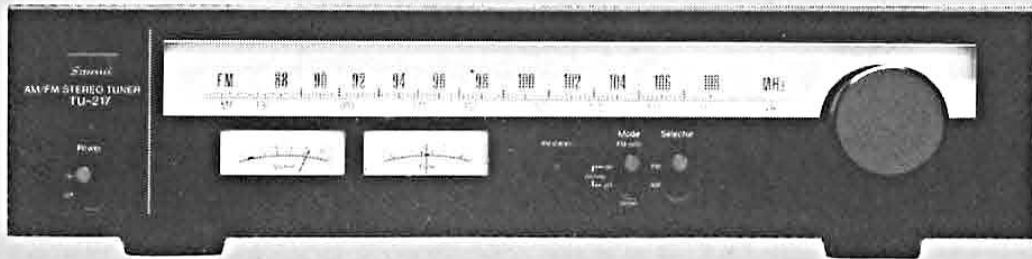


SERVICE MANUAL

AM/FM STEREO TUNER

SANSUI TU-217



SPECIFICATION

FM Section

Tuning range	88 to 108MHz
Usable Sensitivity	
Mono IHF	10.6dBf (1.85 μ V: T100)
Stereo IHF	20.0dBf
50dB Quieting Sensitivity	
Mono	18dBf
Stereo	38dBf
Signal to noise ratio at 65 dBf	
Mono	70dB
Stereo	68dB
Distortion (at 65dBf)	
Mono	less than 0.15% at 100Hz less than 0.13% at 1,000Hz less than 0.25% at 6,000Hz
Stereo	less than 0.18% at 100Hz less than 0.15% at 1,000Hz less than 0.35% at 6,000Hz

Alternate channel selectivity (at 400kHz)

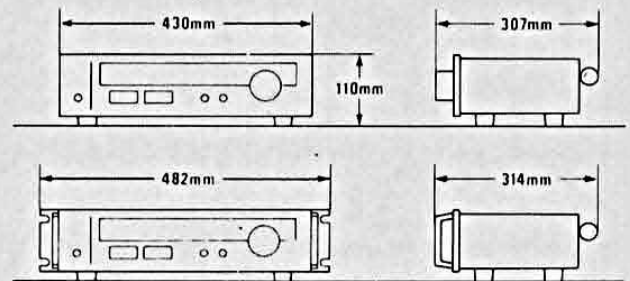
	50 dB
Capture ratio	1.7 dB
Image response ratio	48 dB (at 98 MHz)
Spurious response ratio	68 dB (at 98 MHz)
Stereo separation	35 dB at 100Hz 40 dB at 1,000Hz 30 dB at 10,000Hz
Frequency response	30 to 15,000Hz +1dB -1dB
Antenna input impedance	
	300 ohms balanced 75 ohms unbalanced

AM Section

Tuning range	530 to 1,600 kHz
Usable sensitivity	
(Bar antenna)	50 dB/m (300 μ V/m)
Selectivity (\pm 10 kHz)	35 dB
Signal to noise ratio	46 dB

Others

Output level	0.7V
Power requirements	100, 120, 220, 240V 50/60Hz 120V (Usable 110-130V) 60Hz (For U.S.A. & Canada only)
Power consumption	4W
Weight	5.3 kg (11.7 lbs) net 6.4 kg (14.1 lbs) packed

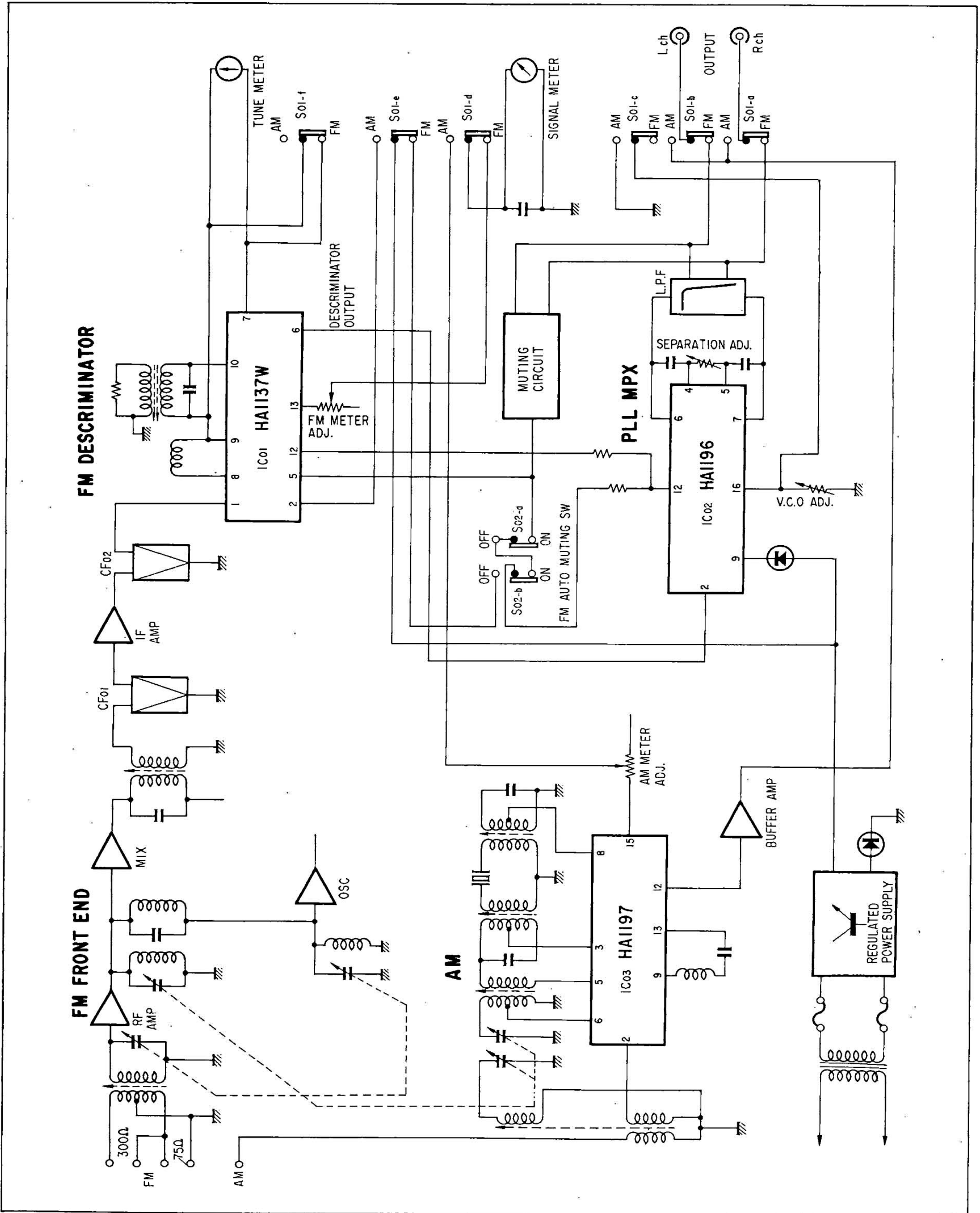


* Design and specifications subject to change without notice for improvements.

Sansui

SANSUI ELECTRIC CO., LTD.

