

# ALIGNMENT

## TEST EQUIPMENT

Allow a minimum of 10 minutes warm-up for test equipment and the tuner to be tested.

Maintain rated line voltage.

FM Signal Generator (FM SG)

Oscilloscope

AC Voltmeter

Distortion Meter

MPX Signal Generator (MPX SG)

Frequency Counter

AM Sweep Generator (AM SG)

DC Voltmeter

## FM SECTION

## GENERAL ALIGNMENT INSTRUCTION

Always observe response curve on oscilloscope during alignment procedure:

1. Do not apply signal from FM or AM stations. Apply signal from generator only.
2. Use of excessive signal from FM SG or AM SG can cause overloading of the tuner circuits. To properly align the tuner, adjust FM SG or AM SG output level control so that response curve on oscilloscope is not distorted.

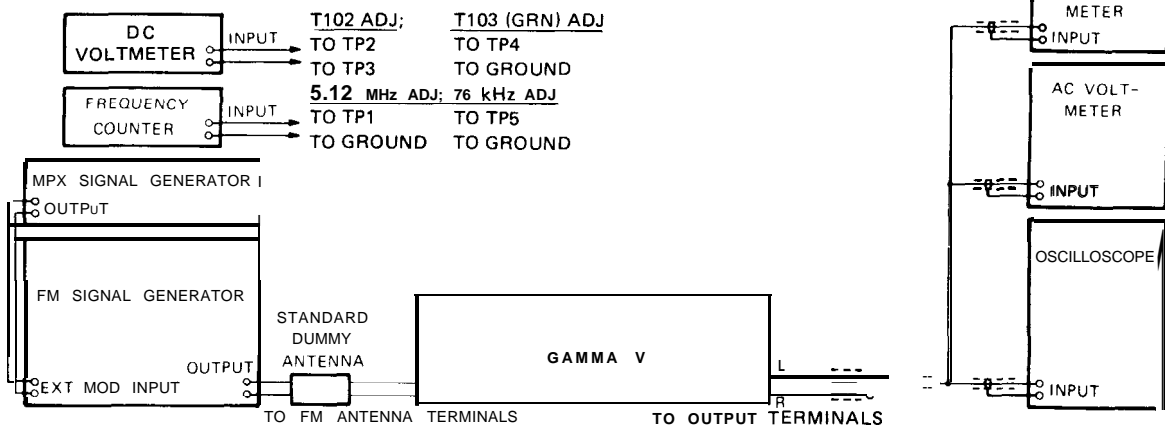


Figure 6. Test Equipment Hook-up

## FREQUENCY SYNTHESIS TUNER SECTION

### FM Front End Adjustment

This adjustment is factory preset and should not need readjustment.

### 5.12 MHz Crystal Controlled Oscillator Adjustment.

Set MAIN POWER switch (S1) to ON position and POWER switch (S2) to OFF position.

Connect frequency counter to test point "TP 1" (Photo 7).

Adjust C917 (Photo 7) for 5.12 MHz  $\pm$  20 Hz.

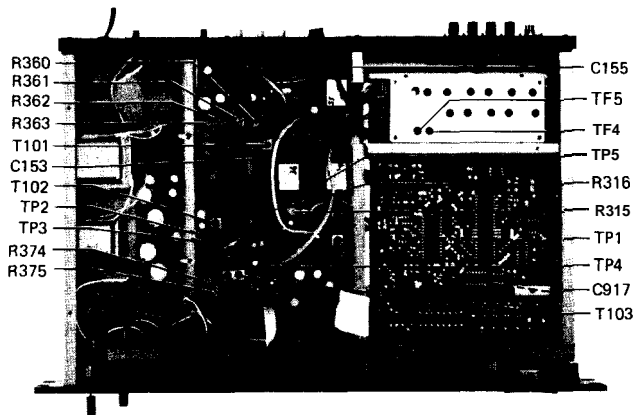


Photo 7. Adjustment Points

# IF-AF SECTION

## FM IF Alignment

STEP	FM SG FREQUENCY/ CALIBLATION	MODULATING FREQUENCY/ DEVIATION	SWITCHES OF THE TUNER	LED FREQUENCY DISPLAY	ADJUSTMENT POINT	PROCEDURE	REMARKS
1	98.1MHz/60dB $\mu$	(No modulation)	A. DE-EMPHASIS to "NORMAL".	98.1MHz	T102 (Photo 7)	Connect DC voltmeter to test points "TP2", "TP3" (Photo 7) and adjust for 0 V.	
2			B. MAIN POWER to "ON".		T103 (Green Core) (Photo 7)	Connect DC voltmeter to test point "TP4" (Photo 7) and ground and adjust for $0 \pm 50$ mV.	
3			C. POWER to "ON".		T103 (Red Core) (Photo 7)	Adjust for minimum distortion.	
4	98.1MHz/0-6dB $\mu$	400Hz/ mono [ $\pm 75$ kHz]	D. MODE to "MONO".		T101 (Photo 7)	Adjust for maximum AC voltmeter deflection.	
5			E. HI-BLEND to "OFF".		TF4, TF5 (Photo 7)		
6	98.1MHz/60dB $\mu$	10kHz/ mono [ $\pm 75$ kHz]	F. IF BAND to "WIDE".		C155 (Photo 7)	Adjust for minimum distortion.	
7			A~E. Same as above.		C153 (Photo 7)		
			F. IF BAND to "NARROW".				

## FM MPX Alignment

STEP	FM SG FREQUENCY/ CALIBLATION	MODULATING FREQUENCY/ DEVIATION	SWITCHES OF THE TUNER	LED FREQUENCY DISPLAY	ADJUSTMENT POINT	PROCEDURE	REMARKS
1	98.1MHz/60dB $\mu$	(No modulation)	A. DE-EMPHASIS to "NORMAL".	98.1MHz	R315 (Photo 7)	Connect frequency counter to test point "TP5" (Photo 7) and adjust for $76\text{kHz} \pm 70\text{Hz}$ .	
2		400Hz/stereo (main (R+L) & sub (L-R): $\pm 67.5\text{kHz}/19\text{kHz}$ pilot: $\pm 7.5\text{kHz}$ )	B. MAIN POWER to "ON".		R316 (Photo 7)	Adjust for minimum 19kHz pilot leakage.	
3		19kHz pilot only: $\pm 7.5\text{kHz}$	C. POWER to "ON".				
			D. MODE to "STEREO".			Check that stereo lamp lights up and that audio outputs (left and right channel) are observed on scope when MUTING THRESHOLD knob is CCW.	
			E. HI-BLEND to "OFF".				
			F. IF BAND to "WIDE".				

