

**CONCEPTUAL STUDY  
OF  
ARTICULATED STABLE OCEAN PLATFORM**

**FINAL REPORT  
PART II  
(VOLUME III)**

CONTRACT NO. N00167-95-C-0113  
CDRL SEQUENCE NO. G005

PREPARED FOR  
  
CARDEROCK DIVISION  
NAVAL SURFACE WARFARE CENTER

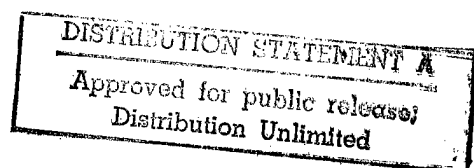
**DTIC QUALITY INSPECTED 4**

Prepared by

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MEH Project 44271

May 6, 1997



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UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE

## REPORT DOCUMENTATION PAGE

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| 1a. REPORT SECURITY CLASSIFICATION<br>UNCLASSIFIED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                    | 1b. RESTRICTIVE MARKINGS<br>None                                                                        |                                      |
| 2a. SECURITY CLASSIFICATION AUTHORITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                    | 3. DISTRIBUTION / AVAILABILITY OF REPORT                                                                |                                      |
| 2b. DECLASSIFICATION / DOWNGRADING SCHEDULE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                    | Approved for public release; distribution is unlimited.                                                 |                                      |
| 4. PERFORMING ORGANIZATION REPORT NUMBER(S)<br><br>MEH Project 44271                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                    | 5. MONITORING ORGANIZATION REPORT NUMBER(S)<br><br>CD/NSWC MSSPO (102) CR-96/03                         |                                      |
| 6a. NAME OF PERFORMING ORGANIZATION<br><br>McDermott Engineering Houston LLC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 6b. OFFICE SYMBOL<br>(if applicable)               | 7a. NAME OF MONITORING ORGANIZATION<br><br>Naval Surface Warfare Center, Carderock Division             |                                      |
| 6c. ADDRESS (City, State, and ZIP Code)<br><br>801 North Eldridge Street<br>Houston, TX 77079                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                    | 7b. ADDRESS (City, State, and ZIP Code)<br><br>9500 MacArthur Boulevard<br>West Bethesda, MD 20817-5700 |                                      |
| 8a. NAME OF FUNDING / SPONSORING ORGANIZATION<br><br>Defense Advanced Research Projects Agency                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 8b. OFFICE SYMBOL<br>(if applicable)<br><br>TTO    | 9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER<br><br>Contract N00167-95-C-0113                        |                                      |
| 8c. ADDRESS (City, State, and ZIP Code)<br><br>3701 North Fairfax Drive<br>Arlington, VA 22203-1714                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                    | 10. SOURCE OF FUNDING NUMBERS                                                                           |                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                    | PROGRAM<br>ELEMENT NO.<br><br>9750400                                                                   | PROJECT<br>NO.<br><br>               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                    | TASK<br>NO.<br><br>                                                                                     | WORK UNIT<br>ACCESSION NO.<br><br>   |
| 11. TITLE (Include Security Classification)<br><br>(U) Conceptual Study of Articulated Stable Ocean Platform                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                    |                                                                                                         |                                      |
| 12. PERSONAL AUTHOR(S)<br><br>Trevor R.J. Mills and Zhihuang (Alex) Ran                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                    |                                                                                                         |                                      |
| 13a. TYPE OF REPORT<br><br>Final                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 13b. TIME COVERED<br><br>FROM 10/29/95 TO 11/27/96 | 14. DATE OF REPORT (Year, Month, Day)<br><br>1996 September 25                                          | 15. PAGE COUNT                       |
| 16. SUPPLEMENTARY NOTATION<br><br>Final Report - Part 2 in 4 Volumes: OMB-95-214-1 through OMB-95-214-4, Model Studies of Articulated Stable Ocean Platform                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                    |                                                                                                         |                                      |
| 17. COSATI CODES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                    | 18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)                       |                                      |
| FIELD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | GROUP                                              | SUB-GROUP                                                                                               |                                      |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                    | articulated stable ocean platform, ASOP, floating production, offshore oil storage                      |                                      |
| 19. ABSTRACT (Continue on reverse if necessary and identify by block number)<br><br>A conceptual study has been completed to evaluate the feasibility of a new concept of a floating storage platform - the Articulated Stable Ocean Platform (ASOP). The unique aspects of the ASOP is the articulation of the stabilize buoys which were introduced for the purposes of reducing wave load and overall vessel motion. The ASOP was designed to have a fuel storage capability of 1 million barrels and to support a topside up to 12,000 kips in total weight. The fuel storage tanks were designed in such a way that the draft of the platform would remain unchanged at any loading condition without adjusting the ballast. This greatly simplified the operations and allowed the platform to continue other activities while loading and off-loading. |                                                    |                                                                                                         |                                      |
| 20. DISTRIBUTION / AVAILABILITY OF ABSTRACT<br><input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                    | 21. ABSTRACT SECURITY CLASSIFICATION<br>UNCLASSIFIED                                                    |                                      |
| 22a. NAME OF RESPONSIBLE INDIVIDUAL<br><br>Keith R. McAllister                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                    | 22b. TELEPHONE (Include Area Code)<br><br>(301) 227-5430                                                | 22c. OFFICE SYMBOL<br><br>NSWCCD 293 |

The study shows that the ASOP has adequate stability and satisfies the stability requirement of the certifying authorities. Both numerical analysis and model test showed that the ASOP offers exceptional motion response characteristics in all its degrees of freedom. In terms of platform motion response, the ASOP is capable of operating in more severe weather conditions than a conventional surface vessel type platform. A seven body (six buoys and the hull) coupled motion analysis in ocean environment was performed and results in general agreed with the model test. However, both numerical analysis and model tests showed that the articulated buoys have no clear advantage over fixed buoys in the global motion of the ASOP. The reduction of forces by using articulation did not significantly improve the motion of the platform. Furthermore, the analysis and model test showed that compared to the fixed buoy case, using articulations increased the slow drift motions of the ASOP in random waves. The study also indicated that the introduction of articulations complicated the hydrostatic stability of the platform. Damaged stability was the governing factor in determination of the size of the articulated buoys. In conclusion, this conceptual study indicated that the fuel storage ASOP is a viable concept. Its large storage capability and exceptional motion characteristics allow many applications both in civil and military purpose.

Preliminary Report No. OMB-95-214-1

**MODEL STUDIES  
OF  
ARTICULATED STABLE  
OCEAN PLATFORM**

**VOLUME III**

**JUNE 1996**

**PREPARED FOR**

**McDERMOTT ENGINEERING HOUSTON  
801 N. ELDRIDGE STREET  
HOUSTON, TEXAS 77218**

**PREPARED BY**

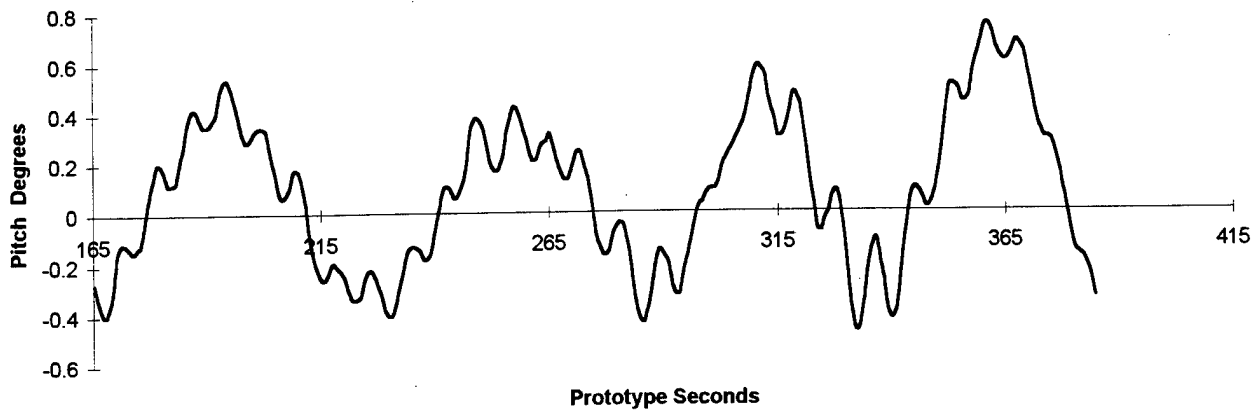
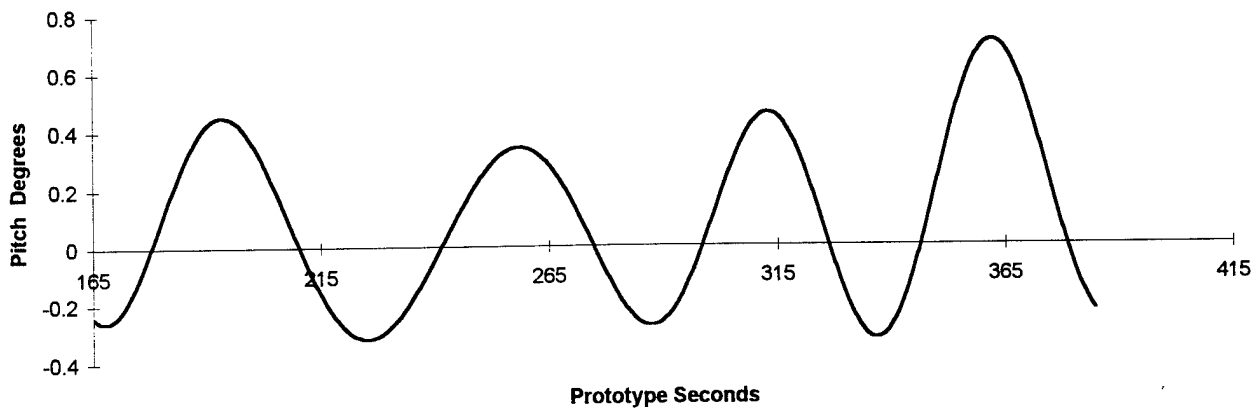
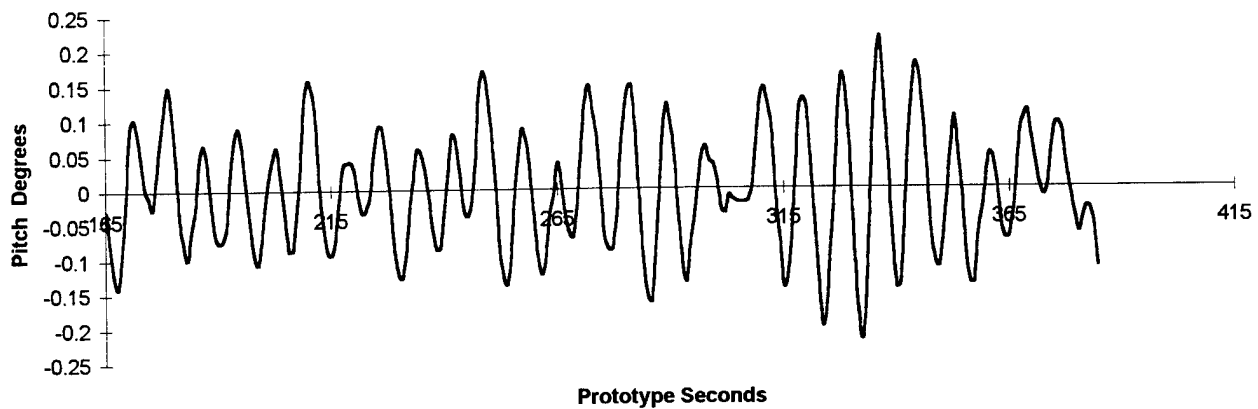
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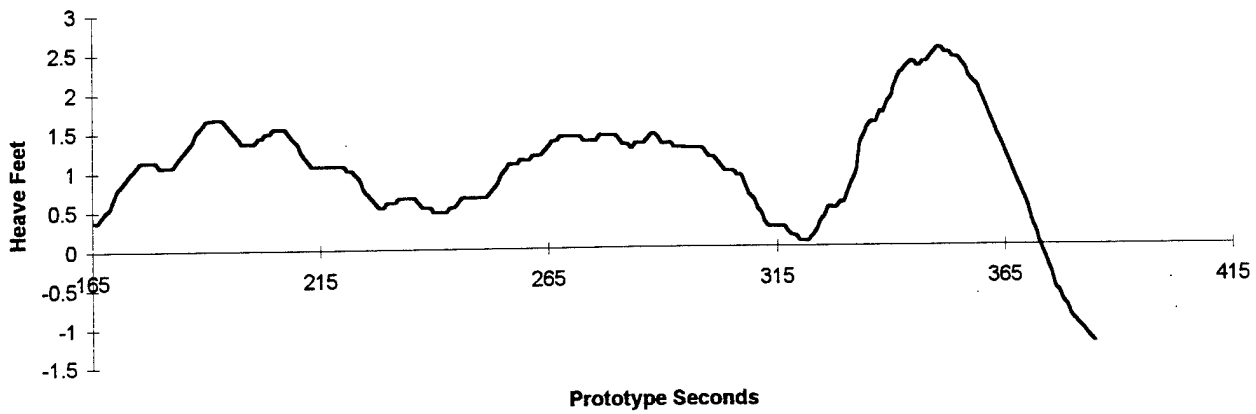
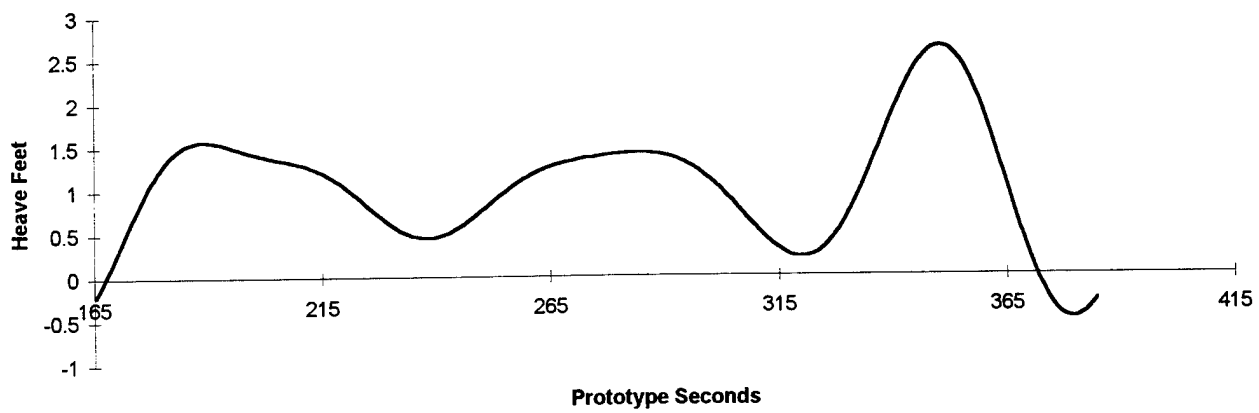
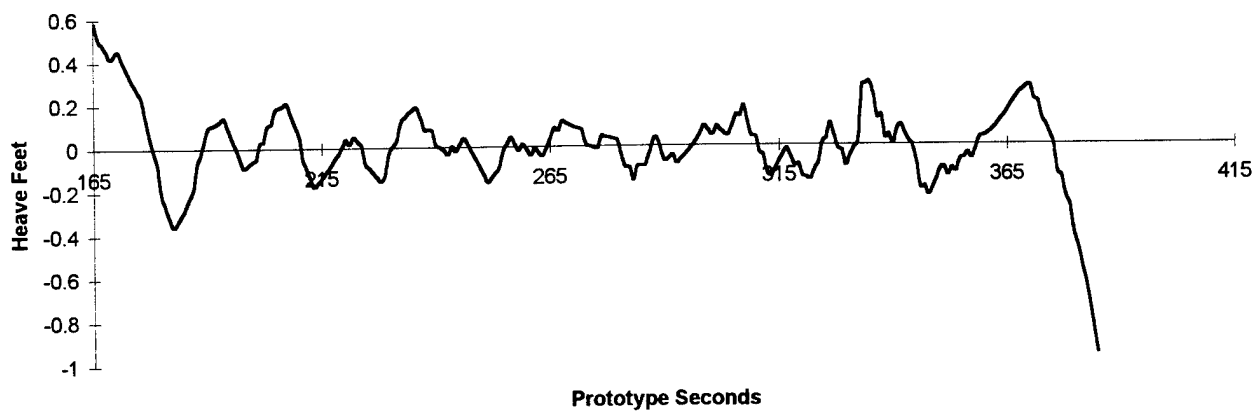


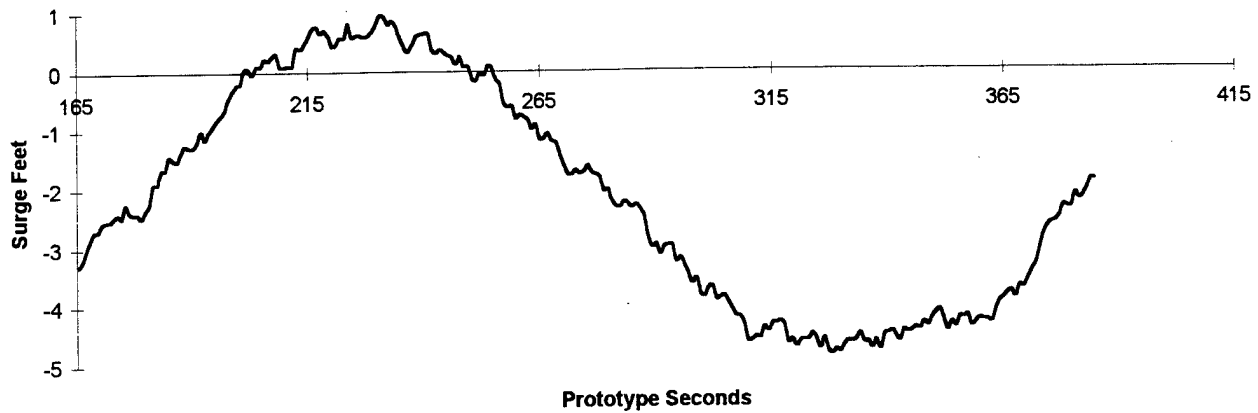
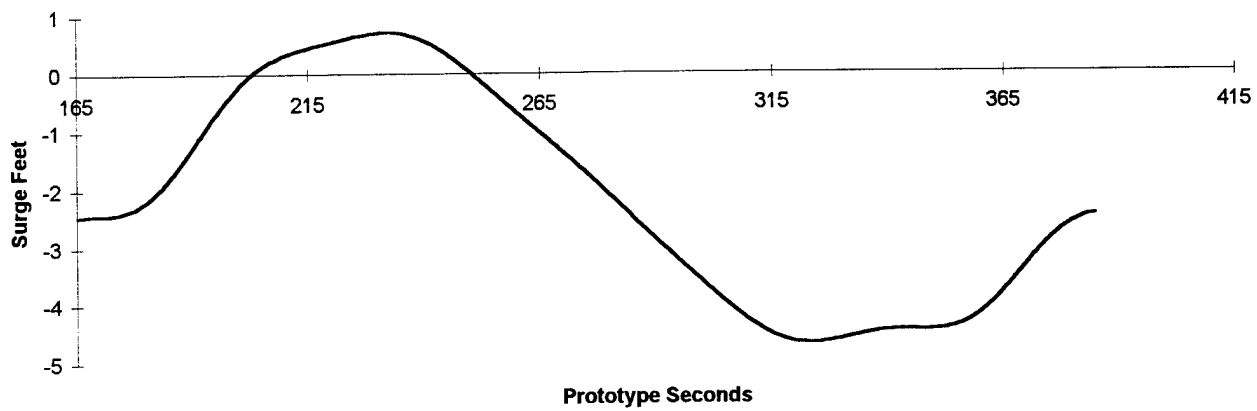
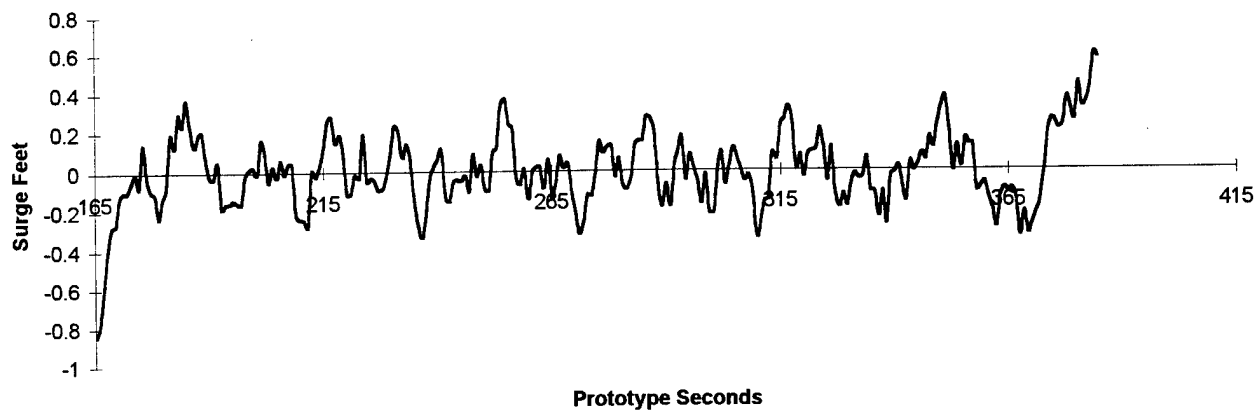
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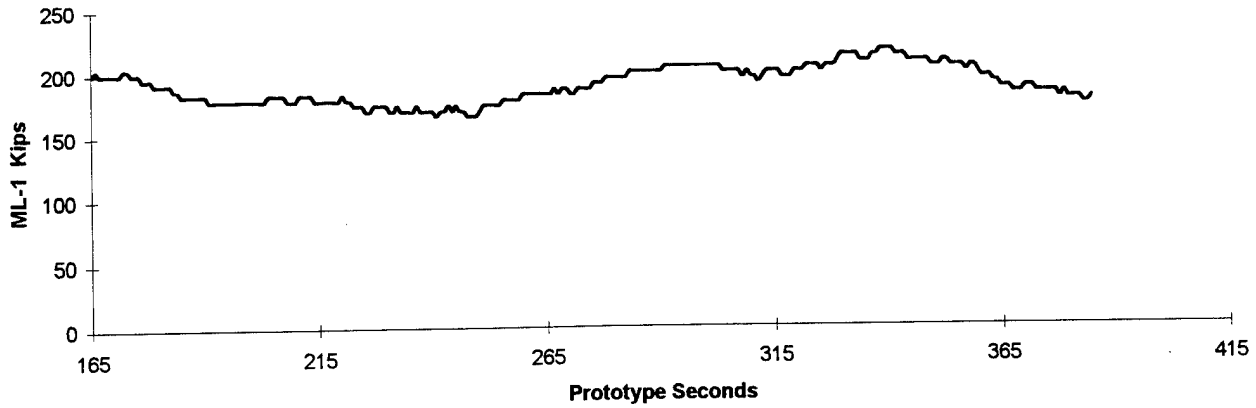
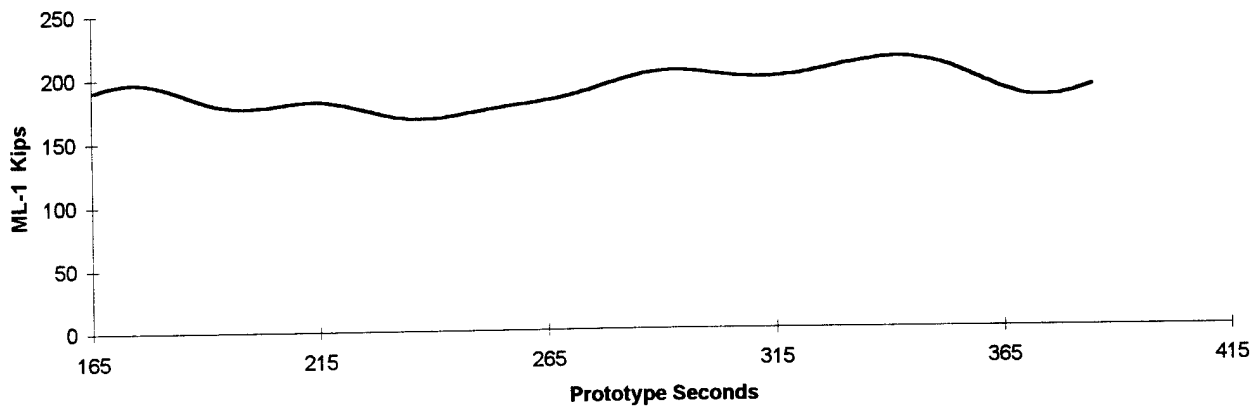
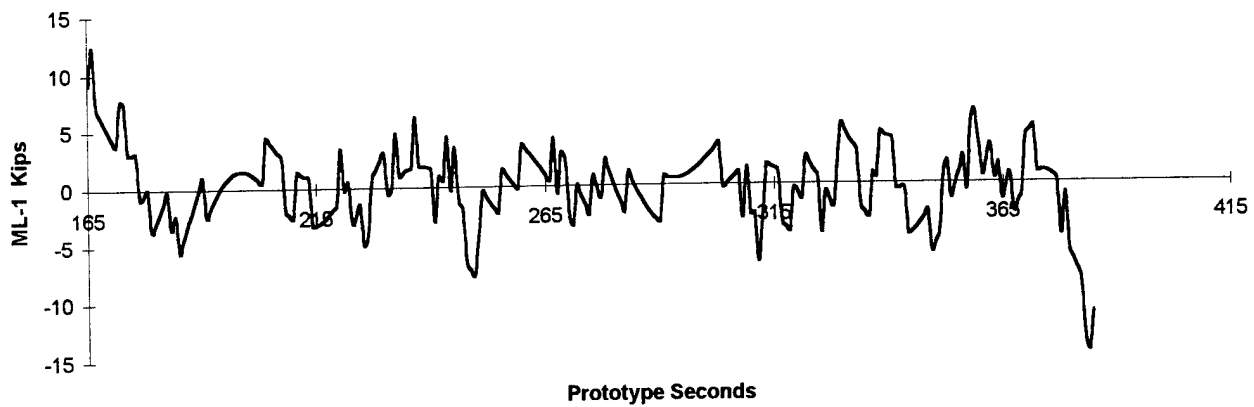
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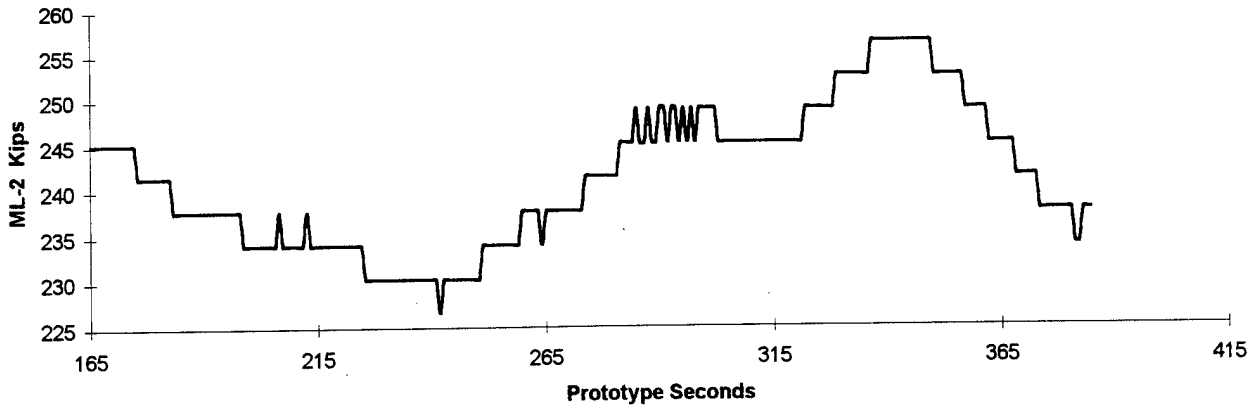
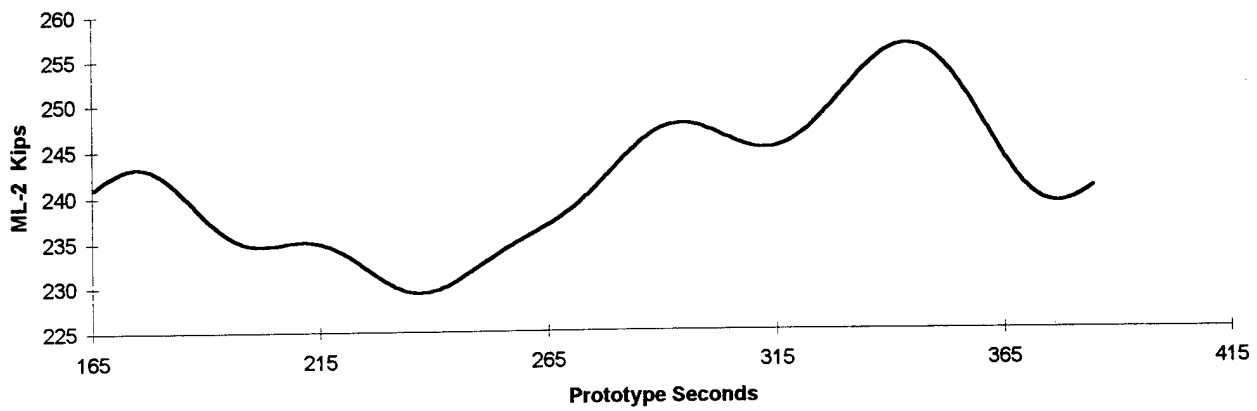
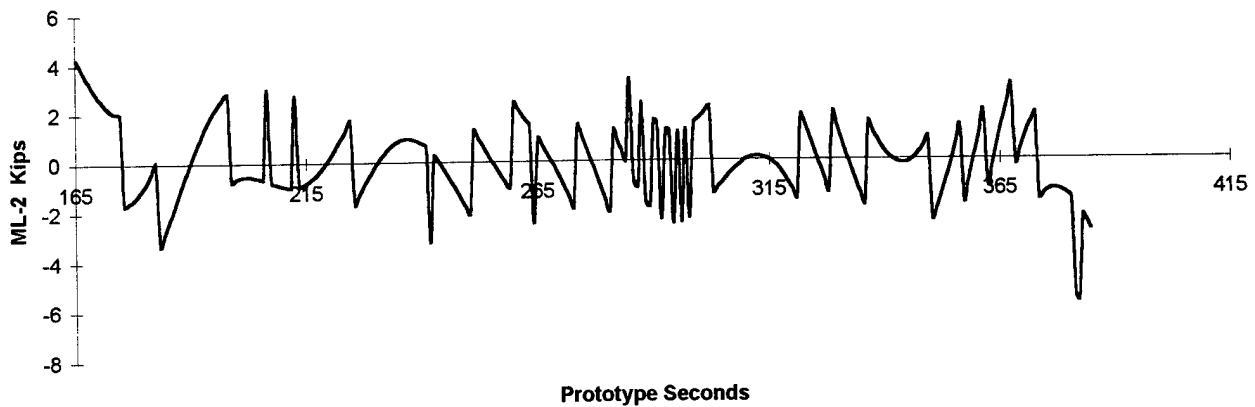
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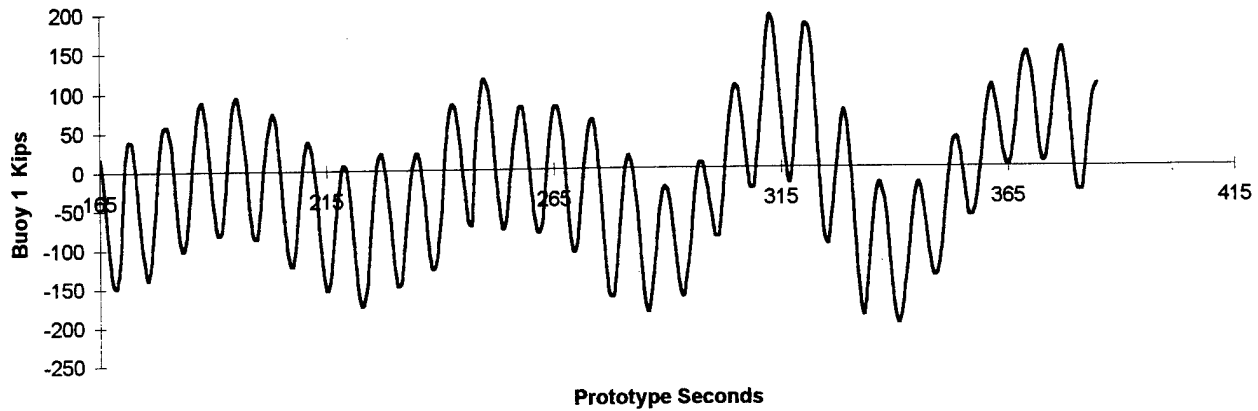
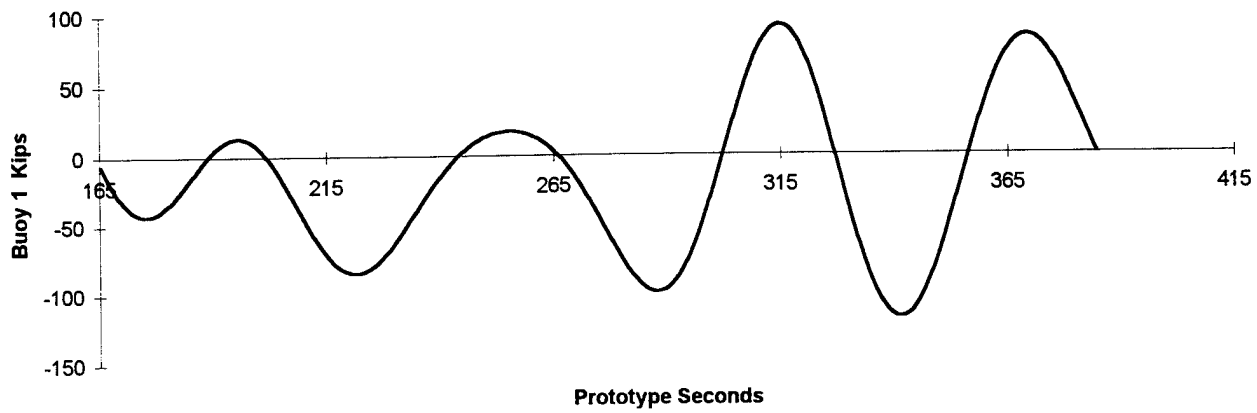
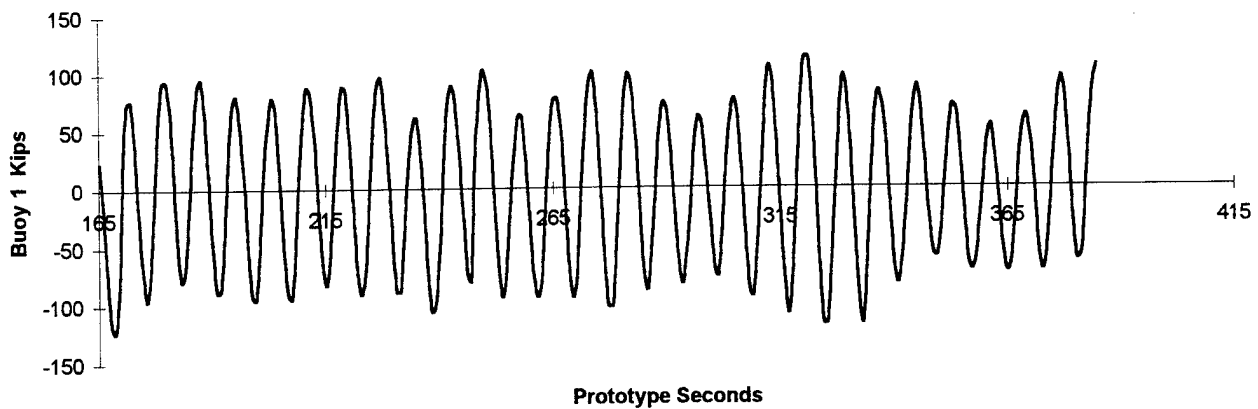
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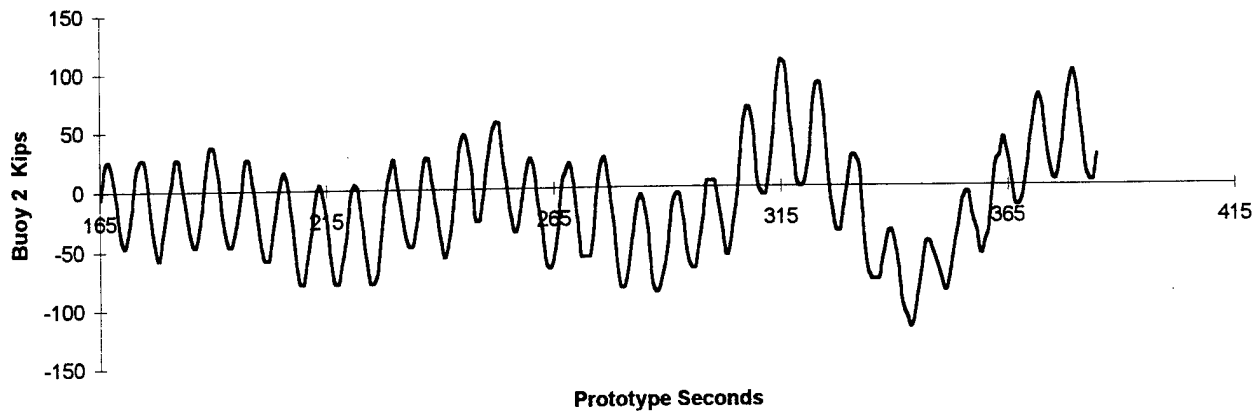
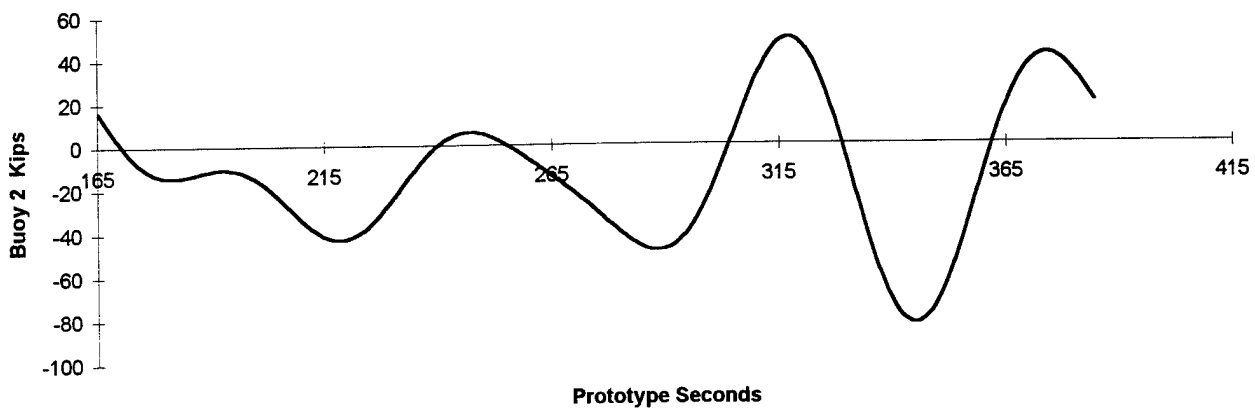
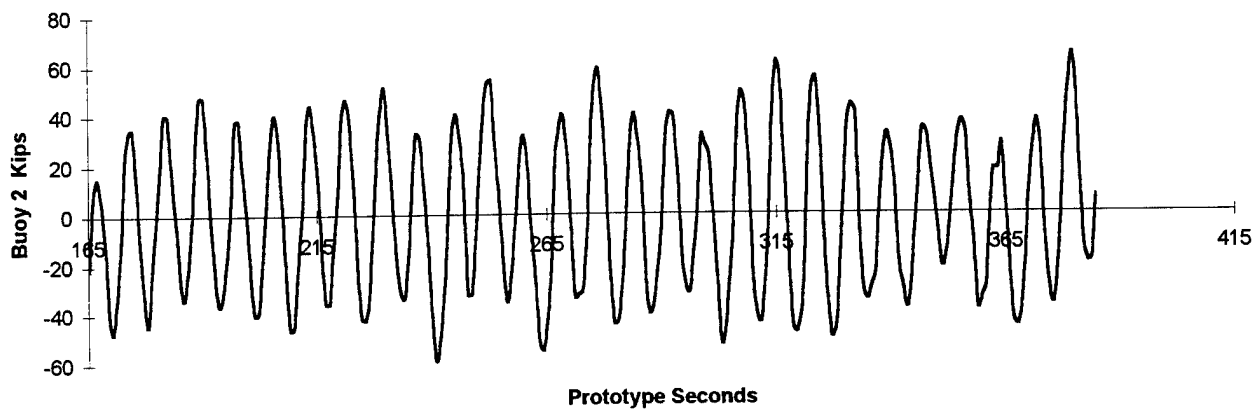
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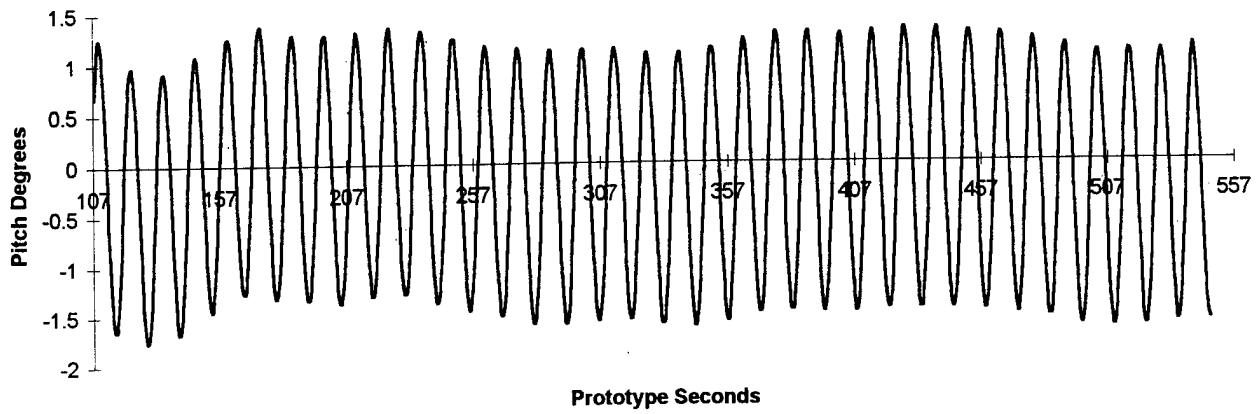
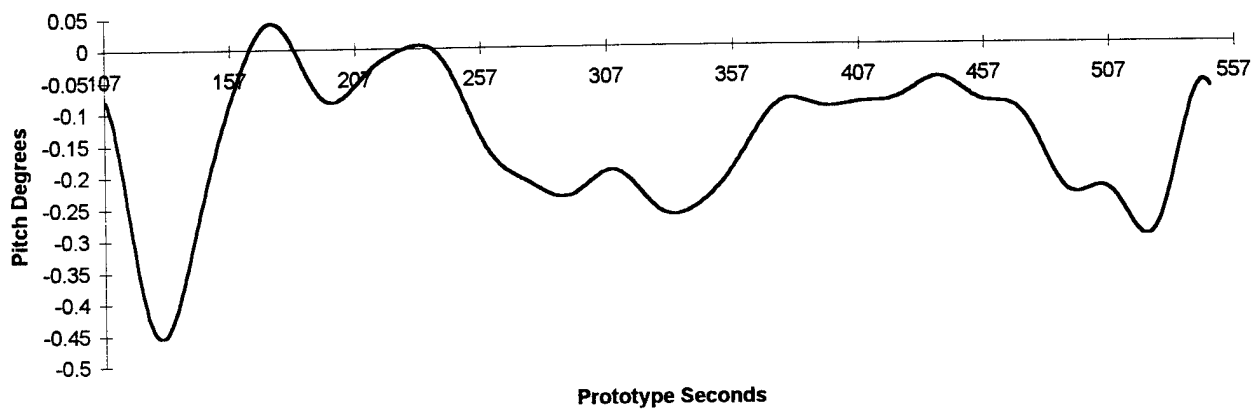
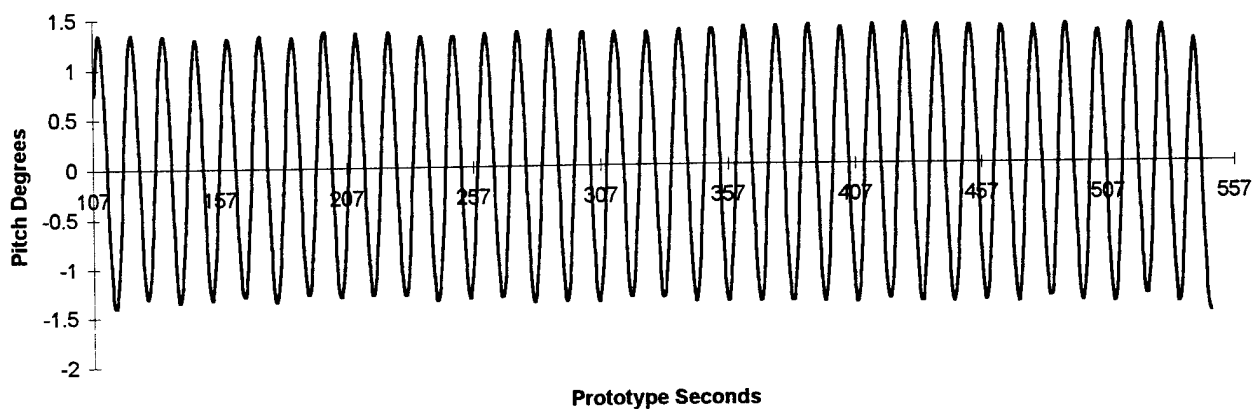
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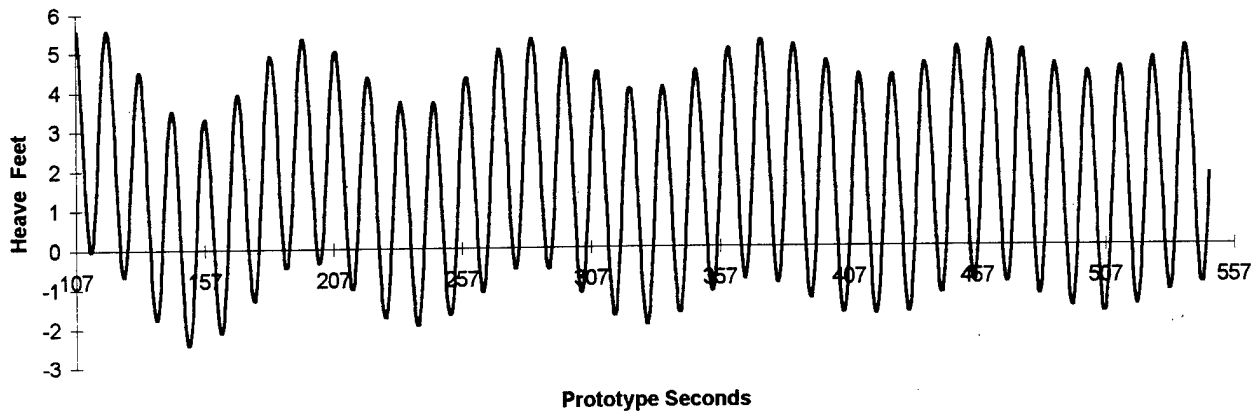
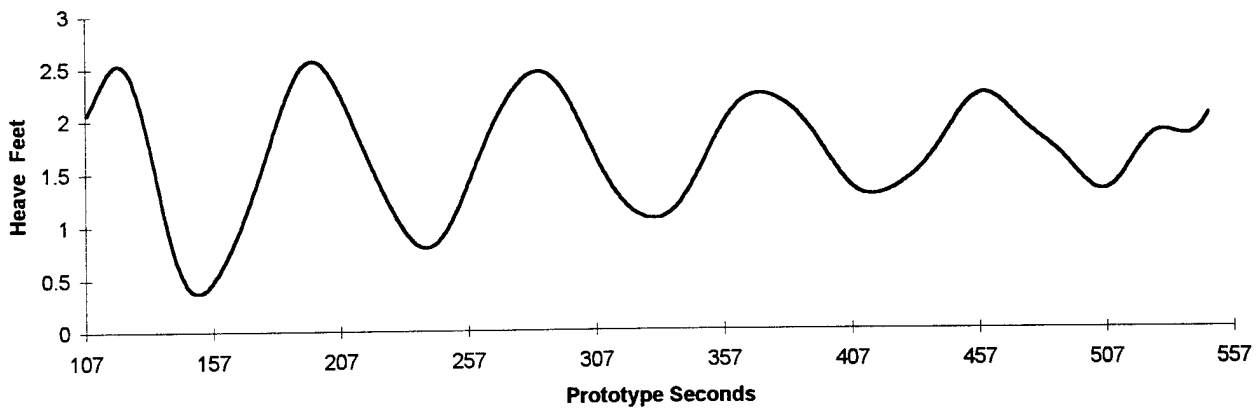
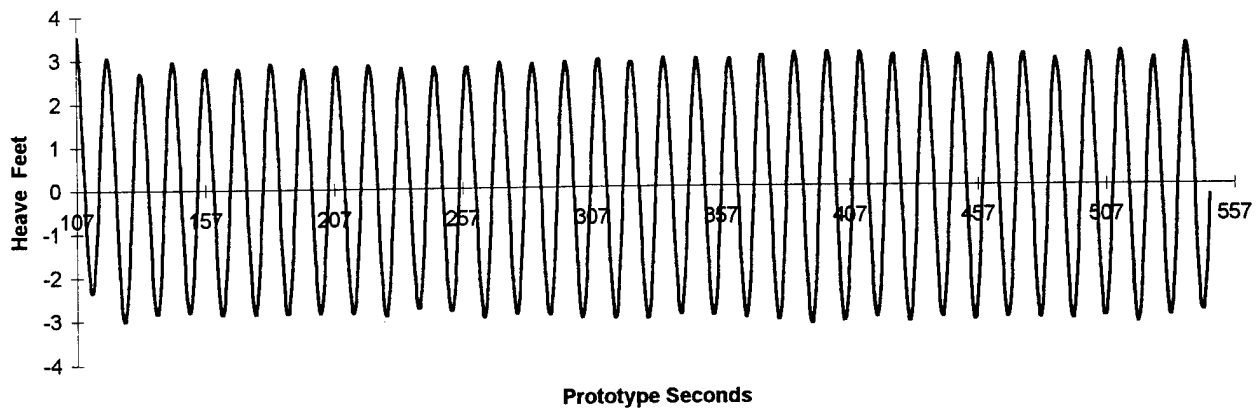
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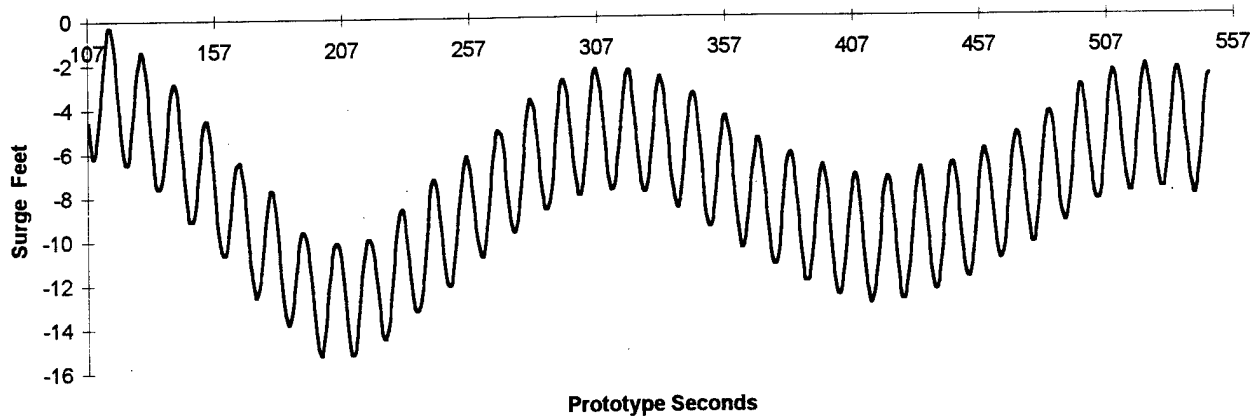
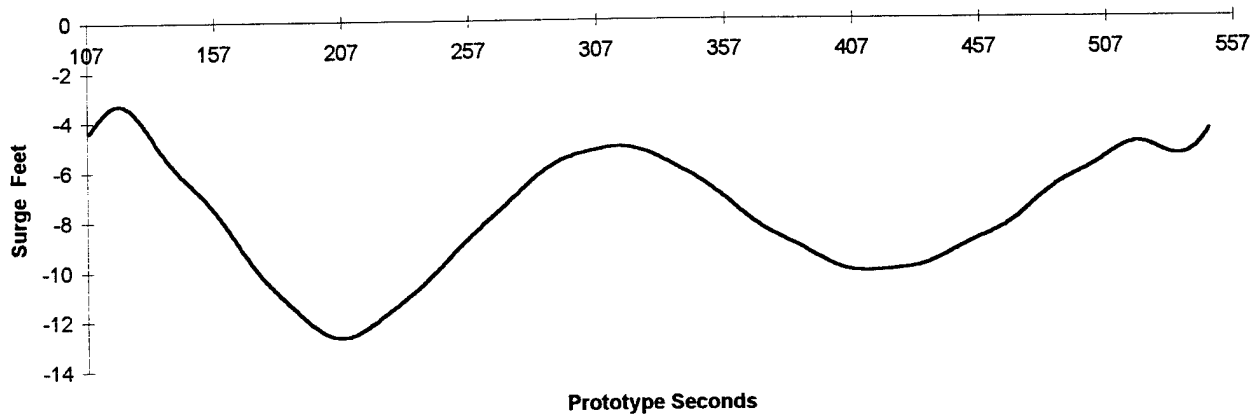
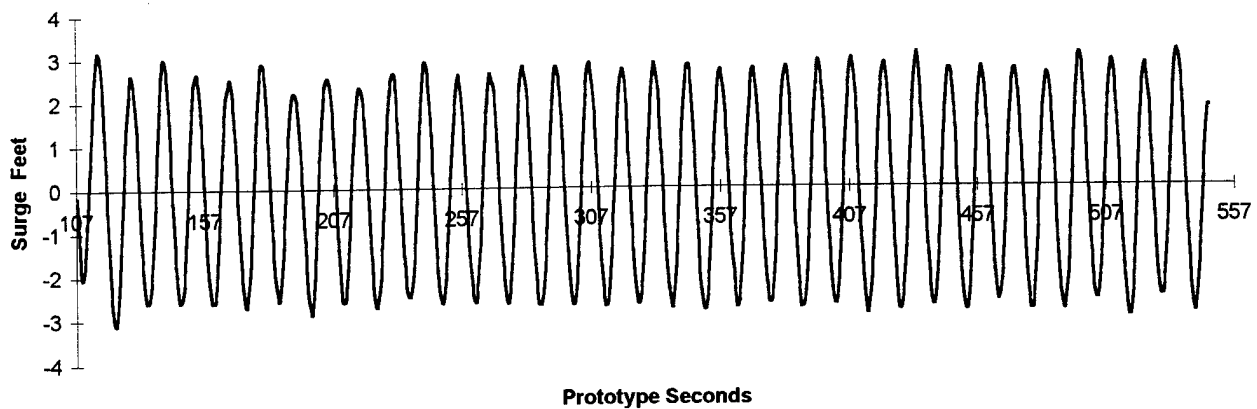
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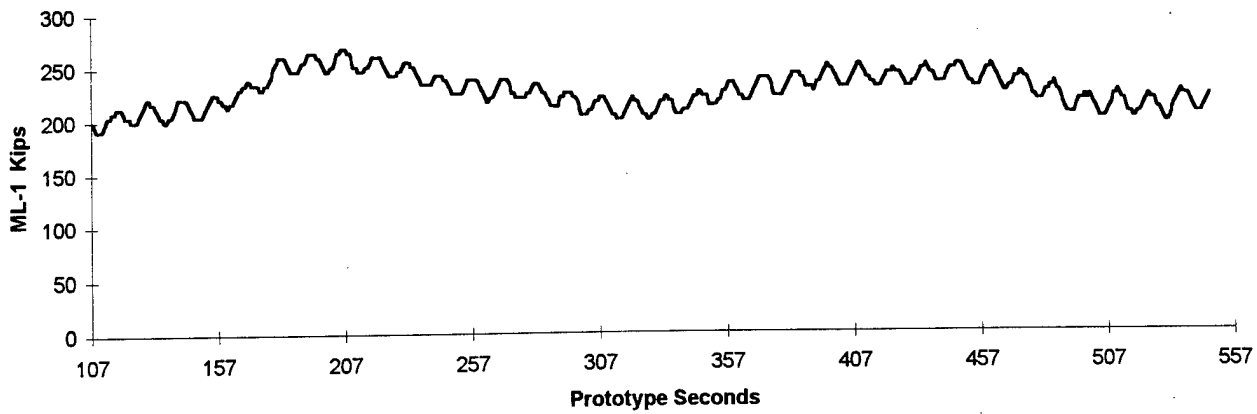
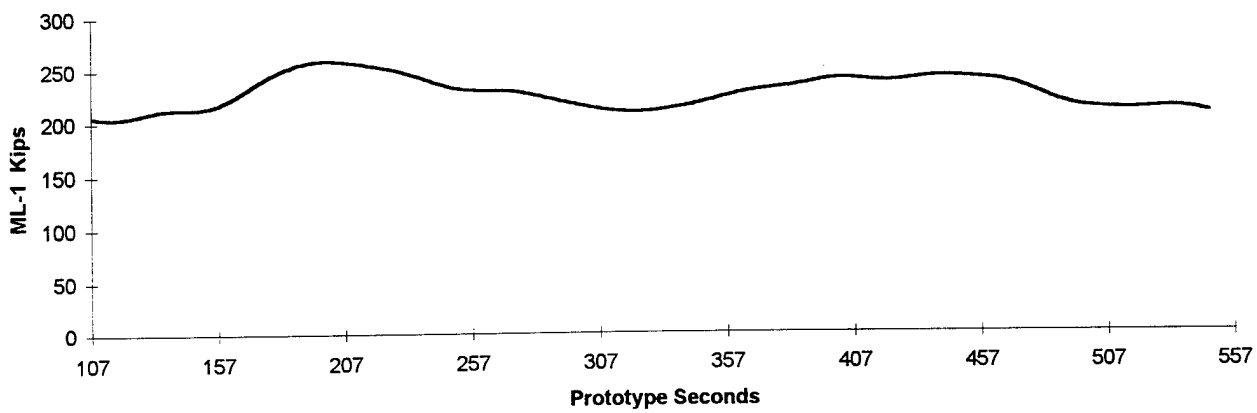
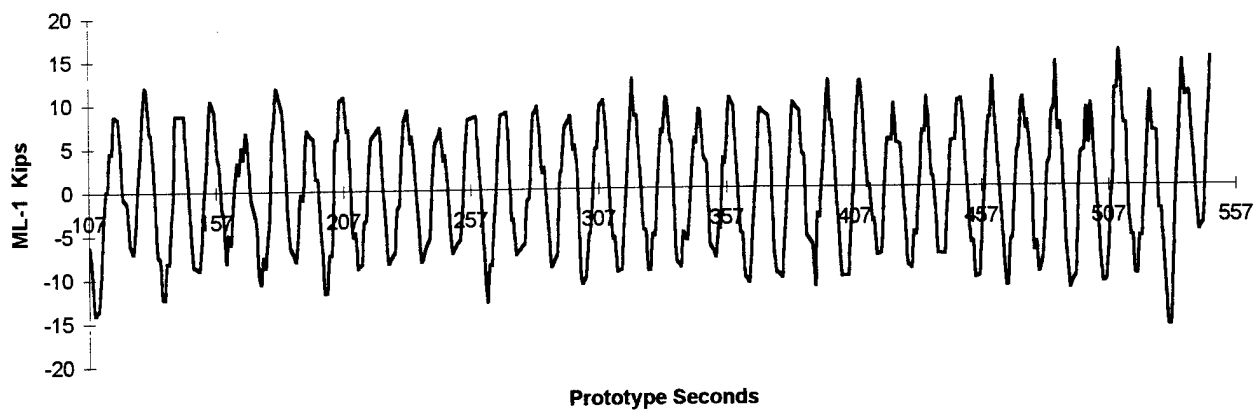
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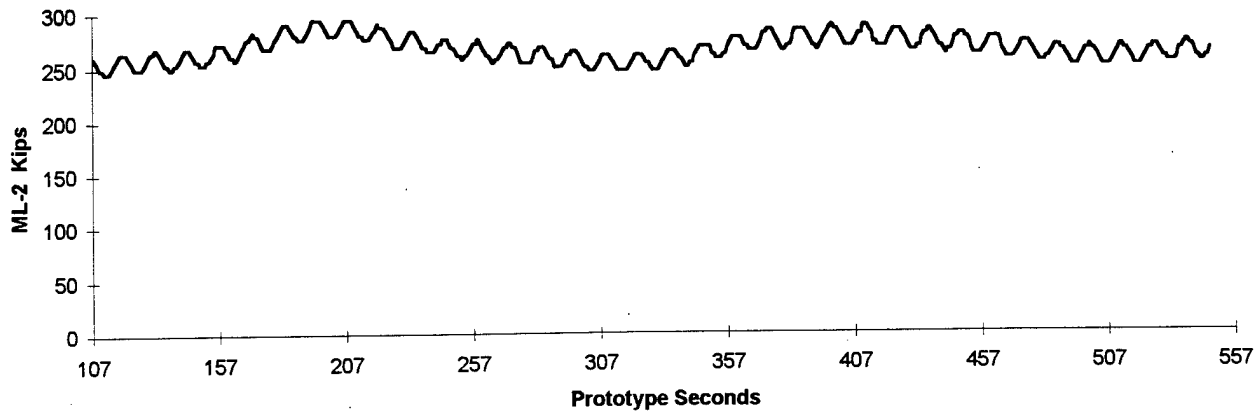
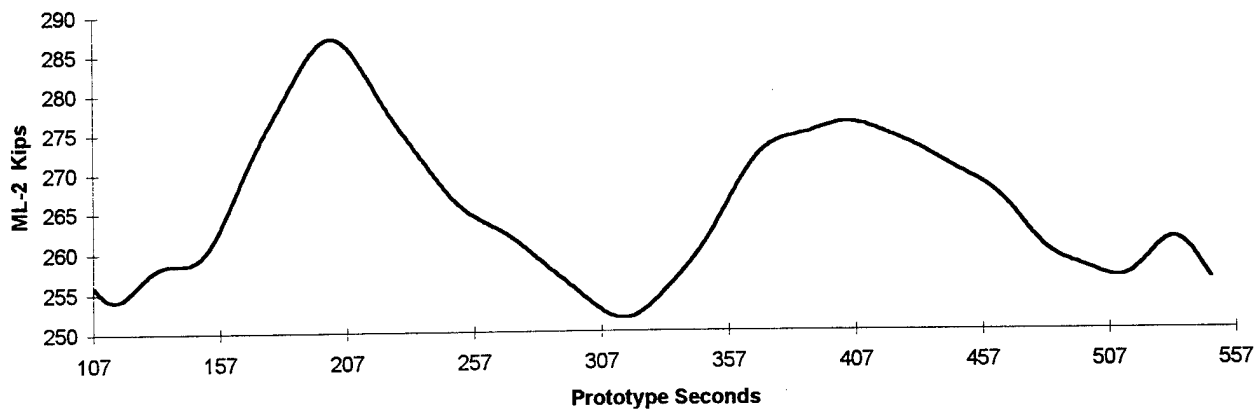
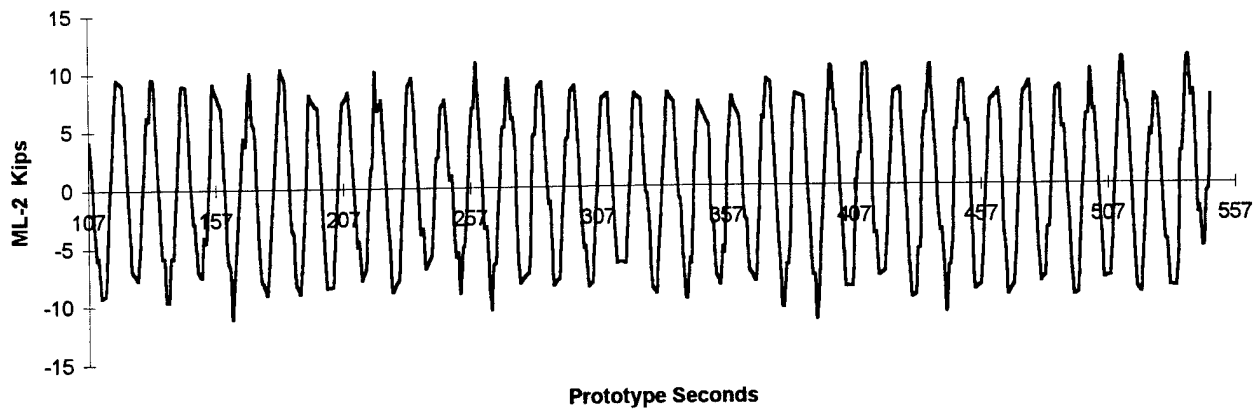


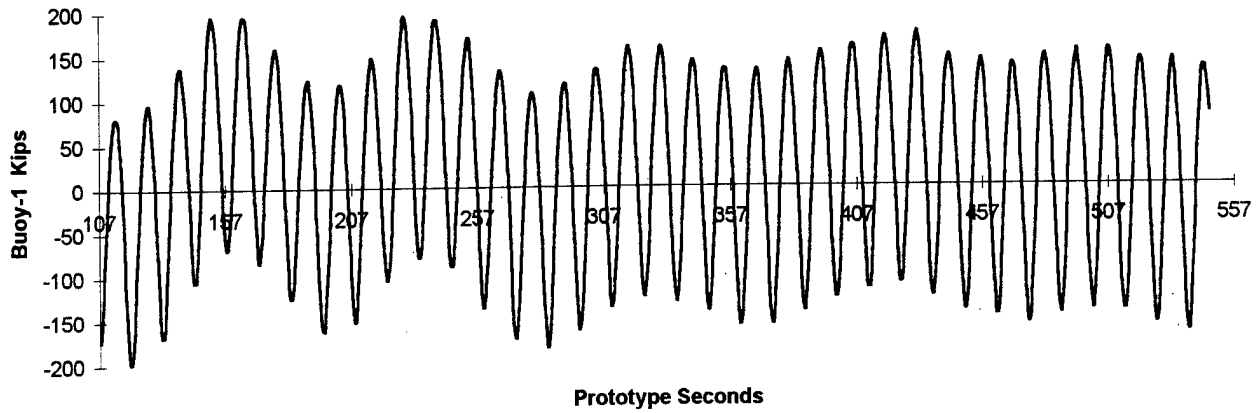
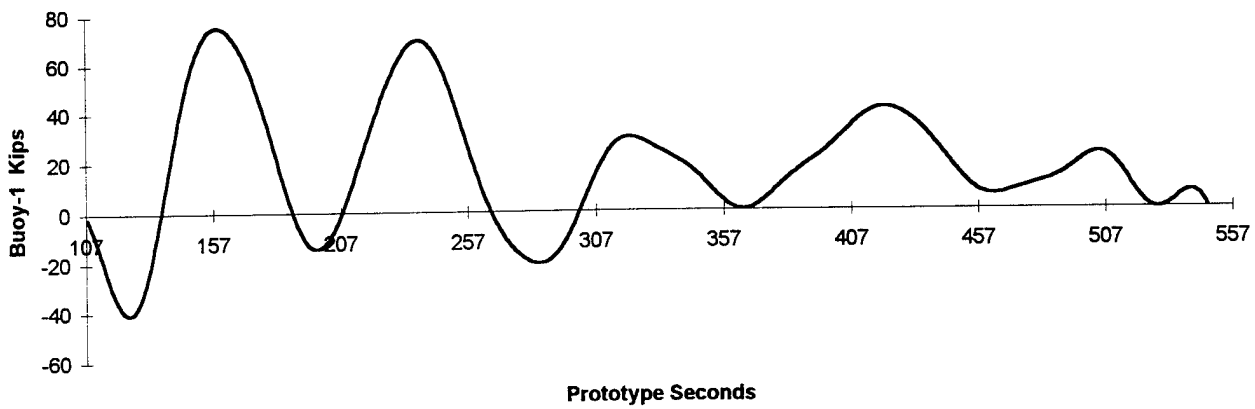
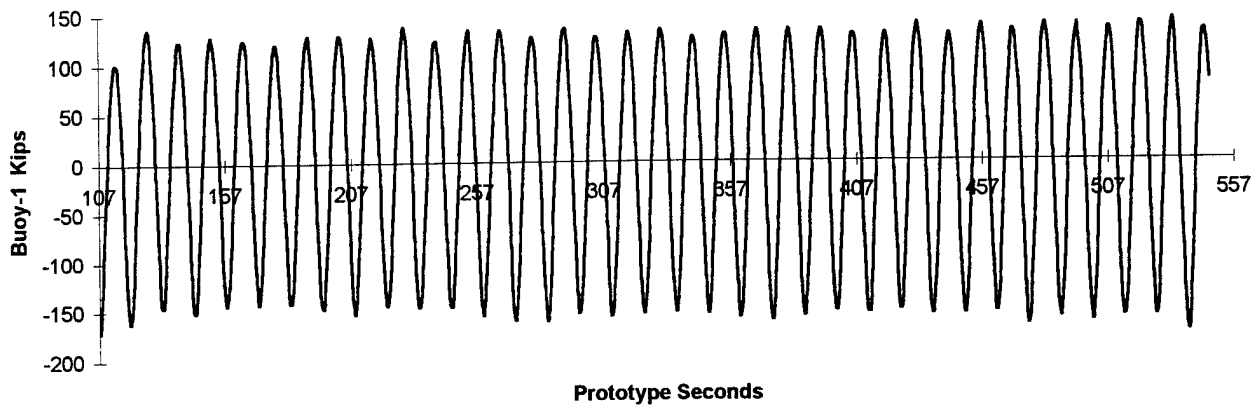
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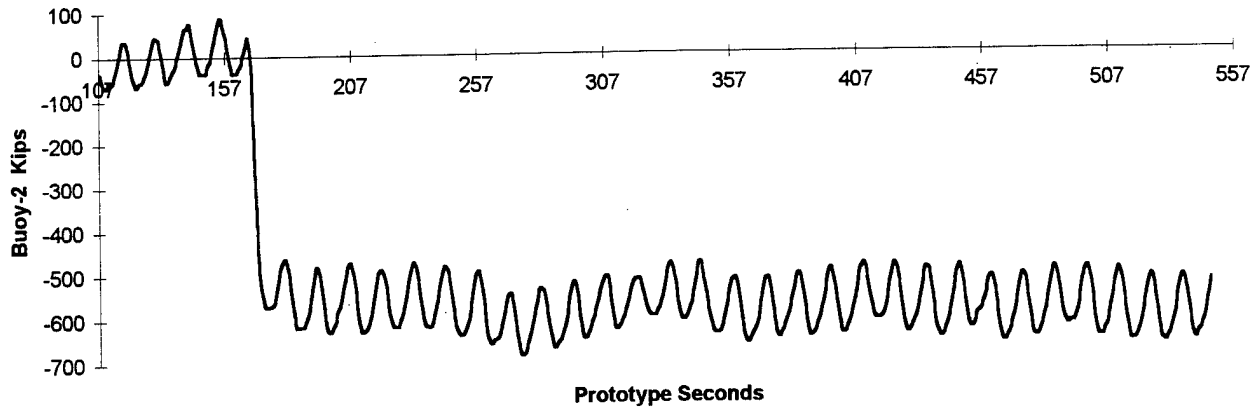
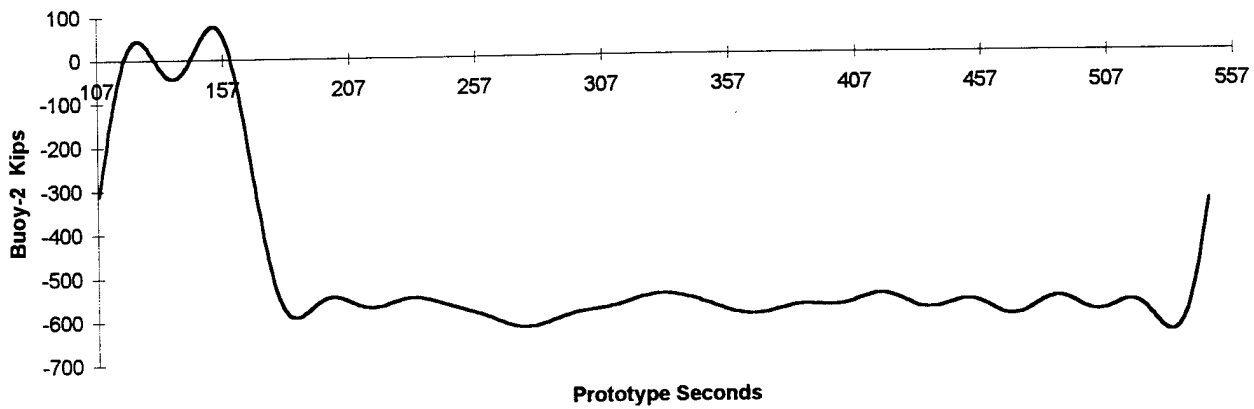
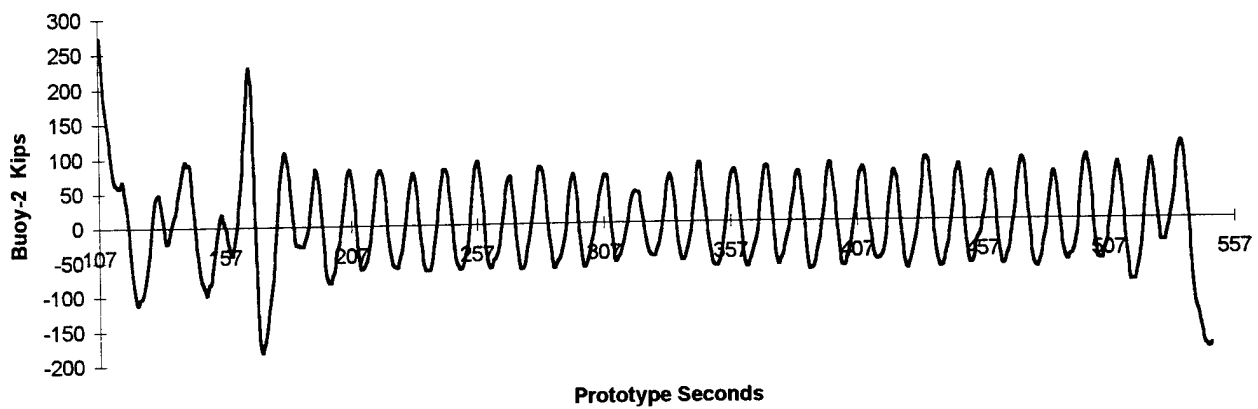
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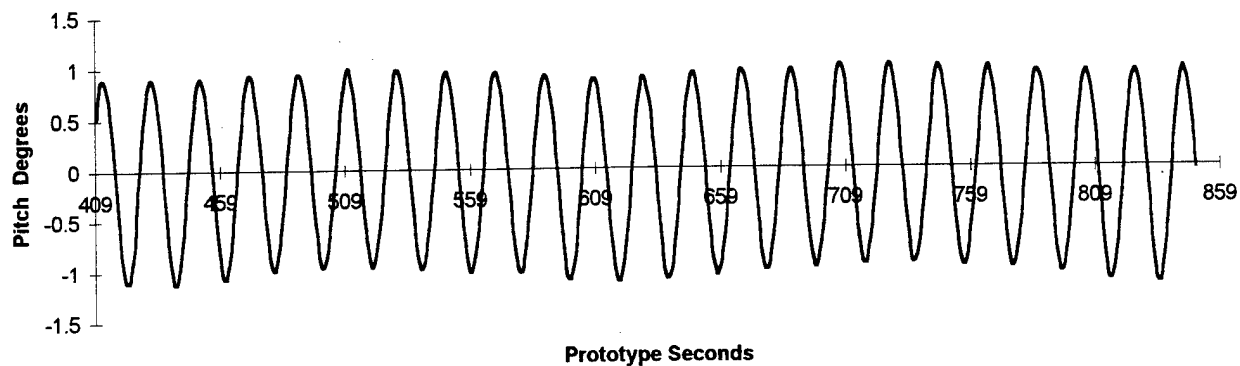
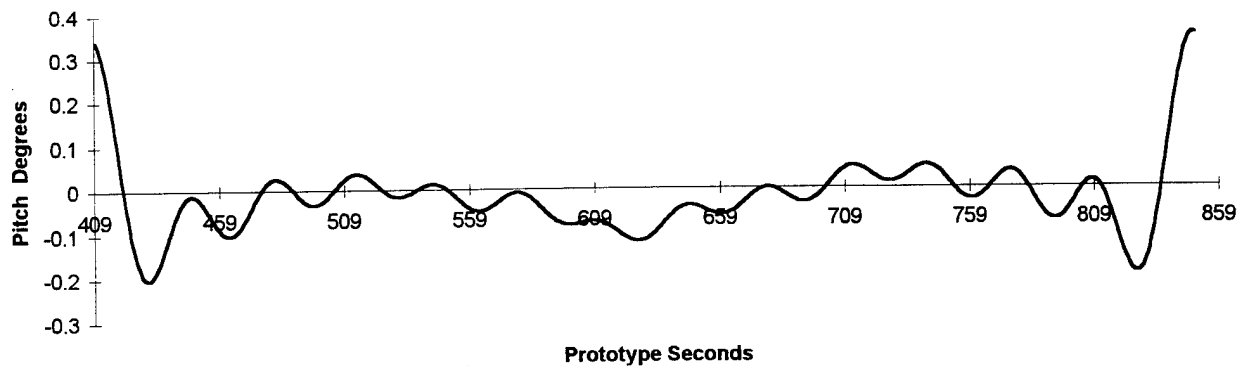
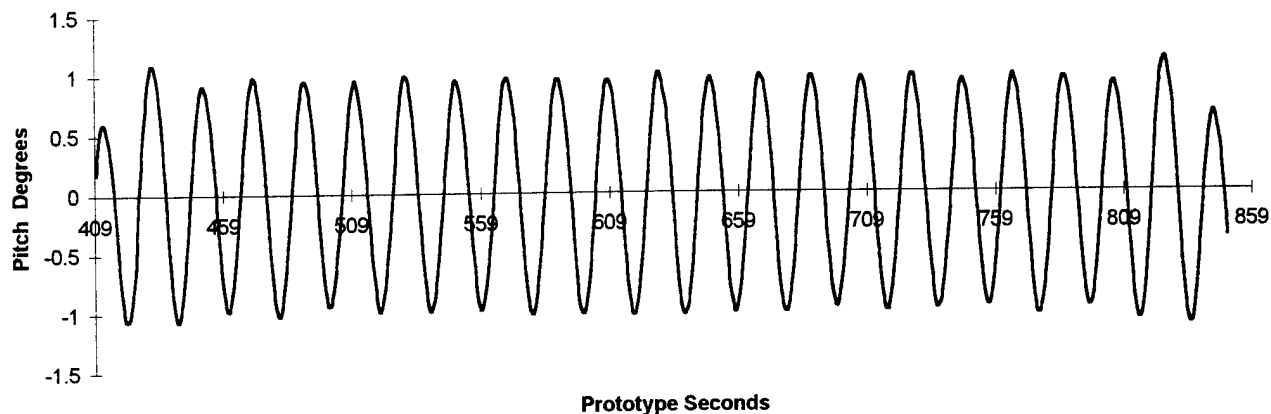
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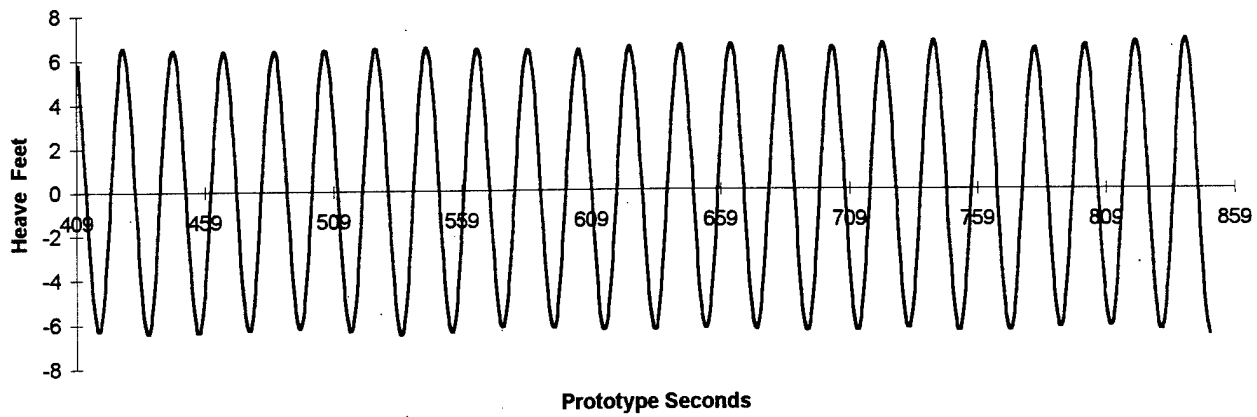
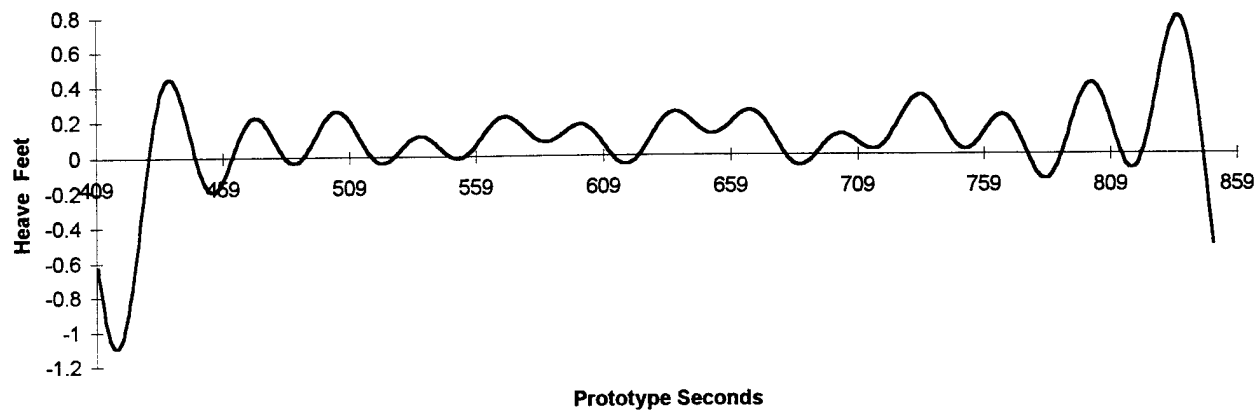
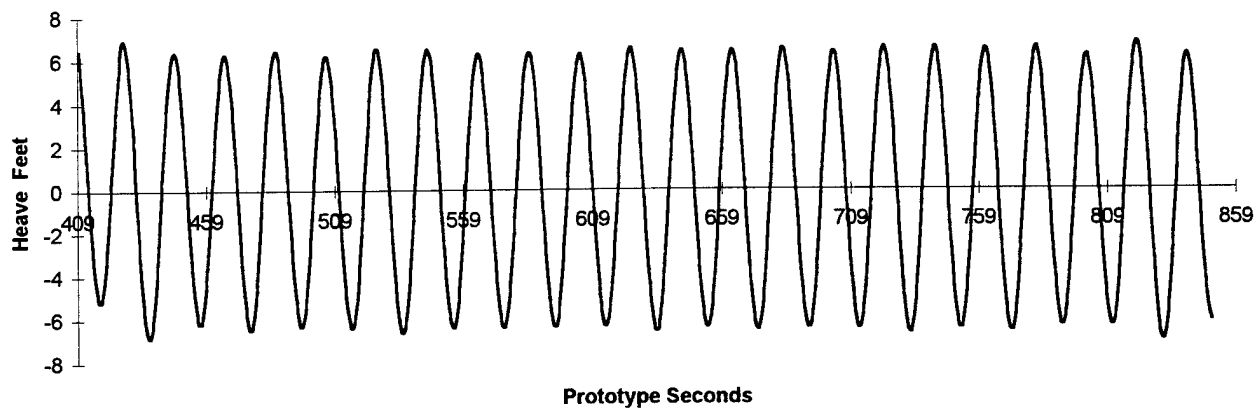
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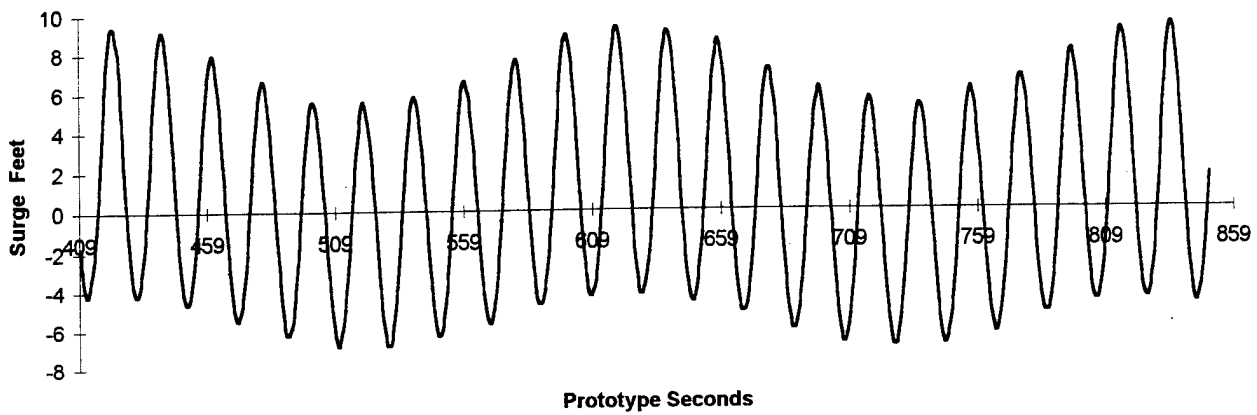
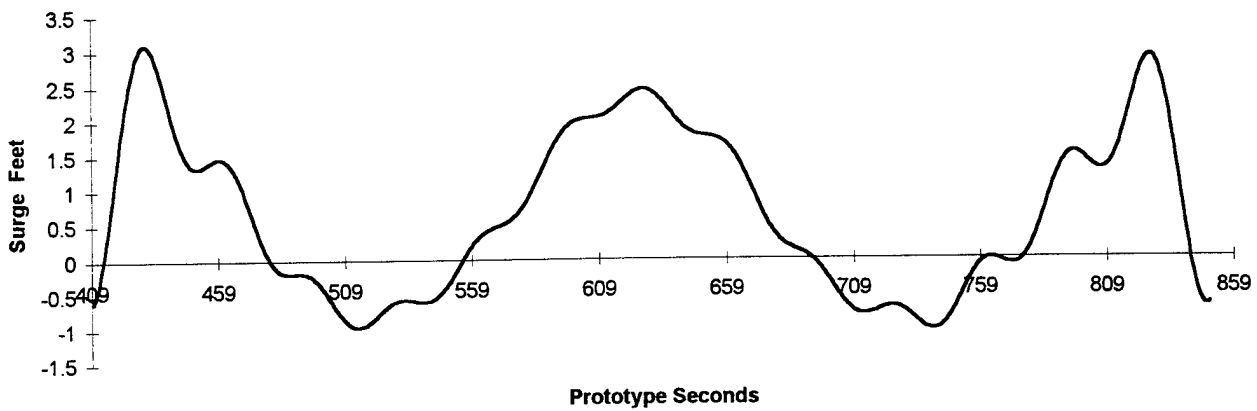
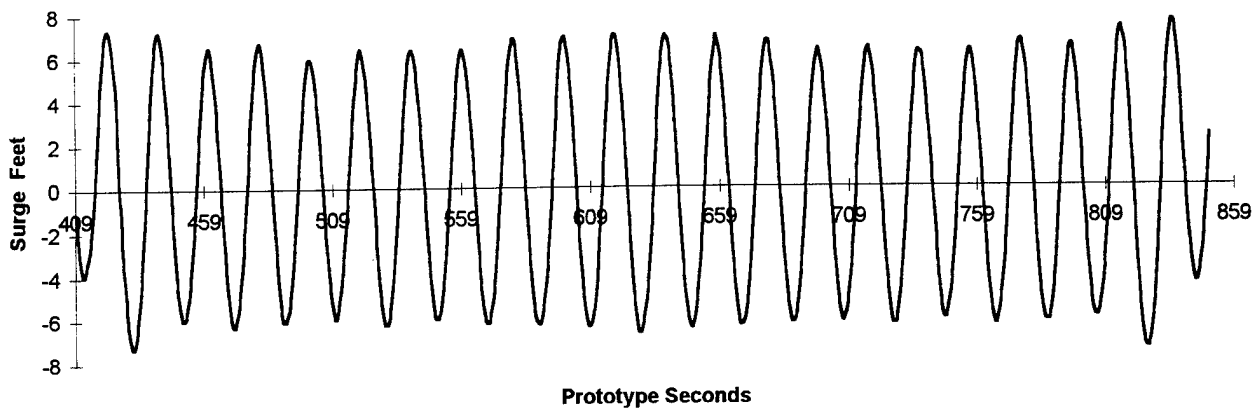
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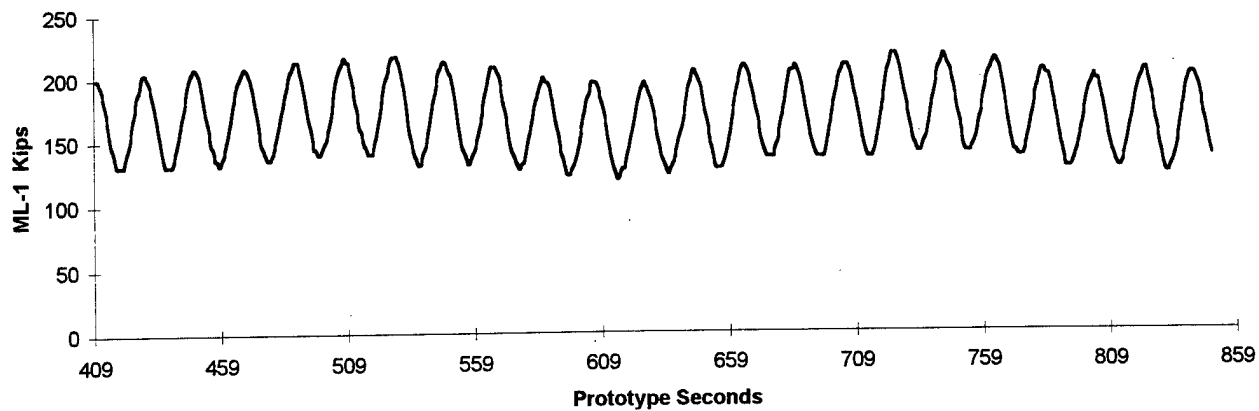
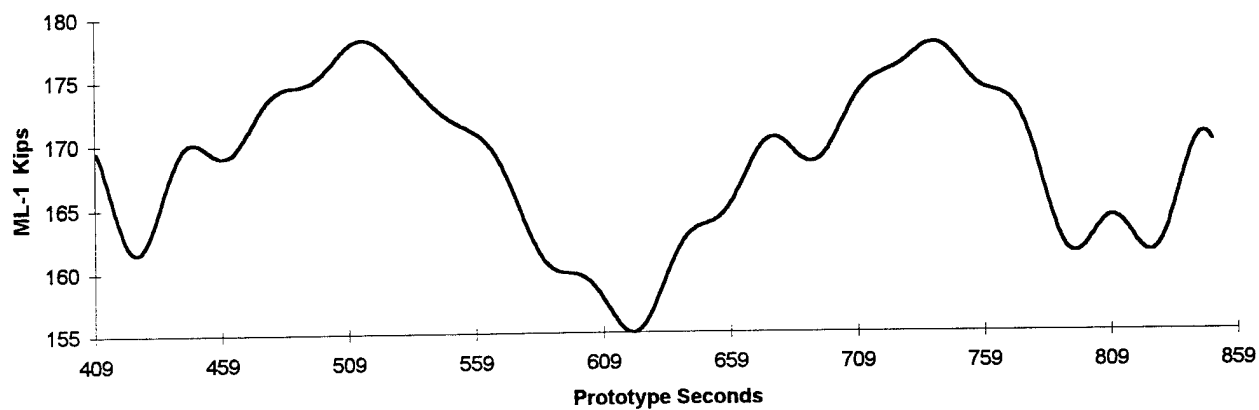
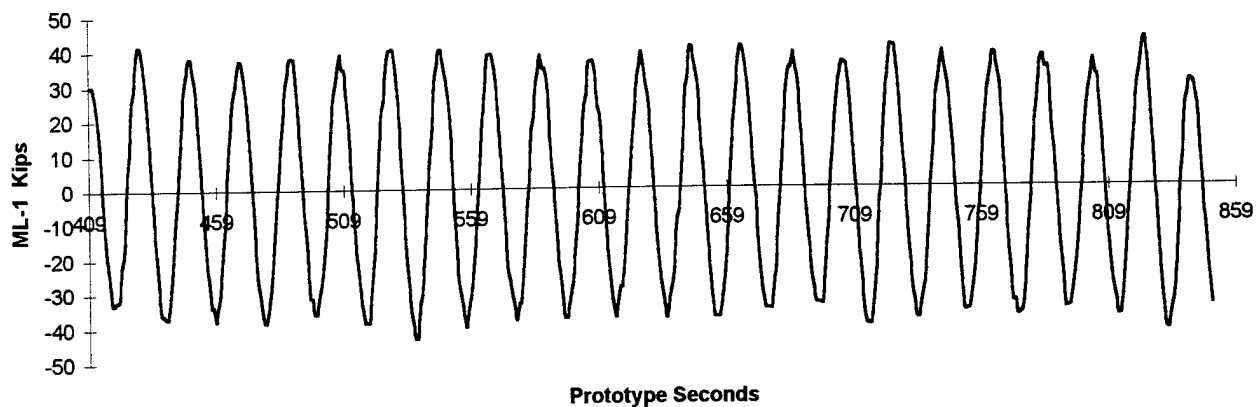
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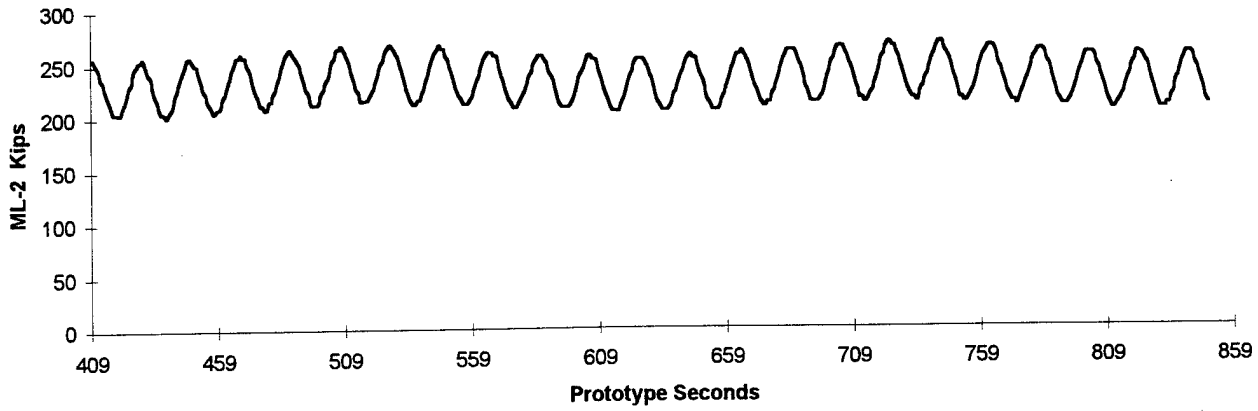
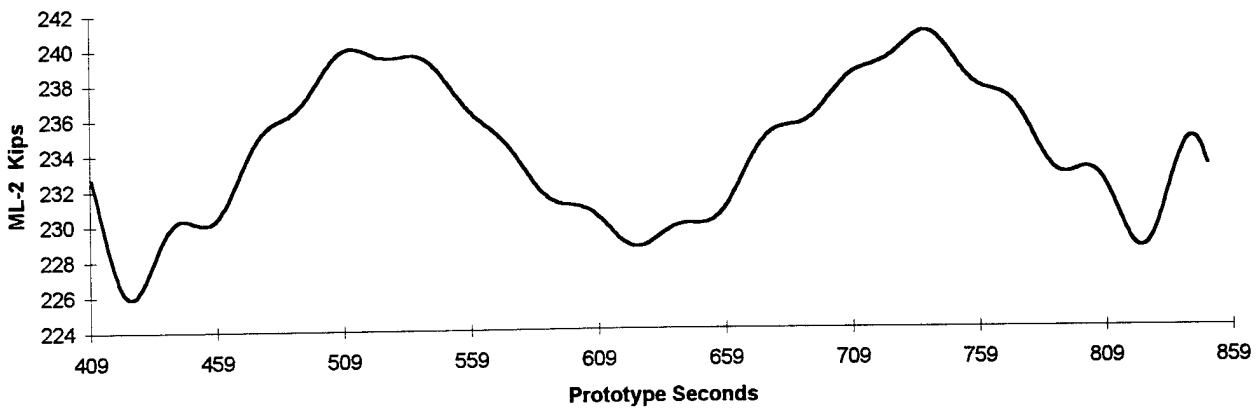
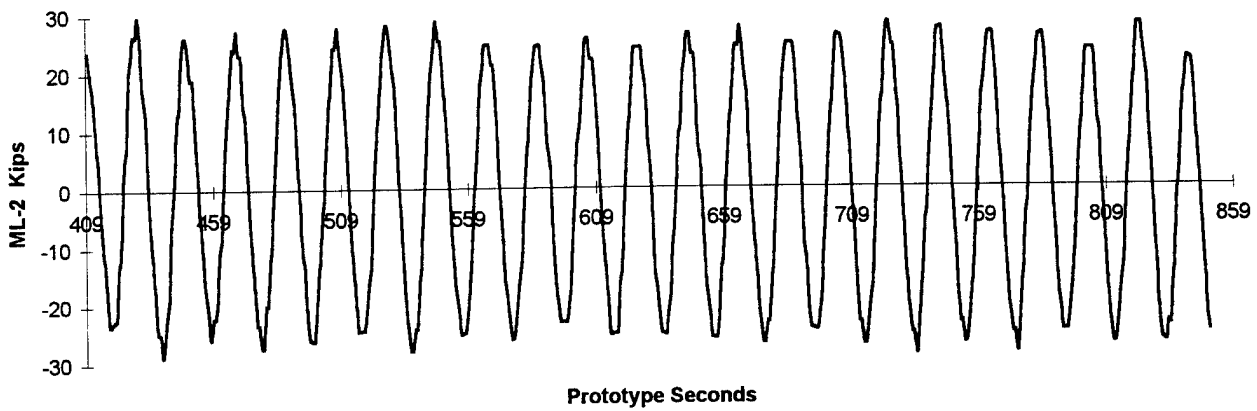
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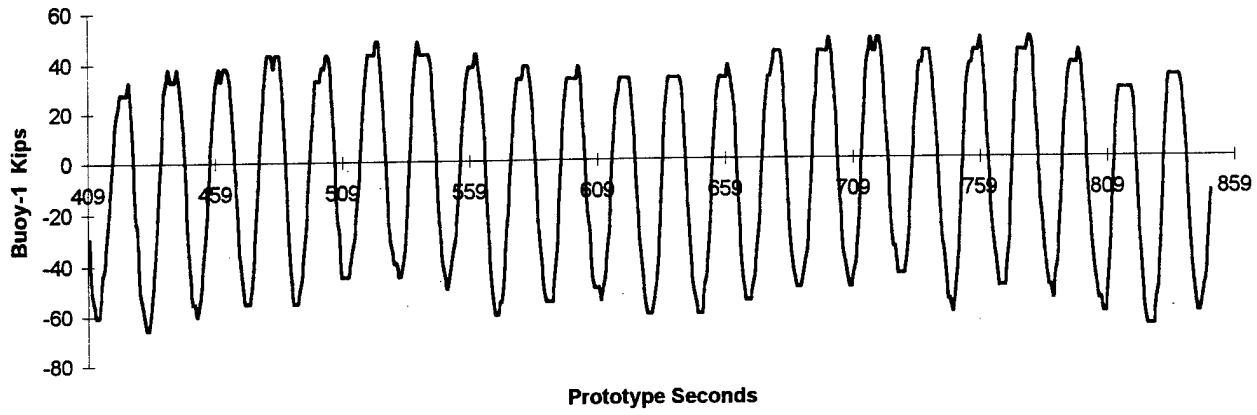
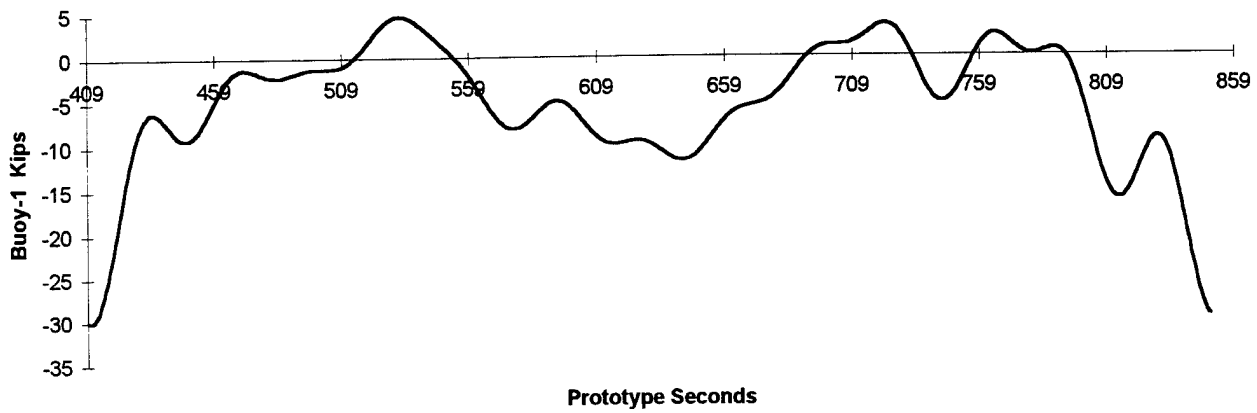
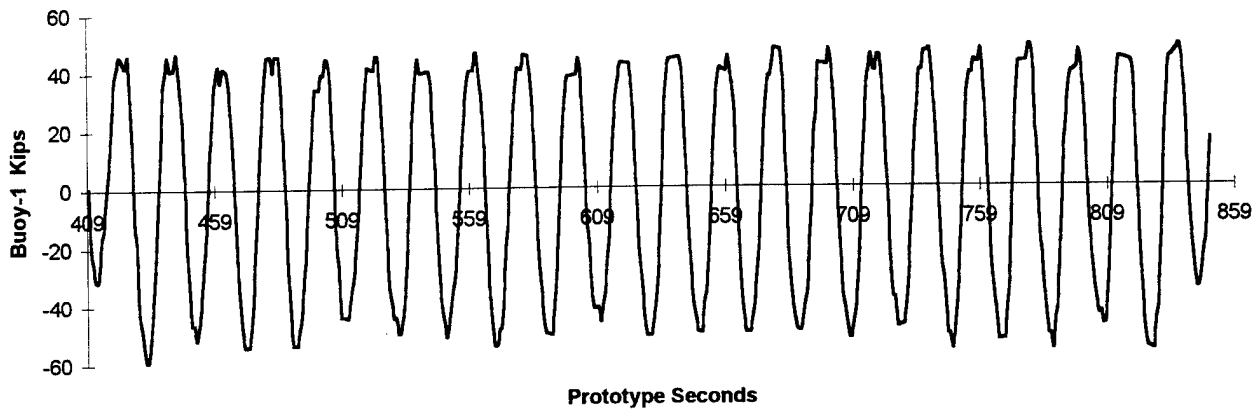