1. BLOCK DIAGRAM



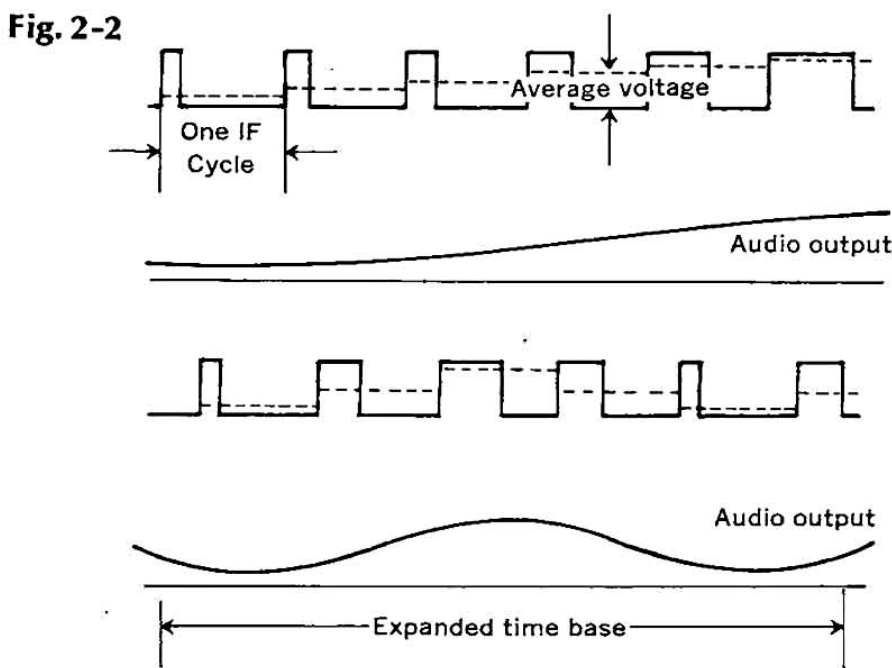
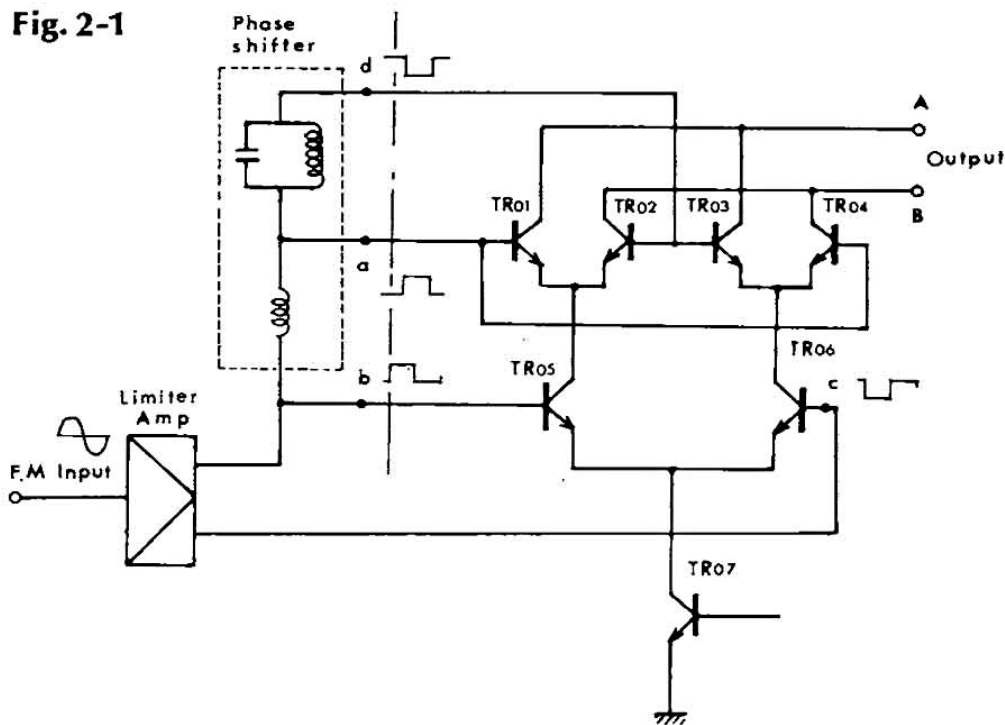
2. OPERATION OF QUADRATURE DETECTOR

A Fundamental circuit configuration of Quadrature detector is shown in Fig. 2-1, and this circuit consists of a phase shifter and a transistor circuit of duplex-balanced differential amplification.

This circuit is designed that the product of an input point (a) and a point (b) may appear at an output point (A).

As phase shifter is tuned with FM intermediate frequency of 10.7MHz, when the input signal frequency is same as the center frequency of f_0 (10.7MHz), the phase of the input signal is delayed by 90 deg. at output point (a) of phase shifter when the input signal frequency is lower than the f_0 , the phase delay becomes more than 90 deg. because the resonance circuit in the phase shifter becomes capacitive load, and when higher than f_0 , the phase delay becomes less than 90 deg. because the resonance circuit becomes inductive load.

The output of the limiter amplifier is applied to each base of the TR05 and TR06 and their phase are opposit. Also, when the input signal frequency is the same as the f_0 , the signal of 90 deg.-delayed phase is applied to the TR01 and TR04 from the phase shifter, as compared with the TR05, and also the signal of 90 deg.-delayed phase is applied to the TR02 and TR03, as compared with the TR06.

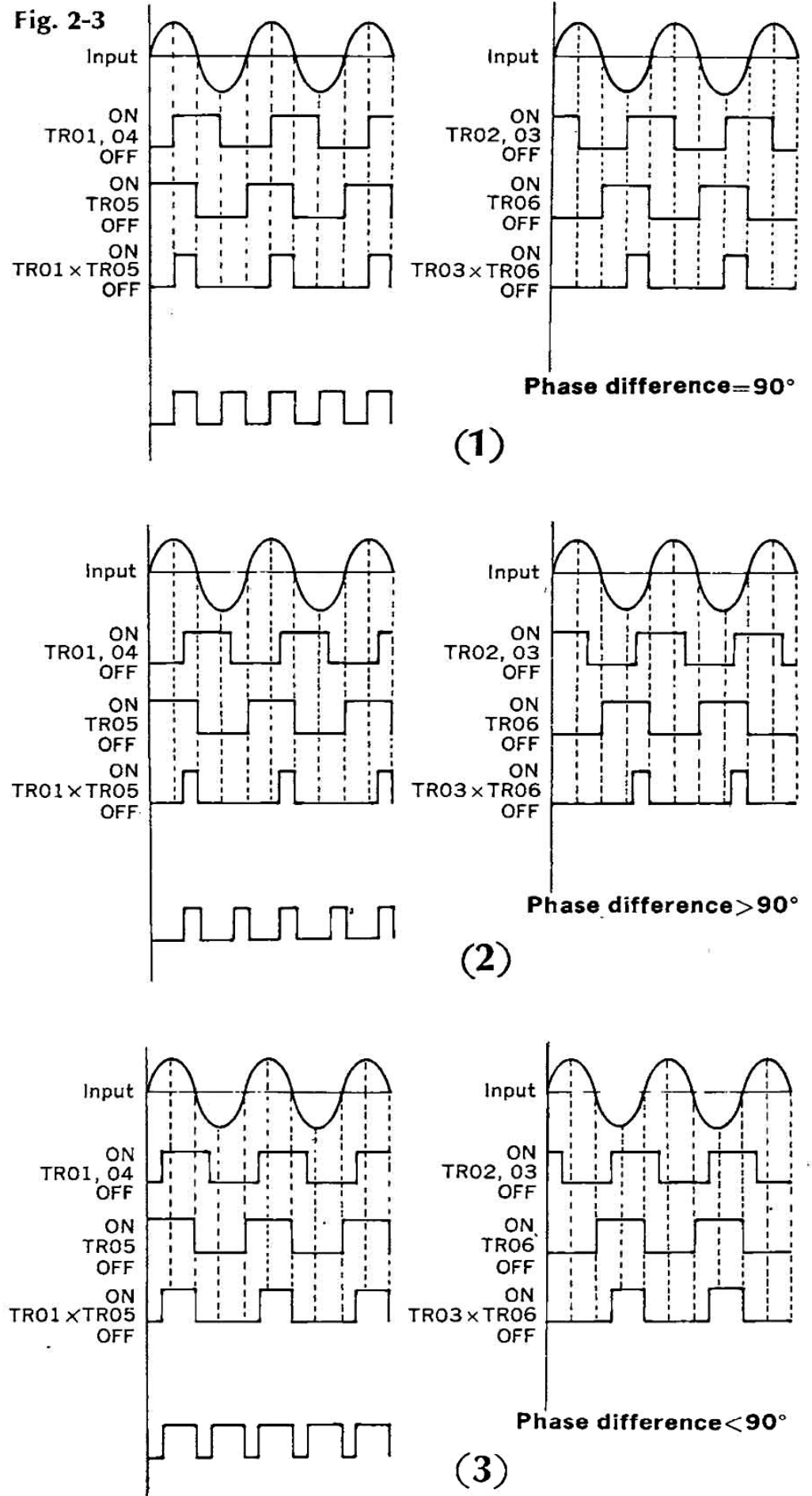


Furthermore, the waveforms shown at the points (a) (b) (c), and (d) in Fig. 2-1 represent the phase relation of the transistors connected to these points, however, these actual input waveforms are Sine-wave at these points.

