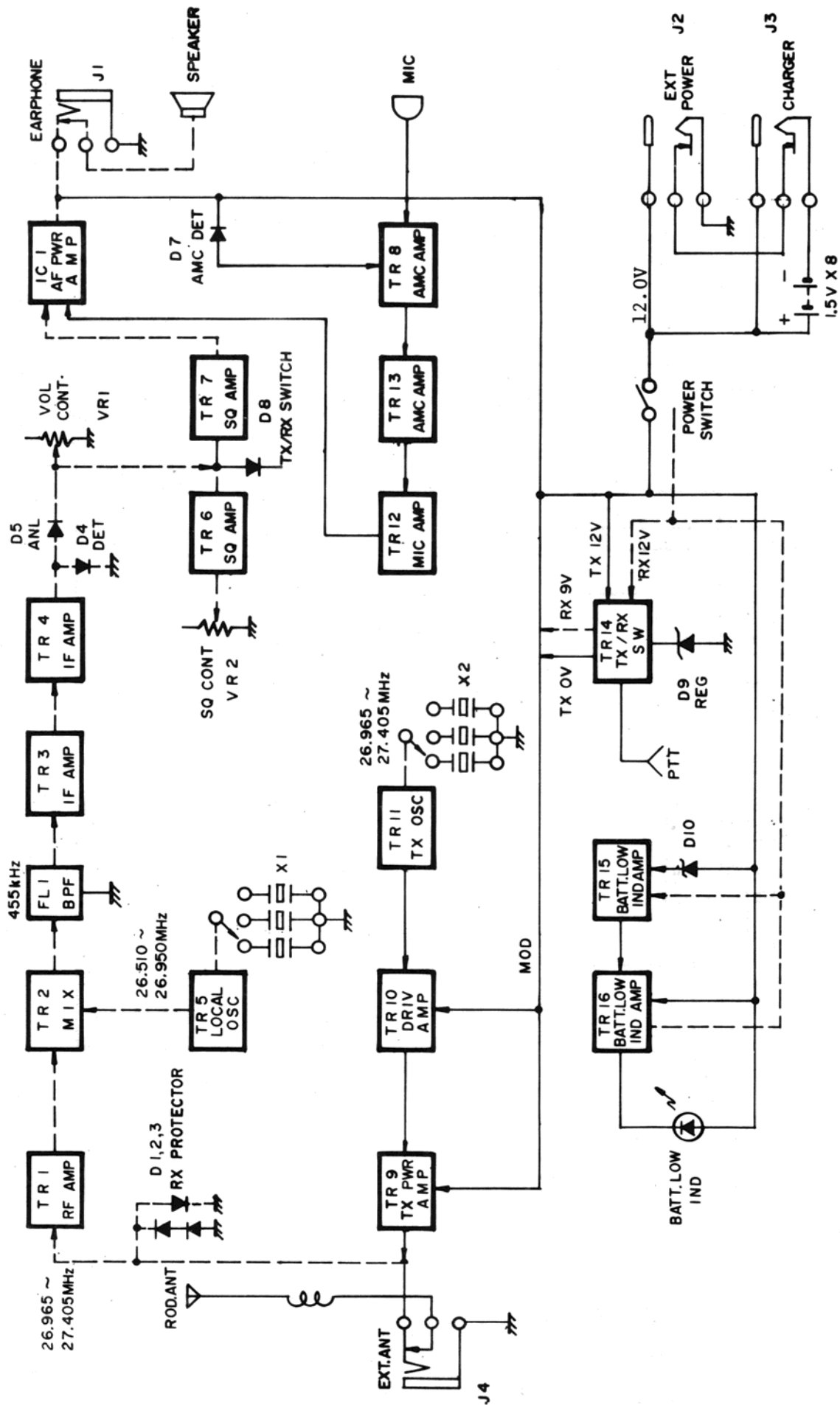


BLOCK DIAGRAM 3GTL



——— TRANSMITTING CIRCUIT
 - - - RECEIVING CIRCUIT

VOLTAGE CHART

3GTL

TR,	NO.	RECEIVE			TRANSMIT		
		BASE	EMITTER	COLLECTOR	BASE	EMITTER	COLLECTOR
1	RF AMP	1.25V	0.54V	8.2V	0V	0V	0V
2	MIX	1.25	0.3	8.5	0	0	0
3	IF AMP	0.7	0	1.9	0	0	0
4	IF AMP	1.9	1.2	8.4	0	0	0
5	LOCAL OSC	0.6	0	4.0	0	0	0
<hr/>							
6	SQ----MIN	0	0	0.8	0	0	0
	MAX	0.6	0	0	0	0	0
<hr/>							
7	SQ----MIN	0.8	0.2	4.6	0	0	0
	MAX	0	0	8.5	0	0	0
<hr/>							
8	AMC AMP	3.1	5.7	0	3.1	5.7	0
9	TX PWR AMP	0	0	0	0	0	11.6
10	TX DRIV AMP	0	0	0	0	0	11.6
11	TX OSC	6.0	9.3	8.7	0.65	0	5.0
12	AMC AMP	9.3	1.5	6.3	0.6	1.0	3.3
13	AMC AMP	0	0	0	0	0	0
14	TX/RX SW	9.3	8.7	8.7	0	0.4	8.7
15	BATT LOW IND AMP	0.6	0	0	0.66	0	0
16	BATT LOW IND AMP	0	0	10.2	0	0	10.2

IC 1 VOLTAGE		RECEIVE	TRANSMIT
IC,	PIN NO.		
	1	1.6V	1.6V
	2	11.9	11.9
	3	11.3	11.3
	4	6.8	6.8
	5	5.6	5.6
	6	12.0	12.0
	7	0	0
	8	1.6	1.6

*Supply voltage...12.0V DC

*Measured.....14 ch.

*No signal no modulation

REPLACEMENT PARTS LIST FOR MODEL 3GTL

<u>CIRCUIT SYMBOL</u>	<u>DESCRIPTION</u>	<u>PART NUMBER</u>
