

SERVICE MANUAL SERVICE MANUAL

SERVICE MANUAL 25 PLUS



DELUXE MOBILE CB RADIO with ELECTRONIC TUNING
7-SEGMENT BAR GRAPH MULTI-FUNCTION METER
INSTANT EMERGENCY CHANNEL 9 TUNING
"DYNA-MIKE" and NOISE BLANKER



CONSUMER ELECTRONICS GROUP
DYNASCAN CORPORATION
6500 WEST CORTLAND STREET
CHICAGO, ILLINOIS 60635

TABLE OF CONTENTS

SPECIFICATIONS	3
BLOCK DIAGRAM	5
CIRCUIT DESCRIPTIONS	6
PHASE LOCK LOOP	6
PLL CIRCUIT	6
CIRCUIT FOR PREVENTION OF UNAUTHORIZED FREQUENCY EMISSION	7
RX OPERATIONS (Refer to block and schematic diagrams)	9
TX OPERATION (Refer to block and schematic diagrams)	9
PA OPERATION	9
CHANNEL 9 CIRCUIT	9
ALIGNMENT PROCEDURE	10
TROUBLESHOOTING HINTS	14
PLL CIRCUIT TROUBLESHOOTING HINTS	16
ADDITIONAL PARTS ON THE BOTTOM	17
MAIN P.C. BOARD (TOP VIEW)	18
MAIN P.C. BOARD (BOTTOM VIEW)	19
FRONT P.C. BOARD (TOP & BOTTOM)	20
LED P.C. BOARD (TOP & BOTTOM)	20
WIRING DIAGRAM	22
COPPER PATTERN LAYOUT	23
ELECTRICAL PARTS LIST	24
MECHANICAL PARTS LIST	35
VOLTAGE CHART	34
TRANSISTOR VOLTAGE CHART	37
IC VOLTAGE CHART	39
SEMI-CONDUCTOR LEAD IDENTIFICATION	41
IC INTERNAL DIAGRAMS	42
EXPLODED VIEW	36
SCHEMATIC DIAGRAM	45

SPECIFICATIONS

GENERAL

Channels	40.
Frequency Range	26.965 to 27.405 MHz.
Frequency Control	Phase-Locked Loop (PLL) synthesizer.
Frequency Tolerance	0.005%
Operating Temp. Range	-30°C to +50°C.
Microphone	Plug-in type; dynamic.
Input Voltage	13.8 V DC nom. Positive or negative ground.
Current Drain	Transmit: AM full mod., 1.5 A. (maximum). Receive: (Squelched, 0.3 A; full audio output 1.2 A. (nominal). Channel Saver: Unit off 25 mA.
Size	8 ¹ / ₂ "D × 6 ¹ / ₄ "W × 2 ¹ / ₈ "H. (216 mm×159 mm×56 mm)
Weight	3 lbs., 10 oz.
Antenna Connector	UHF, SO-239.
Semiconductors	36 transistors, 33 diodes, 6 integrated circuits, 15 LEDs.
Meter	Indicates relative power output and received signal strength.

TRANSMITTER

Power Output	4 watts.
Modulation	High-and low-level Class B amplitude.
Frequency	300 to 2500 Hz.
Output Impedance	50 ohms, unbalanced.

RECEIVER

Sensitivity	Less than 1 μ V for 10 dB (S+N)/N.
Selectivity	6 dB @ 7 KHz, 60 dB @ 10 KHz.
Image Rejection	80 dB, typical.
Adjacent Ch. Rejection	60 dB, typical.
IF Frequencies	Double conversion, 1st: 10.695 MHz. 2nd: 455 KHz.
Automatic Gain Control (AGC)	Less than 10 dB change in audio output for inputs from 10 to 50,000 microvolts.
Squelch	Adjustable; threshold less than 1 μ V.
Audio Output Power	4 watts.
Frequency Response	300-3000 Hz.
Distortion	Less than 7% @ 3 watts @ 1000 Hz.
Built-in Speaker	8 ohms, round.
External Speaker	8 ohms; disables internal speaker when connected.

PA SYSTEM

Power Output

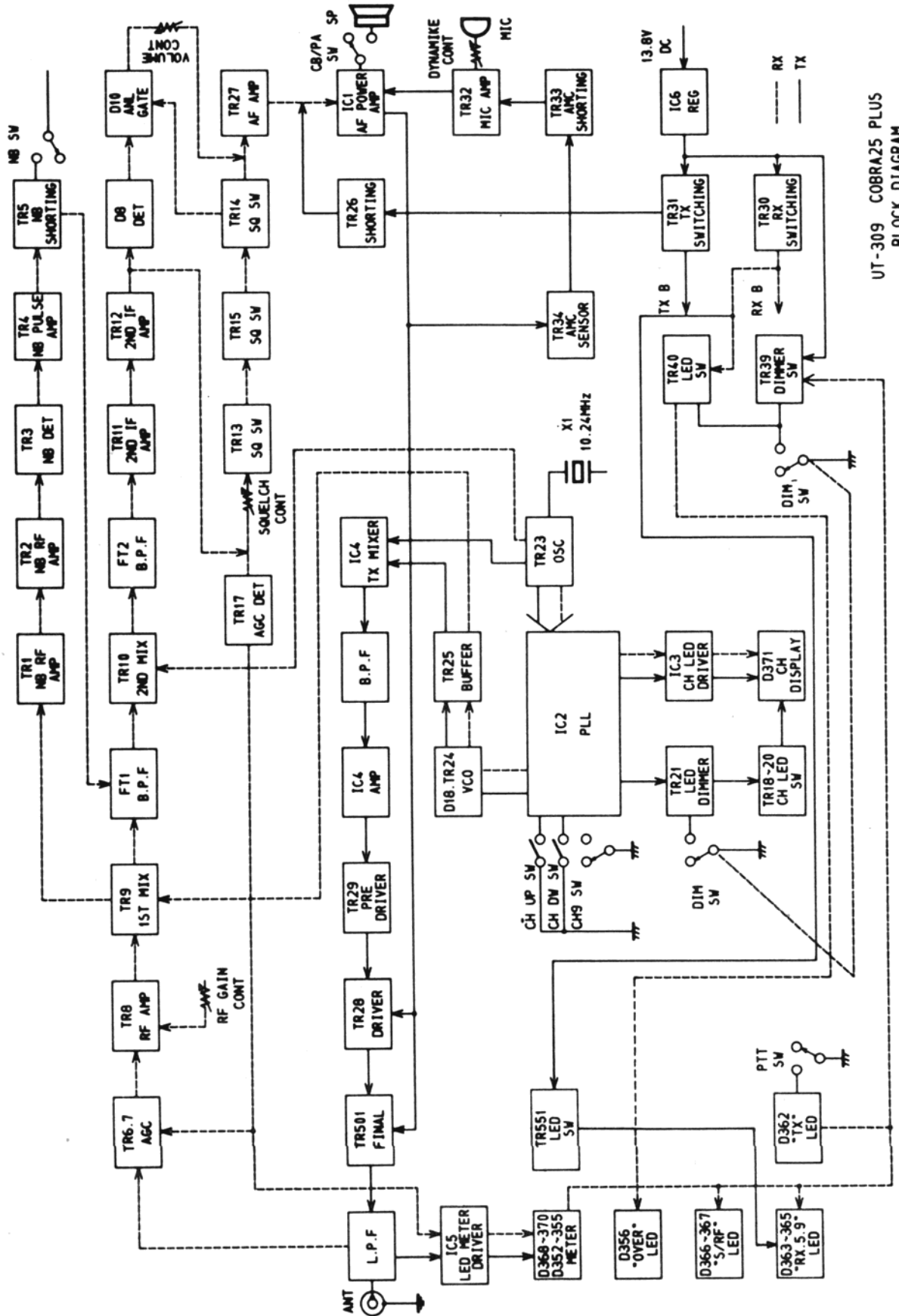
4 watts into external speaker.

External Speaker for PA

8 ohms; a separate jack is provided.

(SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE)

BLOCK DIAGRAM 25 PLUS



UT-309 COBRA25 PLUS
BLOCK DIAGRAM

A Low Pass Filter integrates the output of the Phase Detector which controls the VCO frequency. The program divider 1/N changes the frequency of the VCO (Fvco) in 10 kHz increments. For Example Channel No. 1 transmit divide Ratio "N" is programmed to 3345.

Therefore $F_{vco} = 5 \times 3345 = 16.725$ (MHz).

Fvco is determined the same way for all other channels as shown in table A.

Channel Selection Program

The Up/Down channel switches change the input voltage at either pin #22 or pin #23 of IC2 to select the desired channel. The divide ratio of the programmable frequency divider in IC2 is then determined through a code converter and the state of the transmit/receive mode switch (T/R) in IC2. The PTT switch determines the state of T/R in IC2 by changing the voltage at pin #19 from HIGH (receive) to LOW (transmit). The change between the two modes produces a 455 kHz change in VCO frequency.

Transmitter Output Frequency

The transmitter local oscillator of 10.24 MHz is produced by TR23 and crystal X1. The transmitter mixer IC4 mixes the local oscillator frequency 10.24 MHz, which is fed into pin #4 of IC4 and PLL Local Oscillator frequency (Fvco) produced by TR24/D18, which is fed into pin #1 of IC3. The sum of these two frequencies determines the transmitter carrier frequency (Ft). $F_t = F_{vco} + 10.24$ (MHz)

Receiver IF/Mixers

The 1st IF/Mixer TR9 receives the PLL local oscillator (Fvco) and receiver RF frequency (Fr) to produce 10.695 MHz.

$1ST\ IF = Fr - VCO = 10.695$ MHz.

The 2nd IF/Mixer (TR10) receives the 1st IF frequency (10.695 MHz) and local oscillator frequency (10.24 MHz) to produce the 2ND IF frequency, 455 kHz.

$2ND\ IF = 10.695 - 10.24 = 455$ (kHz).

2. CIRCUIT FOR PREVENTION OF UNAUTHORIZED FREQUENCY EMISSION

This Transceiver has a built-in circuit which prevents transmission of unauthorized frequencies during the time the PLL circuit is not locked.

When the PLL circuit is not locked or the program data input is not for channels 1–40, Pin 18 in IC2 produces a low level digital control signal. This signal is fed to Pin 7 of IC4 transmitter mixer through D31 diode. When this signal is at low level, IC4 is disabled; and no RF signals are fed to the next stages.

IC2 is designed internally to operate only with valid data required for channels 1–40, thereby eliminating the RF signal output, and preventing any unauthorized frequencies.

TABLE A: FREQUENCY CHART OF Fvco AND DIVIDE RATIO N

Antenna Frequency (MHz)	Channel Number	For Transmit (Pin 19 of IC2=L)		For Receive (Pin 19 of IC2=H)	
		Divide Ratio (N)	VCO Frequency (MHz)	Divide Ratio (N)	VCO Frequency (MHz)
26.965	1	3345	16.725	3254	16.270
26.975	2	3347	16.735	3256	16.280
26.985	3	3349	16.745	3258	16.290
27.005	4	3353	16.765	3262	16.310
27.015	5	3355	16.775	3264	16.320
27.025	6	3357	16.785	3266	16.330
27.035	7	3359	16.795	3268	16.340
27.055	8	3363	16.815	3272	16.360
27.065	9	3365	16.825	3274	16.370
27.075	10	3367	16.835	3276	16.380
27.085	11	3369	16.845	3278	16.390
27.105	12	3373	16.865	3282	16.410
27.115	13	3375	16.875	3284	16.420
27.125	14	3377	16.885	3286	16.430
27.135	15	3379	16.895	3288	16.440
27.155	16	3383	16.915	3292	16.460
27.165	17	3385	16.925	3294	16.470
27.175	18	3387	16.935	3296	16.480
27.185	19	3389	16.945	3298	16.490
27.205	20	3393	16.965	3302	16.510
27.215	21	3395	16.975	3304	16.520
27.225	22	3397	16.985	3306	16.530
27.255	23	3403	17.015	3312	16.560
27.235	24	3399	16.995	3308	16.540
27.245	25	3401	17.005	3310	16.550
27.265	26	3405	17.025	3314	16.570
27.275	27	3407	17.035	3316	16.580
27.285	28	3409	17.045	3318	16.590
27.295	29	3411	17.055	3320	16.600
27.305	30	3413	17.065	3322	16.610
27.315	31	3415	17.075	3324	16.620
27.325	32	3417	17.085	3326	16.630
27.335	33	3419	17.095	3328	16.640
27.345	34	3421	17.105	3330	16.650
27.355	35	3423	17.115	3332	16.660
27.365	36	3425	17.125	3334	16.670
27.575	37	3427	17.135	3336	16.680
27.385	38	3429	17.145	3338	16.690
27.395	39	3431	17.155	3340	16.700
27.405	40	3433	17.165	3342	16.710

3. RX OPERATIONS (Refer to block and schematic diagrams)

In the receive mode, switching transistor TR30 is turned ON to supply B+ voltage to the receiver section. TR33 is turned ON to mute the mic input. The transmit B+ switching transistor TR31 is OFF disabling the transmitter mixer IC4 and TR26 RX Audio mute transistor. The TX predriver TR29 is turned OFF by applying a B+ voltage to its emitter. The 2nd IF Amp TR12 modulated signal output is demodulated by detector diode D8. The recovered audio is amplified by TR27, fed to the power amp IC1 and then to the speaker. The output of TR12 also drives or controls the output levels of the AGC detector TR17 and the squelch circuit. When a Low RF signal is received by the antenna, the output of the AGC line is low and TR6 and TR7 are OFF allowing maximum RF signal to reach TR8 and maximum IF gain of TR10. When the RF signal strength increases, the AGC line voltage increases and causes current to flow through TR5 and TR6. This attenuates the RF input signal level to TR8, and decreases the gain of TR10, thereby preventing overload distortion and cross modulation deterioration. TR12 drives diode D9, producing a negative voltage at C31 to offset the squelch preset level and turn OFF TR13. Current flows through TR15 causing TR14 to turn "OFF" and unsquelch the output. Automatic Noise Limiting (ANL) is performed by diode D10.

4. TX OPERATION (Refer to block and schematic diagrams)

In transmit mode, switching transistor TR31 is turned ON to supply Bias voltages to TX mixer IC4 and to turn "ON" TR26 to mute receive output. TR30 is turned "OFF" allowing TR29 and TR32 (mic amp) to turn "ON". Mic input signal is amplified by TR32 and fed to IC1 to drive the modulation Xformer T1 secondary which causes the TX stages B+ voltage to vary with mic signal amplitude. Automatic modulation control (AMC) is accomplished by level shift diode D20, TR33 and TR34. When mic input signal increases above a critical level, D20 conducts current causing TR34 to turn on TR33 which attenuates the mic input level, controlling the modulation level.

5. PA OPERATION

In PA standby mode the receiver is "ON" and incoming signals can be monitored on the PA speaker. When the PTT switch is ON, the signal flows through the Dynamike control to TR32 and IC1 to PA speaker. The transmitter section is OFF due to nonconducting TR31.

6. CHANNEL 9 CIRCUIT

When the CH 9 switch is ON, Pin 21 of IC2 is set low to activate channel 9 only.