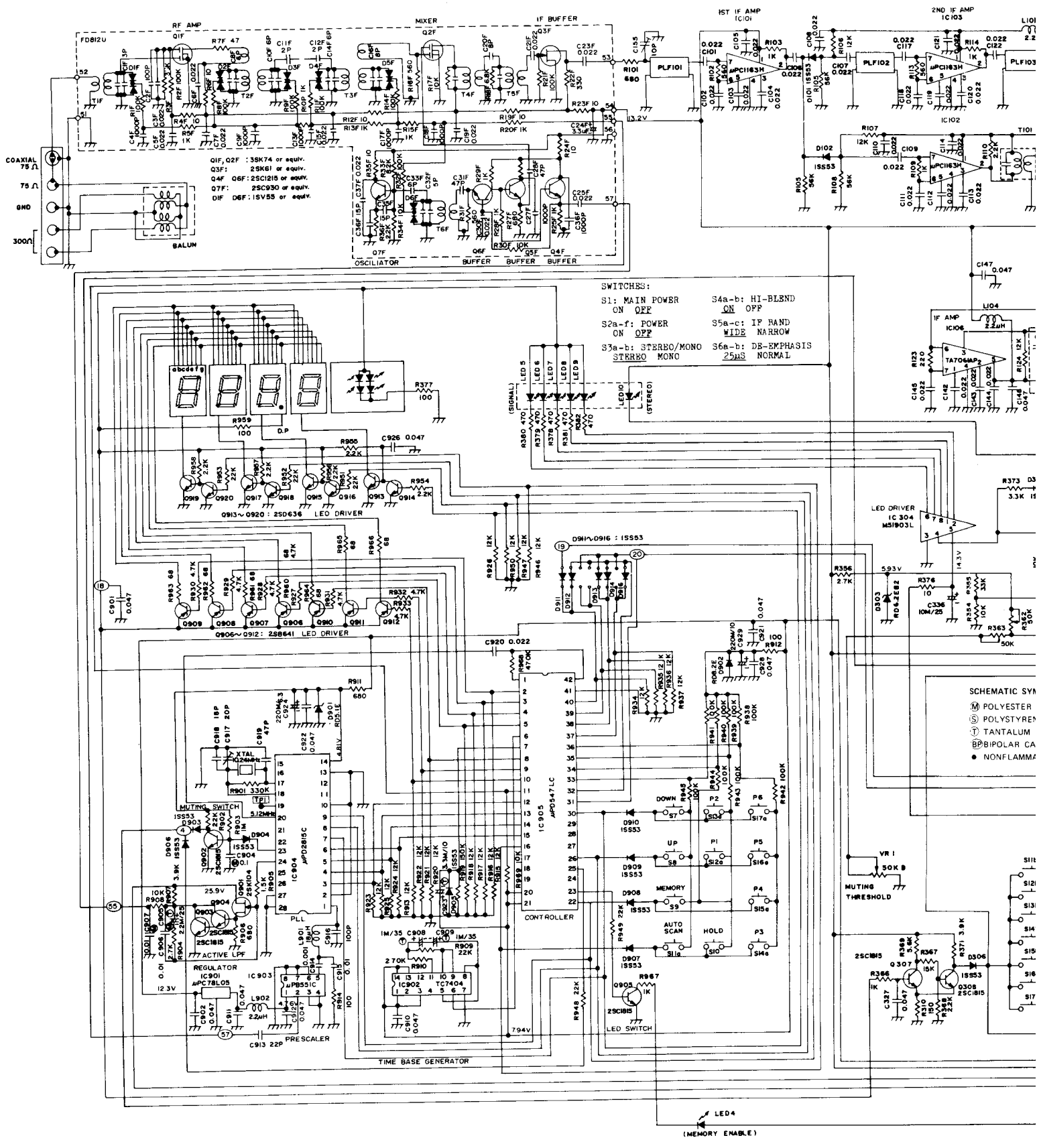
4		400Hz/stereo [main (L) & sub (L): $\pm 67.5\text{kHz}$ ; 19kHz pilot: $\pm 7.5\text{kHz}$ ]			R360 (Photo 7)	Adjust for maximum separation (or minimum output of right channel).	Both the separations (or both the outputs of right and left channels) should be equal.
5		400Hz/stereo [main (R) & sub (-R): $\pm 67.5\text{kHz}$ ; 19kHz pilot: $\pm 7.5\text{kHz}$ ]				Adjust for maximum separation (or minimum output of left channel).	
6		Same as Step 4.	A~E. Same as above.		R361 (Photo 7)	Same as Step 4.	Same as above.
7		Same as Step 5.	F. IF BAND to "NARROW".			Same as Step 5.	

### LED Signal-Strength Display Circuit Alignment

STEP	FM SG FREQUENCY/ CALIBRATION	MODULATING FREQUENCY/ DEVIATION	SWITCHES OF THE TUNER	LED FREQUENCY DISPLAY	ADJUSTMENT POINT	PROCEDURE	REMARKS
1	98.1MHz/60dB $\mu$	400Hz mono [75kHz]	A. DE-EMPHASIS: either position. B. MAIN POWER to "ON". C. POWER to "ON". D. MODE to "MONO". E. HI-BLEND: either position. F. IF BAND to "WIDE".	98.1MHz	R375 (Photo 7)	Adjust unit five signal-strength display LED's light up.	
	98.1MHz/30-40 dB $\mu$					Adjust until three signal-strength display LED's light up.	
	(No signal)					Adjust unit any signal-strength display LED no longer lights up.	
2	Same as Step 1.		A~E. Same as above. F. IF BAND to "NARROW".		R374 (Photo 7)	Same as Step 1.	

### Muting Threshold Adjustment

STEP	FM SG FREQUENCY/ CALIBRATION	MODULATING FREQUENCY/ DEVIATION	SWITCHES OF THE TUNER	LED FREQUENCY DISPLAY	ADJUSTMENT POINT	PROCEDURE	REMARKS
1	98.1MHz/40dB $\mu$	400Hz/ mono [ $\pm 75\text{kHz}$ ]	A. DE-EMPHASIS to "NORMAL". B. MAIN POWER to "ON". C. POWER to "ON".	98.1MHz	R362 (Photo 7)	Adjust until audio output is observed on scope.	Repeat steps 1 and 2 several times.
2	98.1MHz/10dB $\mu$		D. MODE to "STEREO". E. HI-BLEND to "OFF". F. IF BAND to "WIDE". G. MUTING THRESHOLD to full CW.		R363 (Photo 7)	Adjust until audio output is no longer present on scope.	

