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Teaberry Stalker III Service Manual

STALKER III

SERVICE MANUAL

$5.00

ST-IIISM

STALKER III

ALIGNMENT INSTRUCTIONS

STANDARD TEST CONDITIONS

Power Supply Voltage	13.8 VDC
Antenna Impedance	50 ohms
Audio Output Impedance	8 ohms
SQUELCH/PA Control	Not "PA" position, Min. to Max.
Channel Selector Switch	CH. 19 or 20
VOLUME Control	Max.

TEST EQUIPMENT REQUIRED

Transmitter Section

* Audio Signal Generator (400 Hz - 2.5 kHz, 1 mV - 1 V)
* V.T.V.M. (1 mV - 10 V)
* Oscilloscope (More than 30 MHz)
* Frequency Counter (More than 30 MHz)
* Power Supply (13.8 VDC, 2 Amp.)
* Linear Coupler
* RF Power Meter
* Field Strength Meter or Spectrum Analyzer
* Connectors and Cables

Receiver Section

* Signal Generator (26.965 - 27.405 MHz)
* V.T.V.M. (1 mV - 10 V)
* Oscilloscope
* Distortion Meter
* Power Supply (13.8 VDC, 1.5 Amp.)
* 8-ohm Dummy Load
* Connectors and Cables

ALIGNMENT PROCEDURE

1. Frequency Adjustment (RX Mode)

STEP 1 Connect Oscilloscope and Frequency Counter to R3O2 and R823 (ground).
STEP 2 Adjust T8O1 for Max. amplitude on Oscilloscope. (more than O.15 Vp-p)
STEP 3 Adjust CT8O1 for 1O.24 MHz (+ 1OO Hz, – 5O Hz) display on Frequency Counter.

2. VCO Voltage Adjustment (RX Mode)

STEP 1 Set Channel Selector to CH. 19 as indicated in Channel Indicator window.
STEP 2 Connect DC Voltmeter to R82O and ground.
STEP 3 Adjust T8O2 for 2.5 V (± O.1 V) reading on DC Voltmeter.

3. AGC Voltage Adjustment (RX Mode, no signal input)

STEP 1 Connect DC Voltmeter to R1O8 and ground.
STEP 2 Adjust VR5 for 1.25 V (± O.O5 V) reading on DC Voltmeter.
STEP 3 Connect DC Voltmeter to R1O4 and ground.
STEP 4 Adjust VR1 for 2.O V (± O.1 V) reading on DC Voltmeter.

4. 16 MHz Adjustment (RX Mode)

STEP 1 Set Channel Selector to CH. 19 or 2O as indicated in Channel Indicator window.
STEP 2 Connect Oscilloscope to R112 and R823 (ground).
STEP 3 Adjust T8O3 for Max. amplitude on Oscilloscope.

5. Preliminary Alignment for Transmitter (TX Mode)

STEP 1 Set Channel Selector to CH. 19 or 2O as indicated in Channel Indicator window.
STEP 2 Connect Oscilloscope to R9O1 and R823 (ground).
STEP 3 Adjust T8O4, T8O5, T8O6 and T8O7 for Max. amplitude on Oscilloscope. Repeat this step as necessary to obtain Max. amplitude. (More than O.8 Vp-p)

6. Preliminary Alignment for Receiver (RX Mode)

STEP 1 Connect Signal Generator to ANTenna Connector.
STEP 2 Set Transceiver as follows:
Channel Selector: 19 or 2O
VOLUME: Max.
SQUELCH: Min.
STEP 3 Adjust L1O1, L1O2, L1O3, T3O1, T3O2, T3O3 and T3O4 for Max. audio output on V.T.V.M. Repeat this step as necessary to obtain Max. audio output.

7. Transmitter Section (TX Mode)

STEP 1 Set Channel Selector to CH. 19 or 2O as indicated in Channel Indicator window.

STEP 2 Adjust L9O1, L9O5 and L9O3 for Max. reading on RF Power Meter.

STEP 3 Adjust L9O3 for 3.75 W reading on RF Power Meter, turning L9O3 core clockwise.

STEP 4 AMC Adjustment:

1) Connect Audio Signal Generator to Pin-4 (hot) and Pin-1 (ground).
2) Adjust VR8 for 95• modulation on minus with 15 mV, 1 kHz signal input from Audo Signal Generator.