The operation of each transistor are shown in Fig. 2-2, according to the condition that; the signal whose frequency is the same as the f_0 is applied to the FM input, the signal whose frequency is lower than the f_0 is applied, and the signal higher than f_0 is applied. And when the input signal frequency is the same as f_0 , the output is shown as (1), when lower than the f_0 , is shown as (2), and when higher than the f_0 , is shown as (3).

As the frequency of FM deviates higher-and-lower at its center frequency f_0 , the audio signals as shown in Fig. 2-3 can be obtained as output signal of an integrating circuit connected with the next stage of quadrature detector.

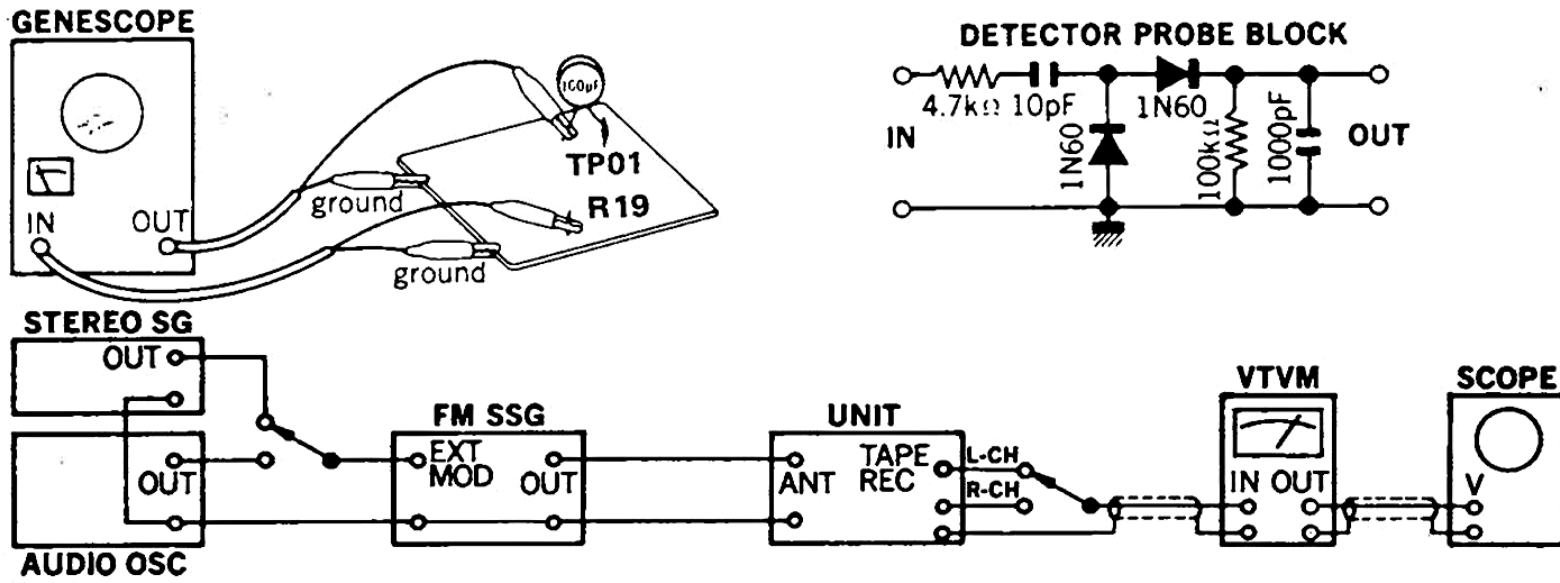
In this way, the quadrature detection is a detecting method by which the deviation of input frequency against the tuned frequency of the phase shifter is converted into the change of the mean output potential.



3. ADJUSTMENT

3-1. FM Adjustment

- Note: 1. Selector FM mono
 2. Connection . . . Connect the output of genescope to TP through 100 pF ceramic capacitor.



1) FM IF, RF Adjustment and Dial Calibration

STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
		FROM	TO				
1.	IF Coil	Output 90dB Genescope	TP01 F-2762	Lead wire of R19 (Use Detector Probe)	T01 F-2762	Max. IF waveform	
2.	Discriminator Coil	Same as above	Same as above	TP02, F-2762	T02 T03 F-2762	Steep linearity of S curve Make symmetrical S curve	
3.	Tune Meter	98MHz ANT Input 65dBf (59.8dB) 1000Hz (100% MOD) FM SSG	ANT terminal 300Ω	Tune Meter	T03 F-2762	Center on Meter	
4.	90MHz Dial Calibration	90MHz ANT Input 65dBf (59.8dB) 1000Hz (100% MOD) FM SSG	Same as above	OUT L or R-CH VTVM & Scope	L03 F-2762	Max. Indication on signal meter & VTVM & Scope Center Indication on Tune Meter	
	106MHz Dial Calibration	106MHz ANT Input 65dBf (59.8dB) 1000Hz (100% MOD) FM SSG	Same as above	Same as above	TC03 F-2762		
5.	90MHz RF Adj.	90MHz ANT Input Minimum Value with sine wave 1000 Hz (100% MOD) FM SSG	Same as above	Same as above	L01, L02 F-2762	Same as above	
	106MHz RF Adj.	106MHz ANT Input Minimum Value with sine wave 1000 Hz (100% MOD) FM SSG	Same as above	Same as above	TC01, TC02 F-2762	Same as above	
6.	Signal Meter Volume	98MHz ANT Input 65dBf (59.8dB) 1000Hz (100% MOD) FM SSG	Same as above	Signal Meter	VR01 F-2762	4.3 on Meter	

2) FM STEREO Adjustment

Note: 1. Selector FM AUTO

STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
		FROM	TO				
1.	PLL VCO Adj.	98MHz ANT Input 65dBf (59.8dB) FM SSG Pilot 19kHz (9% MOD) SUB 1kHz+Pilot (100% MOD) STEREO SG	ANT terminal 300Ω	Stereo indicator	VR03 F-2762	Light indicator	Adjust the VR03 within center of lighting level.
	PLL VCO Adj. In case of using Freq. counter.	98MHz ANT Input 65dBf (59.8dB) FM SSG (no MOD)	Same as above	TP03 F-2762 Use Freq. counter	VR03 F-2762	76kHz ±150Hz	
2.	Separation	98MHz ANT Input 65dBf (59.8dB) FM SSG Pilot 19kHz (9% MOD) R (or L) Mode 1kHz+ Pilot (100% MOD) STEREO SG	Same as above	OUT L (or R)- CH VTVM & Scope	VR02 F-2762	OUT -34 dB	Confirm separation L-CH→R-CH
3.	Muting level & indicator level	98MHz ANT Input 18dBf (12.8dB) FM SSG Pilot 19kHz (9% MOD) SUB 1kHz+Pilot (100% MOD) STEREO SG	Same as above	Stereo indicator	VR03 F-2762	Muting level 18dBf (12.8dB) Indicator lighting level 18dBf (12.8dB)	FM MUTING Switch ON

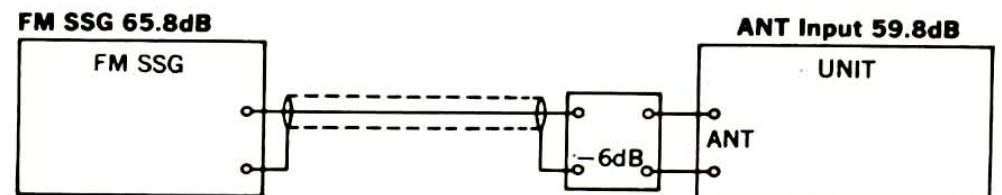
※ NEW MEASUREMENT FOR FM.

