

Notification for REF TEK 130-GPS/01 USERS

Starting on July 31st 2008 the REF TEK GPS units, 130-GPS & 130-GPS/01, with "SiRF ublox modules" installed, started to shift in time by a second. The shifts by 1 second are in a regular pattern as shown in the table at the bottom of this document.

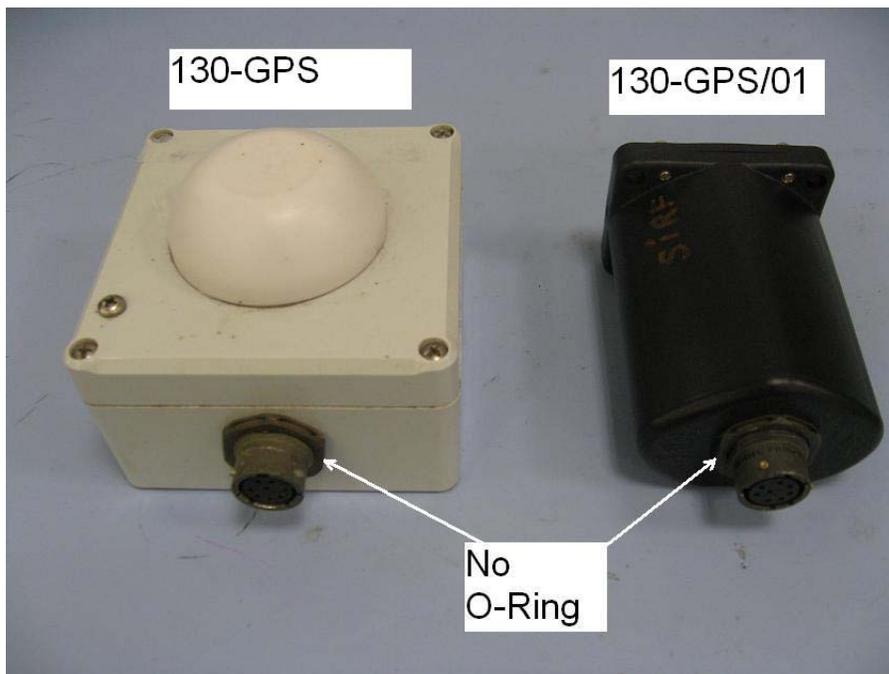
To determine if your 130-GPS is a SiRF ublox type, please either look for the following message in your SOH file or unit log file

EXTERNAL CLOCK TYPE: NMEA

Or by looking at the two units shown below and matching the serial number range as below.

REF TEK sold SiRF type GPS units, the 130-GPS & 130-GPS/01, from 2001 to 2004, with serial number ranges

