MODEL : TCK-4065F • TCK-20065F

MTU-142R MTU-202R

CHASSIS REFERENCE

MODEL	CHASSIS	PICTURE TUBE	TUNER
* TCK-4065F	C-22B	370DJB22-TC09(Y)	VTA-7USP
* TCK-20065F	C-22C	510LCB22-TC11(Y)	VTK-7USP2
			VTA-7USP

SPECIFICATIONS

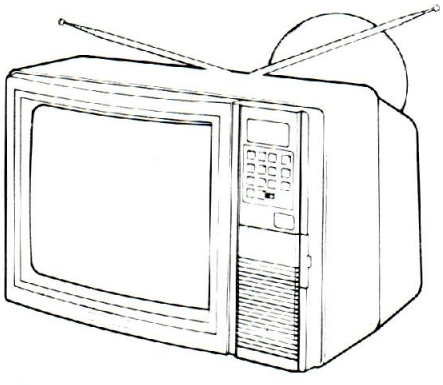
* INPUT POWER RATING : AC 120 volts 60Hz
  TCK-4065F ..... 85 watts (MAX)
  TCK-20065F ..... 95 watts (MAX)
* ANTENNA INPUT IMPEDANCE : 300Ω balanced type for UHF,
  75Ω unbalanced type for VHF
* RECEIVING CHANNELS : Any of 12 VHF channel ..... channel 2 to 13
  Any of 70 UHF channel ..... channel 14 to 83
  Any of 35 CATV channel ..... channel 2 to 13 and A to W
* INTERMEDIATE FREQUENCIES : Picture IF carrier frequency ..... 45.75 MHz
  Sound IF carrier frequency ..... 41.25 MHz
  Color sub-carrier frequency ..... 42.17 MHz
* CABINET : Plastic, Portable
* DIMENSION : W × D × H TCK-4065F ..... 18.0 × 12.4 × 14.6 inches
  TCK-20065F ..... 23.8 × 16.0 × 18.5 inches
* WEIGHT : TCK-4065F ..... 28.6 lbs.
  TCK-20065F ..... 50.8 lbs.

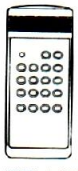
TABLE OF CONTENTS

WARNING : BEFORE SERVING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION," "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 2 OF THIS MANUAL.