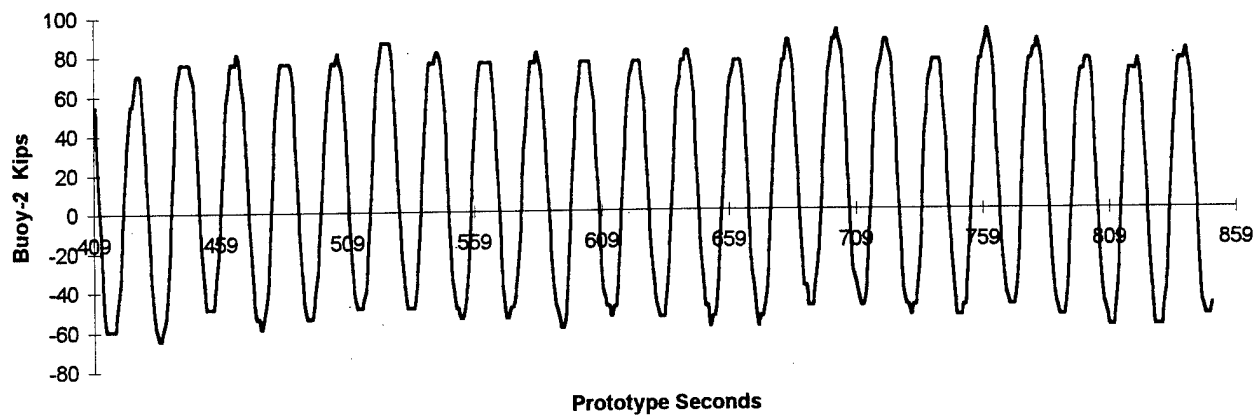
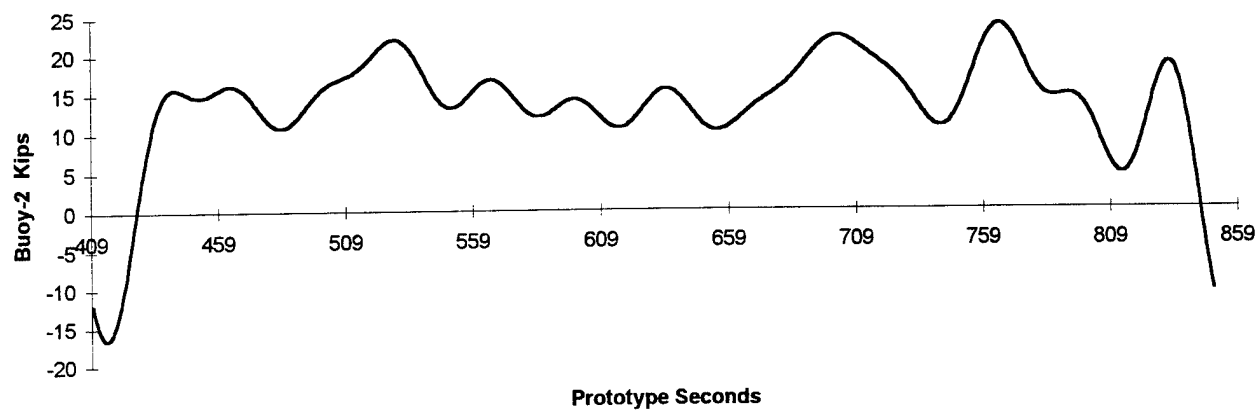
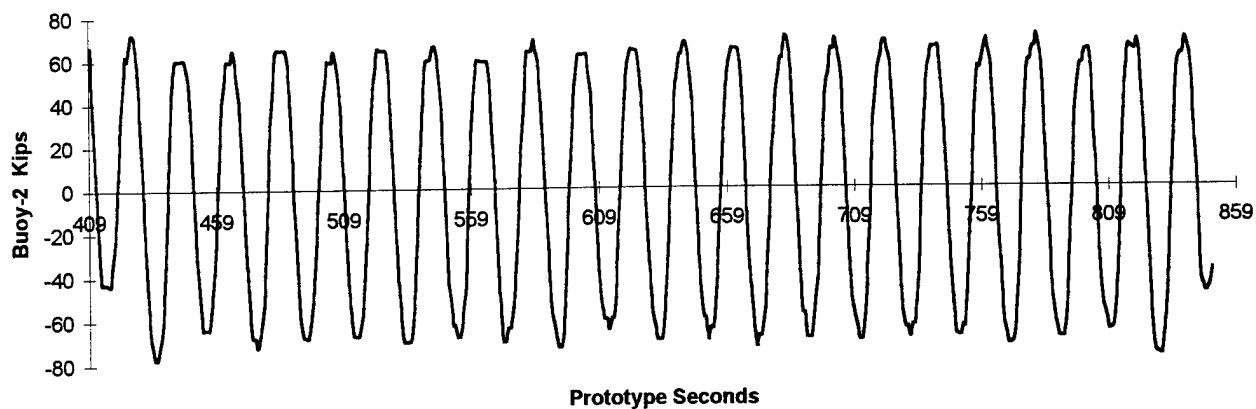
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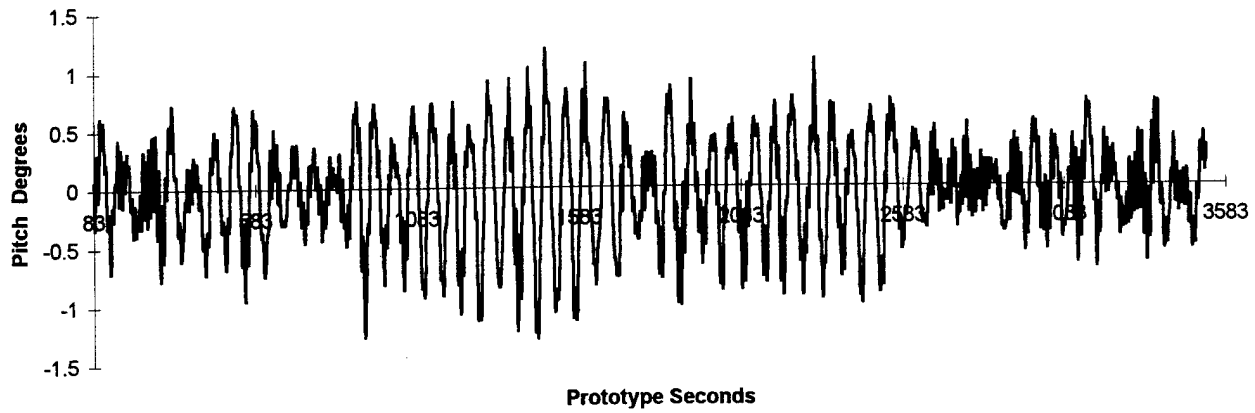
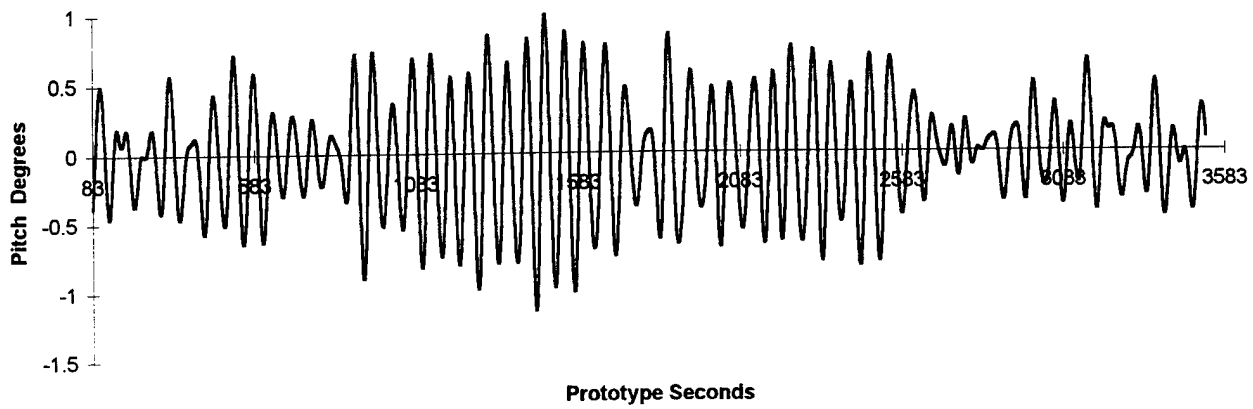
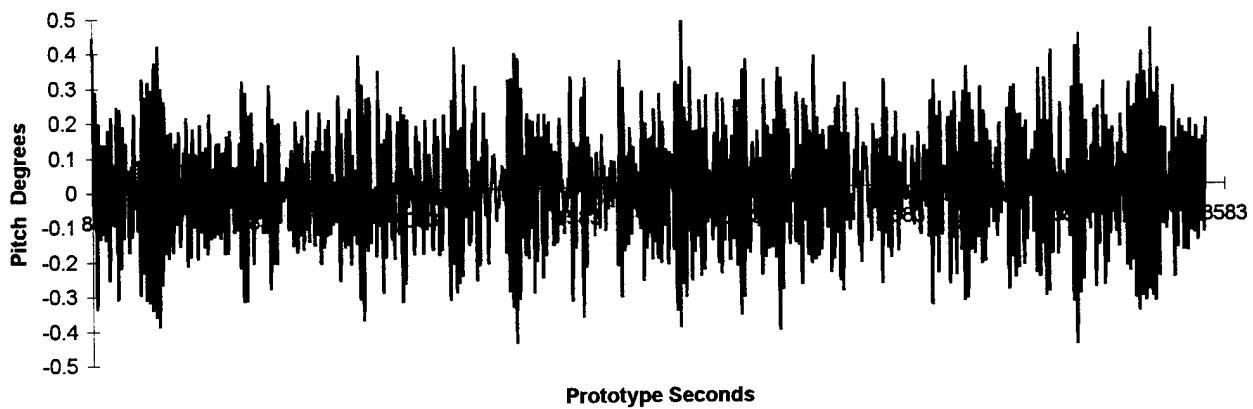
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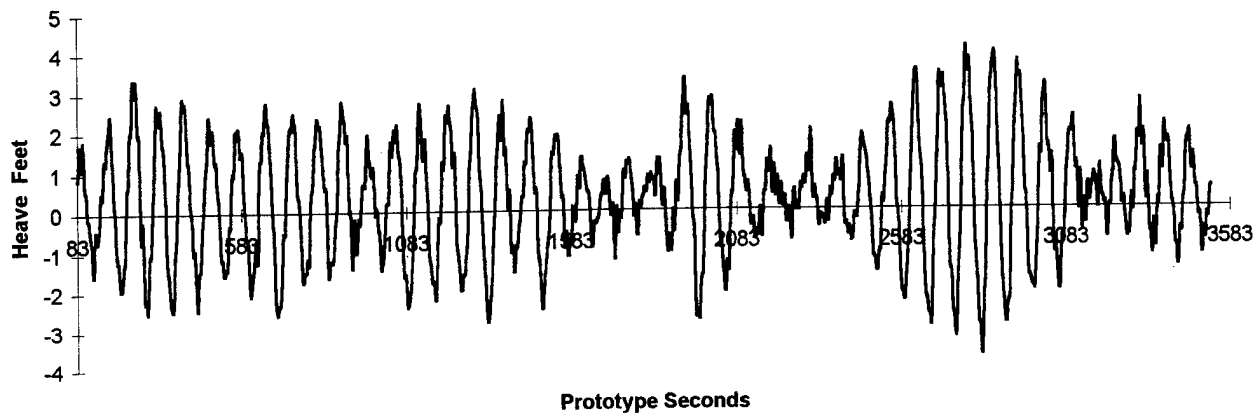
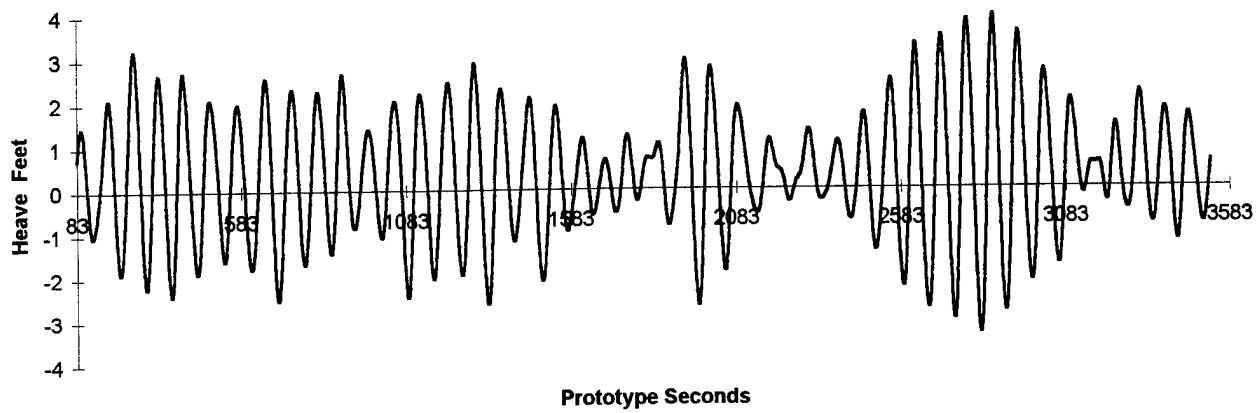
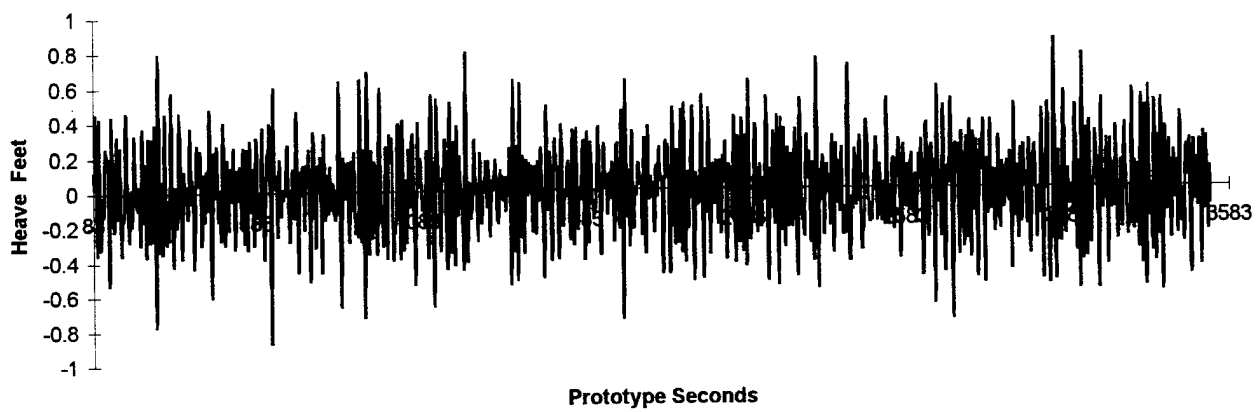
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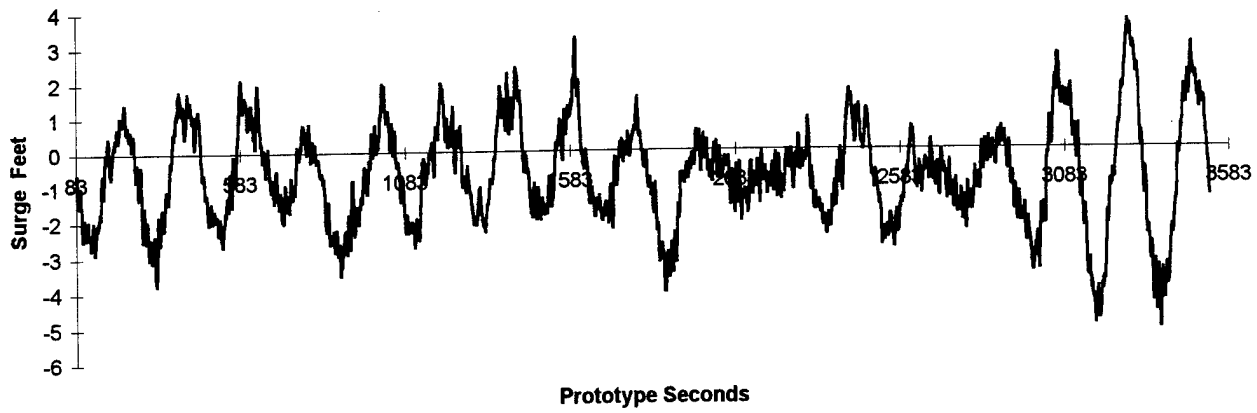
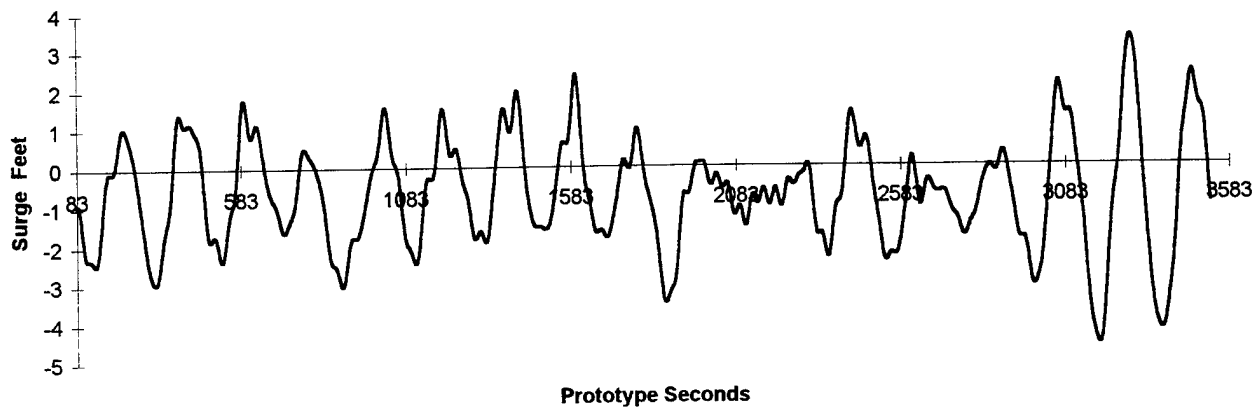
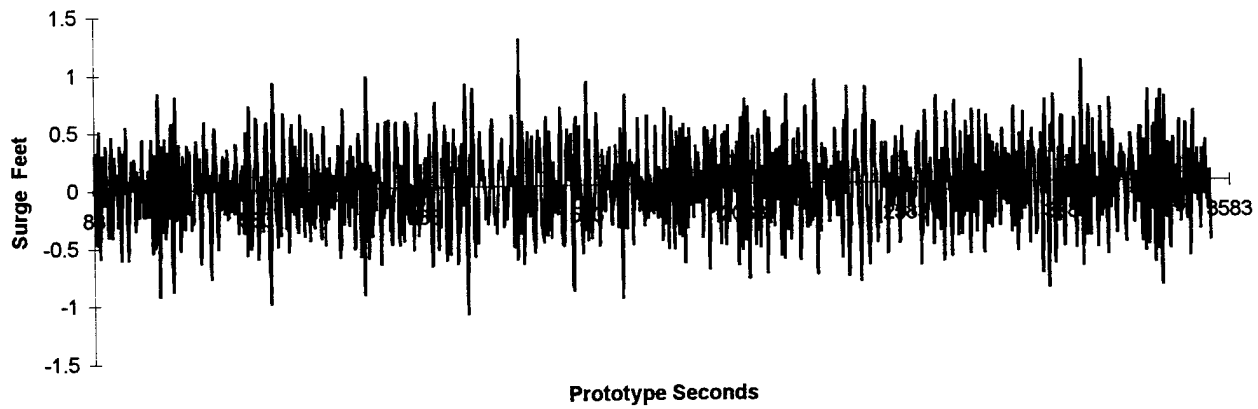
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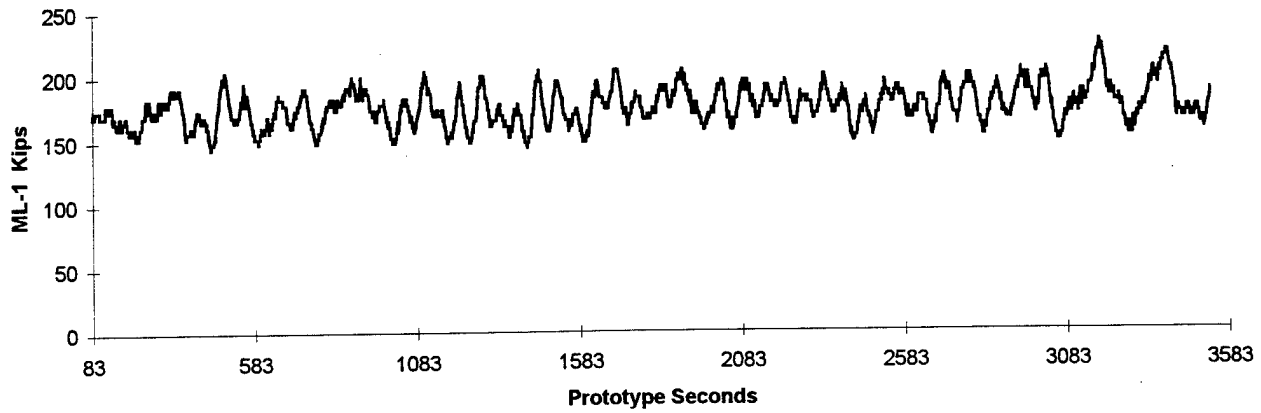
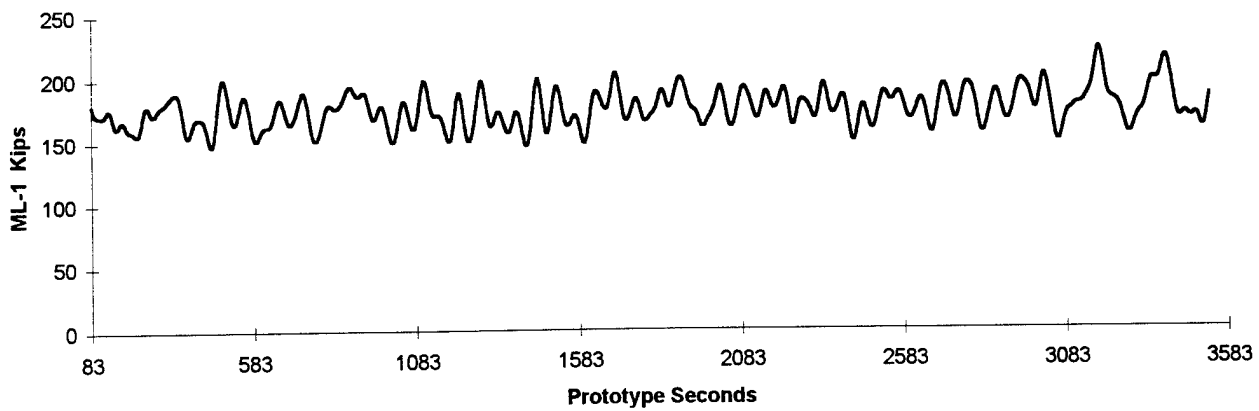
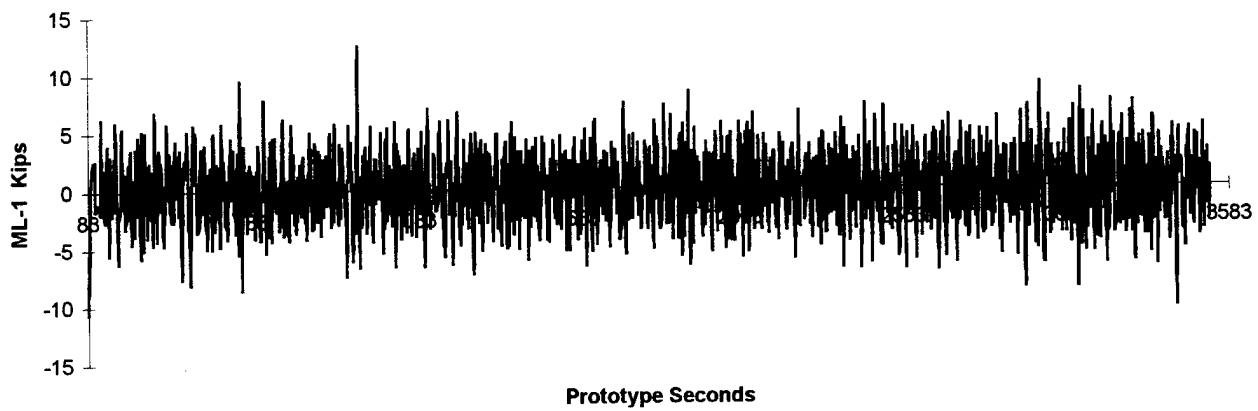
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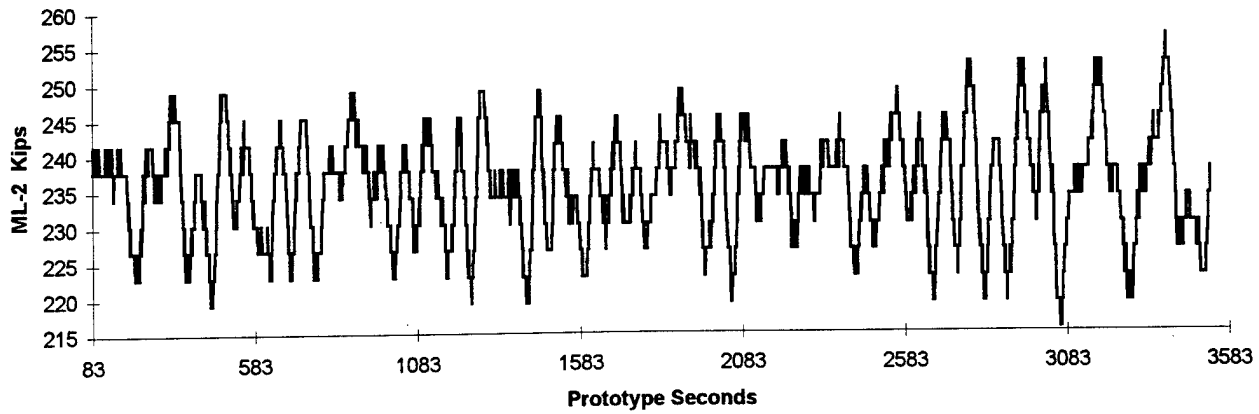
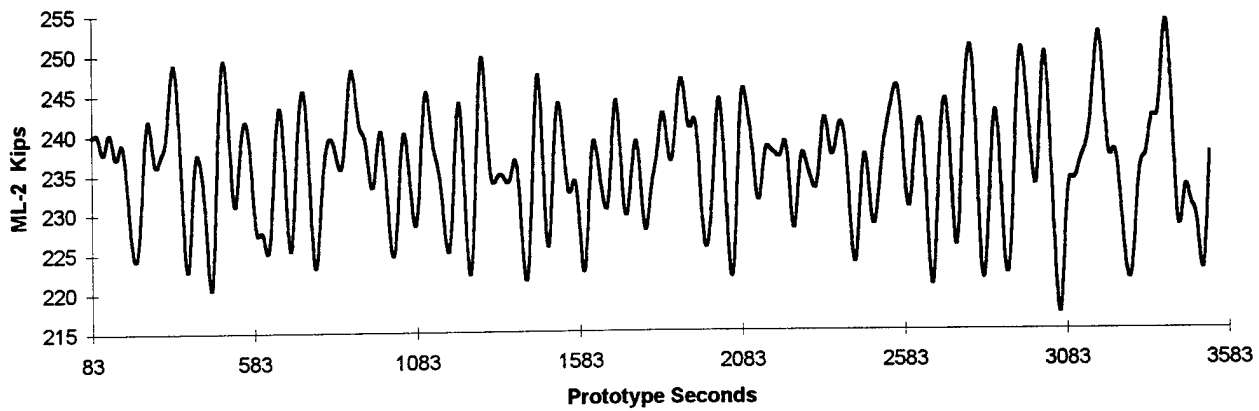
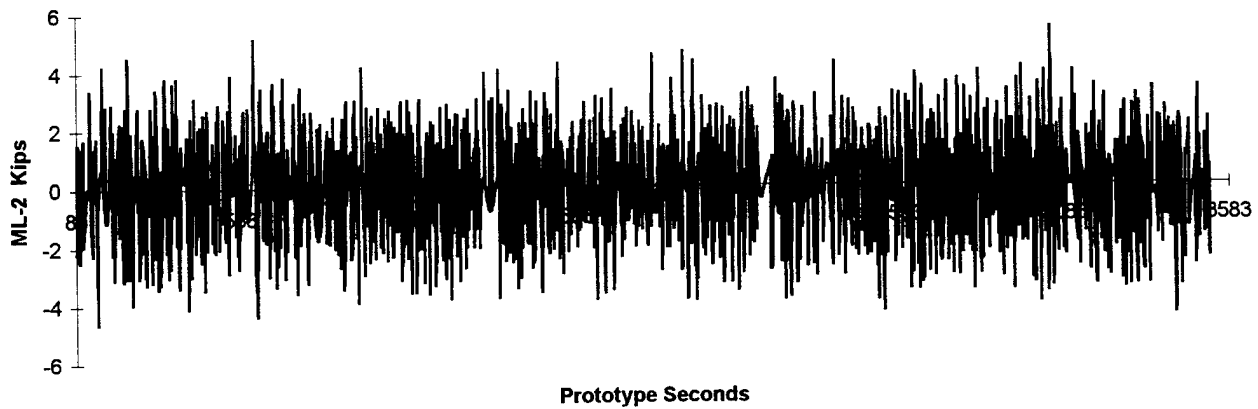
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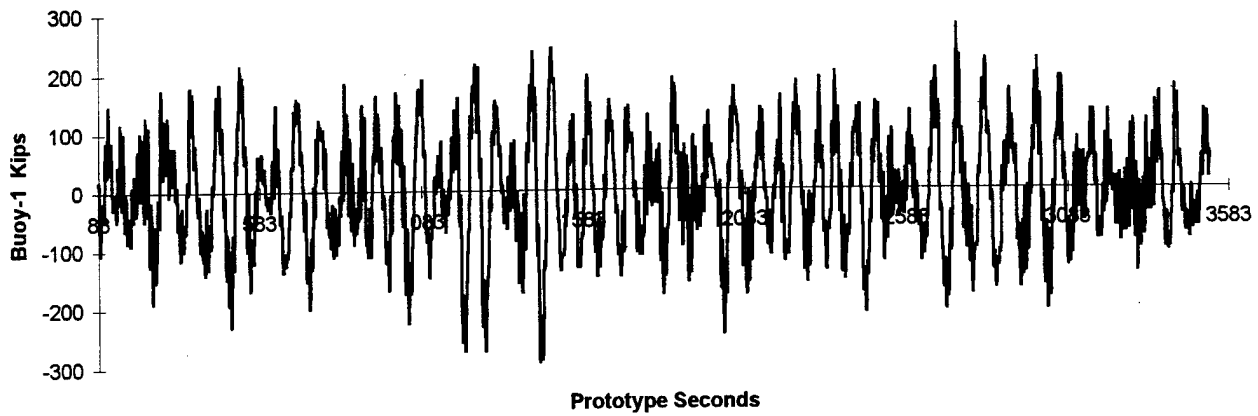
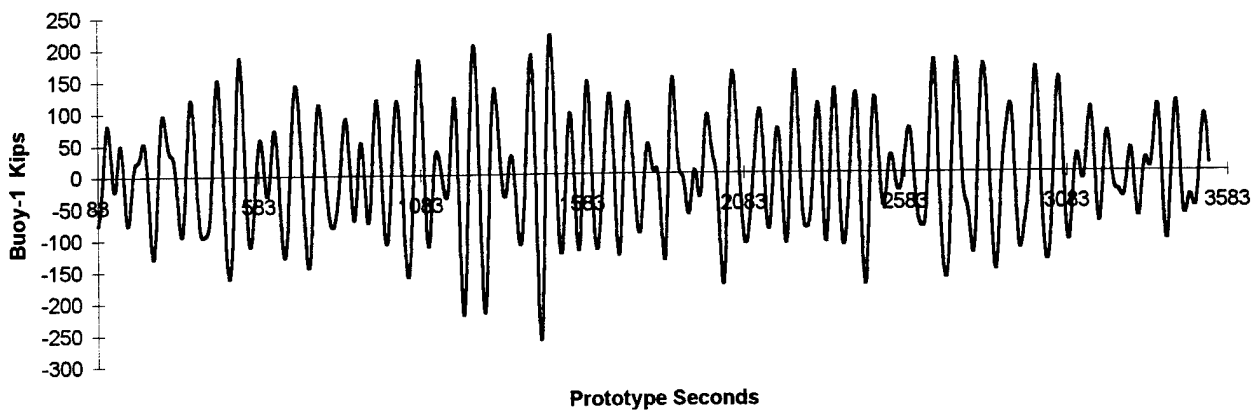
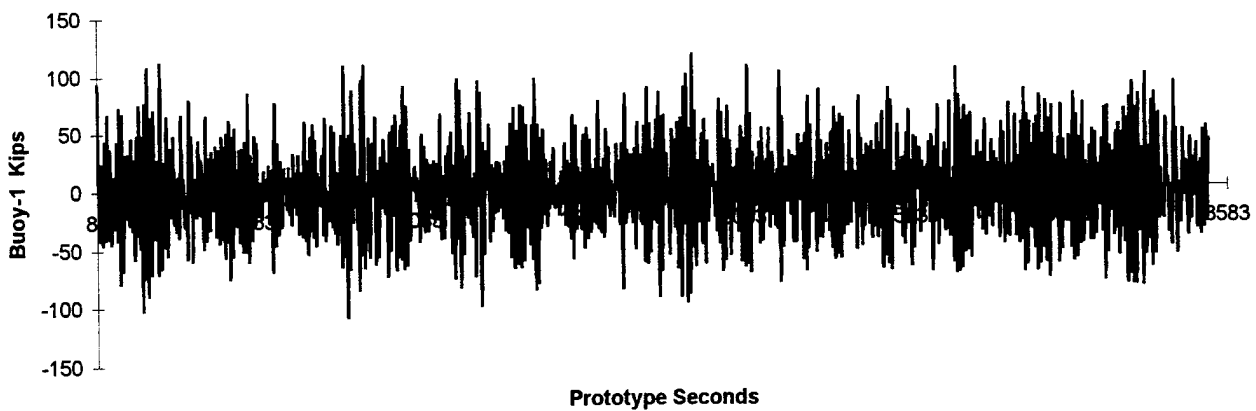
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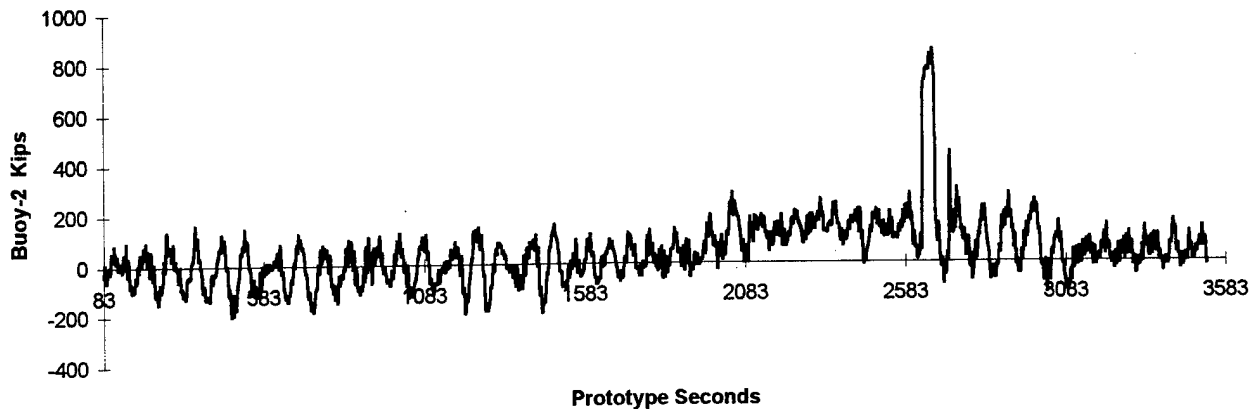
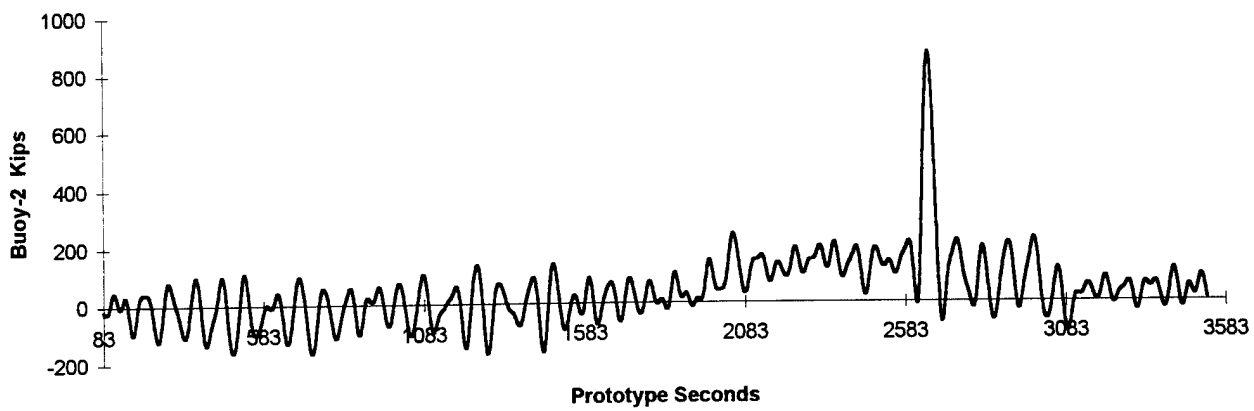
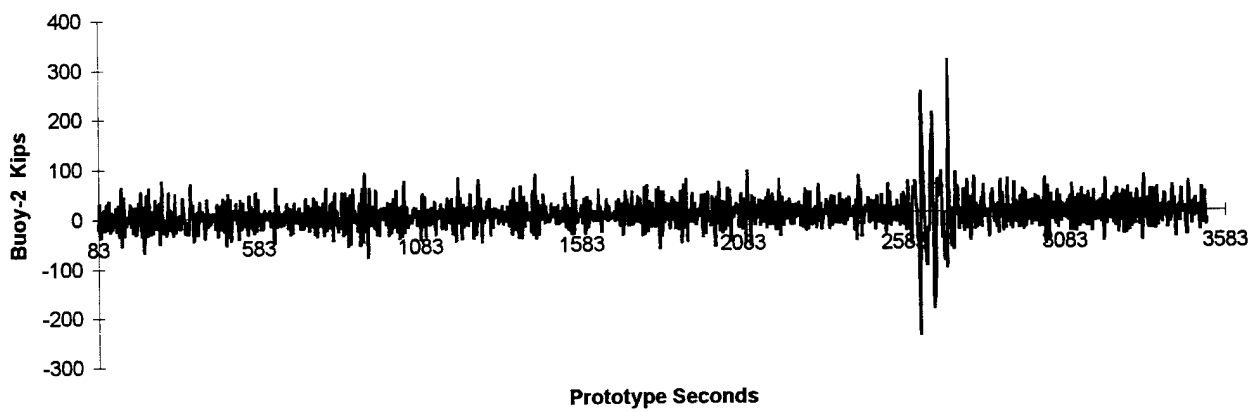


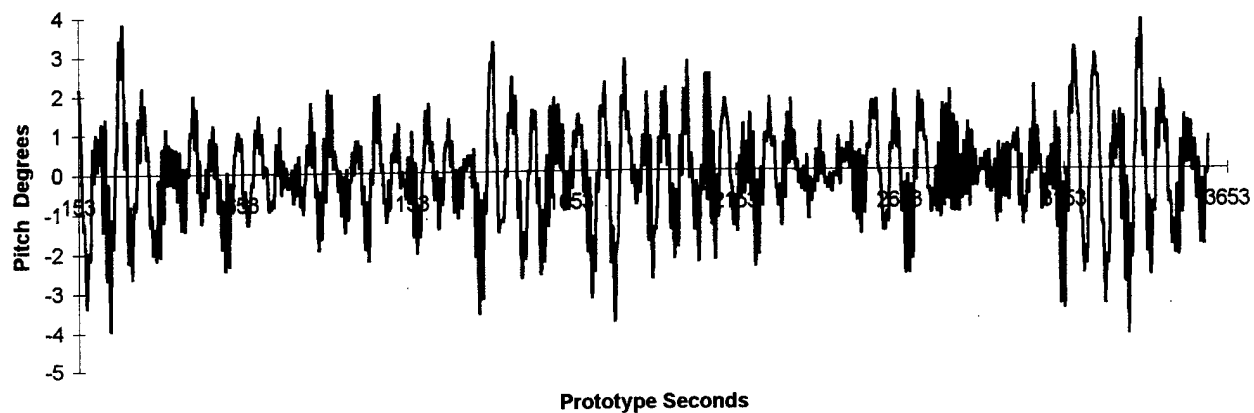
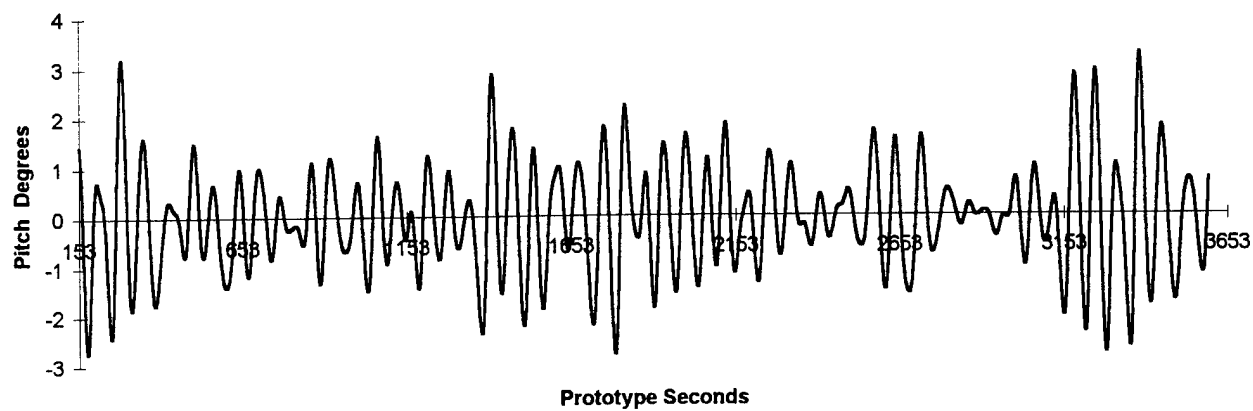
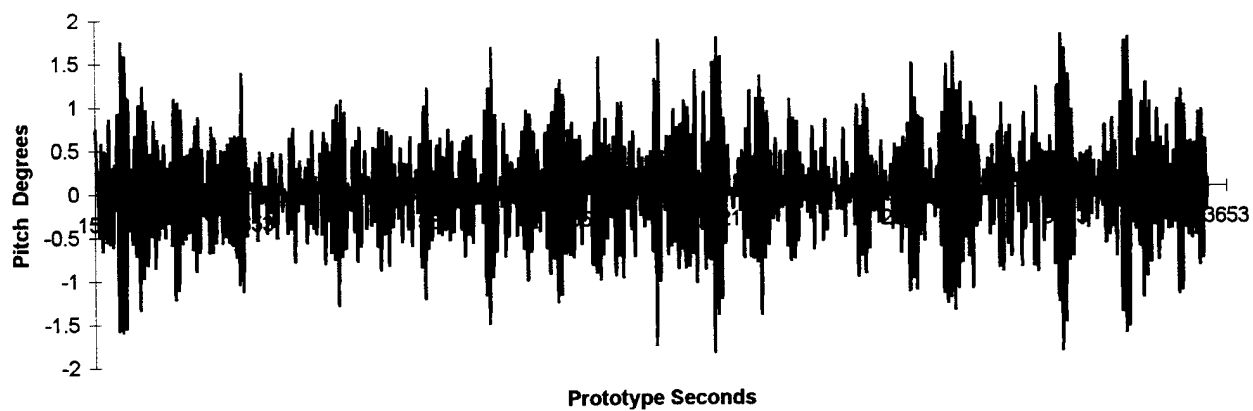
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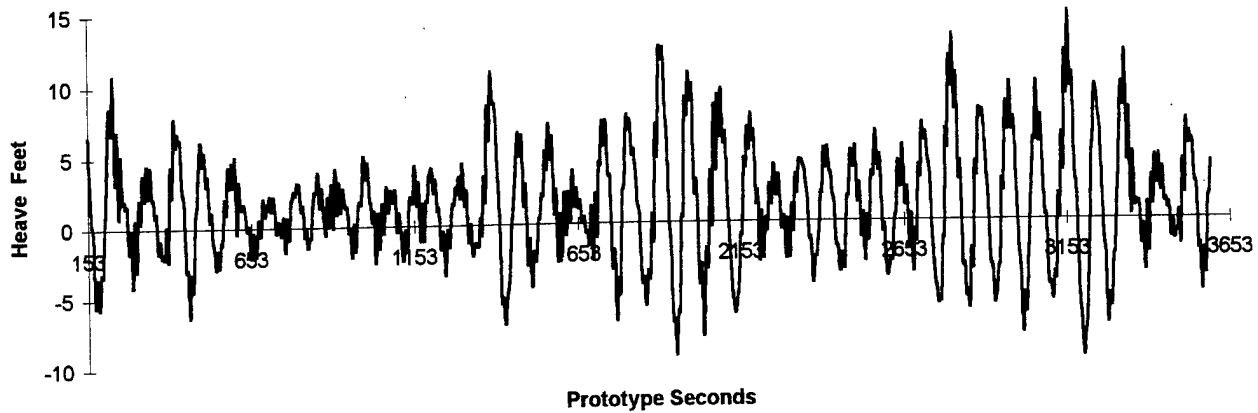
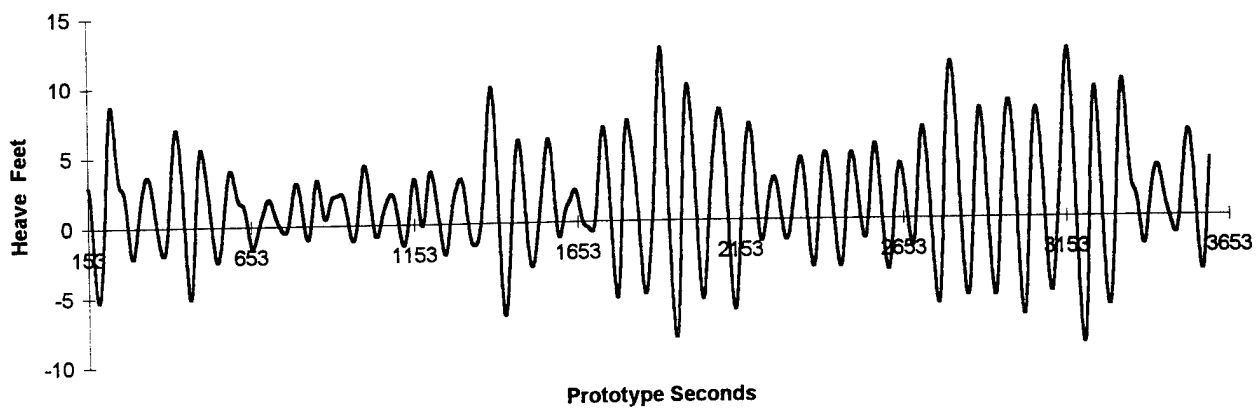
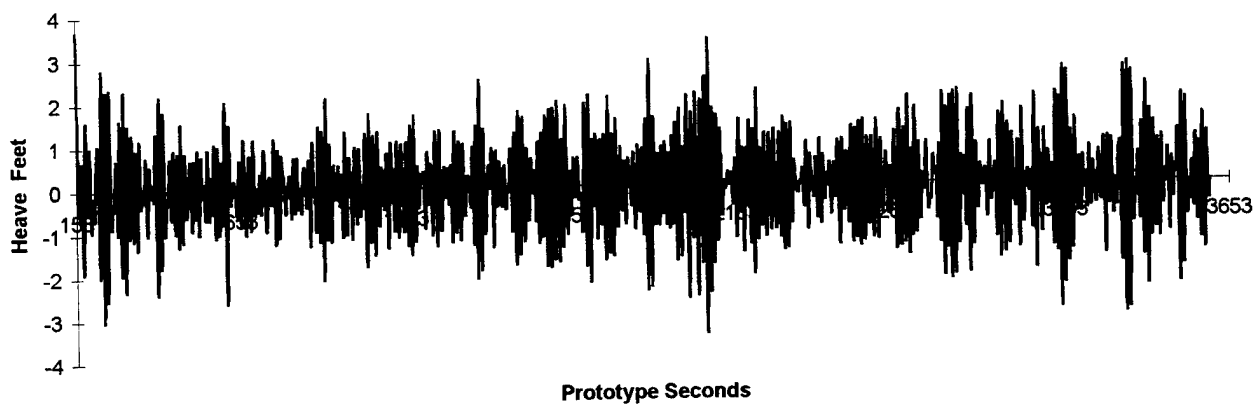
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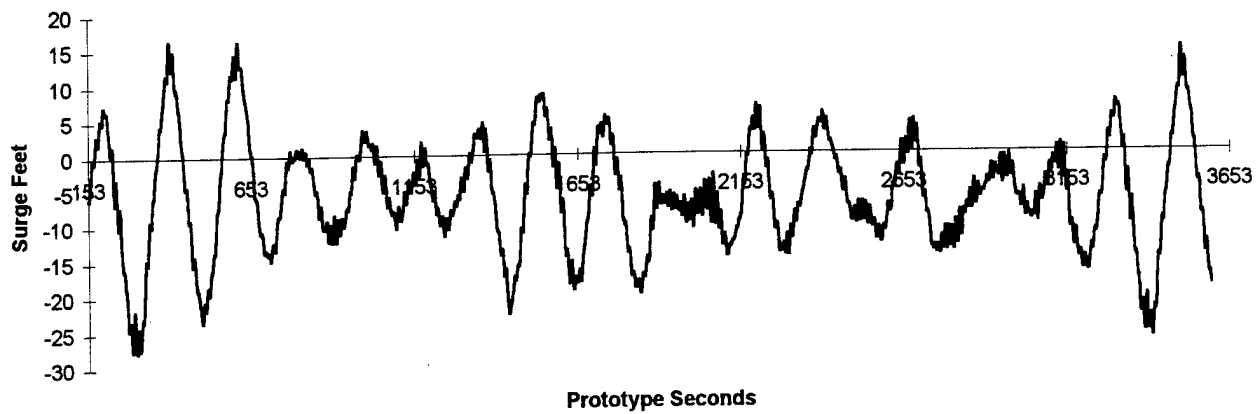
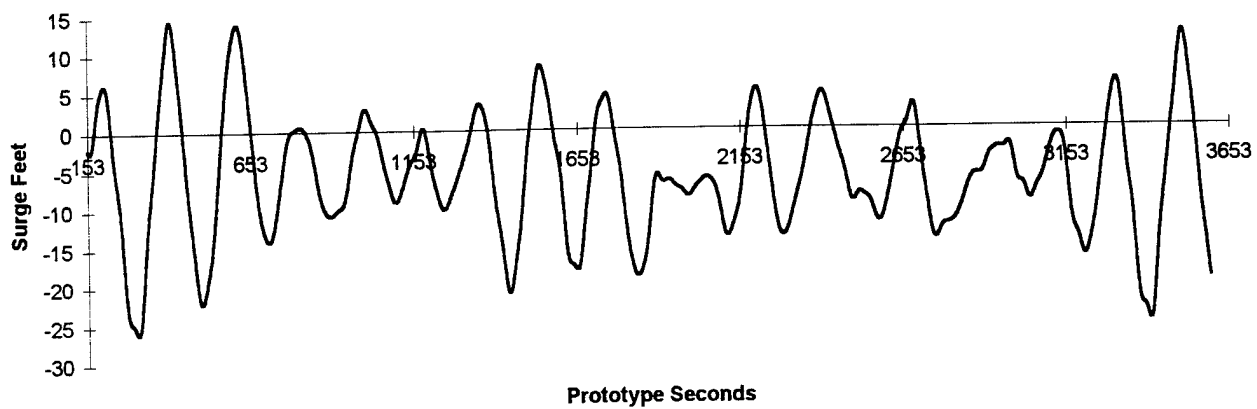
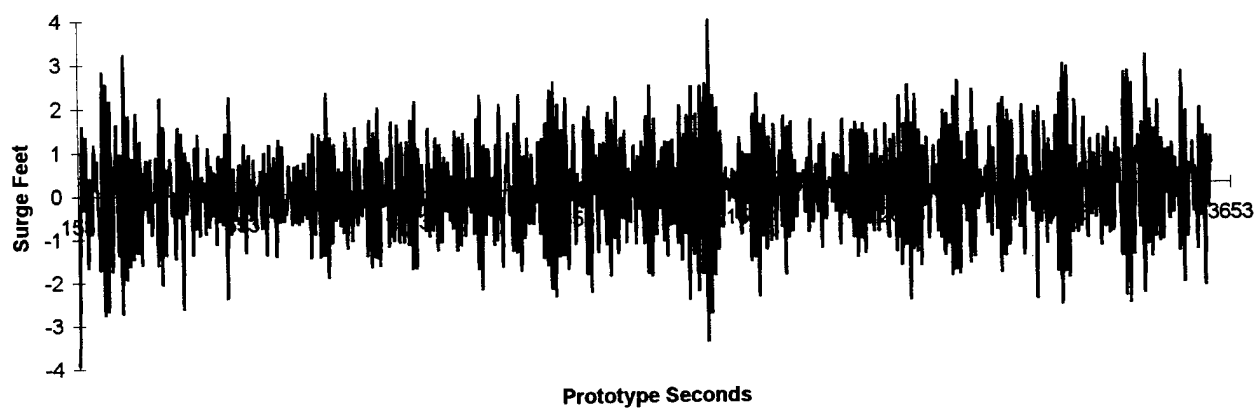
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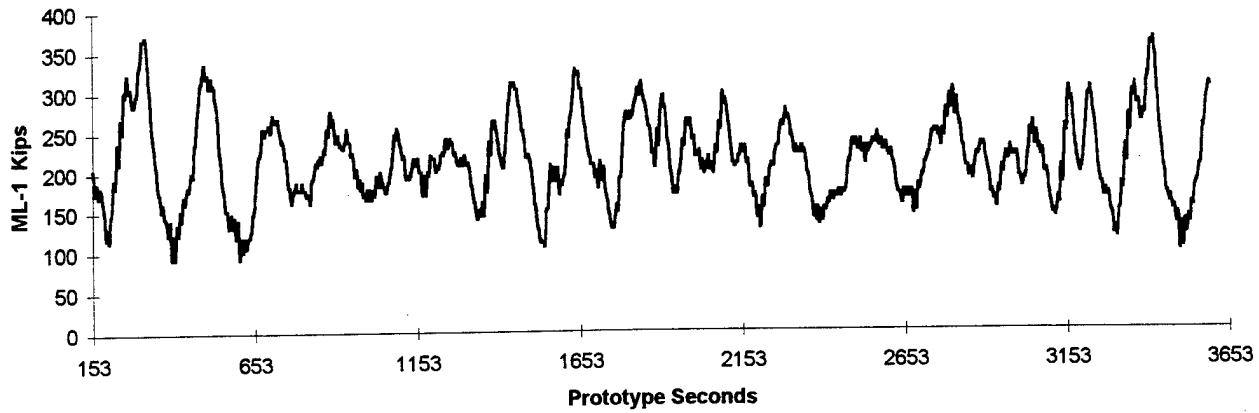
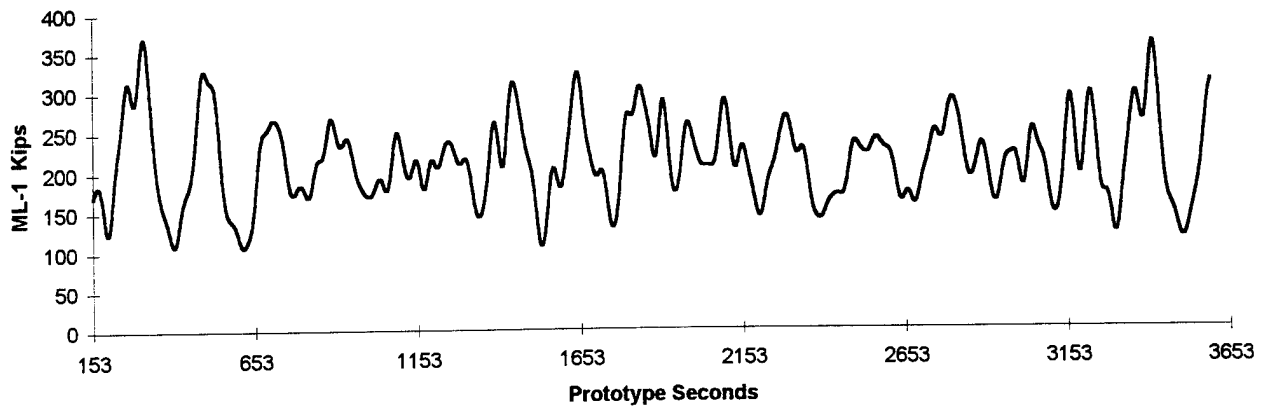
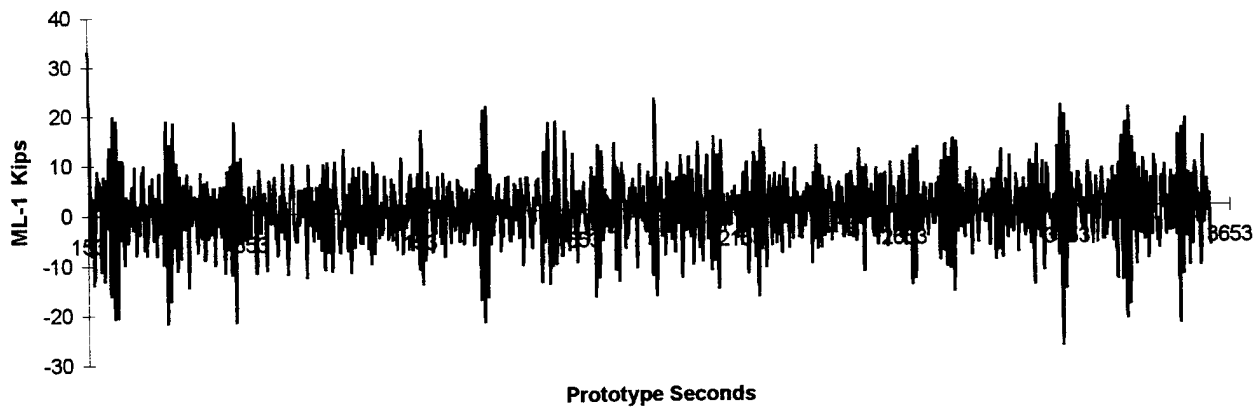
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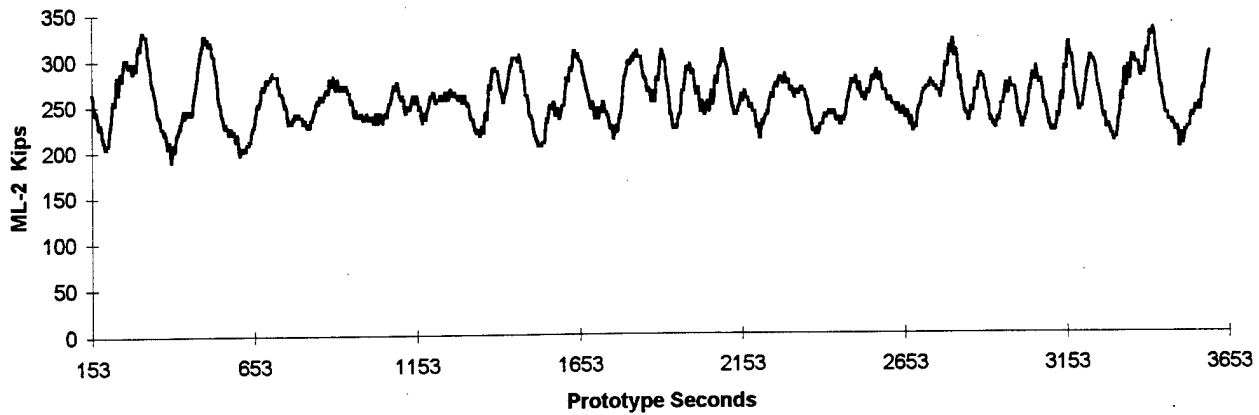
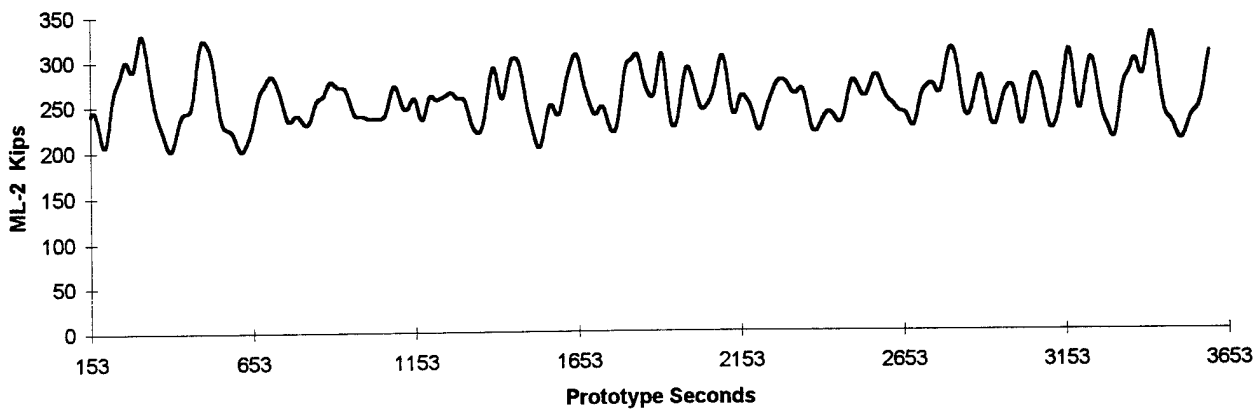
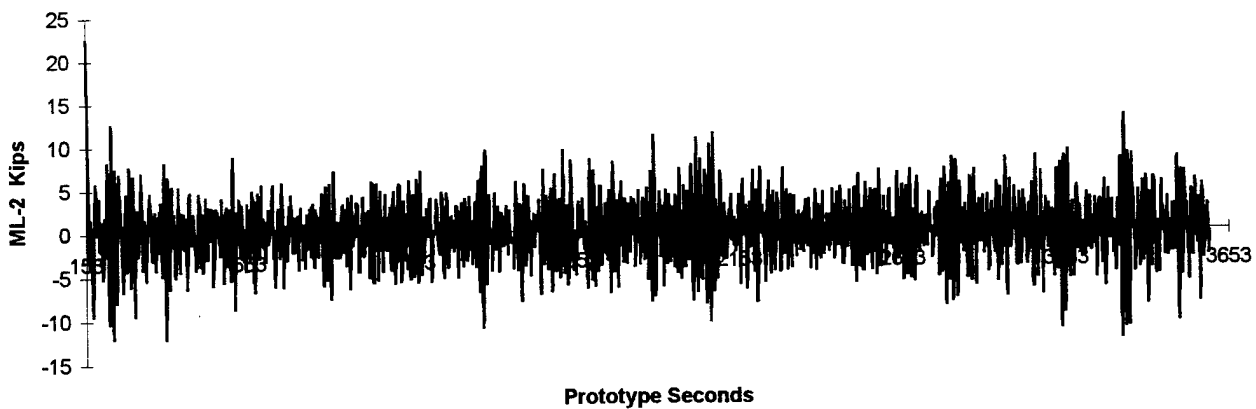
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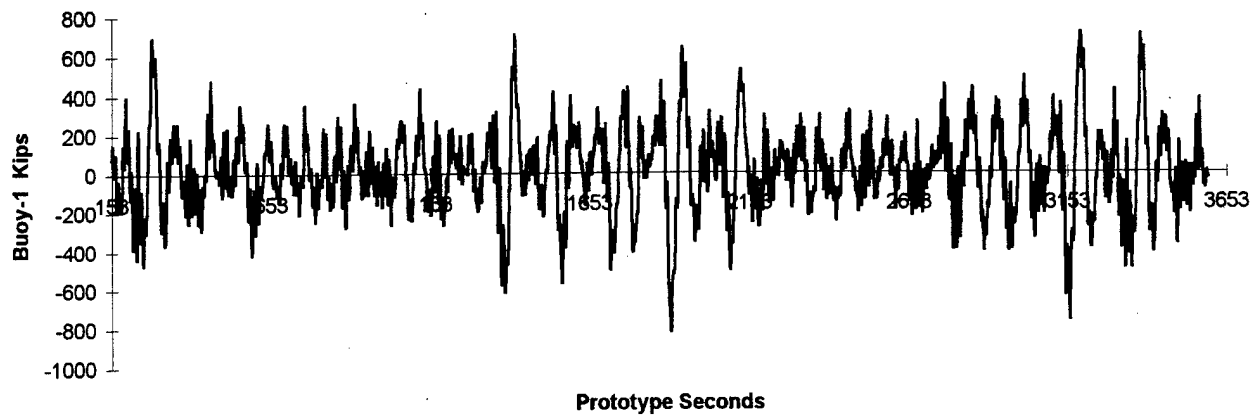
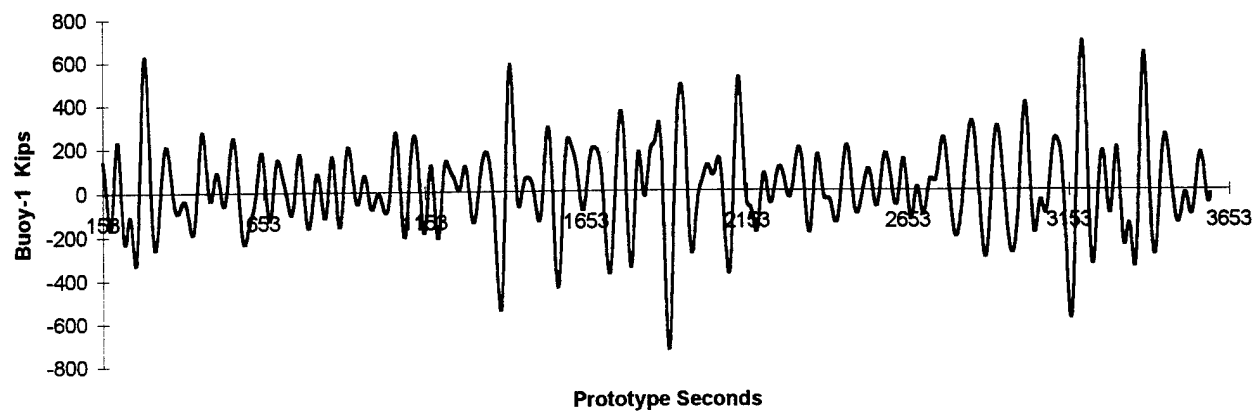
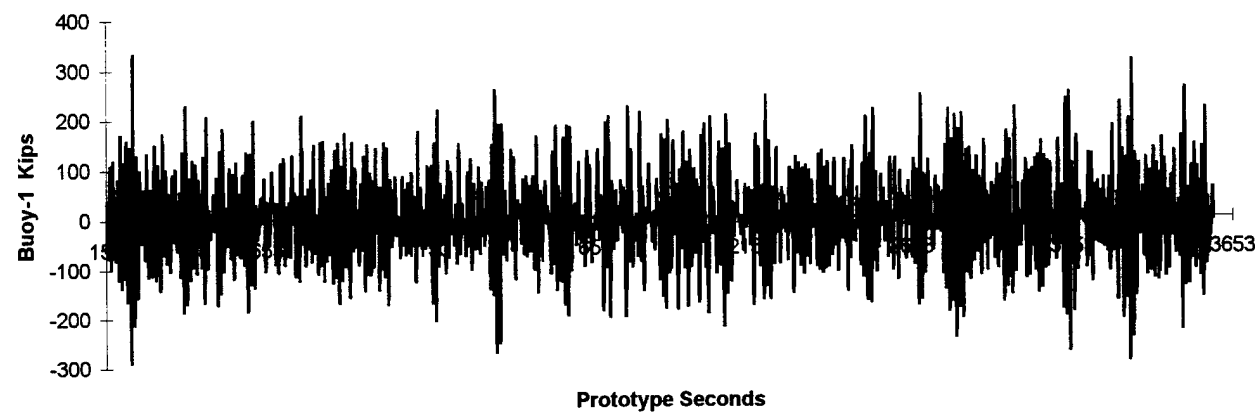
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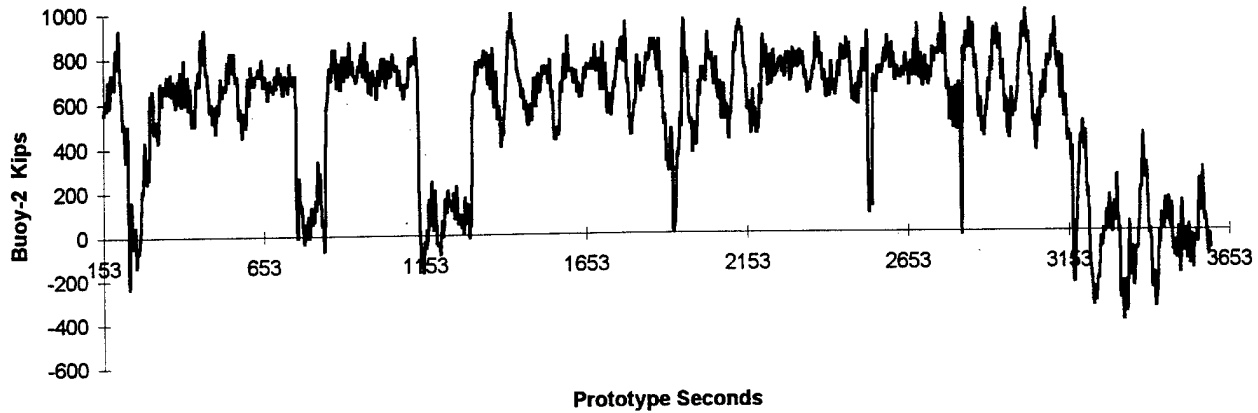
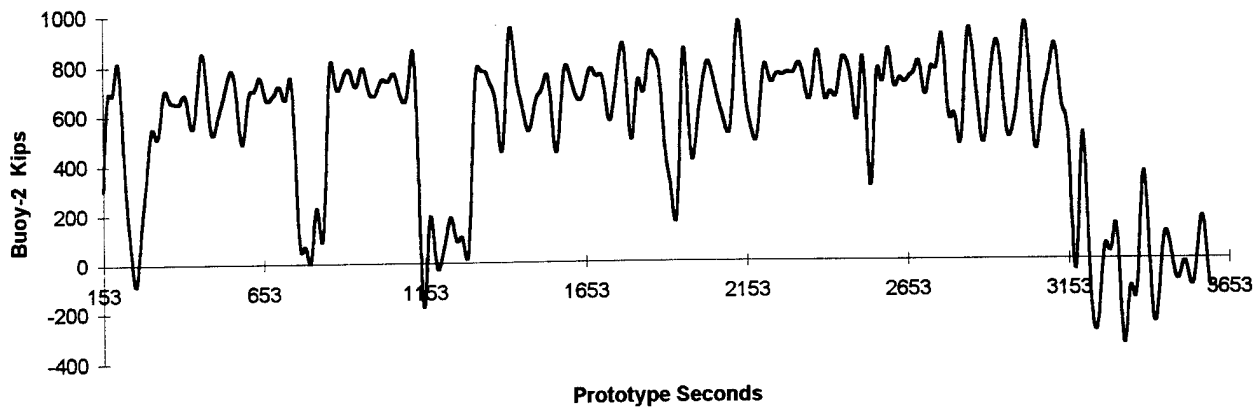
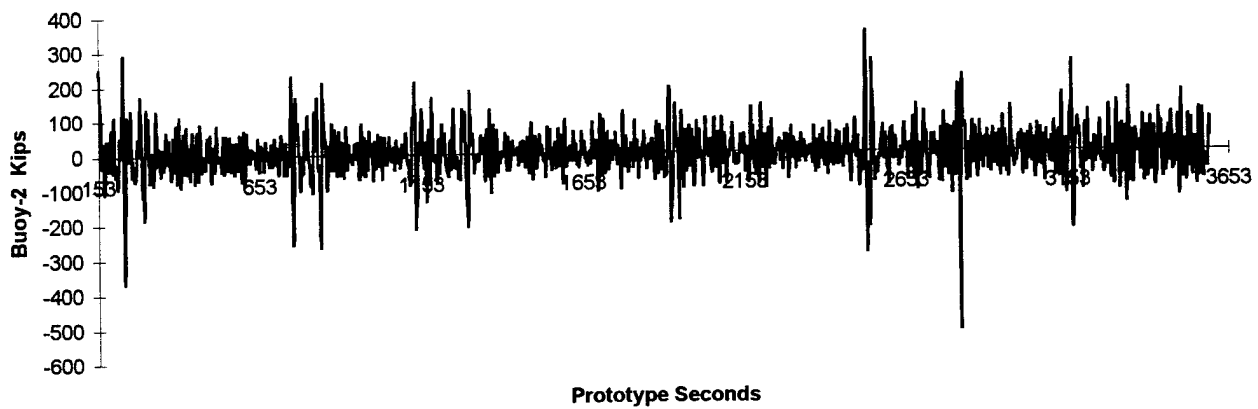
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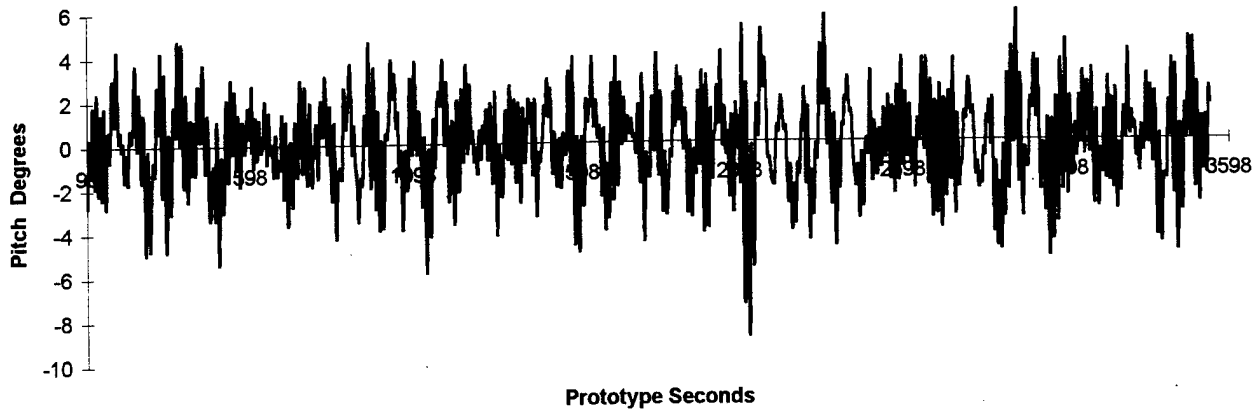
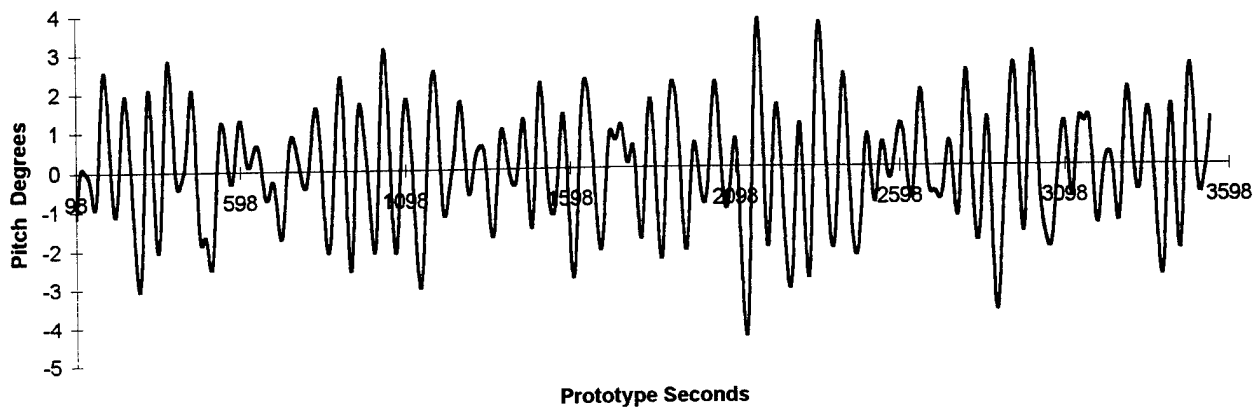
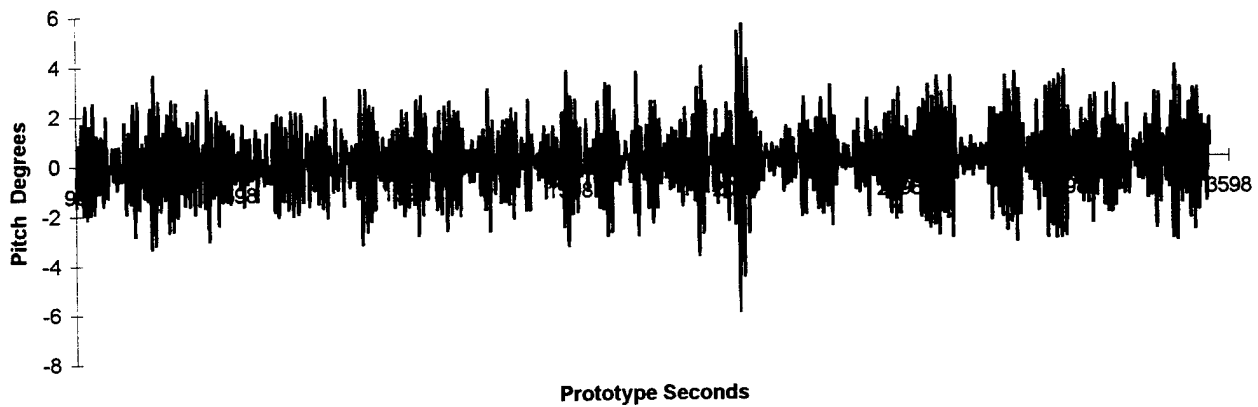


