

# AMC

## SERVICE MANUAL

# XT

## STEREO TUNER

# TUNER ALIGNMENT PROCEDURE

## FM SECTION

### A. PREPARATION

1. Set stereo modulator to mono mode with 1KHz modulating signal unless otherwise state.
2. Set signal generator to FM mode with 75KHz deviation.
3. Store the following frequencies: 87.5MHz, 90.1MHz, 98.1MHz, 106.1MHz and 107.9MHz.
4. RF levels are open circuit voltages of signal generator with 75 ohms output impedance.

### B. OSCILLATOR TUNING VOLTAGE

1. Connect DVM between FE1 No. 5 PIN and ground.
2. Tune to 87.5MHz and check DVM for reading of 3Vdc +/-0.5Vdc
3. Tune to 107.9MHz and check DVM for reading of 20.5Vdc +/-0.5Vdc.

If either of the above is out of tolerance, adjust FE1 (oscillator coil L101) until both readings are within tolerance.

### C. I.F.

1. Connect DVM between TP2 and TP3.
2. Apply 98.1MHz (60dBu) to FM antenna input and tune to 98.1MHz.
3. Adjust IFT1 (FM IF) for 0Vdc +/-50mV reading on DVM.
4. Adjust IFT2 (FM IF) until minimum THD is achieved at audio output.
5. Repeat (3) and (4) until no further improvement can be made.

### D. FRONT-END I.F.

1. Apply 98.1MHz (12dBu) to antenna input and tune to 98.1MHz.
2. Carefully adjust FE1 IFT until minimum THD is achieved at audio output.

### E. R.F.

1. Apply 98.1MHz (7dBu) to antenna input and tune to 98.1MHz.
2. Check if THD is better than 3%. If not, proceed to (3).
3. Adjust FRONT-END COILS (L102 - L104) by squeezing or stretching using a non-metallic tool until THD is better than 3%.
4. Check THD at 90.1MHz and 106.1MHz with 8dBu input. If THD is more than 3% for both frequencies, re-adjust until required THD is met.

### F. AUTOSEARCH AND FM STEREO LEVEL

1. Turn VR2 fully clockwise.
2. Set stereo modulator to L=R mode and 98.1MHz (32dB) to antenna input.
3. Adjust VR2 clockwise until "S" light up in the LCD.

4. Check if auto-search operation is working properly at antenna input level of 28dB.

#### G. CENTER TUNER LED

1. Turn VR1 fully clockwise.
2. Set stereo modulator to MONO mode and 98.1MHz (26dB) to antenna input.
3. Adjust VR2 clockwise until "T" display in the LCD.

#### H. STEREO SEPARATION AND PILOT SUPPRESSION

1. Modulate L- only at 98.1MHz (68dBu) and adjust VR3 for minimum output on right channel.
2. Modulate R- only and adjust VR3 for minimum output on left channel.
3. Repeat (1) and (2) until readings are the same and within specification (>45dB).
4. Turn off modulating signal but leave pilot tone.
5. Adjust FL6 and FL7 for minimum output on left and right channels, respectively.

### AM SECTION

#### A. PREPARATION

1. Set signal generator to AM mode with 1KHz at 30% modulation.
2. Connect 22pF ceramic capacitor between signal generator and AM antenna input terminal input; the capacitor should be as close as possible to antenna input terminal.
3. Store the following frequencies: 600KHz, 1000KHz and 1400KHz.