ALIGNMENT PROCEDURE

1. PLL SECTION ALIGNMENT

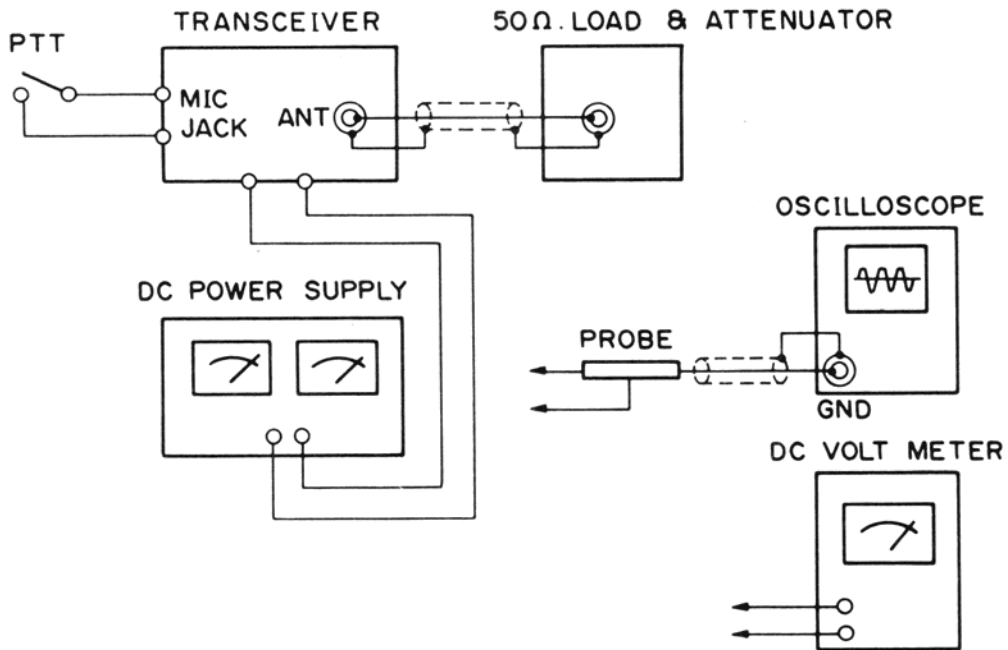
1.1 Test Equipment Required

DC Power Supply (13.8 V)
 DC Voltmeter
 Oscilloscope
 Dummy Load (50 ohm) & Attenuator

1.2 Alignment Procedures

STEP	PRESET TO	ADJUSTMENT	REMARKS
1	CH : 40 Mode : TX	L8	Connect DC Voltmeter to TP1. Adjust for 4.5 V. After alignment, lock the core of L8 with paraffin.
2	CH : 19 Mode : RX	L9	Connect Oscilloscope probe to TP2. Adjust for maximum reading on Oscilloscope.

1.3 Test Equipment Connection



2. TRANSMITTER SECTION ALIGNMENT

2.1 Test Equipment Required

DC Power Supply (13.8 V)
 AF Generator (Audio Frequency Oscillator)
 Oscilloscope
 RF Power Meter
 Dummy Load (50 ohm, 200 ohm)

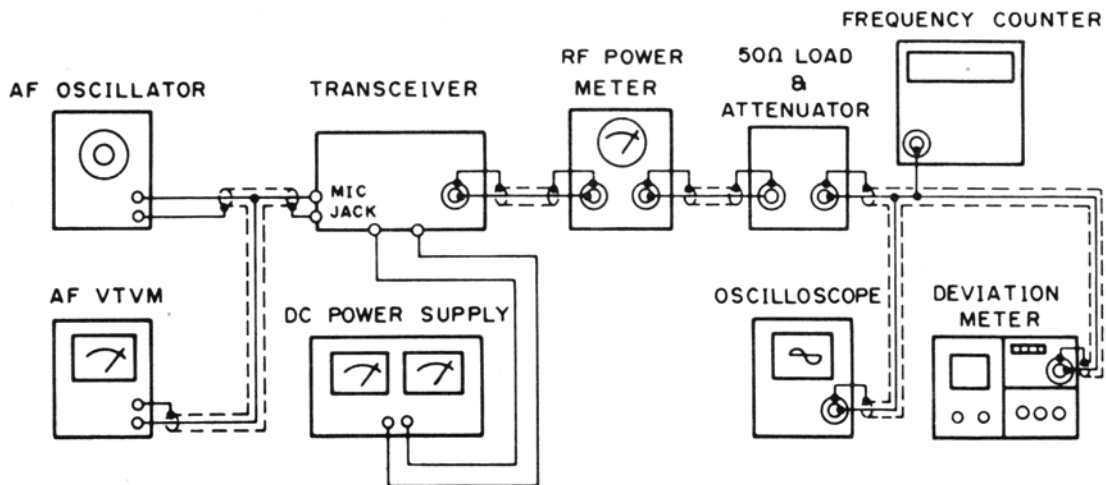
2.2 Preset to

- a) CH 9 : OFF
- b) PA : OFF
- c) DYNAMIKE : Maximum (full clockwise)

2.3 Alignment Procedures

STEP	PRESET TO	ADJUSTMENT	REMARKS
1	CH : 19 No mod.	L16, L17 and L18	Connect Oscilloscope probe to TP3. Adjust coils for maximum reading.
2	CH : 19 No mod.	L15 and L12	Connect RF Power Meter to Antenna Jack (J501). Adjust coils for maximum reading.
3	CH : 19 No mod.	L12	Adjust for 4.0W on RF Power Meter. After adjustment, lock L12 with paraffin.
4	CH : 19 No mod.	VR3	1. Reduce DC voltage to obtain 3.1 W on RF power meter. 2. Adjust VR3 to the point at which 6th LED just lights.

2.4 Test Equipment Connection



3. RECEIVER SECTION ALIGNMENT

3.1 Test Equipment Required

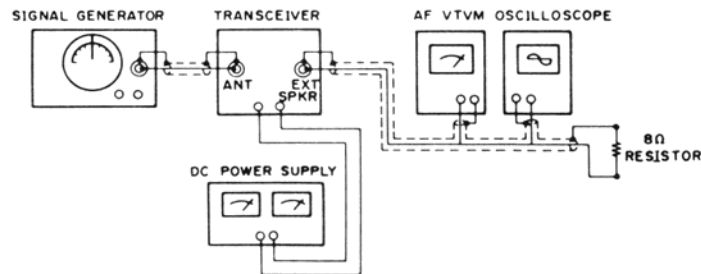
DC Power Supply (13.8 V)
 S.S.G. (Standard Signal Generator, with Attenuator)
 AF Voltmeter
 Oscilloscope
 Dummy Load (8 ohm)

3.2 Preset to

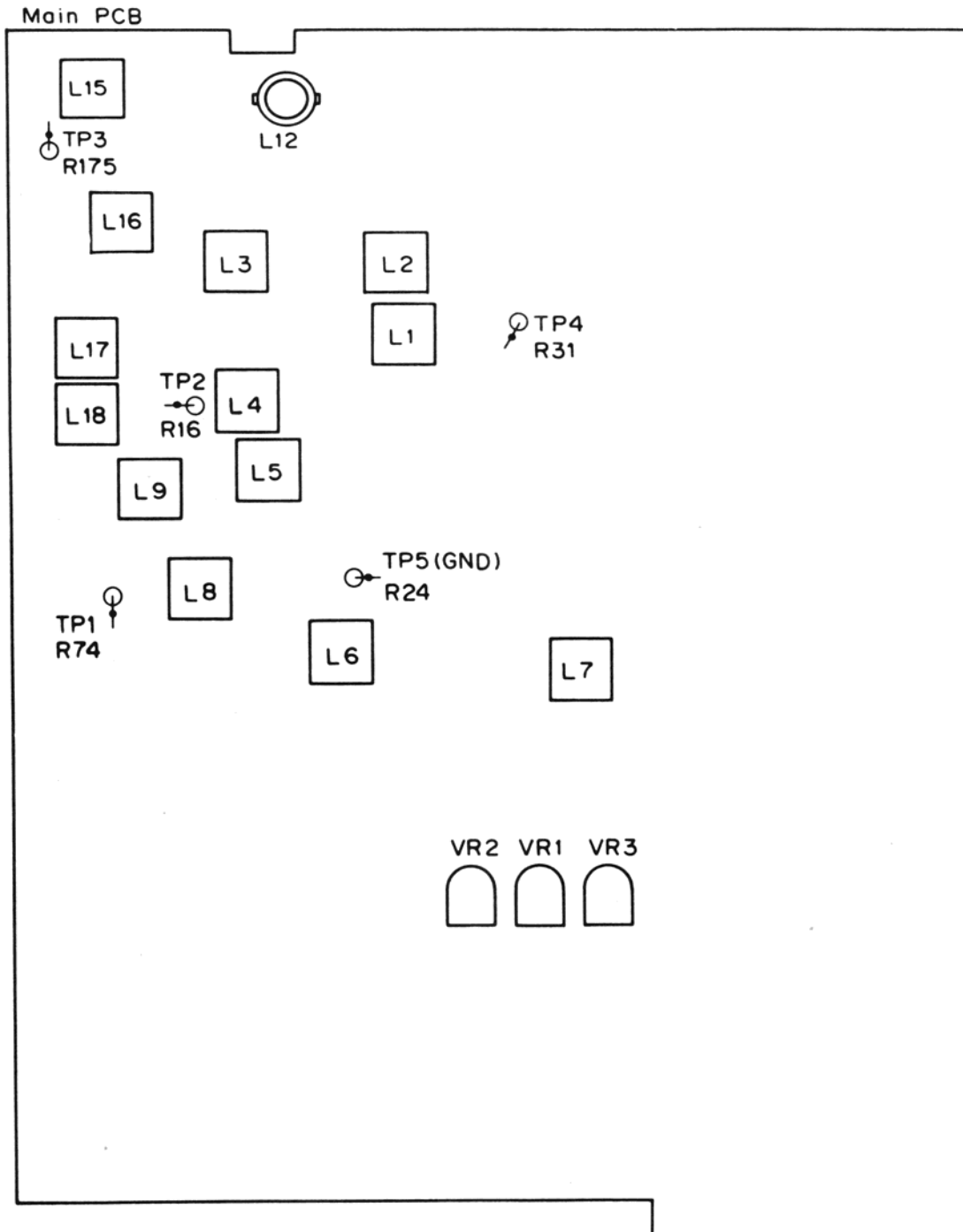
- a) CH 9 : OFF
- b) PA : OFF
- c) NB : OFF
- d) SQUELCH : Minimum (full counterclockwise)
- e) RF GAIN : Maximum (full clockwise)
- f) S.S.G. : 27.185 MHz (19 CH)
 modulation 1 kHz 30%

3.2 Alignment Procedure

STEP	PRESET TO	ADJUSTMENT	REMARKS
1	CH : 19 VOLUME : Max. S.S.G. : Mod. on	L2, L3, L4, L5, L6, L7	Connect S.S.G. to Antenna Jack(J501). Connect AF Voltmeter and Oscilloscope to EXT SP Jack (J3). Adjust coils for maximum reading. During alignment, decrease RF signal level as required to obtain 2 V on AF voltmeter.
2	CH : 18 NB : ON S.S.G. : 100 μ V No mod.	L1	Connect probe of Oscilloscope to TP4. Adjust for maximum reading.
3	CH : 19 S.S.G. : 100 μ V No mod.	VR1	Adjust until S9 of Transceivers LED Meter just lights.
4	CH : 19 VOLUME : Max. SQUELCH : Max. S.S.G. : 1 μ V Mod. on (@ 30%)	VR2	Connect AF Voltmeter and Oscilloscope to EXT SP Jack (J3). Adjust so that the AF signal will just appear on Oscilloscope.



ALIGNMENT POINTS



TROUBLESHOOTING HINTS

UNIT WILL NOT TURN ON

1. Blown fuse.
2. Defective Power Switch.
3. Defect in Power Supply Circuit.

NO SOUND RECEIVED

1. Defective external speaker jack.
2. Bad contact in the microphone jack.
3. Bad PTT switch in the microphone.
4. Unlocked PLL circuit or improper alignment.
5. Defect in squelch circuit.
6. Defective PA switch.

NO TRANSMISSION

1. Defective microphone jack.
2. Defective PTT switch on microphone.
3. Unlocked PLL circuit or improper alignment.
4. Defective PA switch.

NO TX MODULATION

1. Defective microphone and/or circuit.
2. Defect in modulation circuit.

FOR MORE HINTS, SEE BELOW

NO TRANSMISSION

Connect current meter in series with power cable.

Check current reading for transmit mode:

- A. If current reads more than 1 amp (but less than 2 A.), the final output transistor is OK. Check for bad contacts or short circuits between PC Board and Antenna Connector. A current reading of less than 0.5 A indicates no drive to Final Transistor. Check drive or early RF stages.
- B. Defective PLL?
Check voltage at Pin 18 of IC2. If less than 5 V, PLL is unlocked. If more than 5 V, PLL is OK.
- C. Short Circuit in Transmitter Circuit?
Voltage on Pin 1 of IC6 should be less than 7 V in TX mode, and should increase to more than 7 V in RX mode.
- D. If voltage reading is more than 7 V on TR31 collector, it is OK. If voltage of more than 2 V is measured at the D21 anode, check microphone circuit.
- E. If RF voltage (27 MHz) is more than 1.5 V P-P at TP3, previous stages are OK.
- F. No voltage readings at TR28 and TR501 collector: check D19 or T-1
- G. No Channel LED light: If one particular segment does not light, the LED is defective. If LED does not light in any channel position, check IC3.

CHANNEL UP/DOWN SWITCH INOPERATIVE

If channel does not go up or down when Channel Up/Down Switch is pressed, check IC2 and connection of Channel Up/Down Switch.

CHANNEL LED DOES NOT LIGHT

If one particular channel does not light, check molex, LED, or Channel Up/Down Switch. If no channel lights, check IC3 or molex.

NO TX MODULATION

If receiver operates correctly, but there is no TX modulation, the problem should be in TR32, TR33, TR34, or a short circuit in the microphone circuit. Audio power IC1 is used both for TX and RX modes.

NO RECEPTION

Before troubleshooting, check Squelch Control full CCW, RF Gain Control full CW, and microphone connected.

A) Connect Signal Generator to antenna. Check that Signal Strength Meter (S meter) LEDs light.

S meter LEDs light:

Antenna is OK through IF stage; check circuit through ANL, Squelch and Audio amplifier. If Detector circuit is normal, negative voltage should be present at anode of D8 diode during S meter illumination.

S meter LEDs do not light:

To check PLL:

1. 16 MHz frequency should be present at TP2 (0.9 V P-P or more).
2. The frequencies shown in the frequency chart should be correct when the Channel Up-Down Switch is changed from CH 1 through CH 40.
3. 10.24 MHz frequency should be present at C51 (0.4 V P-P or more). If PLL is OK, check circuit through TR8, TR9, TR10, TR11 and TR12.

B) Check Audio stage for operation: Connect Speaker to PA Speaker Jack, and set PA-CB switch to PA. If there is an audible click when PTT switch is pressed, Audio stage is OK. If there is no audible click, IC1 Audio Amplifier is defective, or T-1 transformer is bad. (Transformer DC resistance should be approximately 0.5 ohm for both primary and secondary windings.)

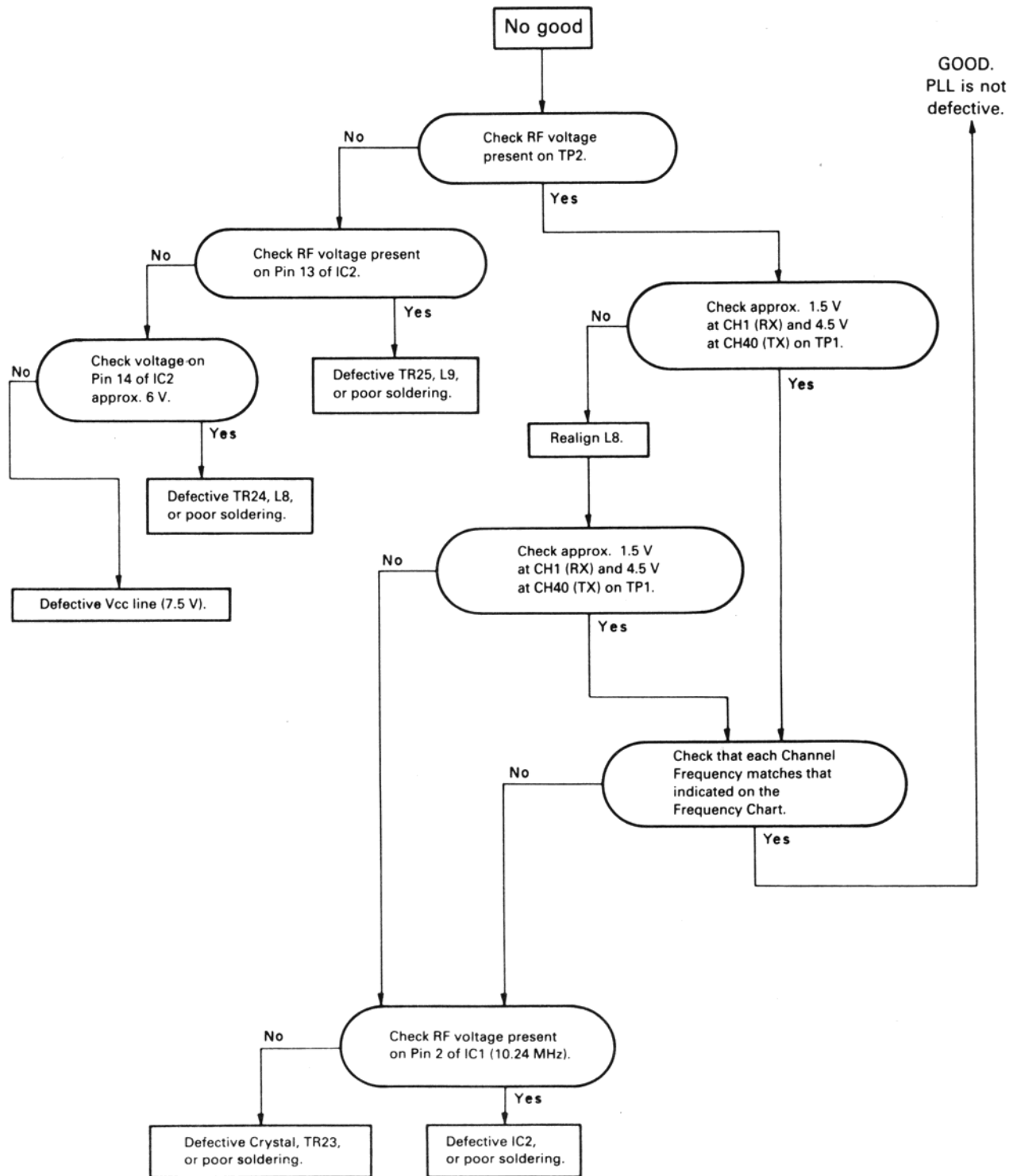
C) Defective Audio Power IC?