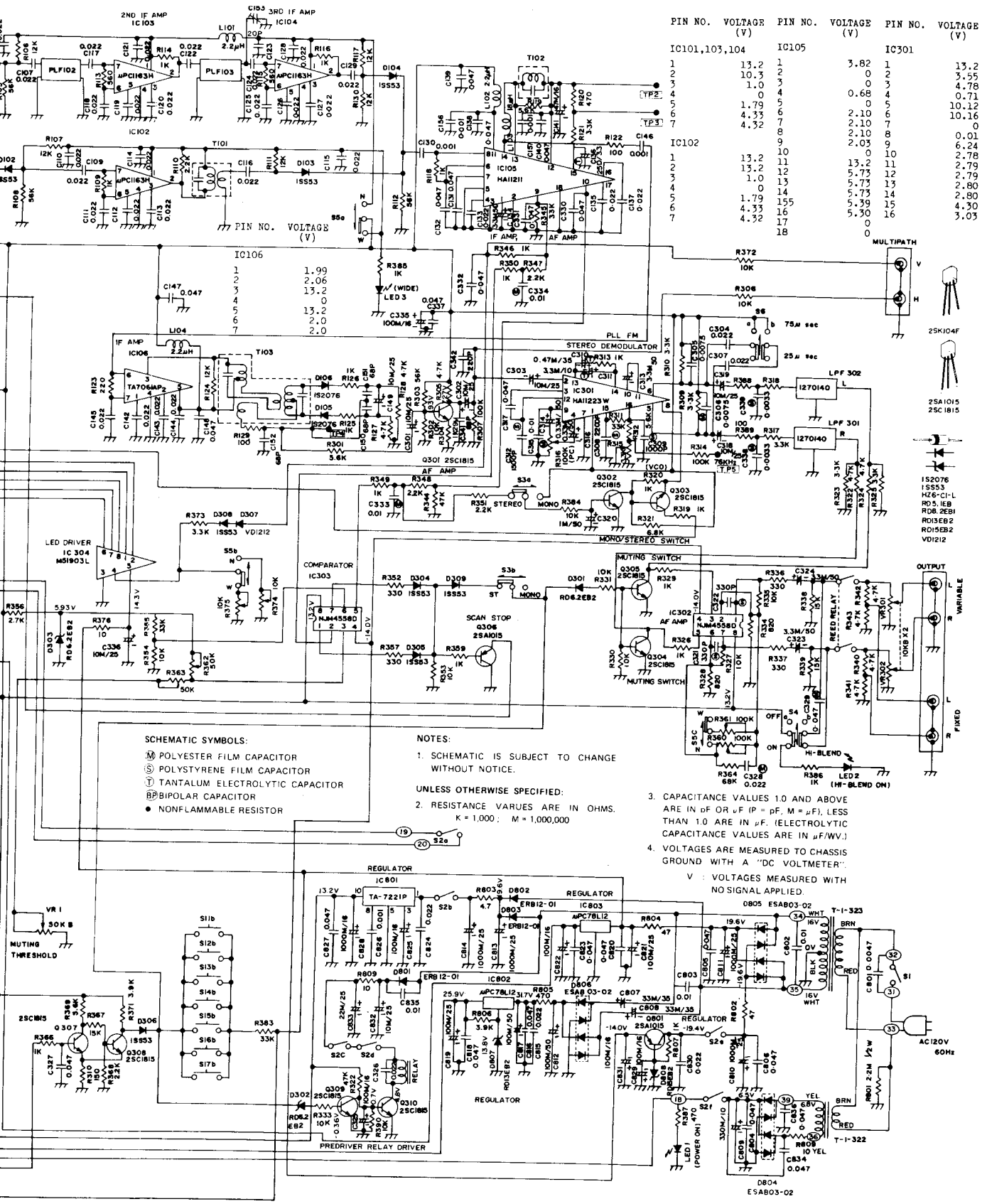


SWITCHES:

- S1: MAIN POWER ON OFF
- S2a-f: POWER ON OFF
- S3a-b: STEREO/MONO STEREO MONO
- S4a-b: HI-BLEND ON OFF
- S5a-c: IF BAND WIDE NARROW
- S6a-b: DE-EMPHASIS 25μs NORMAL

- SCHEMATIC SYMBOLS:
- Ⓜ POLYESTER
  - Ⓟ POLYSTYRENE
  - Ⓣ TANTALUM
  - Ⓛ BIPOLAR CAPACITOR
  - NONFLAMMABLE

(MEMORY ENABLE)

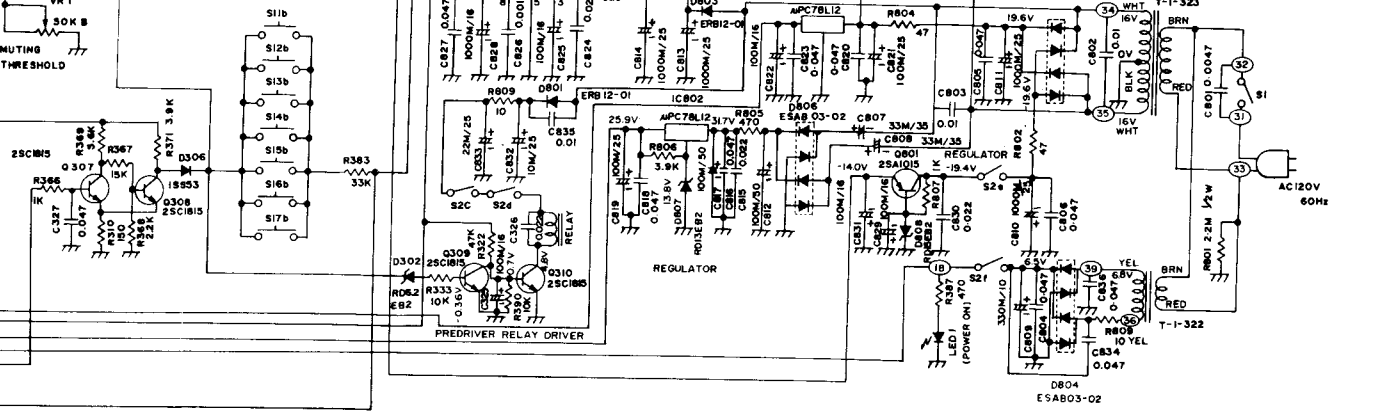


PIN NO.	VOLTAGE (V)	PIN NO.	VOLTAGE (V)	PIN NO.	VOLTAGE (V)
IC101,103,104					
1	13.2	IC105		1	3.82
2	10.3	2	0	2	13.2
3	1.0	3	0	3	3.55
4	0	4	0.68	4	4.78
5	1.79	5	0	5	0.71
6	4.33	6	2.10	6	10.12
7	4.32	7	2.10	7	2.78
IC102					
1	13.2	8	2.03	8	0.01
2	15.2	9	0	9	6.24
3	1.0	10	0	10	2.79
4	1.79	11	5.73	11	2.79
5	4.33	12	5.73	12	2.80
6	4.33	13	5.73	13	2.79
7	4.32	14	5.73	14	2.80
		15	5.73	15	4.30
		16	5.73	16	3.03
		17	0		
		18	0		

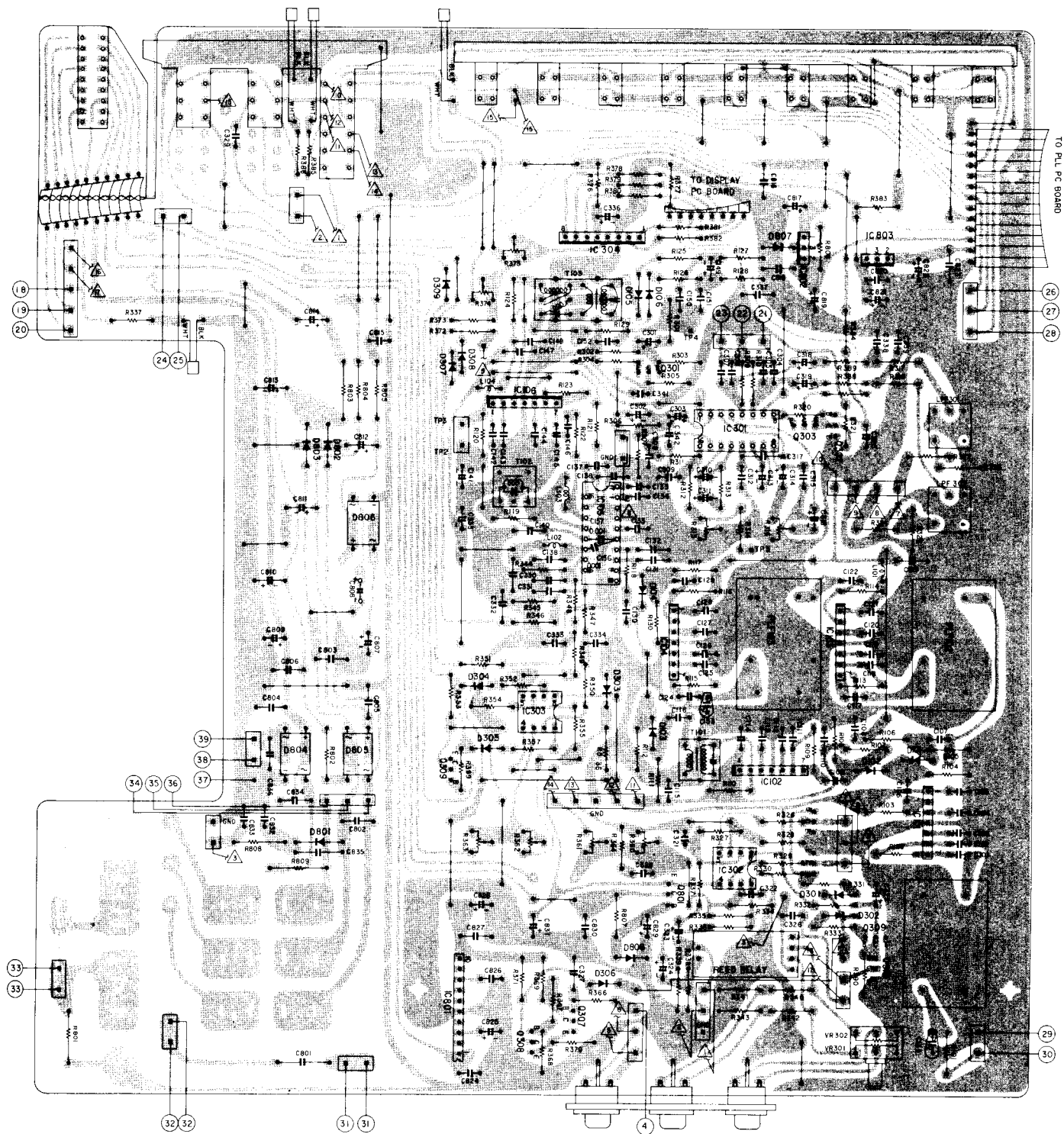
- SCHEMATIC SYMBOLS:**
- POLYESTER FILM CAPACITOR
  - POLYSTYRENE FILM CAPACITOR
  - TANTALUM ELECTROLYTIC CAPACITOR
  - BIPOLAR CAPACITOR
  - NONFLAMMABLE RESISTOR