IC 1	Integrated Circuit, uPC575C2	307-275-9-001
TR 8	Transistor, 2SA733P	177-020-9-001
TR 6,7,10,11,12, 13,14,15,16	Transistor, 2SC945-AQ	176-062-9-001
TR 9	Transistor, 2SC2028 B/20	172-038-9-001
TR 2	Transistor, 2SC1674-L	176-081-9-002
TR 1	Transistor, 2SC1674-K	176-081-9-001
TR 5	Transistor, 2SC1675-L	176-065-9-001
TR 3,4	Transistor, 2SC1675-K	176-081-9-003
D 11	Diode, SR1K-1	151-040-9-003
D 10	Diode, RD9.1 EB3	152-115-9-001
D 1,2,3,4,5,7,8	Diode, 1S1555	151-028-9-007
D 9	Diode, Zener, RD9.1 EB 2	152-115-9-002
D 6	Diode, LED TLR124	158-021-9-001
L 1	Coil, LA-029	060-023-9-001
L 5	Coil, LA-107	060-019-9-003
L 2,3	Coil, LA-138	046-024-9-001
L 4	Coil, LA-163	060-022-9-001
L 7	Coil, LA-088	066-019-9-002
L 9	Coil, LB-228	044-058-9-001
L 11	Coil, LC-165	044-058-9-002
L 12	Coil, LC-167	044-058-9-003
L 19,20	Coil, LD-034	044-058-9-004
L 16	Coil, LD-087	044-048-9-003
L 17,18	Coil, LD-099	044-058-9-005
L 8,10	Coil, LD-127	044-058-9-006
L 15	Coil, LD-154	044-058-9-007
L 14,13	Coil, LE-093	041-115-9-002

REPLACEMENT PARTS LIST FOR MODEL 3GTL (CONT'D.)

