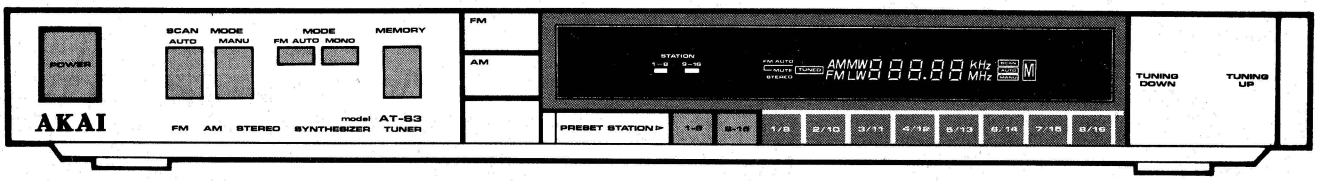
AKAI SERVICE MANUAL



FM/AM STEREO SYNTHESIZER TUNER

MODEL AT-S3/L

ABBREVIATIONS FOR SERVICE MANUAL
MODEL AT-S3/L

ABBREVIATION	EXPLANATION	ABBREVIATION	EXPLANATION
AC	Alternating Current	LSI	Large-Scale Integration
AF	Audio Frequency	LW	Long Wave
AFC	Automatic Frequency Control	MANU	MANUal
AGC	Automatic Gain Control	MC	Memory Control
ALC	Automatic Level Control	MIX	MIXer
AM	Amplitude Modulation	M,ME	Memory, MEmory
ANT	ANTenna	MONO	MONOphonic
BCD	Binary Coded Decimal	MPX	MultiPleX
BUF	BUFfer	OSC	OSCillator
CK	ClocK	PLL	Phase Locked Loop
CPU	Central Processing Unit	PSC	PreSCaler
DET	DETector	RAM	Random Access Memory
FF	Flip-Flop	RCH	Right CHannnel
FLD	FLuorescent Display	REG	REGulator
FM	Frequency Modulation	RF	Radio Frequency
FREQ	FREQuency	ROM	Read Only Memory
GND	GrouND	SEG	SEGment
H	High (referring to voltage)	SENS	SENSitivity
IF	Intermediate Frequency	SM	Signal Meter
IND	INDicator	SSG	Standard Signal Generator
INH	INHibit	ST	STereo
INT	INTerrupt	STO	STOre
L	Low (referring to voltage)	SW	SWitch
LCD	Liquid Crystal Display	THD	Total Harmonic Distortion
LCH	Left CHannel	VCO	Voltage Controlled Oscillator
LED	Light Emitting Diode	XT	crystal oscillator Terminal
LPF	Low Pass Filter	XTAL	crysTAL

FM/AM STEREO SYNTHESIZER TUNER

MODEL AT-S3/L

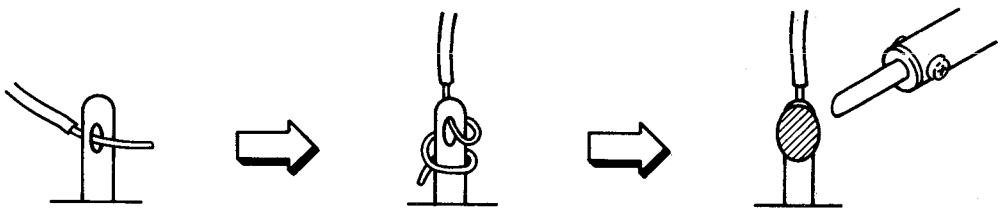
THIS MANUAL IS APPLICABLE TO BOTH SILVER AND PEARL SHADOW PANEL MODELS

SAFETY CHECK AFTER SERVICING

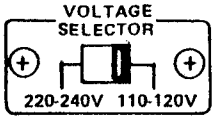
Confirm the specified insulation resistance between power cord plug prongs and externally exposed parts of the set is greater than 10 Mohms, but for equipment with external antenna terminals (tuner, receiver, etc.) and is intended for [C] or [A], specified insulation resistance should be more than 2.2 Mohms (ground terminals, microphone jacks, headphone jacks. line-in-out jacks etc.)

PRECAUTIONS DURING SERVICING

1. Parts identified by the ⚠ symbol parts are critical for safety.
   Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with specified replacements.
   Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers (Insulating Barriers)
   4) Insulation sheets for transistors
   5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.
10. Voltage Conversion
    Models for Canada, USA, Europe, UK and Australia are not equipped with this facility. Each machine is preset at the factory according to destination, but some machines can be set to 110V to 120V or 220V to 240V as required. If your machine's voltage can be converted:
    1) Disconnect the power cord.
    2) Turn the VOLTAGE SELECTOR located on the rear panel with a screwdriver until the correct voltage is indicated.



SECTION 1

SERVICE MANUAL

TABLE OF CONTENTS

For basic adjustments, measuring methods, and operating principles, refer to GENERAL TECHNICAL MANUAL.

I . SPECIFICATIONS

FM TUNER SECTION

TUNING FREQUENCY RANGE	87.4MHz to 108.1MHz
USABLE SENSITIVITY (IHF)	11.2dBf
QUIETING SENSITIVITY (S/N = 50dB) MONO/ST	 16.2/37.2dBf
CAPTURE RATIO	1.5dB
SELECTIVITY (400kHz)	60dB
IMAGE REJECTION	85dB
IF REJECTION	90dB
SPURIOUS REJECTION	90dB
AM SUPPRESSION	60dB
SUB CARRIER SUPPRESSION	60dB
S/N (MONO/ST)	75/65dB
T.H.D. (MONO/ST)	0.1/0.3%
STEREO SEPARATION	45dB (1kHz), 35dB (30Hz to 15kHz)
FREQUENCY RESPONSE	30Hz to 15kHz ±0.5dB

AM TUNER SECTION

	MW	LW (AT-S3L)
TUNING FREQUENCY RANGE	530 to 1610kHz (USA & Canada) 522 to 1611kHz (Others)	153 to 360kHz
USABLE SENSITIVITY (LOOP)	300μV/m	800μV/m
SELECTIVITY	25dB	30dB
IMAGE REJECTION	40dB	45dB
IF REJECTION	55dB	55dB
S/N	40dB	35dB
T.H.D.	1%	2%

OUTPUT SECTION

OUTPUT LEVEL FM (100% MOD.) AM (30% MOD.)	 700mV 250mV
OUTPUT IMPEDANCE	1.5kohms

OTHERS

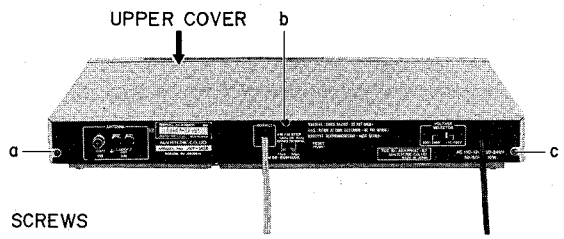
POWER REQUIREMENTS	120V, 60Hz for USA & Canada 220V, 50Hz for European countires 240V, 50Hz for UK & Australia 110-120V/220V-240V, 50/60Hz switchable for other countires
POWER CONSUMPTION	U, C, A Models: 10W
DIMENSIONS	440 (W) x 53 (H) x 274 (D) mm (17.3 x 2.1 x 10.8 inches)
WEIGHT	2.92kg (6.4 lbs)

* For improvement purposes, specifications and design are subject to change without notice.

II. DISMANTLING OF UNIT

In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the photographs. Reassemble in reverse order.

1



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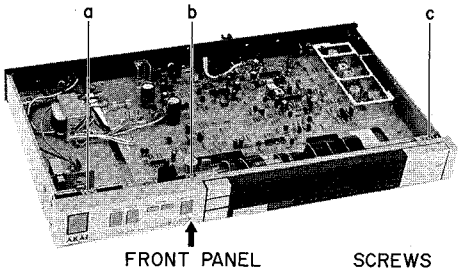

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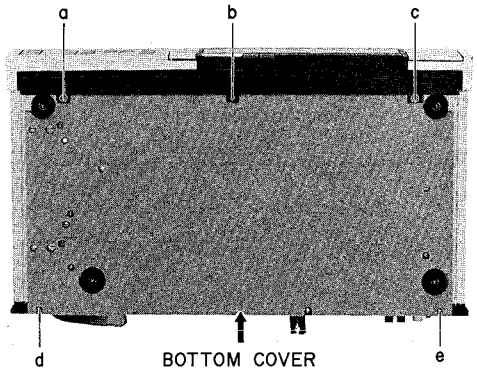
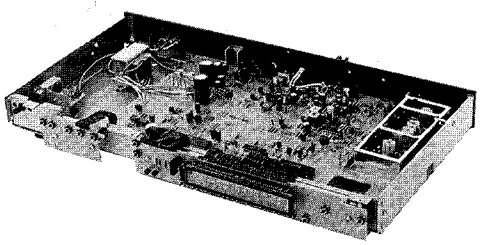


4



III. CONTROLS

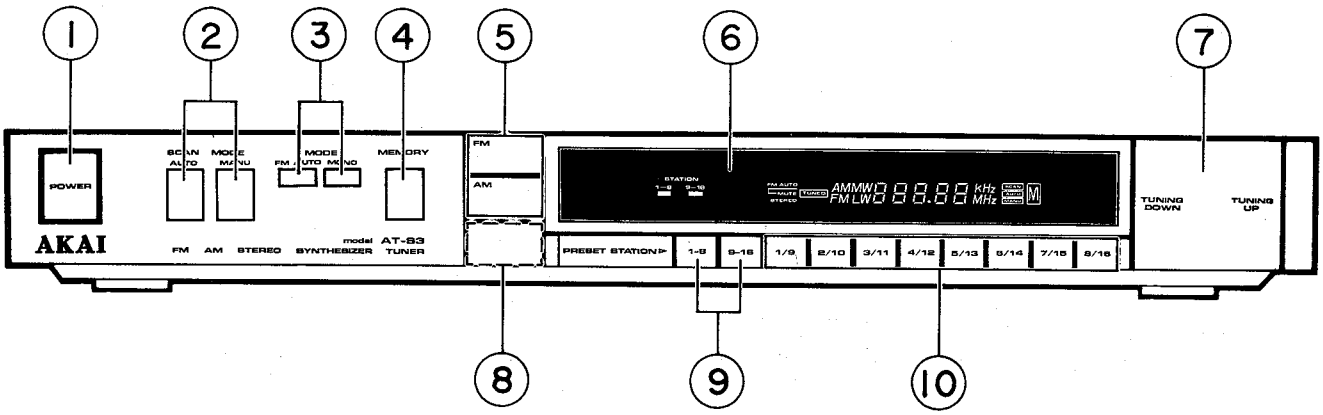


Fig. 3-1

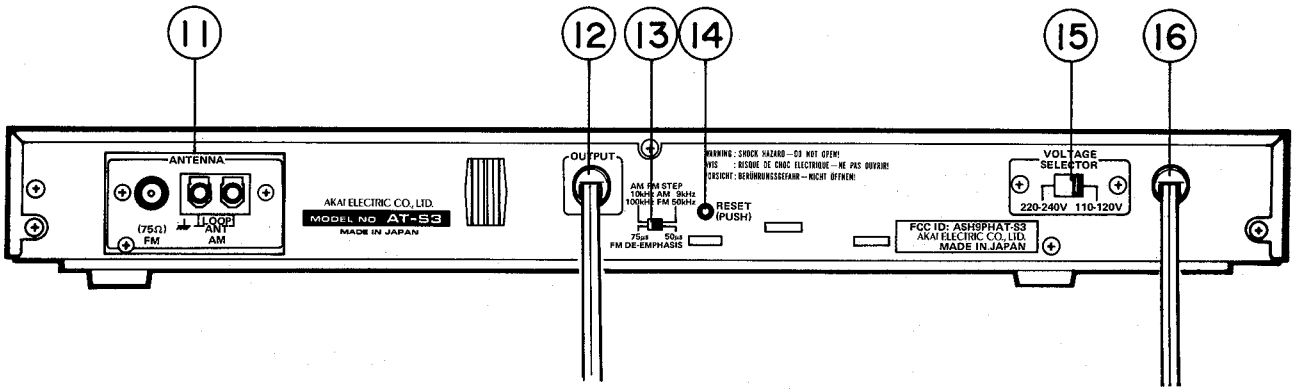


Fig. 3-2

1. POWER SWITCH
2. SCAN MODE SELECTORS
3. FM MODE SELECTORS
4. MEMORY BUTTON
5. BAND SELECTOR BUTTONS, FM/AM (FM/MW FOR AT-3L)
6. FL DISPLAY
7. TUNING (UP/DOWN) BUTTON
8. BAND SELECTOR BUTTON, LW (AT-S3L ONLY)
9. HIGH (CH9~16) AND LOW (CH1~8) PRESET STATION SELECTOR BUTTONS
10. PRESET STATION (1 TO 16) SELECTOR BUTTONS
11. ANTENNA TERMINALS
12. OUTPUT CORD
13. * AM/FM STEP/FM DE-EMPHASIS SELECTOR SWITCH (U MODEL ONLY)
14. * RESET BUTTON
15. VOLTAGE SELECTOR SWITCH (U Y1 * MODELS ONLY)
16. POWER CORD

* SEE NOTE 1 & 2 FOR DETAILS.
* Y1 = FOR SOUTH AFRICA

NOTE:

1. RESET button

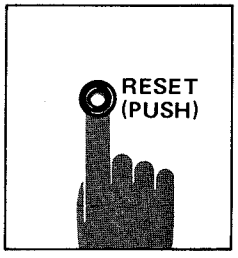
At the back of the Akai AT-S3/L, there is a RESET button which sets the microcomputer inside the Akai AT-S3/L to the initial modes when it is depressed. Depress this button should the following occur when the back-up power for the microcomputer's memory is insufficiently charged.