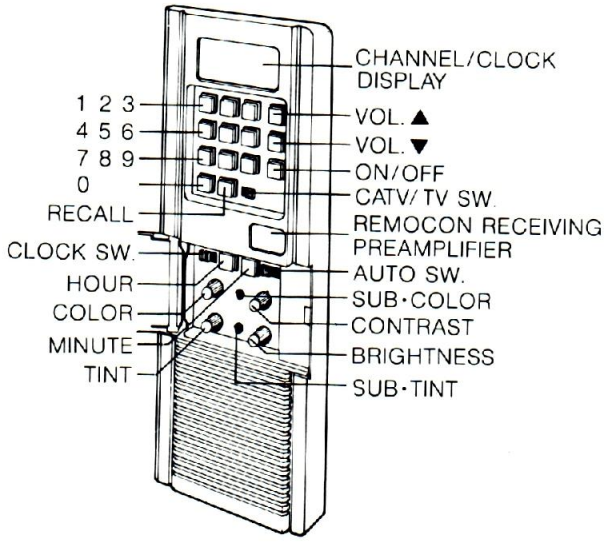
■FRONT AND REAR CONTROL VIEWS

TCK-4065F





REMOTE CONTROL
HAND UNIT



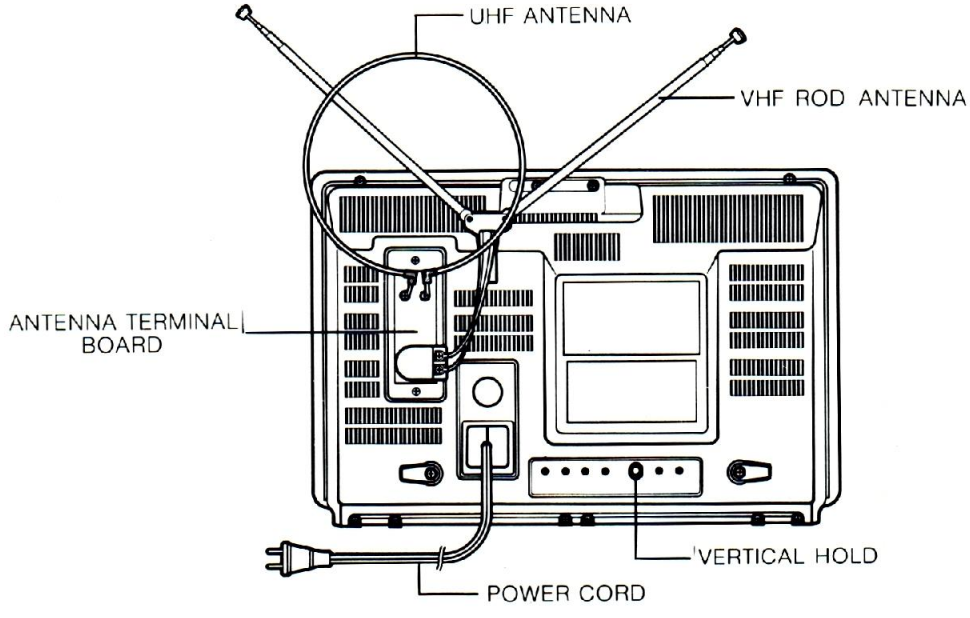


Fig. 1

CHASSIS TOP VIEW

C22-A, C

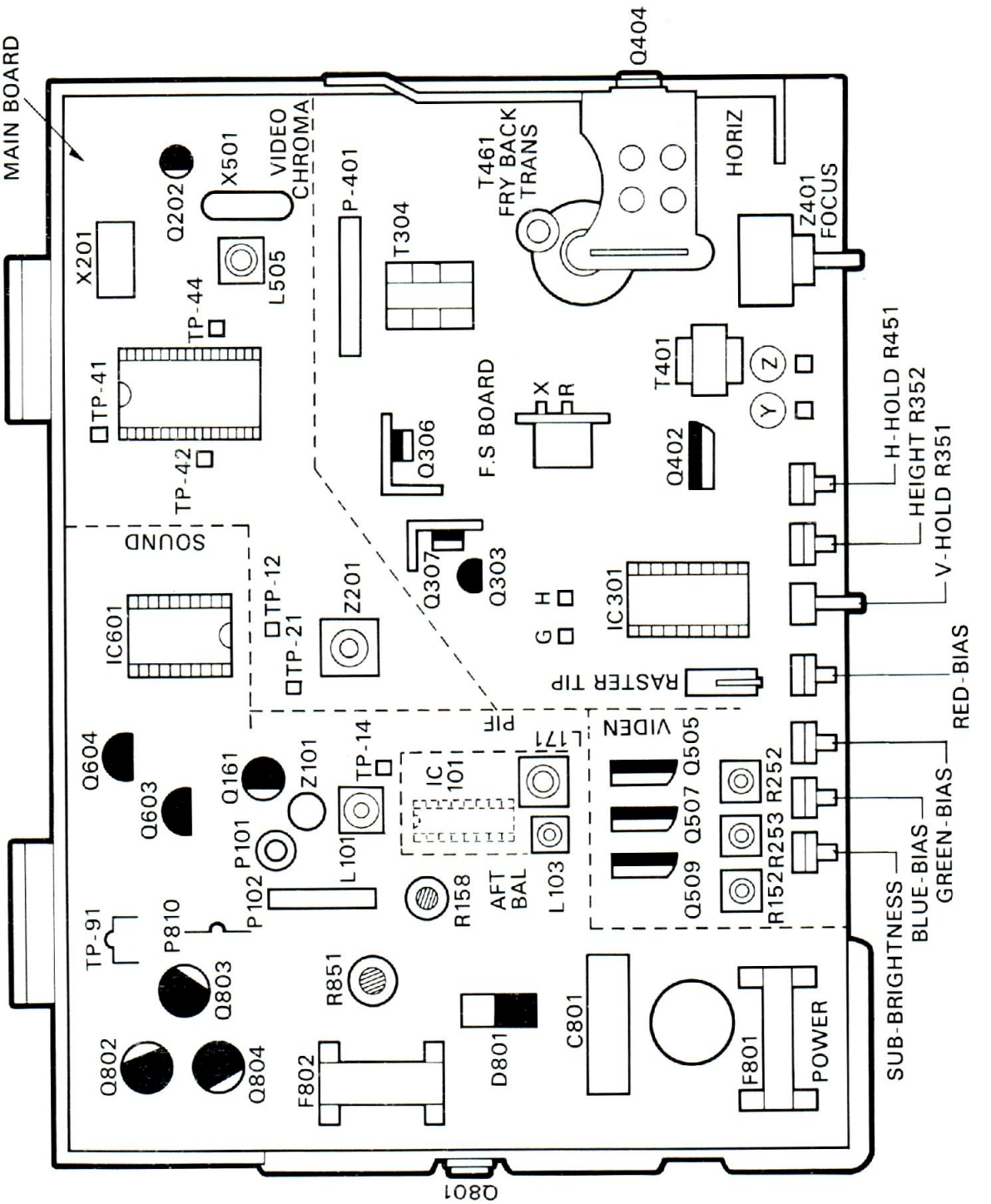


Fig. 3

WARNING : BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" NO PAGE 2 OF THIS MANUAL.

■ INSTALLATION AND SERVICE ADJUSTMENTS

GENERAL

In the majority of cases, a color television receiver will need only slight touch-up adjustment upon installation.

Check the basic characteristics such as height, vertical sync., horizontal sync. and focus.

Observe the picture for good black and white details without objectionable color shading. If color shading is evident, demagnetize the receiver.

If color shading still persists, perform purity and convergence adjustments. This should be all that is necessary to achieve optimum receiver performance.

VERTICAL OSCILLATOR ADJUSTMENT

If the picture moves up or down on the screen, adjust the VERTICAL HOLD control (R351) at the rear of the receiver.

HORIZONTAL OSCILLATOR ADJUSTMENT

If there is an indication of unstable horizontal sync., adjust the HORIZONTAL HOLD (R451) shown in figure 19 to remove the condition. Adjust the control to the center of the pull-in range.

+112VOLTS POWER SUPPLY ADJUSTMENT

CAUTION : B+voltage closely relates to the high voltage. To prevent hazardous X-RAY RADIATION, the B+voltage must be properly adjusted to 112 volts.

1. Tune in an air signal. Adjust the BRIGHTNESS AND CONTRAST controls for normal picture.
2. Check that AC power line voltage is normal (AC 120 volts, 60Hz).
3. Connect a VTVM between Terminal TP-91 on Main Board (See figure 3. 4) and chassis ground.
4. Adjust the B+ADJ. (R851) on Main Board (See figure 3,4) for +112volt reading. Remove the VTVM.

HEIGHT ADJUSTMENT

The HEIGHT control (R352) shown in figure 3,4 changes the size of the picture or pattern. Make final adjustment to overscan the mask about 10% vertically.

FOCUS ADJUSTMENT

Adjust the FOCUS control (Z401) shown in figure 3,4 for well defined scanning lines on the picture screen.

HIGH VOLTAGE CHECK

CAUTION : There is no HIGH VOLTAGE ADJUSTMENT on this chassis. The +112volt power supply must be properly adjusted to insure the correct high voltage.

