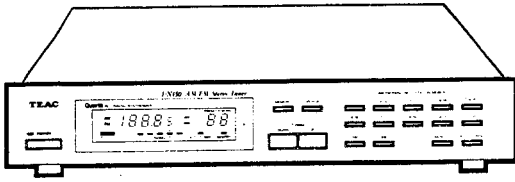


# TEAC®



## SERVICE MANUAL

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# T-X150

**Digital Synthesizer AM/FM Stereo Tuner**

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## 1 SPECIFICATIONS

### < FM TUNER SECTION >

Tuning Range 87.5 MHz – 108 MHz  
 Antenna Impedance 300 ohms balanced/75 ohms unbalanced  
 Usable Sensitivity Mono 11.2 dBf  
 50 dB Quieting Sensitivity Mono 20.2 dBf, Stereo 40.2 dBf  
 Image Response Ratio 40 dB  
 IF Response Ratio 85 dB  
 Spurious Response Ratio 85 dB  
 AM Suppression Ratio 45 dB  
 Capture Ratio 1 dB  
 Selectivity 65 dB ( $\pm 400$  KHz)  
 Signal-to-Noise Ratio Mono 80 dB (IHF-A curve),  
 Stereo 75 dB (IHF-A curve)  
 Harmonic distortion Mono 0.1%, Stereo 0.3%  
 Stereo Separation 40 dB (1 kHz)  
 Frequency Response 30 Hz – 15 kHz, +0 dB, -3 dB  
 Subcarrier Product Ratio 60 dB  
 Output Level/Output Impedance 775 mV/2.2 k ohms


### < AM TUNER SECTION >

Tuning Range 531 kHz – 1,602 kHz  
 Usable Sensitivity 450  $\mu$ V/m (Loop antenna)  
 Selectivity 22 dB ( $\pm 9$  kHz)  
 Image Response Ratio 45 dB (1 kHz)  
 Harmonic Distortion 0.5%  
 Signal-to-Noise Ratio 45 dB  
 Output Level/Output Impedance 230 mV/2.2 k ohms

### < GENERAL >

Power Requirements 100/120/220/240 V AC 50/60 Hz, 10 W  
 (General Export Model)  
 220 V, AC 50 Hz, 14 W (Europe)  
 240 V, AC 50 Hz, 14 W (U.K./Australia)  
 Dimensions (W x H x D) 432 x 72 x 289 mm  
 (17" x 2-13/16" x 11-3/8")  
 Weight 3.2 kg (70.4 lbs) net  
 Standard Accessories AM Loop Antenna  
 "T"-type FM antenna (300  $\Omega$ ) except Europe  
 Input-output connection cords

### CAUTION

 Parts marked with this sign are safety critical components. They must always be replaced with identical components – refer to the appropriate parts list to ensure exact replacement.

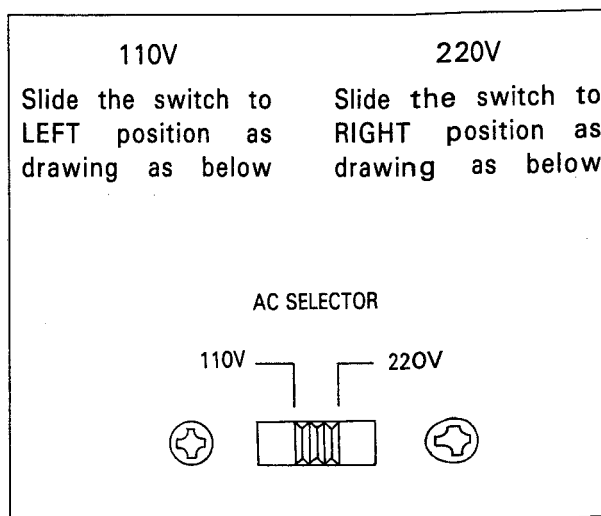
- Improvements may result in specifications or features changing without notice.
- Photos and illustration may differ slightly from production models.

## 2 VOLTAGE CONVERSION

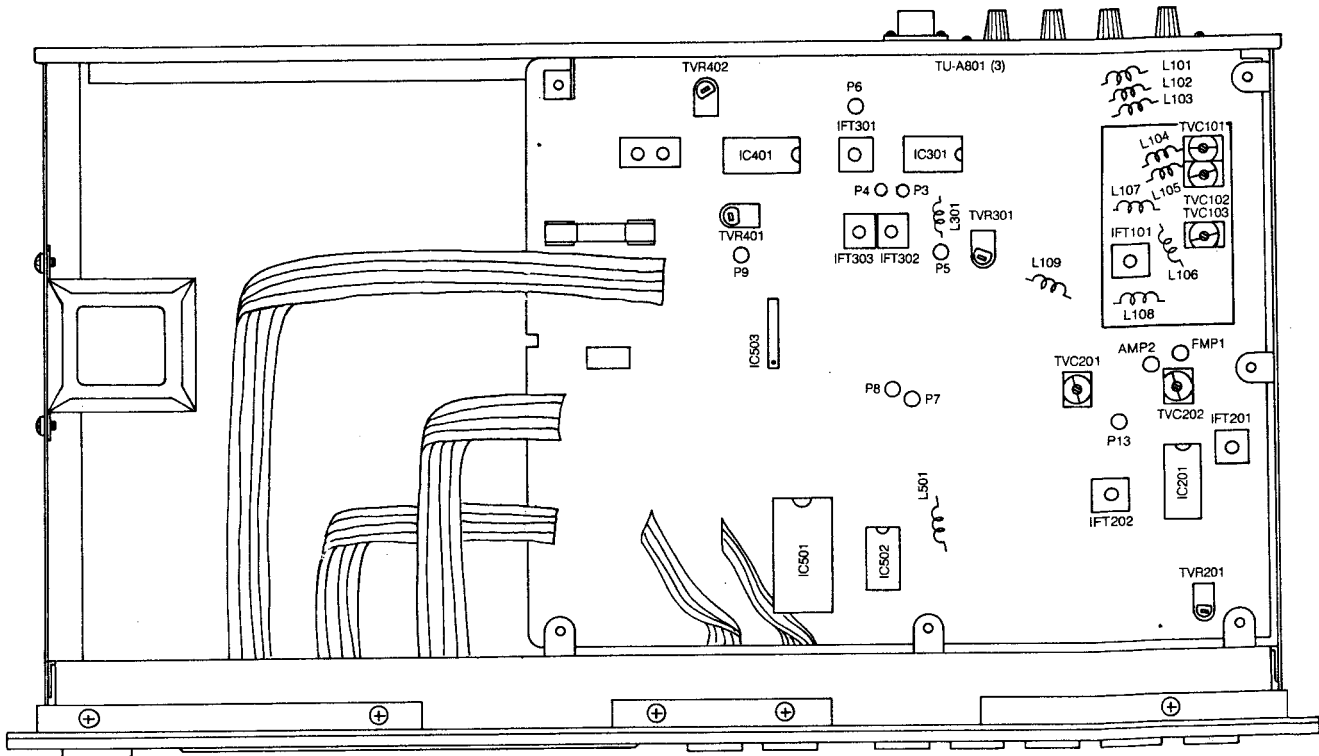
(FOR GENERAL EXPORT MODELS ONLY)

### AC VOLTAGE SELECTION

This unit operates on 110 volts or 220 volts AC. Before connecting the power cord to your AC outlet, make sure that the setting position of this switch matches your line voltage. If not, it must be set to your voltage in accordance with the following direction.



### 3 ADJUSTMENT AND TEST POINT LOCATIONS



TVR201	SIGNAL indicator (AM)
IFT202	AM IF transformer
IFT201	AM OSC coil
ROD ANT	AM ANT coil
IFT101	FM IF transformer
IFT302, IFT303	FM detection coil
TVR301	SIGNAL indicator (FM)
TVR401	VCO frequency (19 KHz)
TVR402	FM separation

## 4 ALIGNMENTS

### 4-1 GENERAL NOTICES:

- As for indicating antenna input voltage in dB, 0 dB is referenced to 1  $\mu$ V unless otherwise specified.
- Make sure that the T-X150 is properly set for the voltage in your locality.
- In the alignment procedure charts, the instruction in the SETTING column at each step is continued from the previous step unless otherwise specified.