Input signal level under the provision of IHFM-T-200, a new measurement method is indicated by available power ratio "dBf". To obtain approximate available power ratio "dBf", abstract 0.8 from attenuator indication of general FMSG (open load indication type); however, the former measurement; IHFM-T-100 is designated together too.

The way of modulation on IHFM-T-200 is shown below.

	modulation frequency	modulation mode	modulation factor
FM MONO	1000Hz		100%
FM STEREO	1000Hz	SUB	Pilot 9% Pilot+SUB 100%

※The relation between the standard input 65dBf of IHFM-T-200 and the former indication "dB" is shown below.



Abbreviations

Equipment

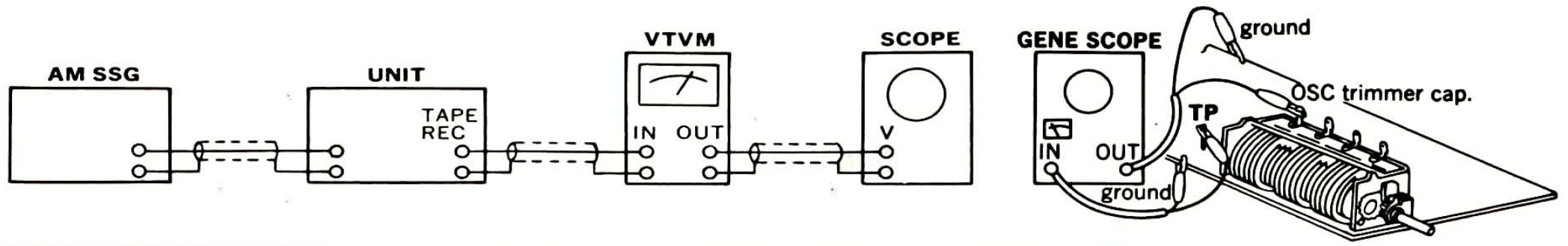
AM FM Generator Oscilloscope Genescope
 AM Standard Signal Generator AM SSG
 FM Standard Signal Generator FM SSG
 FM Stereo Generator Stereo SG
 Oscilloscope Scope
 Audio Oscillator Audio Osc.

Others

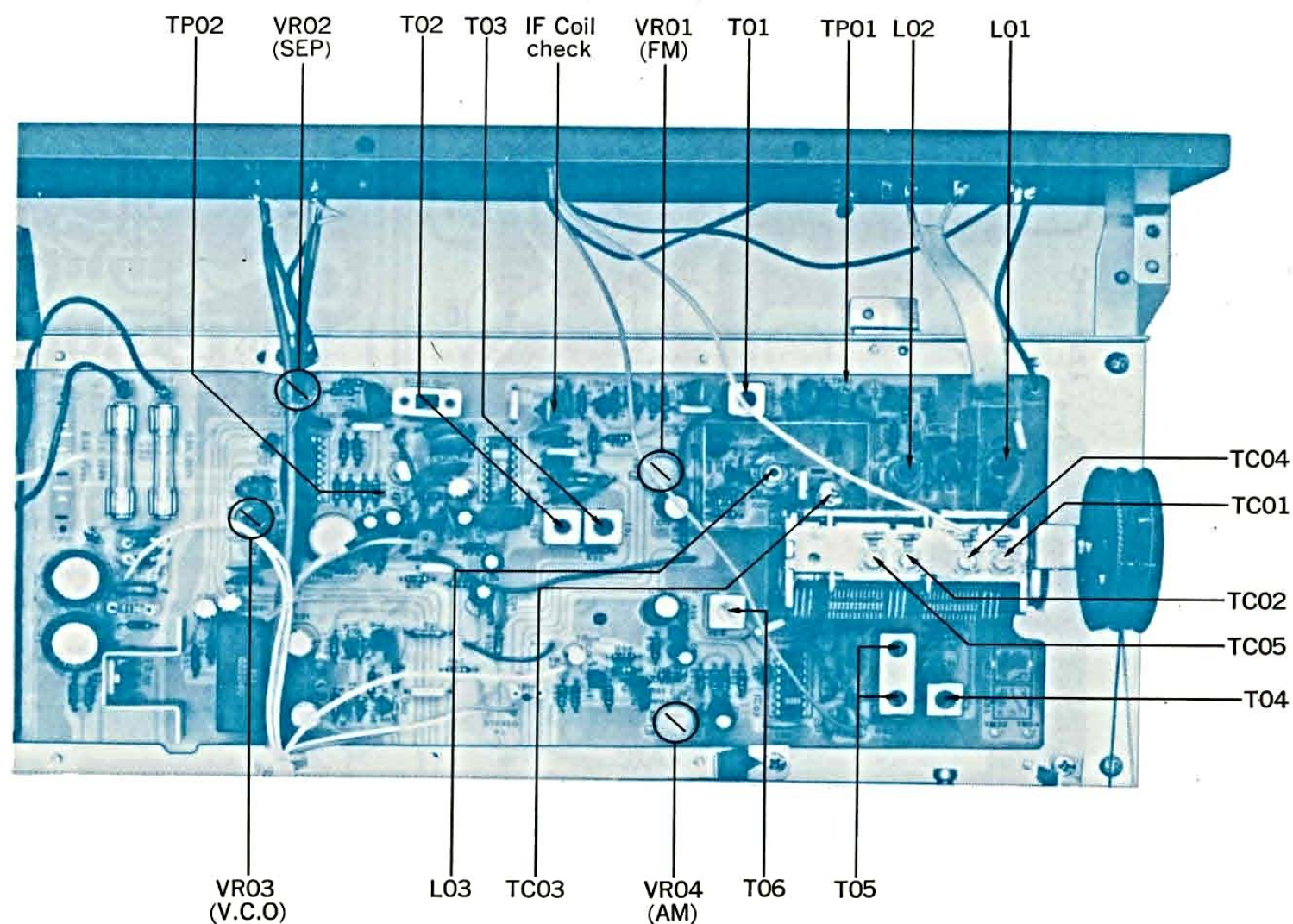
Antenna ANT.
 Modulation MOD.