- NOTES:**
1. SCHEMATIC IS SUBJECT TO CHANGE WITHOUT NOTICE.
  2. RESISTANCE VALUES ARE IN OHMS. K = 1,000; M = 1,000,000
  3. CAPACITANCE VALUES 1.0 AND ABOVE ARE IN pF OR μF (pF = pF, M = μF), LESS THAN 1.0 ARE IN μF. (ELECTROLYTIC CAPACITANCE VALUES ARE IN μF/WV.)
  4. VOLTAGES ARE MEASURED TO CHASSIS GROUND WITH A "DC VOLTMETER".

V : VOLTAGES MEASURED WITH NO SIGNAL APPLIED.



V



IF-AF PC Board (Bottom View)

# PARTS LIST

## NOTES:

1. \* The KEY NUMBER (#) marked with a (\*) on parts list relate to numbers of three digits with a (○).
2. + Numerals in file indicate the quantity of parts used in one type.
3. ++ TR : Transistor  
FET : Field effect transistor  
VR : Volume control (Variable resistor)  
RES : Carbon film fixed resistor  
MO-RES : Metal oxide film fixed resistor  
CE-RES : Cemented wirewound fixed resistor  
NF : Nonflammable  
C-CAP : Ceramic capacitor  
E-CAP : Aluminium electrolytic capacitor  
M-CAP : Polyester film capacitor  
S-CAP : Polystyrene film capacitor

T-CAP : Tantalum electrolytic capacitor  
BP-CAP : Bipolar electrolytic capacitor  
E-CAP, T-CAP and BP-CAP values (1 x 10uf) are in (1) uF, (10) WV.

4. Assemblies and parts are subject to charge without notice.
5. Parts ordering procedure:
  - A. Do NOT USE THE "KEY" NUMBER AND "SYMBOL" NUMBER. (these are control # for the factory only)
  - B. Include in any order
    - a. Part number.
    - b. Part description.
    - c. Model number.
 (any of the above lacking from an order may delay shipment of that order.)

KEY NO.	SYMBOL NO.	W-type-u <sup>+</sup>	DESCRIPTION <sup>++</sup>	PART NO.
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### PACKING MATERIALS & ACCESSORIES

			1 Carton	9825410
			1 Pad (L)	9840730
			1 Pad (R)	9840740
			1 Sack, polyethylene cloth	9640650
			1 Sack (#13), polyethylene cloth	9640320
			1 Manual (E), instruction	960236E
			1 Manual (SE1), instruction	960263F
			1 Cloth, polishing	9690040
			1 Cord 2T-1 (NK), pin plug	962014A
			1 Antenna, FM. Q-MATCH	4581360
			1 Sack (#1), polyethylene cloth	9640590
			1 Dryer, SILICA GEL	9690010

### CABINET ASSEMBLY

*			1 Panel, front--(GOLD MODEL)	7884110
			1 Panel, front--(BLACK MODEL)	7884120
			6 Screw, PTS 3φx6	814306S
*			4 LED, GD-4-207RD	5060010
			3 Holder, LED	7903060
			1 Cloth, DUST COV2430 -- for power switch	7001980
*			1 Window, dial smoke	7802320
			1 Knob, 15GL-8LS -- POWER (GOLD MODEL)	7841110
*			1 Knob, 15BK-8LS -- POWER (BLACK MODEL)	7841120
			1 Knob, 12GL-8D -- MUTING THRESHOLD (GOLD MODEL)	7841090
*			1 Knob, 12BK-8D -- MUTING THRESHOLD (BLACK MODEL)	7841100
			3 Guide (GE)	7801480
			3 Push button, P520BL-4E -- MUTING ON-STEREO ↔ MONO, HI-BLEND, IF BAND (GOLD MODEL)	7851860
*			3 Push button, P520BL-4E -- MUTING ON-STEREO ↔ MONO, HI-BLEND, IF-BAND (BLACK MODEL)	7851980
			3 Spring (V)	7440400
			3 Stop, button	7401460
			9 Guide (GS)	7401470

KEY NO.	SYMBOL NO.	W-type-u <sup>+</sup>	DESCRIPTION <sup>++</sup>	PART NO.
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			9 Push button, P416SL-4SQ -- (GOLD MODEL)	7851870
*			9 Push button, P416BL-4SQ -- (BLACK MODEL)	7851990
			9 Spring(V)	7440400
			9 Stop, button	7401460
*			1 Lever, tuning -- (GOLD MODEL)	7851850
			1 Lever, tuning -- (BLACK MODEL)	7851970
			1 Arm, tuning	7031940
			2 Screw, PTS 3φx8	814308S
			1 Holder, lever	7031930
			2 Screw, PMS 3φx5	810305S
*			1 Cover, metal	7820850
			4 Washer, W4φ BLK	893104W
			4 Screw, TFS 4φx10 BLK	887410W
			4 Screw, PTS 3φx6 BLK	814306W
*			1 Plate, bottom	7325120
			9 Screw, PTS 3φx6	814306S
*			4 Foot (TG)	7401350
			4 Screw, PTS 3φx8	814308S

### CHASSIS ASSEMBLY

			(1) (Front Plate Assembly)	
			8 Screw, PTS 3φx6	814306S
			(1) (Back Plate Assembly)	
			8 Screw, PTS 3φx6 BLK	814306W
*			1 Angle (R), side	7226580
*			1 Angle (R), chassis	7226600
			1 Bushing (B312-250), snap	7401100
*			1 Bracket (F), PC board	7226620
			4 Screw, PTS 3φx6	814306S
*			1 Bracket (B), PC board	7226560
			2 Screw, PTS 3φx6	814306S
*			1 Bracket, front end	7226610
			2 Screw, PTS 3φx6	814306S
*			1 Holder (B), front end	7226570
			4 Screw, PTS 3φx6	814306S
*			1 Front End, FDB11U	4910110
			6 Screw, PTS 3φx6	814306S
*			1 Angle (L), chassis	7226590
			2 Lug, solder	4400000
			2 Washer, TW(1) 3φ	893403U

# Nikko Gamma V

PART ORDERING PROCEDURE - - - - Do NOT USE THE "KEY" NUMBER AND "SYMBOL" NUMBER. (these are control # for the factory only.) Include in any order: a. Part number, b. Part description, c. Model number. (any of the above lacking from an order may delay shipment of that order.)

