

# TEAC



## SERVICE MANUAL

# T-R670

AM / FM Stereo Tuner

### CONTENTS

1 SPECIFICATIONS .....	2
2 ADJUSTMENTS AND CHECKS .....	3
3 EXPLODED VIEWS AND PARTS LIST .....	6
4 PC BOARDS AND PARTS LIST .....	8

### NOTES

- PC boards shown are viewed from parts side.
- The parts with no reference number or no parts number in the exploded views are not supplied.
- As regards the resistors and capacitors, refer to the circuit diagrams contained in this manual.
- $\triangle$  Parts marked with this sign are safety critical components. They must be replaced with identical components - refer to the appropriate parts list and ensure exact replacement.

# 1 SPECIFICATIONS

## FM Tuner Section

(Without notes 98 MHz, 65 dBf)

**Tuning Range:** 87.5 MHz – 108.0 MHz (100 kHz steps)

**Usable Sensitivity (IHF):**

Mono: 11.2 dBf

**50 dB Quieting Sensitivity:**

Mono: 15 dBf

Stereo: 20 dBf

**Total Harmonic Distortion (1 kHz):**

Mono: 0.4%

Stereo: 0.5%

**Frequency Response:** 30 Hz – 15 kHz, +1/ –1.5 dB

**Stereo Separation (1 kHz):** 40 dB

**Signal-to-Noise Ratio:**

Mono: 72 dB

Stereo: 70 dB

## AM Tuner Section

**Tuning Range:** 530 kHz – 1,720 kHz (10 kHz steps)

**Usable Sensitivity:** 55 dB/m

**Total Harmonic Distortion:** 0.8% at 85 dB/m

**Signal-to-Noise Ratio:** 45 dB at 85 dB/m

## General

**Power Requirements:** 120/230 V AC, 50-60 Hz

**Power Consumption:** 8 W

**Dimensions (W x H x D):** 435 x 102 x 270 mm

**Weight (net):** 3.6kg

**Standard Accessories:**

AM Loop Antenna x 1

FM T-type Antenna x 1

Matching Transformer x 1

Remote Control Unit (RC-789) x 1

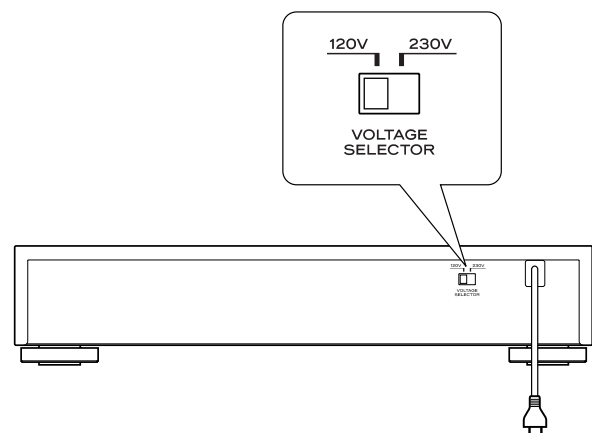
## Voltage Conversion

**(General export models only)**

Be sure to remove the power cord from the AC outlet before repositioning the voltage converter switch.

1. Locate the voltage selector on the rear panel.
2. Using a flat-bladed screwdriver, set to the appropriate 230V or 120V position according to your area.

**IN NORTH AMERICA USE ONLY ON 120 V SUPPLY.**



- Improvements may result in specifications and features changing without notice.

