

If you didn't know by now -- here it is: TWO different versions of this unit exist!! The 'Early' version is serial numbered from 03000001-4498 to 13000001-1504. Have no starting serial number for the 'Later' version at present time...

Major differences between versions are shown in the 'Early' and 'Later' version Block Diagrams - which are further on in this text.

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This is something everyone has been calling and asking about,

Complete Alignment Procedures for the 'Early' Version of 148GTL-DX.

PLL/OSCILLATOR ALIGNMENT

Equipment Needed: Oscilloscope, DC Voltmeter, Frequency Counter..

Step	Control Settings	Adjust	Perform/Check for
A	CH: 19 RX Mode AM Mode Voice Lock-Center Band: Mid	L14	Connect scope to TP4* (* in this case-lead of R83). Adjust for max indication on scope...
B	Same as above, CHANGE to: CH: 40	L15	Connect DC Voltmeter to TP2 (lead of R93). Adjust for 5.4V reading on DC Voltmeter.
C	Step A Settings	L16	Connect scope to TP3 (lead of R101). Adjust for max indication on scope...
D	Step A Settings	L31	Connect Freq. Counter to TP3 (Lead of R101). Adjust for 16.490MHz, +/- 20Hz.
E	Step A Settings CHANGE to: CH: 40 Mode: USB	L32	Leave Counter in place, adjust for 16.4925MHz, +/- 20Hz.
F	Step A Settings CHANGE to: CH: 40 Mode: LSB	L33	Leave Counter in place, adjust for 16.4875MHz, +/- 20Hz.

148GTL-DX...PLL/OSCILLATOR ALIGNMENT...Cont.

Step	Control Settings	Adjust	Perform/Check for
G	Step A Settings CHANGE to: CH: 40 Mode: LSB TX Mode	VR6	Leave Counter in place, adjust for 16.4875MHz, +/- 20Hz.
H	Step A Settings CHANGE to: CH: 40 Band: LOW	L22	Leave Counter in place, adjust for 16.040MHz, +/- 20Hz.
I	Step A Settings CHANGE to: CH: 40 Band: LOW Mode: USB	L23	Leave Counter in place, adjust for 16.0425MHz, +/- 20Hz.
J	Step A Settings CHANGE to: CH: 40 Band: LOW Mode: LSB	L24	Leave Counter in place, adjust for 16.0375MHz, +/- 20Hz.
K	Step A Settings CHANGE to: CH: 40 Band: HI	L40	Leave Counter in place, adjust for 16.940MHz, +/- 20Hz.
L	Step A Settings CHANGE to: CH: 40 Band: HI Mode: USB	L41	Leave Counter in place, adjust for 16.9425MHz, +/- 20Hz.
M	Step A Settings CHANGE to: CH: 40 Band: HI Mode: LSB	L42	Leave Counter in place, adjust for 16.9375MHz, +/- 20Hz.
N	Step A Settings CHANGE to: CH: 40 TX Mode	L47	Connect Frequency Counter to TP4* (*in this case lead of R114). Adjust for 10.695MHz, +/- 5Hz.
O	Step A Settings CHANGE to: CH: 40 Mode: USB	L48	Connect Frequency Counter to TP5 (lead of R39). Adjust 10.6925MHz, +5Hz, -0Hz.
P	Step A Settings CHANGE to: CH: 40 Mode: LSB	L49	Leave Counter in place, adjust for 10.6975MHz, +0Hz, -5Hz.

End of this alignment... PLL/Osc. ckts.

RECEIVER ALIGNMENT

Equipment Needed: 27MHz Band Signal Generator, Oscilloscope,
Audio Frequency VTVM (Across 8 oz. speaker), Deviation Meter.