1. Connect an accurate high voltage meter to the second anode of the picture tube.
2. Turn on the receiver. Set the BRIGHTNESS and CONTRAST controls to minimum (zero beam current).
3. High voltage will be measured below 27.5kv.
4. Rotate the BRIGHTNESS control to both extremes to be sure the high voltage does not exceed the limit under any conditions.

FS CIRCUIT CHECK

The Fail Safe (FS) circuit check is indispensable for the final check in the servicing. Checking should be done following the steps below.

1. Turn the receiver on and adjust customer controls for normal operation.
2. Temporarily short TP-R and TP-X on FS Board with a jumper wire. Raster and sound will, disappear.
3. The receiver must remain in this state even after removing the jumper wire. This is the evidence that the FS circuit is functioning properly.
4. To obtain a picture again, temporarily turn the receiver off and allow the FS circuit more than 30 seconds to reset. Then turn the receiver on to produce a normal picture.

AGC ADJUSTMENT

1. Tune in the strongest station in your area.
2. Turn the AGC DELAY control (R152) shown in figure 3,4 fully counterclockwise, then turn it clockwise until snow noise just disappears from the screen.

COLOR-PST AND TINT-PST ADJUSTMENT

1. Tune the receiver in a color program and turn the AUTO switch ON.
2. Set the COLOR and TINT controls to mid-position.
3. Adjust the SUB.C control (See figure 1 and 2) for natural color temperature.
4. Adjust the SUB.T control (See figure 1 and 2) for proper facial tones.

CONVERGENCE ADJUSTMENTS

NOTE: Before attempting any convergence adjustments, the receiver should be operated for at least fifteen minutes.

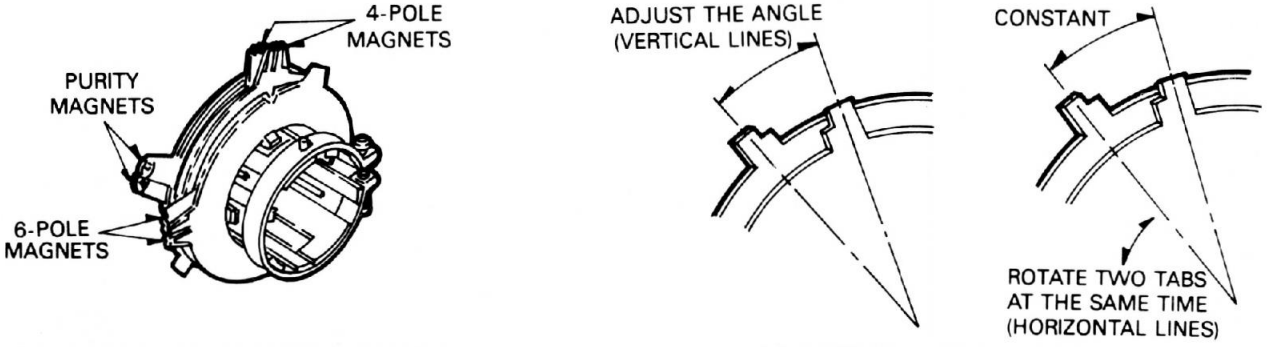
■ CENTER CONVERGENCE ADJUSTMENT

1. Receive crosshatch pattern with a color bar signal generator.
2. Adjust the BRIGHTNESS and CONTRAST Controls for well defined pattern.
3. Adjust two tabs of the 4-Pole Magnets to change the angle between them (See figure 6) and superimpose red and blue vertical lines in the center area of the picture screen. (See figure 7)
4. Turn both tabs at the same time keeping their angles constant to superimpose red and blue horizontal lines at the center of the screen. (See figure 7)
5. Adjust two tabs of 6-Pole Magnets to superimpose red/blue line with green one. Adjusting the angle affects the vertical lines and rotating both magnets affects the horizontal lines.
6. Repeat adjustments 3, 4, 5, keeping in mind red, green and blue movement, because 4-Pole Magnets and 6-Pole Magnets interact and make dot movement complex.

■ CIRCUMFERENCE CONVERGENCE ADJUSTMENT

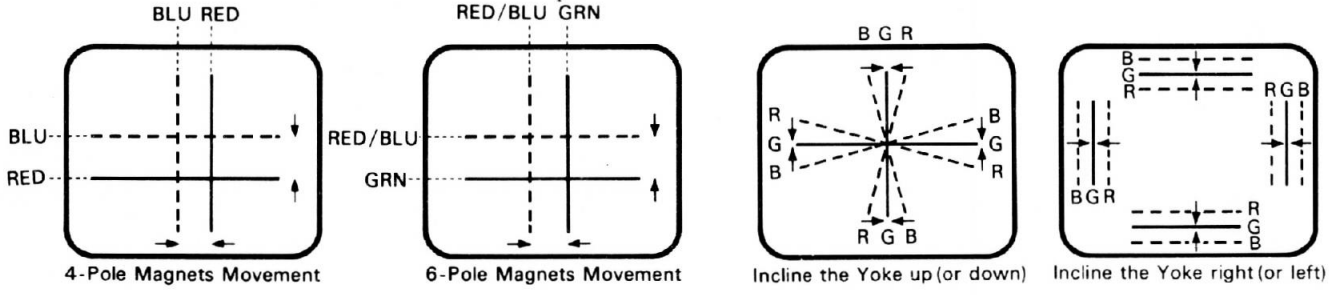
NOTE: This adjustment requires Rubber Wedge Kit.