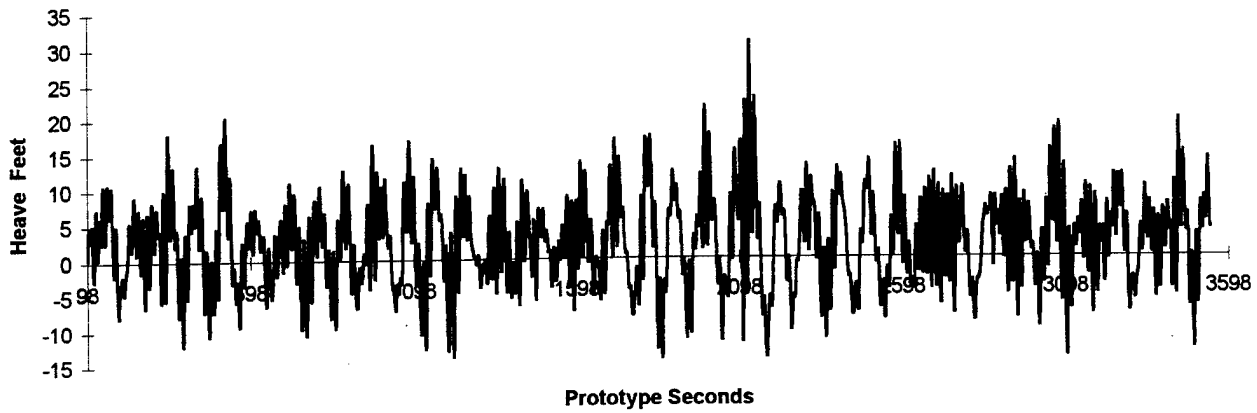
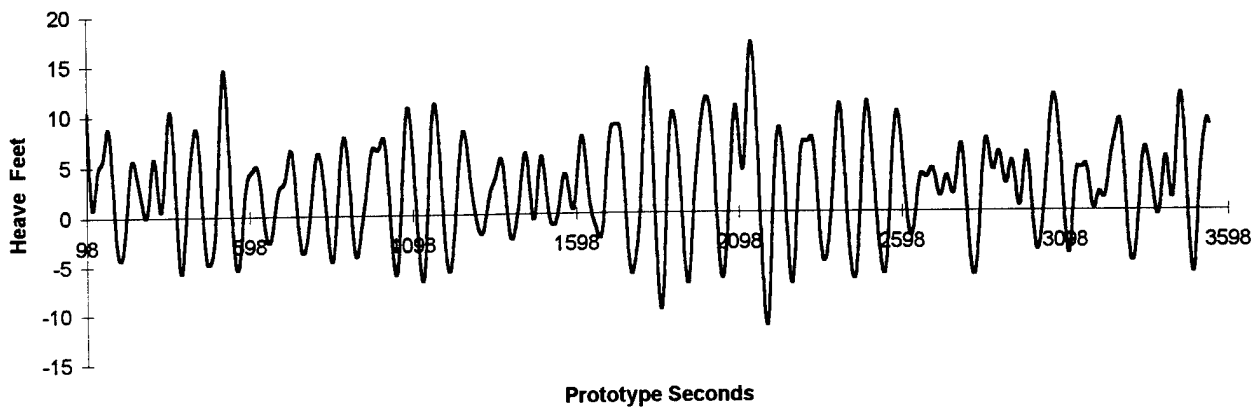
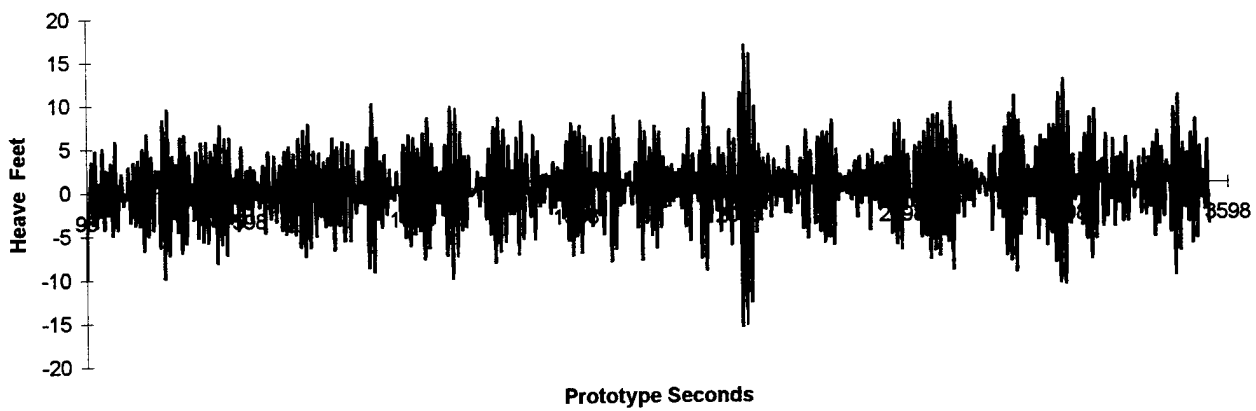
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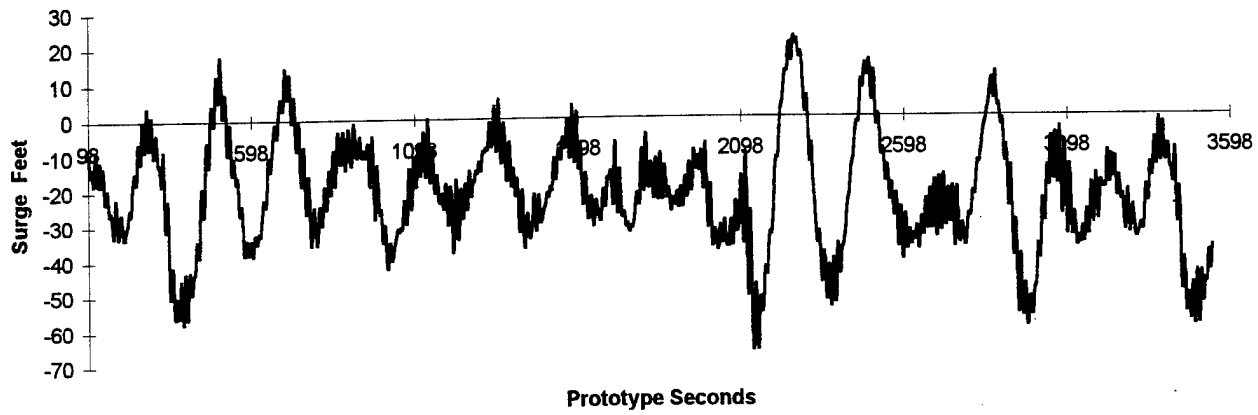
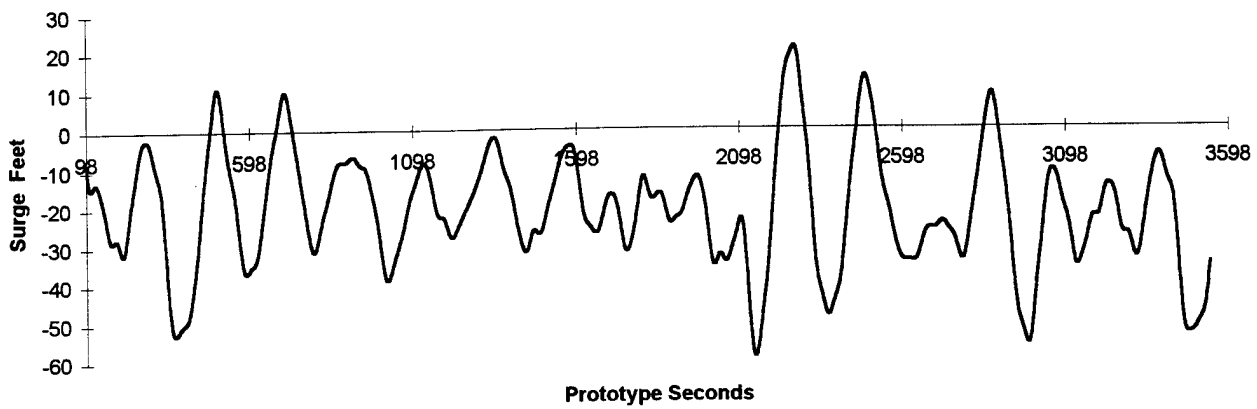
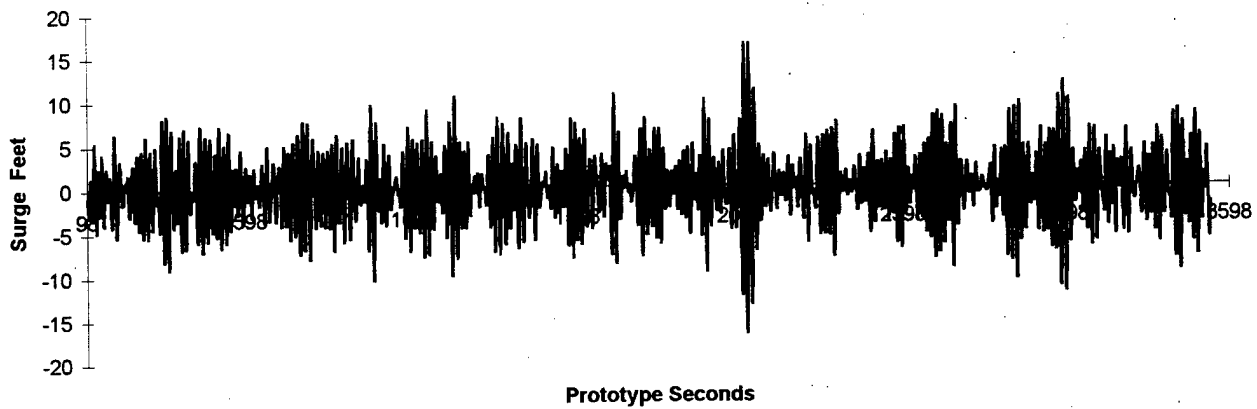
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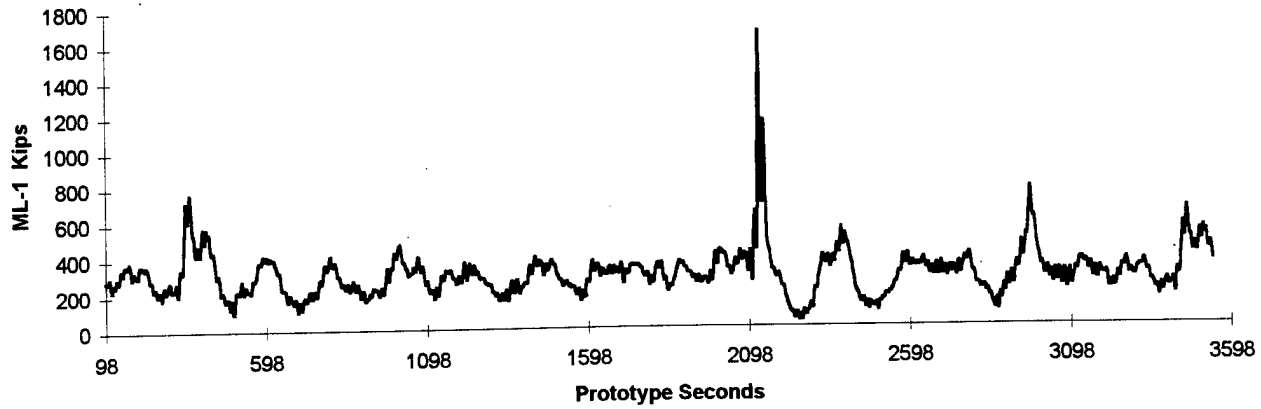
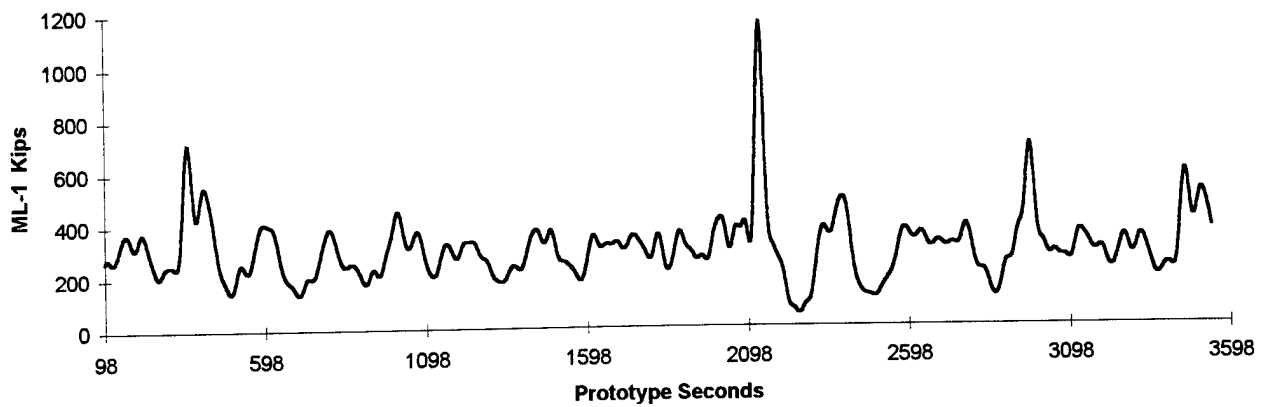
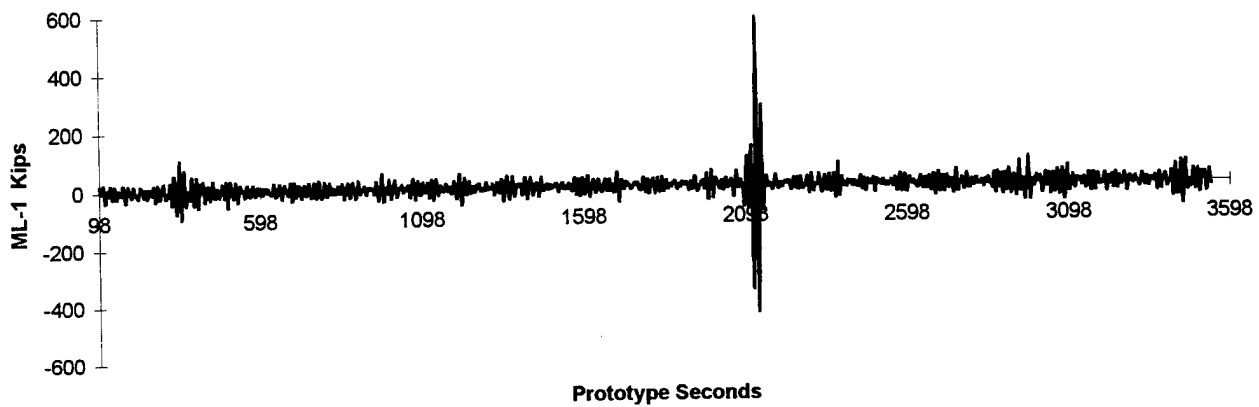
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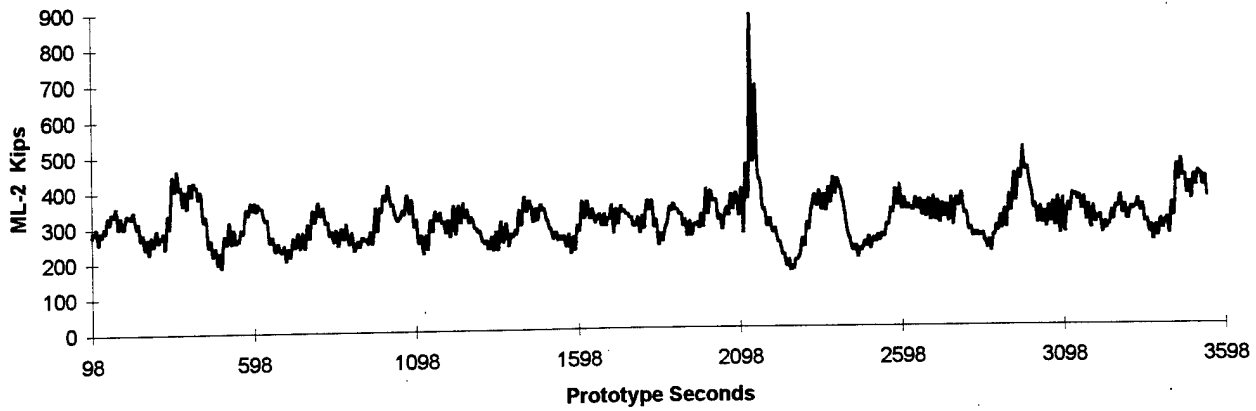
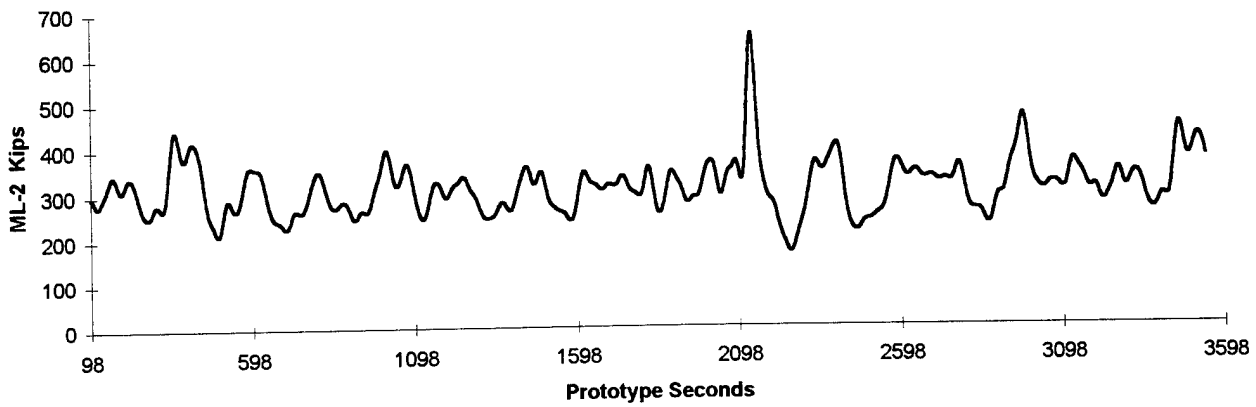
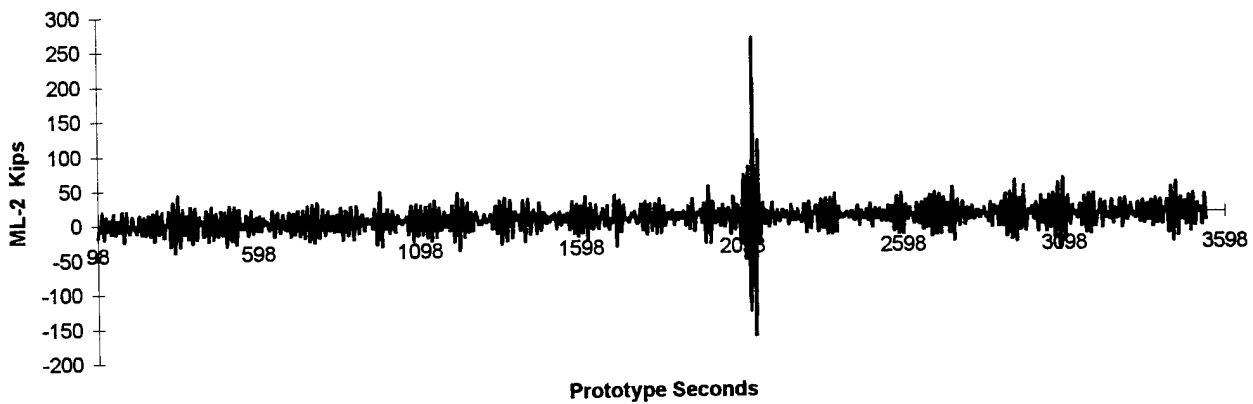
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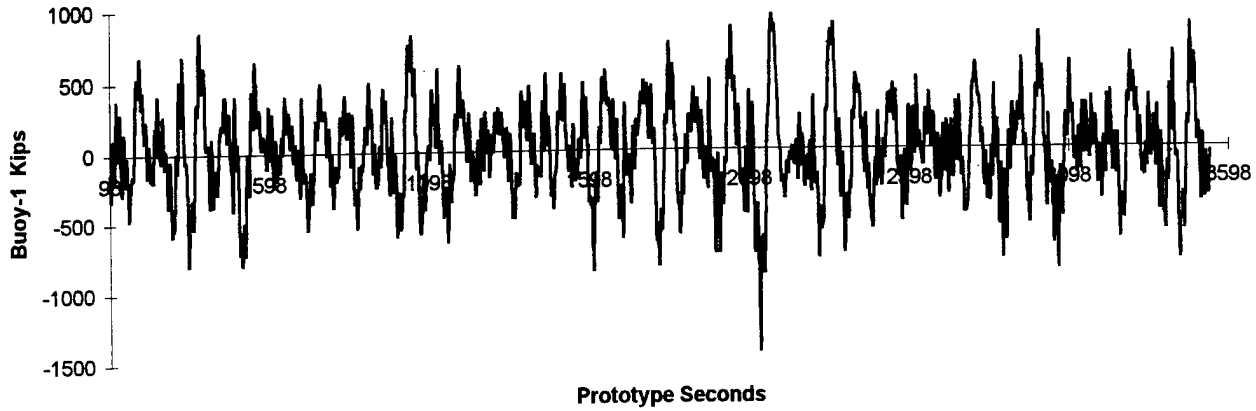
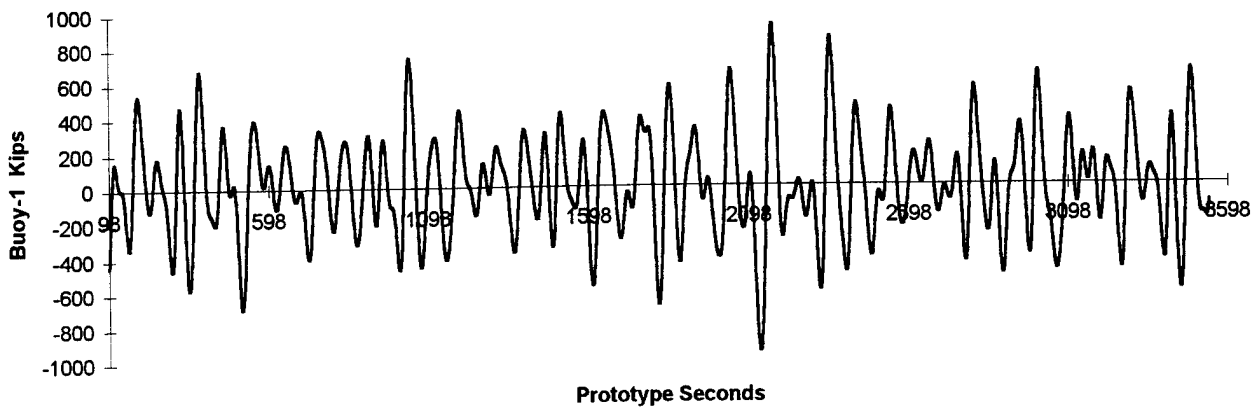
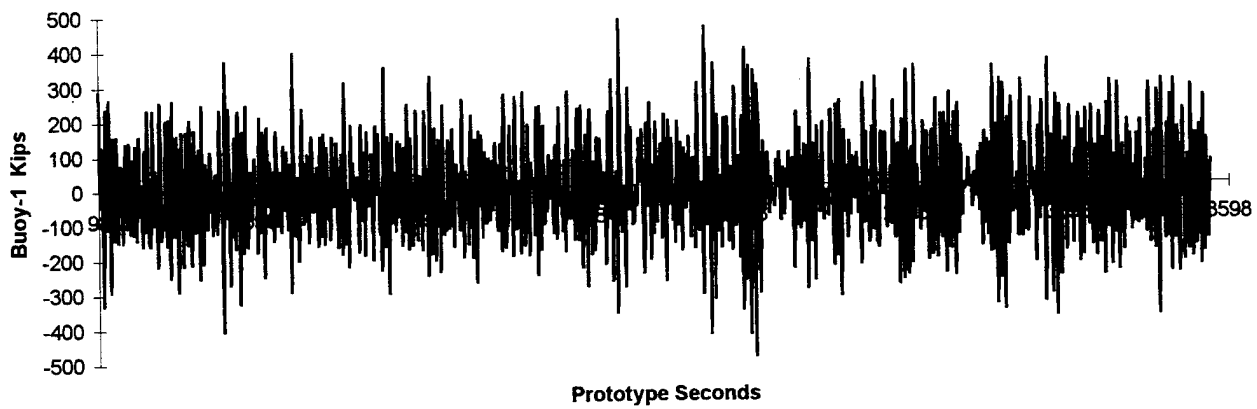
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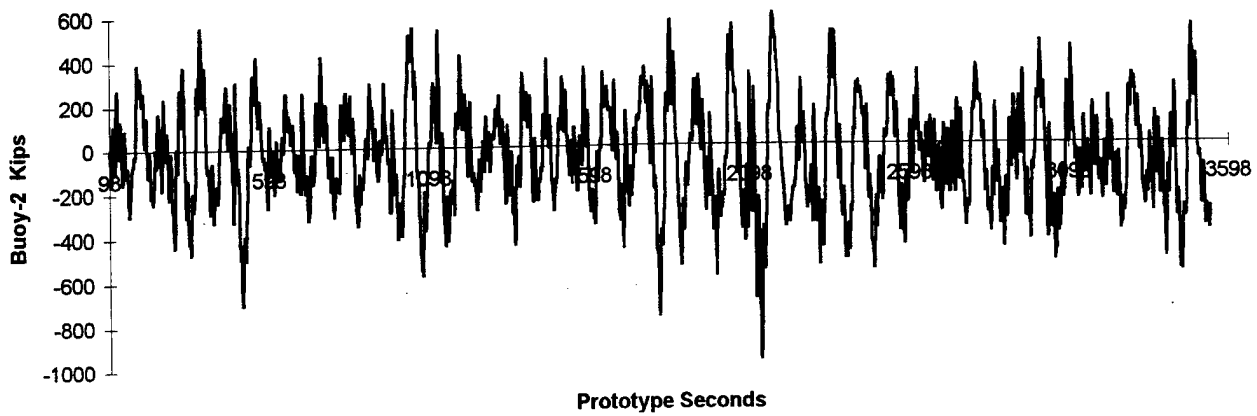
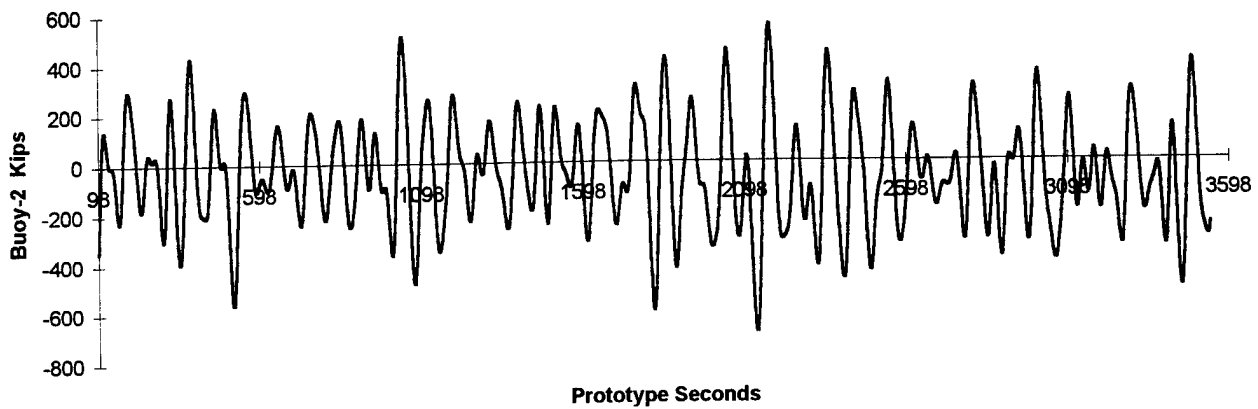
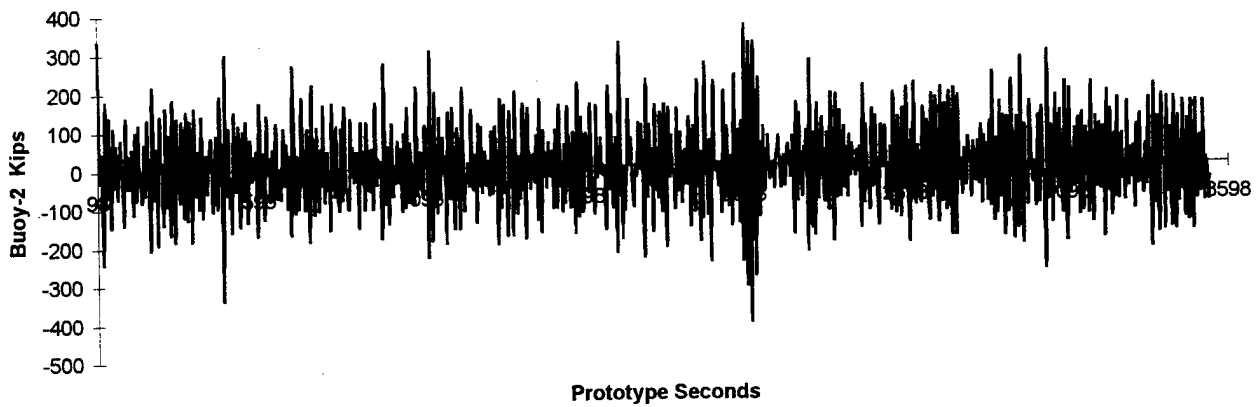
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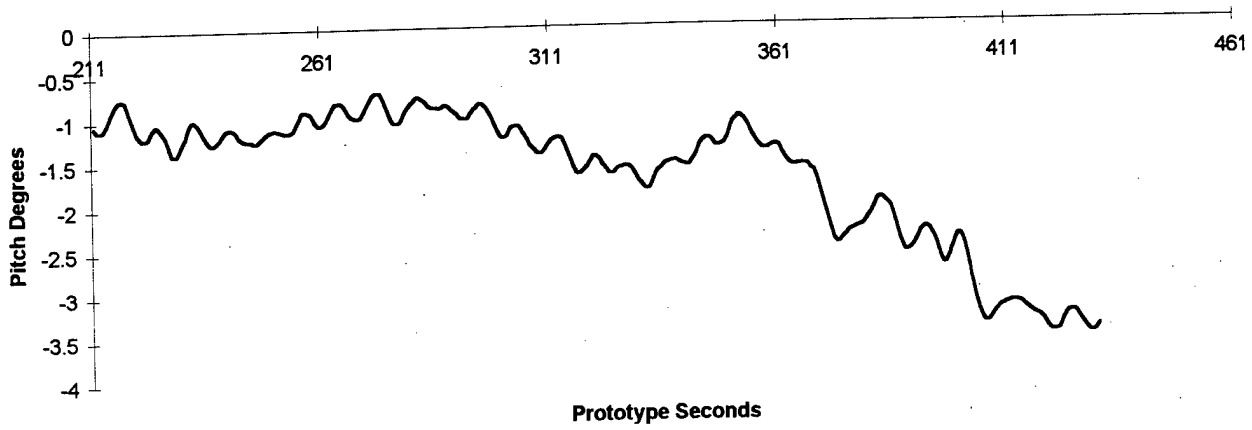
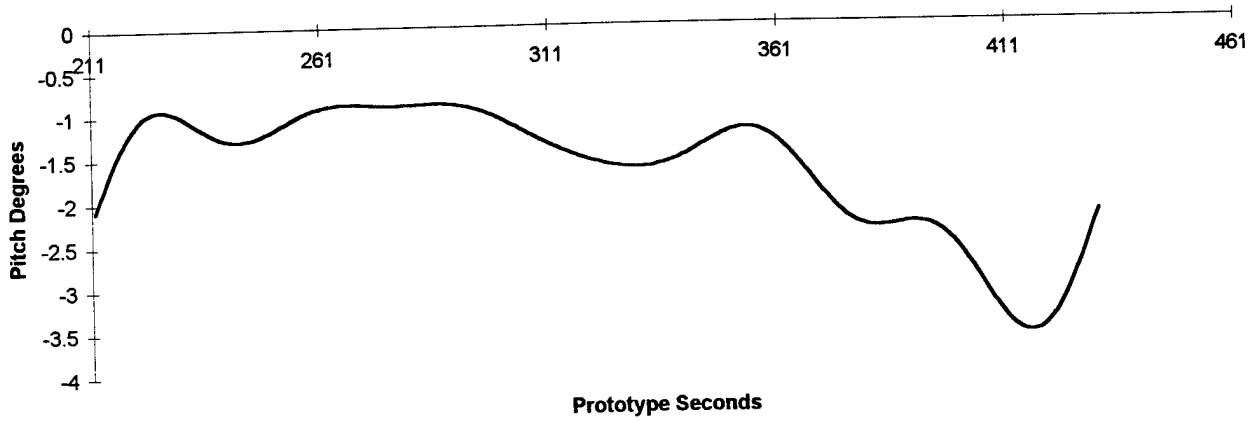
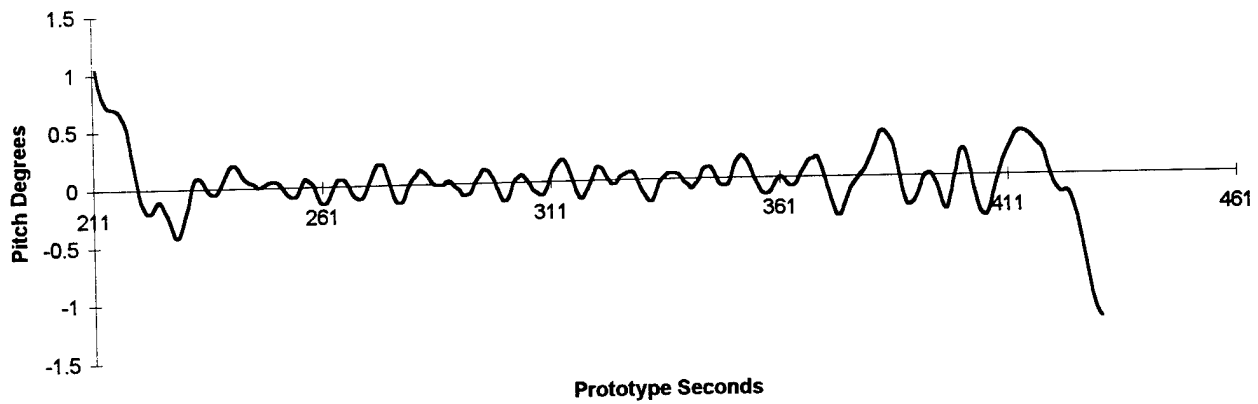
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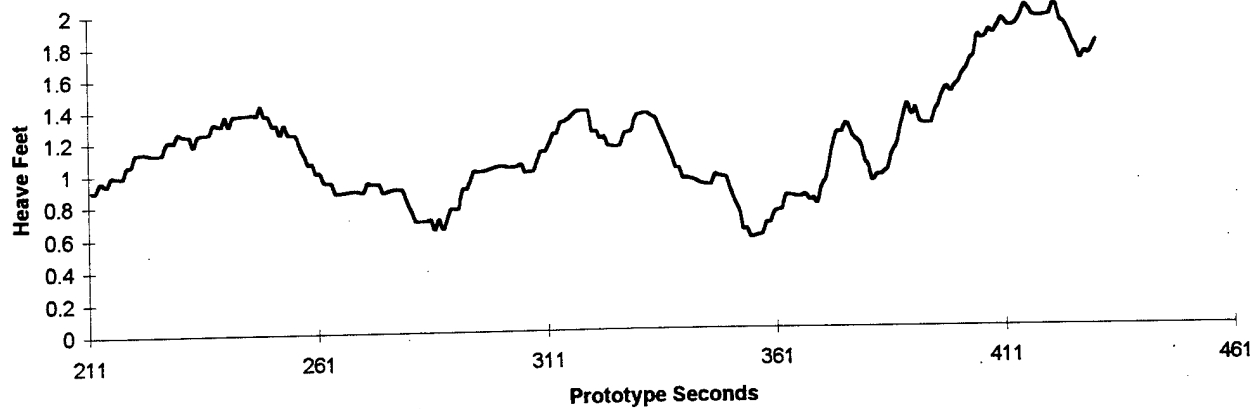
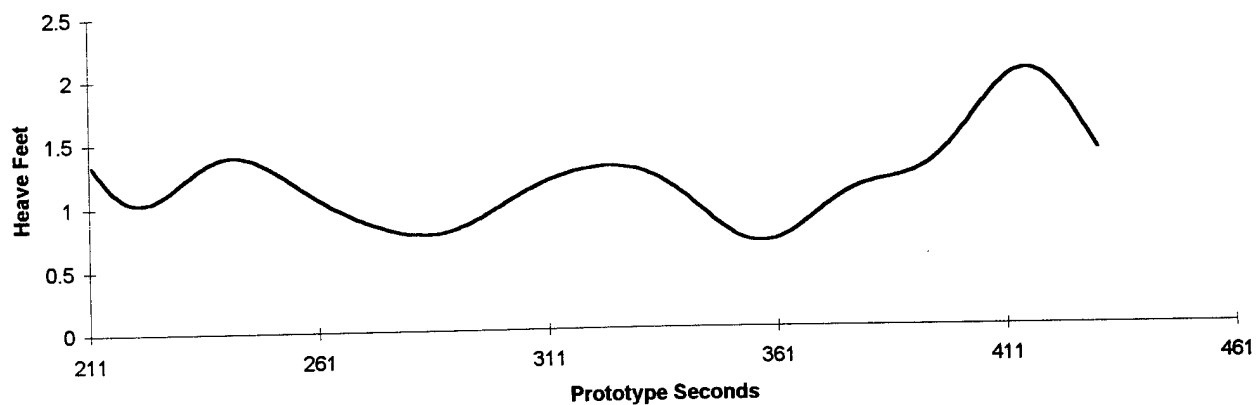
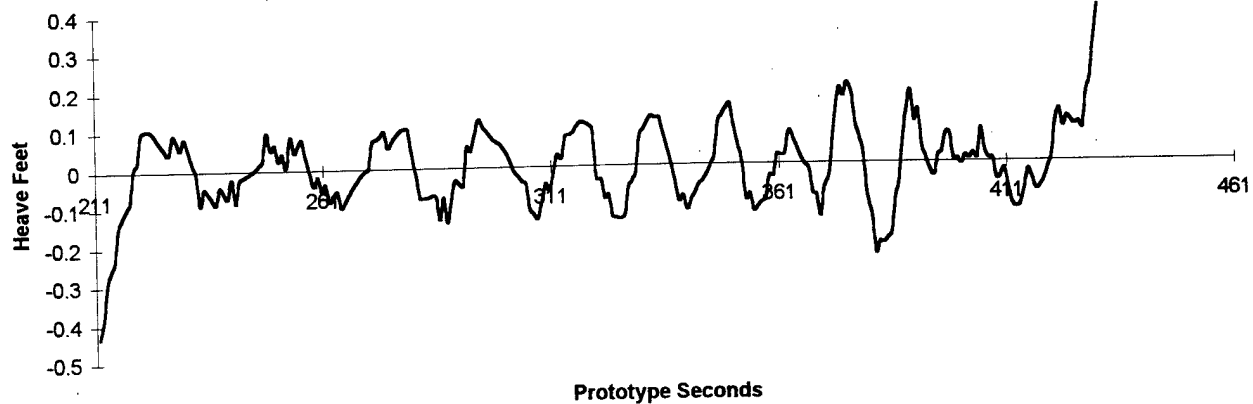


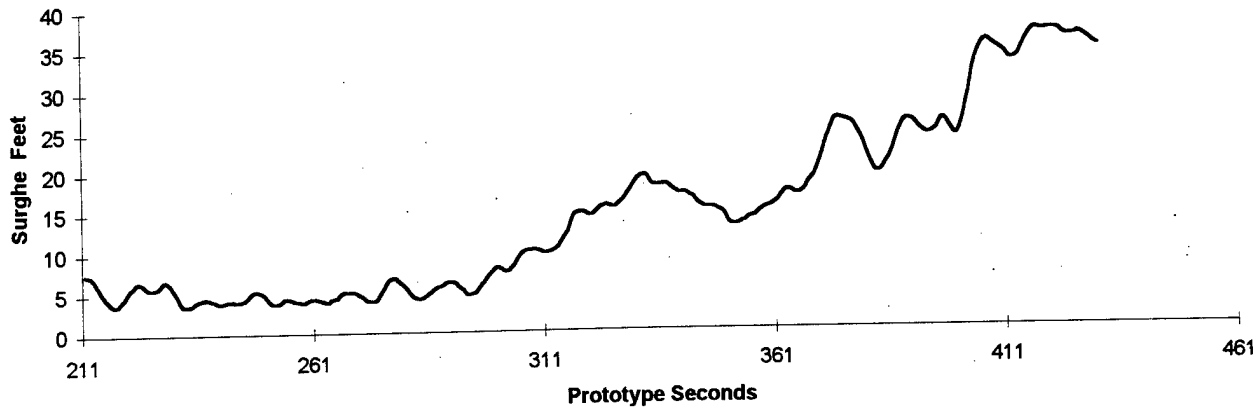
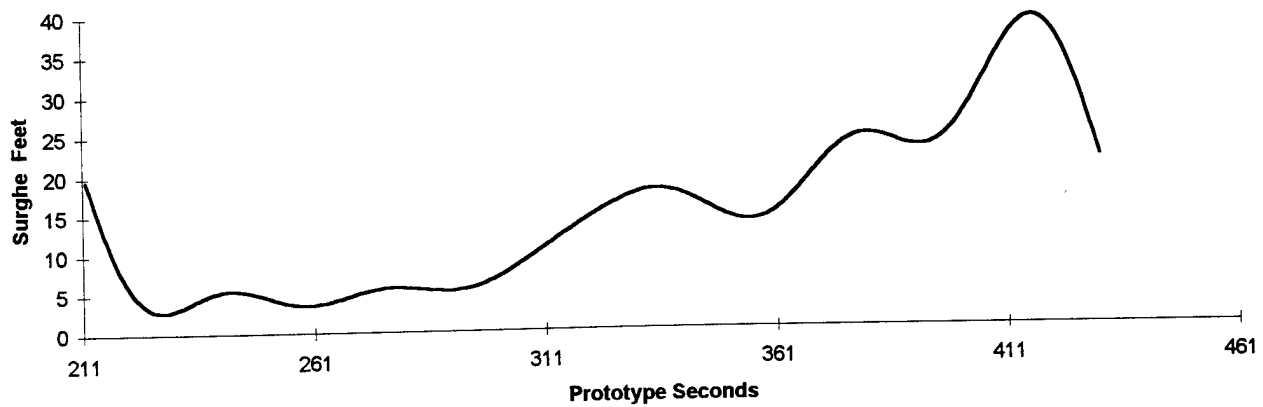
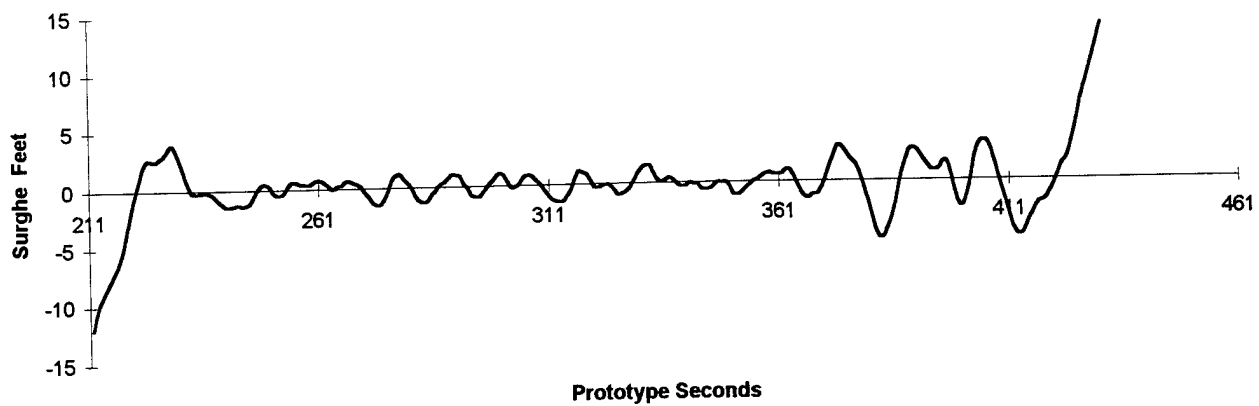
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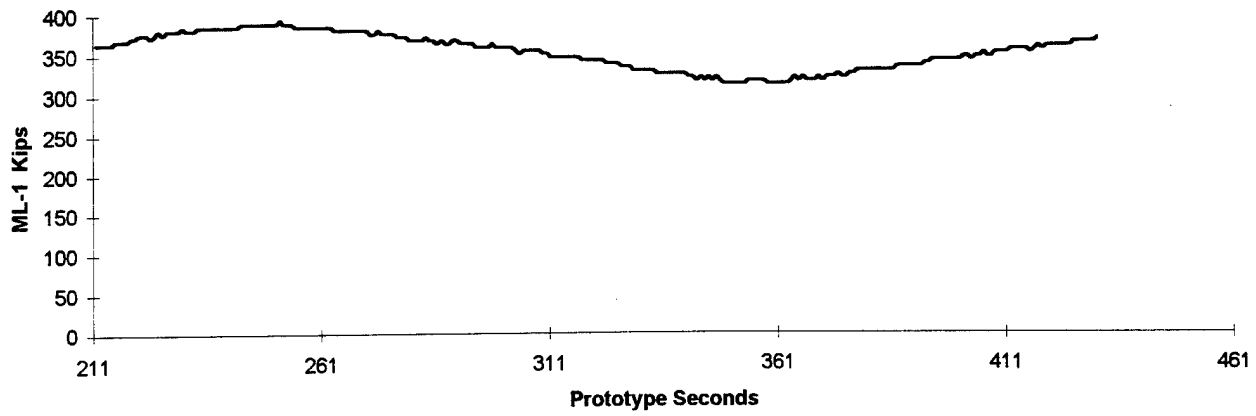
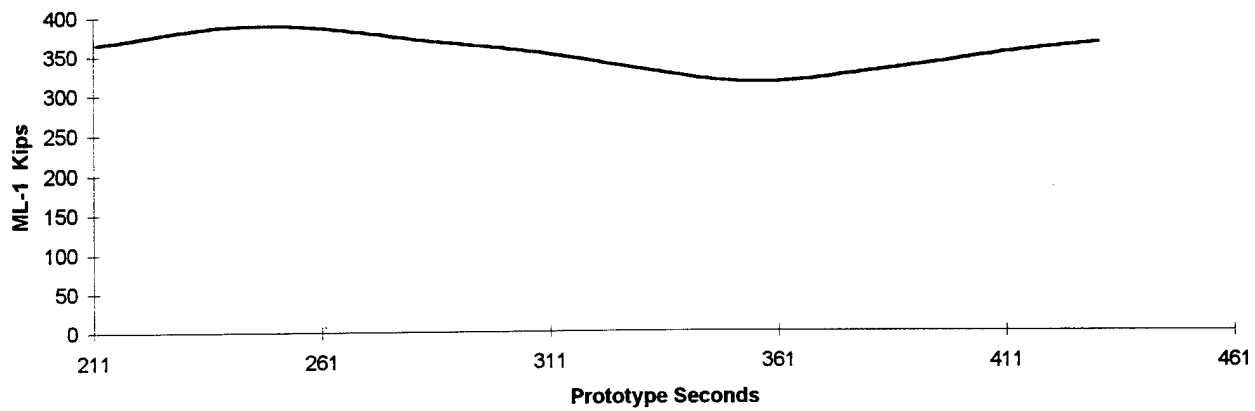
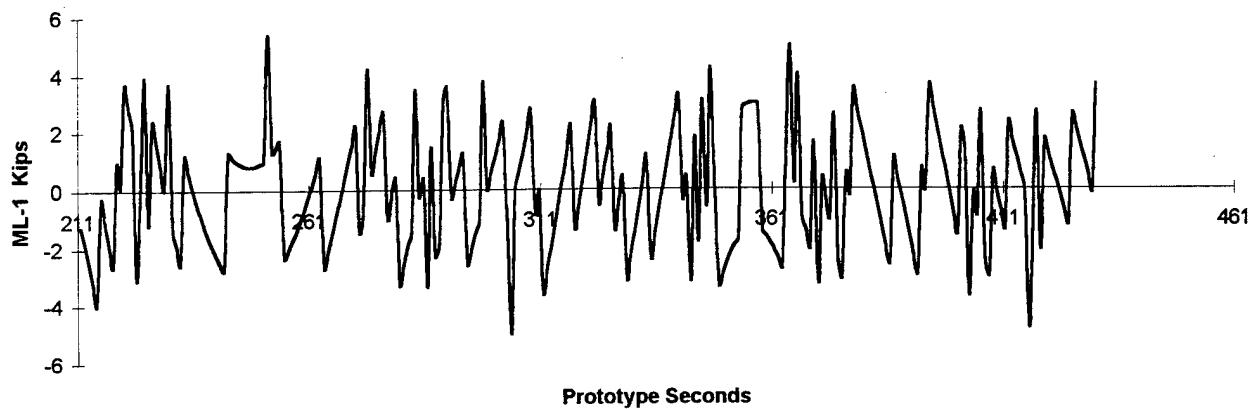
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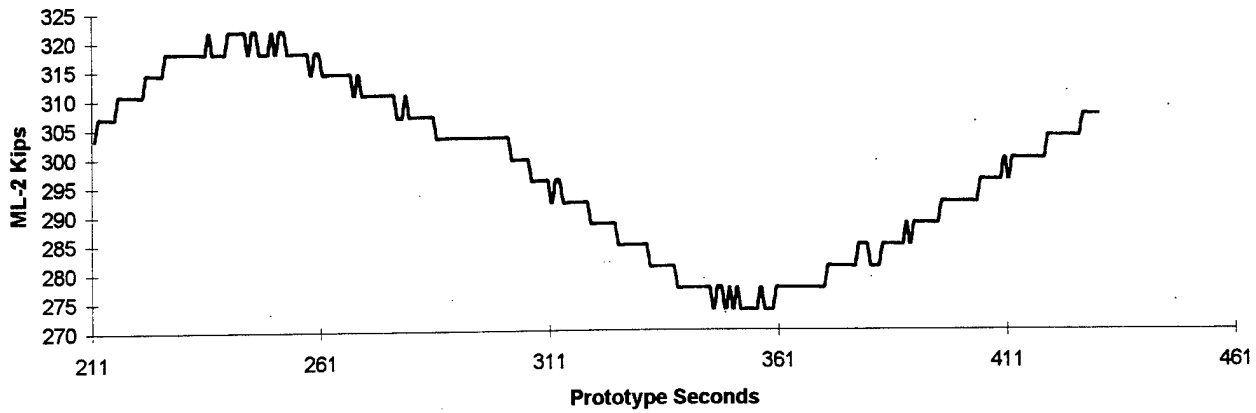
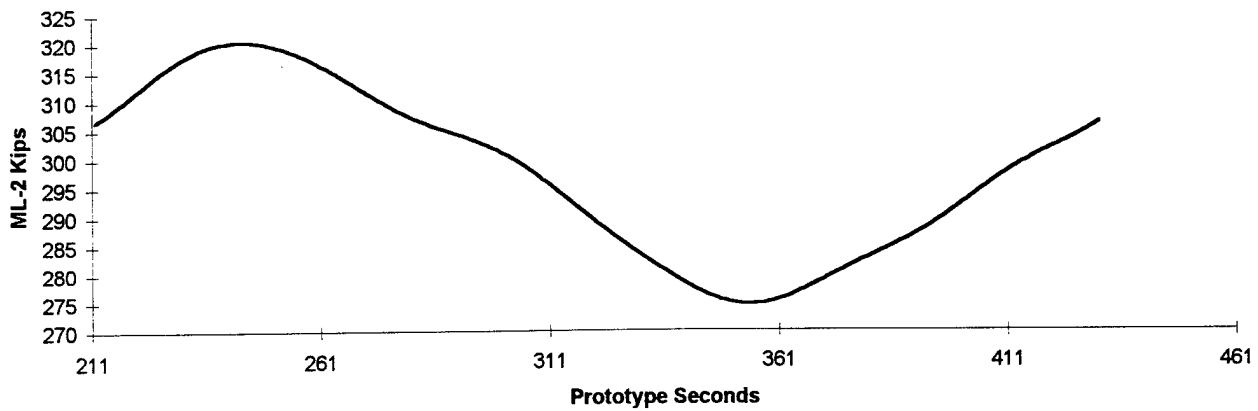
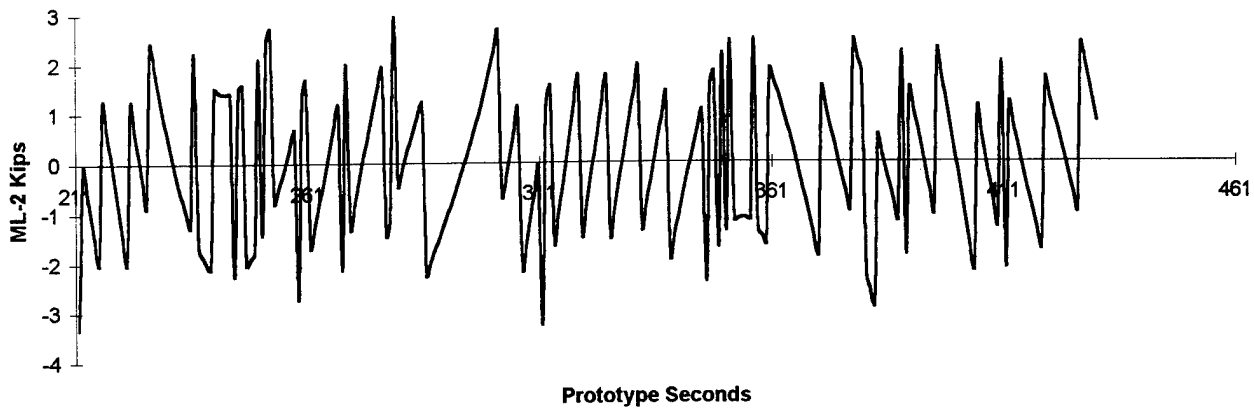
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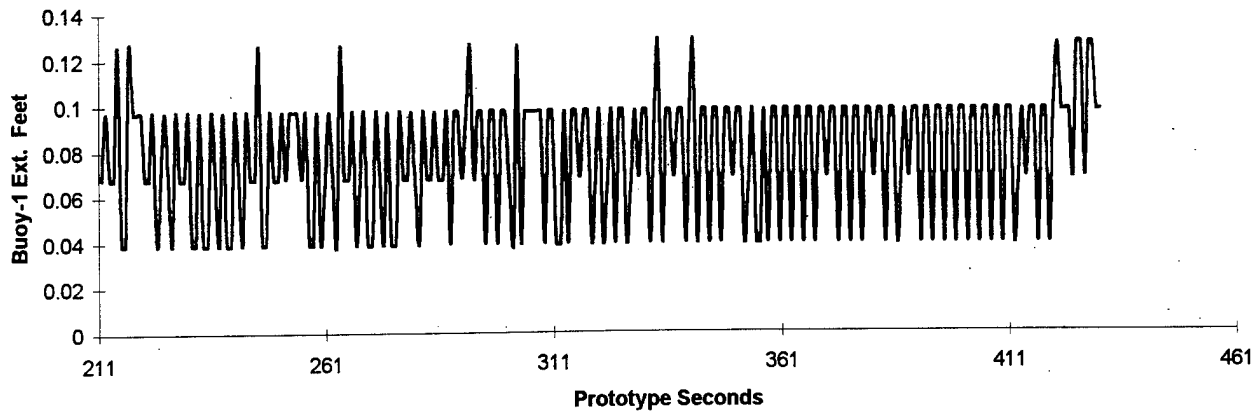
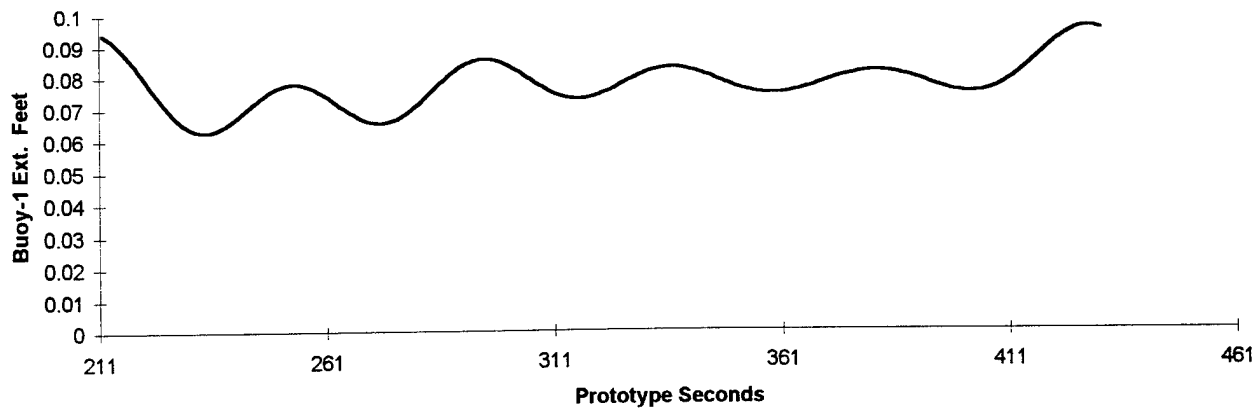
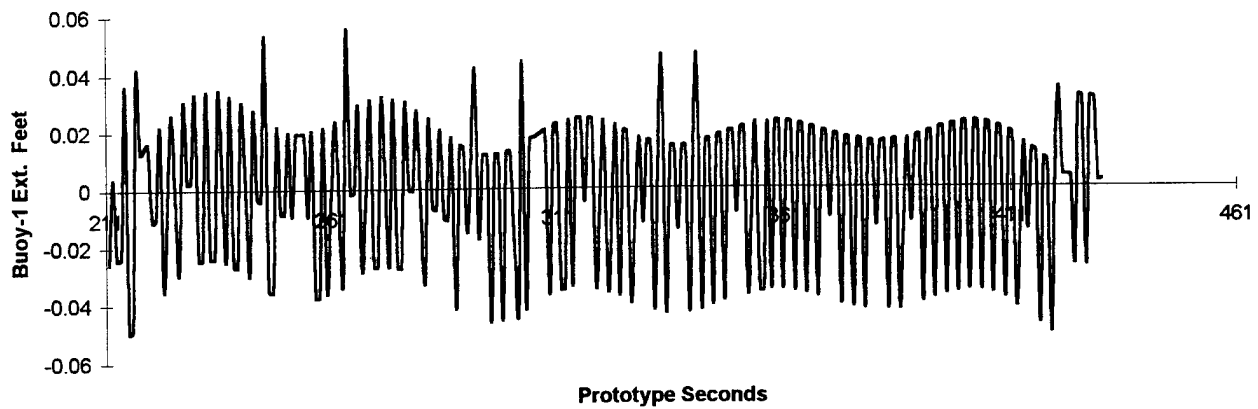
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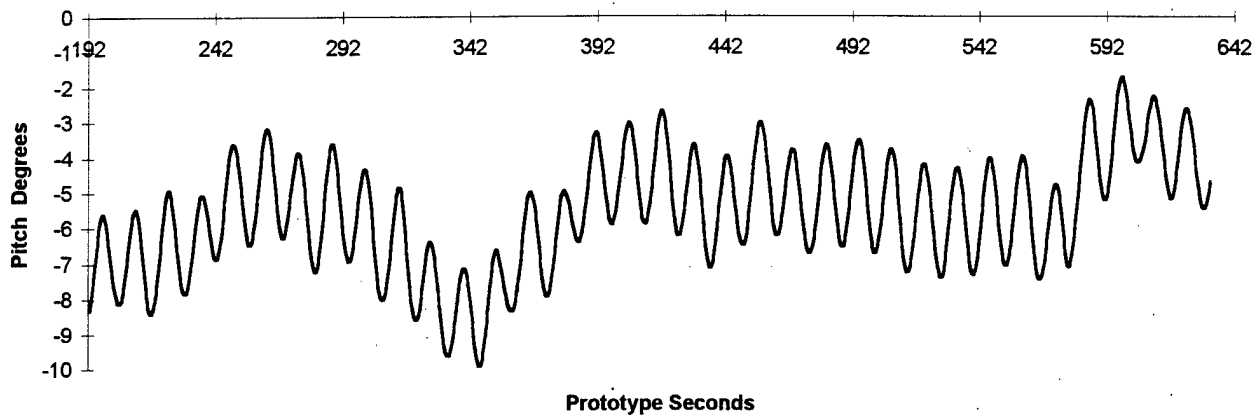
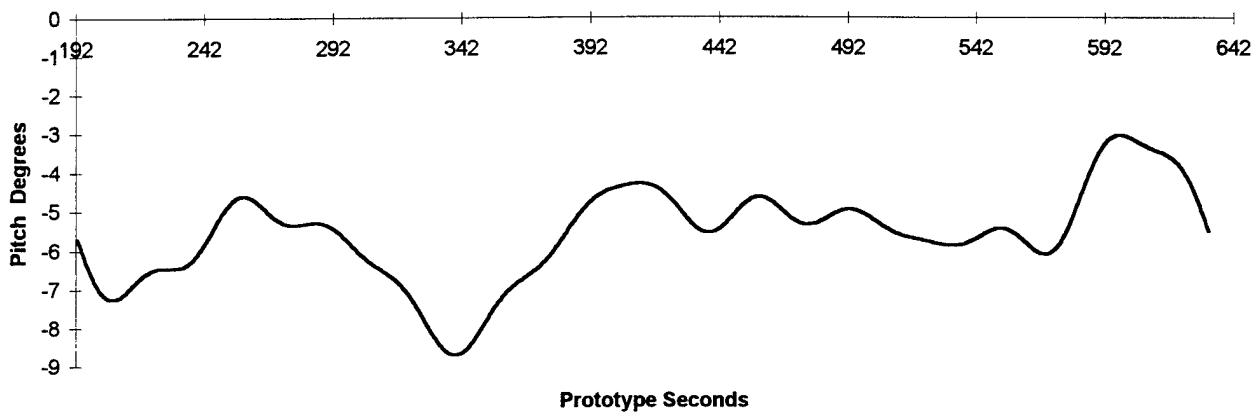
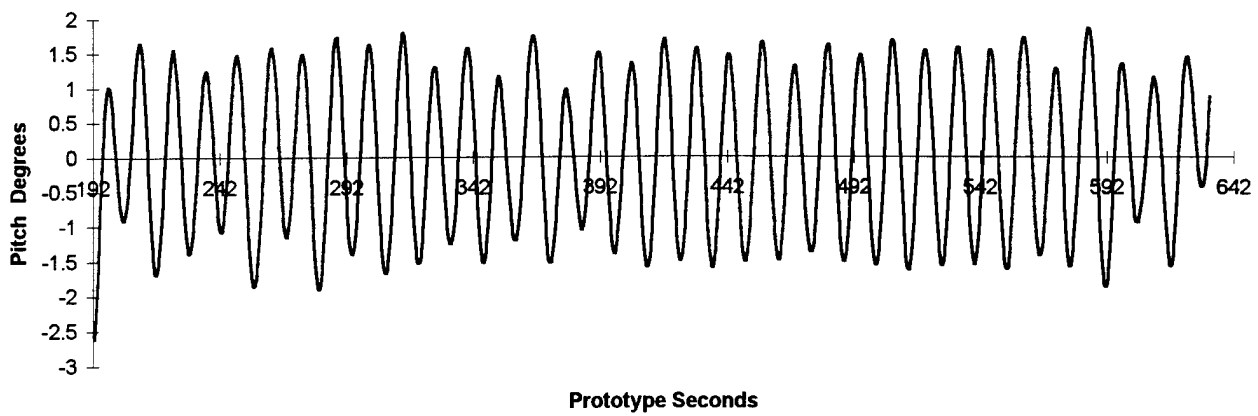
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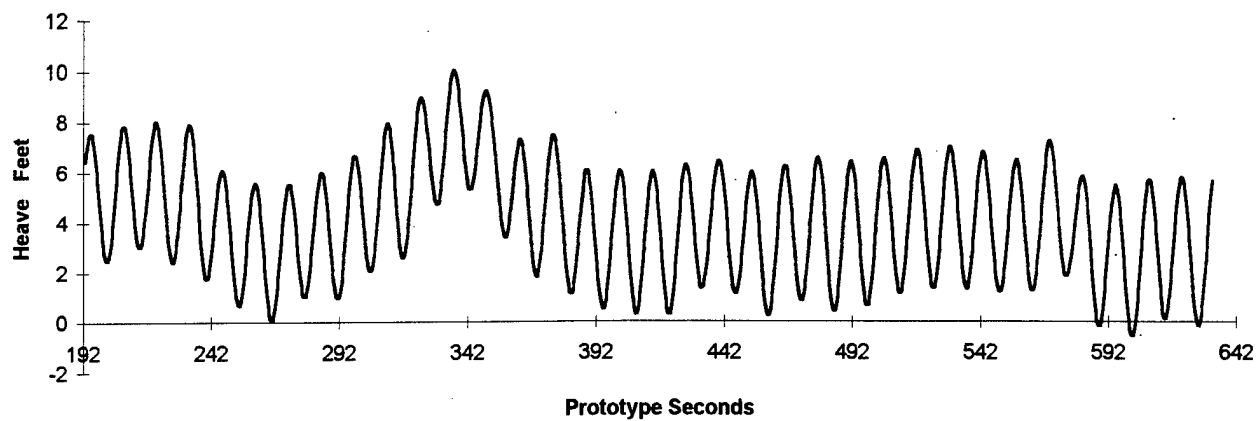
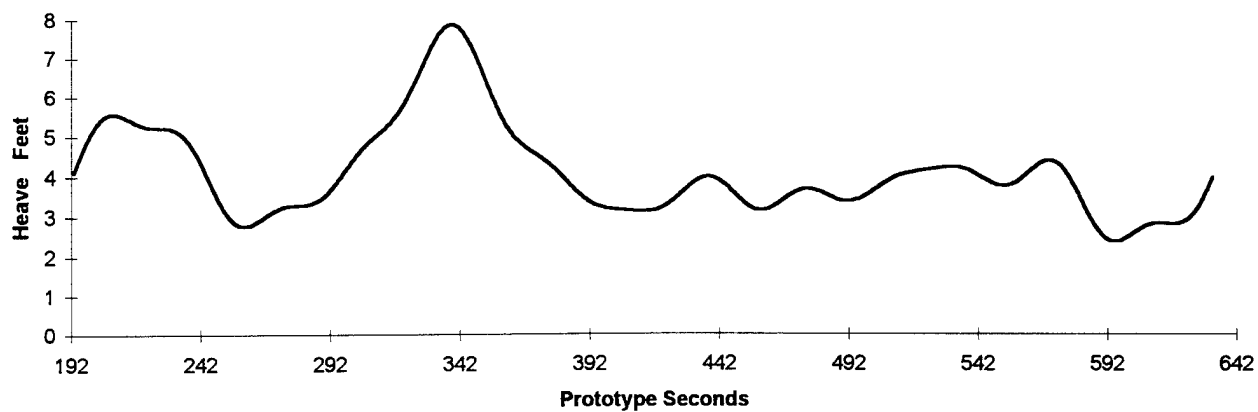
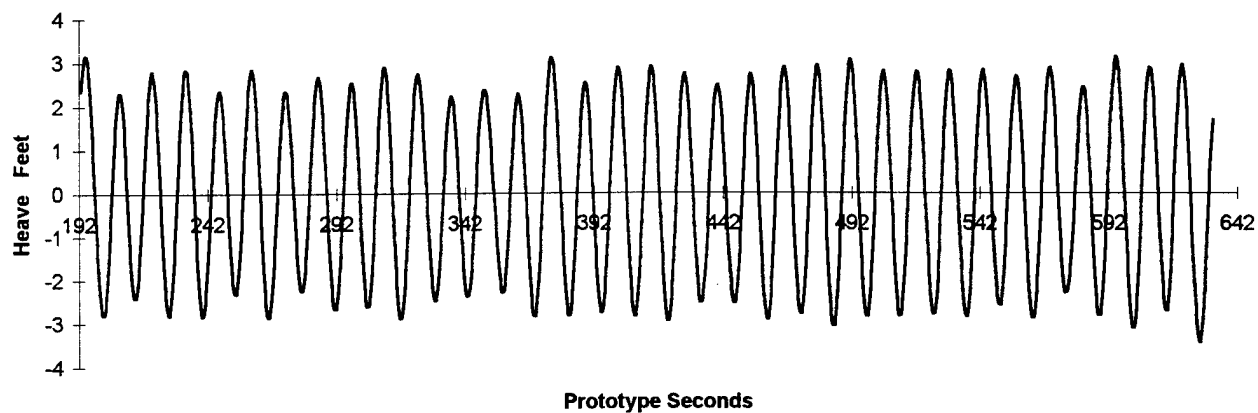
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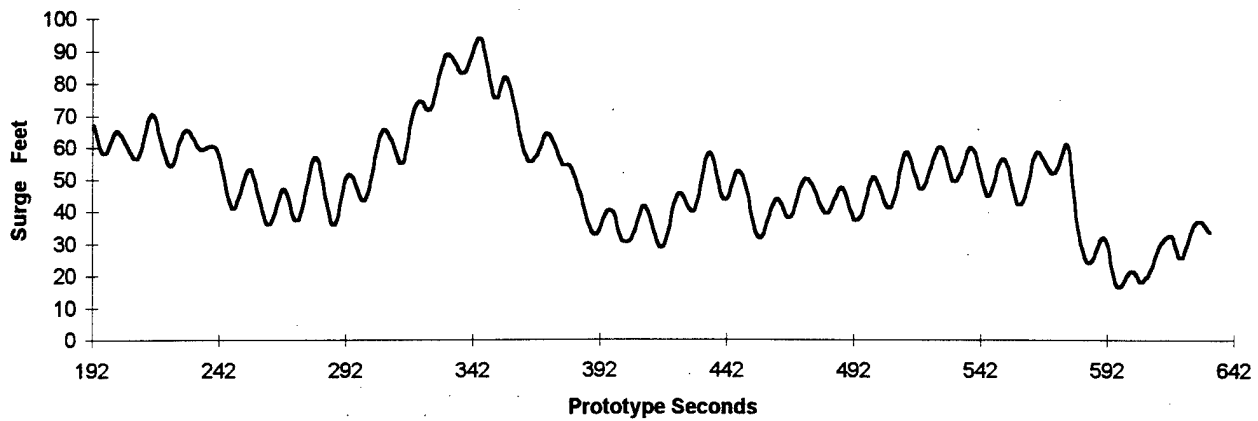
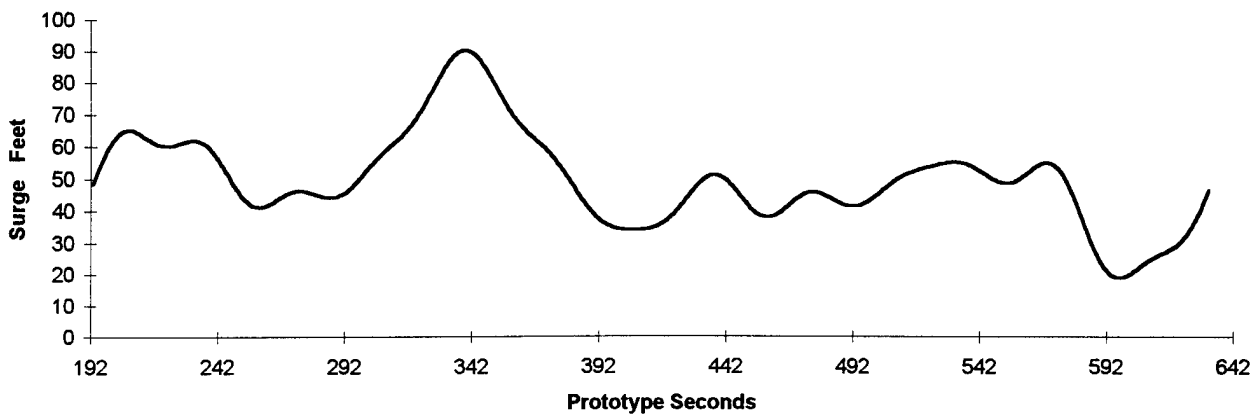
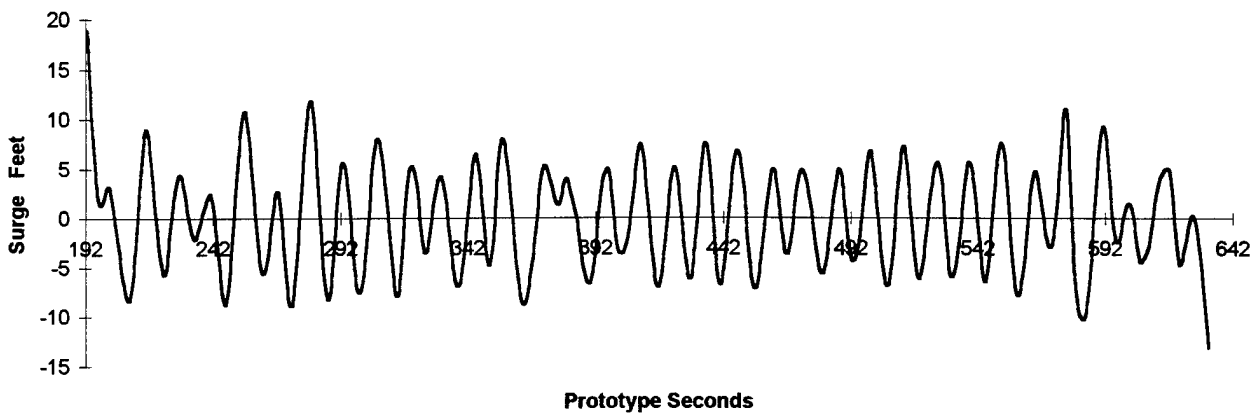
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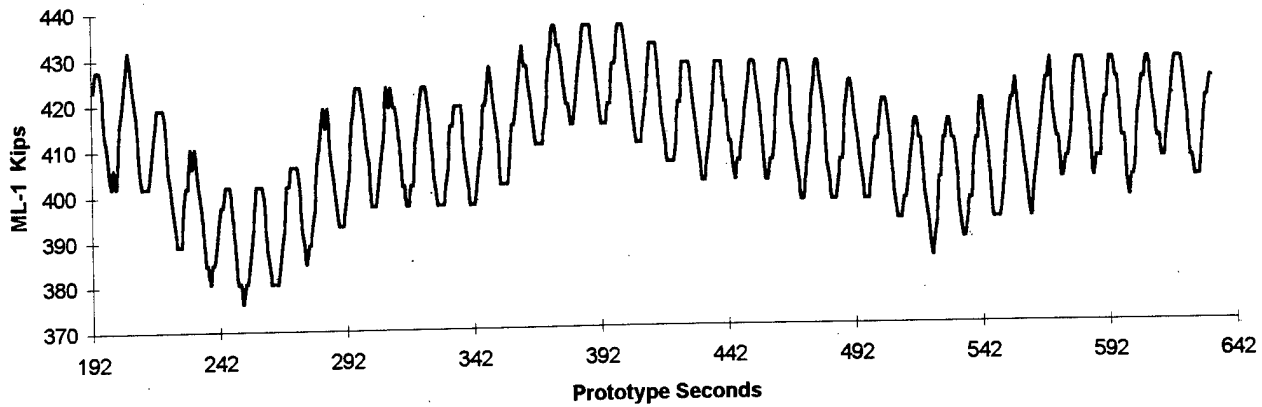
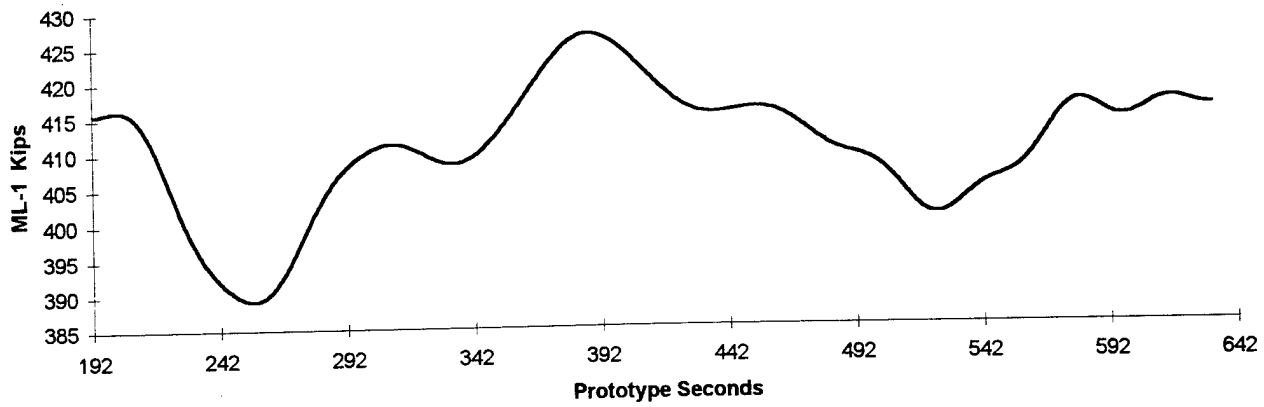
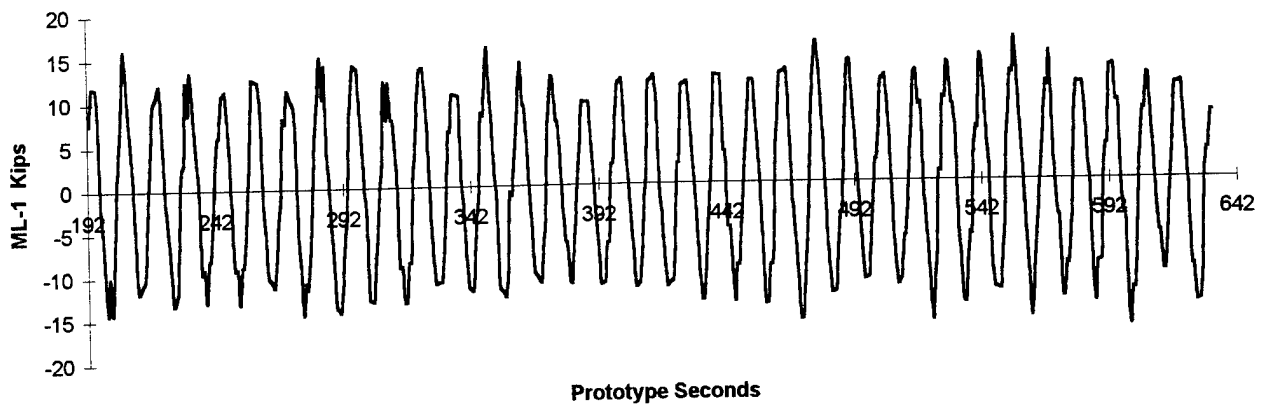