3-2. AM IF Adjustment & Dial Calibration

Note: 1. Selector.....AM



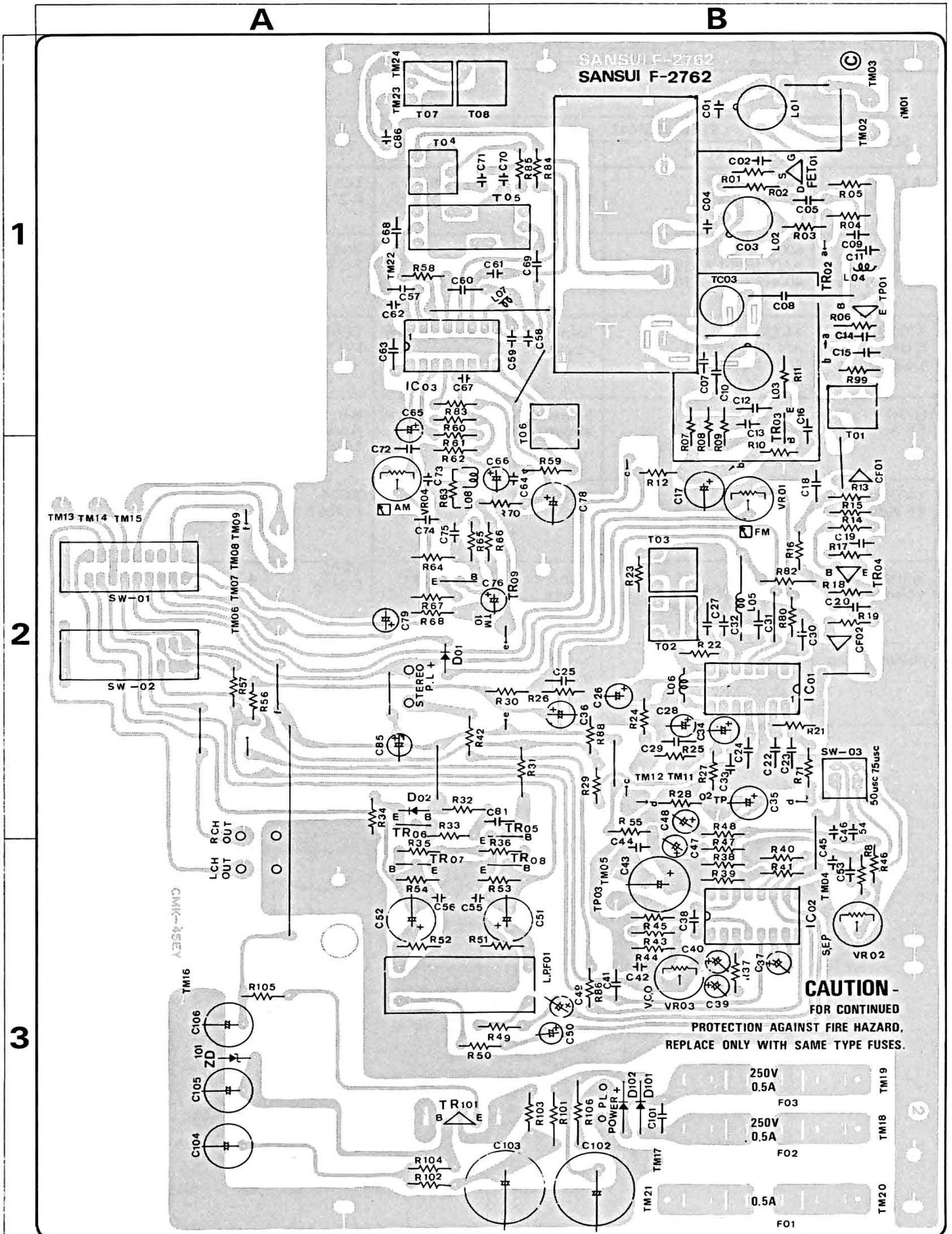
STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
		FROM	TO				
1.	IF Coil	Genescope Output 70dB	TC05 F-2762	TP07, R63 F-2678	T05 F-2762	Max. IF waveform	
2.	600kHz Dial Calibration	600kHz ANT Input 60dB 400Hz (MOD 30%) AM SSG	AM ANT terminal	OUT L or R-CH VTVM & Scope	T04 F-2762	Max. Indication on Signal Meter & V.T.V.M.	
	1400kHz Dial Calibration	1400kHz AN Input 60dB 400Hz (MOD 30%) AM SSG	Same as above	Same as above	TC05 F-2762		
3.	600kHz RF Adj.	600kHz ANT Input 50dB 400Hz (MOD 30%) AM SSG	Same as above	Same as above	Bar Antenna L701	Same as above	
	1400Hz RF Adj.	1400kHz ANT Input 50dB 400Hz (MOD 30%) AM SSG	Same as above	Same as above	TC04 F-2762	Same as above	
4.	Signal Meter volume	1000kHz ANT Input 80dB 400Hz (MOD 30%) AM SSG	Same as above	Signal Meter	VR05 F-2678	4.3 on meter	
5.	460kHz Trap	460kHz ANT Input 80dB 400Hz (MOD 30%) AM SSG	Same as above	OUT L or R-CH VTVM & Scope	L13 LC01 F-2678	Min. Output	



4. PARTS LOCATION & PARTS LIST

Since some of capacitors and resistors are omitted from parts lists in this Service Manual, refer to the common parts list for capacitors & resistors which was appended previously to each Sansui Manual.

1) F-2762 FM, AM, RF, IF Circuit Board (Stock No. 7521581) Conductor Side



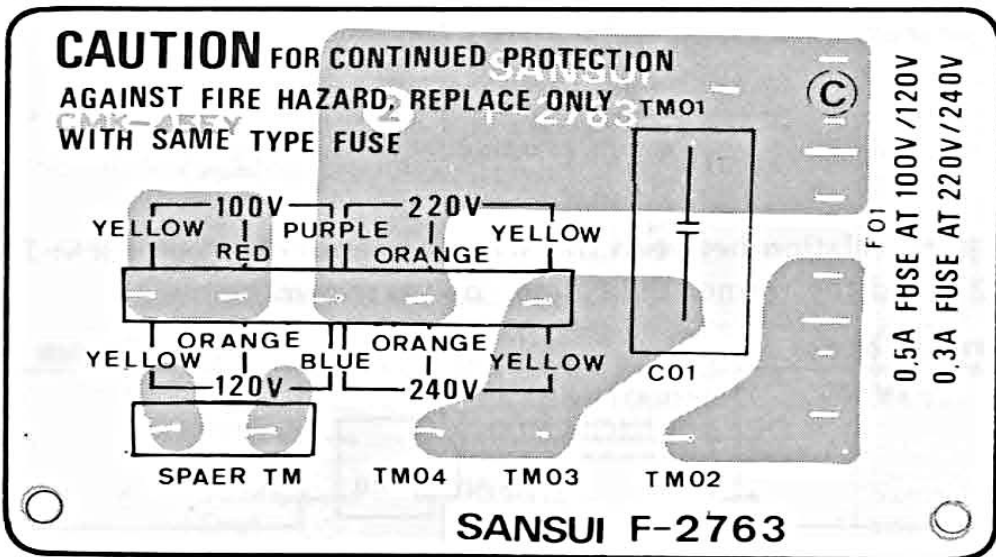
Parts List <F-2762>

Parts No.	Stock No.	Description	Position	
TR02,03	0305801,2	2SC1047 B, C	} Transistor	
TR04	0306341,2	2SC1674L, K		
TR05	0306070,1	2SC1313F, G		
TR06	0300470,1	2SA726 (W) F, G		
TR07,08	0306390,1	2SC1636 7, 8		
TR09	0306070,1	2SC1313F, G		
TR101	0308391,2	2SD313AL D, E		
IC 01	0360350	HA1137W		} IC
IC 02	0360320	HA1196		
IC 03	0360390	HA1197		
FT01	0370172	2SK49 H FET		
D 01	0340090	DS-430 Varistor	2A	
D 02	0311160	1S2473D	2A	
D 101	0310340	10D1	} Diode	
D 102	0310340	10D1		
ZD101	0315790	EQA01-13R Zener Diode	3A	
C 01	0669347	12pF 50V	1B	
C 03	0659015	2200pF 50V	1B	
C 04	0669350	15pF 50V	} C.E.	
C 05	0669509	0.25pF 50V		
C 07	0669019	18pF 50V		
C 08	0679012	1.5pF 500V		
		Gimmic Capacitor		
C 10,12,13	0669345	10pF 50V C.E.	1A	
C 37	0573228	0.22μF 35WV	} T.C.	
C 39	0573339	33μF 35WV		
C 40	0573159	1.5μF 35WV		
C 42	0629005	360pF 50V		
C 53,54	0620561	560pF 50V	} P.C.	
C 55,56	0620151	150pF 50V		
C 70	0669415	15pF 50V C, E	1B	