<u>CIRCUIT SYMBOL</u>	<u>DESCRIPTION</u>	<u>PART NUMBER</u>
L 6	Coil, LZ-016	044-058-9-008
T 1	Transformer, Output, TF-214	061-048-9-001
FL 1	Filter, Ceramic, FL-009	140-009-9-001
VR 3	Res., Semi-fixed, RV-182 (50K-B)	008-375-9-005
VR 1	Res., Variable, RV-495 SH (50K-A)	008-408-9-001
VR 2	Res., Variable, RV-501 (50K-B)	008-404-9-005
X 2	Crystal, QX-123 (TX) (27.125MHz)	135-035-9-001
X 1	Crystal, QX-124 (RX) (26.670MHz)	135-035-9-002
SP 1	Speaker, SP-082 (57P17Ap)	580-037-9-001
-----	Microphone, MK-136	565-001-9-001
J 1	Jack, Speaker, JK-089	773-086-9-001
J 2,3	Receptacle, DC Power, JK-135	770-025-9-001
-----	Battery, BT-009, "AA" Carbon Zinc(8)	210-005-9-001
-----	Dummy Battery, YY-169 (2)	769-117-9-001
-----	Rod, Antenna, AT-014	523-400-9-001
S 1A-B	Switch, Push SW-311	088-072-9-001
S 2A-B	Switch, Slide, SW-312	084-100-9-001
-----	Socket, Crystal, SK-023	749-097-9-001
C 19,51	Cap., Lytic, 1u 50V	022-157-9-002
C 35	Cap., Lytic, 2.2u 25V	022-158-9-002
C 11,18,23	Cap., Lytic, 4.7u 25V	022-157-9-003
C 61	Cap., Lytic, 22u 10V	022-218-9-001
C 24,60,66,72	Cap., Lytic, 47u 10V	022-160-9-002
C 15	Cap., Lytic, 100u 10V	022-157-9-008
C 16,71	Cap., Lytic, 10u 16V	022-157-9-004
C 26	Cap., Lytic 470u 10V	022-160-9-001
C 76	Cap., Lytic, 470u 16V	022-076-9-008

REPLACEMENT PARTS LIST FOR MODEL 3GTL (CONT'D.)

<u>CIRCUIT SYMBOL</u>	<u>DESCRIPTION</u>	<u>PART NUMBER</u>
-----	Case, Front	271-103-9-001
-----	Case, Rear	271-104-9-001
-----	Cover, Battery	271-105-9-001
-----	Talk, Knob	751-210-9-001
-----	Case, Battery	271-106-9-001
-----	Knob	751-210-9-002
-----	Knob, slide	751-210-9-003
-----	Mike holder	251-448-9-001
-----	Holder, LED	763-145-9-004
-----	Holder, Antenna ZMC	251-519-9-001
-----	Spacer Knob 1.0	759-119-9-001
-----	Spring, Battery 0.8 L 16	767-103-9-001
-----	Case, leather	274-023-9-001
-----	Spring plate, Knob	763-084-9-004
-----	Styrofoam pad	503-214-9-001
-----	Styrofoam pad	503-213-9-002
-----	Display box	500-512-9-001
-----	Owners/Instruction Manual	480-312-9-001

**ALIGNMENT PROCEDURE-RECEIVER
SECTION**

6GTL

1. Equipment Required

- a. Signal Generator (27 MHz. 1000 Hz, 30% AM Modulation & Output Impedance 50 ohm)
- b. Audio VTVM
- c. Oscilloscope
- d. Dummy Load (8 ohm , 5 Watts, resistive)
- e. DC Power Supply (12.0V /1-Amp.)

2. Procedure

Step	SG Connection Frequency	Preset to	Audio VTVM	Adjustment	Remarks
1	To Ext ANT. Jack J4 Freq: 27.185 MHz 1 KHz. 30% Mod.	Volume:Max Squelch: Min	To Ext, Speaker. Jack 1	L2	Set the core of L2 to the bottom
2	Same as step 1	Same as step 1	Same as step 1	L1,L3, L4, L5,	Adjust for a max Audio Output
3	Same as step 1	Same as step 1	Same as step 1	L1, L2, L4 L5.	Adjust for a max Audio Output
4	Same as step 1	Same as step 1	Same as step 1	VR 3 (Squelch)	Adjust for 0.63V Output With SG Output Level of 1000uV

