

TX-21/14GV1L Service Manual

Specifications

Parts List

Safety

Block
Diagrams

Service
Information

Schematic
Diagrams

Exploded
View

PCB
Views

Service Support

Service and repair of this product is supported by Panasonic's LUCI interface.

This interface provides a link between the TV and a standard PC to allow a number of diagnostic and control functions to be performed.

For more details contact your local Panasonic company.


BACK

EXIT

Service Manual



Colour Television Video Combination

TX-21GV1L
TX-14GV1L
Z-421V Chassis

SPECIFICATIONS FOR TV

(All figures in brackets { } refer to TX-14GV1L)

Power Source:	220-240V a.c., 50Hz
Power Consumption:	69W{54W}
Stand-by Power Consumption:	3W
Aerial Impedance:	75Ω unbalanced, Coaxial Type
Receiving System:	PAL I, PAL-525/60 M.NTSC NTSC (AV only)
Receiving Channels:	UHF E21-E69 VHF A1-S20 S21-S41 (Hyperband)
Intermediate Frequency:	Video 38,9MHz Audio 32,9MHz Colour 34,47MHz
Video/Audio Terminals:	
AV IN (Rear)	Video (21 pin) 1V p-p 75Ω Audio (21 pin) 500mV rms 10kΩ RGB (21 pin)
AV OUT (Rear)	Video (21 pin) 1V p-p 75Ω Audio (21 pin) 500mV rms 1kΩ
AV Front	Audio (RCAx1) 500mV rms 10kΩ Video (RCAx1) 1V p-p 75Ω

High Voltage:	28kV ± 1,5kV {25kV ± 1,5kV}
Picture Tube:	A51EAL155X17 (51cm) {A34EAC01X (34cm)}
Audio Output Mono (Music Power):	2 x 1,5W 8Ω Impedance {2W 16Ω Impedance}
Headphones:	300Ω Impedance 3,5mm

Accessories supplied :	Remote Control 2 x R6 (UM3) Batteries Indoor Antenna {14" only}
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Dimensions:	
Height:	532mm {396,5mm}
Width:	514mm {386mm}
Depth:	485,2mm {367,5mm}
Net weight:	24kg {13kg}

Specifications are subject to change without notice.
Weights and dimensions shown are approximate.

NOTE: This Service Manual should be used in conjunction with the Z-421V Technical guide.

SPECIFICATIONS FOR VCR

GENERAL	temperature	5°C ~ 35°C (operating) -20°C ~ 60°C (storage temperature)
	format	standard
	tape width	12.65mm
	tape speed	SP: 23.39mm/sec LP: 11.70mm/sec
	max. recording time with full-size cassette	SP: 240min. with E-240 video cassette LP: 480min. with E-240 video cassette
AUDIO	recording system	longitudinal track
	input	-3.8dBm(500mVrms), more than 47kΩ, unbalanced.
	output	-3.8dBm(500mVrms), less than 1kΩ, unbalanced
	frequency range	100Hz to 8KHz
	signal to noise ratio	40dB(more than)
VIDEO	signal system	PAL/SECAM colour and CCIR mono chrome signals, 625lines/50fields.
	recording system	Rotary 4-head helical scan with a slant double azimuth combination video head.
	input	1Vp-p, 75Ω, unbalanced
	output	1Vp-p, 75Ω, unbalanced
	signal to noise ratio	45dB with NETTETE IMAGE control at center position.
	horizontal resolution	240 lines with NETTETE IMAGE control at center position

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SAFETY PRECAUTIONS

GENERAL GUIDE LINES

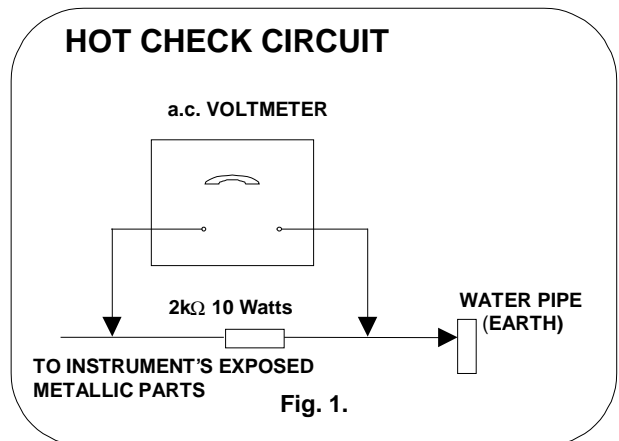
1. It is advisable to insert an isolation transformer in the a.c. supply before servicing a hot chassis.
 2. When servicing, observe the original lead dress in the high voltage circuits. If a short circuit is found, replace all parts that have been overheated or damaged by the short circuit.
 3. After servicing, see that all the protective devices such as insulation barriers, insulation papers, shields and isolation R-C combinations are correctly installed.
 4. When the receiver is not being used for a long period of time, unplug the power cord from the a.c. outlet.
 5. Potentials as high as 29,5kV { 26,5kV } are present when this receiver is in operation. Operation of the receiver without the rear cover involves the danger of a shock hazard from the receiver power supply. Servicing should not be attempted by anyone who is not familiar with the precautions necessary when working on high voltage equipment. Always discharge the anode of the tube.
 6. After servicing make the following leakage current checks to prevent the customer from being exposed to shock hazard.
5. Reverse the a.c. plug at the outlet and repeat each of the above measurements.
 6. The potential at any point should not exceed 1,4Vrms. In case a measurement is outside the limits specified, there is a possibility of a shock hazard, and the receiver should be repaired and rechecked before it is returned to the customer.

LEAKAGE CURRENT COLD CHECK

1. Unplug the a.c. cord and connect a jumper between the two prongs of the plug.
2. Turn on the receiver's power switch.
3. Measure the resistance value with an ohmmeter, between the jumpered a.c. plug and each exposed metallic cabinet part on the receiver, such as screw heads, aerials, connectors, control shafts etc. When the exposed metallic part has a return path to the chassis, the reading should be between 4M ohm and 20M ohm. When the exposed metal does not have a return path to the chassis, the reading must be infinite.

LEAKAGE CURRENT HOT CHECK

1. Plug the a.c. cord directly into the a.c. outlet. Do not use an isolation transformer for this check.
2. Connect a 2k Ω 10W resistor in series with an exposed metallic part on the receiver and an earth, such as a water pipe.
3. Use an a.c. voltmeter with high impedance to measure the potential across the resistor.
4. Check each exposed metallic part and check the voltage at each point.



X-RADIATION WARNING

1. The potential sources of X-Radiation in TV sets are the high voltage section and the picture tube.
2. When using a picture tube test jig for service, ensure that the jig is capable of handling 29,5kV { 26,5kV } without causing X-Radiation.

NOTE: It is important to use an accurate periodically calibrated high voltage meter.

1. Set the brightness to minimum.
2. Measure the high voltage. The meter should indicate. 28kV \pm 1,5kV { 25kV \pm 1,5kV }.
If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure.
3. To prevent any X-Radiation possibility, it is essential to use the specified tube.

SERVICE HINTS

How to remove the rear cover

1) Remove the screws as shown in Fig.2/Fig.3.



Fig.2.

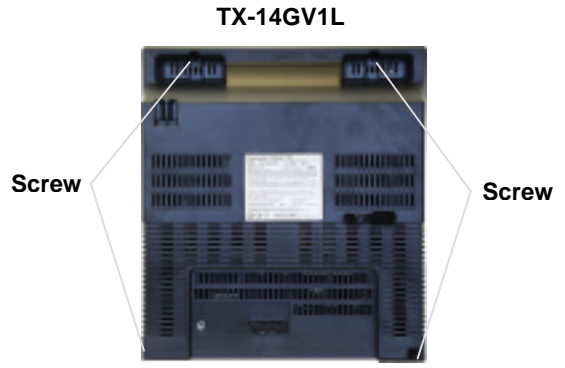


Fig.3.

DISASSEMBLY

- 1) Remove the 2 cable ties shown in Fig.4.
- 2) Remove the 7 connectors shown in Fig.5.

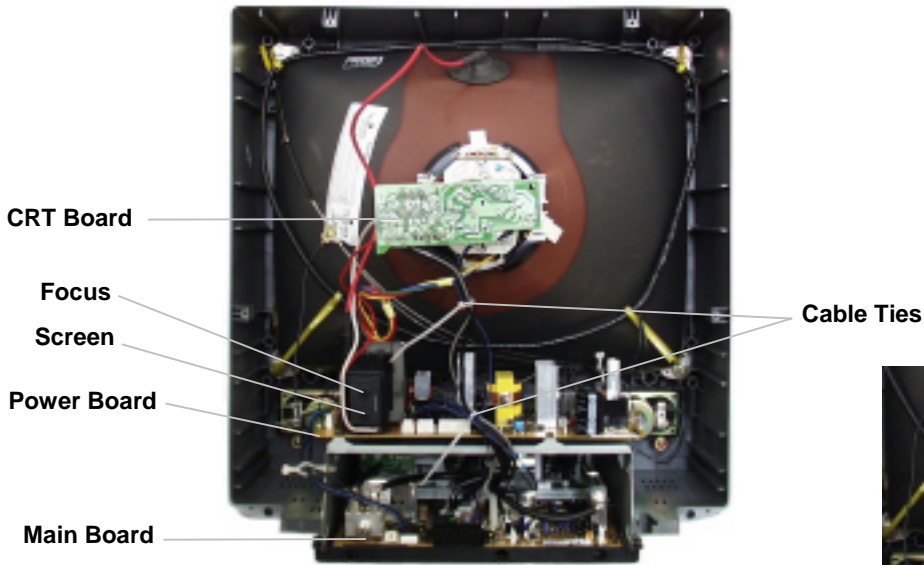


Fig.4.

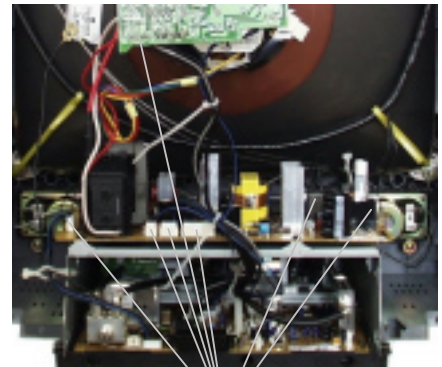
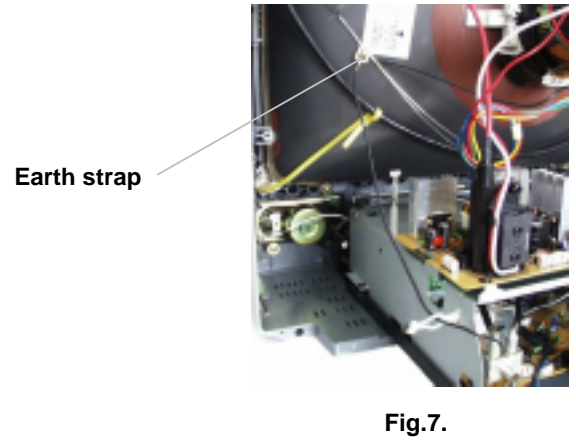
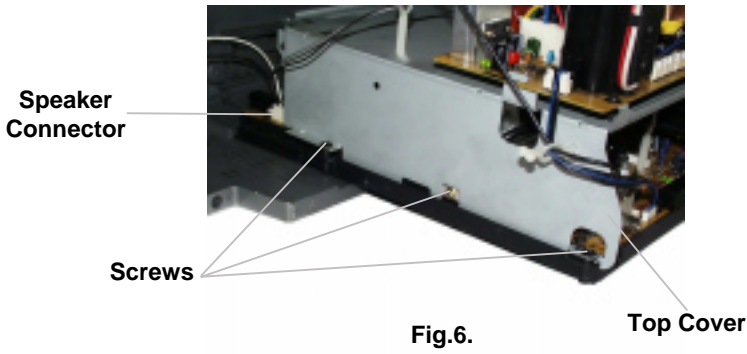


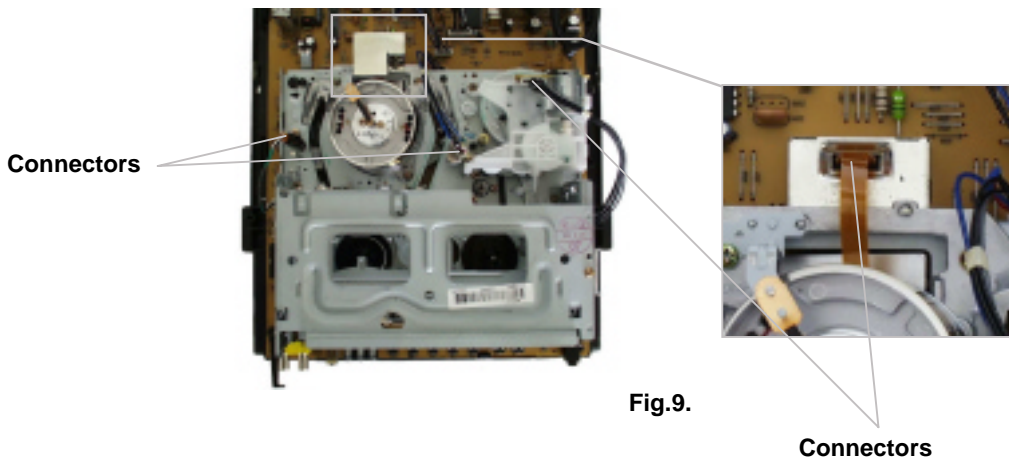
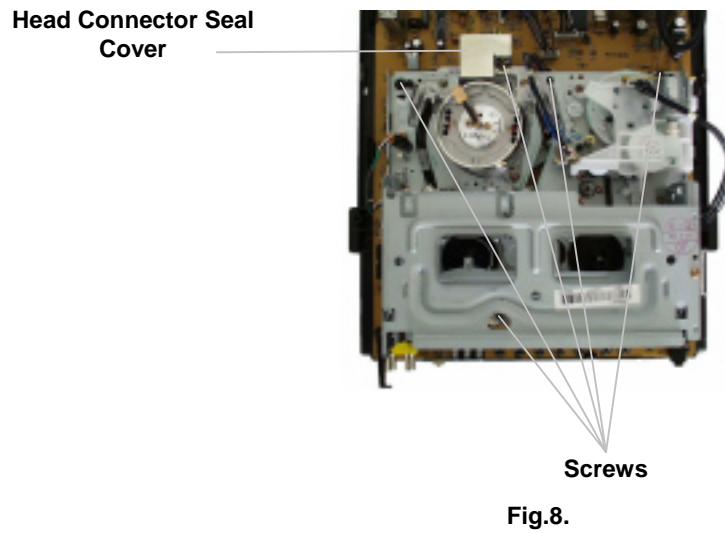
Fig.5.

DISASSEMBLY (Cont.)

- 3) Remove the 6 screws, three each side, from the top cover, as shown in **Fig.6**.
- 4) Remove the speaker connector as shown in **Fig.6**.
- 5) Remove earth strap shown in **Fig.7**.
- 6) Lift top cover and remove main pcb.



- 7) Remove the 5 screws as shown in **Fig.8**.
- 8) Remove the head connector seal cover shown in **Fig.8**.
- 9) Remove the 4 connectors shown in **Fig.9**.



DISASSEMBLY (Cont.)

10) Remove the 5 screws shown in **Fig.10**.

11) Release the 5 chassis frame clips (shown in **Fig.11**.) and remove the main P.C.B. from the chassis frame.

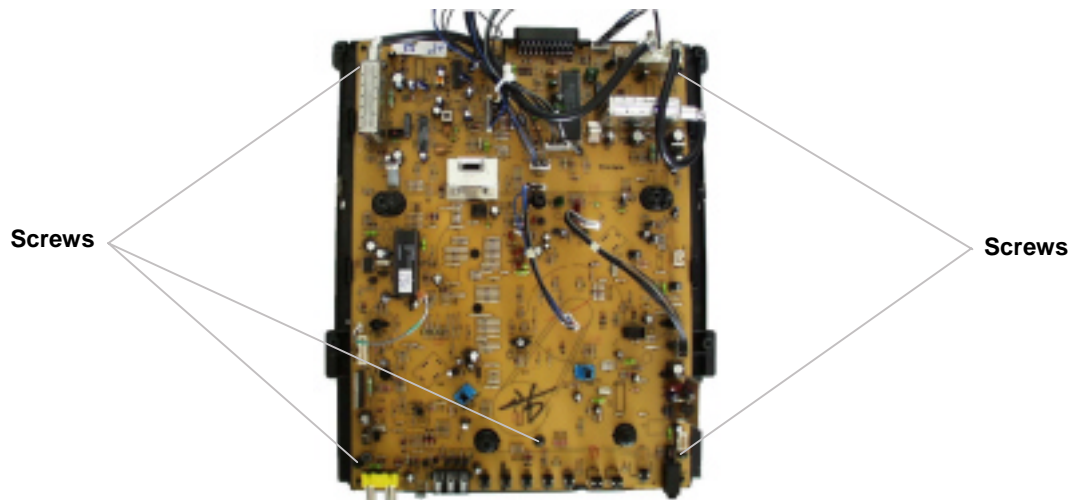


Fig.10.

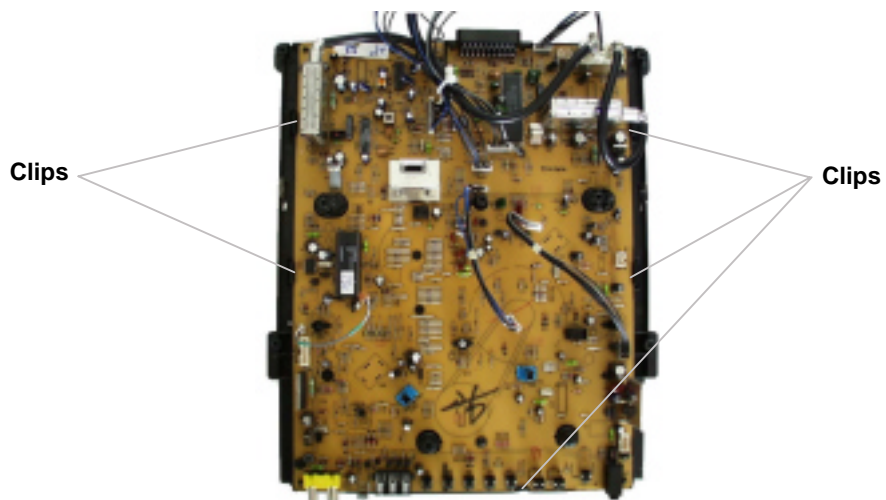


Fig.11.

ADJUSTMENT PROCEDURE

Item / Preparation	Adjustments
<p>Sub Tuner AFT</p> <ol style="list-style-type: none"> 1) Set a signal generator with -RF FREQUENCY = 38,9MHz -RF OUTPUT LEVEL = 80±5dBuV. 2) Connect a signal generator RF output to TP2 (TUNER IF OUTPUT). Ensure there is no signal input to the TUNER. 3) Connect the DC voltage meter to TP3. 	Adjust L201 (AFT COIL) for 2,2V ± 0,1V.
<p>Main Tuner AGC</p> <ol style="list-style-type: none"> 1) Set a pattern generator with RF level 60 ± 2dBuV, 210,25MHz. 2) Connect an oscilloscope to P101 (Tuner AGC Input). 	Adjust using " AGC UP/DOWN " key until the voltage drops to 1,0Vdc ± 0.2Vdc below its maximum voltage.
<p>Sub Tuner AGC</p> <ol style="list-style-type: none"> 1) Set a pattern generator with RF level 60 ± 2dBuV, 210,25MHz. 2) Connect an oscilloscope to P101 (Tuner AGC Input). 	Press the "SUB AGC" key in Service mode and monitor the SUB TUNER picture whilst adjusting R202 (SUB AGC VR) to 1,0Vdc ±0.2Vdc below its maximum voltage.
<p>Screen</p> <ol style="list-style-type: none"> 1) Apply a Colour Bar Pattern signal. 2) Connect an oscilloscope to P906 (CRT Cathode RGB). 3) Press the SCREEN key. 	Adjust the screen volume on the FBT so that the highest black level voltage is 130V ± 5Vdc {150V ± 5Vdc}.
<p>Focus</p> <ol style="list-style-type: none"> 1) Apply a RETMA Pattern signal. 	Adjust FOCUS VOLUME on the FBT for optimum setting.
<p>White Balance</p> <ol style="list-style-type: none"> 1) Apply a Colour Bar Pattern signal. 	Adjust the RGB UP/DOWN key to obtain optimum WHITE BALANCE.
<p>X-Position Adjustment, P2 and P3</p> <ol style="list-style-type: none"> 1) Play DP-2 Test tape (Colour bar, Audio 6KHz). 2) Enter Service Mode using Service Remote and deactivate Auto-Tracking by pressing ATK-OFF key. 3) Set oscilloscope to CHOP mode and connect CH1 to VIDEO HEAD SW (PYO4 pin 6). Connect CH2 to the PB ENVE (PYO4 pin 4) and trigger CH1. 	Adjust, with the corn screw, until both TRK MAX and TRK MIN have the same size of envelope. Adjust P2, P3 so that both the beginning and the end of the envelope waveform are flat.
<p>Azimuth Adjustment</p> <ol style="list-style-type: none"> 1) Connect an oscilloscope to the AUDIO OUTPUT terminal (P601). 	After test tape playback, adjust the output level, using the outer screw of the A/C head to obtain maximum waveform. (6KHz -3,8dBm +1dBm / -3dBm.) Fix the azimuth screw with locking paint.

ALIGNMENT SETTINGS:

(The figures below are nominal and used for representative purposes only.)

- 1) Place the TV in Programme position 70, set the Sharpness to minimum position, press the down button (- / v) on the customer controls at the front of the TV and at the same time press the VCR **INDEX** button on the remote control, this will place the TV into the Service Mode.
- 2) Press the **RED / GREEN** buttons to step up / down through the functions.
- 3) Press the **YELLOW / BLUE** buttons to alter the function values.
- 4) To exit the Service Mode, press the **"EXIT"** button.

Alignment Function		Settings / Special features
Blue correction	B 23	Optimum setting (for white balance).
Green correction	G 23	Optimum setting (for white balance).
Red correction	R 24	Optimum setting (for white balance).
AGC	AGC 41	Set Pattern generator with RF level 60+/- 2dBuV, 210.25MHz. Connect oscilloscope to P101 (Tuner AGC input). Adjust AGC using Yellow /Blue buttons until the voltage drops to 1,0Vdc ±0.2Vdc below its maximum voltage.
Sub AGC	SUB AGC 1	Press this button to access SUB TUNER AGC adjustment. Press once: picture is displayed in colour. Press twice: picture is displayed in black and white.
Horizontal Centre	H-CENTER 32	Optimum setting.
Vertical Size	V-SIZE 51	Optimum setting.
Vertical Centre	V-CENTER 30	Optimum setting.
Vertical Slope	V.SLOPE 32	Optimum setting.
S-Correction	S-CORR 20	Optimum setting.
OSD Language	OSD language English Français Italiano Español Nederlands Deutsch	Adjust to change order of language selection
OSD Position Set	OSD POSITION SET	Optimum setting.

DESCRIPTION OF THE VCR MECHANISM

Characteristic of the K-Deck mechanism

- K-Mecha Deck follows the VHS standard and uses three motors (DRUM MOTOR, CAPSTAN MOTOR and L/C MOTOR). The L/C MOTOR is used to drive FRONT LOADING.
- The deck recognises each mode by using a 4-BIT MODE signal. This 4-BIT MODE signal is generated by the CAM SWITCH, which is driven by the L/C MOTOR.
- There are 7 MODES which are utilised (EJECT / INITIAL / REV / IDLE / PLAY, STOP, SLOW / BRAKE / FF & REW).
- The reduction of the mode shifting time, i.e. picture playing time, is enabled by using the FULL LOADING SYSTEM that has the DRUM wrapped by the tape.
- The Main PCB is separated from the Deck. When assembling, it is connected by the B-B TYPE CONNECTOR.
- The CAPSTAN MOTOR and DRUM MOTOR are directly connected to the MAIN PCB DECK

ASSEMBLY DIAGRAM OF DECK ASSEMBLY

TOP VIEW

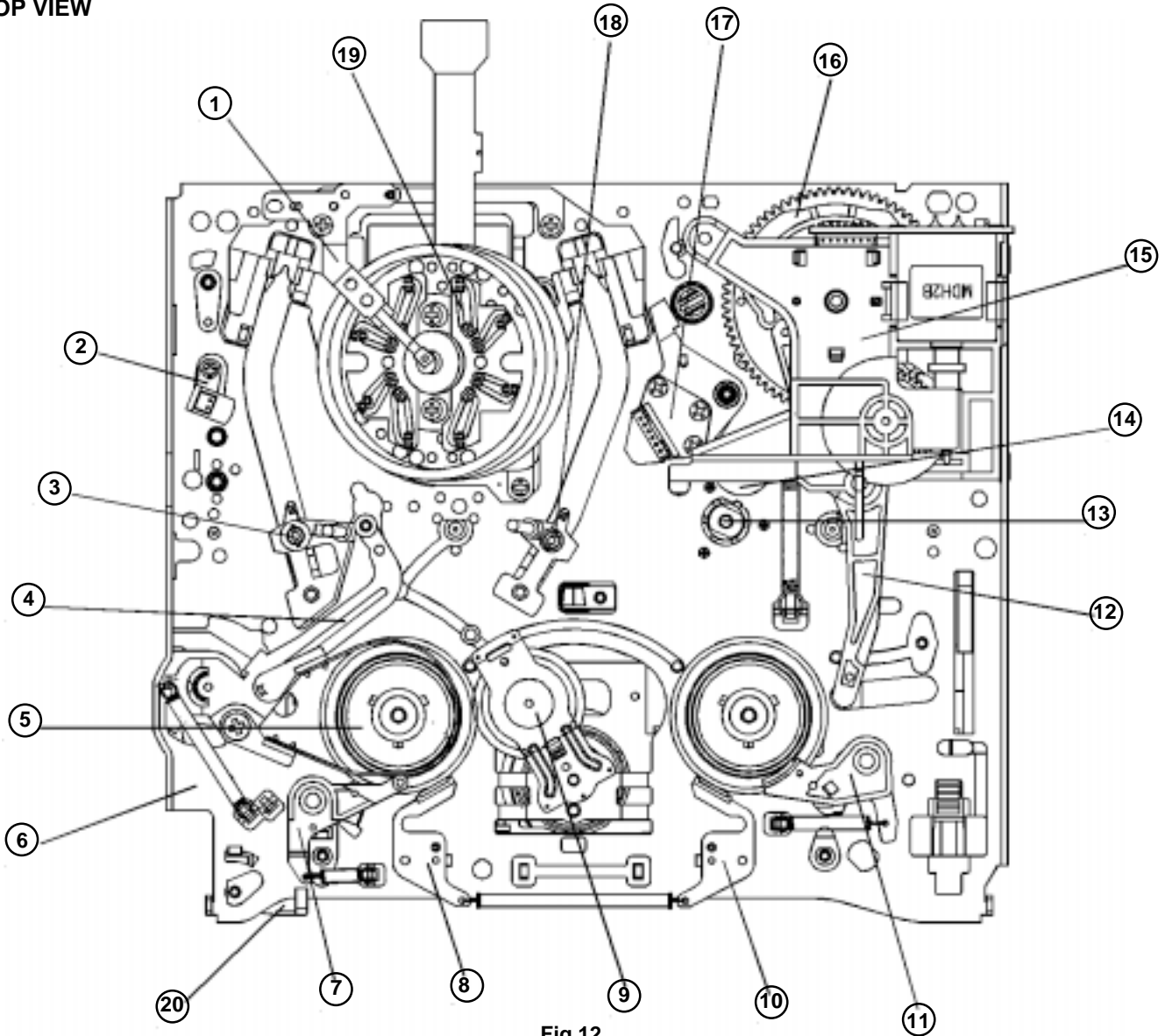


Fig.12.

