



SWAN MODEL 410 FREQUENCY CONTROL UNIT

Model 410 Frequency Control Unit is designed for full coverage of 80, 40, 20, 15 and 10 meters. The unit is specifically intended for fixed station operating and matches the 350 in height, depth, and styling.

#### CIRCUIT THEORY

Q1, the 2N706 Oscillator operates in the common base configuration, as a Colpitts oscillator. See Figure 6. Capacitors C1801, C2001, and C2003 effectively tap the oscillator across only about 10 percent of the tank circuit. This results in exceptional stability. Q2, the Emitter Follower, is used for matching the impedance of the coaxial cable to the transceiver, as well as for isolation. The band-switch selects the appropriate coil and trimmer for each range. Dial tracking is adjusted with the coil and trimmer.

#### ALIGNMENT

Alignment of the Model 410 requires only the use of a general coverage receiver tuning the frequency ranges between 8 mc and 24 mc. Calibration of the receiver is not critical since the crystal calibrator in the transceiver is used for final adjustment but the receiver must be accurate within 50kc to permit selection of the proper 100 kc harmonic.

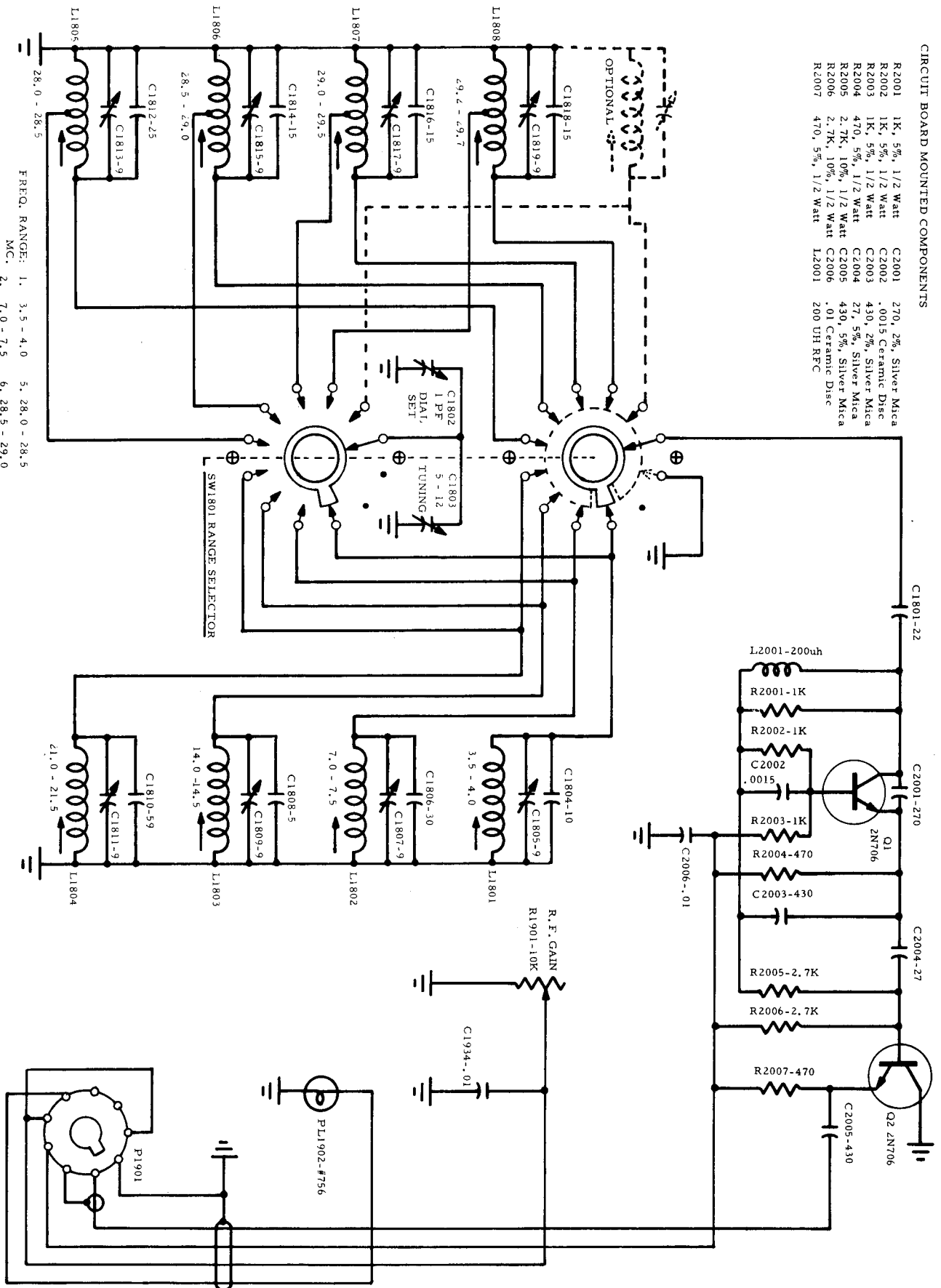
FOR MINOR FREQUENCY ADJUSTMENTS, which may be required after the initial aging period, simply remove the cabinet cover and very carefully adjust the trimmer capacitor marked for the specific range.

FOR MAJOR FREQUENCY ADJUSTMENTS Tune Frequency Control Unit to low end of frequency range, and locate heterodyne with general coverage receiver at frequency indicated in the following table. Adjust vernier coil to bring heterodyne within a few kc of the receiver frequency, then switch on calibrator and adjust vernier coil for zero beat with calibrator at 100 kc increment of dial. Move tuning to high end of tuning range and adjust trimmer capacitor for zero beat. Repeat high and low end adjustments until calibration is correct at both ends. Coil and capacitor locations are marked in the unit.

410 FREQ. RANGE	OSC. FREQ. (kc)	ADJUST COIL (Low end)	ADJUST CAP. (High end)
3.5— 4.0	8,673— 9,173	L1801	C1805
7.0— 7.5	12,173— 12,673	L1802	C1807
14.0— 14.5	8,827— 9,327	L1803	C1809
21.0— 21.5	15,827— 16,327	L1804	C1811
28.0— 28.5	22,827— 23,327	L1805	C1813
28.5— 29.0	23,327— 23,827	L1806	C1815
29.0— 29.5	23,827— 24,327	L1807	C1817
29.2— 29.7	24,027— 24,527	L1808	C1819

CIRCUIT BOARD MOUNTED COMPONENTS

R2001	1K, 5%, 1/2 Watt	C2001	270, 2%, Silver Mica
R2002	1K, 5%, 1/2 Watt	C2002	.0015 Ceramic Disc
R2003	1K, 5%, 1/2 Watt	C2003	430, 2%, Silver Mica
R2004	470, 5%, 1/2 Watt	C2004	27, 5%, Silver Mica
R2005	2.7K, 10%, 1/2 Watt	C2005	430, 5%, Silver Mica
R2006	2.7K, 10%, 1/2 Watt	C2006	.01 Ceramic Disc
R2007	470, 5%, 1/2 Watt	L2001	200 UH RFC



FREQ. RANGE: 1. 3.5 - 4.0    5. 28.0 - 28.5  
 MC.    2. 7.0 - 7.5    6. 28.5 - 29.0  
 3. 14.0 - 14.5    7. 29.0 - 29.5  
 4. 21.0 - 21.5    8. 29.2 - 29.7  
 (9. Additional Range, Optional)

FIG. 19 MODEL 410 VARIABLE FREQUENCY OSCILLATOR