#### B. OSCILLATOR TUNING VOLTAGE

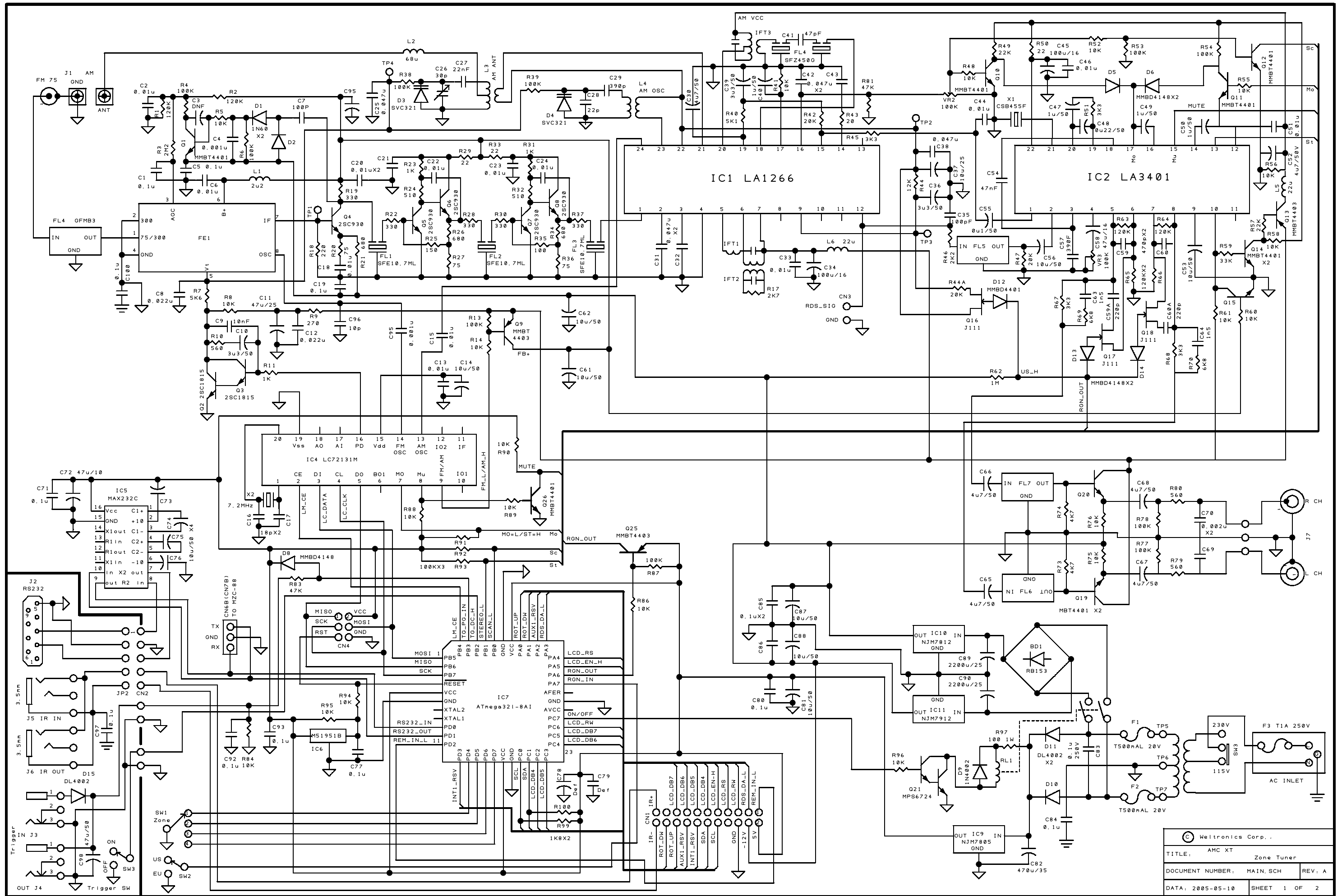
1. Connect DVM between TP4 and TP5 (Ground).
2. Tune to 600KHz and adjust L4 (AM OSC) for 1.75Vdc +/-50mV reading on DVM.

