SPARTAN PLL, PLL 40

The theory behind this conversion is exactly the same as the Centurion and Gladiator conversion. The only difference is that this particular circuit uses only one mixer crystal, in this case 11.285 MHz. For conversion of the unit to start at 28.50 MHz on channel 1, follow the formula used for the Gladiator and Centurion conversion. The answer to the first step of the formula will be the same (1.535 MHz). One third of the frequency increment will again be 0.511666 MHz. Complete step 2 adding the frequency of the original mixer crystal (11.285 MHz), which will give you 11.7067 MHz as the desired mixer crystal frequency.

Again, the complete unit must be tuned according to our service manual indications.

GALAXY

The theory behind this conversion is exactly as above. This particular circuit uses only one crystal, in this case 11.3258 MHz. For conversion of the unit to start channel 1 at 28.50 MHz, follow the formula, but the original mixer crystal frequency will be 11.3285 MHz and the desired mixer crystal frequency will be 11.840 MHz.

If we want to increase the number of channels over 40 channels, we can do so by using a single pole, single throw switch and connecting the switch to pin 10 of the PLL chip (MB8719). If the unit has a MB8734 chip installed, it must be replaced with a MB8719. The other side of the switch is connected to ground. Also, we will have to connect a 0.005 mfd capacitor from pin 10 to ground for RF bypass. When pin 10 is off ground, the frequency output of the synthesizer will jump 640 kHz higher. This means that it is possible to cover from 28.50 to 29.58 MHz.

After the crystal change, the transmitter should be peaked to maximum output and the receiver tuned to maximun sensitivity. The PLL VCO coil must be realigned to obtain 3.5 volts at the test point.(TP9) when the channel selector is set to channel 40.

Clarifier Modifications: Better Mod on pg 19 Vol 7.

In order to increase the clarifier range:
1. Jump R188 at clarifier range.
2. Disconnect wire connected to the hot side of the clarifier control.
3. Jump hot side of clarifier control to pin 1 of IC5 voltage regulator.
4. Omit diode D36 connected to VR3 transmitter frequency adjust.

With this modification, the clarifier control operates on transmit and receive, which is a good feature for 10 meter operation.