



# SYNRAD Technical Bulletin

# 0007

Technical Issue: Increase the Service Lifetime of FH Series Heads That Perform Long Durations of High Frequency, Small Angle Movements

Date: 03 November 2005

## Description:

The manufacturer of our galvanometers recently notified us that in applications involving long durations of high frequency, small angle movements, galvanometer bearings might be subject to degradation over time. This occurs because the balls in the ball bearings do not rotate a complete revolution around the bearing raceway when executing small angle moves. Instead, the balls rock back and forth in a narrow area, pressing lubricant out from between each ball and the raceway, which causes narrow notches to wear in the race under the ball bearings. Over a period of years, this action can lead to issues such as marks that suddenly appear to shift (as the balls jump in and out of the wear grooves in the raceway) and ultimately requires galvanometer replacement.

As a preventive maintenance measure, SYNRAD has added a new software feature to benefit this small segment of customers whose marking processes involve long durations of high frequency, small angle movements (where the mark is smaller than 10% of the nominal mark field). Beginning with WinMark Pro version 4.6.0.4927, we have incorporated a "clearing mark" feature into our laser marking software. The clearing mark serves two purposes: First, it redistributes lubricant along the bearing raceway, and two, it repositions ball bearings around the bearing, which, over time, helps to achieve a continuous and evenly worn raceway.

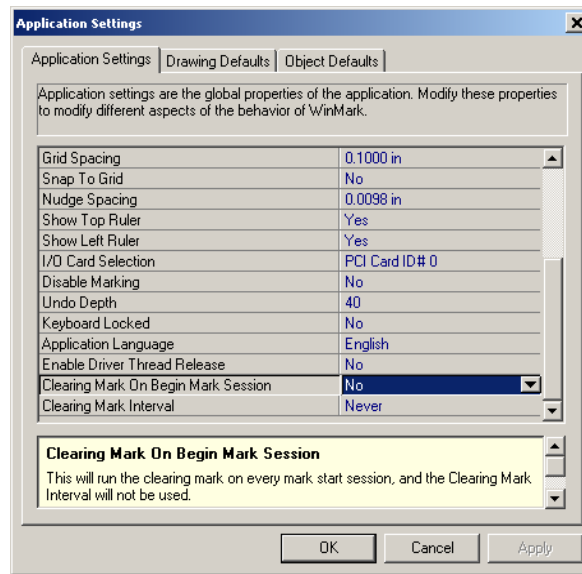
When used from the initial start-up of your FH Series marking head as a preventive maintenance measure, implementation of the clearing mark is the best possible method for increasing service life since galvanometer bearings are the only part of a marking head that wear out with use.

**Note:** The clearing mark is a non-lasing operation. The laser does not fire during this sequence.

To enable this preventive maintenance feature, perform the following steps:

- 1 Open WinMark Pro and from the *Help* menu, click *About Synrad WinMark...*
- 2 Verify that the version number is 4.6.0, Build 4927 or higher. If not, you can install the latest version of WinMark Pro from the WinMark web site at <http://www.winmark.com>. Please note that WinMark Pro version 4 is designed for Windows XP, 2000, NT4, and 98 operating systems running PCI-bus FLCC cards.
- 3 In WinMark Pro, click the *Tools* menu and then click *General Settings...* . When the *Application Settings* dialog opens, click the *Application Settings* tab.

- 4 Scroll down to the *Clearing Mark On Begin Mark Session* and *Clearing Mark Interval* properties. See Figure 1.



**Figure 1 – Application Settings dialog**

- 5 In most applications, a clearing mark is not necessary. Set *Clearing Mark On Begin Mark Session* to *No* and set *Clearing Mark Interval* to *Never*. This is WinMark Pro's default setting.
- 6 If your application requires a clearing mark, there are two choices: (1) perform the instructions described in Step 6A to initiate the clearing mark at the start of each mark session **OR** (2) follow Step 6B to insert a clearing mark after a specific number of marks has occurred in one or more mark sessions.

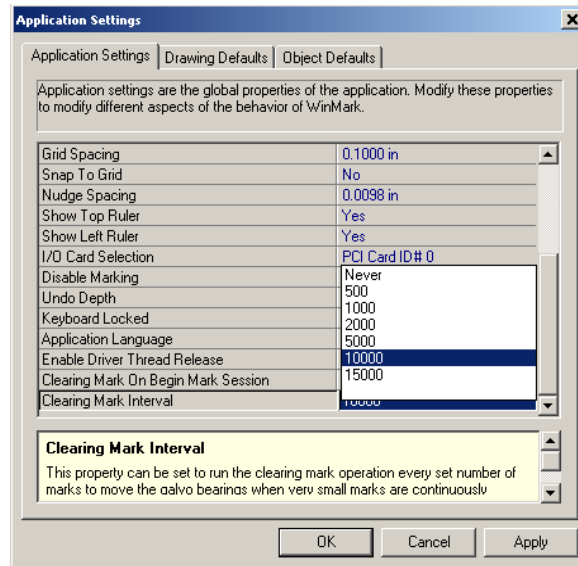
**6A Initiate a clearing mark at the beginning of each mark session**

Set *Clearing Mark On Begin Mark Session* to *Yes*. This enables a clearing mark sequence at the beginning of each mark session—every time a mark session opens in WinMark Pro or WinMark Launcher.

**OR**

**6B Initiate a clearing mark after a specific number of marks have occurred**

Set *Clearing Mark On Begin Mark Session* to *No*, and then select a *Clearing Mark Interval* other than *Never*. This initiates a clearing mark sequence after the specified number of marks has occurred, even across multiple mark sessions. Choose a *Clearing Mark Interval* based on your needs. SYNRAD recommends an interval of once every 10,000 marks. See Figure 2.



**Figure 2 – Application Settings dialog**

**Note:** To perform clearing marks in a Tracking application, set *Clearing Mark On Begin Mark Session* to Yes so that a clearing mark sequence occurs at the beginning of each mark session. The *Clearing Mark Interval* is disabled in Tracking mode.

For further information, contact SYNRAD at 1.800.796.7231. Outside the U.S., dial +1.425.349.3500 or fax us at +1.425.349.3667.