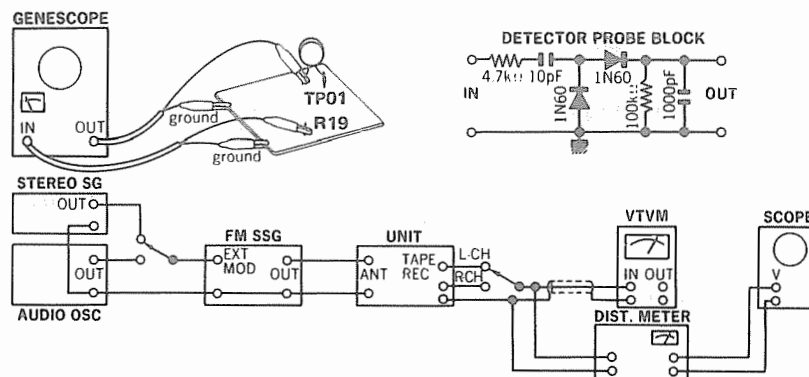


ADJUSTMENTS

FM Adjustment

- Note: 1. Selector FM MONO
 2. Connection . . . Connect the output of genescope to TP through 100 pF ceramic capacitor.
 3. Steps 4 and 5 should be performed after confirming that the lock indicator does not become luminous when short-

- ing ground and collector of TR15 on F-3000.
 4. Before making adjustments of steps 2 ~ 5, run the unit for more than 2 minutes and make the dial pointer go round on the dial scale at once by tuning knob.



FM IF, RF Adjustment and Dial Calibration

STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
		FROM	TO				
1.	IF Coil	Output 90 dB Genescope	TCa3 (Front-end)	Point 6 at R23 (A) Use Detector Probe	IFT01 (Front-end)	Max. IF waveform	
			Point C at R27 (F-2975)	Point 1 at R35 (C) Use Detector Probe	T01 (F-2975)		
2.	Discriminator Coil In case of using Genescope	Output 80 dB Genescope	TCa3 (Front-end)	Point D at R84	T02 (F-2975) T03 (F-2975)	Steep linearity of S curve Make symmetrical S curve	
	Discriminator Coil In case of using Dist meter	98 MHz ANT Input 65 dBf (59.8 dB) 1000 Hz (100% MOD) FM SSG	ANT terminal 300Ω	OUT L or R-CH Dist Meter, VTVM & Scope	T01, T02, T03, VR02 VR07, VR08 (F-2975) IFT01 (Front-end)	Min THD	
3.	Tune Indicator Adj.	Receive the nearest FM station		Between Terminal 41, 42 of F-2975 DC Volt Meter	T02 (F-2975)	DC 0V ±0.2V	
4.	Reference Voltage Adj.	No Input		Between Terminal 45 & Earth of F-3000 DC Volt Meter	VR03 (F-3000)	DC 7V ±0.2V	
5.	98 MHz Dial Calibration	No Input		Dial pointer	Tuning knob	98 MHz	
		Same as above		Display Indication	TCa4 (Front-end)	98 MHz	
6.	98 MHz RF Adj.	98 MHz ANT Input Minimum value with sine wave 1000 Hz (100% MOD) FM SSG	ANT terminal 300Ω	Out L or R-CH VTVM & Scope	TCa1, TCa2, TCa3 (Front-end)	Confirm Max. Output	
7.	Signal Volume	98 MHz ANT Input 65 dBf (59.8 dB) 1000 Hz (100% MOD) FM SSG	Same as above	Same as above	VR01 (F-3000)	Make every 8 lamps lighting	
		No ANT Input	Same as above	Same as above	VR01 (F-3000)	Make only 1 lamp lighting	

● Selection of Intermediate Frequencies (FM)

(See Figs. 3-2 & 3-3)

- * The digital locking point differs with the frequency rank of the ceramic filter used in the F-2975. When the central frequency (shown by a color) of the ceramic filter is changed, the following connection must be made by using jumper wires:

- * Unify the color marks of the FM ceramic filters (CF 01 ~ CF 04) on the F-2975 with the same color.

- * Select the joints A, B, and C according to color marks as shown in the following table then add jumper wire(s) with diode(s).

FM STEREO Adjustment

Note: Selector FM AUTO

STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
		FROM	TO				
1.	PLL VCO Adj.	98 MHz ANT Input 65 dBf (59.8 dB) FM SSG Pilot 19 kHz (9% MOD) R (or L) Mode 1 kHz + Pilot (100% MOD) STEREO SG	ANT terminal 300Ω	Stereo indicator	VR04 F-2975	Light indicator	Adjust the VR within center of lighting level.
	PLL VCO Adj. In case of using Freq.	98 MHz ANT Input 65 dBf (59.8 dB) FM SSG (No MOD)	Same as above	TP01 F-2975 Use Freq. counter	VR04 F-2975	76 kHz ± 150 Hz	
2.	PILOT cancel Adj.	98 MHz ANT Input 65 dBf (59.8 dB) FM SSG Pilot 19 kHz (9% MOD)	Same as above	OUT L-CH or R-CH VTVM & Scope	VR05 F-2975	Min. Output	Confirm Both Cancel
	PILOT cancel Adj. In case of Dist. meter	98 MHz ANT Input 65 dBf (59.8 dB) FM SSG Pilot 19 kHz (9% MOD) R-CH or L-CH MODE 1 kHz + Pilot (100% MOD)	Same as above	Same as above	VR05 F-2975	Min. Distortion	
3.	Separation	98 MHz ANT Input 65 dBf (59.8 dB) FM SSG Pilot 19 kHz (9% MOD) R Mode 1 kHz + Pilot (100% MOD) STEREO SG	Same as above	OUT L-CH VTVM & Scope	VR01 F-2977	OUT -45 dB	Confirm separation L-CH → R-CH (-45 dB)
4.	Muting level	98 MHz ANT Input 15 dBf (9.8 dB) FM SSG Pilot 19 kHz (9% MOD) SUB 1 kHz + Pilot (100% MOD) STEREO SG	Same as above	Stereo indicator	VR03 F-2975	Muting level 15 dBf (9.8 dB) indicator turns ON.	FM MUTING Switch ON

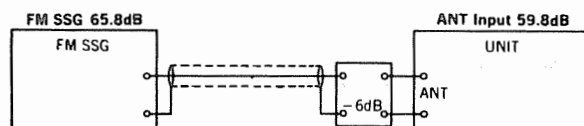
● NEW MEASUREMENT FOR FM.