If voltage at Pin 6 is 7 V (VCC/2), IC1 is OK.

D) Squelch constantly "on".

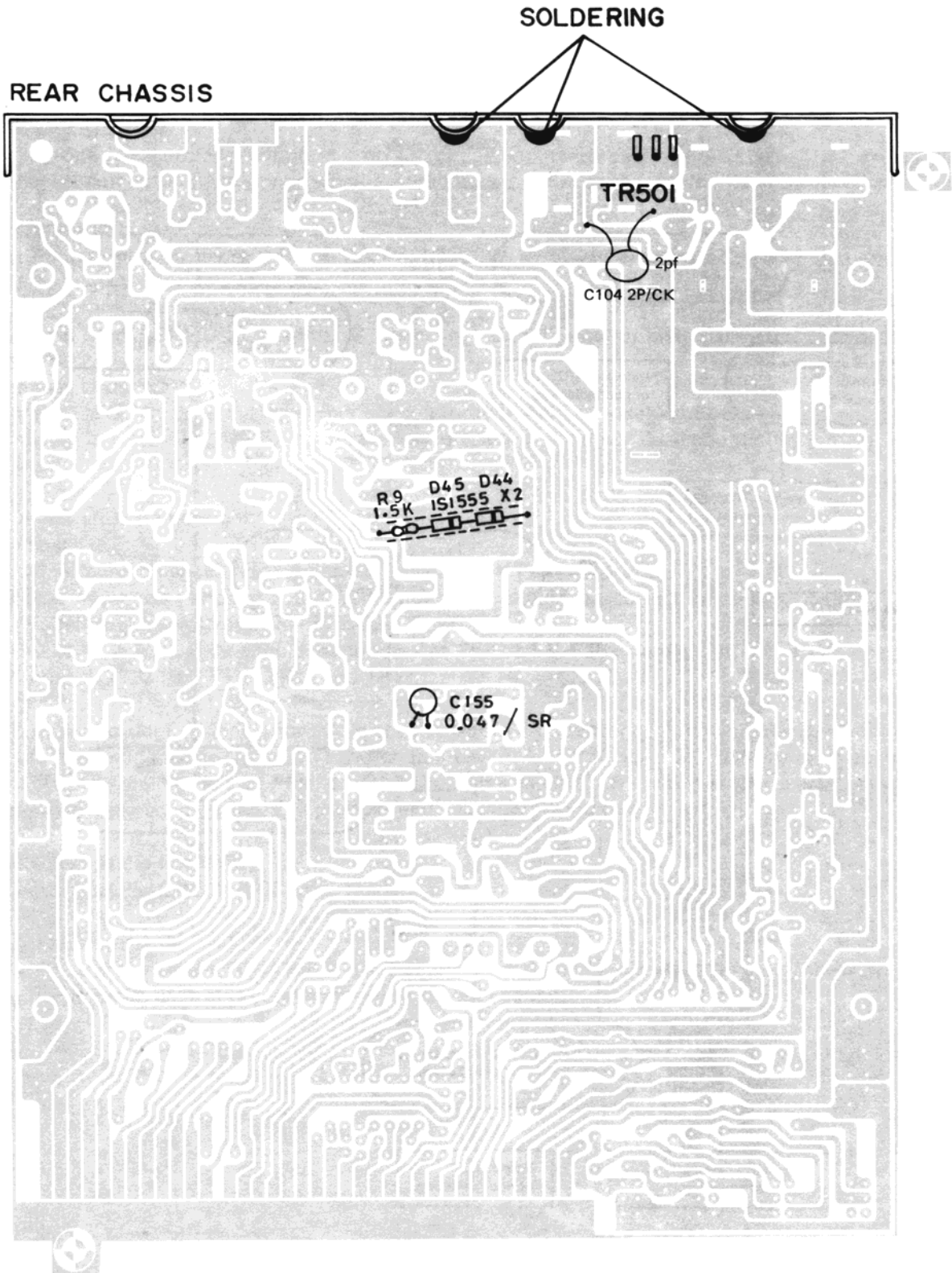
If voltage at the base of TR14 is 0 V, TR27 is defective. If reading is less than 0.7 V, check TR15 circuit and/or Squelch control ground connection for cold solder.

PLL CIRCUIT TROUBLESHOOTING HINTS

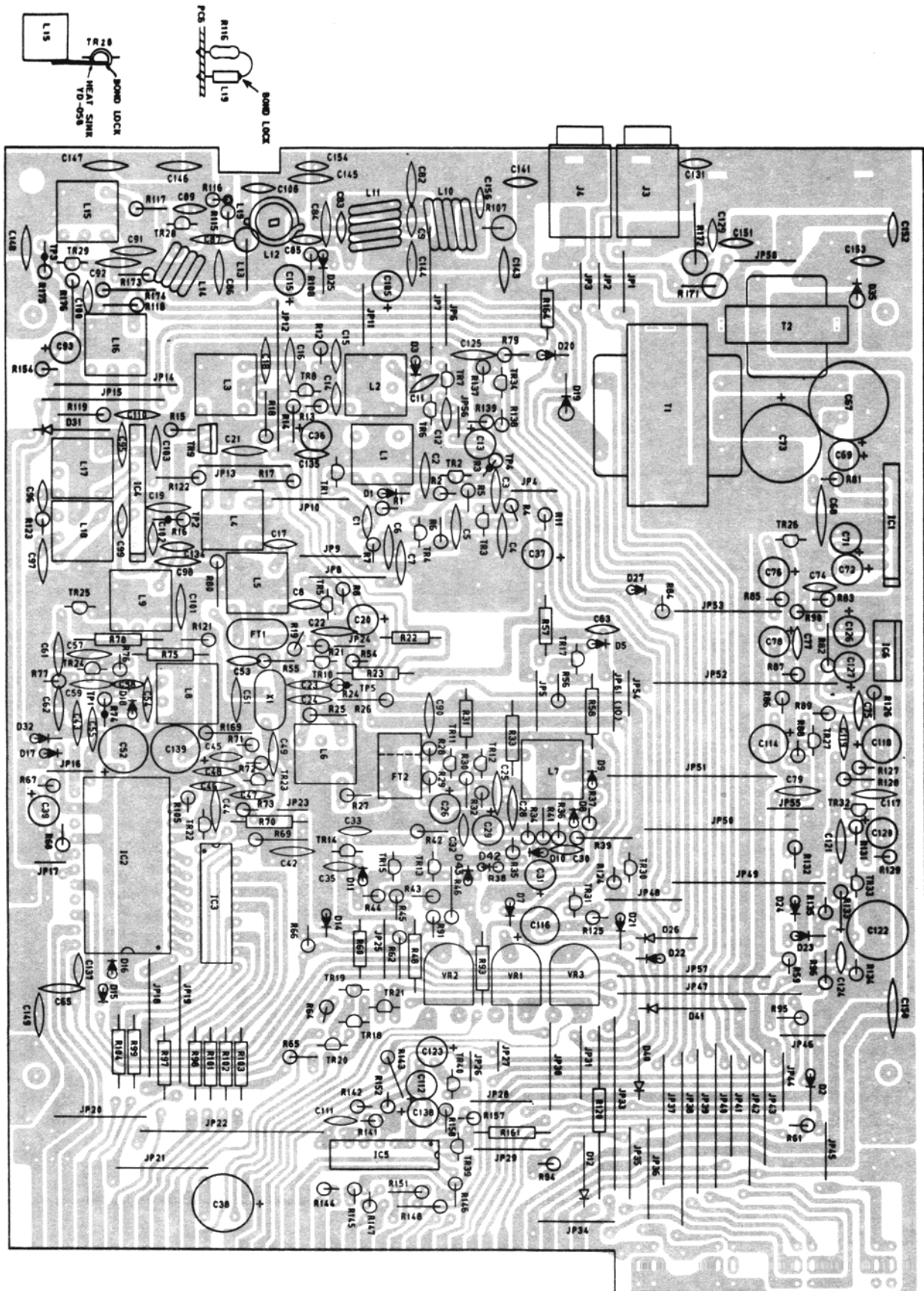


ADDITIONAL PARTS ON THE BOTTOM

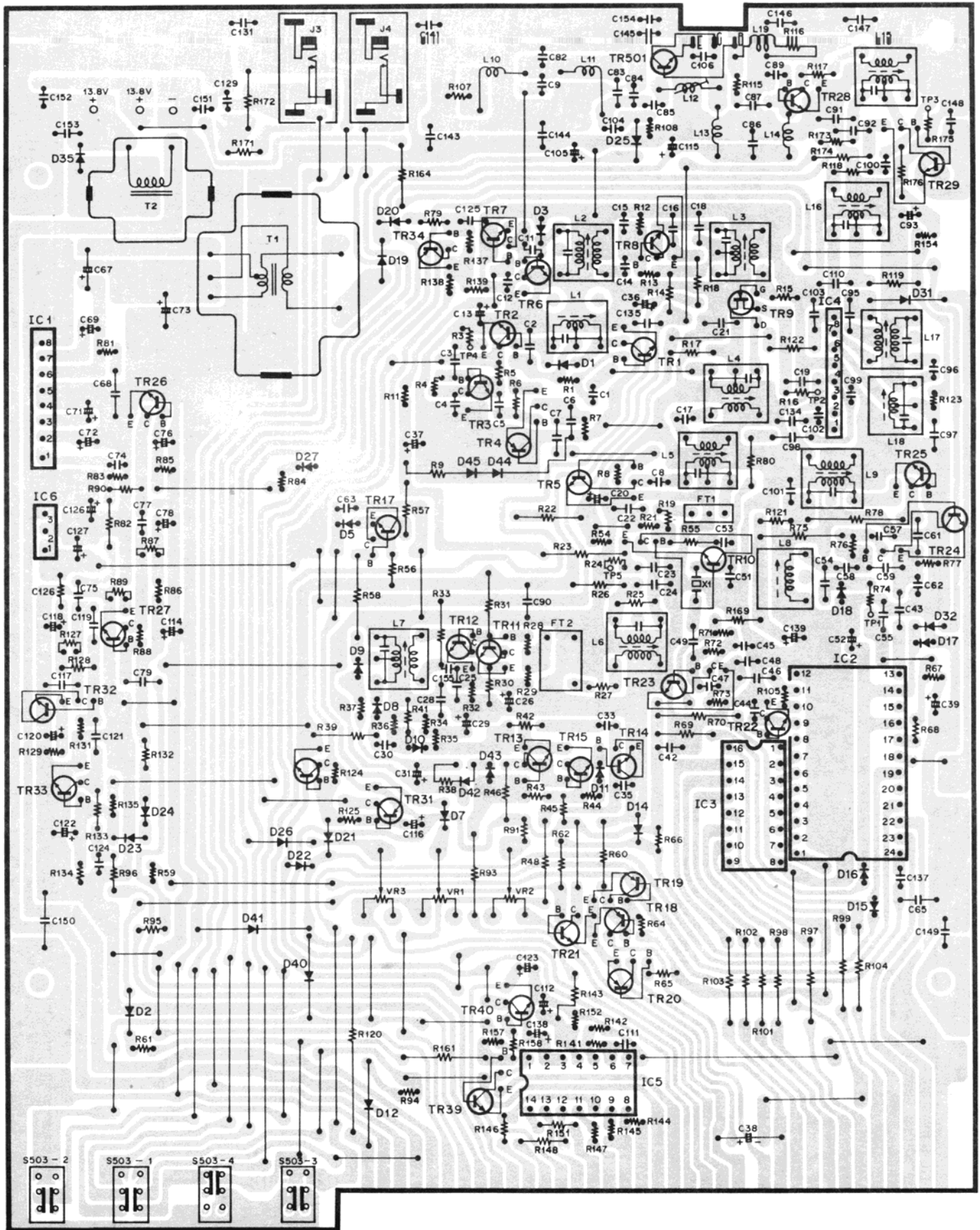
MAIN P.C. BOARD



MAIN P.C. BOARD (TOP VIEW)

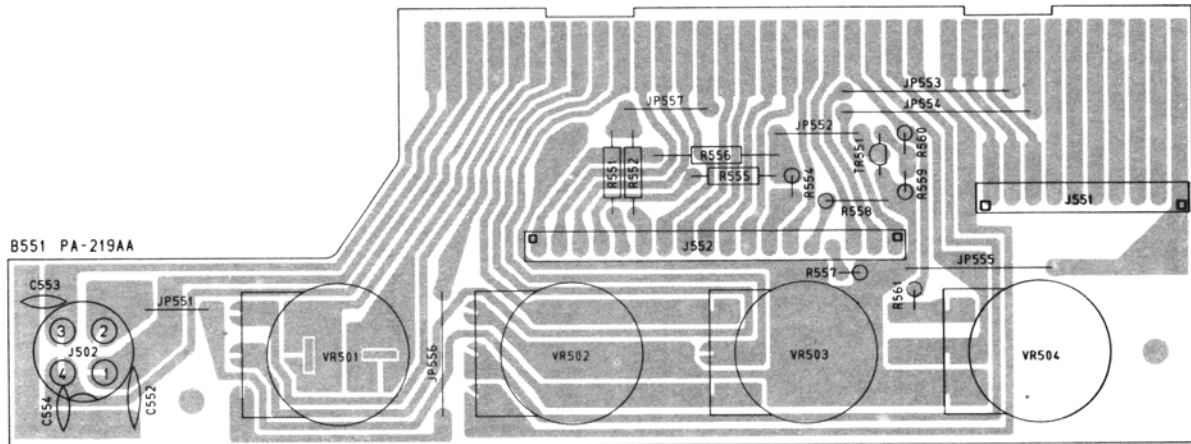


MAIN P.C. BOARD (BOTTOM VIEW)



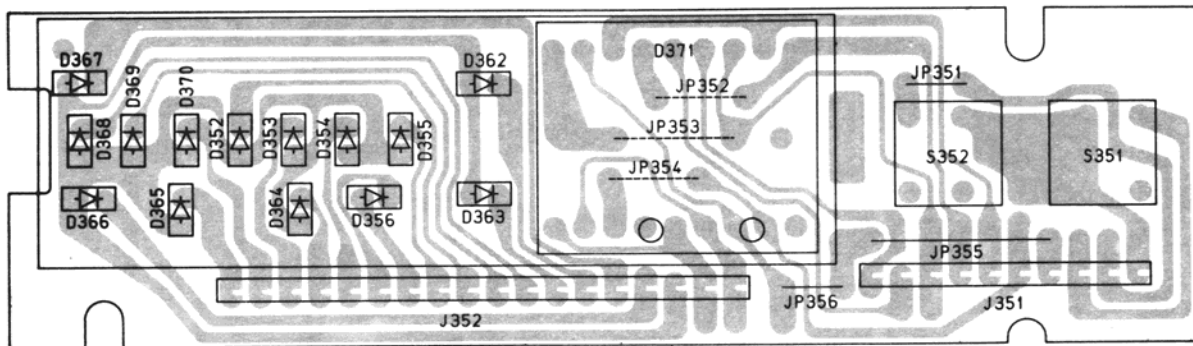
FRONT P.C. BOARD (TOP & BOTTOM)