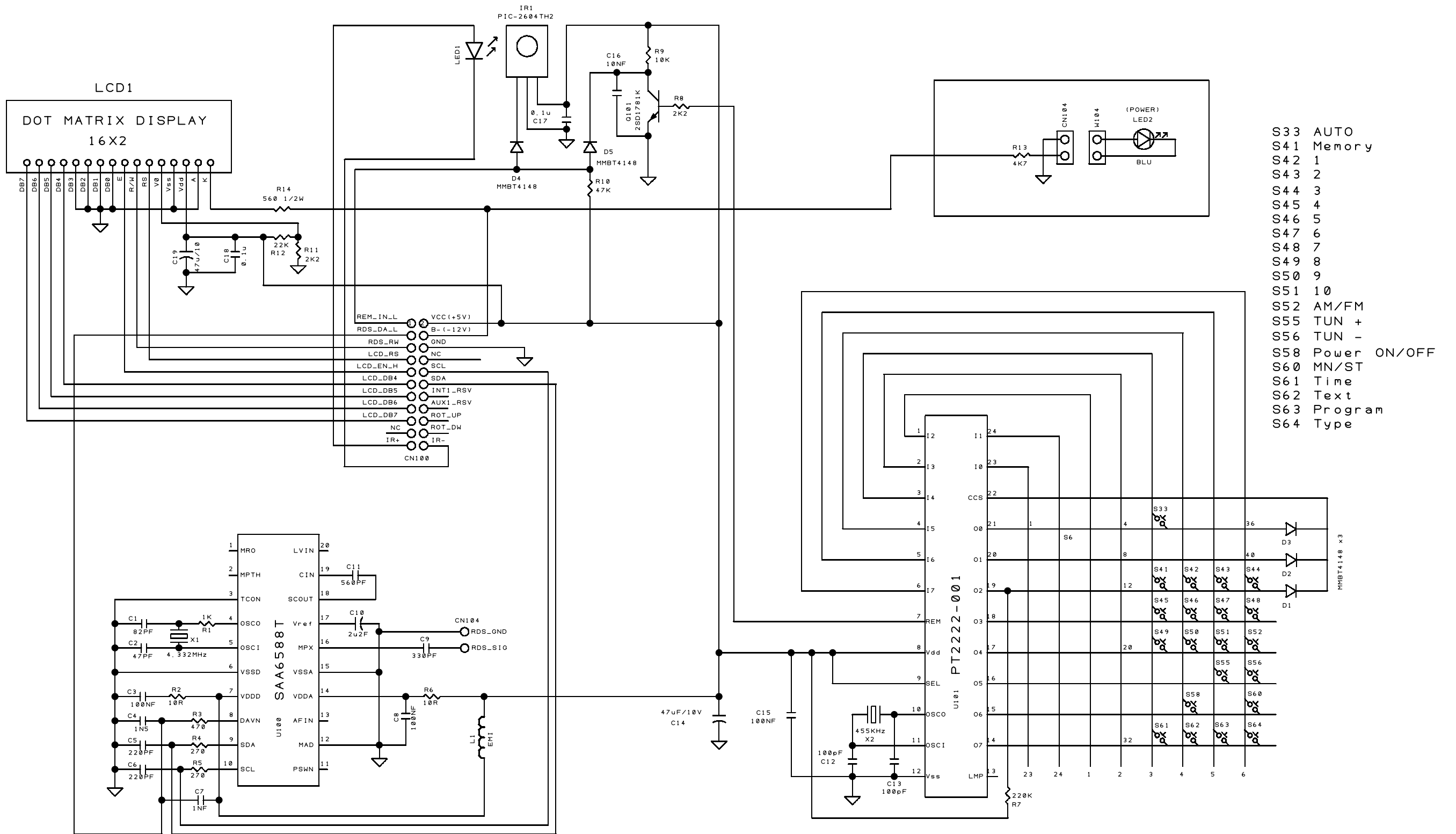
#### C. I.F.

1. Apply 1000KHz (45dBu) to antenna input.
2. Tune to 1000KHz and adjust IFT3 (AM IFT) for maximum reading on audio output.