# 2 ADJUSTMENTS AND CHECKS

## ■ ALIGNMENT INSTRUCTIONS

### EQUIPMENT NEEDED:

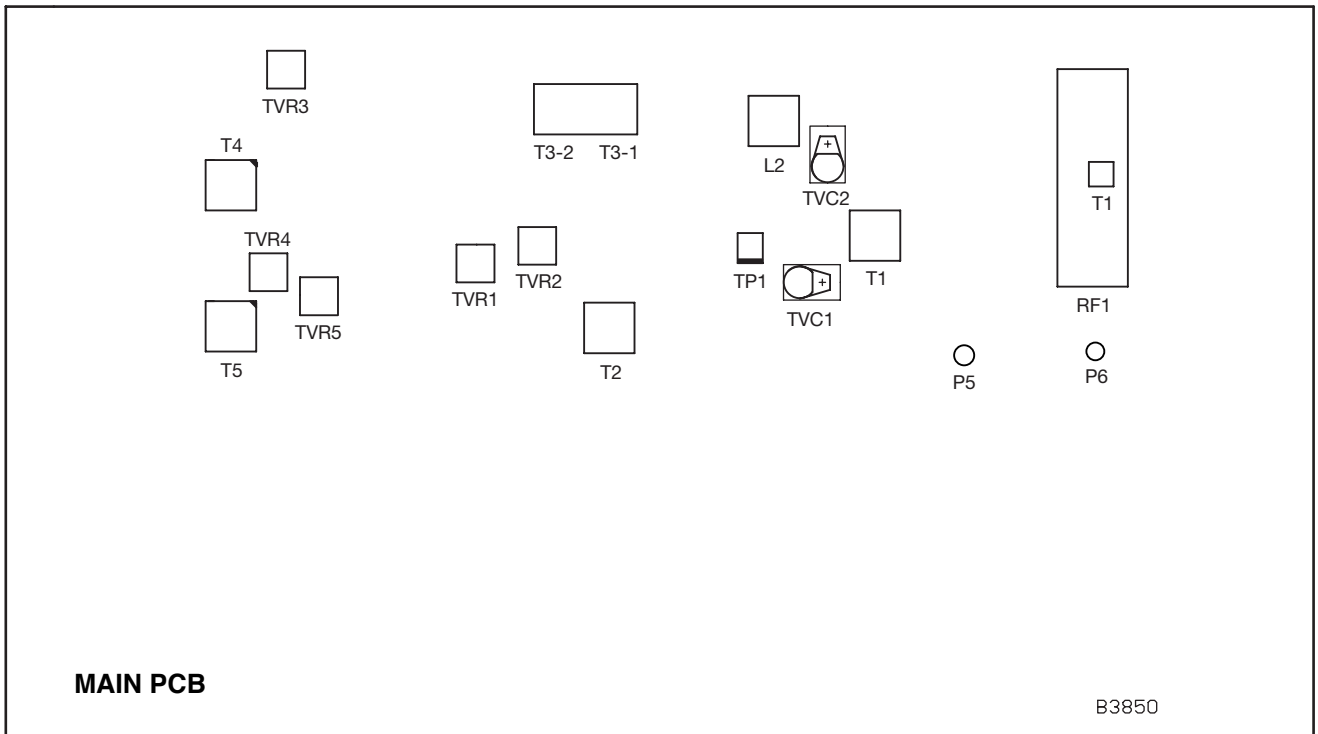
- AM Signal Generator
- FM Signal Generator
- Oscilloscope
- VTVM(AC, DC)
- Test loop antenna (AW Adjustment)
- Dummy antenna (FM Adjustment)
- Stereo signal modulator
- Frequency counter
- Distortion analyser

### IMPORTANT

1. Check power-source voltage.
2. Set the function switch to band aligned.
3. Keep the signal input as low as possible to adjust accurately.
4. Modulation and modulation frequency.

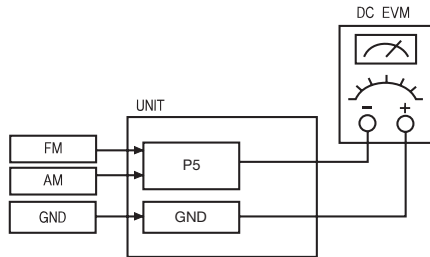
Band \ Item	Modulation	Modulation frequency
AM	30%	400Hz
FM	100%(75KHz Dev.)	400Hz

## ■ ADJUSTMENT POINT



# 1. AM TRACKING VOLTAGE ADJUSTMENTS

DC VOLTMETER ..... CONNECT TO TEST POINT P5 and GND

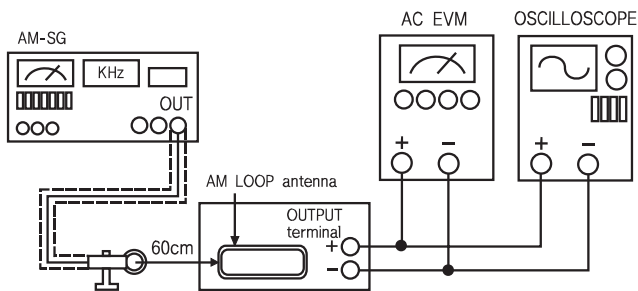


NO.	Band	Frequency	Adjust for	Adjustment
1	AM	530KHz	2.2V	T1
2	AM	1720KHz	9.5V	TVC1

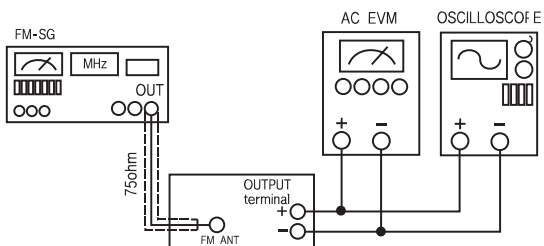
# 2. AM RF ADJUSTMENT

Signal Generator ..... Connects to the AM ANT. Coil through the loop antenna.  
Adjust for the indication of VTVM of the wave form of scope to be maximum.

BAND	Step	Frequency	Adjust for	Adjustment
AM	1	630KHz	Maximum sensitivity	L2, T2
	2	1420KHz	Maximum sensitivity	TVC2
	3	Repeat steps 1 and 2 several times.		