### 4-2 MEASURING EQUIPMENT

- FM signal generator (SG)
- Stereo modulator
- AM signal generator (SG)
- Test loop antenna
- Impedance-matching network
- Frequency counter
- AC voltmeter
- DC voltmeter
- A differential voltmeter is preferable.
- Oscilloscope
- Distortion meter

### 4-3 FM SECTION

#### NOTES ON TEST SETUP AND ALIGNMENT PROCEDURE CHART

The relationship between output level indication (dB) of FM SG (signal generator) and tuner's antenna input power (dBf) under the condition shown in Fig. 4-1 is as follows:

- A. When the FM SG level indicator shows the open-end output voltage (dB)  
 $\text{dBf} = \text{FM SG level indication (dB)} - 6.8 \text{ dB}$   
 $\text{FM SG level indication (dB)} = \text{dBf} + 6.8 \text{ dB}$

- B. When the FM SG level indicator shows the matched-end output voltage (dB)  
 $\text{dBf} = \text{FM SG level indication (dB)} = 0.8 \text{ dB}$   
 $\text{FM SG level indication (dB)} = \text{dBf} + 0.8 \text{ dB}$

The FM section chart applies the principle stated in A. For example, if the antenna input power of the tuner (dBf) is 65 dBf, the FM SG level indicator will read 71.8 dBf  $\approx$  72 dBf.

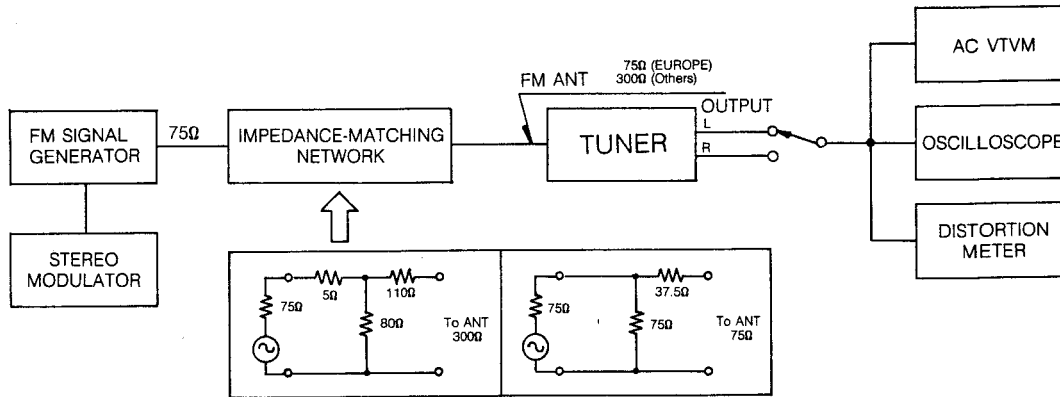


Fig. 4-1 Test setup for FM section alignment

Initial tuner settings:

FM/AM function selectors: FM  
 MONO/ST : MONO

#### 4-3-1 FM MONO ALIGNMENT

ITEM	SETTING	ADJUSTMENT POINT	MEASURING POINT	ADJUSTMENT
1 FM tracking	1-1	No adjustment required.		
2 FM sensitivity and distortion	2-1	<ul style="list-style-type: none"> <li>Stereo modulator                      Modulation frequency: 1 kHz                      Modulation level: 100% (75 kHz)                      OUTPUT MODE sw: MONO</li> <li>FM SG:                      Freq.: 98 MHz                      Modulation level: 100% (75% kHz)                      Level indication: 72 dB (Tuner ANT input: 65 dBf)</li> </ul>		
	2-2	<ul style="list-style-type: none"> <li>T-X150:                      Connect DC voltmeter between P3 and P4</li> </ul>	IFT-302	Between P3 and P4

ITEM	SETTING	ADJUSTMENT POINT	MEASURING POINT	ADJUSTMENT
2 FM sensitivity and distortion (cont'd)	2-3	IFT-303	OUTPUT	Min. distortion
	2-4	FM-IF transformer		Fine-adjust for min. distortion
	2-5	Repeat steps 2-3 through 2-4 to obtain the least possible distortion. Afterwards, disconnect the DC voltmeter.		
3 SIGNAL indicator (FM)	3-1	TVR301	SIGNAL indicator	Adjust until the 5th LED starts to light up.
4 FM mono output level	4-1	Check	OUTPUT	<ul style="list-style-type: none"> <li>Output level: <math>0.1V \pm 3\text{ dB}</math></li> <li>Note the actually measured level as reference for 5-1.</li> <li>Distortion: 0.12%</li> </ul>

4-3-2 FM STEREO ALIGNMENT

Initial tuner settings:

FM/AM function selectors: FM  
 AUTO TUNING : ON  
 MONO/ST : STEREO

ITEM	SETTING	ADJUSTMENT POINT	MEASURING POINT	ADJUSTMENT	
1 VCO frequency	1-1	<ul style="list-style-type: none"> <li>Stereo modulator: Pilot: 8% (6.0 kHz)</li> <li>L + R (MAIN): 90% (67.5 kHz)</li> <li>Modulation frequency: 1 kHz</li> <li>FM SG: Frequency: 98 MHz</li> <li>Level indication: 72 dB (Tuner ANT input: 65 dBf)</li> </ul>			
	1-2	<ul style="list-style-type: none"> <li>T-X150 Connect frequency counter between and GND.</li> <li>Stereo modulator: PILOT sw: OFF</li> </ul>	TVR-401	Between P9 and GND	
	1-3		Check	Frequency counter: to be stabilized at 19 kHz.	
	1-4	<ul style="list-style-type: none"> <li>Stereo modulator: PILOT sw: ON</li> </ul>	Check	STEREO indicator	To be illuminated when 19 kHz is stabilized.
2 FM stereo separation	2-1	<ul style="list-style-type: none"> <li>T-X150 Disconnect frequency counter.</li> <li>Stereo modulator: OUTPUT MODE sw: L</li> </ul>	TVR-402	OUTPUT	
	2-2	<ul style="list-style-type: none"> <li>Stereo modulator: OUTPUT MODE sw: R</li> </ul>		R-ch	Minimize 1 kHz leakage of R-ch
	2-3	Repeat steps 2-1 and 2-2 until the level of leakage at each channel becomes equal.			L-ch
3 FM stereo output level	3-1	<ul style="list-style-type: none"> <li>Stereo modulator: OUTPUT MODE sw: L + R (MAIN)</li> </ul>	Check	OUTPUT	<ul style="list-style-type: none"> <li>Distortion: 0.3%</li> <li>FM separation: 40 dB</li> </ul>

4-4 AM SECTION

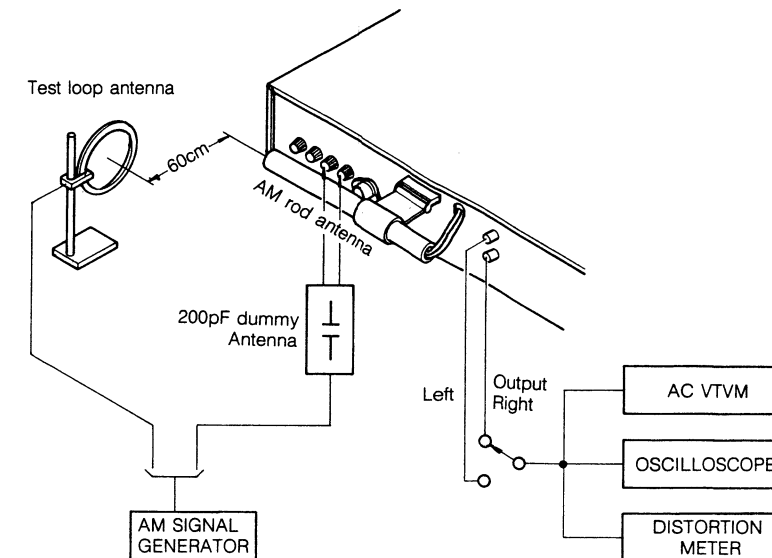


Fig. 4-2 Test setup for AM section alignment

4-4-1 AM ALIGNMENT

Initial tuner settings:

FM/AM function selectors: AM  
 MODE : Any position

ITEM	SETTING	ADJUSTMENT POINT	MEASURING POINT	ADJUSTMENT
1 AM tracking	1-1	No adjustment required.		
2 AM sensitivity and distortion	2-1	Connect the test loop antenna only to the AM SG and set as illustrated in Fig. 4-2.		
	2-2	<ul style="list-style-type: none"> <li>AM SG: Frequency: 603 kHz</li> <li>Modulation: 1 kHz, 30%</li> <li>Level indication: 100 dB</li> </ul>	AM ANT-L core AM OSC-L core AM IF transformer	OUTPUT
3 AM output level	3-1	Disconnect the test loop antenna from the AM SG. Connect the 200 pF dummy antenna between the AM SG and T-X150's AM antenna terminal.		
	3-2	<ul style="list-style-type: none"> <li>AM SG: Frequency: 999 kHz</li> <li>Level indication: 74 dB</li> <li>T-X150: Tune to 999 kHz</li> </ul>	Check	OUTPUT
4 SIGNAL indicator (AM)	4-1	AM SM semi-fixed resistor	SIGNAL indicator	Adjust until the 5th LED starts to light up.