KEY NO.	SYMBOL NO.	Wtypeu <sup>+</sup>	DESCRIPTION **	PART NO.
			2 Screw. PTS 3φx6	814306S
*			1 Angle(L), side	7226630
*			1 Transformer, power. T-1-322 - 120V only	1103220
			2 Washer. TW(I) 3φ	893403U
			2 Nut. 1N 3φ	892013S
			2 Screw. PMS 4φx8	810408S
*			1 Transformer, power. T-1-323 - 120V only	1103230
			2 Plate, power transformer mounting	7031290
			2 Screw. PMS 4φx8	810408S
			(1) (PLL PC Board Assembly)	
			4 Screw. PTS 3φx6	814306S
			1 Plate (L), shielding - bottom	7226540
			1 Plate (U), shielding - top	7226550
			7 Screw. PTS 3φx6	814306S
			1 Rivet, plastic push. FNRP 3x4.5	7401190
			(1) (IF-AF PC Board Assembly)	
			5 Screw. PTS 3φx6	814306S
			2 Screw. PMS 3φx5	810305S

KEY NO.	SYMBOL NO.	Wtypeu <sup>+</sup>	DESCRIPTION **	PART NO.
*			1 Terminal (5P), antenna	4450540
			2 Screw. PTS 3φx10 BLK	814310W
*			1 PC Board, antenna	4620280
*			1 Balun	1210420
			1 Plug (P-212B), coaxial	4530530
	S1		1 Switch (ESD-394T), slide - MAIN POWER	4020480
	S6		1 Switch (SL-13), slide - DE-EMPHASIS	4020440
			4 Screw. PMS 3φx6 BLK	810306W
			2 Lug, solder	440000D
			2 Washer, TW(I) 3φ	893403V
			2 Nut. 1N 3φ	892013S
			2 Screw. PMS 3φx6 BLK	810306W
*			1 Knob. P2BK-16LVD - LEVEL	7851800

## PLL PC BOARD ASSEMBLY

### FRONT PLATE ASSEMBLY

			1 Plate, front	7325140
*			1 Bracket, front panel	7031800
*			1 Angle (L), front	7031970
*			4 Screw. PTS 3φx6	814306S
			1 Guide, display - «GOLD MODEL»	7401490
			1 Guide, display - «BLACK MODEL»	7401500
			1 Window (G), dial smoke	7802330
			2 Holder, window	7031950
			2 Screw. PTS 3φx6	814306S
			1 Bracket, microswitch	7031980
			2 Screw. PTS 3φx6	814306S
*	S7,S8		2 Micro-switch. VV5-1A44	4060060
			2 Screw. PTS 3φx16	814316S
			2 Screw. PTS 2.6φx16	814216S
			2 Pad, switch	7001940
*			1 PC Board, display	4612620
			1 LED. GL-6R201	5060070
			1 LED. MHz display	5060100
			2 LED. GL-2PG1 (GRN)	5060080
			4 LED. GL-2AR1 (RED)	5060090
*			1 Cable (8-220), ribbon	606211E
			2 Rivet, Plastic push. FNRP 3x4.5	7401190
	VR1		1 VR 850kohm - MUTING THRESHOLD	4310540

### BACK PLATE ASSEMBLY

*			1 Plate, back	7325130
			1 Cord, AC line. DP-70	606007A
*			1 Stopper, cord. SR-3P-4	7400620
			1 Bracket (W), cord	7031460
			2 Screw. PTS 3φx6 BLK	814306S

C901~C903	3	C-CAP 0.047uf	80, -20%	50V	YG	231473Z
C904	1	M-CAP 0.1uf	10%	50V		222104K
C905	1	T-CAP 25D2.2uf				252312M
C906,907	2	M-CAP 0.01uf	5%	50V		222103J
C908,C909	2	T-CAP 35D1uf				252410M
C910~C912	3	C-CAP 0.047uf	80, -20%	50V	YG	231473Z
C913	1	C-CAP 22pf	10%	50V	SL	232220K
C914	1	C-CAP 0.001uf	10%	50V	SL	231102K
C915	1	C-CAP 0.01uf	80, -20%	50V	YG	231103Z
C916	1	C-CAP 470pf	10%	50V	SL	232471K
C917	1	Capacitor, 20pf trimmer				4241060
C918	1	C-CAP 18pf	10%	50V	SL	232180K
C919	1	C-CAP 47pf	10%	50V	SL	232470K
C920	1	C-CAP 0.022uf	80, -20%	50V	YG	231223Z
C921,C922	2	C-CAP 0.047uf	80, -20%	50V	YG	231473Z
C923	1	T-CAP 10D3.3uf				252113M
C924	1	E-CAP 6.3R220uf				211032Q
C925~C927	3	C-CAP 0.047uf	80, -20%	50V	YG	231473Z
C928	1	C-CAP 0.022uf	80, -20%	50V	YG	231223Z
C929	1	E-CAP 10R220uf				211132Q
D901	1	Zener Diode. RD5.1EB				502045S
D902	1	Zener Diode. RD8.2EB1				502052S
D903~D914	12	Diode. 1S553				501023S
D915		- Deleted -				
D916	1	Diode. 1S553				501023S
IC901	1	IC μPC78L05				518062S
IC902	1	IC TC7404P				518064S
IC903	1	IC μPC551C				518059S
IC904	1	IC μPD2815C				518058S
IC905	1	IC μPD547LC				518057S
L901	1	Inductor, 8uh	5%			1210850
L902	1	Inductor, 2.2uh	20%			1210860
Q901	1	FET 2SK104(F)				516026S
Q902~Q905	4	TR 2SC1815 (O, Y)				511018S
Q906~Q912	7	TR 2SB641 (R, Q)				511101S
Q913~Q920	8	TR 2SD636 (R, Q)				513101S
R901	1	RES 330kohm	5%	¼W		328334J
R902	1	RES 22kohm	5%	¼W		328223J
R903	1	RES 1megohm	5%	¼W		328105J
R904	1	RES 2.7kohm	5%	¼W		328272J
R905	1	RES 1.5kohm	5%	¼W		328152J
R906	1	RES 680kohm	5%	¼W		328681J
R907	1	RES 3.9kohm	5%	¼W		328392J
R908	1	RES 10kohm	5%	¼W		328103J
R909	1	RES 22kohm	5%	¼W		328223J



PART ORDERING PROCEDURE . . . . . Do NOT USE THE "KEY" NUMBER AND "SYMBOL" NUMBER. (these are control # for the factory only.) Include in any order: a. Part number, b. Part description, c. Model number. (any of the above lacking from an order may delay shipment of that order.)

KEY NO.	SYMBOL NO.	W-type-u <sup>+</sup>	DESCRIPTION **	PART NO.
	R910	1 RES	270kohm 5% 1/4W	328274J
	R911	1 RES	680ohm 5% 1/4W	328681J
	R912	1 RES	100ohm 5% 1/4W	328101J
	R913	1 RES	12kohm 5% 1/4W	328123J
	R914	1 RES	100ohm 5% 1/4W	328101J
	R915~R918	4 RES	12kohm 5% 1/4W	328123J
	R919	1 RES	150kohm 5% 1/4W	328154J
	R920~R926	7 RES	12kohm 5% 1/4W	328123J
	R927~R933	1 RES	4.7kohm 5% 1/4W	328472J
	R934~R937	4 RES	12kohm 5% 1/4W	328123J
	R938~R945	8 RES	100kohm 5% 1/4W	328104J
	R946,R947	2 RES	12kohm 5% 1/4W	328123J
	R948,R949	2 RES	22kohm 5% 1/4W	328223J
	R950	1 RES	12kohm 5% 1/4W	328123J
	R951~R954	4 RES	22kohm 5% 1/4W	328223J
	R955~R958	4 RES	2.2kohm 5% 1/4W	328222J
	R959	1 RES	100ohm 5% 1/4W	328101J
	R960~R966	7 RES	68ohm 5% 1/4W	328680J
	R967	1 RES	1kohm 5% 1/4W	328102J
	R968	1 RES	470kohm 5% 1/4W	328474J
	R909	1 RES	10kohm 5% 1/4W	328103J
		1 X'tal,	10, 24 MHz	1280440
		1 Holder (P),	PC board	7031990
		2 Cable (13-110),	ribbon	606209E
		1 Socket (28P),	IC - for IC904	4510130
		1 Socket (42P),	IC - for IC905	4510120

