

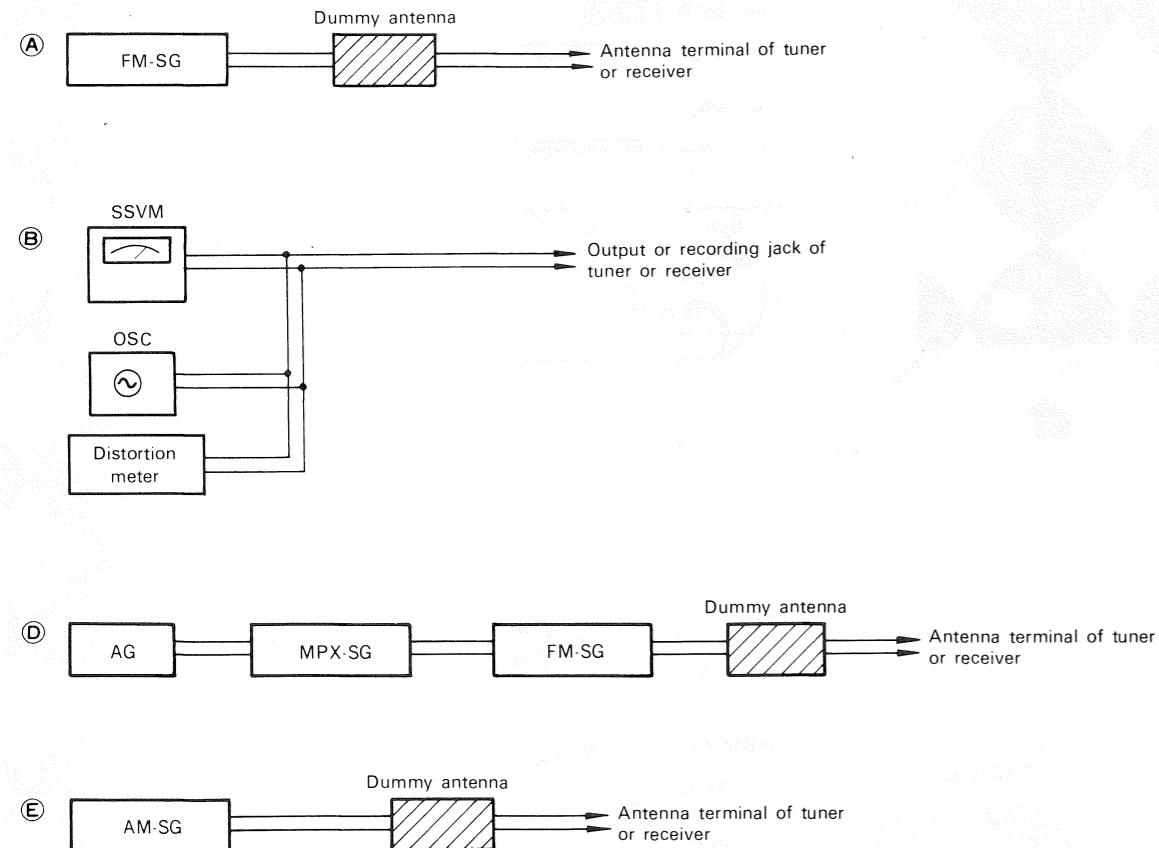
INSTRUMENTS USED

Oscilloscope	OSC
AM signal generator	AM-SG
FM signal generator	AM-SG
Audio generator	AG
Solid state voltmeter	SSVM
FM multiplex generator	FM-MPX
Frequency counter	
DC VTVM (VOM)	
Distortion Meter	