(TOP VIEW)

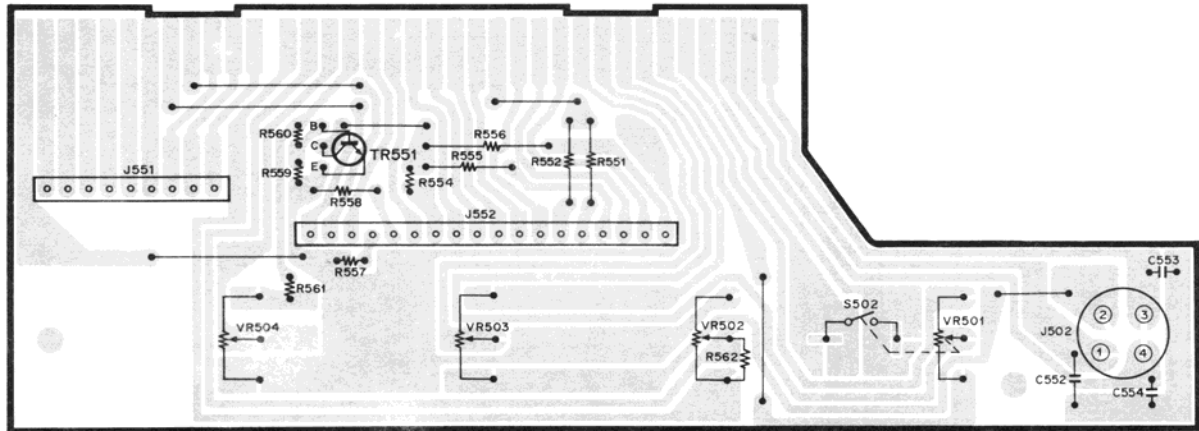


LED P.C. BOARD (TOP & BOTTOM)

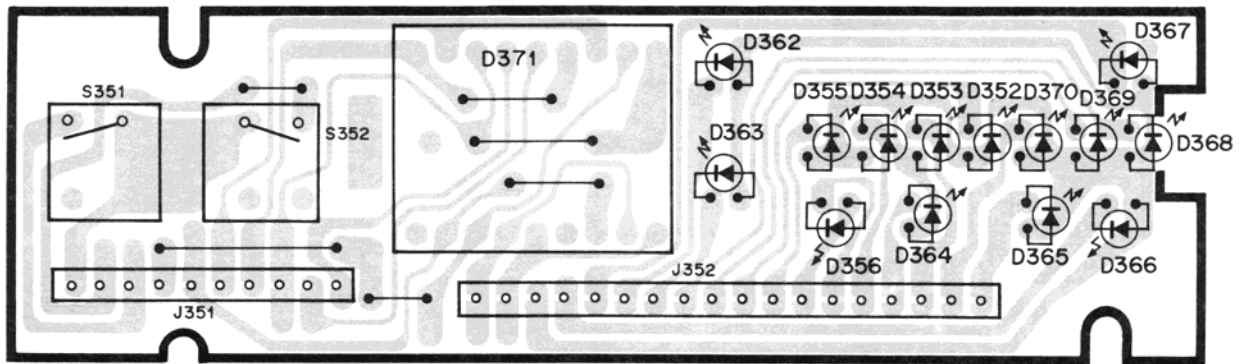
(TOP VIEW)



(BOTTOM VIEW)

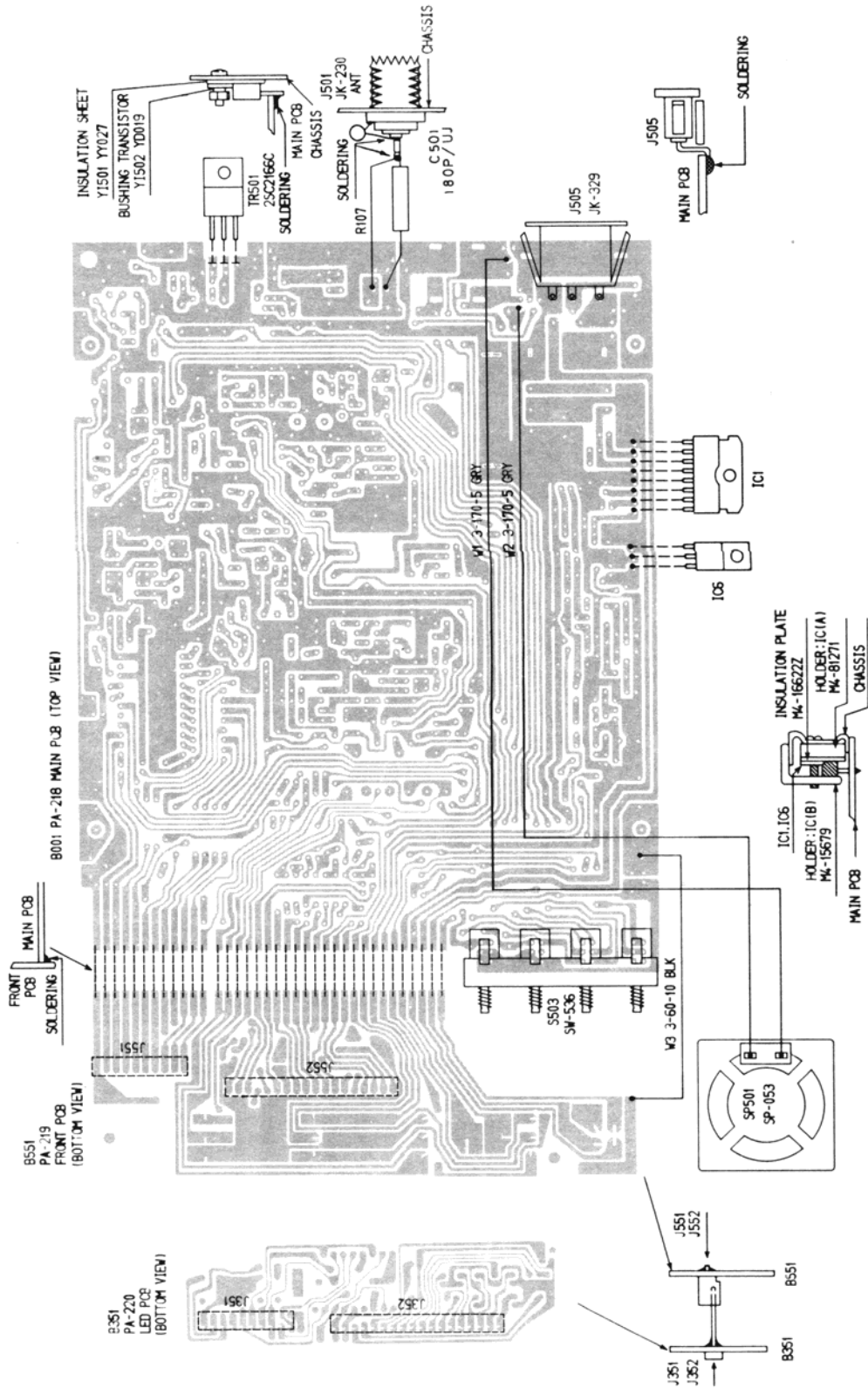


(BOTTOM VIEW)



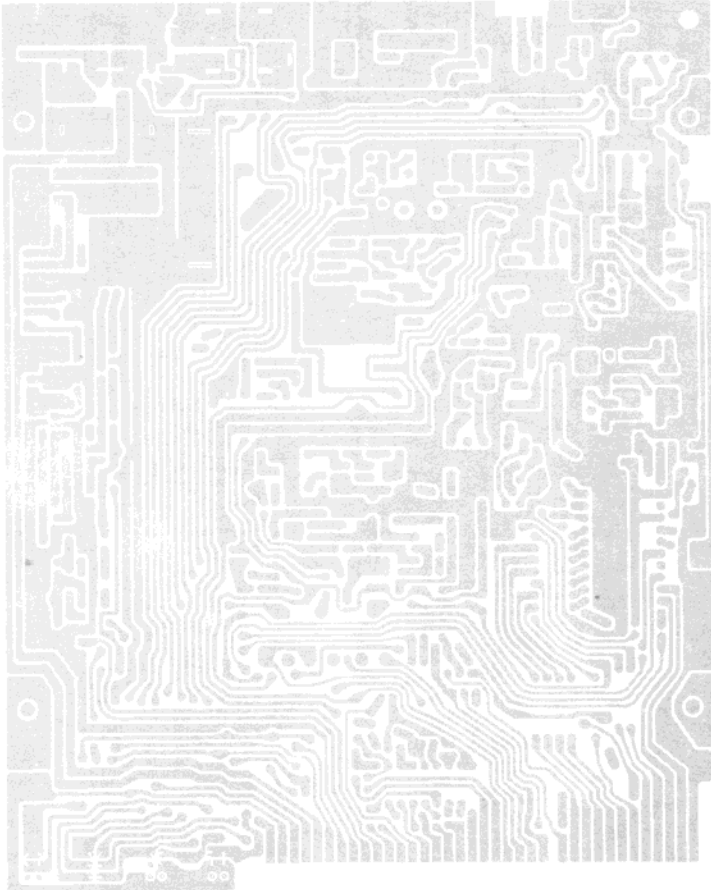
WIRING DIAGRAM

UT309/MIR:51:1

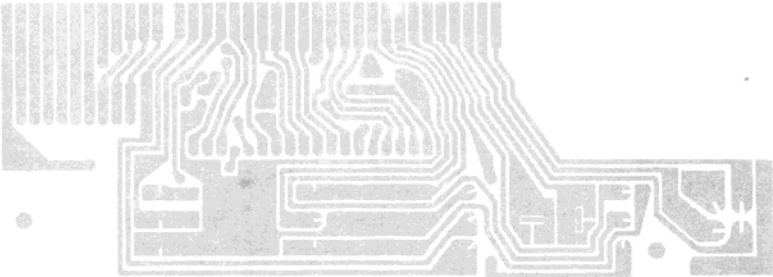


COPPER PATTERN LAYOUT

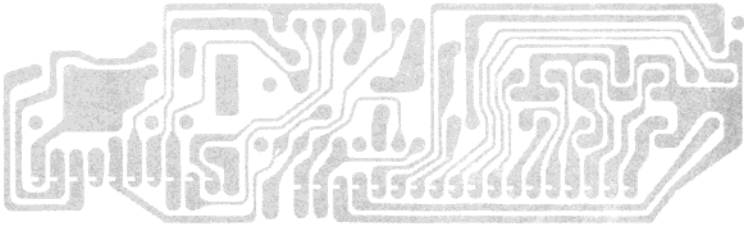
MAIN P.C. BOARD



FRONT P.C. BOARD



LED P.C. BOARD



ELECTRICAL PARTS LIST

REF. NO.	DESCRIPTION	DYNASCAN PART NO.
CAPACITORS		
<p>NOTE: The first code indicates tolerance of capacitance: C=±0.25 pF, D=±0.5 pF, F=±1 pF, G=±2%, J=±5%, K=±10%, M=±20%, Z=+70% -20% The second code indicates variation of capacitance with temperature: YA=±5%, YB=±10%, YD=+20% -30%, YE=+20 -50%, YF=+30 -70% (-25~+85°C) ZF=+30 -80% (-10~+70°C), CH=0±60 ppm/°C, RH=-220 ppm/°C±60 ppm/°C, CJ=0±120 ppm/°C, RJ=-220 ppm/°C±120 ppm/°C, TH=-470 ppm/°C±60 ppm/°C, UJ=-750 ppm/°C±12 ppm/°C, SL=+35 ppm/°C~-1000 ppm/°C</p>		
C-1 C-2 C-3 C-4 C-5 C-6 C-7 C-8 C-9 C-10 C-11 C-12 C-13 C-14 C-15 C-16 C-17 C-18 C-19 C-20 C-21 C-22 C-23 C-24 C-25 C-26 C-27 C-28 C-29 C-30 C-31 C-32 C-33 C-34 C-35 C-36 C-37 C-38 C-39 C-40 C-41 C-42 C-43	Capacitor, Ceramic 10 pF 50V K SL Capacitor, Ceramic 0.01 μF 50V Z YF Capacitor, Ceramic 0.01 μF 50V Z YF Capacitor, Ceramic 220 pF 50V K SL Capacitor, Ceramic 220 pF 50V K SL Capacitor, Ceramic 680 pF 50V K SL Capacitor, Ceramic 0.01 μF 50V Z YF Capacitor, Semi-conductor (SR) 0.01 μF 25V K Capacitor, Ceramic 22 pF 50V K UJ -Not used- Capacitor, Ceramic 0.001 μF 50V K YB (B) Capacitor, Ceramic 0.0047 μF 50V Z YF Capacitor, Electrolytic 2.2 μF 50V Capacitor, Ceramic 0.001 μF 50V K YB (B) Capacitor, Ceramic 47 pF 50V K SL Capacitor, Ceramic 0.01 μF 50V Z YF Capacitor, Ceramic 100 pF 50V K SL Capacitor, Ceramic 0.01 μF 50V Z YF Capacitor, Ceramic 0.01 μF 50V Z YF Capacitor Electrolytic 4.7 μF 50V Capacitor, Ceramic 0.01 μF 50V Z YF Capacitor, Ceramic 0.047 μF 25V K Z ZF Capacitor, Semi-conductor (SR) 0.047 μF 25V K Capacitor, Semi-conductor (SR) 0.047 μF 25V K Capacitor, Semi-conductor (SR) 0.1 μF 25V K Capacitor, Electrolytic 10 μF 25V M C-155 -Not used- Capacitor, Ceramic 220 pF 50V K SL Capacitor, Electrolytic 1 μF 50V Capacitor, Semi-conductor (SR) 0.001 μF 25V K Capacitor, Electrolytic 10 μF 16V Capacitor, Semi-conductor (SR) 0.0022 μF 25V K Capacitor, Ceramic 0.001 μF 50V K YB (B) -Not used- Capacitor, Semi-conductor (SR) 0.0015 μF 25V K Capacitor, Electrolytic 10 μF 16V -Not used- Capacitor Electrolytic 1000 μF 10V M C-095 Capacitor, Electrolytic 1 μF 50V M C-094 -Not used- -Not used- Capacitor, Ceramic 0.01 μF 50V Z YF Capacitor, Ceramic 22 pF 50V K SL	