130-GPS	s/n 0001 - 0394
130-GPS/01	s/n 0395 - 1080

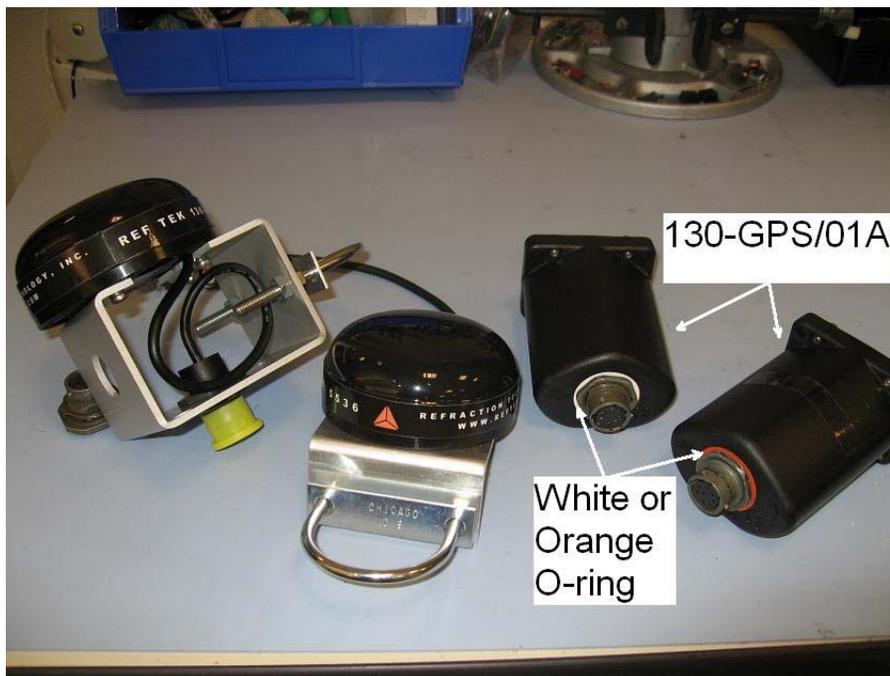


SiRF ublox GPS units from REF TEK

REF TEK does not have a firmware fix for this new bug from these SiRF ublox modules. SiRF ublox is also not offering a fix. REF TEK is however offering a replacement Garmin GPS at our cost of \$193 each, a GPS that does not show this behavior. This would be a direct replacement for a 130-GPS or 130-GPS/01 unit.

REF TEK Garmin type GPS units sold since 2004 with serial number range above 1100 are not affected by this time shift as they are Garmin modules not SiRF ublox. The group of four GPS's pictured below shows REF TEK GPS models who are Garmin modules and are not seeing the second shift the SiRF ublox modules are. If you do not have your GPS in front of you, please look in the SOH file of your recorder to determine if it is a Garmin by looking for the following message;

EXTERNAL CLOCK TYPE: NMEA-Garmin



Garmin GPS units from REF TEK

If you would like a quote for the replacement GPS units please contact support@reftek.com with the number needed.

If you would like further notifications on the time shifts reported by the SiRF ublox 130- GPS & 130-GPS/01 units please send your email address to support@reftek.com with a subject title reading "130-GPS/01 Time shift Notification"

For more information please contact REF TEK Customer Support at support@reftek.com.

REF TEK University Courses for 2008:

Want to become an expert with REF TEK equipment? Attend our REF TEK University. Information on the 2nd course offered at REF TEK in November 2008 can be found on our web site www.reftek.com This course will focus on Weak Motion Equipment with an introduction to the REF TEK Broad Band Seismometers.

Best Regards,
REF TEK's Customer Support Team
www.reftek.com
[ftp.reftek.com](ftp://ftp.reftek.com)
PH (214) 440-1265

SiRF ublox 1 second shift behavior Aug 2008

- **2008:213:00:00:00.000** Moves backward 1 second compared to actual time (Minute mark now at 59 seconds instead of 60/00)
- **2008:213:18:00:00.000** Moves forward 1 second to be equal with actual time
- **2008:214:00:00:00.000** Moves backward 1 second compared to actual time (Minute mark now at 59 seconds instead of 60/00)
- **2008:216:00:00:00.000** Moves forward 1 second to be equal with actual time

- **2008:220:00:00:00.000** Moves backward 1 second compared to actual time (Minute mark now at 59 seconds instead of 60/00)
- **2008:220:18:00:00.000** Moves forward 1 second to be equal with actual time
- **2008:221:00:00:00.000** Moves backward 1 second compared to actual time (Minute mark now at 59 seconds instead of 60/00)
- **2008:223:00:00:00.000** Moves forward 1 second to be equal with actual time

- **2008:227:00:00:00.000** Moves backward 1 second compared to actual time (Minute mark now at 59 seconds instead of 60/00)
- **2008:227:18:00:00.000** Moves forward 1 second to be equal with actual time
- **2008:228:00:00:00.000** Moves backward 1 second compared to actual time (Minute mark now at 59 seconds instead of 60/00)
- **2008:230:00:00:00.000** Moves forward 1 second to be equal with actual time

- **2008:234:00:00:00.000** Moves backward 1 second compared to actual time (Minute mark now at 59 seconds instead of 60/00)
- **2008:234:18:00:00.000** Moves forward 1 second to be equal with actual time
- **2008:235:00:00:00.000** Moves backward 1 second compared to actual time (Minute mark now at 59 seconds instead of 60/00)

- **2008:237:00:00:00.000** *Moves forward 1 second to be equal with actual time*
- **2008:241:00:00:00.000** *Moves backward 1 second compared to actual time (Minute mark now at 59 seconds instead of 60/00)*
- **2008:241:18:00:00.000** *Moves forward 1 second to be equal with actual time*
- **2008:242:00:00:00.000** *Moves backward 1 second compared to actual time (Minute mark now at 59 seconds instead of 60/00)*
- **2008:244:18:00:00.000** *Moves forward 1 second to be equal with actual time*