STEP 5 Spurious Adjustment:

1) Connect Field Strength Meter or Spectrum Analyzer to ANTenna Connector.
2) Adjust F9O1 for Min. 54 MHz output.

STEP 6 RF Meter Adjustment:

1) Adjust VR6 for the reading as shown in Figure 4, with no modulation.

8. Receiver Section (RX Mode)

STEP 1 Recheck AGC voltages.

STEP 2 Set Channel Selector to CH. 19 or 2O as indicated in Channel Indicator window.

STEP 3 Adjust L1O1, L1O2, L1O3, T3O1, T3O2, T3O3 and T3O4 for Max. audio output on V.T.V.M. Repeat this step as necessary to obtain Max. audio output.

STEP 4 S Meter Adjustment:

1) Set the attenuator of Signal Generator to 1OO uV.
2) Adjust VR7 for "S9" reading on the built-in S Meter, with 1OO uV signal input.

STEP 5 Squelch Adjustment:

1) Turn SQUELCH Control Max. Clockwise
2) Set the attenuator of Signal Generator to 1 mV.
3) Adjust VR4 for squelch open with 1 mV signal input.

NOTES ON VOLTAGE MEASUREMENT

Refer to the Schematic Diagrams.

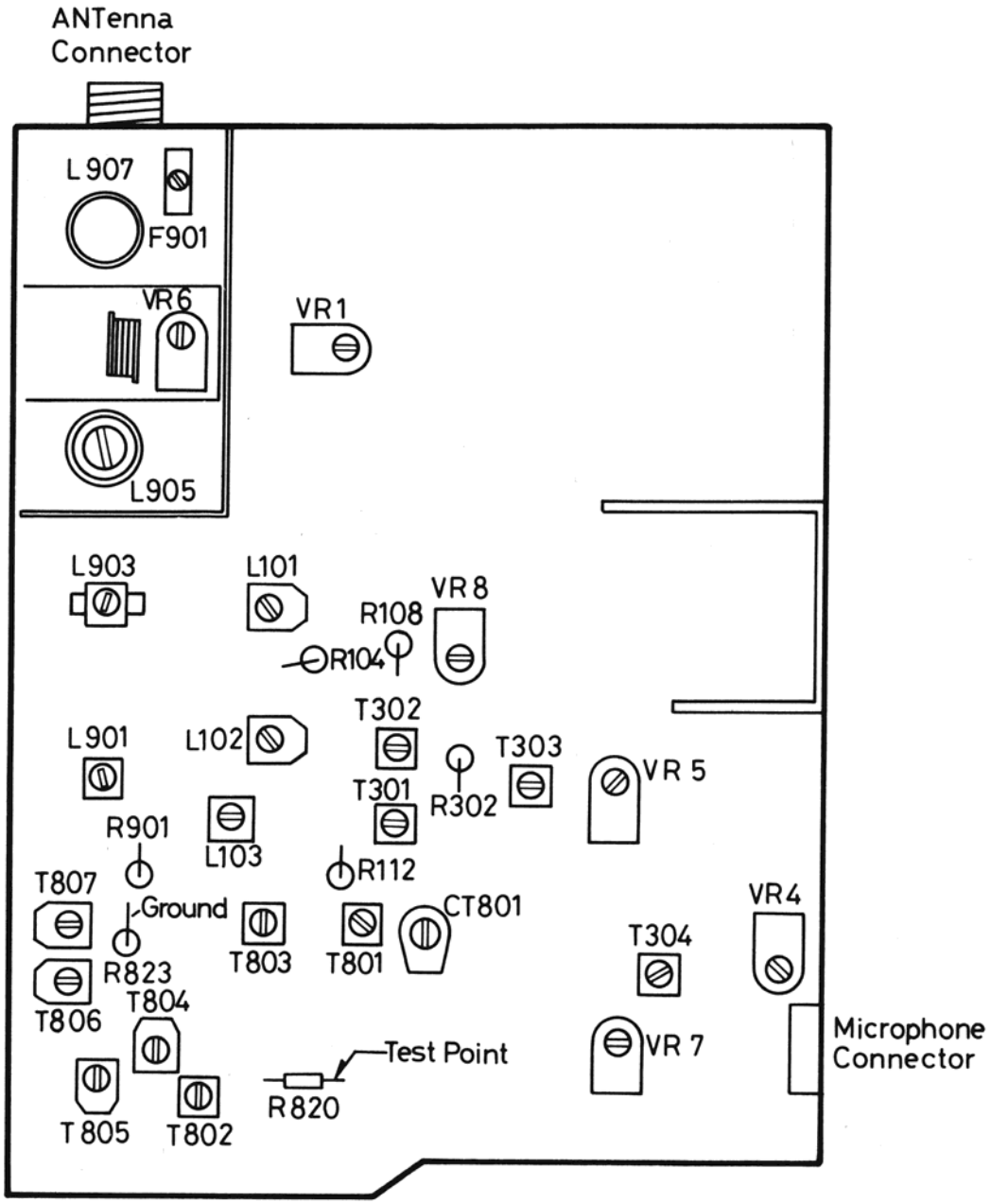
1. ALL VOLTAGES ARE MEASURED UNDER UNSQUELCHED CONDITION.
2. Q101, Q102, Q103, Q104, Q301, Q302, Q303, Q501, Q502, Q503, Q504, Q601 and Q803
   UPPER BOX: MEASURED IN RECEIVE MODE
   LOWER BOX: MEASURED IN TRANSMIT MODE
3. Q602, Q801 and Q802
   COMMON TO BOTH RECEIVE AND TRANSMIT MODES
4. IC701
   MEASURED IN RECEIVE MODE
5. Q603 and Q901
   MEASURED IN TRANSMIT MODE
6. WAVEFORMS AT Q902 AND Q903 ARE MEASURED IN TRANSMIT MODE.