1. Loosen the clamping screw of deflection yoke to allow the yoke to tilt.
2. Place a wedge as shown in figure 5) temporarily. (Do not remove cover paper on adhesive part of the wedge.)
3. Tilt front of the deflection yoke up or down to obtain better convergence in circumference. (See figure 7) Push the mounted wedge into the space between picture tube and the yoke to hold the yoke temporarily.
4. Place other wedge into bottom space and remove the cover paper to stick.
5. Tilt front of the yoke right or left to obtain better convergence in circumference. (See figure 7.)
6. Hold the yoke position and put another wedge in either upper space. Remove cover paper and stick the wedge on picture tube to hold the yoke.
7. Detach the temporarily mounted wedge and put it in another upper space. Stick it on picture tube to fix the yoke.
8. After placing three wedges, recheck overall convergence. Tighten the screw firmly to hold the yoke tightly in place.
9. Stick 3 adhesive tapes on wedges as shown in figure 5,



CONVERGENCE MAGNET ASSEMBLY — ADJUSTMENT OF MAGNETS

Fig. 6



4-Pole Magnets Movement — 6-Pole Magnets Movement — Incline the Yoke up (or down) — Incline the Yoke right (or left)

Center Convergence by Convergence Magnets — Circumference Convergence by DEF. Yoke

Fig. 7 Dot Movement Pattern

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION," "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 2 OF THIS MANUAL.

■ REPLACEMENT PART LIST

CAUTION: The shaded areas in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on page 2. Do not degrade the safety of the receiver through improper servicing.

LOCATION NUMBER	STOCK NUMBER	DESCRIPTION
L502	58P682J023	COIL PEAKING, 6800μH PL6800A
L505	58P0000024	COIL PEAKING, TRF 5012
L510, 511 512	58C1000024	COIL CHOKE, 10.2μH AZ9246G
L601	58P130J028	COIL PEAKING, 13μH PL-13A
T304	5TCU000004	TRANS PIN CSH, TPL-2502
T401	5TDK000004	TRANS, TLN1027 HORIZ DRIVE
T801	5PPN000112	AC LINE FILTER
T461	5THU000024	FLYBACK TRANS FS-52015 (C-22A)
	5THU000025	OR FS-52055 (C-22A)
T461	5THU000022	FLYBACK TRANS FS-51708 (C-22B)
	5THU000020	OR MSH-351 (C-22B)
T461	5THU000018	FLYBACK TRANS FS-52061 (C-22C)
	5THU000019	OR MSH-350 (C-22C)
SEMICONDUCTORS		
IC101	1TA7607AP-	IC, TA 7607P PIF AGC AFT
IC301	1TA 7609P-2	IC, TA 7609P (FA-2) HORIZ VERT
IC501	1TA7608CP5	IC, TA 7608CP (FA-5) VIDEO CHROMA
IC601	1MC1358P--	IC, MC 1358P SIF SOUND
Q161	T2SC388A--	TR, 2SC 388A
Q202	TKTA562-0	TR, KTA 562 TM-0
Q303	T2SC2229-0	TR, 2SC 2229-0
Q306	T2SC2073--	TR, 2SC 2073
Q307	T2SA940---	TR, 2SA 940
Q402	T2SC2068-1	TR, 2SC 2068 FA-1
Q471	T2SA945-0-	TR, 2SA 945-0
Q505, 507 509	T2SC2068--	TR, 2SC 2068
Q603, 604	T2SC2230AY	TR, 2SC 2230A-Y
Q802	T2SC2229-O	TR, 2SC 2229-O
Q803	T2SC2120Y-	TR, 2SC 2120-Y
Q804	T2SC2229Y-	TR, 2SC2229-Y
D201, 203	D1S34-----	DIODE, 1S34
D202, 310 D402, 601	D1S1553---	DIODE, 1S 1553 (TV)
D204	D1S1554---	DIODE, 1S 1554 (TV)
D205, 206 D301, 302 D303, 304 D307, 401 D473, 501 D502	D1S1555---	DIODE, 1S 1555 (TV)
D305, 306	D1S2775-1-	DIODE, 1S 2775 FA-1
D308	DS5295J---	DIODE, S 5295J
D309	D1S1887FA-	DIODE, 1S 1887FA

LOCATION NUMBER	LOCATION NUMBER	DESCRIPTION
D441, D442 D471	DS5295G---	DIODE, S 5295G
D472, 803	D02Z6-2W--	ZENER DIODE, 0.2Z 6.2W 6.2V
D801	D1R5GZ61--	DIODE, 1R5GZ61
D802	D1S1555---	DIODE, 1S1555
MISCELLANEOUS		
F802	5FIGD4012R	FUSE, 0.4A 250V
DL201	5800000003	DELAY LINE, DL 162601S
X501	5PHC6-UW--	CRYSTAL RESONATOR, 3.58MHz
Z101	5PF1030---	SAW FILTER, F1030
Z201	58T0000013	L-C FILTER, TRF-2005C VIDEO TRAP
Z202	58T0000014	L-C FILTER, TRF 2016 3.58MHz TRAP
Z601	5PSFE4.5MB	CERAMIC FILTER, 4.5MHz
Z602	5PSFE4.5MD	CERAMIC FILTER, 4.5MHz