Parts No.	Stock No.	Description	Position
R 101	0193100	10Ω ¼W F.R	3B
R 106	0103122	1.2kΩ ½W C.R.	3B
L 01	4200720	Antenna Coil	1B
L 02	4210340	RF Coil	1B
L 03	4220400	OSC Coil	1B
L 04	4900140	1μH Inductor	1B
L 05	4290011	Peaking Coil	2B
L 06	4290300	18μH Inductor	2B
L 07	4900110	100μH Inductor	1B
T 01	4235930	10.7MHz IF Coil	2B
T 02	4235990	10.7MHz FM IFT	2B
T 03	4236000	10.7MHz IF Coil	2B
T 04	4220590	150μH OSC Coil	1A
T 05	0910370	Ceramic Filter	1A
T 06	4230620	IF Coil	1A
CF 01	0910380	Ceramic Filter	2B
CF 02	0910380	Ceramic Filter	2B
LF 01	0910220	Low Pass Filter	
VR01	1035170	Volume 47kΩ B	2B
VR02	1035210	Volume 220kΩ B	3B
VR03	1034250	Volume 4.7kΩ B	3B
VR04	1035110	Volume 4.7kΩ B	2A
S 01	1171170	Lever Switch, selector	2A
S 02	1171130	Lever Switch, muting	2A
S 03	1110270	Slide Switch, de emphases	2B
F 02,03	0432210	AC Fuse 0.5A 250V	3B
VC01	1220210	AM FM Variable Capacitor	
TC03	1230090	Trimmer Capacitor	1B
	2410910	2P, Pin Ass'y Type E	

2) F-2763 Voltage Selector Circuit Board (Stock No.7595421)

Conductor Side

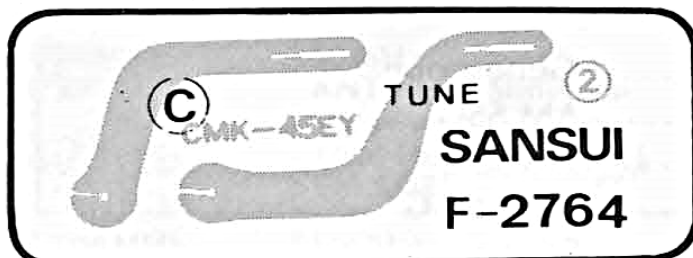


Parts List

Parts No.	Stock No.	Description
C 01	0635476	0.0047μF 125WV MC
	0659802	0.0047μF AC 150V CC
F 01	0432210	AC Fuse 0.5A 250V

3) F-2764 Tune Meter Circuit Board

Conductor Side (Stock No. 7595431)

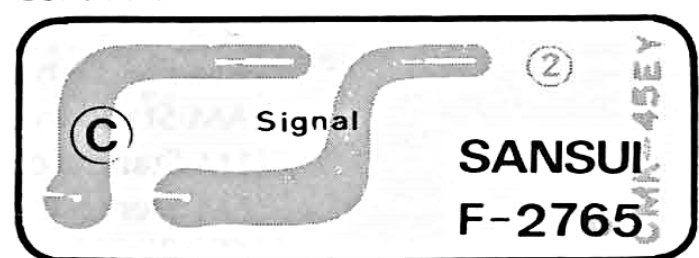


Parts List

Parts No.	Stock No.	Description
M 02	4301140	Tune Meter

4) F-2765 Signal Meter Circuit Board

Conductor Side (Stock No. 7595441)