PROGRAM CODE

	PIN NUMBER								VCO	
IC801	10	11	12	13	14	15	16	17	RX	TX
	P_0	P_1	P_2	P3	P_4	P_5	P_6	P_7		
CH 1	0	0	0	0	0	0	0	0	16.27	16.725
2	0	1	1	1	1	0	0	0	16.28	16.735
3	0	1	1	0	1	0	0	0	16.29	17.745
4	1	0	1	0	0	0	0	0	16.31	16.765
5	1	1	1	0	1	0	0	0	16.32	16.775
6	1	0	1	1	1	0	0	0	16.33	16.785
7	0	1	0	0	0	0	0	0	16.34	16.795
8	1	1	1	1	1	0	0	0	16.36	16.815
9	1	1	1	0	0	0	0	0	16.37	16.825
10	1	1	0	1	1	1	0	0	16.38	16.835
11	0	0	0	0	0	1	0	0	16.39	16.845
12	0	1	1	1	1	1	0	0	16.41	16.865
13	0	1	1	0	1	1	0	0	16.42	16.875
14	1	0	1	0	0	1	0	0	16.43	16.885
15	1	1	1	0	1	1	0	0	16.44	16.895
16	1	0	1	1	1	1	0	0	16.46	16.915
17	0	1	0	0	0	1	0	0	16.47	16.925
18	1	1	1	1	1	1	0	0	16.48	16.935
19	1	1	1	0	0	1	0	0	16.49	16.945
20	1	1	0	1	1	0	1	0	16.51	16.965
21	0	0	0	0	0	0	1	0	16.52	16.975
22	0	1	1	1	1	0	1	0	16.53	16.985
23	0	1	1	0	1	0	1	0	16.56	17.015
24	1	0	1	0	0	0	1	0	16.54	16.995
25	1	1	1	0	1	0	1	0	16.55	17.005
26	1	0	1	1	1	0	1	0	16.57	17.025
27	0	1	0	0	0	0	1	0	16.58	17.035
28	1	1	1	1	1	0	1	0	16.59	17.045
29	1	1	1	0	0	0	1	0	16.60	17.055
30	1	1	0	1	1	1	1	0	16.61	17.065
31	0	0	0	0	0	1	1	0	16.62	17.075
32	0	1	1	1	1	1	1	0	16.63	17.085
33	0	1	1	0	1	1	1	0	16.64	17.095
34	1	0	1	0	0	1	1	0	16.65	17.105
35	1	1	1	0	1	1	1	0	16.66	17.115
36	1	0	1	1	1	1	1	0	16.67	17.125
37	0	1	0	0	0	1	1	0	16.68	17.135
38	1	1	1	1	1	1	1	0	16.69	17.145
39	1	1	1	0	0	1	1	0	16.70	17.155
40	1	1	0	1	1	1	0	1	16.71	17.165