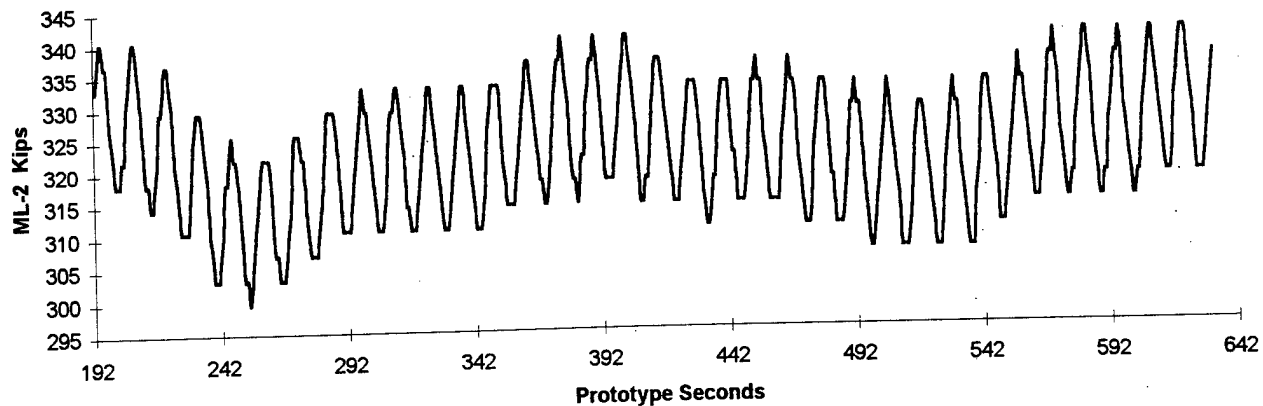
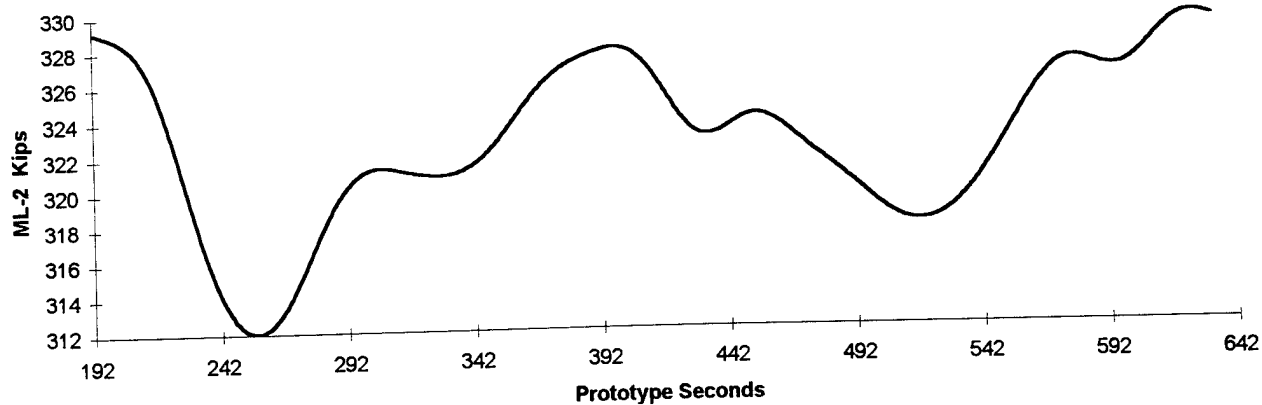
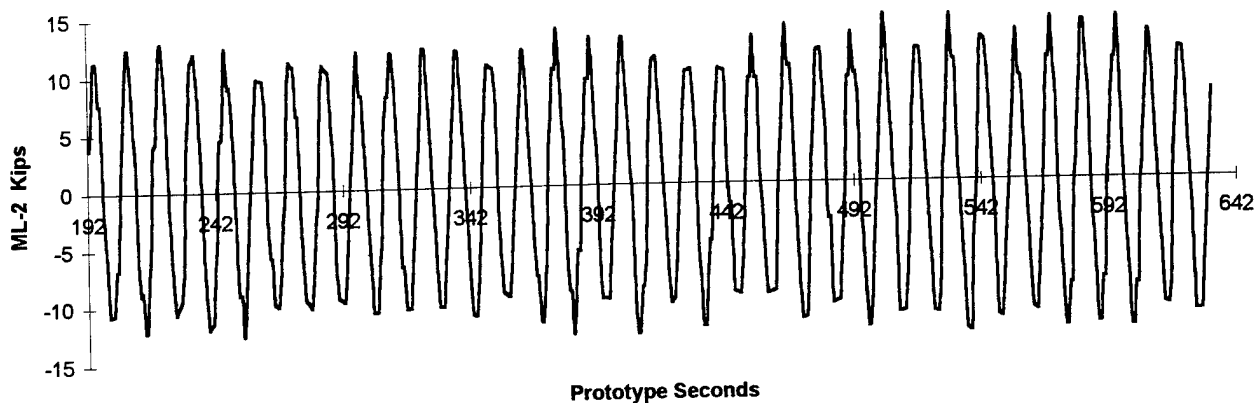
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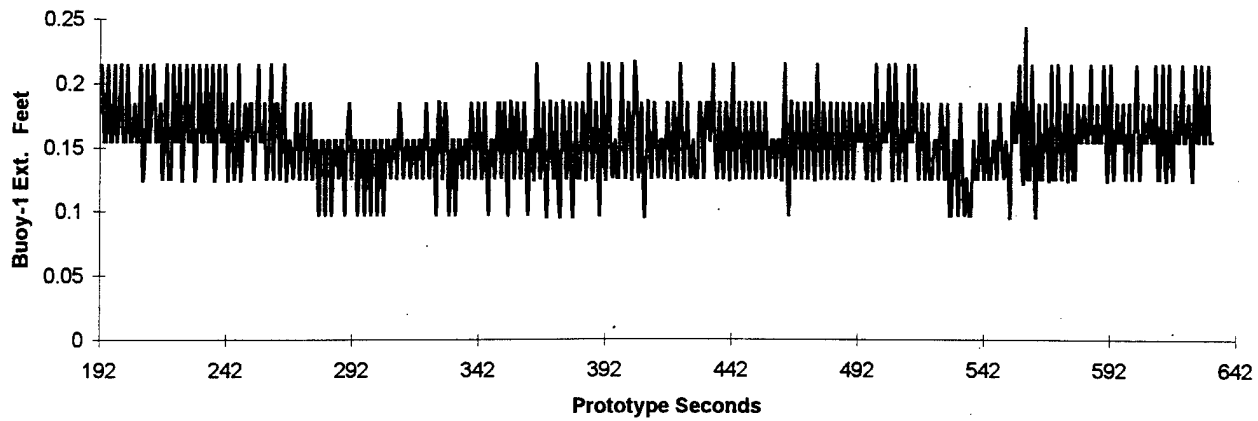
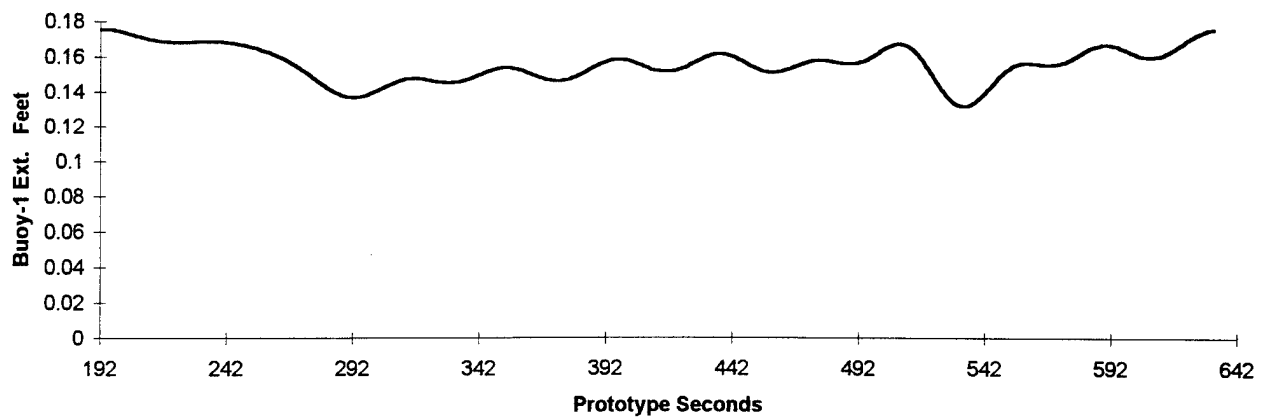
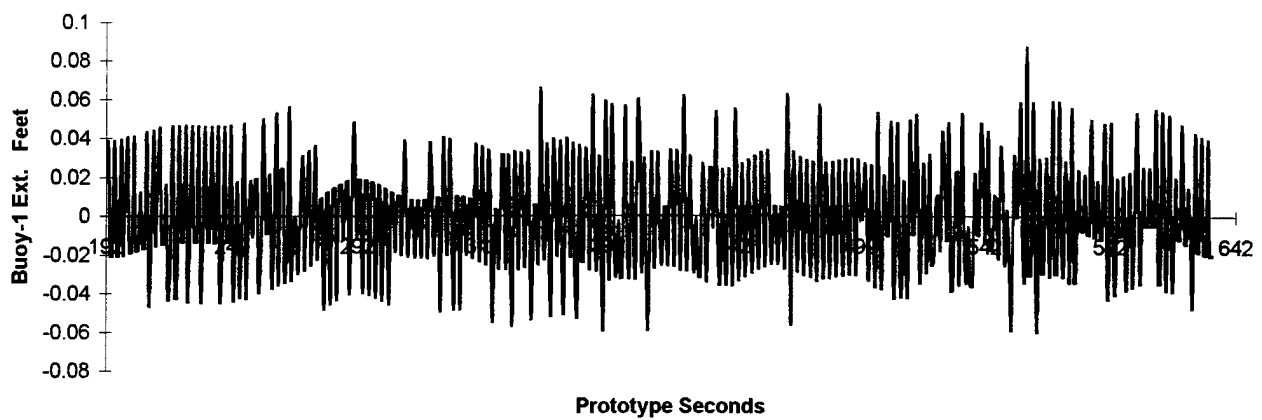
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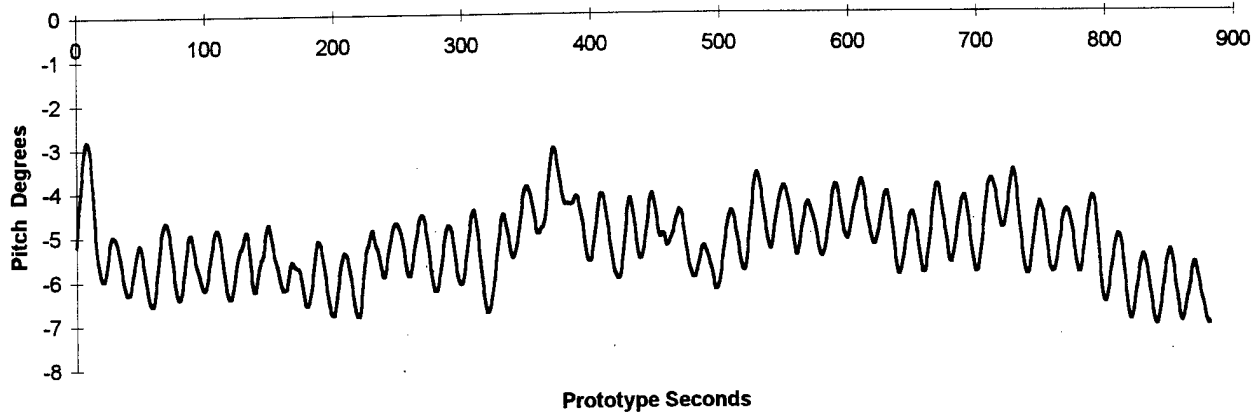
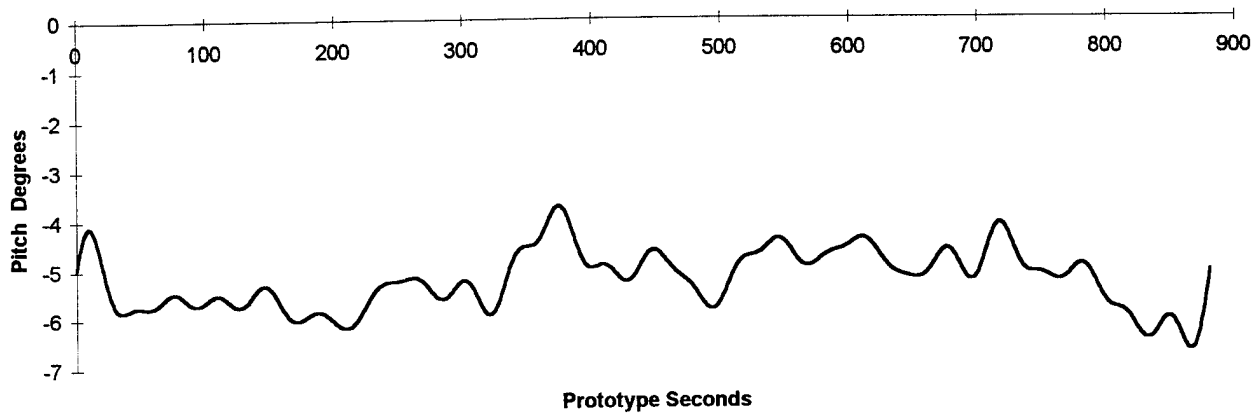
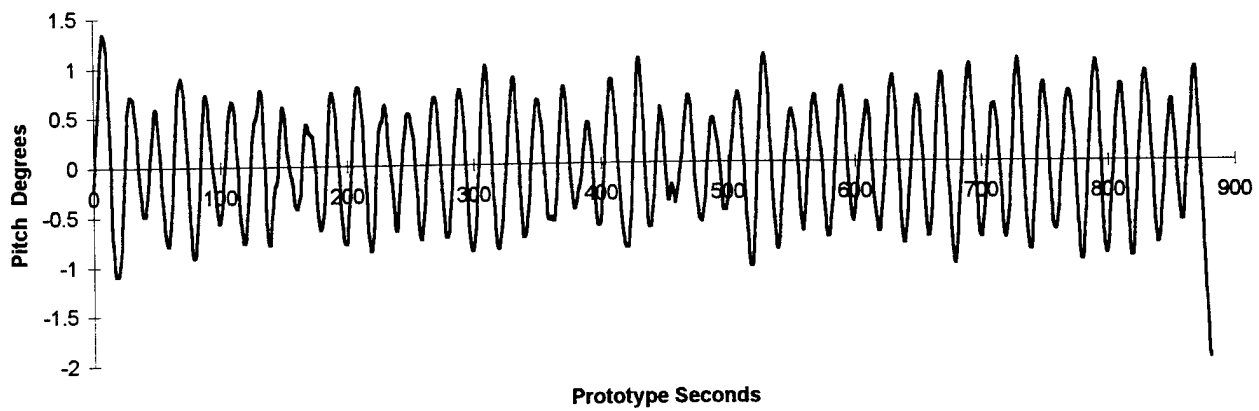
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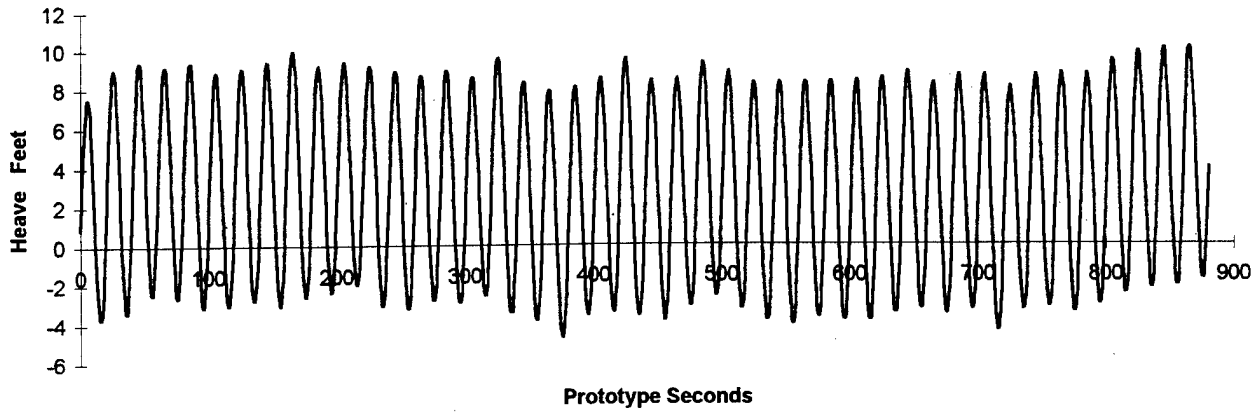
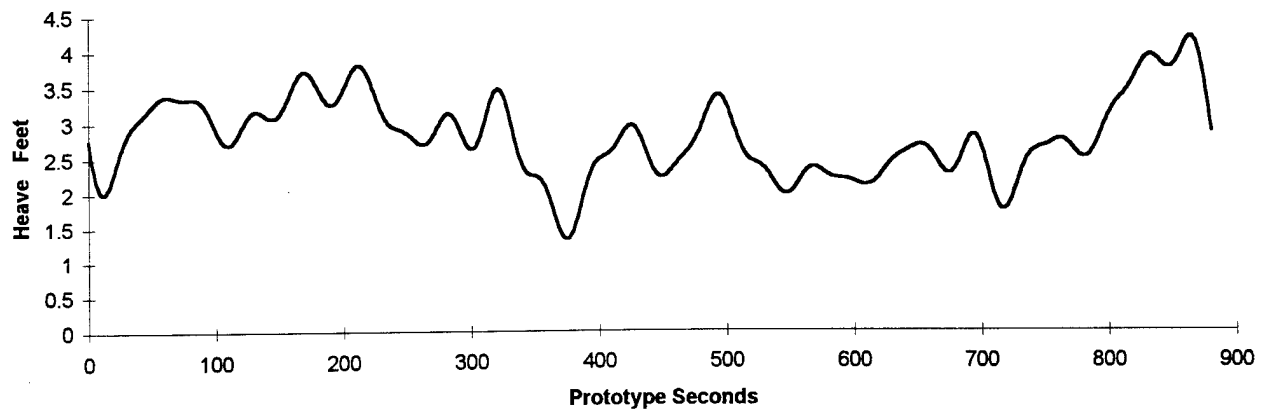
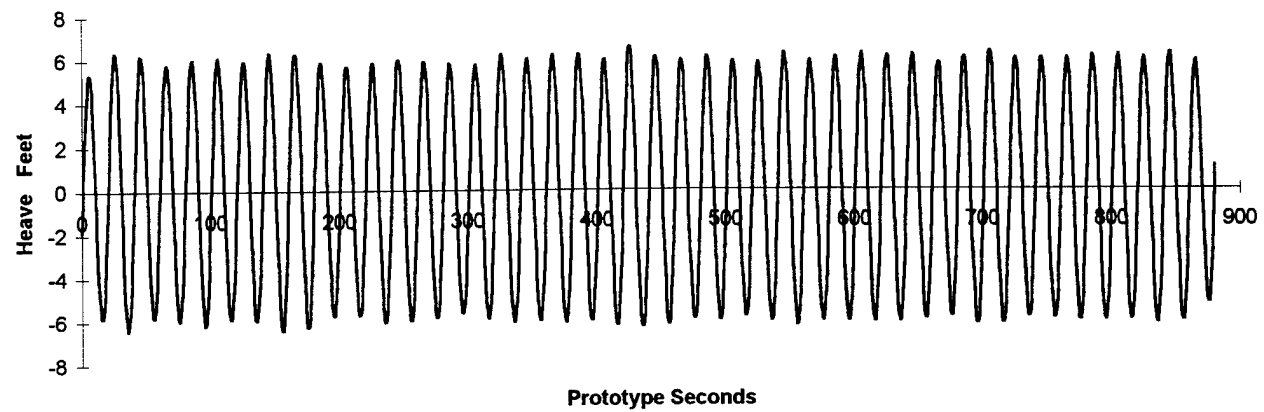
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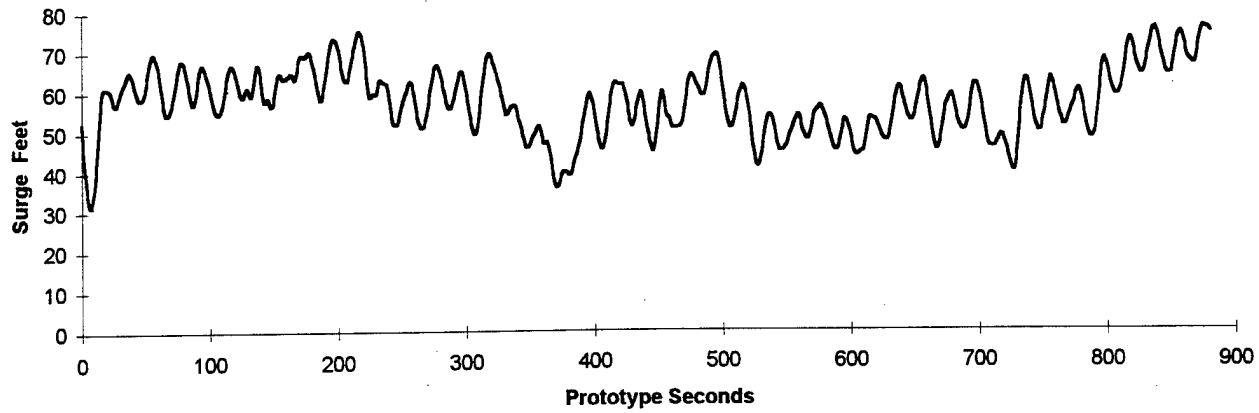
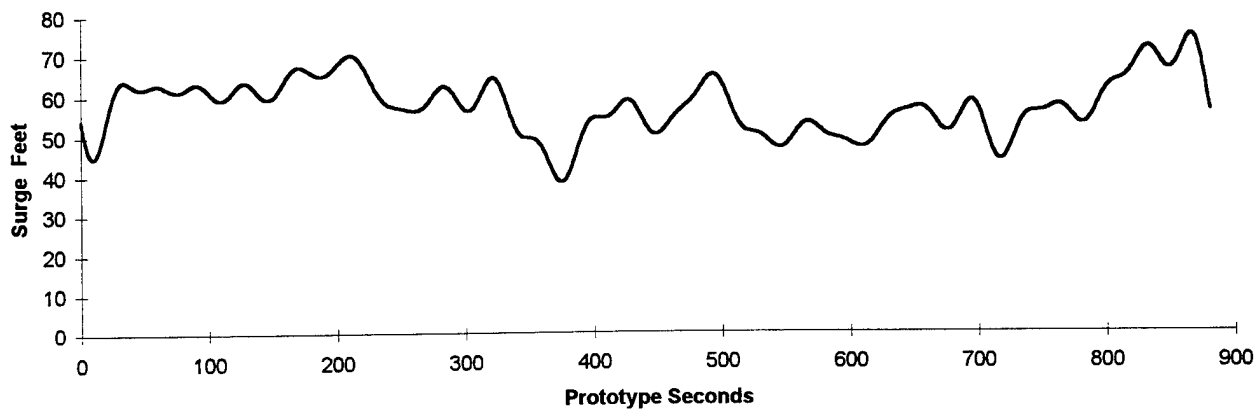
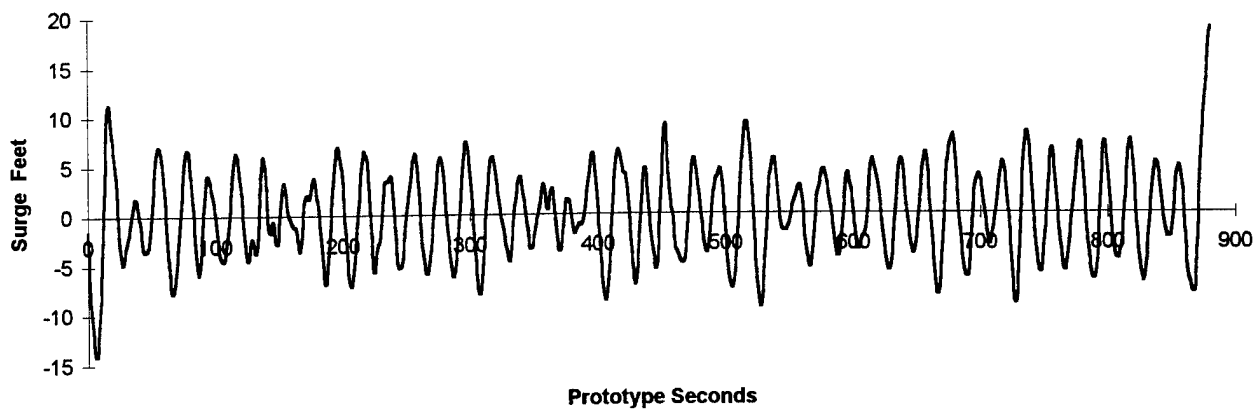
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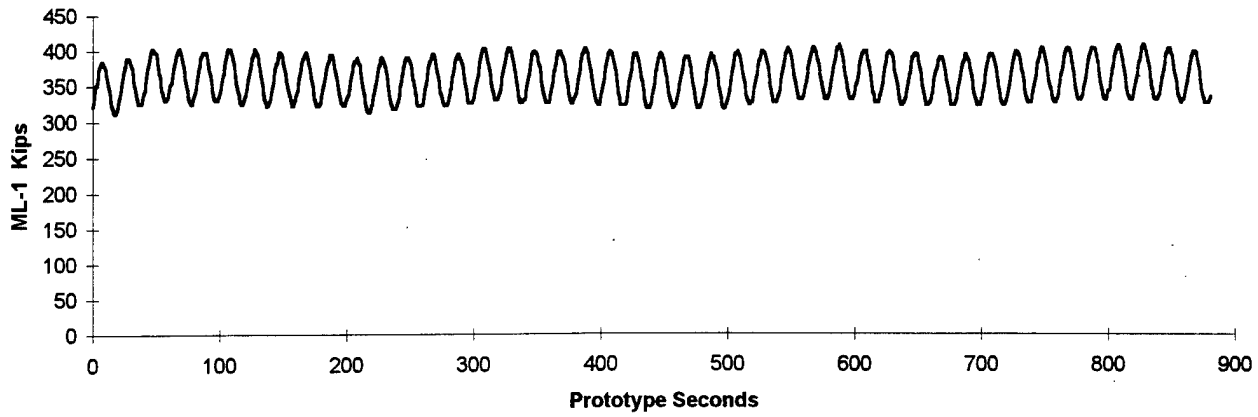
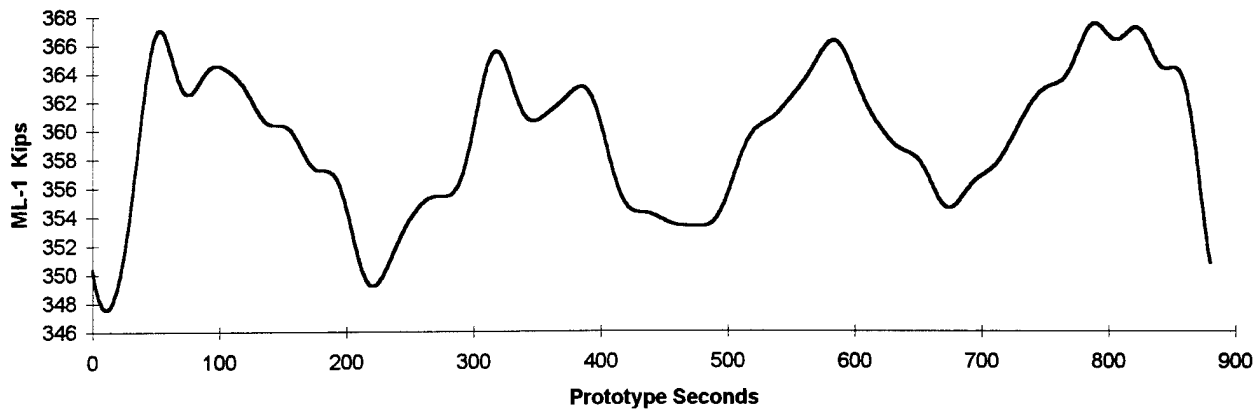
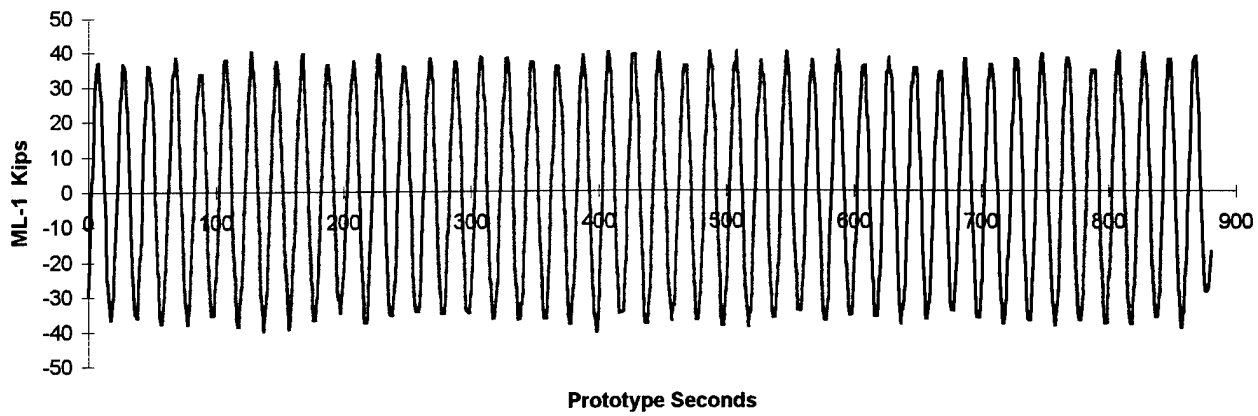
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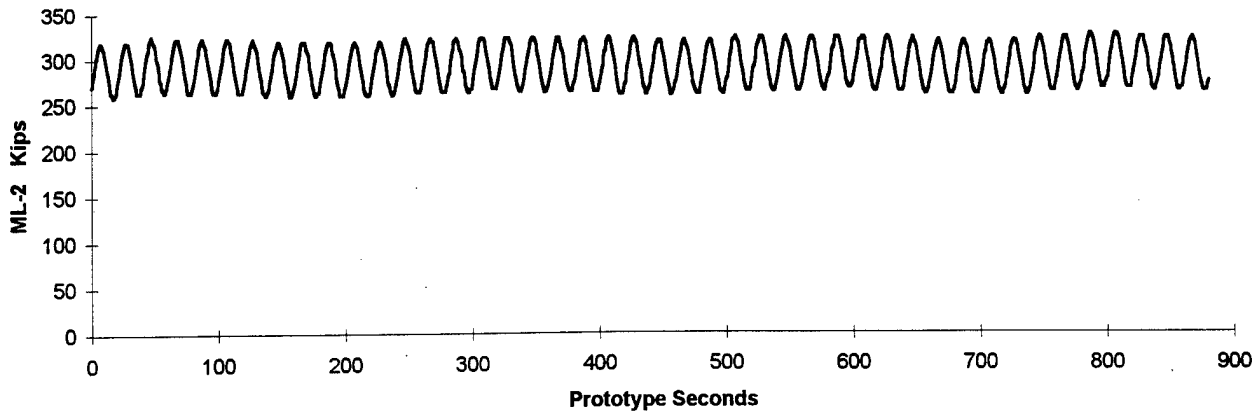
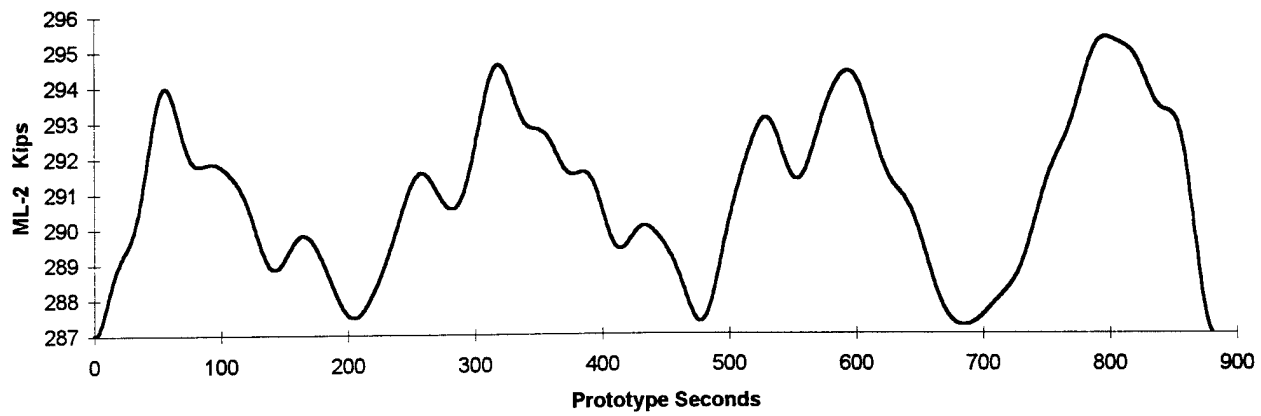
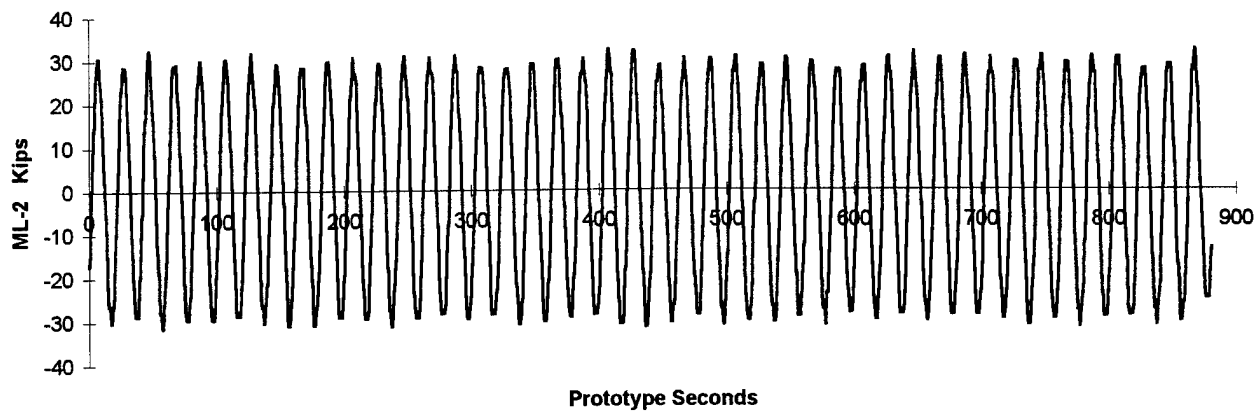
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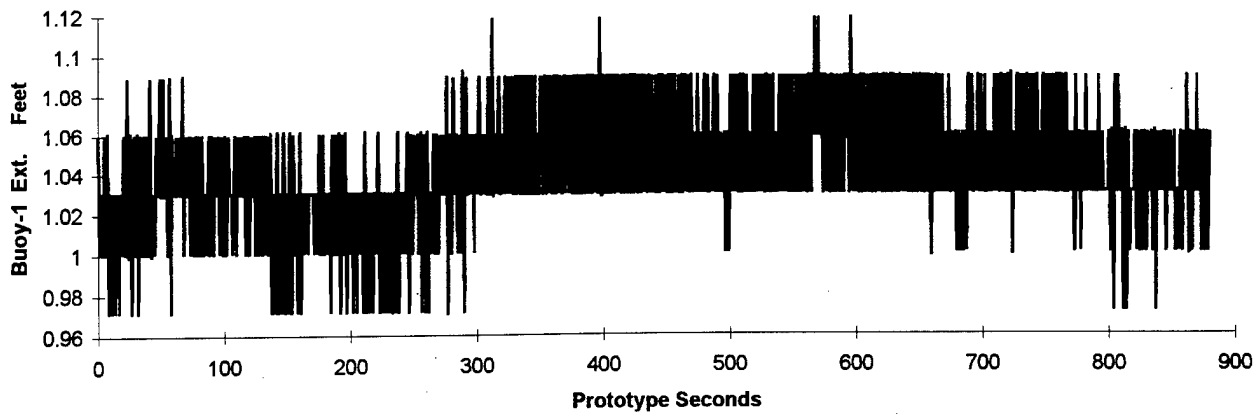
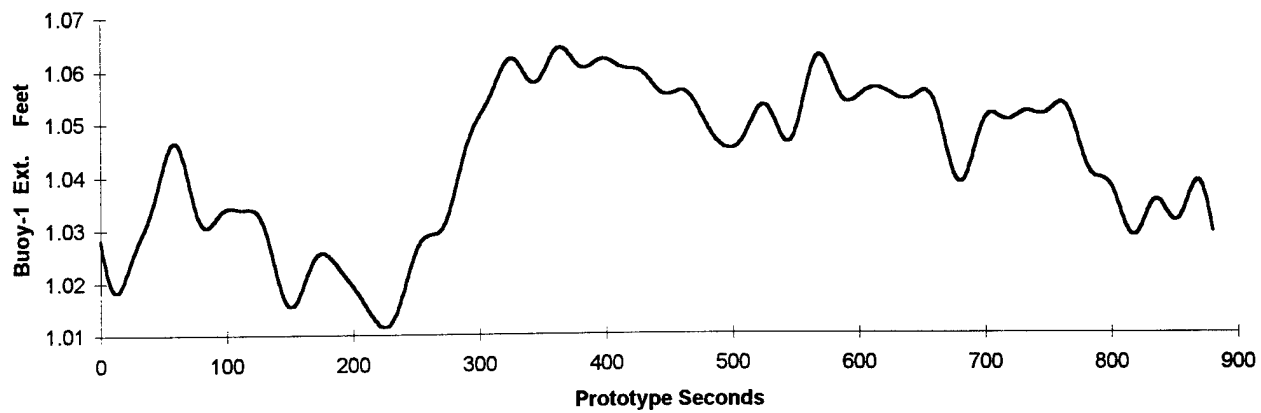
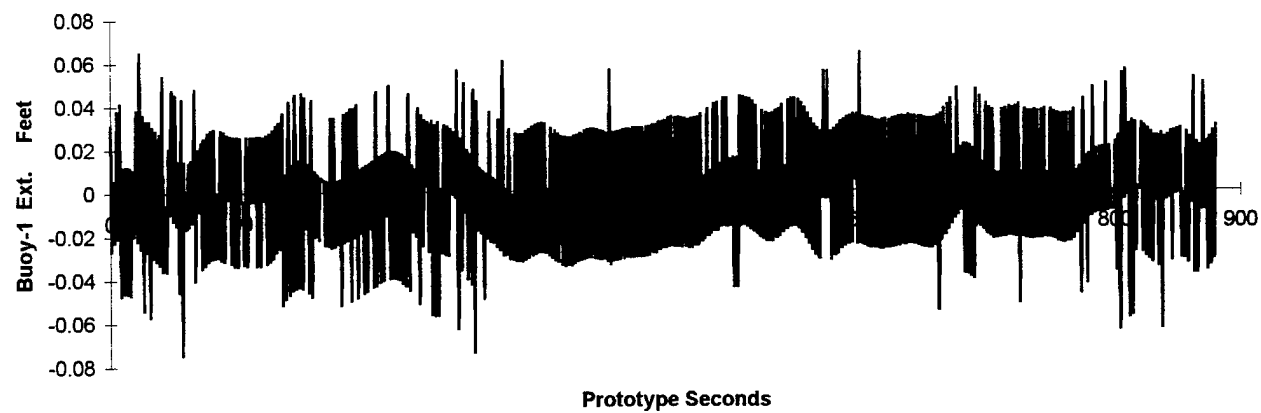


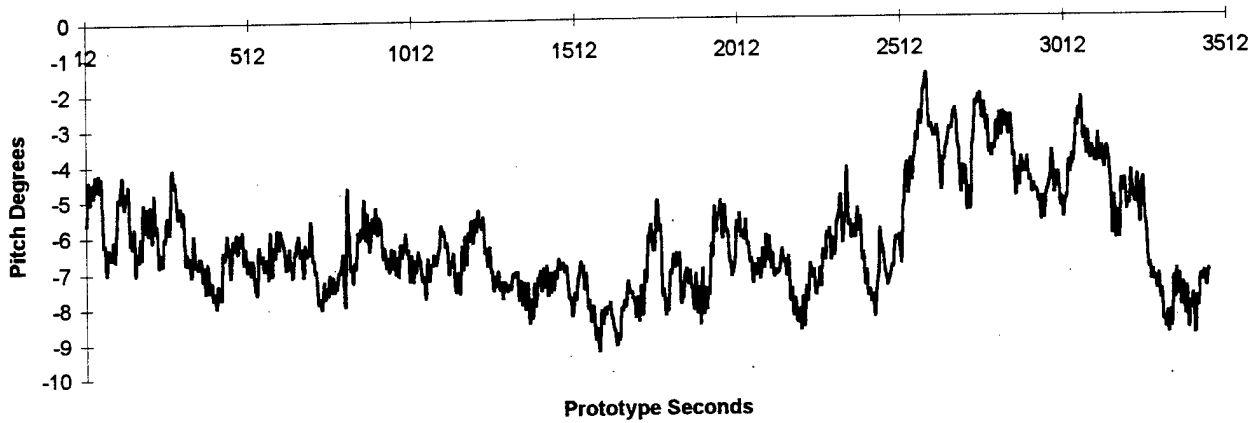
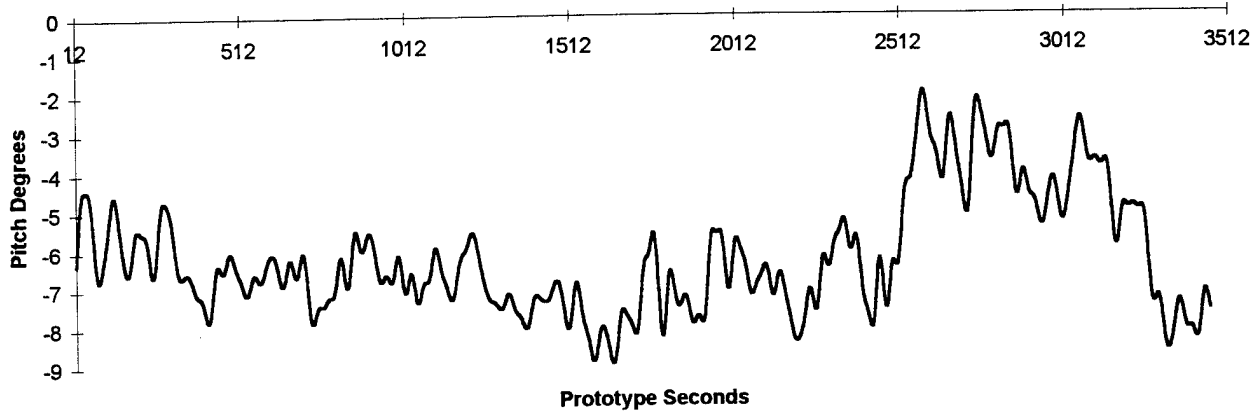
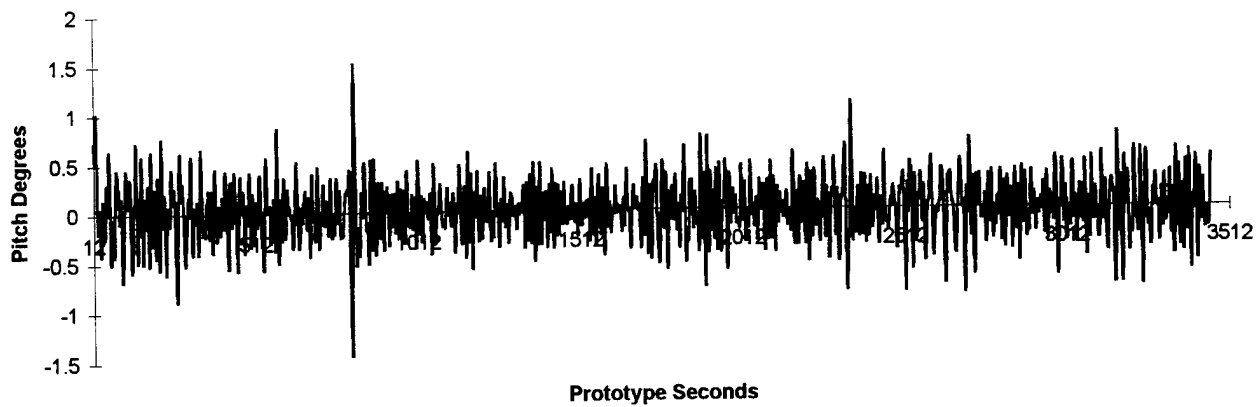
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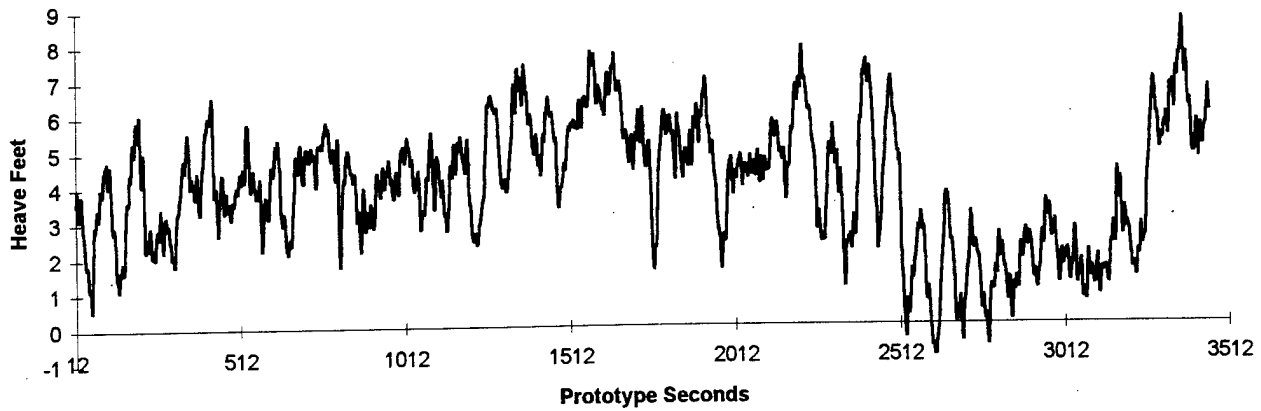
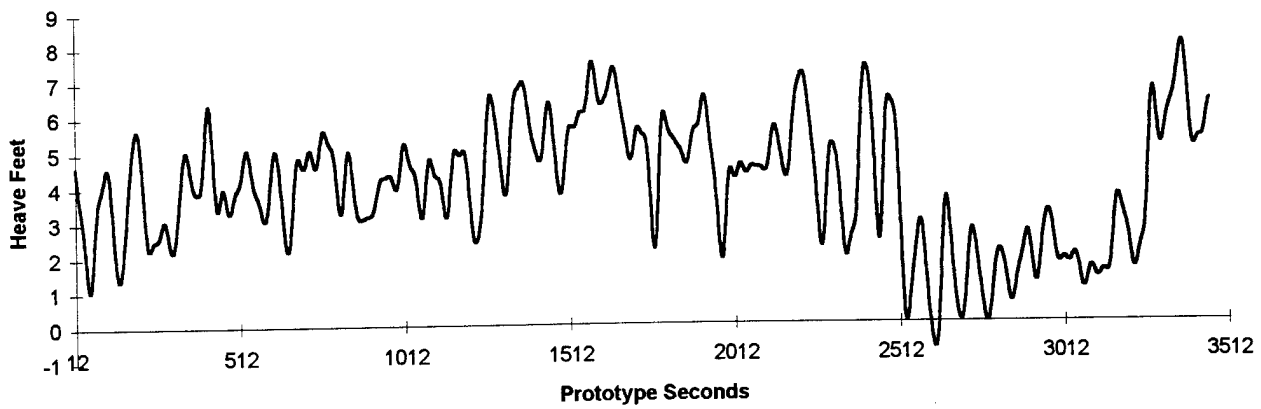
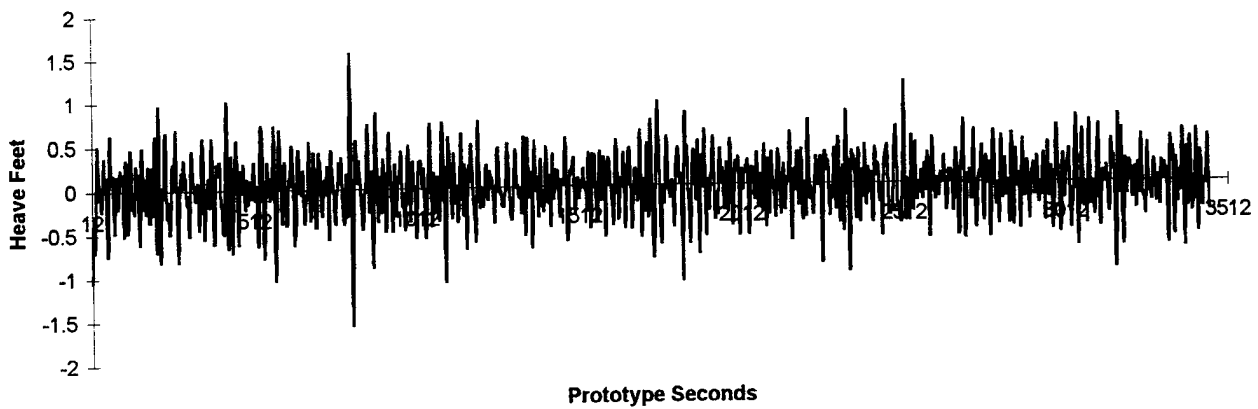
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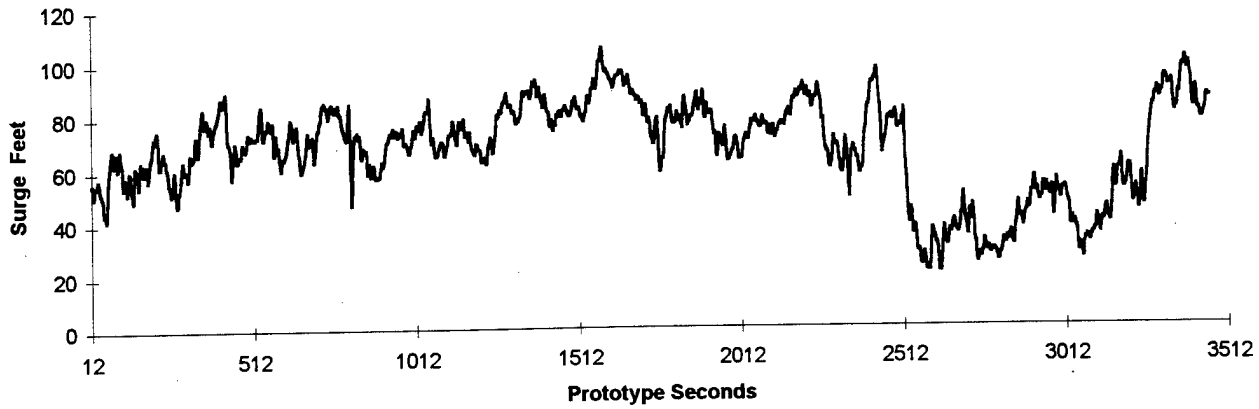
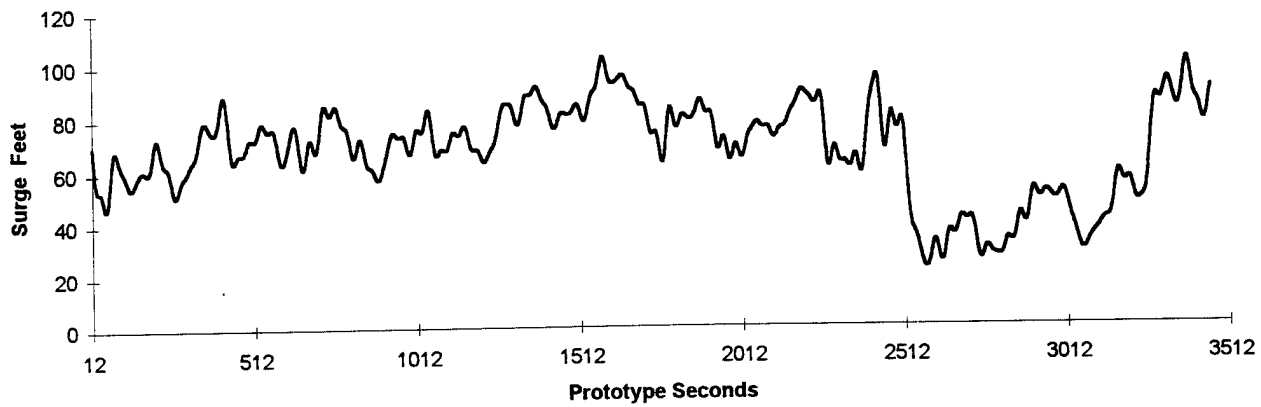
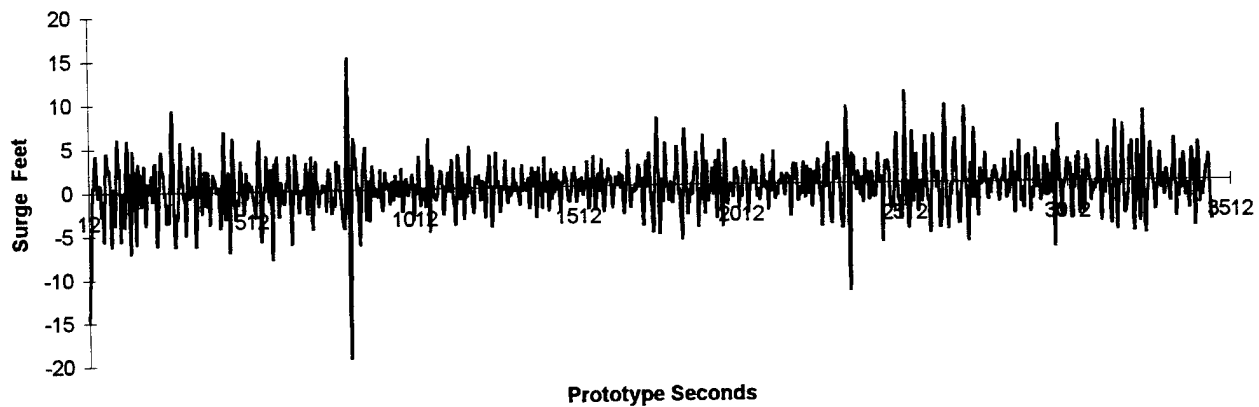
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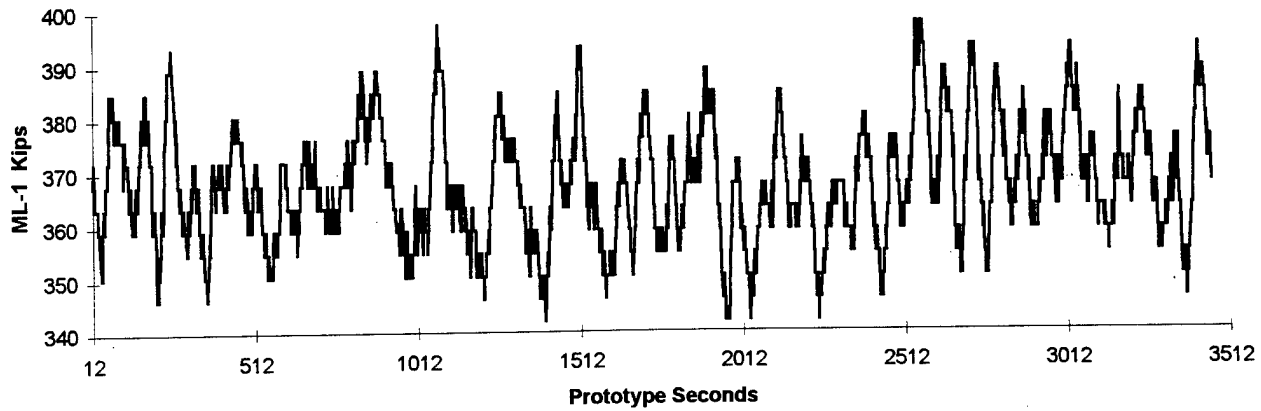
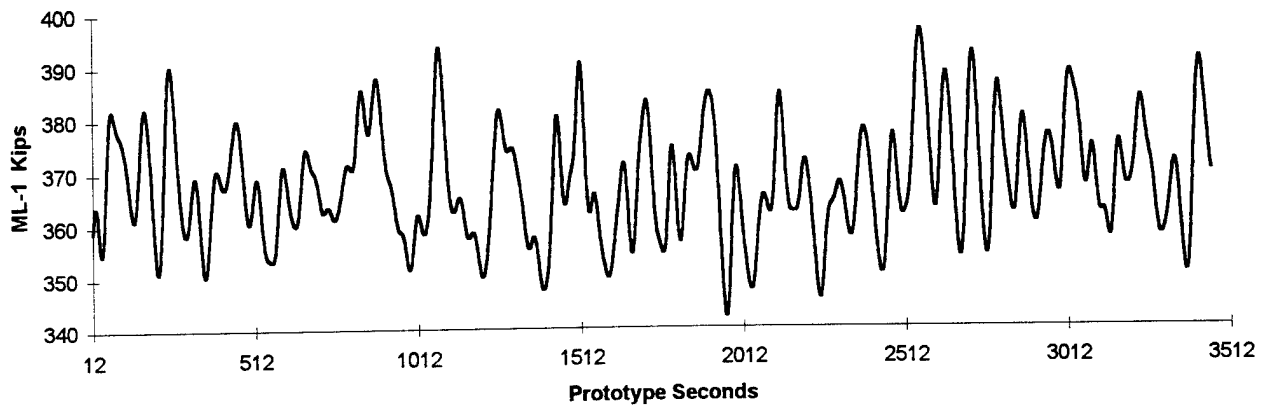
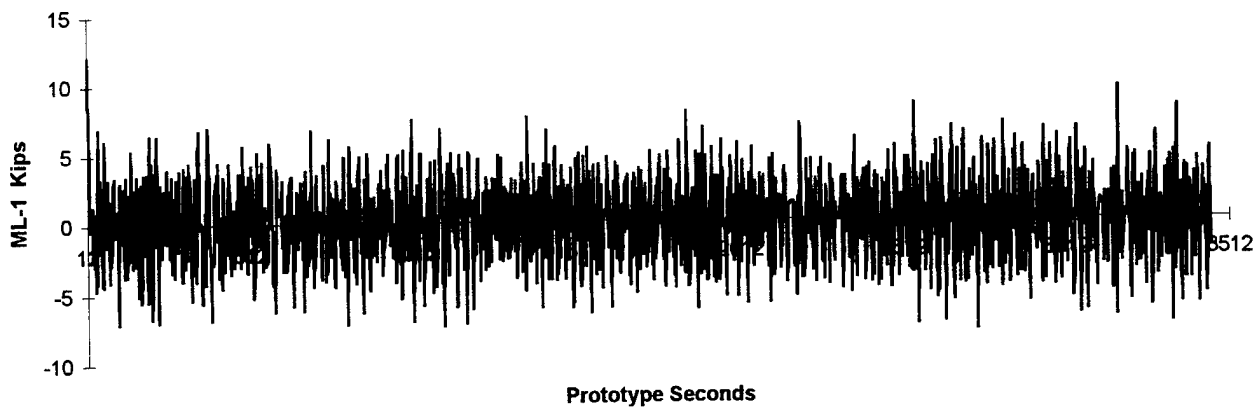
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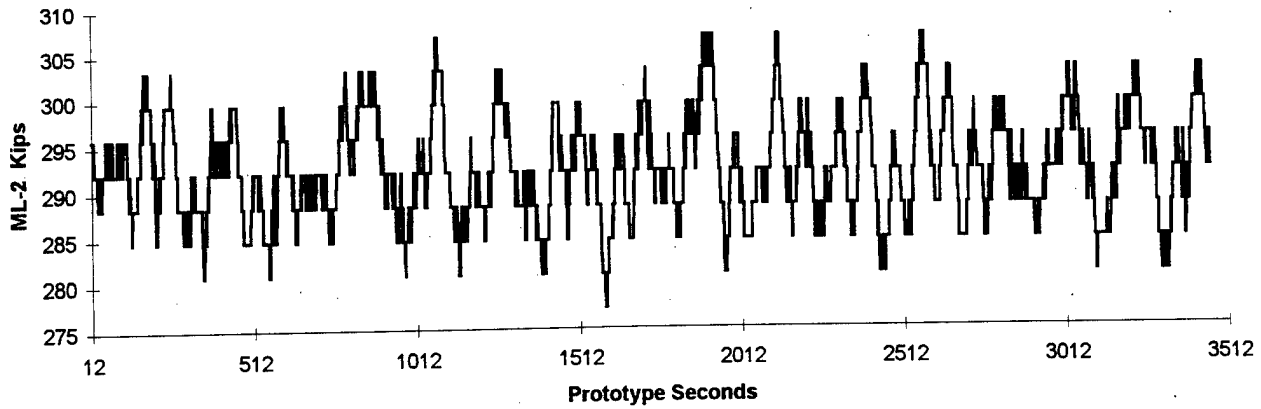
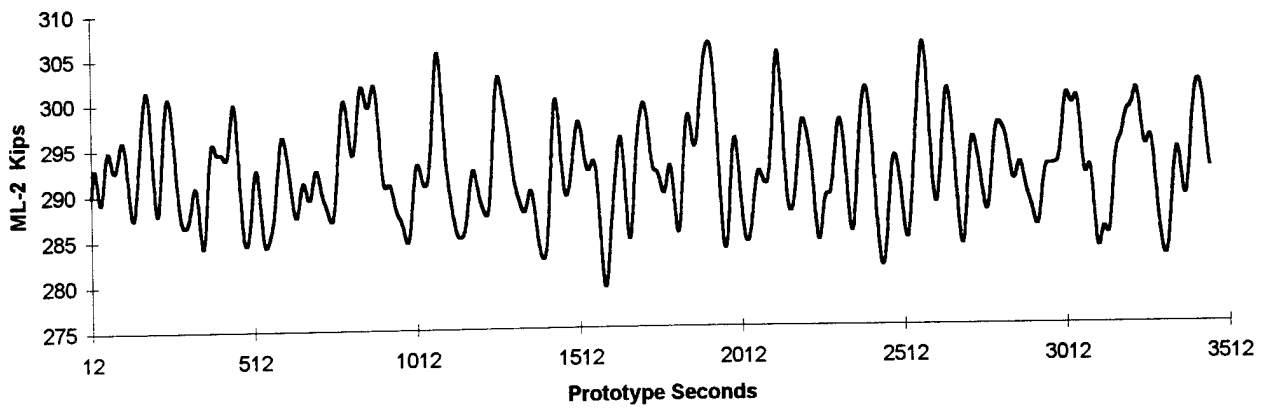
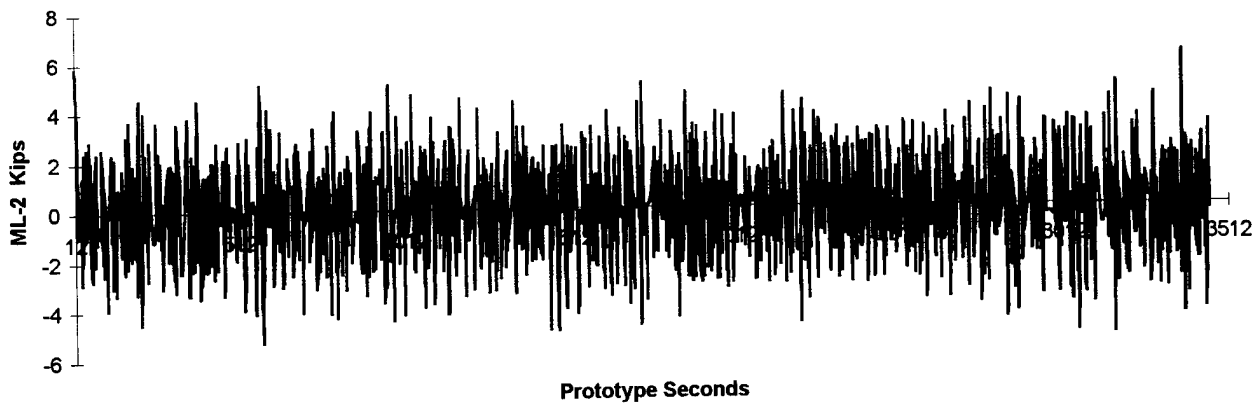
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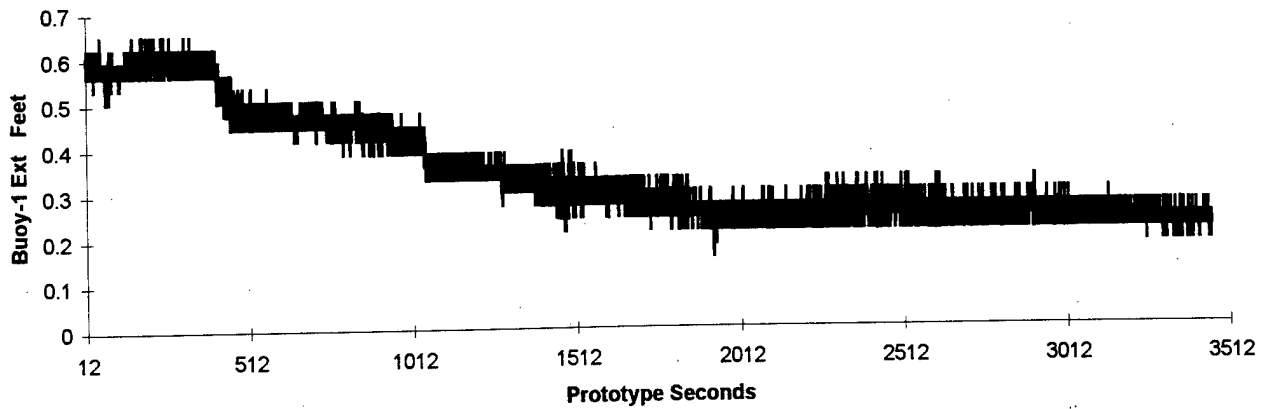
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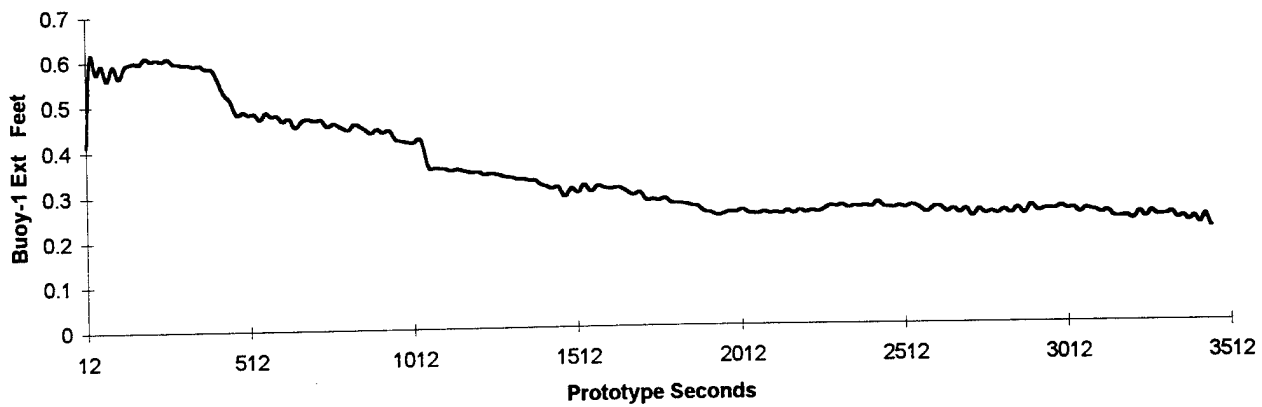
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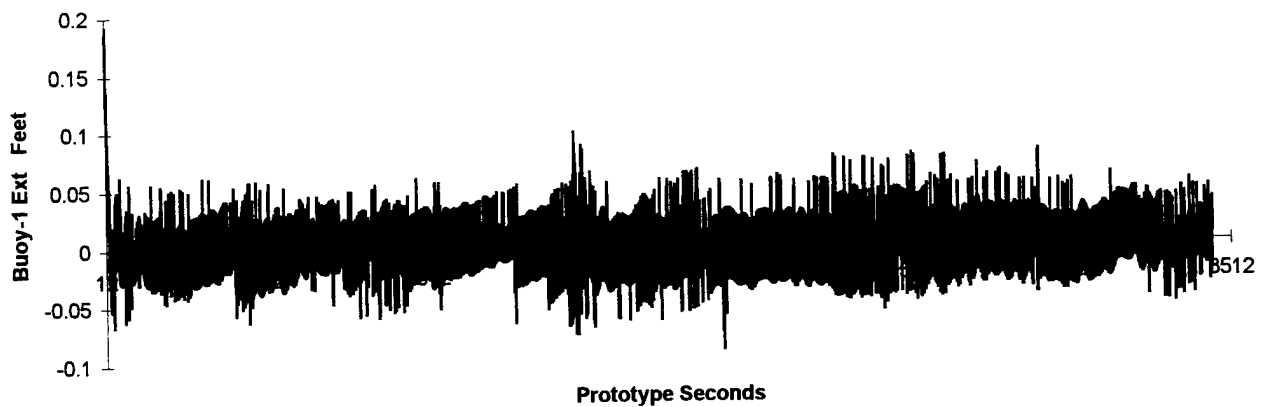
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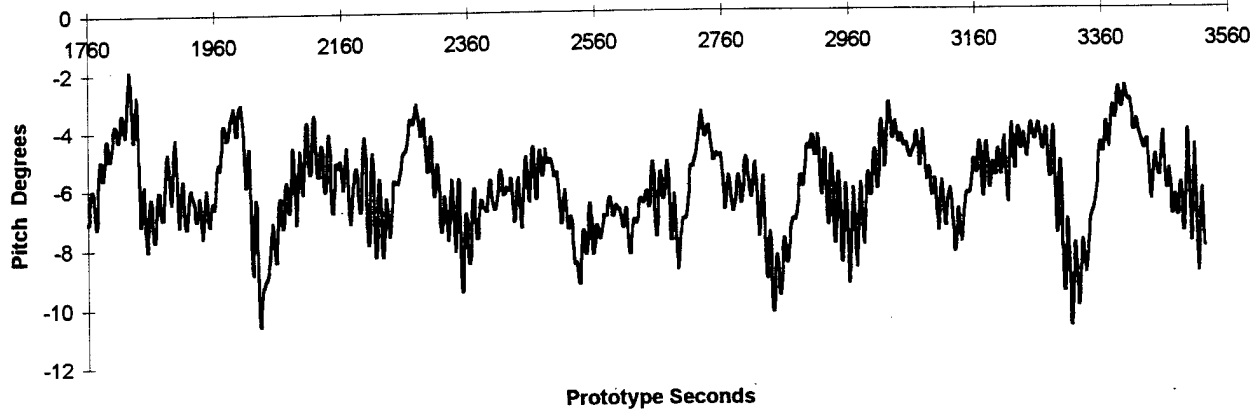
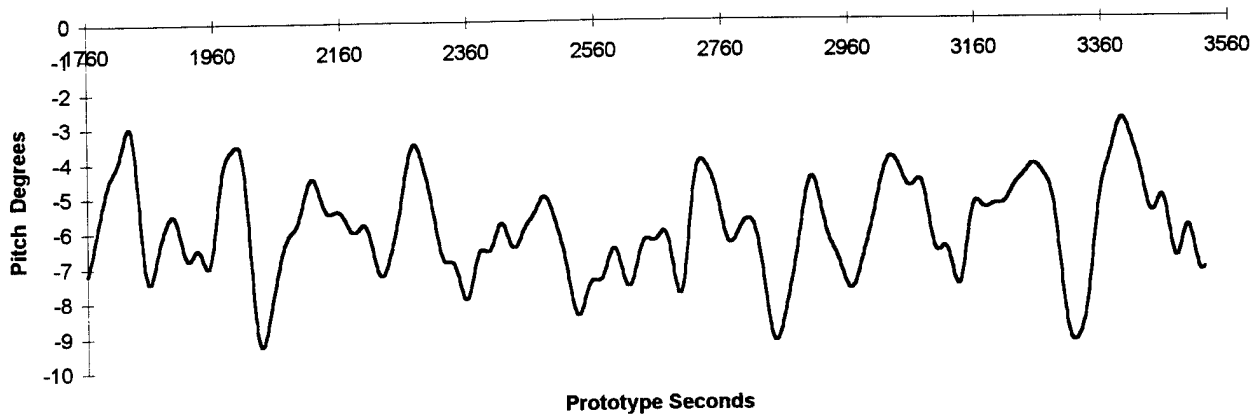
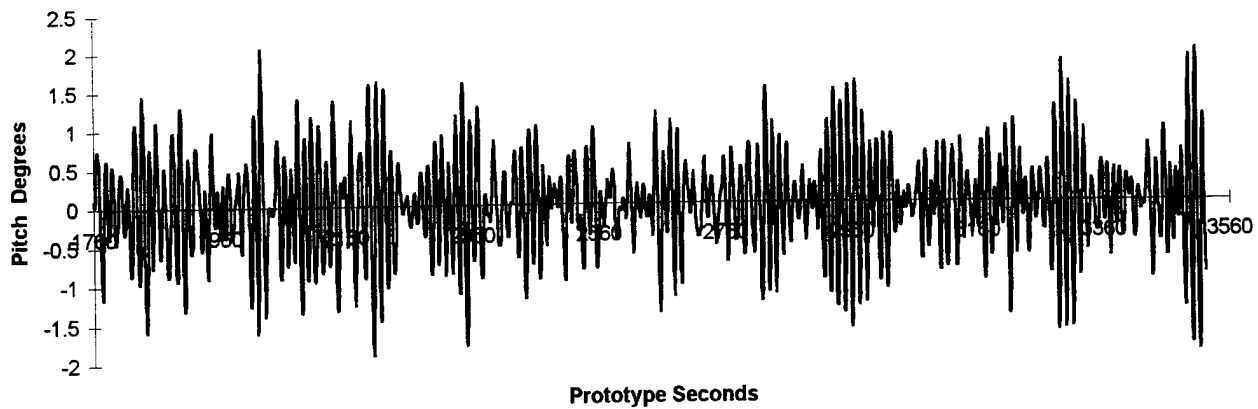


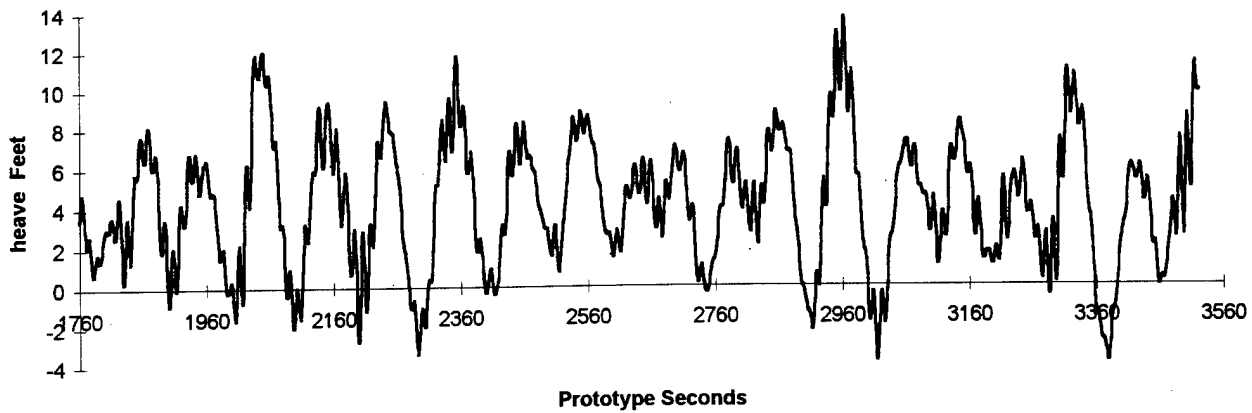
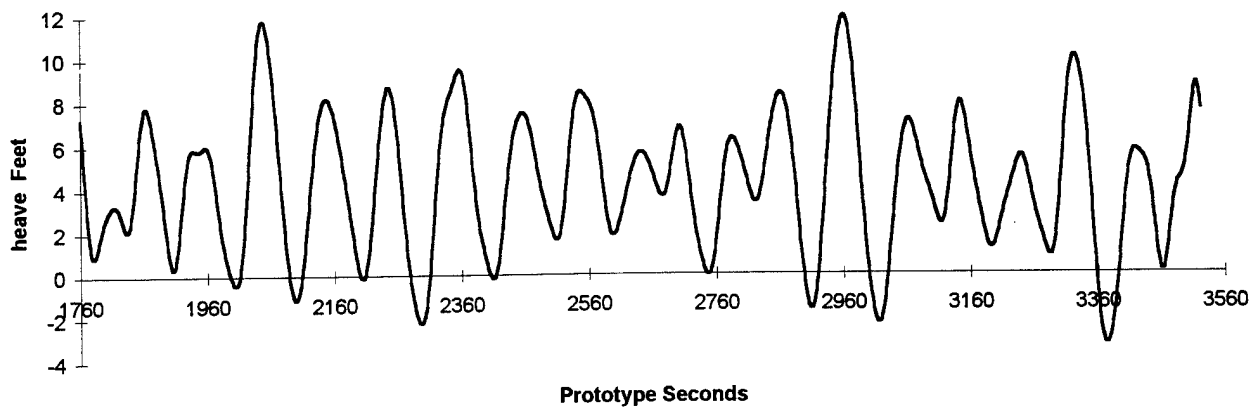
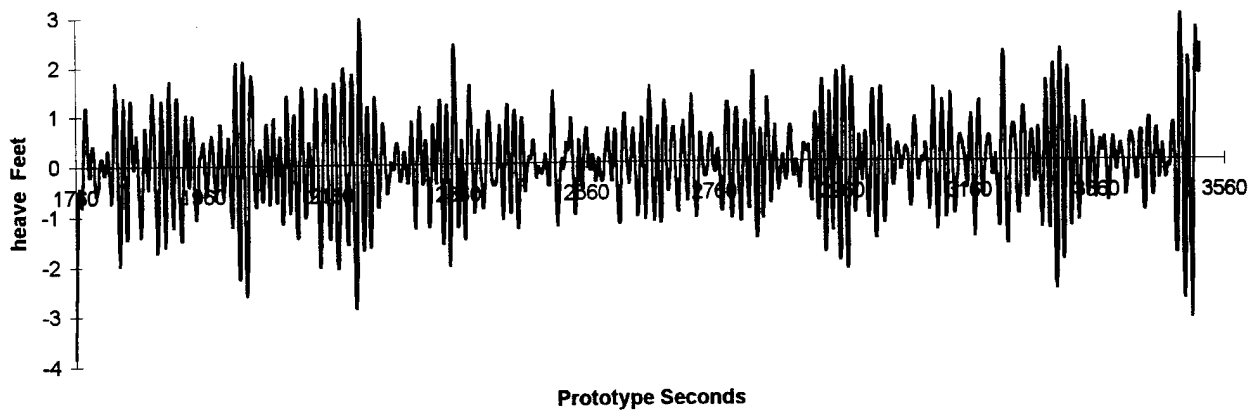
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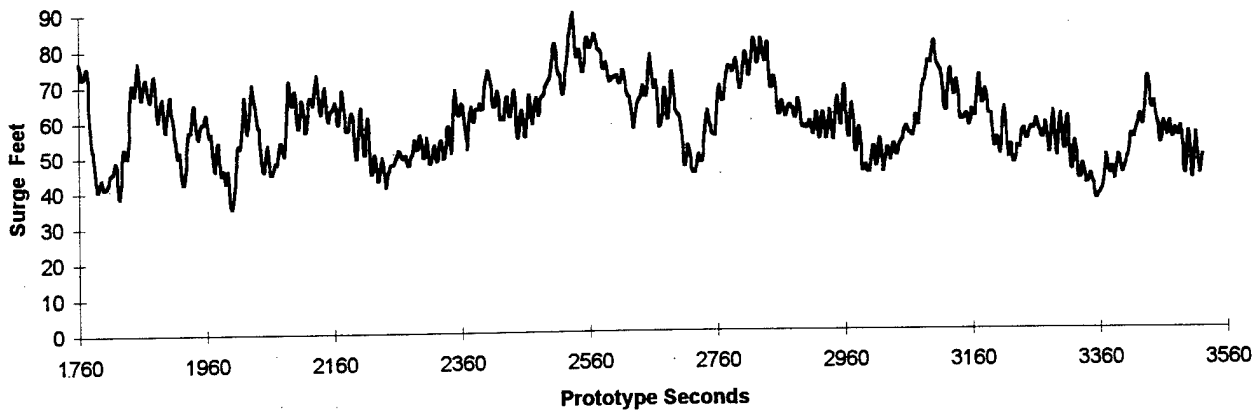
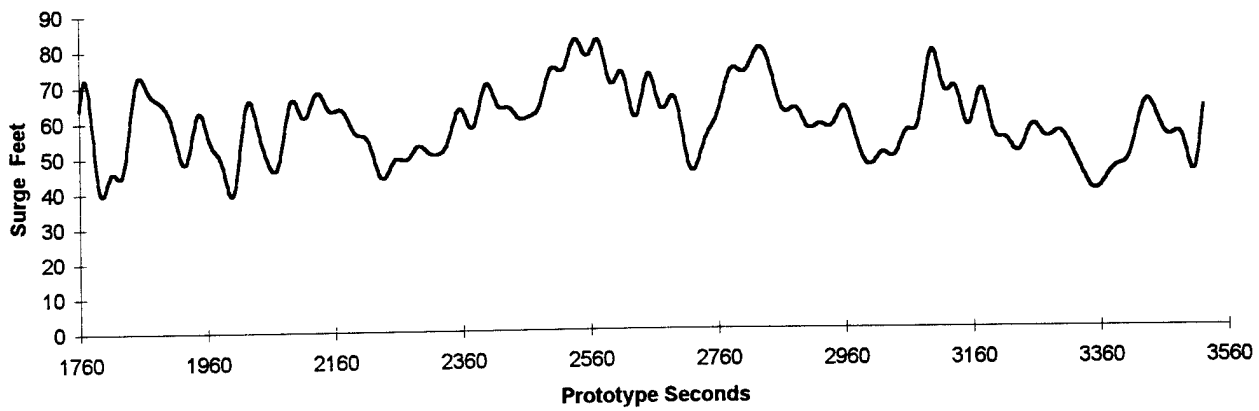
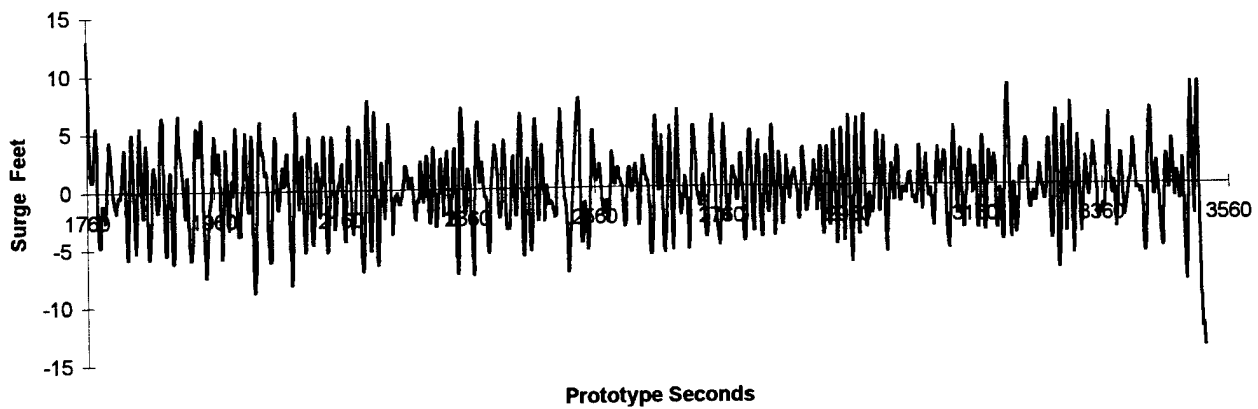


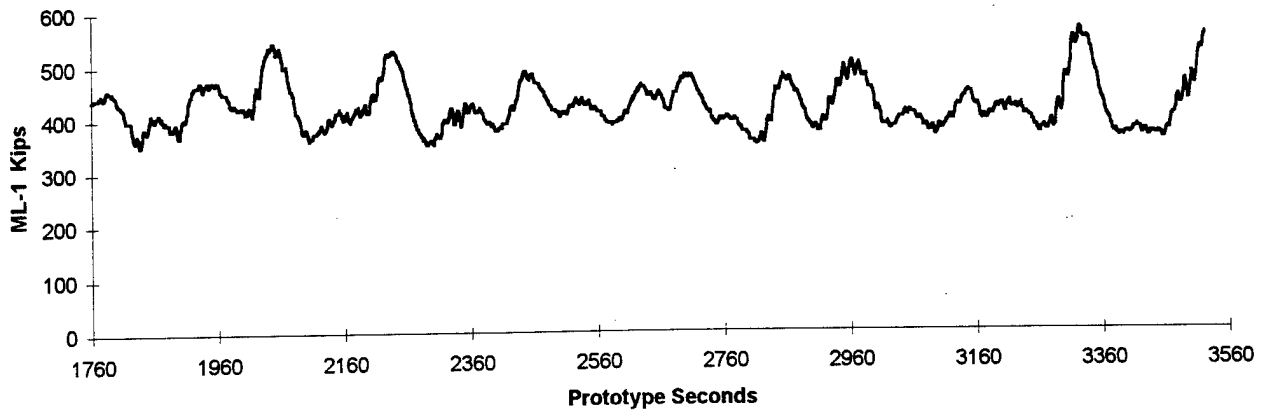
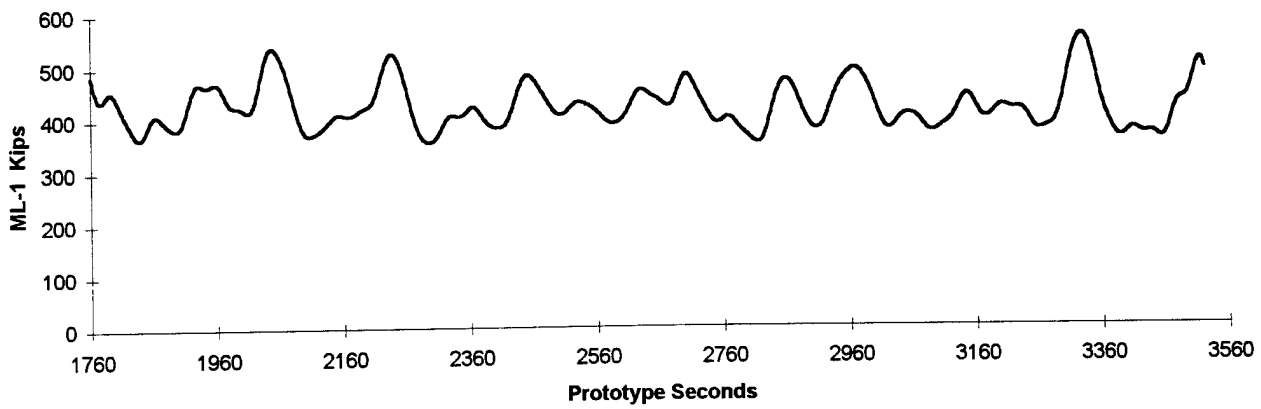
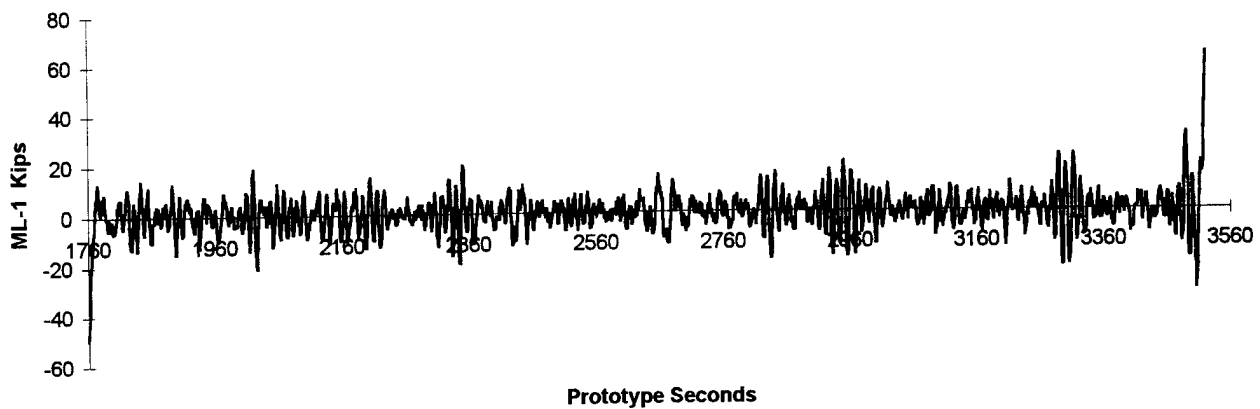
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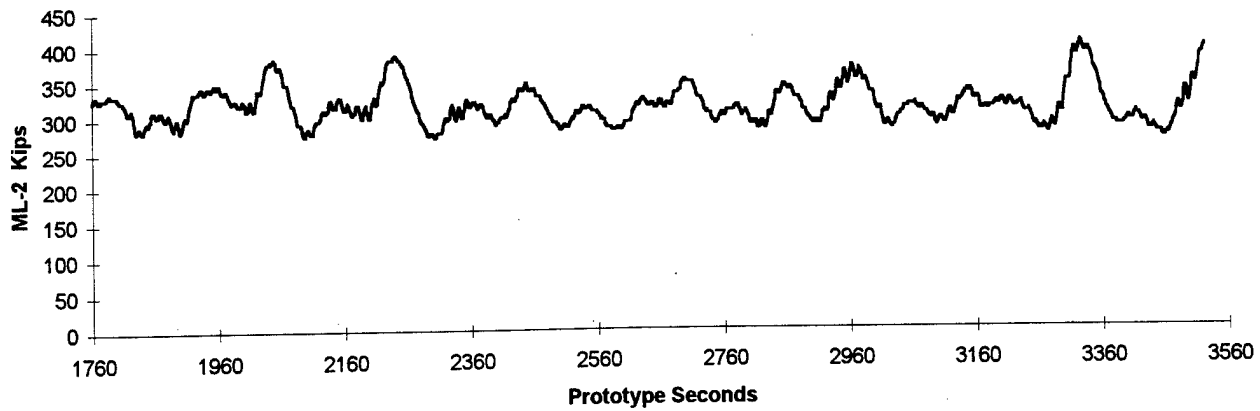
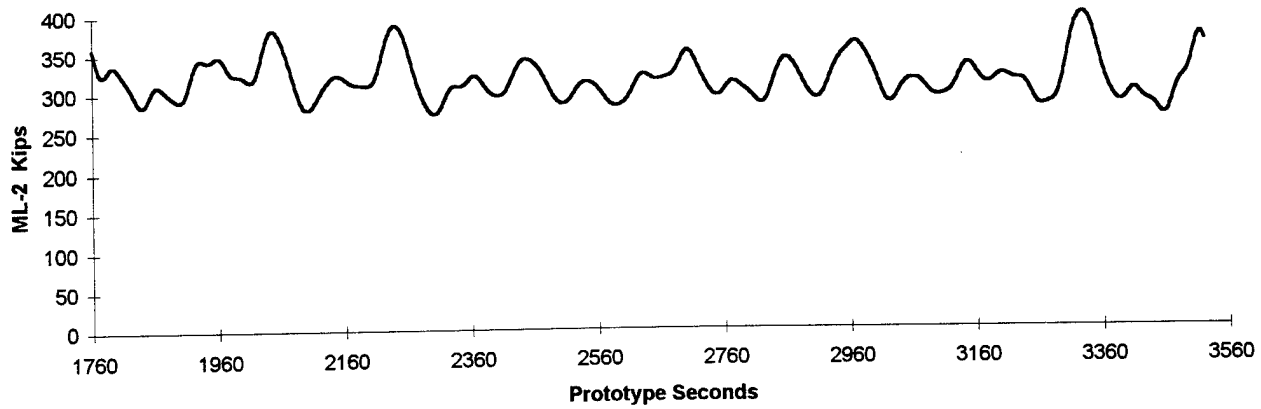
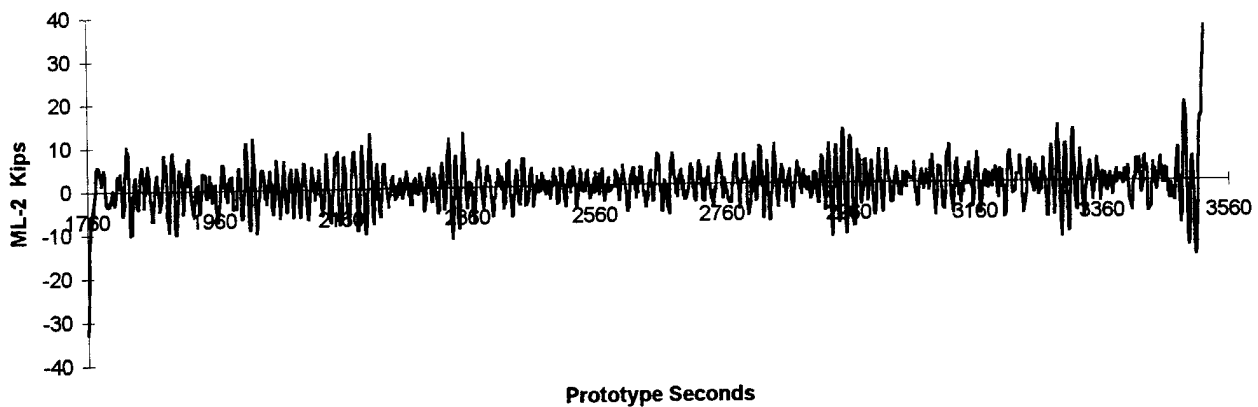