IF-AF PC BOARD ASSEMBLY

(IF SECTION)

C101~C122	22	C-CAP	0.022uf 80, -20% 50V YG	231223Z
C123	1	C-CAP	0.047uf 80, -20% 50V YG	231473Z
C124~C129	6	C-CAP	0.022uf 80, -20% 50V YG	231223Z
C130	1	C-CAP	0.001uf 80, -20% 50V YG	231102Z
C131,C132	2	C-CAP	0.047uf 80, -20% 50V YG	231473Z
C133	1	C-CAP	0.022uf 80, -20% 50V YG	231223Z
C134	1	C-CAP	50R3.3uf	211513Q
C135	1	C-CAP	0.022uf 80, -20% 50V YG	231223Z
C136	1	T-CAP	25D3.3uf	252313M
C137	1	C-CAP	0.022uf 80, -20% 50V YG	231223Z
C138~C140	3	C-CAP	0.047uf 80, -20% 50V YG	231473Z
C141	1	E-CAP	16R47uf	211225Q
C142	1	C-CAP	0.022uf 80, -20% 50V YG	231223Z
C146	1	C-CAP	0.001uf 80, -20% 50V YG	231102Z
C147,C148	2	C-CAP	0.047uf 80, -20% 50V YG	231473Z
C149	1	E-CAP	16R10uf	211220Q
C150~C152	3	C-CAP	68pf 10% 50V SL	232680K
C153,C154	2	C-CAP	10pf 10% 50V SL	232100K
C155	1	Capacitor,	10pf trimmer	4241050
C156,C157	2	C-CAP	0.001uf 80, -20% 50V YG	231102Z
D101~D104	4	Diode.	1SS53	501023S
D105,D016	2	Diode.	1S2076	501019S
IC101~IC104	4	IC	μPC1163H	518060S
IC105	1	IC	HA11211	518052S
IC106	1	IC	TA7061AP	518047S
L101,L102	2	Inductor,	2.2uh 20%	1210860
L103	1	Inductor,	18uh 5%	1210850
L104	1	Inductor,	2.2uh 20%	1210860
PLF101	1	Filter (62401),	phase linear	1280350
PLF102	1	Filter (61801),	phase linear	1280470
PLF103	1	Filter (61401),	phase linear	1280350

KEY NO.	SYMBOL NO.	W-type-u <sup>+</sup>	DESCRIPTION **	PART NO.
	R101	1 RES	680ohm 5% 1/4W	328681J
	R102	1 RES	560ohm 5% 1/4W	328561J
	R103	1 RES	1kohm 5% 1/4W	328102J
	R104,R105	2 RES	5.6kohm 5% 1/4W	328563J
	R106,R107	2 RES	12kohm 5% 1/4W	328123J
	R108	1 RES	5.6kohm 5% 1/4W	328563J
	R109	1 RES	1kohm 5% 1/4W	328102J
	R110	1 RES	2.2kohm 5% 1/4W	328222J
	R111	1 RES	12kohm 5% 1/4W	328123J
	R112	1 RES	56kohm 5% 1/4W	328563J
	R113	1 RES	560ohm 5% 1/4W	328561J
	R114	1 RES	1kohm 5% 1/4W	328102J
	R115	1 RES	560ohm 5% 1/4W	328561J
	R116	1 RES	1kohm 5% 1/4W	328102J
	R117	1 RES	12kohm 5% 1/4W	328123J
	R118	1 RES	1kohm 5% 1/4W	328102J
	R119	1 RES	5.6kohm 5% 1/4W	328562J
	R120	1 RES	470ohm 5% 1/4W	328471J
	R121	1 RES	4.7kohm 5% 1/4W	328472J
	R122	1 RES	100ohm 5% 1/4W	328101J
	R123	1 RES	220ohm 5% 1/4W	328221J
	R124	1 RES	5.6kohm 5% 1/4W	328562J
	R125,R126	2 RES	1kohm 5% 1/4W	328102J
	R127,R128	2 RES	4.7kohm 5% 1/4W	328472J
	R129	1 RES	100ohm 5% 1/4W	328101J
	R130	1 RES	12kohm 5% 1/4W	328123J
	T101	1 Transformer,	FM IF - red	1240180
	T102	1 Transformer,	FM IF - black	1240330
	T103	1 Transformer,	FM discriminator	1240320
	C301~C303	3	E-CAP 25R10uf	211320Q
	C304	1	M-CAP 0.022uf 5% 50V	222223J
	C305,C306	2	M-CAP 0.0075uf 5% 100V	228752J
	C307	1	M-CAP 0.022uf 5% 50V	222223J
	C308	1	S-CAP 2200uf 5% 50V	223222V
	C309	1	S-CAP 1000pf 5% 50V	223102V
	C310	1	T-CAP 35D0.47uf	252405M
	C311	1	T-CAP 10D3.3uf	252113M
	C312	1	S-CAP 1500pf 5% 50V	223152V
	C313	1	E-CAP 50R3.3uf LC	211513L
	C314	1	E-CAP 50R3.3uf	211503Q
	C315	1	M-CAP 0.01uf 10% 50V	222103K
	C316	1	E-CAP 50R0.33uf	211503Q
	C317	1	C-CAP 0.047uf 80, -20% 50% YG	231473Z
	C318,C319	2	E-CAP 25R10uf	211320Q
	C320	1	E-CAP 50R1uf	211510Q
	C321,C322	2	S-CAP 330pf 5% 50V	223331V
	C323,C324	2	E-CAP 50R3.3uf LC	211513L
	C325	1	E-CAP 16R100uf	211230Q
	C326	1	C-CAP 0.022uf 80, -20% 50% YG	231223Z
	C327	1	C-CAP 0.047uf 80, -20% 50% YG	231473Z
	C328	1	M-CAP 0.022uf 5% 50V	222223J
	C329	1	M-CAP 0.047uf 5% 50V	222473J
	C330~C332	2	C-CAP 0.047uf 80, -20% 50V YG	231473Z
	C333,C334	2	M-CAP 0.01uf 10% 50V	222103K
	C335	1	E-CAP 16R100uf	211230Q
	C336	1	E-CAP 25R10uf	211320Q
	C337	1	C-CAP 0.047uf 80, -20% 50% YG	231473Z
	C338,C339	2	M-CAP 0.0033uf 5% 50V	222332J
	C341	1	C-CAP 68pf 10% 50V SL	232680K
	C342	1	C-CAP 220pf 10% 50V SL	232221K
	D301~D303	3	Zener Diode, HZ6-C1-L	502047S
	D304~D306	3	Diode. 1SS53	501023S
	D307	1	Diode. VD1212	505016S
	D308,D309	2	Diode. 1SS53	501023S

(MPX SECTION)

# Nikko Gamma V

**PART ORDERING PROCEDURE** ---- Do NOT USE THE "KEY" NUMBER AND "SYMBOL" NUMBER. (these are control # for the factory only.) Include in any order: a. Part number, b. Part description, c. Model number. (any of the above lacking from an order may delay shipment of that order.)