- The Akai AT-S3/L will not function when a button is depressed.
- A frequency is not properly displayed.
- If it is difficult to depress the RESET button, use a screwdriver or a ball point pen.

When the RESET button is depressed while the Akai AT-S3/L is turned on, it will go into the following initial modes:

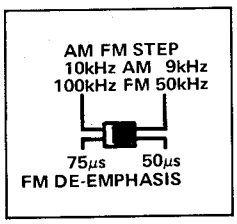
- The Akai AT-S3/L will go into FM reception mode.
- The frequency will be set to 87.4 MHz.
- The tuning mode will be set to manual.
- All the preset stations will be canceled.

After depressing the RESET button, you must reset the preset stations again.



2. AM FM STEP/FM DE-EMPHASIS selector
(Not on some models.)

Use this selector to set the frequency scanning steps and to de-emphasize the FM signal in an amount equal to the emphasis made at the broadcasting station. Set this selector according to your area.



Attention
After setting this selector, turn ON the Akai AT-S3/L and then depress the RESET button.

IV. PRINCIPAL PARTS LOCATION

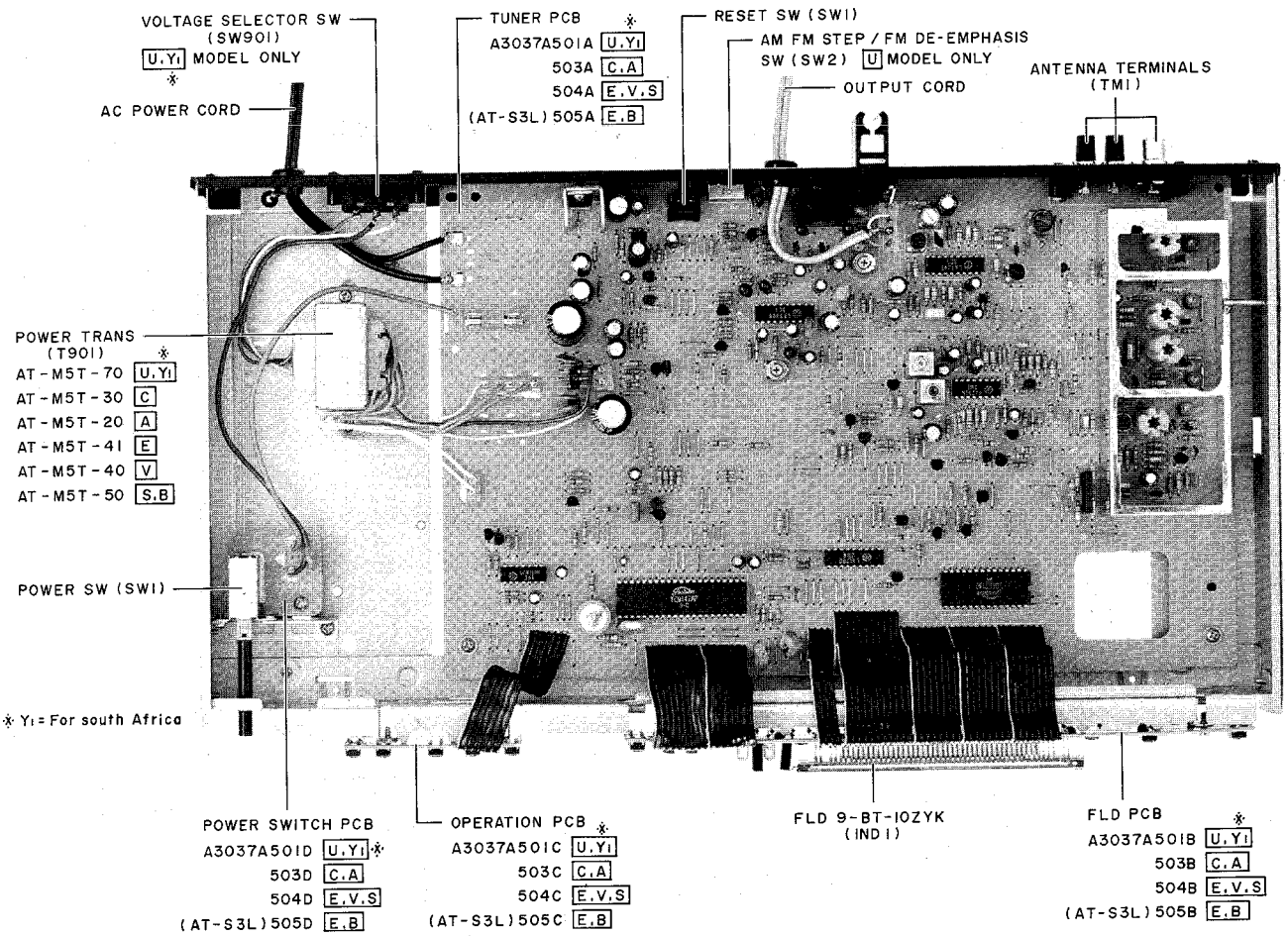


Fig. 4-1 Top View

V. ELECTRICAL ADJUSTMENT

5-1. INSTRUMENT CONNECTIONS FOR TUNER ADJUSTMENT

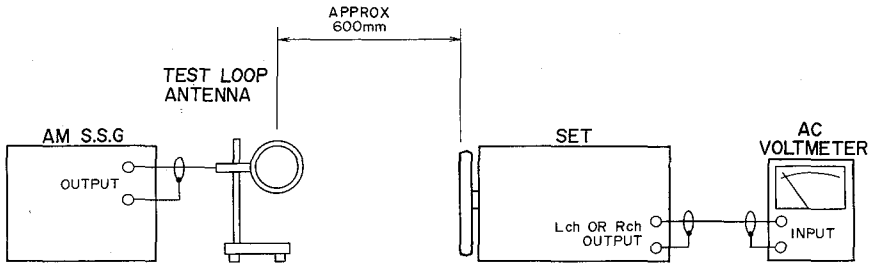


Fig. 5-1 Instrument Connections for AM (MW, LW) Section Adjustment

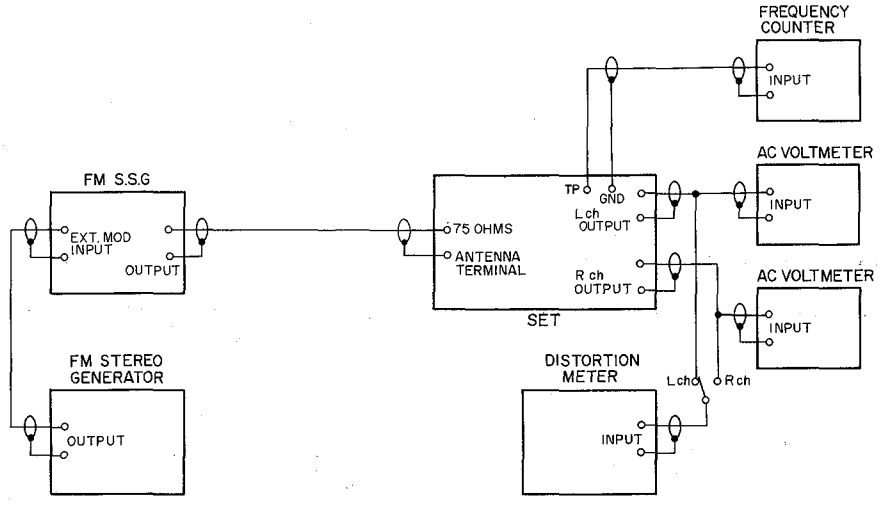


Fig. 5-2 Instrument Connections for FM Section Adjustment

5-2. AT-S3/L TUNER P.C BOARD ADJUSTMENT POINT

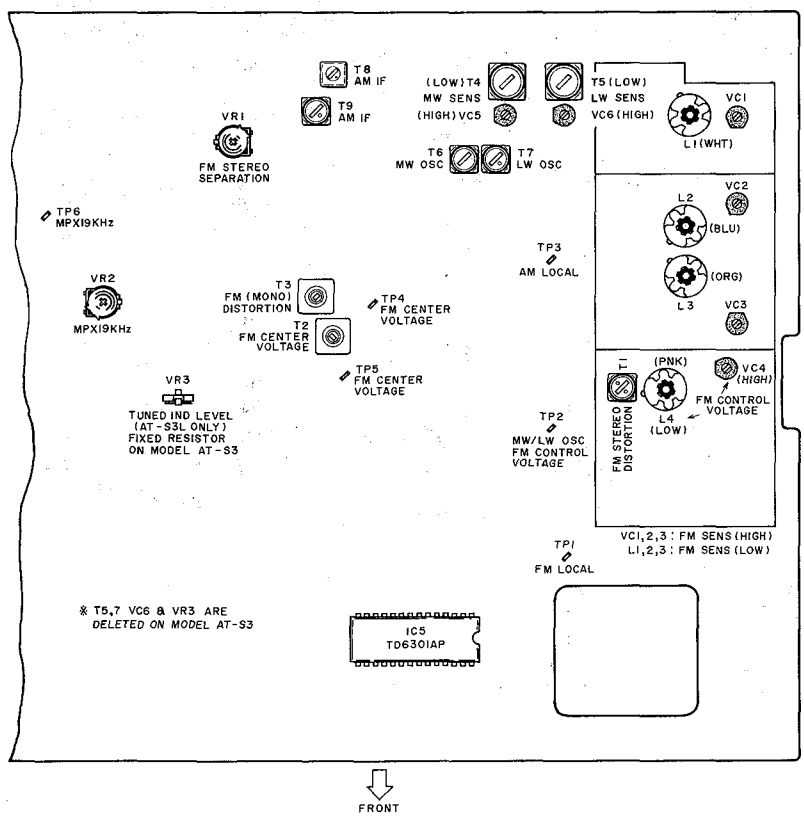


Fig. 5-3

5-3. AM (MW, LW) SECTION ADJUSTMENT (Refer to Figs. 5-1 & 5-3)

Step	Adjustment Item	Adjustment Point	Result	Remarks
1	LW OSC	T7	2.2 ±0.01V at 153kHz Less than 24V at 360Hz	• Band SW to LW. • Voltmeter between TP2 & GND. • Display to 153kHz & 360kHz.
2	MW OSC	T6	2.3 ±0.1V at 530kHz (522kHz) Less than 24V at 1610kHz (1611kHz)	• Band SW to MW. • Display to 530kHz (522kHz) & 1600 kHz (1611kHz). • Otherwise in the same condition as above.
3	FM Control Voltage (Low)	L4	3.0V at 88MHz	• Band SW to FM. • Display to 88MHz. • Otherwise in the same condition as above.
4	FM Control Voltage (High)	VC4	20.0V at 108MHz	• Display to 108MHz
5	Repeat steps 3 & 4			
6	AM IF	T8, T9	Maximum output Minimum Distortion	• Band SW to AM (MW). • 1000kHz (999kHz), 90dB input. • Display to 1000kHz (999kHz).
7	LW Low Range Sensitivity	T5	Less than 65dB	• Band SW to LW. • 164kHz input. • Display to 164kHz. • Less than 10% Distortion Factor.
8	LW High Range Sensitivity	VC6	Less than 65dB	• 299kHz input. • Display to 299kHz.
9	Repeat steps 7 & 8			
10	TUNED Indicator Level (AT-3L only)	VR3	Indicator "TUNED" is lit	• 250kHz, 65dB input. • Display to 250kHz.
11	MW Low Range Sensitivity	T4	Less than 60dB	• Band SW to MW. • 600kHz (603kHz) input. • Display to 600kHz (603kHz). • Less than 10% Distortion Factor.
12	MW High Range Sensitivity	VC5	Less than 60dB	• 1400kHz (1404kHz) input. • Display to 1400kHz (1404kHz).
13	Repeat steps 11 & 12.			