- | | | |
|---------------------------|--------------------------------|-----------------------------|
| 1) EARTH BRACKET ASSEMBLY | 9) IDLER PLATE TOTAL ASSEMBLY | 17) A/C HEAD TOTAL ASSEMBLY |
| 2) FE HEAD | 10) T MAIN BRAKE ASSEMBLY | 18) T SLANT POLE ASSEMBLY |
| 3) S SLANT POLE ASSEMBLY | 11) T-BRAKE ASSEMBLY | 19) DRUM TOTAL ASSEMBLY |
| 4) TENSION BAND ASSEMBLY | 12) RELAY LEVER | 20) RECORD SAFETY LEVER |
| 5) REEL TABLE | 13) CAPSTAN MOTOR | |
| 6) MAIN BASE ASSEMBLY | 14) PINCH LEVER TOTAL ASSEMBLY | |
| 7) S SUB BRAKE ASSEMBLY | 15) L/C BRACKET TOTAL ASSEMBLY | |
| 8) S MAIN BRAKE ASSEMBLY | 16) CAM GEAR | |

ASSEMBLY DIAGRAM AND MAJOR PARTS CHECK

BOTTOM VIEW

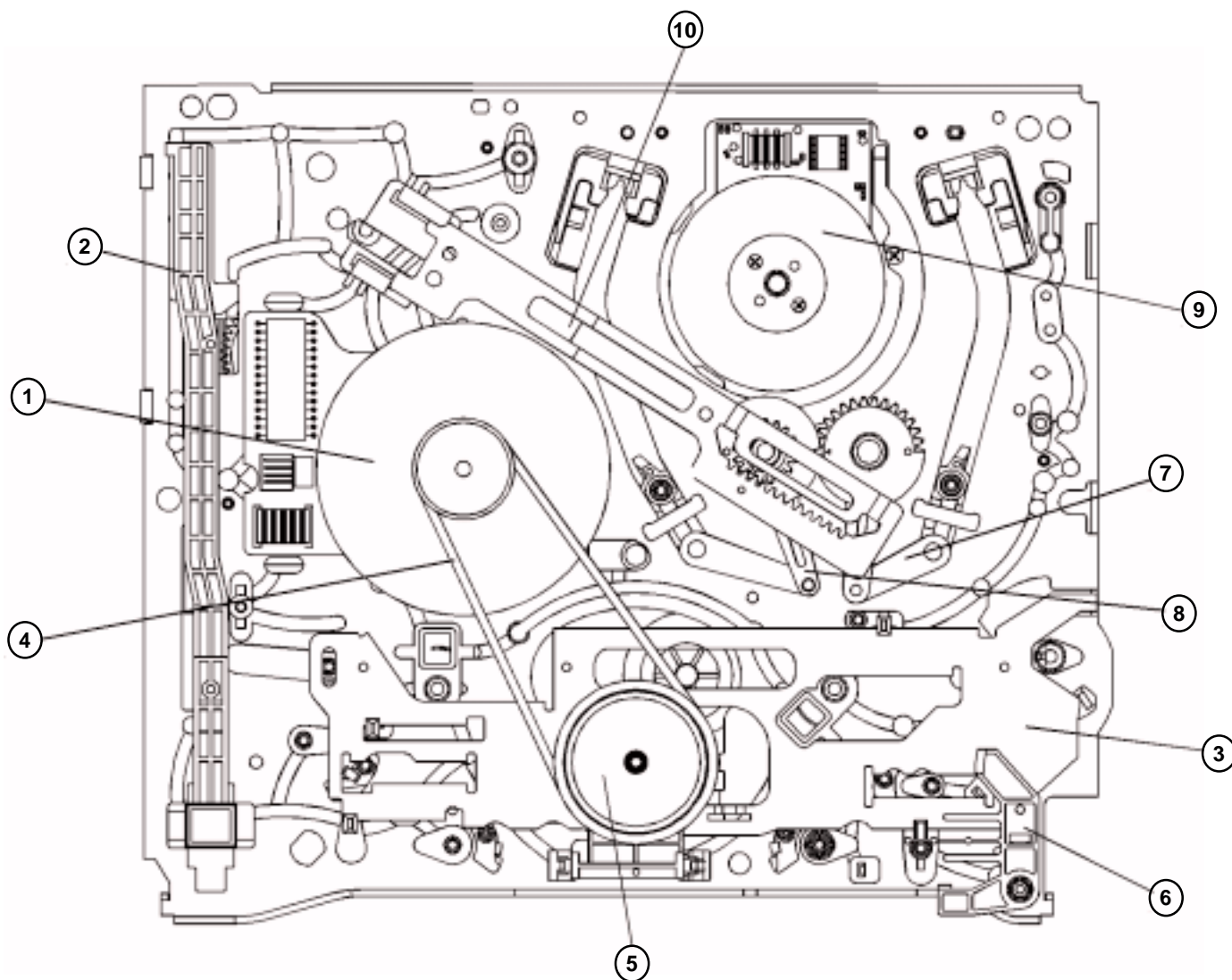


Fig.13.

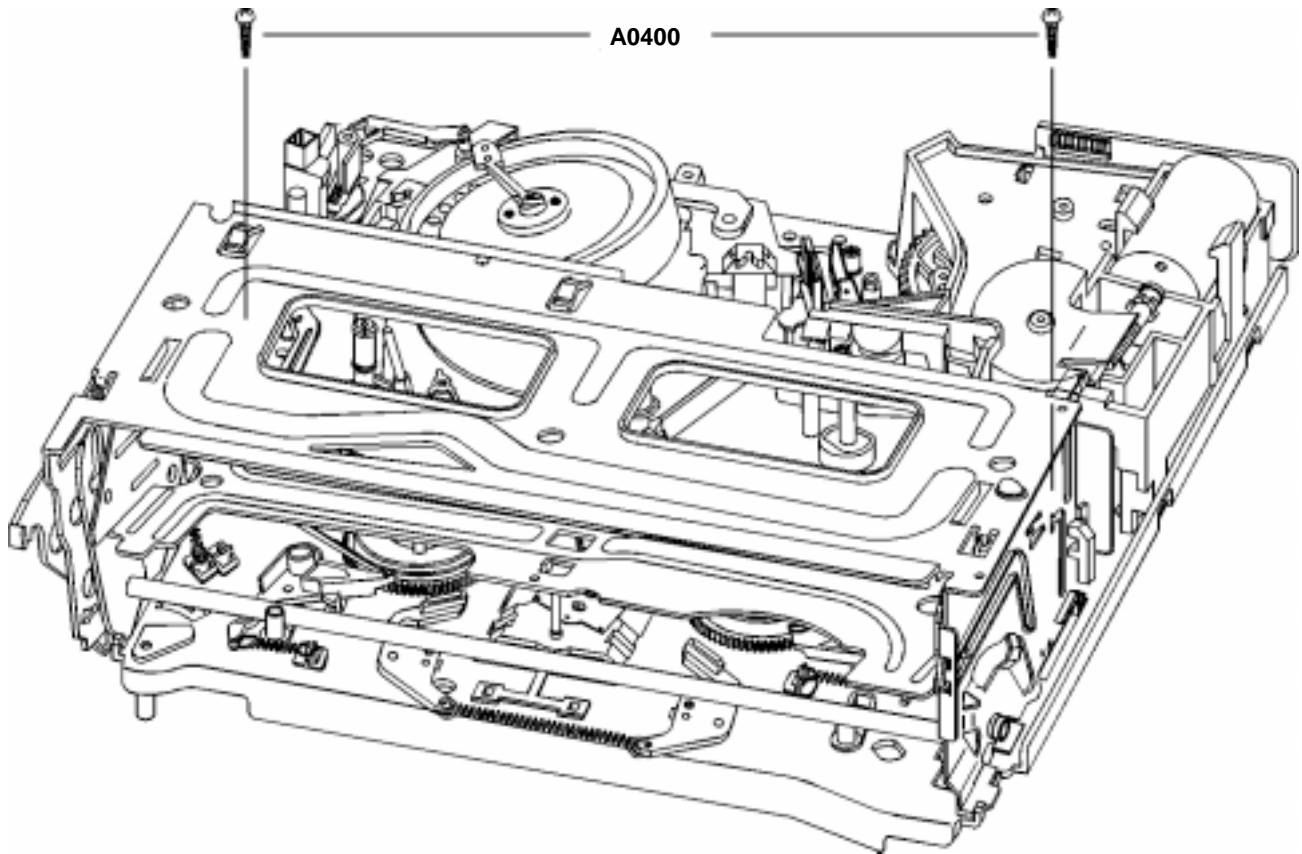
- | | | |
|------------------|-----------------------------|---------------------------|
| 1) CAPSTAN MOTOR | 5) REEL GEAR TOTAL ASSEMBLY | 9) DRUM TOTAL ASSEMBLY |
| 2) F/L RACK | 6) RECORD SAFETY LEVER | 10) LOADING RACK ASSEMBLY |
| 3) CONNECT PLATE | 7) L LOADING ASSEMBLY | |
| 4) REEL BELT | 8) R LOADING ASSEMBLY | |

DISASSEMBLY AND REPLACEMENT

FRONT LOADING ASSEMBLY REMOVAL

NOTE: The FRONT LOADING ASSEMBLY can be removed only in the eject position.

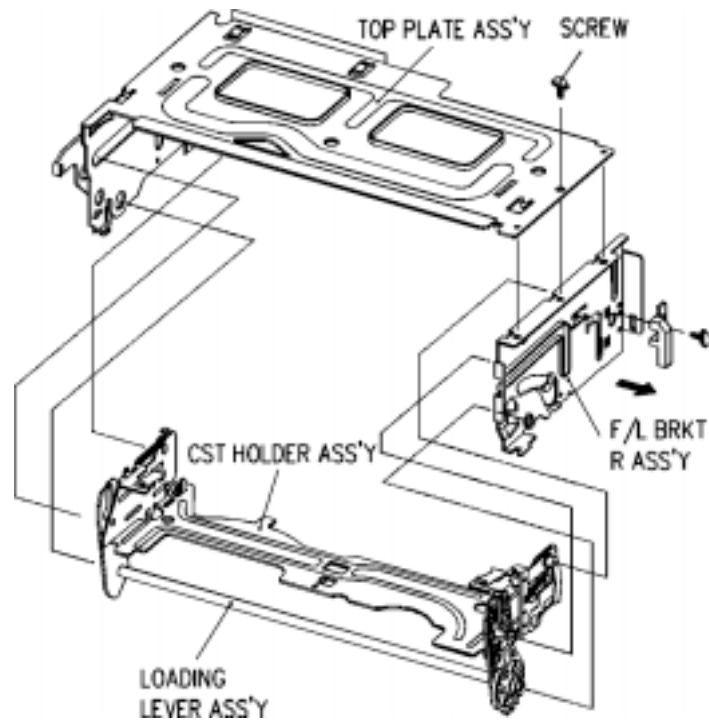
- 1) Remove the two screws (**A0400**) as displayed in **fig.14** below.



Front loading assembly separation
Fig.14.

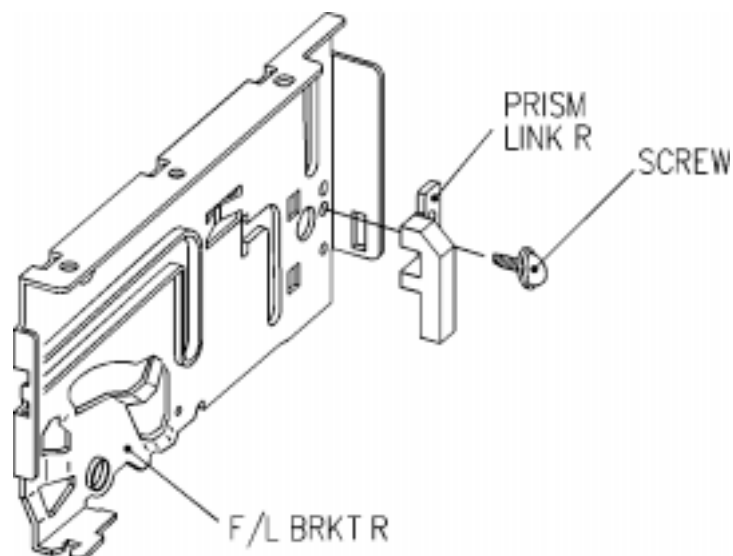
DISASSEMBLY OF THE VCR

- 1) Remove the screw holding the F/L BRACKET R and move the F/L BRACKET R in the direction of the arrow to separate it from the TOP PLATE and CASSETTE HOLDER ASSEMBLY.
- 2) Remove the CASSETTE HOLDER ASSEMBLY.



Disassembly of the front loading assembly
Fig.15.

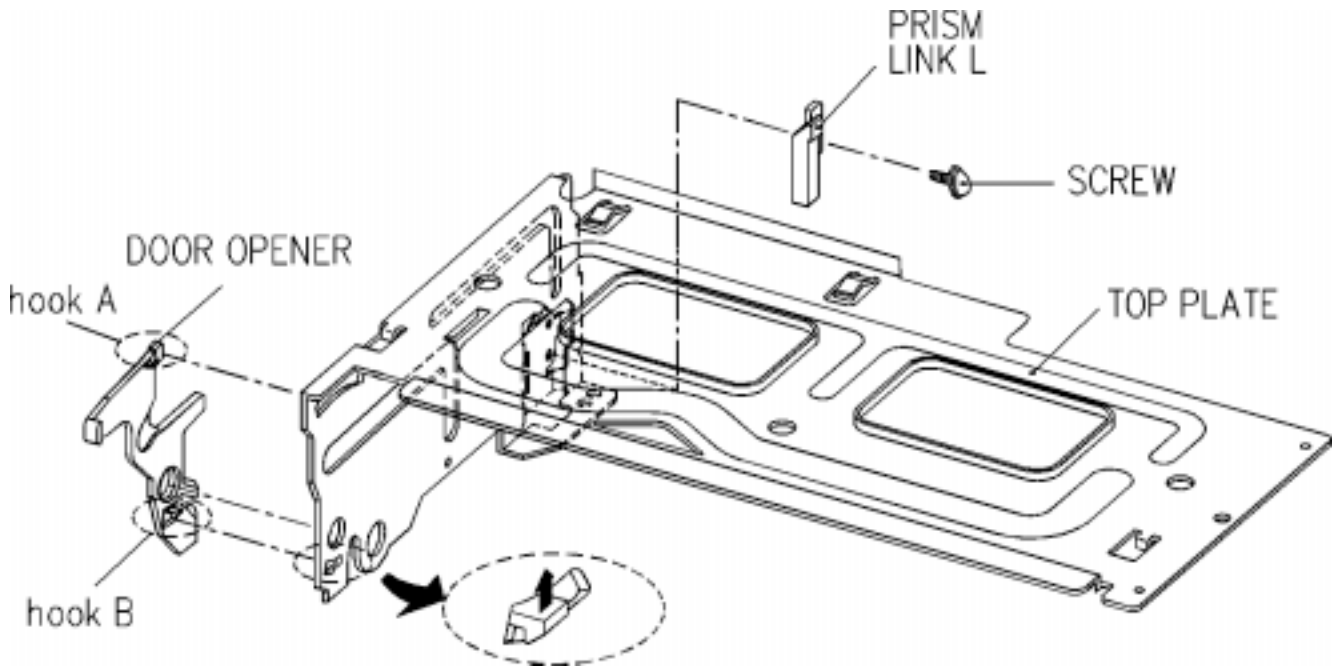
- 3) Remove the screw holding the PRISM LINK R and remove the PRISM LINK R from the F/L BRACKET R.



Disassembly of the front loading bracket (right)
Fig.16.

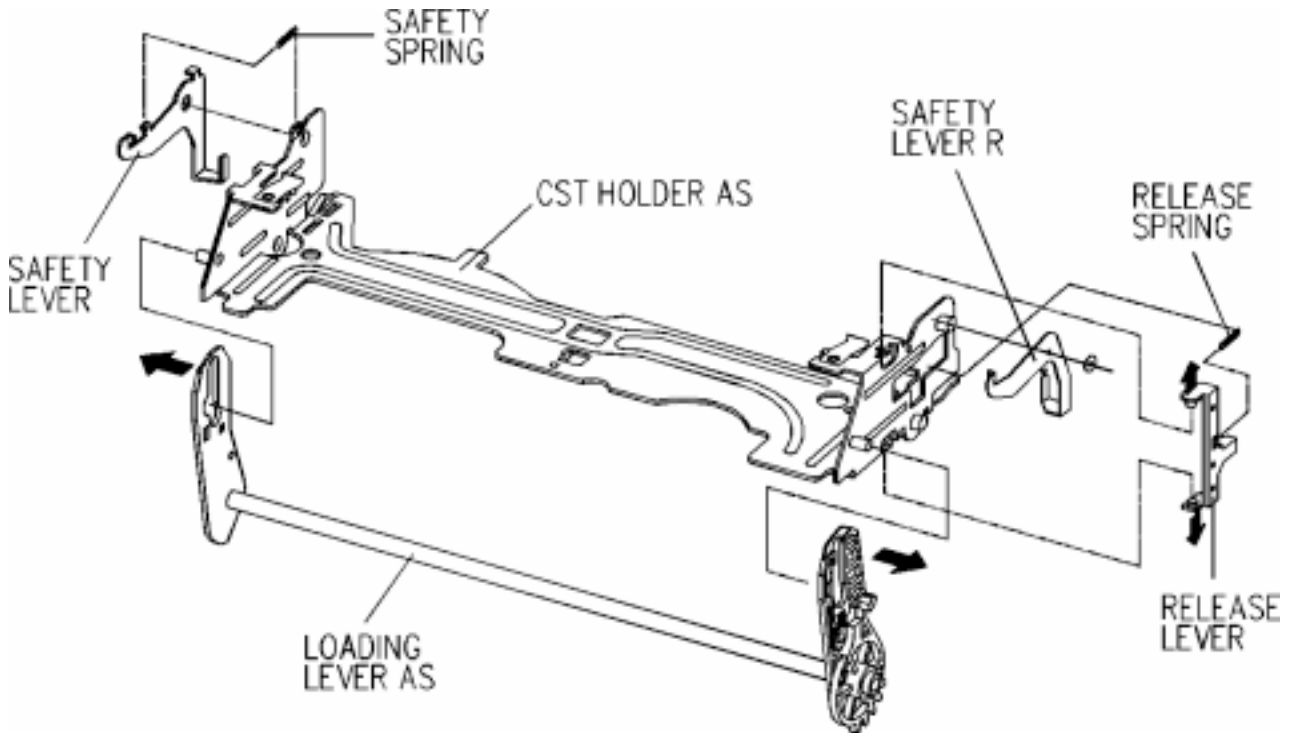
DISASSEMBLY OF THE VCR (Cont.)

- 4) Remove the screw holding the PRISM LINK L.
- 5) Release the hook B by pushing it in the direction of the arrow and remove the DOOR OPENER.



Disassembly of the top plate
Fig.17.

- 6) Remove the LOADING LEVER ASSEMBLY by pressing the connected section of the LOADING LEVER ASSEMBLY in the direction of the arrows.
- 7) Remove the SAFETY SPRING between the SAFETY LEVER and the CASSETTE HOLDER PLATE.
- 8) Remove the RELEASE SPRING between the RELEASE LEVER and the SAFETY LEVER R.

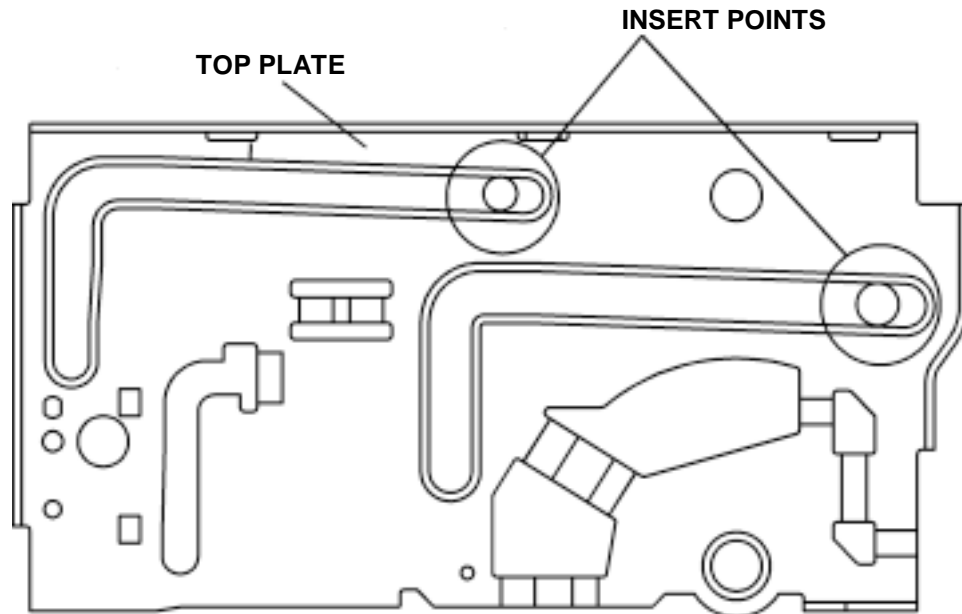


Disassembly of the cassette holder assembly
Fig.18.

DISASSEMBLY OF THE VCR (Cont.)

NOTE

Reassemble the FRONT LOADING MECHANISM in the reverse order. Confirm that the two bosses on the left side of the CASSETTE HOLDER are inserted into the groove on the left side of the top plate. Insert the two bosses on the right side of the cassette holder into the groove of the FRONT LOADING BRACKET R.(Fig.19).



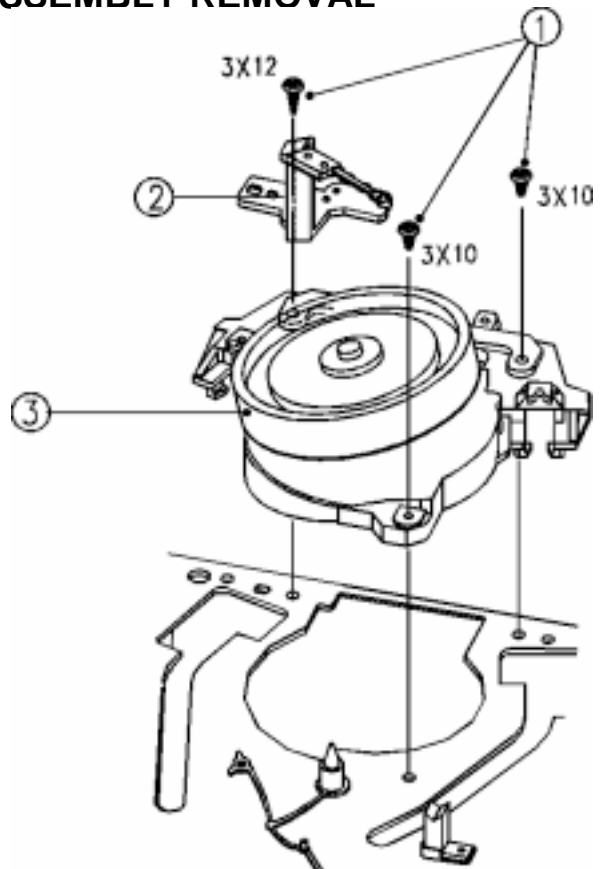
Assembly of the front loading assembly
Fig.19.

DRUM ASSEMBLY / EARTH BRACKET ASSEMBLY REMOVAL

- 1) Remove three screws (1) fixing the DRUM TOTAL ASSEMBLY.
- 2) Remove the EARTH BRACKET ASSEMBLY (2).
- 3) Carefully lift the DRUM TOTAL ASSEMBLY (3) from the DECK MECHANISM, taking care not to damage or touch the VIDEO HEAD.

NOTE

- 1) After assembling the DRUM TOTAL ASSEMBLY, confirm that the tape runs smoothly. (Refer to ADJUSTMENT OF THE TAPE TRANSPORTING SYSTEM).
- 2) When assembling the EARTH BRACKET ASSEMBLY, a 3x12 screw should be used and all other parts should use 3x10 screws, as indicated.



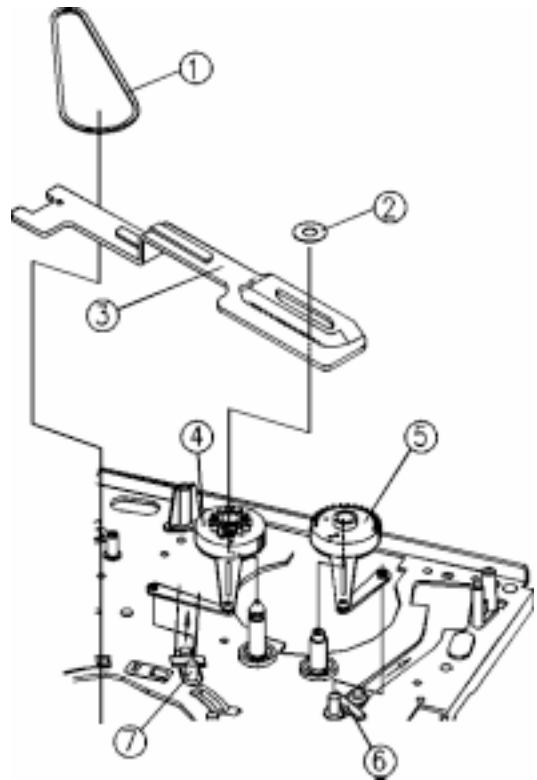
Drum total assembly & earth
bracket assembly removal
Fig.20.

REEL BELT, LOADING RACK ASSEMBLY, S/T SLANT POLE ASSEMBLY REMOVAL

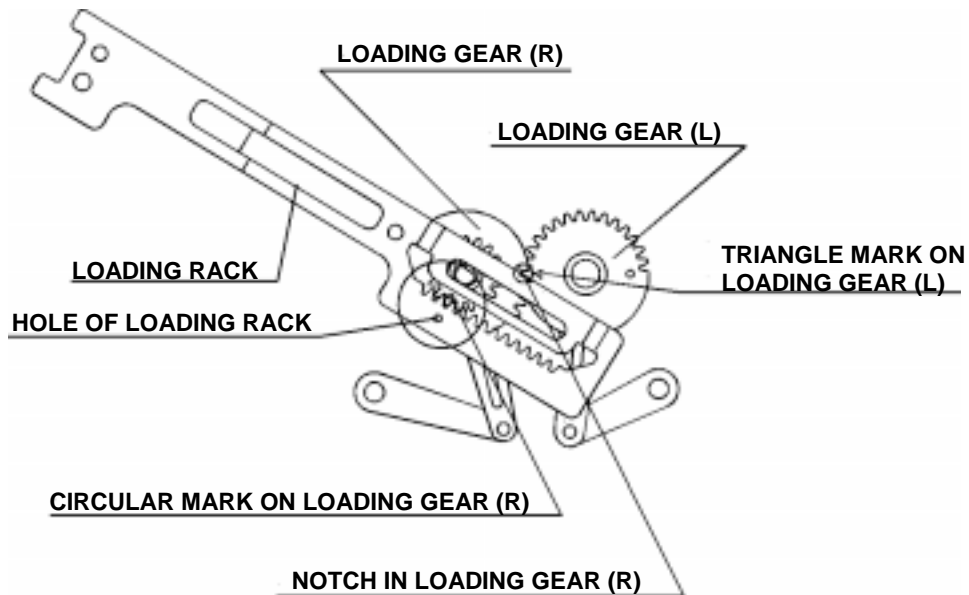
- 1) Turnover the DECK MECHANISM and remove the REEL BELT (1).
- 2) Remove one POLY WASHER (2).
- 3) Remove the LOADING RACK ASSEMBLY (3).
- 4) Remove R and L LOADING ASSEMBLIES (4&5).
- 5) Remove the S and T SLANT POLES (6&7) by pulling them in the direction of the arrows.(Fig.21)

CAUTION

Take care not to get the GUIDE ROLLERS of the S/T SLANT POLES stained with grease.
When reassembling, please refer to Fig.22.



Reel belt, loading rack assembly, right & left loading assemblies & supply and takeup slant pole assembly removal Fig.21.



Assembly of the Right & Left Loading Assembly & Loading Rack Assembly Fig.22.

A/C HEAD ASSEMBLY REMOVAL

- 1) Remove the hex nut (1) from the A/C HEAD POST (4) of the MAINBASE.(Fig.23)
- 2) Remove the A/C HEAD ASSEMBLY (2) from the MAINBASE.
- 3) Remove the A/C HEAD SPRING (3) from the A/C HEAD ASSEMBLY.

NOTE

After reassembling, adjust the TAPE TRANSPORTING SYSTEM, referring to ADJUSTMENT OF THE TAPE TRANSPORTING SYSTEM.

After adjusting the TAPE TRANSPORTING SYSTEM spread the A/C HEAD, A/C NUT, AZIMUTH SCREW and TILT SCREW with LOCKING PAINT.

L/C BRACKET ASSEMBLY REMOVAL

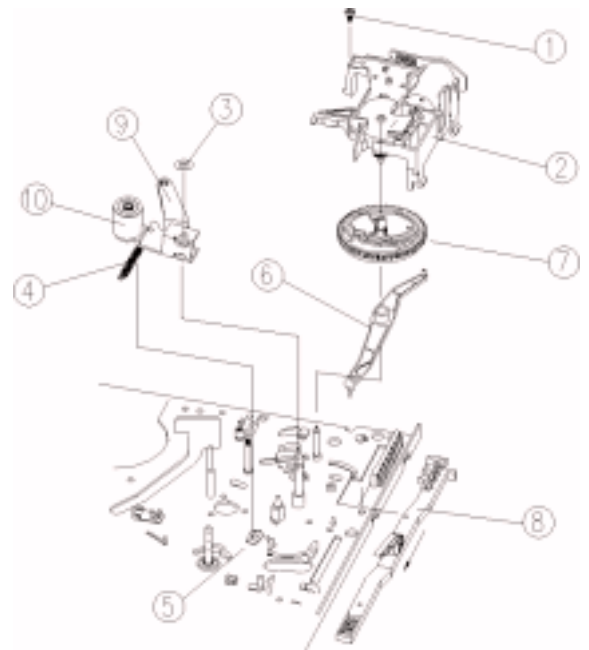
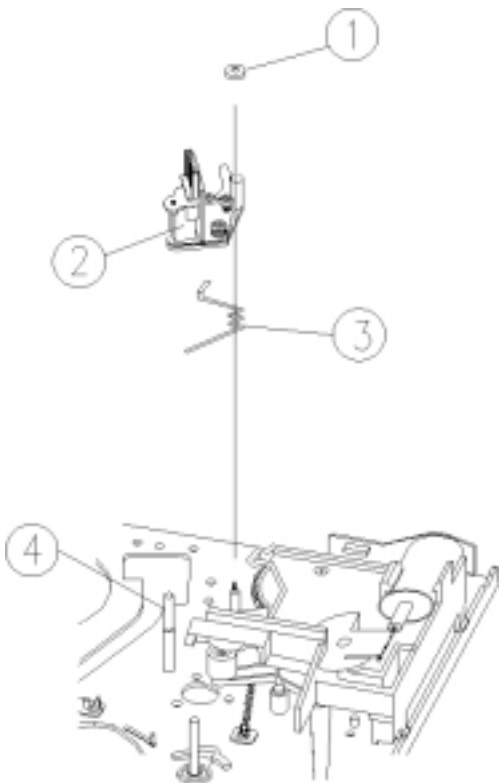
- 1) Remove the screw (1) from the L/C BRACKET ASSEMBLY (2).(Fig.24)
- 2) Remove the L/C BRACKET ASSEMBLY from the MAINBASE (3).

