

General Information on Motorola Radio Conversion

The Motorola UHF Mocom 70 and UHF Micor radios that are covered by the following conversion instructions have been successfully used in the field for 9600 baud FSK data service. 25 watt UHF Mocom 70's have been used extensively by the Hognet Packet Radio Association for back-bone radios on Texnet nodes in Western Arkansas and Southwest Missouri. A number of these Mocom's have been in service for three years.

UHF Micors have been used for over two years in Eastern Oklahoma. These radios have been used to replace RCA 700's on the Texnet backbone in Oklahoma. Reliability on both radios has been very good.

Before you rush out to find one of these radios, read the following information and select the radio that is not only the best for your needs, but more important, select the radio that is within your capabilities to convert and align. One important note concerning the Mocom 70. The receive front end will only tune down to about 444 MHz without modification. At one time I modified the front end of a 450-470 Motrac for operation at 424 MHz. It might be possible to modify the Mocom 70 receiver in a similar way. Unfortunately, the details on this type modification are beyond the scope of these instructions.

Take a few minutes to thoroughly read the conversion information before you start. This can save you a lot of troubleshooting time.

There are different instructions that need to be followed based on the type of 9600 baud modem that you are using. If you are using a TAPR or G3RUH modem, skip any steps that pertain to use with a TPRS modem, if you are using a TPRS modem, skip any steps that apply to TAPR/ G3RUH modems.

People that are not familiar with the TPRS modem might wonder why this modem uses a different set of interface instructions. Even though the TPRS modem is similar in design to the K9NG modem, there are major differences in the receive and transmit filters. The TPRS modem features improved receive and transmit filters that are designed for DC coupling to the radio. DC coupling imposes certain requirements on the radio interface. In addition, the Texnet network uses the NRZ data format on the 9600 baud trunks. I will not go into an explanation of the difference between NRZ and the more common NRZI. I will say that NRZ data is polarity sensitive. If the data polarity is "upside down", your node will not receive any data. The TPRS instructions take all of these criteria into consideration.

There are design differences between the 25 watt and the 50/75 watt Mocom transmitter stages. Before you begin Mocom conversion, read the section on Mocom 70 transmit power identification and determine the type radio that you have. If you are running your 9600 baud trunks in the 2 meter band, you might try to locate a T43 series Mocom 70. This radio is practically identical to the 25 watt UHF version, and the conversion would be the same for the 25 watt UHF or 45 watt VHF radio. There will be slight differences in receive and transmit alignment due to the additional stages in the UHF radio.

Follow the appropriate instructions for your radio/ modem combination. Before deciding to tackle the Micor, be sure that you have the technical expertise and test equipment necessary to align and service this radio. For the ham with limited test equipment, the 25 watt Mocom followed by the 50 watt Mocom are the best choices.

Above all, obtain a service manual for your radio. These manuals contain a wealth of information that is impossible to include here. Part numbers and sources for these manuals are listed at the end of this section. In closing, one question that I am frequently asked is WHERE DO I FIND REPLACEMENT PARTS FOR MY RADIO. Motorola HAS DISCONTINUED parts support for the MOCOM and MICOR mobiles. The UHF Micor Base continues to be supported and since many parts are used in both versions, these parts are still available, AT A PRICE. Most of the small signal transistors for both radios are still available with typical prices ranging from \$1.00 to \$5.00 +. Some of the IC's used in the Micor receiver RF/IF and audio squelch boards are in the \$20.00 range. The cost of a UHF RF transistor could easily exceed the price of a complete radio from on the surplus market. I suggest keeping a spare radio on hand for repair parts. If you need to purchase a Motorola part, try your local MSS first. If they won't sell to you, you may order direct from Motorola Parts. There is a \$25.00 minimum but they will accept VISA / Mastercard. The toll free number for Motorola parts is 1 800 422-4210. You will need exact Motorola part numbers (this is where the manual comes in handy).

Potential sources for manuals are:

C.W. Wolfe Communications
1113 Central
Billings, MT 59102
406 252-9220

Commercial Radio Corp.
6014 S Central Ave
Chicago, IL 60638
312 284-0400