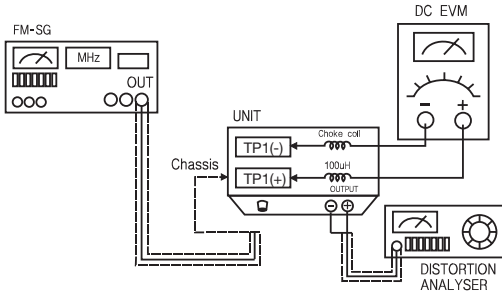
# 3. FM 19kHz REJECTION ADJUSTMENT



NO.	Frequency	Adjust for	Adjustment
1	97.8MHz	L rejection	T4
2	97.8MHz	R rejection	T5
3	97.8MHz	L, R rejection	TVR3

#### 4. FM MONO DISTORTION ADJUSTMENT

DC VOLT METER .....Connect to TP1(-), TP1(+) Through the choke coil (100 $\mu$ H)  
 Signal Generator .....Connect to FM ANT Jack (FM IN) through the dummy.  
 Distortion Meter .....Connect to the output.



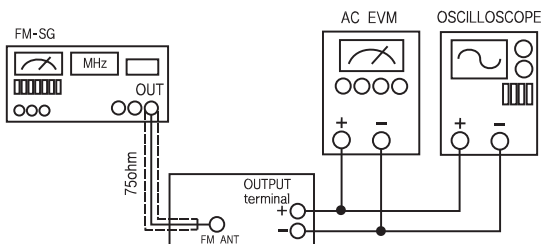
NO.	Frequency	Adjust for	Adjustment
1	97.8MHz	DC Voltmeter 0V	T3-1
2	97.8MHz	Minimum T.H.D	T3-2
3	97.8MHz	Minimum T.H.D	T1
4	Repeat steps 1 and 2 Several times.		

#### 5. FM/AM AUTO STOP LEVEL ADJUSTMENT

FM SIGNAL GENERATOR .....Connect to FM ANT Jack (FM IN) through the dummy  
 AM SIGNAL GENERATOR.....Connect to AM ANT, Coil through the Loop antenna

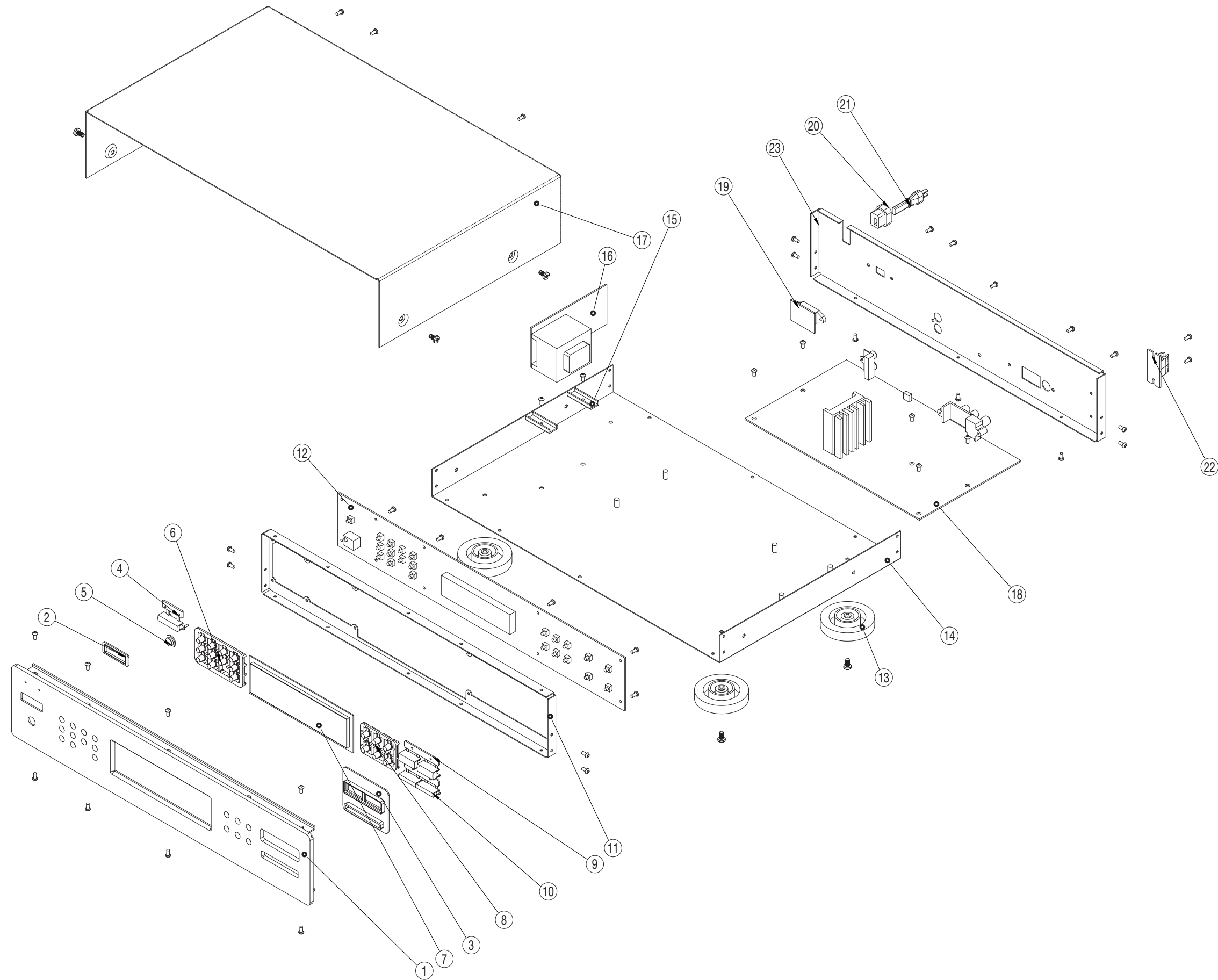
BAND	STEP	SIGNAL GENERATOR	Adjust for	Adjustment
FM	1	97.8MHz 16dB	<input type="checkbox"/> TUNED Display ON	TVR1
AM	1	630KHz 74dB	<input type="checkbox"/> TUNED Display ON	TVR2