### 5 BLOCK DIAGRAM

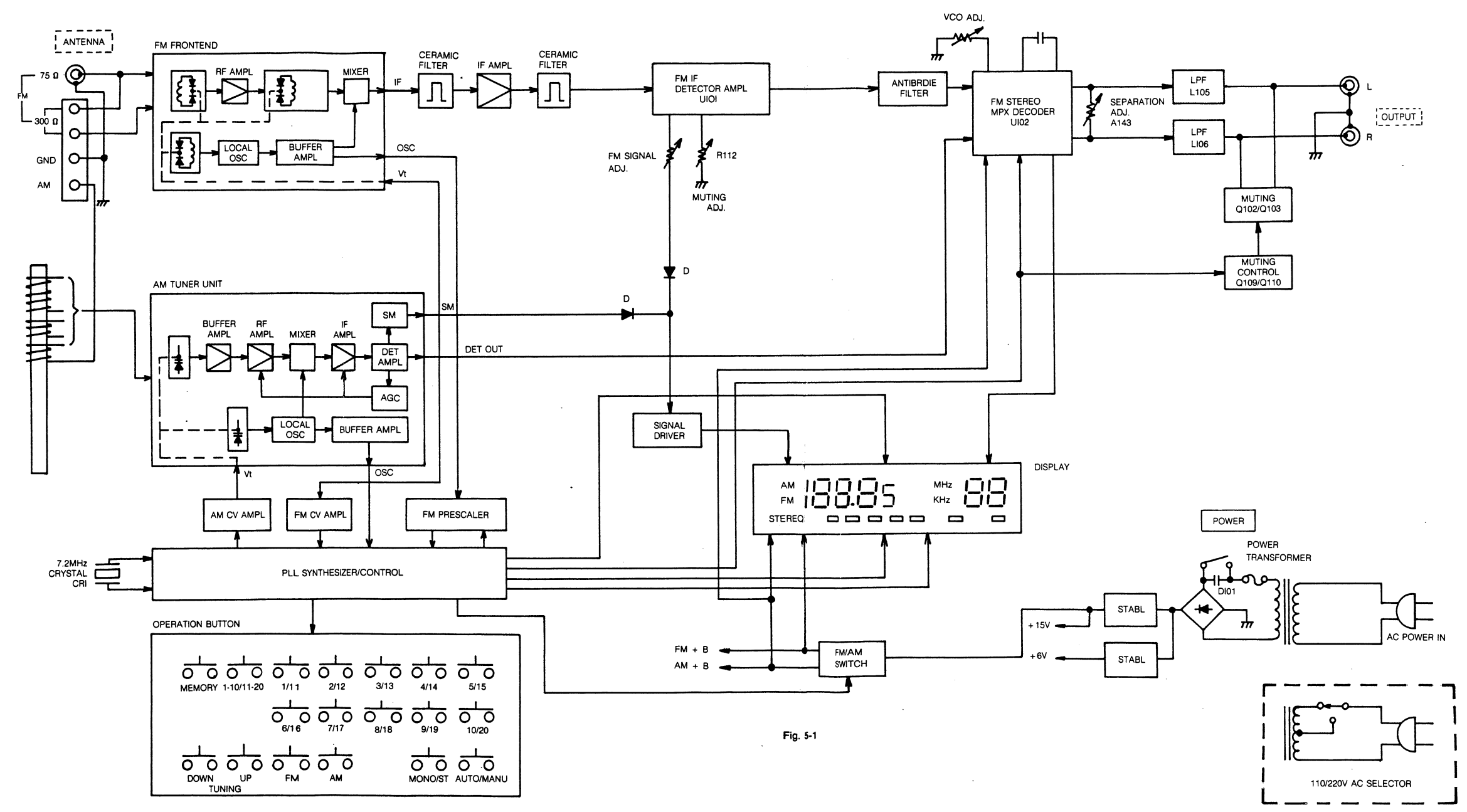
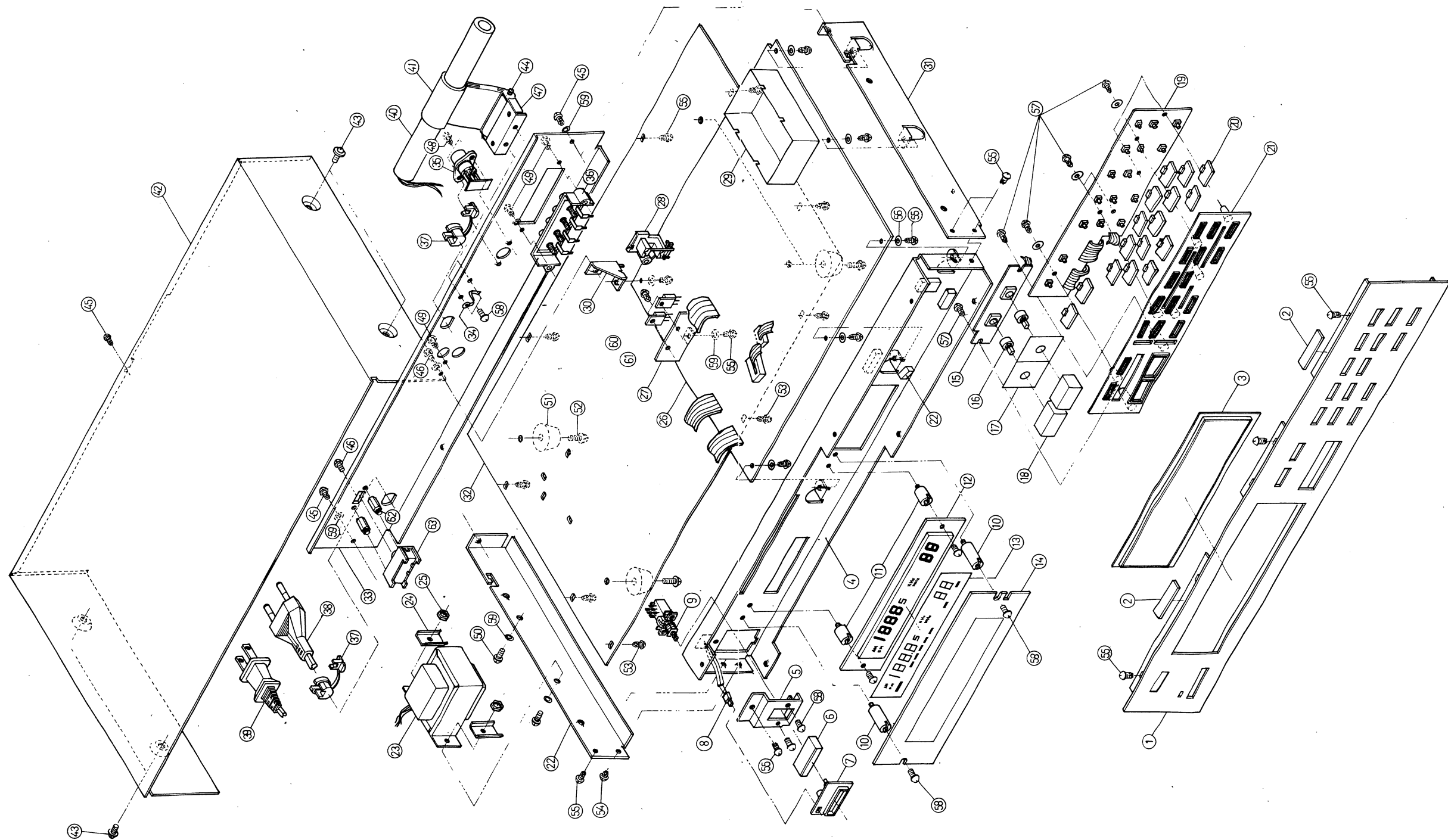
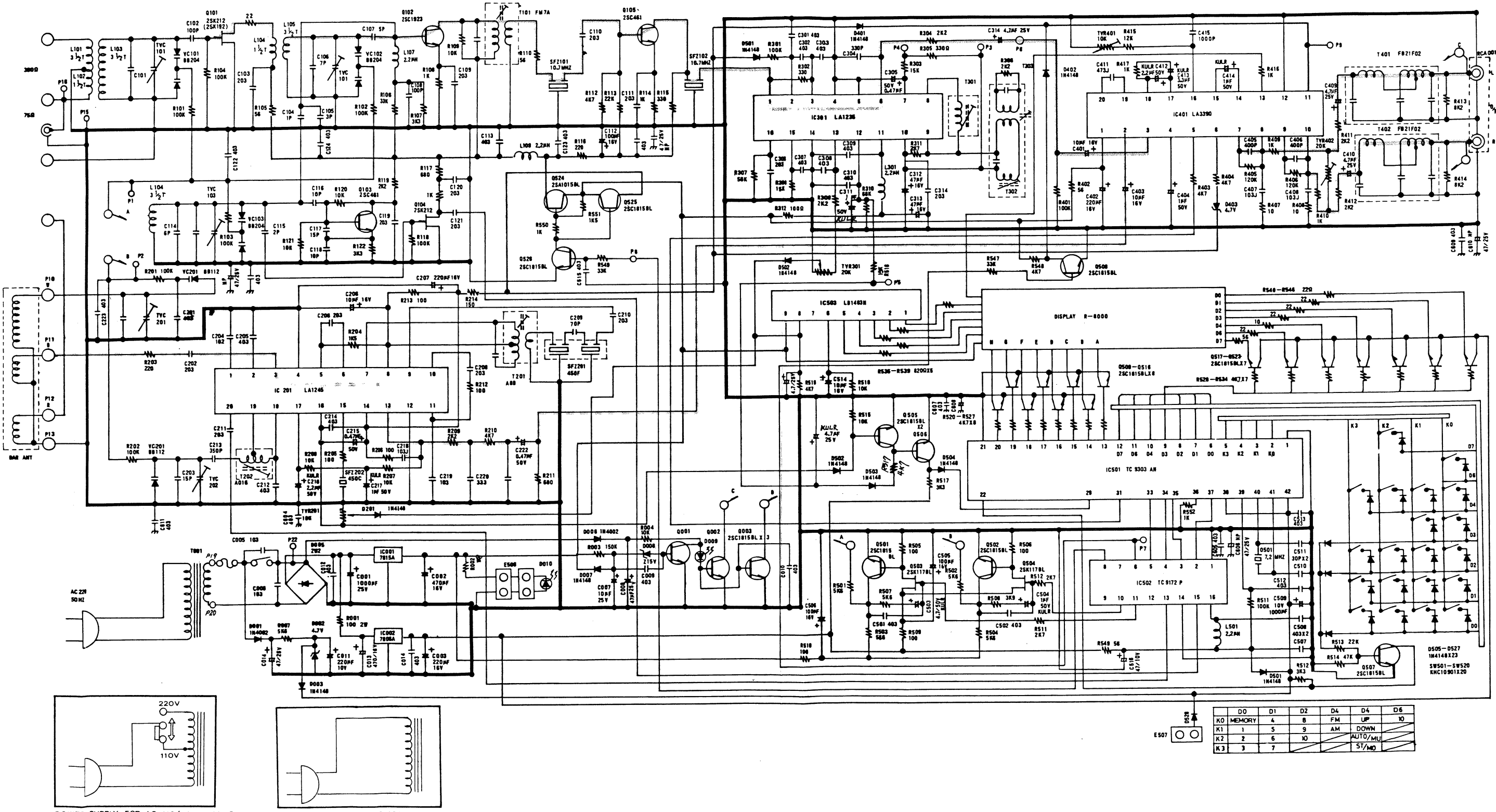


