

ALIGNMENT PROCEDURE

MODEL: 29LTD new version
(serial number starts with the letter U)

REVISION: 1.0

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29LTD ALIGNMENT INSTRUCTIONS

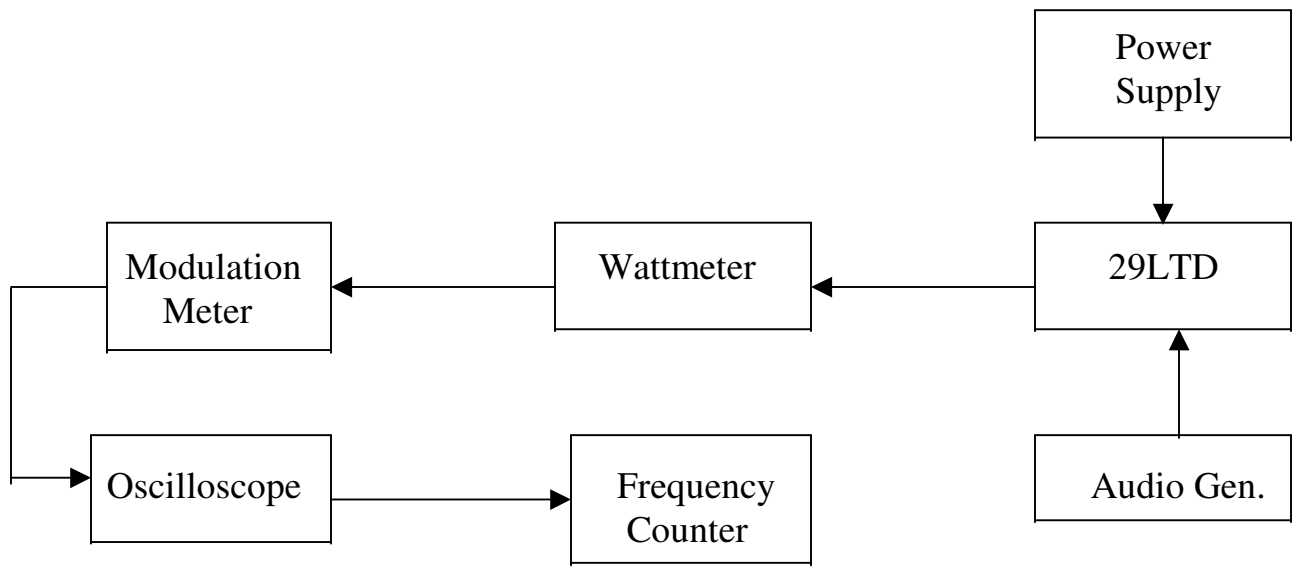
1.0 TEST CONDITION:

- 1.1. STANDARD DC POWER: 13.8VDC
- 1.2. MEASUREMENT CHANNEL: CH19 (27.185MHz)
- 1.3. STANDARD AUDIO LOADING: 8 Ω
- 1.4. ANTENNA IMPEDANCE: 50 Ω
- 1.5. STANDARD REF. MODULATION: 30% (AM)
- 1.6. STANDARD REF. AUDIO OUTPUT: 0.5W
- 1.7. FREQUENCY TABLE:

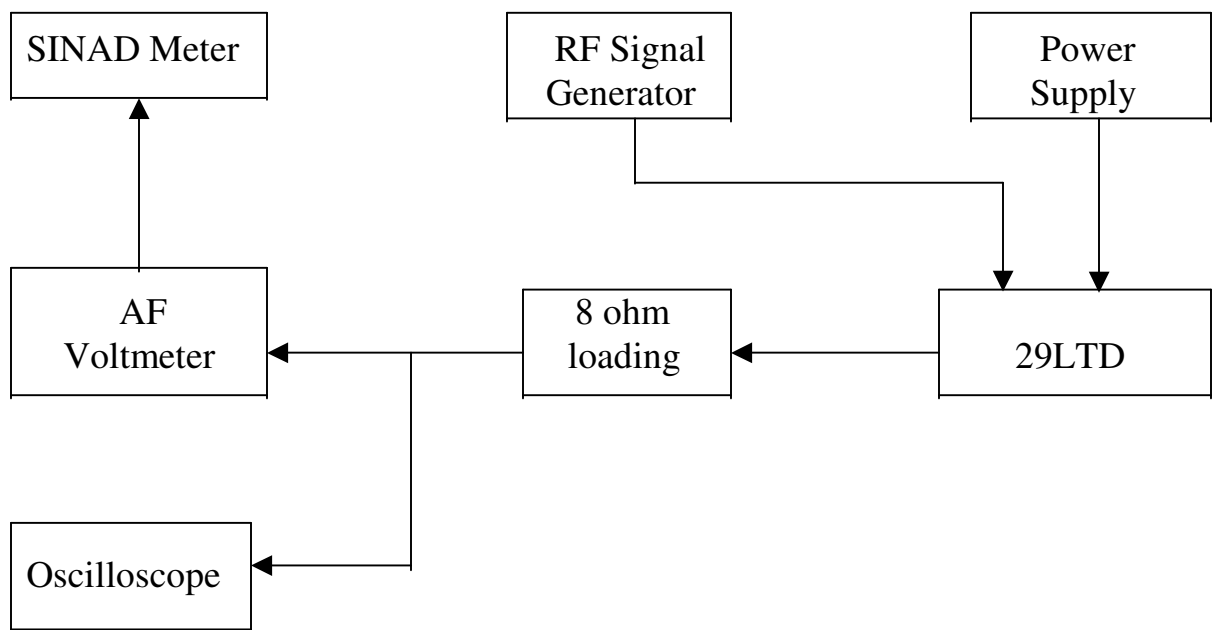
CH NO.	FREQ. (MHz)	CH NO.	FREQ. (MHz)
1	26.965	21	27.215
2	26.975	22	27.225
3	26.985	23	27.255
4	27.005	24	27.235
5	27.015	25	27.245
6	27.025	26	27.265
7	27.035	27	27.275
8	27.055	28	27.285
9	27.065	29	27.295
10	27.075	30	27.305
11	27.085	31	27.315
12	27.105	32	27.325
13	27.115	33	27.335
14	27.125	34	27.345
15	27.135	35	27.355
16	27.155	36	27.365
17	27.165	37	27.375
18	27.175	38	27.385
19	27.185	39	27.395
20	27.205	40	27.405