NOTE: 1. Set the internal modulation signal generator to 30%, 400Hz of each.
2. Use a digital voltmeter for the adjustments in Steps 1 to 5.
3. (kHz) in Result & Remarks indicates the frequencies for AM 9kHz STEP area.

5-4. FM SECTION ADJUSTMENT (Refer to Figs. 5-2 & 5-3)

Step	Adjustment Item	Adjustment Point	Result	Remarks
1	Low Range Sensitivity	L1, 2, 3	Less than 6dB	• Band SW to FM. • 88MHz, Mono input. • Display to 88MHz. • 3% Distortion Factor.
2	High Range Sensitivity	VC1, 2, 3	Less than 6dB	• 108MHz input. • Display to 108MHz.
3	Repeat steps 1 & 2.			

4	FM Center Voltage	T2	Centered Tuning Meter Indication	• Center Tuning Meter between TP4 and TP5 (See NOTE 2). • Tune only noise without interference from broadcasting.
5	Distortion (Mono)	T3	Less than 0.3%	• 98MHz, 60dB, Mono input. • Display to 98MHz.
6	MPX 19kHz	VR2	19kHz ±50Hz	• Mode SW to FM AUTO. • Frequency Counter to TP6. • 98MHz, 60dB, Stereo input. • Display to 98MHz.
7	Stereo Separation	VR1	More than 40dB	• 98MHz, 60dB, Stereo L-CH (R-CH) input. • Display to 98MHz. • Minimum output of R-CH (L-CH).
8	Distortion (Stereo)	T1	Less than 0.5%	• 98MHz, 60dB, Stereo input. • Display to 98MHz.

NOTE: 1. Set the internal modulation signal generator to 100% (75kHz div.), 1kHz of each.
2. The center tuning center such as the ones used on models AA-R20, 30, 40, 50 & AT-2400, 2600 can be used for this adjustment.
If they are not available, use a digital meter (DC VOLTAGE, RANGE 20V) instead, and adjust T2 so that it indicates 0V at the same condition.
3. Refer to AM Section Adjustment Steps 3 & 4 when only FM Section Adjustment is necessary.

VI. CLASSIFICATION OF VARIOUS PC BOARDS

6-1. P.C BOARD TITLES AND IDENTIFICATION NUMBERS

1) AT-S3

P.C BOARD TITLE	P.C BOARD NO.	DESTINATION
TUNER PCB	A3037A501A (ZED)	U, Y1
TUNER PCB	A3037A503A (ZED)	C, A
TUNER PCB	A3037A504A (ZED)	E, V, S
FLD PCB	A3037A501B	U, Y1
FLD PCB	A3037A503B	C, A
FLD PCB	A3037A504B	E, V, S
OPERATION PCB	A3037A501C	U, Y1
OPERATION PCB	A3037A503C	C, A
OPERATION PCB	A3037A504C	E, V, S

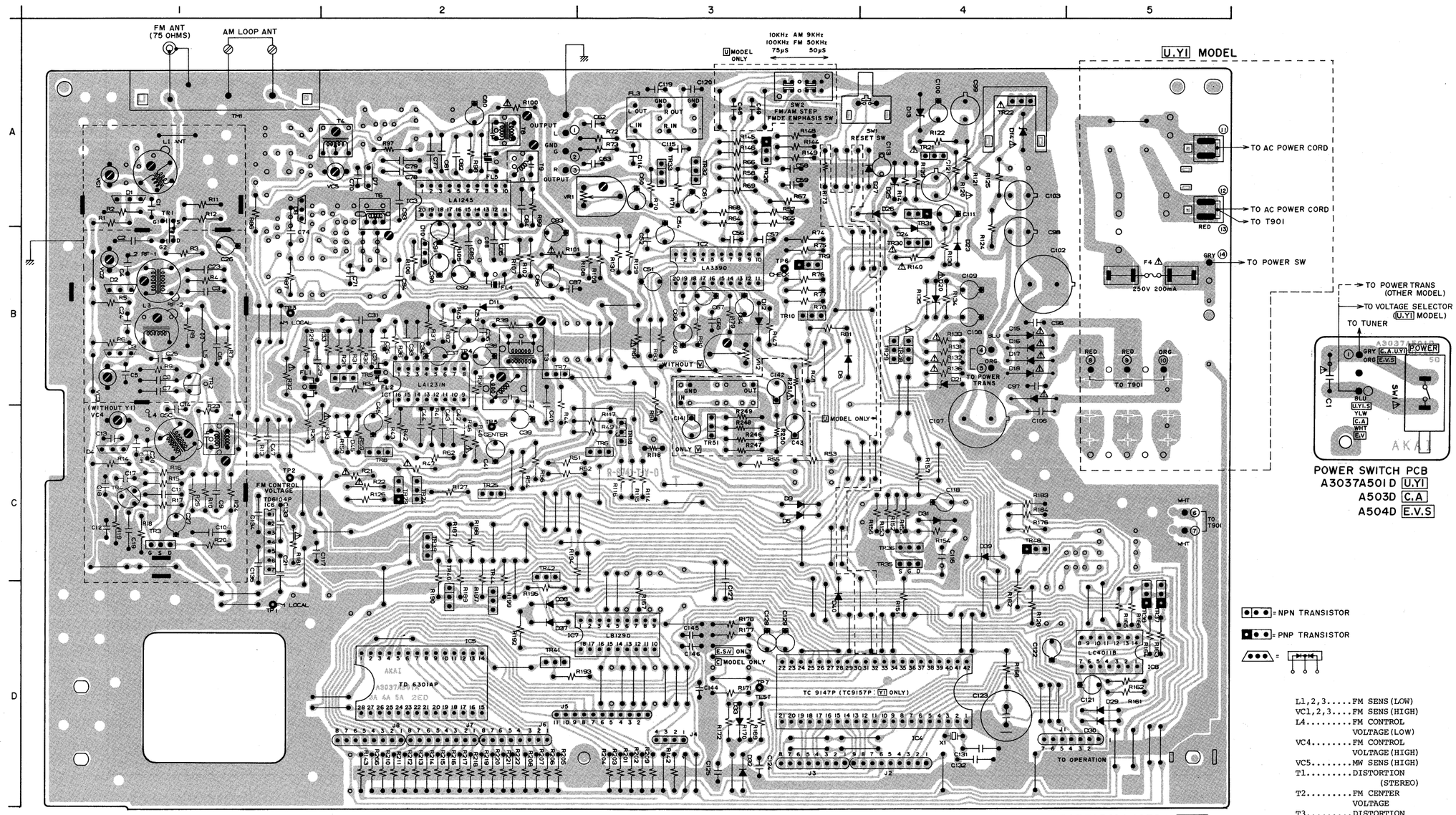
Y1 = For South AFRICA

2) AT-S3L

P.C BOARD TITLE	P.C BOARD NO.	DESTINATION
TUNER PCB	A3037A505A (ZED)	E, B
FLD PCB	A3037A505B	E, B
OPERATION PCB	A3037A505C	E, B

6-2. COMPOSITION OF VARIOUS P.C BOARDS

1) MODEL AT-S3 TUNER P.C BOARD A3037A501A(2ED), A3037A503A(2ED), A3037A504A (2ED) POWER SWITCH P.C BOARD A3037A5010, A3037A5030, A3037A5040



LOCATION OF COMPONENTS

IC
IC1.....B2
IC2.....B3
IC3.....A2
IC4.....D4
IC5.....D2
IC6.....C1
IC7.....D3
IC8.....D5

TR
TR1.....A1
TR2.....B1
TR3,4.....C1
TR5.....B2
TR6.....C3
TR7.....B2
TR8.....C2
TR9,10.....B3
TR18.....C3
TR21,22.....A4
TR23 to 25.....C2
TR26.....C3
TR28,29.....B4
TR30,31.....A4
TR32,33.....A3
TR35,36.....C4
TR37,38.....D5
TR39.....C2
TR40,41.....D2
TR42.....C2
TR44.....D2
TR48.....C4
TR51.....C3

TERMINALS
J1.....D5
J2.....D4
J3 to 5.....D3
J6 to 8.....D2
① ② ③ A2
④ ⑤.....B4
⑥ ⑦.....C5
⑧ ⑨ ⑩.....B5
⑪ ⑫ ⑬ A5

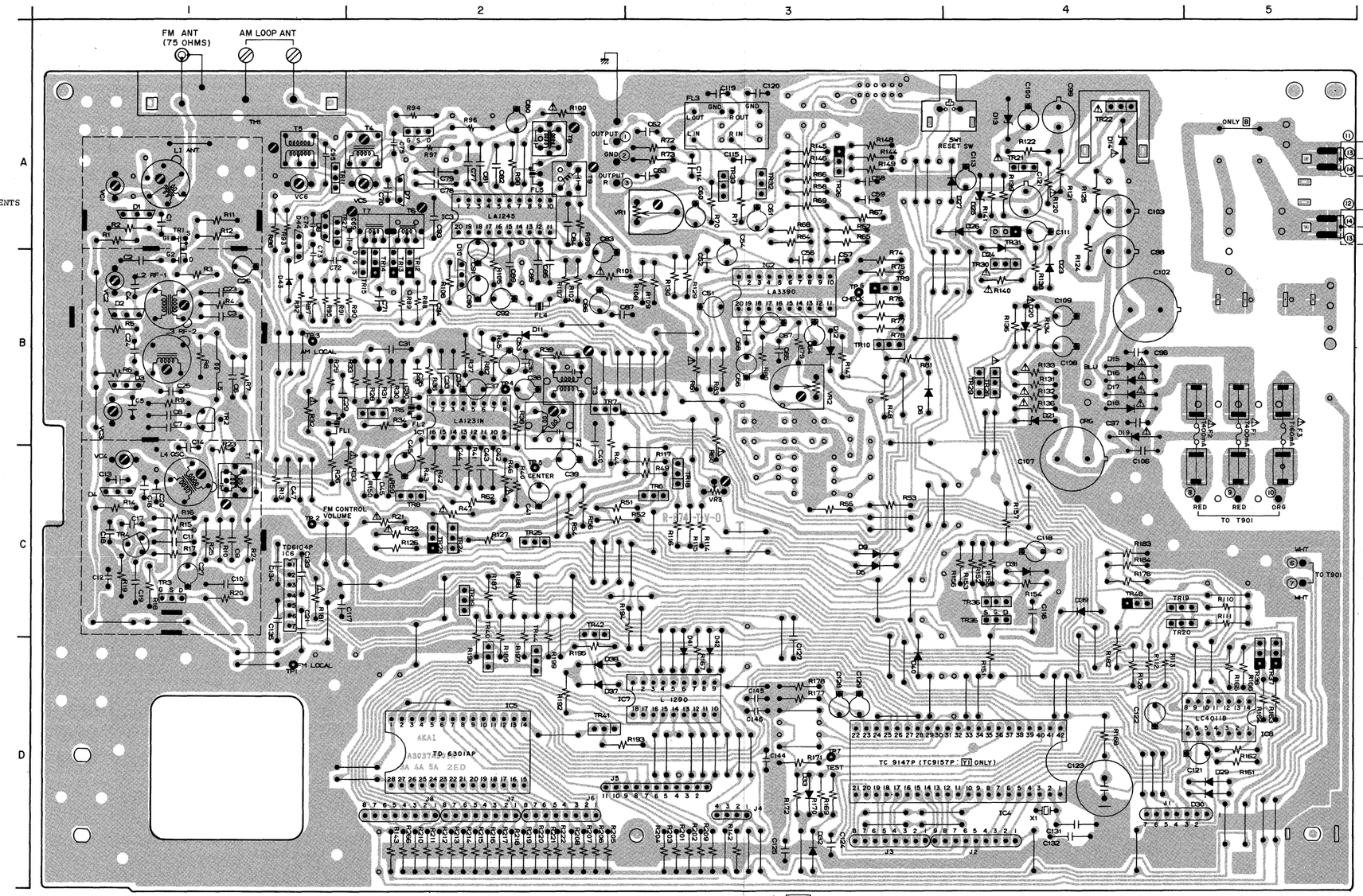
TR1 ---------- 3SK107 (E)
TR2 ---------- 2SC2999(C,D)
TR3 ---------- 2SK212(D,E)
TR4 ---------- 2SC930(E,F)
TR5 ---------- 2SC3000(E,F)
TR6,7,8,10,18,24,25,28 to 30
36,39 to 42,44 ---------- 2SC536K-NP(E,F,G)
TR9,23,26,31,37,38,48 ---- 2SA608K-NP(E,F,G)
TR21 ---------- 2SD571(L,M)
TR22 ---------- 2SD313HP(E,F)
TR32,33 ---------- 2SD1012-V(F,G)
TR35 ---------- 2SK223(E,F)
TR51 ---------- 2SC2603(E,F)

WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

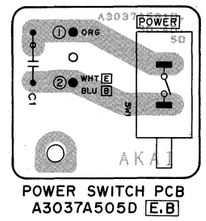
AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

L1,2,3.....FM SENS(LOW)
VC1,2,3....FM SENS(HIGH)
L4.....FM CONTROL VOLTAGE(LOW)
VC4.....FM CONTROL VOLTAGE(HIGH)
VC5.....MW SENS(HIGH)
T1.....DISTORTION (STEREO)
T2.....FM CENTER VOLTAGE
T3.....DISTORTION (MONO)
T4.....MW SENS(LOW)
T6.....MW OSC
T8,9.....AM IF
VR1.....STEREO SEPARATION
VR2.....MPX 19KHz

2) MODEL AT-S3/L TUNER P.C BOARD A3037A505A (2ED) POWER SWITCH P.C BOARD A3037A505D



TUNER PCB A3037A505A(2ED) E.B



POWER SWITCH PCB A3037A505D E.B

LOCATION OF COMPONENTS

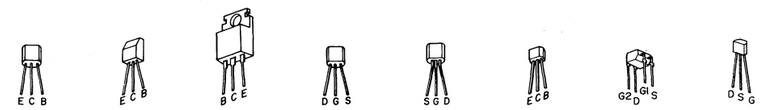
IC
IC1.....B2
IC2.....B3
IC3.....A2
IC4.....D4
IC5.....D2
IC6.....C1
IC7.....D3
IC8.....D5

TR
TR1.....A1
TR2.....B1
TR3,4.....C1
TR5.....B2
TR6.....C3
TR7.....B2
TR8.....C2
TR9,10.....B3
TR11.....A1
TR12 to 15.....B2
TR17.....A2
TR18.....C3
TR19,20.....C5
TR21,22.....A4
TR23 to 25.....C2
TR26.....C3
TR27.....A1
TR28,29.....B4
TR30,31.....A4
TR32,33.....A3
TR35,36.....C4
TR37,38.....D5
TR39.....C2
TR40,41.....D2
TR42.....C2
TR44.....D2
TR48.....C4
TR51.....C3

TERMINALS
J1.....D5
J2.....D4
J3 to 5.....D3
J6 to 8.....D2
① ② ③.....A2
④ ⑤.....B4
⑥ ⑦.....C5
⑧ ⑨ ⑩.....B5
⑪ ⑫ ⑬.....A5

LOCATION OF COMPONENTS

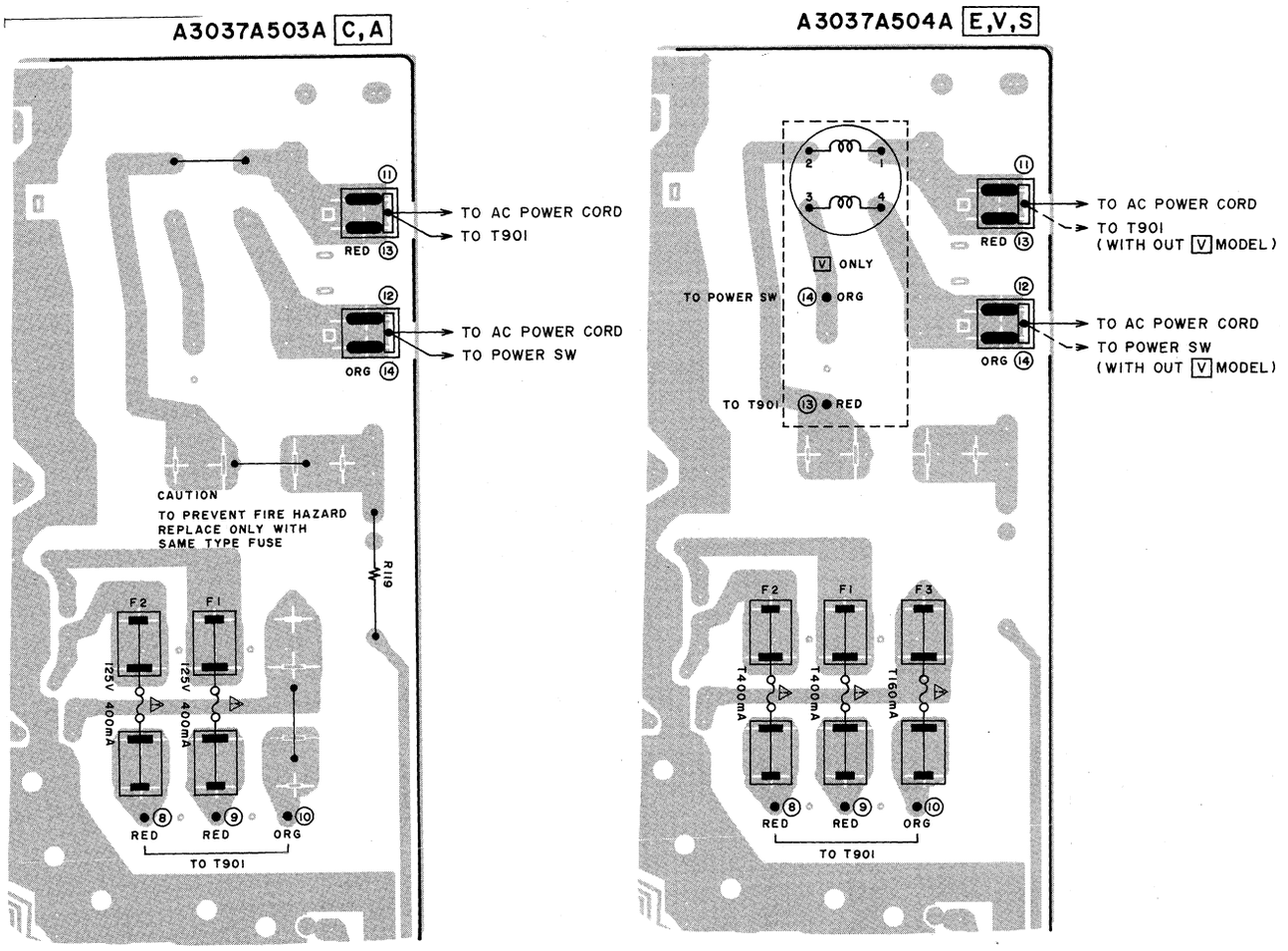
L1,2,3.....FM SENS (LOW)
VC1,2,3.....FM SENS (HIGH)
L4.....FM CONTROL VOLTAGE (LOW)
VC4.....FM CONTROL VOLTAGE (HIGH)
VC5.....MW SENS (HIGH)
T1.....DISTORTION (STEREO)
T2.....FM CENTER VOLTAGE
T3.....DISTORTION (MONO)
T4.....MW SENS (LOW)
T6.....MW OSC
T8,9.....AM IF
VR1.....STEREO SEPARATION
VR2.....MPX 19KHz
VR3.....TUNED INDICATOR LEVEL



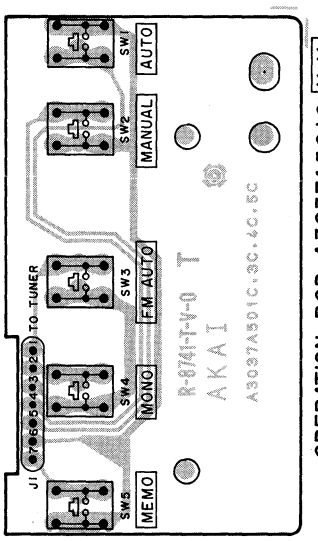
TR1 ---------- 3SK107(E)
TR2 ---------- 2SC2999(C,D)
TR3 ---------- 2SK212(D,E)
TR4 ---------- 2SC930(E,F)
TR5 ---------- 2SC3000(E,F)
TR6,7,8,10,18,19,20,24,25
27 to 30,36,39 to 42,44 -- 2SC536K-NP(E,F,G)
TR9,12,23,26,31,37,38,48 -- 2SA608K-NP(E,F,G)
TR11 ---------- 2SC2878(A,B)
TR15 ---------- 2SK246(G,R)
TR17 ---------- 2SK19(O,Y)
TR21 ---------- 2SD571(L,M)
TR22 ---------- 2SD313HP(E,F)
TR32,33 ---------- 2SD1012-V(F,G)
TR35 ---------- 2SK223(E,F)
TR51 ---------- 2SC2603(E,F)

= NPN TRANSISTOR
= PNP TRANSISTOR
=

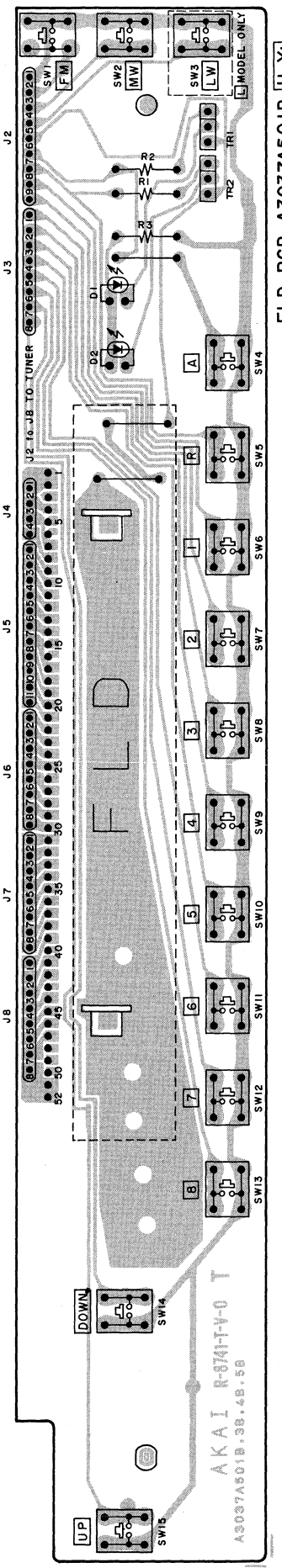
3) MODEL AT-S3 TUNER P.C BOARD A3037A503A (2ED) A3037A504A (2ED)



4) OPERATION P.C BOARD A3037A501C, A3037A 503C, A3037A 504C, A3037A 505C
& FLD P.C BOARD A3037A 501B, A3037A 503B, A3037A 504B, A3037A 505B



OPERATION PCB A3037A501C U,YI
503C C,A
504C E,V,S
(AT-S3L) 505C E,B



FLD PCB A3037A501B U,YI
503B C,A
504B E,V,S
(AT-S3L) 505B E,B

TR1,2 --- 2SC536K-NP (E,F,G)

SECTION 2

PARTS LIST

TABLE OF CONTENTS

Resistor and Capacitor which is not listed in this parts list, please refer to COMMON LIST FOR SERVICE PARTS.

ATTENTION

1. When placing an order for parts, be sure to list the parts no. model no., and description. There are instances in which if any of this information is omitted, parts cannot be shipped or the wrong parts will be delivered.
2. Please be careful not to make a mistake in the parts no. If the parts no. is in error, a part different from the one ordered may be delivered.
3. Because parts number and parts unit supply in the Preliminary Parts List may be partially changed, please use this parts list for all future reference.

HOW TO USE THIS PARTS LIST

1. This Parts List shows the parts that are considered necessary for repairs. Other parts, such as resistors and capacitors, are shown in the "Common List for Service Parts". Select and order such parts from the "Common List for Service Parts".
2. The Recommended Spare Parts shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not be supplied in principle.
4. How to read list

a) Mechanism Block

2. HEAD BASE BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
2-1x	BH-T2023A320A	HEAD BASE BLOCK GX-F66R
2-2	HP-H2206A010A	HEAD R/P PR4-8FU C
2-3	ZS-477876	PAN20x03STL CMT
2-4	ZS-536488	BID20x08STL CMT
2-5	ZG-402895	CS ANGLE ADJUST SPRING

SP (Service Parts) Classification

A small "x" indicates the inability to show that particular part in the Photo or Illustration.