Fig. 5-1

6 EXPLODED VIEW T-X150



7. SCHEMATIC DIAGRAM



K0	D0	D1	D2	D4	D4	D6
K1	MEMORY	4	8	FM	UP	10
K2	1	5	9	AM	DOWN	
K3	2	6	10		AUTO/MIX	
	3	7			ST/MD	

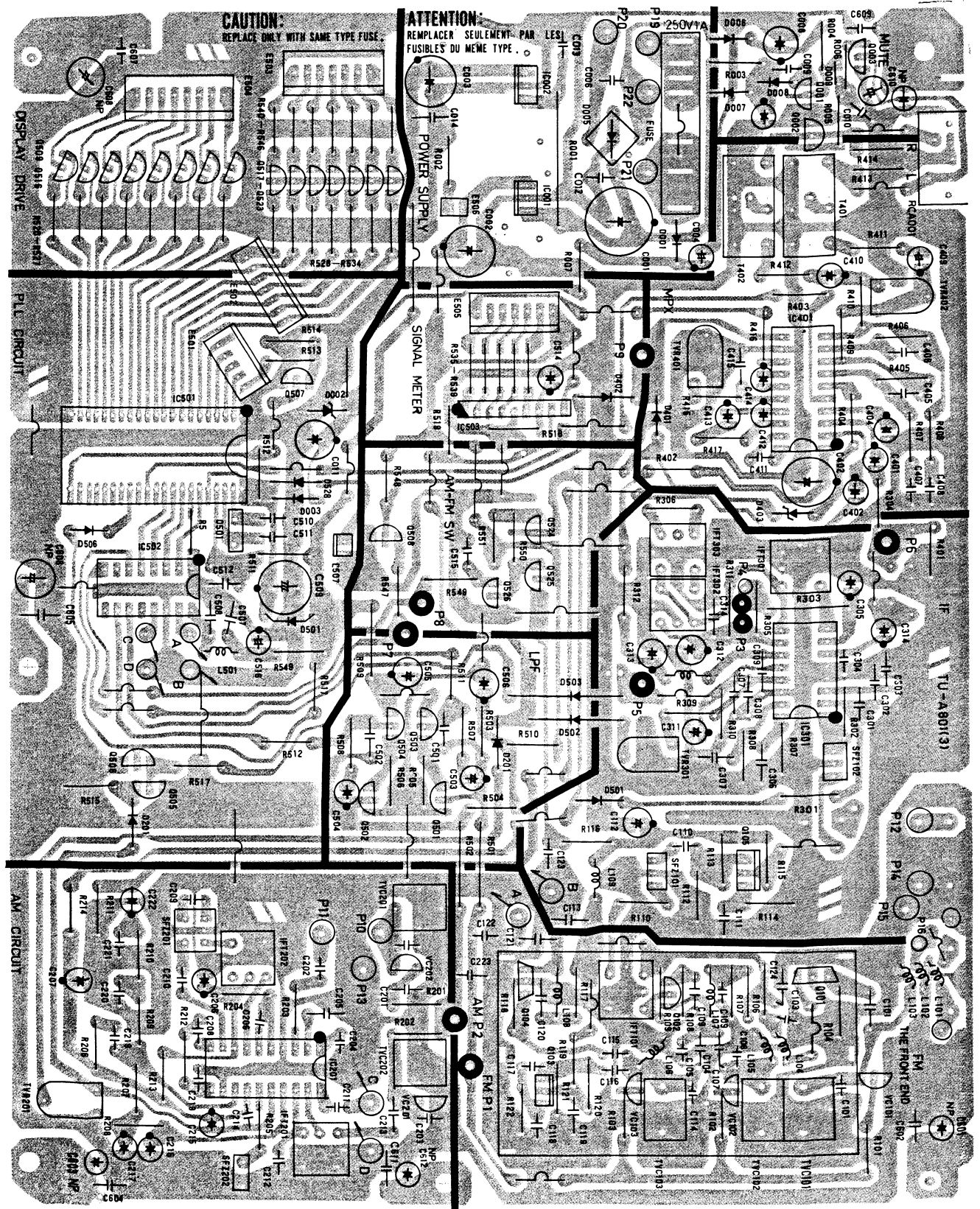


## 8. EXPLODED VIEW PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
1.	PNLAL0185X153	Front Panel L-185	
2.	RUB4000800506	Sponge Cushion 40x8x5	
3.	ARK**0203***7	Acry Plate A-203	
4.	CHAC*0898X157	Front Chassis C-898	
5.	CHAC*0974X158	Power Sw Holder C-974	
6.	KNBK0167B**8	Push Knob KB-167B	
7.	GSKKB0194B**5	Washer for Push Knob A-194(B)	
8.	LED050020RS*7	Power LED 2x5 Orange Red	
9.	PHSSUF12AA3*3	Push SW SPUF12AA03	
10.	STNS*0063***9	Copper Post S-063	
11.	STNE*0178***5	Copper Post E-178	
12.	LEDR8000*MS*9	LED display R-8000	
13.		P.V.C. Film E-175	
14.	ARK**0204***9	Acry Panel A-204	
15.	PCBS*0A817B23	PCB S-A817(B3)	
16.	CHAA*0112***4	Push SW Level A-112	
17.	CLT02802805*2	Flet D-0031A	
18.	KNBK0168B**1	Push Knob KB-168(B)	
19.	PCBS*0A817A23	PCB S-A817(A3)	
20.	KNBK0166B**6	Push Knob KB-166B	
21.	GSKKB0199B**4	Washer for Push Knob A-199(B)	
22.	CHACLO903*152	Left Chassis C-903	
23.	481918E2***T7	Transformer EUR 481918E2***T	
	481918B2***T6	Transformer EUR UK 481918B2***T	
	481918A2***T2	Transformer USA 481918S2***T	
	481918S2***T8	Transformer EX 481918S2***T	
24.	UTWC*0346***1	Pad for Transformer Chassis	
25.	NUT03006020*3	Nut M3	
26.	PCBTU0A801*36	PCB TU-A801(3)	
27.	RAPH*0050***0	Heat Sink H-050	
28.	RCKYK000802P0	RCA Jack KC21-0008	
29.	SPHSC0061***8	Insulator SC-061	
30.	CHAC*0253QT12	P.C.B. Holder C-253	
31.	CHACR0902X153	Right Chassis C-902	
32.	CHAC*0900X151	Bottom Chassis C-900	
33.	CHAC*0899X159	Rear Chassis C-899	
34.	CLP**0000***1	Weld 3φ	
35.	INKHT0009***0	75-ohm Socket HTR-0009	
36.	CHATR2358A**2	Antenna Terminal 4TR-2358A	
37.	CLPB*0007***5	Bushing B7	
38.		AC Cord CEEEx2C VDE	EUR
39.		AC Cord SPT-2 AWG 18x2C	EX
		AC Cord SPT-2 AWG 18x2C	
		(POLARZED)	USA, CND
		AC Cord BS6500	EUR UK
		Ac Cord (AUS SAA)	
40.		Rod Ant RA-5574A	
41.	CHAPH000116*1	Antenna Holder R-00025B	
42.	CHAC*0901X153	Upper Cover C-901	
43.	SCECM4006BW*2	Screw CRWMS 4x6	
44.	SCECM4046BC*3	Screw CRMS 4x46	
45.	SCECT3006BU*6	Screw CRTS 3x6	
46.	SCECM3006BC*8	Screw CRMS 3x6	
47.	SDY55DR0065*0	Antenna Holder	
48.	SCECM2608BC*9	Screw CRMS 2.6x8	
49.	SCECT0109BCP7	Plastic Screw 1/8x9	
50.	SCECM3008YC*2	Screw CRMS 3x8	
51.	FTP**0018***1	Foot Cushion 18φx10mm	
52.	SCECM4008BW*6	Screw CRWMS 4x8	
53.	SCECT3008BC*1	Screw CRTS 3x8	
54.	SCECT3004YC*3	Screw CRTS 3x4	
55.	SCECT3006YC*7	Screw CRTS 3x6	
56.	FBW04010010*9	Insulation Washer 3.2x10x1	
57.	SCECT2606YC*4	Screw CRTS 2.6x6	
58.	SCECM3006YC*9	Screw CRMS 3x6	
59.	FTW03208005*7	Washer 3.2x10x1	
60.	ICCNJ07890A*8	IC JRC 7806A	
61.	ICCNJ07815A*9	IC JRC 7815A	
62.	STNVC100180*1	Copper Post E-161	EX
63.	SLSESD271U**0	Slide SW	EX
64.	SCECM3005BU*6	Slotted Head Screw 3x6	
65.	ITDT**X150*37	Owner's Manual	
66.		Styrofoam PF-054	
67.		Inside carton	
68.		Outside carton (Fore in one)	