PINCH LEVER TOTAL ASSEMBLY REMOVAL

- 1) Remove the POLY WASHER (3) from the PINCH LEVER POST of the MAINBASE.
- 2) Unhook the PINCH LEVER SPRING (4) from the hook of the MAINBASE (5) and remove the PINCH LEVER TOTAL ASSEMBLY (9).

CAUTION

Take care not to coat Grease, Oil or other substances on the surface of the PINCH ROLLER.



Lift cam bracket, pinch lever, cam gear, relay lever, front loading rack removal Fig.24.

Disassembly of the audio control head assembly Fig.23.

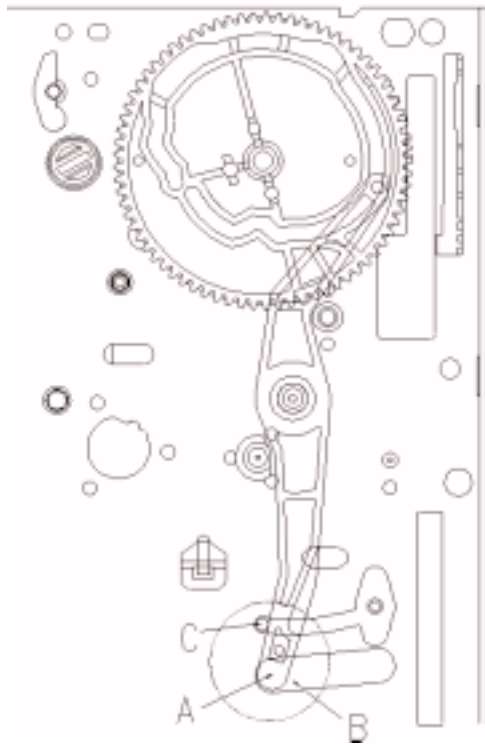
CAM GEAR, RELAY LEVER AND F/L RACK REMOVAL

- 1) Remove the CAM GEAR from the MAINBASE (7). (Fig.24)
- 2) Remove the RELAY LEVER from the MAINBASE (6).
- 3) Remove the F/L RACK from the MAINBASE by pulling it in the direction of the arrow (8).

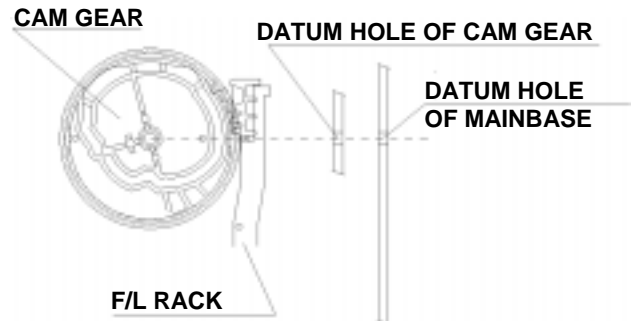
NOTE

When reassembling refer to Fig.25/Fig.26. (Page 16)

CAM GEAR, RELAY LEVER AND F/L RACK REMOVAL (Cont.)



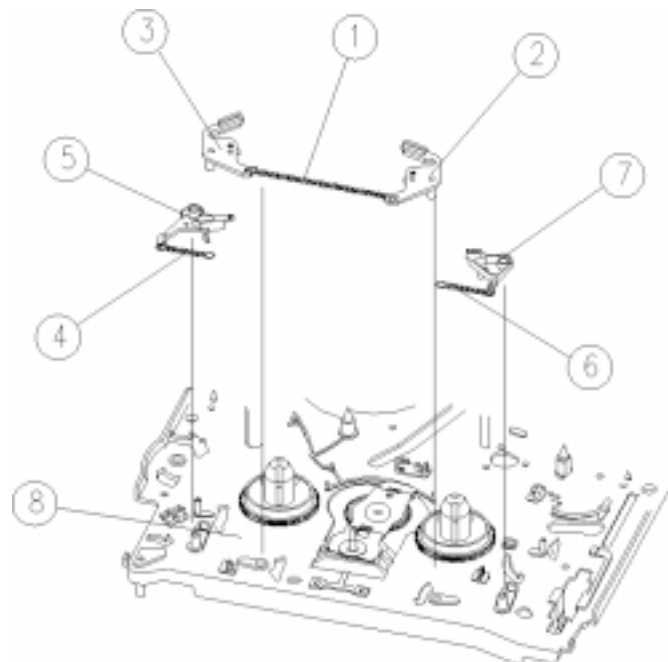
Assembly of the cam gear and relay lever
Fig.25.



Assembly of the cam gear and front loading rack
Fig.26.

S/T MAIN AND SUB BRAKE ASSEMBLY REMOVAL

- 1) Unhook the MAIN BRAKE SPRING (1) from the T MAIN BRAKE LEVER (3) and remove the T MAIN BRAKE ASSEMBLY (3).
- 2) Remove the S MAIN BRAKE ASSEMBLY (2) from the MAINBASE (8).
- 3) Unhook the S SUB BRAKE SPRING (4) from the MAINBASE and remove the S SUB BRAKE LEVER ASSEMBLY (5) from the MAIN BASE (8).
- 4) Unhook the T SUB BRAKE SPRING (6) from the MAINBASE and remove the T SUB BRAKE LEVER ASSEMBLY (7).



Supply and takeup main and sub brakes removal
Fig.27.

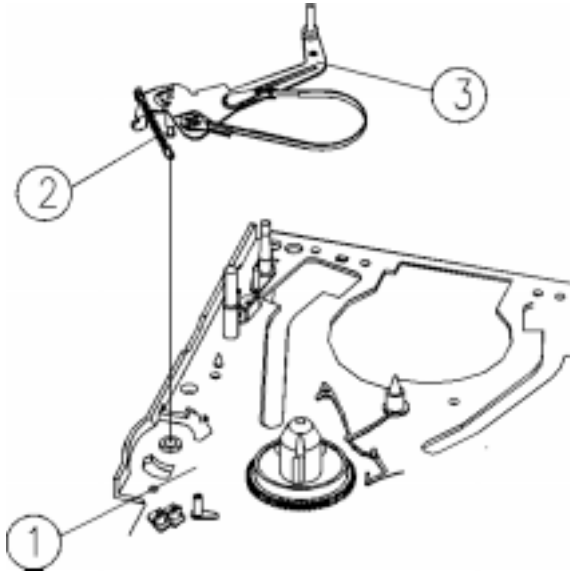
TENSION BAND ASSEMBLY REMOVAL

- 1) Remove the TENSION SPRING (2) from the MAINBASE (1).
- 2) Turn the DECK MECHANISM over.
- 3) After separating the tab of hook "A", remove the TENSION BAND ASSEMBLY (3).

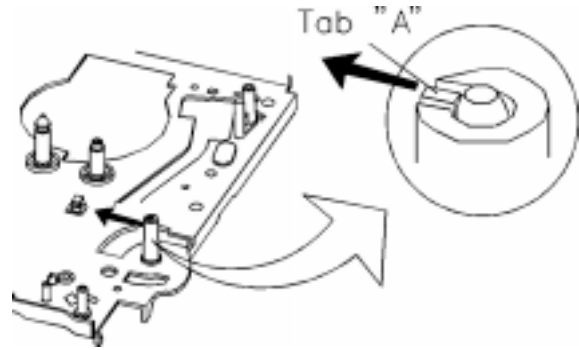
NOTE

After assembling the TENSION BAND ASSEMBLY on the MAINBASE, adjust the position of the TENSION POLE as shown in **fig.30**.

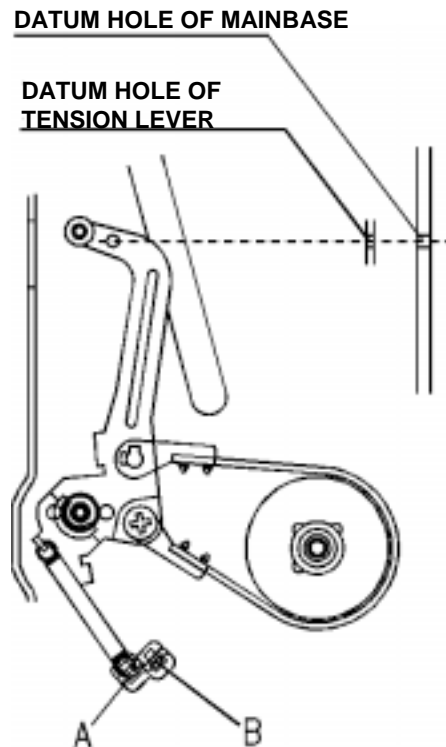
Avoid getting GREASE, OIL or foreign substances on the FELT of the BAND BRAKE.
Take care not to deform tab "A" when separating it.



Tension band assembly removal
Fig.28.



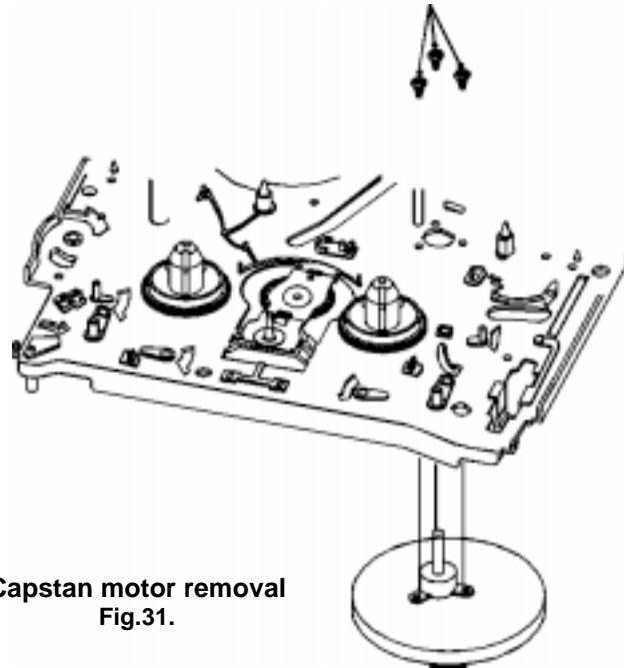
Tension band assembly removal
Fig.29.



Adjustment of the tension pole position
Fig.30.

CAPSTAN MOTOR REMOVAL

- 1) Remove the 3 screws fixing the CAPSTAN MOTOR and separate the CAPSTAN MOTOR.



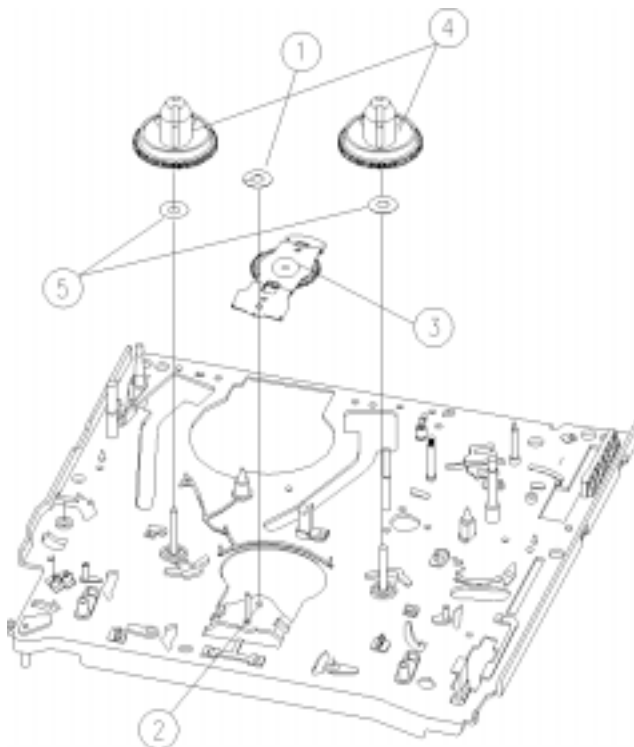
Capstan motor removal
Fig.31.

IDLER PLATE TOTAL ASSEMBLY & S/T REEL TABLE REMOVAL

- 1) Remove one POLY WASHER (1) from the REEL GEAR POST (2) and remove the IDLER PLATE TOTAL ASSEMBLY (3) from the MAIN BASE.
- 2) Remove the S/T REEL TABLES (4) and two POLY SLIDERS (5) from the DECK MECHANISM.

CAUTION

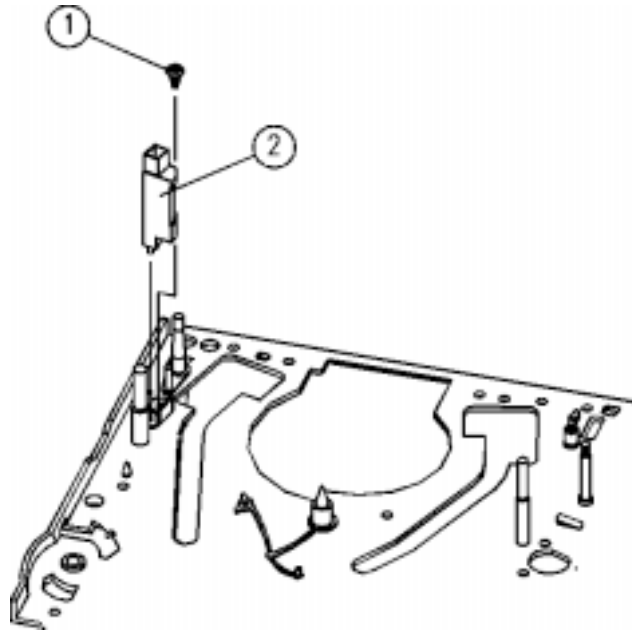
When disassembling or assembling the IDLER PLATE TOTAL ASSEMBLY, take care not to bend it.



Idler plate total assembly and supply
and takeup reel tables removal
Fig.32.

FE HEAD REMOVAL

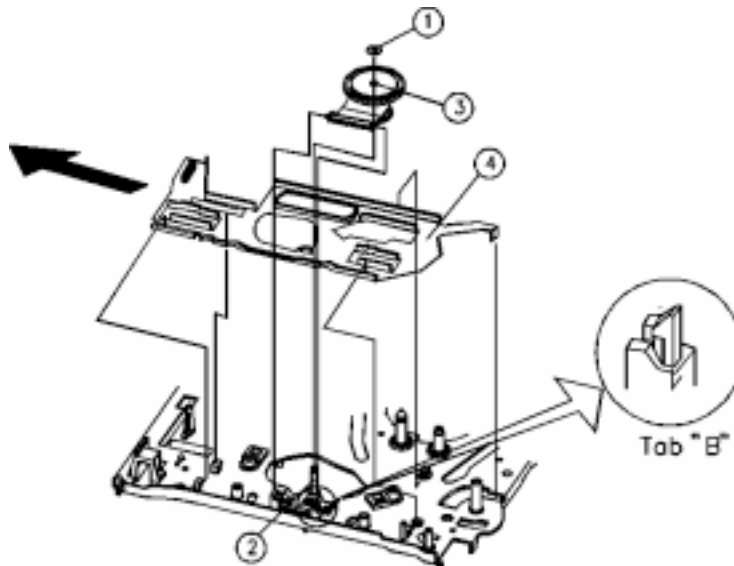
- 1) Remove the screw (1) fixing the FE HEAD (2) and remove the FE HEAD from the MAINBASE.



Fe head removal
Fig.33.

REEL GEAR TOTAL ASSEMBLY & CONNECT PLATE REMOVAL

- 1) Turn over the DECK MECHANISM and remove the POLY WASHER (1) from the REEL GEAR POST (2).
- 2) After separating tab "B" of the MAINBASE, remove the REEL GEAR TOTAL ASSEMBLY (3) from the MAINBASE.
- 3) Remove the CONNECT PLATE (4) from the MAINBASE by pushing it in the direction of the arrow.



Reel gear total assembly and
connect plate removal
Fig.34.

NOTE

When removing the CONNECT PLATE with the F/L RACK installed, take care not to damage or bend the CONNECT PLATE. After assembling or disassembling the REEL GEAR TOTAL ASSEMBLY, take care not to get OIL, GREASE or other substances on the REEL BELT.

Take care not to deform or break tab "B".

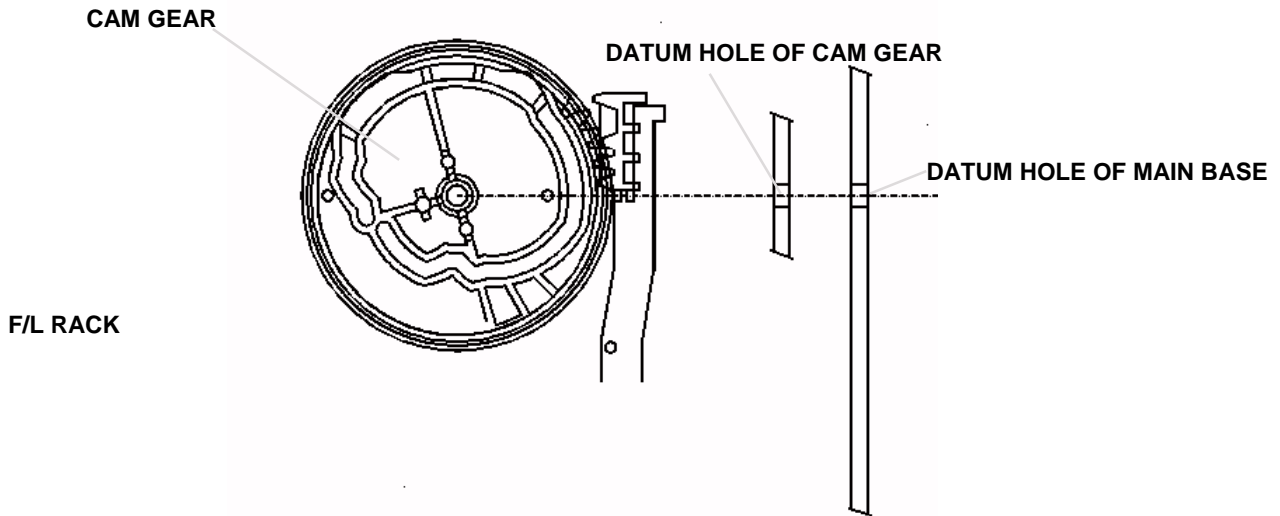
Check the assembly state & the operating state of the REEL GEAR TOTAL ASSEMBLY before assembling.

After reassembling check the FF, REW, PLAY and REVIEW MODES and the existence of noise when operating the MODES.

MECHANICAL ADJUSTMENT

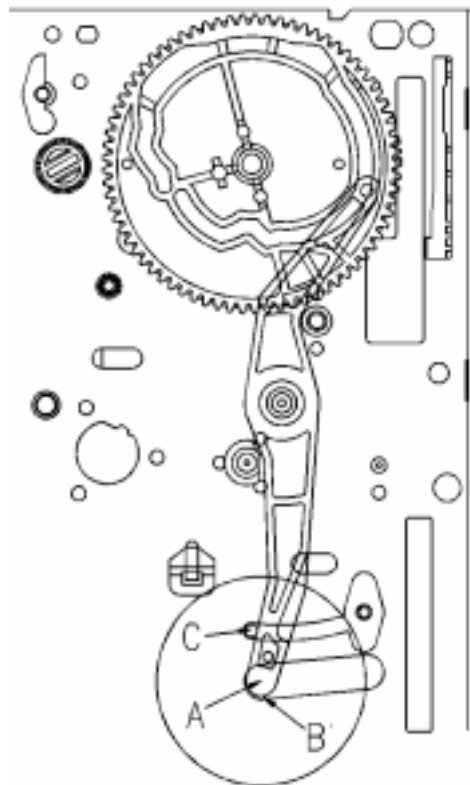
When operational problems occur or the mechanism is reassembled, be sure to confirm the following instructions.

- 1) Make sure that the DATUM HOLE of the CAM GEAR is aligned with the DATUM HOLE in the MAINBASE in the EJECT mode, as shown in **fig.35**.



Datum position of front loading rack and cam gear
Fig.35.

- 2) Make sure that part "A" of the RELAY LEVER, when assembled in the CONNECT PLATE, is fully rotated to the left side of "B" of the MAINBASE, and is touching boss "C" of the MAINBASE, as shown in **fig.36**.



Datum position of relay lever and cam gear
Fig.36.

MECHANICAL ADJUSTMENT (Cont.)

- 3) When reassembling the L/C BRACKET TOTAL ASSEMBLY on the MAINBASE, make sure that the two triangular marks of the CAM SWITCH are aligned with each other as shown in **fig.37**.

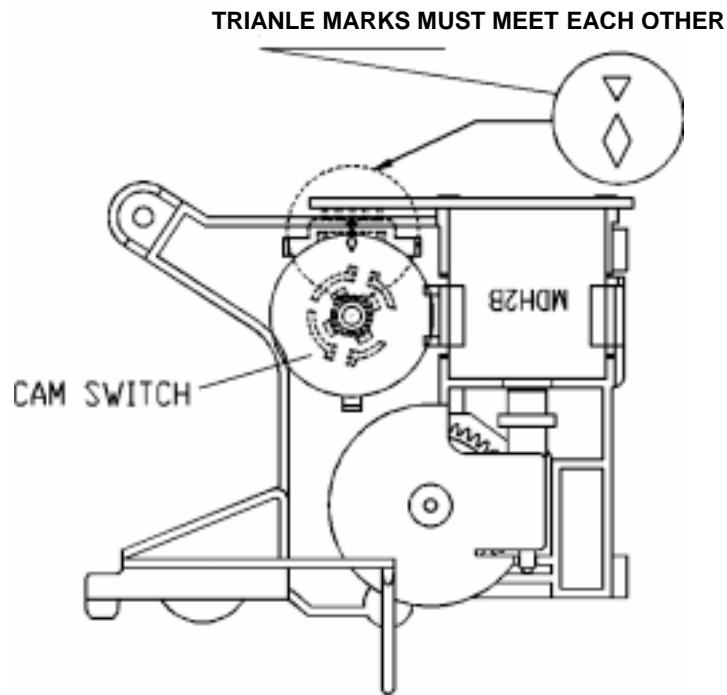
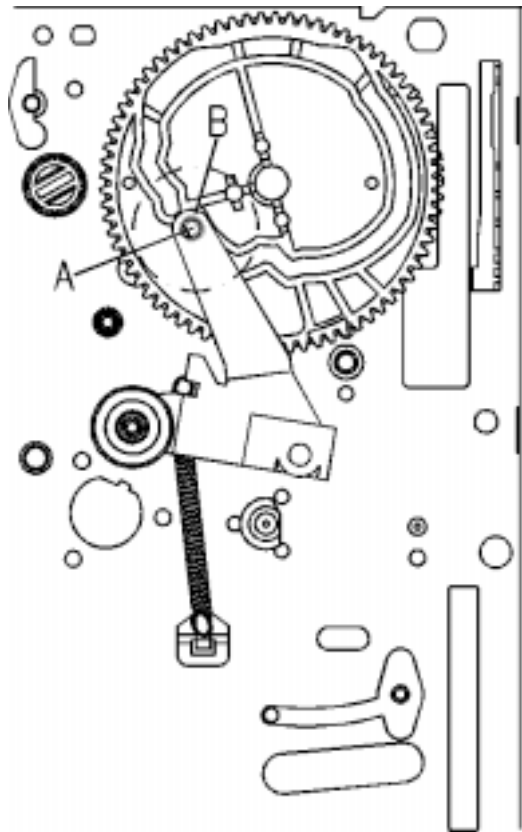


Fig.37.

- 4) Make sure that boss "A" of the PINCH LEVER TOTAL ASSEMBLY is positioned at point "B" of the CAM GEAR, as shown in **fig.38**.

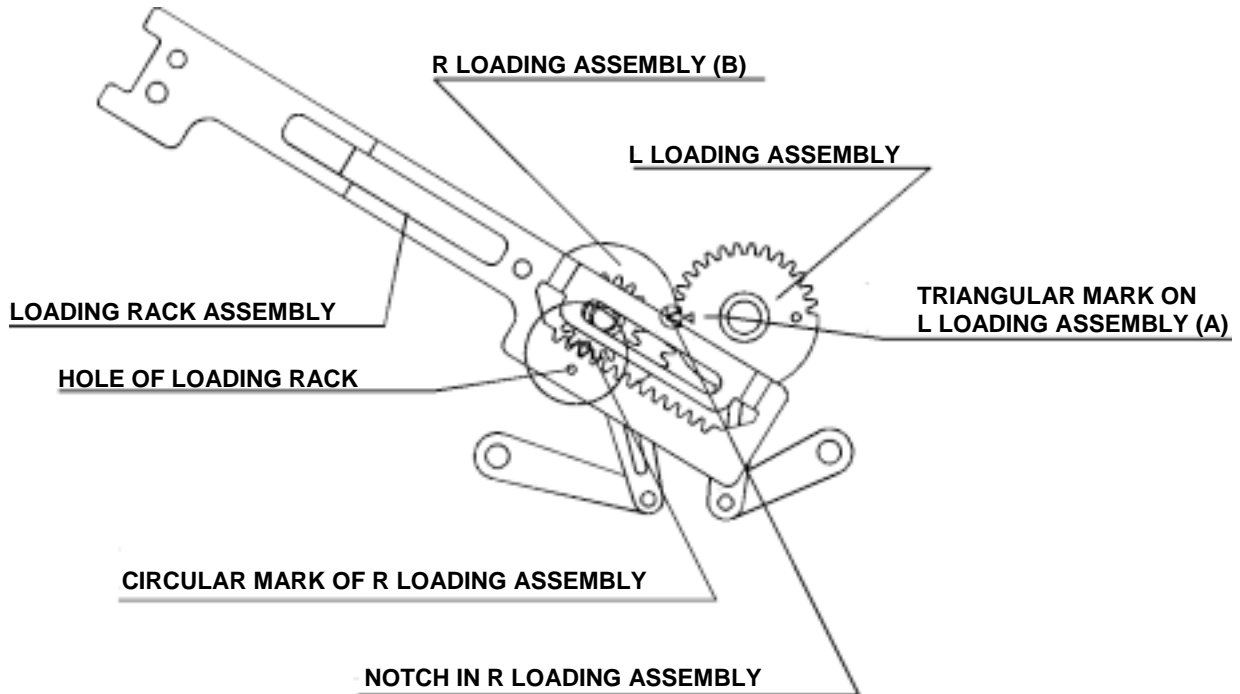


Datum position of pinch lever total assembly and cam gear

Fig.38.

MECHANICAL ADJUSTMENT (Cont.)

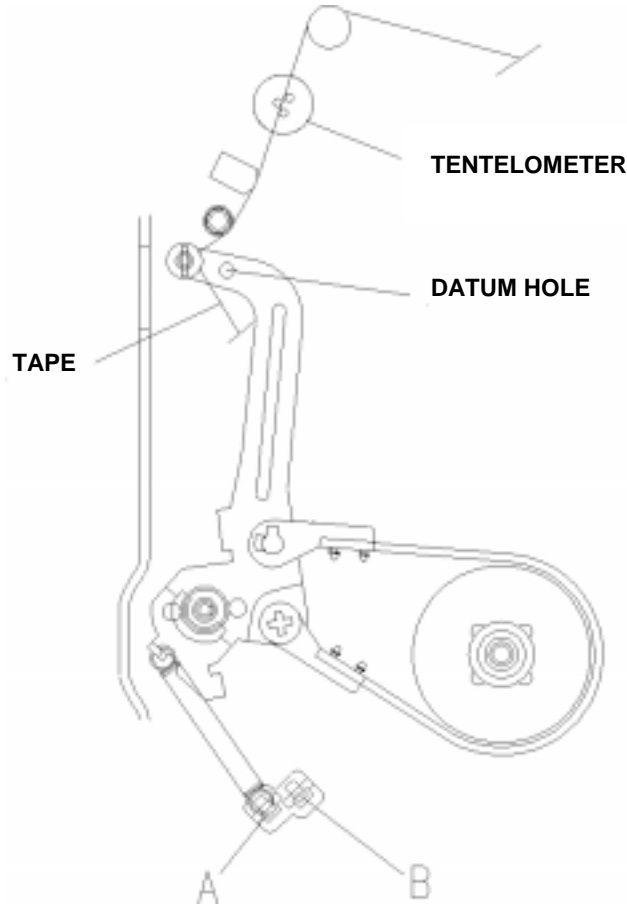
- 5) Ensure that the triangular mark "A" on the L LOADING ASSEMBLY is aligned with the notch "B" on the R LOADING ASSEMBLY, as shown in **fig.39**.
- 6) Ensure that the teeth of the LOADING RACK ASSEMBLY are aligned with those of the R LOADING ASSEMBLY so that the hole of the LOADING RACK ASSEMBLY aligns with the circular mark on the R LOADING ASSEMBLY, as shown in **fig.39**.



Datum position of loading rack assembly and right and left loading lever assembly
Fig.39.

BACK TENSION MEASUREMENT

- 1) Confirm the position of the TENSION POLE is correct. Refer to "TENSION POLE POSITION ADJUSTMENT"
- 2) Play back a T-120 TAPE at its centre position without assembling F/L ASSEMBLY and wait until the TAPE run is stabilised (about 5-10 secs).
- 3) Bring the TENTELOMETER into contact with the TAPE and measure the BACK TENSION. The result should be between 25 and 33 grams.
- 4) If the measuring result is not within this specification, refer to the NOTE below or repeat "TENSION POLE POSITION ADJUSTMENT".



**Back tension measurement
Fig.40.**

Note

If the measuring result is not within the specification, change the TENSION SPRING position. (To decrease the result, choose hook A. Otherwise choose hook B).

Confirm that all three probes of the Tentelometer are in contact with the TAPE.
During this process do not touch any other parts of the MECHANISM (i.e. MAINBASE).