REF. NO.	DESCRIPTION	DYNASCAN PART NO.
C-44	Capacitor, Semi-conductor (SR) 0.047 μ F 25V K	
C-45	Capacitor, Semi-conductor (SR) 0.01 μ F 25V K	
C-46	Capacitor, Ceramic 22 pF 50V K SL	
C-47	Capacitor, Ceramic 390 pF 50V K SL	
C-48	Capacitor, Ceramic 150 pF 50V K SL	
C-49	Capacitor, Ceramic 47 pF 50V K CH	
C-50	-Not used-	
C-51	Capacitor, Ceramic 470 pF 50V K SL	
C-52	Capacitor, Electrolytic 330 μ F 6.3V M C-095	
C-53	Capacitor, Ceramic 0.001 μ F 50V Z YF	
C-54	Capacitor, Ceramic 68 pF 50V K UJ	
C-55	Capacitor, Semi-conductor (SR) 0.1 μ F 25V K	
C-56	-Not used-	
C-57	Capacitor, Ceramic 0.0022 μ F 50V M YD	
C-58	Capacitor, Ceramic 33 pF 50V K RH	
C-59	Capacitor, Ceramic 220 pF 50V K UJ	
C-60	-Not used-	
C-61	Capacitor, Ceramic 15 pF 50V K SL	
C-62	Capacitor, Ceramic 150 pF 50V K UJ	
C-63	Capacitor, Semi-conductor (SR) 0.01 μ F 25V K	
C-64	-Not used-	
C-65	Capacitor, Semi-conductor (SR) 0.01 μ F 25V K	
C-66	-Not used-	
C-67	Capacitor, Electrolytic 470 μ F 25V	
C-68	Capacitor, Semi-conductor (SR) 0.1 μ F 25V K	
C-69	Capacitor, Electrolytic 47 μ F 10V	
C-70	-Not used-	
C-71	Capacitor, Electrolytic 22 μ F 16V	
C-72	Capacitor, Electrolytic 10 μ F 16V	
C-73	Capacitor, Electrolytic 1000 μ F 25V M C-095	
C-74	Capacitor, Semi-conductor (SR) 0.0022 μ F 25V K	
C-75	Capacitor, Semi-conductor (SR) 0.0047 μ F 25V K	
C-76	Capacitor, Electrolytic 47 μ F 10V	
C-77	Capacitor, Semi-conductor (SR) 0.0047 μ F 25V K	
C-78	Capacitor, Electrolytic 47 μ F 10V	
C-79	Capacitor, Semi-conductor (SR) 0.01 μ F 25V K	
C-80	-Not used-	
C-81	-Not used-	
C-82	Capacitor, Ceramic 270 pF 50V K UJ	
C-83	Capacitor, Ceramic 47 pF 50V K UJ	
C-84	Capacitor, Ceramic 220 pF 50V K UJ	
C-85	Capacitor, Ceramic 0.001 μ F 50V K YB (B)	
C-86	Capacitor, Ceramic 0.01 μ F 50V Z YF	
C-87	Capacitor, Ceramic 270 pF 50V K UJ	
C-88	-Not used-	
C-89	Capacitor, Ceramic 68 pF 50V K UJ	
C-90	Capacitor, Ceramic 0.0047 μ F 50V Z YF	
C-91	Capacitor, Ceramic 0.01 μ F 50V Z YF	
C-92	Capacitor, Ceramic 0.0047 μ F 50V M YD	
C-93	Capacitor, Electrolytic 47 μ F 10V	
C-94	-Not used-	
C-95	Capacitor, Ceramic 0.01 μ F 50V Z YF	
C-96	Capacitor, Ceramic 0.5 pF 50V C SL	
C-97	Capacitor, Ceramic 0.01 μ F 50V Z YF	
C-98	Capacitor, Ceramic 5 pF 50V C SL	
C-99	Capacitor, Ceramic 5 pF 50V C SL	
C-100	Capacitor, Ceramic 0.001 μ F 50V Z YF	
C-101	Capacitor, Ceramic 0.01 μ F 50V Z YF	

REF. NO.	DESCRIPTION	DYNASCAN PART NO.
C-102	Capacitor, Ceramic 100 pF 50V K SL	
C-103	Capacitor, Ceramic 0.001 μ F 50V Z YF	
C-104	Capacitor, Ceramic 1 pF 50V C SL	
C-105	Capacitor, Electrolytic 1 μ F 50V	
C-106	Capacitor, Ceramic 100 pF 50V K SL	
C-107	-Not used-	
C-108	-Not used-	
C-109	-Not used-	
C-110	Capacitor, Ceramic 0.001 μ F 50V Z YF	
C-111	Capacitor, Ceramic 0.001 μ F 50V Z YF	
C-112	Capacitor, Electrolytic 2.2 μ F 50V	
C-113	-Not used-	
C-114	Capacitor, Electrolytic 100 μ F 10V	
C-115	Capacitor, Electrolytic 0.47 μ F 50V	
C-116	Capacitor, Electrolytic 100 μ F 10V	
C-117	Capacitor, Ceramic 220 pF 50V K SL	
C-118	Capacitor, Electrolytic 100 μ F 10V	
C-119	Capacitor, Ceramic 560 pF 50V K SL	
C-120	Capacitor, Electrolytic 22 μ F 16V	
C-121	Capacitor, Semi-conductor (SR) 0.047 μ F 25V K	
C-122	-Not used-	
C-123	Capacitor, Electrolytic 47 μ F 10V	
C-124	Capacitor, Semi-conductor (SR) 0.01 μ F 25V K	
C-125	Capacitor, Ceramic 0.047 μ F 25V Z ZF	
C-126	Capacitor, Electrolytic 10 μ F 16V	
C-127	Capacitor, Electrolytic 10 μ F 16V	
C-128	-Not used-	
C-129	Capacitor, Ceramic 0.001 μ F 50V Z YF	
C-130	-Not used-	
C-131	Capacitor, Ceramic 0.001 μ F 50V Z YF	
C-132	-Not used-	
C-133	-Not used-	
C-134	Capacitor, Ceramic 56 pF 50V K SL	
C-135	Capacitor, Ceramic 0.0047 μ F 50V Z YF	
C-136	-Not used-	
C-137	Capacitor, Ceramic 0.001 μ F 50V Z YF	
C-138	Capacitor, Electrolytic 1 μ F 50V	
C-139	Capacitor, Electrolytic 220 μ F 10V	
C-140	-Not used-	
C-141	Capacitor, Ceramic 0.0047 μ F 50V Z YF	
C-142	-Not used-	
C-143	Capacitor, Ceramic 0.001 μ F 50V Z YF	
C-144	Capacitor, Ceramic 0.001 μ F 50V Z YF	
C-145	Capacitor, Ceramic 0.047 μ F 25V Z ZF	
C-146	Capacitor, Ceramic 0.047 μ F 25V Z ZF	
C-147	Capacitor, Ceramic 0.047 μ F 25V Z ZF	
C-148	Capacitor, Ceramic 0.047 μ F 25V Z ZF	
C-149	Capacitor, Ceramic 0.047 μ F 25V Z ZF	
C-150	Capacitor, Ceramic 0.047 μ F 25V Z ZF	
C-151	Capacitor, Ceramic 0.001 μ F 50V Z YF	
C-152	Capacitor, Ceramic 0.001 μ F 50V Z YF	
C-153	Capacitor, Ceramic 0.001 μ F 50V Z YF	
C-154	Capacitor, Ceramic 0.001 μ F 50V K YB (B)	
C-155	Capacitor, semi-conductor (SR) 0.047 μ F 25VK	
C-156	Capacitor, Ceramic 56 pF 50V K CH	
C-501	Capacitor, Ceramic 180 pF 50V K UJ	
C-552	Capacitor, Ceramic 0.0047 μ F 50V Z YF	
C-553	Capacitor, Ceramic 0.0047 μ F 50V Z YF	

REF. NO.	DESCRIPTION	DYNASCAN PART NO.
C-554	Capacitor, Ceramic 0.0047 μ F 50V Z YF	
DIODES		
D-1	Diode 1N60 AM	150-014-9-001
D-2	Diode	
D-3	Diode 1S1555	
D-4		- Not used -
D-5	Diode 1N60 AM	150-014-9-001
D-6		- Not used -
D-7	Diode 1S1555	151-028-9-007
D-8	Diode 1S2076A	151-101-9-001
D-9	Diode 1N60 AM	150-014-9-001
D-10	Diode 1S1555	151-028-9-007
D-11	Diode 1S1555	151-028-9-007
D-12	Diode 1S1555	151-028-9-007
D-13		- Not used -
D-14	Diode, Zener HZ6A-3	152-156-9-001
D-15	Diode 1S1555	151-028-9-007
D-16	Diode 1S1555	151-028-9-007
D-17	Diode, Zener HZ6A-3	152-156-9-001
D-18	Diode 1SV73-EB	151-137-9-001
D-19	Diode 1N4003	151-083-9-001
D-20	Diode 1S1555	151-028-9-007
D-21	Diode 1S1555	151-028-9-007
D-22	Diode 1S1555	151-028-9-007
D-23	Diode 1S1555	151-028-9-007
D-24	Diode 1S1555	
D-25	Diode 1S1555	
D-26	Diode 1S1555	
D-27	Diode 1S1555	
D-28		- Not used -
D-29		- Not used -
D-30		- Not used -
D-31	Diode 1S1555	151-028-9-007
D-32	Diode 1S1555	151-028-9-007
D-33		- Not used -
D-34		- Not used -
D-35	Diode 1N4003	151-083-9-001
D-36		- Not used -
D-37		- Not used -
D-38		- Not used -
D-39		- Not used -
D-40	Diode 1S1555	151-028-9-007
D-41	Diode 1S1555	151-028-9-007
D-42	Diode 1S1555	
D-43	Diode 1S1555	
D-44	Diode 1S1555	
D-45	Diode 1S1555	
D-352	Diode LED RT-242 YS	158-070-9-004
D-353	Diode LED RT-242 YS	158-070-9-004
D-354	Diode LED RT-242 PRS	158-070-9-003
D-355	Diode LED RT-242 PRS	158-070-9-003
D-356	Diode LED RT-242 PRS	158-070-9-003
D-362	Diode LED RT-242 PRS	158-070-9-003
D-363	Diode LED RT-242 SGS	158-070-9-002
D-364	Diode LED RT-242 SGS	158-070-9-002

REF. NO.	DESCRIPTION	DYNASCAN PART NO.
D-365	Diode LED RT-242 SGS	158-070-9-002
D-366	Diode LED RT-242 SGS	158-070-9-002
D-367	Diode LED RT-242 SGS	158-070-9-002
D-368	Diode LED RT-242 SGS	158-070-9-002
D-369	Diode LED RT-242 SGS	158-070-9-002
D-370	Diode LED RT-242 SGS	158-070-9-002
D-371	Diode LED LL-2253 YG	158-070-9-001
INTEGRATED CIRCUITS		
IC-1	Integrated Circuit UPC1242H	307-415-9-001
IC-2	Integrated Circuit SM5123A	307-415-9-004
IC-3	Integrated Circuit LB1710	307-415-9-003
IC-4	Integrated Circuit TA7310P-U	307-328-9-001
IC-5	Integrated Circuit LB1417	307-415-9-005
IC-6	Integrated Circuit HA17808W	307-415-9-002
JACKS		
J-3	Jack JK-089, HSJ0615	773-086-9-001
J-4	Jack JK-089, HSJ0615	773-086-9-001
J-351	Jack JK-328, 5551-10	777-050-9-007
J-352	Jack JK-328, 5551-18	777-051-9-002
J-501	Jack, ANT JK-230, M-BR-23D	777-050-9-004
J-502	Jack JK-325, 4S-L-D107	777-050-9-005
J-503	- Not used-	
J-504	- Not used-	
J-505	Jack JK-329	777-050-9-009
J-551	Jack JK-221, 10P	777-050-9-002
J-552	Jack JK-221, 18P	777-051-9-001
COILS		
L-1	Coil LA-181, TKAC-19073N	060-024-9-002
L-2	Coil LA-029, TKXN-22160BU	060-023-9-001
L-3	Coil LA-260, TKXN-25114N	060-030-9-014
L-4	Coil LA-120, TKAC-24073F	046-037-9-001
L-5	Coil LA-277, TKAC-25365N	046-025-9-004
L-6	Coil LA-163, ROC-42066N	060-022-9-001
L-7	Coil LA-204, RMC-41997N	046-024-9-003
L-8	Coil LA-165, VTKXNA-XT231ZO-TW	044-046-9-001
L-9	Coil LA-166, TKXC-18501N	066-025-9-005
L-10	Coil LE-096, 8 1/2T	047-044-9-001
L-11	Coil LE-096, 8 1/2T	047-044-9-001
L-12	Coil LC-074	044-040-9-002
L-13	Coil LD-168	041-083-9-003
L-14	Coil LE-151, C-7931 D4.06 1/2T	041-128-9-001
L-15	Coil LA-208, TKXC-24341AC	060-029-9-004
L-16	Coil LA-088, TKXC-24124N	066-019-9-002
L-17	Coil LA-260, TKXC-25114N	060-030-9-014
L-18	Coil LA-373, TKXC-28319Y	047-004-9-002
L-19	Coil LD-087, BFO4-3*5*1	047-045-9-001

REF. NO.	DESCRIPTION	DYNASCAN PART NO.
FIXED RESISTORS		
NOTE: Resistor tolerance: J =±5% K =±10%		
R-1 R-2 R-3 R-4 R-5 R-6 R-7 R-8 R-9 R-10 R-11 R-12 R-13 R-14 R-15 R-16 R-17 R-18 R-19 R-20 R-21 R-22 R-23 R-24 R-25 R-26 R-27 R-28 R-29 R-30 R-31 R-32 R-33 R-34 R-35 R-36 R-37 R-38 R-39 R-40 R-41 R-42 R-43 R-44 R-45 R-46 R-47 R-48 R-54 R-55 R-56 R-57	Resistor, Carbon Formed Vert 1M 1/8W J Resistor, Carbon Formed Vert 2.2K 1/8W J Resistor, Carbon Axial Lead 10K 1/8W J Resistor, Carbon Formed Vert 2.2M 1/8W J Resistor, Carbon Formed Vert 10K 1/8W J Resistor, Carbon Formed Vert 1K 1/8W J Resistor, Carbon Formed Vert 47K 1/8W J Resistor, Carbon Formed Vert 100K 1/8WJ Resistor, Carbon Axial Lead 47K 1/6W J -Not used- Resistor, Carbon Formed Vert 1K 1/8W J Resistor, Carbon Formed Vert 3.3K 1/8W J Resistor, Carbon Formed Vert 18K 1/8W J Resistor, Carbon Formed Vert 100 1/8W J Resistor, Carbon Formed Vert 6.8K 1/8W J Resistor, Carbon Axial Lead 3.3K 1/8W J Resistor, Carbon Formed Vert 100 1/8W J Resistor, Carbon Formed Vert 470 1/8W J Resistor, Carbon Formed Vert 470 1/8W J -Not used- Resistor, Carbon Formed Vert 680 1/8W J Resistor, Carbon Axial Lead 10K 1/8W J Resistor, Carbon Axial Lead 2.2K 1/8W J Resistor, Carbon Axial Lead 1K 1/8W J Resistor, Carbon Formed Vert 150K 1/8W J Resistor, Carbon Formed Vert 100 1/8W J Resistor, Carbon Formed Vert 2.2K 1/8W J Resistor, Carbon Formed Vert 1K 1/8W J Resistor, Carbon Formed Vert 47K 1/8W J Resistor, Carbon Formed Vert 0.5K 1/8W J Resistor, Carbon Axial Lead 2.2K 1/8W J Resistor, Carbon Formed Vert 100 1/8W J Resistor, Carbon Axial Lead 47 1/8W J Resistor, Carbon Formed Vert 68K 1/8W J Resistor, Carbon Formed Vert 68K 1/8W J Resistor, Carbon Formed Vert 56K 1/8W J Resistor, Carbon Formed Vert 3.3K 1/8W J Resistor, Carbon Axial Lead 39K 1/8W J Resistor, Carbon Formed Vert 560K 1/8W J -Not used- Resistor, Carbon Formed Vert 82K 1/8W J Resistor, Carbon Formed Vert 68K 1/8W J Resistor, Carbon Formed Vert 2.2M 1/8W J Resistor, Carbon Formed Vert 1K 1/8W J Resistor, Carbon Formed Vert 1K 1/8W J Resistor, Carbon Formed Vert 22K 1/8W J -Not used- Resistor, Carbon Axial Lead 10K 1/8W J Resistor, Carbon Formed Vert 1.5K 1/8W J Resistor, Carbon Formed Vert 820K 1/8W J Resistor, Carbon Formed Vert 56 1/8W J Resistor, Carbon Axial Lead 270 1/8W J	