# 9 PC BOARD AND PARTS LIST

## 9.1 TUNER PC BOARD TU-A801 (3) AND PARTS LIST



## TUNER PCB ASSY TU-A801 (3)

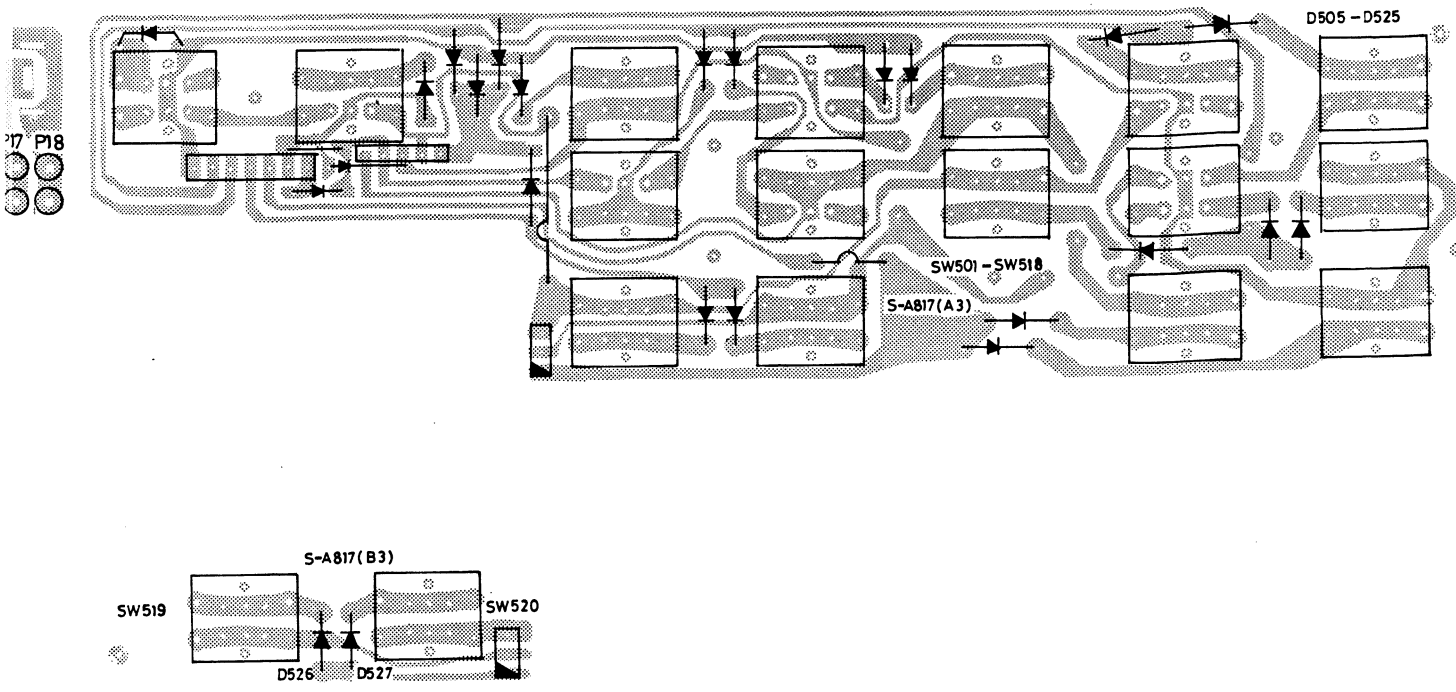
REF. NO.	PARTS NO.	DESCRIPTION
	PCBTUOA801*36	TUNER PCB ASSY
	PCBTUOA801*36	TUNER PCB
	- IC'S -	
IC001	ICCNJ07815A*9	JRC7815A
IC002	ICCNJ07806A*8	JRC7806A
IC201	ICCLA1245***4	LA1245
IC301	ICCLA1235***2	LA1235
IC401	ICCLA03390**9	LA3390
IC501	ICCTC09303AN6	TC9303AN
IC502	ICCTC09172P*5	TC9172P
IC503	ICCLB01403**6	B1403N
	- TRANSISTORS -	
Q001-Q003	TRSSC1815GR*4	2SC1815GR
Q101	TRSSK0192Y**0	2SK192
Q102	TRSSC19230**4	2SC1923(I)
Q103	TRSSC0461C**8	2SC461C
Q104	TRSSK0192Y**0	2SK192
Q105	TRSSC0461C**8	2SC461C
Q501, Q502	TRSSC1815GR*4	2SC1815GR
Q503, Q504	TRSSK0117BL*7	2SK117BL
Q505-Q508	TRSSC1815BL*1	2SC1815BL
Q509-Q523	TRSSC1815BL*1	2SC1815BL
Q524	TRSSA1015RG*4	2SA1015GR
Q525, Q526	TRSSC1815GR*4	2SC1815GR
	- CARBON RESISTORS -	
All resistors are rated $\pm$ 5% tolerance and 1/4W		
R002	CBR001K0W4TJ7	1K ohm
R003	CBR150K0W4TJ6	150K ohm
R004	CBR010K0W4TJ8	10K ohm
R007	CBR05K60W4TJ6	5K6 ohm
R101-R104	CBR100K0W4TJ9	100K ohm
R105	CBR056R0W4TJ2	56 ohm
R106	CBR033K0W4TJ2	33K ohm
R107	CBR03K30W4TJ4	3K3 ohm
R108	CBR001K0W4TJ7	1K ohm
R109	CBR010K0W4TJ8	10K ohm
R110	CBR056R0W4TJ2	56 ohm
R112	CBR04K70W4TJ4	4K7 ohm
R113	CBR022K0W4TJ2	22K ohm
R114	CBR001K0W4TJ7	1K ohm
R115	CBR330R0W4TJ3	330 ohm
R116	CBR100R0W4TJ1	100 ohm
R117	CBR220R0W4TJ1	220 ohm
R118	CBR100K0W4TJ9	100K ohm
R119	CBR02K20W4TJ5	2K2 ohm
R120, R121	CBR010K0W4TJ8	10K ohm
R122	CBR03K30W4TJ4	3K3 ohm
R201, R202	CBR100K0W4TJ9	100K ohm
R203	CBR220R0W4TJ1	220 ohm
R204	CBR01K50W4TJ0	1K5 ohm
R205, R206	CBR100R0W4TJ4	100 ohm
R207, R208	CBR010K0W4TJ8	10K ohm
R209	CBR02K20W4TJ5	2K2 ohm
R210	CBR04K70W4TJ4	4K7 ohm
R211	CBR02K20W4TJ5	2K2 ohm
R212, R213	CBR100R0W4TJ4	100 ohm
R214	CBR150R0W4TJ1	150 ohm
R301	CBR100K0W4TJ9	100K ohm
R302	CBR330R0W4TJ3	330 ohm
R303	CBR015K0W4TJ0	15K ohm
R304	CBR02K20W4TJ5	2K2 ohm
R305	CBR330R0W4TJ3	330 ohm
R306	CBR02J20W4TJ5	2K2 ohm
R307	CBR056K0W4TJ7	56K ohm
R308	CBR015K0W4TJ0	15K ohm
R309	CBR02K20W4TJ5	2K2 ohm
R310	CBR068K0W4TJ1	68K ohm
R311	CBR02K70W4TJ4	2K7 ohm
R312	CBR100R0W4TJ4	100 ohm
R401	CBR100K0W4TJ9	100K ohm
R402	CBR056R0W4TJ2	56 ohm
R403, R404	CBR04K70W4TJ4	4K7 ohm
R405, R406	CBR120K0W4TJ1	120K ohm
R407, R408	CBR010R0W4TJ3	10 ohm
R409, R410	CBR001K0W4TJ7	1K ohm

REF. NO.	PARTS NO.	DESCRIPTION
R411, R412	CBR02K20W4TJ5	2K2 ohm
R413, R414	CBR08K20W4TJ8	8K2 ohm
