

ALIGNMENT OF
THE
MODEL SSR-1
COMMUNICATIONS RECEIVER

I. Voltage Measurements $\pm 10\%$

1. Rectifier output = 19 volts.
2. Cathode end of E_1 = 5 volts.
3. Output of regulator Q15 = 15.8 volts.
4. Output of regulator Q16 = 8.8 volts.
5. Pilot lights 12 volts.

II. 455 kHz I.F. Alignment:

1. Feed 455 kHz signal from generator to base of Q9. (mode switch on LSB).
2. Adjust generator level for slight S-Meter deflection.
3. Adjust L18, L19, and L20 for maximum meter reading (4 uv for meter threshold).
4. Tune in a signal on AM that peaks about mid S-Meter scale.
5. Switch to LSB. Tune dial toward lower frequency numbers until S-Meter drops off $1/8"$. Zero tone using L-22.
6. Switch to USB. Tune dial toward higher frequency numbers until S-Meter drops off $1/8"$. Zero tone using TC-9.
7. Remove signal and readjust L22 for equal sounding noise pitch on both sidebands.

III. VFO Tracking:

1. Attach crystal controlled signal generator at test point at input to IF board. (Generator needs 100 kHz outputs and marker between 2 & 3 MHz.
2. Set clarifier control to center and mode switch to USB.
3. Set VFO dial at 800 and feed in 2.2 MHz signal. Adjust L21 for zero beat.
4. Reset dial to 200 and feed in 2.8 MHz signal. Adjust trimmer on front section of tuning capacitor for zero beat.
5. Repeat 3 & 4 until no further improvement can be obtained.

IV. 2-3 MHz I.F. Alignment:

1. Very loosely couple signal generator to test point used in Part III using stray capacity. Do not make direct connection or detuning will result.
2. Tune in signal at 2 MHz and adjust L16 and L17 for maximum meter reading. (Keep generator level low to produce no more than 1/4 scale meter deflection.) (VFO dial should be set at 000).
3. Tune generator to 3 MHz and VFO dial to 1000. Tune trimmer capacitor on center and rear variable capacitor section for peak meter reading.
4. Repeat steps 2 & 3 until no further improvement can be obtained. Production fixture may be used for alignment of VIF as follows:
 - (A) Tune receiver to 5.900 MHz using 100 kHz output as signal source. Adjust L16 and L17 for maximum audio. (Signal level at this frequency is below AGC threshold).
 - (B) Tune receiver to 5.100 MHz and adjust trimmer capacitors on VC3 and VC4 for maximum audio.
 - (C) Retune receiver to 5.900 and check for proper tracking, repeat steps A & B if necessary.

V. 42.5 MHz Amplifier Chain:

1. Attach 42.5 MHz signal source to junction of R16 and L3. Set level to about .03 volts.
2. Attach VTVM to junction of D6 and R23.
3. Tune TC-2, TC-3, TC-4, TC-5, and TC-6 for maximum voltmeter reading.
4. Generator level should be reduced during tuning to give a reading of about .3 volts on voltmeter as trimmers are tuned.

VI. 1 MHz Multivibrator and 10 MHz Crystal Oscillator:

1. Attach frequency counter to junction of R16 and L3.
2. Adjust VR-1 until counter reads 1 MHz. Rock pot back and forth to determine points where lock frequency changes and set pot half way between these points. (VR-1 NOT IN ALL RADIOS)
3. Then adjust TC-1 until frequency reads exactly 1000.000 kHz.

VII. Harmonic Generator Low Pass Filter and Trap:

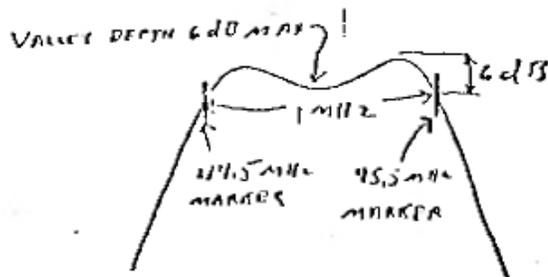
1. Slugs in L1, L2, should be approximately flush with top of coil form.
2. If excessive attenuation of 29.0 MHz range is noticed, (low sensitivity and lack of swish) slugs should be tuned outward slightly to improve gain and sensitivity on this range. Tune all three slugs approximately the same amount and no more than necessary.