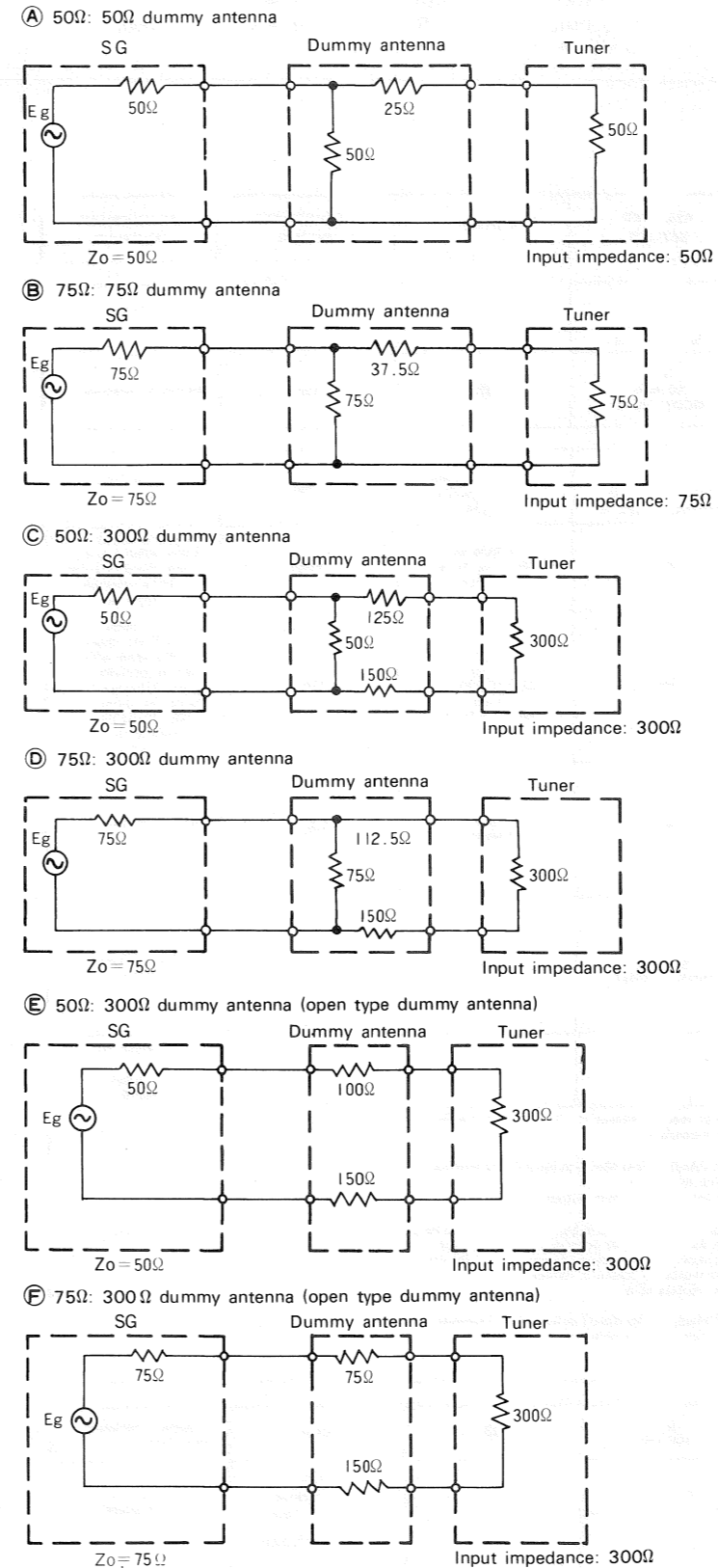
NOTE:

- * RF-SG is set to the lowest response possible on oscilloscope.
- * The output level RF-SG is made a loss by the dummy antenna. The loss is different from the dummy antenna, so you should take into consideration the value of the loss applicable to your case. (Refer to the right of this page.)
- Loss in the SG-dummy antenna connection.
 - OPEN and LOAD scales are provided for SG.
 - 1. OPEN scale:
 - Indicates an output when an infinite impedance is connected to the SG output terminals.
 - 2. LOAD scale:
 - Indicates an output when a load of the internal impedance Z_0 is connected to the SG output terminals.
- * Repeat TRACKING adjustment several times and confirm the reception of broadcasting.
- * Test point is shown in the schematic diagram.
- * Adjust the SCA Filter Coil if necessary.