R415	CBR012K0W4TJ7	12K ohm
R416, R417	CBR001K0W4TJ7	1K ohm
R501-R504	CBR05K60W4TJ6	5K6 ohm
R505, R506	CBR100R0W4TJ4	100 ohm
R507	CBR001K0W4TJ7	1K ohm
R508	CBR03K90W4TJ6	3K9 ohm
R509, R510	CBR100R0W4TJ4	100 ohm
R511	CBR02K70W4TJ3	2K7 ohm
R511-1	CBR100K0W4TJ4	100K ohm
R512	CBR03K30W4TJ4	3K3 ohm
R513	CBR022K0W4TJ2	22K ohm
R514	CBR047K0W4TJ6	47K ohm
R515	CBR010K0W4TJ8	10K ohm
R516	CBR010K0W4TJ8	10K ohm
R517	CBR03K30W4TJ4	3K3 ohm
R518	CBR010K0W4TJ8	10K ohm
R519, R534	CBR04K70W4TJ4	4K7 ohm
R535, R539	CBR820R0W4TJ1	820 ohm
R540	CBR056R0W4TJ2	56 ohm
R541	CBR022R0W4TJ8	22 ohm
R542	CBR010R0W4TJ3	10 ohm
R543-R546	CBR022R0W4TJ8	22 ohm
R547	CBR033K0W4TJ2	33K ohm
R548	CBR04K70W4TJ4	4K7 ohm
R549	CBR056R0W4TJ2	56 ohm
R549-1	CBR033K0W4TJ2	33K ohm
R550	CBR001K0W4TJ7	1K ohm
R551	CBR01K50W4TJ0	1K5 ohm
R552	CBR001K0W4TJ7	1K ohm
R553	CBR04K70W4TJ4	4K7 ohm
	- METAL FILM RESISTORS -	
R001	MTR010R01RTJ4	10 ohm 1W
	- CAPACITORS -	
C001	ELC02K2025R30	Elec. 2200u 25V
C002	ELC470U016R37	Elec. 470u 16V
C003	ELC220U016R37	Elec. 220u 16V
C004	ELC047U025R38	Elec. 47u 25V
C006	CRC0P01050RZ4	Ceramic 0.01u 50V
C007	ELC010U025R31	Elec. 10u 25V
C008	ELC047U025R38	Elec. 47u 25V
C009, C010	CRC0P04050RZ5	Ceramic 0.04u 50V
C011	ELC220U016R37	Elec. 220u 16V
C012	CRC0P04050RZ5	Ceramic 0.04u 50V
C013	ELC470U016R37	Elec. 470u 16V
C014	CRC0P04050RZ5	Ceramic 0.04u 50V
C101, C102	CRC0100050RK5	Ceramic 100P 50V
C103	CRC0P04050RZ5	Ceramic 0.04u 50V
C104	CRC0001050R08	Ceramic 1P 50V
C105	CRC0003050R05	Ceramic 3P 50V
C106	CRC0007050R19	Ceramic 7P 50V
C107	CRC0005050R11	Ceramic 5P 50V
C108	CRC0100050RK5	Ceramic 100P 50V
C109	CRC0P02050RZ8	Ceramic 0.02u 50V
C110, C111	CRC0P02050RZ8	Ceramic 0.02u 50V
C112	ELC100U016R31	Elec. 100u 16V
C113	CRC0904050RZ5	Ceramic 0.04u 50V
C114	CRC0006050RZ4	Ceramic 6P 50V
C115	CRC0002050R01	Ceramic 2P 50V
C116	CRC0010050R45	Ceramic 10P 50V
C117	CRC0015050RK2	Ceramic 15P 50V
C118	CRC0010050R18	Ceramic 10P 50V
C119-C121	CRC0P02050RZ8	Ceramic 0.02u 50V
C122-C124	CRC0P04050RZ5	Ceramic 0.04u 50V
C201	CRC0P04050RZ5	Ceramic 0.04u 50V
C202	CRC0P02050RZ8	Ceramic 0.02u 50V
C203	CRC0015050RK2	Ceramic 15P 50V
C204	CRC0P01050RZ3	Ceramic 0.001u 50V
C205	CRC0P04050RZ5	Ceramic 0.04u 50V
C206	CRC0P02050RZ8	Ceramic 0.02u 50V
C206-1	ELC010U016R39	Elec. 10u 16V
C207	ELC220U016R37	Elec. 220u 16V
C208	CRC0P02050RZ8	Ceramic 0.02u 50V
C209	CRC0070050RK1	Ceramic 70P 50V
C210, C211	CRC0P02050RZ8	Ceramic 0.02u 50V
C212	CRC0P04050RZ5	Ceramic 0.04u 50V