**ALIGNMENT PROCEDURE--TRANSMITTER
SECTION**

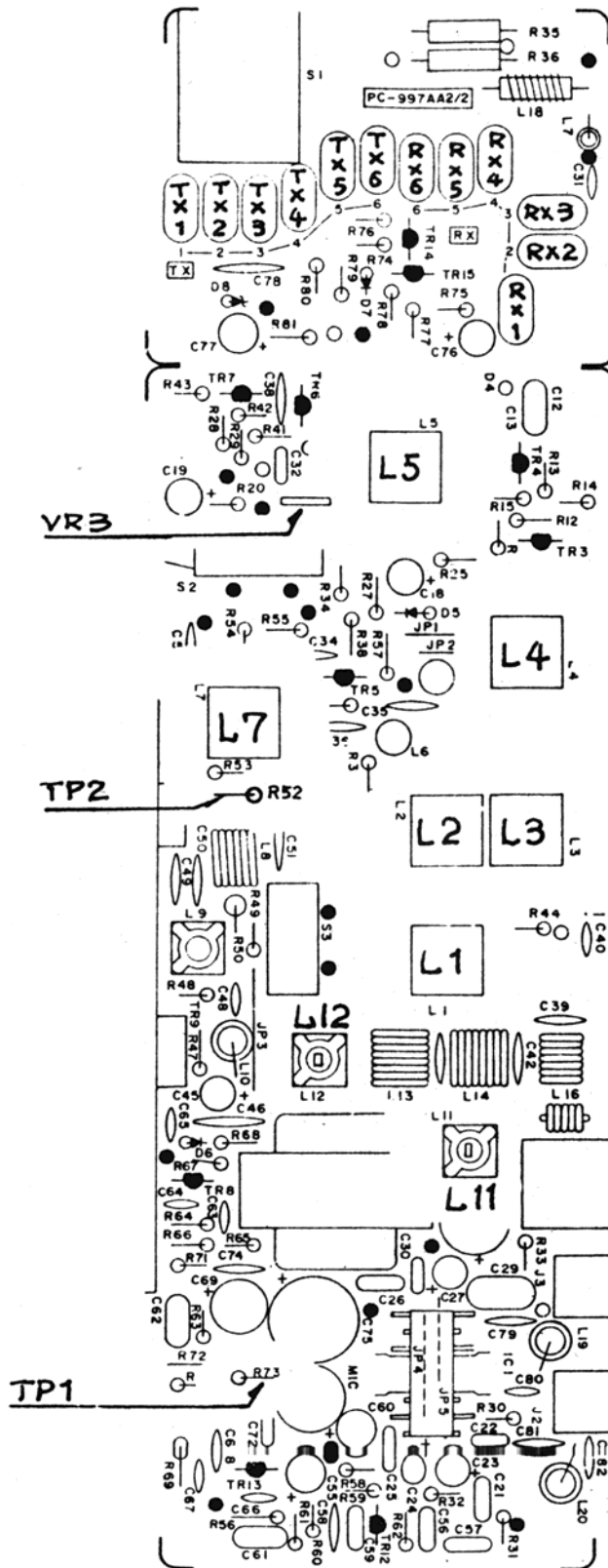
6GTL

1. Equipment Required

- a. VTVM (full scale: 5 V DC with RF Probe)
- b. RF Output Power Meter
- c. Tunable Field Intensity Meter (Wave Meter or Spectrum Analyzer)
- d. Frequency Counter (0 - 30 MHz)
- e. DC Power Supply (12.0V /1-Amp)
- f. 50 ohm Load and Attenuator
- g. Oscilloscope (0 - 30 MHz)
- h. AF Oscillator

2. Procedure

Step	Preset to	Conditions	Alignment	Remarks
1	TX Mode No Modulation Channel 19	RF Output Power Meter to Ext. ANT. Jack J4. VTVM to TP 2	L7	Adjust for a maximum indication on VTVM
2	Same as step 1	RF Output Power Meter to ANT. JACK J4	L7, 9,	Adjust for a maximum indication on RF Output Power Meter
3	Same as step 1	Same as step 2	L12	Adjust to obtain Nominal 3.5 W of RF Output Power Meter
4	Same as step 1	Tunable Field Strength Meter to ANT. Jack (J4) through a suitable load and attenuator (Use Spectrum Analyzer if available)	L11	Adjust for minimum 2nd Harmonic Output
5	Repeat the above adjustments, in order to confirm if the adjustments were made correctly.			
6	TX Mode No Modulation All Channels	Frequency Counter to ANT. Jack J4 through a suitable load and attenuator		Check Frequency of channels