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 of IHFM-T-200 is shown below.

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

- The relation between the standard input 65 dBf 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.
Distortion Meter	Dist. Meter

Others

Antenna	ANT.
Modulation	MOD.
Total Harmonic Distortion	T.H.D.

AM IF Adjustment & Dial Calibration

Note: 1. Selector AM

STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
		FROM	TO				
1.	IF Coil	Genescope Output 70 dB	TC02 (Front-end)	Between ground & terminal No. 13 on F-2975	T05, LC01 (F-2975)	Max. Output	
2.	600 kHz Dial Calibration	No Input		Dial Pointer	Tuning knob	600 kHz	
		Same as above		Display Indication	T04 (F-2975)	600 kHz	
	1400 kHz Dial Calibration	No Input		Dial Pointer	Tuning knob	1400 kHz	
		Same as above		Display Indication	TC02 (F-2975) (Front-end)	1400 kHz	
3.	600 kHz RF Adj.	600 kHz ANT Input 50 dB 400 Hz (MOD 30%) AM SSG	AM ANT terminal	Same as above	Bar Antenna	Same as above	
	1400 kHz RF Adj.	1400 kHz ANT Input 50 dB 400 Hz (MOD 30%) AM SSG	Same as above	Same as above	TC01 (F-2975) (Front-end)	Same as above	
4.	Signal Indicator VR. Adj.	1000 kHz ANT Input 80 dB 400 Hz (MOD 30%) AM SSG	Same as above	Signal Indicator lamps	VR02 (F-3000)	Make every 8 lighting	
		No NAT Input	Same as above	Same as above	VR02 (F-3000)	Make only 1 lamp lighting	
5.	9 kHz K notch filter Adj.	9 kHz 5 mV OSC	Between ground & terminal No. 13 on F-2975	OUT L or R-CH VTVM & Scope	LC02 (F-2975)	Min. Output	

Intermediate frequency of AM Section (See Figs. 3-1 & 3-3)

Since the band pass filter of both 450 kHz type and 455 kHz type are adaptable to the IF stage of model TU-719, pay attention for inserting position of jumper wire and a diode for setting the IF OFFSET ROM value when replacement.

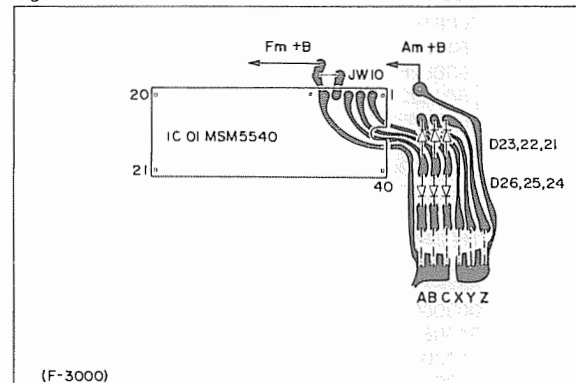
Fig. 3-1

Intermediate frequency	Stock No. of IF filter, T05 on F-2975	Inserting Position of jumper wire on F-3000	Inserting Position of Diode on F-3000
450 kHz	0910490	X	D23
455 kHz	4230680	Z	D21, D24

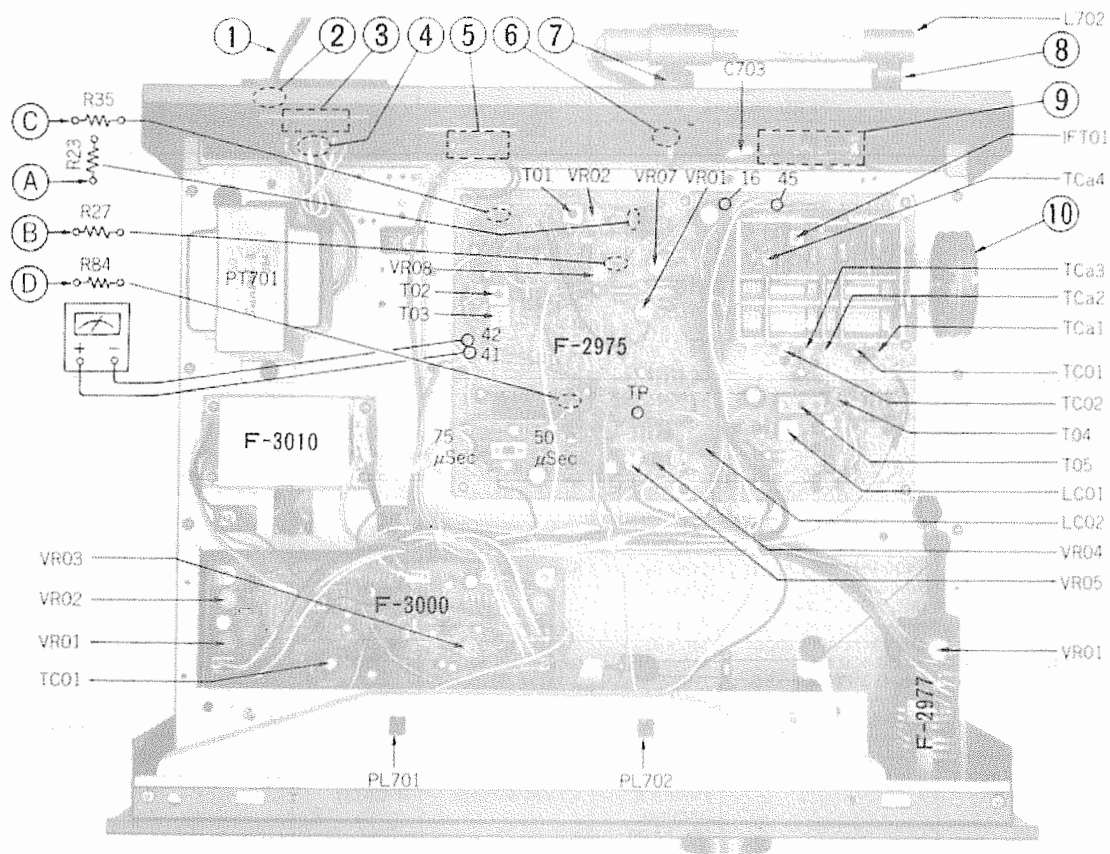
Fig. 3-2.