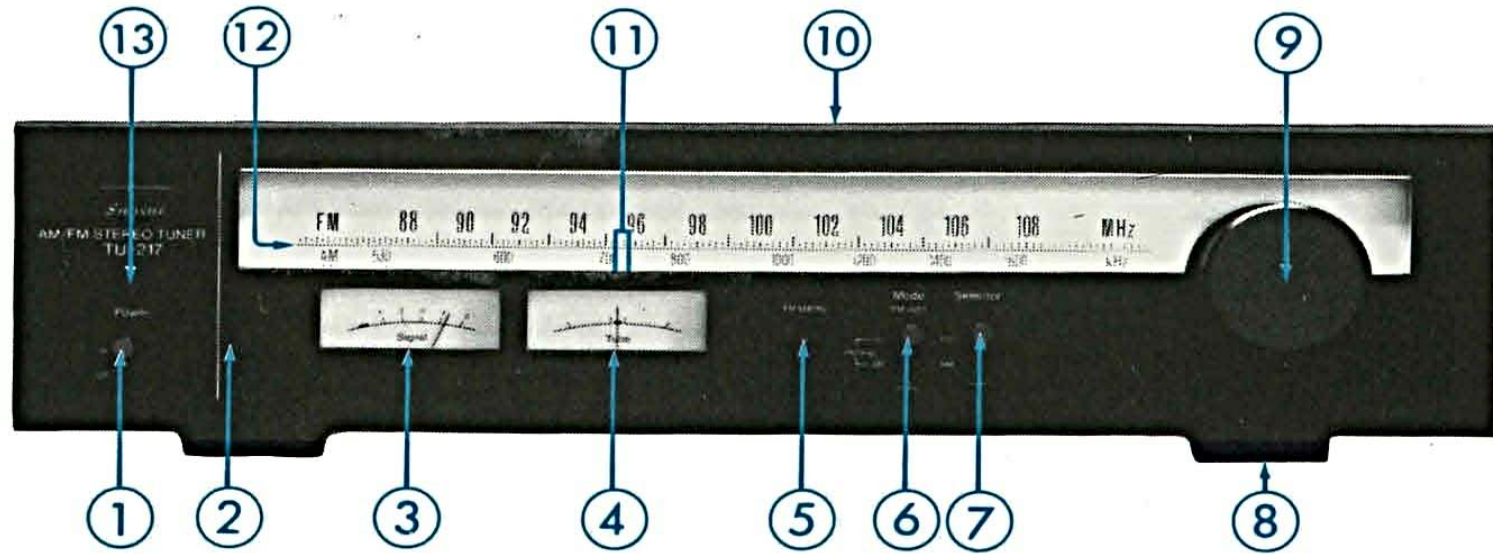


Parts List

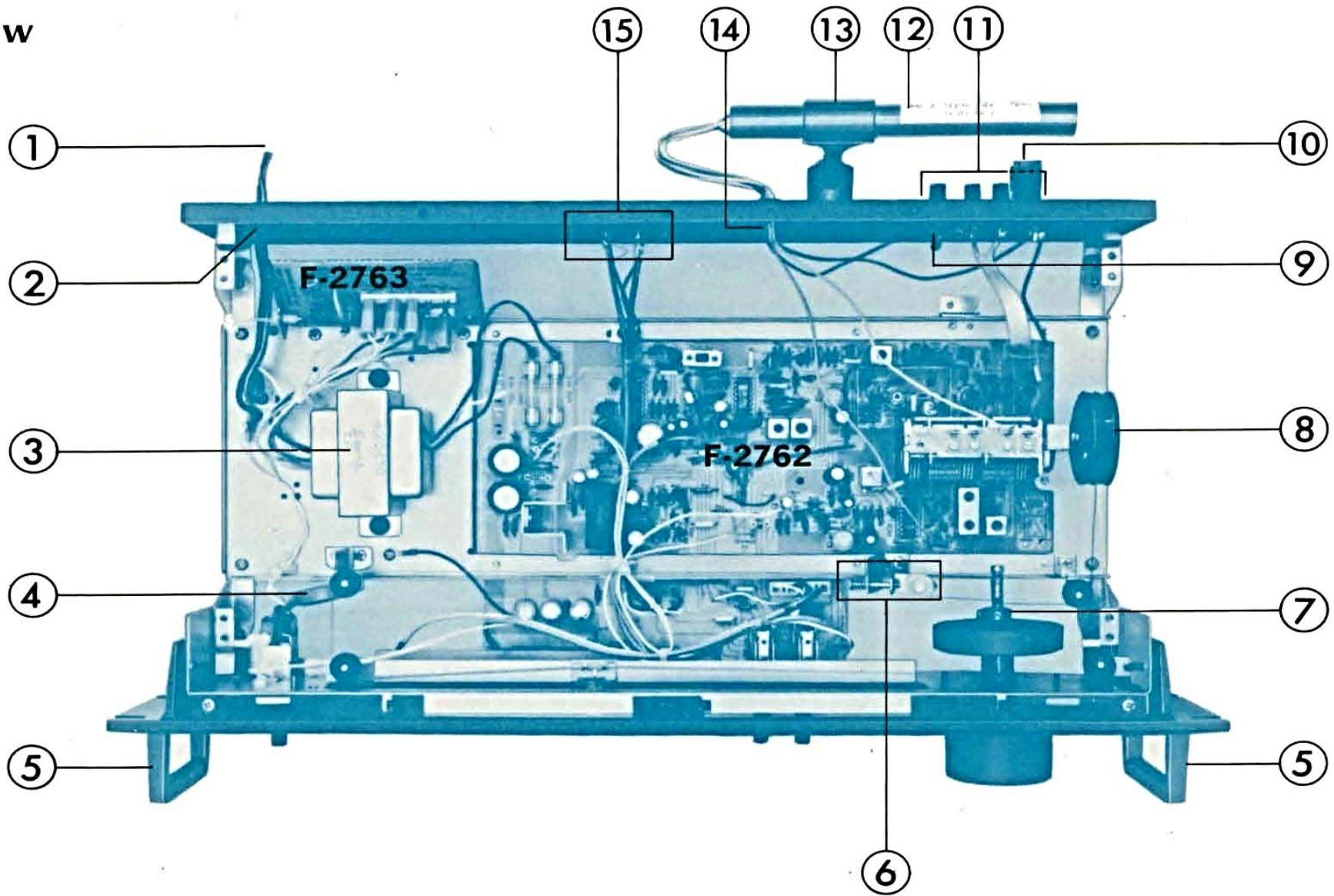
Parts No.	Stock No.	Description
M 01	4301130	Signal Meter

5. OTHER PARTS

Front View



Top View



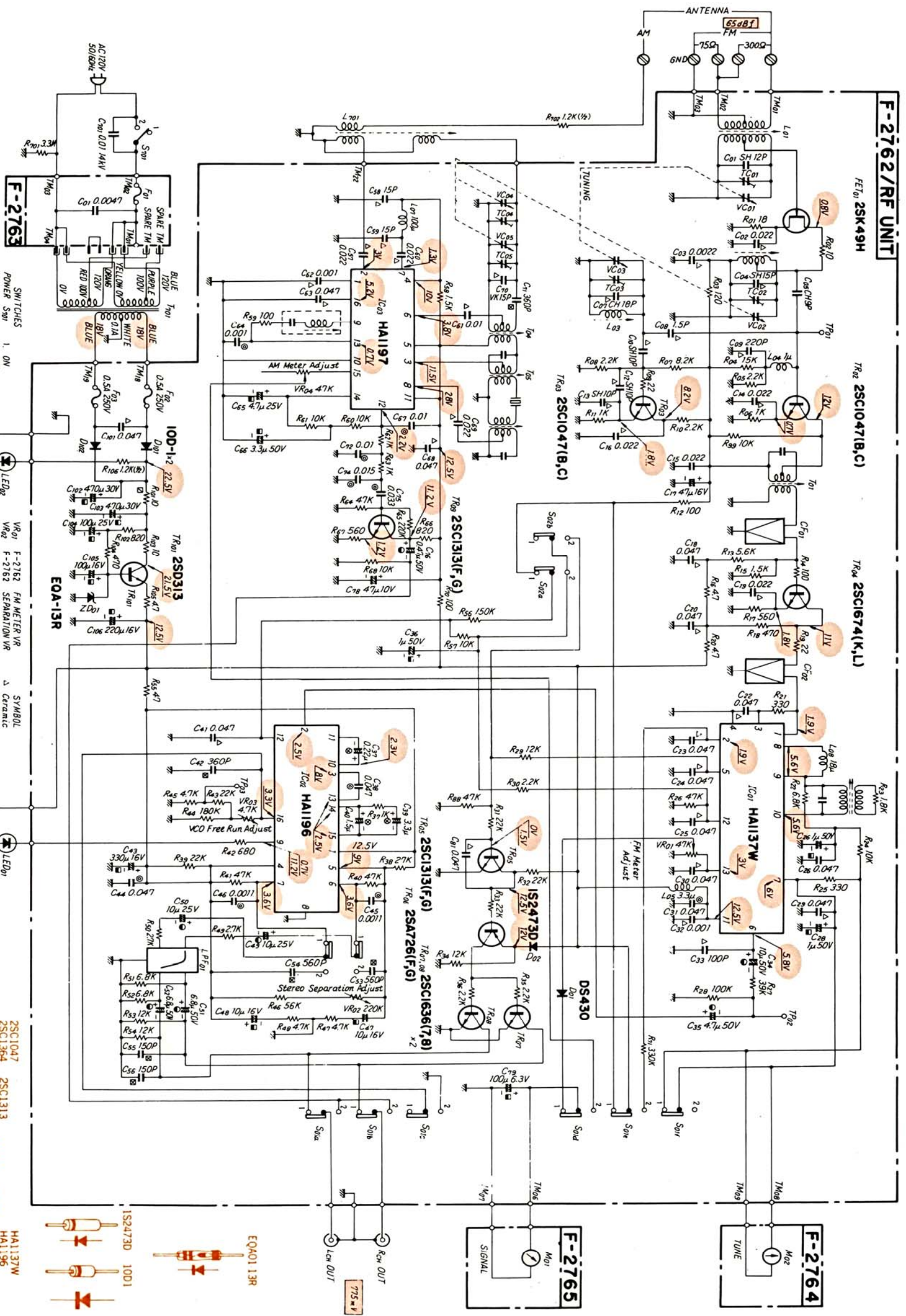
Parts List (Front View)

No.	Parts No.	Stock No.	Description
1	S 701	1171640	Lever Switch, power
		5326611	Knob, power switch
2		7007660	Front Panel Ass'y
		5305800	Front Panel
		5336680	SNASUI Badge
		5296160	Glass, dial scale
		0319120	LED, power, stereo indicator
3	M 01	4301130	Signal Meter
4	M 02	4301140	Tune Meter
5		0319120	LED, stereo indicator
		1171130	Lever Switch, muting
6	S 02	5326611	Knob, lever switch
		1171170	Lever Switch, selector
7	S 01	5326611	Knob, lever switch
		5507070	Leg
8		5318960	Tuning Knob
10		5006730	Bonnet
11		5416470	Dial Pointer
12		5408220	Dial Scale
13		0319120	LED, power indicator

Parts List (Top View)

No.	Parts No.	Stock No.	Description
1		3800010, 4	Power Cord
2		3910510	Strain Relief
3	PT 01	4002670	Power Transformer
4	C 701	0659801	0.1 μ F 150V C.C.
		5616220	Capacitor Cover
5		5396350	Rack Mounting Adapter (each)
6		7136110	Tension Unit
7		7036550	Tuning Unit
8		6146670	Pulley
9	R 702	0103122	1.2k Ω 1/2W C.R.
10		5286480	Antenna Holder (B)
11		2210310	Antenna Terminal Board
12	L 701	4200860	Bar Antenna
13		5286450	Antenna Holder (A)
14		3910600	Bushing
15		2200300	Output Terminal Board