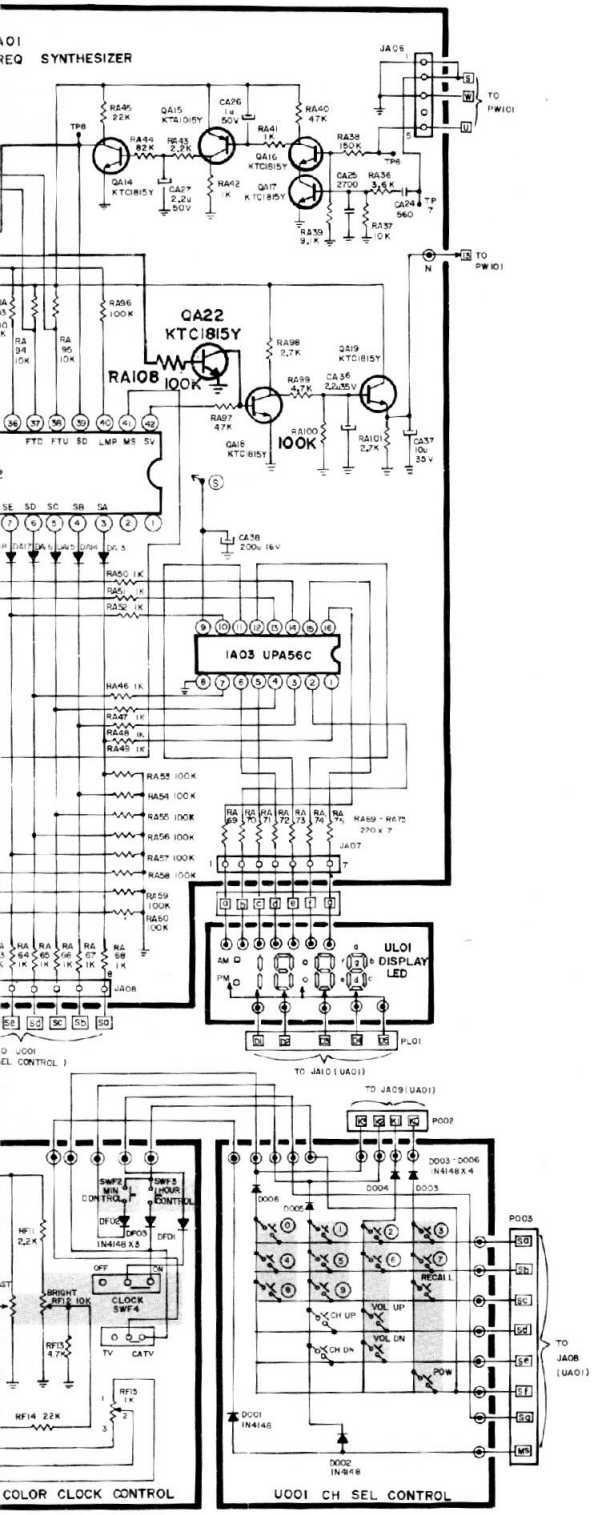
CRT DRIVE BOARD ASSEMBLY

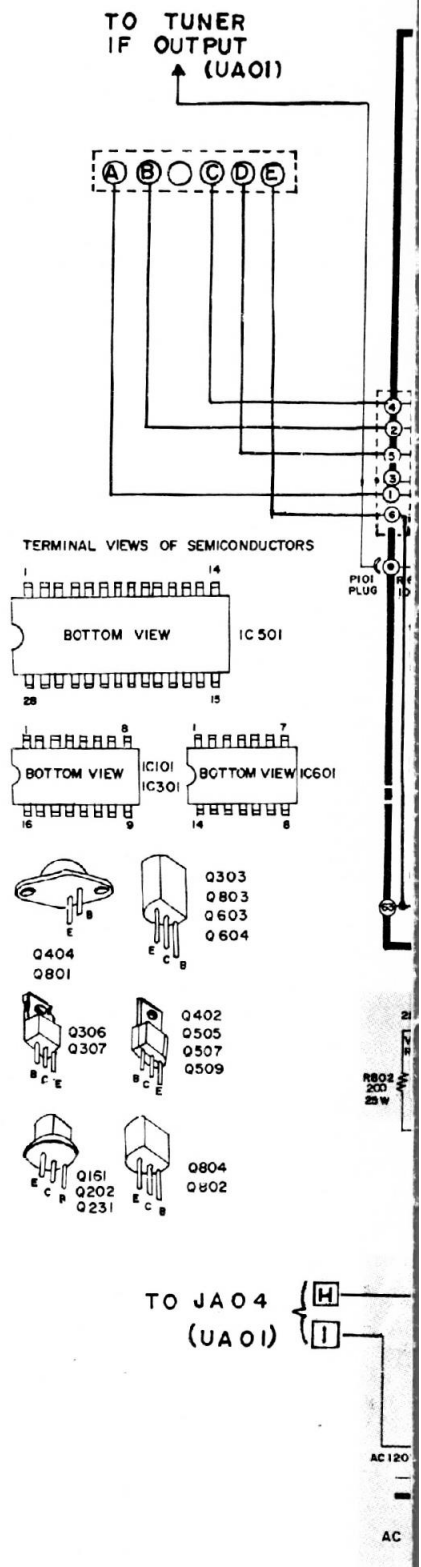
C901	CCCB3A331M	CD, 330PF ±20% 1KV
R951	RVAQ10105B	VR, 1M Ohm ½W SCREEN

HEAT SINK PLATE A ASSEMBLY

Z401	4850B00310	FOCUS VOLUME (C-22A)
Z401	4850B00210	FOCUS VOLUME (C-22B, C)
Q404	T2SC1894S	TR, 2SC 1894 (C-22A, C)
Q404	T2SC1893S	TR, 2SC 1893 (C-22B)
C426	CYYN3D471K	CD, 470PF ±10% 2KV (C-22A)
C426	CYYN3D181K	CD, 180PF ±10% 2KV (C-22B, C)
L427	CMKM3B102K	PF, 1000PF ±10% 1250V
L425	58C0000026	CHOKE COIL, HC-4035
D403	D1TH61---- DERB26-20-	ITH 61 or OR ERB 26-20

SCHEMATIC DIAGRAM
MODEL NO. TCK-20065F





CAUTION: The shaded areas in schematic components which have special should be replaced only with typ circuit or specified in the parts components, read carefully the F in this manual. Do not degrade improper servicing.