INSTRUMENTS CONNECTION



NOTE) Amount of attenuation due to the pad.



- ① When using SG having OPEN type dial.
Input level at antenna of tuner is -12 dB of dial readings.
- ② When using SG having LOAD type dial.
Input level at antenna of tuner is -6 dB of dial readings.

Note) When adjusting AM tuner, connect test equipments as this.

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Input level at antenna of tuner agrees with dial readings of SG.

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INSTRUMENTS USED

Oscilloscope SCOPE
 AM signal generator..... AM-SG
 FM signal generator..... FM-SG
 Audio generator AG
 Solid state voltmeter SSMV
 FM multiplex generator FM-MPX
 Frequency counter

NOTES FOR ADJUSTMENTS

*Use moderate instrument outputs at all times.
 *The output level of RF-SG means ANT input level.
 *0 dB = 1 μ V

OR- DER	ITEM	INSTRUMENT		RECEIVER SETTING	OUTPUT	ADJUSTMENT POINTS	ADJUSTMENT METHOD
		CONNECTION	SETTING				
FM SECTION							
1	DISCRI	-	-	FM MODE: MONO Noise (between local stations)	T meter	Lg7	Meter indication in the center.
2		A	95 MHz 60 dB (ANT INPUT) 1 kHz (Mod) 75 kHz (Dev)	FM 95 MHz MODE: MONO	E	Lg8	Minimum distortion.
Repeat the alignments of 1 and 2 a few times.							
3	VCO	A	95 MHz 60 dB (ANT INT) 0 (Dev)	FM 95 MHz MODE: STEREO MUTING LEVEL: 1	F Frequency counter to VCO CHECK (Rg78)	VRg2	Adjusted to 76 kHz \pm 200 Hz
4	19 KHz CANCEL	D	FM-MPX: PILOT SIGNAL FM-SG: 60 dB (ANT INPUT)	- ditto -	SSVM to Pin 5 or Pin 6 of ICg4	VRg3	Minimum output. If any difference is found, the output levels should be adjusted to the average value.
5	SEPARATION	D	FM-MPX: SELECTOR L or R 1 kHz (Mod) PILOT (6.75 kHz Dev) FM-SG: 95 MHz 60 dB 68.25 kHz (Dev)	- ditto -	E R out (SELECTOR-L) L out (SELECTOR-R)	VRg4	Minimum output. L and R are reversed and the same adjust- ment is performed. If any difference is found, the output levels should be adjusted to the average value.
6	STEREO BEACON	D	FM-MPX: SELECTOR L + R 1 kHz (Mod) PILOT (6.75 kHz Dev) FM-SG: 95 MHz 23.5 dB (15 μ V) 68.25 kHz (Dev)	- ditto -	Stereo indicator	VRg1	Stereo indicator lights.
7	IFT	D	FM-MPX: SELECTOR L + R 1 kHz (Mod) PILOT (6.75 kHz Dev) FM-SG: 95 MHz 60 dB 68.25 kHz (Dev)	FM 95 MHz MODE: STEREO	E	L2	Minimum distortion. Adjust slightly.
8	S METER	A	FM-SG: 95 MHz 100 dB 0 (Dev)	FM 95 MHz	S meter	-	Pointer within meter scale. If it over swings, remove Rg18.

REFERENCE: FM FRONT END This section is exactly adjusted. You had better not readjust except L2. If you move trimmer capacitors or coils by any reasons, follow the next procedure.