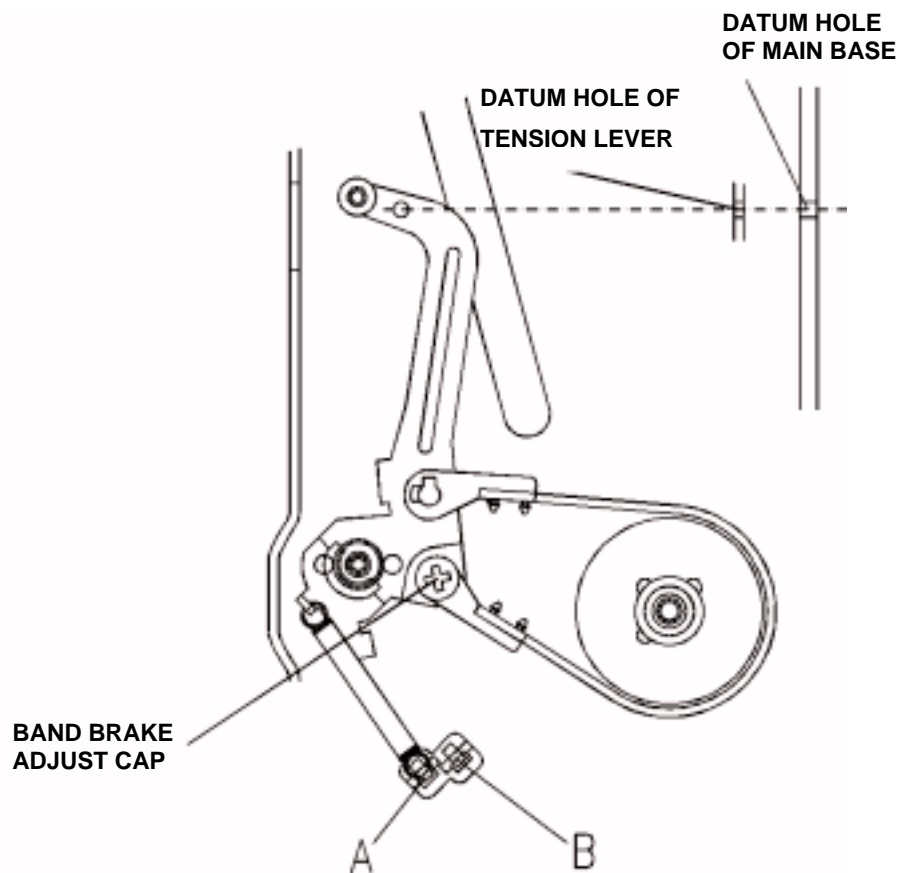
It is recommended that this measurement be repeated at least three times for an accurate reading.

MECHANICAL MODE (OPERATING THE VCR WITHOUT A CASSETTE TAPE)

- 1) Remove the FRONT LOADING MECHANISM from the DECK MECHANISM.
- 2) Pull the F/L RACK.
- 3) The S/T POLE BASES are loaded and PLAY BACK MODE starts.
- 4) Turn off the power when the MECHANISM is in the desired position.

TENSION POLE POSITION ADJUSTMENT

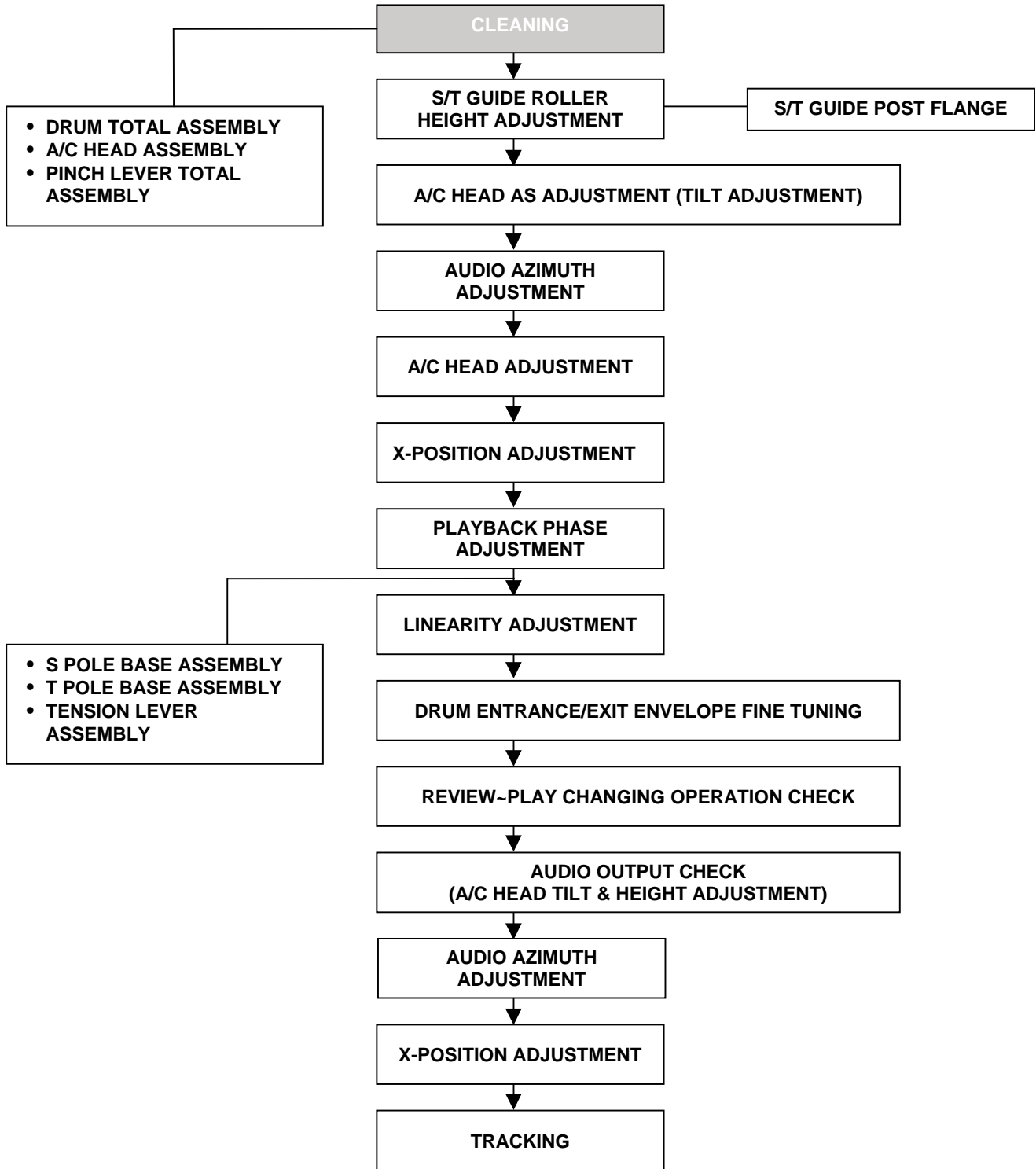
- 1) Change MECHANICAL MODE to PLAY MODE.
- 2) Confirm that the datum hole of TENSION LEVER is aligned with the datum hole of the MAIN BASE. To adjust turn the BAND BRAKE ADJUST CAP clockwise or anti-clockwise until the two datum holes are aligned with each other.



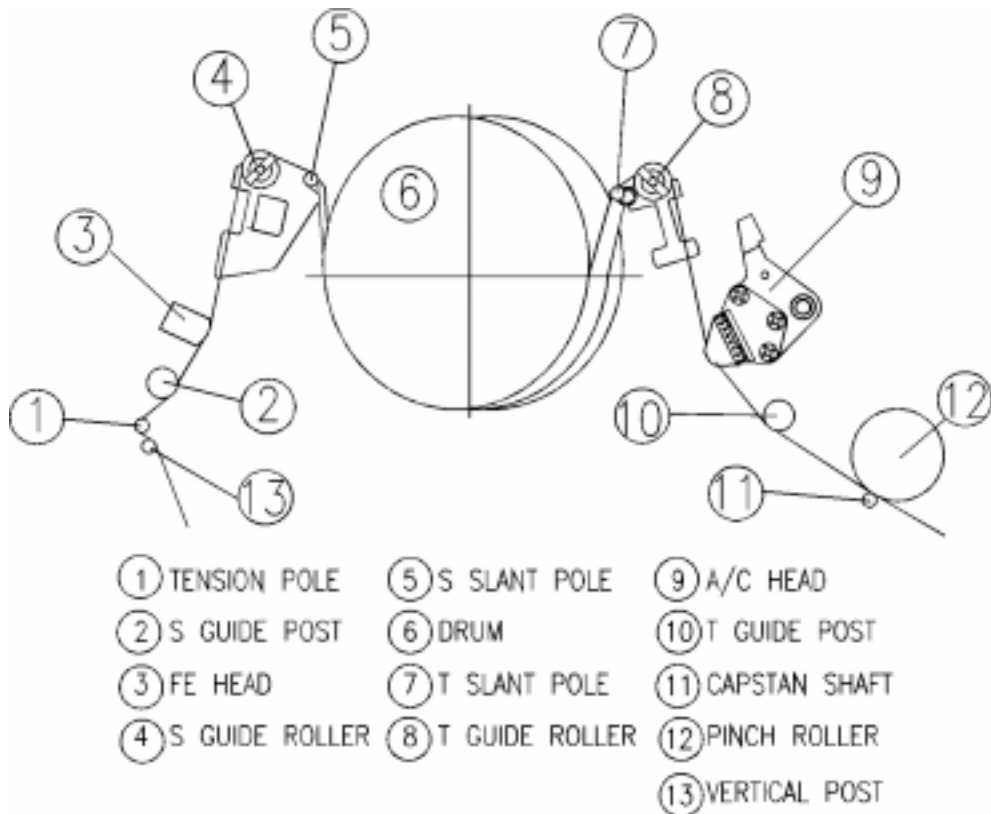
Tension pole position adjustment
Fig.41.

ADJUSTMENT OF TAPE TRANSPORTING SYSTEM

Generally the TAPE TRANSPORTING SYSTEM has been precisely adjusted in the factory and does not ordinarily require readjustment, but when noise and tape damage take place and part assemblies that comprise the TAPE TRANSPORTING SYSTEM are replaced, check and readjust the TAPE TRANSPORTING SYSTEM. Refer to the following flow chart in order to adjust the TAPE TRANSPORTING SYSTEM.



ADJUSTMENT OF TAPE TRANSPORTING SYSTEM (Cont.)



The schematic diagram of tape transporting system
Fig.42.

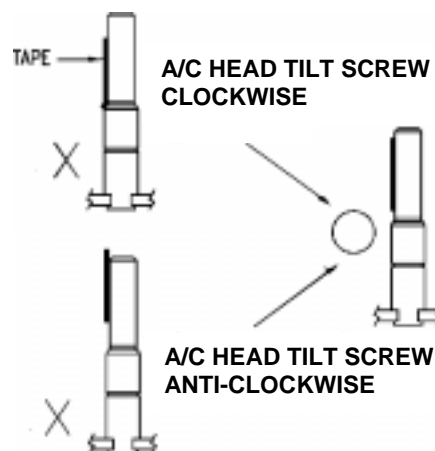
When the parts as shown in **fig.42** are replaced, the TAPE TRANSPORTING SYSTEM has changed. To prevent this, it is essential to observe the following instructions.

ADJUSTMENT OF THE S/T GUIDE ROLLER

- 1) Play back a T-120 TAPE.
- 2) Make sure that excessive TAPE wrinkle does not occur at each S/T GUIDE ROLLER.
- 3) If TAPE wrinkle is observed at the S/T GUIDE ROLLER, adjust to remove occurrence of wrinkles.

ADJUSTMENT OF THE A/C HEAD ASSEMBLY (TILT ADJUSTMENT)

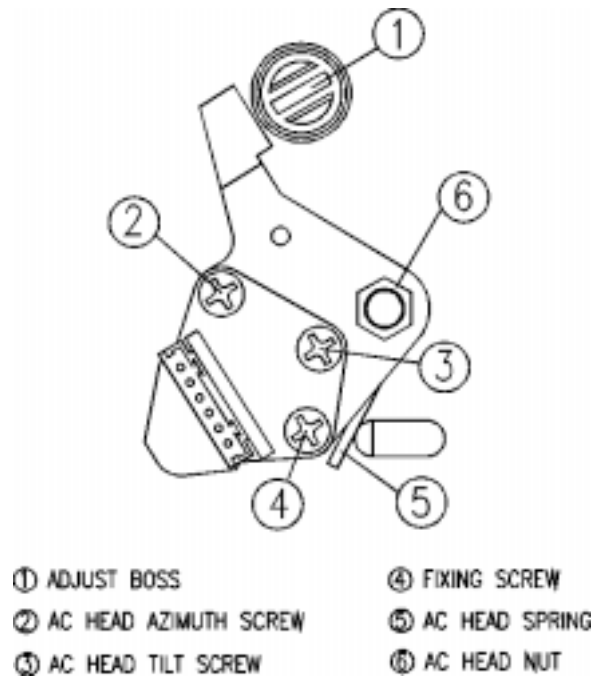
- 1) Play back a T-120 TAPE and check the running condition of the TAPE at the lower flanges of the T GUIDE POST ASSEMBLY, see **fig.42**.
- 2) Adjust the A/C HEAD TILT SCREW until the TAPE runs stable as shown in **fig.43**.



Audio control head assembly adjustment (Tilt adjustment)
Fig.43.

ADJUSTMENT OF THE AUDIO AZIMUTH

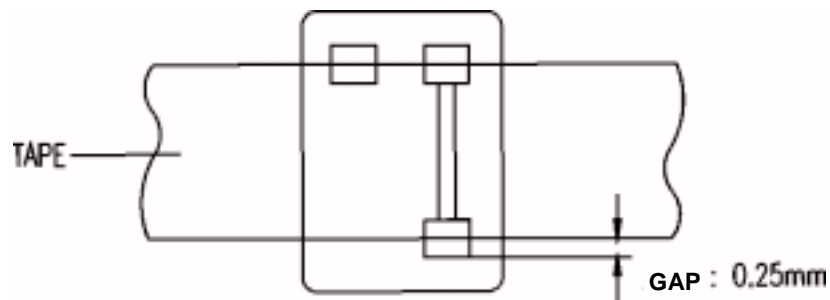
- 1) Play back the ALIGNMENT CASSETTE TAPE (NTSC:DN2 (SP 7KHz), PAL: DP2 (SP 6KHz))
- 2) Observe audio signals on an OSCILLOSCOPE.
- 3) Turn the A/C HEAD AZIMUTH SCREW to obtain the maximum audio output signal (-9 ~-3dBm) **Fig.44.**



Audio control head assembly
Fig.44.

HEIGHT ADJUSTMENT OF A/C HEAD

- 1) Play back a T-120 TAPE.
- 2) Make sure that the gap is 0,25mm between the lower end of TAPE and that of A/C HEAD **Fig.45.**
- 3) When the gap is larger than 0,25mm, turn the A/C HEAD HEIGHT ADJUST NUT anti-clockwise. When the gap is smaller than 0,25mm turn it clockwise. Repeat this procedure until 0,25mm is obtained.

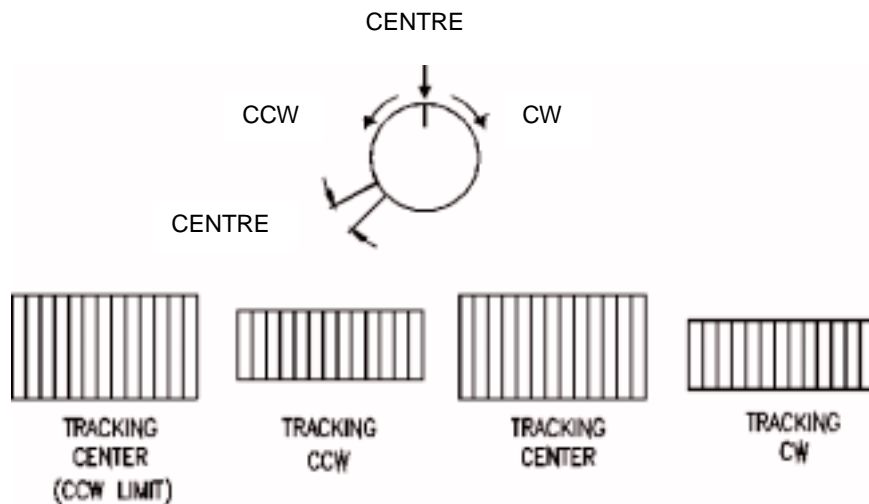


Audio control head assembly adjustment (Height adjustment)
Fig.45.

X-POSITION ADJUSTMENT

TEST POINTS	S/W PULSE TEST PIN	PATH ADJ. JIG
	ENVELOPE TEST PIN	PATH ADJ. JIG
MEASURING EQUIPMENT	OSCILLOSCOPE	
ADJUSTMENT	VR CONTROL	PATH ADJ. JIG
	ADJUST BOSS	MAIN BASE

- 1) Connect the path adjustment fixture to PTO1 of the MAIN CIRCUIT BOARD.
- 2) Play back the ALIGNMENT TAPE (COLOUR BAR ALIGNMENT).
- 3) Connect channel-1 scope probe to S/W PULSE TEST PIN of PATH ADJ. JIG.
- 4) Connect channel-2 scope probe to ENVELOPE TEST PIN of PATH ADJ. JIG.
- 5) Turn the VR CONTROL to the centre point. (If the VR CONTROL is completely turned anti-clockwise, it is positioned on another tracking centre.)
- 6) With the VR CONTROL in the centre state, turn the ADJUST BOSS by using a FLAT TYPE SCREW DRIVER and adjust the X-POSITION to obtain maximum envelope waveform.



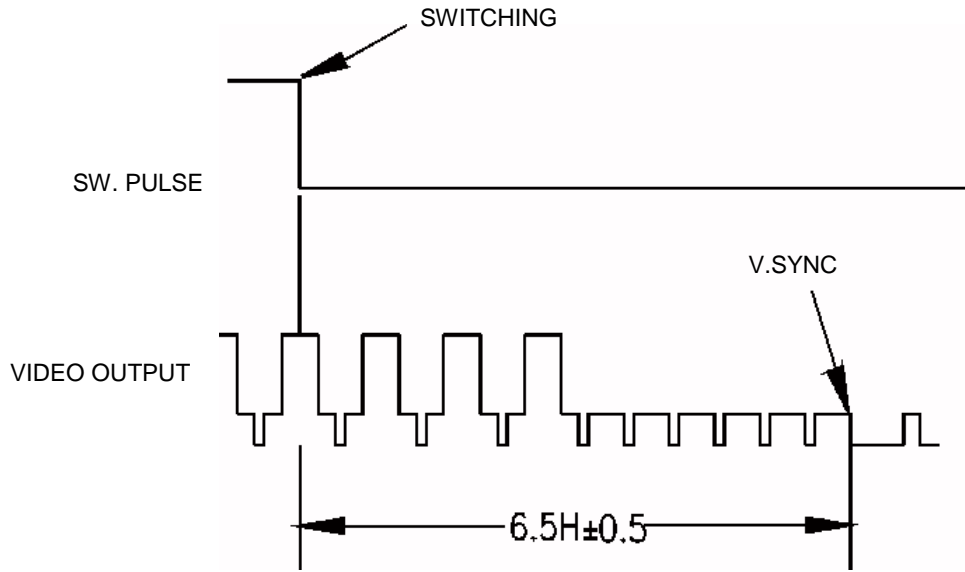
X-position adjustment
Fig.46.

PLAYBACK PHASE ADJUSTMENT

TEST POINTS	S/W PULSE TEST PIN	PATH ADJ. JIG
	VIDEO OUT	MAIN CIRCUIT BOARD
MEASURING EQUIPMENT	OSCILLOSCOPE	
ADJUSTMENT	VR595 (PG SHIFTER)	MAIN CIRCUIT BOARD

The Phase generator (PG) shifter decides the VIDEO HEAD switching point when a TAPE is played back. In case the Phase generator (PG) shifter is not correctly tuned, HEAD switching noise or vertical jitter may occur.

- 1) Connect the PATH ADJ. JIG to PTO1 of the MAIN CIRCUIT BOARD.
- 2) Play the ALIGNMENT TAPE (COLOUR BAR SIGNAL OR MONOSCOPE SIGNAL).
- 3) Connect the channel-1 scope probe to the S/W PULSE TEST PIN of the PATH ADJ. JIG.
- 4) Connect the channel-2 scope probe (1V/div.) to the VIDEO OUT of the MAIN CIRCUIT BOARD.
- 5) Play back the ALIGNMENT TAPE.
- 6) Adjust the PG volume for time interval of $6,5\text{Hz} \pm 0,5\text{Hz}$ between switching pulse and V-sync signal.

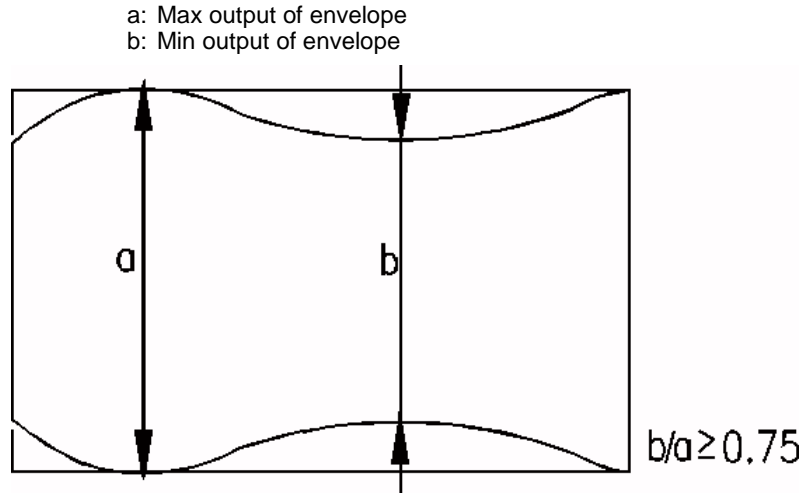


Playback phase adjustment
Fig.47.

LINEARITY ADJUSTMENT

TEST POINTS	S/W PULSE TEST PIN	PATH ADJ. JIG
	ENVELOPE TEST PIN	PATH ADJ. JIG
MEASURING EQUIPMENT	OSCILLOSCOPE	
ADJUSTMENT	VR CONTROL	PATH ADJ. JIG
	S/T GUIDE ROLLER	TAPE TRANSPORTING SYSTEM

- 1) Connect the PATH ADJ. JIG to PTO1 of the MAIN CIRCUIT BOARD.
- 2) Play back the ALIGNMENT TAPE (COLOUR BAR SIGNAL).
- 3) Connect the channel-1 scope probe to the S/W PULSE TEST PIN of the PATH ADJ. JIG.
- 4) Connect the channel-2 scope probe to the ENVELOPE TEST PIN of the PATH ADJ. JIG.
- 5) Adjust the VR CONTROL of the PATH ADJ. JIG for maximum envelope signal output of the alignment tape.
- 6) Adjust the S/T GUIDE ROLLER until the envelope signal waveforms of the entrance and exit sides are as shown **fig.48**.

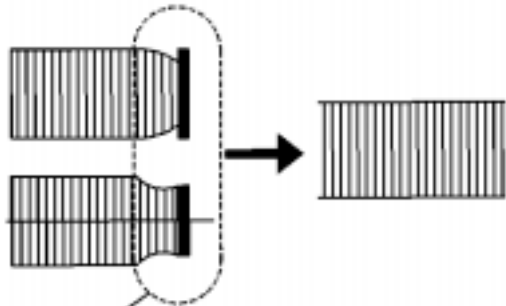
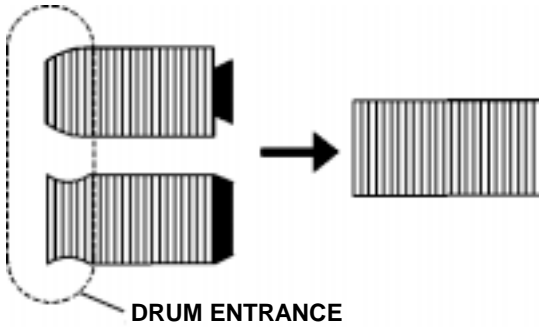


Linearity adjustment
Fig.48.

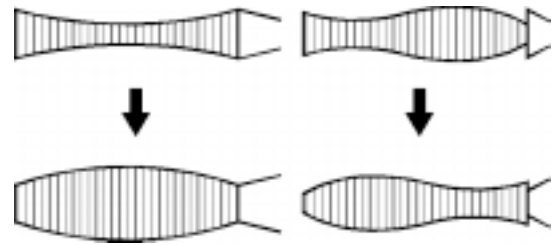
DRUM ENTRANCE / EXIT

TEST POINTS	S/W PULSE TEST PIN	PATH ADJ. JIG
	ENVELOPE TEST PIN	PATH ADJ. JIG
MEASURING EQUIPMENT	OSCILLOSCOPE	
ADJUSTMENT	VR CONTROL	PATH ADJ. JIG
	S/T GUIDE ROLLER	TAPE TRANSPORTING SYSTEM

- 1) Connect the PATH ADJ. JIG to PTO1 on the MAIN CIRCUIT BOARD.
- 2) Play back the ALIGNMENT TAPE (COLOUR BAR SIGNAL).
- 3) Connect the channel-1 scope probe to the S/W PULSE TEST PIN of the PATH ADJ. JIG.
- 4) Connect the channel-2 scope probe to the ENVELOPE TEST PIN of the PATH ADJ. JIG.
- 5) When turning the VR CONTROL of the PATH ADJ. JIG clockwise or anti-clockwise, confirm that the envelope thickness changes uniformly.
- 6) If the envelope is not uniform and regular, adjust the S/T GUIDE ROLLER.



Fine tuning of the envelope at the drum entrance/exit (I)
Fig.49

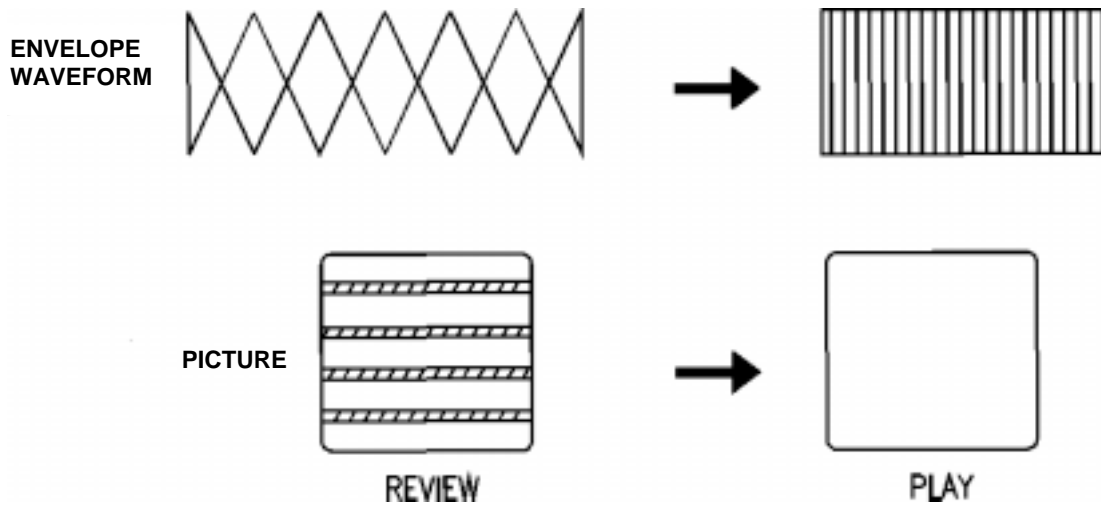


Fine tuning of the envelope at the drum entrance/exit (II)
Fig.50

REVIEW / PLAY

TEST POINTS	S/W PULSE TEST PIN	PATH ADJ. JIG
	ENVELOPE TEST PIN	PATH ADJ. JIG
MEASURING EQUIPMENT	OSCILLOSCOPE	
ADJUSTMENT	VR CONTROL	PATH ADJ. JIG
	S/T GUIDE ROLLER	TAPE TRANSPORTING SYSTEM

- 1) Connect the PATH ADJ. JIG to PTO1 of the MAIN CIRCUIT BOARD.
- 2) Play back the ALIGNMENT TAPE (SP COLOUR BAR SIGNAL).
- 3) Connect the channel-1 scope probe to the S/W PULSE TEST PIN of the PATH ADJ. JIG.
- 4) Connect the channel-2 scope probe to the ENVELOPE TEST PIN of the PATH ADJ. JIG.
- 5) Adjust the VR CONTROL of the PATH ADJ. JIG to the centre to obtain the maximum envelope signal of the ALIGNMENT TAPE.
- 6) After operating the VCR in the REVIEW MODE about 15 secs, change operation mode from REVIEW MODE to PLAY MODE and then make sure that the envelope waveform is restored to the maximum condition within 3 seconds.
- 7) If the requirement is not satisfied, make sure that the TAPE runs normally at the lower part of the T GUIDE POST. Then adjust the S/T GUIDE ROLLER precisely.



Check of transitional operation (from review waveform to play waveform)
Fig.51

AUDIO OUTPUT (A/C HEAD TILT & HEIGHT ADJUSTMENT)

TEST POINTS	AUDIO OUTPUT	AUDIO OUTPUT JACK
MEASURING EQUIPMENT	OSCILLOSCOPE	

- 1) Connect the OSCILLOSCOPE to the AUDIO OUTPUT JACK.
- 2) Play back the ALIGNMENT TAPE (NTSC DN1 (SP 1KHz), PAL DP1 (SP 1KHz)).
- 3) Check the AUDIO OUTPUT SIGNAL is -9~-3dBm.
- 4) If the requirement (3) is not satisfied, adjust the A/C HEAD TILT SCREW and A/C HEAD HEIGHT NUT to obtain the maximum audio output.