#### 6. FM SEPARATION ADJUSTMENT



NO.	Frequency	Adjust for	Adjustment
1	97.8MHz	L separation	TVR5
2	97.8MHz	R separation	TVR4

### 3 EXPLODED VIEWS AND PARTS LIST



## EXPLODED VIEW LIST

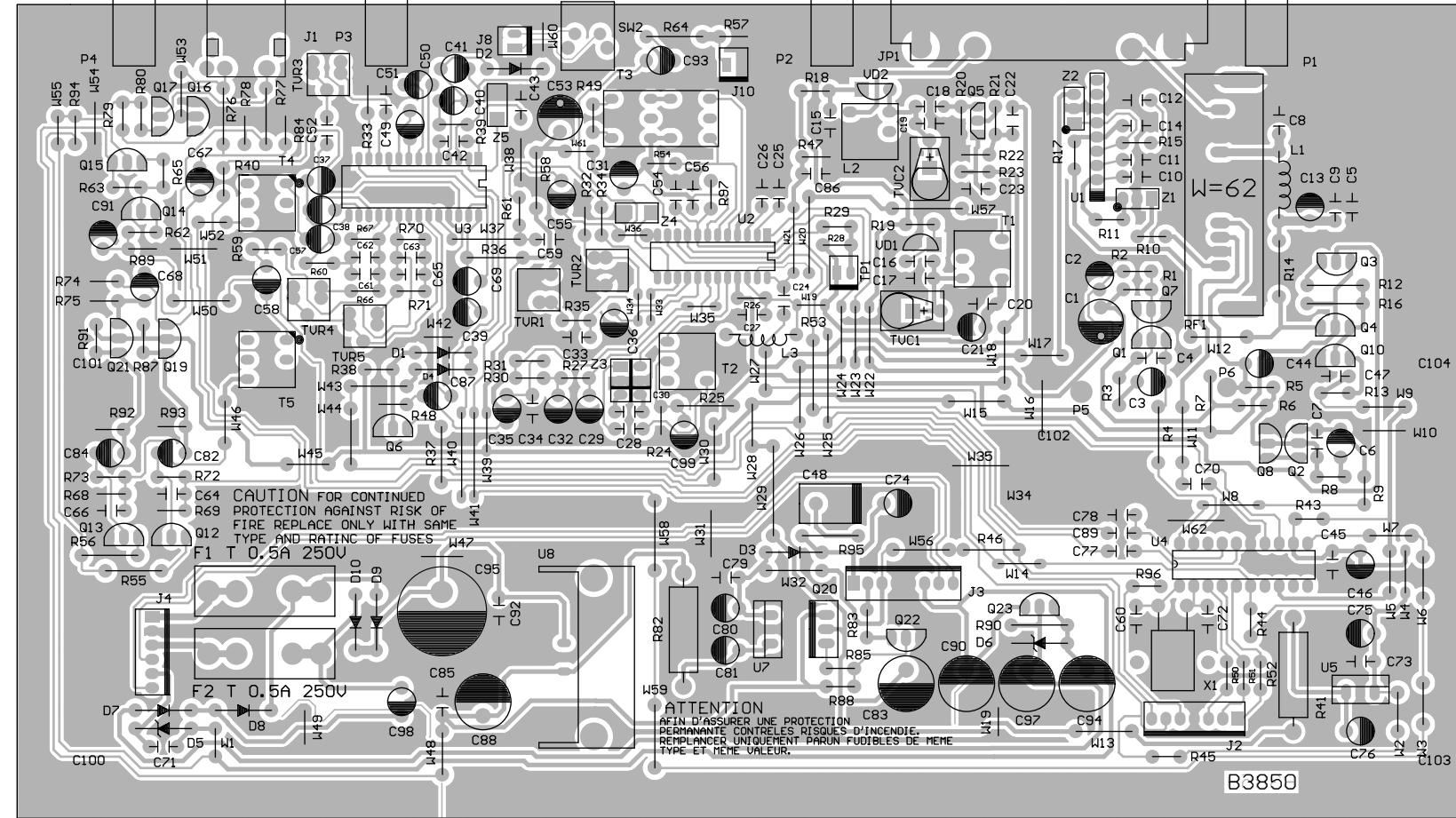
REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
1	9A09229700	FACE PLATE	75L837W0248*
2	9A09230500	WASHER, POWER KNOB	85A637*****
3	9A09231000	WASHER	85A638*****
4	9A09230400	POWER KNOB	80KB431*****
5	9A09230300	ACRY	85A398*****
6	9A09230600	PUSH KNOB	80KB432*****
7	9A09230200	ACRY	85A636*****
8	9A09230700	PUSH KNOB	80KB433*****
9	9A09230800	PUSH KNOB	80KB434*****
10	9A09230900	PUSH KNOB	80KB435*****
11	9A09229800	SUB PLATE	78C266000000
12	9A09233400	KEY PCB ASSY	TR670B3851**
13	9A09231200	FEET	81AD287*****
14	9A09230000	BOTTOM PLATE	78C266200000
15	9A09231700	BRACKER, U-TYPE	78C206000000
16	9A09233500	TRANSFORMER PCB ASSY	TR670B3852**
17	9A09230100	UPPER COVER	78C266300000
18	9A09233300	MAIN PCB ASSY	TR670B3850**
19	9A09233600	SELECT SW PCB ASSY	TR670B3853**
20	△ 9A09231500	BUSHING	98BSB4F4****
21	△ 9A09231400	AC CORD	651B2U56B24P
22	9A09231300	HOLER, ANT	85A271*****
23	9A09229900	REAR PLATE	78C2661W0245
F1, F2	△ 9A09231900	FUSE 0.5A/250V T	265200P521TQ
F3	△ 9A09232000	FUSE 0.1A/250V T	265200P121TQ