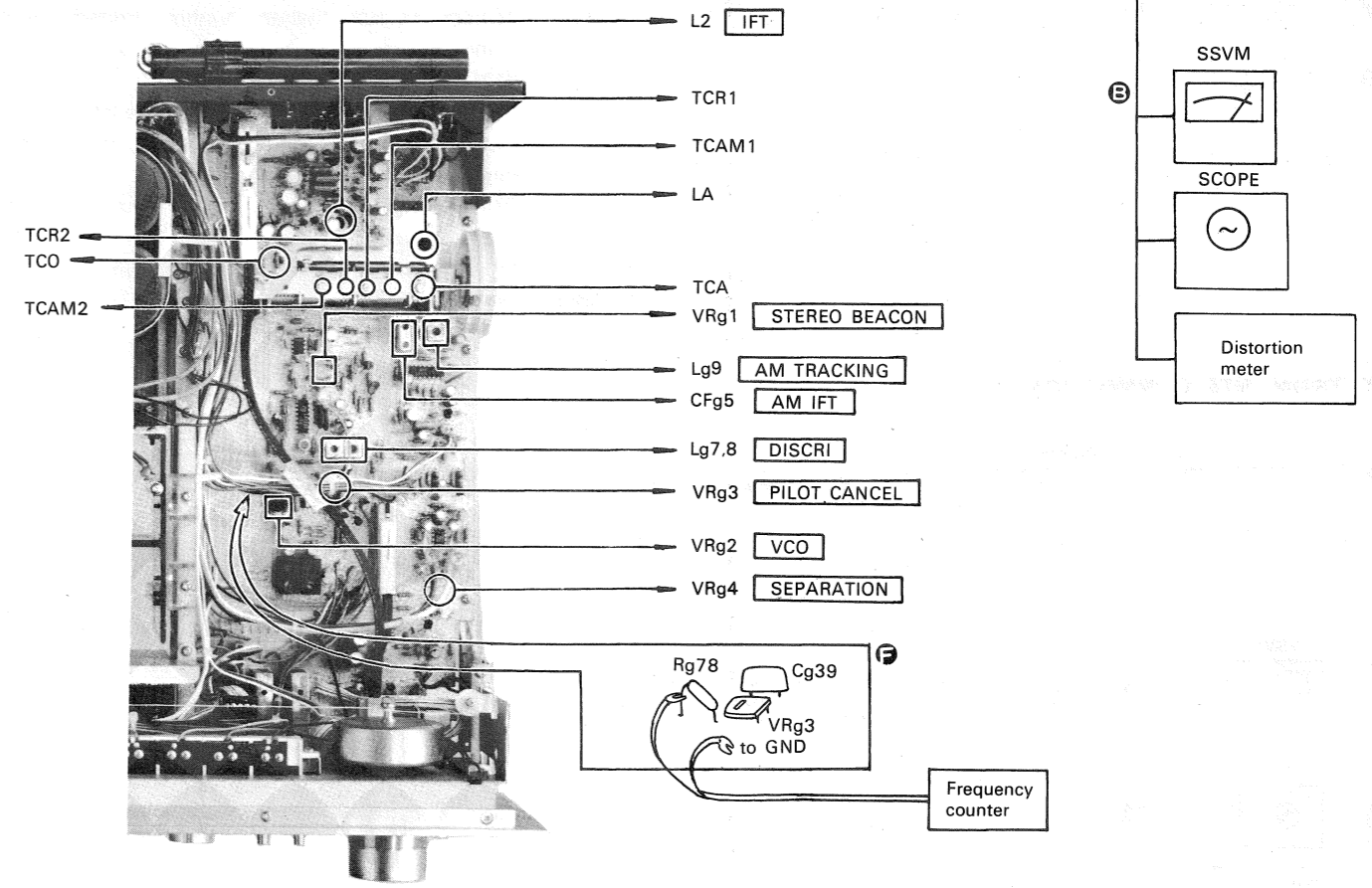
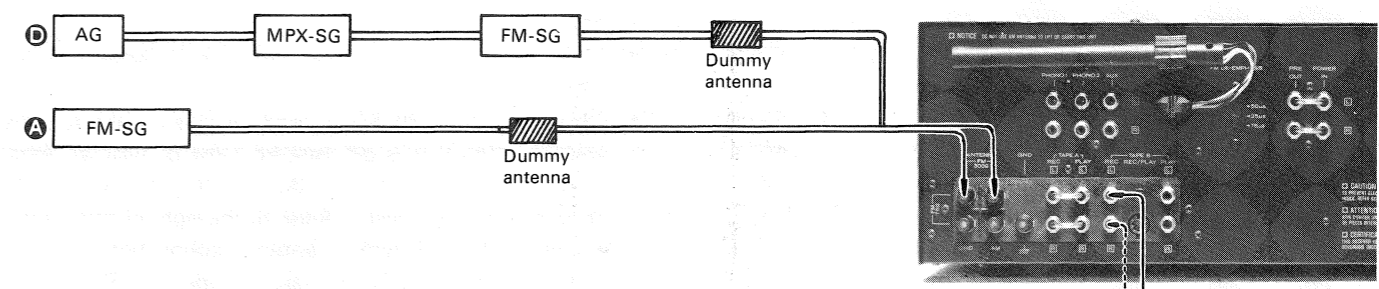
- When you have moved trimmer capacitor
 - Set the receiver to 108 MHz.
 - Connect FM-SG { 108 MHz, 1 kHz (Mod), 75 kHz (Dev) } to the antenna terminal.
 - Adjust TCO so that T meter points the center.
 - Adjust TCA, TCR1 and TCR2 so that the maximum output is derived.
- When you have moved coils