This number corresponds with the individual parts index number in that figure

This number corresponds with the Figure Number

b) P.C Board Block

6. SYS. CON. P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
6-1	BA-T2034A070A	PC SYS CON BLK GX-F44R
6-IC1	EI-324536	IC HD14049BP
6-IC2	EI-336801	IC MB8841-564M
6-IC3	EI-331661	IC SN7405N
6-IC4	EI-336725	IC M54527P
6-TR1to4	ET-200985	TR 2SC2603 F,G
6-TR5to28	ET-554657	TR 2SA733A P,Q
6-D1	ED-318292	D SILICON H 1S2473T-77 T26
6-D2to4	ED-308952	D GERMA V 1K34A-LR F07
6-D5to10	ED-318292	D SILICON H 1S2473T-77 T26
6-X1	EI-318384	OSC X'TAL NC-18C 3.579545MHZ

SP (Service Parts) Classification

This reference numbers corresponds with symbol numbers of Schematic Diagrams.

5. Both the kind of part and installation position can be determined by the Parts Number. To determine where a parts number is listed, utilize Parts Index at end of Parts List. It is necessary first of all to find the Parts Number. This can be accomplished by using the Reference Number listed at right of parts number in the Parts Index.

WARNING

⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS

AVERTISSEMENT

⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÉCES RECOMMANDEES PAR LE FABRICANT

RECOMMENDED SPARE PARTS

Because, if the parts listed below are on hand, almost any repair can be accomplished, we suggest that you stock these Recommended Spare Parts Items.

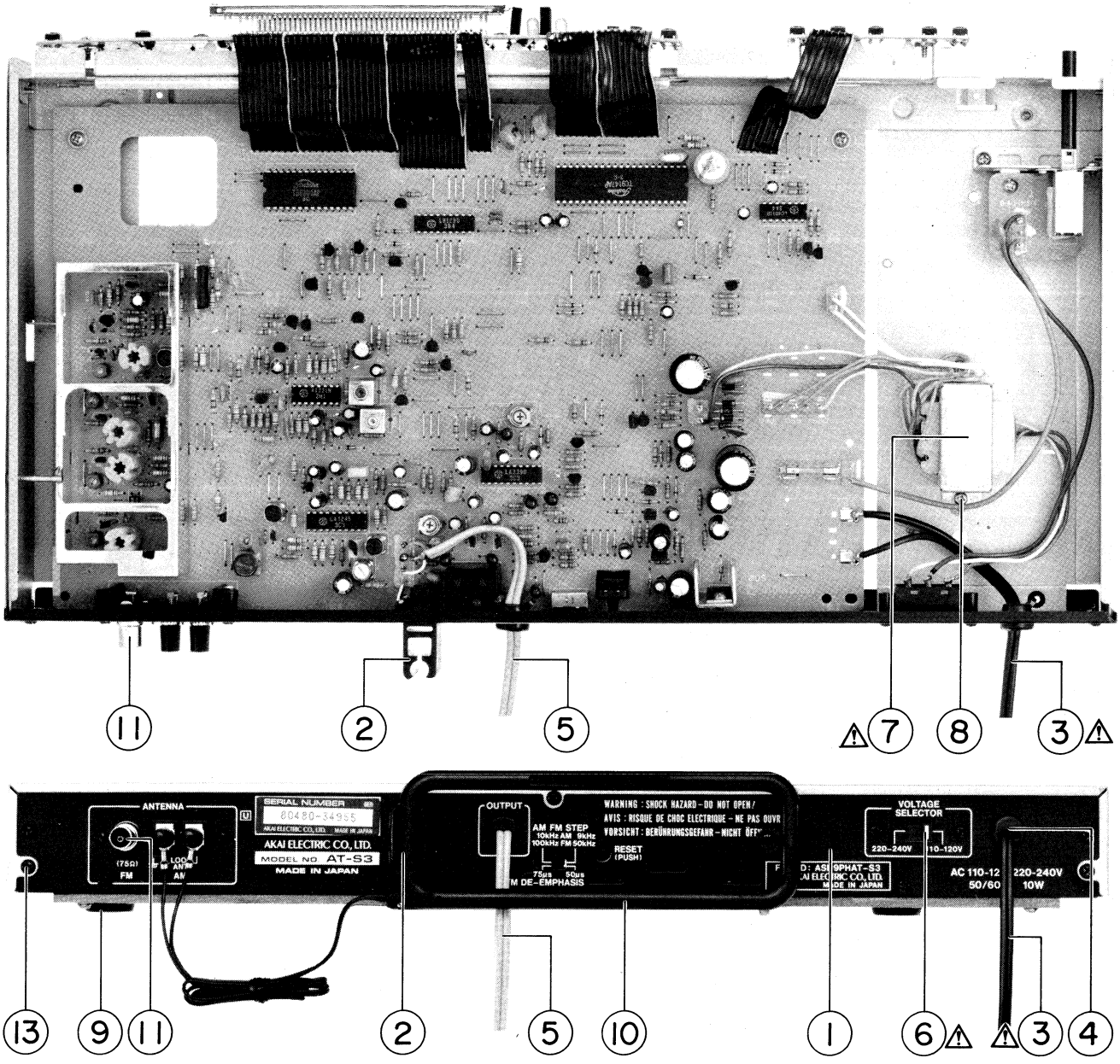
REF. NO.	PARTS NO.	DESCRIPTION
1	BT-344375	⚠ TRANS POWER AT-M5T-20 (A)
2	BT-344376	⚠ TRANS POWER AT-M5T-30 (C)
3	BT-344377	⚠ TRANS POWER AT-M5T-40 (V)
4	BT-347888	⚠ TRANS POWER AT-M5T-42 (E)
5	BT-344378	⚠ TRANS POWER AT-M5T-50 (S,B)
6	BT-344379	⚠ TRANS POWER AT-M5T-70 (U) (U,Y1)
7	EC-330692	C S-FIX H TZ03R200E 4.2-20
8	EC-337772	C S-FIX H TZ03Z070E 2.0-7
9	ED-345746	D LED SLP636B-51 ORG
10	ED-336805	D SILICON DS135D-KB1 200/1.GA
11	ED-301911	D SILICON H DS448
12	ED-348205	D SILICON V MC931 DOUBLE
13	ED-336832	D VARACTOR SVC211SP
14	ED-337605	D VARACTOR SVC333(A) DOUBLE
15	ED-330218	D ZENER H HŽ15L 2
16	ED-336944	D ZENER H 05Z16 X,Y
17	ED-338049	D ZENER H 05Z24 Y
18	ED-344153	D ZENER H 05Z30 Y
19	ED-343412	D ZENER H 05Z6.2 X,Y
20	EF-336834	⚠ FUSE EST3100 T 250V 0.16A (F3) (E,V,S,B)
21	EF-300599	⚠ FUSE EST3100 T 250V 0.40A (F2), (E,V,S,B)
22	EF-300599	⚠ FUSE FST3100 T 250V 0.40A (F1), (E,V,S,B)
23	EF-308933	⚠ FUSE TSC A 250V 0.20A (F4), (U,Y1)
24	EF-308848	⚠ FUSE TSC 125V 0.40A (F1) (C,A)
25	EF-308848	⚠ FUSE TSC 125V 0.40A (F2), (C,A)
26	EI-322248	IC LA1231N
27	EI-202218	IC LA1245
28	EI-343349	IC LA3390
29	EI-337013	IC LB1290
30	EI-330689	IC LC4011B
31	EI-344436	IC TC9147P
32	EI-349190	IC TC9157P
33	EI-344438	IC TD6104P
34	EI-344437	IC TD6301AP
35	EI-344422	OSC X'TAL HC-18/U 7.200000MHz
36	EM-344372	IND FL 9-BT-10ZYK CHARACTER
37	EO-344425	COIL DET 2 77-1119-01
38	EO-344433	COIL DET 2 77-1120-01
39	EO-332120	COIL FIX 2 103AK-005A 2.20UH
40	EO-343351	COIL IFT PEGK0008B-01 455.0kHz
41	EO-337640	COIL IFT 119AC-15533X 10.7MHz
42	EO-202216	COIL IFT 7MC-6733C 460.0KHz
43	EO-338409	COIL LF FKOB160MH02 250UH (V)
44	EO-307786	COIL OSC 2 7NR-6722Y 580.0UH
45	EO-348209	COIL OSC 2 7NR-8646Y 115.0UH
46	EO-336872	COIL VARI 2 TFEI-ANT-U
47	EO-336871	COIL VARI 2 TFEI-OSC-U
48	EO-336873	COIL VARI 2 TFEI-RF-1
49	EO-336938	COIL VARI 2 TFEI-RF-2
50	EO-338461	COIL VARI 2 TFE1-OSC-S (Y1)
51	EO-337598	COIL VARI 2 25A-1353-01
52	EO-337599	COIL VARI 2 25A-1354-03 (L)
53	ER-344434	FILTER CE BFU450C4N 0.450MHz
54	ER-338338	FILTER CE MS3GKY-A 10.700MHz (V, L-E)
55	ER-336804	FILTER CE SFE10.7MA8 10.7MHz(EXCEPT V, L-E)
56	ER-345729	FILTER CE SFE10.7MZ1KA 10.7MHz(L-E)
57	ER-344435	FILTER CE SFU450B9 0.450MHz
58	ER-336830	FILTER LC LP BL-34HD (V)
59	ER-347696	FILTER LC LP 42W-5001
60	ER-315407	FILTER CE SFE10.7MMKA 10.7MHz (EXCEPT L-E)
61	ES-348463	⚠ SW SLIDE X012B11Y 01-2 (SW901) (U,Y1)
62	ES-337902	SW PUSH SDLD1P 01-1
63	ES-347122	SW SLIDE 00420569 2-04-2S (U)
64	ES-344445	SW TACT EVQ-QHR12B
65	ES-336780	SW TACT KHH10902
66	ET-330588	TR FET 2SK19 O,Y (L)
67	ET-337744	TR FET 2SK212 D,E
68	ET-337759	TR FET 2SK246 GR (L)
69	ET-337743	TR FET 3SK107 E
70	ET-322778	TR 2SA608K-NP E,F,G
71	ET-200505	TR 2SC6603 E,F (V)
72	ET-338410	TR 2SC2878 A,B (L)
73	ET-336869	TR 2SC2999 C,D
74	ET-336935	TR 2SC3000 E,F
75	ET-322775	TR 2SC536K-NP E,F,G
76	ET-618873	TR 2SC930 E,F
77	ET-328437	TR 2SD1012-V F,G
78	ET-452531	TR 2SD313HP E,F
79	ET-655356	TR 2SD751 L,M
80	EV-337995	R -FIX H RVF8P01 3P 103
81	EV-337993	R S-FIX H RVF8P01 3P 203
82	EV-345745	R S-FIX V RVF8W01 3P 303 (L)