A/C HEAD AZIMUTH ADJUSTMENT

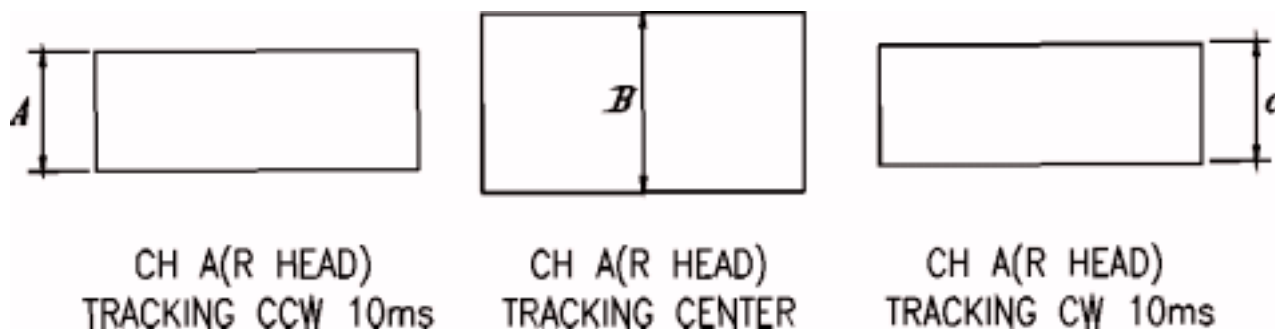
TEST POINTS	AUDIO OUTPUT	AUDIO OUTPUT JACK
MEASURING EQUIPMENT	OSCILLOSCOPE	

- 1) Connect the OSCILLOSCOPE to the AUDIO OUTPUT JACK.
- 2) Play back the ALIGNMENT TAPE (NTSC DN2 (SP 7KHz), PAL DP2 (SP 6KHz)).
- 3) Adjust the A/C HEAD AZIMUTH SCREW to obtain the audio output -9~-3dBm.
- 4) Repeat the process "DRUM ENTRANCE/EXIT" (See page 31).

X-POSITION

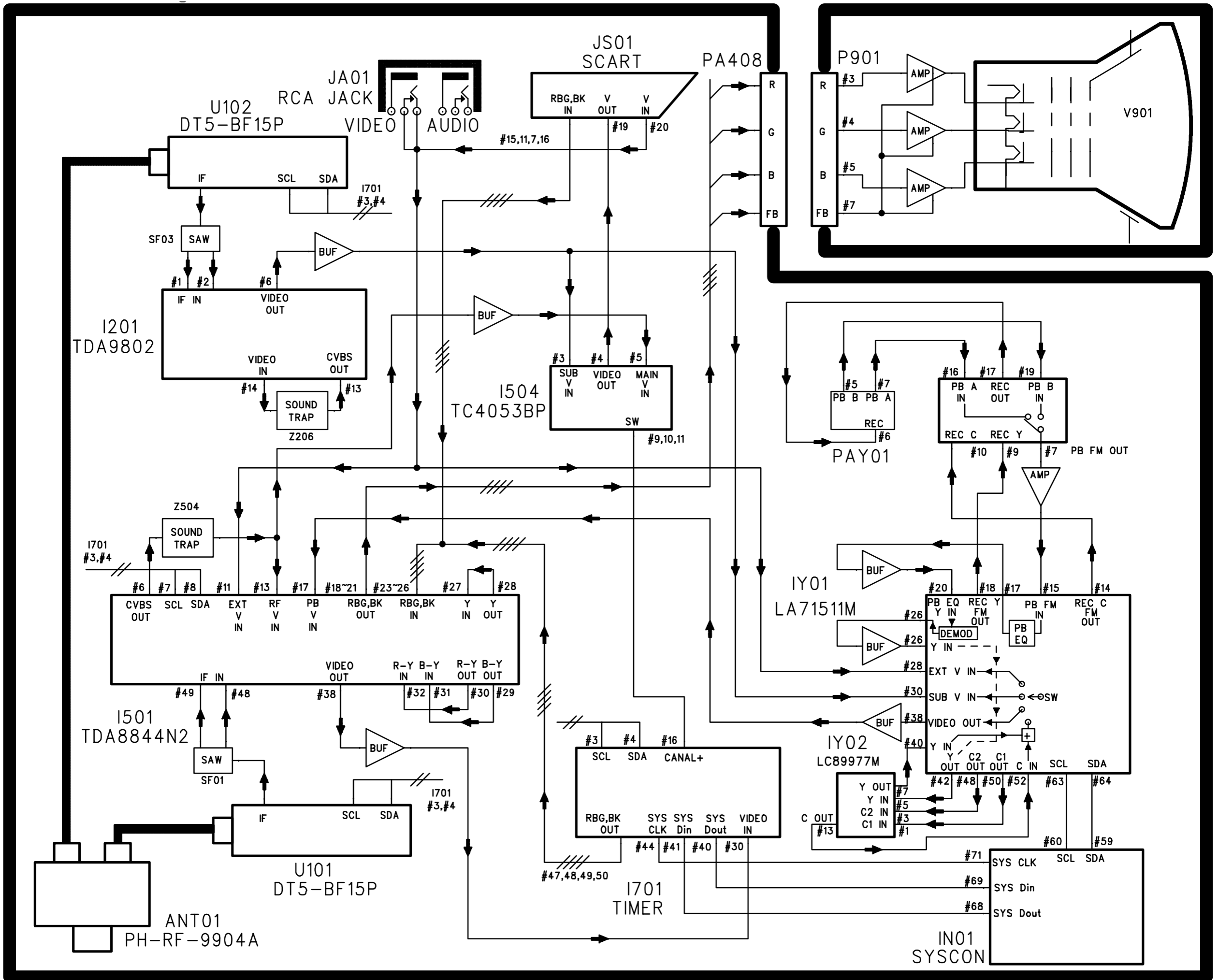
TEST POINTS	S/W PULSE TEST PIN	PATH ADJ. JIG
MEASURING EQUIPMENT	ENVELOPE TEST PIN	PATH ADJ. JIG
ADJUSTMENT	VR CONTROL	PATH ADJ. JIG
	ADJUST BOSS	MAIN BASE

- 1) Connect the PATH ADJ. JIG to PTO1 of the MAIN CIRCUIT BOARD.
- 2) Play back the ALIGNMENT TAPE (COLOUR SIGNAL BAR).
- 3) Connect the channel-1 scope probe to the S/W PULSE TEST PIN of the PATH ADJ. JIG.
- 4) Connect the channel-2 scope probe to the ENVELOPE TEST PIN of the PATH ADJ. JIG.
- 5) Adjust the VR CONTROL to the centre position. (When the VR CONTROL is rotated completely anti-clockwise, it is set at another tracking centre position.)
- 6) When the VR CONTROL is fully rotated clockwise or anti-clockwise, turn the ADJUST BOSS of the MAINBASE and adjust the X-POSITION for the envelope waveform to be shown as in the figure below.
- 7) Repeat the process "PLAYBACK PHASE ADJUSTMENT" (See page 29).

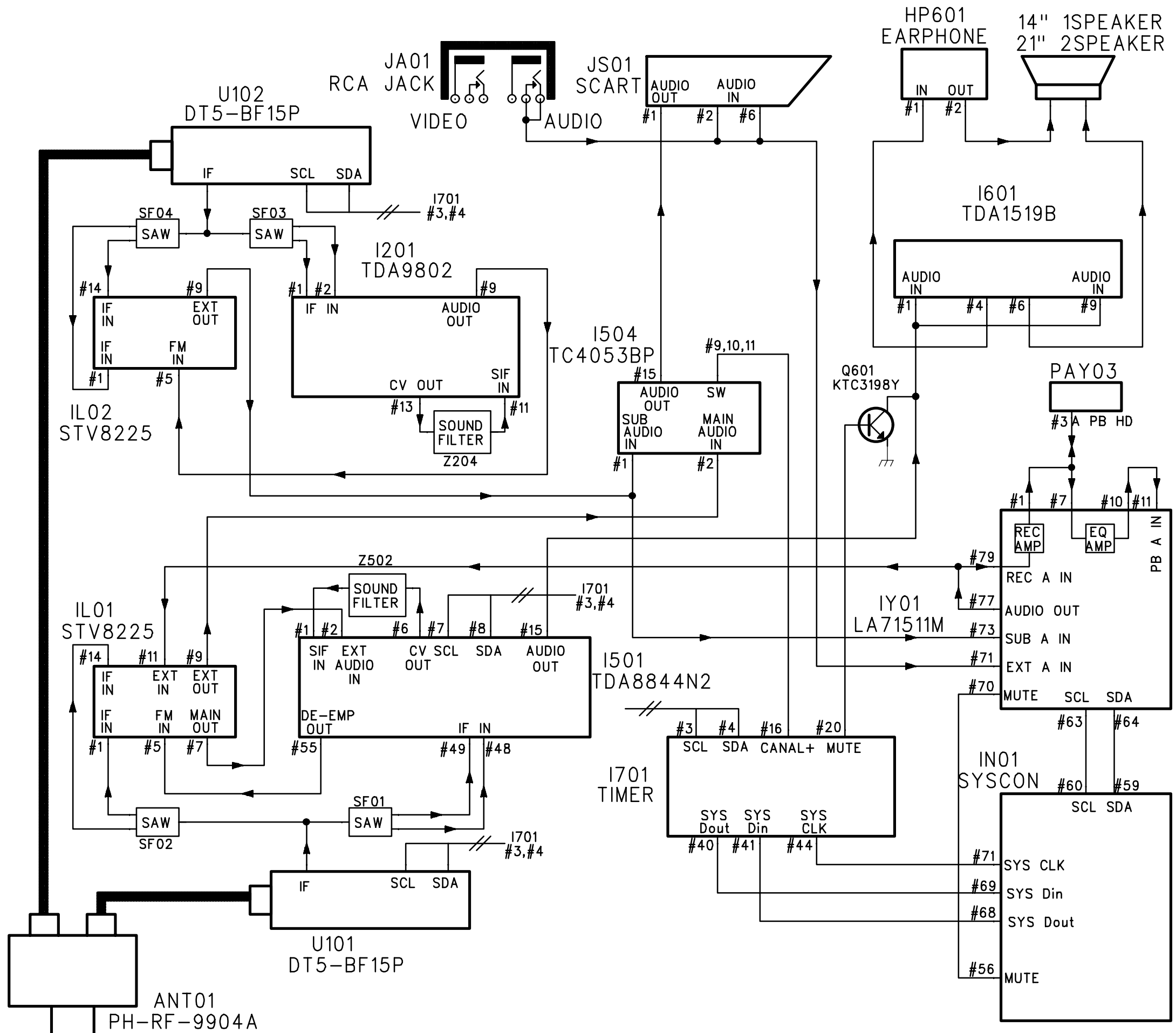


X-position adjustment
Fig.52

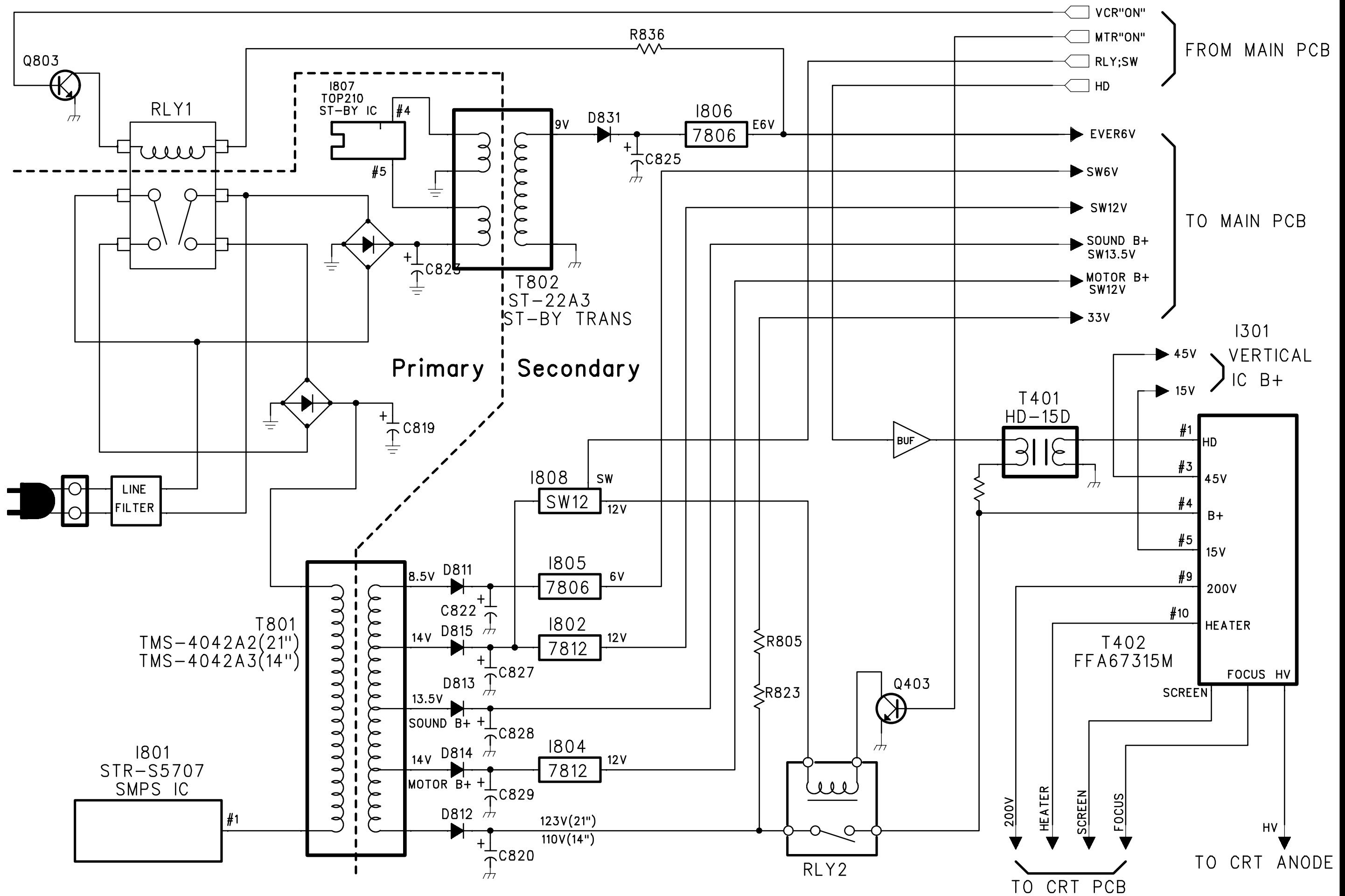
VIDEO BLOCK DIAGRAM



AUDIO BLOCK DIAGRAM

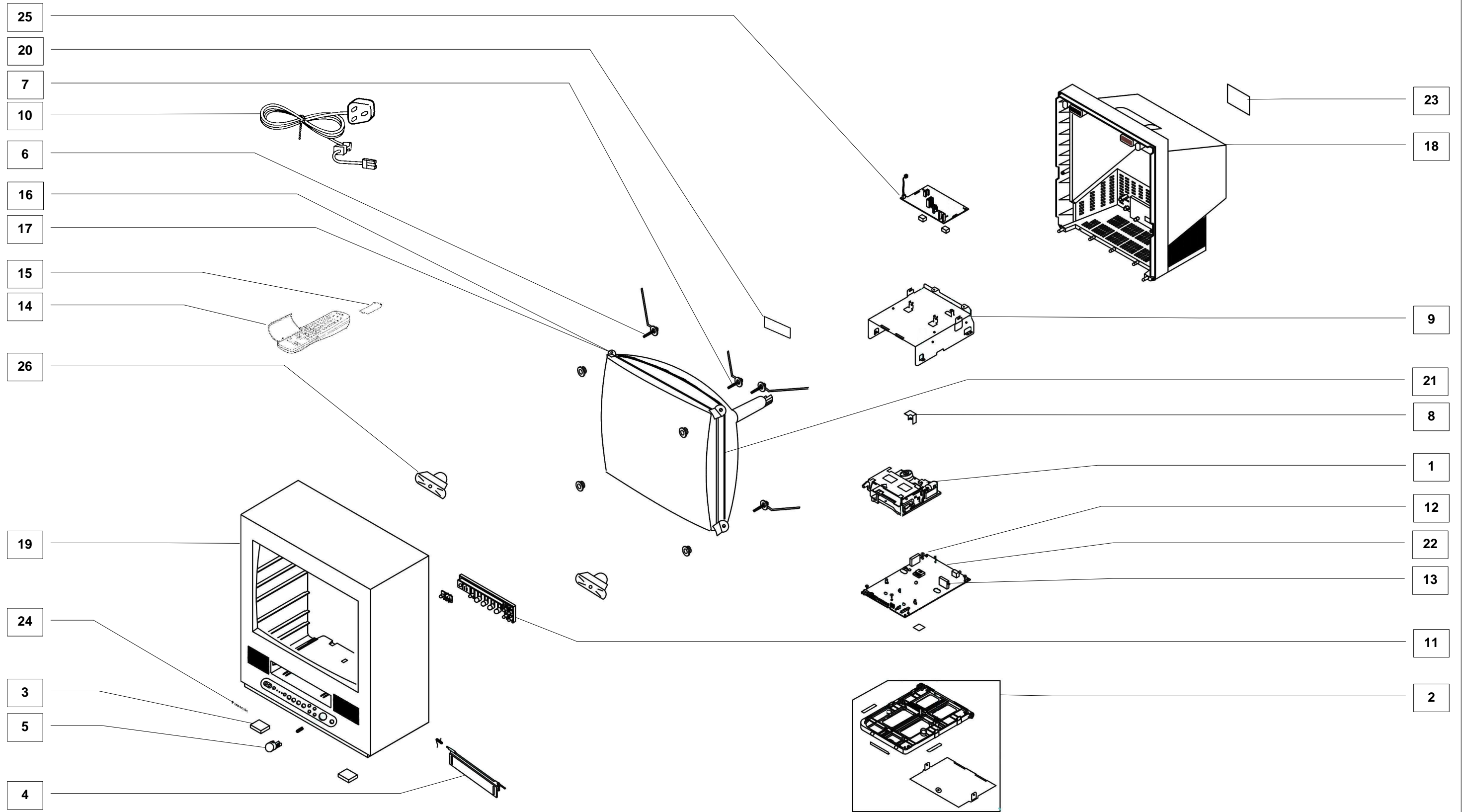


POWER BLOCK DIAGRAM




PARTS LOCATION T.V.






NOTE:
The numbers on the exploded view below refer to the mechanical section of the Replacement Parts List.




REPLACEMENT PARTS LIST

Important Safety Notice

Components Identified by  mark have special characteristics important for safety.
 * When replacing any of these components, use only manufacturers specified parts.
 In case of ordering these spare parts, please always add the complete Model-Type number to your order.

Cct Ref	Parts Number	Description
COMMON PARTS		
MECHANICAL PARTS		
1	4851930400	DECK ASSEMBLY
2	4851936300	CHASSIS FRAME ASSY
3	4852716000	SET FOOT
4	4852822201	DOOR ASSEMBLY
5	4854855801	POWER BUTTON 
6	4856013301	CRT SCREWS TOP
7	4856013303	CRT SCREWS BOTTOM
8	4857242000	SHIELD COVER
9	4857242900	CHASSIS TOP COVER
10	4859905110	POWER CORD 
11	4944001+5540	CONTROL BUTTON ASS. 
12	DT5-BF15P,	TUNER (VCR) 
13	DT5-BF15P.	TUNER (T.V.) 
14	EUR51941	REMOTE CONTROL
15	UR51EC780	BATTERY COVER (REMOTE)
MISCELLANEOUS COMPONENTS		
ANT01	4850M04510	RF MODULE
BAT01	UM-3DJ-2P	BATTERY PACK
M192	4856723400	DOOR ASSEMBLY SPRING
M351	4853535400	LED HOLDER
M392	4853948400	EARTH BRACKET
M481A	4856715600	POWER BUTTON SPRING
M791	4857913304	RUBBER SPONGE
INSTRUCTION BOOKS		
.	TQB8E2912-1	ENGLISH
I.C.s		
D819	KIA7812PI	REGULATOR
I201	TDA9800	IF PROCESSOR
I301	TDA8356	VERTICAL OUTPUT
I501	TDA8844/N2	VIDEO PROCESSOR
I504	TC4053BP	SWITCHING IC
I505	KA7808	REGULATOR
I506	TC4066BP	SWITCHING IC
I601	TDA1519B	AUDIO AMP
I701	SD545X0TP	MAIN MICRO
I702	MN1280R	RESET
I703	AT24C08-10PC	MEMORY
I801	STR-S5707	POWER SUPPLY
I802	KIA7812PI	REGULATOR
I804	KIA7812PI	REGULATOR
I805	KIA7806PI	REGULATOR
I806	KIA7806PI	REGULATOR
I807	TOP210	STANDBY
I808	PQ12RF11	REGULATOR

Cct Ref	Parts Number	Description
I901	TDA6106Q	RGB DRIVE
I902	TDA6106Q	RGB DRIVE
I903	TDA6106Q	RGB DRIVE
IN01	M37777EFQ	VCR MICRO
IN02	KA7533Z	REGULATOR
IN03	BA6209(ROHM)	MOTOR DRIVE
IN04	MN1280R	RESET
IQ01	KRT30	PREAMP
IY01	LA71511M	VCR SIGNAL PROCESSOR
IY02	LC89977M	CCD PROCESSOR
IY04	LA70011 (4HD)	PRE AMP
SN01	SG-239S	SENSOR
SN02	SG-239S	SENSOR
FUSES		
F801	5FSCB4022R	FUSE 4A250V 
DIODES		
D106	D1N4003	DIODE
D111	DUZ5R1BM	DIODE
D114	DUZ9R1BM	DIODE
D301	DRGP15J	DIODE
D302	DRGP15J	DIODE
D401	DRGP15J	DIODE
D402	DRGP15J	DIODE
D403	D1N4148	DIODE
D405	D1N4148	DIODE
D406	D1N4148	DIODE
D502	D1N4148	DIODE
D504	D1N4148	DIODE
D507	D1N4148	DIODE
D508	DUZ6R2BM	DIODE
D509	DUZ12BM	DIODE
D510	DUZ6R2BM	DIODE
D511	DUZ6R2BM	DIODE
D512	DUZ6R2BM	DIODE
D513	DUZ6R2BM	DIODE
D514	DUZ6R2BM	DIODE
D515	DUZ6R2BM	DIODE
D516	DUZ12BM	DIODE
D517	D1N4148	DIODE
D701	D1N4148	DIODE
D702	D1N4148	DIODE
D703	D1N4148	DIODE
D704	D1N4148	DIODE
D705	D1N4148	DIODE
D706	D1N4148	DIODE
D707	DUZ9R1BM	DIODE
D709	D1N4148	DIODE
D710	D1N4148	DIODE
D711	D1N4148	DIODE
D801	D1S1888	DIODE
D802	D1S1888	DIODE
D803	D1S1888	DIODE

Cct Ref	Parts Number	Description
D804	D1S1888	DIODE
D807	DRGP15J	DIODE
D808	DRGP15J	DIODE
D809	DRGP15J	DIODE
D810	DRGP15J	DIODE
D811	DRGP30J	DIODE
D812	DRGP30J	DIODE
D813	DRGP15J	DIODE
D814	DRGP15J	DIODE
D815	DRGP30J	DIODE
D822	DRU1P	DIODE
D823	D1N4148	DIODE
D824	DR2KY	AVALANCHE DIODE
D825	D1S1888	DIODE
D826	D1S1888	DIODE
D827	D1S1888	DIODE
D828	D1S1888	DIODE
D830	D1N4003	DIODE
D831	DRGP30J	DIODE
D901	D1N4148	DIODE
D902	D1N4148	DIODE
D903	D1N4148	DIODE
D904	D1N4148	DIODE
DA01	DUZ6R2BM	DIODE
DA02	D1N4148	DIODE
DA03	DMTZ6R2B	DIODE
DN01	DS15312H	LED IR
DN02	D1N4003	DIODE
DN03	D1N4003	DIODE
DN05	DUZ6R2BM	DIODE
DN07	D1N4148	DIODE
DN08	D1N4148	DIODE
DN09	D1N4003	DIODE
DQ01	DSR54MWW3	LED
DQ02	DSR54MWW3	LED
DQ03	DSR54MWW3	LED
DQ04	DUZ6R2BM	DIODE
DQ05	DUZ6R2BM	DIODE
DQ06	DUZ6R2BM	DIODE
DQ07	D1N4148	DIODE
DY02	D1N4148	DIODE
DY03	D1N4148	DIODE
DY05	D1N4148	DIODE
DY06	D1N4148	DIODE
R801	DEC140M290	DIODE
TRANSISTORS		
Q301	KTC3198Y	TRANSISTOR
Q401	KTC3207 (TP)	TRANSISTOR
Q402	2SD2499	TRANSISTOR
Q403	KTC3203-Y	TRANSISTOR
Q601	KTC3198Y	TRANSISTOR
Q803	KTC3203-Y	TRANSISTOR
Q901	KTA1266Y (TP)	TRANSISTOR
QC102	2SA812-T2B	TRANSISTOR
QC205	2SC1623-L6/T	TRANSISTOR
QC501	2SC1623-L6/T	TRANSISTOR
QC502	2SC1623-L6/T	TRANSISTOR
QC503	2SC1623-L6/T	TRANSISTOR
QC504	2SC1623-L6/T	TRANSISTOR
QC505	2SC1623-L6/T	TRANSISTOR
QC506	2SC1623-L6/T	TRANSISTOR
QC510	2SA812-T2B	TRANSISTOR
QC511	2SA812-T2B	TRANSISTOR
QC512	2SA812-T2B	TRANSISTOR
QC515	2SA812-T2B	TRANSISTOR
QC602	2SC1623-L6/T	TRANSISTOR

Cct Ref	Parts Number	Description
QC701	2SC1623-L6/T	TRANSISTOR
QC703	2SC1623-L6/T	TRANSISTOR
QC705	2SC1623-L6/T	TRANSISTOR
QC706	2SC1623-L6/T	TRANSISTOR
QCL06	2SC1623-L6/T	TRANSISTOR
QCN02	2SC1623-L6/T	TRANSISTOR
QCN03	2SC1623-L6/T	TRANSISTOR
QCY01	2SC1623-L6/T	TRANSISTOR
QCY02	2SA812-T2B	TRANSISTOR
QCY03	2SC1623-L6/T	TRANSISTOR
QCY05	2SA812-T2B	TRANSISTOR
QCY07	2SC1623-L6/T	TRANSISTOR
QCY08	2SC1623-L6/T	TRANSISTOR
QCY09	2SA812-T2B	TRANSISTOR
QCY10	2SC1623-L6/T	TRANSISTOR
QCY11	2SC1623-L6/T	TRANSISTOR
QCY12	2SC1623-L6/T	TRANSISTOR
QCY13	2SA812-T2B	TRANSISTOR
QCY14	2SC1623-L6/T	TRANSISTOR
QCY15	2SC1623-L6/T	TRANSISTOR
QCY16	2SC1623-L6/T	TRANSISTOR
QCY17	2SA812-T2B	TRANSISTOR
QCY18	2SC1623-L6/T	TRANSISTOR
QCY19	2SC1623-L6/T	TRANSISTOR
QQ02	KTC3198Y	TRANSISTOR
QQ03	KTC3198Y	TRANSISTOR
QQ04	KTC3198Y	TRANSISTOR
QQ05	KTC3198Y	TRANSISTOR
QQ06	KTC3198Y	TRANSISTOR
QY04	KTC3202Y (TP)	TRANSISTOR
QY06	KTC3198Y	TRANSISTOR
SN03	ST-5811	TRANSISTOR
SN04	ST-5811	TRANSISTOR
T802	50MST22A3J	TRANSISTOR
TRANSFORMERS		
T401	50D0000022	TRANSFORMER
T402	50H0000201	F.B.T.
COILS		
L201	58B0000S88	COIL
L202	5CPZ150K02	PEAKING COIL
L203	5CPZ100K02	PEAKING COIL
L301	5CPZ100K04	PEAKING COIL
L302	5CPZ100K04	PEAKING COIL
L401	5CPZ109M02	PEAKING COIL
L403	58C0000096	COIL
L501	5CPZ100K02	PEAKING COIL
L502	5CPZ100K04	PEAKING COIL
L503	5CPZ100K04	PEAKING COIL
L505	5CPZ220K02	PEAKING COIL
L506	5CPZ150K02	PEAKING COIL
L601	5CPZ100K04	PEAKING COIL
L604	58C6R8J067	COIL
L702	5CPZ101K04	PEAKING COIL
L704	5CPZ101K04	PEAKING COIL
LA01	5CPZ100K04	PEAKING COIL
LY01	5CPZ101K04	PEAKING COIL
LY03	5CPZ101K04	PEAKING COIL
LY04	5CPZ100K04	PEAKING COIL
LY05	5CPZ101K04	PEAKING COIL
LY06	5CPZ560K02	PEAKING COIL
LY07	5CPZ121K02	PEAKING COIL
LY10	5CPZ101K04	PEAKING COIL
LY12	5CPX103J	PEAKING OIL
LY13	5CPZ221K02	PEAKING COIL
TY01	5800000032	COIL