Colouring	Intermediate frequency	Connecting Position of Jumper wire on F-3000				Connecting Position of Diode on F-3000			
		A	B	C	Jumper wire Total Qty	D26	D25	D24	Diode Total Qty
Black	10.64MHz			●	1			●	1
Brown	10.66MHz		●		1		●		1
Blue	10.68MHz		●	●	2		●	●	2
Red	10.70MHz	●			1	●			1
Orange	10.72MHz	●		●	2	●		●	2
Gray	10.74MHz	●	●		2	●	●		2
White	10.76MHz	●	●	●	3	●	●	●	3

Fig. 3-3



Top View



Parts List <Front View>

Parts No.	Stock No.	Description
	5006880	Bonnet
	7008141	Front Panel Ass'y
	5456640	Front Glass
	5305261	Frame, window
	5048221	Masking Sheet
	5507050	Front Glass Retainer Packing
	5336600	Sansui Mark
	5396690	Knob Ring
	5326620	Knob, AM, FM Selector Switch
	5286721	Knob Guide
	6906480	Knob Guide Spring
	5059050	Display Unit Metal-mesh Cover
	5446410	Film Filter, Display Unit
	0030060	Display Unit
	5408630	Dial Scale
	1172000	Power Switch
	5326612	Knob, power switch
	5326612	Knob, band width switch
	1171800	Muting Switch
	5326612	Knob, muting switch
	1171780	Noise Canceller Switch
	5326612	Knob, noise canceller switch
	5326612	Knob, calibration tone switch
	5416463	Dial Pointer Ass'y
	5059001	Bottom P/ate
	5318901	Tuning Knob
	5507070	Leg
	1015490, 1	10kΩ B x 2, output level volume
	5318850	Knob, output level
	1131440	AM, FM Selector Switch
	0319050	FM Stereo Indicator
	0319060	Quartz Locked Indicator

Parts List <Top View>

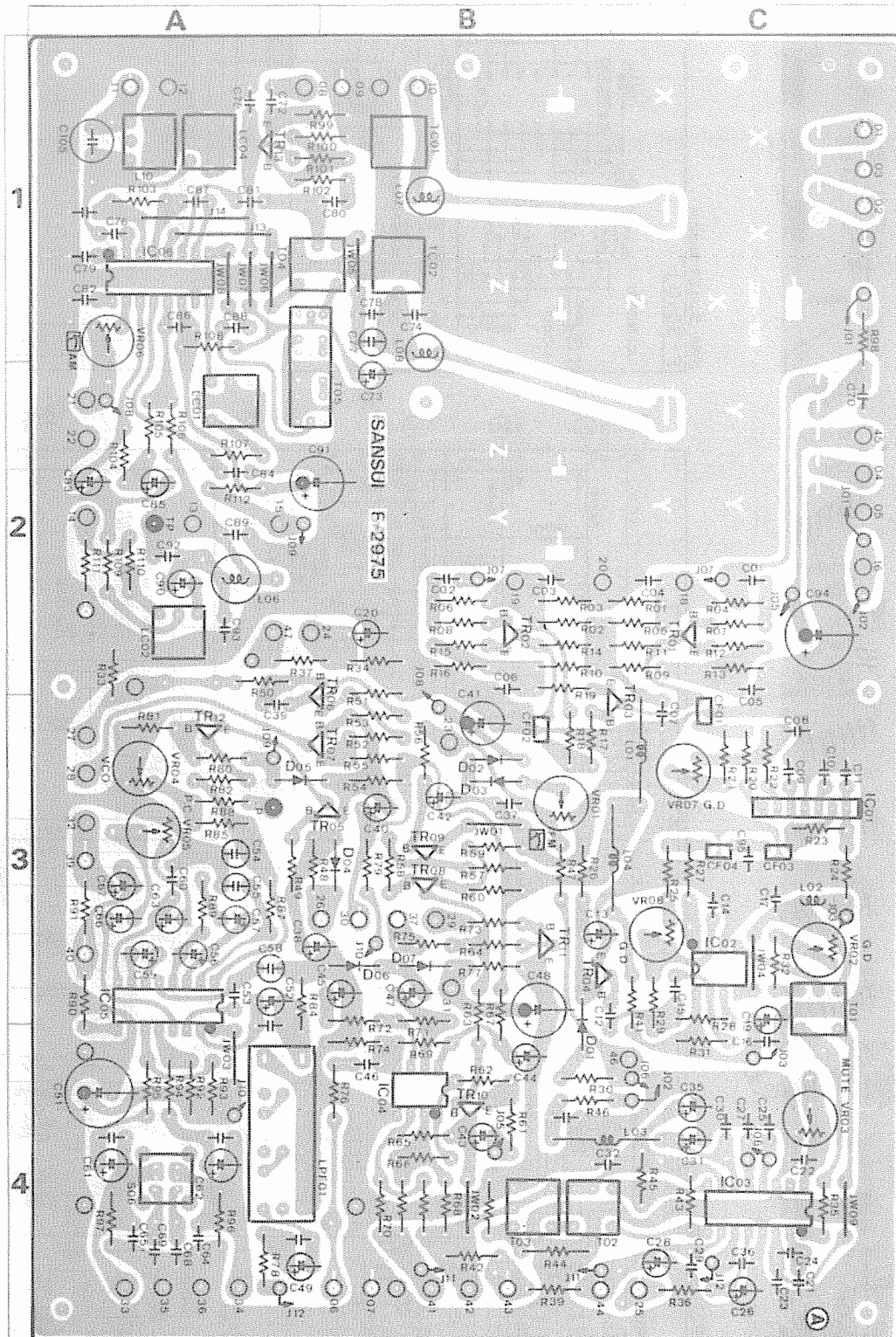
Parts No.	Stock No.	Description
1	3800470, 1	AC Cord
2	3910600	Strain Relief (AC Cord)
3	3510091	6P Voltage Selector Plug
4	2410830	10P Voltage Selector Socket
5	2300060	Fuse Holder
6	2200300	2P Output Terminal
7	3910451	Strain Relief (Antenna Cord)
8	5286450	Bar Antenna Holder
9	5286480	Bar Antenna Holder (B)
10	2210310	Antenna Terminal Board
	6146721	Pulley
L 702	4200960, 1	Bar Antenna
PT 701	4002950	Power Transformer
PL 701, 702	0400710	8V 300mA Pilot Lamp