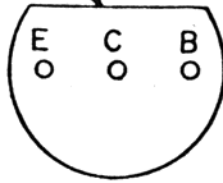


TEST POINT LOCATIONS

SEMICONDUCTOR PIN OUT

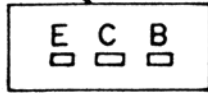
6GTL

MARKING
SIDE



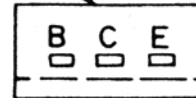
2SC945
2SC1674
2SC1675
2SA733
2SC941

MARKING
SIDE

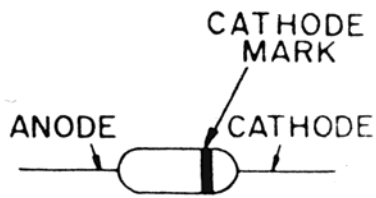


2SC2028

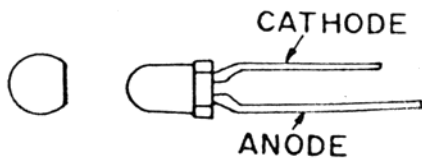
MARKING
SIDE



2SC2029

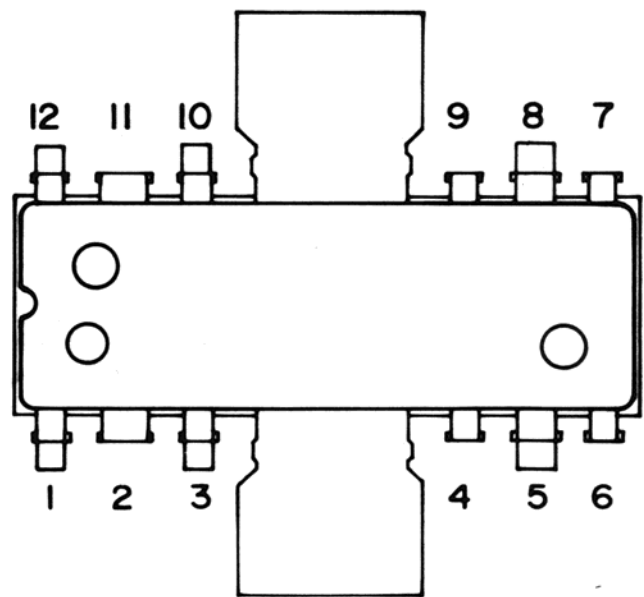
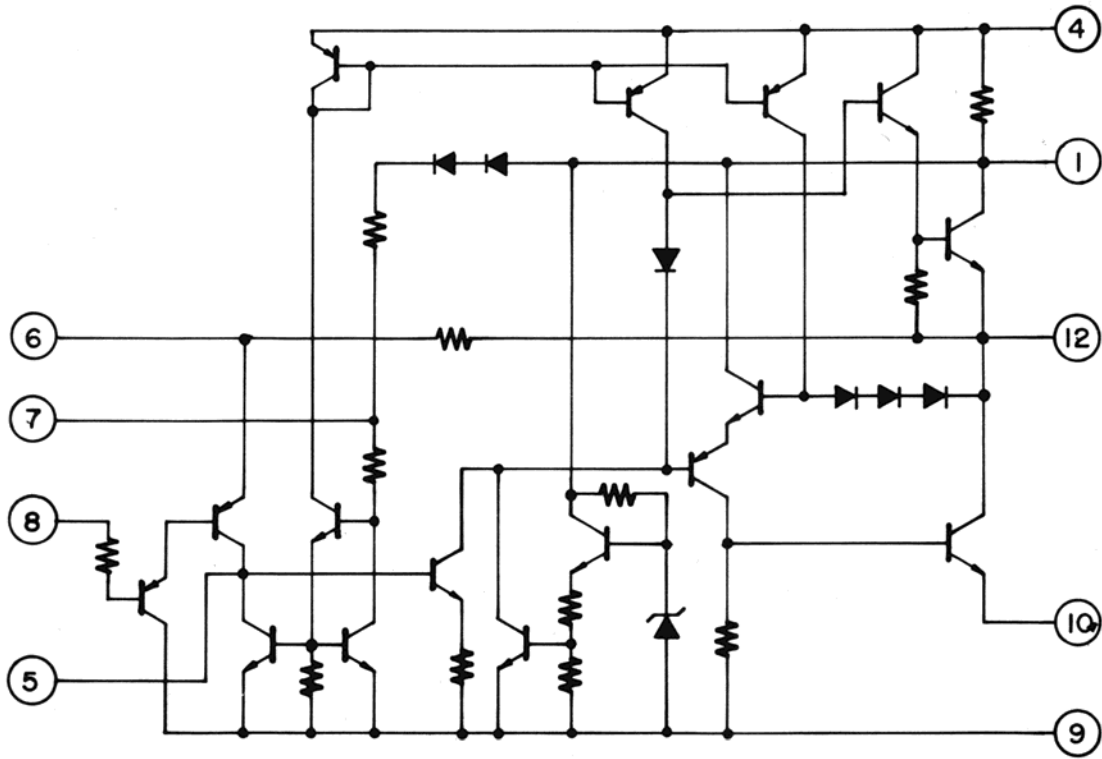