NOTE: "1" indicates "H" level (7.4V)

ALIGNMENT POINTS



Specifications

Power Source	13.8V DC
Size	5⅛" x 9" x 2"

Receiver Section

Sensitivity	0.5 μV
Squelch Threshold	0.25 μV
Squelch Deepest Point	200 μV
"S" Meter S-9	100 μV
Maximum AF Output Power	3.0 W
AF Output Power/10% Distortion	2.5 W
Selectivity BW @ 6 dB Down	±6 KHz
Adjacent Channel Rejection	−55 dB
Image Rejection	−45 dB
Speaker Impedance	8 Ω

Transmitter Section

Modulation (Peak)	100%
Power Output	4.0 W
Emission Type AM	6A3
Hum and Noise (Better than)	−60 dB
Frequency Tolerance	.005%
Antenna Impedance	50 Ω
Frequency Determining Method	PLL

Public Address

Output Power @ 10% Distortion	4.0 W

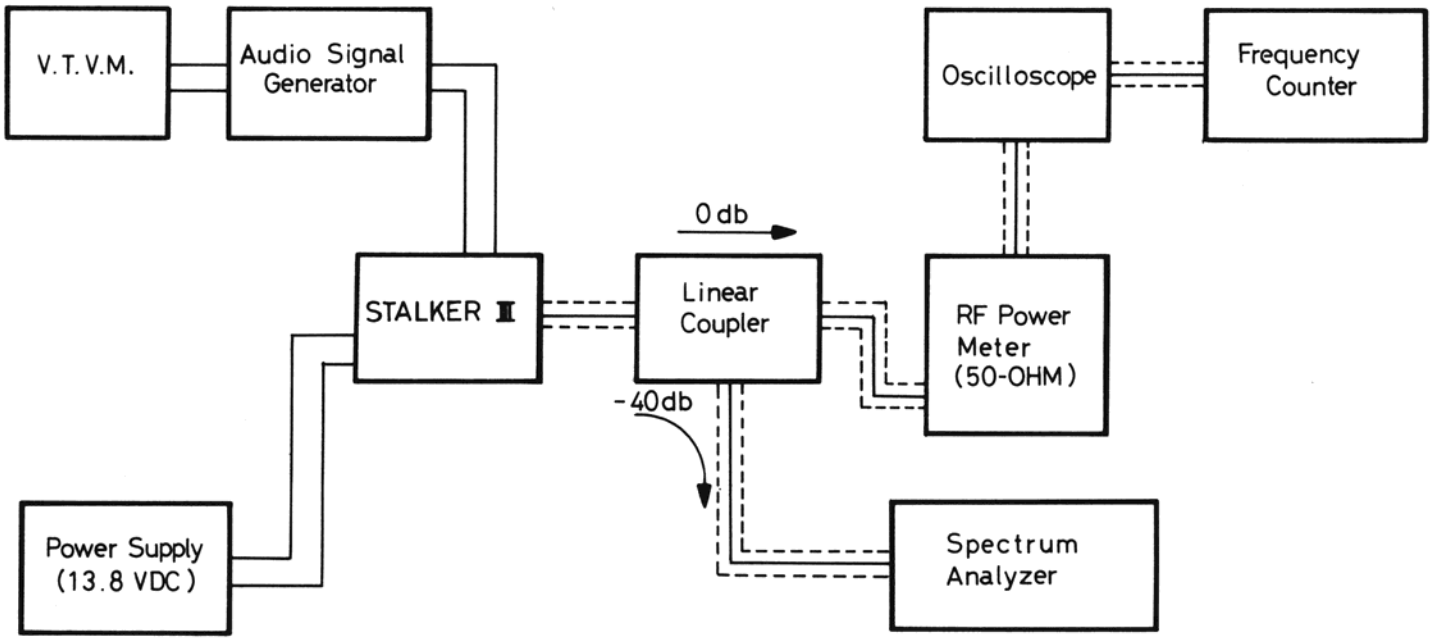


Figure 1

TEST EQUIPMENT BLOCK DIAGRAM FOR TRANSMITTER SECTION

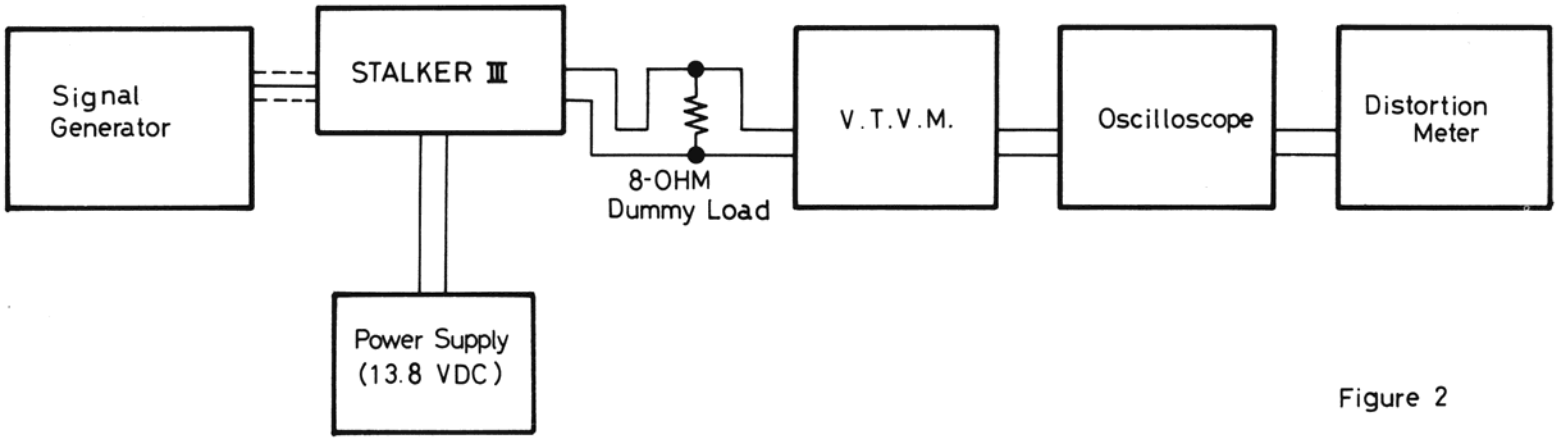