REF. NO.	DESCRIPTION	DYNASCAN PART NO.
R-58	Resistor, Carbon Axial Lead 1.5K 1/8W J	
R-59	Resistor, Carbon Formed Vert 220K 1/8W J	
R-60	Resistor, Carbon Axial Lead 3.3K 1/8W J	
R-61	Resistor, Carbon Formed Vert 3.3K 1/8W J	
R-62	Resistor, Carbon Formed Vert 1.5K 1/8W J	
R-63	-Not used-	
R-64	Resistor, Carbon Formed Vert 10K 1/8W J	
R-65	Resistor, Carbon Formed Vert 3.3K 1/8W J	
R-66	Resistor, Carbon Formed Vert 100 1/8W J	
R-67	Resistor, Carbon Formed Vert 10K 1/8W J	
R-68	Resistor, Carbon Formed Vert 1.5K 1/8W J	
R-69	Resistor, Carbon Formed Vert 82 1/8W J	
R-70	Resistor, Carbon Axial Lead 10K 1/8W J	
R-71	Resistor, Carbon Formed Vert 330 1/8W J	
R-72	Resistor, Carbon Formed Vert 82K 1/8W J	
R-73	Resistor, Carbon Formed Vert 2.7K 1/8W J	
R-74	Resistor, Carbon Axial Lead 22K 1/8W J	
R-75	Resistor, Carbon Axial Lead 330 1/8W J	
R-76	Resistor, Carbon Formed Vert 39K 1/8W J	
R-77	Resistor, Carbon Formed Vert 4.7K 1/8W J	
R-78	Resistor, Carbon Axial Lead 390K 1/8W J	
R-79	Resistor, Carbon Formed Vert 1.5K 1/8W J	
R-80	Resistor, Carbon Formed Vert 3.3K 1/8W J	
R-81	Resistor, Carbon Formed Vert 1 5 1/8W J	
R-82	Resistor, Carbon Formed Vert 22K 1/8W J	
R-83	Resistor, Carbon Formed Vert 56K 1/8W J	
R-84	Resistor, Carbon Formed Vert 10K 1/8W J	
R-85	Resistor, Carbon Formed Vert 3.3K 1/8W J	
R-86	Resistor, Carbon Formed Vert 2.7K 1/8W J	
R-87	Resistor, Carbon Formed Vert 3.3K 1/8W J	
R-88	Resistor, Carbon Formed Vert 1M 1/8W J	
R-89	Resistor, Carbon Formed Vert 470 1/8W J	
R-90	Resistor, Carbon Formed Vert 100K 1/8W J	
R-91	Resistor, Carbon Formed Vert 10K 1/8W J	
R-92	-Not used-	
R-93	Resistor, Carbon Axial Lead 56K 1/6W J	
R-94	Resistor, Carbon Formed Vert 330 1/8W J	
R-95	Resistor, Carbon Formed Vert 1K 1/8W J	
R-96	Resistor, Carbon Formed Vert 3.3K 1/8W J	
R-97	Resistor, Carbon Axial Lead 100 1/8W J	
R-98	Resistor, Carbon Axial Lead 100 1/8W J	
R-99	Resistor, Carbon Axial Lead 100 1/8W J	
R-100	-Not used-	
R-101	Resistor, Carbon Axial Lead 100 1/8W J	
R-102	Resistor, Carbon Axial Lead 100 1/8W J	
R-103	Resistor, Carbon Axial Lead 100 1/8W J	
R-104	Resistor, Carbon Axial Lead 100 1/8W J	
R-105	Resistor, Carbon Formed Vert 22K 1/8W J	
R-106	-Not used-	
R-107	Resistor, Carbon Axial Lead 2.2K 1/2W J	
R-108	Resistor, Carbon Formed Vert 560 1/8W J	
R-115	Resistor, Carbon Formed Vert 1 1/8W J	
R-116	Resistor, Carbon Axial Lead 10 1/8W J	
R-117	Resistor, Carbon Formed Vert 27 1/8W J	
R-118	Resistor, Carbon Formed Vert 10 1/8W J	
R-119	Resistor, Carbon Formed Vert 330 1/8W J	
R-120	Resistor, Carbon Axial Lead 10 1/8W J	
R-121	Resistor, Carbon Formed Vert 1.5K 1/8W J	

REF. NO.	DESCRIPTION	DYNASCAN PART NO.
R-122	Resistor, Carbon Formed Vert 220 1/8W J	
R-123	Resistor, Carbon Formed Vert 100 1/8W J	
R-124	Resistor, Carbon Formed Vert 560 1/8W J	
R-125	Resistor, Carbon Formed Vert 10K 1/8W J	
R-126	Resistor, Carbon Formed Vert 1.5K 1/8W J	
R-127	Resistor, Carbon Formed Vert 3.3K 1/8W J	
R-128	Resistor, Carbon Formed Vert 100K 1/8WJ	
R-129	Resistor, Carbon Formed Vert 2.2K 1/8W J	
R-130	-Not used-	
R-131	Resistor, Carbon Formed Vert 47K 1/8W J	
R-132	Resistor, Carbon Formed Vert 2.2K 1/8W J	
R-133	Resistor, Carbon Formed Vert 1.5K 1/8W J	
R-134	Resistor, Carbon Formed Vert 10K 1/8W J	
R-135	Resistor, Carbon Formed Vert 2.7K 1/8W J	
R-136	-Not used-	
R-137	Resistor, Carbon Formed Vert 39K 1/8W J	
R-138	-Not used-	
R-139	Resistor, Carbon Formed Vert 2.2K 1/8W J	
R-140	-Not used-	
R-141	Resistor, Carbon Formed Vert 100K 1/8WJ	
R-142	Resistor, Carbon Formed Vert 10K 1/8W J	
R-143	Resistor, Carbon Formed Vert 820 1/8W J	
R-144	Resistor, Carbon Formed Vert 220 1/8W J	
R-145	Resistor, Carbon Formed Vert 220 1/8W J	
R-146	Resistor, Carbon Formed Vert 220 1/8W J	
R-147	Resistor, Carbon Formed Vert 220 1/8W J	
R-148	Resistor, Carbon Formed Vert 220 1/8W J	
R-149	-Not used-	
R-150	-Not used-	
R-151	Resistor, Carbon Formed Vert 470 1/8W J	
R-152	Resistor, Carbon Formed Vert 8.2K 1/8W J	
R-153	-Not used-	
R-154	Resistor, Carbon Formed Vert 6.8K 1/8W J	
R-155	-Not used-	
R-156	-Not used-	
R-157	Resistor, Carbon Formed Vert 1.5K 1/8W J	
R-158	Resistor, Carbon Formed Vert 33K 1/8W J	
R-159	-Not used-	
R-160	-Not used-	
R-161	Resistor, Carbon Axial Lead 1.5K 1/8W J	
R-162	-Not used-	
R-163	-Not used-	
R-164	Resistor, Carbon Axial Lead 10K 1/8W J	
R-169	Resistor, Carbon Formed Vert 100 1/8W J	
R-170	-Not used-	
R-171	Resistor, Metal Oxide, 2.7 2W J	011-102-5-279
R-172	Resistor, Metal Oxide, 15 2W J	011-002-5-150
R-173	Resistor, Carbon Formed Vert 47 1/8W J	
R-174	Resistor, Carbon Formed Vert 68 1/8W J	
R-175	Resistor, Carbon Axial Lead 10K 1/8W J	
R-176	Resistor, Carbon Formed Vert 3.3K 1/8W J	
R-551	Resistor, Carbon Axial Lead 330 1/6W J	
R-552	Resistor, Carbon Axial Lead 330 1/6W J	
R-553	-Not used-	
R-554	Resistor, Carbon Formed Vert 220 1/6W J	
R-555	Resistor, Carbon Axial Lead 220 1/6W J	
R-556	Resistor, Carbon Axial Lead 220 1/6W J	
R-557	Resistor, Carbon Formed Vert 220 1/6W J	

REF. NO.	DESCRIPTION	DYNASCAN PART NO.
R-558	Resistor, Carbon Formed Vert 220 1/6W J	
R-559	Resistor, Carbon Formed Vert 3.3K 1/6W J	
R-560	Resistor, Carbon Formed Vert 10K 1/6W J	
R-561	Resistor, Carbon Formed Vert 12K 1/6W J	
R-562	Resistor, Carbon Axial Lead 680 1/6W J	
TRANSISTORS		
TR-1	Transistor DB-259 2SC1675-L	176-065-9-001
TR-2	Transistor DB-259 2SC1675-L	176-065-9-001
TR-3	Transistor DB-224 2SC945A-Q	176-062-9-001
TR-4	Transistor DB-003 2SA733-P	177-020-9-001
TR-5	Transistor DB-224 2SC945A-Q	176-062-9-001
TR-6	Transistor DB-259 2SC1675-L	176-065-9-001
TR-7	Transistor DB-259 2SC1675-L	176-065-9-001
TR-8	Transistor DB-295 2SC1674-L	176-081-9-002
TR-9	Field Effect Transistor DC-019 2SK192A-BL	182-076-9-001
TR-10	Transistor DB-259 2SC1675-L	176-065-9-001
TR-11	Transistor DB-259 2SC1675-L	176-065-9-001
TR-12	Transistor DB-301 2SC941TM-O	176-089-9-004
TR-13	Transistor DB-224 2SC945A-Q	176-062-9-001
TR-14	Transistor DB-224 2SC945A-Q	176-062-9-001
TR-15	Transistor DB-224 2SC945A-Q	176-062-9-001
TR-16	- Not used -	
TR-17	Transistor DB-224 2SC945A-Q	176-062-9-001
TR-18	Transistor DB-106 2SB525-C	177-045-9-001
TR-19	Transistor DB-003 2SA733-P	177-020-9-001
TR-20	Transistor DB-106 2SB525-C	177-045-9-001
TR-21	Transistor DB-383 2SC3242A-E	176-191-9-001
TR-22	Transistor DB-224 2SC945A-Q	176-062-9-001
TR-23	Transistor DB-259 2SC1675-L	176-065-9-001
TR-24	Transistor DB-259 2SC1675-L	176-065-9-001
TR-25	Transistor DB-259 2SC1675-L	176-065-9-001
TR-26	Transistor DB-224 2SC945A-Q	176-062-9-001
TR-27	Transistor DB-224 2SC945A-Q	176-062-9-001
TR-28	Transistor DB-228 2SC2086-D	176-108-9-002
TR-29	Transistor DB-301 2SC941TM-O	176-089-9-004
TR-30	Transistor DB-224 2SC945A-Q	176-062-9-001
TR-31	Transistor DB-003 2SA733-P	177-020-9-001
TR-32	Transistor DB-224 2SC945A-Q	176-062-9-001
TR-33	Transistor DB-224 2SC945A-Q	176-062-9-001
TR-34	Transistor DB-003 2SA733-P	177-020-9-001
TR-39	Transistor DB-383 2SC3242A-E	176-191-9-001
TR-40	Transistor DB-224 2SC945A-Q	176-062-9-001
TR-501	Transistor DB-331 2SC2166-C	176-108-9-001
TR-551	Transistor DB-224 2SC945A-Q	176-062-9-001
VARIABLE RESISTORS		
VR-1	Resistor, Semi-fixed RT-182 TT 24R 50KB	008-455-9-001
VR-2	Resistor, Semi-fixed RT-182 TT 24R 100KB	008-465-9-003
VR-3	Resistor, Semi-fixed RT-182 TT 24R 200KB	008-465-9-005
VR-501	Resistor, Variable RV-616 RK161121 50KA W/SW	008-843-9-006
VR-502	Resistor, Variable RV-615 RK1631120A3LA 50KB	008-843-9-005
VR-503	Resistor, Variable RV-614 RK1631120A3MA 1KA	008-843-9-004
VR-504	Resistor, Variable RV-613 RK1631120A3NA	008-843-9-003

REF. NO.	DESCRIPTION	DYNASCAN PART NO.
TRANSFORMER		
T-1 T-2	Transformer, Output TF-177 Transformer, AF Choke TF-083	061-050-9-001 042-021-9-001
CRYSTALS		
X-1	Crystal QX-074, 10.240	132-027-9-001
MISCELLANEOUS		
FT-1 FT-2 MC-951 SP-501 S-351 S-352 S-503 WA-951	Filter Crystal FL-055 10M-7A1 Filter Ceramic FL-009 CFU-455H2 Microphone MK-341 Speaker SP-053 Switch, Tact SW-539 M-6050 Switch, Tact SW-539 M-6050 Switch, Push SW-536 PV1304-002 DC Cord (3-Core) WZ-383 1515W/P	143-011-9-001 140-009-9-001 561-008-9-001 580-073-9-001 084-155-9-011 084-155-9-011 088-148-9-001 426-107-9-001

VOLTAGE CHART

Measurement Conditions:

Power supply voltage:	13.8 V
ANT output impedance:	50 Ω
Test Temperature	25°C
SSG Modulation:	1 kHz, 30%
SSG Output level:	0 dB = 0.5 μ V
Standard audio Output	0.5W
Standard output frequency	1 kHz
Audio load:	8 Ω
Measurement channel:	19 CH (27.185 MHz)

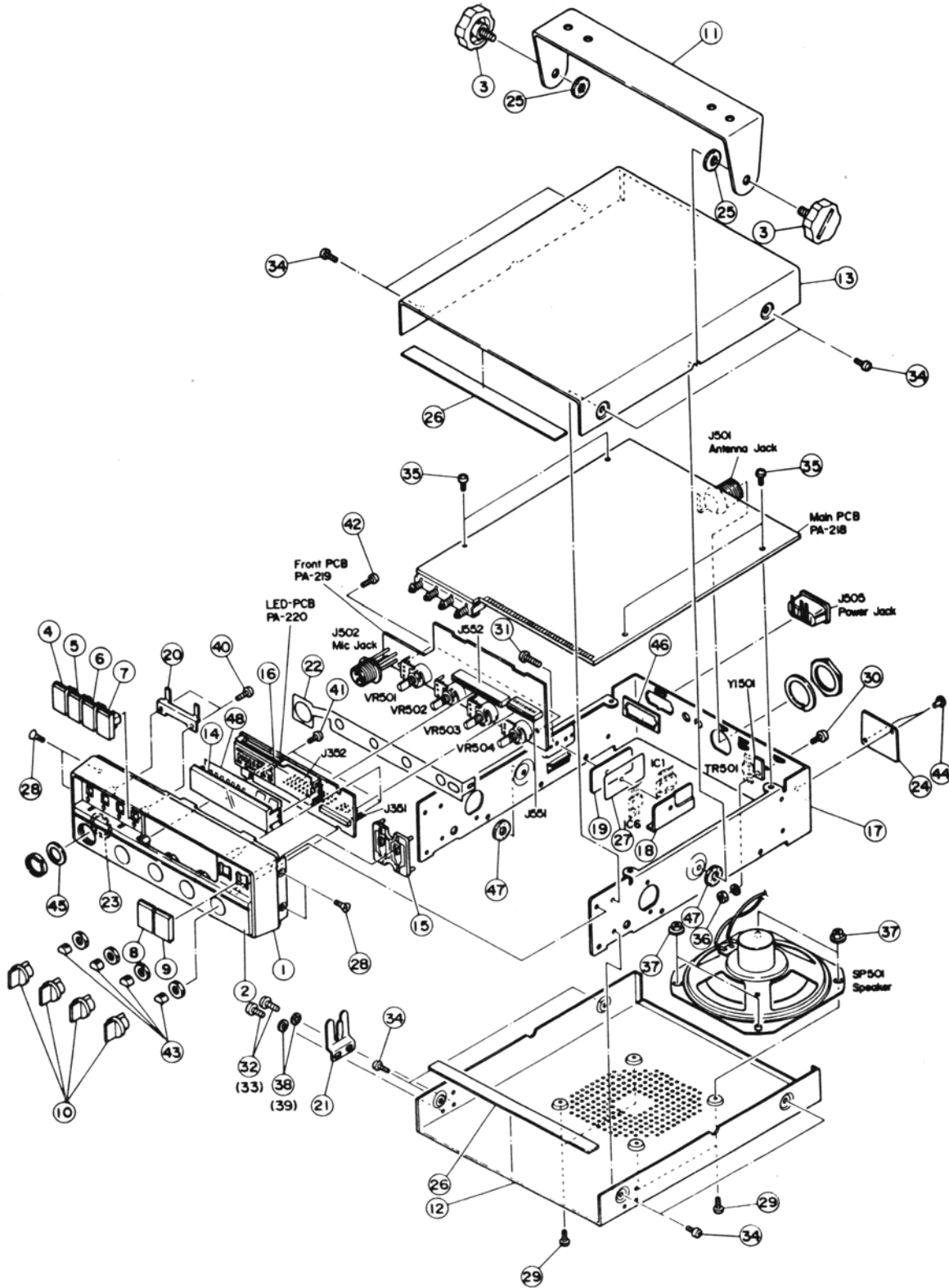
Unless otherwise specified, set controls as follows:

N B:	OFF
P A:	OFF
D I M:	OFF
C H 9:	OFF
VOLUME:	MAX
SQUELCH:	MIN
DYNAMIKE:	MAX
RF GAIN:	MAX

MECHANICAL PARTS LIST

REF. NO.	DESCRIPTION	DYNASCAN PART NO.
MISCELLANEOUS (Continued)		
1	Panel, Front ABS, Black	380-539-9-001
2	Control Plate ABS, CR	380-539-9-002
3	Screw, Mounting ABS INST CLR, Black	634-204-9-001
4	Button, Push	384-075-9-003
5	Button, Push	384-075-9-004
6	Button, Push	384-075-9-006
7	Button, Push	384-075-9-007
8	Button, Push	384-075-9-008
9	Button, Push	384-076-9-001
10	Knob ABS CR	751-313-9-001
11	Mounting Bracket SPCC, 1.6T, Black	250-197-9-001
12	Cover, Bottom VINYTOP, SB-KO8 1.0T, Black	252-055-9-001
13	Cover, Top VINYTOP, SB-KO8 1.0T, Black	253-135-9-001
14	Window AS, Gray Smoke	
15	Support ABS, Black	
16	LED Housing ABS, Vanilla White	
17	Chassis SPCC, 1.0T, ZMC	
18	Holder, IC (B)	SECC, 1T Non Oil
19	Holder, IC (A)	ALP, 2T Non Oil
20	Holder, Switch	SECC, 1.0T
21	Hanger, Microphone SPCC, 1.0T, NI	
22	Shield Plate	ALP, 0.1T
23	Shield Plate	ALP, 0.1T
24	ID Plate, FCC	ALP, 0.5T
25	Washer, Rubber, Neoprene, Black, 7-15-2.0T	
26	Wool-coated Paper, Wool Tack, Wool paper, 10-150-0.3T	
27	Insulation Plate MYLAR 0.1T	
28	Screw, Flat HD +	M3×5 NI
29	Screw, Bind HD +	M3×8 BNI
30	Screw, Bind HD +	M3×8 NI
31	Screw, Bind HD +	M3×12 NI
32	Screw, Tapping Round HD +	D3.5×8 NI
33	Screw, Tapping Round HD +	D5×10 NI
34	Screw, Taptight Bind HD +	M3×6 BNI
35	Screw, Taptight Bind HD +	M3×6 NI
36	Hex Nut	M3.0 NI
37	Flange Nut	M3 NI
38	Washer, Lock	D3.5 NI
39	Washer, Star	D5 NI
40	Screw, P Tight Bind HD +	D3×8 NI
41	Screw, P Tight Bind HD +	D3×8 NI
42	Screw, P Tight Bind HD +	D3×8 NI
43	Spring Plate Knob	D6
44	Rivet, AL, ID Plate	D3.2×3.2
45	Washer SPT 0.35T	
46	Spacer, Connector PVC 0.5T	
47	Spacer Wool Tack 0.3T, Black	
48	Display Plate MYLAR 0.35T	

EXPLODED VIEW



TRANSISTOR VOLTAGE CHART

No.	NAME	B	C	E
1	2SC1675L	0 (0.12)	0 (6.8)	0 (0)
		0 (1.2)	0 (6.8)	0 (0)
2	2SC1675L	0 (6.8)	0 (8.2)	0 (6)
		0 (6.8)	0 (8.2)	0 (6)
3	2SC945AQ	0 (0)	0 (4.6)	0 (0)
		0 (0)	0 (4.6)	0 (0)
4	2SA733P	0 (8.2)	0 (0)	0 (8)
		0 (8.2)	0 (0)	0 (8)
5	2SC945AQ	0 (0)	0 (0)	0 (0)
		0 (0)	0 (0)	0 (0)
6	2SC1675L	0	0	0
		0	0	0.23
7	2SC1675L	0.12	0	0
		0	0	0
8	2SC1674L	1.1	7.4	0.2
		0.1	1.2	0
9	2SK192ABL	0	2.8	8
		0	2.8	8
10	2SC1675L	1	7.5	0.4
		0.06	1.2	0
11	2SC1675L	0.7	2.5	0
		0.1	0.95	0
12	2SC941TM(0)	2.5	1.3	1.8
		1	1	0.4
13	2SC945AQ	0 (0.6)	0.7 (0)	0 (0)
		0 (0.6)	0.36 (0.45)	0 (0)
14	2SC945AQ	0 (0.6)	0 (0)	0 (0)
		0.05 (0.7)	0 (0)	0 (0)
15	2SC945AQ	0.7 (0)	0.06 (4.6)	0 (0)
		0.65 (0.38)	0 (5.4)	0 (0)
17	2SC945AQ	0	7.5	0.125
		0	1.2	0
18	2SB525C	4 (3.2)	2 (1.7)	4.5 (3.5)
		4 (3.2)	2 (1.7)	4.5 (3.5)
19	2SA733P	4.5 (4.3)	4 (3)	4.5 (3.4)
		4.5 (4.3)	4 (3)	4.5 (3.4)
20	2SB525C	4.5 (4.3)	2 (1.7)	4.5 (3.4)
		4.5 (4.3)	2 (1.7)	4.5 (3.4)
21	2SC3242AE	5 (4.1)	8 (8.4)	4.5 (3.2)
		5 (4.1)	8 (8.4)	4.5 (3.2)
22	2SC945AQ	0.7	0	0
		0.7	0	0

No.	NAME	B	C	E
23	2SC1675L	5	7.5	5
		5	7.5	5
24	2SC1675L	6.5	7.7	6.5
		6.5	7.7	6.5
25	2SC1675L	0.16	6.4	0
		0.3	6	0
26	2SC945AQ	0.175	0	0
		0.65	0	0
27	2SC945AQ	0.1	3.8	0.26
		0	0.8	0
28	2SC2086D	0	13	0
		0	12	0
29	2SC941TM(0)	0.6 (0.66)	13.5 (0.2)	7.5 (7.5)
		3 (1.3)	12 (0.7)	2.5 (0.7)
30	2SC945AQ	8	8	7.4
		1.1	8.4	1.1
31	2SC945AQ	2	4.6	1.6
		2	4.6	1.6
32	2SC945AQ	2	4.6	1.6
		2	4.6	1.6
33	2SC945AQ	0.7	0	0
		0.1	0	0
34	2SA733P	4	0.7	3.5
		4	0.15	3.5
39	2SC3242AE	7.5 (3.8)	8 (8.4)	6.8 (3.7)
		6.8 (4.3)	8 (8.4)	6 (3.1)
40	2SC945AQ	1.4 (3.5)	7.4 (6.5)	7 (4)
		1.6 (2)	1 (1.2)	1 (1.3)
501	2SC2166C	0	13	0
		0	12	0
551	2SC945AQ	0.7	0.5	0
		0.5	4.2	0

IC VOLTAGE CHART

Pin No.	IC 2 PC1242H	IC 2 SM5123A	IC 3 LB1710	IC 4 TA7310PU	IC 5 LB1417	IC 6 HA17808W
1	0	3	2.9	2.3	8	13.5
	0	2.9	2.9	2.3	8	13.5
2	2	0.13	2.9	2.1	2.8	0
	2	0.13	2.9	2	2.8	0
3	1.2	0.13	0.13	1.2	2.8	8.2
	1.2	0.13	0.13	1.2	2.8	8.2
4	0	2.9	0.13	1.9	0	
	0	2.9	0.13	2.4	0.2	
5	0	0.13	2.9	0	0	
	0	0.13	2.9	0	0.55	
6	7	0.13	0.13	1.3	0.1	
	6.6	0.13	0.13	8	3.2	
7	12.5	2.9	0.13	1.9	0	
	12	2.9	0.13	2	0	
8	13	2.9	0	4.2	5	
	12	2.9	0	4.5	0.36	
9		0	5.6	1.3	5	
		0	5.6	6.5	0.78	
10		3	0.7		5	
		3	0.7		1.1	
11		3	0.7		5	
		2.9	0.7		0.68	
12		0	1.8		5	
		0	1.8		0.68	
13		1	0.7		5	
		1	0.7		0.45	
14		5.5	0.7		5	
		5.5	0.7		0.25	
15		0	1.8			
		0	1.8			
16		5.5	1.8			
		5.5	1.8			
17		2.3				
		3.8				
18		5.5				
		5.5				
19		4.5				
		0.7				
20		4.5				
		4.5				
21		4.5				
		4.5				

Pin No.	IC 2 PC1242H	IC 2 SM5123A	IC 3 LB1710	IC 4 TA7310PU	IC 5 LB1417	IC 6 HA17808W
22		4.5				
		4.5				
23		4.5				
		4.5				
24		0				
		0				

SEMI-CONDUCTOR LEAD IDENTIFICATION

Diodes A: ANODE
C: CATHODE

IN60AM
IN60P
IS2076A
IN4003
IS1555
ISV73-EB
HZ6A3

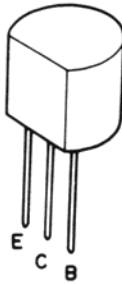


RT-242 PRS
RT-242 YS

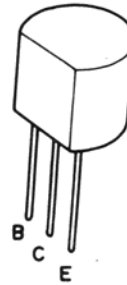


Transistors B: BASE
C: COLLECTOR
E: EMITTER

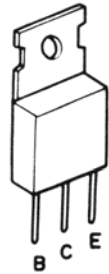
2SA733A-P
2SC941TM-O
2SC945A-Q
2SC1674-L
2SC1675-L
2SC3242A-E



2SB525-C
2SC2086-D



2SC2166-C

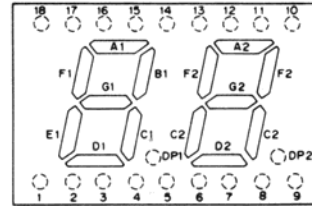


FET D: DRAIN
S: SOURCE
G: GATE

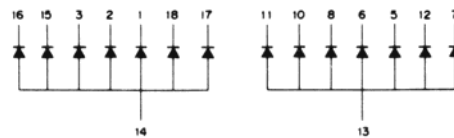
2SK192A-BL



LL-2253YG



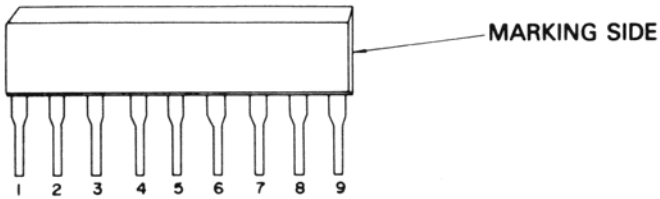
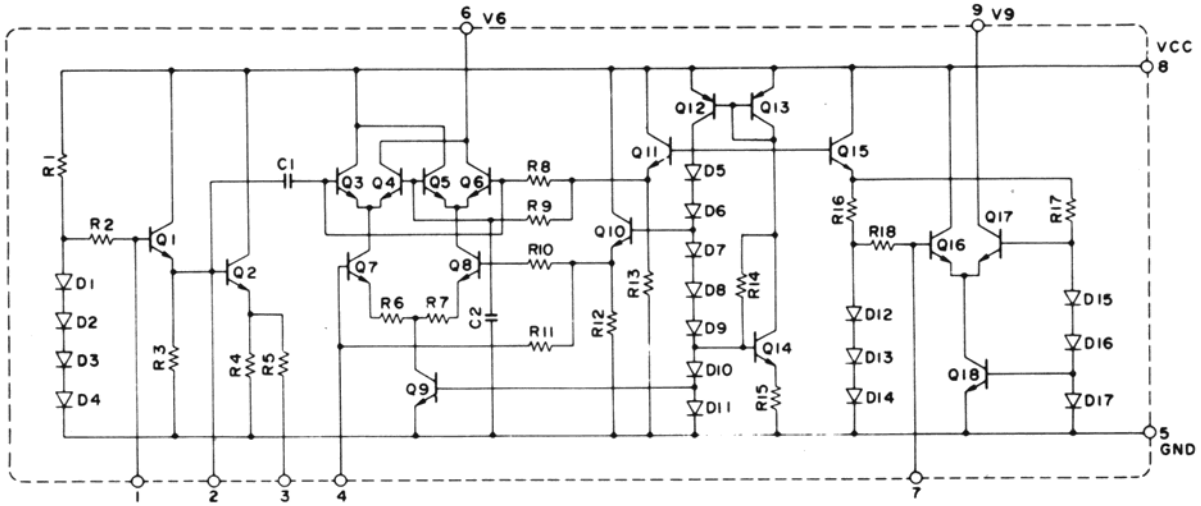
COMMON ANODE



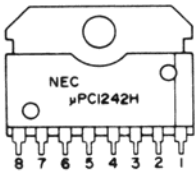
Pin no.	Function	Pin no.	Function
1	E1 Cathode	10	B2 Cathode
2	D1 Cathode	11	A2 Cathode
3	C1 Cathode	12	F2 Cathode
4	NC Cathode	13	DIGIT 2 Anode
5	E2 Cathode	14	DIGIT 1 Anode
6	D2 Cathode	15	B1 Cathode
7	G2 Cathode	16	A1 Cathode
8	C2 Cathode	17	G1 Cathode
9	NC Cathode	18	F1 Cathode

IC INTERNAL DIAGRAMS

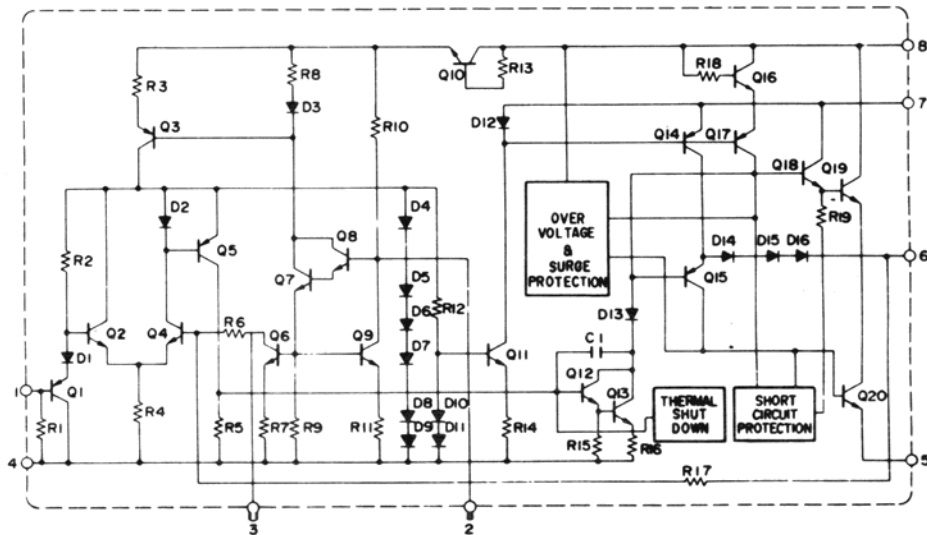
TA7310P-U



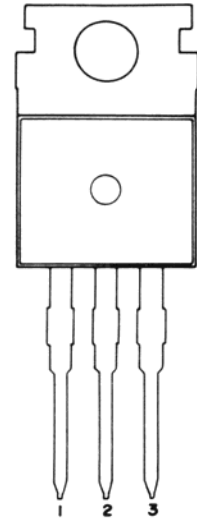
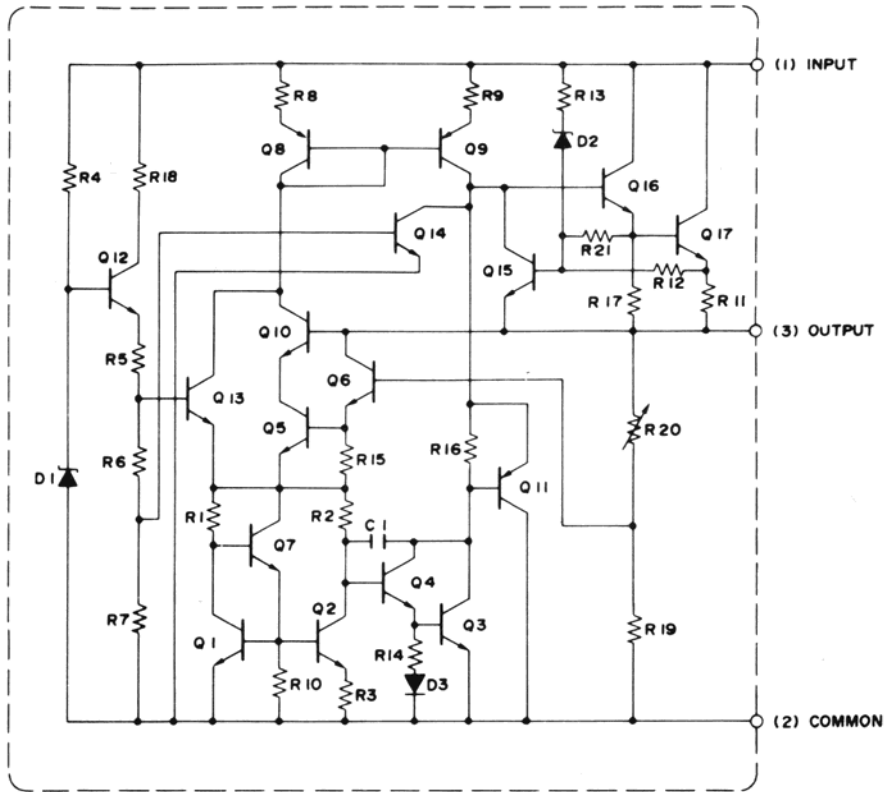
μPC1242H