Since OSC coil is fixed type, it cannot be readjusted. If 88 MHz signal cannot be received when the dial pointer is almost 88 MHz position, replace OSC coil. After the receiver is adjusted to receive the signal, adjust the gaps of LA, LR1 and LR2 by a screwdriver so that the maximum output is derived. If this does not solve the trouble, replace coils.
- When you have replaced front end PC board ass'y
 - Connect FM-SG { 90 MHz, 1 kHz (Mod), 75 kHz (Dev) } to the antenna terminal.
 - Set the receiver so that 90 MHz signal can be received.
 - Mount the dial pointer.
 - Adjust TCA and L2.

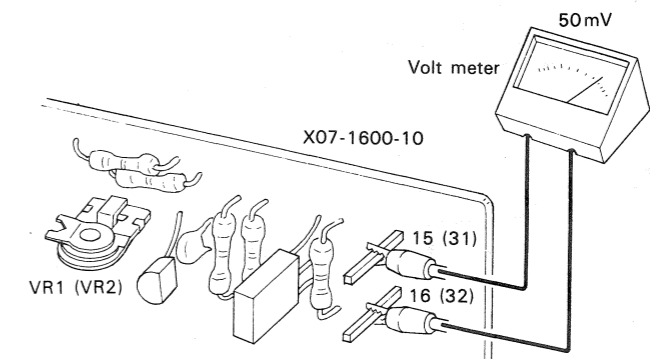
AM SECTION							
1	IFT	E	1000 kHz 400 Hz 30% (Mod) 100 dB	AM 100 kHz	E	CFg5	Maximum optimum waveform.
2	TRACKING	E	600 kHz 400 Hz 30% (Mod) 100 dB	AM 600 kHz	E	Lg9 Bar antenna	Maximum optimum waveform.
			1400 kHz 400 Hz 30% (Mod) 100 dB	AM 1400 kHz		TCAM1, TCAM2	

Repeat the alignments of 2 and 3 a few times.

AUDIO SECTION							
1	BIAS	-	-	Volume to minimum position	-	VRe1, 2	50 mV



BIAS



Ex. 1 : KR-4400, -8040, -8840, -9040, -9940.
Refer to the KR-9940's schematic diagram. (X05-1080-15)