S/N : 4858801916

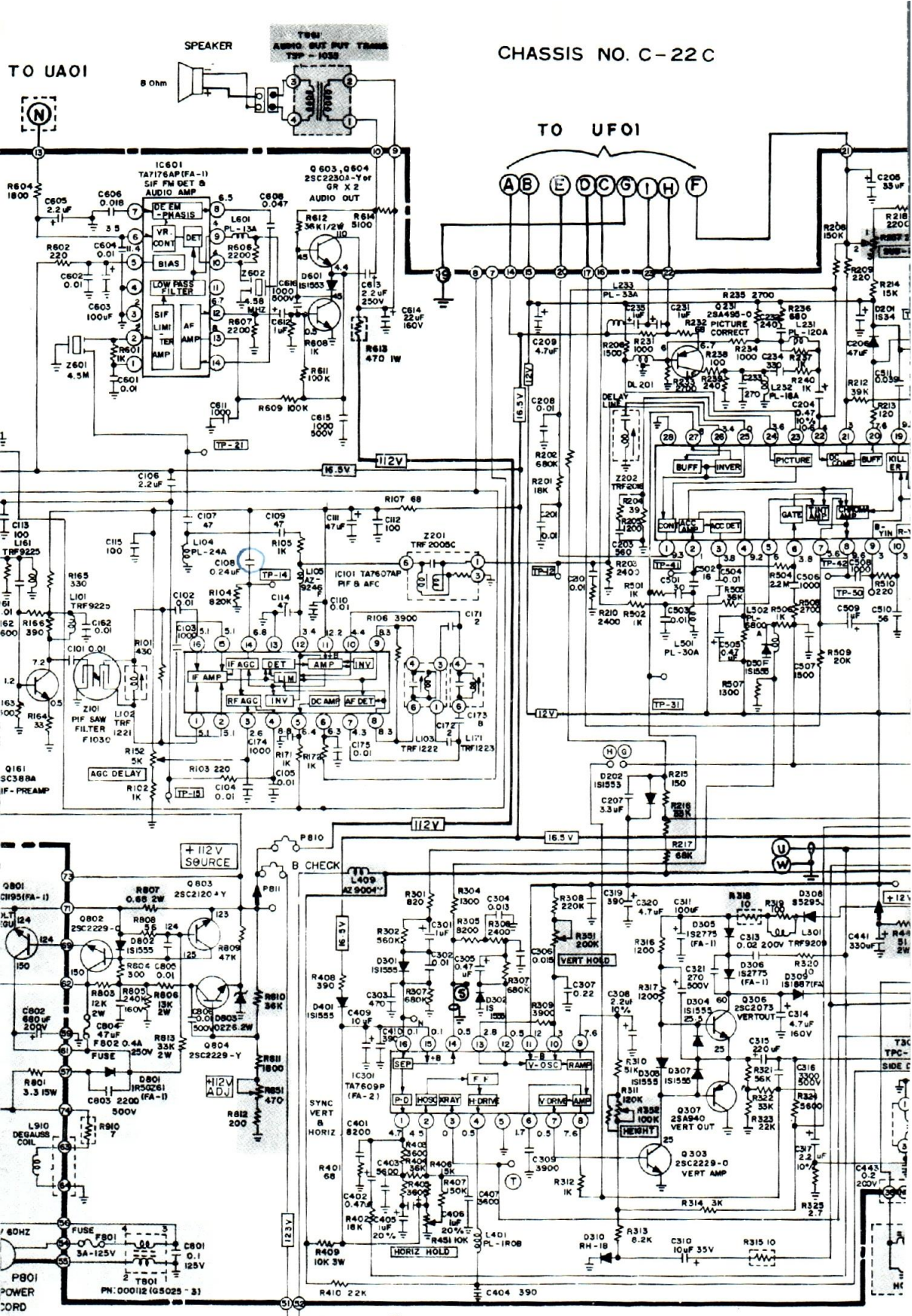
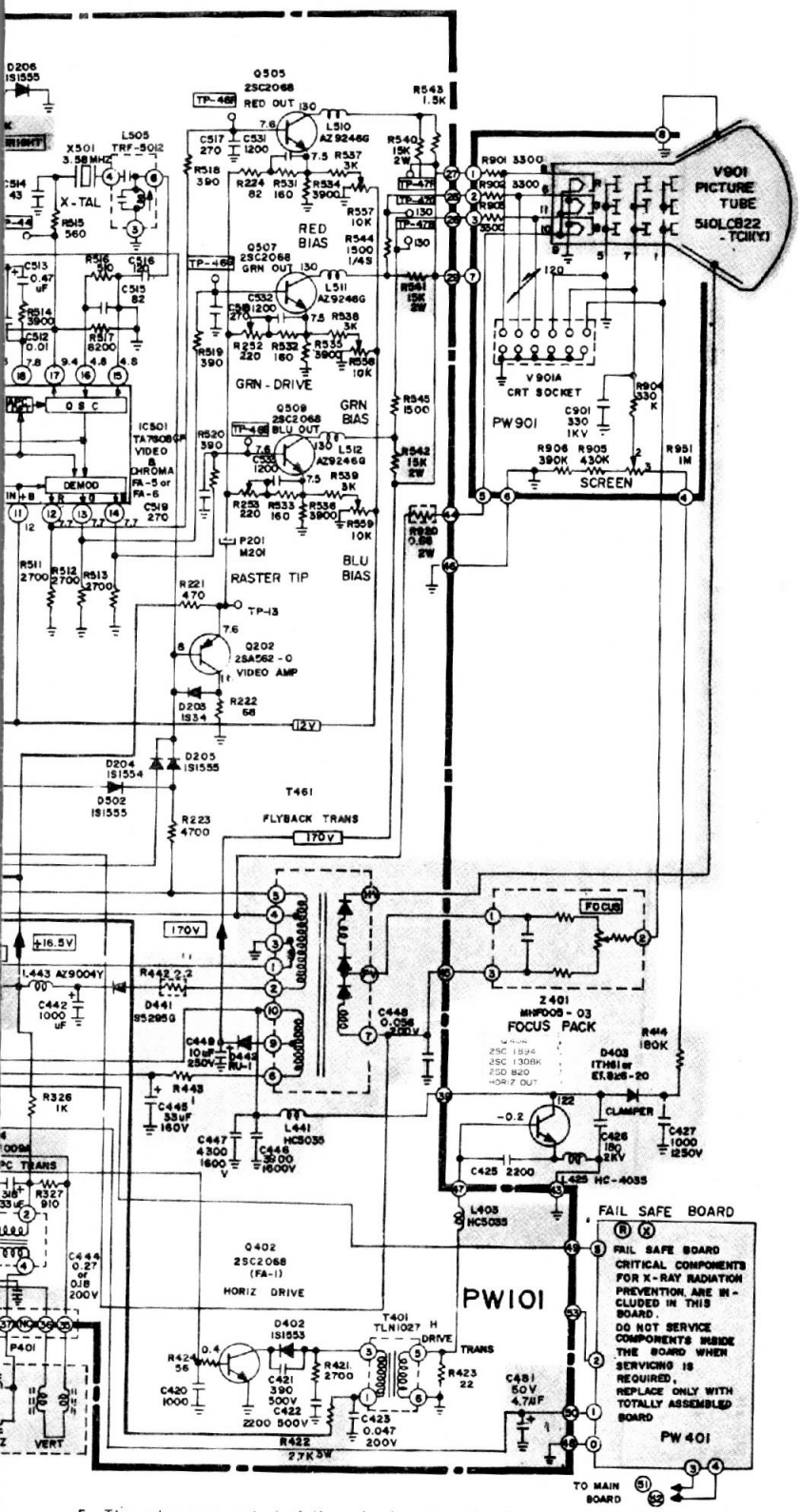