#### D. R.F.

1. Apply 600KHz (45dBu) to antenna input.
2. Tune to 600KHz and adjust L3 (AM ANT) for maximum reading on audio output.
3. Apply 1400KHz (45dBu) to antenna input.
4. Tune to 1400KHz and adjust C26 (VC TRIM) for maximum reading on audio output.
5. Repeat (1) to (4) until no further improvement can be made.





- S33 AUTO
- S41 Memory
- S42 1
- S43 2
- S44 3
- S45 4
- S46 5
- S47 6
- S48 7
- S49 8
- S50 9
- S51 10
- S52 AM/FM
- S55 TUN +
- S56 TUN -
- S58 Power ON/OFF
- S60 MN/ST
- S61 Time
- S62 Text
- S63 Program
- S64 Type

**XT SERVICE PART LIST - EC, BLACK**

ITEM	PART NUMBER	LOCATION	PART DESCRIPTION		QTY
1	90-1742-2		MODULE, TUNER MAIN PCB	XT	1
2	29R-1236-220	L5.6.	INDUCTOR 22uH 10% SMD 1210		2
3	29R-1236-2R2	L1.	INDUCTOR 2u2H 10% SMD 1210		1
4	29R-1236-680	L2.	INDUCTOR 68uH 10% SMD 1210		1
5	30R-LC72131M	IC4.	IC FREQ SYNTHESIZER LC72131M	MFP20 RoHS SANYO	1
6	30R-MMBD4148	D5.6.8.12.13.14	DIODE SWITCHING MMBD4148/914	DIODE 0.2A/75V SOT-23	6
7	30R-MMBT4401LT1	Q1.10.11.12.14.15.19.20.26.	TR NPN MMBT4401LT1	ON 0.6A/40V SOT-23	9
8	30R-MMBT4403LT1	Q9.13.25	TR PNP MMBT4403LT1	ON 0.6A/40V SOT-23	3
9	30R-M4	D9.10.11	RECTIFIER DIODE M4	1A 400V SMA WILLAS	3
10	30R-AT32L-8AU	IC9.	IC ATMEGA32L-8AU 8-BIT AVR	8K FLASH TQFP 44A	1
11	30R-2SC1815GR	Q2.3.	TR NPN 2SC1815GR TAP	TOSHIBA	2
12	30R-2SC829C	Q4.5.6.7.8.	TR NPN 2SC829C TO-92 TAP		5
13	30R-J112	Q16.17.18.	TR JFET N-ch J112 35V 350mW	XT TO-92 ON/FAIRCHILD	3
14	17R-2019	C26.	VC TRIM 30PF TZ03R300FR		1
15	16R-1AN121J	R97.	RES MO 120R 5% 1W RSF1 MK		1
16	29R-R6V104B	VR2.3.	SEMI-FIX VR 100KB RH0615C15J		2
17	30R-4020	X1.	CER-RESONATOR CSB456F11		1
18	30R-4017-1	X2.	CRYSTAL QUARTZ 7.2MHz HC-49US		1
19	15R-3010*A	FEI.	FRONT END KST-F724HA-1		1
20	17R-2016-1	FL4.	CERAMIC FILTER SFZ450B		1
21	17R-2017	FL5.	EMI FILTER S-174-077		1
22	17R-2027	FL1.2.	CERAMIC FILTER 10.7MHz RED	MURATA SFELF10M7FA00-B0	3
23	29R-1224	IFT2.	FM IFT TWS-384-0428(4400)		1
24	29R-1225	IFT3.	AM IFT TWS-384-0425(5200)		1
25	29R-1226	IFT1.	FM IFT TWS-384-0427(4300)		1
26	29R-1228	FL6.7.	MPX FILTER S-174-084 10DFEE01		2
27	29R-1230	L3.	AM RF TWS-384-426 (M-10BLN)	TUNER SERIES SUMIDA	1
28	29R-1231	L4.	AM OSC TWS-384-424		1
