2PB	B11	R859	0151338	Control	5KΩ-B	B-BGL
B11	R327	0151186	Control	500Ω-B	SUB. BRIGHT	A11	R860	0110271	Metal oxide film	12KΩ ±5%	RD2PB
C12	R332	0166650	Control	500Ω-A	CONTRAST	A11	R863	0151334	Control	200Ω-B	B-DRIVE
C12	R337	0159270	Control	500Ω-B	BRIGHT	A11	R865	0151338	Control	5KΩ-B	B-BGL
A5	R402	0110117	Metal oxide film	68Ω ±5%	RD1PB	A12	R866	0110271	Metal oxide film	12KΩ ±5%	RD2PB
A5	R412	0110169	Metal oxide film	10KΩ ±5%	RD1PB	A12	R872	0151635	Control	1MΩ-B	SCREEN
A5	R414	0110133	Metal oxide film	330Ω ±5%	RD1PB	A11	R877	0159277	Control	200Ω-B	TINT
B6	R417	0159274	Control	2KΩ-B	tone	D1	R901	0142262	Wire wound	10Ω ±5%	RWH-10
B6	R418	0166661	Control	10KΩ-A	VOLUME	C2	R908	0110275	Metal oxide film	18KΩ ±5%	RD2PB
A7	R504	0159275	Control	50KΩ-A	COLOUR	E3	R928	0110277	Metal oxide film	22KΩ ±5%	RD2PB
E4	R606	0151264	Control	10KΩ-B	V. HOLD	E2	R931	0114171	Carbon film	2.7KΩ ±5%	SRD¼P
E5	R608	0151297	Control	50KΩ-B	V. LIN	E2	R934	0137611	Carbon film	2.7KΩ ±5%	SRD¼P
E5	R610	0151187	Control	5KΩ-B	V. SIZE	E3	R939	0114223	Carbon film	82KΩ ±5%	SRD¼P
D6	R611	0142263	Wire wound	270Ω ±5%	RWH-10	A12	R951	0179529	Metal glaze	10MΩ ±5%	RK¼P
E4	R612	0119508	Metal oxide film	56Ω ±5%	RN¼	<b>SEMICONDUCTORS</b>					
E10	R615	0110153	Metal oxide film	2.2KΩ ±5%	RD1PB	E5	TR602	2320631	Silicon	2SA673 (B)/(C)	
D6	R616	0110153	Metal oxide film	2.2KΩ ±5%	RD1PB	D5	TR703	2321321	Silicon	2SA844 (D)/(E)	
E9	R621	0134036	Composition	68Ω ±5%	RC½GF	D9	TR704	2321412	Silicon	2SC1722 BK	
						D9	TR707	2320963	Silicon	2SC1413A	
						A11	TR851	2321221	Silicon	2SC1514VC	
						B11	TR852	2321221	Silicon	2SC1514VC	
						A11	TR853	2321221	Silicon	2SC1514VC	

PLACE	SYMBOL NO.	STOCK NO.	DESCRIPTION	
D3	TR906	2321561	Silicon	2SC1942
E3	TR907	0573480	Silicon	2SC458 (B)
E2	TR908	0573481	Silicon	2SC458 (C)
E2	TR909	2320631	Silicon	2SA673 (B)/(C)
D10	CR706	2330564	Silicon	V11N
D10	CR707	2331381	Silicon	TD15
E10	CR708	2330551	Silicon	VO9C
D11	CR709	2330551	Silicon	VO9C
E10	CR711	2330551	Silicon	VO9C
D5	CR713	2331151	Zener	HZ12 (A)
D11	CR714	2330551	Silicon	VO9C
D1	CR901	2331402	Silicon	SA-12B
D1	CR902	2331402	Silicon	SA-12B
D1	CR903	2331402	Silicon	SA-12B
D1	CR904	2331402	Silicon	SA-12B
C3	CR908	2331142	Silicon	S-15H
B8	IC501	2360442		HA11580A
E6	M601	2370161		HM6231VM
E10	TH651	2340341	Thermister	11D-4H
D1	TH901	2340401	Thermister	
<b>COILS TRANSFORMERS</b>				
E9	L706	2160891	Horizontal linearity coil	
E9	L707	2160881	Horizontal size coil	
D11	L711	2121898	Filter coil	
D10	L713	2121211	Filter coil	
E9	L714	2161471	Peaking coil	
C1	L901	2122031	Filter coil	
E1	L905	2161491	Degaussing coil	
A6	T401	2250352	Sound output transformer	
D5		4056192	Line oscillator coil with packing	
C5	T701	2161051	Adhesive tape — stock No. 9449503 Glue stock No. 9485101	
D9	T702	2260021	Horizontal drive transformer	
E9	T703	2270482	PCT-H assembly	
E10	T704	2270373	PCT-V assembly	
D10	T705	2431322	LOPT	
D3	T901	2260021	Power drive transformer	
D3	T902	2270571	Switching transformer	
<b>MISCELLANEOUS</b>				
		2742062	Cord-AC cord	
D3	CP901	2370142	Compound component	
E3	CP902	2370142	Compound component	
A5	TF401	2720245	Fuse-Thermo fuse	
D6	TF601	2720245	Fuse-Thermo fuse	
E10	F701	2720176	Fuse-1A/T	
E10	F702	2720179	Fuse-800mA/T	
E1	F901	2720173	Fuse-2A/T	
E1	F902	2720173	Fuse-2A/T	
C1	F903	2720176	Fuse-1A/T	
E1	S901	2630921	Switch-Mains switch	
	SG701	2340034	Spark gap	
A11	NE851	2340181	Lamp	
B12	NE852	2340181	Lamp	
A12	NE853	2340181	Lamp	
A12	NE854	2340181	Lamp	
A12	NE855	2340181	Lamp	
		2490366	Programme unit (HP-543F)	
		2422631	Tuner (ET-529)-with lead	
	V1	2351251	Tube-C.P.T (510LJB22)	
A6		2658201	Socket -DIN socket	
		2440891	Yoke-Deflection yoke	