NO.	ALIGN	TEST EQUIPMENTS		RECEIVER SETTING	OUTPUT INDICATOR	ADJUSTMENT POINTS	REMARKS
		CONNECTION	SETTING				
FM SECTION							
1		(A) and (B)	95 MHz (60 dB) 1 kHz (Mod) 75 kHz (Dev)	95 MHz	SSVM & scope to REC jack	Tg4, 5, 8	Maximum deflection
2	IF	—	—	—	T meter	Tg9 (primary)	Make the pointer position in the center of the meter
3		(A) and (B)	95 MHz (60 dB) 1 kHz (Mod) 75 kHz (Dev)	95 MHz	SSVM, scope & distortion meter to REC jack (L)	Tg9 (secondary)	Maximum deflection and minimum distortion
4	OUTPUT	ditto	95 MHz 1 kHz (Mod) 75 kHz (Dev) 60 dB (Input)	95 MHz	ditto	VRg3	Output voltage is 1V*
5	TRACKING	ditto	90 MHz 1 kHz (Mod) 75 kHz (Dev)	90 MHz	ditto	Tg1, 2, 3	Maximum deflection
6			108 MHz 1 kHz (Mod) 75 kHz (Dev)	108 MHz		CTg1~3	
7	SCA	AG to TP1	67 kHz	Non-station	SSVM & scope to TP2	Tg12	Minimum deflection
8	19 kHz 38 kHz	(B) and (C)	98 MHz 1 kHz (Mod) 68.25 kHz (Dev) Phase: Reverse 60 dB (Input)	95 MHz	SSVM & scope to REC jack (L)	Tg13, 14, 15	Maximum deflection
9	SEPARATION	ditto	95 MHz 67.5 kHz (Dev.) 1 kHz (Mod.) 60 dB (Input) L or R (SELECTOR)	95 MHz	ditto	VRg4	Minimum deflection
10	BEACON	ditto	95 MHz 40 kHz (Dev.) 1 kHz (Mod.) 60 dB (Input)	95 MHz	Stereo Indicator	VRg5	Indicator lights
11	DISTORTION	ditto	95 MHz 1 kHz (Mod) 68.25 kHz (Dev) L (Select) 60 dB (Input)	95 MHz	SSVM, scope & distortion meter to REC jack (L)	Tg4, 5, 8	Minimum distortion
AM SECTION							
1	IF	(B) and (D)	1000 kHz 400 Hz, 30% (Mod) 100 dB	1000 kHz	SSVM & scope to REC jack (L)	Tg10, 6, 7	Maximum deflection
2	TRACKING	ditto	600 kHz 400 Hz, 30% (Mod) 100 dB	600 kHz	ditto	Tg11 Bar antenna	ditto
3			1400 kHz 400 Hz, 30% (Mod) 100 dB	1400 kHz		CTg4, 5	
4	S METER	ditto	1000 kHz 400 Hz, 30% Mod.)	1000 kHz	S meter	VRg1	The meter deflection at 4.5

* KR-4400 don't have the output-level adjusting potentiometer.

Ex. 2 : KE-2500, KR-1400, -2400, -2600, -3400, -3060, -3600, -10000, KS-3000, MODEL ELEVEN.
Refer to the KR-3600's schematic diagram. (X05-1190-10)

NO.	ALIGN	TEST EQUIPMENTS		RECEIVER SETTING	OUTPUT INDICATOR	ADJUSTMENT POINTS	REMARKS
		CONNECTION	SETTING				
FM SECTION							
1		(A) and (B)	95 MHz 60 dB 1 kHz (Mod) 75 kHz (Dev)	95 MHz	SSVM & scope to REC jack (L)	Tg4, 5	Maximum deflection
2	IF	—	—	—	T.S. meter	Tg6 (primary)	Make the pointer position in the center of the meter
3		(A) and (B)	95 MHz (60 dB) 1 kHz (Mod) 75 kHz (Dev)	95 MHz	SSVM scope & distortion meter to REC jack (L)	Tg6 (secondary)	Maximum deflection & minimum
4	TRACKING	ditto	90 MHz 1 kHz (Mod) 75 kHz (Dev)	90 MHz	ditto	Tg1~3	Maximum deflection
5			108 MHz 1 kHz (Mod) 75 kHz (Dev)	108 MHz		CTg1~3	
6	OUTPUT	ditto	95 MHz 1 kHz (Mod) 75 kHz (Dev) 60 dB (Input)	95 MHz	ditto	—	Confirm output voltage is 500 mV
7	SEPARATION	(B) and (C)	95 MHz 1 kHz (Mod) 68.25 kHz (Dev) L or R (Select) 60 dB (Input)	ditto	SSVM & scope to REC jack	Tg10 (19 kHz) (38 kHz)	Minimum cross talk (Maximum separation)
8	38 kHz (This coil sealed usually should not be touched at random if not necessary.)	ditto	95 MHz 1 kHz (Mod) 68.25 kHz (Dev) Phase: Reverse 60 dB (Input)	ditto	SSVM & scope to TP1	Tg10 (19 kHz) (38 kHz)	Maximum deflection (Adjust separation in the same manner as No. 7)
9	BEACON	ditto	95 MHz 1 kHz (Mod) 40 kHz (Dev) 30 dB (Input)	ditto	—	—	Confirm STEREO indicator light
AM SECTION							
1	IF	(B) and (D)	1000 kHz 400 Hz, 30% (Mod) 100 dB	1000 kHz	SSVM & scope to REC jack (L)	Tg8, 9	Maximum deflection
2	TRACKING	ditto	600 kHz 400 Hz, 30% (Mod) 100 dB	600 kHz	ditto	Tg7 Bar antenna	Same
3			1400 kHz 400 Hz, 30% (Mod) 100 dB	1400 kHz		CTg4, 5	
4	S METER	ditto	1000 kHz 400 Hz, 30% (Mod) 100 dB	1000 kHz	T.S. meter	—	More than 90 percent deflection