## INCLUDED ACCESSORIES

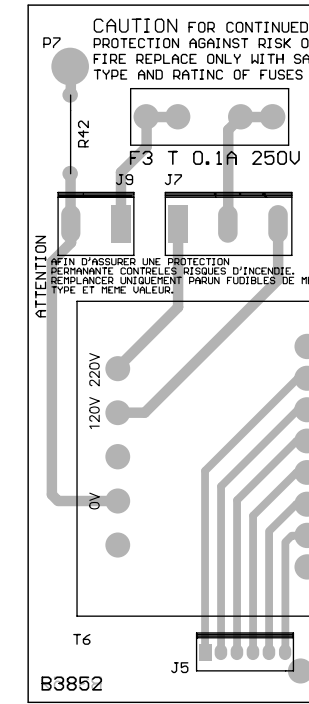
REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
	9A08814500	OWNER'S MNL, E/F	9904TR670***
	9A09234200	REMOTE CONTROL UNIT	62CR19C10001
	9A09234300	BATTERY	250027*****
	9A09233800	LOOP ANT	64LA75*****
	9A09233900	TV DIPOLE ANT	64T0001*****
	9A09234000	ANT ADAPTER	68AJ20092046

# 4 PC BOARDS AND PARTS LIST

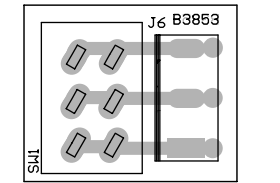
**MAIN PCB**



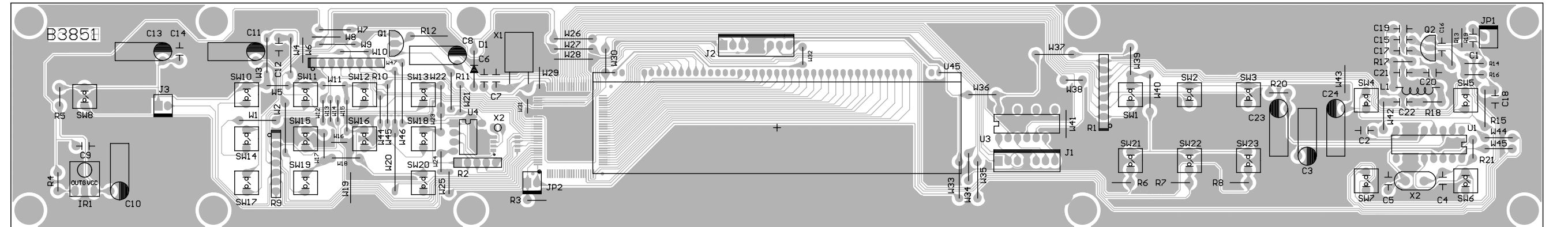
**TRANSFORMER PCB**



**SELECT SW PCB**



**KEY PCB**





## MAIN PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	9A09233300	MAIN PCB ASSY
	9A09245200	PCB, B3850/B3852/B3853
C95	△ 9A09241800	C, ELEC 2200UF/25V
C97	△ 9A09240000	C, ELEC 100UF/100V
C98	△ 9A09240300	C, ELEC 47UF/63V NP
D1-D4	9A09237300	DIODE, 1N4148
D5	9A09237500	ZENER DIODE, 5.6V 0.5W
D6	9A09237600	ZENER DIODE, 22V 0.5W
D7-D10	△ 9A09237400	DIODE, 1N4007
F1-F3	9A09241200	FUSE HOLDER
J1	9A09244500	RCA JACK, HSP-242V1-3
J2	9A09245000	WAFER, 5045-7P
J3	9A09245100	WAFER, 5045-8P
J4	9A09244900	WAFER, 5045-6P
J8	9A09244800	WAFER, 5045-2P
JP1	9A09242500	ANT TERMINAL
L1	9A09242600	CHOKER, 2.2UH
L2	9A09242800	I. F. T, LA-003
P2	9A09244600	TERMINAL GND
P5, P6	9A09244700	PIN
Q1, Q2	9A09240500	TR, 2SC1815BL
Q3	9A09240600	TR, 2SA1015
Q4	9A09240500	TR, 2SC1815BL
Q5	9A09241600	TR, 2SK192A
Q6-Q8	9A09240500	TR, 2SC1815BL
Q10	9A09240500	TR, 2SC1815BL
Q12, Q13	9A09240700	TR, 2SC3327A
Q14	9A09240500	TR, 2SC1815BL
Q15	9A09240600	TR, 2SA1015
Q16, Q17	9A09240700	TR, 2SC3327A
Q19	9A09240500	TR, 2SC1815BL
Q20	9A09242700	TR, 2SB633
Q21, Q22	9A09240500	TR, 2SC1815BL
Q23	9A09240800	TR, 2SA965
R35	9A09241500	NTC THERMISTORS, 300 OHM
R41	△ 9A09241300	R, M. O. F 2W 100
R82	△ 9A09241300	R, M. O. F 2W 100