Parts List <Bottom View>

Parts No.	Stock No.	Description
	7036650	Tuning Unit
	7136091	Tension Unit
C 701	0659801	0.01μF 150V C.C.
C 702	0659802	0.0047μF 150V C.C.
C 703	0621682	6800pF 50V P.C.

F-2975 FM, AM Circuit Board (Stock No. 7522121)

Conductor Side



2SA733A FS 7805M
2SA992
2SC945
2SC1674
2SC1845



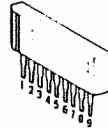
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25D313



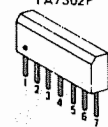
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2SK163



AN6821



TA7302P



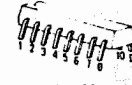
MSM5540



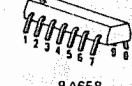
HA 11225
HA 11223W



LA1240



74LS90



BA658



LA-1222



NUM4558



10D-1



IS2473D



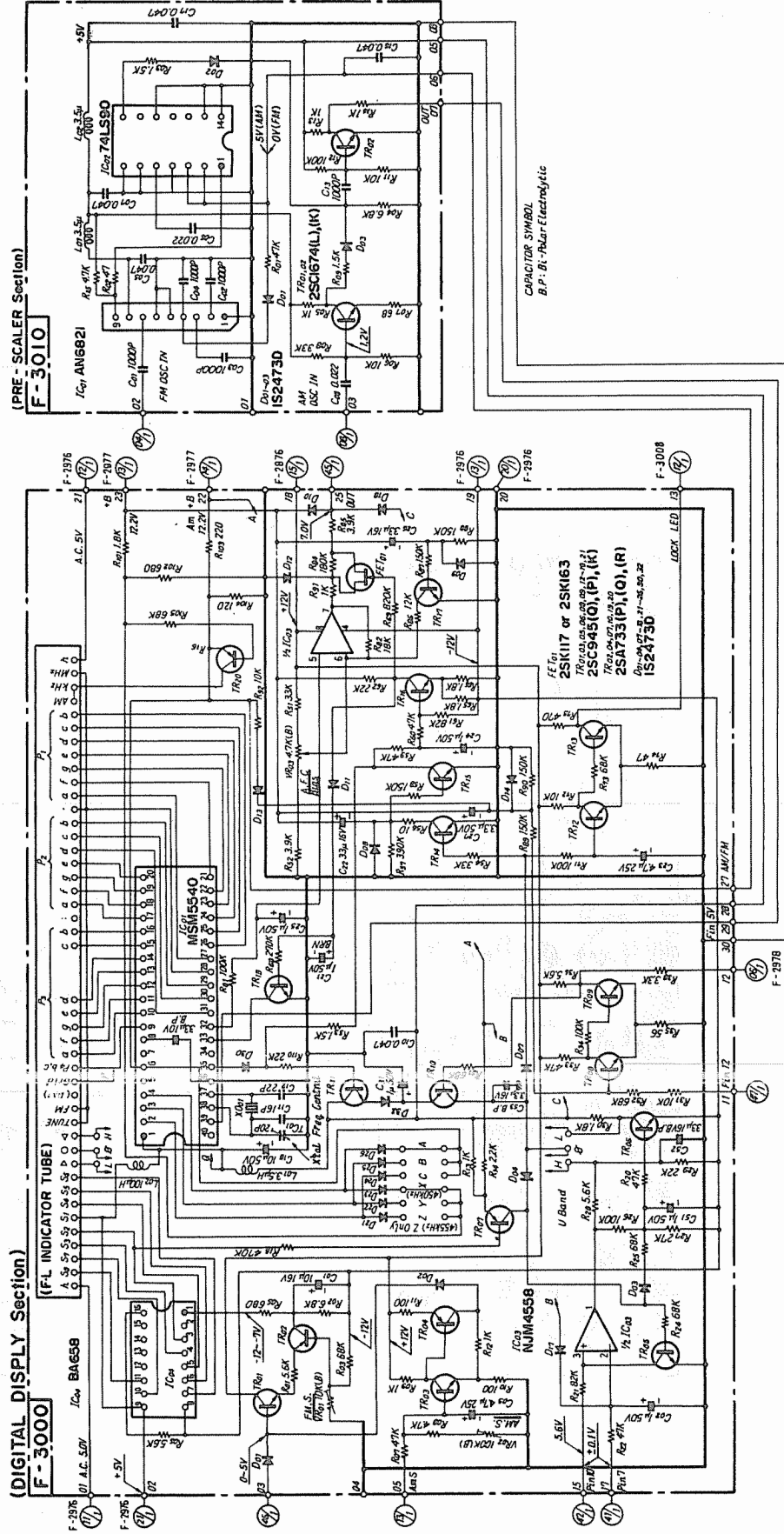
SV 03



RD 6E
RD 12E



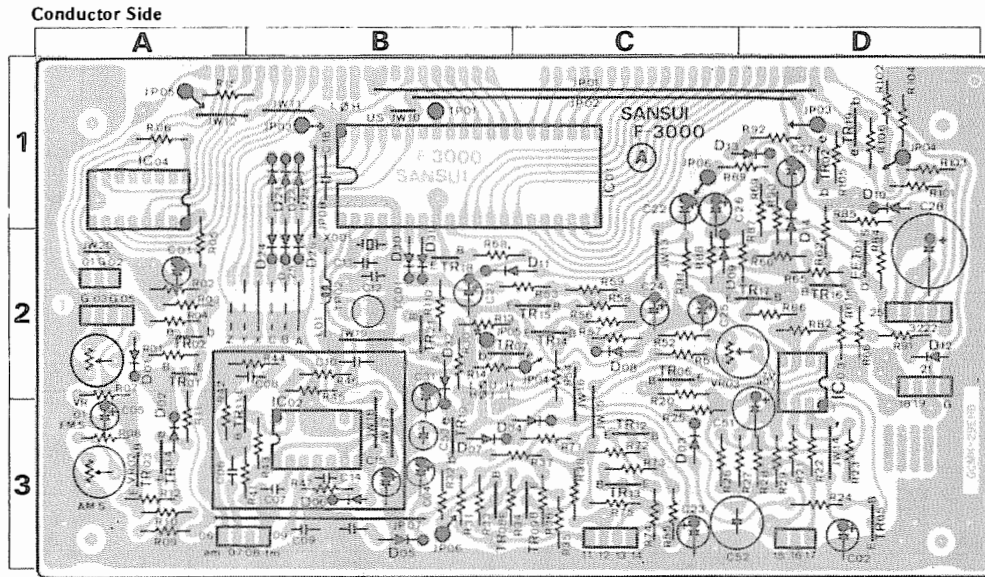
RB-152



CAPACITOR SYMBOL
B.P. - Polar Electrolytic

Sansui TU-719

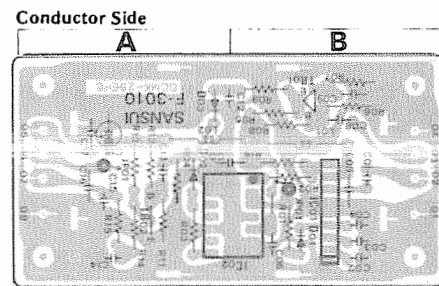
F-3000 Digitally Display Circuit Board (Stock No. 7597331)



Parts List

Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position
•Transistors				IC 03	0360770	NJ4558D	20	D 31	0311160	1S2473D	2B
TR01	0305951-3	2SC945 O.P.K	2A	IC 04	0360830	BA 658	1A	D 32	0311160	1S2473D	2B
TR02	0300510-2	2SA733A P.O.R	2A, 1D	•FETs				C 11	0669216	16pF 50V C.C.	2B
TR03	0305951-3	2SC945 O.P.K	3A	FET01	0370300-3	2SK117 Q.Y.GR.BL		C 12	0661220	22pF 50V C.C.	2B