Ex. 3 : KR-4600, -5400, -5600, -6020, -6060, -6400, -6600, -7060, -7600, -10000II, KT-1300B (G), KT-3300, KT-4007, KT-5300, KT-5350, KT-7300, MODEL ELEVEN MKII.

Refer to MODEL ELEVEN MKII. (X05-1390-10)

NO.	ALIGN	TEST EQUIPMENTS		RECEIVER SETTING	OUTPUT INDICATOR	ADJUSTMENT POINTS	REMARKS
		CONNECTION	SETTING				
FM SECTION							
1	IF	(A) and (B)	95 MHz (60 dB) 1 kHz (Mod) 75 kHz (Dev)	95 MHz	SSVM & scope to REC jack	Lg6, 7	Maximum deflection
2		—	—	—	T meter	Lg8 (primary)	Make the pointer position in the center of the meter
3		(A) and (B)	95 MHz (60 dB) 1 kHz (Mod) 75 kHz (Dev)	95 MHz	SSVM, scope & distortion meter to REC jack (L)	Lg8 (secondary)	Maximum deflection and minimum distortion
4	OUTPUT	ditto	95 MHz 1 kHz (Mod) 75 kHz (Dev) 60 dB (input)	95 MHz	ditto	—	Confirm output voltage is 700 mV *3
5	TRACKING	ditto	90 MHz 1 kHz (Mod) 75 kHz (Dev)	90 MHz	ditto	Lg1, 2, 5	Maximum deflection
6			108 MHz 1 kHz (Mod) 75 kHz (Dev)	108 MHz		CTg1~3	
7	VCO*1	(A)	95 MHz 0 (Dev) 60 dB (Input)	95 MHz	Freq. counter via 20~30 dB amp*2 or SSVM to TP1	VRg1	Counter indicates 76 kHz
8	DISTORTION	(B) and (C)	95 MHz 1 kHz (Mod) 68.25 kHz (Dev) L (Select) 60 dB (Input)	95 MHz	SSVM, scope & distortion meter to REC jack (L)	Lg6, 7	Minimum distortion
AM SECTION							
1	IF	(B) and (D)	1000 kHz 400 Hz, 30% (Mod) 100 dB	1000 kHz	SSVM & scope to REC jack (L)	Lg, 11, 12	Maximum deflection
2	TRACKING	ditto	600 kHz 400 Hz, 30% (Mod) 100 dB	600 kHz	ditto	Lg10 Bar antenna	ditto
3			1400 kHz 400 Hz, 30% (Mod)	1400 kHz		CTg4,5	

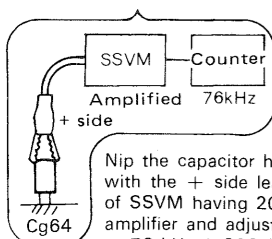
*1: When employing MPX IC except HA-1196, frequency counter indicates 19 kHz.