REF. NO.	PARTS NO.	DESCRIPTION
C213	PSC0350050RJ6	P.S. 350P 50V
C214	CRC0P04050RZ8	Ceramic 0.04u 50V
C215	ELCOU47050R36	Elec. 0.47u 50V
C216	ELC02U2050R55	Elec. 2.2u 50V KULR
C217	ELC001U050R58	Elec. 1u 50V KULR
C218	PECOPO1050RK7	Mylar 0.01u 50V
C219	CRCPO01050RZ3	Ceramic 0.001u 50V
C220	PECU033050RK1	Mylar 0.033u 50V
C222	ELCOU47050R54	Elec. 0.47u 50V
C223	CRCOP02050RZ8	Ceramic 0.02u 50V
C301-C303	CRCOP04050RZ5	Ceramic 0.04u 50V
C304	PSC0250050RJO	P.S. 250P 50V
C305	ELCOU47050R36	Elec. 0.47u 50V
C306-C310	CRCOP04050RZ5	Ceramic 0.04u 50V
C311	ELC001U050R31	Elec. 1u 50V KLUR
C312, C313	ELC047U016R37	Elec. 47u 50V
C314	ELC047U025R35	Elec. 4.7u 25V
C314-1	CRCOP02050RZ8	Ceramic 0.02u 50V
C401, C403	ELC010U016R39	Elec. 10u 16V
C402	ELC220U016R37	Elec. 220u 16V
C404	ELC001U050R31	Elec. 1u 50V
C405, C406	PSC0400050RK8	P.S. 400P 50V
C407, C408	PECOPO1050RK7	Mylar 0.01u 50V
C409, C410	ELC04U7025R35	Elec. 4.7u 25V
C411	PECU047050RK0	Mylar 0.047u 50V
C412	ELC02U2050R55	Elec. 2.2u 50V KULR
C413	ELC03U3050R54	Elec. 3.3u 50V KULR
C414	ELC001U050R58	Elec. 1u 50V KULR
C415	PSC1000050RJ3	P.S. 1000P 50V
C501, C502	CRCOP04050RZ5	Ceramic 0.04u 50V
C503	ELC04U7050R54	Elec. 4.7u 50V KULR
C504	ELC001U050R58	Elec. 1u 50V KULR
C505, C506	ELC100U016R31	Elec. 100u 16V
C507, C508	CRCOP04050RZ5	Ceramic 0.04u 50V
C509	ELC001K010R36	Elec. 1000u 10V
C510, C511	CRCO030050RK3	Ceramic 30P 50V
C512, C513	CRCOP04050RZ5	Ceramic 0.04u 50V
C514	ELC010U016R39	Elec. 10u 16V
C515	CRCOP04050RZ5	Ceramic 0.04u 50V
C516	ELC047U016R37	Elec. 47u 16V
C604, C605	CRCOP04050RZ5	Ceramic 0.04u 50V
C606	ELC220U016R01	Elec. 220u 16V NP
C609	CRCOP04050RZ5	Ceramic 0.04u 50V
C610	ELC047U025R00	Elec. 47u 25V NP
- DIODE -		
D001	DIDIN4002***2	1N4002
D002	DID04V70W5**9	4.7V 0.5W
D003	DIDIN4148***8	1N4148
D005	DIDBRO002W1*2	2W01
D006	DIDIN4002***2	1N4002
D007	DIDIN4148***8	1N4148
D008	DID015V0W5**5	15V 0.5W
D201	DIDIN4148***8	1N4148
D401, D402	DIDIN4148***8	1N4148
D403	DID04V70W5**9	4.7V 0.5W
D501, 503	DIDIN4148***8	1N4148
D506	DIDIN4148***8	1N4148
- CERAMIC FILTER -		
SFZ101, SFZ102	SFZ10P7NA6*07	10.7NA6
SFZ201	SFZ450F*****5	450F
SFZ202	SFZ450C4N***7	450C4N
- TRIMMER CAPACITORS -		
TVC101, TVC102	TVCITP8P****6	1TP-8P
TVC103	TVCCTY112B**8	CTY112B
TVC201, TVC202	TVCITP8P****6	1TP-8P
- VARIABLE CAPACITOR DIODES -		
VC101-VC103	DIDBB0204A**5	BB204
VC201, VC202	DIDBB0112**0	BB112

REF. NO.	PARTS NO.	DESCRIPTION
- VARIABLE RESISTORS -		
TVR201	TVR010K083HM6	10K ohm
TVR301	TVR020K083HM1	20K ohm
TVR401	TVR010K083HM6	10K ohm
TVR402	TVR020K083HM1	20K ohm
- CHOKE -		
L107, L109	CILCH02P2UH*6	2.2uH
L301, L501	CILCH02P20H*6	2.2uH
	CILCH17P5UH*4	17.5uH
- IFT -		
T101	IFTFM0007A**7	FM-7A
T201	IFTA*0008B**7	AM-8B
T202	IFTA00016***6	A0-16
T301	IFTKC0235***5	KCP-235
T302	IFTL161212A*4	14A
T303	IFTL161214A*5	14B
T401, T402	IFTFB002102F0	FB21-02F
- X'TAL -		
Q501	TRSOS07PZMHZ9	7.2MHZ
- MISCELLANEOUS -		
	CNT**514305P9	Wafer Connector 5P
	CNT**549407P5	Wafer Connector 7P
	SDY43S01119*8	PIN 1x1x19
	RCKYK000802P0	2P RCA JACK
	LED050000RC*1	LED 5φ Red
	SCECM3006YC*9	Screw CRMS 3x6
	SCECT3006YC*7	Screw CRTS 3x6
	NUT03006020*3	Nut 3φ
	RAPH*0050***0	Heat Sink
	FUHFH0003***1	Fuse Holder
	SHPSC0061***8	Shield Plate
	CHATR2358A**2	Antenna Terminal

9.2 SWITCH PC BOARD S-A817 (A3, B3) AND PARTS LIST



SWITCH PCB ASSY S-A817 (A3)