R90	△ 9A09241400	R, M. O. F 1W 4K7
RF1	9A09243300	FM TUNER, TFFJ4E570A
T1	9A09242900	I. F. T, LO-003
T2	9A09243000	I. F. T, A-8B C02-8072
T3	9A09243100	I. F. T, 0203-W009
T4, T5	9A09243200	I. F. T, 10DF01
TP1	9A09244400	PIN, 2541-2P
TSW (SW2)	9A09243400	TACT SW, SFKHHLU1714
TVC1, TVC2	9A09243500	TRIMMER, CTY-112B 8P
TVR1	9A09241000	TVR, 6 H-TYPE 30K
TVR2	9A09240900	TVR, 6 H-TYPE 10K
TVR3	9A09241000	TVR, 6 H-TYPE 30K
TVR4, TVR5	9A09241100	TVR, 6 H-TYPE 1M
U1	9A09241900	IC, AN278
U2	9A09242000	IC, LA1266
U3	9A09242100	IC, LA3450
U4	9A09242200	IC, TC9257P
U5, U7	△ 9A09242300	IC, AN7805

## MAIN PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
U8	△ 9A09242400	IC, AN7812
U8	9A09244300	HEAT SINK
VD1, VD2	9A09243600	VARIABLE CAP, 1SV149
X1	9A09243700	CRYSTAL, 7.2MHZ
Z1	9A09243800	CERAMIC FILTER, SFZ10.7MS2
Z2	9A09243900	CERAMIC FILTER, SFZ10.7MS3
Z3	9A09244000	CERAMIC FILTER, SFZ450B
Z4	9A09244200	CERAMIC FILTER, BFU450CN
Z5	9A09244100	CERAMIC FILTER, CSB456F11

## KEY PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	9A09233400	KEY PCB ASSY
	9A09248000	PCB, B3851
	9A09247200	FL TUBE, 25U39167TAN
D1	9A09237300	DIODE, 1N4148
IR1	9A09247100	INFERRED RECEIVER, IR-9G
J1 TO J2	9A09247800	CONNECTOR, ED-491 7P
J2 TO J3	9A09247700	CONNECTOR, ED-E67 8P
J3 TO J8	9A09247600	CONNECTOR, ED-C92 2P
Q1	9A09240600	TR, 2SA1015
R1	9A09246700	R, NETWORKS 10KX7 8P7R
R2	9A09246800	R, NETWORKS 10KX4 5P4R
R9	9A09246600	R, NETWORKS 10KX6 7P6R
R10	9A09246700	R, NETWORKS 10KX7 8P7R
SW1-SW8	9A09247000	TACT SW, SKHVBK3710
SW10-SW23	9A09247000	TACT SW, SKHVBK3710
U2	9A09246500	IC, TMP87PM78F
U3	9A09246300	IC, TC74HCU04
U4	9A09246900	IC, 93C66
U5	9A09246400	IC, JRC6356E
X1	9A09247400	CRYSTAL, 8MHZ
X2	9A09247500	CRYSTAL, 32.768KHZ