1.8. TEST EQUIPMENT SETUP AS BELOW:

A. TX test equipment setup:



B. RX test equipment setup:



2.0 ALIGNMENT OF PLL SECTION

2.1 Equipment required:

- a) Oscilloscope (0 – 50MHz)
- b) DC voltage meter

STEP	PRESET TO	CONNECTIONS	ADJUST	PROCEDURE
1 VCO	RX mode CH19	Oscilloscope to the top of R85 (TP2)	L22	Adjust for maximum signal on oscilloscope
2 VCO	Check the output voltage difference between CH1 and CH40. Readjust L22 to minimize the difference.			
3 PLL Lock	TX mode CH40 No modulation	DC voltmeter to the top of R87 (TP1)	L19	Adjust for 3.2V \pm 0.2V
4 VCO	RX mode CH19	Oscilloscope to the top of R17 (TP3)	L18	Adjust for maximum signal on oscilloscope

3.0 ALIGNMENT OF RECEIVER SECTION

3.1 Equipment required:

- a) Signal generator
- b) AF voltmeter
- c) Oscilloscope
- d) Dummy load (8 ohm, 5 watts, resistive)
- e) DC power supply (13.8VDC, 2 amp)

STEP	PRESET TO	ADJUST	PROCEDURE
1 Receiver Sensitivity	Channel 19 NB/ANL SW: OFF Delta Tune: Center Squelch: Maximum CCW Volume: Maximum CW RF Gain: Maximum CW PA-CB SW: CB	L2, L3, L4, L5, L6, L7, L8, L9	<ol style="list-style-type: none"> 1. Set SG to 27.185MHz with 1Khz, 30% modulation. 2. Adjust level of SG to obtain 2V reading on AF voltmeter. 3. Adjust L2-L9 for maximum signal on AF voltmeter. 4. Repeat, reducing the level of the SG.
2 IF Amp	Same as step 1	RT1	<ol style="list-style-type: none"> 1. Set the SG to 0.4uV. 2. Adjust RT1 for 2V on AF voltmeter.
3 Noise Blanker	Same as step 1 except: NB/ANL SW: ON	L1	<ol style="list-style-type: none"> 1. Set the SG to 1uV. 2. Adjust AF volume for 2V on AF voltmeter. 3. Adjust L1 for minimum reading on AF voltmeter. 4. Turn L1 1/4 turn CCW.
4 Squelch	Same as step 1 except: Squelch: Maximum CW	RT3	<ol style="list-style-type: none"> 1. Set SG to 1500uV. 2. Adjust RT3 so that the audio just appears on the oscilloscope.
5 RX Meter	Same as step 1	RT2	<ol style="list-style-type: none"> 1. Set SG to 100uV. 2. Adjust RT2 for "S-9" reading on CB analog meter.

4.0 ALIGNMENT OF TRANSMITTER SECTION

4.1 Equipment Required:

- a) RF power meter
- b) Spectrum analyzer
- c) Frequency counter
- d) DC power supply
- e) 50 ohm load and attenuator
- f) Oscilloscope
- g) AF generator

STEP	PRESET TO	CONNECTIONS	ADJUST	PROCEDURE
1 TX Driver	TX mode CH19 no modulation	Oscilloscope to the top of R61 (TP4)	L24 L21 L27 L20 L17	<ol style="list-style-type: none"> 1. Set the cores of L17, L20 to the bottom. 2. Adjust L24, L21, L27 for maximum indication on the oscilloscope. 3. Adjust L20 for maximum indication on the oscilloscope. 4. Adjust L17 for maximum RF power output.
2 TX Power	Same as step 1		L14	Adjust for 4.0W RF power output.
3 TX Freq.	Same as step 1		L23	Adjust for 27.185MHz on frequency counter.
4 Modulation	TX mode	30mV, 1KHz sine wave applied to mic input	RT4	Adjust for 100% modulation.
5 TX Meter	Same as step 1		RT5	Adjust so that the needle of the CB's analog meter indicates in-between the green and red zones.
6 SWR Meter	Same as step 1	Attach a 100 ohm non-inductive load to the antenna connector.	RT7	<ol style="list-style-type: none"> 1. Set the front panel switch to CAL. 2. Key the transmitter and adjust the SWR CAL knob to cal the meter. 3. Set the front panel switch to SWR. 4. Key the transmitter and adjust RT7 so that the meter indicates an SWR of 2. 5. Repeat steps 1-4 until no further adjustment is required.
7 ANT Light	Same as step 1	Attach a 250 ohm non-inductive load to the antenna connector.	RT6	<ol style="list-style-type: none"> 1. Turn RT6 counterclockwise until the antenna light turns off. 2. Turn RT6 clockwise just until the antenna light turns on.

ALIGNMENT POINTS