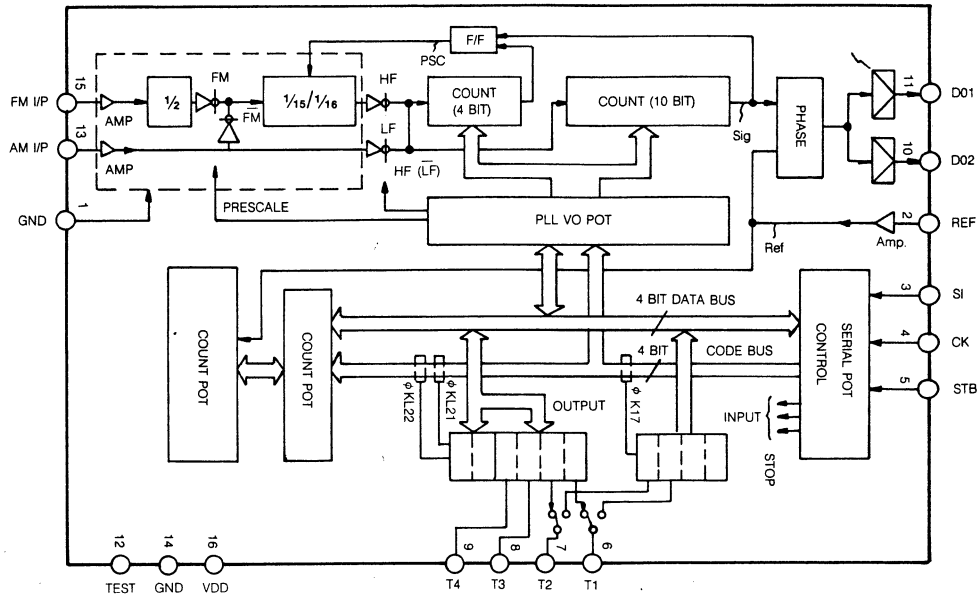
REF. NO.	PARTS NO.	DESCRIPTION
	PCBS*0A817A23	SWITCH PCB ASSY
	PCBS*0A817A23	SWITCH PCB
	- MISCELLANEOUS -	
	DIDIN4148***8	1N4148
	TCSEVQ00307K5	Key SW
	SCECT2806YC*4	Screw CRMS 2.6x6
	PRL10002405P9	Connector
	PRL10002407P9	Connector
	PRL04002403P4	Connector
	KNBKY0166B**6	Push Knob KB-166B
	GSSKB0199B**4	Washer for Push Knob

SWITCH PCB ASSY S-A817 (B3)

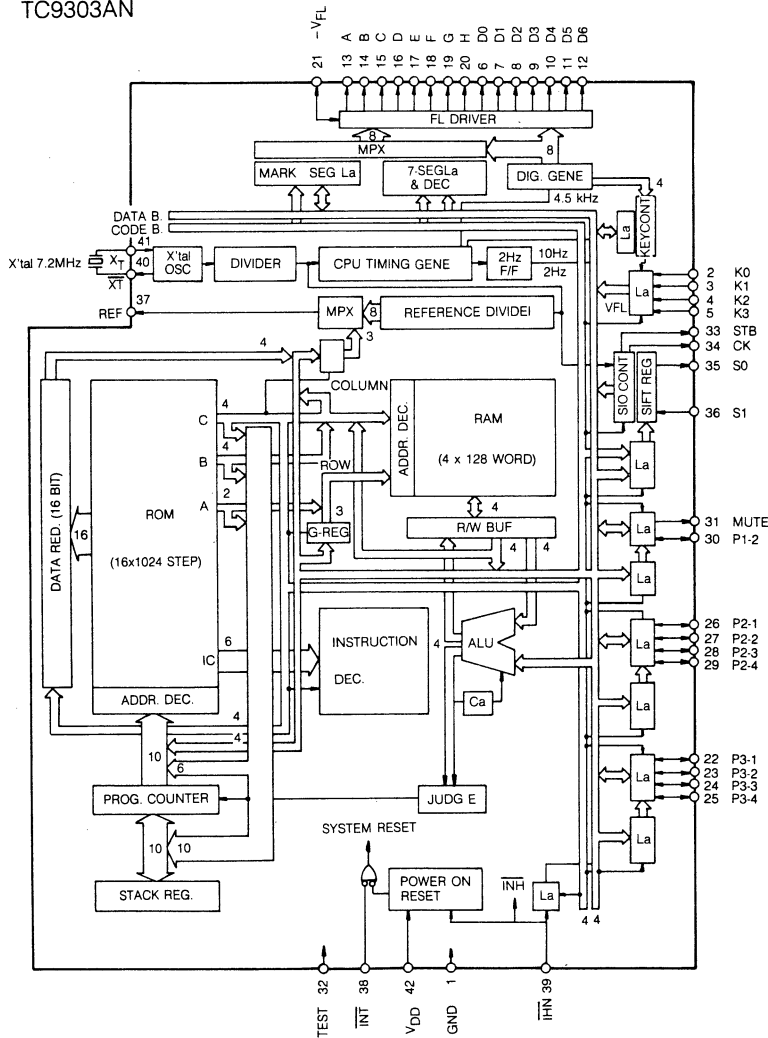
REF. NO.	PARTS NO.	DESCRIPTION
	PCBS*0A817B23	SWITCH PCB ASSY
	PCBS*0A817B23	SWITCH PCB
	- MISCELLANEOUS -	
	DIDIN4148***8	1N4148
	TCSKHC10901A7	Key SW
	KNBKY0168B**1	Push Knob KB-168B
	CLT05005005*6	Flet

10 IC BLOCK DIAGRAM

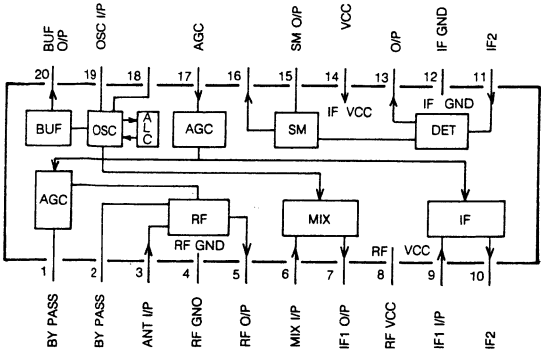
TC 9172P



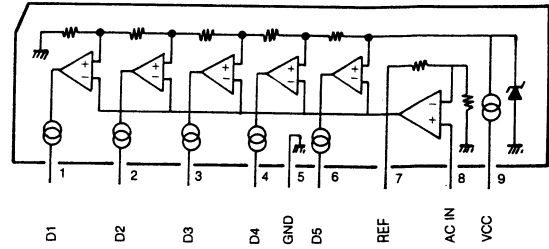
TC9303AN



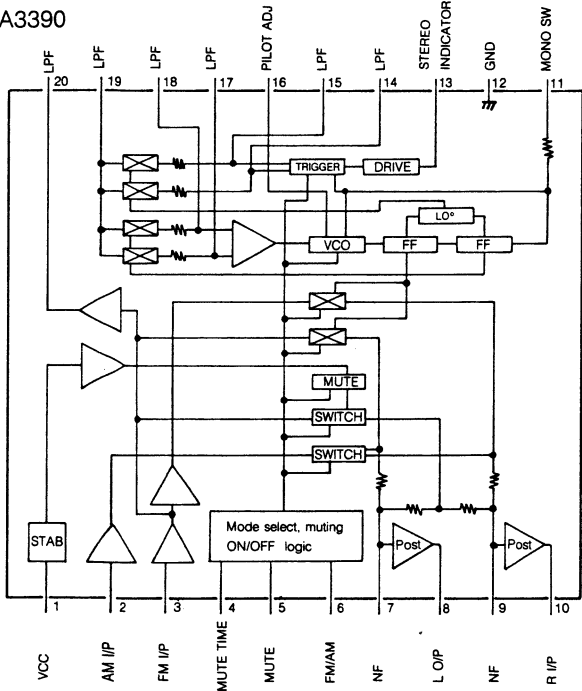
LA1245



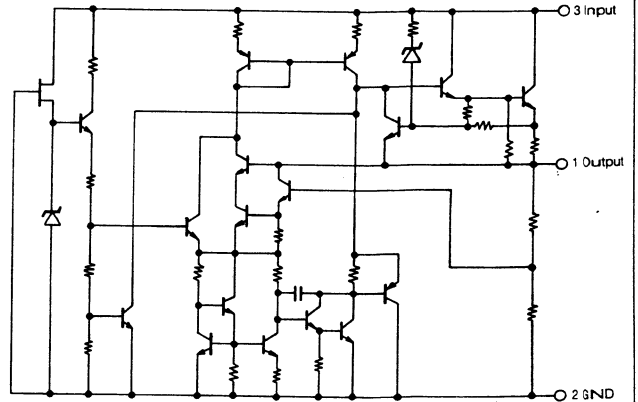
LB1403N



LA3390



UPC7806, 7815A



LA1235