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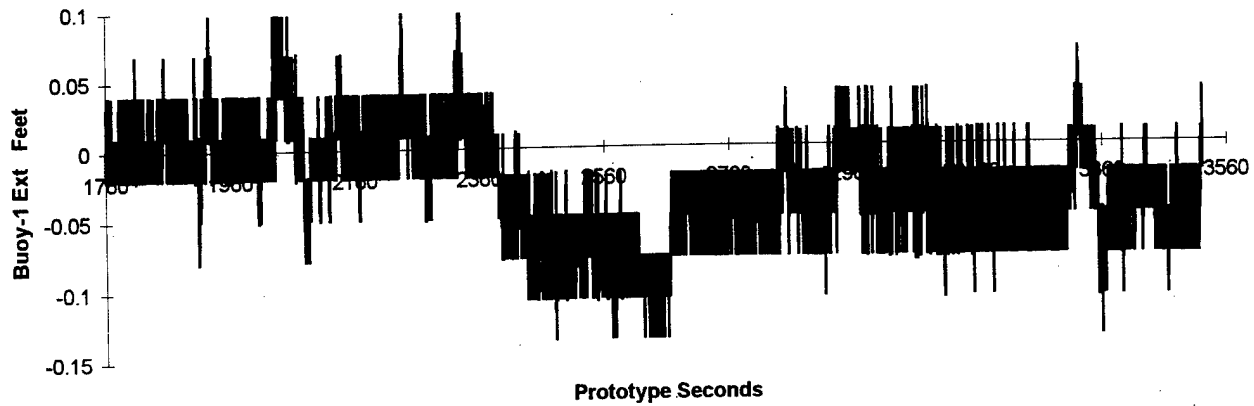
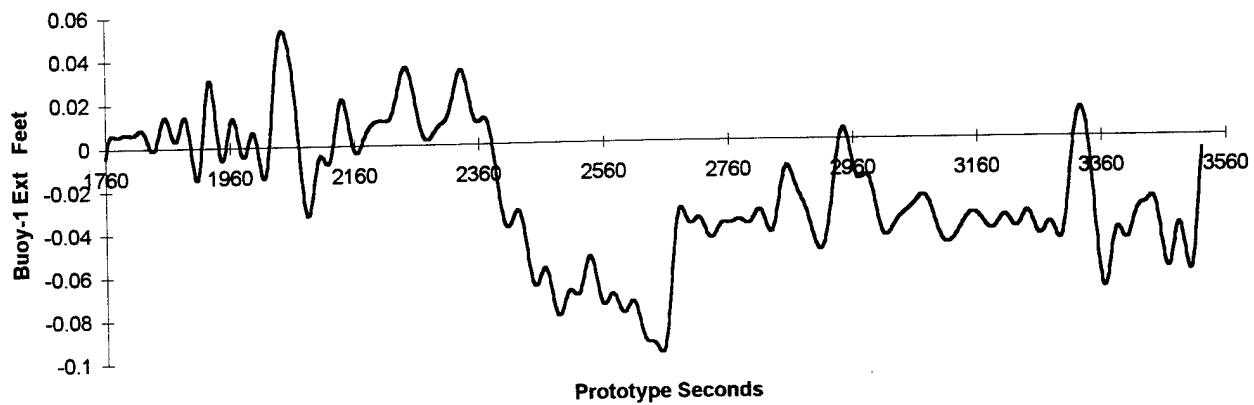
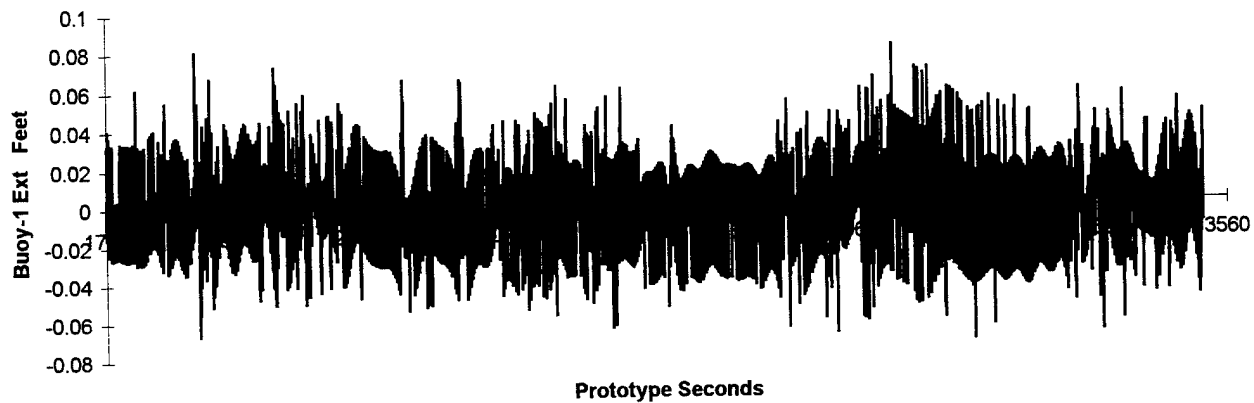
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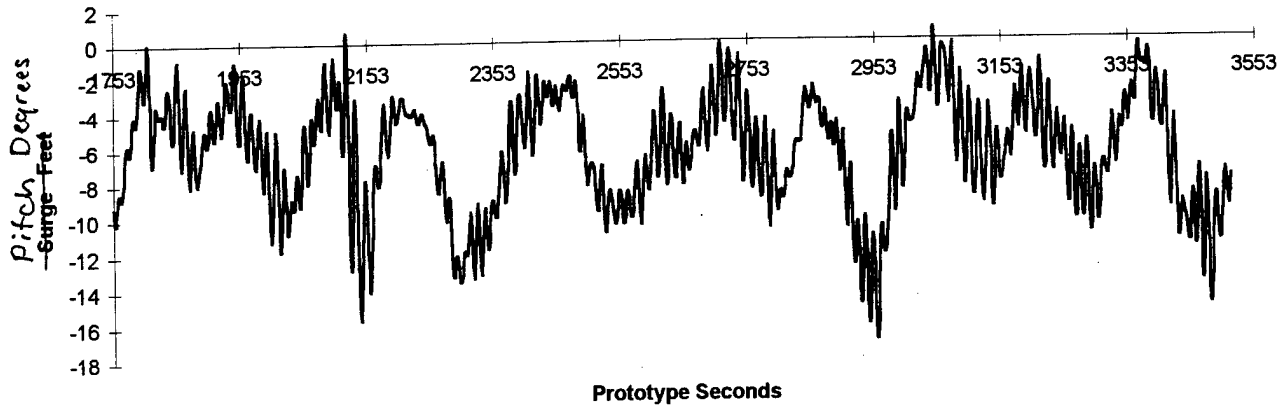
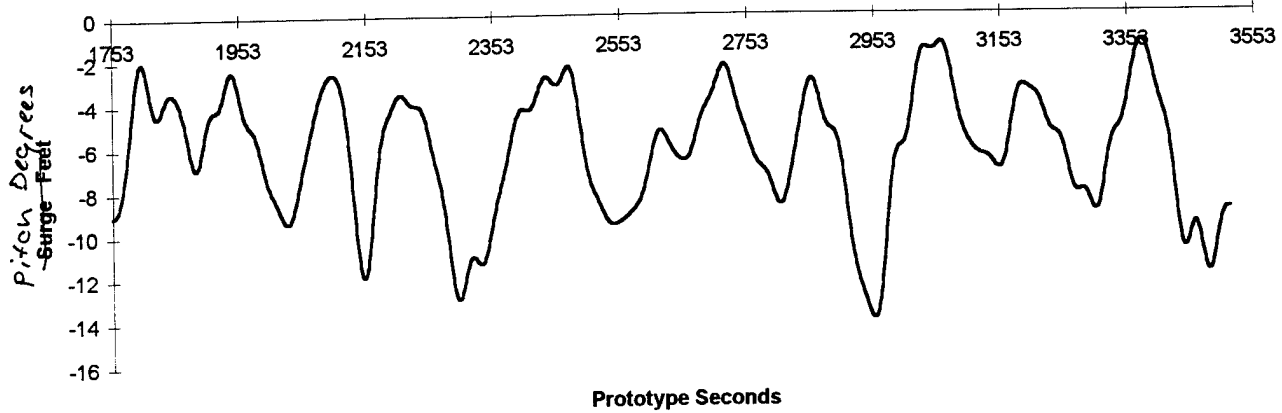
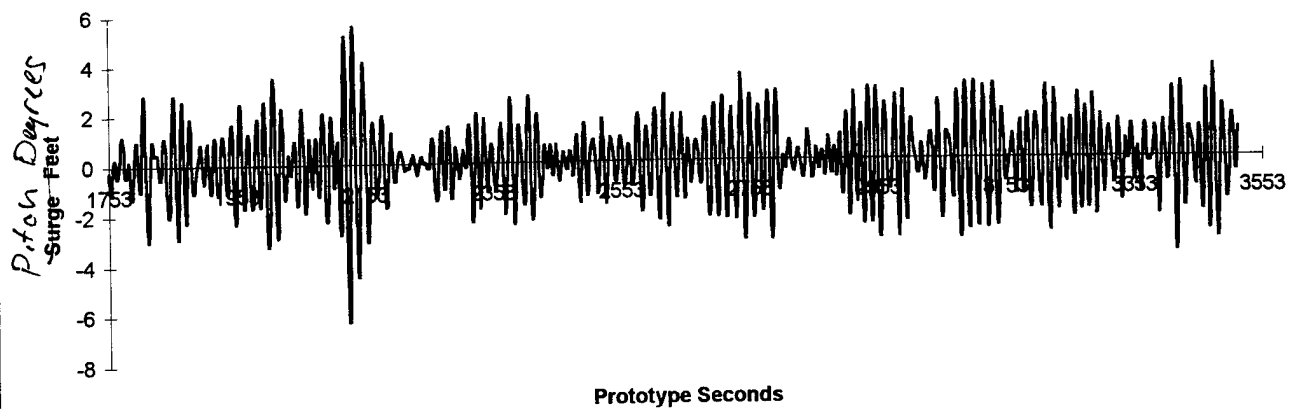
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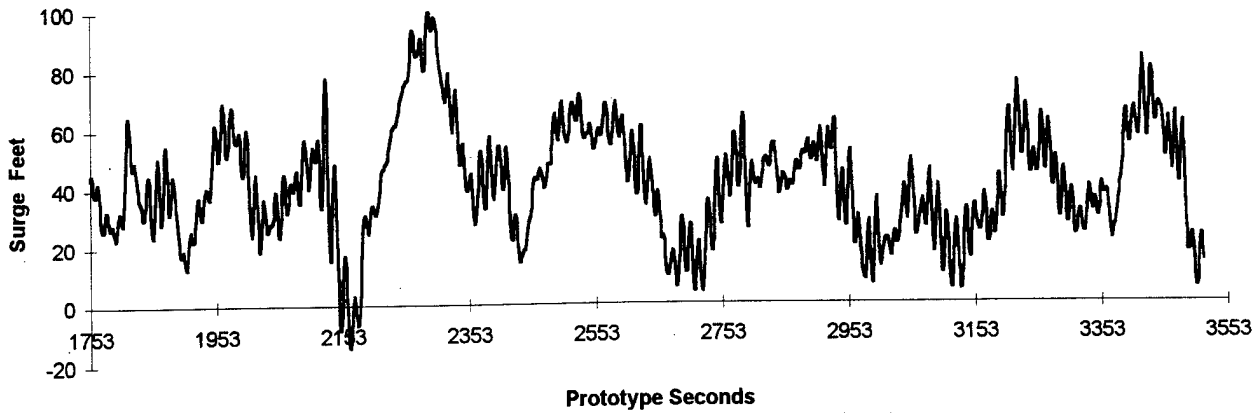
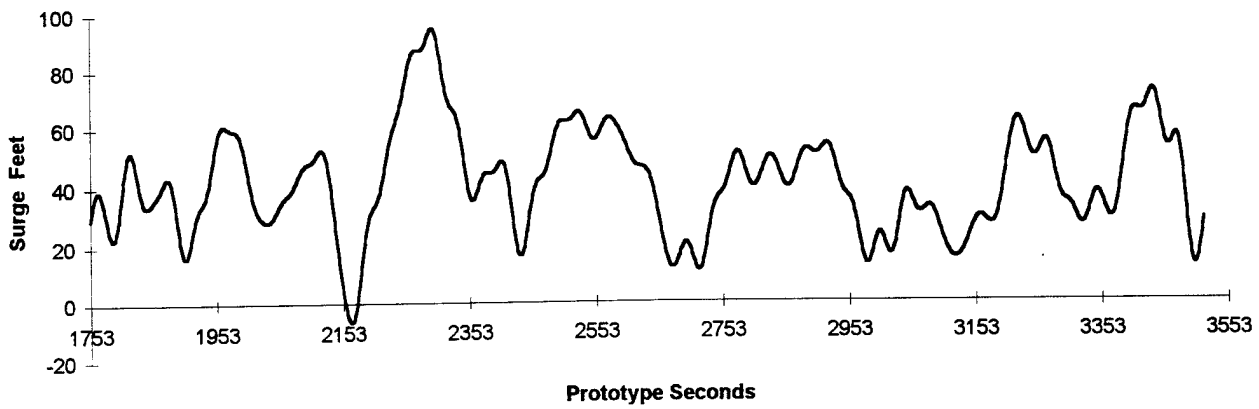
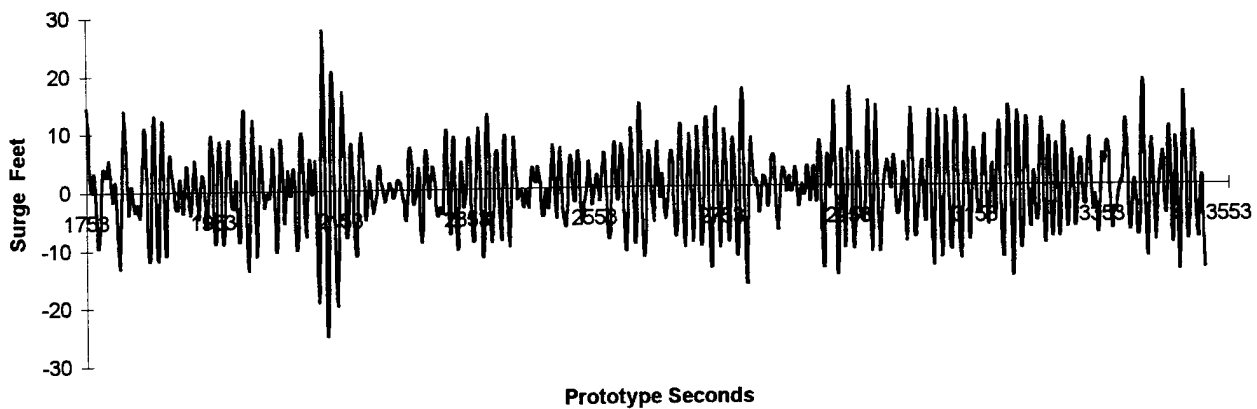
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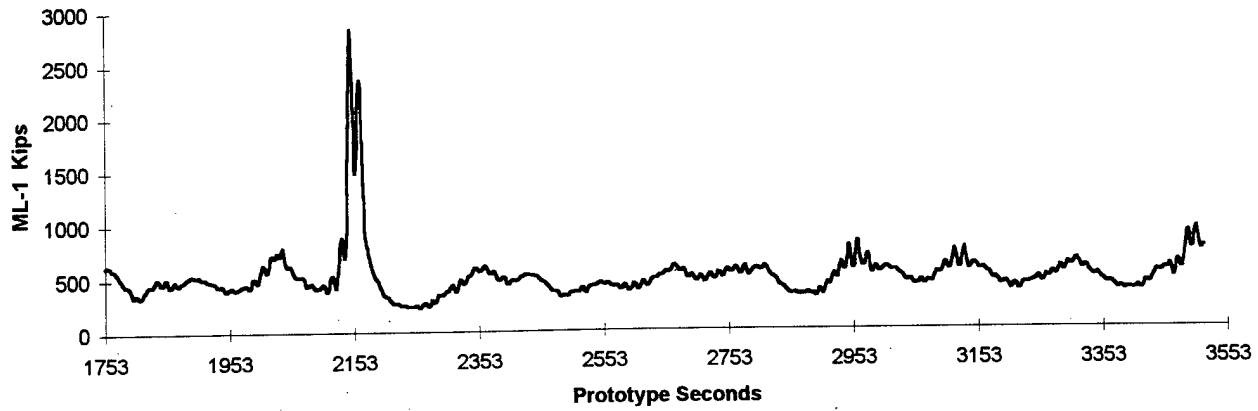
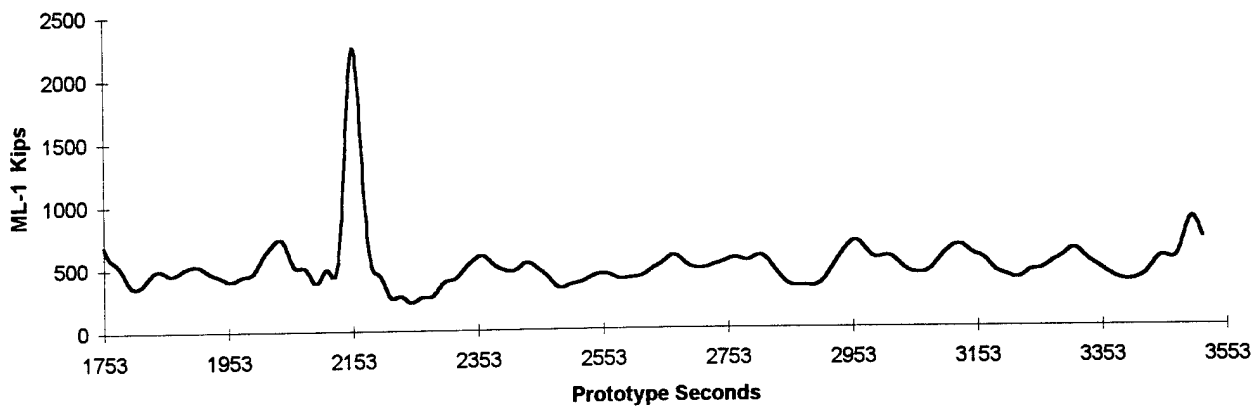
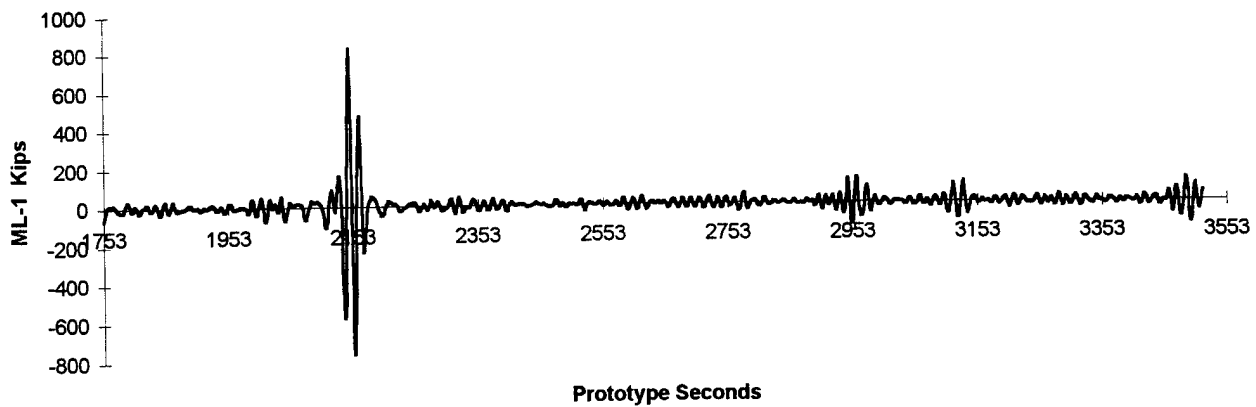
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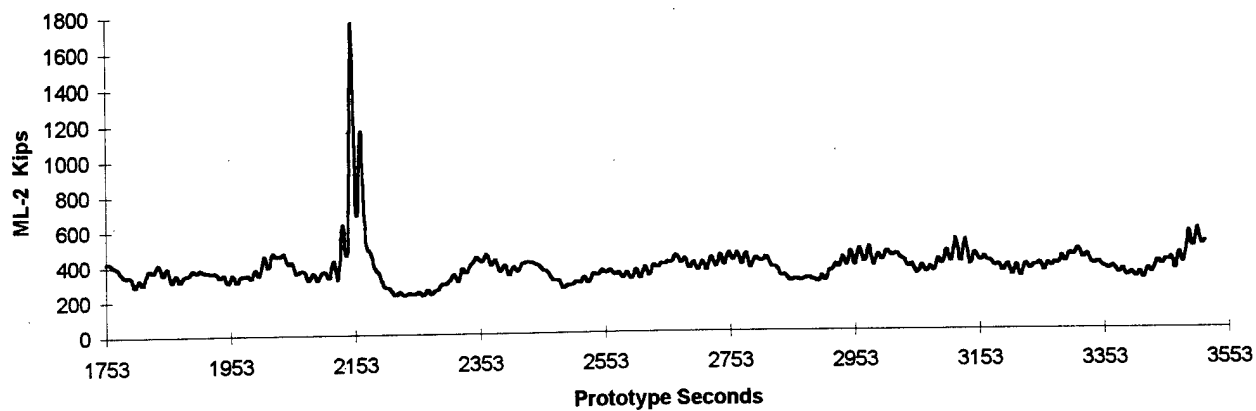
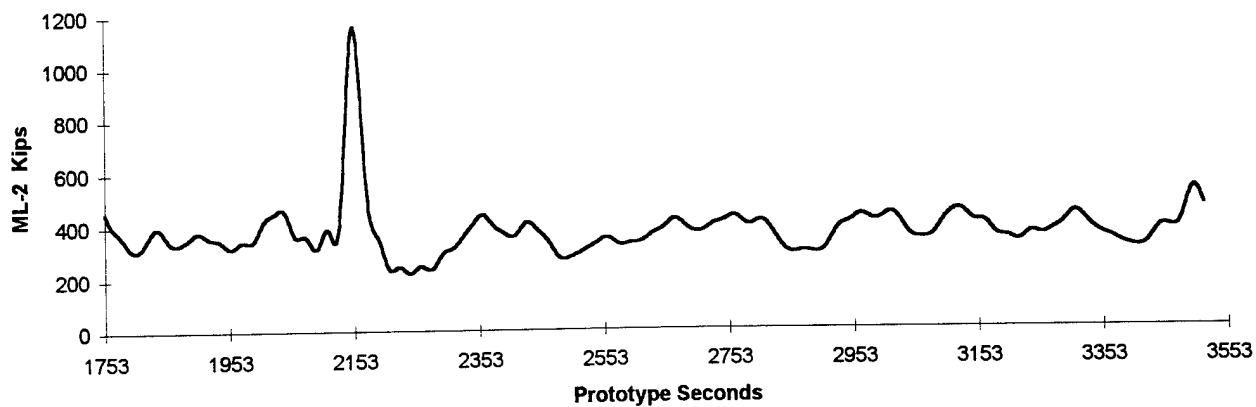
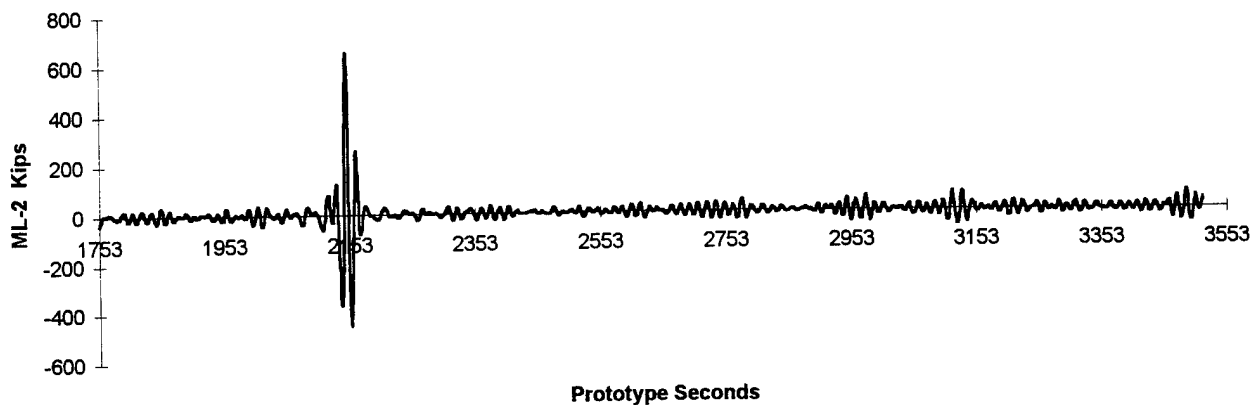


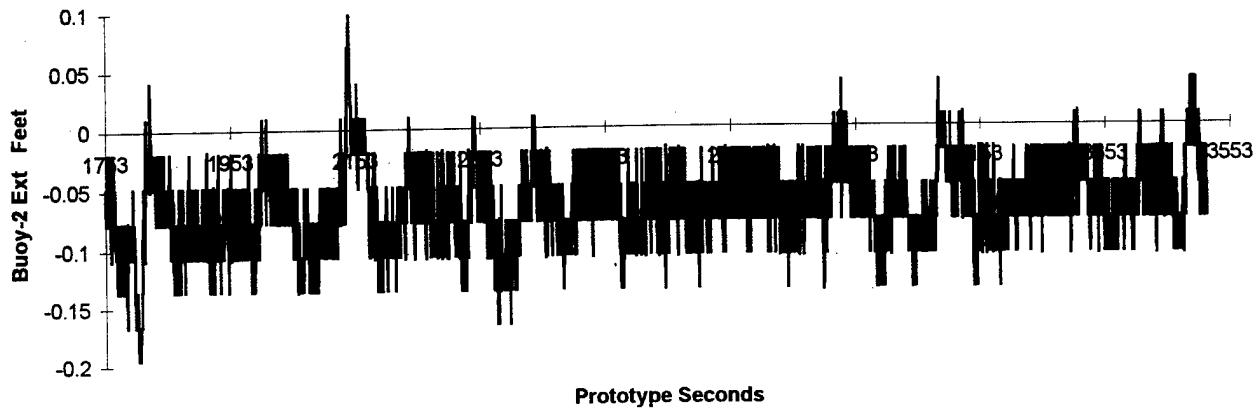
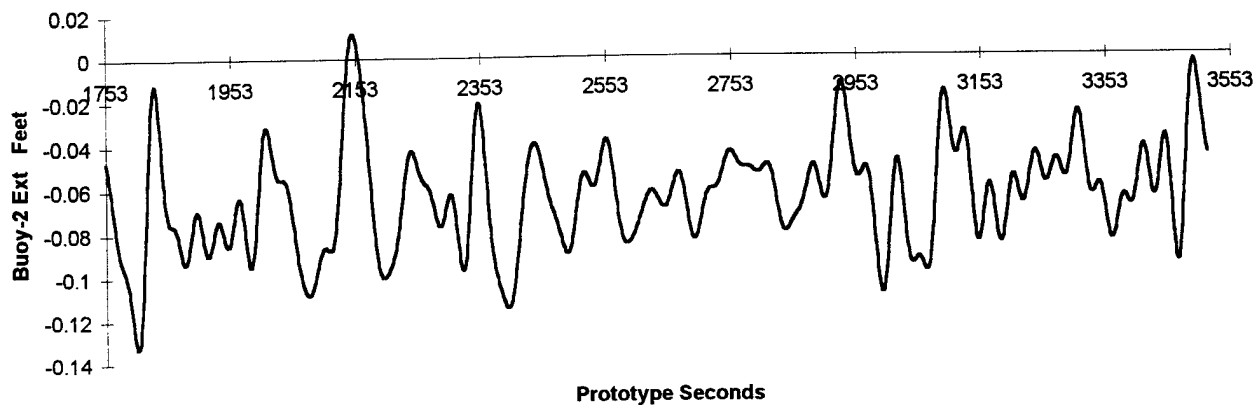
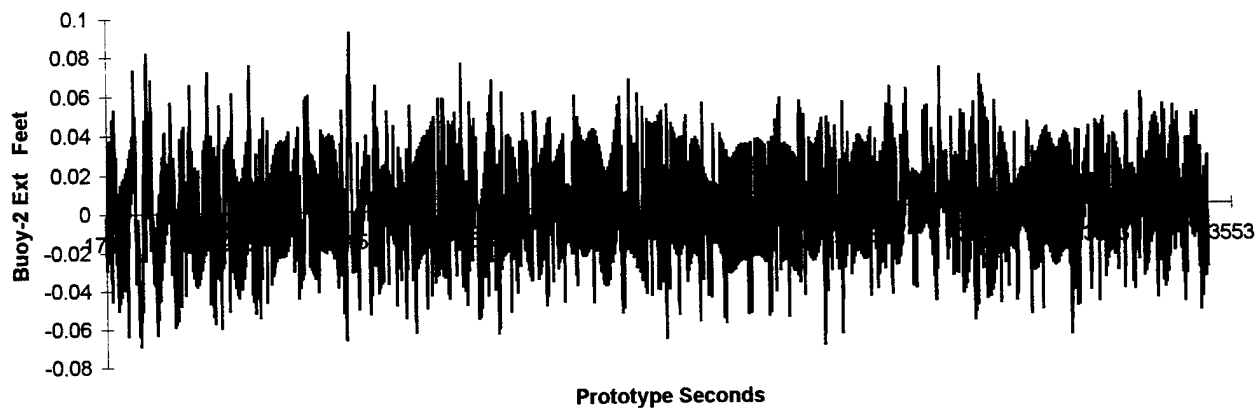
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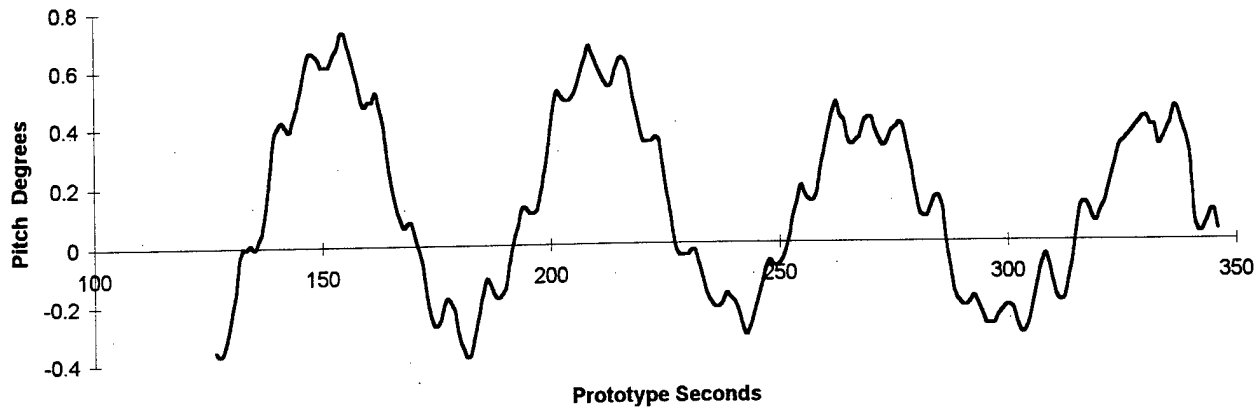
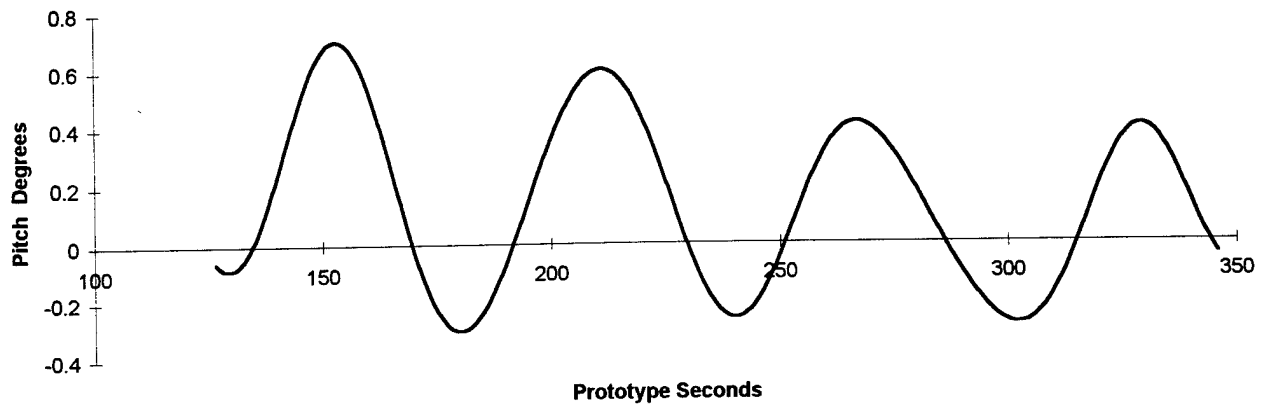
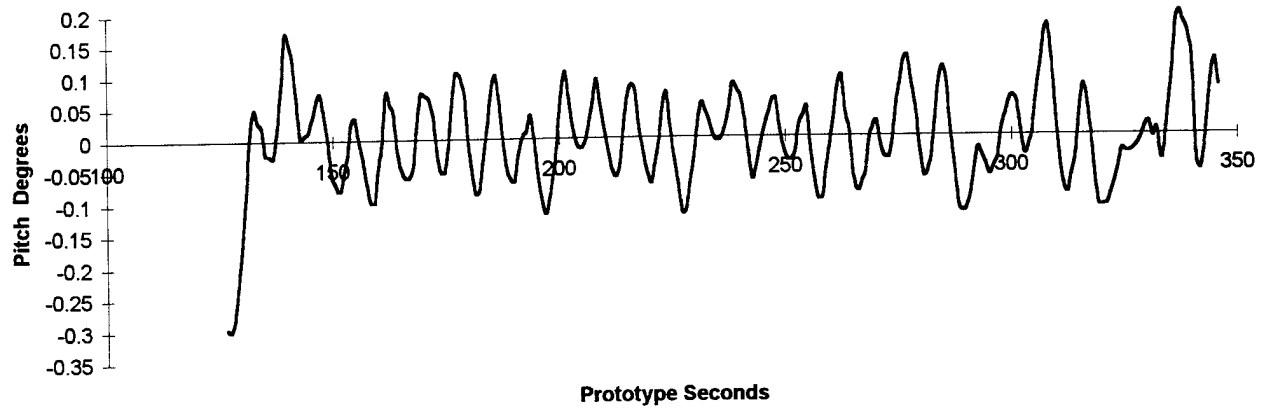
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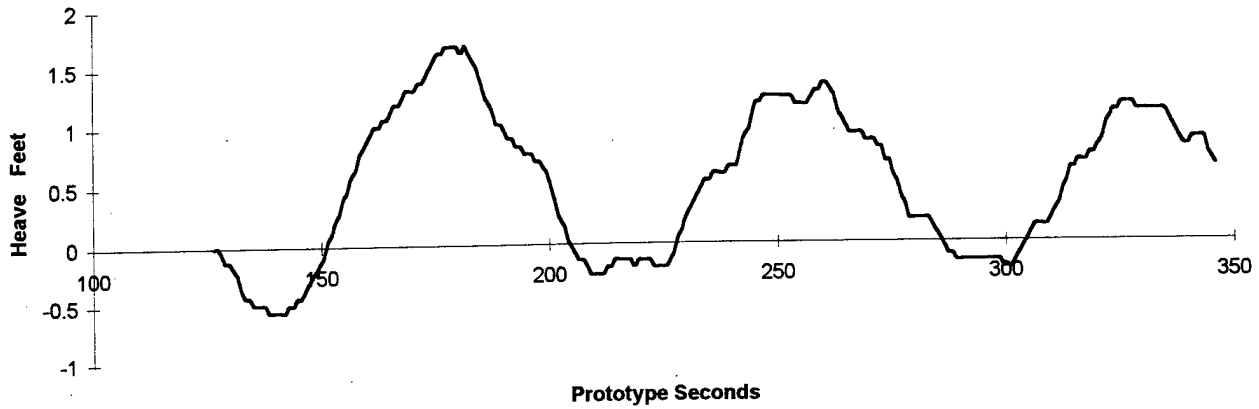
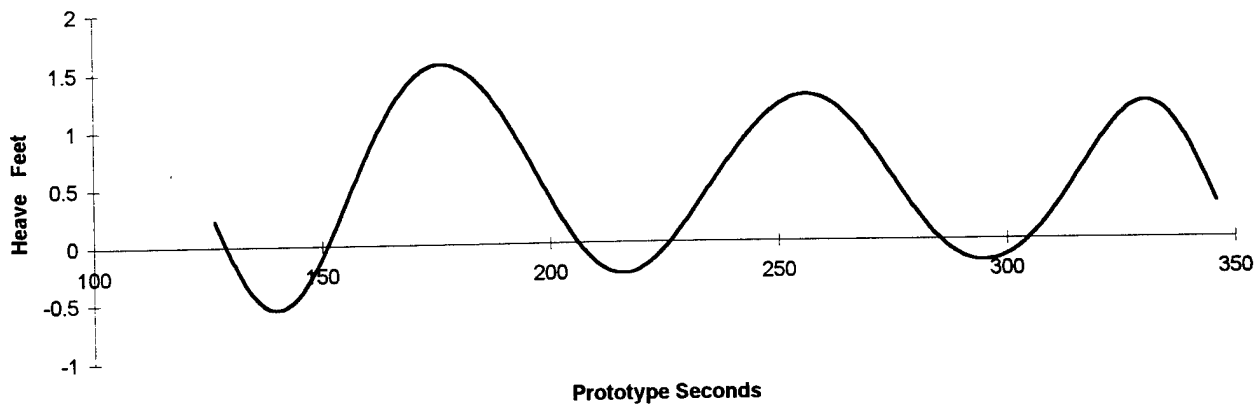
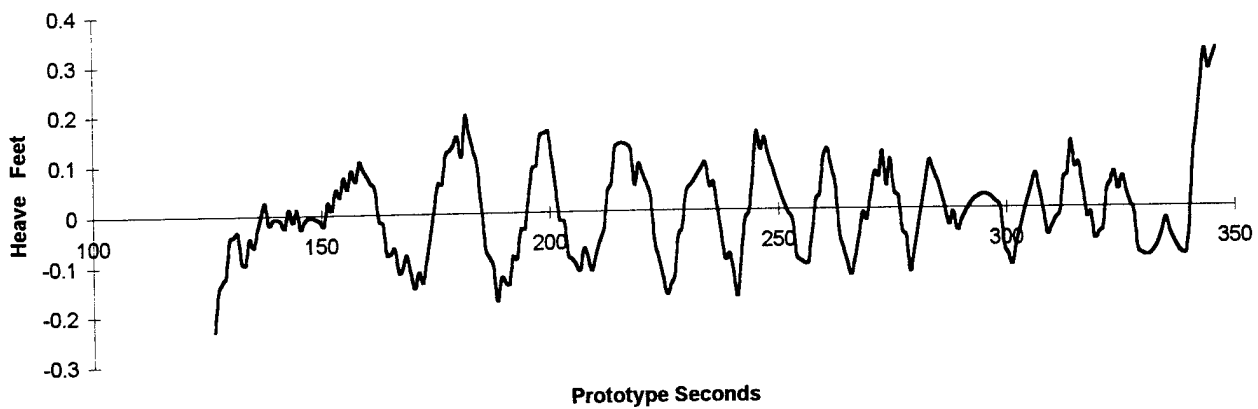
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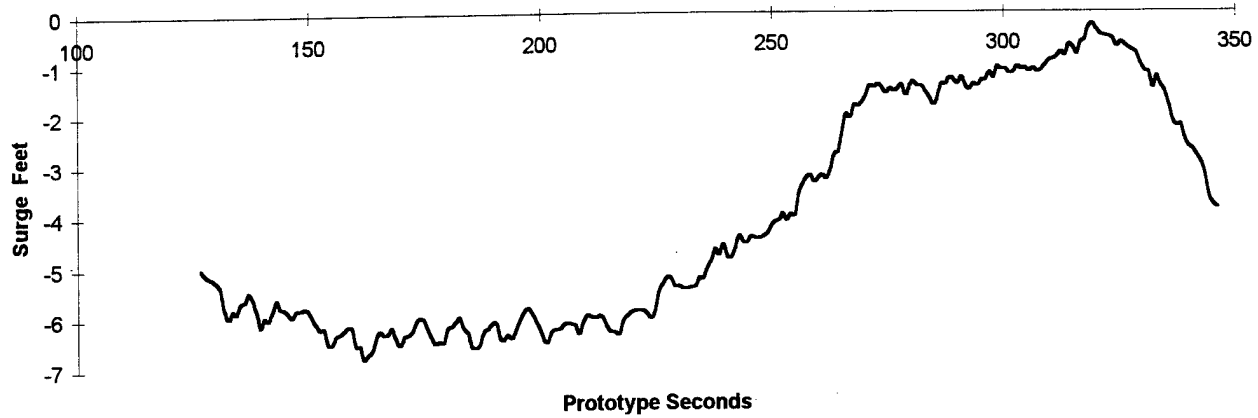
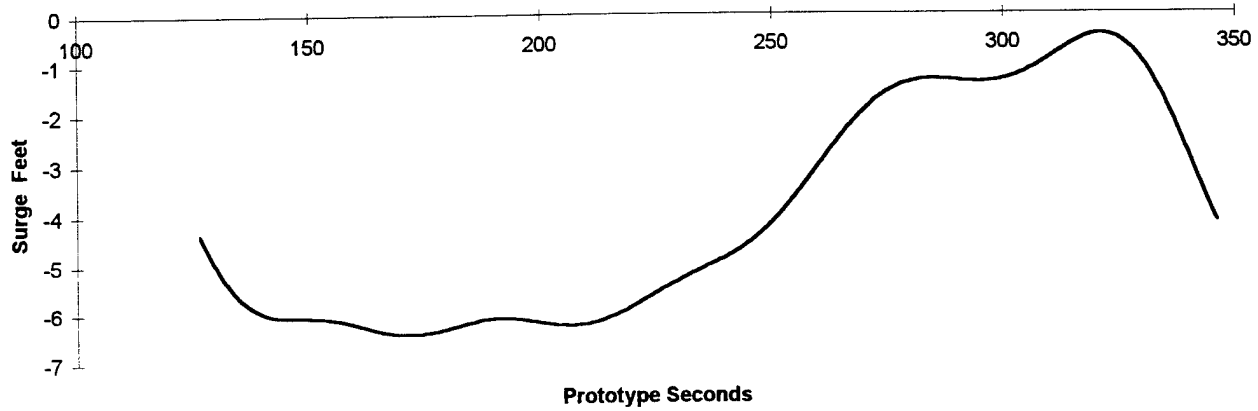
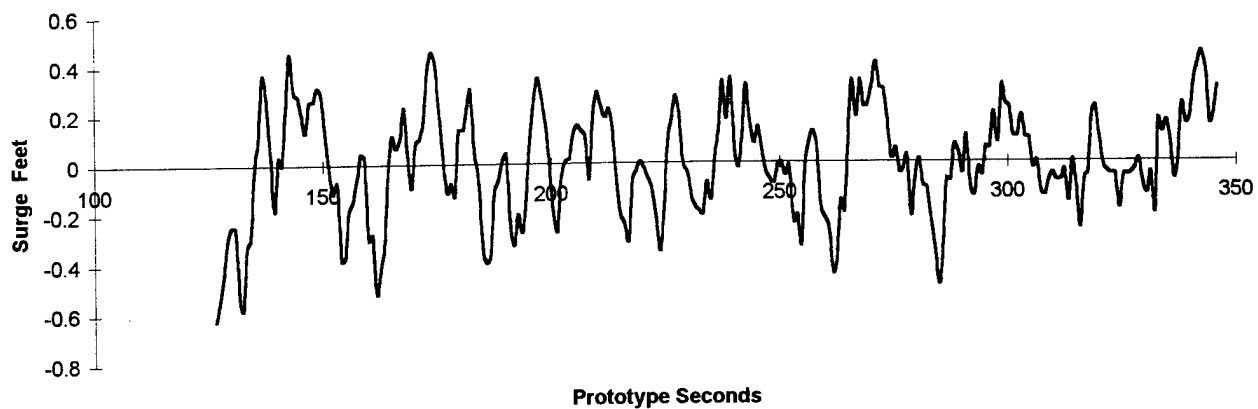
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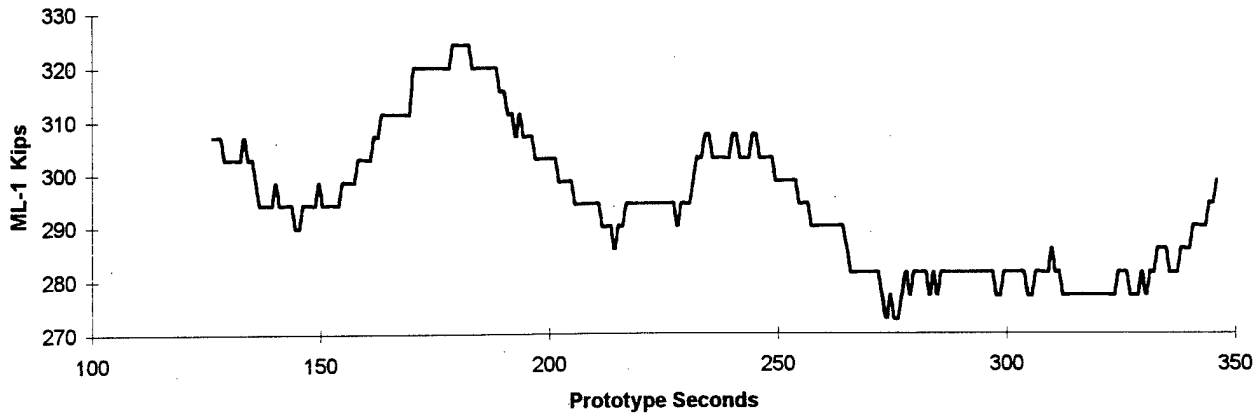
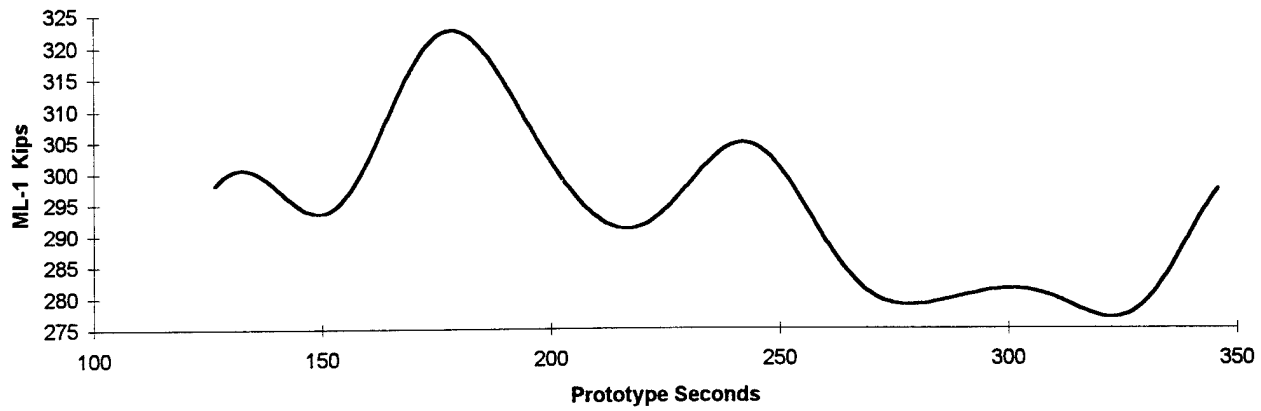
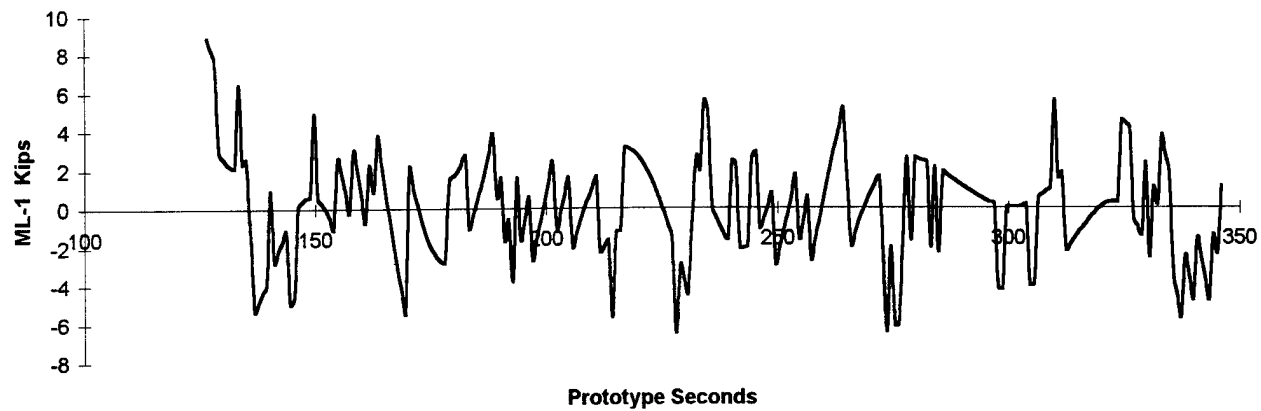
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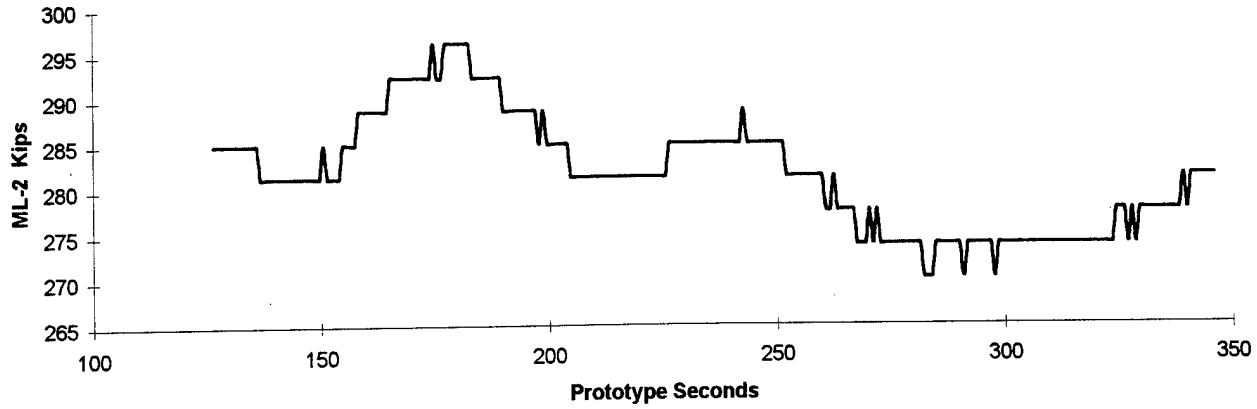
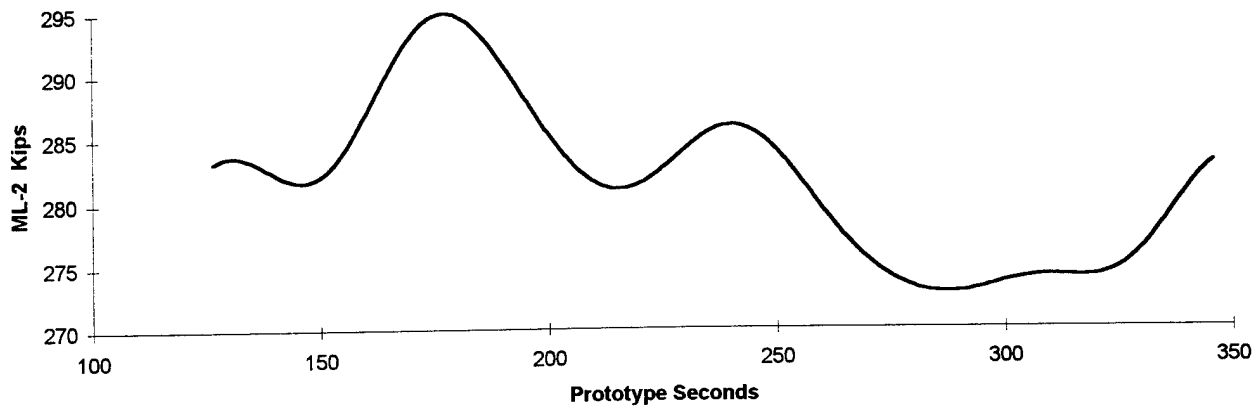
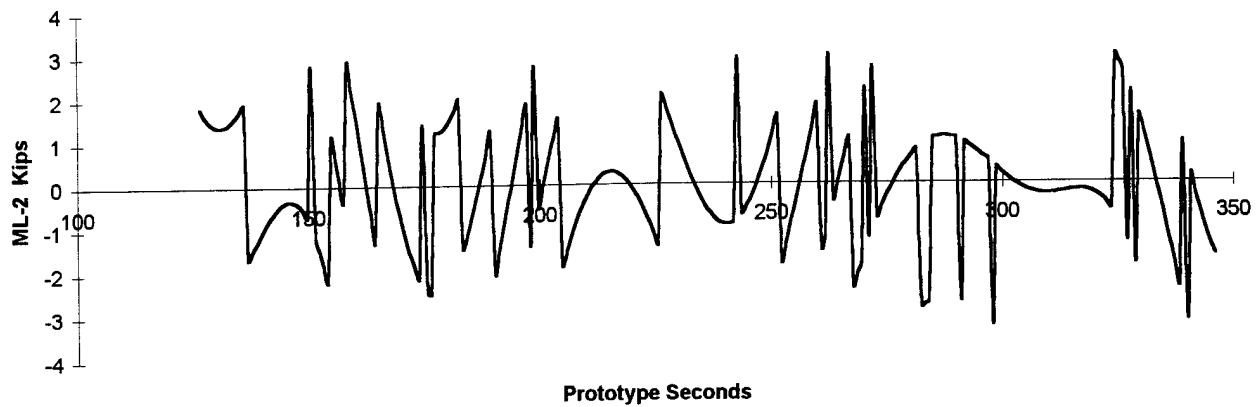
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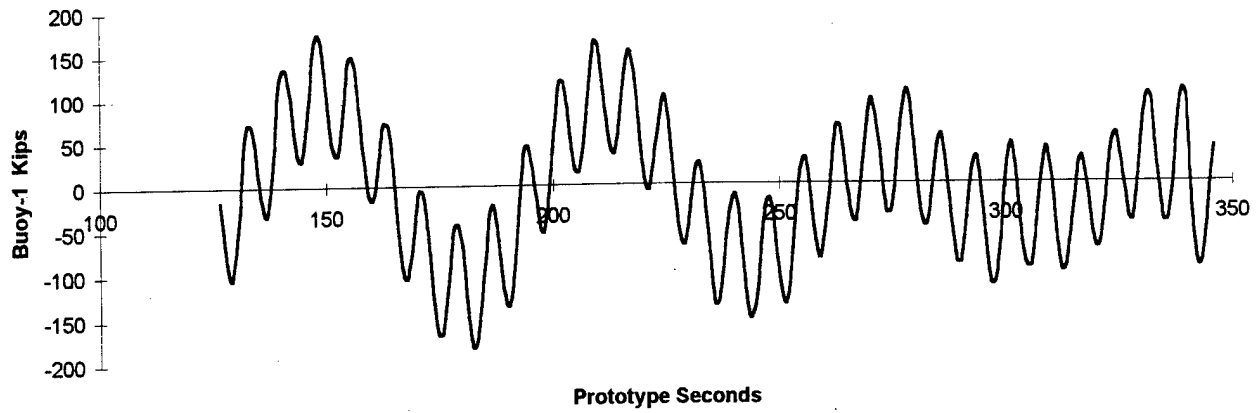
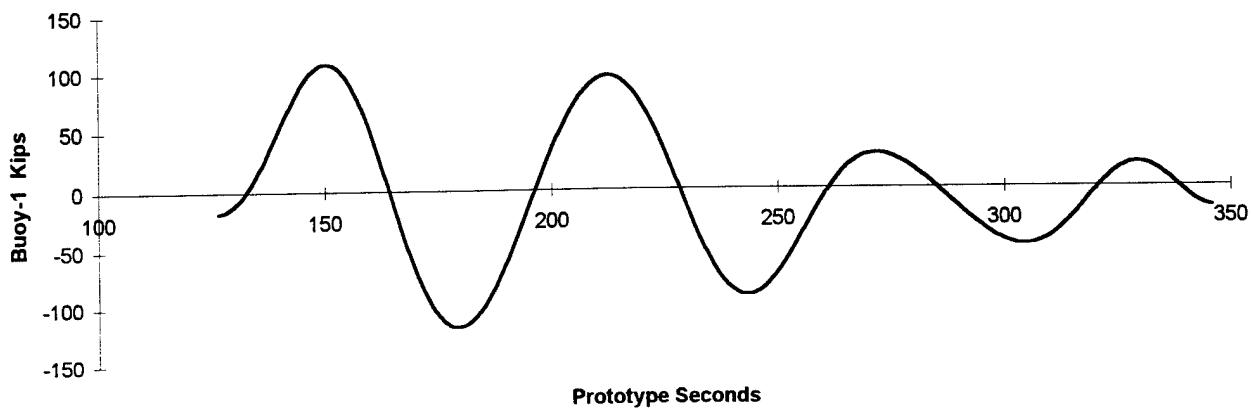
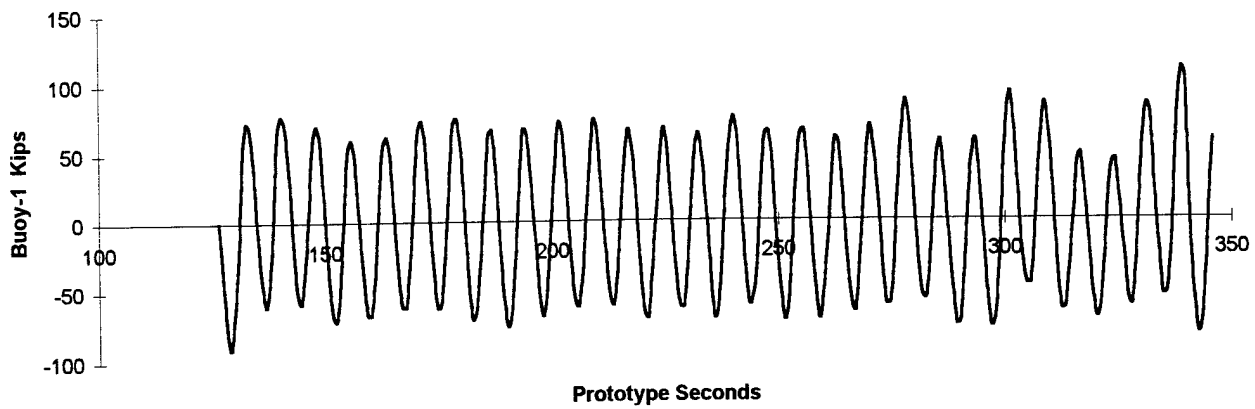
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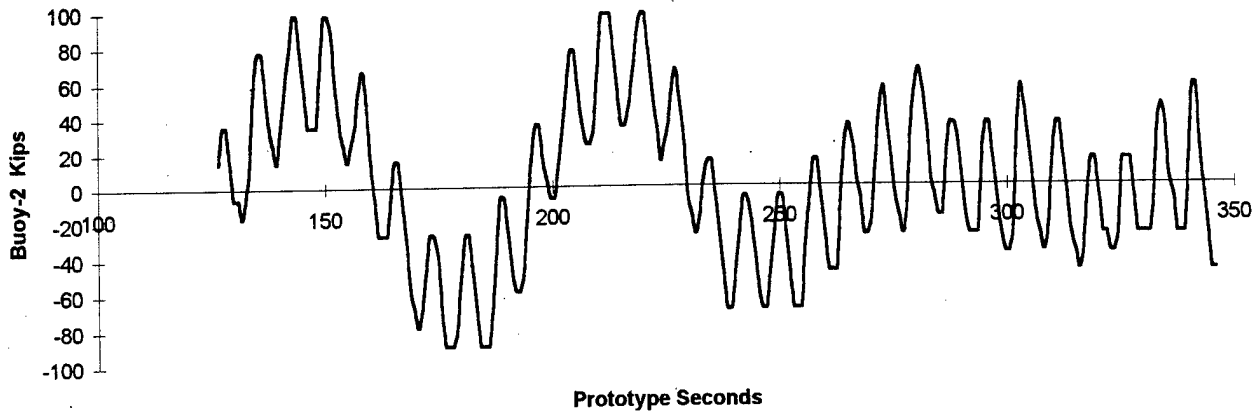
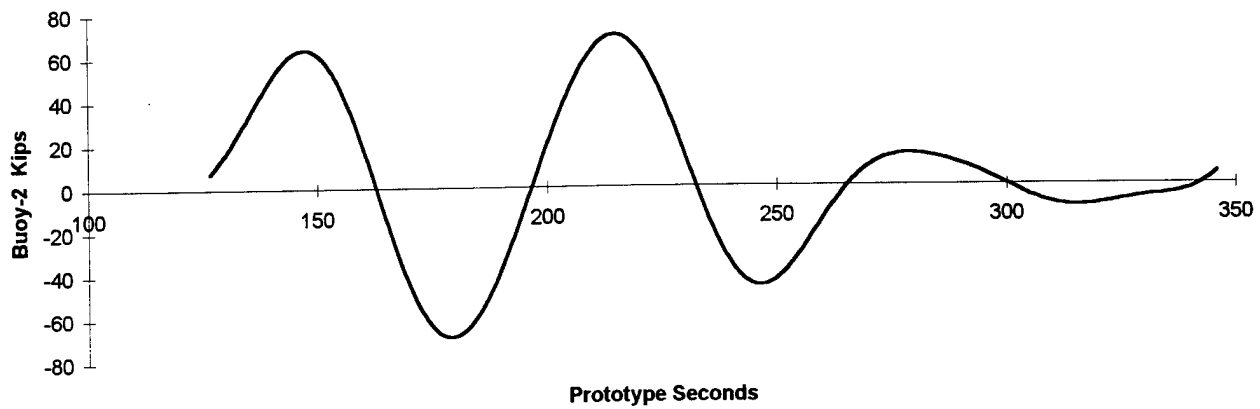
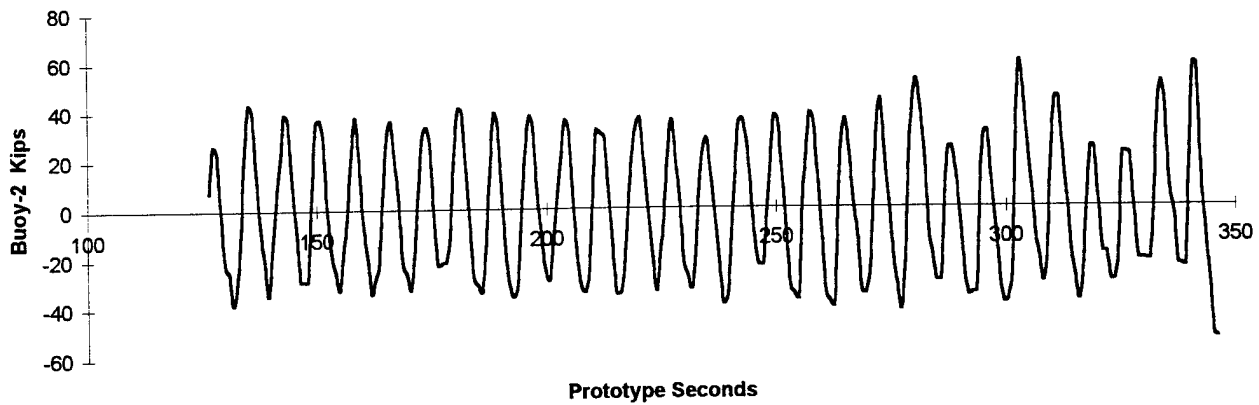


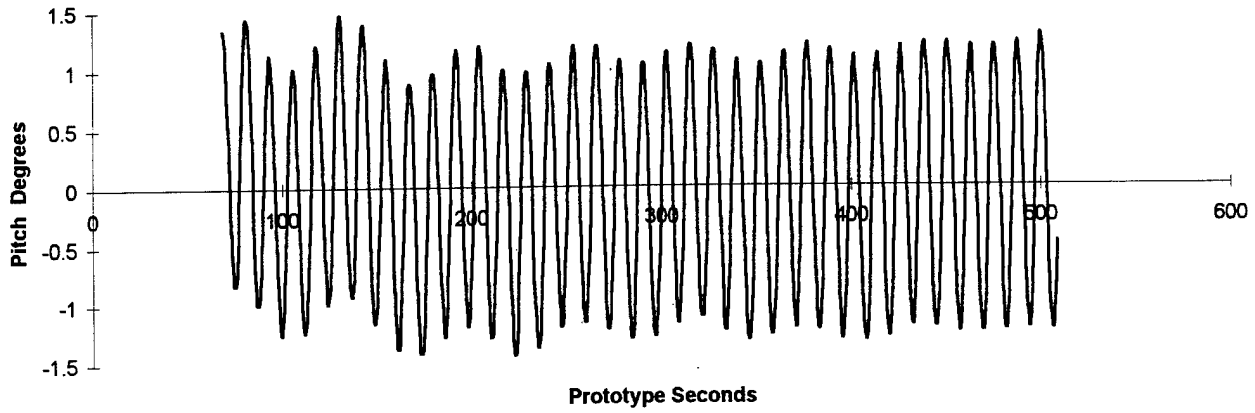
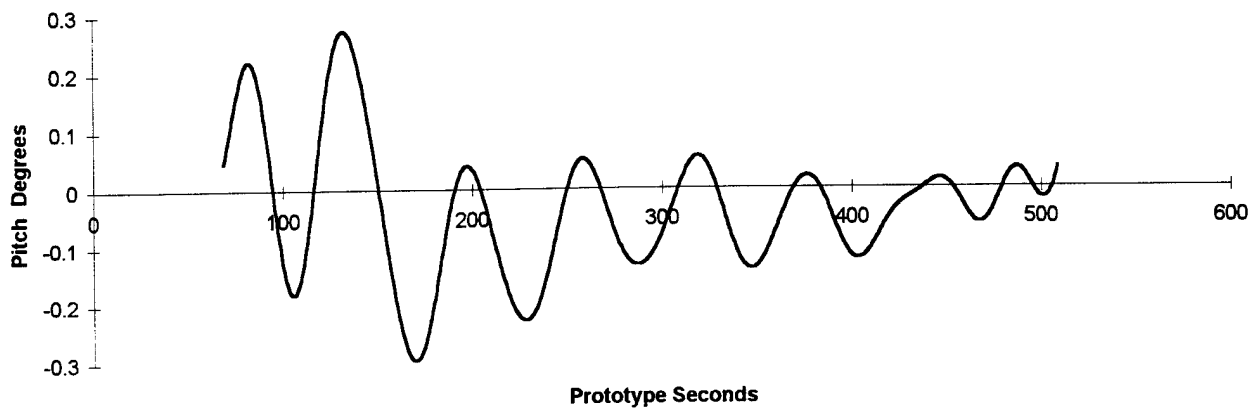
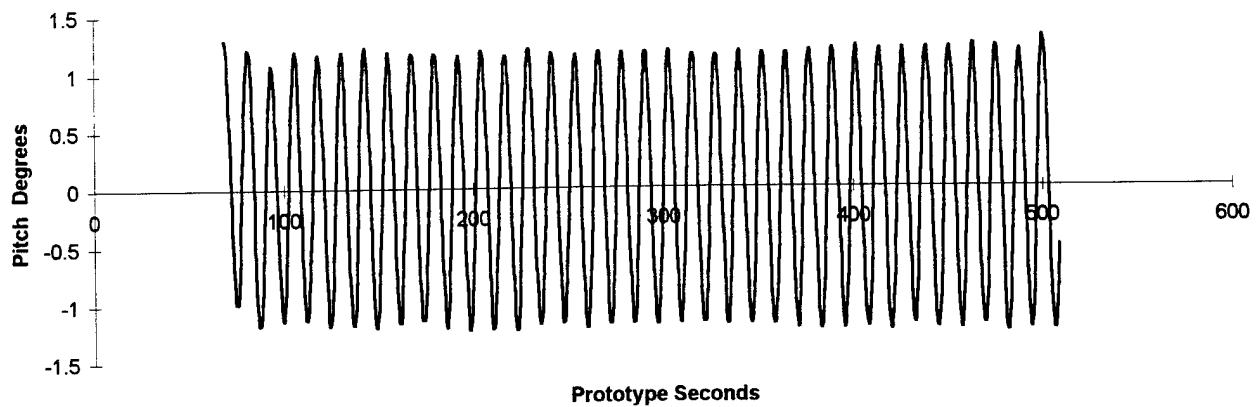
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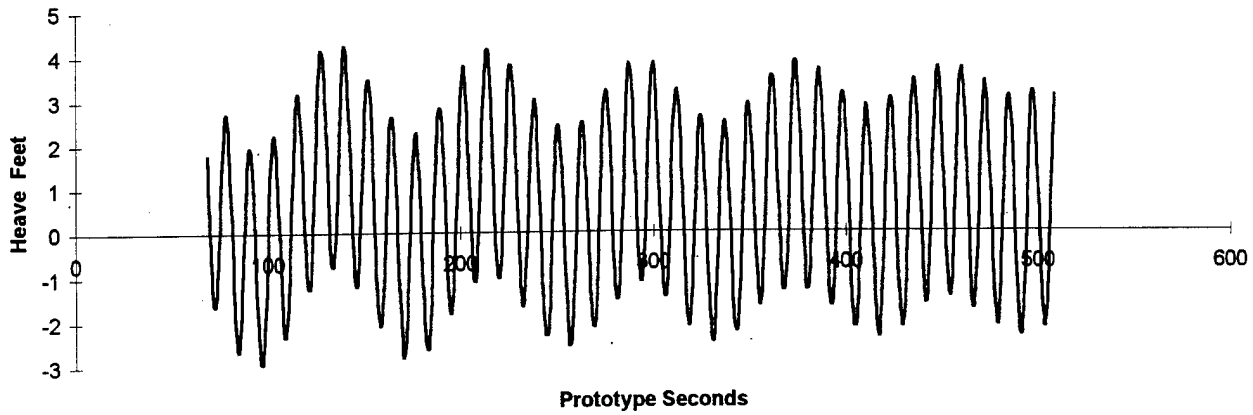
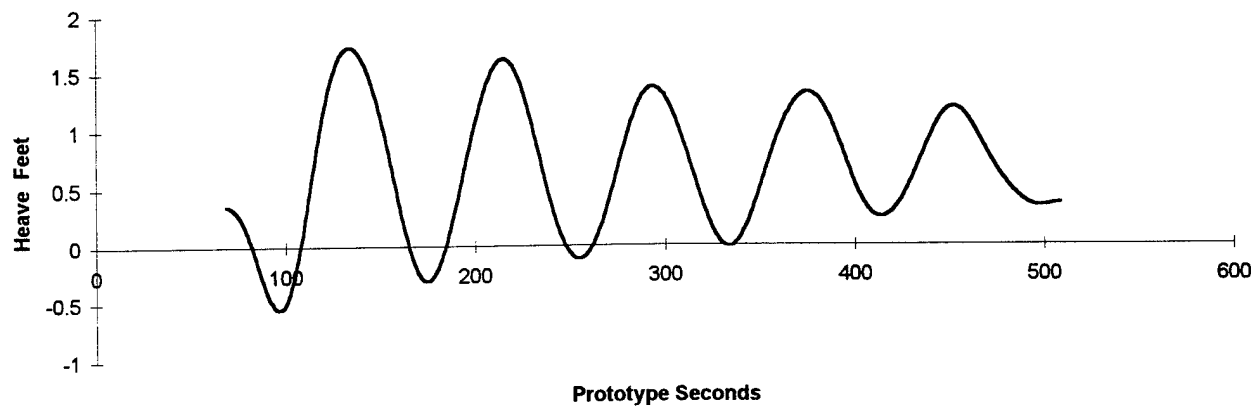
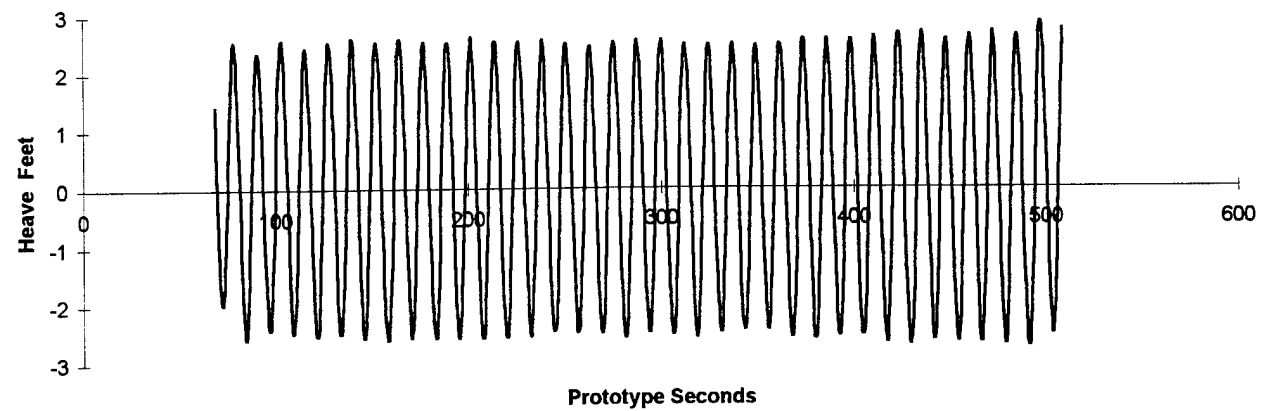
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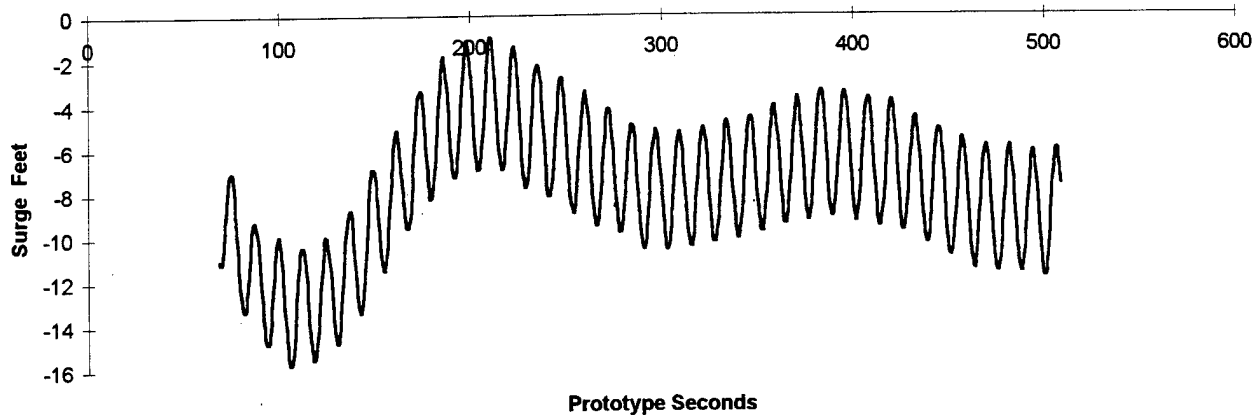
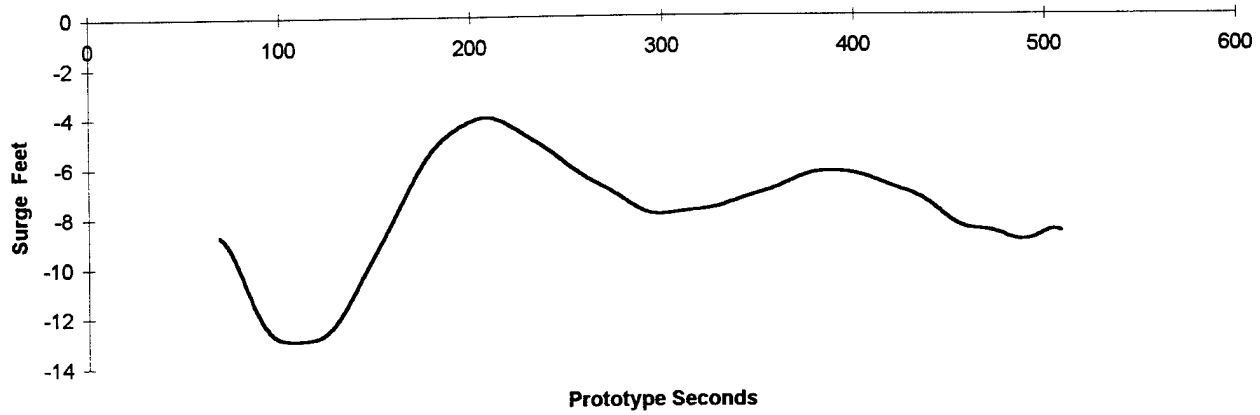
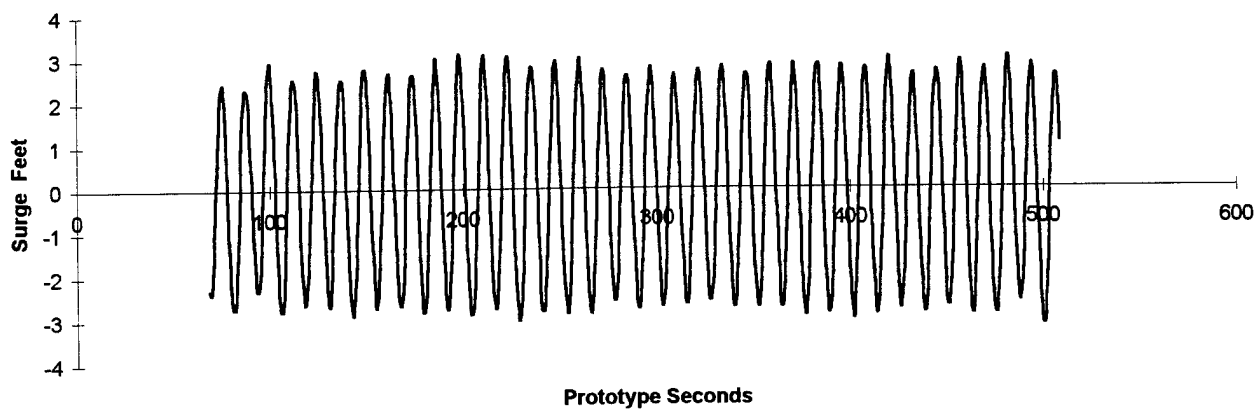
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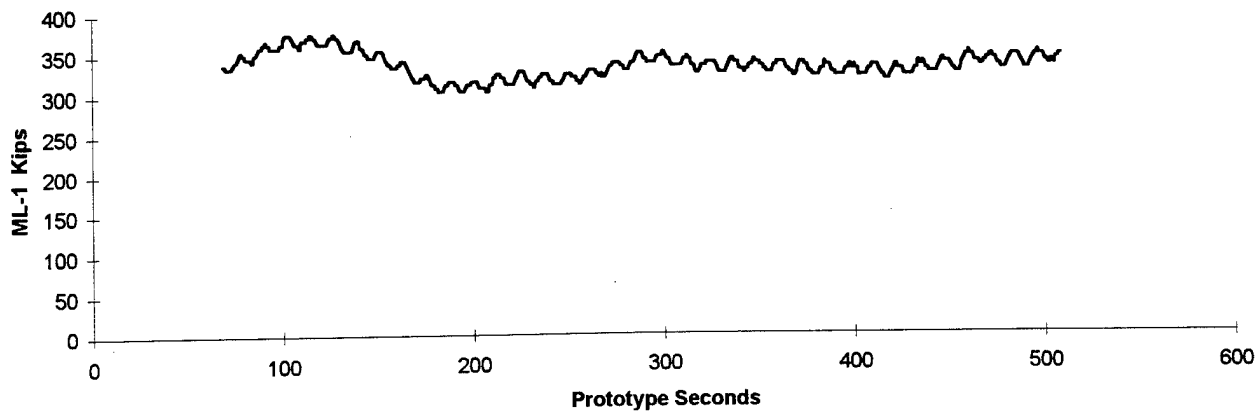
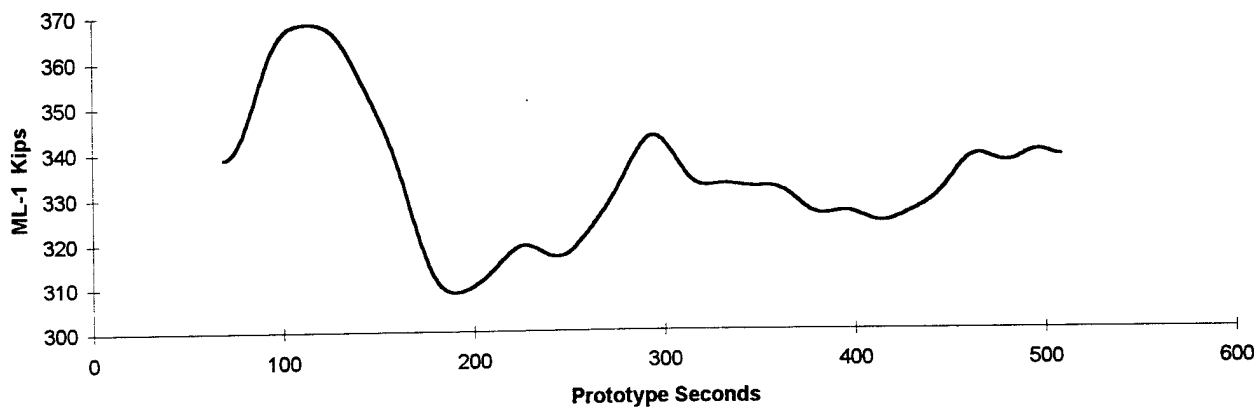
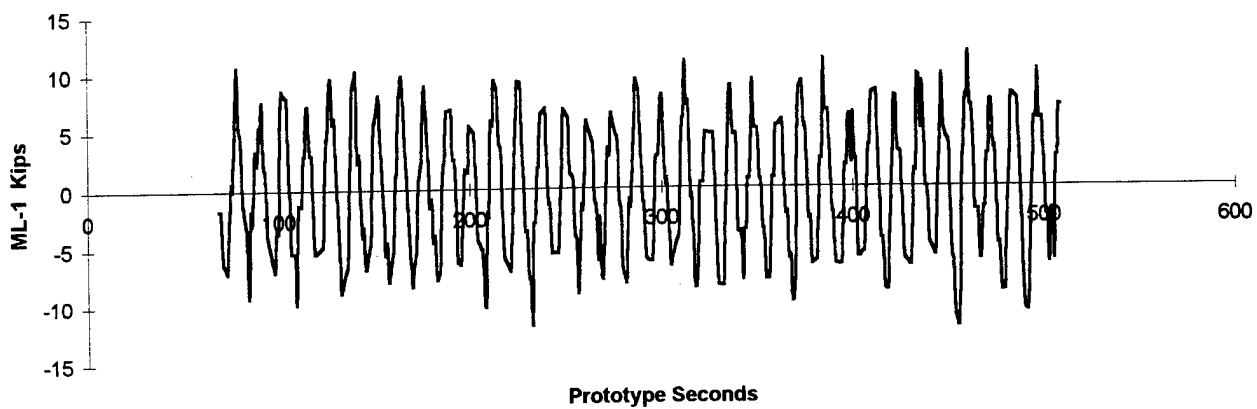
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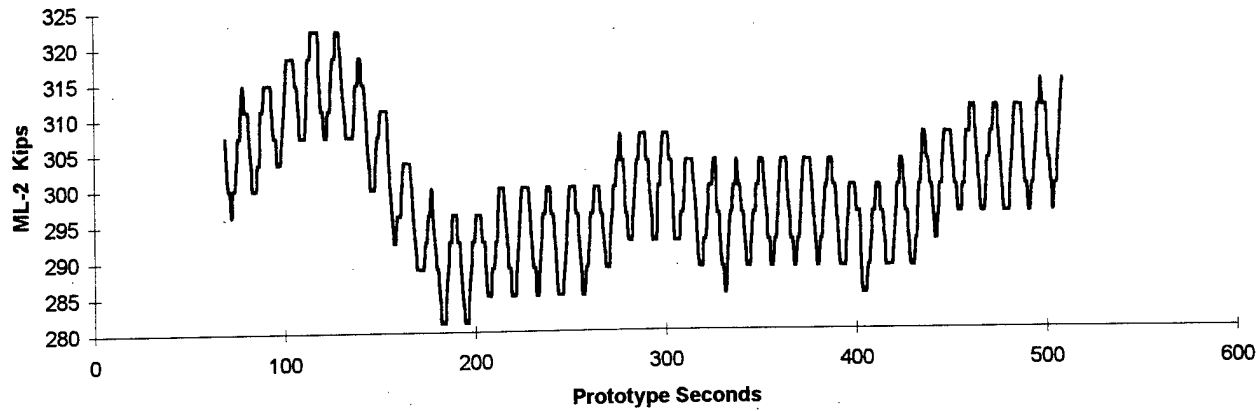
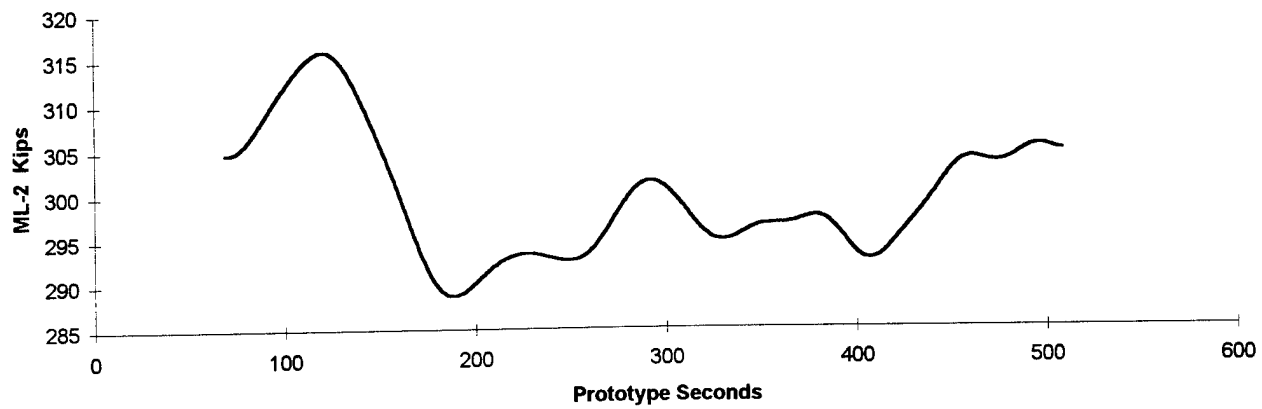
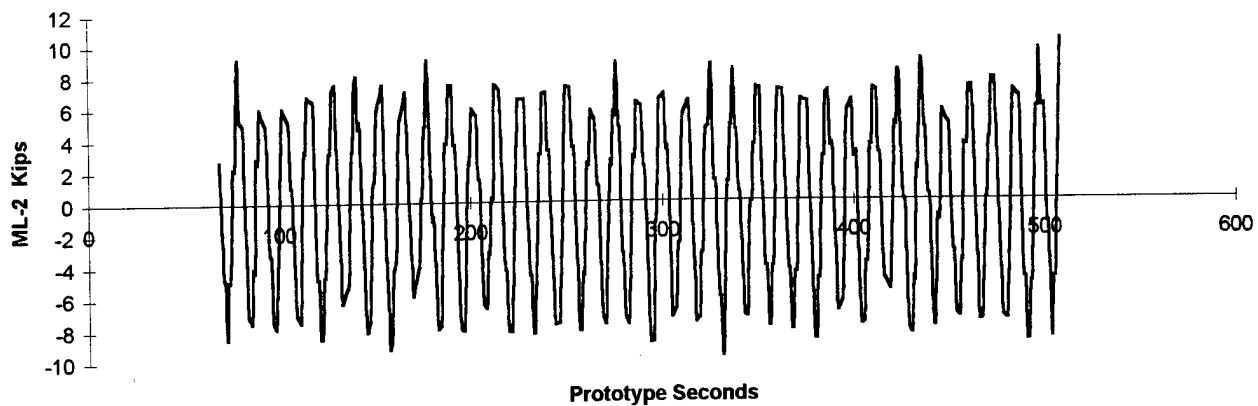
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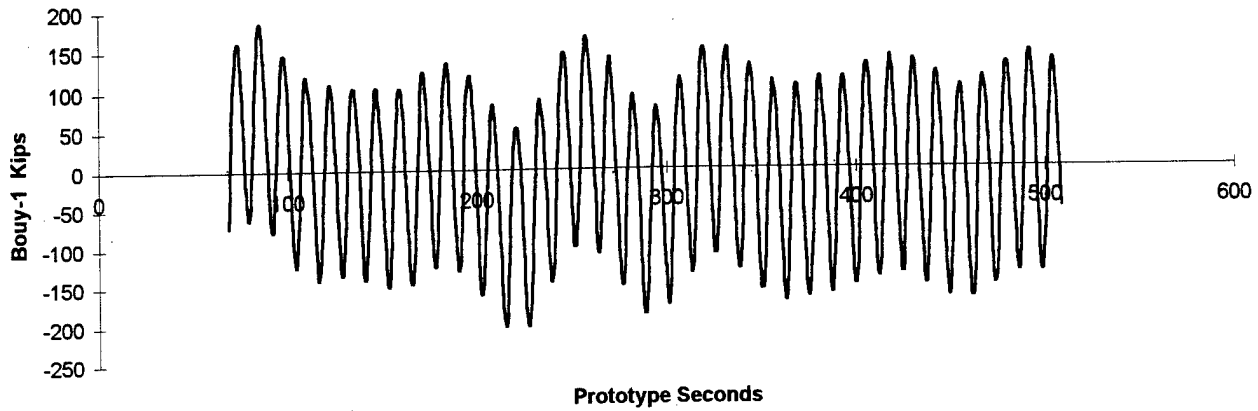
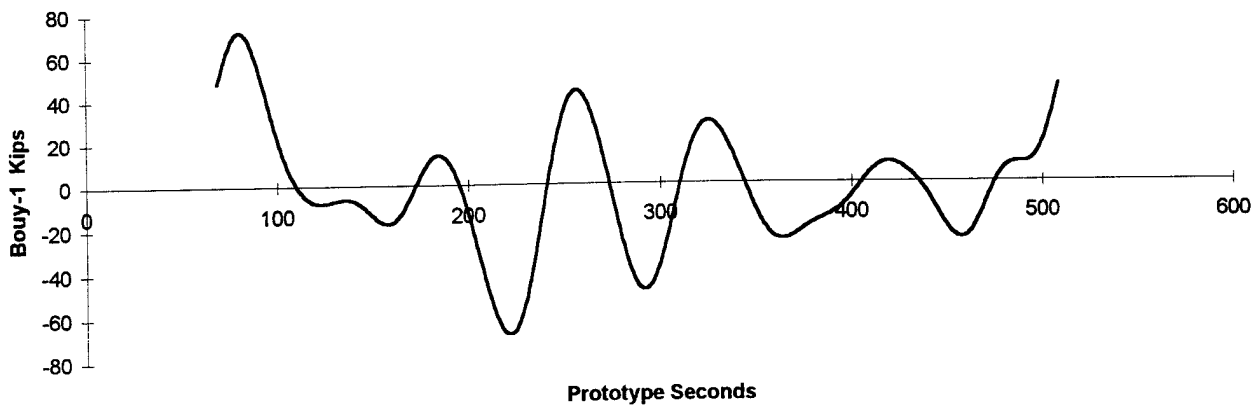
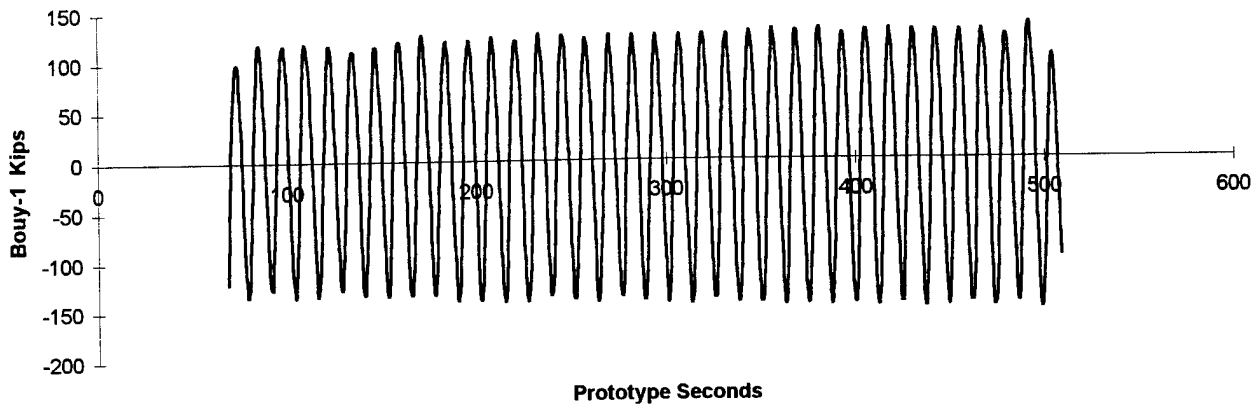
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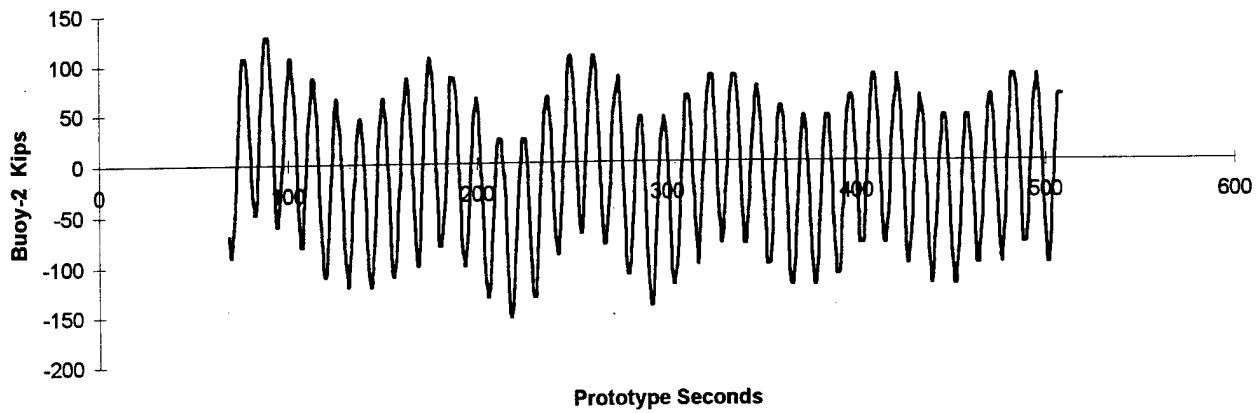
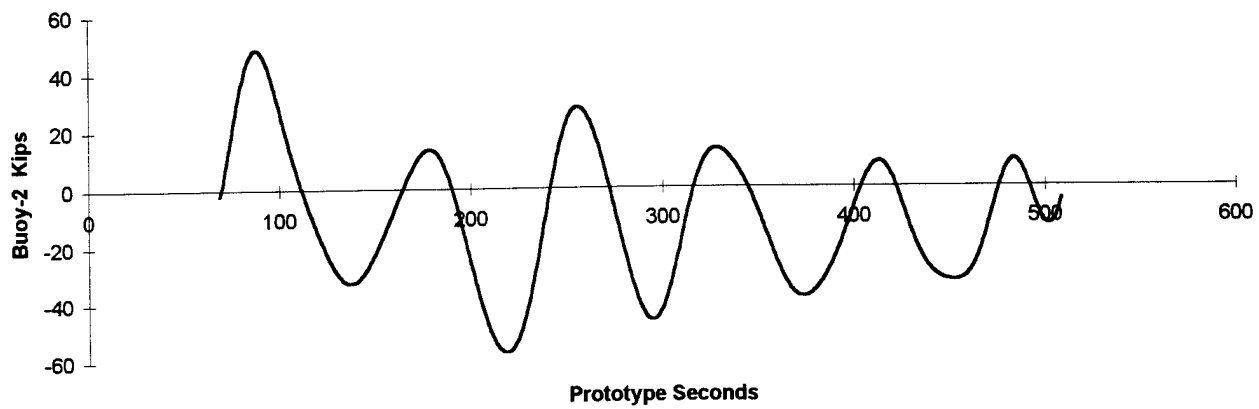
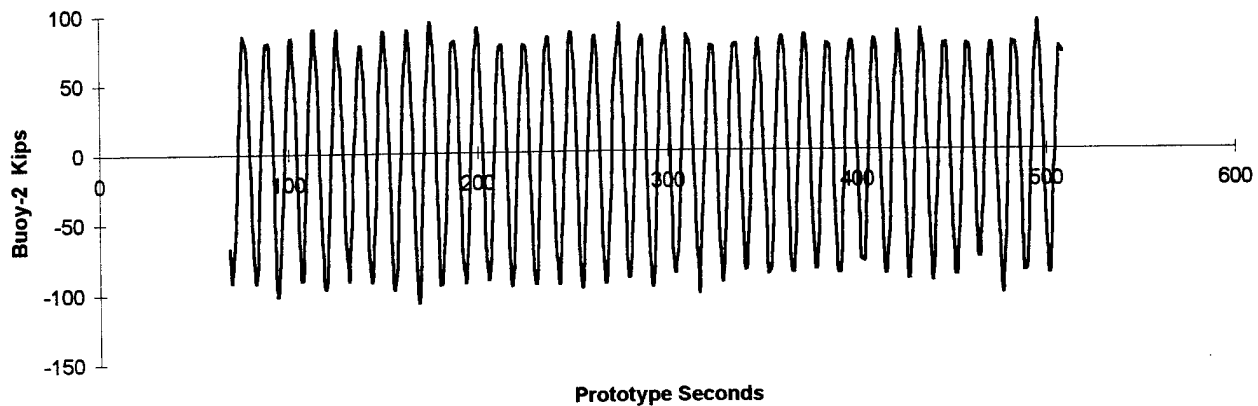
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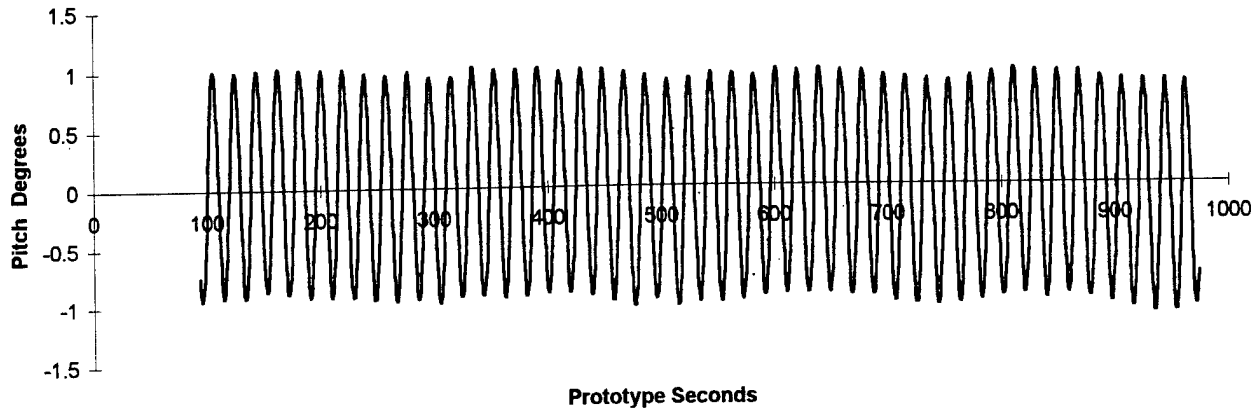
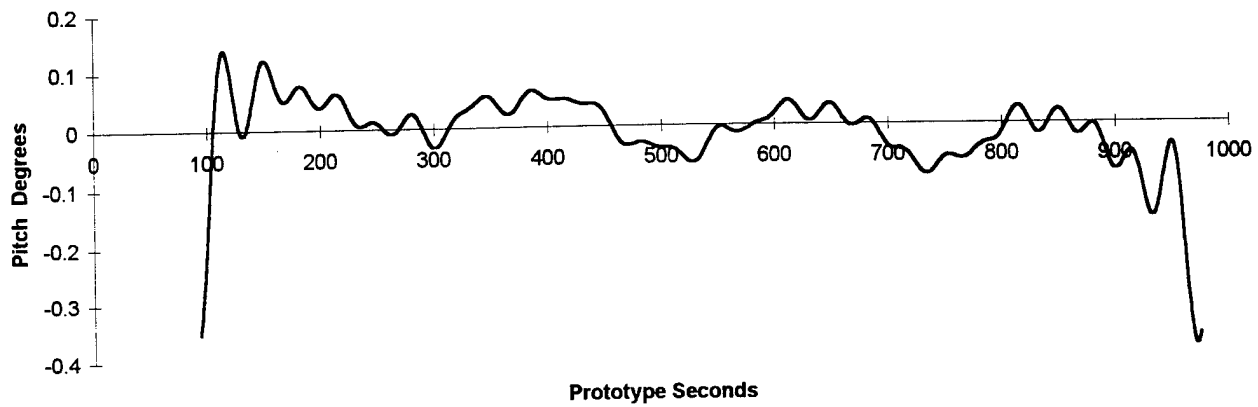
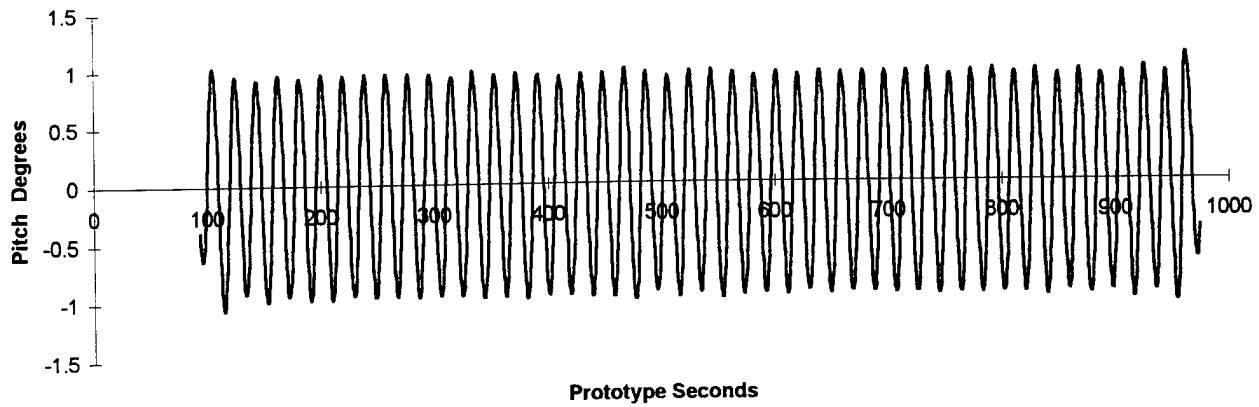