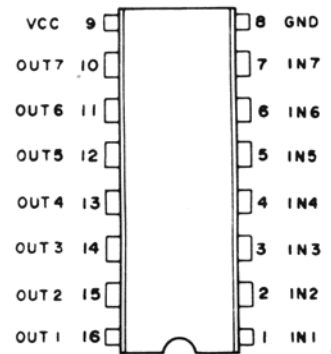
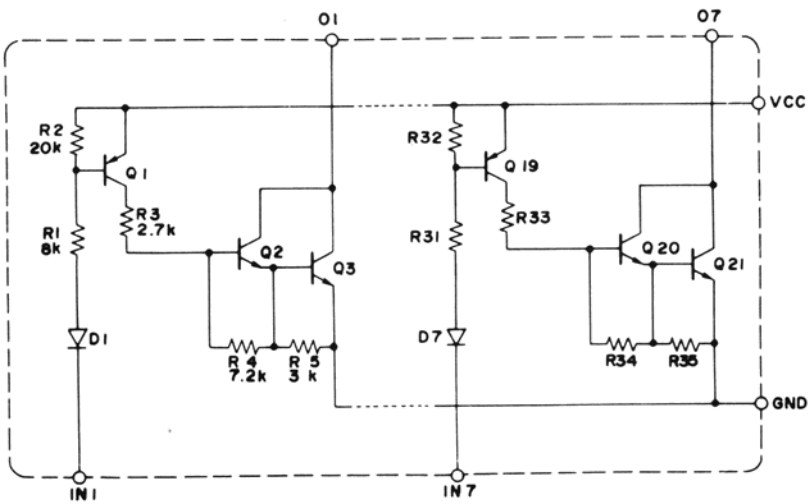
NO	μPC1242H
1	INPUT
2	RIPPLE FILTER
3	N. F. B.
4	GND
5	GND
6	OUTPUT
7	BOOTSTRAP
8	V+



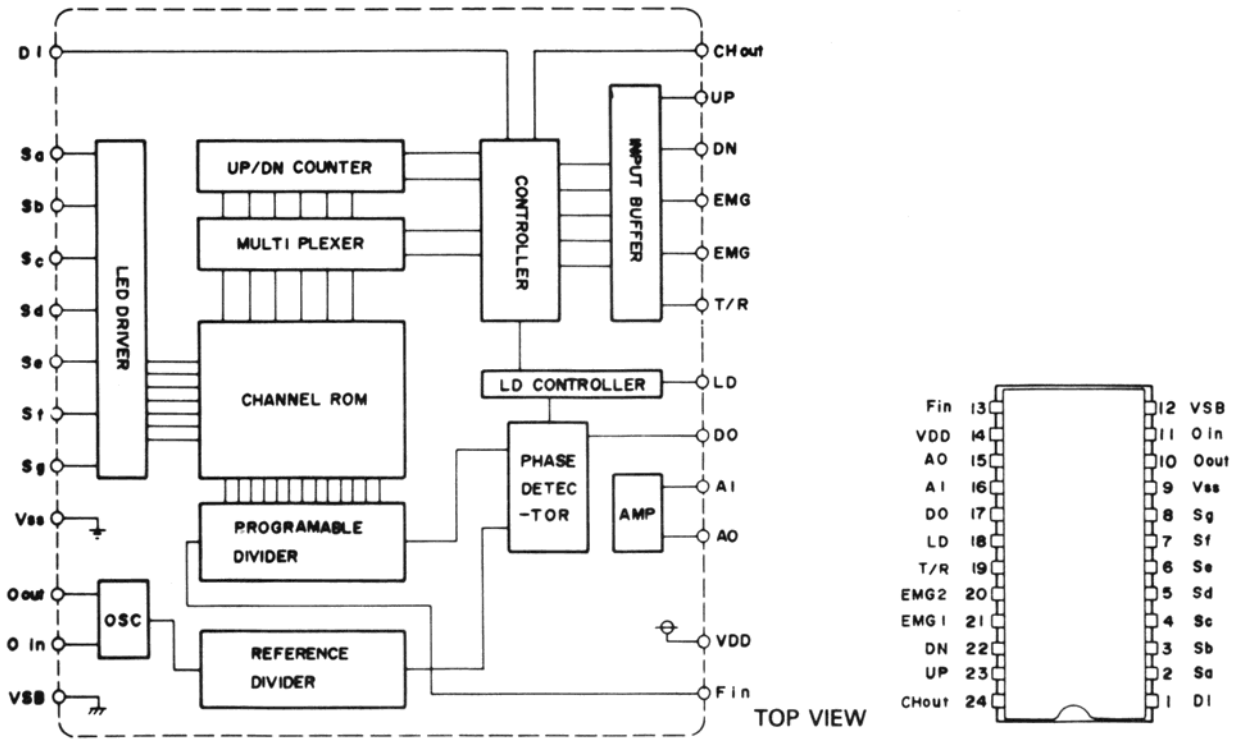
HA17808W



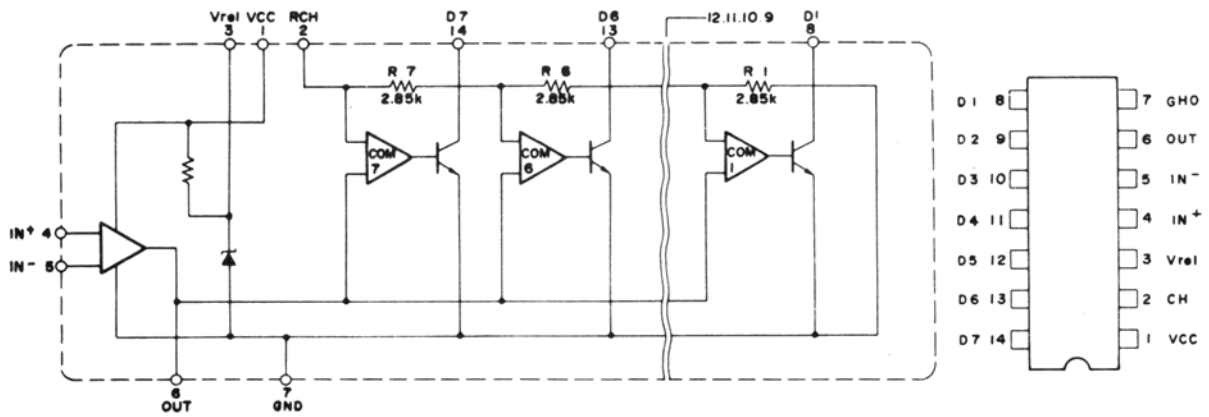
LB1710



SM5123A

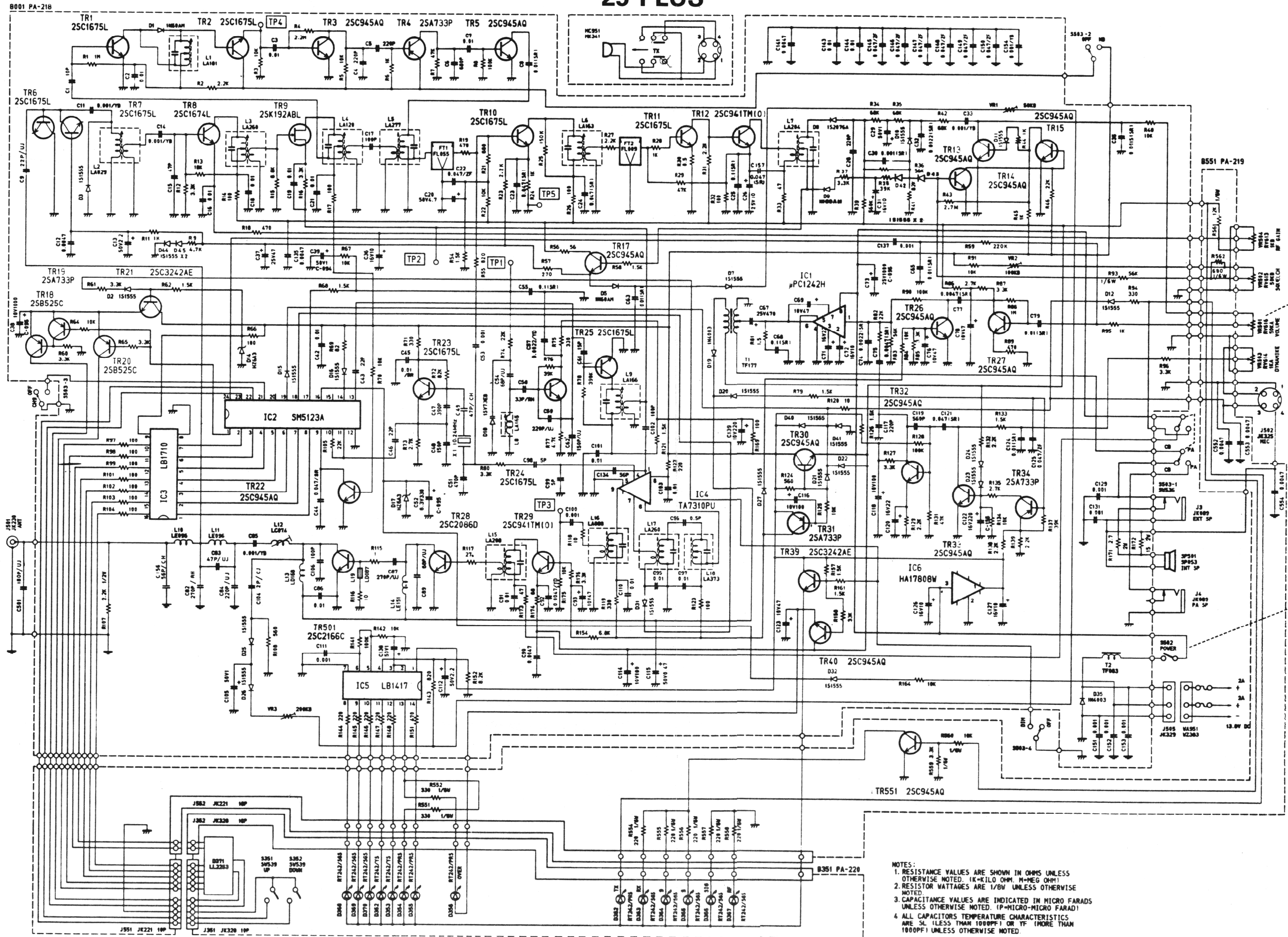


LB1417



Reference No.	Manufacturer's Part Number	DYNASCAN Part Number	Reference No.	Manufacturer's Part Number	DYNASCAN Part Number
D001,005	BDAY0001001	150-014-9-001	L018	BLAY0373001	047-004-9-002
D008	BDAY0131001	151-101-9-001	L012	BLCY0074001	044-040-9-002
D019,035	BDAY0133001	151-083-9-001	L013	BLDY0033001	041-083-9-003
D002,003,006,007, 009-012,015,016, 020-027,031,032			L010,011	BLEY0096001	047-044-9-001
D018	BDAY0181001	151-028-9-007	L014	BLEY0151001	041-128-9-001
D014,017	BDAY0220001	151-137-9-001	MC951	BMKY0341001	561-008-9-001
D371	BDAY0269005	152-156-9-001	B001	BPAY0218AAZ	302-943-9-001
D363-370	BDAY0347001	158-070-9-001	B551	BPAY0219AAZ	302-944-9-001
D354-356,362	BDAY0348001	158-070-9-002	B351	BPAY0220AAZ	302-945-9-001
D352,353	BDAY0349001	158-070-9-003	X001	BQXY0074001	132-027-9-001
TR004,019,031, 034,552	BDAY0350001	158-070-9-004	R172	BRSJ201504Z	011-002-5-150
TR018,020	BDBA0733115	177-020-9-001	R171	BRSJ202794Z	011-002-5-279
TR012,029	BDDB0525103	177-045-9-001	VR002	BRTY0182104	008-465-9-003
TR003,005,013-015, 017,022,026,027, 030,032,033,040,551	BDBC0941523	176-089-9-004	VR003	BRTY0182204	008-465-9-005
TR008			VR001	BRTY0182503	008-455-9-003
TR001,002,006,007, 010,011,023,024,025	BDBC0945507	176-062-9-001	VR504	BRVY0613001	008-843-9-003
TR028	BDBC1674111	176-081-9-002	VR503	BRVY0614001	008-843-9-004
TR501			VR502	BRVY0615001	008-843-9-005
TR021,039	BDBC1675111	176-065-9-001	VR501	BRVY0616001	008-843-9-006
TR009	BDBC2086104	176-108-9-002	SP501	BSPY0053001	580-073-9-001
IC004	BDBC2166103	176-108-9-002	S503	BSWY0536001	088-148-9-001
IC001	BDBC3242536	175-191-9-001	S351,352	BSWY0539001	084-155-9-001
IC006	BDCB0192533	182-076-9-001	T002	BTFY0083001	042-021-9-001
IC003	BDEY0109002	307-328-9-001	T001	BTFY0177001	061-050-9-001
IC002	BDEY0471001	307-415-9-001	WA951	BWZY0383001	426-107-9-001
IC005	BDEY0483001	307-415-9-002		GCMF217709Z	380-539-9-001
FT002	BDEY0742001	307-415-9-003		GCMZ317710Z	380-539-9-002
FT001	BDEY0743001	307-415-9-004		GMSC405736Z	634-204-9-001
F951,952	BDEY0744001	307-415-9-005		GNBP417696Z	384-075-9-003
J003,004	BFLY0009001	140-009-9-001		GNBP417697Z	384-075-9-004
J551	BFLY0055001	143-011-9-001		GNBP417699Z	384-075-9-006
J552	BFSY0014209	191-251-3-002		GNBP417701Z	384-075-9-007
J501	BJKY0089001	773-086-9-001		GNBP417702Z	384-075-9-008
J502	BJKY0221010	777-050-9-002		GNBP417711Z	384-076-9-001
J351	BJKY0221018	777-051-9-001		GNBY417703Z	751-313-9-001
J352	BJKY0230001	777-050-9-004		HBCT417759Z	250-197-9-001
J505	BJKY0325001	777-050-9-005		HCMB317715Z	252-055-9-001
L002	BJKY0328010	777-050-9-007		HCMT317714Z	253-135-9-001
L016	BJKY0328018	777-051-9-002			
L004	BJKY0329001	777-050-9-009			
L006	BLAY0029001	060-023-9-001			
L008	BLAY0088001	066-019-9-002			
L009	BLAY0120001	046-037-9-001			
L001	BLAY0163001	060-022-9-001			
L007	BLAY0165001	044-046-9-001			
L015	BLAY0166001	066-025-9-005			
L003-017	BLAY0181001	060-024-9-002			
L005	BLAY0204001	046-024-9-003			
	BLAY0208001	060-029-9-004			
	BLAY0260001	060-030-9-014			
	BLAT0277001	046-025-9-004			

SCHEMATIC DIAGRAM 25 PLUS



- NOTES:
1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (K=KILO OHM, M=MEG OHM)
 2. RESISTOR WATTAGES ARE 1/8W UNLESS OTHERWISE NOTED.
 3. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED. (P=MICRO-MICRO FARAD)
 4. ALL CAPACITORS TEMPERATURE CHARACTERISTICS ARE S4 (LESS THAN 1000PF) OR YF (MORE THAN 1000PF) UNLESS OTHERWISE NOTED.