TR04	0300510-2	2SA733A P.O.R	3A		0370340-7	2SK163K1, K2, L1, L2, M1, M2, N1, N2	2D				
TR05	0305951-3	2SC945 O.P.K	3D	•Diodes				L 01	4290011	3.5μH Peaking Coil	2B
TR06	0305951-3	2SC945 O.P.K	2C	D 01	0311160	1S2473D	2A	VR01	1035130	Volume 10kΩ B, Signal Indicator Adj. (FM)	2A
TR07	0300510-2	2SA733A P.O.R	2B	D 02	0311160	1S2473D	3A	VR02	1035150	Volume 22kΩ B, Signal Indicator Adj. (AM)	3A
TR08	0305951-3	2SC945 O.P.K	3B	D 03	0311160	1S2473D	3C	VR03	1035110	Volume 4.7kΩ B, AFC Adj.	2C
TR09	0305951-3	2SC945 O.P.K	3C	D 04	0311160	1S2473D	3B	•Trimmer Capacitor			
TR10	0300510-2	2SA733A P.O.R	3B	D 07	0311160	1S2473D	3B	TC01	1230060	20pF	2B
TR12	0305951-3	2SC945 O.P.K	3C	D 08	0311160	1S2473D	2C		1230140	20pF	
TR13	0305951-3	2SC945 O.P.K	2C	D 09	0311160	1S2473D	2C		0930040	Crystal (6.5536 MHz)	
TR14	0305951-3	2SC945 O.P.K	2C	D 10	0311160	1S2473D	1D		0030060	Display Unit	
TR15	0305951-3	2SC945 O.P.K	2D	D 11	0311160	1S2473D	2B				
TR16	0305951-3	2SC945 O.P.K	2D	D 12	0311160	1S2473D	2D				
TR17	0305951-3	2SC945 O.P.K	2D	D 13	0311160	1S2473D	1C				
TR18	0305951-3	2SC945 O.P.K	2B	D 14	0311160	1S2473D	1D				
TR19	0300510-2	2SA733A P.O.R	1D	D 21	0311160	1S2473D	1B				
TR20	0300510-2	2SA733A P.O.R	1D	D 26	0311160	1S2473D	2B				
TR21	0305951-3	2SC945 O.P.K	2B	D 30	0311160	1S2473D	2B				
•ICs											
IC 01	0360910	MSM5540	1B								