Step	Control Settings	Adjust	Perform/Check for
A	CH: 19 Band: MID AM Mode Tone: HI NB/ANL: OFF Volume: CW RF Gain: CW Coarse: Center Squelch: CCW CH 9 SW: OFF		DOUBLE CHECK ALL SETTINGS!
B	Same as above	L4	Turn core of L4 to the bottom..
C	Step A Settings	L3, L5, L6, L7, L8, L17 L18 and L4	Adjust for maximum reading and readjust L4 for maximum reading..
D	Step A Settings CHANGE to: NB/ANL: ON	L1, L2	Set SigGen on Mid, CH18 F _o (27.175MHz). Note unit is still on CH:19. No modulation.. Connect scope to D2 and adjust coils for max reading. Set SigGen level to 5uV, and readjust both coils. (D2 is TPL)
E	Step A Settings CHANGE to: Squelch: CW	VR2	Set the SigGen to Mid, CH19 F _o (27.185MHz). 30% modulation at 1000uV level. Adjust VR2 until signal appears on scope. Tight Squelch Adjust..
F	Step A Settings	VR1	Set SigGen output level to 1000uV, no modulation. Adjust VR1 for S-9 reading on unit's meter
G	Step A Settings CHANGE to: Mode: FM	L9, L10	Set SigGen to 10uV with no modulation. Connect scope to lead of R279, and adjust coils for maximum reading. (Pin 1 & 2 of IC2).

Step	Control Settings	Adjust	Perform/Check for
H	Step A Settings CHANGE to: Mode: FM	L11	Set SigGen to 1mV with 1.5KHz deviation/1KHz. Adjust L11 for max sine-wave on scope.

End of this alignment... Receiver circuits

TRANSMITTER ALIGNMENT

Equipment Needed: DC Ammeter, RF VTVM, Deviation Meter, Frequency Counter, Power Meter, Oscilloscope, 50 ohm Dummy Load.

Step	Control Settings	Adjust	Perform/Check for
A	CH: 19 TX Mode Mode: USB Mic Gain: Min	VR10	Remove PC-843 (PCB) and connect Ammeter to TP8 (+) and TP7 (-). Adjust for 8ma reading.
B	Same as Above	VR9	Connect DC Ammeter to TP8 (+) and TP6 (-) and adjust for 100ma reading.
C	Step A Settings CHANGE to: Mic input: 30mv 1KHz	L65	Restore PC-834. Turn core of L65 to the bottom of coil.
D	Step A Settings CHANGE to: Mic input: 30mv 1KHz	L64, L66 L67.	Adjust for maximum reading on RF VTVM (across 50 ohm Dummy Load).
E	Step A Settings CHANGE to: Mic Input: 30mv 1KHz	L65	Set the Band: HI, CH: 40, and adjust for maximum reading on RF VTVM. Turn Band: LO, CH: 1, readjust for equalized output power.
F	Step A Settings CHANGE to: Mode: AM Mic Input 90%	L54	Adjust for maximum reading on RF VTVM (Final Output Adjustment)
G	Step A Settings CHANGE to: Mic Input: 30mv 1KHz	VR7	Adjust ALC for 24.5V reading on RF VTVM (12W/50 ohm Single Tone).

Step	Control Settings	Adjust	Perform/Check for
H	Step A Settings!	VR4	Adjust for minimum reading on scope for both USB and LSB. (Minimum Carrier Adjust)
I	Step A Settings CHANGE to: Mode: AM	VR11	Adjust for 5.0W reading on RF Power Meter (AM carrier output adjustment).
J	Step A Settings CHANGE to: Mode: AM	VR8	Set the meter SW to S/RF. Adjust VR8 so radio's meter reads 5W (between Green and Red zones). "RF meter adjust".
K	Step A Settings CHANGE to: Mode: AM Mic Input: 30mv 1KHz	VR5	Adjust for 90% modulation on oscilloscope. (AM modulation adjust).
L	Step A Settings CHANGE to: Mode: FM Band: LOW CH: 40 Mic Input: 30mv 1KHz	VR3	Adjust for 4.5KHz deviation (FM deviation adjust).
M	Step A Settings CHANGE to: Mode: CW Band: LOW CH: 40 Mic Input: 30mv 1KHz	VR12	Adjust 0.2V reading on AF VTVM when CW key is keyed. (Side tone adjust)
N	Step A Settings CHANGE to: CH 9 SW: CH 9	None	Check that the output frequency is 27.065MHz on Frequency Counter...

End of the alignment... Transmitter circuits

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At present time am trying to locate alignment procedures for 'Later' version of 148GTL-DX. Will publish as soon as possible. The following Block Diagrams are of the 'Early' and 'Later' versions - 148GTL-DX.....