VIII. H.F. Oscillator Alignments:

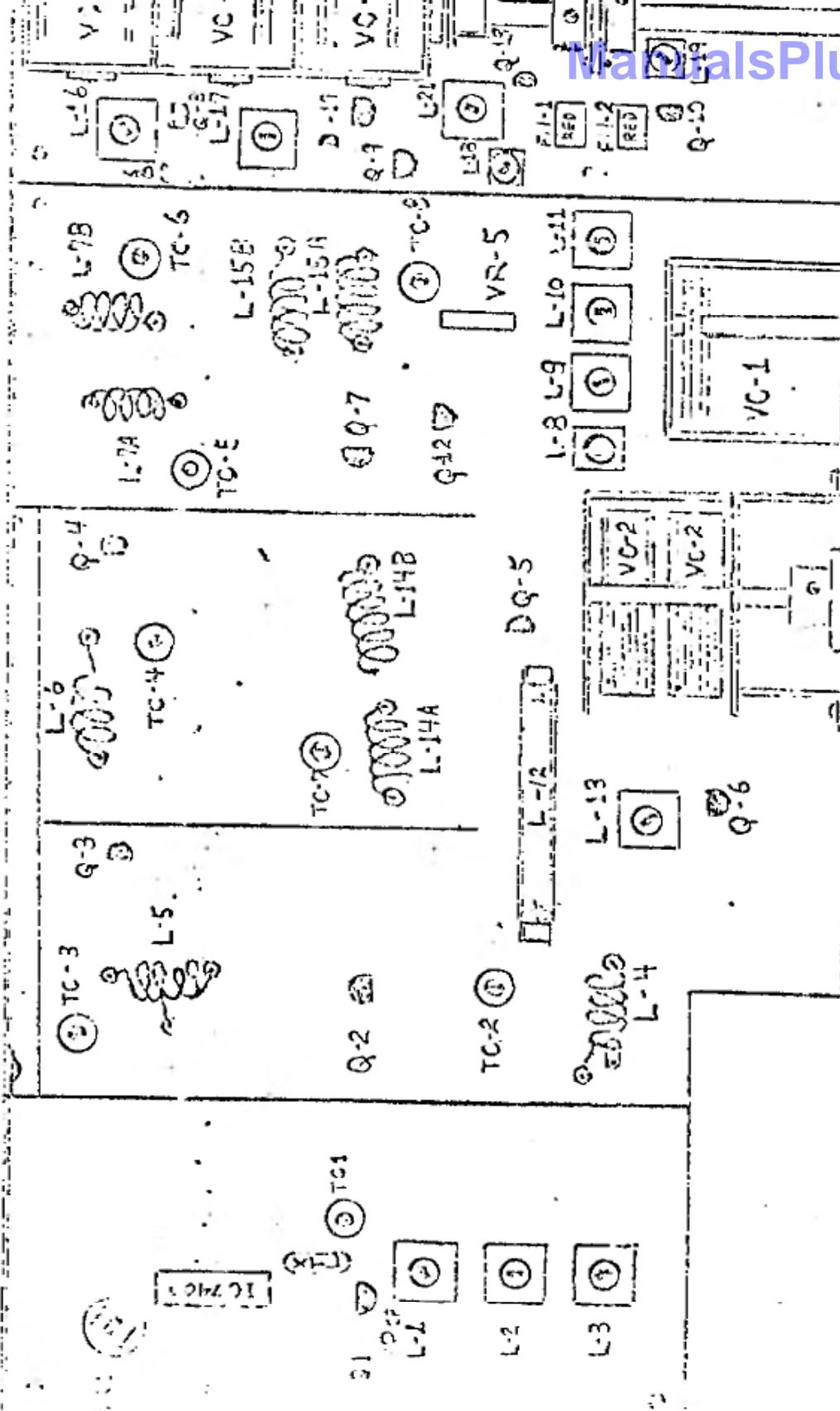
1. Feed signal generator in antenna terminal to 500 kHz. Set VFO dial to 500 kHz, bandswitch at .5 - 1.5 and MHz dial to the center of the 0 MHz segment.
2. Tune L13 (H.F. osc. coil) for maximum S-Meter reading.
3. Tune generator to 29.5 MHz. Set VFO dial to 500 kHz. Bandswitch on 12 - 30 MHz, and MHz dial in middle of 29 MHz segment. Keep generator output level low enough to produce 1/3 scale reading on S-Meter.
4. Tune trimmer capacitor on H.F. oscillator for maximum S-Meter reading.
5. Repeat steps 1 through 4 until no further improvement can be obtained.

IX. First Mixer Alignment: (44.5 - 45.5 MHz I.F.)

1. Attach sweep generator (very loosely coupled) to junction of L14A and C59, and attach detection probe to junction of R32, C45, and D5. Detector probe should also be very loosely coupled.
2. Adjust TC-7, L14B, TC8, and L15B until markers at 44.5 MHz and 45.5 MHz are 6db down from peak and that valley between peaks is no more than 6db down. (See sketch).



SSR-1



MHZ

PRE-SEL

VFO

Q-15/250261

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