Cct Ref	Parts Number	Description			
FILTERS					
L801	5PLF24A1	LINE FILER			
SF01	5PJ1952M	SAW FILTR			
SF03	5PJ1952M	SAW FILTR			
Z204	5PXFSH6R0M	FILTER			
Z206	5PTPS60MB	FILTER			
Z502	5PXFSH6R0M	FILTER			
Z504	5PTPS60MB	FILTER			
CRYSTALS					
X501	5XEX3R579C	CRYSTAL			
X502	5XEX4R436C	CRYSTAL			
X701	5XE6R0000C	CRYSTAL			
XN02	5XJ16R000E	CRYSTAL			
XNC01	HXA32R768C	CRYSTAL			
XY02	5XJX4R433B	CRYSTAL			
RESISTORS					
CCL33	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
J214	RD-AZ153J	CARBON	0.17W	5%	15K Ω
J215	RD-AZ153J	CARBON	0.17W	5%	15K Ω
J216	RD-AZ153J	CARBON	0.17W	5%	15K Ω
J265	RD-AZ101J	CARBON	0.17W	5%	100 Ω
J277	RD-AZ151J	CARBON	0.17W	5%	150 Ω
LY09	RD-2Z109J	CARBON	0.5W	5%	1 Ω
R101	RD-2Z150J	CARBON	0.5W	5%	15 Ω
R102	RD-AZ392J	CARBON	0.17W	5%	3.9K Ω
R112	RD-AZ681J	CARBON	0.17W	5%	680 Ω
R121	RS02Z470JS	METAL	2W	5%	47 Ω
R202	RV5221103	FIXED			Ω
R219	RD-AZ392J	CARBON	0.17W	5%	3.9K Ω
R242	RD-AZ822J	CARBON	0.33W	5%	8.2K Ω
R302	RD-4Z472J	CARBON	0.25W	5%	4.7K Ω
R304	RD-2Z109J	CARBON	0.5W	5%	1 Ω
R306	RS02Z271JS	METAL	2W	5%	270 Ω
R310	RD-4Z471J	CARBON	0.25W	5%	470 Ω
R311	RD-AZ332J	CARBON	0.17W	5%	3.3K Ω
R312	RD-AZ223J	CARBON	0.17W	5%	22K Ω
R313	RD-4Z472J	CARBON	0.25W	5%	4.7K Ω
R314	RD-4Z473J	CARBON	0.25W	5%	47K Ω
R315	RD-4Z229J	CARBON	0.25W	5%	2.2 Ω
R401	RS02Z912JS	METAL	2W	5%	9.1K Ω
R402	RS02Z912JS	METAL	2W	5%	9.1K Ω
R403	RS02Z912JS	METAL	2W	5%	9.1K Ω
R404	RD-AZ472J	CARBON	0.17W	5%	4.7K Ω
R406	RD-4Z562J	CARBON	0.25W	5%	5.6K Ω
R407	RS02Z512JS	METAL	2W	5%	5.1K Ω
R408	RD-4Z102J	CARBON	0.25W	5%	1K Ω
R409	RS02Z512JS	METAL	2W	5%	5.1K Ω
R410	RD-2Z104J	CARBON	0.5W	5%	100K Ω
R412	RD-2Z273J	CARBON	0.5W	5%	27K Ω
R413	RD-4Z303J	CARBON	0.25W	5%	30K Ω
R415	RD-2Z224J	CARBON	0.5W	5%	220K Ω
R418	RD-2Z103J	CARBON	0.5W	5%	10K Ω
R420	RS01Z102J	METAL	1W	5%	1K Ω [△]
R421	RD-4Z472J	CARBON	0.25W	5%	4.7K Ω
R422	RD-AZ152J	CARBON	0.17W	5%	1.5K Ω
R504	RD-4Z109J	CARBON	0.25W	5%	1 Ω
R506	RD-4Z109J	CARBON	0.25W	5%	1 Ω
R516	RD-AZ102J	CARBON	0.17W	5%	1K Ω
R517	RD-AZ101J	CARBON	0.17W	5%	100 Ω
R525	RD-AZ102J	CARBON	0.17W	5%	1K Ω
R529	RD-AZ102J	CARBON	0.17W	5%	1K Ω
R540	RD-AZ103J	CARBON	0.17W	5%	10K Ω
R549	RD-AZ221J	CARBON	0.17W	5%	220 Ω
R550	RD-AZ221J	CARBON	0.17W	5%	220 Ω
R563	RD-AZ473J	CARBON	0.17W	5%	47K Ω

Cct Ref	Parts Number	Description			
R564	RD-AZ303J	CARBON	0.17W	5%	30K Ω
R565	RD-AZ561J	CARBON	0.17W	5%	560 Ω
R573	RD-AZ103J	CARBON	0.17W	5%	10K Ω
R576	RD-AZ681J	CARBON	0.17W	5%	680 Ω
R580	RF-2Y100J	FUSIBLE	0.5W	5%	10 Ω [△]
R585	RD-AZ222J	CARBON	0.7W	5%	2.2K Ω
R601	RD-4Z221J	CARBON	0.25W	5%	220 Ω
R602	RD-4Z221J	CARBON	0.25W	5%	220 Ω
R603	RD-AZ102J	CARBON	0.17W	5%	1K Ω
R701	RD-4Z100J	CARBON	0.25W	5%	10 Ω
R713	RD-AZ101J	CARBON	0.17W	5%	100 Ω
R720	RD-AZ101J	CARBON	0.17W	5%	100 Ω
R721	RD-AZ101J	CARBON	0.17W	5%	100 Ω
R728	RD-AZ472J	CARBON	0.17W	5%	4.7K Ω
R747	RD-4Z561J	CARBON	0.25W	5%	560 Ω
R748	RD-AZ272J	CARBON	0.7W	5%	2.7K Ω
R749	RD-AZ272J	CARBON	0.7W	5%	2.7K Ω
R750	RD-AZ272J	CARBON	0.7W	5%	2.7K Ω
R773	RD-AZ103J	CARBON	0.17W	5%	10K Ω
R782	RD-AZ273J	CARBON	0.17W	5%	27K Ω
R783	RD-AZ101J	CARBON	0.17W	5%	100 Ω
R803	RX10T339J	WOUND	10W	5%	3.3 Ω [△]
R804	RS02Z473JS	METAL	2W	5%	47K Ω
R805	RS02Z562JS	METAL	2W	5%	5.6K Ω
R807	RD-4Z330J	CARBON	0.25W	5%	33 Ω
R808	RD-4Z222J	CARBON	0.25W	5%	2.2K Ω
R810	RD-4Z104J	CARBON	0.25W	5%	100K Ω
R811	RD-AZ102J	CARBON	0.17W	5%	1K Ω
R812	RD-2Z224J	CARBON	0.5W	5%	220K Ω
R813	RD-2Z224J	CARBON	0.5W	5%	220K Ω
R815	RC-2Z565KP	CARBON	0.5W	10%	5.6M Ω
R816	RS02Z470JS	METAL	2W	5%	47 Ω
R817	RF02Z338K-	FUSIBLE	2W	10%	0.33 Ω [△]
R819	RD-2Z104J	CARBON	0.5W	5%	100K Ω
R823	RS02Z562JS	METAL	2W	5%	5.6K Ω
R830	RS02Z109JS	METAL	2W	5%	1 Ω
R831	RD-4Z270J	CARBON	0.25W	5%	27 Ω
R836	RD-4Z270J	CARBON	0.25W	5%	27 Ω
R843	RD-AZ472J	CARBON	0.17W	5%	4.7K Ω
R907	RD-4Z104J	CARBON	0.25W	5%	100K Ω
R908	RD-4Z104J	CARBON	0.25W	5%	100K Ω
R909	RD-4Z104J	CARBON	0.25W	5%	100K Ω
R910	RD-2Z152J	CARBON	0.5W	5%	1.5K Ω
R911	RD-2Z152J	CARBON	0.5W	5%	1.5K Ω
R912	RD-2Z152J	CARBON	0.5W	5%	1.5K Ω
R913	RD-AZ223J	CARBON	0.17W	5%	22K Ω
R914	RD-AZ152J	CARBON	0.17W	5%	1.5K Ω
RA01	RD-AZ752J	CARBON	0.17W	5%	7.5K Ω
RC105	HRFT472JCA	S.M.CARB	0.1W	5%	4.7K Ω
RC201	HRFT182JCA	S.M.CARB	0.1W	5%	1.8K Ω
RC204	HRFT302JCA	S.M.CARB	0.1W	5%	3K Ω
RC205	HRFT271JCA	S.M.CARB	0.1W	5%	270 Ω
RC207	HRFT223JCA	S.M.CARB	0.1W	5%	22K Ω
RC208	HRFT223JCA	S.M.CARB	0.1W	5%	22K Ω
RC224	HRFT681JCA	S.M.CARB	0.1W	5%	680 Ω
RC230	HRFT152JCA	S.M.CARB	0.1W	5%	1.5K Ω
RC231	HRFT102JCA	S.M.CARB	0.1W	5%	1K Ω
RC232	HRFT753JCA	S.M.CARB	0.1W	5%	75K Ω
RC233	HRFT102JCA	S.M.CARB	0.1W	5%	1K Ω
RC235	HRFT681JCA	S.M.CARB	0.1W	5%	680 Ω
RC236	HRFT471JCA	S.M.CARB	0.1W	5%	470 Ω
RC238	HRFT154JCA	S.M.CARB	0.1W	5%	150K Ω
RC239	HRFT242JCA	S.M.CARB	0.1W	5%	2.4K Ω
RC503	HRFT683JCA	S.M.CARB	0.1W	5%	68K Ω
RC507	HRFT683JCA	S.M.CARB	0.1W	5%	68K Ω
RC509	HRFT391JCA	S.M.CARB	0.1W	5%	390 Ω

Cct Ref	Parts Number	Description			
RC510	HRFT301JCA	S.M.CARB	0.1W	5%	300 Ω
RC511	HRFT301JCA	S.M.CARB	0.1W	5%	300 Ω
RC512	HRFT680JCA	S.M.CARB	0.1W	5%	68 Ω
RC513	HRFT301JCA	S.M.CARB	0.1W	5%	300 Ω
RC514	HRFT750JCA	S.M.CARB	0.1W	5%	75 Ω
RC515	HRFT430JCA	S.M.CARB	0.1W	5%	43 Ω
RC518	HRFT101JCA	S.M.CARB	0.1W	5%	100 Ω
RC520	HRFT101JCA	S.M.CARB	0.1W	5%	100 Ω
RC521	HRFT101JCA	S.M.CARB	0.1W	5%	100 Ω
RC522	HRFT101JCA	S.M.CARB	0.1W	5%	100 Ω
RC523	HRFT151JCA	S.M.CARB	0.1W	5%	150 Ω
RC526	HRFT102JCA	S.M.CARB	0.1W	5%	1K Ω
RC527	HRFT102JCA	S.M.CARB	0.1W	5%	1K Ω
RC528	HRFT102JCA	S.M.CARB	0.1W	5%	1K Ω
RC530	HRFT103JCA	S.M.CARB	0.1W	5%	10K Ω
RC531	HRFT152JCA	S.M.CARB	0.1W	5%	1.5K Ω
RC532	HRFT102JCA	S.M.CARB	0.1W	5%	1K Ω
RC533	HRFT102JCA	S.M.CARB	0.1W	5%	1K Ω
RC534	HRFT561JCA	S.M.CARB	0.1W	5%	560 Ω
RC536	HRFT103JCA	S.M.CARB	0.1W	5%	10K Ω
RC538	HRFT822JCA	S.M.CARB	0.1W	5%	8.2K Ω
RC539	HRFT103JCA	S.M.CARB	0.1W	5%	10K Ω
RC543	HRFT104JCA	S.M.CARB	0.1W	5%	100K Ω
RC544	HRFT182JCA	S.M.CARB	0.1W	5%	1.8K Ω
RC545	HRFT153JCA	S.M.CARB	0.1W	5%	15K Ω
RC546	HRFT153JCA	S.M.CARB	0.1W	5%	15K Ω
RC547	HRFT154JCA	S.M.CARB	0.1W	5%	150K Ω
RC548	HRFT153JCA	S.M.CARB	0.1W	5%	15K Ω
RC552	HRFT153JCA	S.M.CARB	0.1W	5%	15K Ω
RC553	HRFT102JCA	S.M.CARB	0.1W	5%	1K Ω
RC554	HRFT333JCA	S.M.CARB	0.1W	5%	33K Ω
RC556	HRFT331JCA	S.M.CARB	0.1W	5%	330 Ω
RC557	HRFT391JCA	S.M.CARB	0.1W	5%	390 Ω
RC558	HRFT182JCA	S.M.CARB	0.1W	5%	1.8K Ω
RC559	HRFT472JCA	S.M.CARB	0.1W	5%	4.7K Ω
RC560	HRFT393JCA	S.M.CARB	0.1W	5%	39K Ω
RC562	HRFT471JCA	S.M.CARB	0.1W	5%	470 Ω
RC566	HRFT101JCA	S.M.CARB	0.1W	5%	100 Ω
RC567	HRFT562JCA	S.M.CARB	0.1W	5%	5.6K Ω
RC568	HRFT681JCA	S.M.CARB	0.1W	5%	680 Ω
RC569	HRFT270JCA	S.M.CARB	0.1W	5%	27 Ω
RC574	HRFT241JCA	S.M.CARB	0.1W	5%	240 Ω
RC577	HRFT470JCA	S.M.CARB	0.1W	5%	47 Ω
RC578	HRFT221JCA	S.M.CARB	0.1W	5%	220 Ω
RC581	HRFT272JCA	S.M.CARB	0.1W	5%	2.7K Ω
RC582	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RC584	HRFT223JCA	S.M.CARB	0.1W	5%	22K Ω
RC601	HRFT112JCA	S.M.CARB	0.1W	5%	1.1K Ω
RC603	HRFT563JCA	S.M.CARB	0.1W	5%	56K Ω
RC604	HRFT472JCA	S.M.CARB	0.1W	5%	4.7K Ω
RC605	HRFT472JCA	S.M.CARB	0.1W	5%	4.7K Ω
RC703	HRFT103JCA	S.M.CARB	0.1W	5%	10K Ω
RC704	HRFT392JCA	S.M.CARB	0.1W	5%	3.9K Ω
RC705	HRFT472JCA	S.M.CARB	0.1W	5%	4.7K Ω
RC706	HRFT332JCA	S.M.CARB	0.1W	5%	3.3K Ω
RC707	HRFT332JCA	S.M.CARB	0.1W	5%	3.3K Ω
RC711	HRFT221JCA	S.M.CARB	0.1W	5%	220 Ω
RC712	HRFT221JCA	S.M.CARB	0.1W	5%	220 Ω
RC715	HRFT105JCA	S.M.CARB	0.1W	5%	1M Ω
RC717	HRFT103JCA	S.M.CARB	0.1W	5%	10K Ω
RC718	HRFT101JCA	S.M.CARB	0.1W	5%	100 Ω
RC719	HRFT101JCA	S.M.CARB	0.1W	5%	100 Ω
RC722	HRFT102JCA	S.M.CARB	0.1W	5%	1K Ω
RC723	HRFT162JCA	S.M.CARB	0.1W	5%	1.6K Ω
RC724	HRFT162JCA	S.M.CARB	0.1W	5%	1.6K Ω
RC725	HRFT162JCA	S.M.CARB	0.1W	5%	1.6K Ω

Cct Ref	Parts Number	Description			
RC729	HRFT473JCA	S.M.CARB	0.1W	5%	47K Ω
RC730	HRFT332JCA	S.M.CARB	0.1W	5%	3.3K Ω
RC732	HRFT103JCA	S.M.CARB	0.1W	5%	10K Ω
RC733	HRFT103JCA	S.M.CARB	0.1W	5%	10K Ω
RC736	HRFT272JCA	S.M.CARB	0.1W	5%	2.7K Ω
RC737	HRFT273JCA	S.M.CARB	0.1W	5%	27K Ω
RC740	HRFT103JCA	S.M.CARB	0.1W	5%	10K Ω
RC744	HRFT103JCA	S.M.CARB	0.1W	5%	10K Ω
RC775	HRFT472JCA	S.M.CARB	0.1W	5%	4.7K Ω
RC776	HRFT472JCA	S.M.CARB	0.1W	5%	4.7K Ω
RC777	HRFT472JCA	S.M.CARB	0.1W	5%	4.7K Ω
RC778	HRFT472JCA	S.M.CARB	0.1W	5%	4.7K Ω
RC780	HRFT473JCA	S.M.CARB	0.1W	5%	47K Ω
RC781	HRFT472JCA	S.M.CARB	0.1W	5%	4.7K Ω
RCJ01	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ02	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ03	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ04	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ05	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ06	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ07	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ11	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ12	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ14	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ17	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ21	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ22	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ23	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ24	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ25	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ29	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ31	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ32	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ35	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ36	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ37	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ38	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ39	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ40	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ41	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ42	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ43	HRFT102JCA	S.M.CARB	0.1W	5%	1K Ω
RCJ44	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ45	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ47	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ48	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ50	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ51	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ52	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ53	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ54	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ55	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ56	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ57	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCJ58	HRFT000-CA	S.M.CARB	0.1W	5%	0 Ω
RCL37	HRFT472JCA	S.M.CARB	0.1W	5%	4.7K Ω
RCL38	HRFT103JCA	S.M.CARB	0.1W	5%	10K Ω
RCN01	HRFT474JCA	S.M.CARB	0.1W	5%	470K Ω
RCN07	HRFT103JCA	S.M.CARB	0.1W	5%	10K Ω
RCN09	HRFT332JCA	S.M.CARB	0.1W	5%	3.3K Ω
RCN10	HRFT103JCA	S.M.CARB	0.1W	5%	10K Ω
RCN11	HRFT103JCA	S.M.CARB	0.1W	5%	10K Ω
RCN20	HRFT103JCA	S.M.CARB	0.1W	5%	10K Ω
RCN23	HRFT154JCA	S.M.CARB	0.1W	5%	150K Ω
RCN24	HRFT154JCA	S.M.CARB	0.1W	5%	150K Ω
RCN27	HRFT105JCA	S.M.CARB	0.1W	5%	1M Ω

Cct Ref	Parts Number	Description			
RCN31	HRFT182JCA	S.M.CARB	0.1W	5%	1.8K Ω
RCN32	HRFT182JCA	S.M.CARB	0.1W	5%	1.8K Ω
RCN34	HRFT333JCA	S.M.CARB	0.1W	5%	33K Ω
RCN40	HRFT104JCA	S.M.CARB	0.1W	5%	100K Ω
RCN41	HRFT106JCA	S.M.CARB	0.1W	5%	10M Ω
RCN45	HRFT302JCA	S.M.CARB	0.1W	5%	3K Ω
RCN51	HRFT511FCA	S.M.CARB	0.1W	1%	510 Ω
RCN52	HRFT472JCA	S.M.CARB	0.1W	5%	4.7K Ω
RCN60	HRFT103JCA	S.M.CARB	0.1W	5%	10K Ω
RCQ04	HRFT132JCA	S.M.CARB	0.1W	5%	1.3K Ω
RCQ05	HRFT132JCA	S.M.CARB	0.1W	5%	1.3K Ω
RCQ06	HRFT161JCA	S.M.CARB	0.1W	5%	160 Ω
RCQ07	HRFT161JCA	S.M.CARB	0.1W	5%	160 Ω
RCQ09	HRFT221JCA	S.M.CARB	0.1W	5%	220 Ω
RCQ10	HRFT221JCA	S.M.CARB	0.1W	5%	220 Ω
RCQ11	HRFT202JCA	S.M.CARB	0.1W	5%	2K Ω
RCQ13	HRFT361JCA	S.M.CARB	0.1W	5%	360 Ω
RCQ14	HRFT511FCA	S.M.CARB	0.1W	1%	510 Ω
RCQ16	HRFT361JCA	S.M.CARB	0.1W	5%	360 Ω
RCQ17	HRFT221JCA	S.M.CARB	0.1W	5%	220 Ω
RCY01	HRFT242JCA	S.M.CARB	0.1W	5%	2.4K Ω
RCY02	HRFT152JCA	S.M.CARB	0.1W	5%	1.5K Ω
RCY03	HRFT472JCA	S.M.CARB	0.1W	5%	4.7K Ω
RCY04	HRFT102JCA	S.M.CARB	0.1W	5%	1K Ω
RCY05	HRFT472JCA	S.M.CARB	0.1W	5%	4.7K Ω
RCY07	HRFT102JCA	S.M.CARB	0.1W	5%	1K Ω
RCY08	HRFT102JCA	S.M.CARB	0.1W	5%	1K Ω
RCY09	HRFT123JCA	S.M.CARB	0.1W	5%	12K Ω
RCY10	HRFT102JCA	S.M.CARB	0.1W	5%	1K Ω
RCY11	HRFT823JCA	S.M.CARB	0.1W	5%	82K Ω
RCY13	HRFT152JCA	S.M.CARB	0.1W	5%	1.5K Ω
RCY15	HRFT271JCA	S.M.CARB	0.1W	5%	270 Ω
RCY16	HRFT822JCA	S.M.CARB	0.1W	5%	8.2K Ω
RCY17	HRFT822JCA	S.M.CARB	0.1W	5%	8.2K Ω
RCY18	HRFT182JCA	S.M.CARB	0.1W	5%	1.8K Ω
RCY19	HRFT202JCA	S.M.CARB	0.1W	5%	2K Ω
RCY20	HRFT202JCA	S.M.CARB	0.1W	5%	2K Ω
RCY23	HRFT132JCA	S.M.CARB	0.1W	5%	1.3K Ω
RCY24	HRFT471JCA	S.M.CARB	0.1W	5%	470 Ω
RCY25	HRFT152JCA	S.M.CARB	0.1W	5%	1.5K Ω
RCY26	HRFT223JCA	S.M.CARB	0.1W	5%	22K Ω
RCY30	HRFT102JCA	S.M.CARB	0.1W	5%	1K Ω
RCY32	HRFT103JCA	S.M.CARB	0.1W	5%	10K Ω
RCY33	HRFT333JCA	S.M.CARB	0.1W	5%	33K Ω
RCY34	HRFT272JCA	S.M.CARB	0.1W	5%	2.7K Ω
RCY35	HRFT242JCA	S.M.CARB	0.1W	5%	2.4K Ω
RCY36	HRFT202JCA	S.M.CARB	0.1W	5%	2K Ω
RCY37	HRFT822JCA	S.M.CARB	0.1W	5%	8.2K Ω
RCY38	HRFT511JCA	S.M.CARB	0.1W	5%	510 Ω
RCY39	HRFT472JCA	S.M.CARB	0.1W	5%	4.7K Ω
RCY40	HRFT183JCA	S.M.CARB	0.1W	5%	18K Ω
RCY41	HRFT225JCA	S.M.CARB	0.1W	5%	2.2M Ω
RCY42	HRFT102JCA	S.M.CARB	0.1W	5%	1K Ω
RCY43	HRFT562JCA	S.M.CARB	0.1W	5%	5.6K Ω
RCY44	HRFT221JCA	S.M.CARB	0.1W	5%	220 Ω
RCY45	HRFT391JCA	S.M.CARB	0.1W	5%	390 Ω
RCY48	HRFT331JCA	S.M.CARB	0.1W	5%	330 Ω
RCY50	HRFT334JCA	S.M.CARB	0.1W	5%	330K Ω
RCY51	HRFT302JCA	S.M.CARB	0.1W	5%	3K Ω
RCY52	HRFT122JCA	S.M.CARB	0.1W	5%	1.2K Ω
RCY53	HRFT122JCA	S.M.CARB	0.1W	5%	1.2K Ω
RCY55	HRFT103JCA	S.M.CARB	0.1W	5%	10K Ω
RCY56	HRFT512JCA	S.M.CARB	0.1W	5%	5.1K Ω
RCY57	HRFT103JCA	S.M.CARB	0.1W	5%	10K Ω
RCY59	HRFT470JCA	S.M.CARB	0.1W	5%	47 Ω
RCY60	HRFT271JCA	S.M.CARB	0.1W	5%	270 Ω

Cct Ref	Parts Number	Description			
RCY61	HRFT271JCA	S.M.CARB	0.1W	5%	270 Ω
RCY70	HRFT104JCA	S.M.CARB	0.1W	5%	100K Ω
RCY71	HRFT104JCA	S.M.CARB	0.1W	5%	100K Ω
RCY72	HRFT103JCA	S.M.CARB	0.1W	5%	10K Ω
RCY74	HRFT154JCA	S.M.CARB	0.1W	5%	150K Ω
RCY75	HRFT154JCA	S.M.CARB	0.1W	5%	150K Ω
RCY77	HRFT223JCA	S.M.CARB	0.1W	5%	22K Ω
RCY78	HRFT273JCA	S.M.CARB	0.1W	5%	27K Ω
RCY79	HRFT104JCA	S.M.CARB	0.1W	5%	100K Ω
RCY80	HRFT104JCA	S.M.CARB	0.1W	5%	100K Ω
RCY81	HRFT103JCA	S.M.CARB	0.1W	5%	10K Ω
RCY82	HRFT222JCA	S.M.CARB	0.1W	5%	2.2K Ω
RCY83	HRFT471JCA	S.M.CARB	0.1W	5%	470 Ω
RCY84	HRFT473JCA	S.M.CARB	0.1W	5%	47K Ω
RN08	RD-AZ682J	CARBON	0.17W	5%	6.8K Ω
RN12	RD-AZ103J	CARBON	0.17W	5%	10K Ω
RN13	RD-AZ103J	CARBON	0.17W	5%	10K Ω
RN14	RD-AZ103J	CARBON	0.17W	5%	10K Ω
RN15	RD-AZ103J	CARBON	0.17W	5%	10K Ω
RN19	RD-AZ103J	CARBON	0.17W	5%	10K Ω
RN20	RD-AZ472J	CARBON	0.17W	5%	4.7K Ω
RN21	RD-AZ301J	CARBON	0.17W	5%	300 Ω
RN22	RD-AZ301J	CARBON	0.17W	5%	300 Ω
RN25	RD-AZ273J	CARBON	0.17W	5%	27K Ω
RN26	RD-AZ273J	CARBON	0.17W	5%	27K Ω
RN29	RD-AZ182J	CARBON	0.17W	5%	1.8K Ω
RN33	RD-AZ153J	CARBON	0.17W	5%	15K Ω
RN35	RD-AZ221J	CARBON	0.17W	5%	220 Ω
RN36	RD-AZ221J	CARBON	0.17W	5%	220 Ω
RN38	RD-AZ101J	CARBON	0.17W	5%	100 Ω
RN39	RD-AZ101J	CARBON	0.17W	5%	100 Ω
RN43	RD-AZ332J	CARBON	0.17W	5%	3.3K Ω
RN44	RD-AZ332J	CARBON	0.17W	5%	3.3K Ω
RN46	RD-AZ102J	CARBON	0.17W	5%	1K Ω
RN47	RD-AZ102J	CARBON	0.17W	5%	1K Ω
RN48	RD-AZ102J	CARBON	0.17W	5%	1K Ω
RN53	RS02Z399JS	METAL	2W	5%	3.9 Ω
RN56	RD-AZ472J	CARBON	0.17W	5%	4.7K Ω
RN57	RD-AZ472J	CARBON	0.17W	5%	4.7K Ω
RN58	RD-AZ472J	CARBON	0.17W	5%	4.7K Ω
RN59	RD-AZ472J	CARBON	0.17W	5%	4.7K Ω
RN70	RD-AZ472J	CARBON	0.17W	5%	4.7K Ω
RQ01	RD-AZ271J	CARBON	0.17W	5%	270 Ω
RQ03	RD-AZ271J	CARBON	0.17W	5%	270 Ω
RQ08	RD-AZ271J	CARBON	0.17W	5%	270 Ω
RQ12	RD-AZ112J	CARBON	0.17W	5%	1.1K Ω
RQ13	RD-AZ102J	CARBON	0.17W	5%	1K Ω
RQ15	RD-AZ221J	CARBON	0.17W	5%	220 Ω
RQ19	RD-AZ271J	CARBON	0.17W	5%	270 Ω
RQ20	RD-AZ153J	CARBON	0.17W	5%	15K Ω
RY05	RD-AZ102J	CARBON	0.17W	5%	1K Ω
RY06	RD-AZ102J	CARBON	0.17W	5%	1K Ω
RY12	RD-AZ182J	CARBON	0.17W	5%	1.8K Ω
RY21	RD-AZ229J	CARBON	0.17W	5%	2.2 Ω
RY22	RD-AZ229J	CARBON	0.17W	5%	2.2 Ω
RY27	RD-AZ333J	CARBON	0.17W	5%	33K Ω
RY28	RD-AZ513J	CARBON	0.17W	5%	51K Ω
RY29	RD-AZ303J	CARBON	0.17W	5%	30K Ω
RY31	RD-AZ513J	CARBON	0.17W	5%	51K Ω
RY46	RD-AZ391J	CARBON	0.17W	5%	390K Ω
RY47	RD-AZ561J	CARBON	0.17W	5%	560 Ω
RY48	RD-AZ820J	CARBON	0.17W	5%	82 Ω
RY54	RD-AZ122J	CARBON	0.17W	5%	1.2K Ω
RY58	RD-AZ151J	CARBON	0.17W	5%	150 Ω
RY73	RD-AZ103J	CARBON	0.17W	5%	10K Ω
RY76	RD-AZ332J	CARBON	0.17W	5%	3.3K Ω