Figure 2

TEST EQUIPMENT BLOCK DIAGRAM FOR RECEIVER SECTION

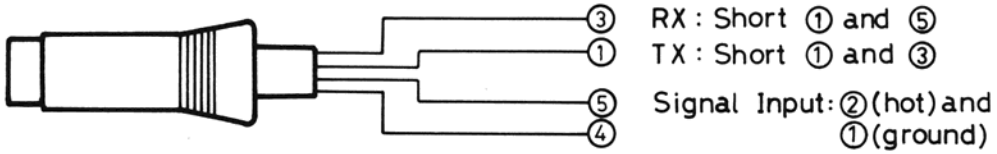


Figure 3

MICROPHONE WIRING DIAGRAM

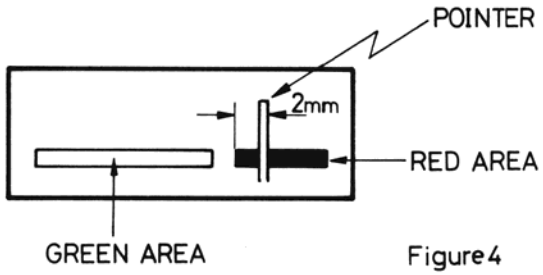


Figure 4

"S"/RF METER INDICATOR

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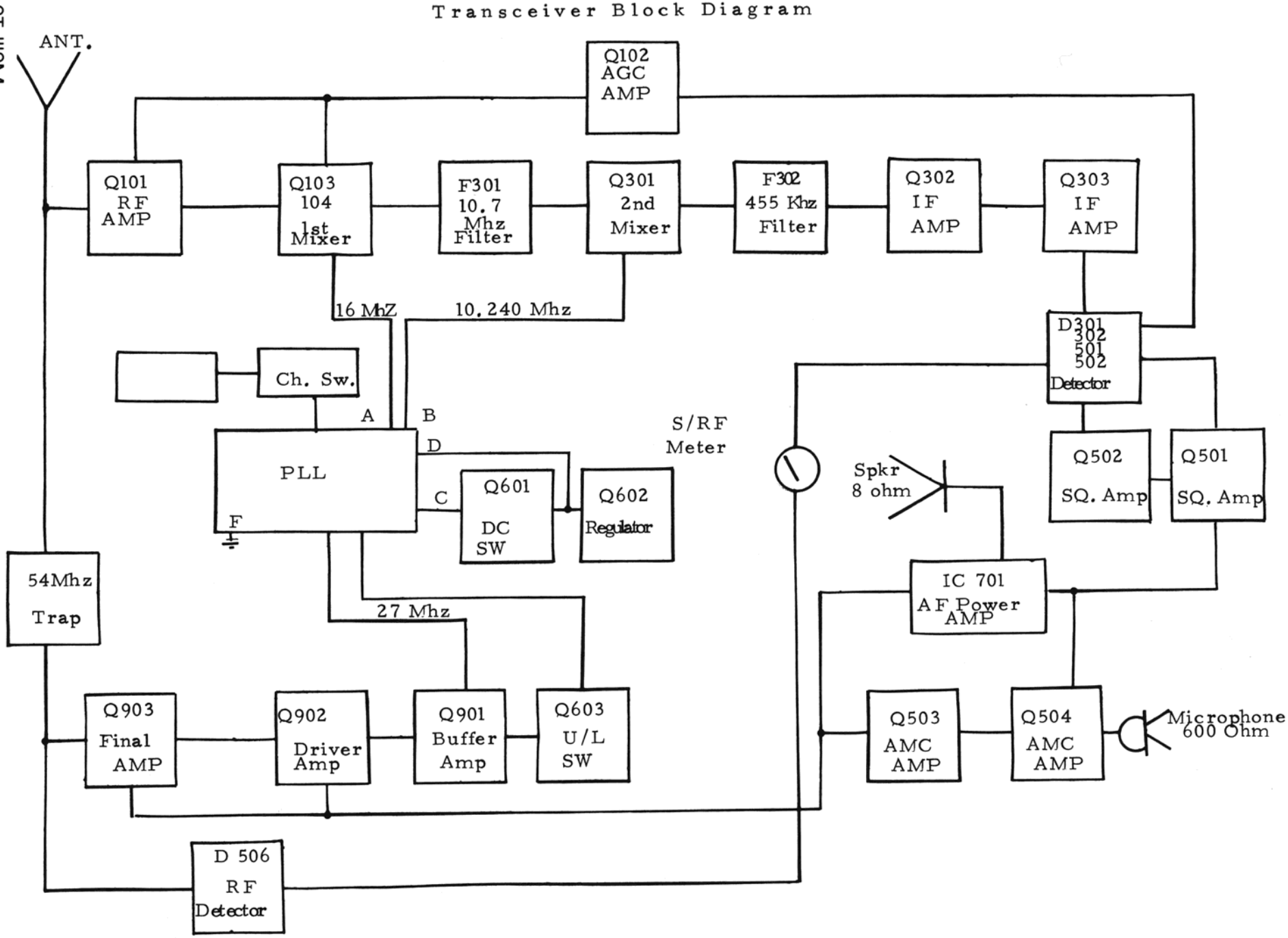
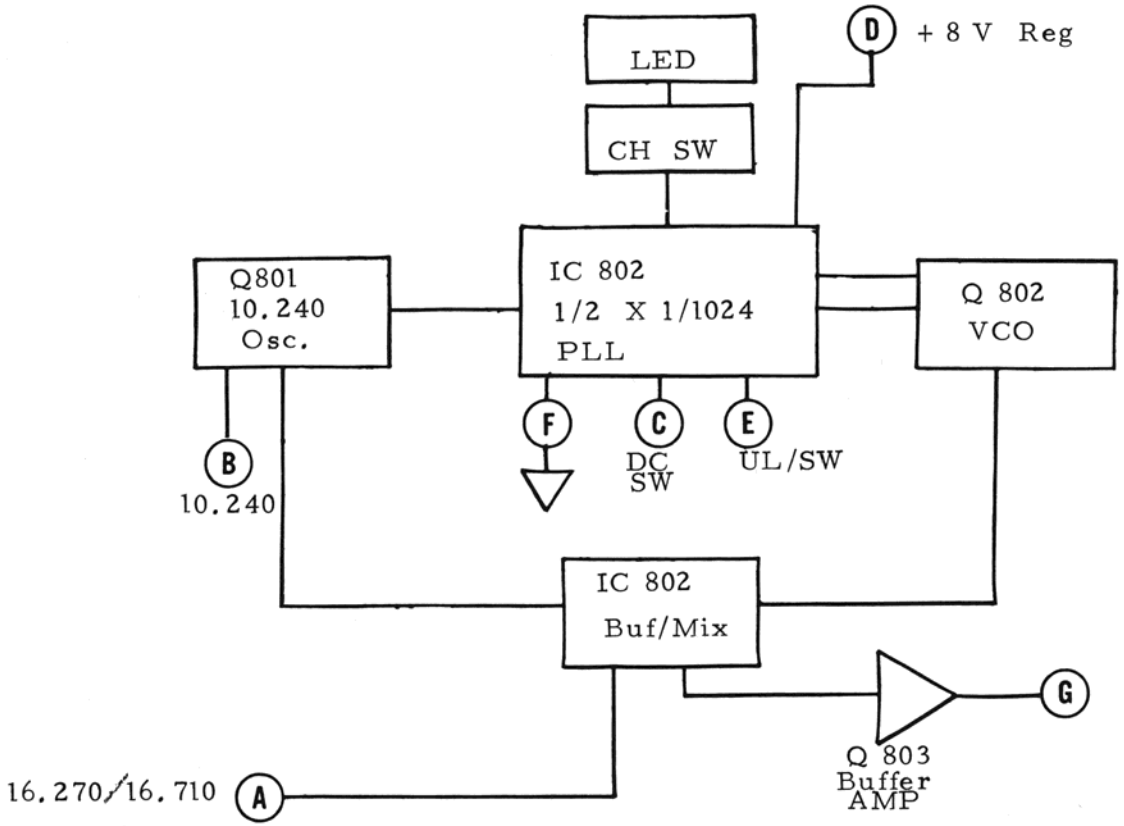
Transceiver Block Diagram