diagram and the parts list designate
characteristics important for safety and
es identical to those in the original
list. Before replacing any of these
RODUCT SAFETY NOTICE on page 2
the safety of the receiver through

NOTE:
1. Resistance is shown in ohm. K=1,000. M=1,000,000.
2. Unless otherwise noted in schematic, all capacitor values less t
are expressed in mfd. and the values more than 1 in pF.
3. Unless otherwise noted in schematic, all inductor values more t
are expressed in uH, and the values less than 1 in H.
4. Voltages read with "VTVM" from point indicated to chassis grou
a color bar signal with all controls at normal, line voltage 120



5. The color amp control of the color bar generator is set to obtain 0.6 vp-p chrominance signal on oscilloscope when observing waveform of terminal TP-12.
6. Waveforms 1-11 and 15-21 are taken with an air signal and waveforms 12-14 are taken using a color bar generator.
7. Voltage readings shown are nominal values and may vary ±20% except H.V.

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION," "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 2 OF THIS MANUAL.

■ REPLACEMENT PART LIST

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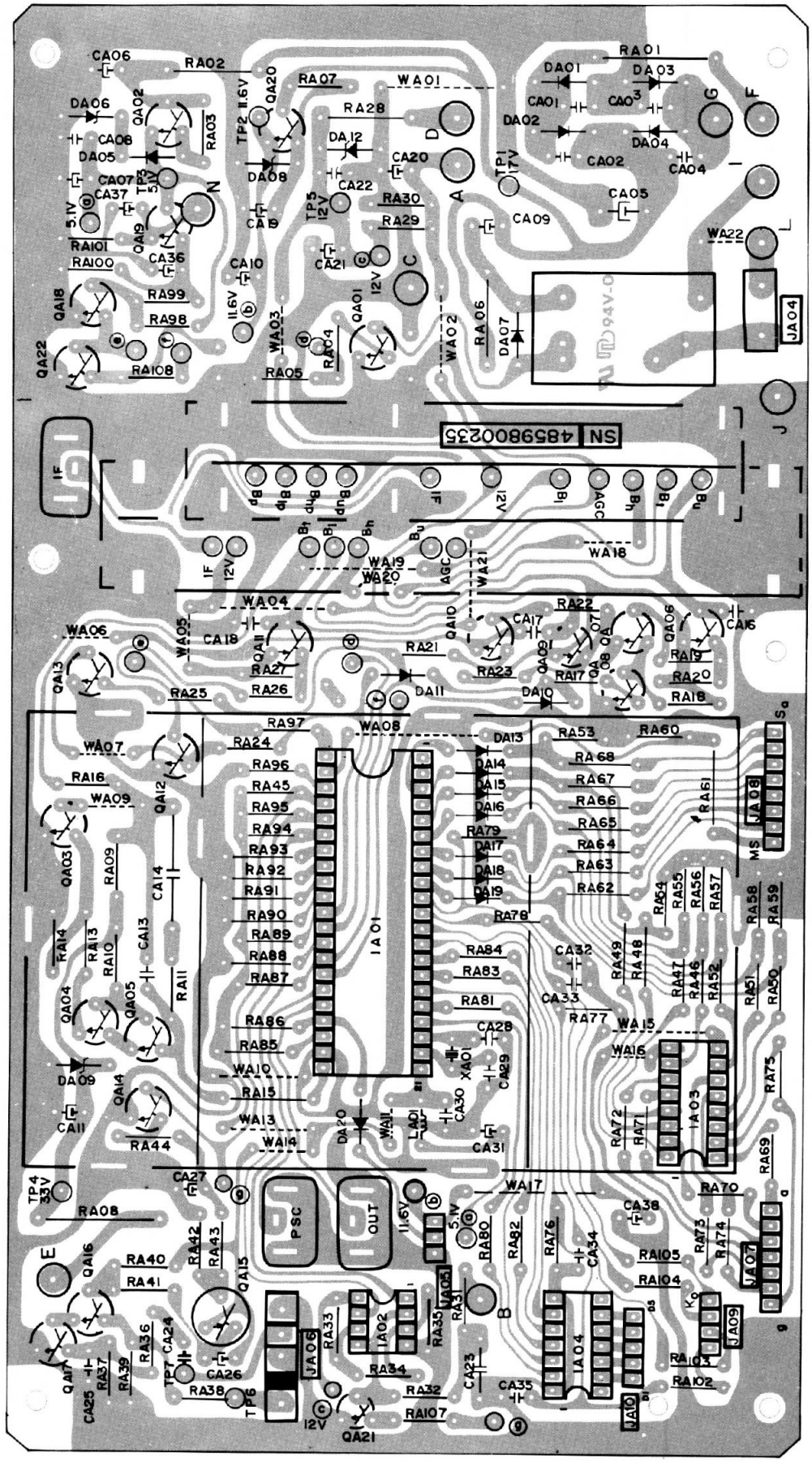
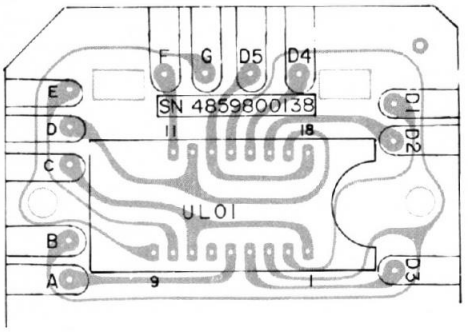
LOCATION NUMBER	STOCK NUMBER	DESCRIPTION
HEAT SINK PLATE B ASSEMBLY		
Q801	T2SC1195S-	TR, 2SC 1195 (C-22A)
Q801	T2SD657S--	TR, 2SD 657 (C-22B)
Q801	T2SC1829S-	TR, 2SC 1829 FA-1 (C-22C)
R801	RX15Y339J-	CEMENT R, 3.3 Ohm 15W (C-22A, B)
R802	RX25Y171JB	CEMENT R, 170 Ohm 25W (C-22A)
R802	RX25Y201J-	CEMENT R, 200 Ohm 25W (C-22B)
R811	RX20Y221J-	CEMENT R, 220 Ohm 20W (C-22C)
C802	CEYK2D681D	CE, 680μF 200V
T661	5T00000003	TRANS, TSP 1035 SOUND OUTPUT

