



Design Note

From: DEMI R&D Dept.

DN#: 014

Date: August 15, 2002

Re: Frequency Drift of DEM 432-28 Transverter

PREFACE: During extensive use such as EME , contesting, or long QSO's, frequency drift of the DEM 432-28 may occur. This drift may vary in severity depending on the version of transverter. The earlier models will drift more than the newer ones. Voltage and temperature regulation of the oscillator circuit with excessive internal air temperature are the main problems. Customer feed back and further engineering have resulted the modifications discussed in this document.

SOLUTIONS: The earlier versions, pre-1998, can be upgraded to today's standards by replacing the voltage regulator, oscillator transistor, trimming capacitor and adding a PTC Thermistor to the oscillator circuit. Some units may already contain a Thermistor attached to the crystal. The Thermistor cures most of the drift but after extensive heating of the internal air in the transverter, it will drift up and down in frequency as the temperature changes. For owners of these earlier versions, if you desire to attempt the modifications, it is important to identify which version transverter you have. We suggest consulting DEMI before you attempt a modification. We can supply the components and guidance which varies depending on the version transverter you have. If the transverter is a factory built unit, we can modify it to today's standards for a nominal charge.

After the modifications have been completed or if you have a newer version of this transverter, extended use of the 432-28 will still cause excessive heating of the air trapped inside of the enclosure. This increase in air temperature will heat other related components in the oscillator circuit causing frequency drift. Then when the air cools, the frequency will drift back. To control this problem we suggest an external cooling fan mounted on the Heat Sink above the power amplifier section. If the frequency is stabilized at room temperature with the cooling fan in operation, then the PTC Thermistor will have complete effect in stabilizing the oscillator's temperature. If the air temperature in the enclosure rises above the temperature of the oscillator circuit, frequency drift will occur. If the Heat Sink is "Hot" to the touch when operating, it will drift . Use more cooling air!

FURTHER EXPERIMENTATION: After all modifications are completed on the older versions of if you have a newer model, you may experiment with vent holes in the enclosure. We have not thoroughly tested this but see it as an improvement in future 432-28's. If you attempt to use a cooling fan with vent holes, be sure that the air does not directly move across the oscillator circuit. This would nullify the use of the PTC Thermistor.

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