F-3010 Prescaler Circuit Board (Stock No. 7597851)



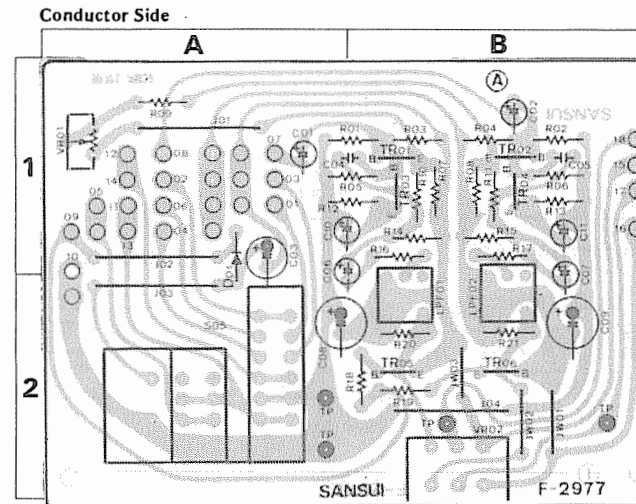
Parts List

Parts No.	Stock No.	Description	Position
•Transistor			
TR01	0306341, 2	2SC1674 L, K	A
TR02	0306341, 2	2SC1674 L, K	B
•IC			
IC 01	0361130	ANR971	A
IC 02	0361120	74LS90	A
•Diode			
D 01	0311160	1S2473D	A
D 02	0311160	1S2473D	B
D 03	0311160	1S2473D	B
L 01	4290011	3.5μH Peaking Coil	A
L 02	4290011	3.5μH Peaking Coil	B

Parts List <F-2975>

Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position
•Transistors				C 54	0622102	1000pF 125V P.C.	3A	T 05	4230680	Filter 455 kHz	
TR01	0306341, 2	2SC1674 L, K	2C	C 55	0622222	2200pF 125V P.C.	3A	0910490	Filter 450 kHz		
TR02	0306341, 2	2SC1674 L, K		C 56	0573478	0.47μF 35WV T.C.	3A	LC 01	4230620	IF Coil 455 kHz	2A
TR03	0306341, 2	2SC1674 L, K		C 57	0573339	3.3μF 35WV T.C.	3A	LC 02	0910450	Filter Coil	2A
TR04	0306341, 2	2SC1674 L, K	3B	C 58	0622152	1500pF 125V P.C.	3A				
TR05	0400510, 1	2SA733A P.O	3B	C 59	0573339	3.3μF 35WV T.C.	3A	LF 01	0910590	Low Pass Filter	
TR06	0305952, 3	2SC945 P, K	3A	C 63	0573338	0.33μF 35WV T.C.	3A	4236180	Low Pass Filter		
TR07	0300510, 1	2SA733A P.O	3A	C 66	0573338	0.33μF 35WV T.C.	3A	VR02	1035130	10kΩ B Group Delay Equalizer Adj. Volume	3C
TR12	0305952, 3	2SC945 P, K	3A	C 74	0669406	220F 50V C.C.	1B	VR03	1037080	20kΩ B Muting Level Adj. Volume	4C
TR13	0306341, 2	2SC1674 L, K	1A	C 77	0622391	390pF 125V P.C.	1B	VR04	1034240	3.3kΩ VCO Free run Adj. Volume	3A
•ICs				C 78	0669210	10pF 50V C.C.	1B	VR05	1037090	50kΩ B Pilot Cancel Adj. Volume	3A
IC 01	0360590	TA7302P	3C	C 95	0661330	33pF 50V C.C.	3C	VR07, 08	1035070	1kΩ B Group Delay Equalizer Adj. Volume	3C
IC 02	0360510	LA-1222	3C								
IC 03	0360930	HA11225	4C	R 44	0231222	2.2kΩ 1/2W M.R.	4B				
IC 04	0360680	HA11223	4B	L 01	4290011	Peaking Coil 3.5μH	3C				
IC 06	0360800	LA1240	1A	L 02	4900100	Inductor 3.5μH	3C				
				L 03	4290011	Peaking Coil 3.5μH	4C				
•Diodes				L 04	4290011	Peaking Coil 3.5μH	3B				
D 01	0311160	1S2473D	4B								
D 04	0311160	1S2473D	3B	T 01	4235930	IF Coil 10.7 MHz	1B	CF 01 ~ 04	0990030	10.7 MHz Ceramic Filter Assy	3C
D 05	0311160	1S2473D	3A	T 02	4236230	FM Detector Coil	4B				
D 901	0311160	1S2473D		T 03	4236240	FM Detector Coil	4B	S 05	1110270	De-Emphasis Switch	4A
C 36	0622311	100pF 125V P.C.	4C	T 04	4220710	OSC Coil	1A	7510761	Front End Pack (FF631J12)		

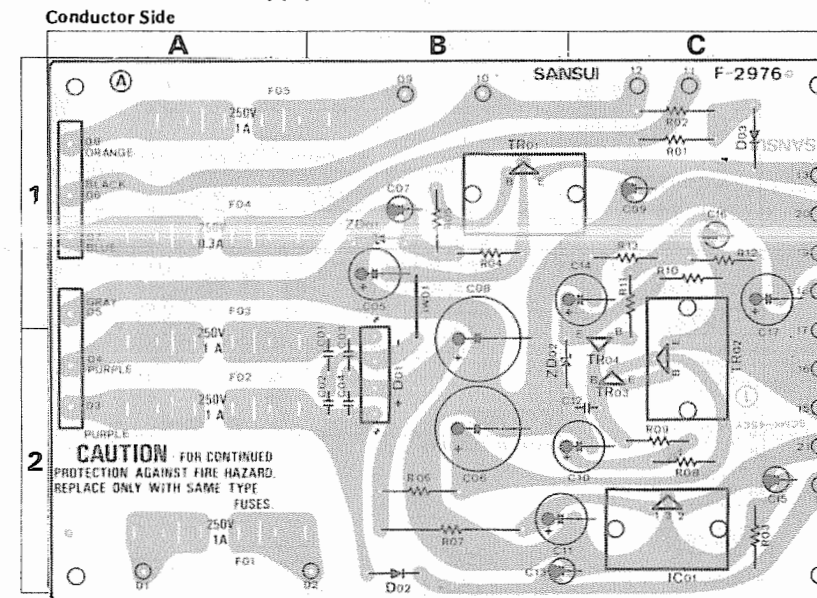
F-2977 AM, FM Selector Circuit Board (Stock No. 7597301)



