A 'Cure' For Scout Drift

The Scout is a terrific transceiver, but it drifts, despite the frequency compensation driven 'CPU' circuitry. It will drift upwards over time or upwards faster if the transmitter is used and its left on a fixed frequency for extended periods. The FLS will attempt to keep the radio 'LOCKED' until it drifts so much it runs out of compensation. You don't notice this unless you leave the Scout on a fixed frequency for an hour or more. You can tell when its goes into an out of lock state under these conditions because the 'unlock' LED will light up. If you turn the Scout off and then on again, you'll see that the frequency display is higher by about 600 cycles or more.

A call to Ten Tec resulted in the engineer stating that this was 'normal'. "Its an inexpensive PTO and not intended for this type of operation". "It needs to be tuned periodically." I know pretty well what normal should be, and this ain't it, especially with a brand new PTO. An investigation showed that the PTO always drifted up. Its simply over compensated, that's all. There is no excuse for a 2-odd MHz oscillator to drift like that. A reason perhaps, but calling this 'normal' is obfuscation.

There are 3 capacitors on the PTO circuit board (usually). Two of them, or maybe just one will be the equivalent of a 30 or 33 pF N1500. The other capacitor, "selected in production", was an 18 pF NPO in my PTO. The PTO is mostly surface mount and God only knows the temperature characteristics of those chip capacitors. However, the 3 (usually) fixed ceramic disks in the PTO are specifically for compensation . They usually are - 18 NPO (black bar on top) and a 30 pF N1500. The latter may be comprised of 2 - 15 pF at N1500 marked as 'K3'. Tests showed that what is really required is the equivalent of the compensation of a 30 pf N750. This can be achieved by one of...

- Pulling one 15 pF N1500 and substituting a 15 pF NPO
- Pulling the 18 and one 15 and substituting a 33 NPO
- Pulling both 15 pF N1500 and substituting a 30 or 33 pF N750

This is not too critical, for we do not need to completely stop all drift - we just want to ensure it never drifts out of range of the FLS.

When you pull the cover off the PTO, the circuit board will come loose. Careful now, because it is now supported only by the coil leads. Use at least one cover screw to secure
the circuit board to the PTO frame. Remove the required capacitors with solder wick and re install the replacement(s). Be careful in there!

After this change, I can tune in the local QRU net from a cold start and 4 hrs later, turn the Scout off and then on. If there is a difference in display reading, it is around 100 cycles. The same applies to a 1 Hr QSO using the TX. Before this change, the display showed a difference of 600 to 800 cycles, and even worse, the LED 'lock' light would come on.

Even if there is an 'FLS' - Frequency Lock System - on the Scout, it does little good if the PTO drifts out of lock. Now, it locks SOLID and stays there.

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