29	30R-1N60*A	D1.2.	DIODE 1N60 (RED)		2
30	30R-LA1266	IC1.	IC LA1266 (AM/FM IF)		1
31	30R-LA3401	IC2.	IC LA3401 (FM MPX)		1
32	30R-M51951B	IC6.	IC RESET M51951BSL	mitsubishi	1
33	30R-SVC321SPA	D3.4.	DIODE SVC321SPA(A)		2
34	12R-2154-1	J7.	JACK RCA 2P SEMI GOLD PLATED	DTR-0202G-004-1	1
35	12R-2240	J1.	ANT TERMINAL AJ-2019-040 US	XT	1
36	17R-2.5EF228M	C89.90	CAP EL 2200uF/25V 20%	HTC5 13x21mm	2
37	17R-2023-1	FL4.	BAND PASS FILTER LPF88A		1
38	30R-HIN232CP	IC5.	IC RS232 DRIVER/RECEIVER	HIN232CP DIP16 RoHS XT	1
39	30R-LM7805A	IC9.	IC POSITIVE VOL.REG.LM7805(F)A	NS/JRC/ST/IR/ON 1A/5V TO-220	1
40	30R-LM7812A	IC10.	IC POSITIVE VOL.REG.LM7812(F)A	NS/JRC/ST/IR/ON 1A/12V TO-220	1
41	30R-LM7912A	IC11.	IC NEGATIVE VOL.REG.LM7912(F)A	NS/JRC/ST/IR/ON 1A-12V TO-220	1
42	30R-MPS6724	Q21.	TRANSISTOR MPS6724		1
43	30R-RB154	BD1.	DIODE BRIDGE RB154 1.5A/400V		1
44	31R-1383	SW2.	SWITCH SLIDE SKV-22D21-G6-TA	2P2T L=6mm	1
45	31R-1383-1	SW1.	SWITCH SLIDE SKV-24D02-G6-NA	2P4T L=6mm XT	1
46	35R-3046	RL1.	RELAY DPST 12V UL/CSA/VDE	VB-12MBU-5 TAKAMISAWA	1
47	90-1798		MODULE, TUNER DISPLAY	XT	1
48	19R-1798		PCB FR4 D-S DISPLAY	XT	1
49	30R-MMBD4148	D1.2.3.4.5.	DIODE SWITCHING MMBD4148/914	MZC&M DIODE 0.2A/75V SOT-23	5
50	30R-SAA6588T	U100.	IC RDS PRE-PROCESSOR SAA6588T	SO20 PHILIPS	1
51	30R-PT2222-001	U101.	IC RC TRANSMITTER PT2222-001	SOP24 PRINCETON	1
52	29R-1242	L1.	FERRITE BEAD 1.0A 0805	ACM201209A600	1
53	30R-2SD1781KR	Q1.	TR NPN 2SD1781KR SOT-23		1
54	30R-M4	D15.	RECTIFIER DIODE M4	MZC-66 1A 400V SMA WILLAS	1
55	30R-MIR053	LED1.	DIODE INFRARED EMITTING	MIR053 XT	1
56	30R-4028-1	X1.	CRYSTAL 4.332MHz HC-49US		1
57	30R-4029	X2.	RESONATOR CSB455EB	MURATA	1
58	30R-1156*B	LCD1.	LCD MODULE C1624MWLJ1 16x2	ECOMAG w85xh30xd13.2mm	1
59	30-PIC-26043TH2	IR1.	RECEIVER IR T7a PIC-26043TH2		1
60	31R-1365	S41-52.55.56.33.60.	TACT SW SKHHBV2710-EK 7mm		6
61	31R-1375	TIME/TEXT/PROGRAM/TYPE.	SWITCH TACT 4.5x6.5mm L=17mm	KA-170 RoHS TECX	4
62	12R-2239-1	J3.J4.	JACK DC POWER 2.5mm	DJ-0702B-025 JYE TAI	2
63	31R-1383	SW3.	SWITCH SLIDE SKV-22D21-G6-TA	2P2T L=6mm	1
64	90-1801		MODULE, POWER SUPPLY	XT	1
65	19R-1801		PCB FR4 D-S POWER SUPPLY RoHS	XT	1
66	31R-1250		SWITCH PUSH NON-LOCK 1P RoHS	XT/AV81HT	1

