

GRANT LINE-UP PROCEDURE

This is GRANT (EXPORT). FACTORY Alignment Procedure; re-written slightly for the experienced technician. Courtesy 'Custom Conversions'.

Equipment Suggested: Audio Generator; RF VTVM; DC Power Supply (*); Freq. Counter; Oscilloscope; RF Wattmeter & Dummy Load (50W minimum); RF Sig. Gen. (capable of 1KHz at 30% mod-AM, 1.5KHz deviation at 1KHz-FM); VOM-20K ohm/V min.... (*)-Varies per unit, suggest 7A minimum, REGULATED.

PLL ALIGNMENT (Use Locator A)

Pre-set conditions: Clarifier - Center PA/CB - GB
 Ch. Selector - 19 Mode - AM
 Band - Mid

(Do not change any conditions unless specified...)

STEP	SETTING CHANGE	CONNECTIONS	ADJUST	DIRECTIONS
1.	RX Cond, Ch-19, Mid Band, AM/FM	Scope to TP-4, (lead of R121)	L17	Adjust for max scope indication.
2.	Change to: HI Band, Ch-40	DC Voltmeter to TP-2, (lead of R127).	L18	Adjust L18 to indicate 5.2V \pm 0.2V at HI Ch-40. (Check to see that is 2V+ at LOW Ch-1.)
3.	RX Cond, AM/FM, See Directions	Same as step 1. Remove meter at TP-2.	L17	Adjust for equal output from LOW Ch-1 to HI Ch-40 on scope.
4.	RX Cond, Ch-19, Mid Band, AM/FM	Scope to TP-3, (lead of R84)	L19	Adjust for max scope indication.
5.	Same as above	Remove scope at TP-3. Counter to TP-3.	L25	Adjust for 16.490MHz, \pm 20Hz.
6.	Change to USB, ONLY change...	Same as above	L26	Adjust for 16.4925MHz, \pm 20Hz.
7.	Change to LSB, ONLY change...	Same as above	L27	Adjust for 16.4875MHz, \pm 20Hz.
8.	TX Cond, Ch-19, Mid Band, LSB (Make sure a Dummy Load is connected)....	Same as above	VR6	Same as above
9.	RX Cond, Ch-19, Low Band, AM	Same as above	L22	Adjust for 16.040MHz, \pm 20Hz.
10.	Change to USB, ONLY change...	Same as above	L23	Adjust for 16.0425MHz, \pm 20Hz.
11.	Change to LSB, ONLY change...	Same as above	L24	Adjust for 16.0375MHz, \pm 20Hz.
12.	RX Cond, Ch-19, HI Band, AM	Same as above	None	Check for 16.940MHz.
13.	Change to USB, ONLY change...	Same as above	None	Check for 16.9425MHz.
14.	Change to LSB, ONLY change...	Same as above	None	Check for 16.9375MHz.

GRANT - PLL ALIGNMENT (Cont.).....

STEP	SETTING CHANGE	CONNECTIONS	ADJUST	DIRECTIONS
15.	RX Cond, LSB Mid Band, Ch-19	Counter to TP-6, (lead of R60)...	L30	Adjust for 10.6975MHz, ±20Hz.
16.	Change to USB, ONLY change...	Same as above	L29	Adjust for 10.6925MHz, ±20Hz.
17.	TX Cond, AM, Mid Band, Ch-19; (Make sure Dummy Load connected.)	Freq. Counter to TP-5 (lead of D52).....	L28	Adjust for 10.695MHz, ±20Hz.

End of PLL Alignment.....

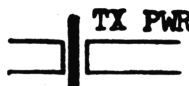
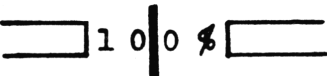
TRANSMIT ALIGNMENT (Use Locator B)

Pre-set Conditions: Ch. Selector - 19 PA/CB - CB
 Mic Gain - CW Band - Mid
 Mode - USB *(Dummy Load, Power Meter,
 and scope to antenna term.)

(Do not change any setting unless specified.....)

STEP	SETTING CHANGE	CONNECTIONS	ADJUST	DIRECTIONS
1.	TX Cond, Ch-19, Mid Band, USB; NO MODULATION	Disconnect PC- 834AA, connect DC ammeter to TP9(+), TP8(-)	VR11	Adjust for 50ma
2.	Same as above	DC ammeter to TP9(+), TP7(-)	VR9	Turn VR10 fully CCW. Adjust VR9 for 40ma.
3.	Same as above	Same as above	VR10	Adjust for 80ma
4.	Same as above; Mod input: 30mv 2,400Hz & 500Hz	Disconnect DC ammeter, put PC-834AA back.	L46, VR12	Adjust L46's core as down as possible. Turn VR12 CW.
5.	Same as above	No change	L45, L48, L49	Adjust for max on scope. NOTE: Adjust input level, so output level is less than 25V
6.	Same as above; Change to: HI Band, Ch-40	No change	L46	Peak at HI Band, Ch-40, then adjust for balanced output from LOW Band, Ch-1.
7.	TX Cond, Ch-19, Mid Band, AM, Mod input: 1KHz 90%	No change	L37, VR13	Adjust both for max on scope.
8.	TX Cond, Ch-19, Mid Band, USB; Mod input: 30mv 2,400Hz & 500Hz	No change	VR12	Adjust for 32.4V on scope.