Parts List

Parts No.	Stock No.	Description	Position
•Transistors			
TR01, 02	0306740, 1	2SC1845 F, E	1B
TR03, 04	0301090, 1	2SA992 F, E	1B
TR05, 06	0305952, 3	2SC945 P, K	2B
•Diode			
D 01	0311160	1S2473D	1A
•Zener Diode			
ZD01	0316390	RD6.2E	
C 04, 05	0661150	15pF 50V C.C.	1A, 1B
L 07, 08	4900280	Inductor 1μH	
LF 01, 02	0910520	Low-Pass Filter	2B
VR01	1035410	47kΩ Stereo Separation Volume	1A
VR02	1015490, 1	10kΩ Output Level Volume	2B
S 05	1131440	AM, FM Selector Switch	2A

F-2976 Power Supply Circuit Board (Stock No. 7503251)

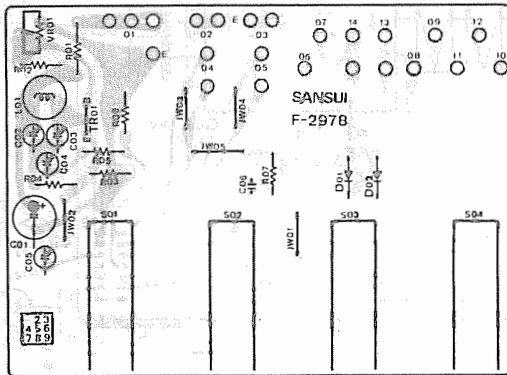


Parts List

Parts No.	Stock No.	Description	Position
•Transistors			
TR01	0303260 ~ 3	2SB536 N, M, L, K	1B
TR02	0308391 ~ 3	2SD313AL D, E, F	2C
TR03	0305951, 2	2SC945 O, P	2C
TR04	0305951, 2	2SC945 O, P	2C
•ICs			
IC 01	0360920	FS-7805M	2C
•Diodes			
D 01	0311700	RB-152	1B
D 02	0310340	1501	2C
D 03	0310480	5V-03	1C
•Zener Diodes			
ZD01	0316290	RD-12E B	1B
ZD02	0316390	RD6.2E B	2B
	0316400	RD6.2E C	
R 01	0211330	33Ω 1W N.I.R.	1C
R 02	0211330	33Ω 1W N.I.R.	1C
R 05	0211100	10Ω 1W N.I.R.	2B
R 07	0133330	33Ω 3W Ce.R.	2B
F 02, 03	0432220	1A 250V AC Fuse	2A, 1A
F 04	0432220	0.3A 250V AC Fuse	1A
F 05	0432220	1A 250V AC Fuse	1A

F-2978 Switch Circuit Board (Stock No. 7597311)

Conductor Side



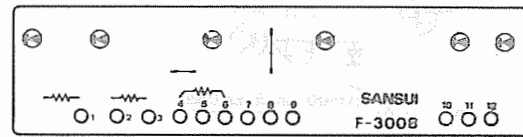
Parts List

Parts No.	Stock No.	Description
Transistor		
TR01	0305951, 2	2SC945 O.P.
	0306740, 1	2SC1845 F.E.
C 02	0573339	3.3μF 35V Ta.C.
C 03	0573229	2.2μF 35V Ta.C.
L 01	4900220	Inductor 100 mH
VR01	1035410	47kΩ B LEC Level Adj.
S 01	1171800	Lever Switch, Calibration Level
S 02	1171780	Lever Switch, Noise Canceller
S 03	1171800	Lever Switch, Muting
S 04	1171780	Lever Switch, Band Width

Note: The circuit board F-3008 are not supplied as the assembled, the individual parts on the circuit board, however, are provided for orders.

F-3008 L.E.D Circuit Board

Conductor Side



Parts List

Parts No.	Stock No.	Description
LED		
LD01	0319050	FM Steren (Red)
LD02	0319060	Quartz Locked (Green)

Abbreviations

C.R.	Carbon Resistor	E.L.	Low Leak Electrolytic Capacitor
S.R.	Solid Resistor	E.B.	Bi-Polar Electrolytic Capacitor
Ce.R.	Cement Resistor	E.B.L.	Low Leak Bi-Polar Electrolytic Capacitor
M.R.	Metal Film Resistor	Ta.C.	Tantalum Capacitor
F.R.	Fusing Resistor	F.C.	Film Capacitor
N.I.R.	Non-Inflammable Resistor	M.P.	Metalized Paper Capacitor
C.C.	Ceramic Capacitor	P.C.	Polystyrene Capacitor
C.T.	Ceramic Capacitor, Temperature Compensation	G.C.	Gimmic Capacitor
E.C.	Electrolytic Capacitor		

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 200 cm (78.7 inch).

8-1. Threading of Dial Cord

Thread the dial cord in numerical order from ① to ⑰ as Fig. 8-1.