## TRANSFORMER PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	9A09233500	TRANSFORMER PCB ASSY
	9A09245200	PCB, B3850/B3852/B3853
J5 TO J4	9A09245600	CONNECTOR, ED-488 6P
J7	9A09245300	WAFER, 3963-5P3T
J9	9A09245400	WAFER, 3963-3P2T
T6	△ 9A09245500	TRANSFORMER

## SELECT SW PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	9A09233600	SELECT SW PCB ASSY
	9A09245200	PCB, B3850/B3852/B3853
	△ 9A09245700	SLIDE SW, S14-22AH
	9A09245800	CONNECTOR, ED-E69 5P3T

# TEAC SCHEMATIC DIAGRAM T-R670 MAIN PCB, TRANSFORMER PCB, SELECT SW PCB

1 2 3 4 5 6 7 8

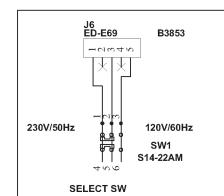
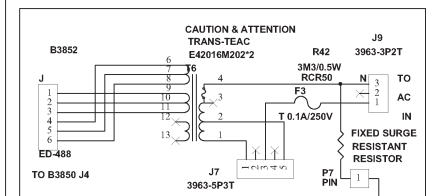
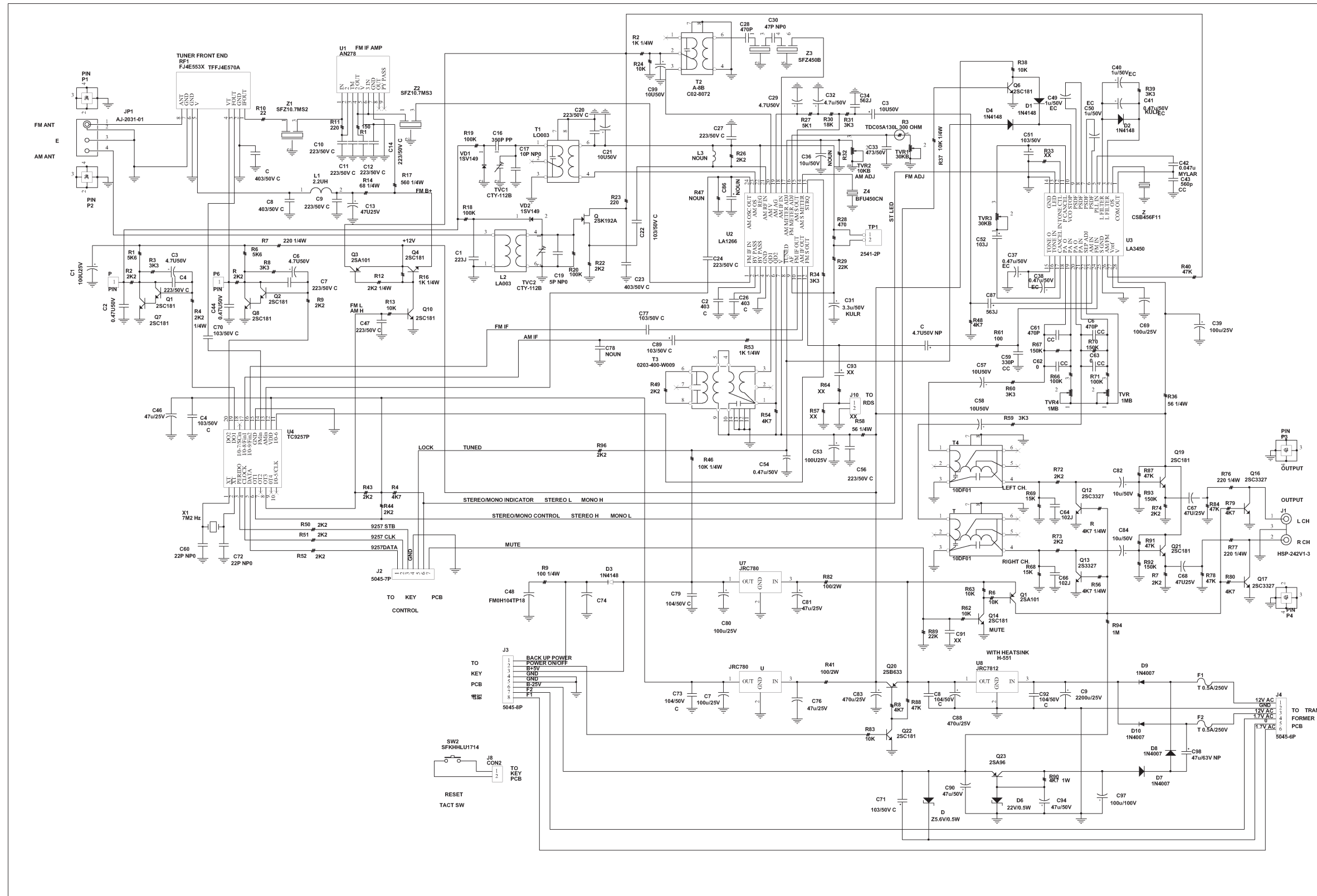
A

