SuperStar 3600 (Low Band) Line-Up Proceedure
26.515-27.855MHz Version

This is SUPERSTAR 3600 alignment, re-written for the experienced technician.   Courtesy 'Custom Conversions'.

Equipment Suggested: Audio Generator; RF VTVM; DC Power Supply (*); Freq. Counter; Oscilloscope; RF Wattmeter & Dummy Load (25W minimum); RF Sig. Gen. (capable of 1KHz at 30% mod-AM, 1.5KHz deviation at 1KHz-FM); VOM-20K ohm/V min...   (*) 4A Regulated MINIMUM..

PLL ALIGNMENT

1. Fo Counter to pin terminal between C78 and C79.   Should read 10.24000MHz, ± 200Hz; if out of tolerance change X1.

2. Fo Counter to TP-6 (R102):
   Mode selector to CW, adjust L26 for 10.695MHz.
   Mode selector to USB, adjust L27 for 10.6925MHz.
   Mode selector to LSB, adjust L28 for 10.6975MHz.
   (tolerance on above: +0, -100Hz.)

3. Scope to TP-4 (pin terminal between C82 and R107):
   Mode selector to AM, Clarifier to center; Band to MID, Ch. 19.
   Adjust L16 for max RF output.

4. Scope to TP-3 (R-74):
   Mode selector to AM, Clarifier to center; Band to HIGH, Ch 40.
   Adjust L18 for max RF Output.
   DC Voltmeter to TP-2 (R-109).
   Adjust L17 to 5.0VDC, tolerance .1VDC.
   Check LOW Band Ch 1, must be 2.5VDC approximately.

5. Fo Counter to TP-3 (R-74):
   Mode selector to AM, Clarifier to center; Band to MID, Ch 19.
   Adjust L19 for 16.040MHz, ±50Hz.
   Mode to USB; adjust L20 for 16.0425MHz; ±50Hz.
   Mode to LSB; adjust L21 for 16.0375MHz; ±50Hz.
   Leave in LSB; transmit-no input; adjust VR15 for 16.0375MHz, ±50Hz.

TRANSMIT ALIGNMENT

1. Driver/Final Bias adjustment: Remove small plug-in PCB from TP7, TP8, and TP9.
   Mode selector to USB; Band to MID, Ch 19.
   Current meter to TP9 (+), and TP8 (-). Transmit, NO INPUT.
   Adjust VR11 for 10mA, ± 0.5mA
   Current meter to TP9 (+), and TP7 (-). Transmit, NO INPUT.
   Adjust VR10 to 100mA, ± 0.5mA

2. Mode selector to USB, Band to HIGH, Ch 40.
   Insert 1KHz 30mV audio to mike input, and transmit.
   Adjust VR12 and L42 for maximum RF output.
   Adjust L40, L43, L44 and L33 for maximum RF output, then repeat
   until no further increase can be obtained.
   Adjust L42 for balance of RF output power between HIGH band Ch 40,
   and LOW band Ch 1.