KEY NO.	SYMBOL NO.	Wtype-u <sup>+</sup>	DESCRIPTION**	PART NO.
	IC301	1	IC HA11223W	518054S
	IC302	1	IC NJM4558D	518056S
	IC303	1	IC NJM4558D	518056S
	IC304	1	IC M51903L	518065S
	LPF301	1	Filter, 38 kHz low pass	1270140
	LPF302	1	Filter, 38 kHz low pass	1270140
	Q301~Q305	5	TR 2SC1815 (O, Y)	511018S
	Q306	1	TR 2SA1015 (Y)	510102S
	Q307~Q310	4	TR 2SC1815 (O, Y)	511018S
	R301	1	RES 5.6kohm 5% 1/4W	328562J
	R302	1	RES 10kohm 5% 1/4W	328103J
	R303	1	RES 56kohm 5% 1/4W	328563J
	R304	1	RES 1kohm 5% 1/4W	328102J
	R305	1	RES 4.7kohm 5% 1/4W	328472J
	R306	1	RES 10kohm 5% 1/4W	328103J
	R307	1	RES 100kohm 5% 1/4W	328104J
	R309,R310	2	RES 3.3kohm 5% 1/4W	328332J
	R311	1	RES 33kohm 5% 1/4W	328333J
	R312	1	RES 5.6kohm 5% 1/4W	328562J
	R313	1	RES 1kohm 5% 1/4W	328102J
	R314	1	RES 100kohm 5% 1/4W	328104J
	R315	1	Potentiometer, 3.3kohm -- HVR-RVG-10B	4300820
	R316	1	Potentiometer, 100kohm -- HVR-RVA-7B	4300790
	R317,R318	2	RES 3.3kohm 5% 1/4W	328332J
	R319	1	RES 680ohm 5% 1/4W	328681J
	R320	1	RES 1kohm 5% 1/4W	328102J
	R321	1	RES 6.8kohm 5% 1/4W	328682J
	R322	1	RES 4.7kohm 5% 1/4W	328472J
	R323	1	RES 3.3kohm 5% 1/4W	328332J
	R324	1	RES 4.7kohm 5% 1/4W	328472J
	R325	1	RES 3.3kohm 5% 1/4W	328332J
	R326	1	RES 1kohm 5% 1/4W	328102J
	R327	1	RES 10kohm 5% 1/4W	328103J
	R328	1	RES 820ohm 5% 1/4W	328821J
	R329	1	RES 1kohm 5% 1/4W	328102J
	R330,R331	2	RES 10kohm 5% 1/4W	328103J
	R332	1	RES 4.7kohm 5% 1/4W	328473J
	R333	1	RES 10kohm 5% 1/4W	328103J
	R334	1	RES 820ohm 5% 1/4W	328821J
	R335	1	RES 10kohm 5% 1/4W	328103J
	R336,R337	2	RES 330ohm 5% 1/4W	328331J
	R338,R339	2	RES 15kohm 5% 1/4W	328153J
	R340~R343	4	RES 4.7kohm 5% 1/4W	328472J
	R344	1	RES 47kohm 5% 1/4W	328473J
	R345	1	RES 33kohm 5% 1/4W	328333J
	R346	1	RES 1kohm 5% 1/4W	328102J
	R347,R348	2	RES 2.2kohm 5% 1/4W	328222J
	R349,R350	2	RES 1kohm 5% 1/4W	328102J
	R351	1	RES 2.2kohm 5% 1/4W	328222J
	R352	1	RES 330ohm 5% 1/4W	328331J
	R353,R354	2	RES 20kohm 5% 1/4W	328103J
	R355	1	RES 33kohm 5% 1/4W	328333J
	R356	1	RES 2.7kohm 5% 1/4W	328272J
	R357	1	RES 330ohm 5% 1/4W	328331J
	R359	1	RES 1kohm 5% 1/4W	328102J
	R360,R361	2	Potentiometer, 100kohm -- HVR-RVA-7B	4300790
	R362,R363	2	Potentiometer, 50kohm -- HVR-RVA-7B	4300780
	R364	1	RES 68kohm 5% 1/4W	328683J
	R366	1	RES 1kohm 5% 1/4W	328102J
	R367	1	RES 15kohm 5% 1/4W	328153J
	R368	1	RES 2.2kohm 5% 1/4W	328222J
	R369	1	RES 5.6kohm 5% 1/4W	328562J
	R370	1	RES 150ohm 5% 1/4W	328151J
	R371	1	RES 3.9kohm 5% 1/4W	328392J
	R372	1	RES 10kohm 5% 1/4W	328103J
	R373	1	RES 3.3kohm 5% 1/4W	328332J
	R374,R375	2	Potentiometer, 10kohm -- HVR-RVA-7B	4300770
	R376	1	RES 10ohm 5% 1/4W	328100J

KEY NO.	SYMBOL NO.	Wtype-u <sup>+</sup>	DESCRIPTION**	PART NO.
	R377	1	RES 100ohm 5% 1/4W	328101J
	R378~R382	5	RES 470ohm 5% 1/4W	328471J
	R303	1	RES 33kohm 5% 1/4W	328333J
	R384	1	RES 10kohm 5% 1/4W	328103J
	R385,R386	2	RES 1kohm 5% 1/4W	328102J
	R387	1	RES 470ohm 5% 1/4W	328471J
	R388,R389	2	RES 100ohm 5% 1/4W	328101J
	R390	1	RES 10kohm 5% 1/4W	328103J
	506	1	Relay, reed. URT-103	1700200
	*507	1	Terminals, pin jack. CB, 2Px3 (CE)	4446020
	508	2	Screw. PTS 3φx10 BLK	814310W
(POWER SUPPLY SECTION)				
	C801	1	C-CAP 0.047uf 100, -0% 125VAC	239472C
	C802,C803	2	C-CAP 0.01uf 100, -0% 500V	238103P
	C804~C806	3	C-CAP 0.047uf 80, -20% 50V YG	231473Z
	C807,C808	2	E-CAP 35R33uf	211423Q
	C809	1	E-CAP 10R330uf	211133S
	C810,C811	2	E-CAP 25R1000uf	211340S
	C812	1	E-CAP 50R100uf	211530S
	C813,C814	2	E-CAP 25R1000uf	211340S
	C815	1	C-CAP 0.022uf 80, -20% 50V YG	231223Z
	C816	1	C-CAP 0.047uf 80, -20% 50V YG	231473Z
	C817	1	E-CAP 50R100uf	211530S
	C818	1	C-CAP 0.047uf 80, -20% 50V YG	231473Z
	C819	1	E-CAP 35R100uf	211430S
	C820	1	C-CAP 0.047uf 80, -20% 50V YG	231473Z
	C821	1	E-CAP 25R100uf	211330Q
	C822	1	E-CAP 16R100uf	211230Q
	C823	1	C-CAP 0.047uf 80, -20% 50V YG	231473Z
	C824	1	C-CAP 0.022uf 80, -20% 50V YG	231223Z
	C825	1	E-CAP 16R100uf	211230Q
	C826	1	C-CAP 0.001uf 80, -20% 50V YG	231102Z
	C827	1	C-CAP 0.047uf 80, -20% 50V YG	231473Z
	C828	1	E-CAP 16R1000uf	211240S
	C829	1	E-CAP 16R100uf	211230Q
	C830	1	C-CAP 0.022uf 80, -20% 50V YG	231223Z
	C831	1	E-CAP 16R100uf	211230Q
	C832	1	E-CAP 25R10uf	211320Q
	C833	1	E-CAP 25R22uf	211322Q
	C834	1	C-CAP 0.047uf 80, -20% 50V YG	231473Z
	C835	1	C-CAP 0.01uf 100, -0% 500V	238103P
	C836	1	C-CAP 0.047uf 80, -20% 50V YG	231473Z
	D801~D803	3	Diode. ERB12-01	560050S
	D804~D806	3	Diode Bridge. ESAB03-02	560051S
	D807	1	Zener Diode. RD13EB2	502049S
	D808	1	Zener Diode. RD15EB2	502050S
	IC801	1	IC TA7221P	518063S
	IC802	1	IC $\mu$ PC78L12	518061S
	IC803	1	IC $\mu$ PC78L12	518061S
	Q801	1	TR 2SA1015(Y)	510102S
	R801	1	RES 2.2megohm 10% 1/4W	325225K
	R802	1	NF-MO-RES 47ohm 5% 1/4W	360470L
	R803	1	NF-MO-RES 4.7ohm 5% 1/4W	360478L
	R804	1	NF-MO-RES 47ohm 5% 1/4W	360470L
	R805	1	NF-MO-RES 470ohm 5% 1/4W	360471L
	R806	1	RES 3.9kohm 5% 1/4W	328392J
	R807	1	RES 1kohm 5% 1/4W	328102J
	R808,R809	2	NF-MO-RES 10ohm 5% 1/4W	360100L