1. TUNER P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
1-1U	BA-A3037A020A	PC TUNER BLK AT-S3 (U)
1-1C	BA-A3037A020B	PC TUNER BLK AT-S3 (C)
1-1A	BA-A3037A020C	PC TUNER BLK AT-S3 (A)
1-1E	BA-A3037A020D	PC TUNER BLK AT-S3 (E)
1-1V	BA-A3037A020E	PC TUNER BLK AT-S3 (V)
1-1S	BA-A3037A020F	PC TUNER BLK AT-S3 (S)
1-1LE	BA-A3037A020G	PC TUNER BLK AT-S3L (E)
1-1LB	BA-A3037A020H	PC TUNER BLK AT-S3L (B)
1-1Y	BD-A3037A020J	PC TUNER BLK AT-S3 (Y1)
	TUNER P.C BOARD	
1-IC1A	EI-322248	IC LA1231N
1-IC2A	EI-343349	IC LA3390
1-IC3A	EI-202218	IC LA1245
1-IC4A	EI-344436	IC TC9147P (EXCEPT Y1)
1-IC4AY	EI-349190	IC TC9157P (Y1)
1-IC5A	EI-344437	IC TD6301AP
1-IC6A	EI-344438	IC TD6104P
1-IC7A	EI-337013	IC LB1290
1-IC8A	EI-330689	IC LC4011B
1-TR1A	ET-337743	TR FET 3SK107 E
1-TR2A	ET-336869	TR 2SC2999 C,D
1-TR3A	ET-337744	TR FET 2SK212 D,E
1-TR4A	ET-618873	TR 2SC930 E,F
1-TR5A	ET-336935	TR 2SC3000 E,F
1-TR6A to8A	ET-322775	TR 2SC536K-NP E,F,G
1-TR9A	ET-322778	TR 2SA608K-NP E,F,G
1-TR10A	ET-322775	TR 2SC536K-NP E,F,G
1-TR11A	ET-338410	TR 2SC2876 A,B (L)
1-TR12A to14A	ET-322778	TR 2SA608K-NP E,F,G (L)
1-TR15A	ET-337759	TR FET 2SK246 GR (L)
1-TR17A	ET-330588	TR FET 2SK19 O,Y (L)
1-TR18A	ET-322775	TR 2SC536K-NP E,F,G
1-TR19A to20A	ET-322775	TR 2SC536K-NP E,F,G (L)
1-TR21A	ET-655356	⚠ TR 2SD571 L,M
1-TR22A	ET-452531	⚠ TR 2SD313HP E,F
1-TR23A	ET-322778	TR 2SA608K-NP E,F,G
1-TR25A	ET-322775	TR 2SC536K-NP E,F,G
1-TR26A	ET-322778	TR 2SA608K-NP E,F,G
1-TR27A	ET-322775	TR 2SC536K-NP E,F,G (L)
1-TR28A to30A	ET-322775	⚠ TR 2SC536K-NP E,F,G
1-TR31A	ET-322778	TR 2SA608K-NP E,F,G
1-TR32A to33A	ET-328437	TR 2SD1012-V F,G
1-TR35A	ET-336937	TR FET 2SK223 E,F
1-TR36A	ET-322775	TR 2SC536K-NP E,F,G
1-TR37A to38A	ET-322778	TR 2SA608K-NP E,F,G
1-TR39A	ET-322775	TR 2SC536K-NP E,F,G
1-TR40	ET-322775	TR 2SC536K-NP E,F,G
1-TR41A to44A	ET-322775	TR 2SC536K-NP E,F,G
1-TR48A	ET-322778	TR 2SA608K-NP E,F,G
1-TR51A	ET-200505	TR 2SC2603 E,F (V)
1-D1A to3A	ED-336832	D VARACTOR SVC211SP
1-D4A	ED-336832	D VARACTOR SVC211SP
1-D5A to6A	ED-301911	D SILICON H DS448
1-D7A to8A	ED-337605	D VARACTOR SVC333 (A) DOUBLE
1-D9A	ED-301911	D SILICON H DS448
1-D10A	ED-348205	D SILICON V MC931 DOUBLE
1-D11A to12A	ED-301911	D SILICON H DS 448
1-D13A	ED-343412	D ZENER H 05Z6.2 X,Y
1-D14A	ED-330218	⚠ D ZENER H HZ15L 2
1-D15A to19A	FD-336805	⚠ D SILICON DS135D-KB1 200/1.0A
1-D20A	ED-344153	D ZENER H 05230 Y
1-D21A	ED-338049	D ZENER H 05Z24 Y
1-D22A to24A	ED-301911	D SILICON H DS448
1-D25A	ED-336944	D ZENER H 05Z16 X,Y
1-D26A to40A	ED-301911	D SILICON H DS448
1-D41A to43A	ED-200469	D SILICON H DS448 FAS F10 (L)
1-D44A	ED-348205	D SILICON V MC931 DOUBLE (L)
1-D45A	ED-301911	D SILICON H DS448
1-SW1A	ES-344445	SW TACT EVQ-QHR12B
1-SW2A	ES-347122	SW SLIDE 00420569 2-04-2S (U)
1-L1A	EO-336872	COIL VARI 2 TFEI-ANT-U
1-L2A	EO-336873	COIL VARI 2 TFEI-RF-1
1-L3A	EO-336938	COIL VARI 2 TFEI-RF-2
1-L4A	EO-336871	COIL VARI 2 TFEI-OSC-U
1-L4AY	EO-338461	COIL VARI 2 TFE1-OSC-S (Y1)
1-L5A	EO-332120	COIL FIX 2 103AK-005A 2.20 UH
1-L6A	EO-338409	COIL LF FKOB160MH02 250 UH (V)
1-T1A	EO-337640	COIL IFT 119AC-15533X 10.7MHz
1-72A	EO-344425	COIL DET 2 77-1119-01
1-T3A	EO-344433	COIL DET 2 77-1120-01
1-T4A	EO-337598	COIL VARI 2 25A-1353-01
1-15A	EO-337599	COIL VARI 2 25A-1354-03 (L)
1-T6A	EO-348209	COIL OSC 2 7NR-8646Y 115.0UH
1-T7A	EO-307786	COIL OSC 2.7NR-6722Y 580.0UH (L)
1-T8A	EO-343351	COIL IFT REGK0008B-01 455.0 kHz
1-T9A	EO-202216	COIL IFT 7MC-6733C 460.0kHz
1-FL1A	ER-315407	FILTER CE SFE10.7MMKA 10.7MHz (EXCEPT L-E)
1-FL1AL	ER-345729	FILTER CE SFE10.7MZ1KA 10.7MHz (L-E)
1-FL2A	ER-336804	FILTER CE SFE10.7MA8 10.7MHz (EXCEPT V,L-E)
1-FL2AV	ER-338338	FILTER CE MS3GKY-A 10.700MHz (V,L-E)
1-FL3A	ER-347696	FILTER LC LP 42W-5001
1-FL4A	ER-344434	FILTER CE BFU45004N 0.450MHz
1-FL5A	ER-344435	FILTER CE SFU450B9 0.450MHz
1-FL6A	ER-336830	FILTER LC LP BL-34HD (V)
1-X1A	EI-344422	OSC X'TAL MC-18/U 7.200000MHz
1-VR1A	EV-337993	R S-FIX H RVF8P01 3P 203
1-VR2A	EV-337995	R S-FIX H RVF8P01 3P 103
1-VR3A	EV-345745	R S-FIX V RVF8W01 3P 303 (L)
1-VC1A to4A	EC-337772	C S-FIX H TZ03Z070E 2.0-7
1-VC5A to6A	EC-330692	C S-FIX H TZ03R200E 4.2-20
1-R21 to22A	ER-324480	⚠ R CB H S10 FS RDS 1/4W 470J (L)
1-R32Ato61A	ER-324337	⚠ R CB H S10 FS RDS 1/4W 560J
1-R100A	ER-324185	⚠ R CB H S10 FS RDS 1/4W 221J
1-R101A	ER-324184	⚠ R CB H S10 FS RDS 1/4W 121J
1-R120A	ER-322787	⚠ R CB H S10 FS RDS 1/4W 100J
1-R132A	ER-324934	⚠ R CB H S10 FS RDS 1/4W 220J
1-R133A	ER-323074	⚠ R CB H S10 FS RDS 1/4W 102J
1-R136A	ER-200944	⚠ R CB H S10 FS RDS 1/4W 152J
1-R140A	ER-328067	⚠ R CB H S10 FS RDS 1/4W 331J
1-R181A	ER-324934	⚠ R CB H S10 FS RDS 1/4W 220J
1-R251A	ER-328067	⚠ R CB H S10 FS RDS 1/4W 331J (V)
1-C48A to49A	EC-344155	C PP V F05 PP 181J 50DC (U)
1-C56AU	EC-344486	C PP V F05 PP 391J 50DC (EXCEPT C,A)
1-C56AC	EC-344478	C PP V F05 PP 561J 50DC (C,A)

REF. NO.	PARTS NO.	DESCRIPTION
1-C57AU	EC-344486	C PP V F05 PP 391J 50DC (EXCEPT C,A)
1-C57AC	EC-344478	C PP V F05 PP 561J 50DC (C,A)
1-C62A~ 63A	EC-344484	C PP V F05 PP 392J 50DC
1-C65A	EC-344483	C PP V F05 PP 102J 50DC
1-C71A	EC-344481	C PP V F05 PP 4700G 50DC
1-C72A	EC-344482	C PP V F05 PP 161J 50DC
1-C114A~115A	EC-347093	C PP V F05 PP 331J 50DC
1-C119A~120A	EC-347094	C PP V F05 PP 1801G 50DC
1-C123A	EC-344157	C DOUBLE LAYER 473Z 5.0DG
	FLD P.C BOARD	
1-TR1B~2B	ET-322775	TR 2SC536K-NP E,F,G
1-D1B~2B	ED-345746	D LED SLP636B-51 ORG
1-SW1B~2B	ES-336780	SW TACT KHH 10902
1-SW3B	ES-336780	SW TACT KHH10902 (L)
1-SW4B~15B	ES-336780	SW TACT KHH10902
1-IND1B	EM-344372	IND FL 9-BT-10ZYK CHARACTER
	OPERATION P.C BOARD	
1-SW1C~5C	ES-336780	SW TACT KHH 10902
	POWER SWITCH P.C BOARD	
1-SW1D	ES-337902	SW PUSH SDLD1P 01-1
1-C1DU	EC-320548	⚠ C CE V F 103Z 250AC (U,C,A,Y1)
1-C1DE	EC-338577	⚠ C CE V F 472M 400AC (E)
1-C1DV	EC-338496	⚠ C CE V FZ 472P 400AC (V,S,B)
1-F1C	EF-308848	⚠ FUSE TSC 125V 0.40A (C,A)
1-F1E	EF-300599	⚠ FUSE FST3100 T 250V 0.40A (E,V,S,B)
1-F2C	EF-308848	⚠ FUSE TSC 125V 0.40A (C,A)
1-F2E	EF-300599	⚠ FUSE FST3100 T 250V 0.40A (E,V,S,B)
1-F3E	EF-336834	⚠ FUSE FST3100 T 250V 0.16A (E,V,S,B)
1-F4U	EF-380933	⚠ FUSE TSC A 250V 0.20A (U,Y1)

ASSEMBLY BLOCK



2. ASSEMBLY BLOCK

REF NO.	PARTS NO.	DESCRIPTION
2-1U	SP-344780J	PANEL REAR AT-S3(U)
2-1C	SP-344780K	PANEL REAR AT-S3 (C,A)
2-1E	SP-344780M	PANEL REAR AT-S3 (E,V)
2-1S	SP-344780N	PANEL REAR AT-S3 (S)
2-1L	SP-344780P	PANEL REAR AT-S3L (E)
2-1LB	SP-344780Q	PANEL REAR AT-S3L (B)
2-2	SZ-332739	HOLDER ANTENNA
2-3U	EW-306428	⚠ AC CORD 2 CORES KP-700A, VFF U/T (U,Y1)
2-3C	EW-305691	⚠ AC CORD 2 CORES KP-8, SPT-1 UC (C,A)
2-3E	EW-336923	⚠ AC CORD 2 CORES KP-419C, LTCE-2F EV (E,V)
2-3S	EW-336924	⚠ AC CORD 2 CORES KP-560, LTSA-2F S (S)
2-3B	EW-346249	⚠ AC CORD 2 CORES LCFL2×0.75 B (B)
2-4	EZ-631945	STRAIN RELIEF SP-4N-4
2-5	EW-336757	CORD SAE-020 PINX2 (EXCEPT C,A)
2-5C	EW-336758	CORD SAE-021 PINX2 (C,A)
2-6	ES-348463	⚠ SW SLIDE 00120297 01-2 (SW901), (U, Y1)
2-7U	BT-344739	⚠ TRANS POWER AT-M5T-70 (U) (U,Y1)
2-7C	BT-344376	⚠ TRANS POWER TA-M5T-30 (C)
2-7A	BT-344375	⚠ TRANS POWER AT-M5T-20 (A)
2-7E	BT-347888	⚠ TRANS POWER AT-M5T-41 (E)
2-7V	BT-344377	⚠ TRANS POWER AT-M5T-40 (V)
2-7S	BT-344378	⚠ TRANS POWER AT-M5T-50 (S,B)
2-8	ZS-315511	ST PAN30×06STL CMT CUP
2-9	SA-202118	FOOT
2-10	EE-337976	ANT LOOP LA-200A
2-11	EJ-315331	SOCKET COAX M UX-0014
2-12x	ZW-305013	RV POP32
2-13	ZS-308846	T2BR30×08STL BZN PROJECTION