67	XT-B-COM		COMMON PARTS	XT		1
68	11R-8644*A		PANEL REAR RoHS	XT		1
69	11R-8633B-2		PANEL FRONT BLACK	XT w430xh72xd23mm		1
70	11R-6425-1		CHASSIS FRONT RoHS	XT 420x57.2x13.5mm		1
71	11R-6436		CHASSIS MAIN RoHS	XT		1
72	13-1063		WINDOW DISPLAY XT			1
73	11R-1123-1		COVER TOP BLK RoHS	AMC		1
74	12-1083		POWER LINK			1
75	12R-1120		SHAFT BUTTON			6
76	12R-2177		ANT FM 300 ohm T TYPE			1
77	12R-2178		ANT FM BALUN AJ-2010 A1	75 ohm<-> 300 ohm		1
78	12R-2116*B		AC INLET 3P W/FUSE HOLDER	SC-8F-21C 10A/250V SWEETA		1
79	12R-3110		KNOB PUSH BLK			6
80	12R-3152GN		POWER SW BUTTON GREEN	AMC		1
81	13R-8227B		POWER KNOB BUSHION	AMC		1
82	28R-1046-1B		FOOT (R) H=17mm BLK	AMC		2
83	28R-1046-2B		FOOT (L) H=17mm BLK	AMC		2
84	29R-2185*B-UN		TRANSFORMER POWER	XT		1
85	29R-3071		RF CORE FILTER			1
86	30R-1148		LED 3mm BLUE M034BLD	GAN/SIC 430nm PD=100mW VF=3.5		1
87	31R-1376		SWITCH SLIDE 115/230V	EV-12-2 DPDT UL/VDE		1
88	21R-2622-1*A		MANUAL INSTRUCTION RS232			1
89	XT-B-EC		EC VER PARTS 230V			1
90	14R-5030*A		POWER CORD EC 3P 1.83M BLK	EL211+EL701 H05VV-F 0.75/3C		1
91	CTR-5264		CARTON INNER RoHS	AMC w494xd361xh143mm		1
92	CTR-5265		CARTON OUTER RoHS	AMC w506xd373xh664mm		0.25
93	R32S1250500TUS		FUSE UTE T500mA/250V RoHS	T-LAG (UL/CSA/VDE) 5x20mm		2
94	R32S12502K0TUSP		FUSE UTE T2A/250V RoHS	T-LAG (UL/CSA/VDE/PSE) 5x20mm		1

XT DIFFERENT VERSION PART LIST			
PART NUMBER	XT-B_EC	XT-B_A1	XT-S_EC
11-1123S	-----	-----	1
11R-1123-1	1	1	-----
11R-8633B-2	1	1	-----
11R-8633S-2	-----	-----	1
12-3122S	-----	-----	16
12R-3097S	-----	-----	1
12R-3110	16	16	-----
12R-3152GN	1	1	-----
14R-5030*A	1	-----	1
14R-5107*B	-----	1	-----
15R-2090B	4	4	-----
15R-2090S	-----	-----	4
16R-1:2CA275J	-----	1	-----
21-3024	3	-----	3
21R-2315	-----	1	-----
21R-2331-A1	-----	1	-----
21R-2331-EC	1	-----	1
21R-2332-A1	-----	0.5	-----
21R-2332-EC	0.5	-----	0.5
21R-2440	1	-----	1
21R-3015-1	-----	1	-----