**PART ORDERING PROCEDURE** - - - - - Do NOT USE THE "KEY" NUMBER AND "SYMBOL" NUMBER. (these are control # for the factory only.) Include in any order: a. Part number, b. Part description, c. Model number. (any of the above lacking from an order may delay shipment of that order.)

KEY NO.	SYMBOL NO.	W-type-u <sup>+</sup>	DESCRIPTION <sup>++</sup>	PART NO.
			(Others)	
*509	S3+S4+S5	1	Switch, 3-section pushbutton. SUF33 – SUF33 – MUTING ON-STEREO ↔ MONO, HI-BLEND, IF-BAND	4041030
*510	S9+ ... +S17	1	Switch, 9-section pushbutton. SUH92	4041020
	VR301+VR302	1	VR B10kohmx2 – LEVEL	4320810

KEY NO.	SYMBOL NO.	W-type-u <sup>+</sup>	DESCRIPTION <sup>++</sup>	PART NO.
511		1	Sleeve, shielding – for T103	7032040
512		1	Heat Sink (R) – for IC801	7082020
513		1	Screw. PMS 3φx5	810305S
*514		1	Cable (10-40), ribbon	606210E
515		4	Socket (3021-2-N), mini – for LED's	4510090

**IF-AF PC BOARD**

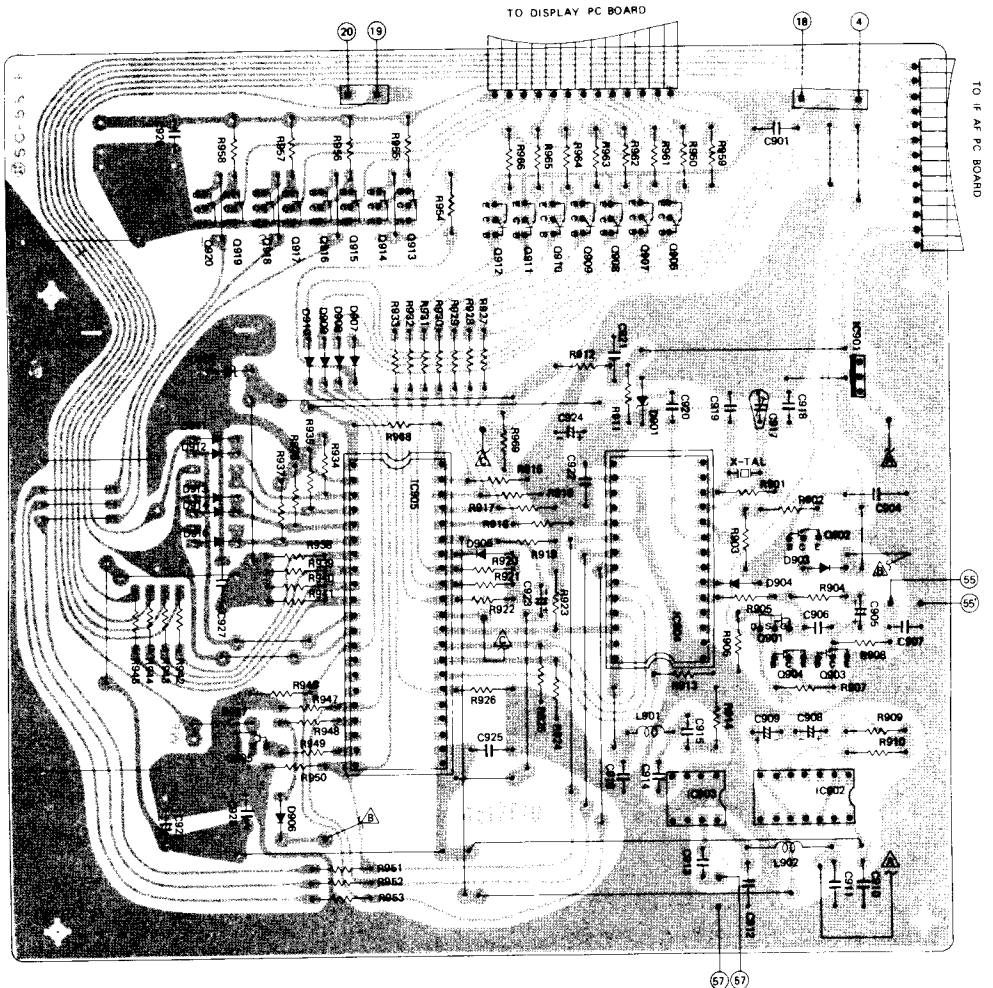
**Interconnecting Wiring Guide**

- |     |                                    |    |                                |
|-----|------------------------------------|----|--------------------------------|
| ④   | To 4, PLL PC BOARD                 | ③③ | To AC LINE                     |
| ⑱   | To 18, PLL PC BOARD                |    | To P. TRANSFORMER T-1-323, RED |
| ⑲   | To 19, PLL PC BOARD                |    | To P. TRANSFORMER T-1-322, RED |
| ⑳   | To 20, PLL PC BOARD                | ③④ | To P. TRANSFORMER T-1-323, WHT |
| ⑳ ㉔ | To MUTING THRESHOLD VOLUME CONTROL | ③⑤ | To P. TRANSFORMER T-1-323, WHT |
| ㉔   | To MICROSWITCH S8(UP)              | ③⑥ | To P. TRANSFORMER T-1-323, YEL |
| ㉔   | To MICROSWITCH S7(DOWN)            | ③⑦ | To CHASSIS GROUND              |
| ㉔   | To MICROSWITCHES S8, S7            | ③⑧ | To P. TRANSFORMER T-1-323, BLK |
| ㉔   | To IF OUT, FRONT END               | ③⑨ | To P. TRANSFORMER T-1-323, YEL |
| ㉔   | To GROUND (IF OUT), FRONT END      |    |                                |
| ③①  | To AC LINE                         |    |                                |
|     | To MAIN POWER SWITCH S1            |    |                                |
| ③②  | To P. TRANSFORMER T-1-323, BRN     |    |                                |
|     | To P. TRANSFORMER T-1-322, BRN     |    |                                |

**PLL PC BOARD**

**Interconnecting Wiring Guide**

- |    |                              |
|----|------------------------------|
| ④  | To 4, IF-AF PC BOARD         |
| ⑱  | To 18, IF-AF PC BOARD        |
| ⑲  | To 19, IF-AF PC BOARD        |
| ⑳  | To 20, IF-AF PC BOARD        |
| ⑤⑤ | To B2, FRONT END             |
| ⑤⑤ | To B2 GND, FRONT END         |
| ⑤⑦ | To F OUT, FRONT END          |
| ⑤⑦ | To GROUND (F OUT), FRONT END |



PLL PC Board (Bottom View)