FRONT PANEL BLOCK

3. FRONT PANEL BLOCK

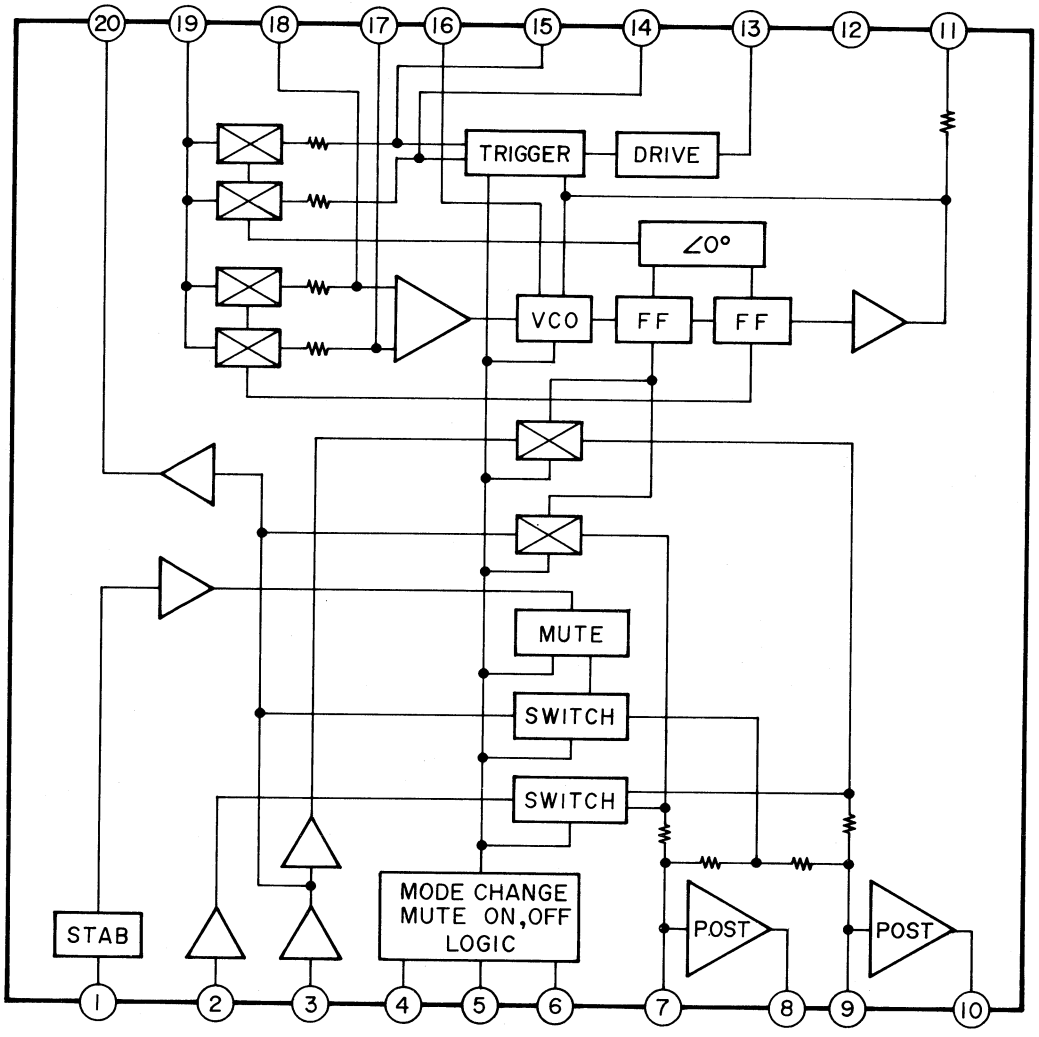
REF. NO.	PARTS NO.	DESCRIPTION
3-1	BD-A3037A030A	PANEL FRONT BLK AT-S3
3-1P	BD-A3037A030B	PANEL FRONT BLK AT-S3-P
3-1L	BD-A3037A030C	PANEL FRONT BLK AT-S3L
3-1LP	BD-A3037A030D	PANEL FRONT BLK AT-S3L-P
3-2	SK-344807A	KNOB PUSH
3-2P	SK-344807B	KNOB PUSH-P
3-3	SK-342820D	KNOB POWER (3)
3-3P	SK-342820C	KNOB POWER-P (2)
3-4x	ZG-322189	SP (B)
	FINAL ASSEMBLY	
3-5	SP-344778C	COVER UPPER (B)
3-5P	SP-344778D	COVER UPPER (B)-P

INDEX

SECTION 3

SCHEMATIC DIAGRAM

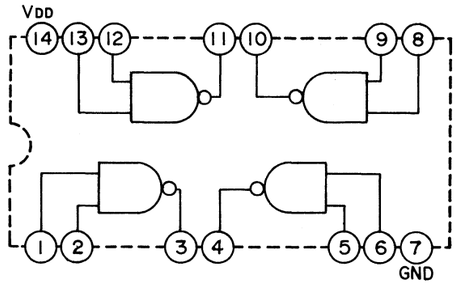
LA3390



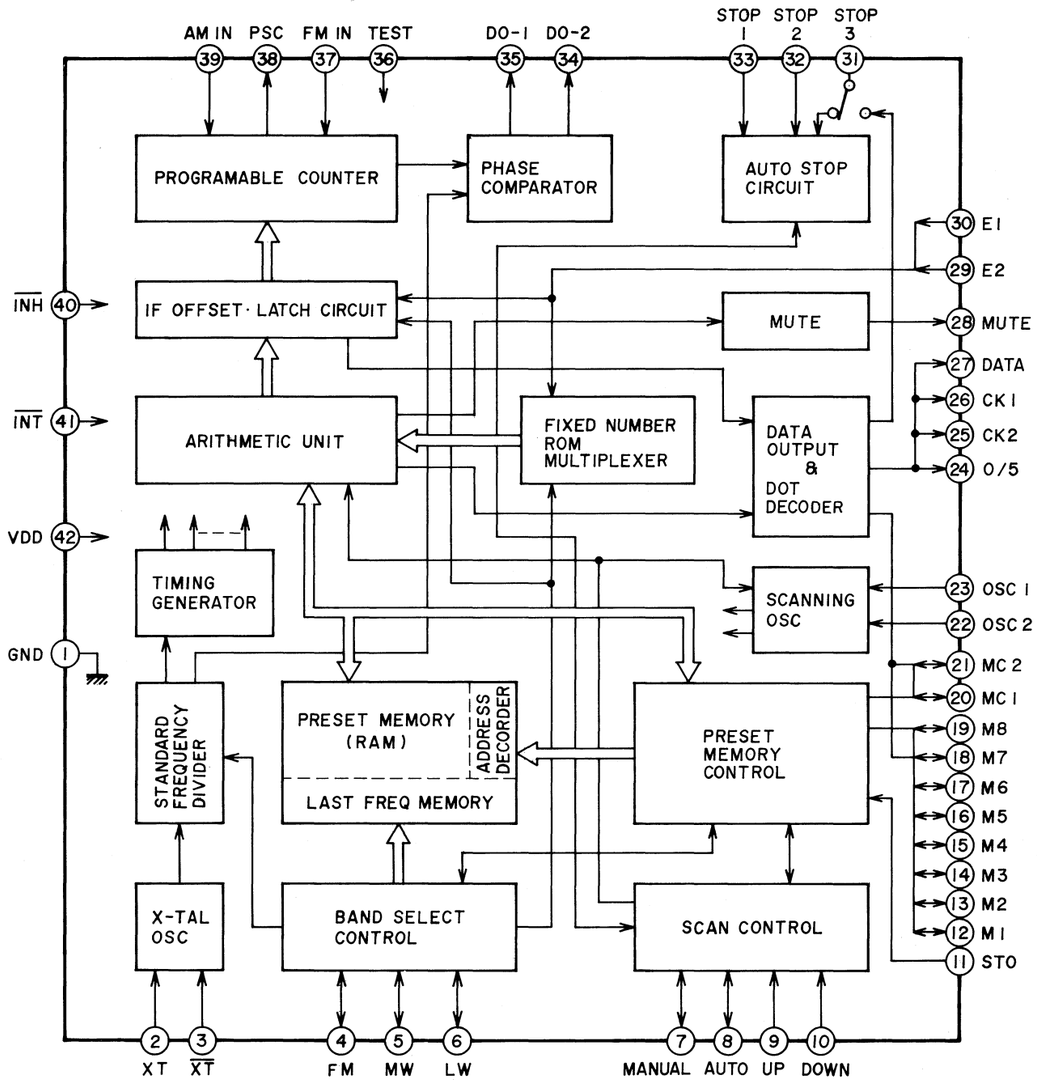
FUNCTION CHART FOR LA3390

Pin No.	Description	Pin No.	Description
1	VCC	11	Compulsory Mono, VCO Stop, 19kHz Check
2	AM Input	12	GND
3	FM Input	13	Stereo Indicator
4	FM/AM SW Mute Time Constant	14	Pilot Sync Detect Filter
5	Mute Control (ON/OFF)	15	
6	FM/AM SW	16	VCO Time Constant
7	Post Amp (Negative in)	17	PLL Loop Filter
8	Post Amp (LCH out)	18	
9	Post Amp (Negative in)	19	Phase Comparator Input
10	Post Amp (Rch out)	20	Composite Amp Output

LC4011B



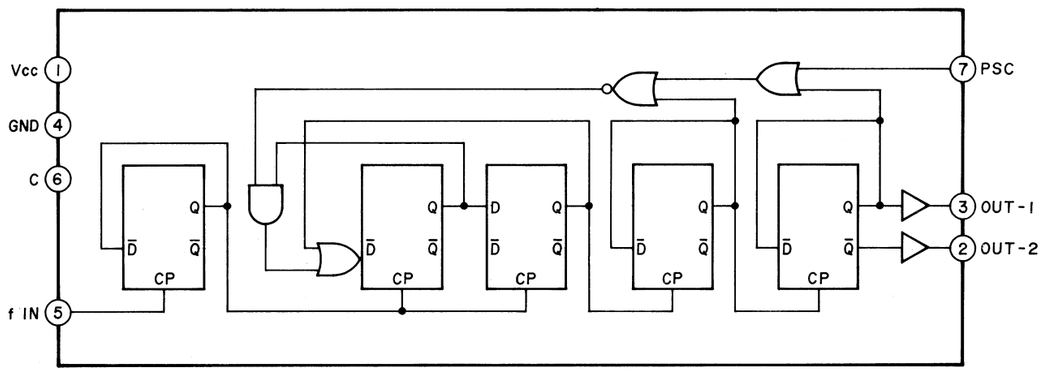
TC9147P TC9157P



FUNCTION CHART FOR TC9147P & TC9157P

Pin No.	Symbol	Meaning	Function
1	GND	Ground	
2	XT	X-TAL OSC Terminals	Input Terminal of Standard Frequency OSC (X-TAL: 7.2MHz)
3	$\overline{XT}$		
4	FM	FM Band Designation Input	Band Selector
5	MW	MW Band Designation Input	
6	LW	LW Band Designation Input	
7	Manual	Manual Tuning Mode	Manual/Auto Tuning Selector
8	Auto	Auto Tuning Mode	
9	UP	UP Operation Key Input	UP/DOWN Tuning Selector
10	Down	Down Operation Key Input	
11	STO	Memory Store Command Input	Memory at preset memory operation
12 ~ 19	M1 ~ M8	Preset Memory Channel Designation Inputs	Random Access for 16-Preset-Memory with the inputs of MC1/MC2
20	MC1	Memory Control Input	8 Stations (FM/AM) 16 Stations (FM + MW + LW) Preset Memory Selector
21	MC2		
22	OSC2	AM SCAN OSC Terminal	CR Connector Terminal for AM Search Scan Speed
23	OSC1	FM SCAN OSC Terminal	CR Connection Terminal for FM Search Scan Speed
24	0/5	FM 50kHz Output	Level "H" Output for 50kHz Step (S. Africa and Europe area)
25	CK2	Receiving Frequency Data Serial Output	Supply Serial Data & Timing Clock to TD6301AP (Receiving Frequency Digital Display Driver)
26	CK1		
27	Data		
28	Mute	Muting Signal Output	Level "H" Output when Muting
29	E2	Area Designation Input	Area Selector Japan, US, Europe (TC9147P) S. Africa, US, Europe (TC9157P)
30	E1		
31	Stop 3	AM IF Signal Input	Not used (Connected to VDD terminal to avoid the mulfunction by noise)
32	Stop 2	Auto Search Stop Signal Input	Stops Auto Search at Level "H" while Level "H" at Stop 1
33	Stop 1	Scan Speed Slow-Down Input	1/2 Speed-Down of Auto Search at Level "H"
34	DO-2	Phase Comparator Output	Phase Comparator Output
35	DO-1		
36	Test	Test Terminal	Test Mode at Level "H"
37	FM in	FM Programable Counter Input	Connected to Prescaler (TD6104P) Output
38	PSC	Prescaler Control Output	Count-Down (1/30, 1/32) Designation Out-put for Prescaler
39	AM in	AM Programable Counter Input	AM Local OSC Signal Input
40	$\overline{INH}$	Inhibit Input	Normal at Level "H" Initialize at Level "L"
41	$\overline{INT}$	Initialize Input	Normal at Level "H" Initialize at Level "L"
42	VDD	Power Terminal	+5V is supplied