B

C

D

E



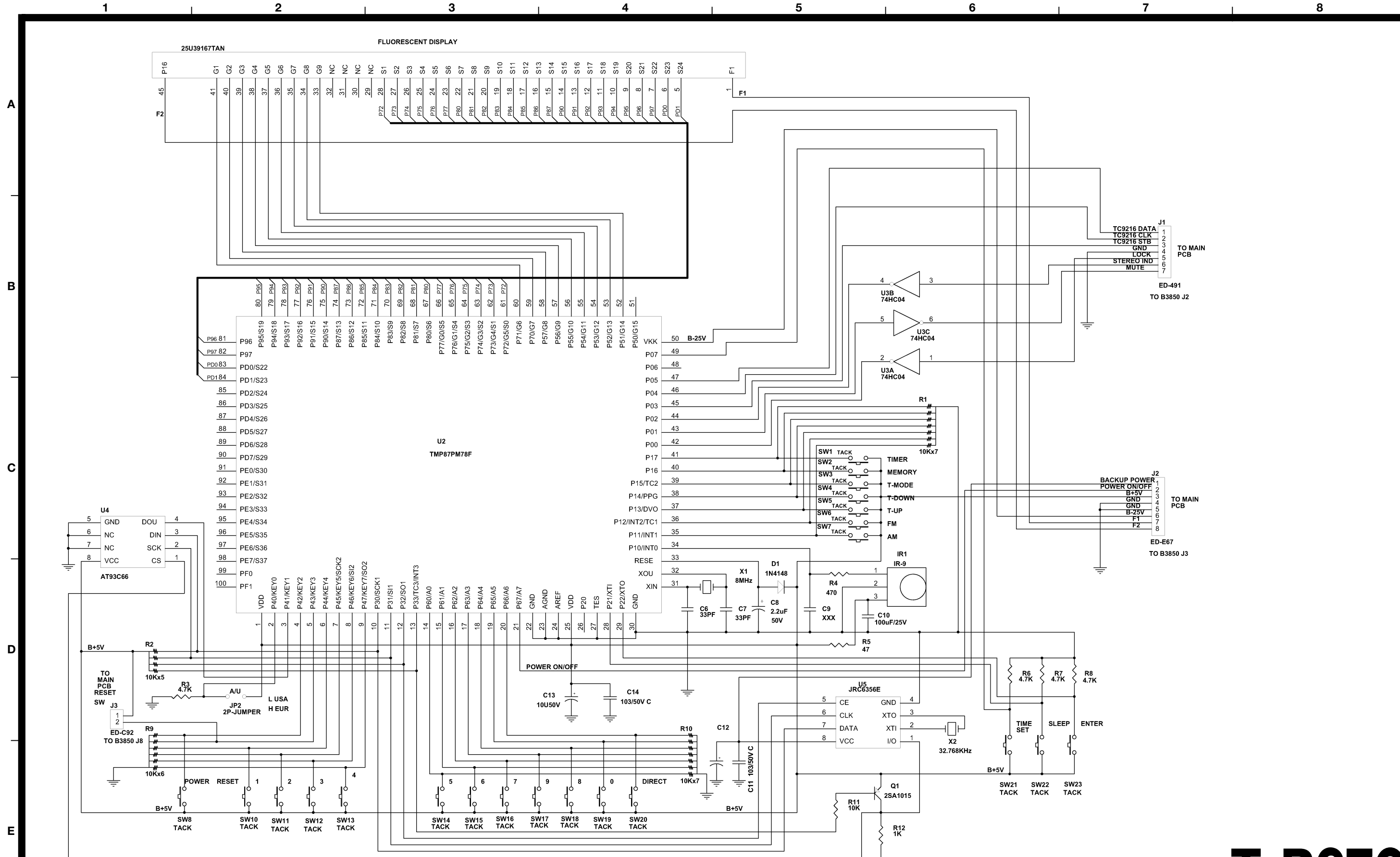
**INSTRUCTIONS FOR SERVICE PERSONNEL**  
 BEFORE RETURNING APPLIANCE TO THE CUSTOMER, MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT.

# T-R670

## AM/FM Stereo Tuner

1st Issue; October 2001

# TEAC SCHEMATIC DIAGRAM T-R670 KEY PCB



# T-R670

## AM/FM Stereo Tuner

1st Issue; October 2001