3. Apply 500Hz and 2.4KHz (30mV) audio tones to mike input, at same time.
   Use diagram below and adjust input level of 500Hz so that wave 'A'
   form as indicated below appears on scoped RF output.
   Adjust VR12 for 12W peak-to-peak output power.
   *WARNING - VR12 should not be rotated clockwise beyond 2 O'clock
               position, or the RF power transistor will be destroyed.
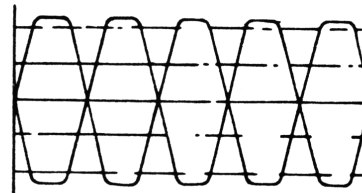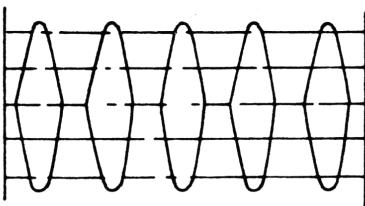
A. Properly adjusted transmitter.
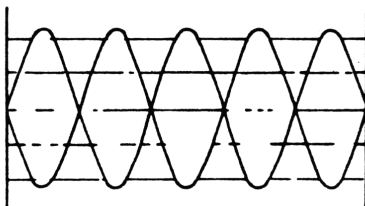
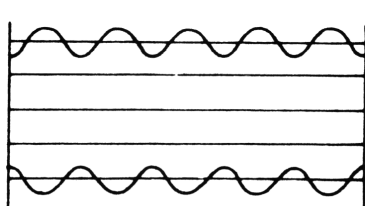B. Unequal tones-Adjust generator outputs to balance.
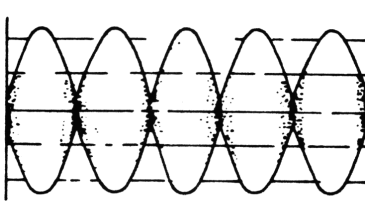
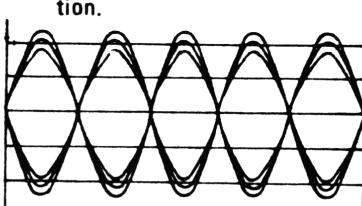C. Excessive modulation - Adjust RV12 counterclockwise.

D. Final transistor incorrectly biased - Adjust RV 12.

E. Undermodulation-Adjust RV 12 clockwise.

F. Similar to A but showing hum-Check for proper testing condition.

4. Mode Selector to AM, Band to MID, Ch 19.
   Adjust VR13 to obtain 5W RF power output
   Apply 1KHz at 30mV to mike input.
   Adjust VR14 for 90% + modulation.

5. Mode selector to FM.
   Apply 1KHz at 30mV to mike input.
   Adjust VR5 to obtain 2-3KHz on deviation meter on TX.

6. Mode select to USB, maximum mike gain, apply speech to microphone.
   Adjust VR8 for maximum indication, without pegging meter movement.
   *NOTE: In some units VR8 will need to be changed to higher value.

7. Mode select to CW.
   8 Ohm dummy load and audio VTVM to ext. Speaker jack.
   Connect key switch to key sw. jack.
   Key the switch, and adjust VR16 for 200mV, ±10mV signal.

RECEIVE ALIGNMENT

1. Set RF Sig Gen for 27.185MHz 30% modulation.
   Mode selector to AM, Band to MID, Ch 19
   Adjust L3, L4, L6, L7, L8, L10, L11, and L12 for maximum audio output.
   Audio Output to be measured across dummy load with audio VTVM!
   NOTE: Keep Sig Gen output as low as possible to prevent AGC action.
   Adjust L8 for balance between LOW and HIGH bands.

2. Set RF Sig Gen to 27.186MHz, no modulation.
   Mode selector to USB, Band to MID, Ch 19
   Adjust L13 and L14 for maximum audio output, with clarifier at center.

3. Set RF Sig Gen to 27.185MHz.
   Apply FM signal (1 microV, 1.5KHz deviation with 1KHz audio).
   Mode selector to FM; Band to MID, Ch 19
   READJUST L5 for maximum audio output.

4. Set RF Sig Gen to 27.185MHz.
   Input 60db (1000 microV) 1KHz 30% modulation.
   Mode selector to AM, Band to MID, Ch 19
   Squelch control fully clockwise
   Scope the audio output, adjust VR4 until audio disappears.
   Check that the front squelch control will 'cut in' between 48-70db
   on all modes.   *VR3 may be adjusted if need be in SSB mode.

5. Set RF Sig Gen to 27.185MHz, output level 40db (100 microV).
   Mode selector to AM; Band to MID, Ch 19
   Adjust VR1 for '9' indication on front meter scale.
   Mode selector to USB
   Adjust VR2 for '9' indication

6. Set Sig Gen to 26.945MHz; no modulation; 40db (100 microV).
   Mode selector to AM; Band to LOW, Ch 40
   NB/ANL Sw ON
   Connect DC Voltmeter to TP1 (D2).
   Adjust L1 and L2 for 2-3VDC reading.

End of Alignment.