PLL BLOCK DIAGRAM



RX= 16.270 ~ 16.710 Mhz
TX=16.725 ~ 17.165 Mhz


MCL-43HB
4-230R107

STALKER III

Manufacture Number	Symbol	Description
B1053	Q101	2SC1393, 2SC930, 2SC1674, or 2SC1730
B1029	Q102 Q502	2SC536, BC408, 2SC945, 2SC372, 2SC828, 2SC1815, JE9014 or ED1402
B1053	Q103	2SC2000, 2SC930, 2SC1695, 2SC1674,
B1068	Q104	2SC1675, 2SC829, or ED1502
B1068	Q301	
B1068	Q302	
B1068	Q303	
B1068	Q801	
B1068	Q802	
B1011	Q504	2SA733, 2SA495, 2SA984, 2SA675, or
B1011	Q601	2SA641
B1077	Q503	2SD227
B1082	Q501	2SK30A, 2SK19, 2SK49, 2SK104, 2SK68, or JF1033
B1080	Q803	2SK19, 2SK49, 2SK68, or JF1033
B1078	Q602	2SD325, 2SD234, 2SC1173, or 2SC1096
B1060	Q901	2SC1175, BC546, or 2SC1166
L1171	Q902	2SC1975, 2SC2028, 2SC2314, 2SC2079, or 2SC2086
B1071	Q903	2SC1909, 2SC2078, or 2SC2166
B1256	IC 701	TA7205P or TA 7205AP
D1626	IC 801	TC9106 P
D1627	IC 802	TA7320P

Manufacture Number	Symbol	Description
E1007	D101	ISS53, ITT73N, ITT73C, ISi588, ISI587,
E1007	D102	or ISI555
E1007	D103	
E1007	D104	
E1007	D106	
E1007	D301	
E1007	D501	
E1007	D502	
E1007	D503	
E1007	D504	
E1007	D506	
E1007	D601	
E1007	D603	
E1007	D604	
E1007	D605	
E1007	D606	
E1007	D607	
E1007	D802	
D1628	D105	ISV77
C1050	D302	ISI88 or IN60
D1577	D602	XZ 086 or RD8, 6EB
B1204	D505	DLP 123B
D1629	D801	ITT310G, SVC201 or SVC101
D1604	D803	SL1271
E1017	D701,	DS130, F14A or 10D-1
E1017	D702	