*2: VCO ADJUSTMENT (Refer below.)

*3: When adjusting KR-5400 and KR-6400, set the potentiometer (VRg1) so that the output voltage is 1V. When adjusting KT-4007, set the potentiometer (VRg1) so that the output voltage is 1.5V.

When adjusting the unit having the SEPARATION ADJ potentiometer, refer to "SEPARATION" in EX.4.

VCO ADJUSTMENT



Nip the capacitor head with the + side lead of SSVM having 20 dB amplifier and adjust VRg1 to 76 kHz ± 200 Hz watching at the counter.

Ex. 4 : KR-7020, -7400, -9060, -9400, -9600, KT-6007, -8007.

Refer to KT-8007's schematic diagram. (X01-1190-10, X02-1040-10 and X04-1070-10).

NO.	ALIGN	TEST EQUIPMENTS		TUNER SETTING	OUTPUT INDICATOR	ADJUSTMENT POINTS	REMARKS
		CONNECTION	SETTING				
FM SECTION							
1	IF	(A) and (B)	95 MHz (60 dB) 1 kHz (Mod) 75 kHz (Dev)	95 MHz	SSVM & scope to REC jack	La7, Lb5	Maximum deflection
2		—	—	—	T meter	Lb11	Make the pointer position in the center of the meter
3		(A) and (B)	95 MHz (60 dB) 1 kHz (Mod) 75 kHz (Dev.)	95 MHz	SSVM, scope & distortion meter	Lb7	Maximum deflection and minimum distortion
4	TRACKING	ditto	90 MHz 75 kHz (Dev.) 1 kHz (Mod.)	90 MHz	ditto	La1, La3, La4 La6, La8	Maximum deflection
5			108 MHz 75 kHz (Dev.) 1 kHz (Mod)	108 MHz		CTa1~5	Same
6	BEACON	ditto	95 MHz 75 kHz (Dev.) 1 kHz (Mod) 60 dB (Input)	95 MHz	DC Volt Meter to TP4	VRb4	Set VRb4 to its center. Check the output (DC) at TP4 and assume its value for 0 dB
7	IF GAIN	ditto	95 MHz 75 kHz (Dev.) 1 kHz (Mod.) 22~23 dB (Input)	ditto	ditto	VRb1	Adjust VRb1 so that the output is at -3 dB in respect to 0 dB
8	MUTING	ditto	ditto	95 MHz MUTING 1 position	ditto	VRb4	Adjust VRb4 so that muting operation is on
9	AF OUTPUT*	ditto	95 MHz 75 kHz (Dev.) 1 kHz (Mod.) 60 dB (Input)	95 MHz	SSVM & SCOPE to REC jack	VRb2	Output is 1.5V.
10	S METER	ditto	ditto	ditto	S meter	Lb18	Maximum deflection
11						VRb3	Confirm the meter deflection at 4.5
12	VCO	—	—	Non-station	Frequency-counter to TP5	VRc2	Counter indicates 19 kHz.
13	DEVIATION METER	(B) and (C)	95 MHz 67.5 kHz (Dev.) 1 kHz (Mod.) 60 dB (Input) L + R (SELECTOR)	95 MHz Deviation meter SW	Deviation meter	VRc3	Meter indicates 100%
14	SEPARATION	ditto	95 MHz 67.5 kHz (Dev.) 1 kHz (Mod.) 60 dB (Input) L or R (SELECTOR)	95 MHz	SSVM & SCOPE to REC jack	VRc1	Minimum deflection
15	MULTIPATH	AG to TP6	38 kHz (1 mV)	Non-station	SSVM & SCOPE to TP7	Lb12, Lb13	Maximum deflection
16		—	—			VRb5	Set VRb5 to its center

When adjusting AM circuit, refer to AM SECTION in EX.1.

* Each model has its own value, refer to the service manual.