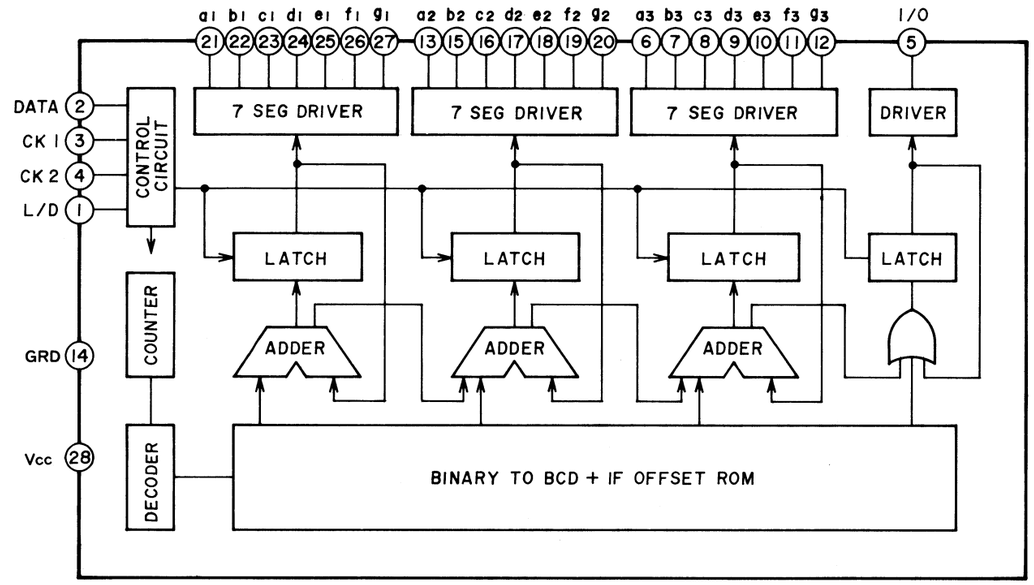
TD6104P



FUNCTION CHART FOR TD6104P

Pin No.	Symbol	Description
1	V_{CC}	+5V
2	OUT-2	Inverted output of OUT-1
3	OUT-1	Count-Down Frequency Output (fin/30 or fin/32)
4	GND	Ground
5	fin	FM Local OSC Input
6	C	Bypass capacitor terminal for bias circuit
7	PSC	Count-Down-Ratio Switch Signal Input 1/32 at Vpsc $\geqq$ 2V 1/30 at Vpsc $\leqq$ 1V

TD6301AP



FUNCTION CHART FOR TD6301AP

Pin No.	Symbol	Description
1	L/D	Output Select Signal Input Terminal (To change the output for various dsiplay such as LED, FLD & LCD). Connected to ground for FLD.
2	Data	Receiving Frequency Data Input Terminal (Serial Input from System Controller LSI: TC9147P/TC9157P)
3	CK1	Control Timing Input Terminal for Receiving Frequency Data Input (Simultaneously W/Data from System Controller LSI)
4	CK2	
5	I/O	Segment Driver Output Terminal for: FM: 100^S MHz AM: 1000^S kHz
6 ~ 12	a3 ~ g3	7 Segment Driver Output Terminals for: FM: 10^S MHz AM: 100^S kHz
13 15 ~ 20	a2 ~ g2	7 Segment Driver Output Terminals for: FM: 1^S MHz AM: 10^S kHz
21 ~ 27	a1 ~ g1	7 Segment Driver Output Terminals for: FM: 100^S kHz AM: 1^S kHz
14	VCC	+5V
28	GND	Ground

FM IF
FM DET OUT
AM IN
FM ST DEMOD IN
AF OUT
FM
AM
FM FRONT END
FM TUNING & RF AMP
TR1, D1 to 3
L1 to 3, 5
VC1 to 3
MIX
IF AMP
TR2,5
T1
FM ANT
AM ANT
FM LOCAL OSC
TR3,4, D4
L4, VC4
AM DET OUT
FM IF AMP & DEMODULATOR
IC1 LA1231N
TP4 FM CENTER
(FM SIGNAL LINE)
(AF SIGNAL LINE)
PLL FM STEREO DEMODULATOR W/AM FM SW
IC2 LA3390
VR1
STEREO SEPARATION
TR32,33 H=ON
MUTE
LPF FL3
L
R
OUTPUT
TR8 H=ON
FM AUTO=H
TP5 FM CENTER
VR2 MPX 19KHz ADJ
MUTE=H
(AM SIGNAL LINE)
AM TUNING
T4 to 9, VC5,6
TR11 to 17, 19,20,27
D7, 8
AM TUNER
IC3 LA1245
TR26 H=ON
MUTE=H
AM/FM TUNED=L
TR18 H=ON
FM TUNED=L
TR6 L=OFF
+B
TR7 H=ON
MONO=H
TR9,10 H=ON
FM TUNED AUTO=L
FM TUNED MONO=H
TP6 19KHz
VR3 TUNED IND LEVEL
AM TUNED=H
TP2 CONTROL VOLTAGE
TP3 AM LOCAL
TP1 FM LOCAL
FM PRESCALER
IC6 TD6104P
OUT PSC
BUFFER
IC8 LC4011B
TR19 H=ON
MW=H
LW=H
TR20 H=ON
TR12,13,15
TR11,14,27
AC 3.6V
+30V
+14V
+5V
T901
TR28
TR22
TR21
POWER SUPPLY
TR21,22,28,29
D13 to 20
D15 to 18
POWER SW SW1
POWER TRANS T901
AC IN
POWER ON/OFF DET TR30,31
LPF TR35, 36
FM AUTO/MONO SW (FF)
IC8 LC4011B
TR48 H=OFF
TR38 H=OFF
TR37 H=OFF
AUTO=H MONO=L
AUTO=L MONO=H
FM/MW/LW 3 BAND DIGITAL TUNING SYSTEM CONTROLLER
IC4 TC9147P ※TC9157P (Y1 ONLY)
FM 50K STEP=H
AM=H
STO(M)=H(7 SEC)
TR41 H=ON
TR39,40 H=OFF
FL DISPLAY DRIVER
IC5 TD6301AP
2 to 4
5 to 13
15 to 27
AM/FM +B ON/OFF
TR23 to 25
FM +B
AM +B
TR44 L=OFF
STEREO=L
TUNED=L
TR42 L=OFF
FLD DRIVER
IC7 LB1290
7 SEG DATA
7SEG + OTHER DATA
FL DISPLAY (IND 1)
9-BT-10ZYK
STEREO
TUNED
OPERATION SW(1)
AUTO/MANU SCAN
FM AUTO/MONO
MEMORY
SW 1 to 5
FM AUTO/MONO
OPERATION SW(2)
A/B, UP/DOWN
FM/MW/LW
PRESET ST 1 to 16
SW 1 to 15
1-8/9-16 INDICATOR
D1,2 TR1,2

PHOTOGRAPHS ARE TAKEN AT FM MODE
(98MHz, 60dB, 100 % · 1KHz MOD, STEREO, TUNED)
AND AT AM MODE (1000 KHz, 74dB, 30 % · 1KHz MOD, TUNED)

※ Y1 = FOR SOUTH AFRICA MODEL

= AUDIO SIGNAL LINE

(TUNER)
AT-S3/L
BLOCK DIAGRAM
NO.3-1 830701A

AT-S3

OPERATION PC. BOARD
U,Y1 A3037A501C
CA A3037A503C
E,V,S A3037A504C

FLD PC. BOARD
U,Y1 A3037A501B
CA A3037A503B
E,V,S A3037A504B

TUNER PC. BOARD
U,Y1 A3037A501A CA A3037A503A
E,V,S A3037A504A

POWER SWITCH PC. BOARD A3037A501D

TP1	FM LOCAL
2	FM CONTROL VOLTAGE
3	AM LOCAL
4	FM CENTER VOLTAGE
5	FM CENTER VOLTAGE
6	19 KHz CHECK
7	MI-COM (TC9147P) TEST

S	U,Y1	C	A	E	V	S
F1, F2		400mA/125V	400mA/125V	T 400mA	T 400mA	T 400mA
F3				T 160mA	T 160mA	T 160mA
F4	200mA/250V					
C1	0.01/250AC(Z)	0.01/250AC(Z)	0.01/250AC(Z)	0.0047/400AC (M)	0.0047/400AC (M)	0.0047/400AC (M)
T901	AT-M5T-70	AT-M5T-30	AT-M5T-20	AT-M5T-40	AT-M5T-40	AT-M5T-50

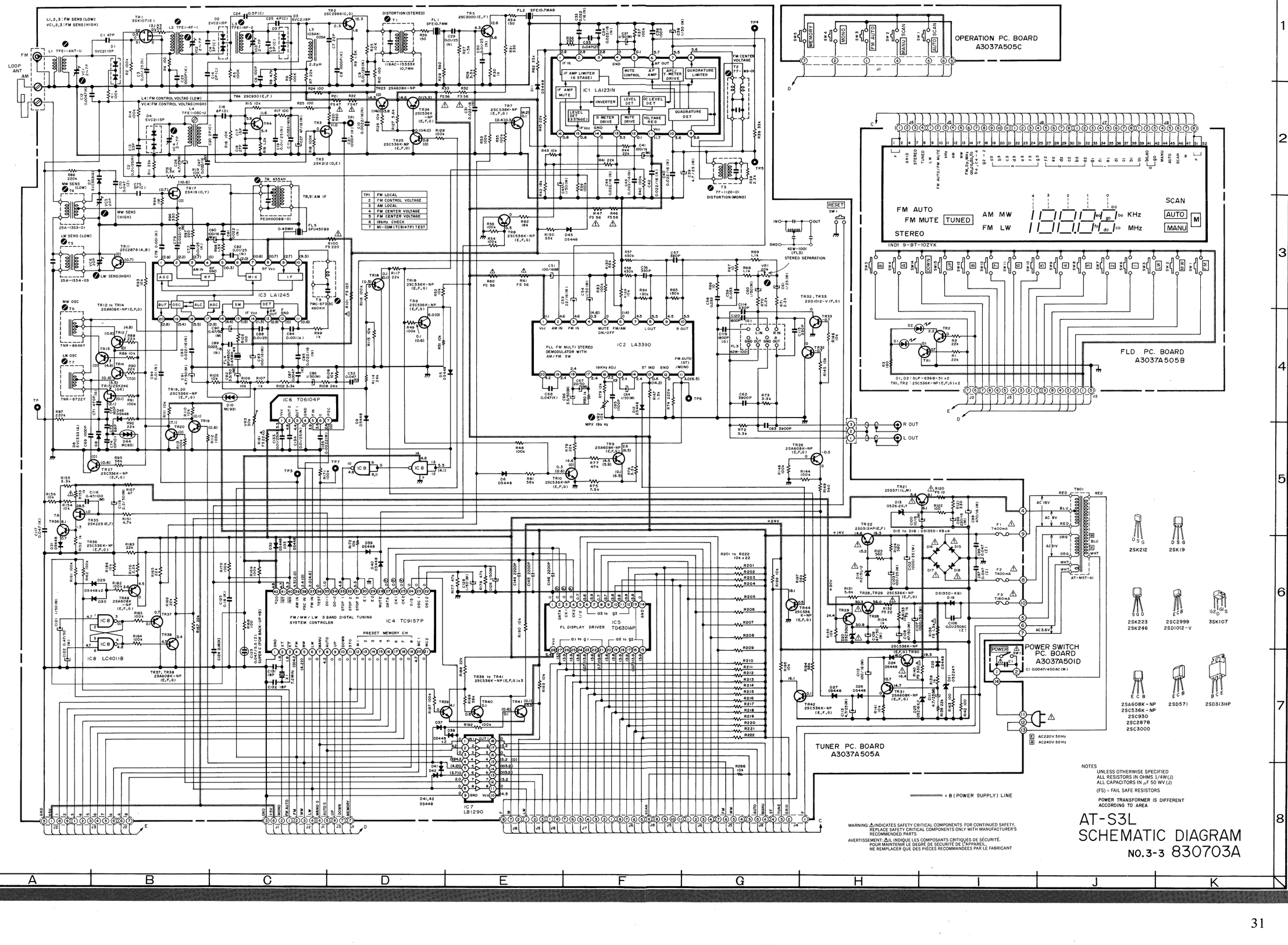
NOTES
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN μF 50 WV(J)
(FS) = FAIL SAFE RESISTORS

WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS
AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

= B (POWER SUPPLY) LINE

AT-S3
SCHEMATIC DIAGRAM
NO.3-2 830702A

AT-S3L



AT-S3L SCHEMATIC DIAGRAM

NO.3-3 830703A