6. SCHEMATIC DIAGRAM

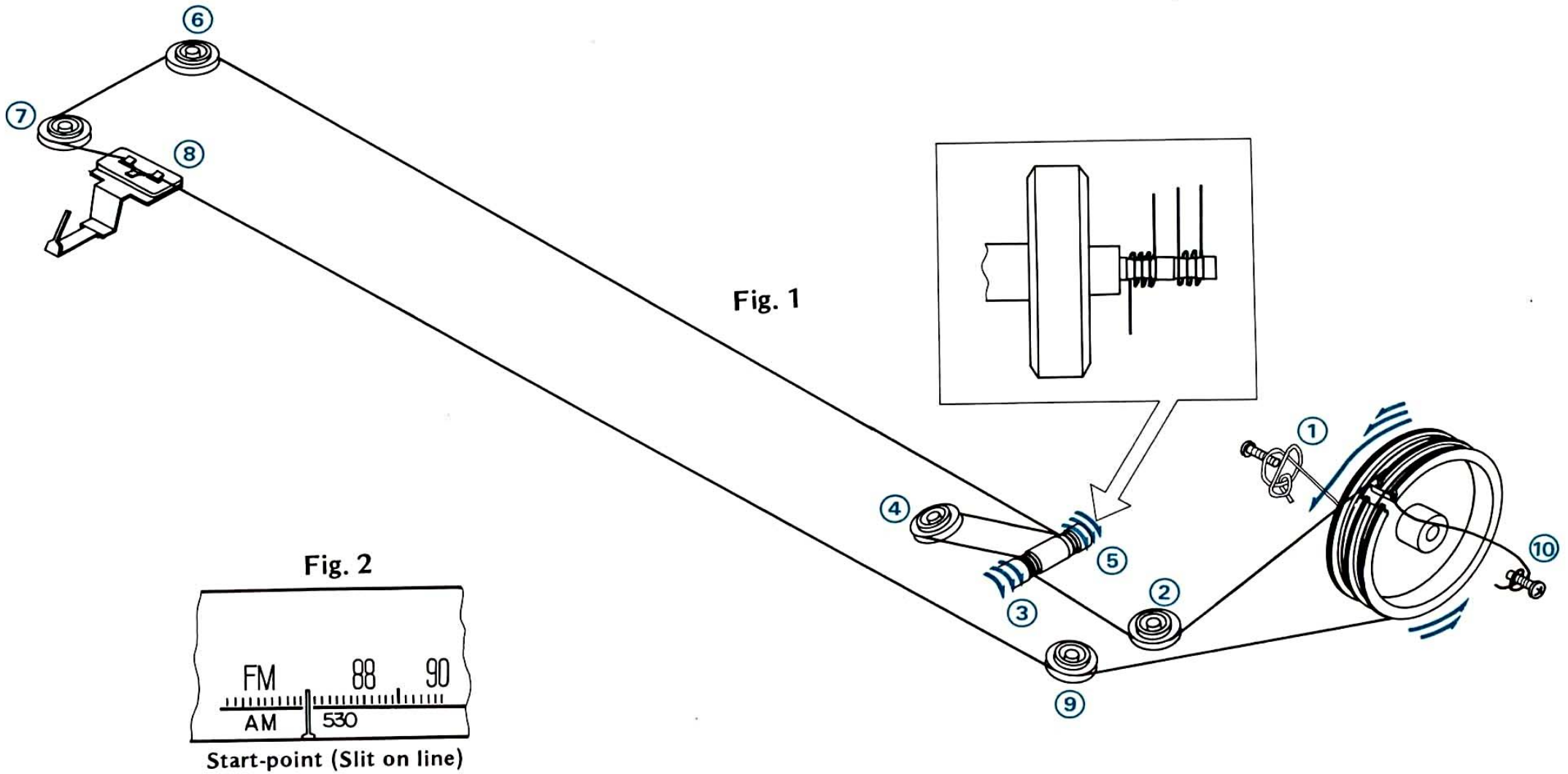


La présentation et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
 Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.
 Design and specifications subject to change without notice for improvements.

- SYMBOLS**
- △ Ceramic
 - Mylar
 - Styrol
 - ▢ Tantalum Electrolytic
 - ▣ Aluminum Electrolytic
 - ▧ Low-leak Electrolytic
 - ▨ Fusing Resistor
- RESISTORS**
- Are in ohms, 1/4 Watts, ±5% Tolerance
 - Unless Otherwise Noted, K:KΩ, M:MΩ
- CAPACITORS**
- Are in μF, Unless Otherwise Noted, P-pF
 - Each DC voltage shows the nominal value in volts at no input signal
- Component List:**
- 25C1047
 - 25C1364
 - 25C1674
 - 25C1313
 - 25A726
 - 25D313
 - 25K49
 - HA1137W
 - HA1196
 - HA1197
 - EQA0113R
 - 1S24730
 - 1001

7. THREADING OF DIAL CORD

- * If a dial cord is cut off or slips, replace it by following procedures.
As this unit uses 0.5 mmφ cord, please replace it with the same type certainly.
- * The length of dial cord is approximately 170cm (66.9 inch).



1) Threading of Dial Cord

Thread the dial cord in numerical order from ① to ⑩ as Fig. 1.
* Open the variable capacitor completely.

2) Attachment of Dial Pointer

1. Close the variable capacitor completely.
 2. Set the dial pointer to the start-point (Slit on line) as Fig. 2 .
- * Confirm that the dial pointer runs smoothly on the dial scale by turning the tuning shaft.

Stock No.	Description
6036050	Dial Cord (0.5mmφ)
6146670	Dial Pulley

● Figures

Connectors & Pin Ass'y

Connectors

Type A (3~10 pins)	Type B (2~6 pins)	Stock No.
		2 Pins 2420450
		3 Pins 2420460
		3 Pins(R&D) 2420650
		4 Pins 2420470
		5 Pins 2420480
		6 Pins 2420490

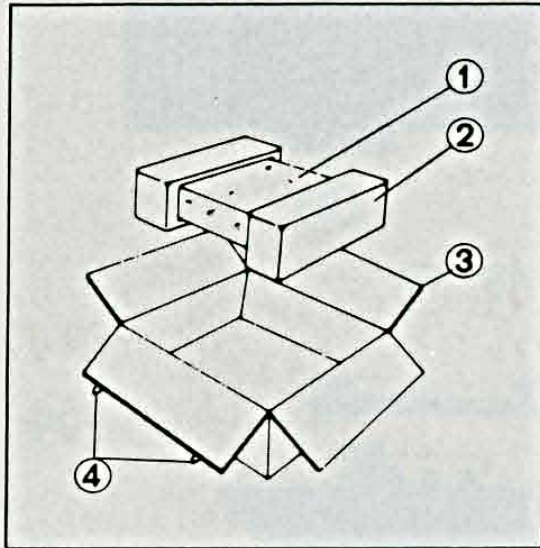
NOTE: Since stock number of female connectors (type B) with wires are not shown in each parts list of Complete circuit board, please refer to the above parts list when ordering the connector.

Pin Ass'y

Type A (3~10 pins)	Type B (3~10 pins)	Type C (3~10 pins)
Type D (2~6 pins)	Type E (2~6 pins)	Type F (2~6 pins)

8. PACKING LIST

Parts No.	Stock No.	Description
1	9116640	Vinyl Cover
2	9028100	Stylofoam Packing
3	9009760	Carton Case
4	5996080	Curl Stopper



9. ACCESSORY PARTS LIST

Stock No.	Description
9203160	Operating Instructions
9237600	Schematic Diagram
3820100	FM Antenna
3810280	Pinplug Cord
5192082	Hexagon Wrench (1.5mm)
5396350	Rack Mounting Adapter (each)

MEMO



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