

July 30, 1996

## 1999 Rollover in GPS Time

In August of 1999, the GPS week number will rollover from 1023 to 0 due to the limited length of the GPS week field in the navigation data stream. Do not be concerned: Motorola **ONCORE™** receivers (GT, UT, VP, XT, and Basic) have been designed and tested to properly distinguish the correct 20 year window (1024 weeks is just shy of 20 years). They will not need reprogramming or replacement come 1999. In fact, the transition will be completely transparent to users of Motorola **ONCORE™** GPS receivers. The remainder of this applications note describes how this is accomplished.

Motorola **ONCORE™** GPS receivers store a reference date in nonvolatile memory. For example, if the firmware date is 1994, a defaulted receiver that does not have both a real-time-clock (RTC) and backup power (or battery) will start with an internal time of 12:00 on 1/1/94 and begin acquiring satellites. Once

the first satellite is acquired, the time and week number will be downloaded from the navigation data message. The receiver determines the current date by starting from the week number of 1/1/94 (week 729) and searching for the first occurrence of the current week number (week 860 for 7/1/96).

The date stored is updated whenever the user or application enters the date command (@@Ac). Note that the date command is only accepted in idle mode or when the receiver is not tracking any satellites. For the VP, XT, and Basic **ONCORE™** receivers, if the user inadvertently enters a date with a year that is more than two years in the future (i.e. 1/1/98), week 938) then the receiver will select the date that matches the first occurrence of the GPS week number after 1998, which would be in the next 20 year window. To fix this, the user must simply enter in the current year when the receiver is not tracking satellites.

**For configuration assistance, order placement and technical support call:**

**SYNERGY SYSTEMS**

*Working together for better results*

P.O. Box 262250 • San Diego, CA 92196  
Phone: (619) 566-0666 • Fax: (619) 566-0768

Note: This data was derived directly from an **ONCORE™** application note and was reformatted for clarity of FAX transmission. © Motorola, Inc. 1996. All rights reserved.