Manufacture Number	Symbol	Description	
D163O		4-222R-79574	Semi-Variable Resistor 5KB
D1631		4-253R-924OO	HF Filter (SFE 1O 7MSA)
D1632	3	3-253R-919OO	HF Filter (54MHz.)
D1633	L1O1	4-259R-923OO	RF Coil
D1634	L1O2	4-259R-924OO	RF Coil
D1635	L1O3	4-259R-925OO	RF Coil
H1O5O	L9O1	4-259R-865OO	RF Coil
D1636	L9O2	4-253R-723OO	RF Choke with 68O ohm/1/2 W resistor
D1637	L9O3	4-259R-932OO	RF Coil
D1638	L9O4	4-253R-724OO	RF Choke with 22O Ohm/1/2 W resistor
D1639	L9O5	4-259R-933OO	RF Coil
D164O	L9O6	4-253R-715OO	RF Choke
D1641	L9O7	4-259R-8982O	RF Coil
D1642	L8O1	4-255R-8O9OO	Choke Coil 1OO mA Max.
D1643	T3O1	4-256R-768OO	IFT
D1644	T3O2	4-256R-769OO	IFT
D1645	T3O3	4-256R-77OOO	IFT
D1646	T3O4	4-256R-771OO	IFT
D1647	T7O1	4-254R-814OO	OPT
D1648	T8O2	4-258R-831OO	Osc. Coil
D1649	T8O3	4-259R-927OO	RF Coil

Manufacture Number	Symbol	Description	
D165O	T8O4	4-259R-928OO	RF Coil
D1651		176-O11R-165OO	Cabinet Assembly
D1652		176-O-126R-166OO	Back Lid Assembly
D1653		176-2-141R-17221	Rating Plate
D1654		176-2-467R-112OO	Rivet, for Rating Plate Mtg.
D1655		176-O-163R-14OO1	Rotary Knob Assembly Channel Select Switch
D1656		176-O-163R-115O1	Rotary Knob Assembly Volume/off and Squelch/PA Controls
		R-Y946O1O	Hex. Bolt, 6X1Omm, " + "
D1657		4-224T-OO1OOA	Trimmer 5O pF, green
D1659		4-223R-812OO	Capacitor Block, O.OO2 uFx8
D1658		4-511R-816OO	RF Power/S Meter
D166O		4-231R-237OO	ANL/OFF and DIM/Brite Switches
D1661		176-2-142R-115OOB	Badge
D1662		4-236R-827OO	Plug
		R-Y621S12F-1	Mica Sheet for IC 7O1 IS12F-1 type
D1663		4-151R-816OO	Speaker, 77mm/8ohm/1W
D16O4		SL 1271	LED, Channel Indicator
D1676	YZO4O	YZO4O	Zener Diode
D1664		4-231R-551OO	Rotary Switch

Manufacture Number	Symbol	Description	
D1665		4-222R-57900	Variable Resistor with switch, 50 KA, Volume/ Off Control
D1666		4-222R-58600	Variable Resistor with switch, 20 KB, Squelch/PA Control
D1667		4-222R-79573	Semi-variable resistor, 2KB
D1668		176-6-411R-222000	Instruction Manual
D1677		176-6-141R-17704	Display Carton
		176-6-419R-11600A	FCC Rules and Regulations Part 95 Subpart D
L1019		176-6-451R0112000C	Warranty Card
D1669	T801	4-259R-92600	RF Coil
D1670	T805	4-259R-92900	RF Coil
D1670	T806		
D1671	T807	4-259R-93000	RF Coil
D1672		176-0-122R-15500	Front Panel Ass'y.
D1673		176-2-122R-15501	Front Panel
D1674		176-2-143R-19401	Marking Plate
D1675		176-2-135R-17501	Clear Window
		176-0-368R-10600	Heat Sink Assembly for Q903
		176-2-368R-16600	Heat Sink, for Q 602 and IC 701
		176-0-368R-10700	Heat Sink assembly for Q902
		R-Y933006	Binding Hd Thread Rolling Screw, 3x6mm, black for cabinet Mtg.