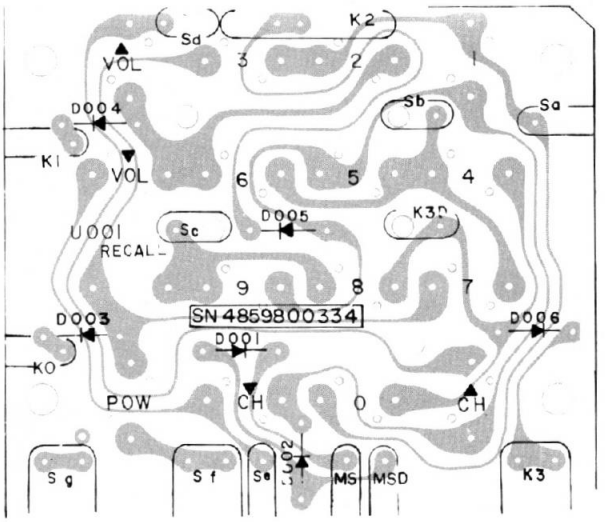
LOCATION NUMBER	STOCK NUMBER	DESCRIPTION
REMOCON TRANSMITTER BOARD ASSEMBLY		
IC01	1μPD1986C-	IC, μPD 1986C
QC01	TKTC1815Y-	VR, KTC 1815(Y)
QC02	TBC414C---	TR, BC 414C
DC01, 02	DKDS1555--	DIODE, KDS 1555
DC03	DKLR124E--	LED, KLR 124E
DC04, 05	DLD271----	DIODE, LD 271
XC01	5910800010	CERA RESONATOR, CBS 455A

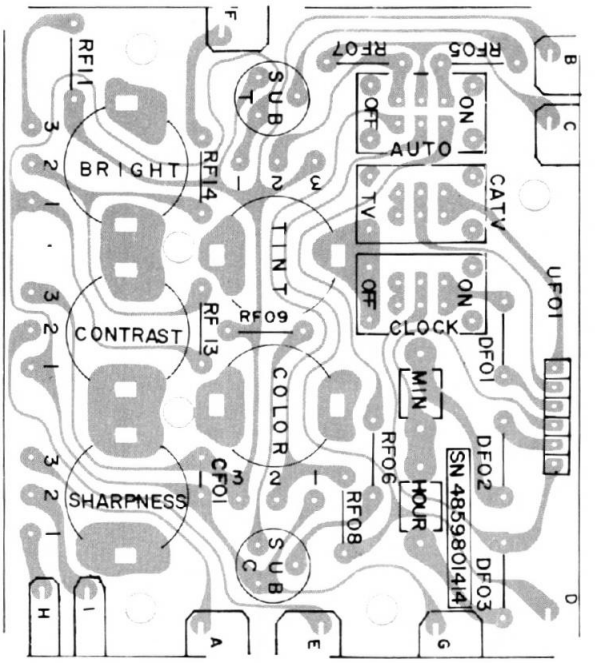
■ F. S. MODULE BOTTOM VIEW



■ TCK-20065F CONTROL MODULE BOTTOM VIEW







■ TCK-4065F/20065F REMOTE PREAMP BOTTOM VIEW