SR1K-1
1S1555
RD9.1EB2



TLR124

TBA810SH



VOLTAGE CHART

6GTL

TRANSISTOR VOLTAGE CHART (DC)							
TR, No		RECEIVE			TRANSMIT		
		BASE	EMITTER	COLLECTOR	BASE	EMITTER	COLLECTOR
1	RF AMP	1.25 V	0.54 V	8.2 V	0 V	0 V	0 V
2	MIX	1.25	0.55	8.5	0	0	0
3	IF AMP	0.7	0	1.9	0	0	0
4	IF AMP	1.9	1.2	8.4	0	0	0
5	LOCAL OSC	0.6	0	4.0	0	0	0
6	SQ AMP SQ MIN	0	0	0.9	0	0	0
	SQ MAX	0.6	0	0	0	0	0
7	PRI AMP SQ MIN	0.9	0.3	5.7	0	0	0
	SQ MAX	0	0	8.5	0	0	0
8	ANC AMP	0	0	0	3.3	3.9	0
9	TX PWR AMP	0	0	12	0	0	11.6
10	TX DRIV AMP	0	0	12	0	0	11.6
11	TX OSC	0	0	0	0.5	0	7.0
12	MIC AMP	0	1.5	0	1.5	1.0	3.3
13	ANC AMP	0	0	0	0	0	0
15	BATT LOW IND AMP	0.66	0	0	0.66	0	0
14	BATT LOW IND AMP	0	0	10.2	0	0	10.2
IC 1 VOLTAGE		RECEIVE			TRANSMIT		
IC, PIN No							
1		12 V			12 V		
4		11.7			11.7		
5		0.7			0.7		
6 AF POWER AMP		1.3			1.3		
7		5.6			5.6		
8		0			0		
9		0			0		
10		0			0		
12		6.0			6.0		
<p>* Supply Voltage 12.0 V DC.</p> <p>* Mesuered 14 ch</p> <p>* No Signal No Modulation</p>							

REPLACEMENT PARTS LIST FOR MODEL 6GTL

<u>CIRCUIT SYMBOL</u>	<u>DESCRIPTION</u>	<u>PART NUMBER</u>
IC 1	Integrated circuit, TBA810SH	307-282-9-001
TR 6,7,12,13,14,15	Transistor, 2SC945AQ	176-062-9-001
TR 1,2	Transistor, 2SC1674L	176-081-9-002
TR 3,4,5	Transistor, 2SC1675L	176-065-9-001
TR 10	Transistor, 2SC2028 B/20	172-038-9-001
TR 9	Transistor, 2SC2029 B/10	172-038-9-002
TR 8	Transistor, 2SA733P	177-020-9-001
TR 11	Transistor, 2SC941TMO	176-089-9-004
D 9	Diode, SR1K-1	151-040-9-003
D 1,2,3,4,5,6,11	Diode, 1S1555	151-028-9-007
D 8	Diode, Zener, RD9.1EB2	152-115-9-002
D 7	Diode, Zener, RD9.1EB3	152-115-9-001
D 10	Diode, LED TLR124	158-021-9-001
T 1	Transformer, Output, TF-230	061-049-9-001
FL 1	Filter, Ceramic, FL-009	140-009-9-001
VR 4	Resistor, Semi-fixed, RV-189 (3KB)	008-323-9-001
VR 3	Resistor, Semi-fixed, RV-368 (50KB)	008-410-9-001
-----	Microphone, MK-136	565-001-9-001
X 2	Crystal, QX-123, 27.125MHz	135-035-9-001
X 1	Crystal, QX-124, 26.670MHz	135-035-9-002
-----	Socket, crystal, SK-023	749-097-9-001
S 1	Switch, rotary, SR-317	083-275-9-001
S 2	Switch, Push, SW-330	088-073-9-001
S 3	Switch, Slide, SW-315	084-101-9-001
VR 1	Resistor, Variable, RV-342, 50KA	008-371-9-001
VR 2	Resistor, Variable, RV-241, 50KB	008-371-9-002
J 1	Jack, Speaker, JK-001	773-077-9-001
J 4	Jack, Antenna, JK-196	773-109-9-001