Cct Ref	Parts Number	Description			
CAPACITORS					
C107	CEXF1H100V	ELECT	50V	10µF	
C120	CEXD1H109F	ELECT	50V	1µF	
C225	CEXF1H220V	ELECT	50V	22µF	
C226	CEXF1H100V	ELECT	50V	10µF	
C227	CEXF1H109V	ELECT	50V	1µF	
C230	CEXF1C471V	ELECT	16V	470µF	
C233	CEXF1E101V	ELECT	25V	100µF	
C237	CEXF1E331V	ELECT	25V	330µF	
C301	CCZB1H102K	CERAMIC	50V	1nF	
C302	CCZB1H102K	CERAMIC	50V	1nF	
C305	CCXB2H471K	CERAMIC	500V	470pF	
C306	CCXB2H102K	CERAMIC	500V	1nF	
C307	CEXF2C220V	ELECT	160V	22µF	
C308	CEXF1E471V	ELECT	25V	470µF	
C309	CCZF1H103Z	CERAMIC	50V	10nF	
C310	CMXM2A104J	MYLAR	100V	100nF	
C311	CMXM2A103J	MYLAR	100V	10nF	
C312	CMXM2A102J	MYLAR	100V	1nF	
C313	CMXM2A104J	MYLAR	100V	100nF	
C401	CCXB2H472K	CERAMIC	500V	4700pF	
C402	CCXB2H221K	CERAMIC	500V	220pF	
C403	CCXB2H472K	CERAMIC	500V	4700pF	
C404	CCXB2H102K	CERAMIC	500V	1nF	
C406	CCXB3D471K	CERAMIC	2kV	470pF	△
C407	CXSL2H470J	CERAMIC	500V	47pF	
C409	CEXF2C220V	ELECT	160V	22µF	
C410	CEXF2C109V	ELECT	160V	1µF	
C413	CEXF2E330V	ELECT	250V	33µF	
C418	CMXL2E104K	MYLAR	250V	100nF	
C526	CCZB1H151K	CERAMIC	50V	150pF	
C543	CEXF1H229V	ELECT	50V	2.2µF	
C546	CMXM2A104J	MYLAR	100V	100nF	
C547	CMXM2A473J	MYLAR	100V	47nF	
C548	CMXM2A104J	MYLAR	100V	100nF	
C553	CEXF1H100V	ELECT	50V	10µF	
C556	CEXF1E470V	ELECT	25V	47µF	
C557	CEXF1E470V	ELECT	25V	47µF	
C559	CEXF1E470V	ELECT	25V	47µF	
C560	CEXF1E470V	ELECT	25V	47µF	
C564	CEXF1E101V	ELECT	25V	100µF	
C565	CEXF1E101V	ELECT	25V	100µF	
C566	CEXF1C102V	ELECT	16V	1000µF	
C567	CEXF1C102V	ELECT	16V	1000µF	
C570	CEXF1E101V	ELECT	25V	100µF	
C571	CEXF1H478V	ELECT	50V	470nF	
C580	CBZR1C472M	CERAMIC	16V	4700pF	
C583	CEXF1E101V	ELECT	25V	100µF	
C591	CEXF1E101V	ELECT	25V	100µF	
C609	CEXF1H220V	ELECT	50V	22µF	
C610	CEXF1E471C	ELECT	25V	470µF	
C611	CEXF1E470V	ELECT	25V	47µF	
C613	CMXB1H224J	MYLAR	50V	220nF	
C614	CEXF1H470V	ELECT	50V	47µF	
C711	CCZF1H103Z	CERAMIC	50V	10nF	
C719	CEXF1C470A	ELECT	16V	47µF	
C720	CEXF1A471V	ELECT	10V	470µF	
C721	CEXF1C101A	ELECT	16V	100µF	
C722	CEXF1A471V	ELECT	10V	470µF	
C723	CEXF1C101A	ELECT	16V	100µF	
C724	CEXF1E221V	ELECT	25V	220µF	
C801	CL1JB3474K	FILM	250V	470nF	
C803	CCXF3A472Z	CERAMIC	1kV	4700pF	△
C804	CCXF3A472Z	CERAMIC	1kV	4700pF	△
C807	CCZB1H102K	CERAMIC	50V	1nF	
C808	CH1AFE472M	CERAMIC	4kV	4700pF	△

Cct Ref	Parts Number	Description			
C810	CCXB3D681K	CERAMIC	2kV	680pF	△
C813	CCXF1H103Z	CERAMIC	50V	10nF	
C816	CEXF2A100V	ELECT	100V	10µF	
C817	CEXF1E221C	ELECT	25V	220µF	
C818	CEXF1E331V	ELECT	25V	330µF	
C819	CEYN2G181P	ELECT	400V	180µF	
C820	CEYF2C221V	ELECT	160V	220µF	
C822	CEXF1C102C	ELECT	16V	1000µF	
C823	CEXF2G220V	ELECT	400V	22µF	
C824	CEXF1H470V	ELECT	50V	47µF	
C825	CEXF1C102V	ELECT	16V	1000µF	
C826	CEXF1E101C	ELECT	25V	100µF	
C827	CEXF1E102C	ELECT	25V	1000µF	
C828	CEXF1E471V	ELECT	25V	470µF	
C829	CEXF1E101C	ELECT	25V	100µF	
C830	CEXF1E221V	ELECT	25V	220µF	
C832	CEXF1C102C	ELECT	16V	1000µF	
C833	CEXF1C102C	ELECT	16V	1000µF	
C834	CEXF1E221C	ELECT	25V	220µF	
C835	CMXE2J222J	MYLAR	630V	2200pF	
C836	CBZF1H104Z	CERAMIC	50V	100nF	
C837	CBZF1H104Z	CERAMIC	50V	100nF	
C838	CBZF1H104Z	CERAMIC	50V	100nF	
C840	CEXF1E470V	ELECT	25V	47µF	
C841	CCXF3A472Z	CERAMIC	1kV	4700pF	△
C842	CCXF3A472Z	CERAMIC	1kV	4700pF	△
C846	CCZF1H103Z	CERAMIC	50V	10nF	
C904	CMXL2E104K	MYLAR	250V	100nF	
C905	CMXL2E104K	MYLAR	250V	100nF	
C910	CCXF1H473Z	CERAMIC	50V	47nF	
C911	CCXB3D102K	CERAMIC	2kV	1nF	△
C913	CEXF1C331V	ELECT	16V	330µF	
CC103	HCBK103KCA	S.M.CAP	50V	10nF	
CC104	HCBK104KCA	S.M.CAP	50V	100nF	
CC105	HCBK104KCA	S.M.CAP	50V	100nF	
CC118	HCQK221JCA	S.M.CAP	50V	220pF	
CC119	HCQK221JCA	S.M.CAP	50V	220pF	
CC201	HCBK333KCA	S.M.CAP	50V	33nF	
CC202	HCBK223KCA	S.M.CAP	50V	22nF	
CC205	HCQK820JCA	S.M.CAP	50V	82pF	
CC206	HCBK104KCA	S.M.CAP	50V	100nF	
CC208	HCBK103KCA	S.M.CAP	50V	10nF	
CC209	HCBH224KCA	S.M.CAP	50V	220nF	
CC210	HCBK104KCA	S.M.CAP	50V	100nF	
CC212	HCBK104KCA	S.M.CAP	50V	100nF	
CC213	HCBK102KCA	S.M.CAP	50V	1nF	
CC214	HCQK560JCA	S.M.CAP	50V	56pF	
CC215	HCQK220JCA	S.M.CAP	50V	22pF	
CC219	HCQK809DCA	CERAMIC	50V	8pF	
CC220	HCBK472KCA	S.M.CAP	50V	4700pF	
CC221	HCBK104KCA	S.M.CAP	50V	100nF	
CC223	HCBK333KCA	S.M.CAP	50V	33nF	
CC224	HCBK103KCA	S.M.CAP	50V	10nF	
CC225	HCBK104KCA	S.M.CAP	50V	100nF	
CC228	HCTAF229MB	TANT	16V	2.2µF	
CC235	HCQK221JCA	S.M.CAP	50V	220pF	
CC236	HCQK221JCA	S.M.CAP	50V	220pF	
CC501	HCBK104KCA	S.M.CAP	50V	100nF	
CC502	HCBK104KCA	S.M.CAP	50V	100nF	
CC503	HCTAJ478MB	TANT	35V	470nF	
CC505	HCTAJ478MB	TANT	35V	470nF	
CC507	HCBK104KCA	S.M.CAP	50V	100nF	
CC508	HCBK104KCA	S.M.CAP	50V	100nF	
CC509	HCBK104KCA	S.M.CAP	50V	100nF	
CC510	HCBK103KCA	S.M.CAP	50V	10nF	
CC511	HCBK104KCA	S.M.CAP	50V	100nF	

Cct Ref	Parts Number	Description		
CC512	HCBK103KCA	S.M.CAP	50V	10nF
CC513	HCBK104KCA	S.M.CAP	50V	100nF
CC517	HCBK102KCA	S.M.CAP	50V	1nF
CC518	HCBK102KCA	S.M.CAP	50V	1nF
CC520	HCBK102KCA	S.M.CAP	50V	1nF
CC523	HCQK160JCA	CERAMIC	50V	16pF
CC524	HCQK130JCA	S.M.CAP	50V	13pF
CC525	HCQK181JCA	S.M.CAP	50V	180pF
CC526	HCQK181JCA	S.M.CAP	50V	180pF
CC527	HCQK181JCA	S.M.CAP	50V	180pF
CC528	HCQK181JCA	S.M.CAP	50V	180pF
CC529	HCBK223KCA	S.M.CAP	50V	22nF
CC532	HCQK220JCA	S.M.CAP	50V	22pF
CC533	HCBK392KCA	S.M.CAP	50V	3900pF
CC534	HCBK472KCA	S.M.CAP	50V	4700pF
CC535	HCBK472KCA	S.M.CAP	50V	4700pF
CC536	HCBK332KCA	S.M.CAP	50V	3300pF
CC537	HCQK560JCA	S.M.CAP	50V	56pF
CC538	HCBK104KCA	S.M.CAP	50V	100nF
CC539	HCQK221JCA	S.M.CAP	50V	220pF
CC540	HCTBF100MB	TANT	16V	10μF
CC541	HCBK223KCA	S.M.CAP	50V	22nF
CC542	HCTAJ478MB	TANT	35V	470nF
CC544	HCQK100DCA	S.M.CAP	50V	10pF
CC549	HCBK104KCA	S.M.CAP	50V	100nF
CC550	HCBK104KCA	S.M.CAP	50V	100nF
CC551	HCBK104KCA	S.M.CAP	50V	100nF
CC552	HCTAF229MB	TANT	16V	2.2μF
CC554	HCTAF229MB	TANT	16V	2.2μF
CC561	HCTAF229MB	TANT	16V	2.2μF
CC568	HCTAH109MB	TANT	25V	1μF
CC569	HCTAH109MB	TANT	25V	1μF
CC572	HCTAJ478MB	TANT	35V	470nF
CC573	HCBK102KCA	S.M.CAP	50V	1nF
CC576	HCBK472KCA	S.M.CAP	50V	4700pF
CC581	HCBK102KCA	S.M.CAP	50V	1nF
CC582	HCBK102KCA	S.M.CAP	50V	1nF
CC585	HCBK102KCA	S.M.CAP	50V	1nF
CC586	HCBK103KCA	S.M.CAP	50V	10nF
CC587	HCBK103KCA	S.M.CAP	50V	10nF
CC589	HCBK102KCA	S.M.CAP	50V	1nF
CC590	HCBK103KCA	S.M.CAP	50V	10nF
CC591	HCBK102KCA	S.M.CAP	50V	1nF
CC601	HCBK102KCA	S.M.CAP	50V	1nF
CC602	HCBK103KCA	S.M.CAP	50V	10nF
CC603	HCBK102KCA	S.M.CAP	50V	1nF
CC604	HCBK103KCA	S.M.CAP	50V	10nF
CC605	HCQK101JCA	S.M.CAP	50V	100pF
CC606	HCQK101JCA	S.M.CAP	50V	100pF
CC607	HCBK102KCA	S.M.CAP	50V	1nF
CC608	HCBK102KCA	S.M.CAP	50V	1nF
CC612	HCBK102KCA	S.M.CAP	50V	1nF
CC616	HCBK682KCA	S.M.CAP	50V	6800pF
CC701	HCBK104KCA	S.M.CAP	50V	100nF
CC704	HCBK472KCA	S.M.CAP	50V	4700pF
CC705	HCBH224KCA	S.M.CAP	50V	220nF
CC706	HCBK103KCA	S.M.CAP	50V	10nF
CC707	HCQK330JCA	S.M.CAP	50V	33pF
CC708	HCQK330JCA	S.M.CAP	50V	33pF
CC709	HCBK103KCA	S.M.CAP	50V	10nF
CC713	HCBK103KCA	S.M.CAP	50V	10nF
CC715	HCBK103KCA	S.M.CAP	50V	10nF
CC716	HCQK221JCA	S.M.CAP	50V	220pF
CC717	HCBK333KCA	S.M.CAP	50V	33nF
CC720	HCBK104KCA	S.M.CAP	50V	100nF
CC721	HCBK104KCA	S.M.CAP	50V	100nF

Cct Ref	Parts Number	Description		
CC725	HCBK103KCA	S.M.CAP	50V	10nF
CC727	HCBK103KCA	S.M.CAP	50V	10nF
CC728	HCBK103KCA	S.M.CAP	50V	10nF
CC729	HCTAH109MB	TANT	25V	1μF
CC730	HCQK471JCA	S.M.CAP	50V	470pF
CC731	HCQK561JCA	S.M.CAP	50V	560pF
CCL29	HCTBF100MB	TANT	16V	10μF
CCN01	HCBK104KCA	S.M.CAP	50V	100nF
CCN02	HCBK104KCA	S.M.CAP	50V	100nF
CCN07	HCBK103KCA	S.M.CAP	50V	10nF
CCN08	HCBK102KCA	S.M.CAP	50V	1nF
CCN09	HCBK103KCA	S.M.CAP	50V	10nF
CCN10	HCBK103KCA	S.M.CAP	50V	10nF
CCN11	HCBK102KCA	S.M.CAP	50V	1nF
CCN12	HCBK102KCA	S.M.CAP	50V	1nF
CCN14	HCBK103KCA	S.M.CAP	50V	10nF
CCN15	HCBK332KCA	S.M.CAP	50V	3300pF
CCN17	HCBK104KCA	S.M.CAP	50V	100nF
CCN20	HCBK103KCA	S.M.CAP	50V	10nF
CCN21	HCBK223KCA	S.M.CAP	50V	22nF
CCN29	HCBK223KCA	S.M.CAP	50V	22nF
CCN31	HCBK104KCA	S.M.CAP	50V	100nF
CCN37	HCTAH109MB	TANT	25V	1μF
CCN44	HCBK104KCA	S.M.CAP	50V	100nF
CCN45	HCBK104KCA	S.M.CAP	50V	100nF
CCN48	HCBK104KCA	S.M.CAP	50V	100nF
CCN49	HCBK103KCA	S.M.CAP	50V	10nF
CCN50	HCBK104KCA	S.M.CAP	50V	100nF
CCN52	HCBK103KCA	S.M.CAP	50V	10nF
CCN57	HCTBF100MB	TANT	16V	10μF
CCN58	HCTAH109MB	TANT	25V	1μF
CCN60	HCQK100DCA	S.M.CAP	50V	10pF
CCQ01	HCBK103KCA	S.M.CAP	50V	10nF
CCY01	HCBK103KCA	S.M.CAP	50V	10nF
CCY02	HCBK104KCA	S.M.CAP	50V	100nF
CCY03	HCBK103KCA	S.M.CAP	50V	10nF
CCY04	HCBK103KCA	S.M.CAP	50V	10nF
CCY05	HCBK223KCA	S.M.CAP	50V	22nF
CCY06	HCBK104KCA	S.M.CAP	50V	100nF
CCY07	HCBK104KCA	S.M.CAP	50V	100nF
CCY08	HCBK104KCA	S.M.CAP	50V	100nF
CCY09	HCBK104KCA	S.M.CAP	50V	100nF
CCY11	HCBK103KCA	S.M.CAP	50V	10nF
CCY14	HCBK104KCA	S.M.CAP	50V	100nF
CCY15	HCBK103KCA	S.M.CAP	50V	10nF
CCY16	HCBH224KCA	S.M.CAP	50V	220nF
CCY19	HCBK104KCA	S.M.CAP	50V	100nF
CCY20	HCBK103KCA	S.M.CAP	50V	10nF
CCY21	HCBK223KCA	S.M.CAP	50V	22nF
CCY22	HCBK104KCA	S.M.CAP	50V	100nF
CCY23	HCBK104KCA	S.M.CAP	50V	100nF
CCY24	HCBK104KCA	S.M.CAP	50V	100nF
CCY25	HCQK101JCA	S.M.CAP	50V	100pF
CCY26	HCBK104KCA	S.M.CAP	50V	100nF
CCY27	HCBK104KCA	S.M.CAP	50V	100nF
CCY28	HCBK104KCA	S.M.CAP	50V	100nF
CCY29	HCBK104KCA	S.M.CAP	50V	100nF
CCY30	HCBK104KCA	S.M.CAP	50V	100nF
CCY31	HCBK104KCA	S.M.CAP	50V	100nF
CCY32	HCBK153KCA	S.M.CAP	50V	15nF
CCY33	HCQK101JCA	S.M.CAP	50V	100pF
CCY34	HCBK103KCA	S.M.CAP	50V	10nF
CCY35	HCBK473KCA	S.M.CAP	50V	47nF
CCY36	HCBK473KCA	S.M.CAP	50V	47nF
CCY37	HCBK102KCA	S.M.CAP	50V	1nF
CCY38	HCBK472KCA	S.M.CAP	50V	4700pF

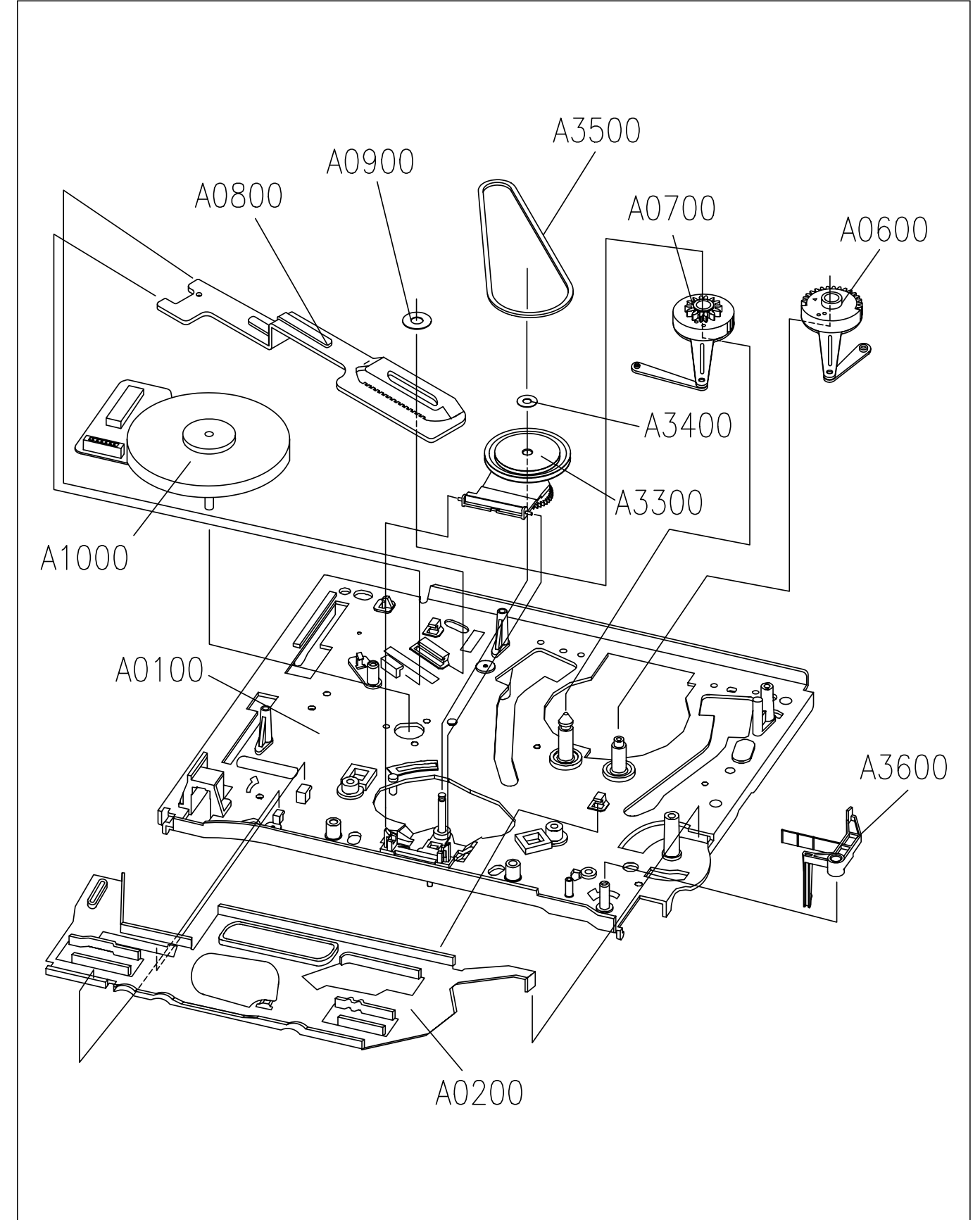
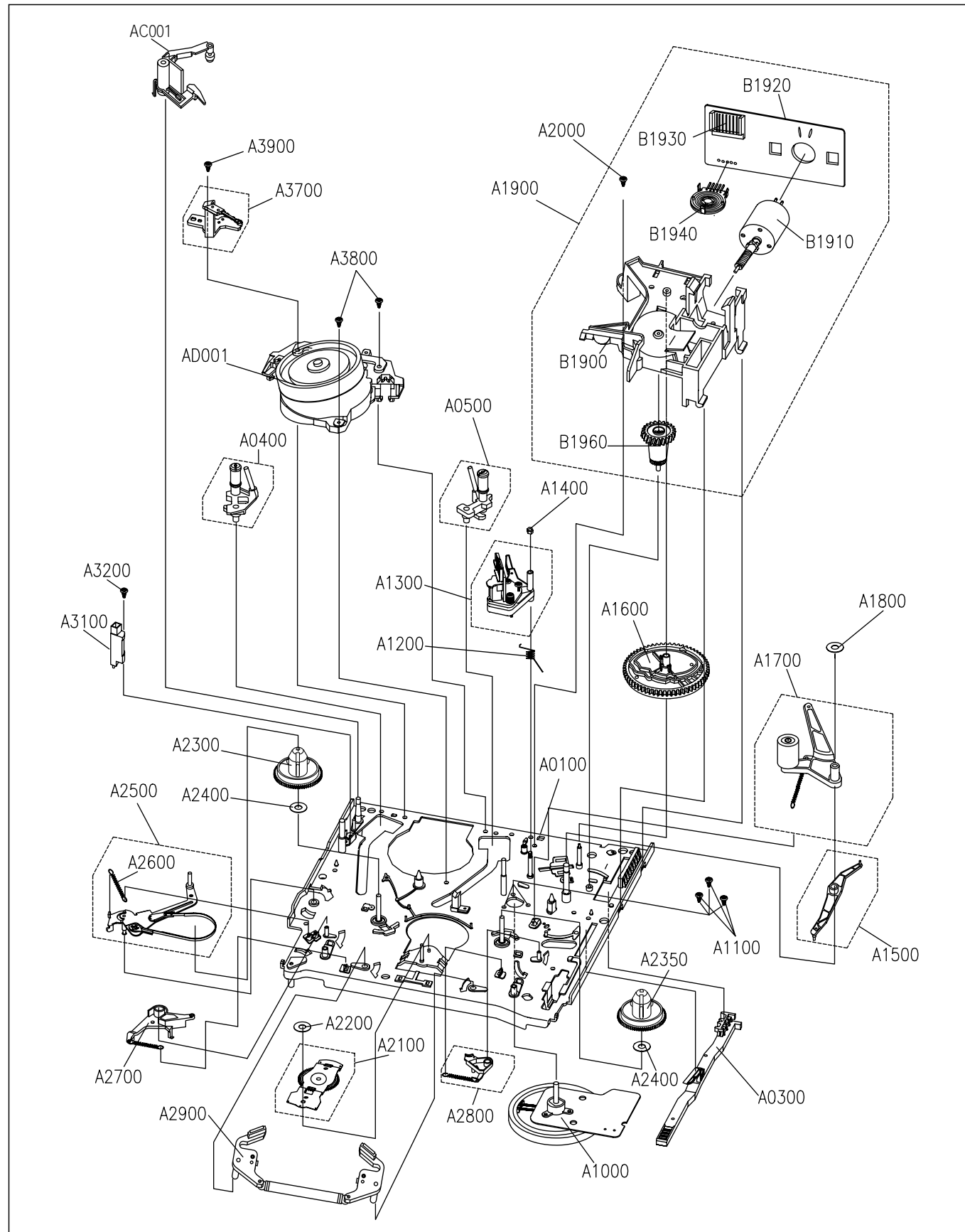
Cct Ref	Parts Number	Description		
CCY39	HCQK220JCA	S.M.CAP	50V	22pF
CCY41	HCBK222KCA	S.M.CAP	50V	2200pF
CCY42	HCQK270JCA	S.M.CAP	50V	27pF
CCY43	HCBK104KCA	S.M.CAP	50V	100nF
CCY44	HCBK103KCA	S.M.CAP	50V	10nF
CCY46	HCQK201JCA	S.M.CAP	50V	200pF
CCY47	HCBK333KCA	S.M.CAP	50V	33nF
CCY48	HCQK391JCA	S.M.CAP	50V	390pF
CCY50	HCBK223KCA	S.M.CAP	50V	22nF
CCY51	HCBK103KCA	S.M.CAP	50V	10nF
CCY52	HCQK101JCA	S.M.CAP	50V	100pF
CCY54	HCBK104KCA	S.M.CAP	50V	100nF
CCY55	HCBK103KCA	S.M.CAP	50V	10nF
CCY56	HCTBF100MB	TANT	16V	10µF
CCY60	HCTAH109MB	TANT	25V	1µF
CCY61	HCTAH109MB	TANT	25V	1µF
CCY62	HCTAH109MB	TANT	25V	1µF
CCY63	HCTBH479MB	TANT	25V	4.7µF
CCY64	HCTAH109MB	TANT	25V	1µF
CCY65	HCTAH109MB	TANT	25V	1µF
CCY66	HCTAH109MB	TANT	25V	1µF
CCY67	HCTAH109MB	TANT	25V	1µF
CCY68	HCTBF100MB	TANT	16V	10µF
CCY69	HCTAJ108MB	TANT	35V	100nF
CCY70	HCTAH109MB	TANT	25V	1µF
CCY71	HCTAH109MB	TANT	25V	1µF
CCY74	HCTBF100MB	TANT	16V	10µF
CCY75	HCTBF100MB	TANT	16V	10µF
CCY76	HCTBF100MB	TANT	16V	10µF
CCY77	HCTBF100MB	TANT	16V	10µF
CCY79	HCTAH109MB	TANT	25V	1µF
CCY84	HCBK104KCA	S.M.CAP	50V	100nF
CCY89	HCBK103KCA	S.M.CAP	50V	10nF
CCY91	HCBK104KCA	S.M.CAP	50V	100nF
CCY92	HCQK220JCA	S.M.CAP	50V	22pF
CCY93	HCQK509DCA	S.M.CAP	50V	5pF
CCY98	HCBK102KCA	S.M.CAP	50V	1nF
CCY99	HCBK104KCA	S.M.CAP	50V	100nF
CL28	CEXD1H229F	ELECT	50V	2.2µF
CL30	CEXD1H229F	ELECT	50V	2.2µF
CN01	CCZF1H103Z	CERAMIC	50V	10nF
CN03	CCZF1H103Z	CERAMIC	50V	10nF
CN04	CCZF1H103Z	CERAMIC	50V	10nF
CN05	CCZF1H103Z	CERAMIC	50V	10nF
CN06	CCZF1H103Z	CERAMIC	50V	10nF
CN13	CCZF1H103Z	CERAMIC	50V	10nF
CN18	CCZF1H103Z	CERAMIC	50V	10nF
CN19	CCZF1H103Z	CERAMIC	50V	10nF
CN23	CXCH1H180J	CERAMIC	50V	18pF
CN24	CXCH1H180J	CERAMIC	50V	18pF
CN25	CXCH1H220J	CERAMIC	50V	22pF
CN26	CXCH1H220J	CERAMIC	50V	22pF
CN27	CEXF1C470A	ELECT	16V	47µF
CN30	CEXF1C470A	ELECT	16V	47µF
CN31	CEXF1C470A	ELECT	16V	47µF
CN33	CBZF1H104Z	CERAMIC	50V	100nF
CN34	CEXF1A471V	ELECT	10V	470µF
CN35	CEXF1C470A	ELECT	16V	47µF
CN36	CEXF1C100A	ELECT	16V	10µF
CN38	CEXF1E221V	ELECT	25V	220µF
CN46	CEXF1C101A	ELECT	16V	100µF
CN47	CEXF1C101A	ELECT	16V	100µF
CN51	CCZB1H101K	CERAMIC	50V	100pF
CN53	CCZB1H101K	CERAMIC	50V	100pF
CN54	CCZB1H101K	CERAMIC	50V	100pF
CN55	CCZB1H101K	CERAMIC	50V	100pF