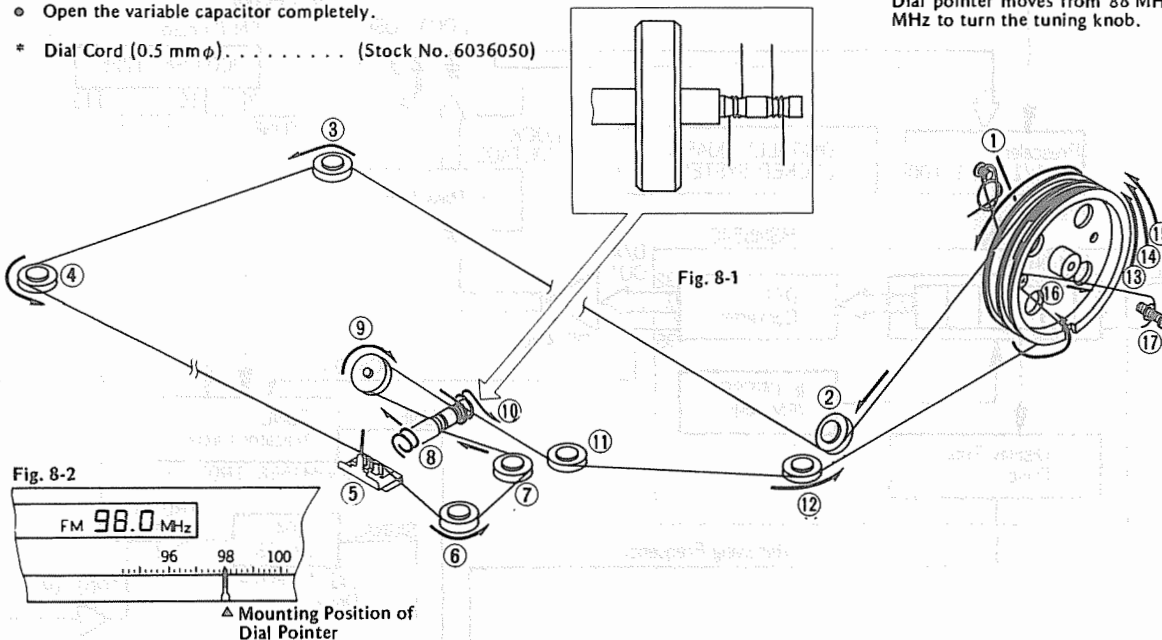
- Open the variable capacitor completely.

* Dial Cord (0.5 mmφ) (Stock No. 6036050)

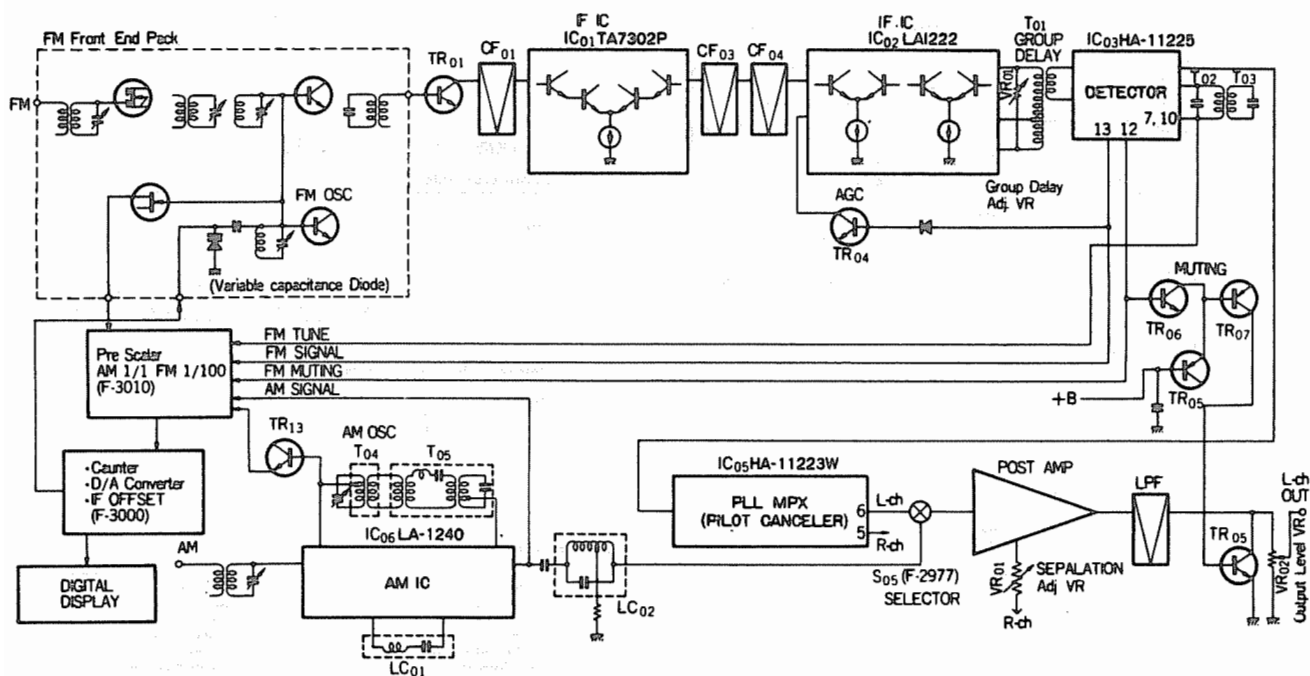
8-2. Attachment of Dial Pointer

- After installing the dial string, turn on the power switch. If the digital display is in the "FM Reception" state as shown in Fig. 8-2, turn the tuning knob until the digital display indicates 98.0 MHz. Then, fix the pointer to the dial string, after setting the pointer to the 98.0 MHz value of the scale.

- After attaching Dial pointer, confirm Dial pointer moves from 88 MHz to 108 MHz to turn the tuning knob.



BLOCK DIAGRAM



Block Diagram of Digitally Quartz Locked System