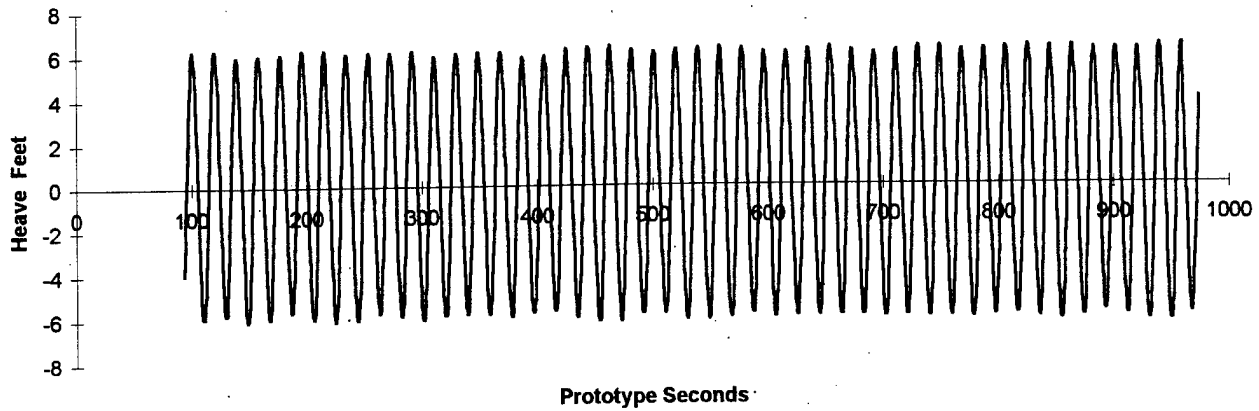
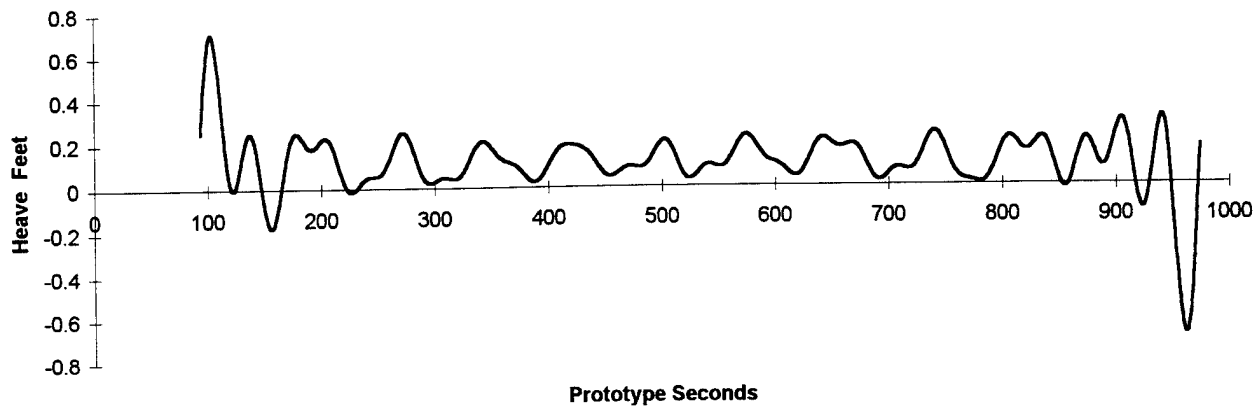
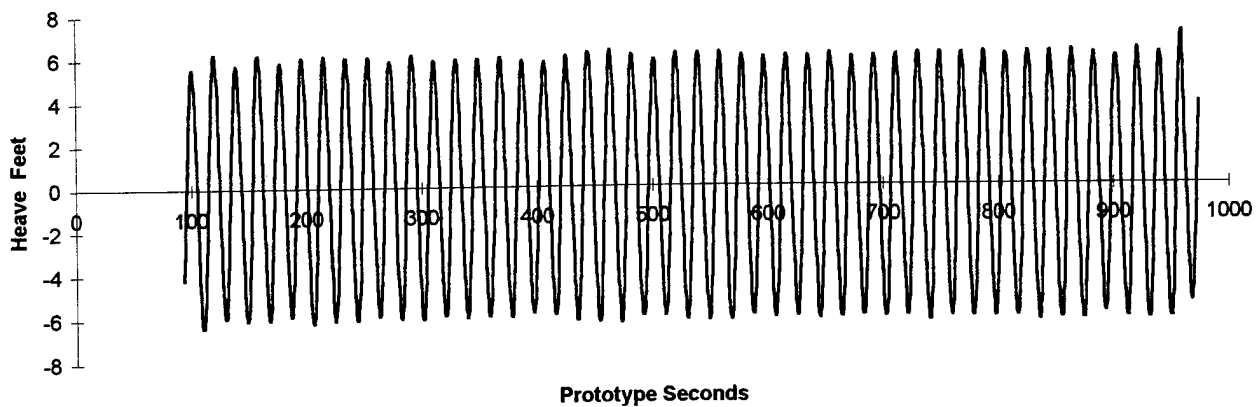
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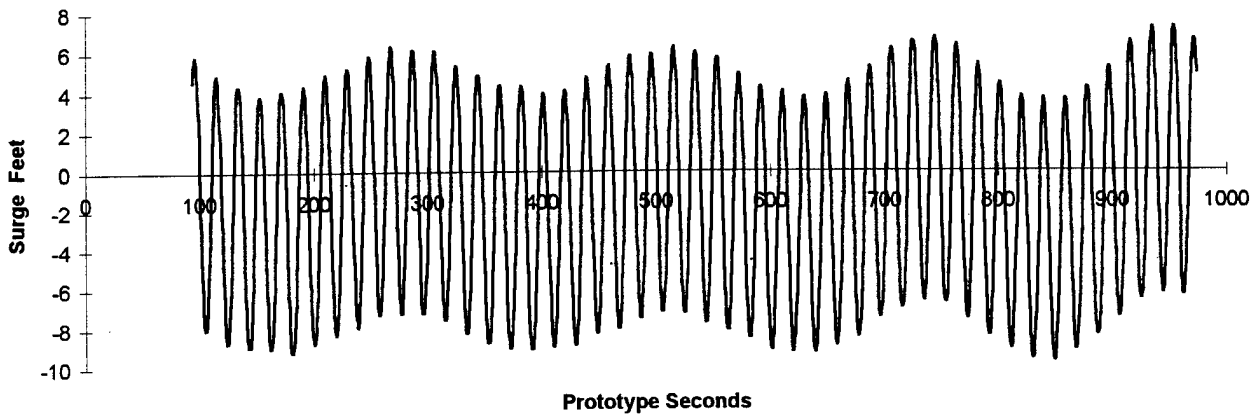
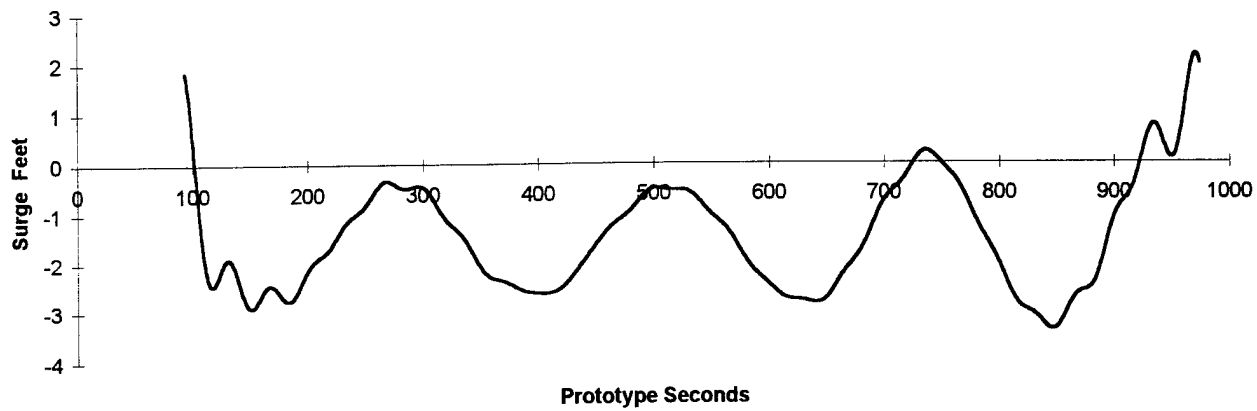
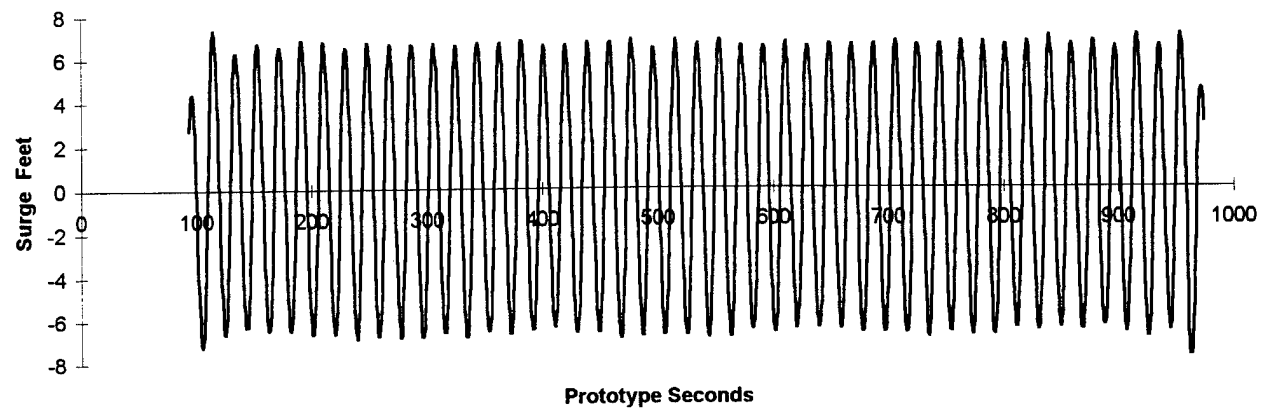
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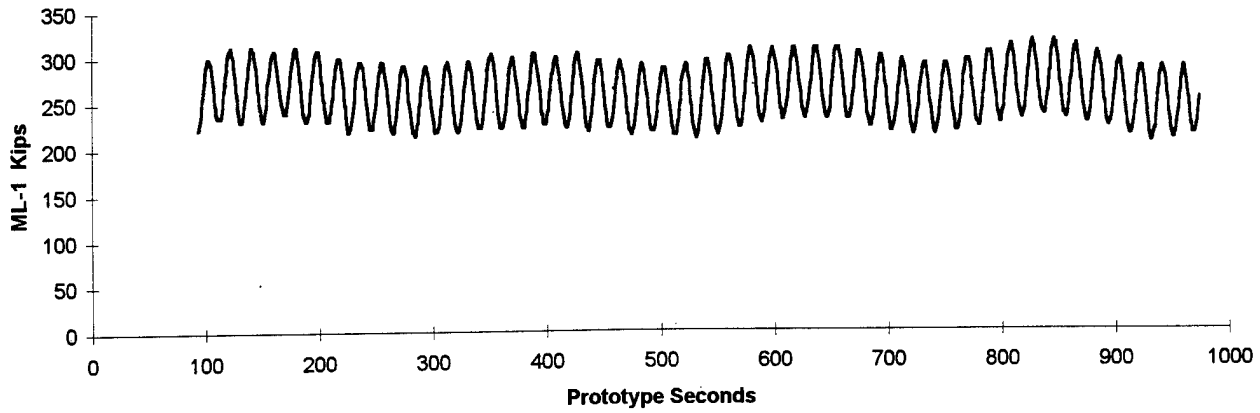
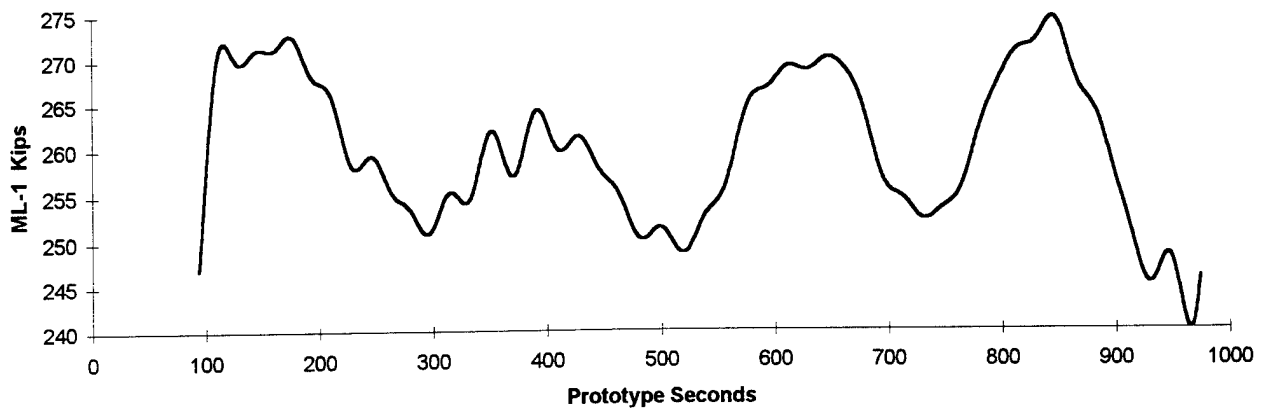
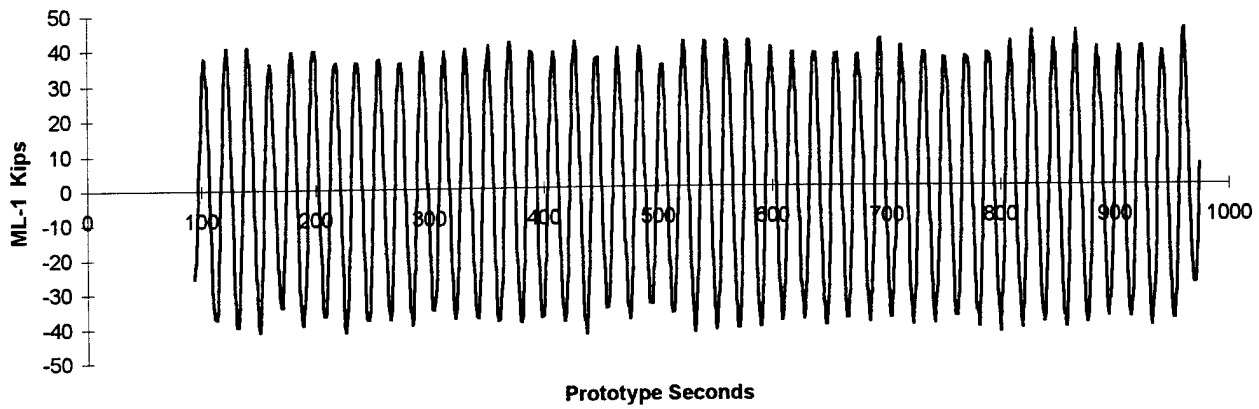
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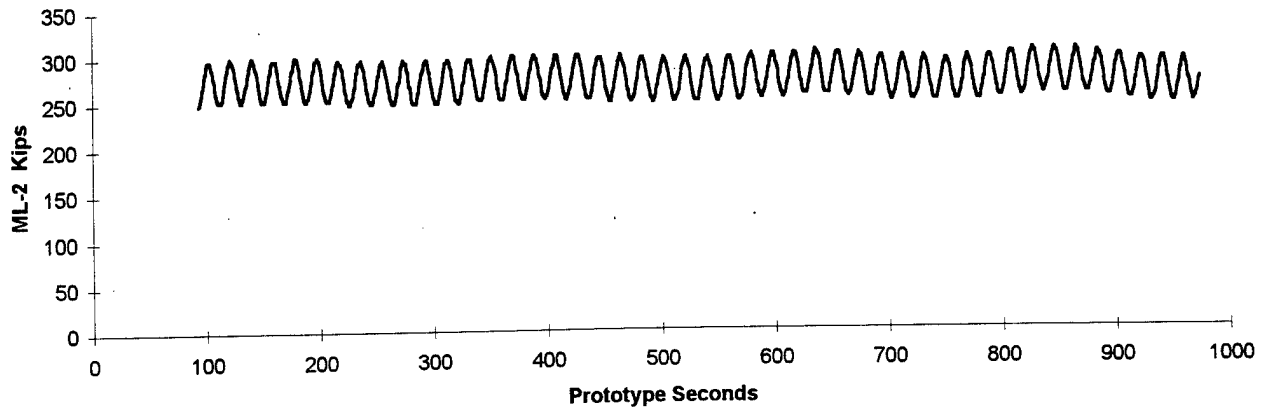
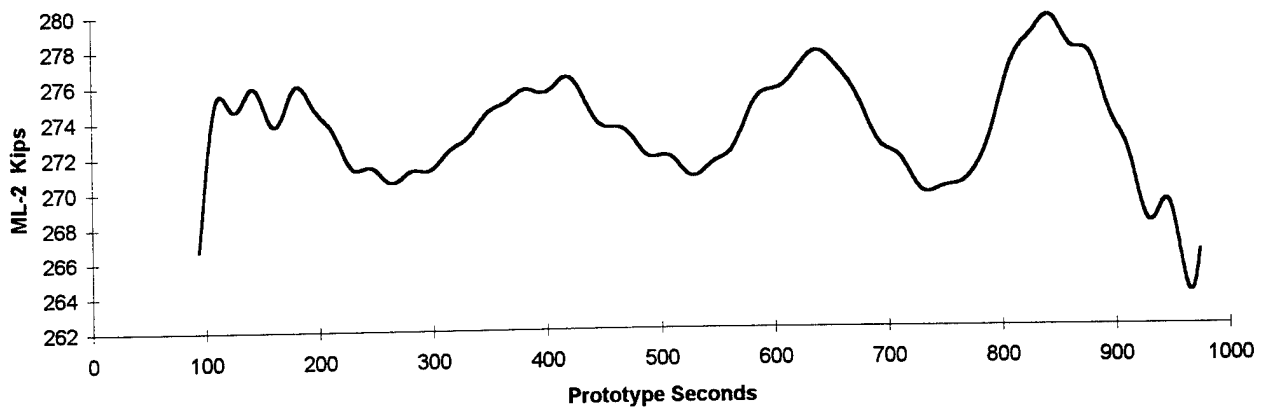
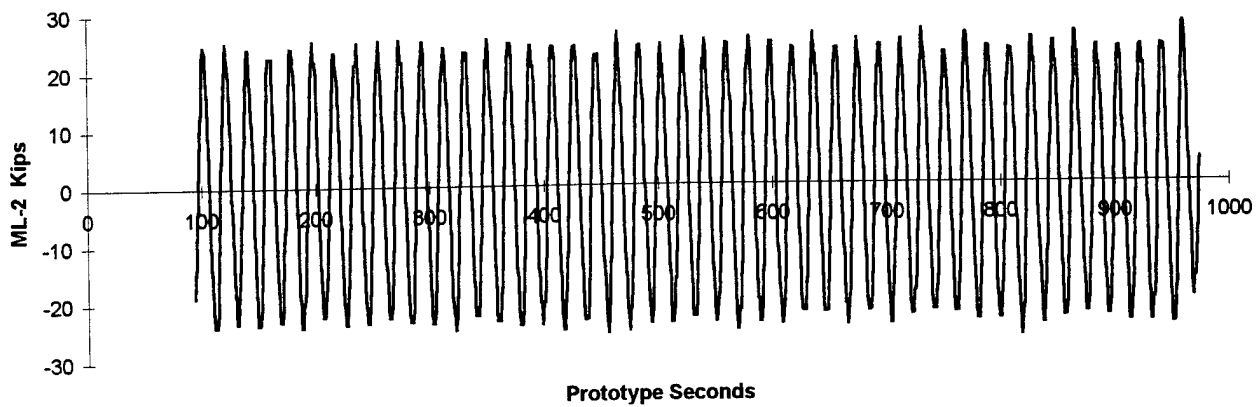
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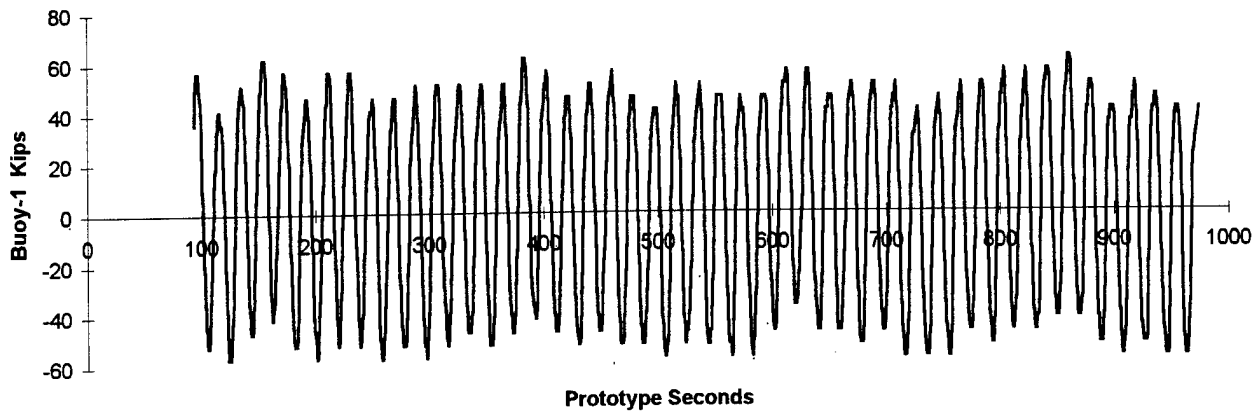
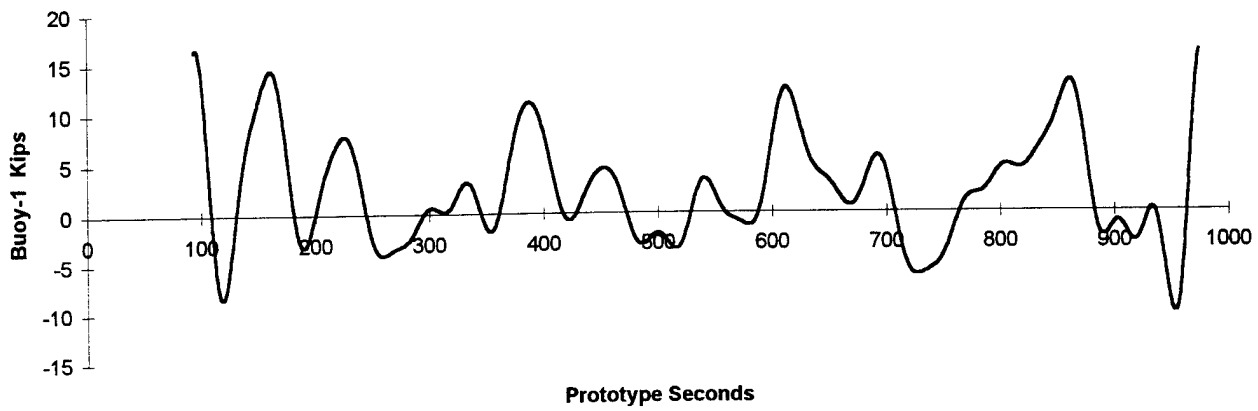
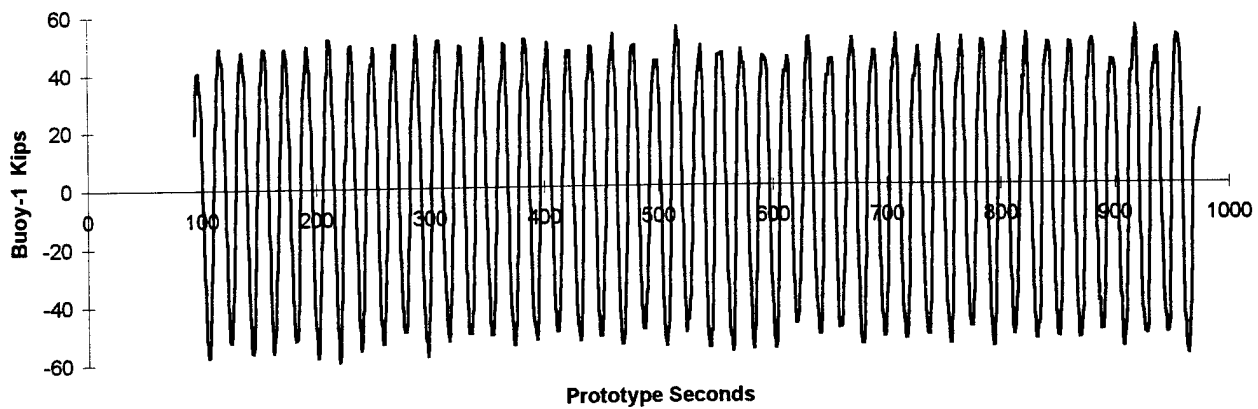
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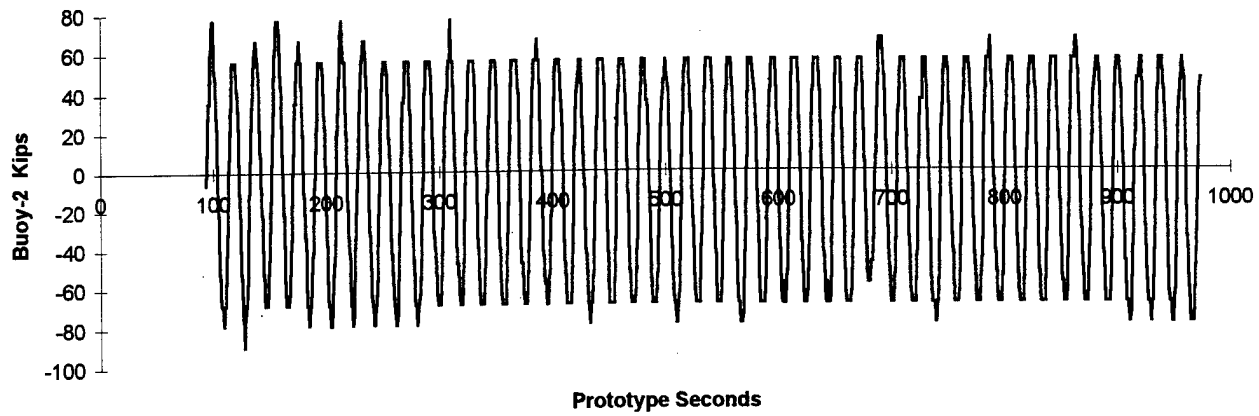
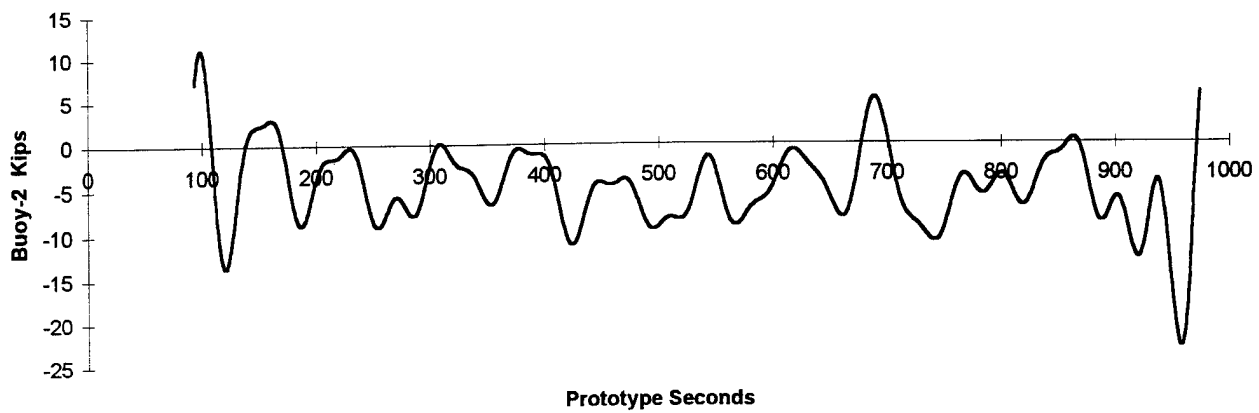
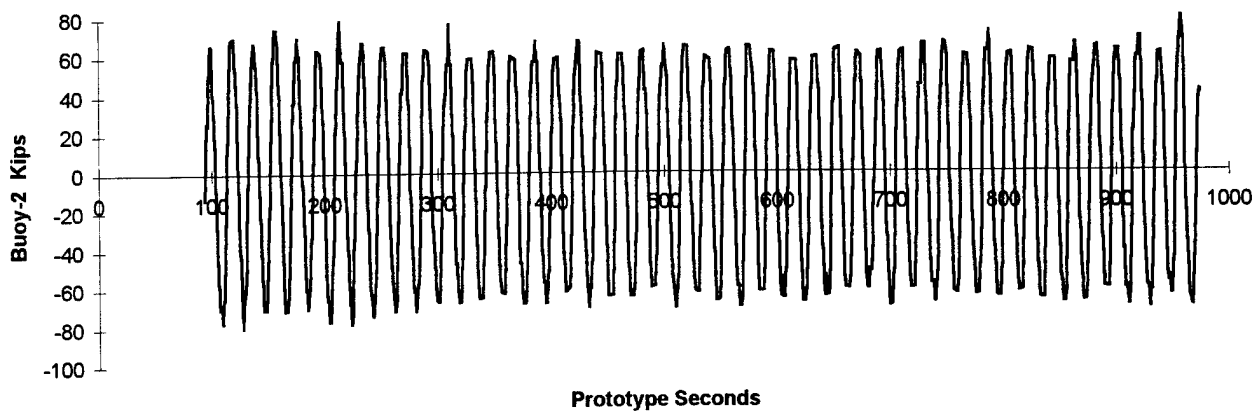
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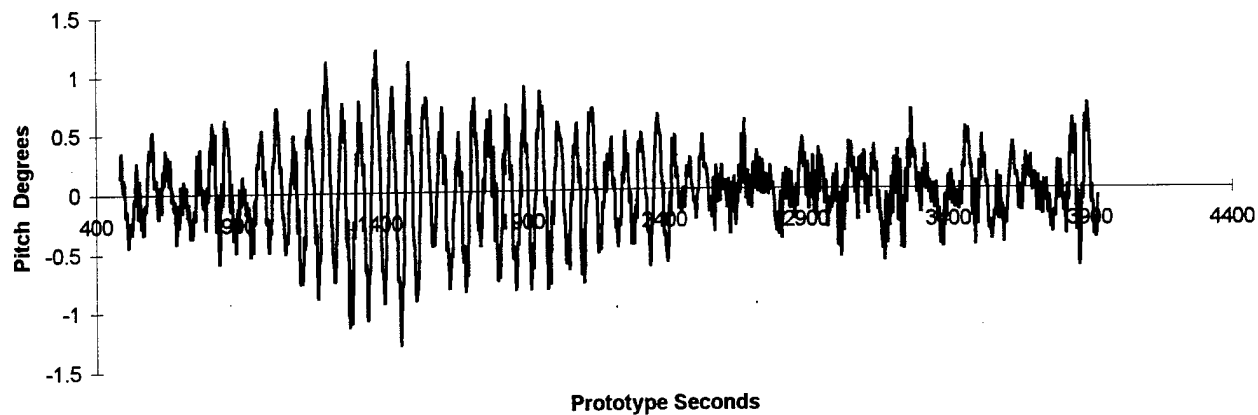
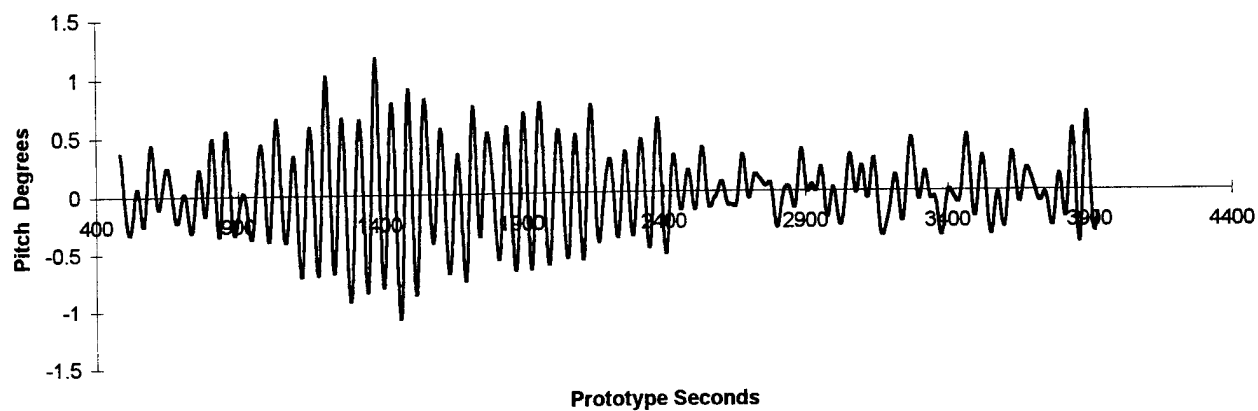
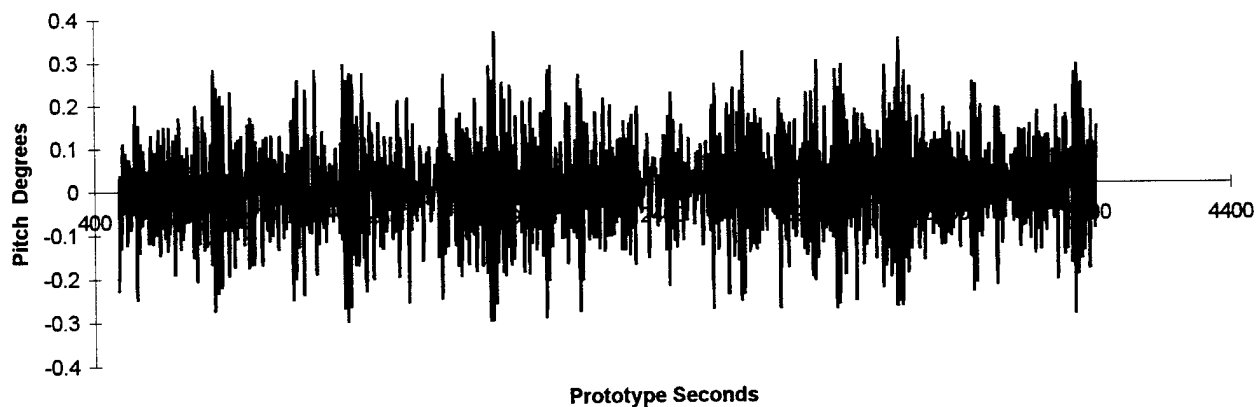
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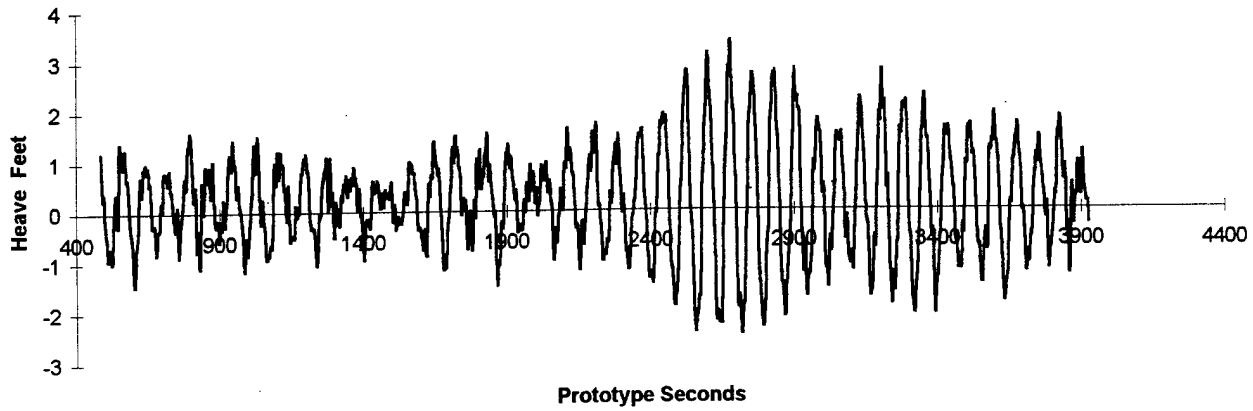
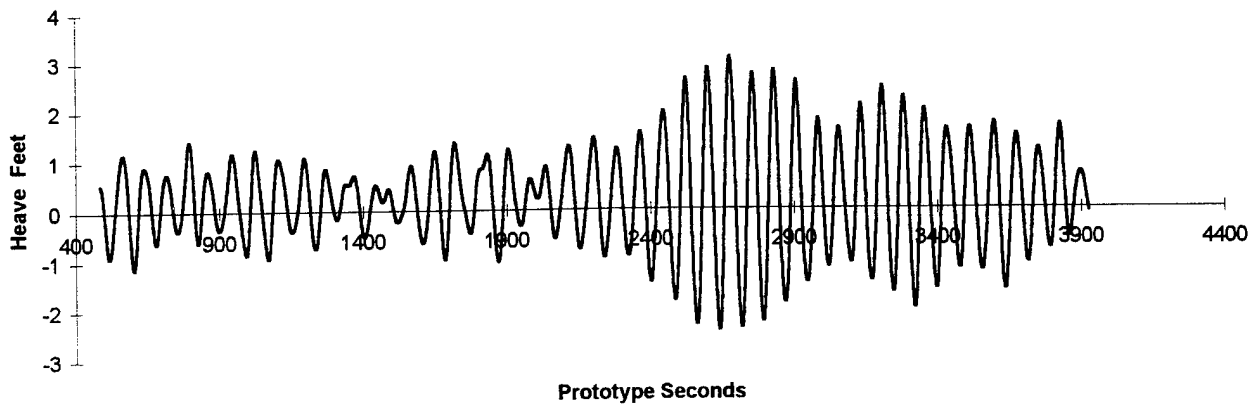
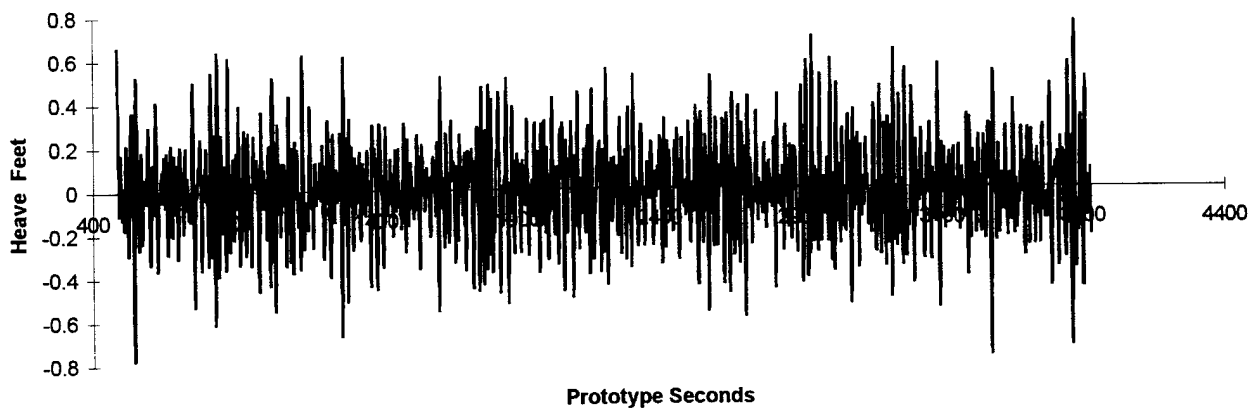


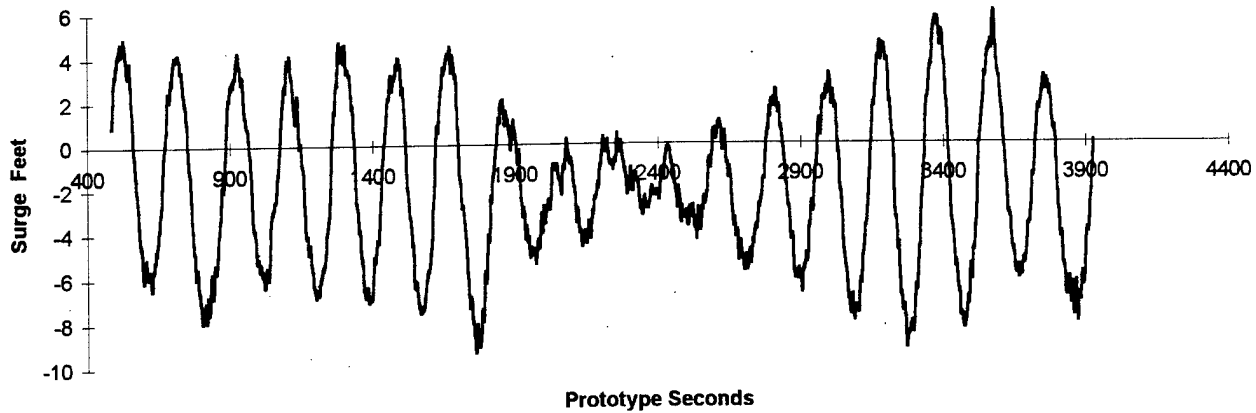
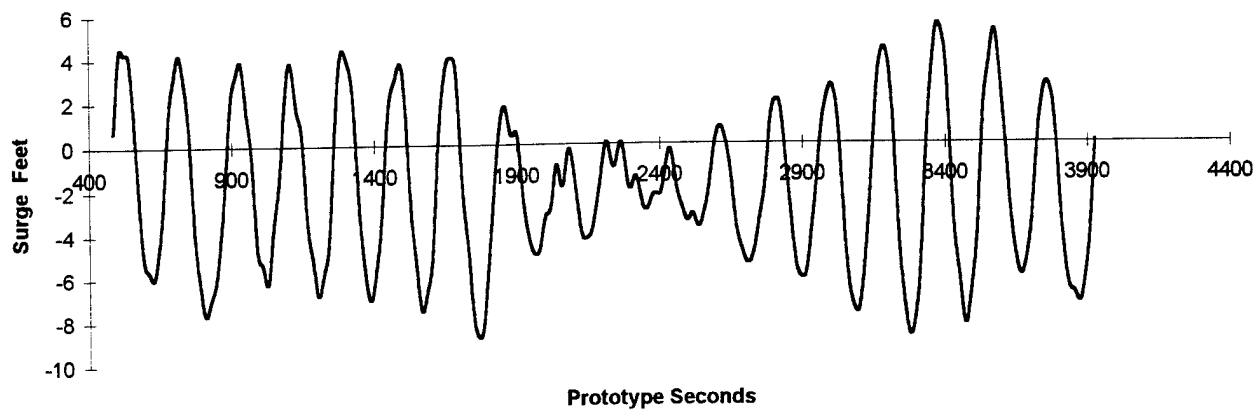
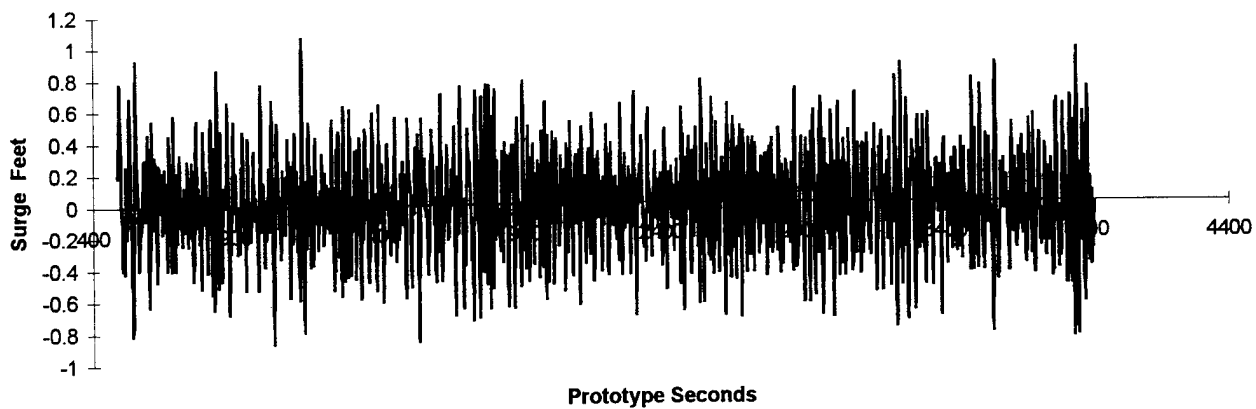
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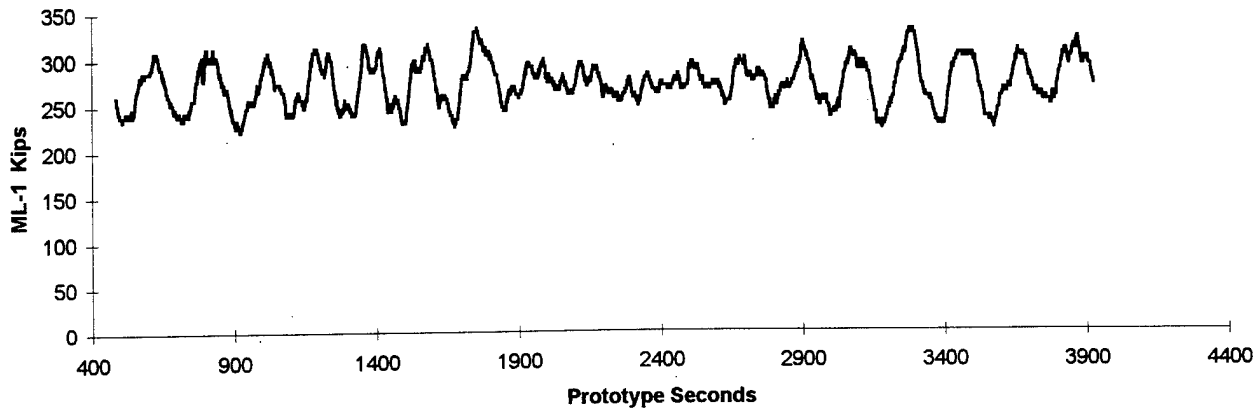
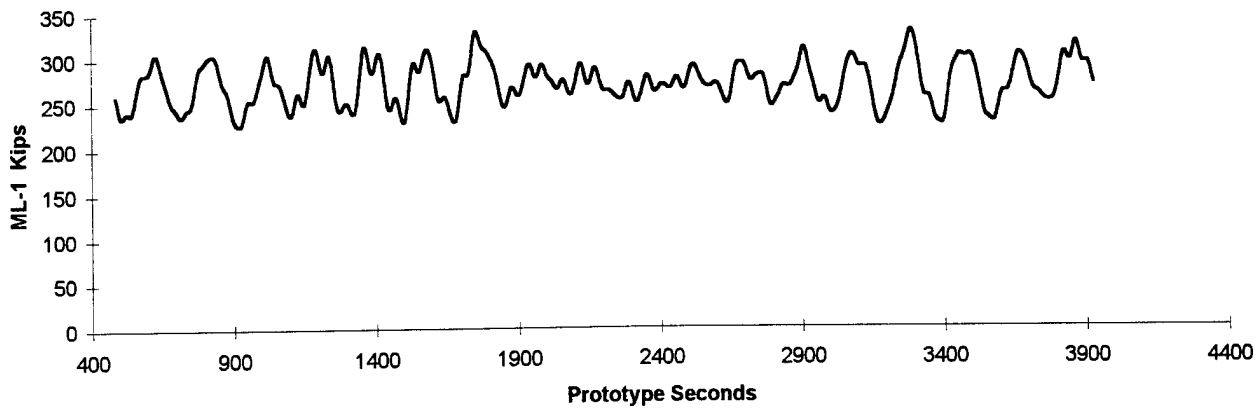
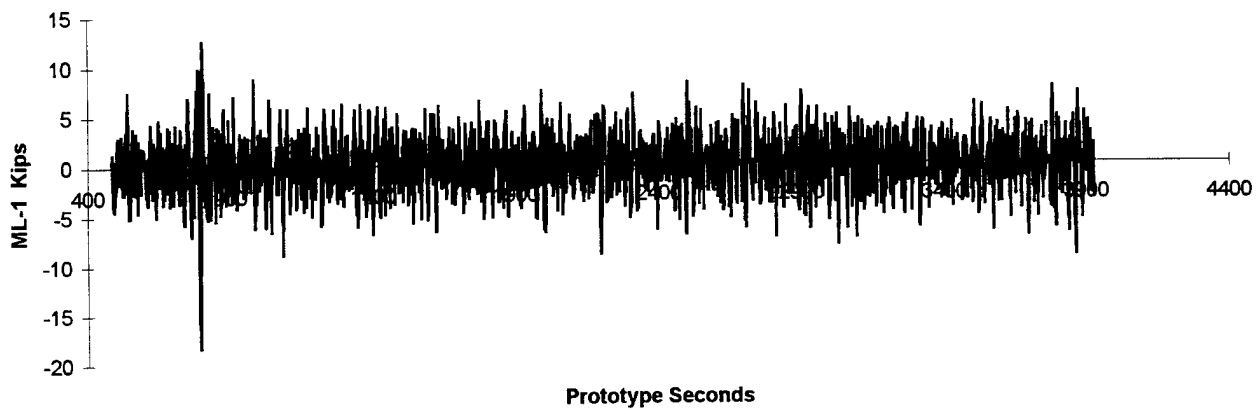
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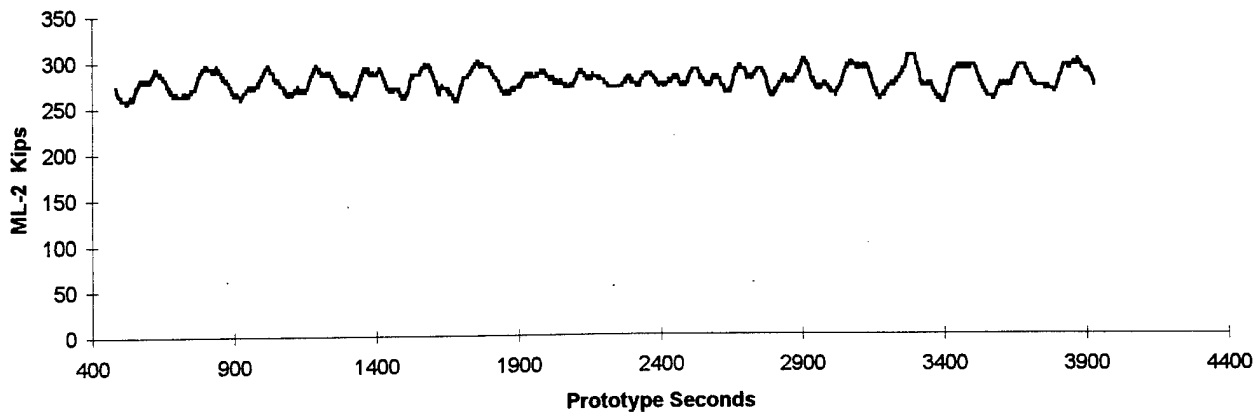
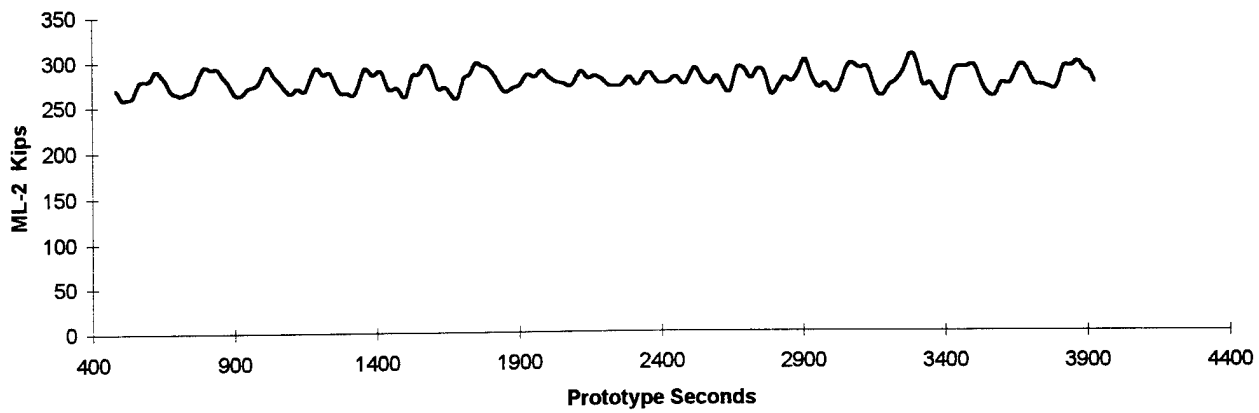
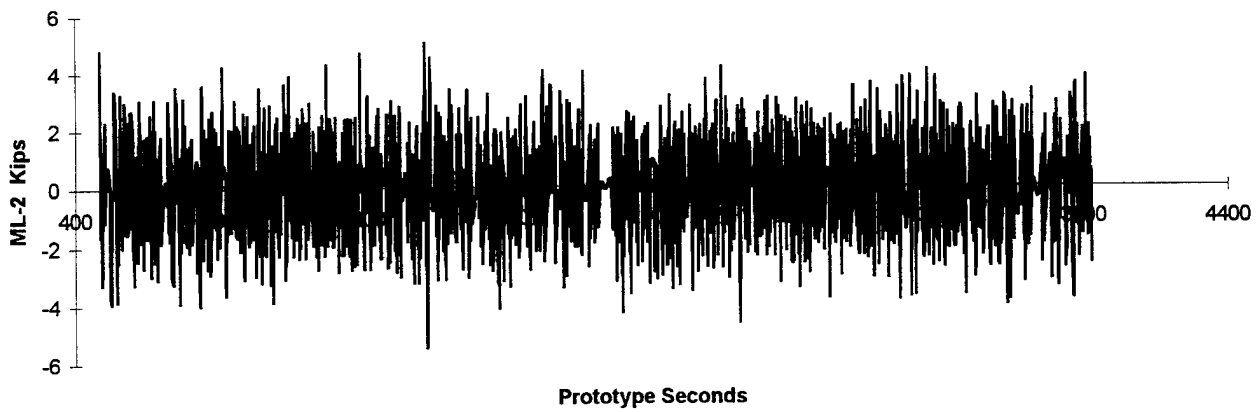
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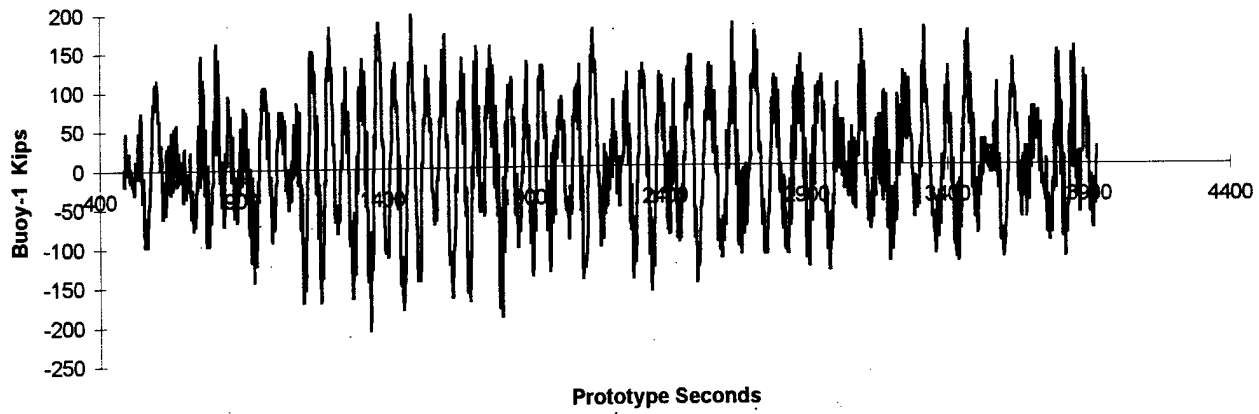
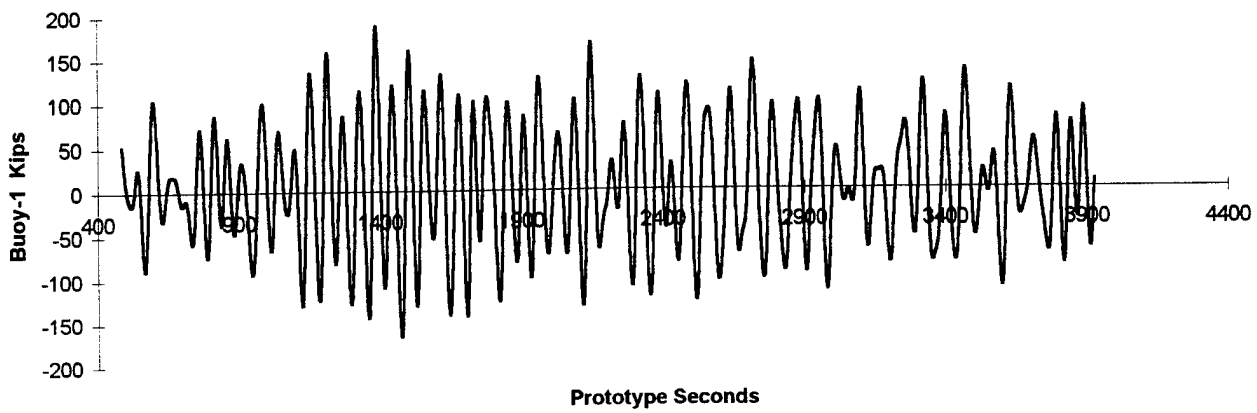
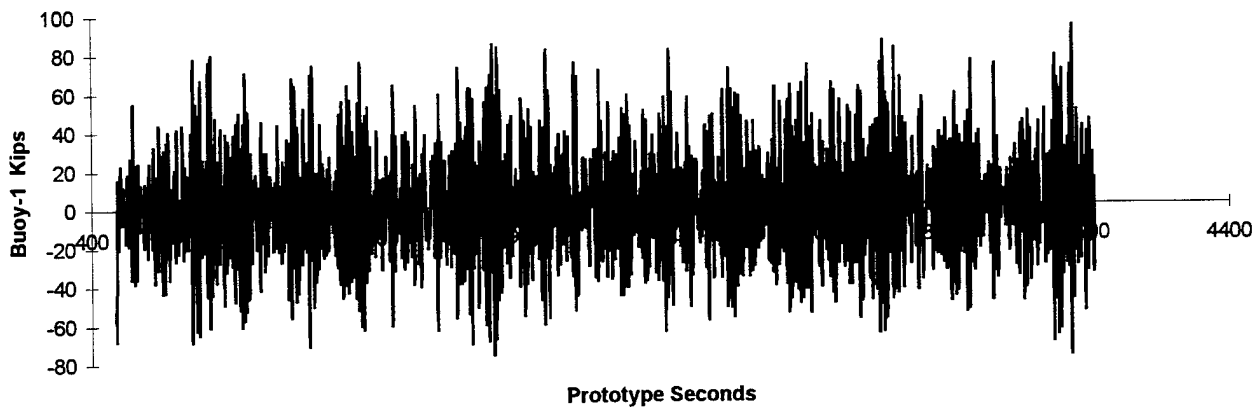
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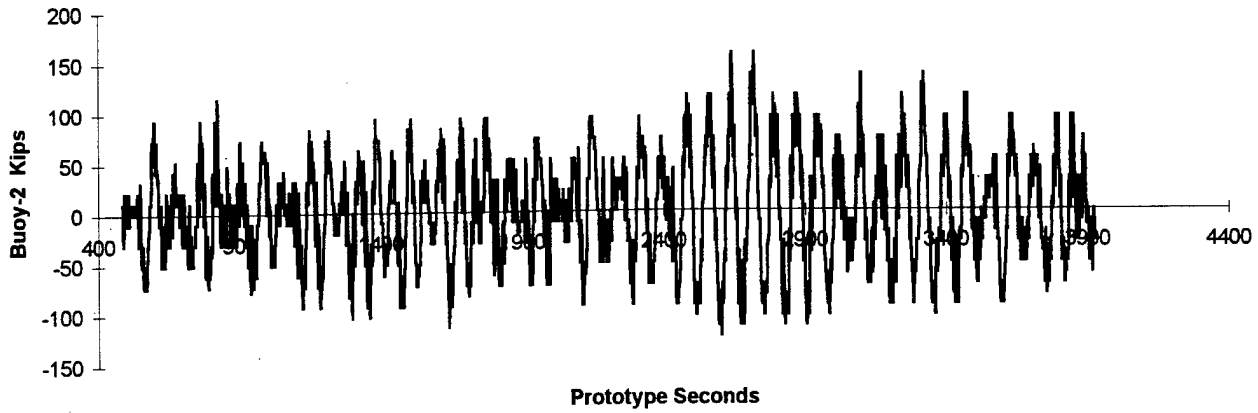
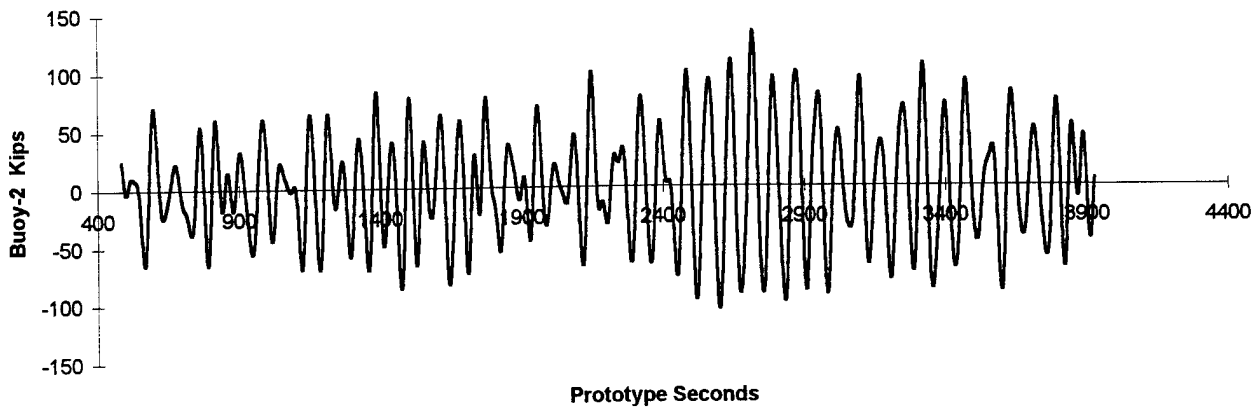
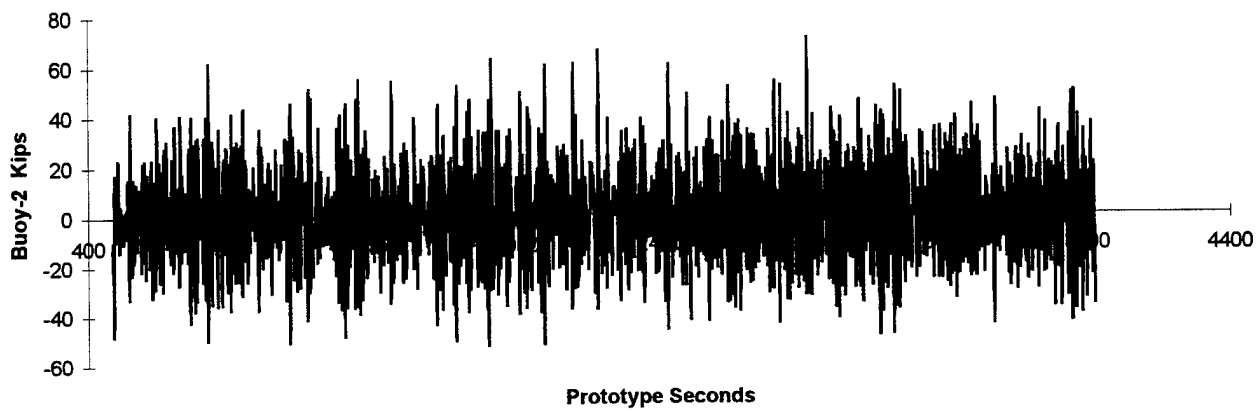
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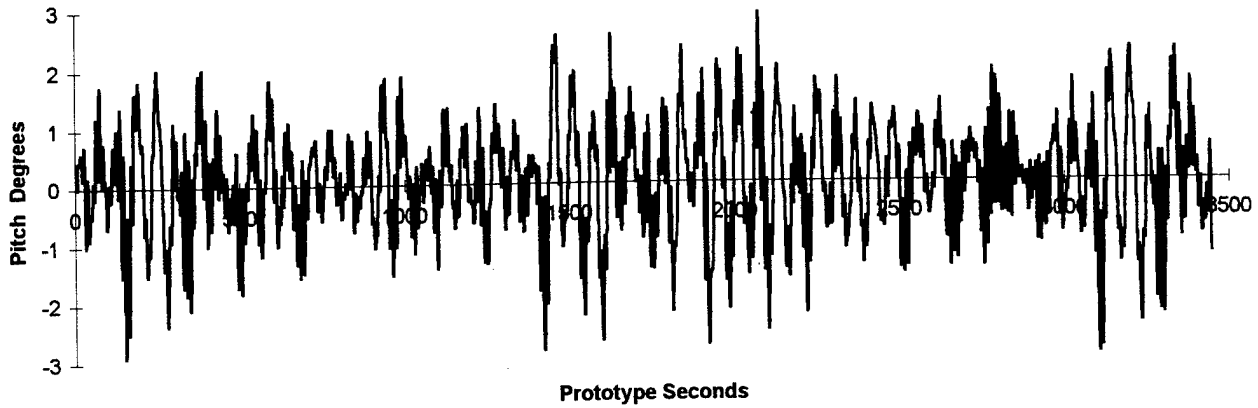
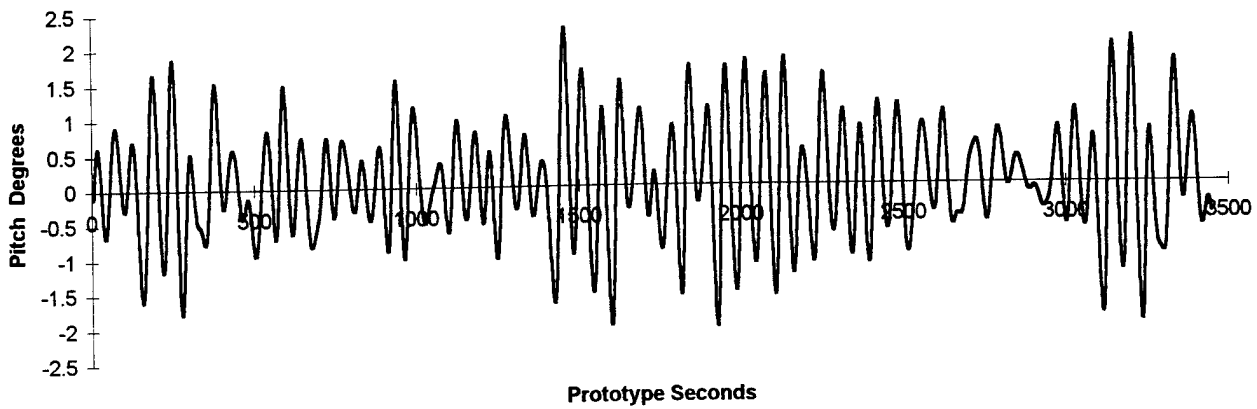
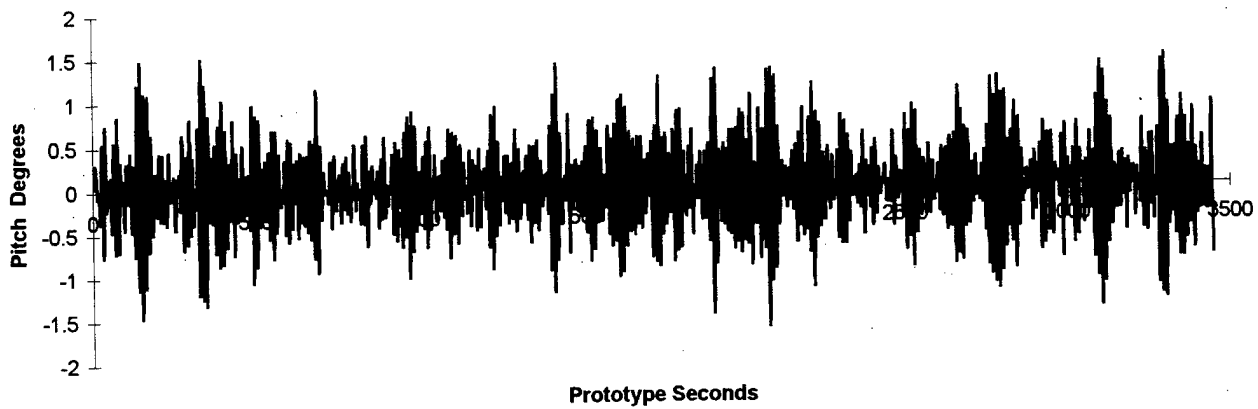
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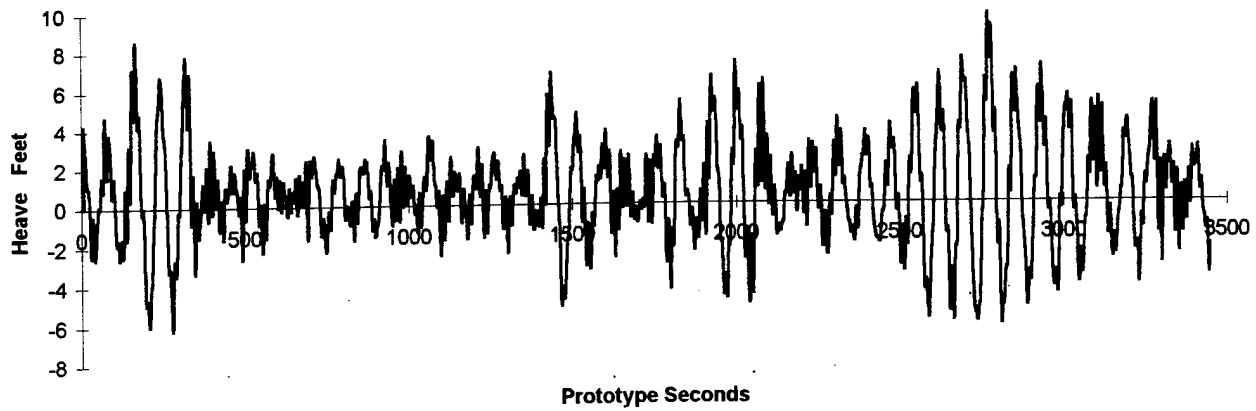
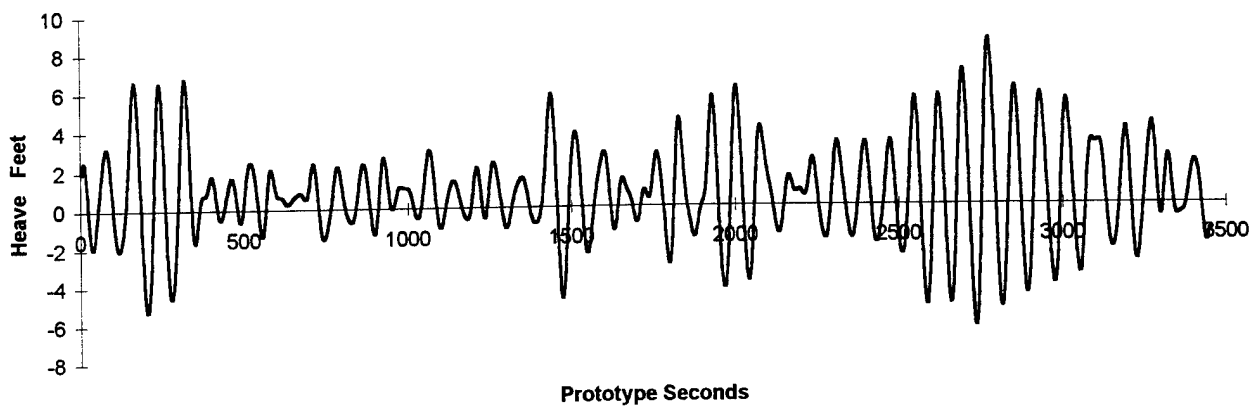
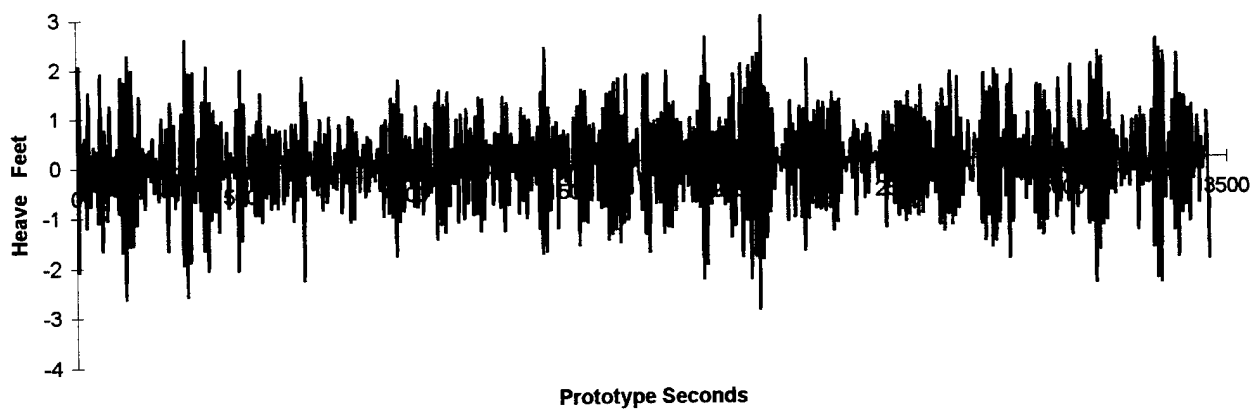
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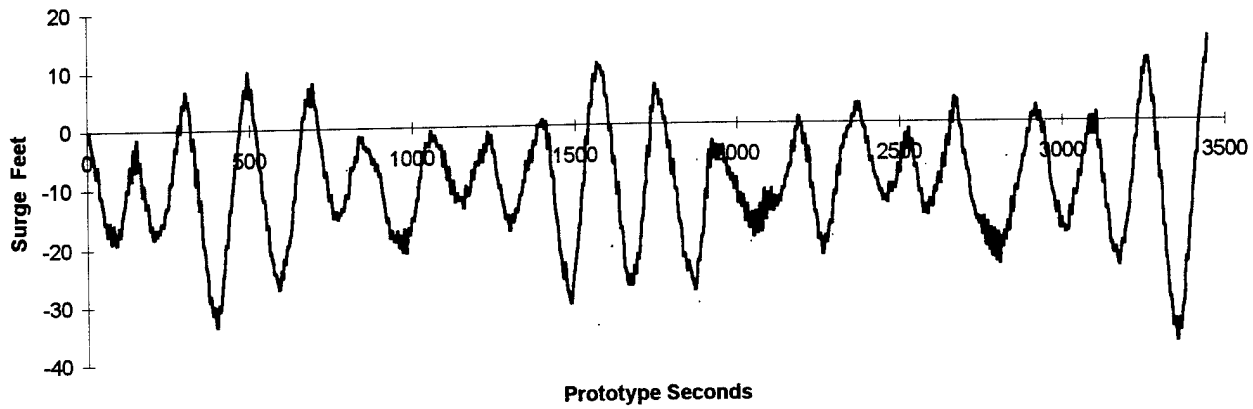
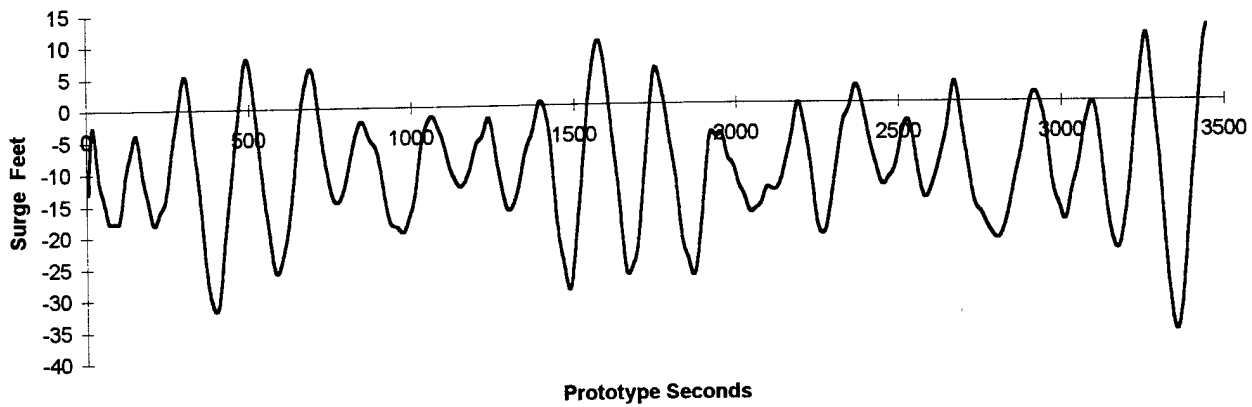
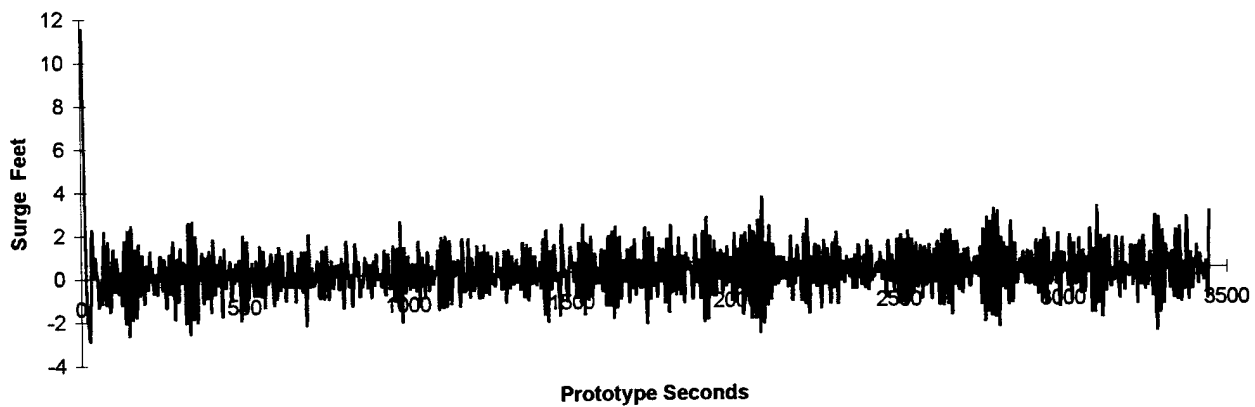