Cct Ref	Parts Number	Description		
CN56	CEXF1C470A	ELECT	16V	47µF
CN59	CDYF0H105K	CERAMIC	5.5V	1µF
CQ02	CEXF1H100V	ELECT	50V	10µF
CQ03	CEXF1E101V	ELECT	25V	100µF
CY07	CCZF1H103Z	CERAMIC	50V	10nF
CY10	CMXM2A103J	MYLAR	100V	10nF
CY12	CCZF1H103Z	CERAMIC	50V	10nF
CY13	CCZF1H103Z	CERAMIC	50V	10nF
CY17	CCZF1H223Z	CERAMIC	50V	22nF
CY18	CCZF1H103Z	CERAMIC	50V	10nF
CY40	CMXM2A122J	MYLAR	100V	1200pF
CY49	CMXM2A223J	MYLAR	100V	22nF
CY53	CMXM2A122J	MYLAR	100V	1200pF
CY57	CEXF1H478A	ELECT	50V	470nF
CY58	CEXF1H478A	ELECT	50V	470nF
CY59	CMXM2A473J	MYLAR	100V	47nF
CY72	CEXF1C101A	ELECT	16V	100µF
CY73	CEXF1H109A	ELECT	50V	1µF
CY78	CEXF1C220A	ELECT	16V	22µF
CY80	CEXF1C101A	ELECT	16V	100µF
CY81	CEXF1C101A	ELECT	16V	100µF
CY82	CEXF1C101A	ELECT	16V	100µF
CY83	CEXF1C101A	ELECT	16V	100µF
CY85	CEXF1C220A	ELECT	16V	22µF
CY86	CEXF1C470A	ELECT	16V	47µF
CY87	CBZF1H104Z	CERAMIC	50V	100nF
CY88	CEXF1C220A	ELECT	16V	22µF
CY90	CEXF1C470A	ELECT	16V	47µF
CY95	CMXL1J104J	MYLAR	63V	100nF
CY96	CMXM2A103J	MYLAR	100V	10nF
CY97	CMXM2A273J	MYLAR	100V	27nF
SWITCHES				
RLY1	5SC0202334	SWITCH		
RLY2	5SC0101003	SWITCH		
SW01	JDS1105-6X	SWITCH		
SW02	5S50101090	SWITCH		
SW03	5S50101090	SWITCH		
SW04	5S50101090	SWITCH		
SW05	5S50101090	SWITCH		
SW06	5S50202002	SWITCH		
SW07	5S50202002	SWITCH		
SW08	5S40202013	SWITCH		
SW09	5S50101090	SWITCH		
SW10	5S50101Z90	SWITCH		
DIFFERENCES FOR MODEL TX-14GV1L				
MECHANICAL PARTS				
16	4859606240	A34EAC01X C.R.T.		△
18	4852154000	BACK COVER		△
19	4852072201	CABINET		△
20	TNP8EY001KK	CRT P.C.B.		△
21	58G0000084	DEGAUSS COIL		△
22	TNP8EE001KK	MAIN P.C.B.		
23	485541584L	MODEL LABEL		
24	4855611927	PANASONIC BADGE		
25	TNP8EP001KK	POWER P.C.B.		
26	48A830610	SPEAKER		
MISCELLANEOUS COMPONENTS				
ANT05	TSA120026	MONOPOLE ANTENNA		
M801	4858053600	CARTON		
SCT01	4859303030	CRT SOCKET		
ZZ130	PTPKCPA604	CUSHIONS SET		
TRANSFORMERS				
T801	50M4042A3	TRANSFORMER		△

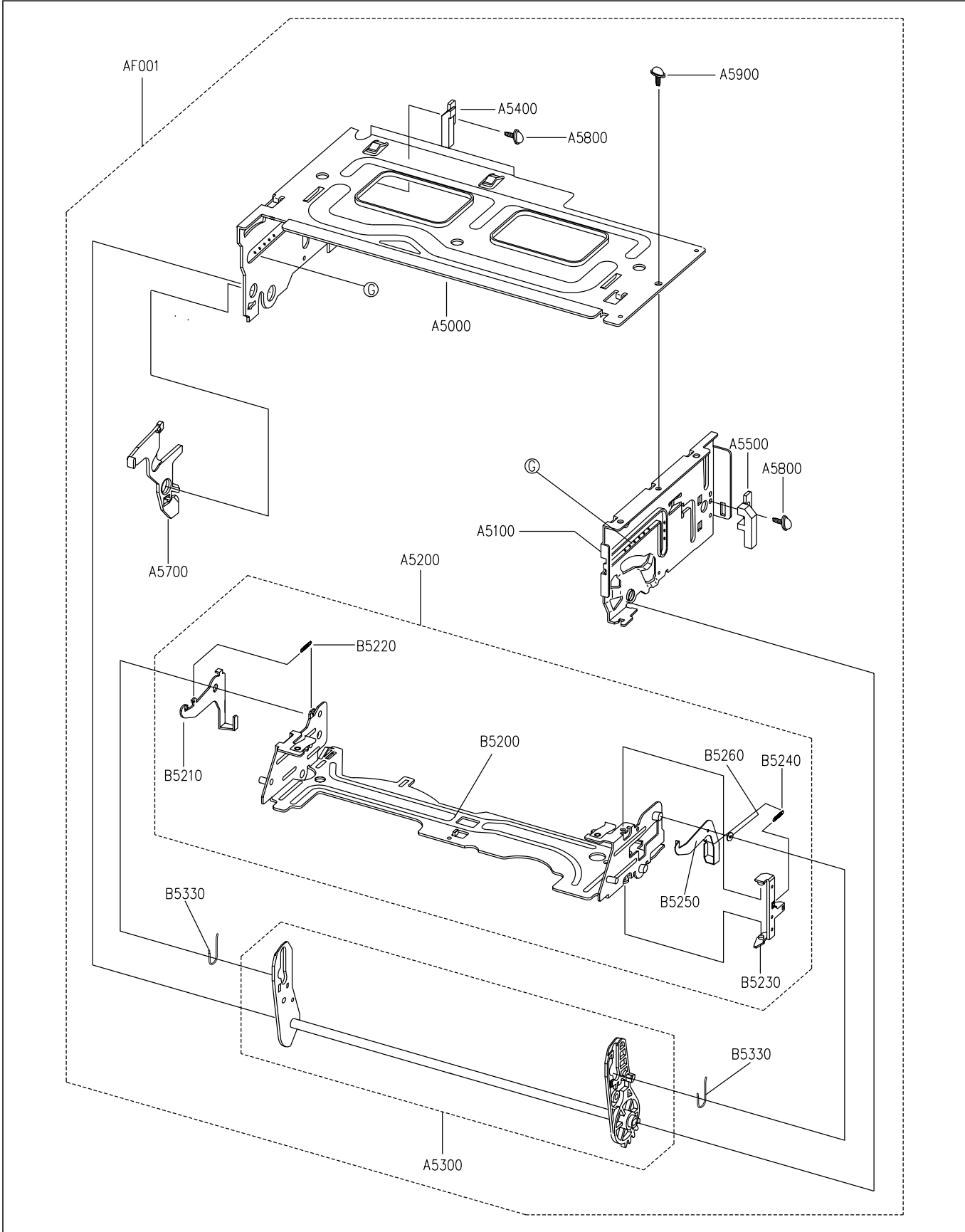
Cct Ref	Parts Number	Description
COILS		
L404	58H0000016	COIL
RESISTORS		
R301	RN-4Z2001F	FILM 0.25W 1% 2K Ω
R419	RS01Z229J	FILM 1W 5% 2.2 Ω
R572	RD-AZ752J	CARBON 0.17W 5% 7.5K Ω
R833	RD-4Z472J	CARBON 0.25W 5% 4.7K Ω
R834	RD-4Z101J	FILM 0.25W 5% 100 Ω
R901	RD-AZ152J	CARBON 0.17W 5% 1.5K Ω
R902	RD-AZ152J	CARBON 0.17W 5% 1.5K Ω
R903	RD-AZ152J	CARBON 0.17W 5% 1.5K Ω
R904	RD-AZ132J	FILM 0.07W 5% 1.3K Ω
R905	RD-AZ132J	FILM 0.07W 5% 1.3K Ω
R906	RD-AZ132J	FILM 0.07W 5% 1.3K Ω
RC575	HRFT223JCA	S.M.CARB 0.1W 5% 22K Ω
RC583	HRFT753JCA	S.M.CARB 0.1W 5% 75K Ω
RCJ46	HRFT000-CA	S.M.CARB 0.1W 5% 0 Ω
CAPACITORS		
C415	CMYE2D394J	MYLAR 200V 390nF
C416	CMYH3C622J	MYLAR 1K6V 6200pF Δ
C907	CCXB1H471K	CERAMIC 50V 470pF
C908	CCXB1H471K	CERAMIC 50V 470pF
C909	CCXB1H471K	CERAMIC 50V 470pF
C914	CZSL1H180J	CERAMIC 50V 18pF
C915	CZSL1H180J	CERAMIC 50V 18pF
C916	CZSL1H180J	CERAMIC 50V 18pF
DIFFERENCES FOR MODEL TX-21GV1L		
MECHANICAL PARTS		
17	4859625360	A51EAL15X17 C.R.T. Δ
18	4852154100	BACK COVER Δ
19	4852072301	CABINET Δ
20	TNP8EY001GG	CRT P.C.B.
21	58G0000074	DEGAUSS COIL Δ
22	TNP8EE001GG	MAIN P.C.B.
23	485541581L	MODEL LABEL
24	4855611928	PANASONIC BADGE
25	TNP8EP001GG	POWER P.C.B.
26	48A8306200	SPEAKER
MISCELLANEOUS COMPONENTS		
M801	4858053700	OUTER CARTON
SCT02	4859302930	CRT SOCKET
ZZ130	PTPKCPD201	CUSHIONS SET
TRANSISTORS		
T801	50M4042A2J	TRANSISTOR
COILS		
L404	58H0000020	LINEARITY COIL
RESISTORS		
R301	RN-4Z3001F	CARBON 0.25W 1% 3K Ω
R419	RS01Z439J	METAL 1W 5% 4.3 Ω
R572	RD-AZ512J	CARBON 0.17W 5% 5.1K Ω
R833	RD-4Z512J	CARBON 0.25W 5% 51K Ω
R834	RD-4Z910J	CARBON 0.25W 5% 91 Ω
R901	RD-AZ102J	CARBON 0.17W 5% 1K Ω
R902	RD-AZ102J	CARBON 0.17W 5% 1K Ω
R903	RD-AZ102J	CARBON 0.17W 5% 1K Ω
R904	RD-AZ152J	CARBON 0.17W 5% 1.5K Ω
R905	RD-AZ152J	CARBON 0.17W 5% 1.5K Ω
R906	RD-AZ152J	CARBON 0.17W 5% 1.5K Ω
RC575	HRFT183JCA	S.M.CARB 0.1W 5% 18K Ω
RC583	HRFT823JCA	S.M.CARB 0.1W 5% 82K Ω

Cct Ref	Parts Number	Description
CAPACITORS		
C415	CMYE2D514J	MYLAR 200V 500nF
C416	CMYH3C722J	MYLAR 1K6V 7200pF Δ
C907	CCXB1H561K	CERAMIC 50V 560pF
C908	CCXB1H561K	CERAMIC 50V 560pF
C909	CCXB1H561K	CERAMIC 50V 560pF
C914	CZSL1H330J	CERAMIC 50V 33pF
C915	CZSL1H330J	CERAMIC 50V 33pF
C916	CZSL1H330J	CERAMIC 50V 33pF

PARTS LOCATION VCR




PARTS LOCATION VCR



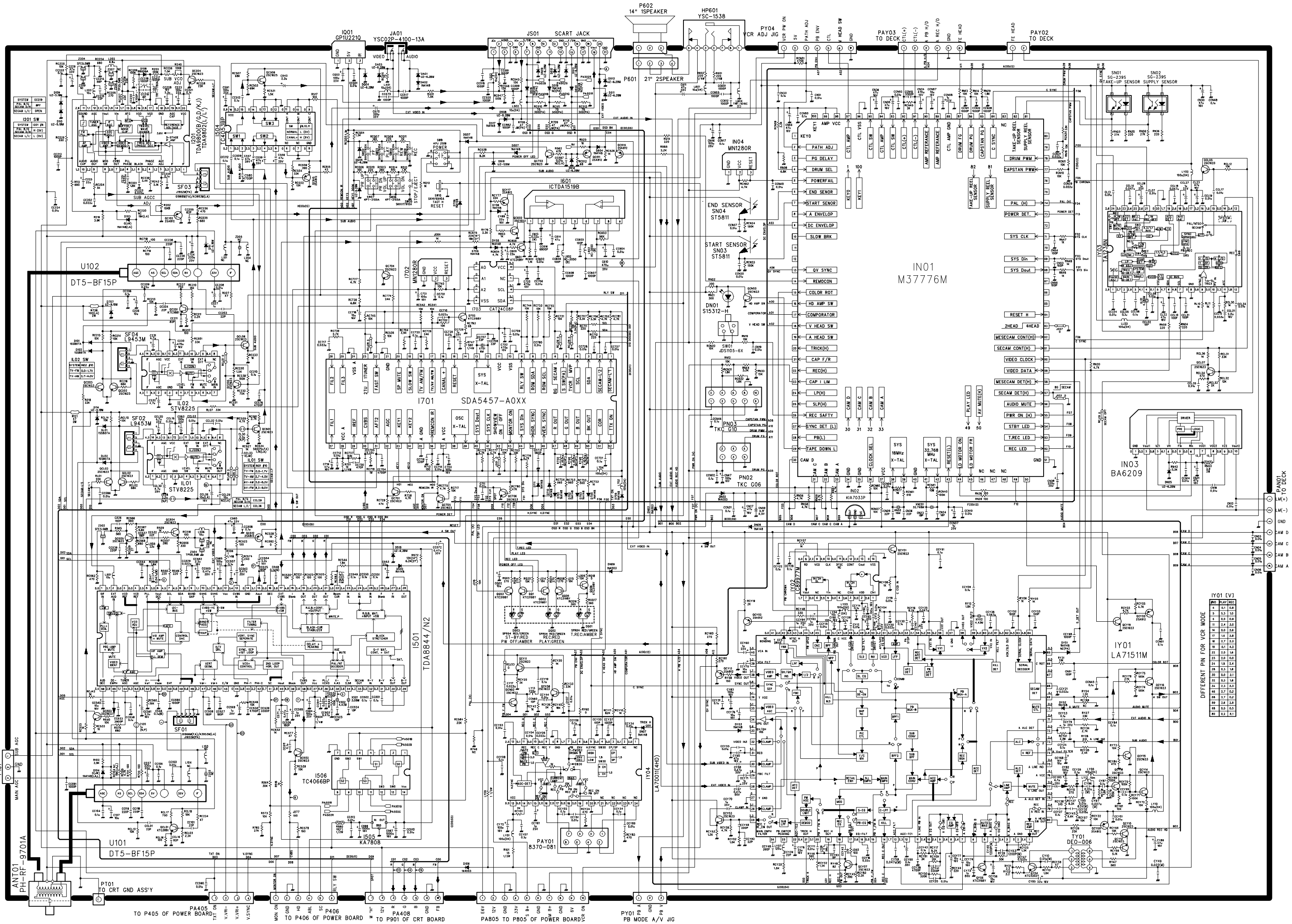
REPLACEMENT PARTS LIST

Important Safety Notice

Components Identified by  mark have special characteristics important for safety.
 * When replacing any of these components, use only manufacturers specified parts.
 In case of ordering these spare parts, please always add the complete Model-Type number to your order.

Cct Ref	Parts Number	Description
MISCELLANEOUS COMPONENTS		
A0100	97SA309700	MAIN BASE AS
A0200	97S0901400	PLATE
A0300	97S2701800	RACK F/L PBT
A0400	97SA310900	S SLANT POLE AS
A0500	97SA311000	T SLANT POLE AS
A0600	97SA308500	L LOADING AS
A0700	97SA308600	R LOADING AS
A0800	97SA308400	LOADING RACK AS
A0900	97S3101800	WASHER POLY
A1000	97S8100700	MOTOR CAPSTAN
A1000	97S8101200	MOTOR CAPSTAN
A1200	97S3004000	SPG AC HEAD
A1300	97SA311200	AC HEAD AS
A1400	7391300211	NUT HEX
A1500	97S2604100	LEVER RELAY
A1600	97S2701400	GEAR CAM
A1700	97SA310700	PINCH LEVER AS
A1800	97S3117300	WASHER POLY
A1900	97SA310400	L/C BRKT TOT AS
A2100	97SA311600	IDLER PLATE AS
A2200	97S3108200	WASHER POLY
A2300	97S2901600	TABLE REEL
A2350	97S2901600	TABLE REEL
A2400	97S3903600	POLY SLIDER
A2500	97SA310800	TENSION BAND AS
A2600	97S3003500	SPG TENSION
A2700	97SA309300	S SUB BRAKE AS
A2800	97SA309400	T SUB BRAKE AS
A2900	97SA309110	MAIN BRAKE AS
A3100	97S8004500	HEAD FE
A3100	97S8012900	HEAD FE
A3300	97SA309000	REEL GEAR TOT AS
A3400	97S3108200	WASHER POLY
A3500	97S5500400	BELT REEL
A3600	97S2603500	LEVER RECORD SAFETY
A3700	97SB381100	EARTH BRCKET AS
AC001	97SA381500	HEAD CLEANER AS
AD001	97PA253671	DRUM PRICE AS
AF001	97SA251400	F/L AS K-MECHA
B1900	97SA414100	L/C BRKT AS
B1910	97PA409200	L/C MOTOR AS
B1920	97P6538222	L/C MOTOR PCB
B1930	97P6271500	CONNECTOR
B1940	5SSFF1DKM10	CAM SWITCH
B1960	97S9201500	WORM WHEEL
M1000	97PC0074D	DECK TOTAL AS

Cct Ref	Parts Number	Description
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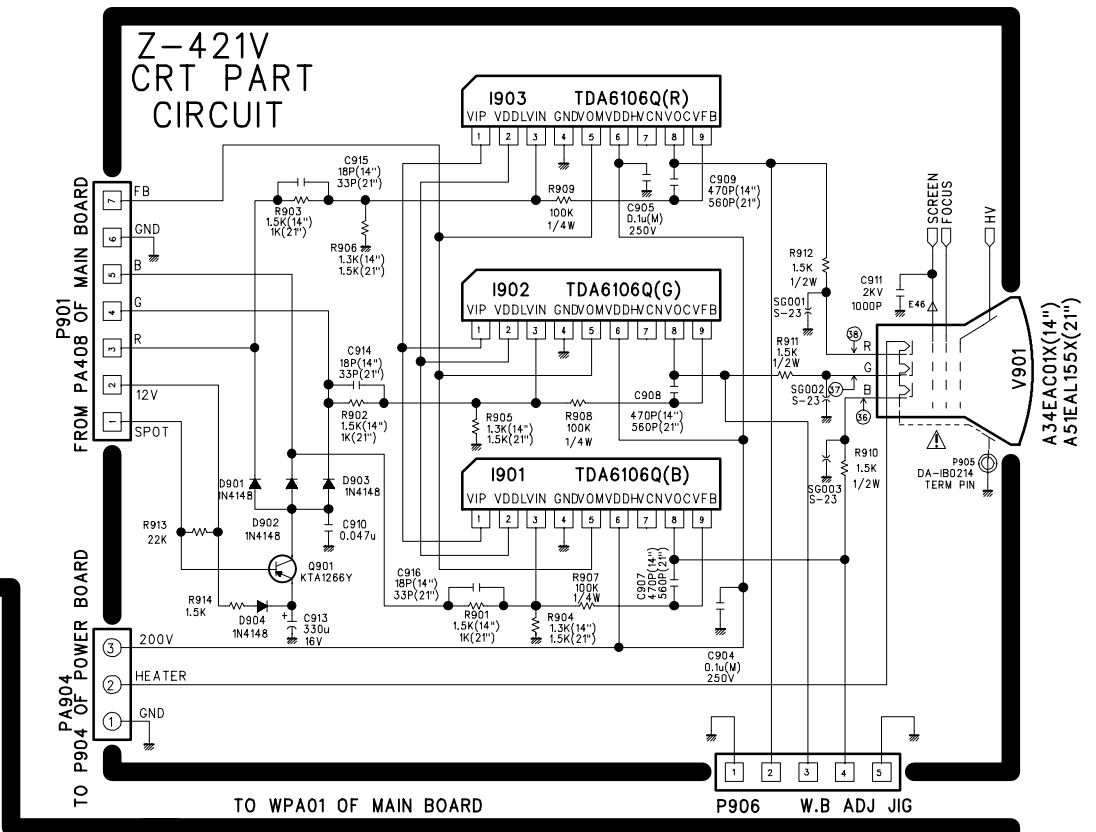
PANDI TO DECK
 LM(+)
 LM(-)
 GND
 CAM C
 CAM B
 CAM A

DIFFERENT PIN FOR VCR MODE

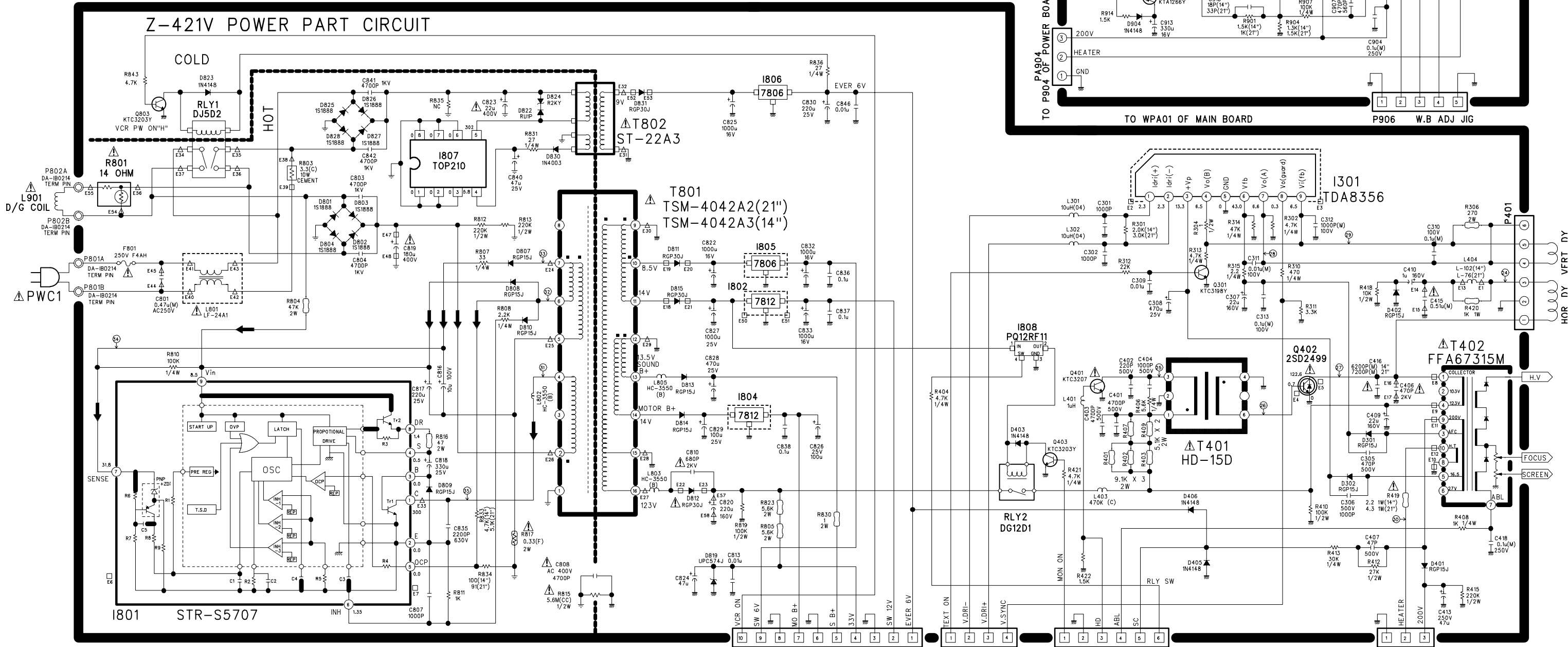
NO	PLAY	REC
1	5.3	5.0
2	5.3	5.0
3	5.3	5.0
4	5.3	5.0
5	5.3	5.0
6	5.3	5.0
7	5.3	5.0
8	5.3	5.0
9	5.3	5.0
10	5.3	5.0
11	2.4	2.2
12	2.4	2.2
13	2.4	2.2
14	2.4	2.2
15	2.4	2.2
16	2.3	2.1
17	2.3	2.1
18	2.3	2.1
19	2.3	2.1
20	2.3	2.1
21	2.3	2.1
22	2.3	2.1
23	2.3	2.1
24	2.3	2.1
25	2.3	2.1
26	2.3	2.1
27	2.3	2.1
28	2.3	2.1
29	2.3	2.1
30	2.3	2.1
31	2.3	2.1
32	2.3	2.1
33	2.3	2.1
34	2.3	2.1
35	2.3	2.1
36	2.3	2.1
37	2.3	2.1
38	2.3	2.1
39	2.3	2.1
40	2.3	2.1

TO P405 OF POWER BOARD
 TO P406 OF POWER BOARD
 TO P901 OF CRT BOARD
 P805 TO P808 OF POWER BOARD
 VCR MODE A/V JIG

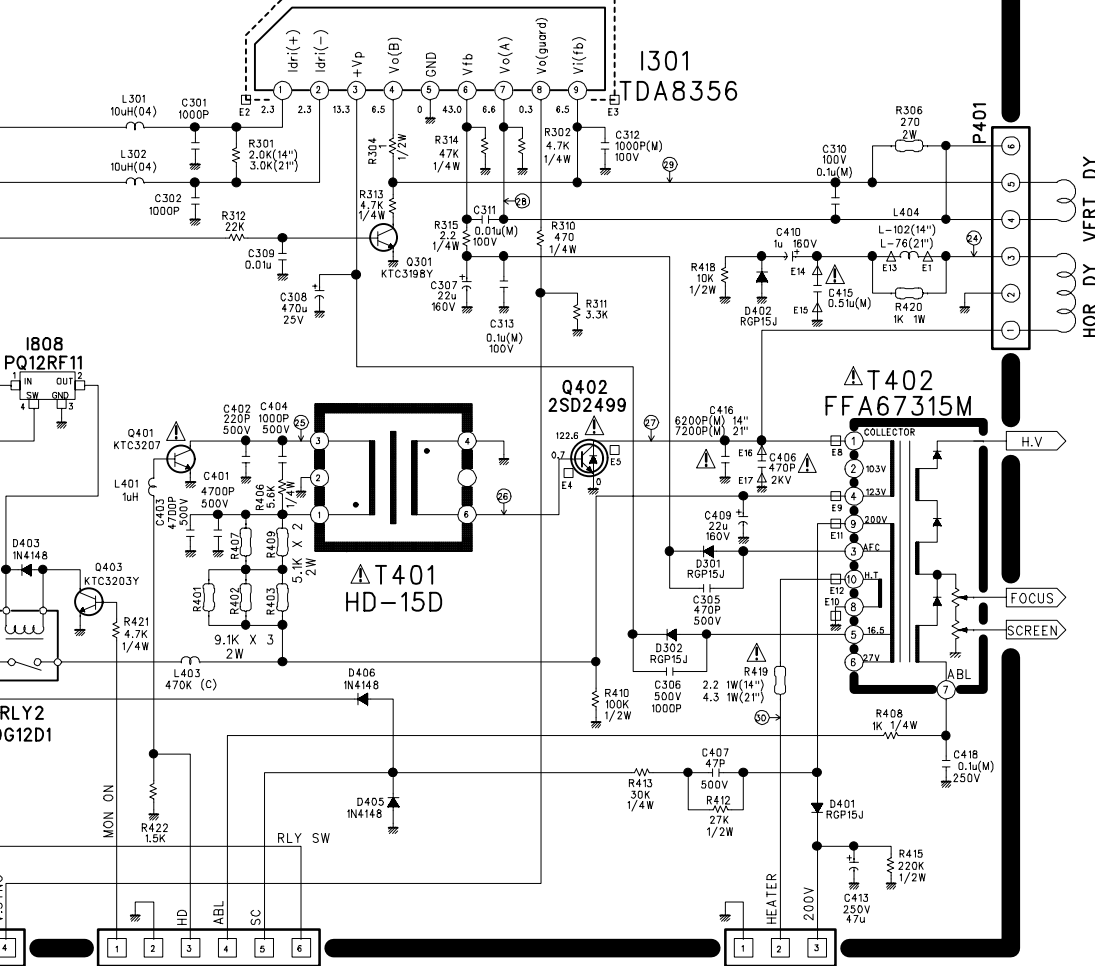
Z-421V CRT PART CIRCUIT



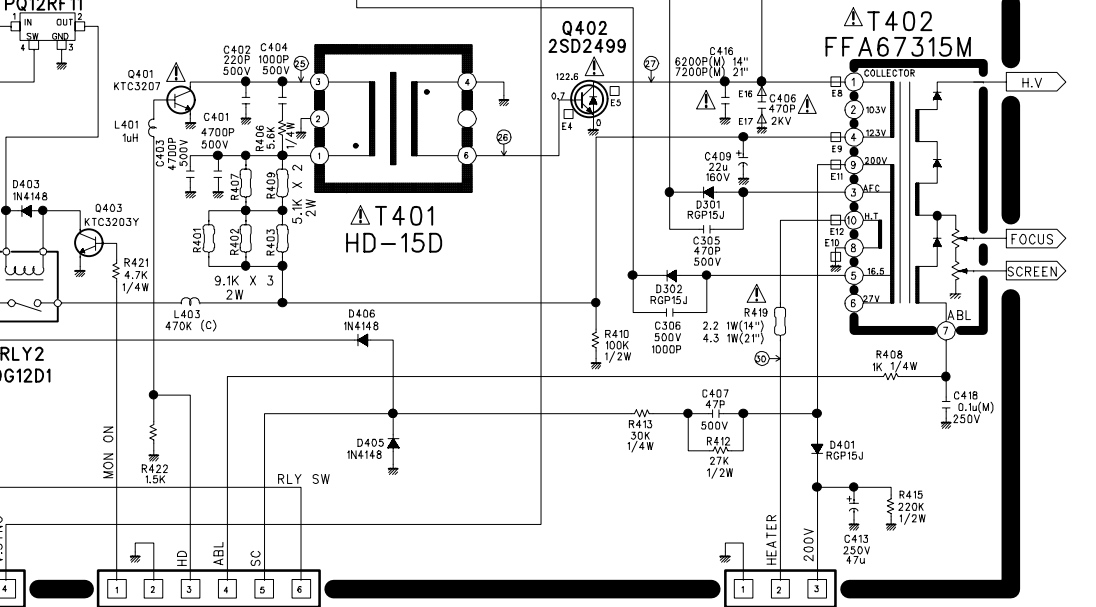
Z-421V POWER PART CIRCUIT



I301 TDA8356



T401 HD-15D



T402 FFA67315M