REPLACEMENT PARTS LIST FOR MODEL 6GTL

<u>CIRCUIT SYMBOL</u>	<u>DESCRIPTION</u>	<u>PART NUMBER</u>
IC 1	Integrated circuit, TBA810SH	307-282-9-001
TR 6,7,12,13,14,15	Transistor, 2SC945AQ	176-062-9-001
TR 1,2	Transistor, 2SC1674L	176-081-9-002
TR 3,4,5	Transistor, 2SC1675L	176-065-9-001
TR 10	Transistor, 2SC2028 B/20	172-038-9-001
TR 9	Transistor, 2SC2029 B/10	172-038-9-002
TR 8	Transistor, 2SA733P	177-020-9-001
TR 11	Transistor, 2SC941TMO	176-089-9-004
D 9	Diode, SR1K-1	151-040-9-003
D 1,2,3,4,5,6,11	Diode, 1S1555	151-028-9-007
D 8	Diode, Zener, RD9.1EB2	152-115-9-002
D 7	Diode, Zener, RD9.1EB3	152-115-9-001
D 10	Diode, LED TLR124	158-021-9-001
T 1	Transformer, Output, TF-230	061-049-9-001
FL 1	Filter, Ceramic, FL-009	140-009-9-001
VR 4	Resistor, Semi-fixed, RV-189 (3KB)	008-323-9-001
VR 3	Resistor, Semi-fixed, RV-368 (50KB)	008-410-9-001
-----	Microphone, MK-136	565-001-9-001
X 2	Crystal, QX-123, 27.125MHz	135-035-9-001
X 1	Crystal, QX-124, 26.670MHz	135-035-9-002
-----	Socket, crystal, SK-023	749-097-9-001
S 1	Switch, rotary, SR-317	083-275-9-001
S 2	Switch, Push, SW-330	088-073-9-001
S 3	Switch, Slide, SW-315	084-101-9-001
VR 1	Resistor, Variable, RV-342, 50KA	008-371-9-001
VR 2	Resistor, Variable, RV-241, 50KB	008-371-9-002
J 1	Jack, Speaker, JK-001	773-077-9-001
J 4	Jack, Antenna, JK-196	773-109-9-001

REPLACEMENT PARTS LIST FOR MODEL 6GTL (CONT'D.)

<u>CIRCUIT SYMBOL</u>	<u>DESCRIPTION</u>	<u>PART NUMBER</u>
J 2,3	Receptacle, DC Power, JK-135	770-025-9-001
SP 1	Speaker, SP-082	580-037-9-001
-----	Antenna, AT-015	523-416-9-001
-----	Battery, BT-010 "AA" Carbon Zinc (8)	210-005-9-001
-----	Dummy Battery, YY-169 (2)	769-117-9-001
L 1	Coil, LA-029	060-023-9-001
L 5	Coil, LA-107	060-019-9-003
L 2,3	Coil, LA-138	046-024-9-001
L 4	Coil, LA-163	060-022-9-001
L 7	Coil, LA-088	066-019-9-002
L 9	Coil, LC-164	044-059-9-001
L 11	Coil, LC-165	044-058-9-002
L 12	Coil, LC-166	044-059-9-002
L 10,19,20	Coil, LD-034	044-058-9-004
L 17,18	Coil LD-099	044-058-9-005
L 16	Coil, LE-151	041-128-9-001
L 15	Coil, LE-188	041-128-9-003
L 8	Coil, LE-092	041-115-9-001
L 13,14	Coil, LE-093	041-115-9-002
L 6	Inductor, Molded, LZ-016 (2.2u)	044-058-9-008
R 35	Resistor, Metal Film, 2.2 1W K	013-011-9-001
R 36	Resistor, Metal Film, 22 1W K	013-011-9-002
-----	Case, Front	271-107-9-001
-----	Case, Rear	271-108-9-001
-----	Panel, Control	255-209-9-001
-----	Channel knob	751-214-9-001
-----	Knob	751-214-9-002

REPLACEMENT PARTS LIST FOR MODEL 6GTL (CONT'D.)

<u>CIRCUIT SYMBOL</u>	<u>DESCRIPTION</u>	<u>PART NUMBER</u>
-----	Holder, Antenna	763-172-9-001
-----	Bush, Antenna	380-419-9-001
-----	Knob, slide	751-214-9-003
-----	Cover, battery	271-105-9-001
-----	Talk, Knob	751-214-9-004
-----	Spring, Battery	767-103-9-001
-----	Case Leather	274-024-9-001
-----	Speaker net	763-172-9-003
-----	Spring, Battery	767-104-9-001