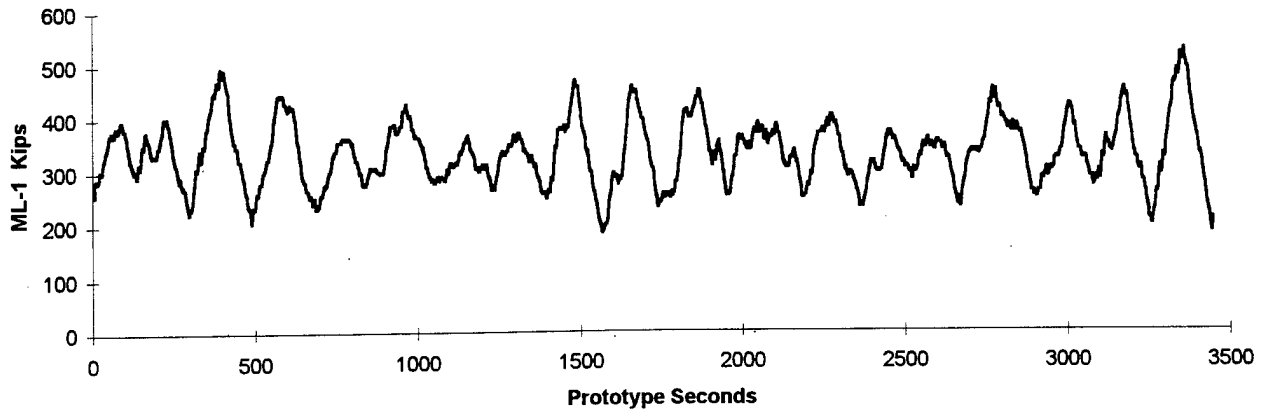
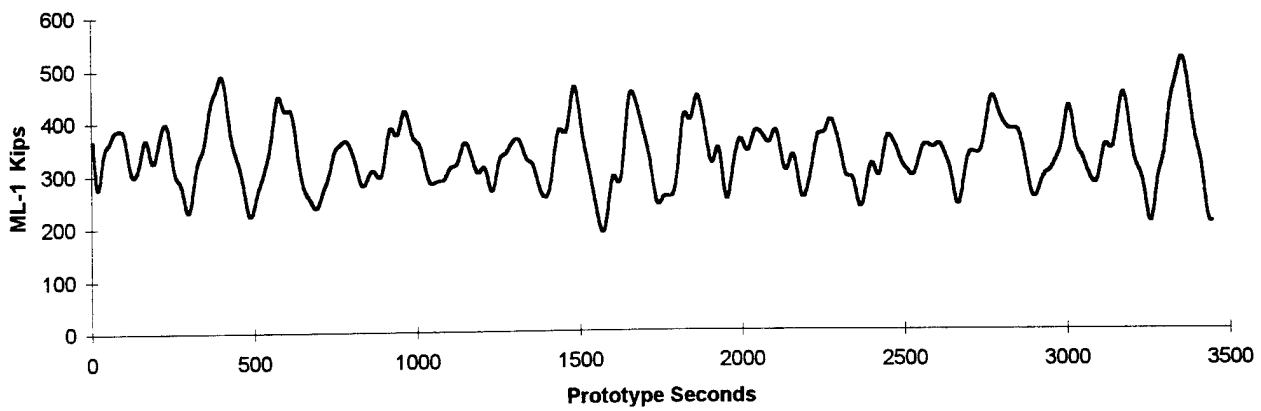
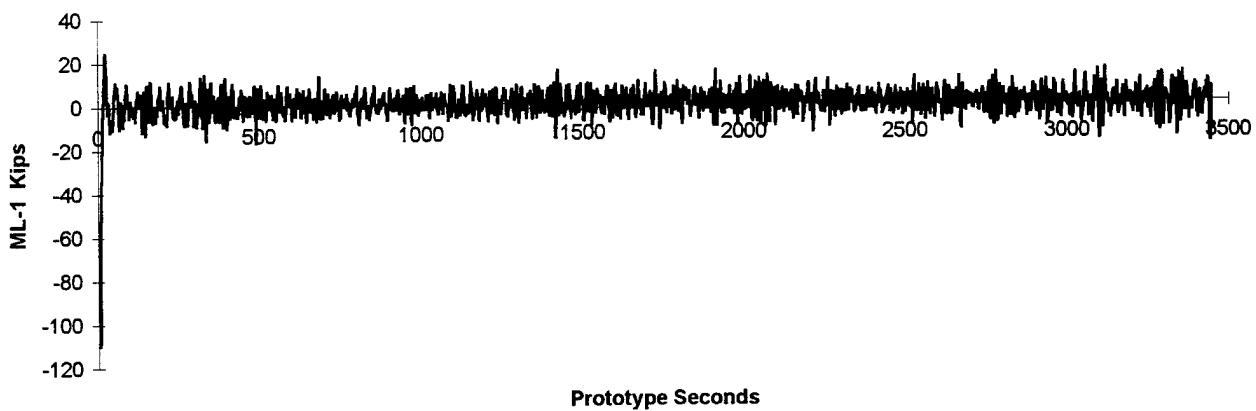
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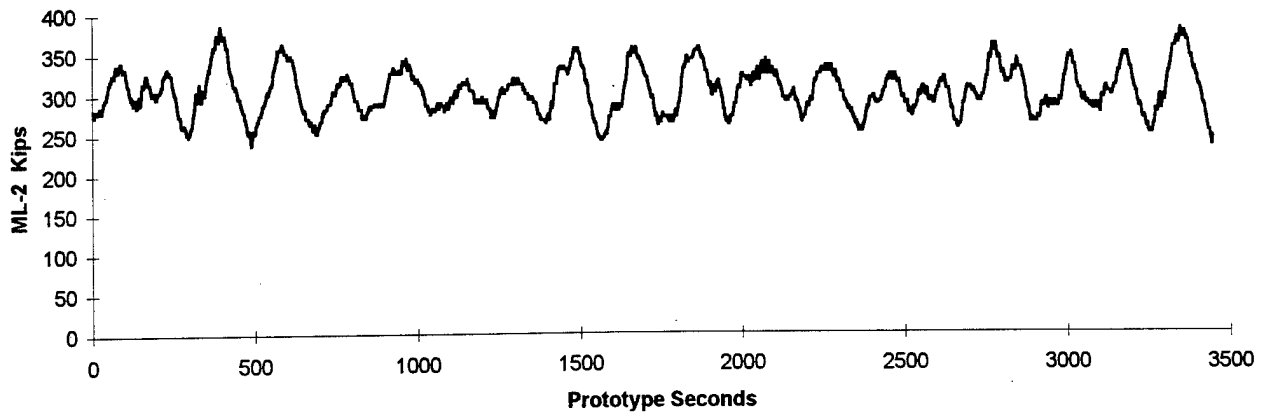
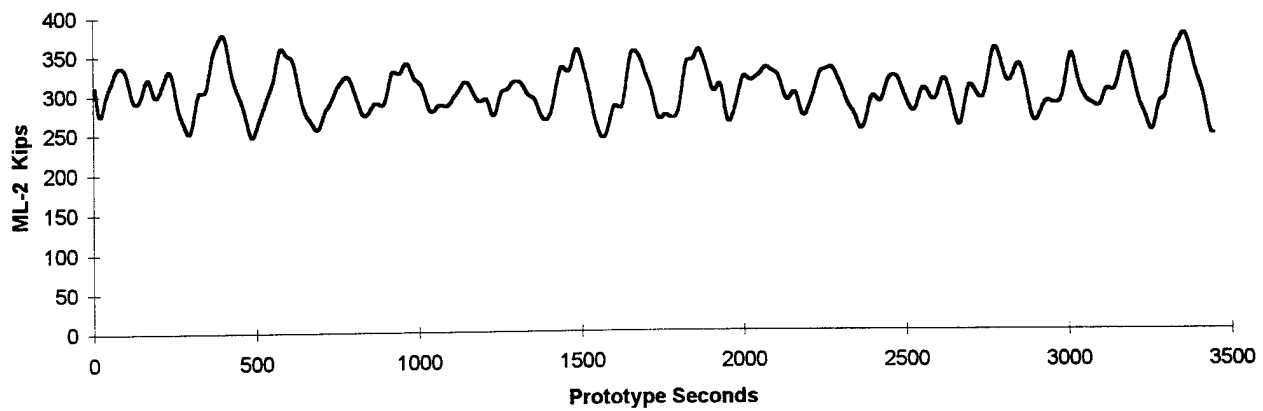
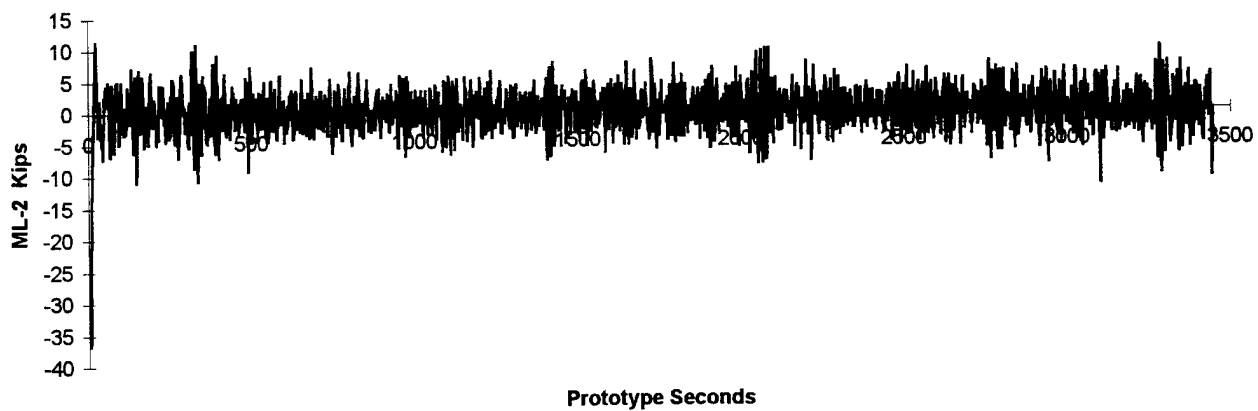
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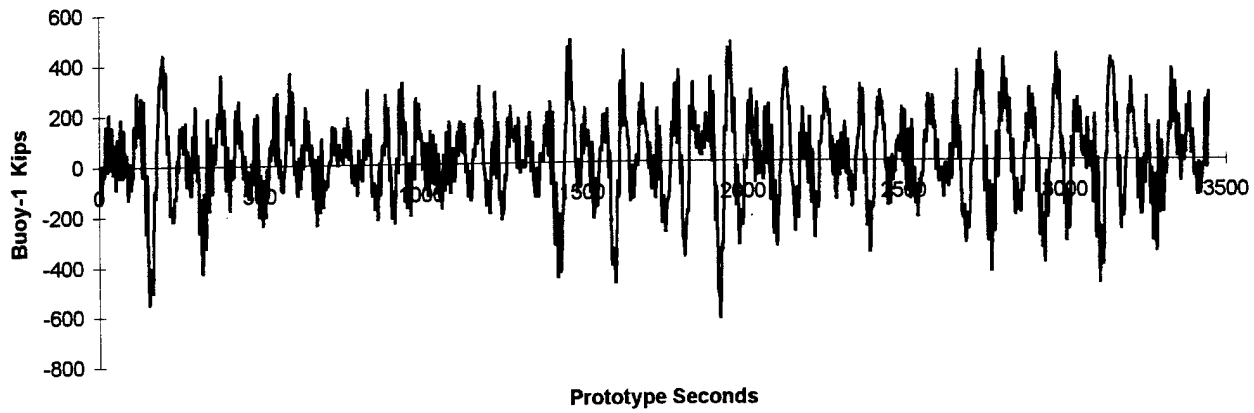
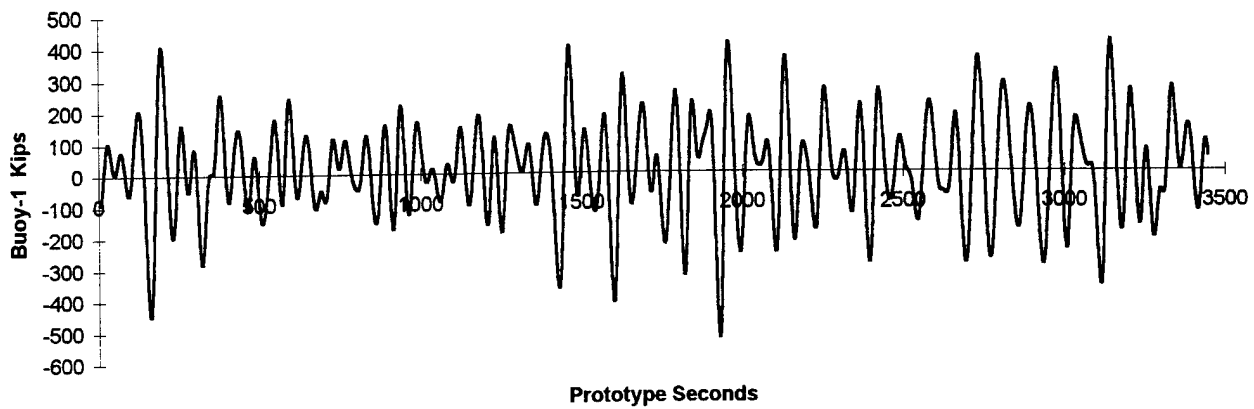
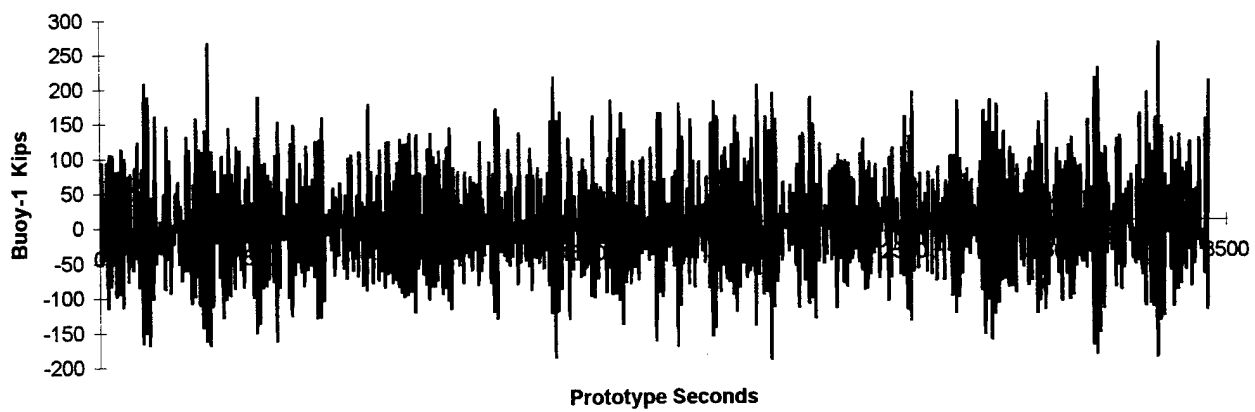
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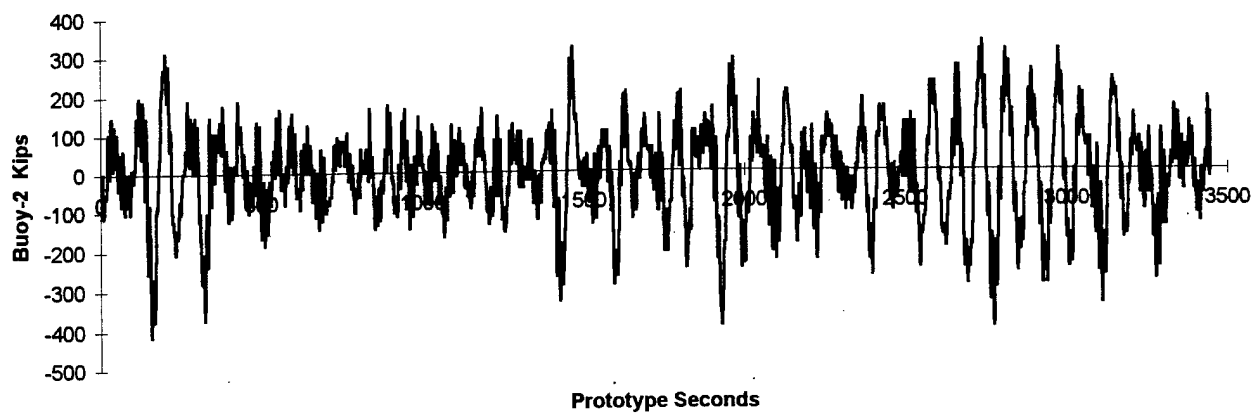
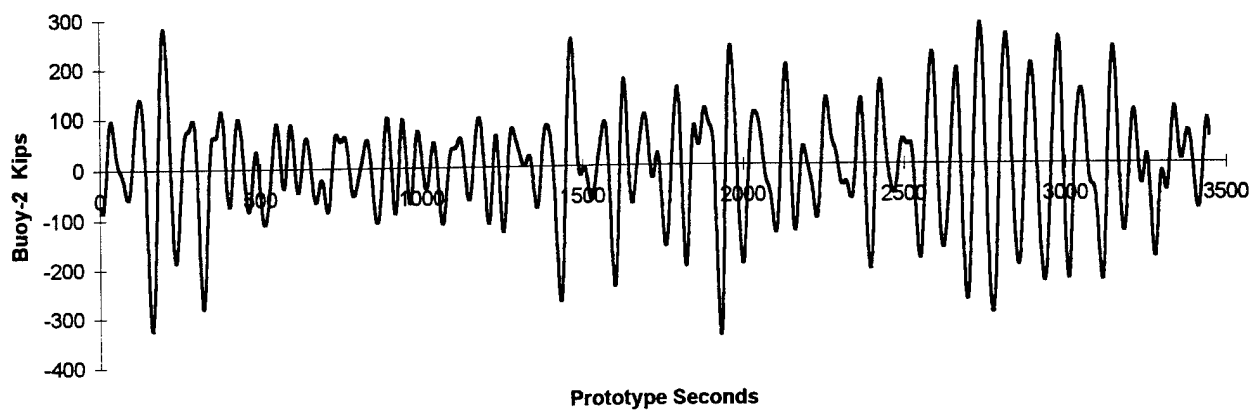
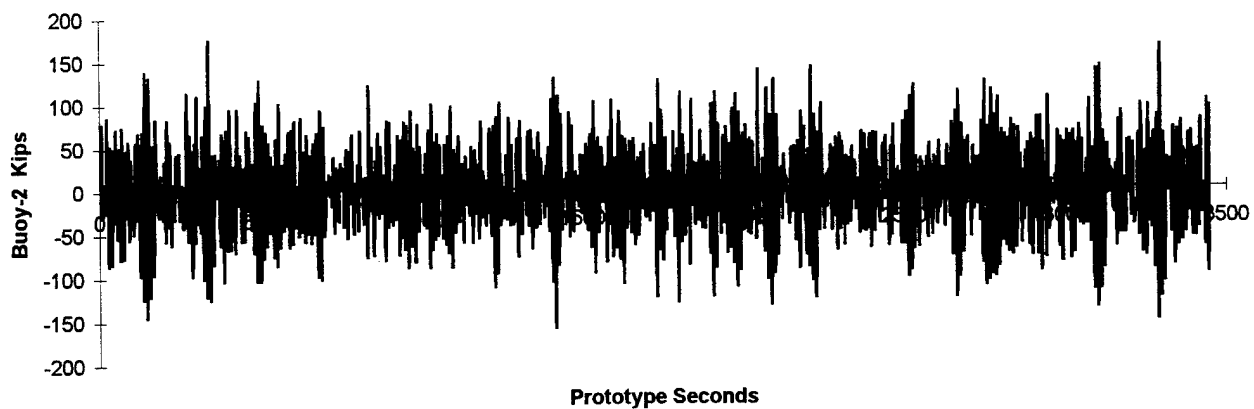
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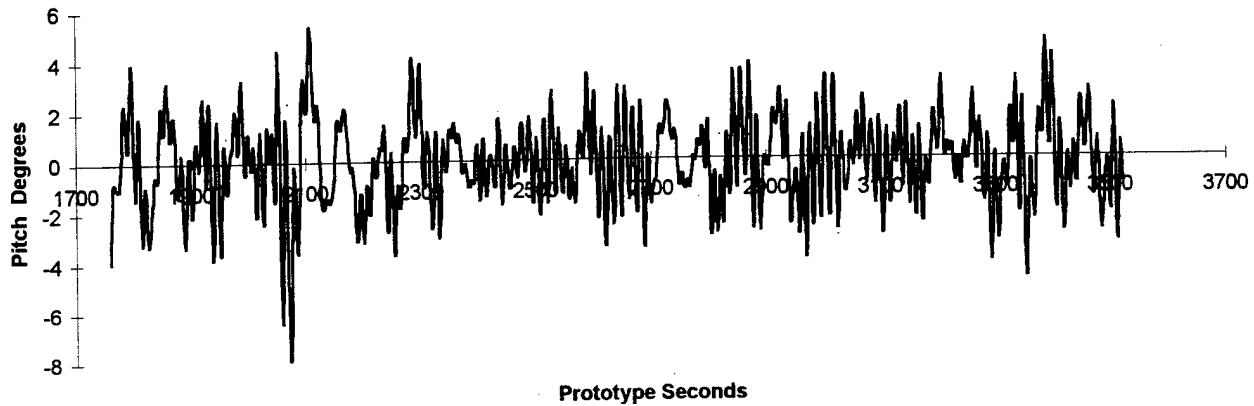
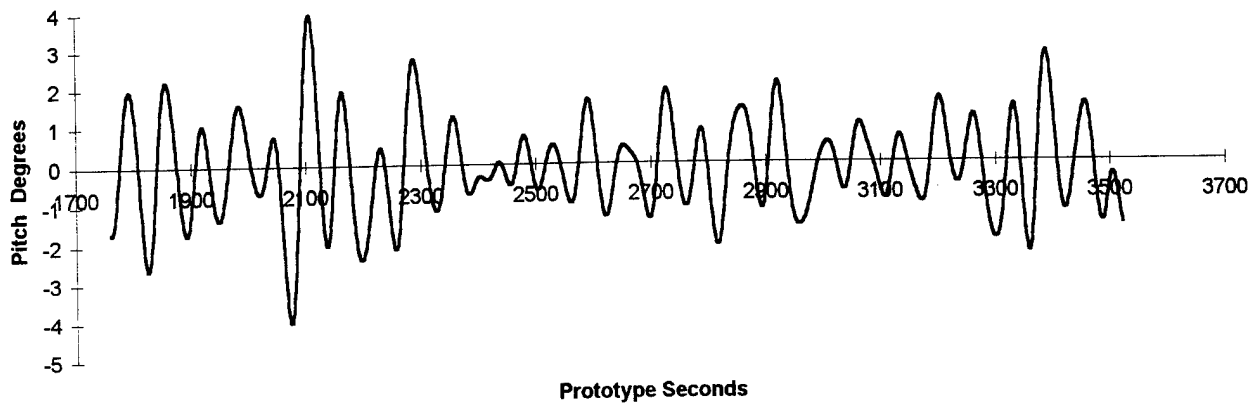
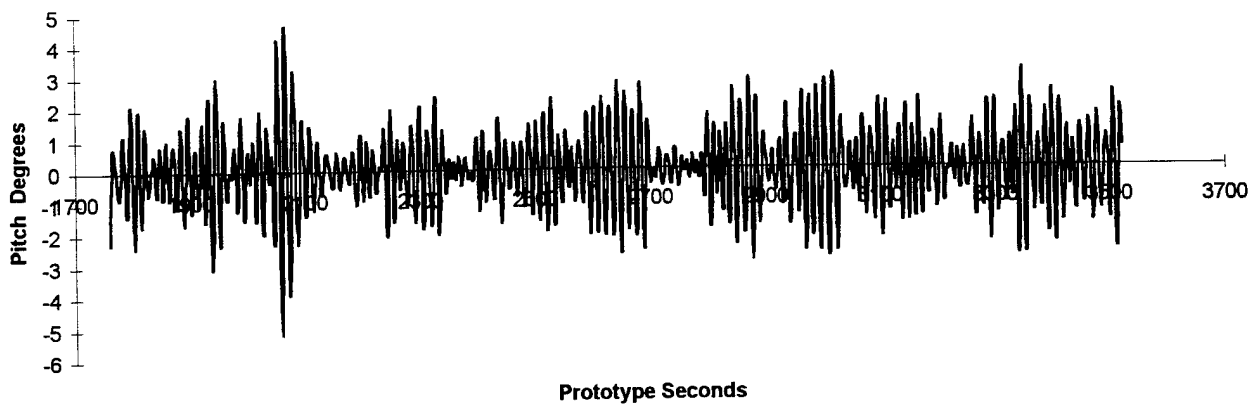
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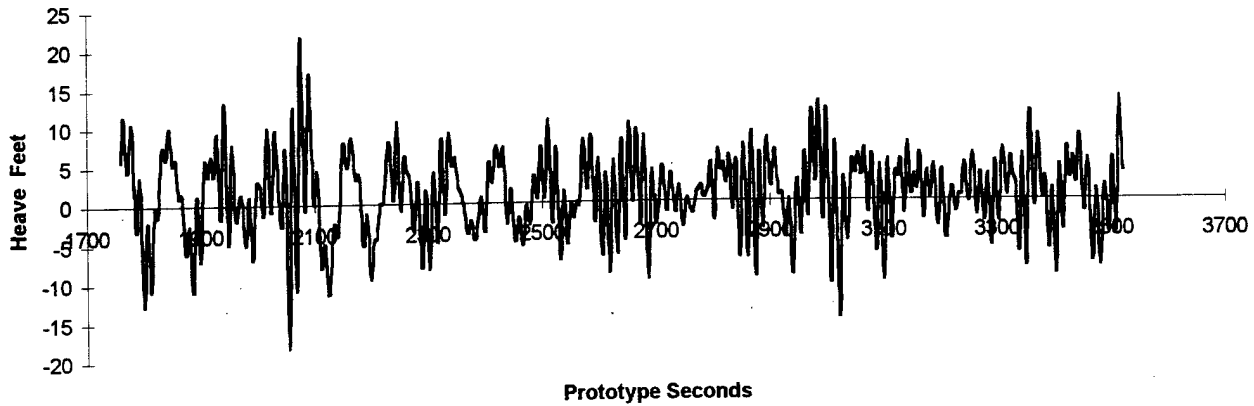
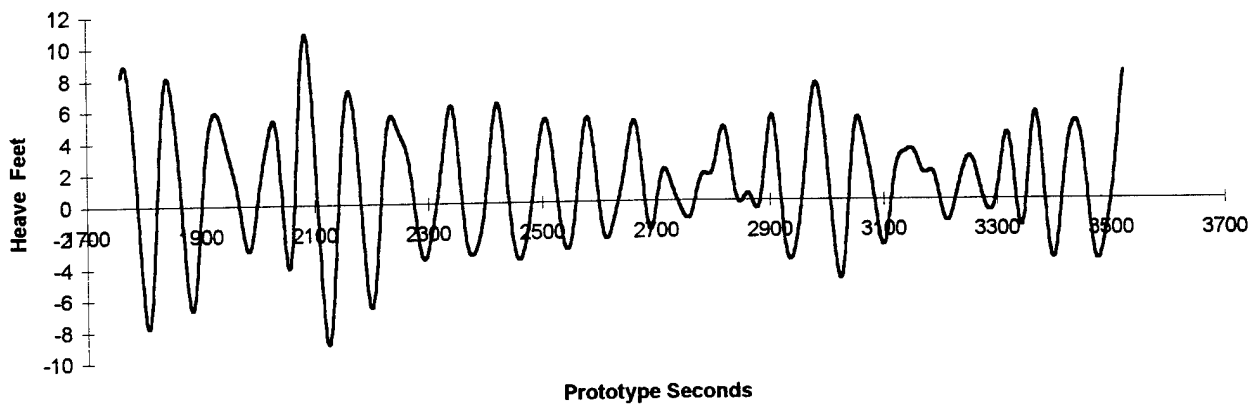
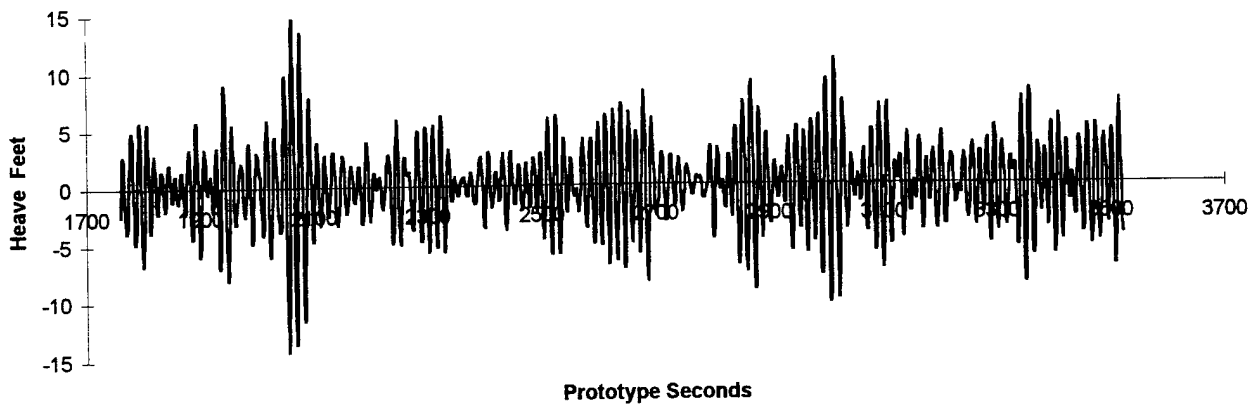
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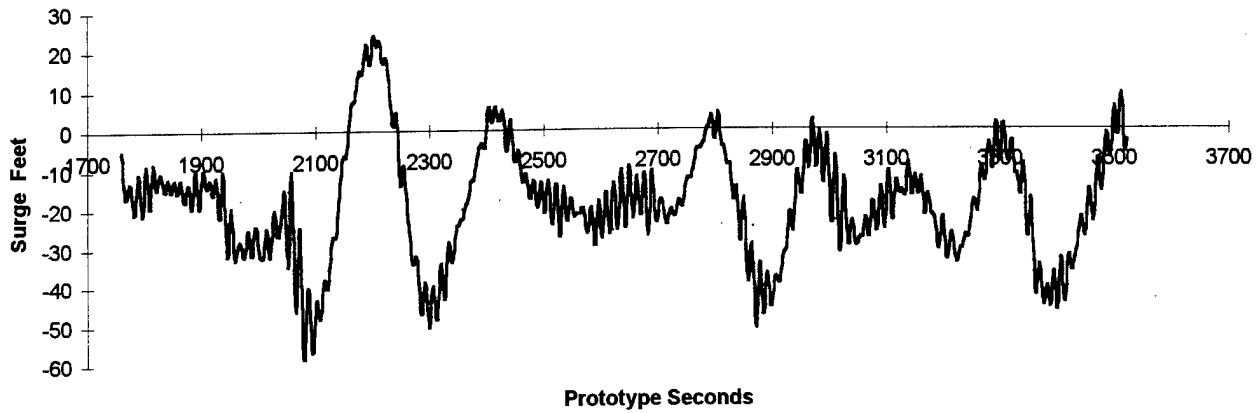
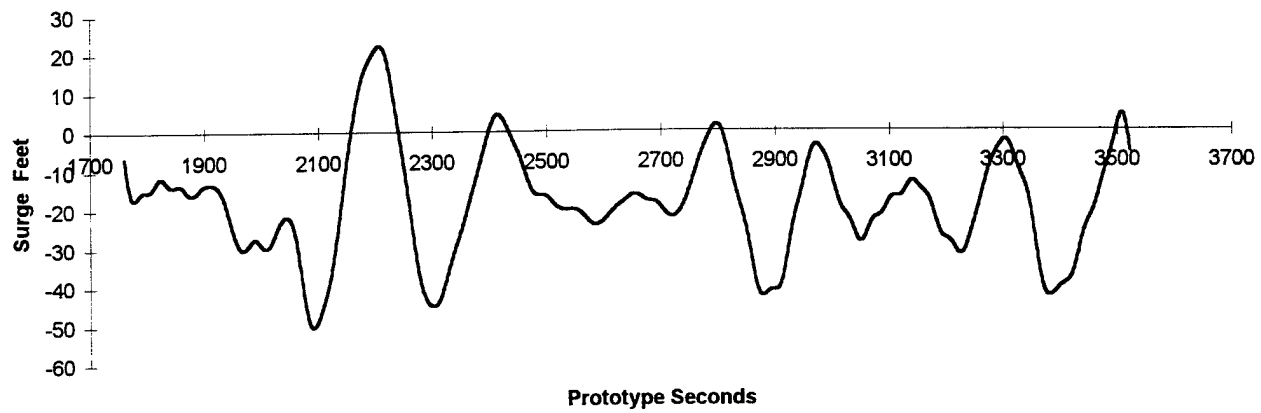
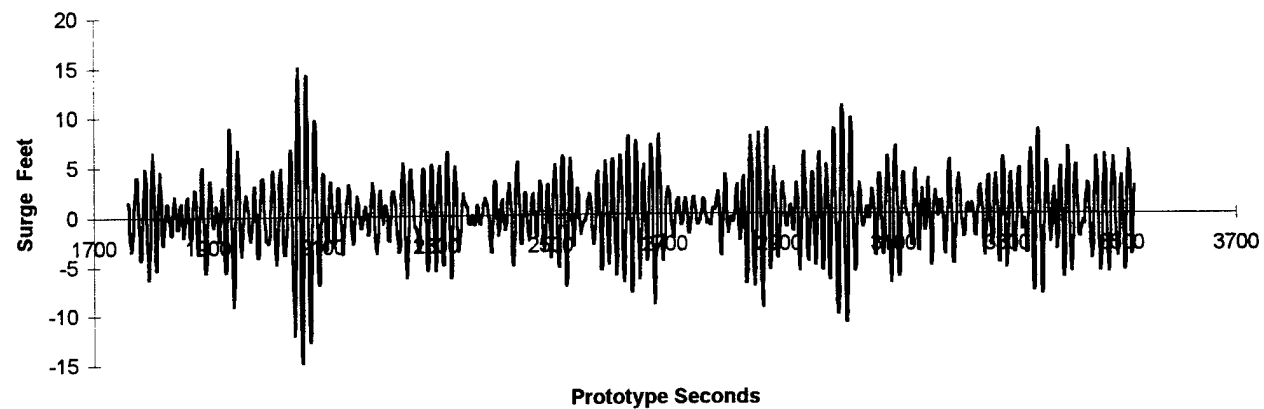
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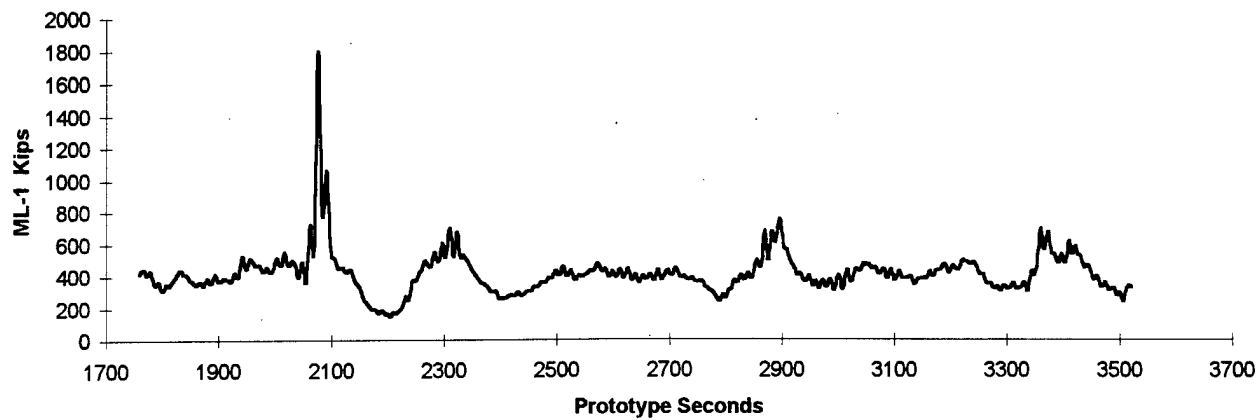
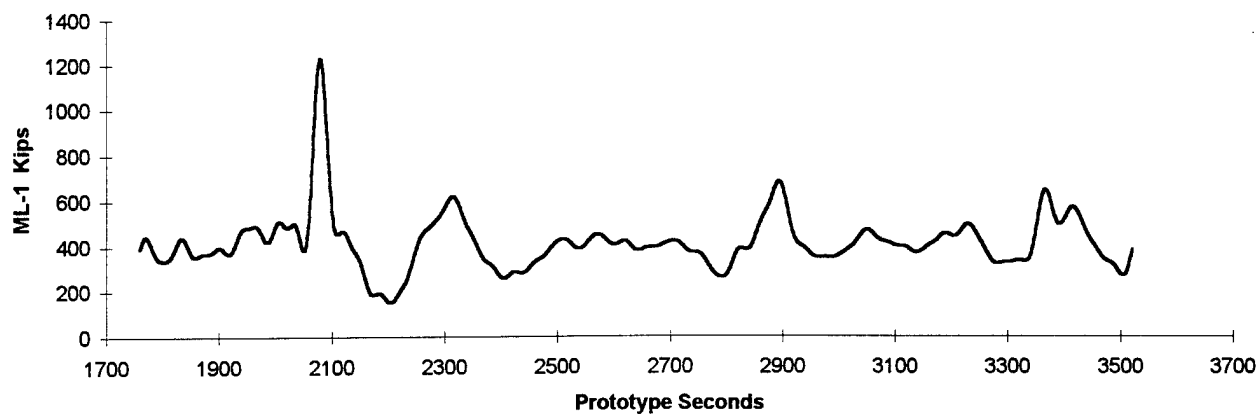
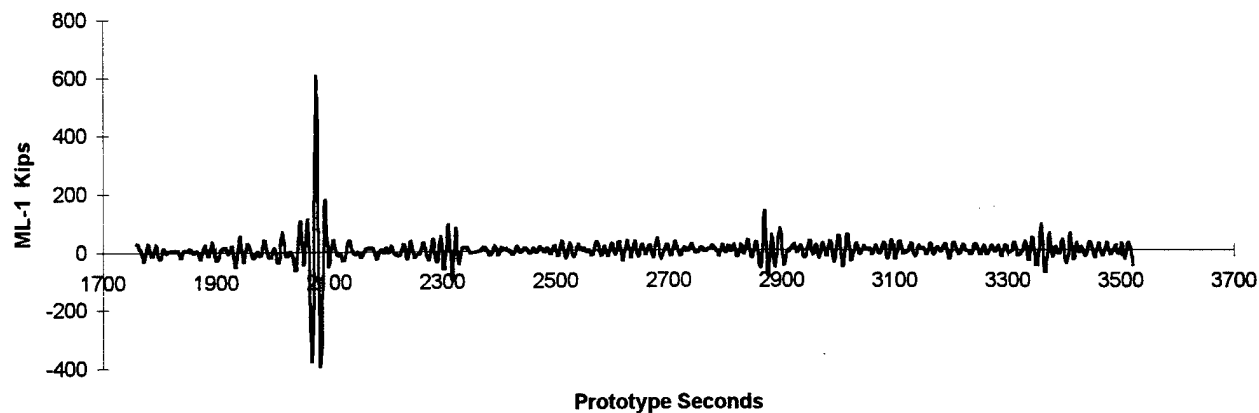


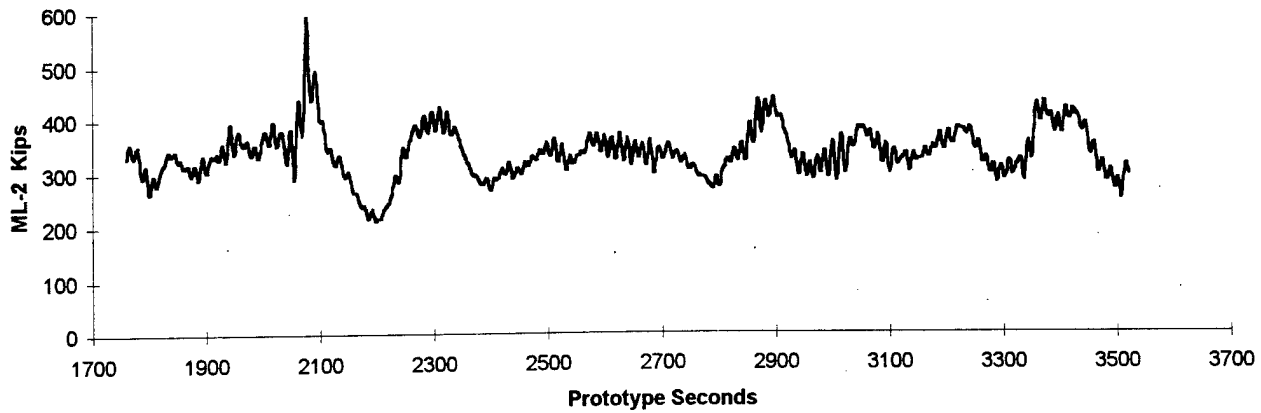
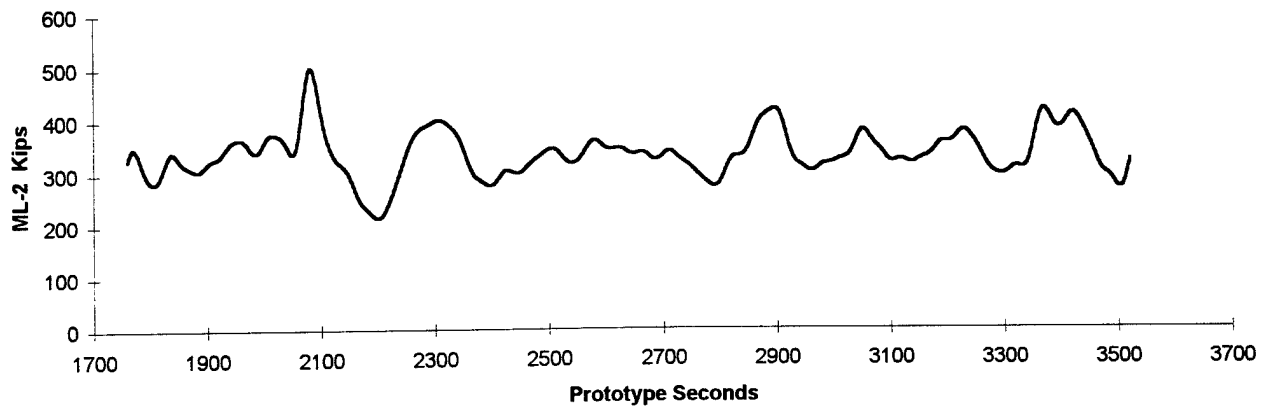
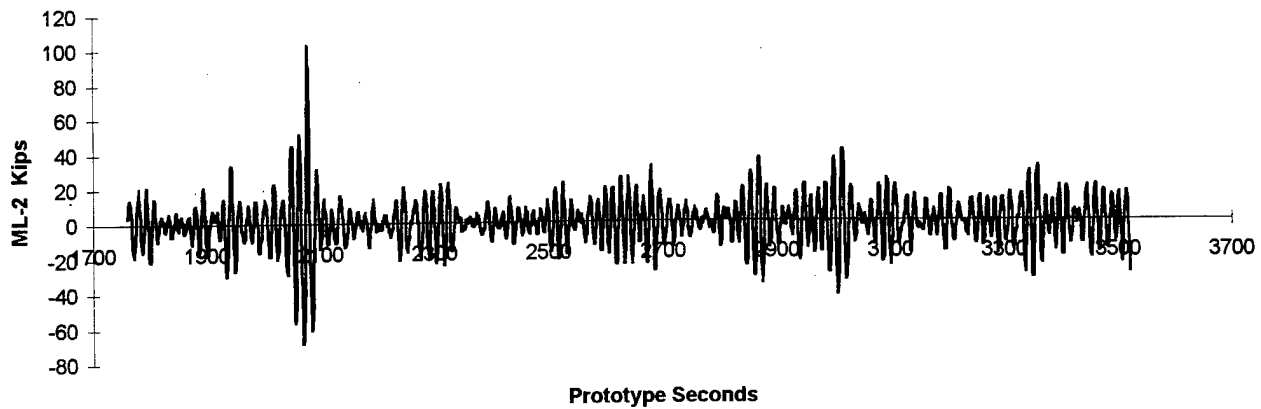
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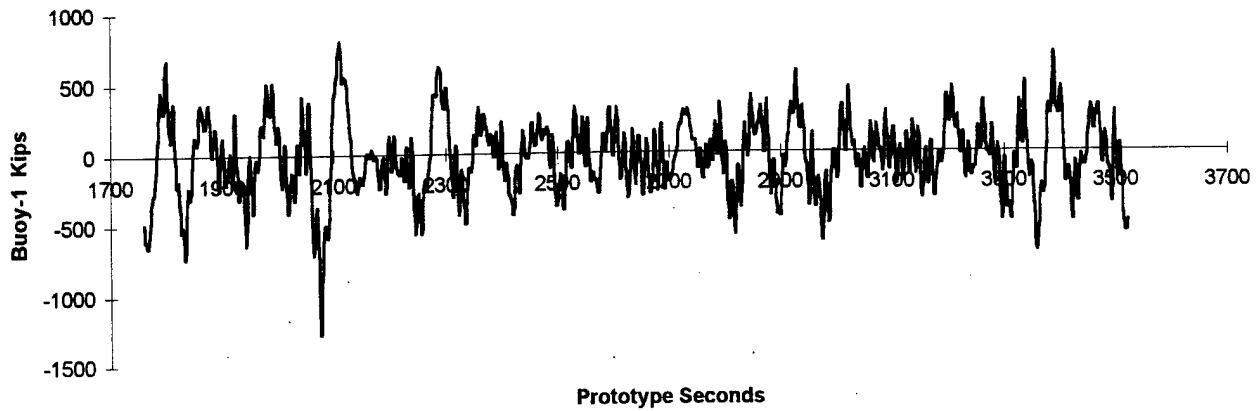
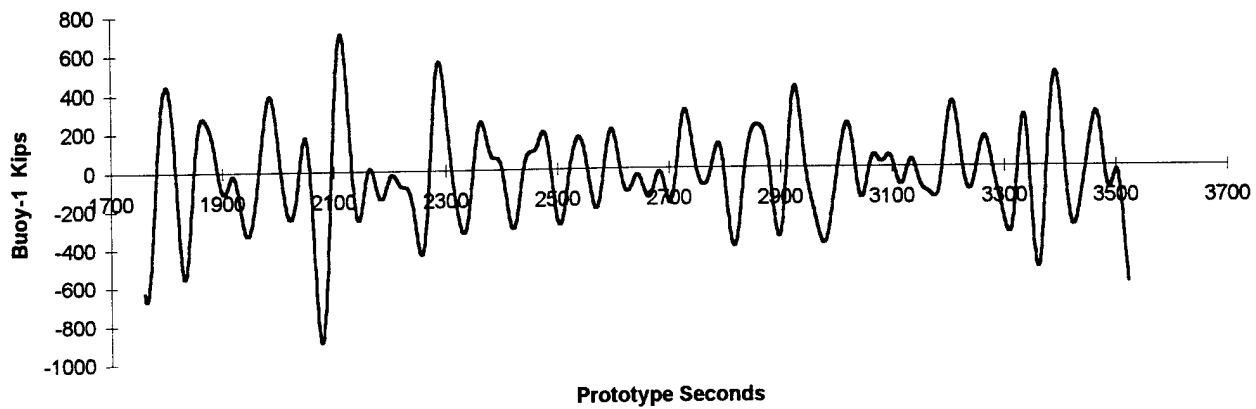
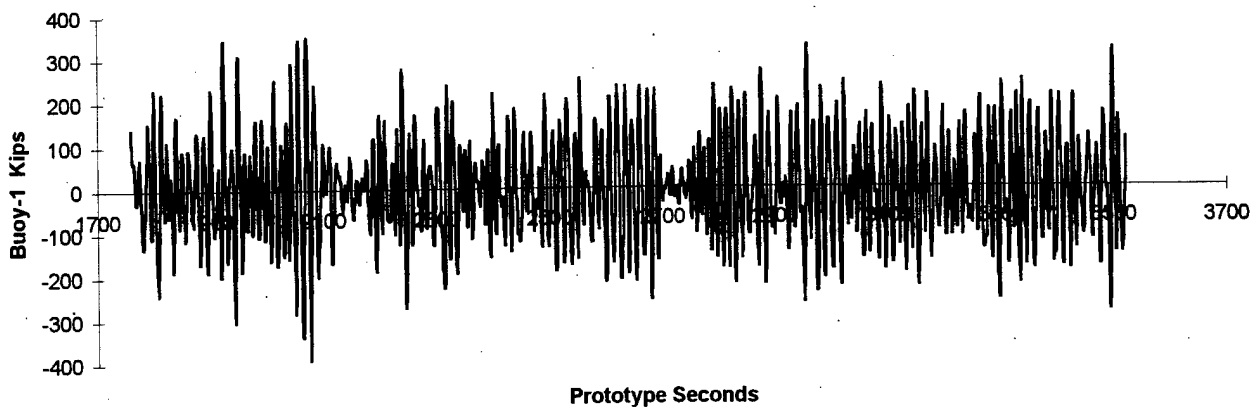
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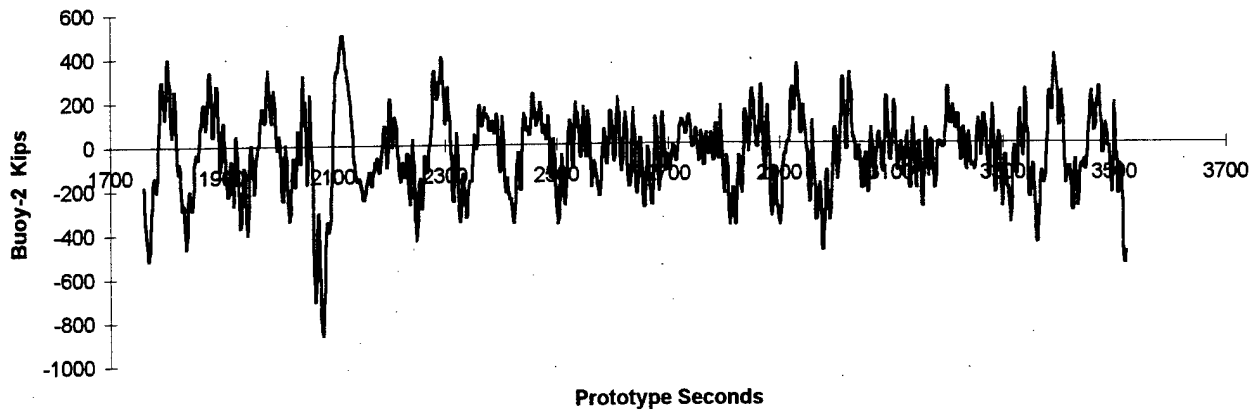
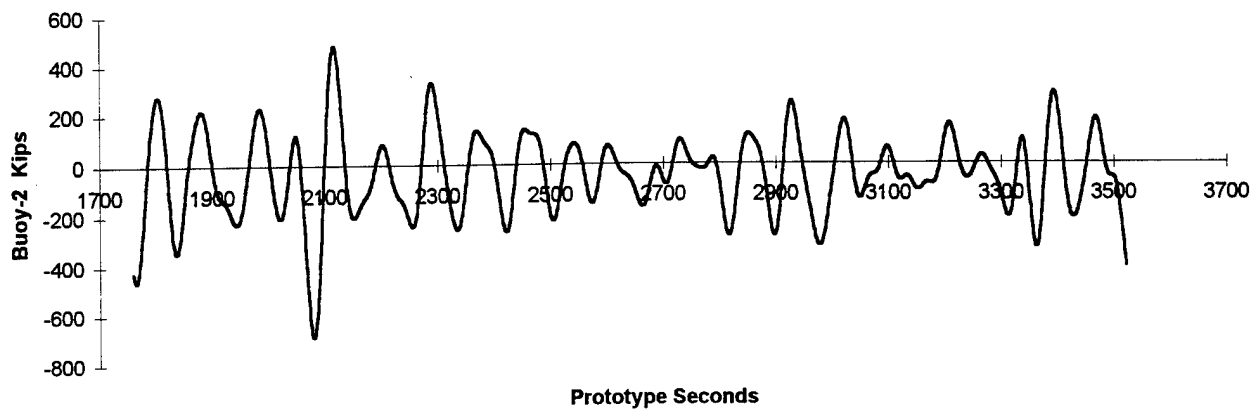
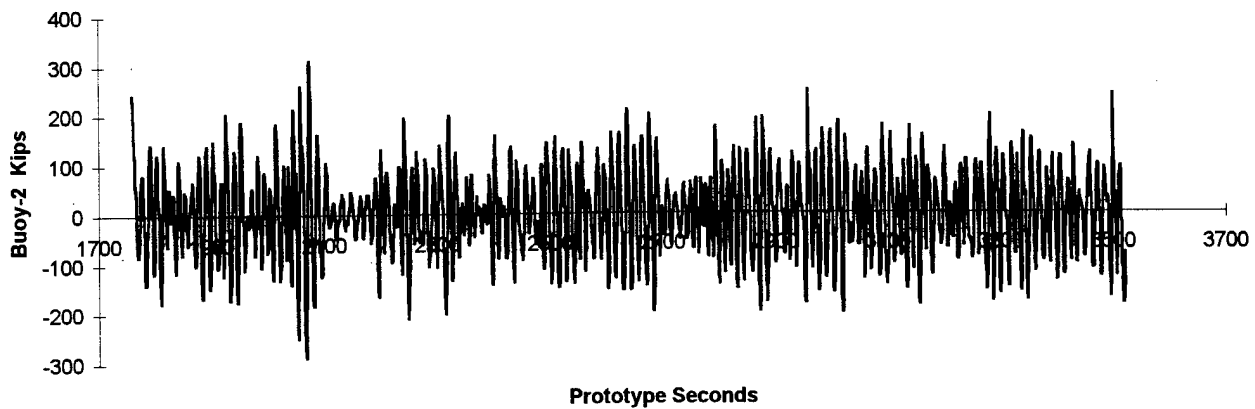
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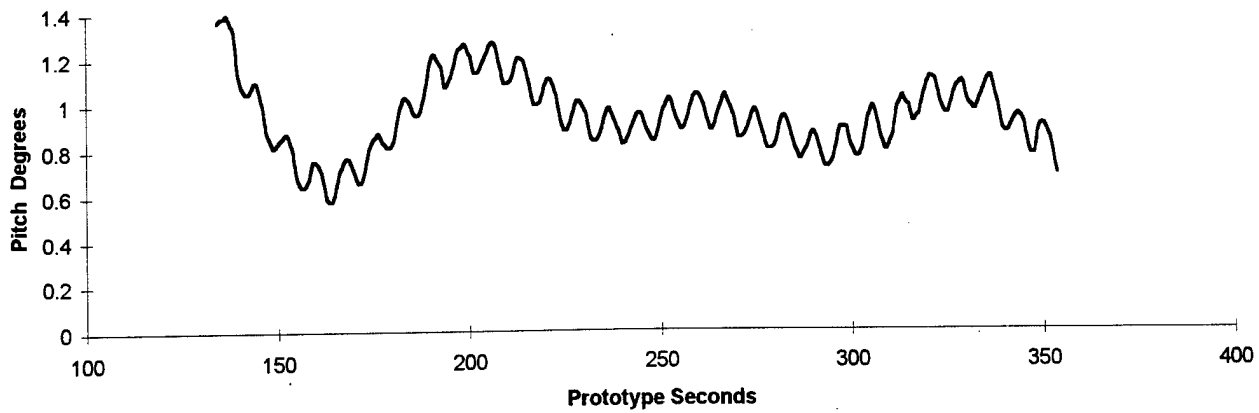
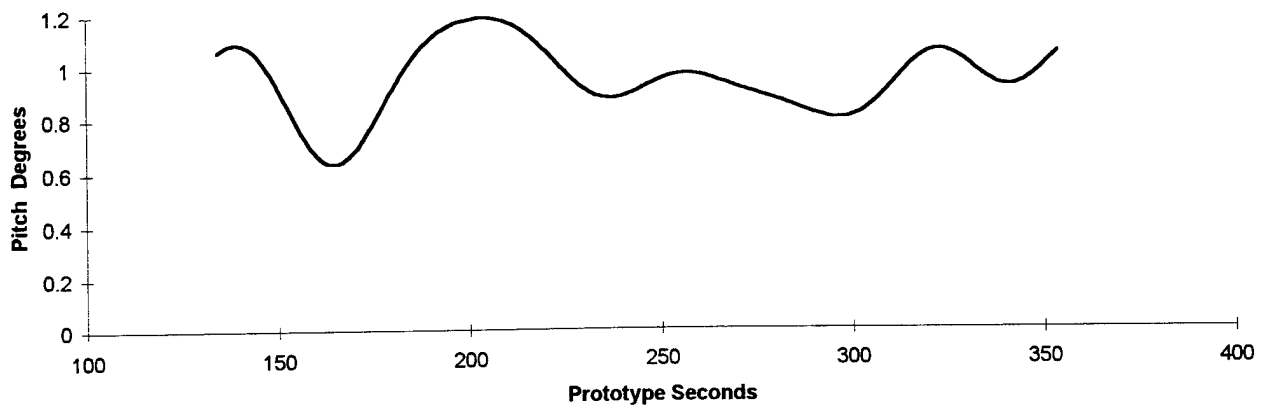
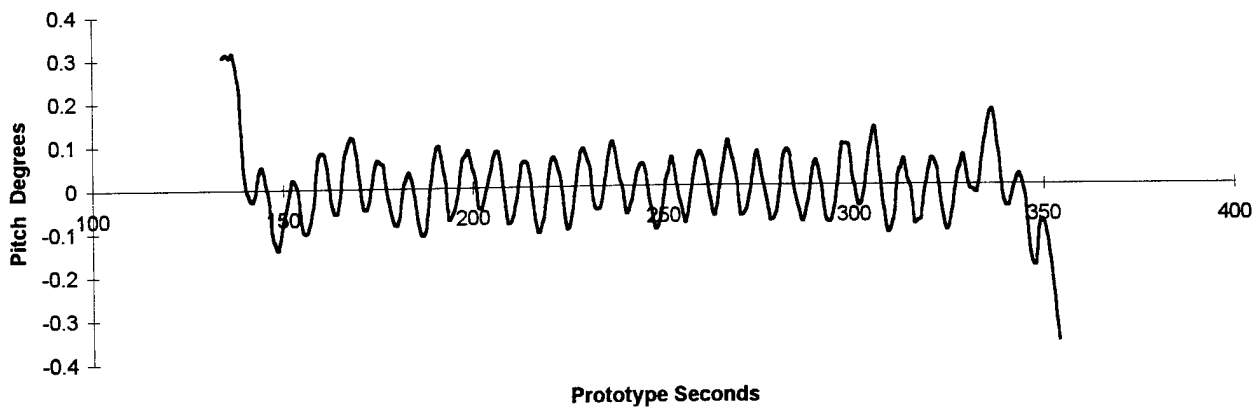
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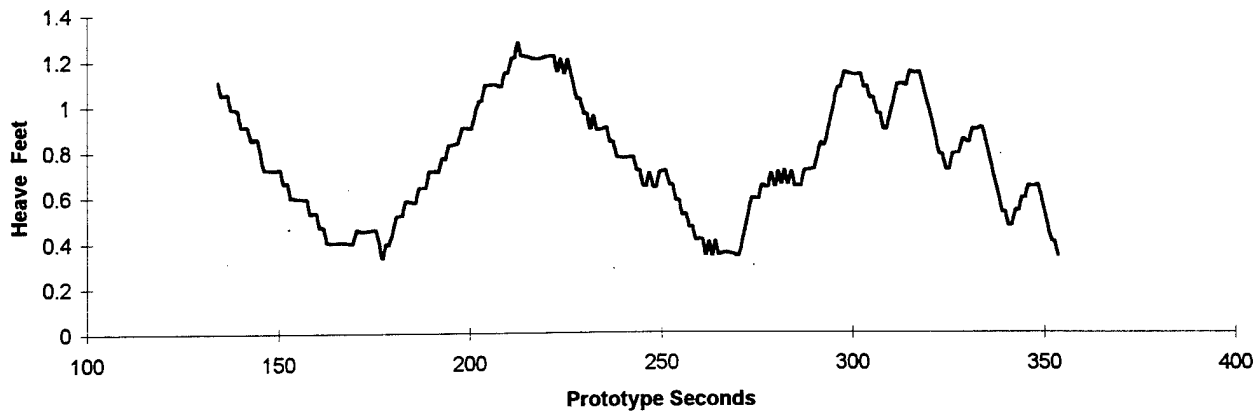
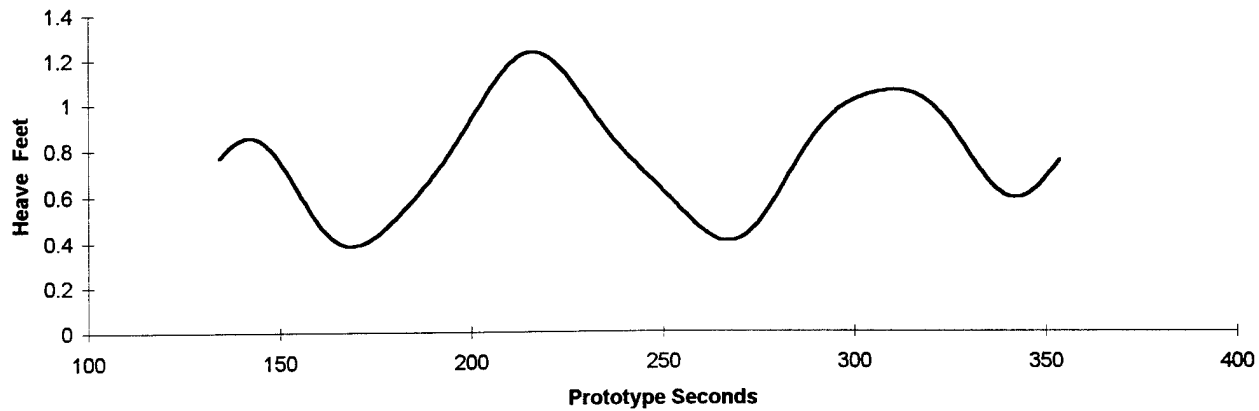
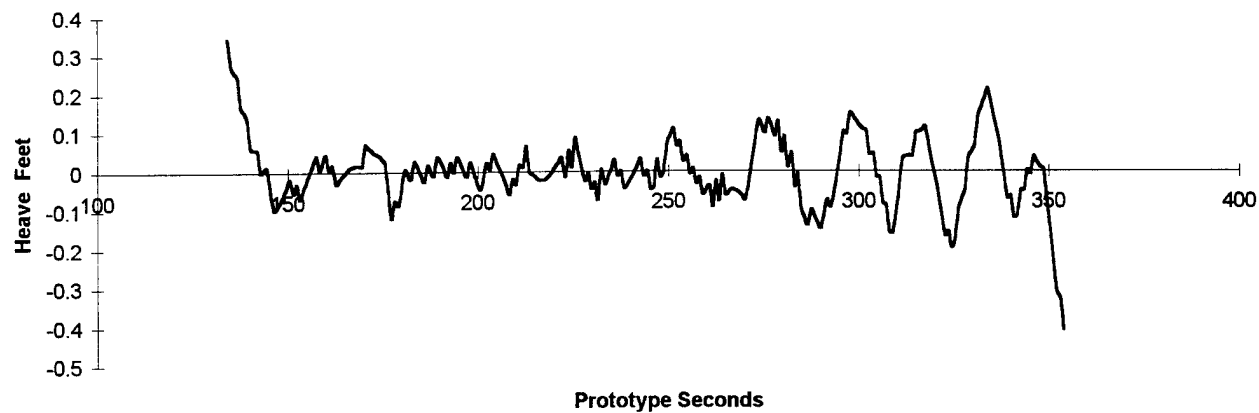
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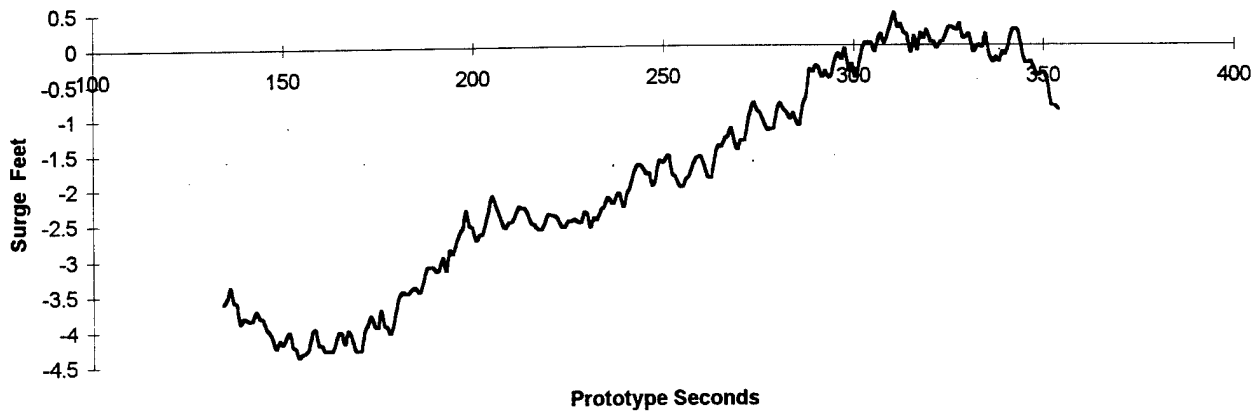
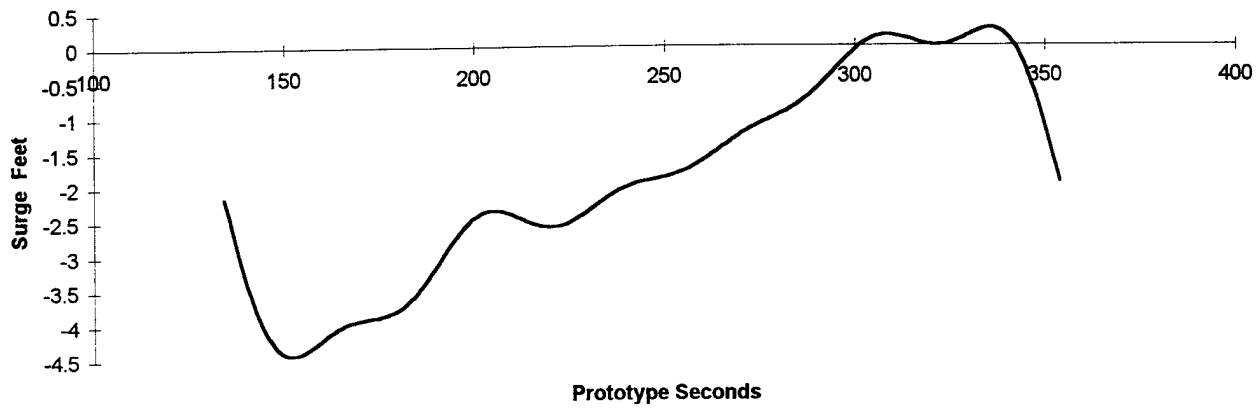
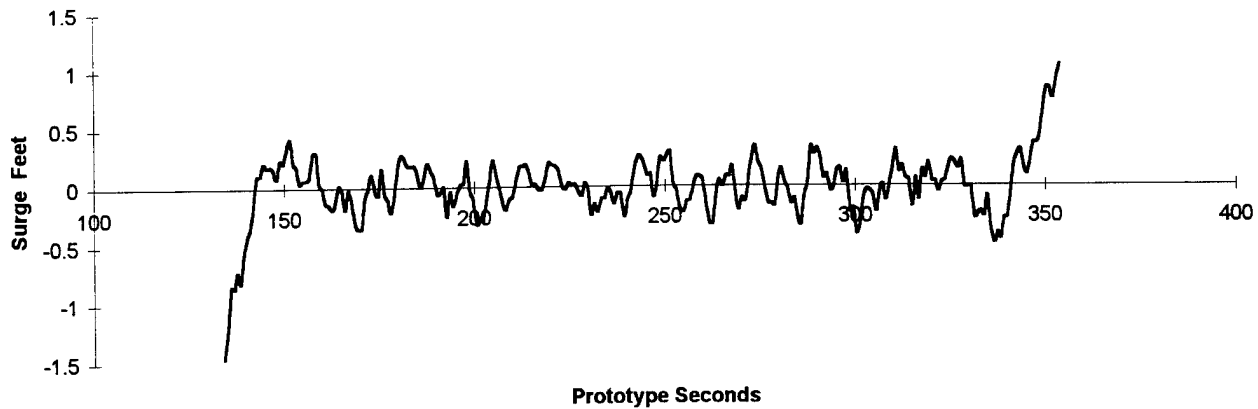
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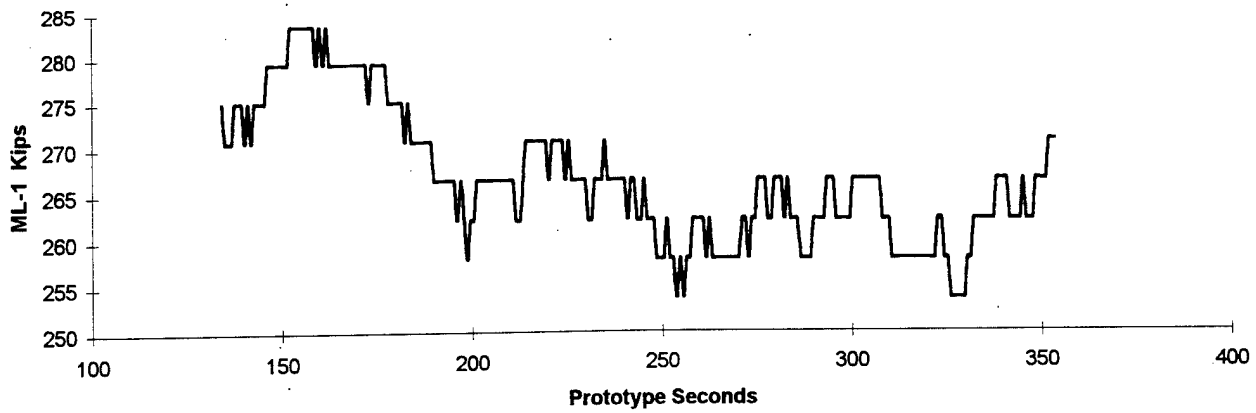
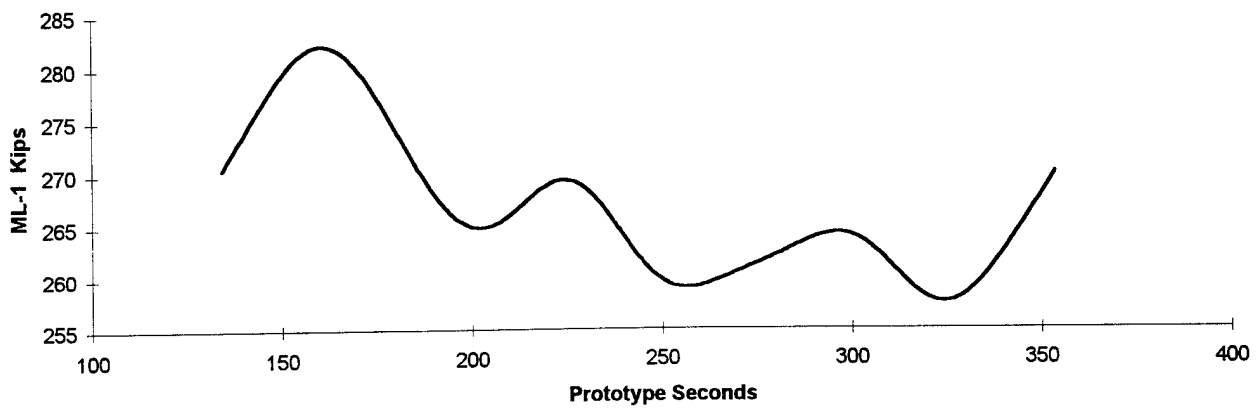
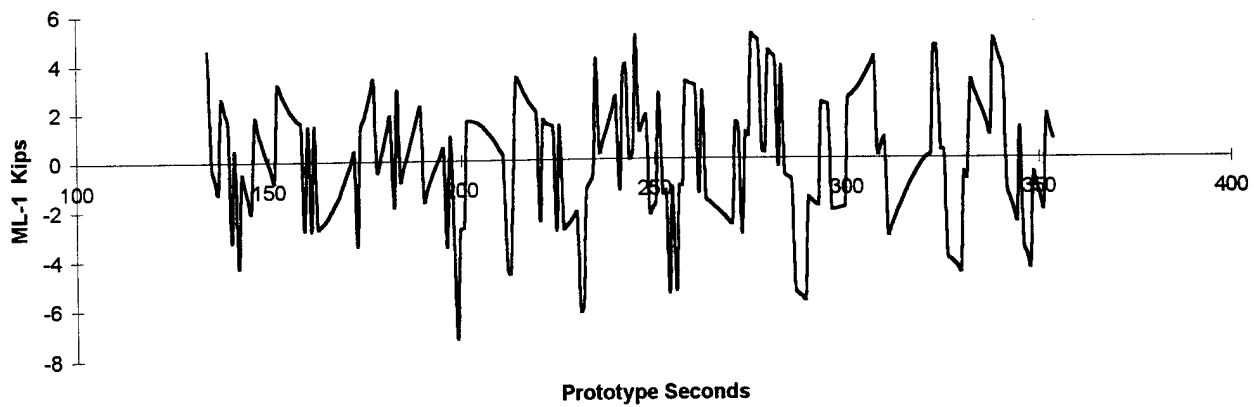
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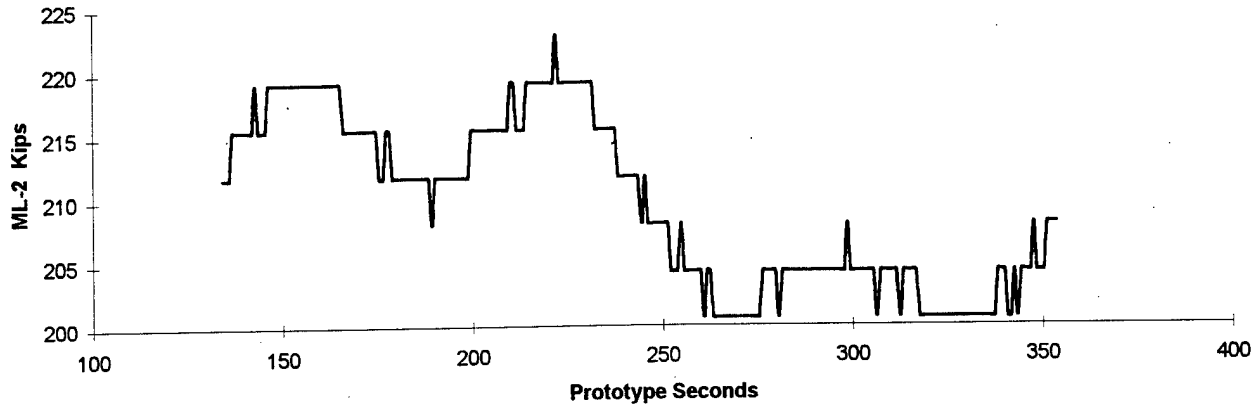
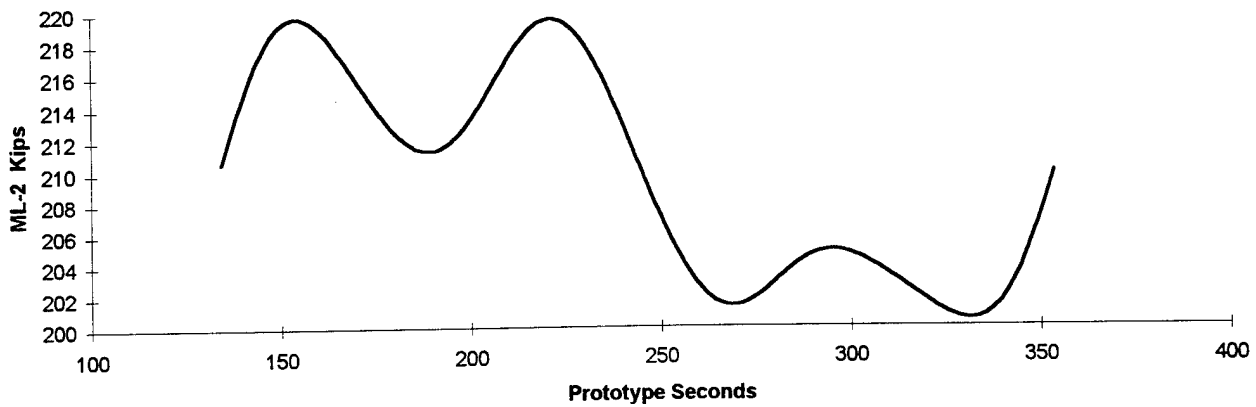
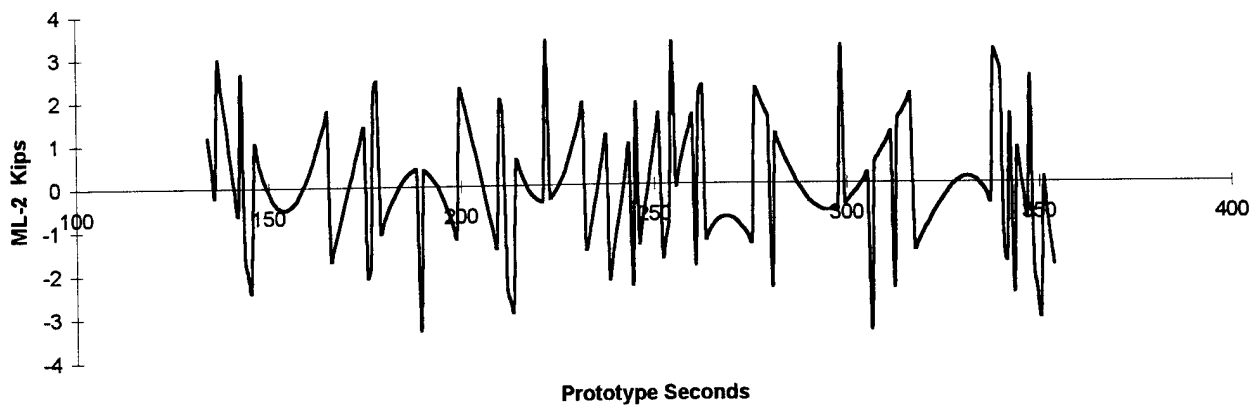