GRANT - TRANSMIT ALIGNMENT (Cont.).....

STEP	SETTING CHANGE	CONNECTIONS	ADJUST	DIRECTIONS
9.	TX Cond, Ch-19, Mid Band, USB; NO MODULATION	No change	VR7	Adjust for minimum carrier leak when switching from USB to LSB
10.	Same as above; switch to AM	No change	VR13	Adjust for 10W on power meter.
11.	Same as above; push button to S/RF	No change	VR8	Adjust so meter on unit indicates as below. 
12.	Same as above; AM Modulation input: 1KHz at 30mV.	No change	VR14	Adjust for 90% modulation.
13.	TX Cond, Ch-40, HI Band, FM, Input 1KHz at 30mV.	No change; Hook-up Dev. Meter to RF Output line.	VR5	Adjust for 2KHz deviation.
14.	TX Cond, Ch-19, Mid Band, AM; Mod input 1KHz at 30mV. Push Button to MOD.	No change; Remove Dev. Meter.	VR15	Decrease input until modulation output is 50%. Then increase by 16db. Adjust meter to indicate as below: 
15.	Same as above; Mod input NONE ROGER BEEP-ON	Remove scope at TP-3. Place on RF Output line.	None	Check for scope waveform TX mod when going from TX to RX mode.
16.	TX Cond, Ch-19, Mid Band, AM; Mod input 1KHz at 30mV.	No change	None	Check for no climbing waveform at 70% mod output, may have to adjust input.
17.	Same as above; Change to USB.	Same as above	None	Check 3rd order harmonics. Should be better than 18db.

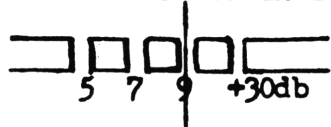

End of Transmit Alignment.....

RECEIVE ALIGNMENT (Use Locator C)

Pre-set Conditions: Band - Mid Ch. Selector - 19
 MOD, S/RF - S/RF NB/ANL - OFF
 RF Gain - CW Clarifier - Center
 Volume - CW PA/Squelch - Squelch (CCW)

RF Sig Generator to input of antenna connector at Mid Band, Ch. 19 Fo.
 (All db reference taken directly from generator.)

GRANT - RECEIVE ALIGNMENT (Cont.).....

STEP	SETTING CHANGE	ADJUST	DIRECTIONS
1.	Sig Gen to: Mid Band, Ch-19 frequency, 1KHz 30% mod, AM, 500mW level.	L8, L7, L9, L11, L12, L13, L52, L3, L4, & L5.	Adjust core of L8 as low as possible. Adjust L7, L9, L11, L12, L13, L52, L3, L4, and L5 for peak indication.
2.	Change both: Sig Gen and Unit to Mid Band, Ch-1 Fo.	L8	Peak at current setting. Readjust to balance sensitivity between: Mid Band Ch-1 and Ch-40. (Will have to readjust Sig Gen and Unit.)
3.	Unit to pre-set conditions. Sig Gen to Step 1; NO MODULATION 46db output.	VR1	Adjust the S Meter for indication below: 
4.	Same as above; Set Sig Gen to: 1KHz 30% mod	VR4	First turn Squelch CW, then adjust Sig Gen for 66db. Adjust VR4 until Squelch opens.
5.	Change Unit to USB mode. Change Sig Gen Fo to 27.186MHz NO MODULATION.	L14, L15	Peak for max indication.
6.	No Change; set output level to 46db on Sig Gen.	VR2	Adjust the S Meter for indication below: 
7.	No Change; set output level to 66db on Sig Gen.	VR3	First turn Squelch CW. Adjust VR3 until squelch opens.
8.	Set Unit to: Mid band, Ch-18, USB, NB/ANL-ON. Sig Gen - 27.185 +20db output, NO MODULATION. Scope to TP-1, (lead of D2)	L1, L2	Adjust for max indication.
9.	Unit to Mid Band Ch-19, FM. Sig Gen to FM 1KHz, 1mV, 1.5KHz deviation	L6	Tune for peak audio sinusoidal wave.

End of Receive Alignment.....

GRANT - LOCATORS

⊙ R84
TP3

L19
□

.....A Locator.....

R89
⊙ L18
□

R121
⊙ TP4
□

R127
⊙ TP2
□

R60
⊙ TP6

D52
⊙ TP5
□

L27 □ L24 □
L26 □ L23 □
L25 □ L22 □

L30 □ L29 □ L28 □

VR6
⊔

VR11
⊔

VR9
⊔

VR10
⊔

L37
⊙

TP8
⊔

TP7
⊔

TP9
⊔

VR8
⊔

VR12 VR14
⊔ 12 14

VR15 VR1
⊔ 15 13

.....B Locator.....

L46 □ L45 □
L48 □

L49
□

VR1 VR2
⊔ ⊔

.....C Locator.....

L7
□

L8
□

L9
□

L1
□

L2
□

⊙ TP1-D2

L11
□

L12
□

L13
□

⊙ R89-TP3

L14
□

L15
□

L4
□

L5
□

L6
□

L52
□

L3
□

VR5
⊔

VR7
⊔

VR3 VR4
⊔ ⊔