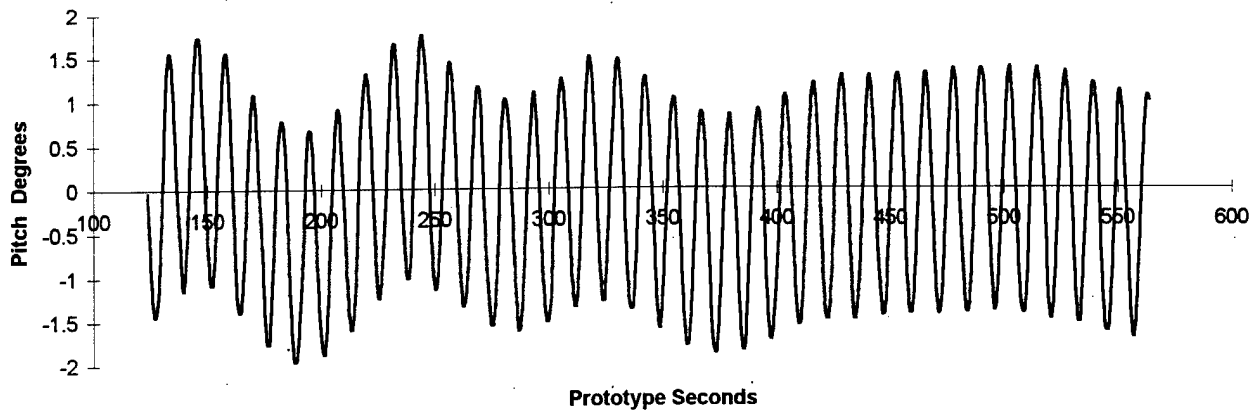
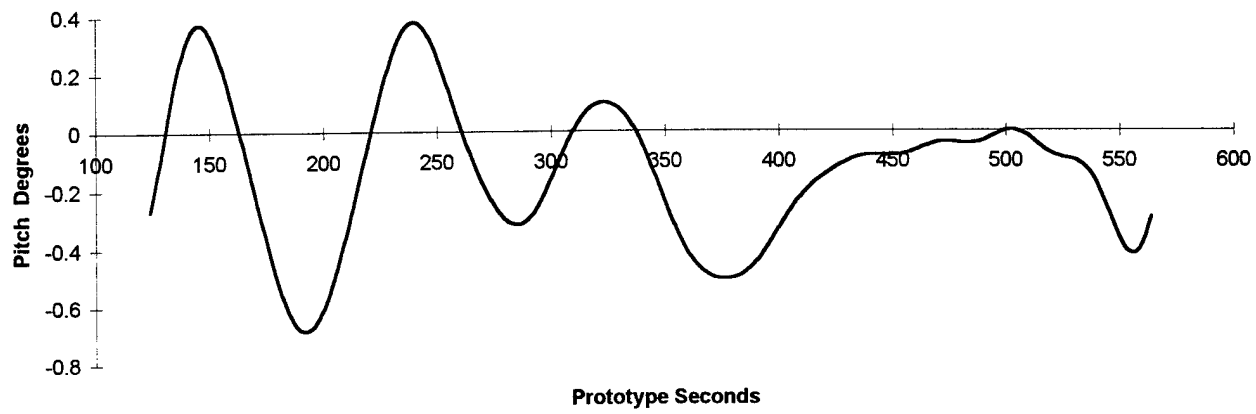
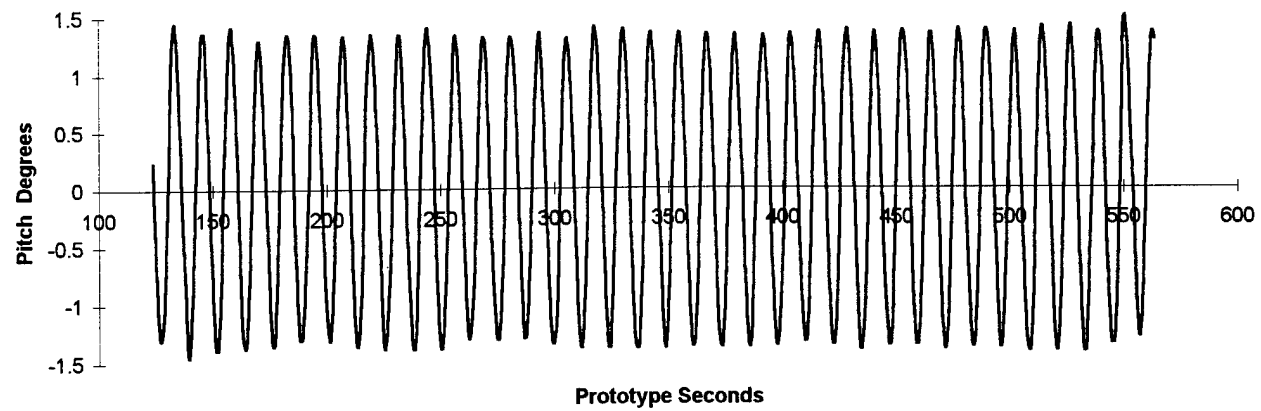
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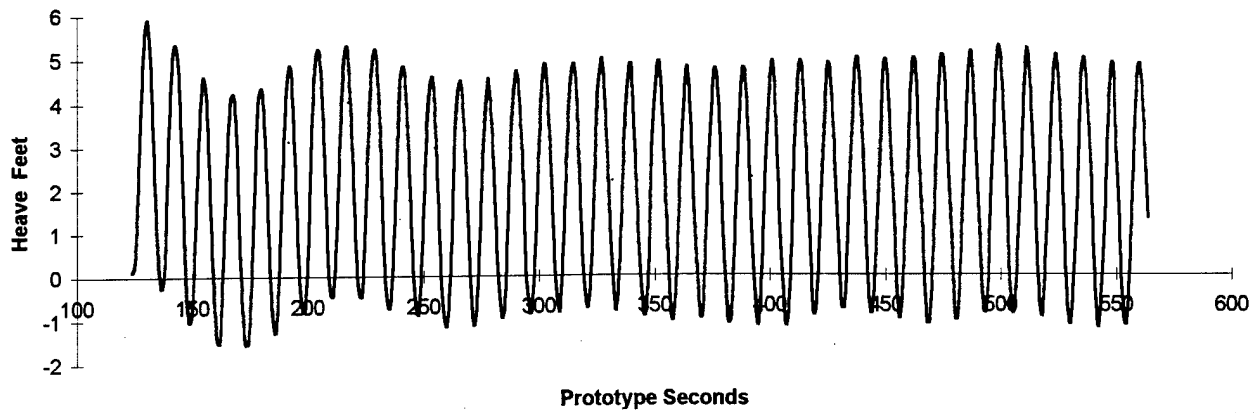
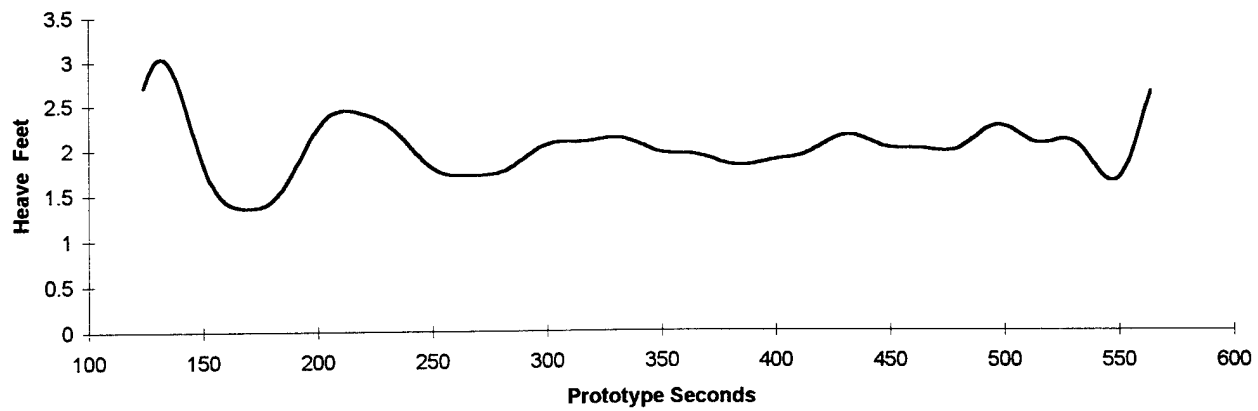
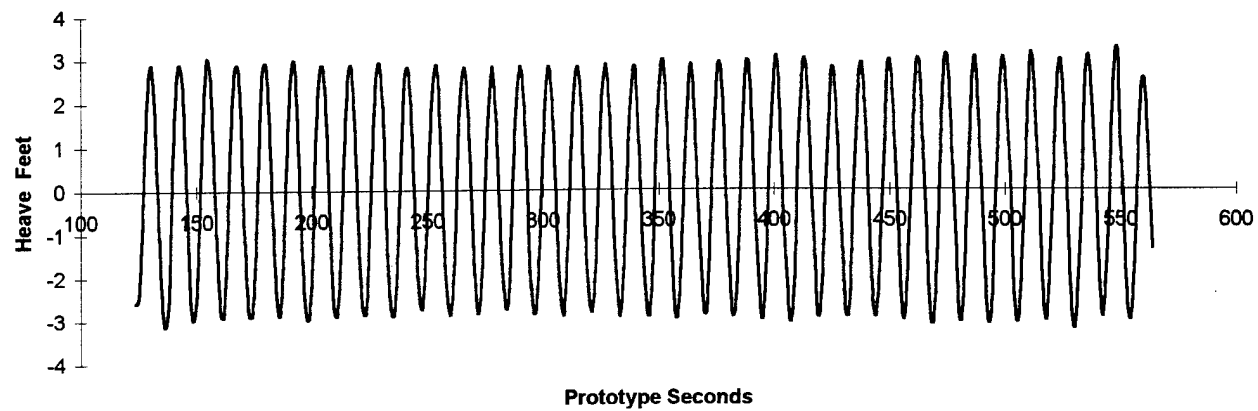
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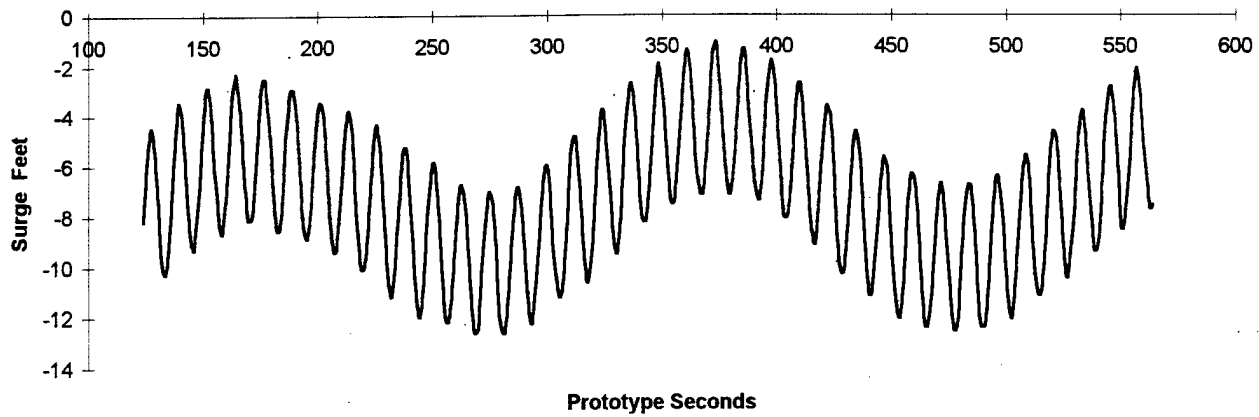
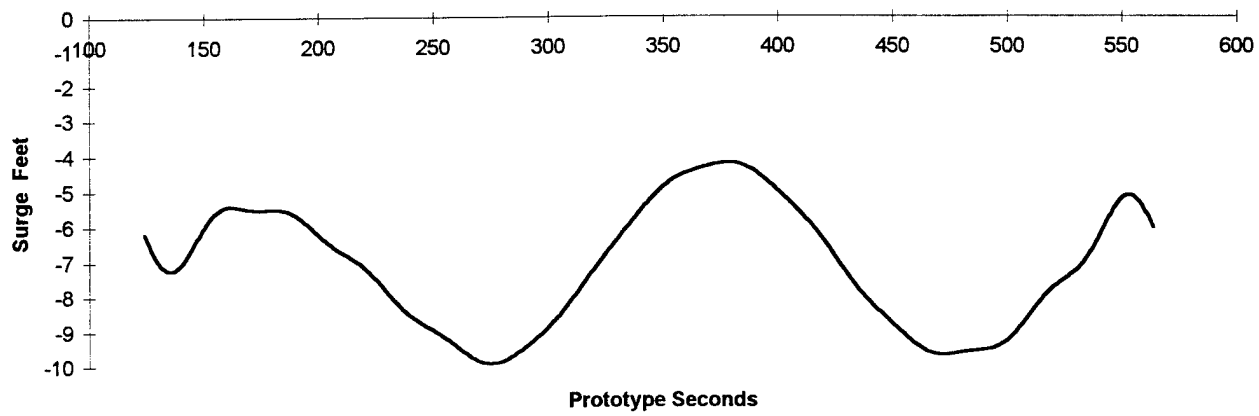
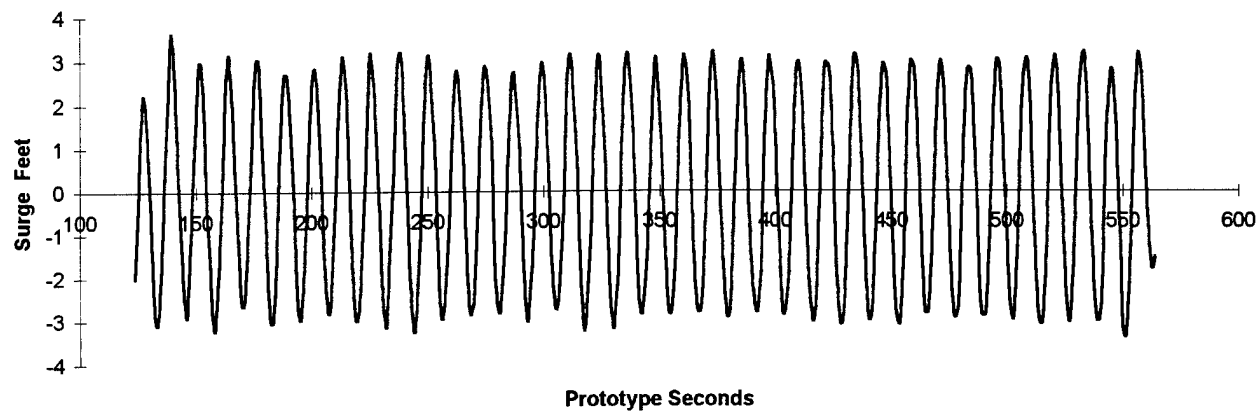
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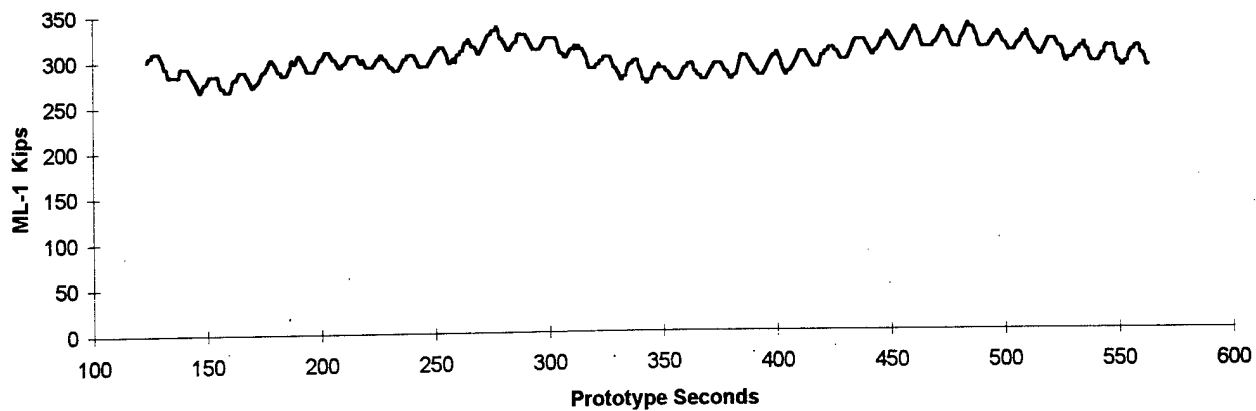
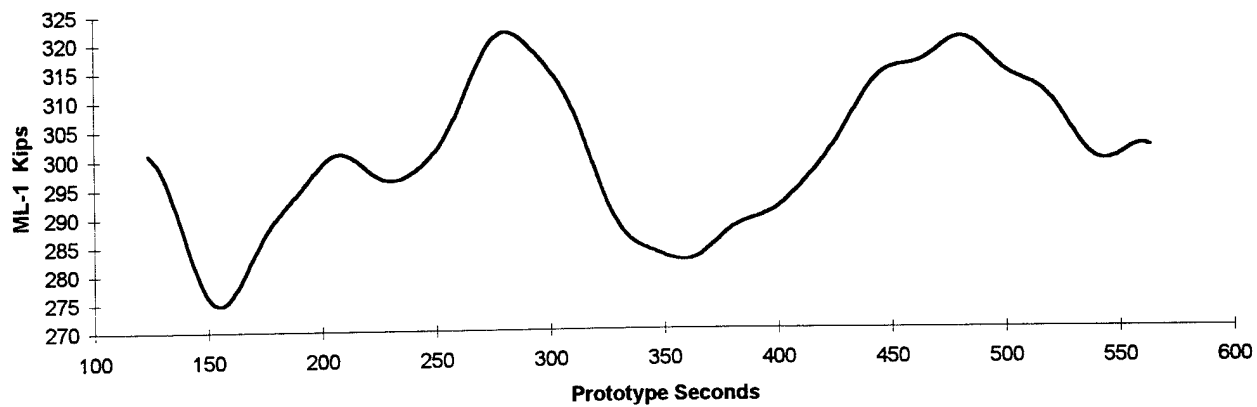
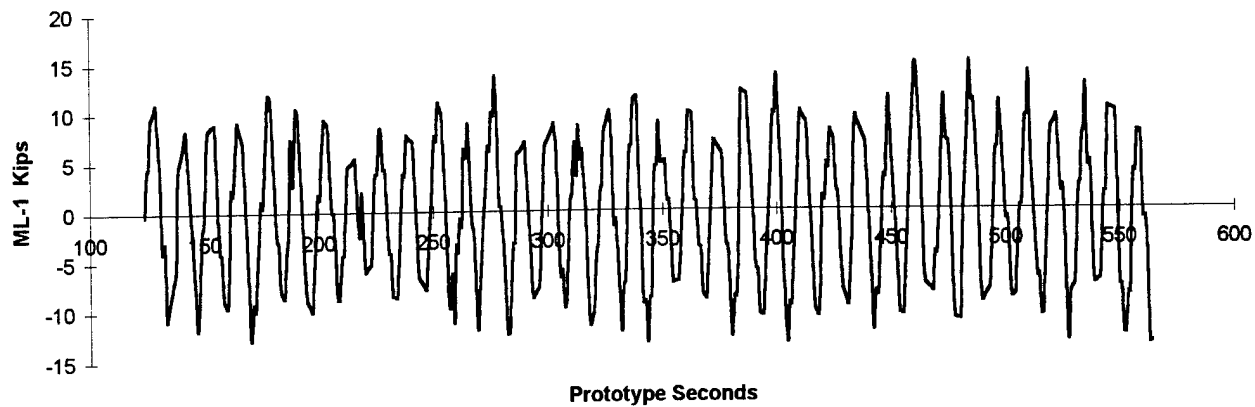
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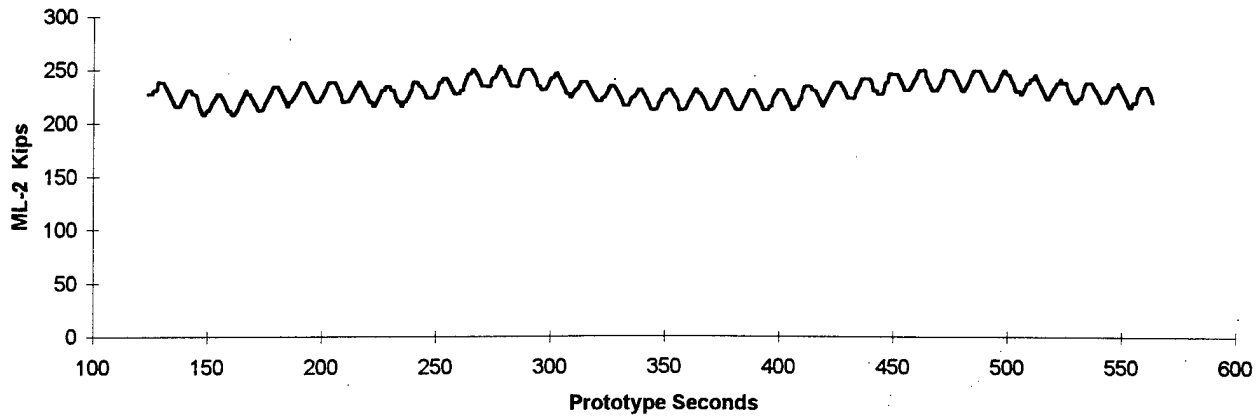
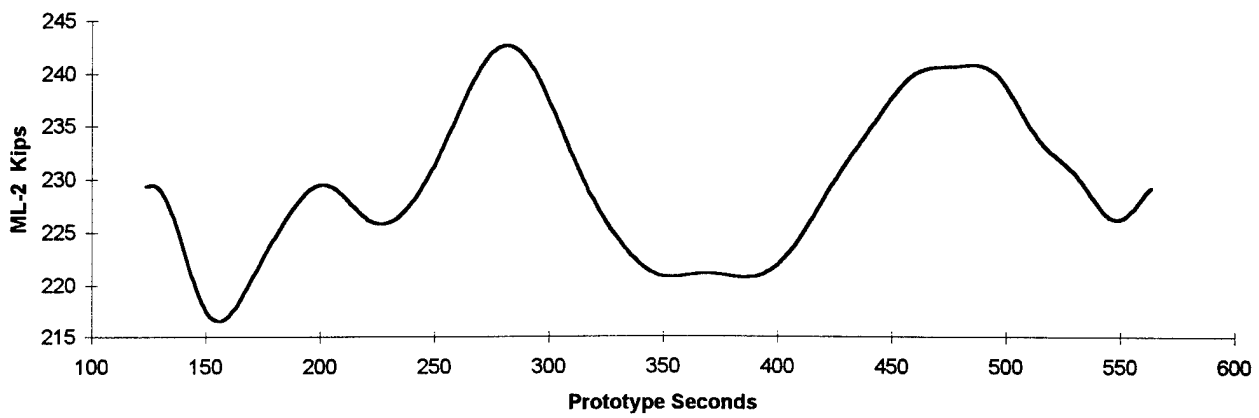
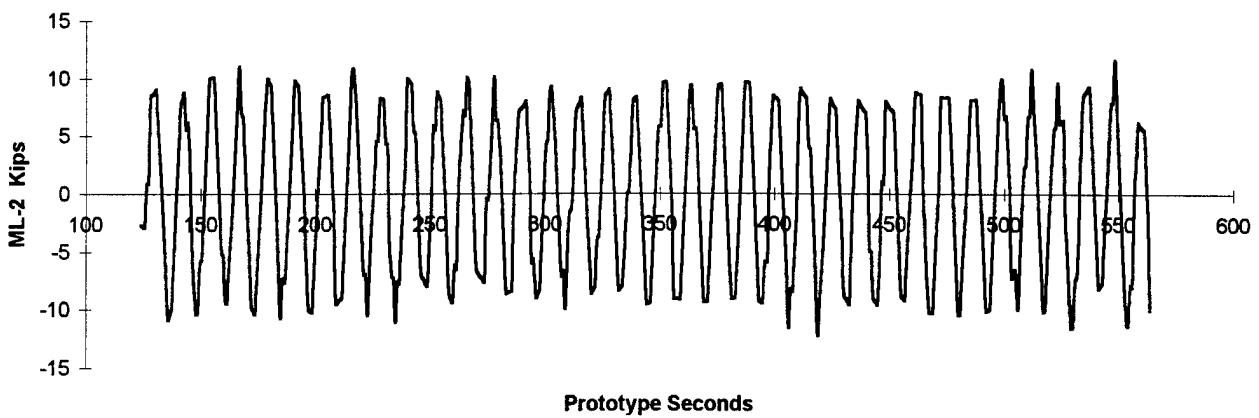
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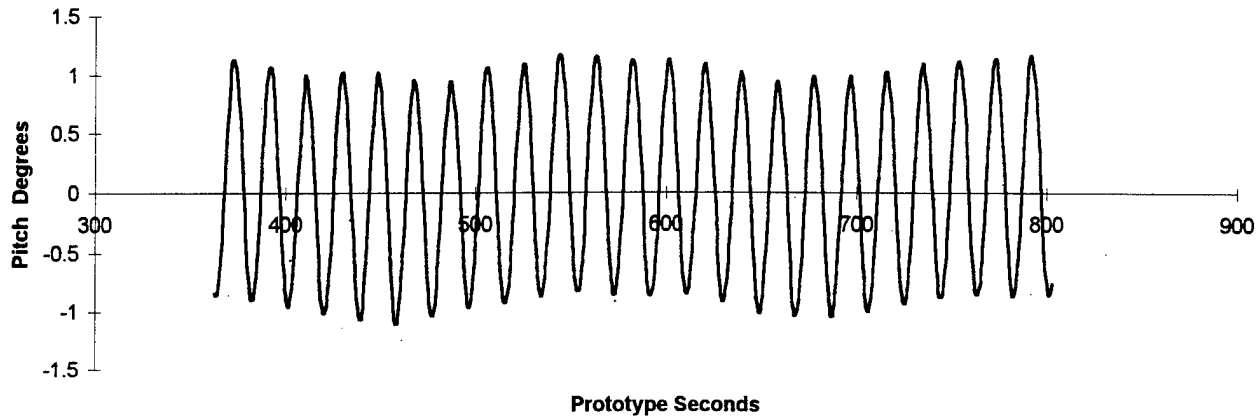
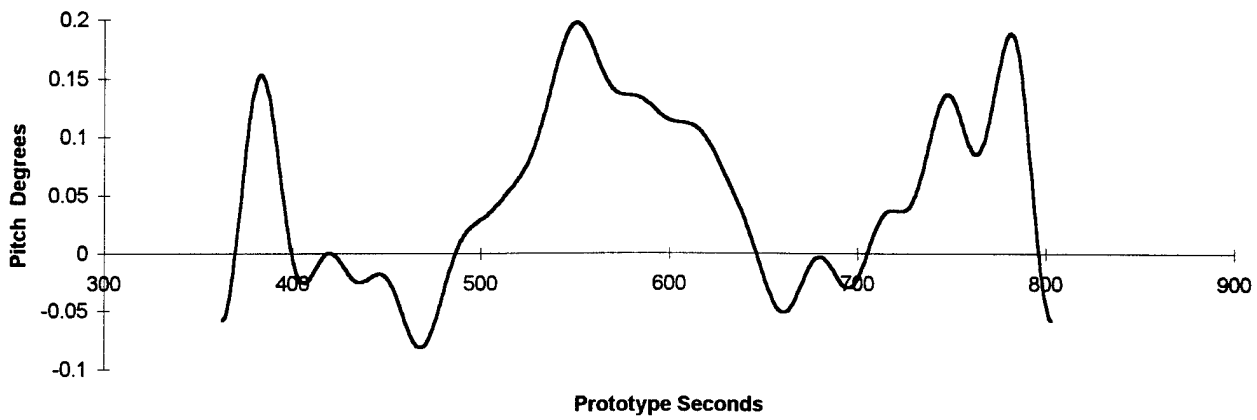
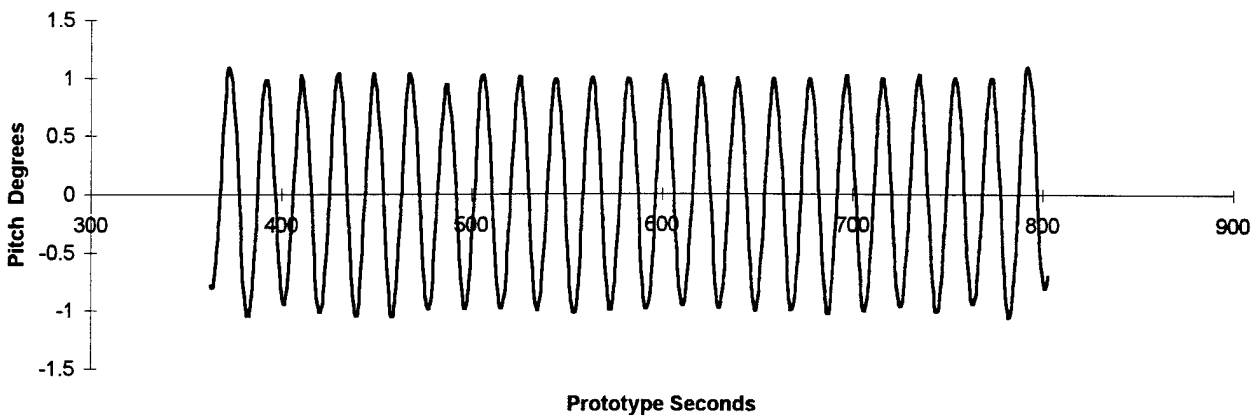
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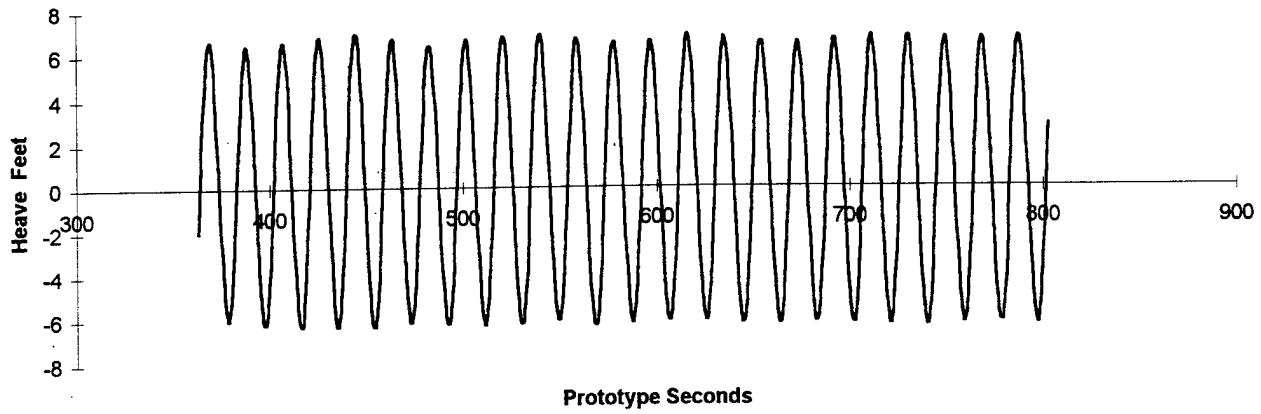
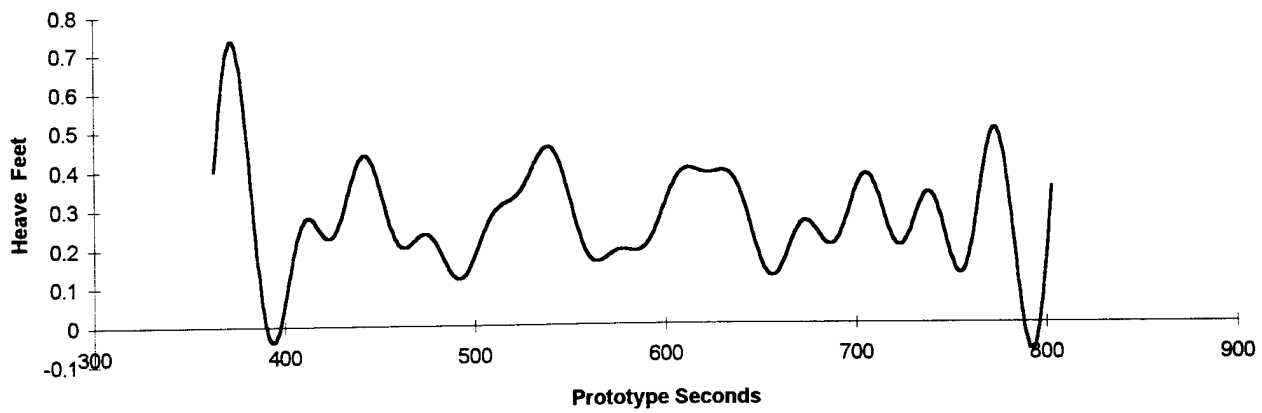
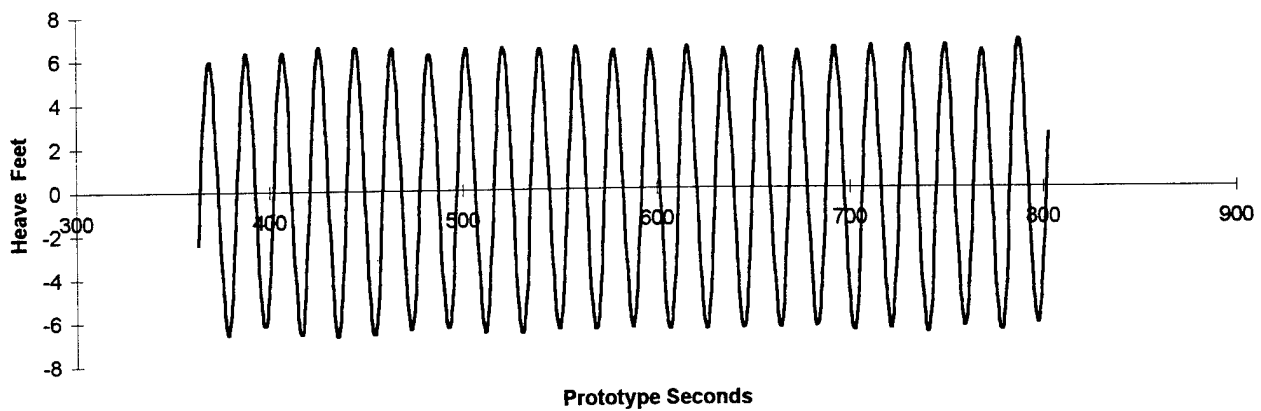
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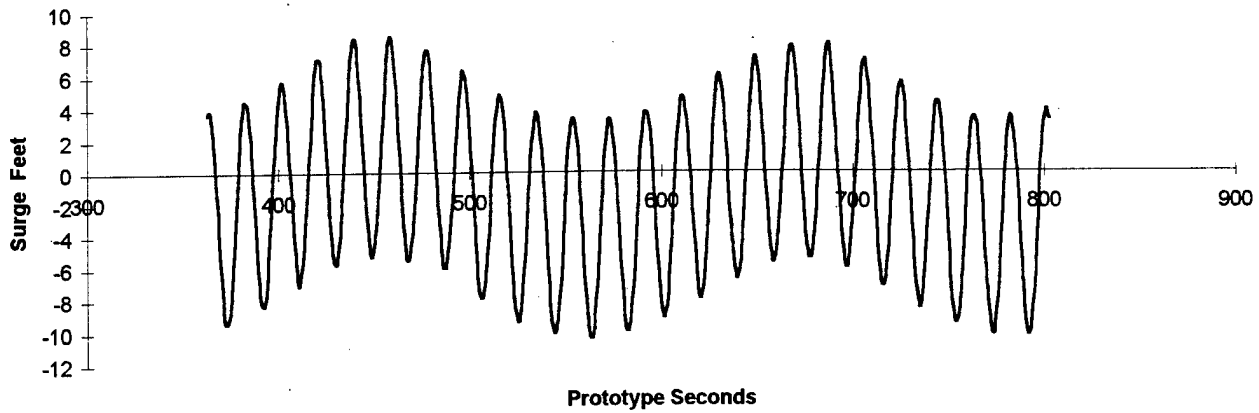
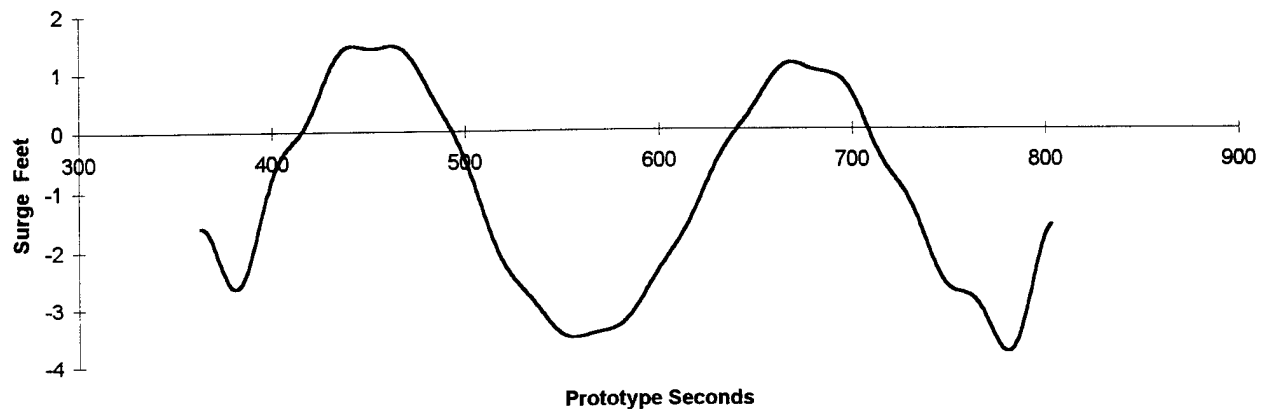
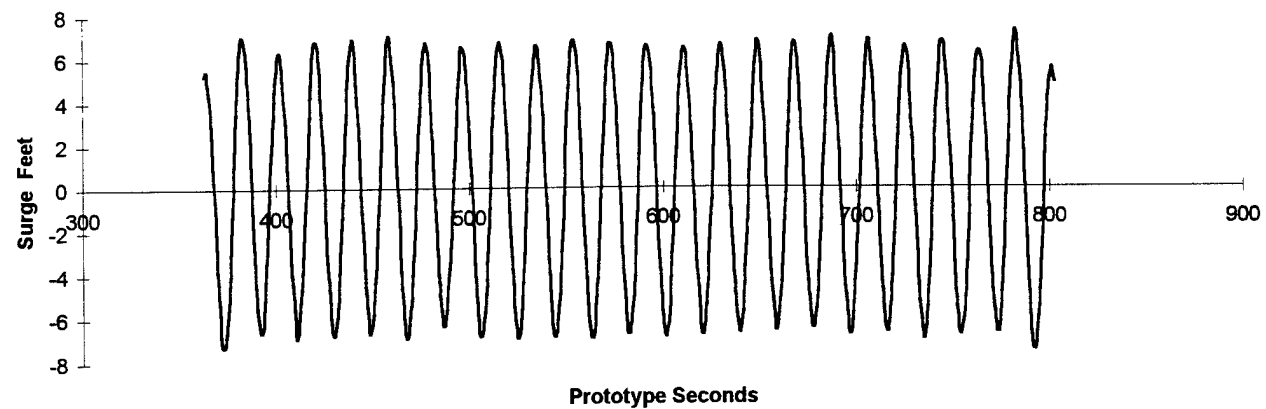


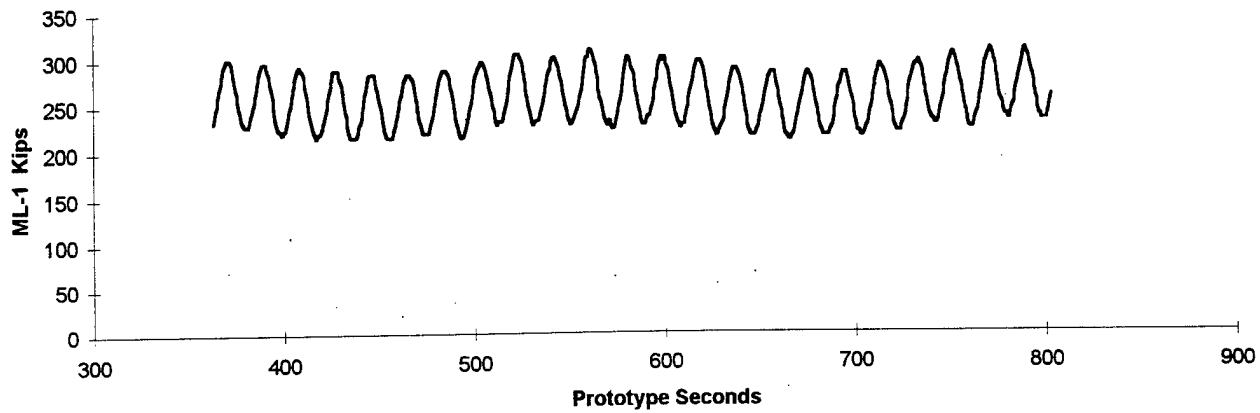
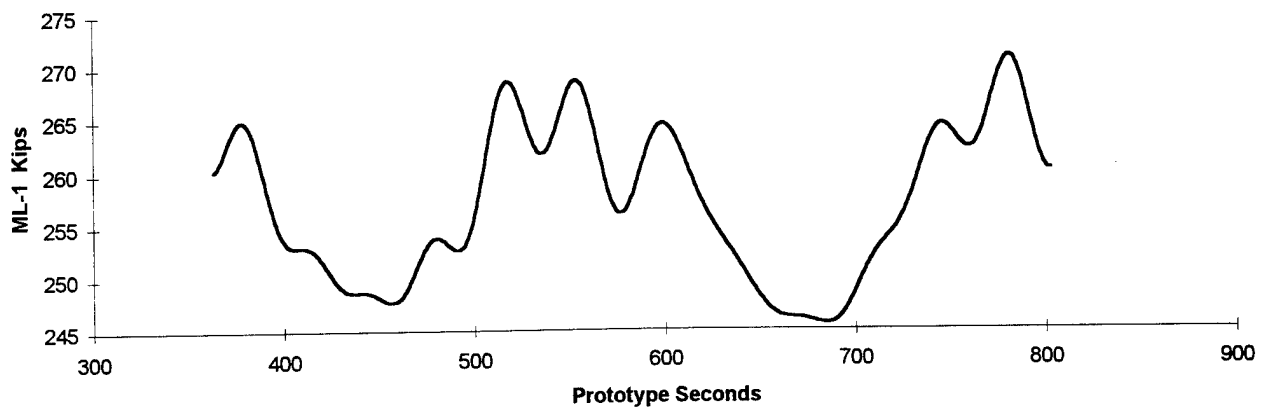
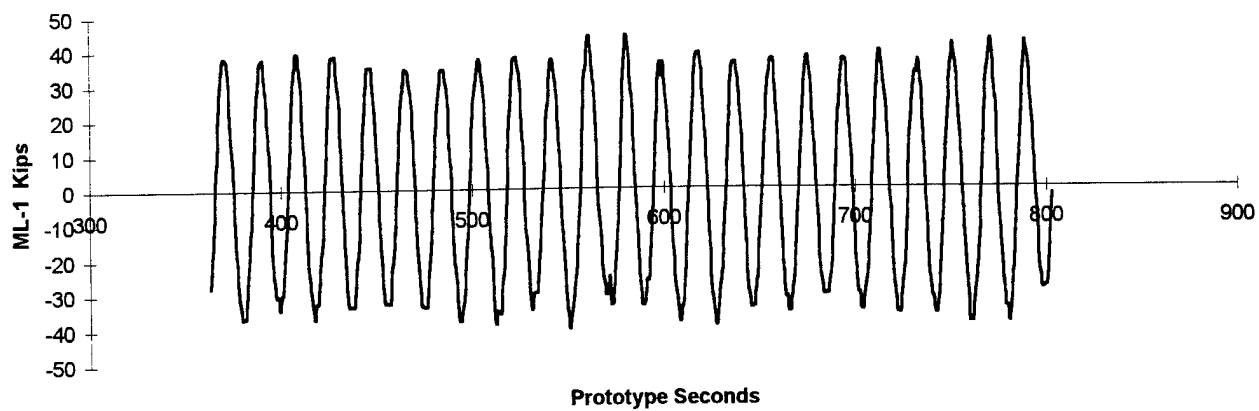
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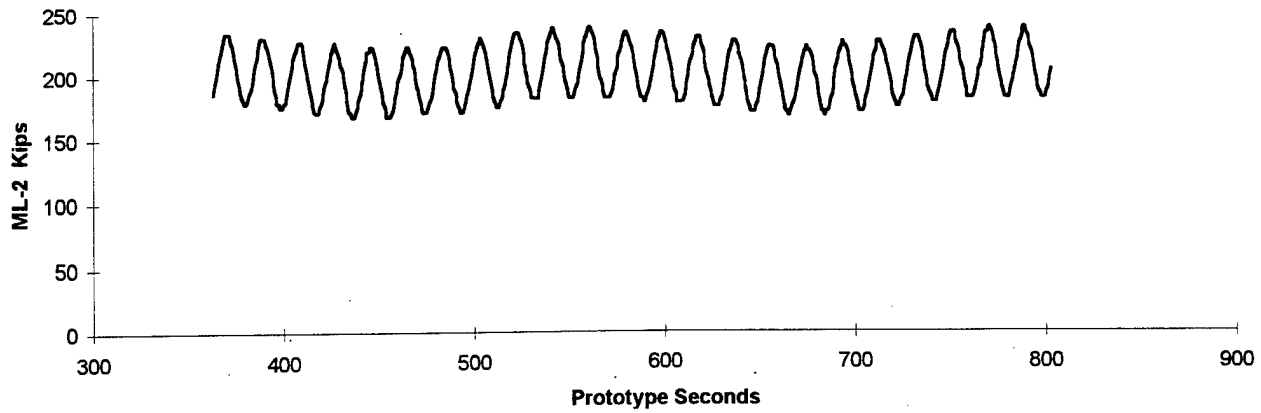
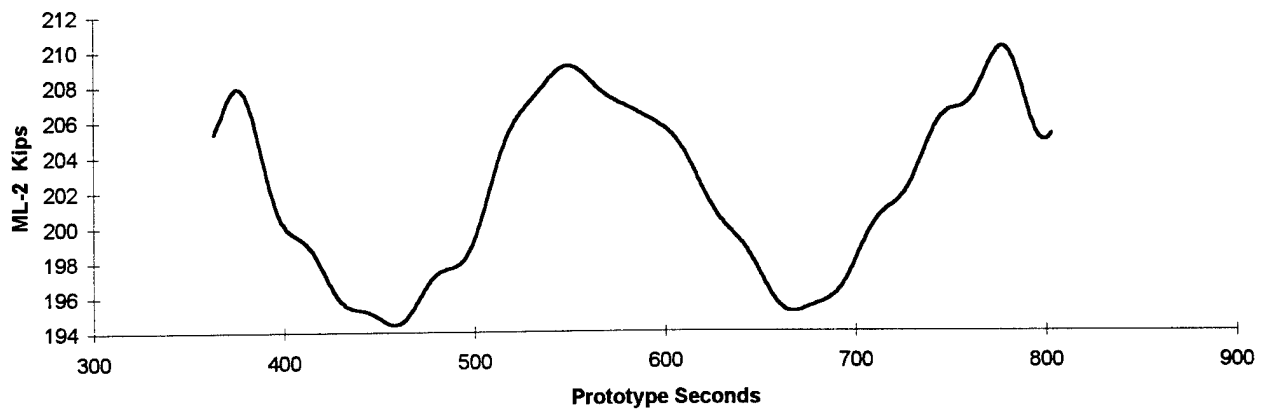
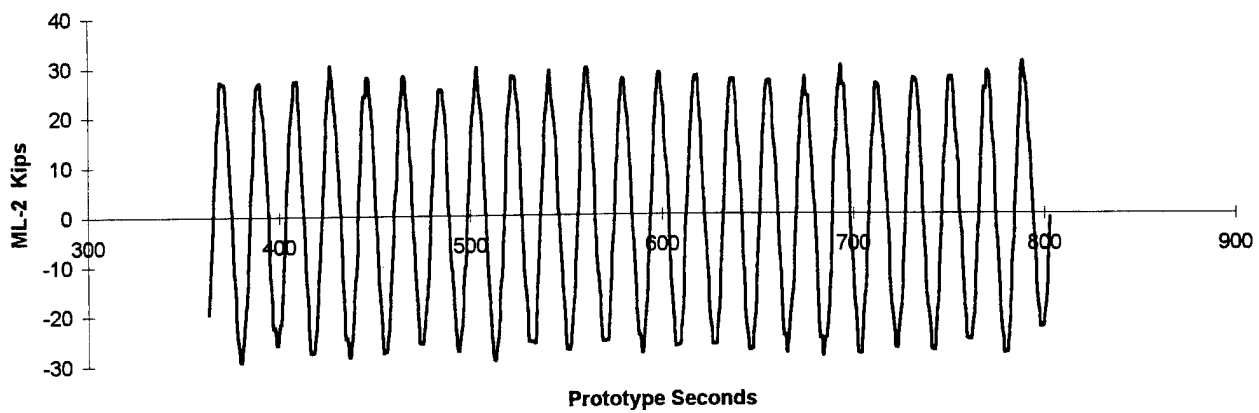
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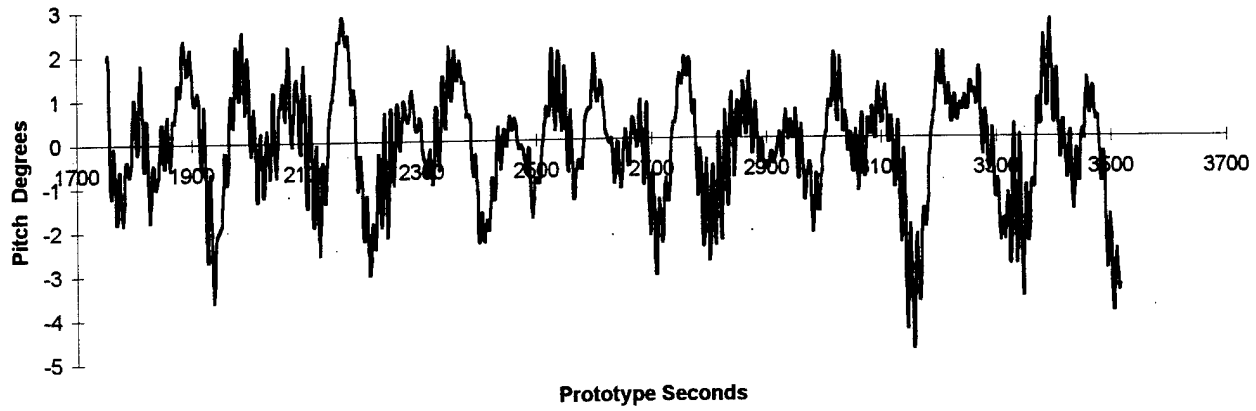
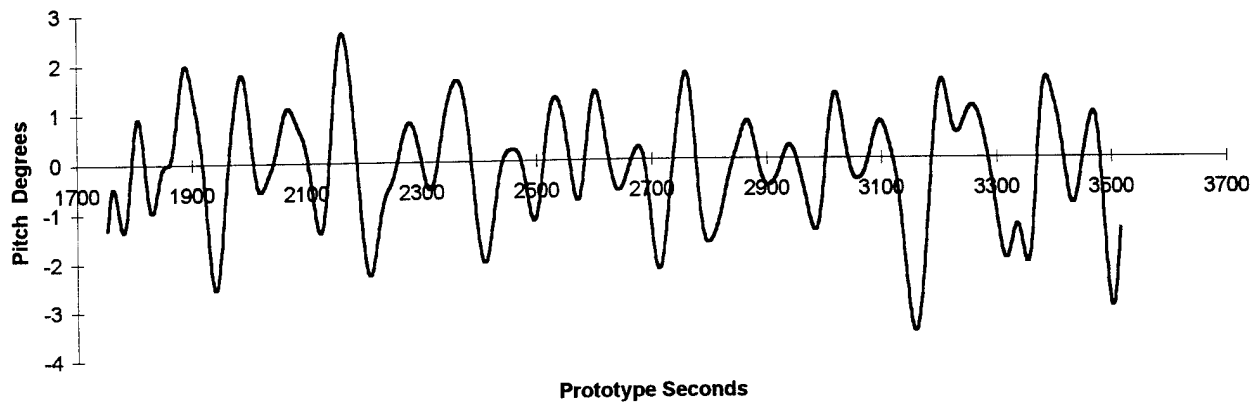
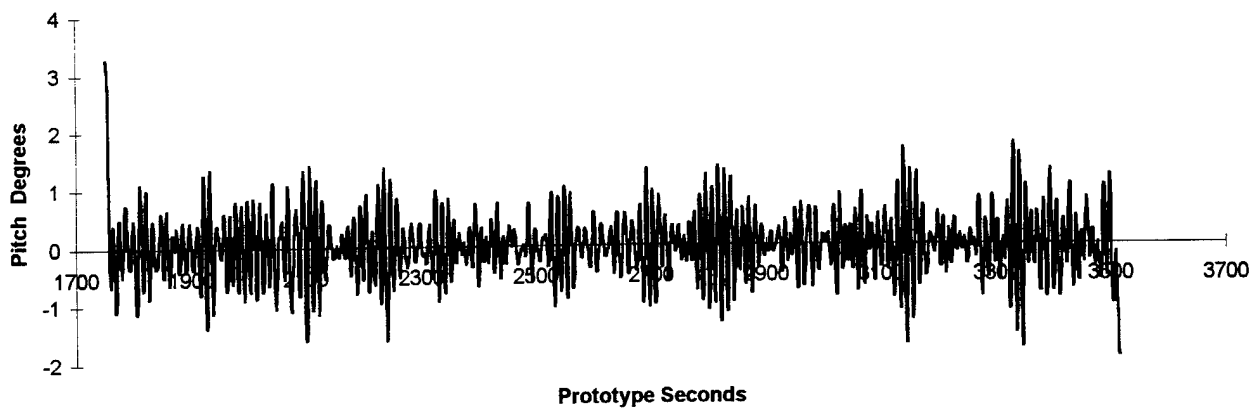
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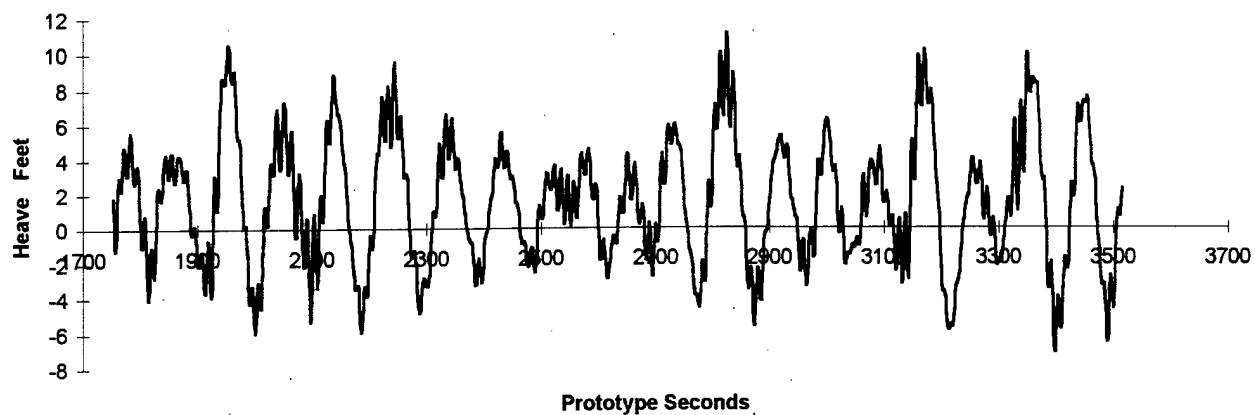
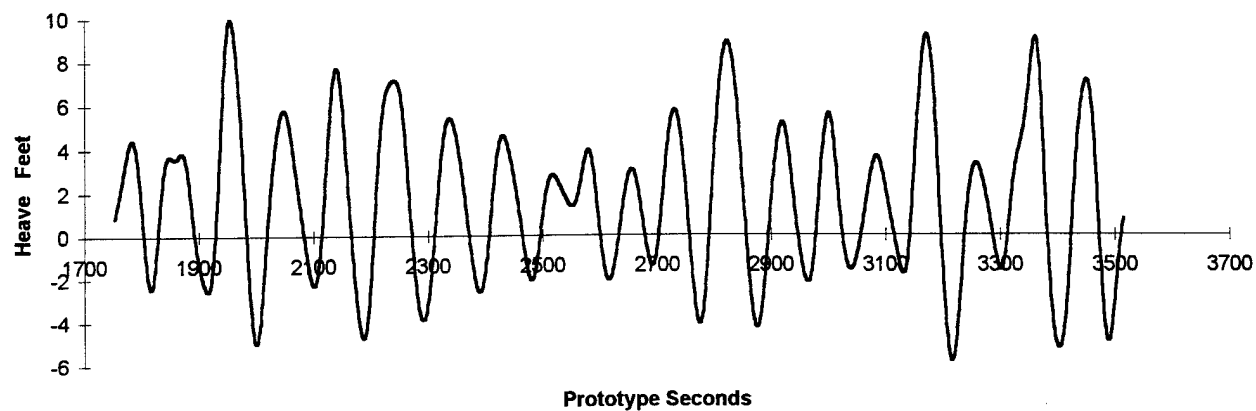
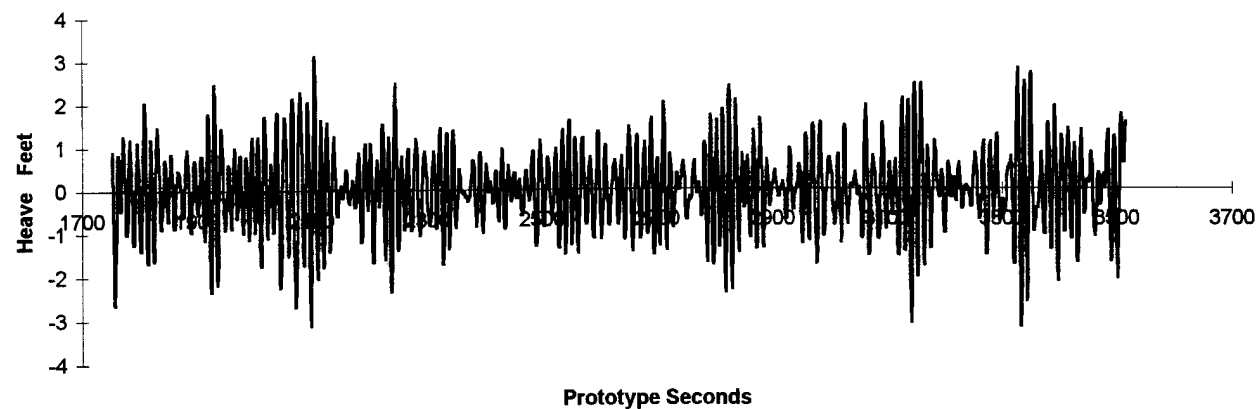
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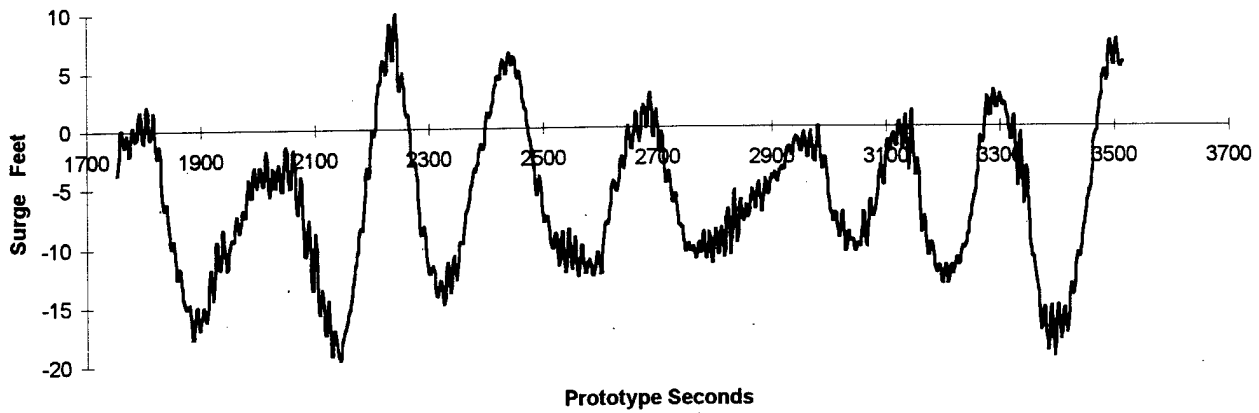
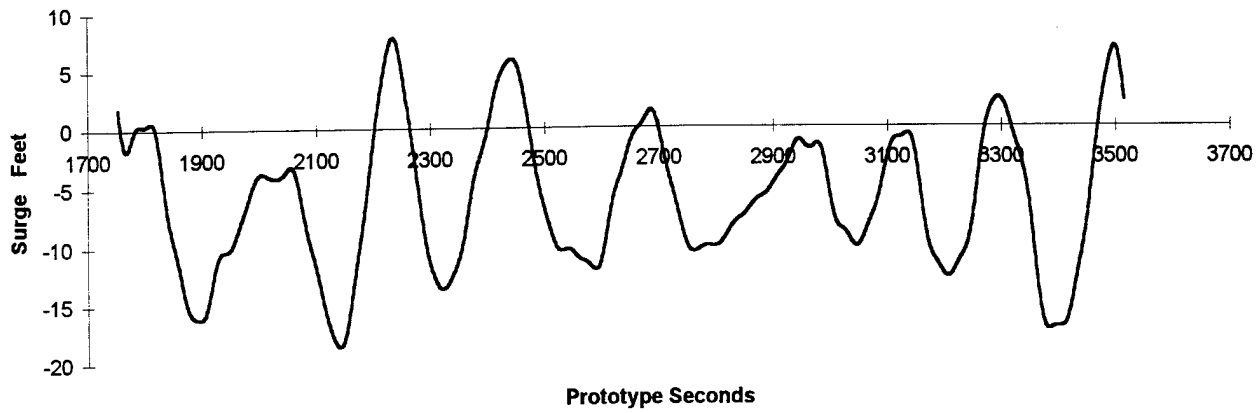
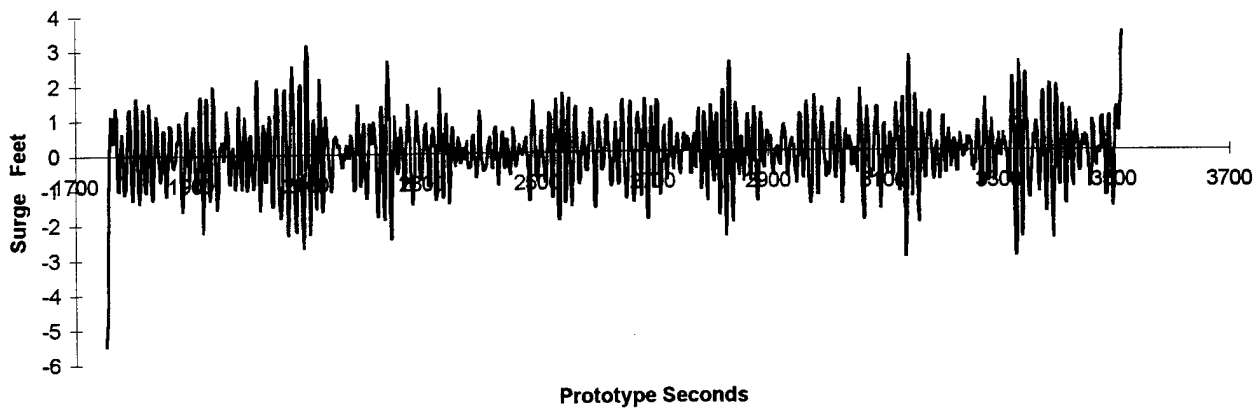
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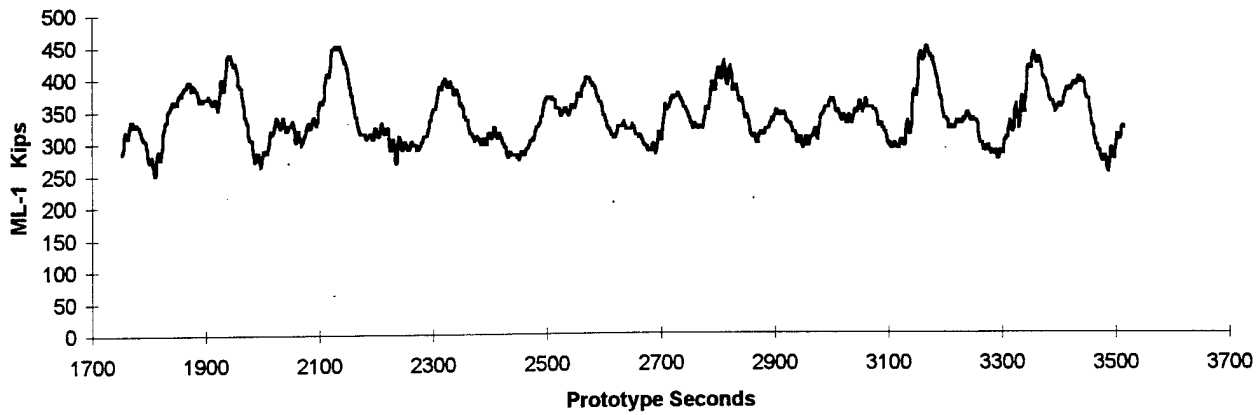
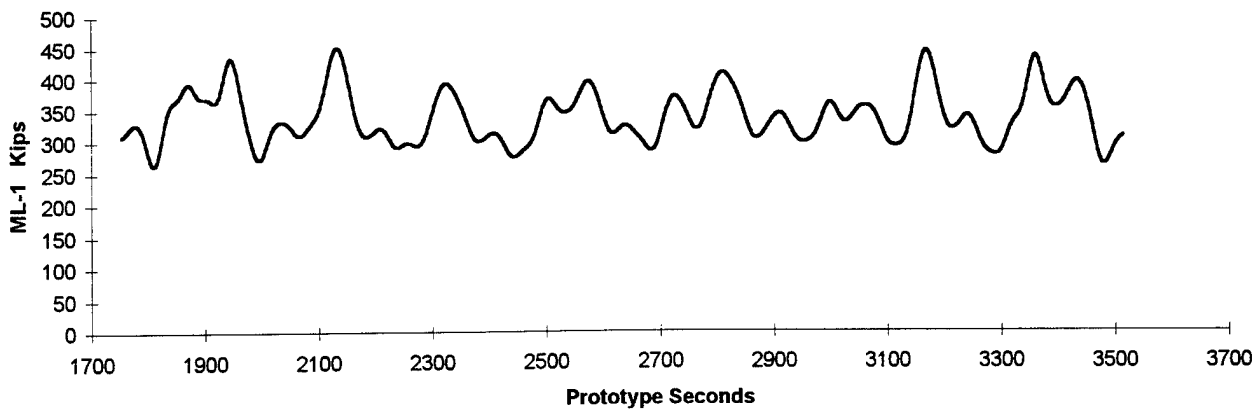
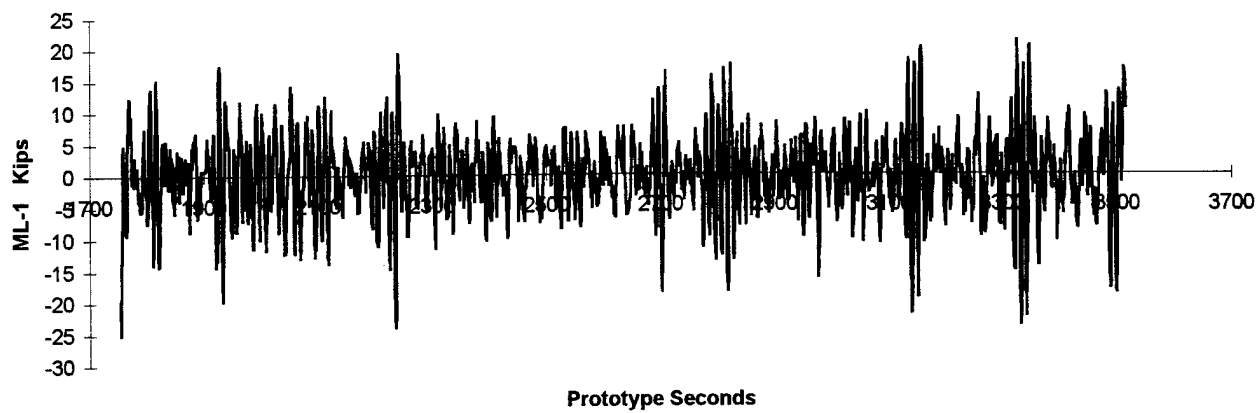
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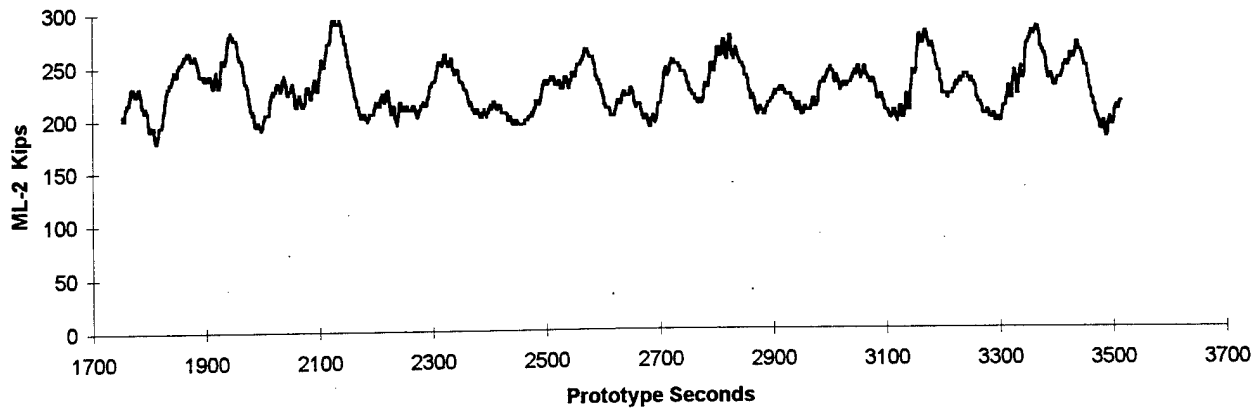
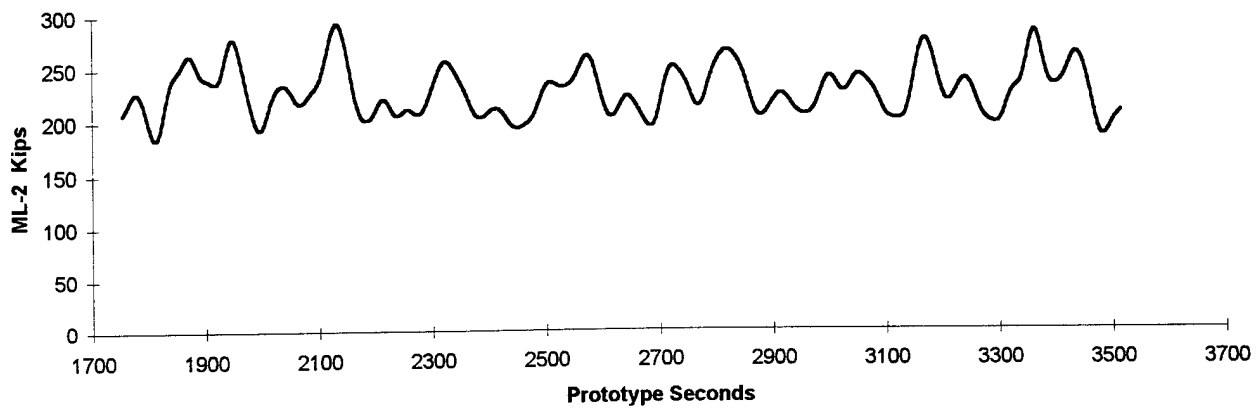
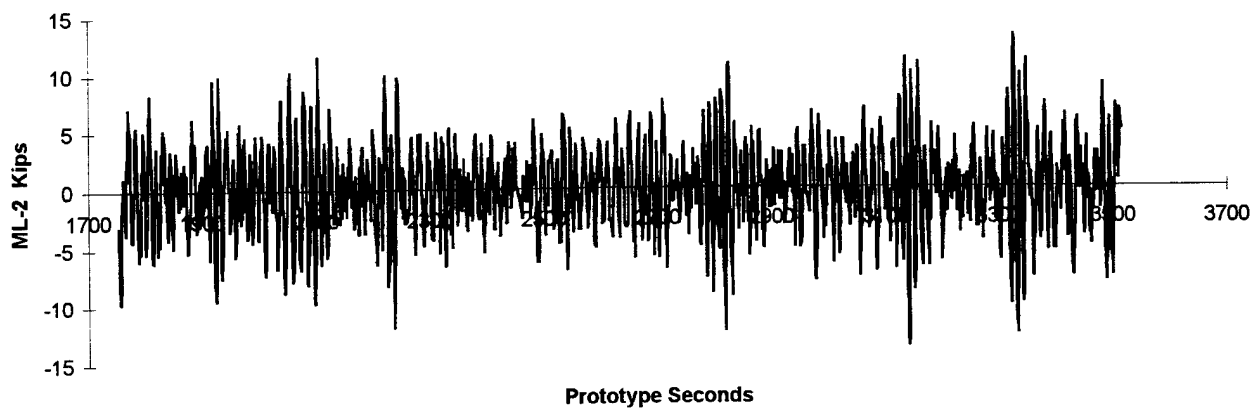
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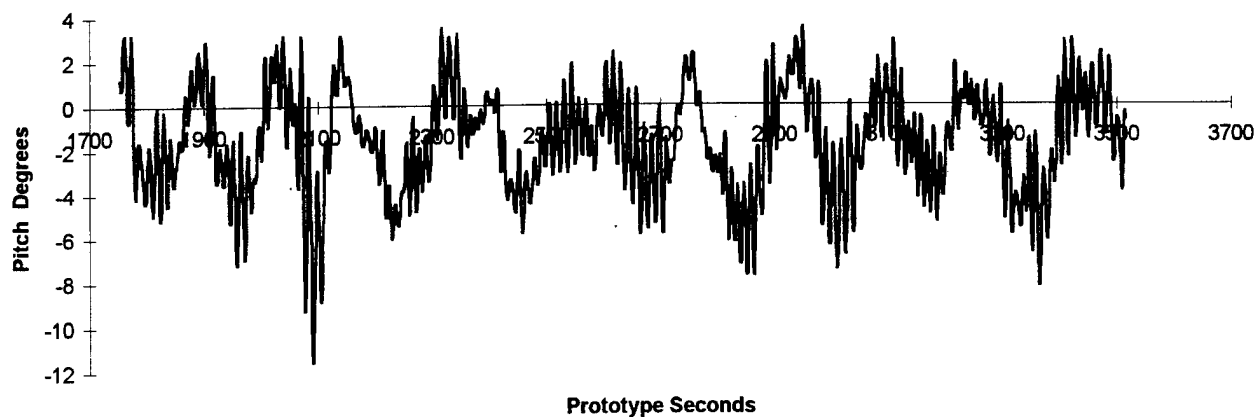
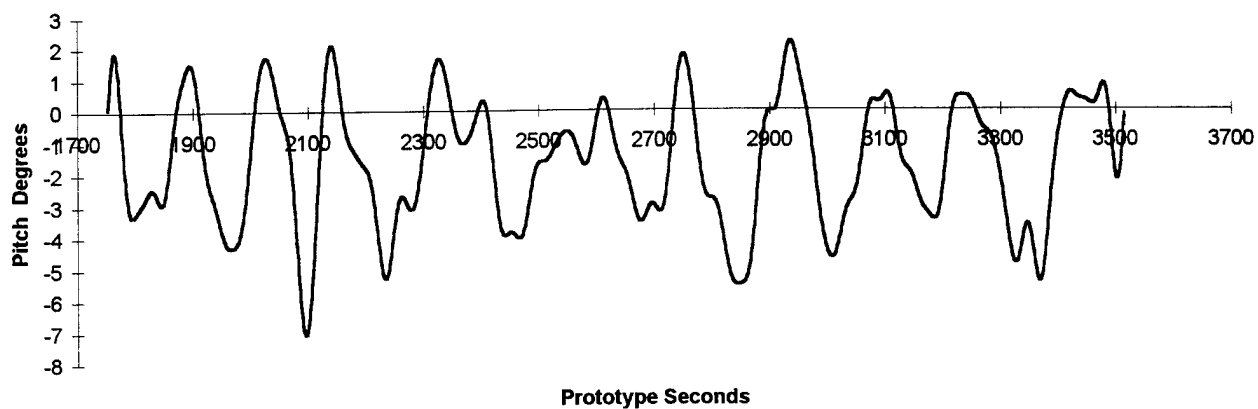
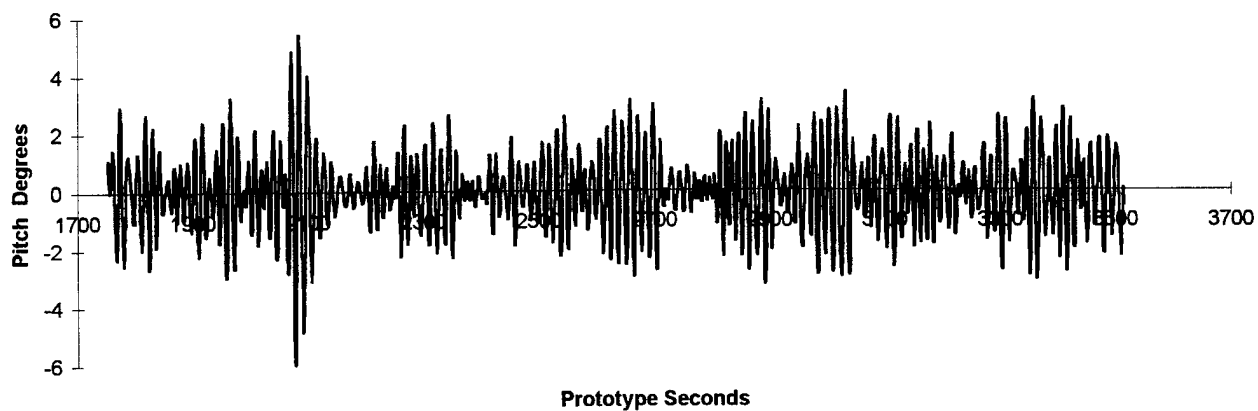


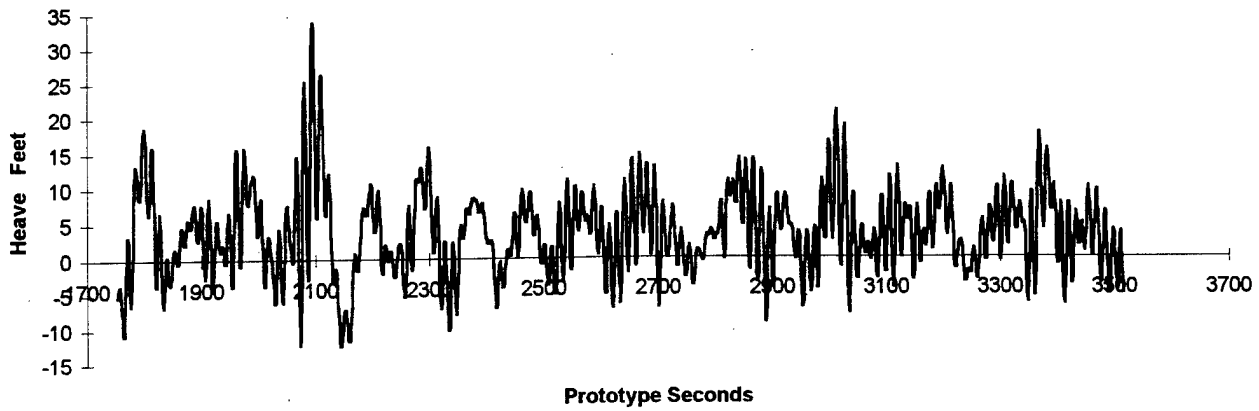
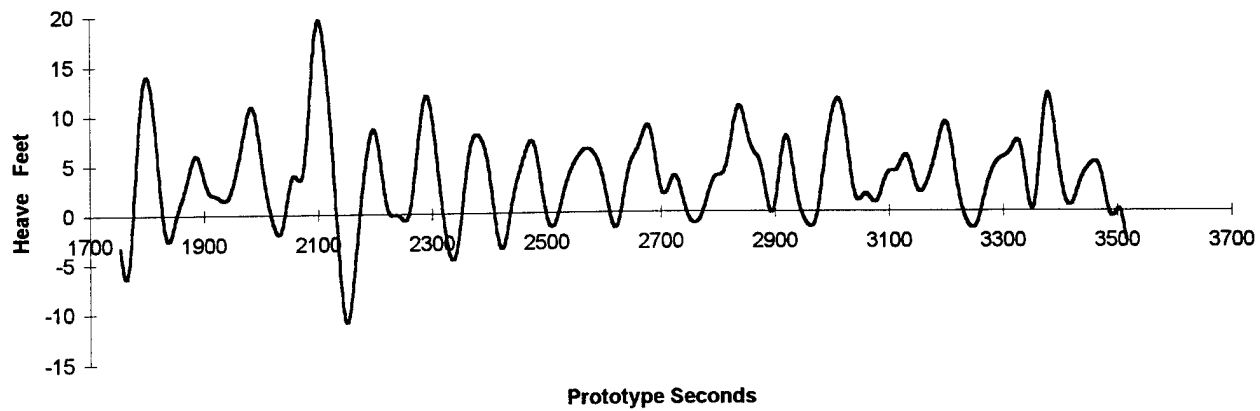
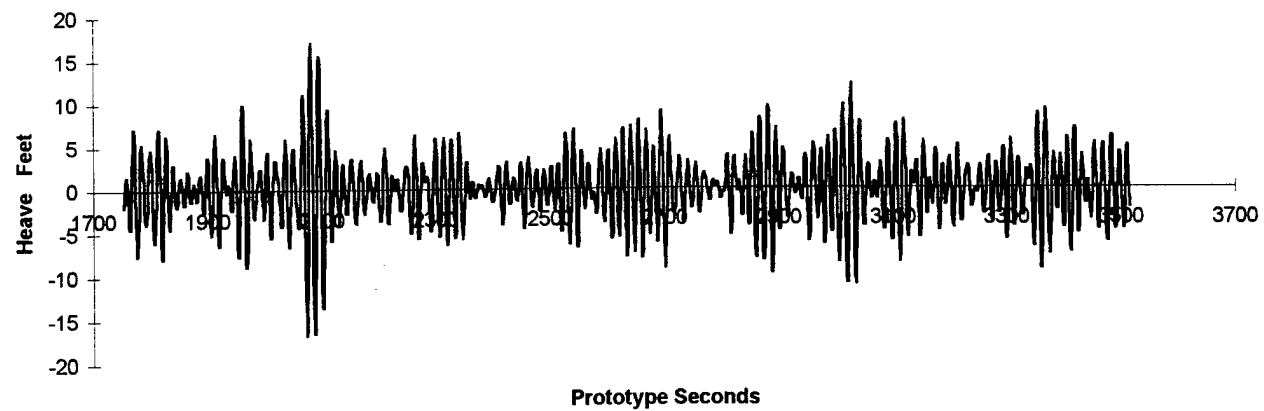
**Unfiltered Time History****Filtered Low Pass Time History****Filtered High Pass Time History**

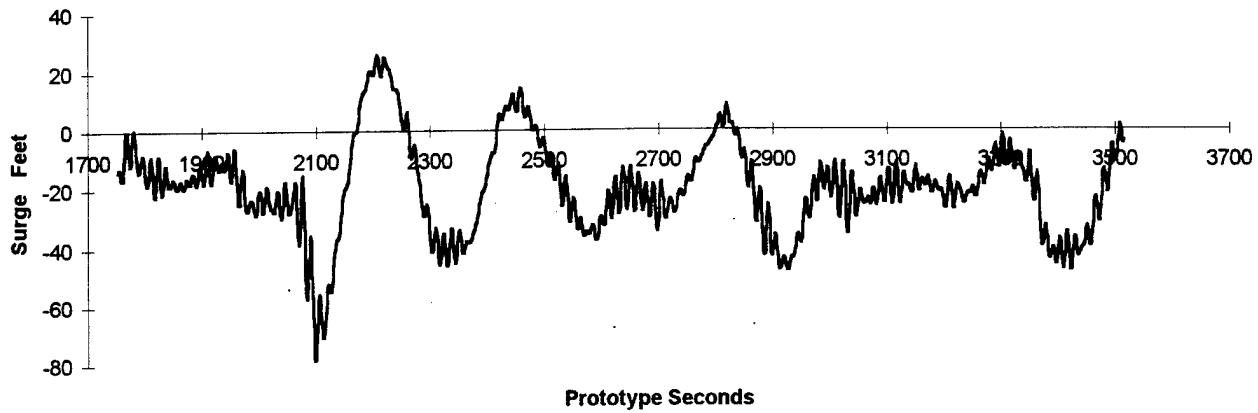
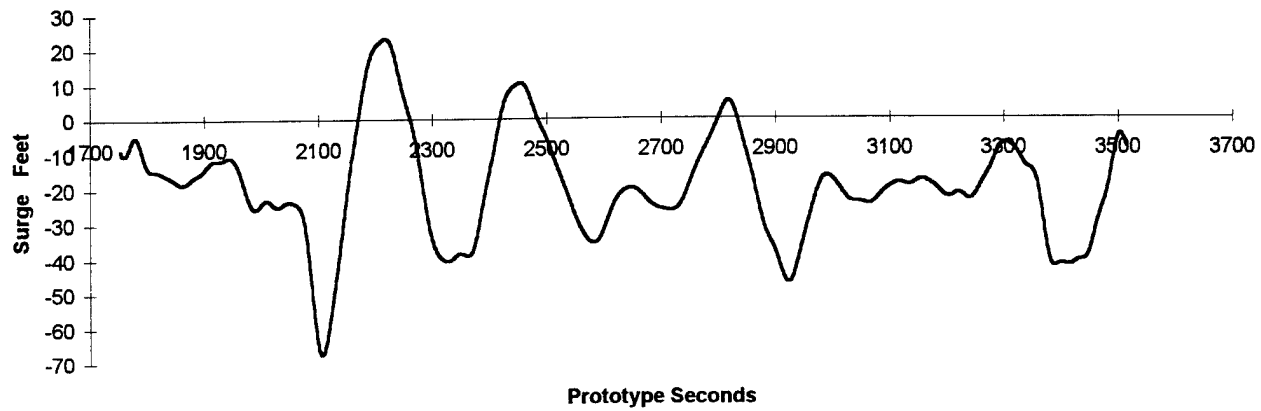
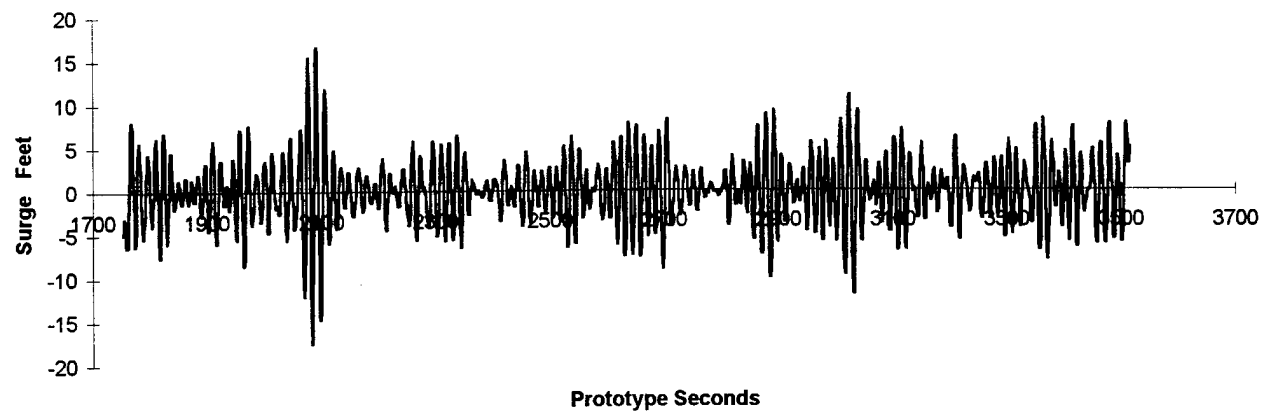
**Unfiltered Time History****Filtered Low Pass Time History****Filtered High Pass Time History**

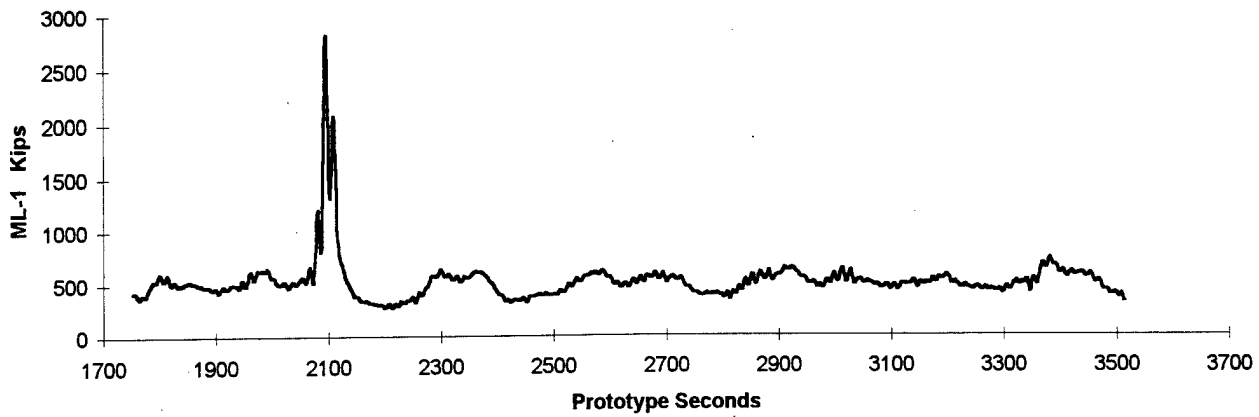
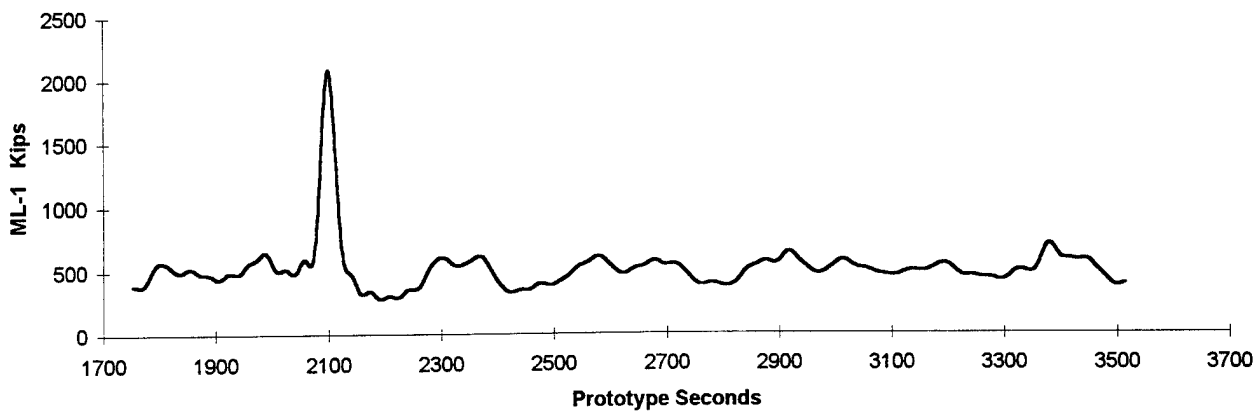
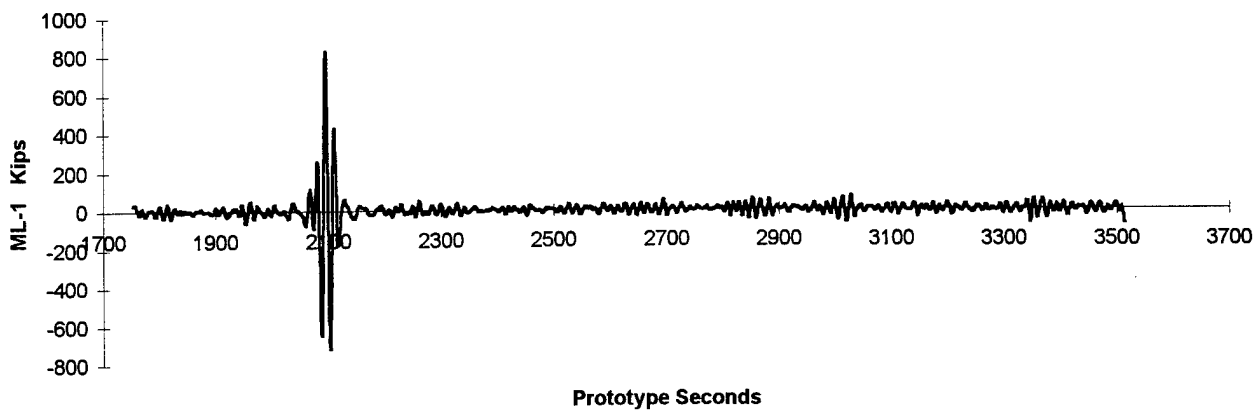
**Unfiltered Time History****Filtered Low Pass Time History****Filtered High Pass Time History**

**Unfiltered Time History****Filtered Low Pass Time History****Filtered High Pass Time History**

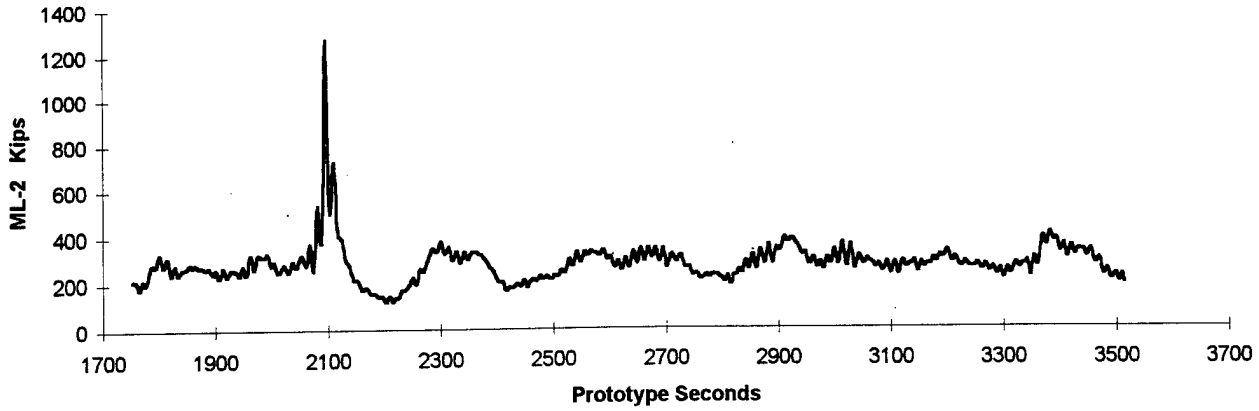
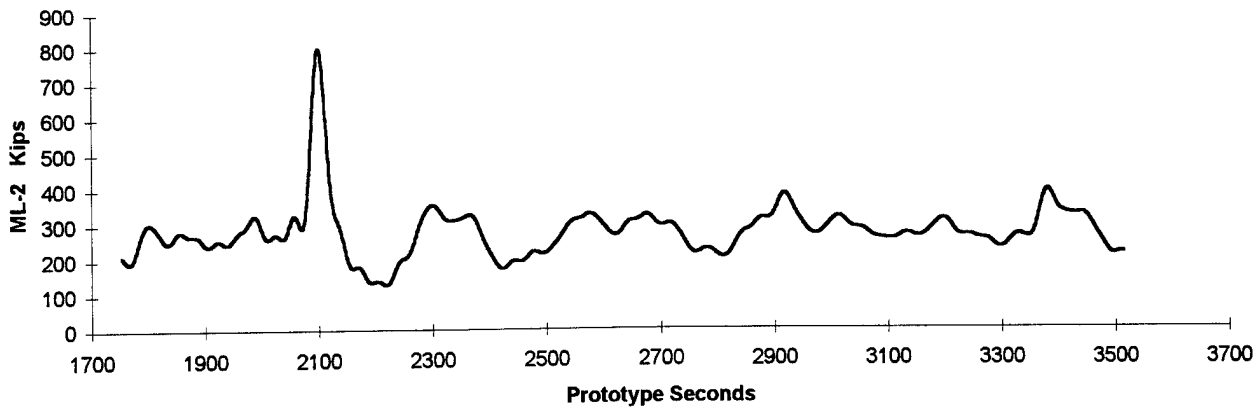
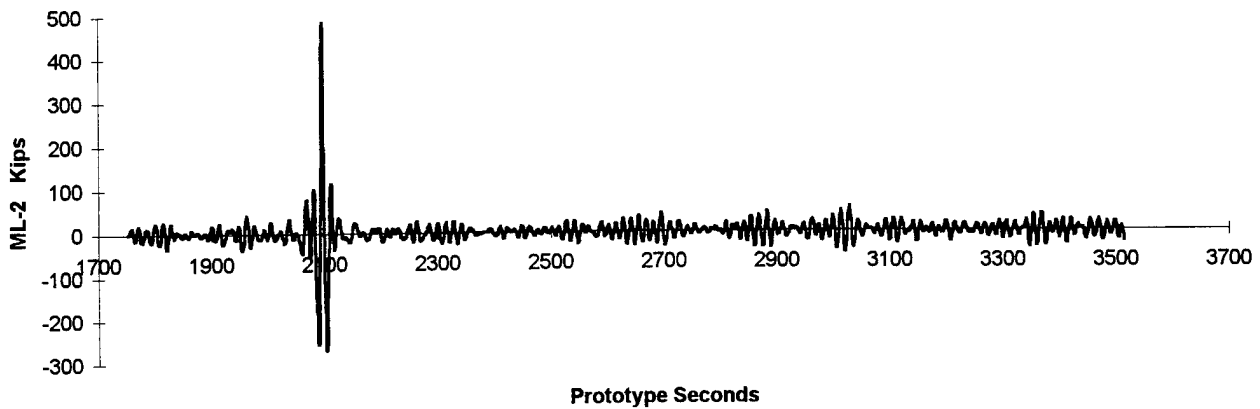
**Unfiltered Time History****Filtered Low Pass Time History****Filtered High Pass Time History**

**Unfiltered Time History****Filtered Low Pass Time History****Filtered High Pass Time History**

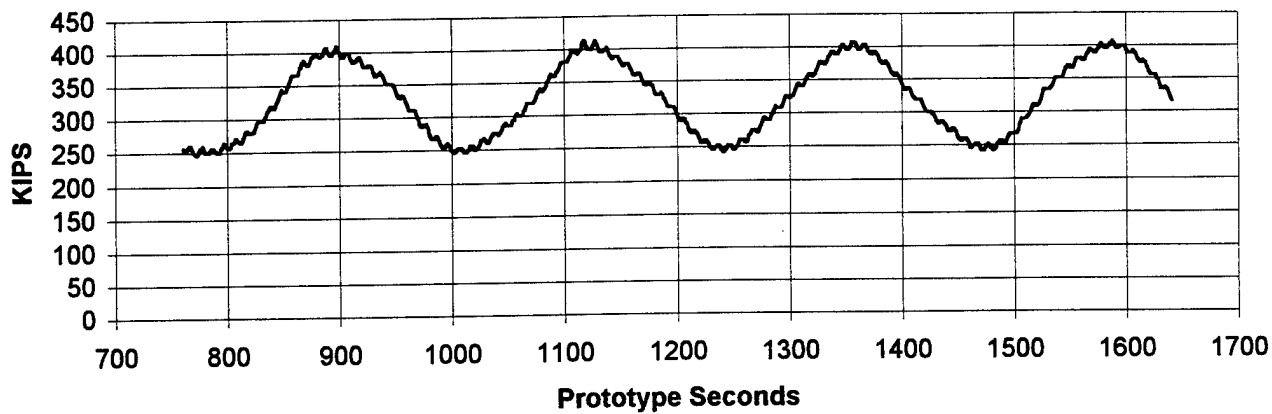
**Unfiltered Time History****Filtered Low Pass Time History****Filtered High Pass Time History**

**Unfiltered Time History****Filtered Low Pass Time History****Filtered High Pass Time History**

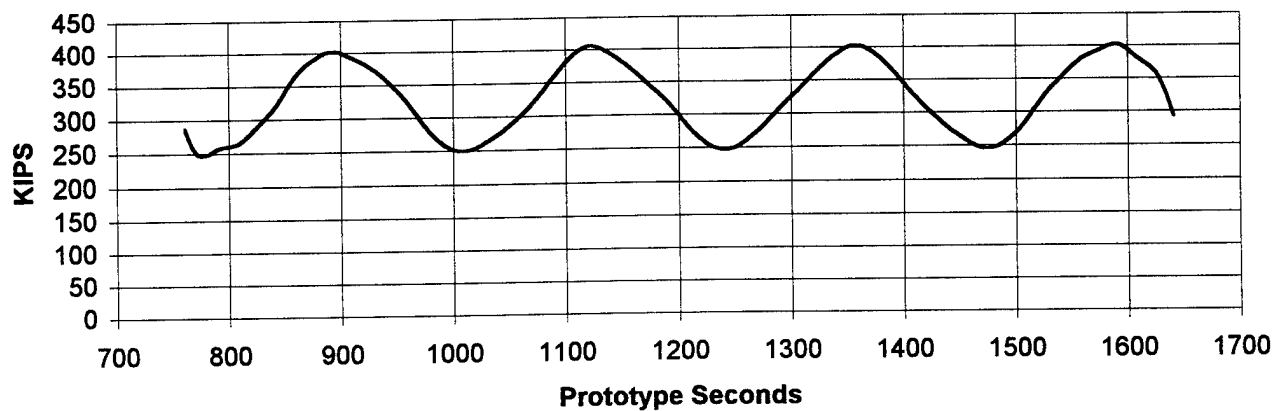


**Unfiltered Time History****Filtered Low Pass Time History****Filtered High Pass Time History**

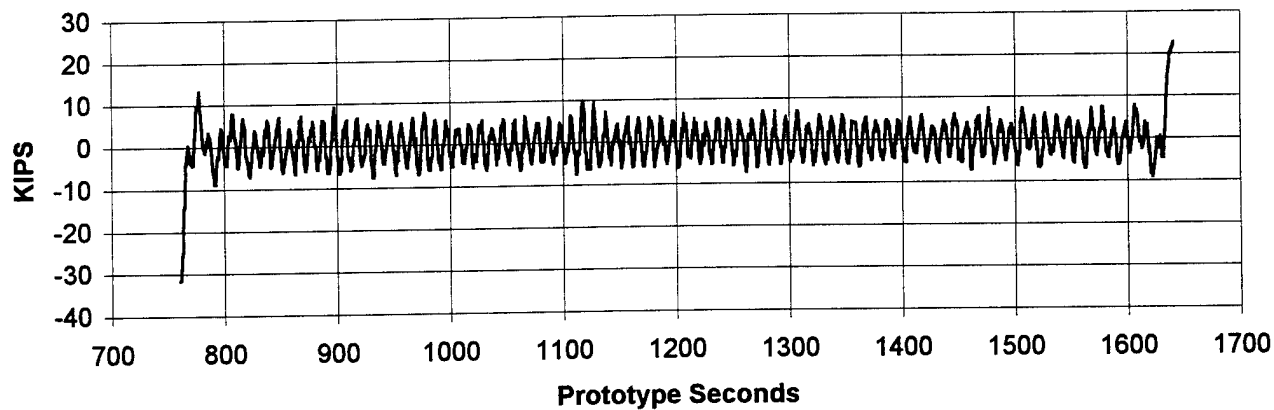
**Unfiltered Time History**



**Filtered Low Frequency Time History**

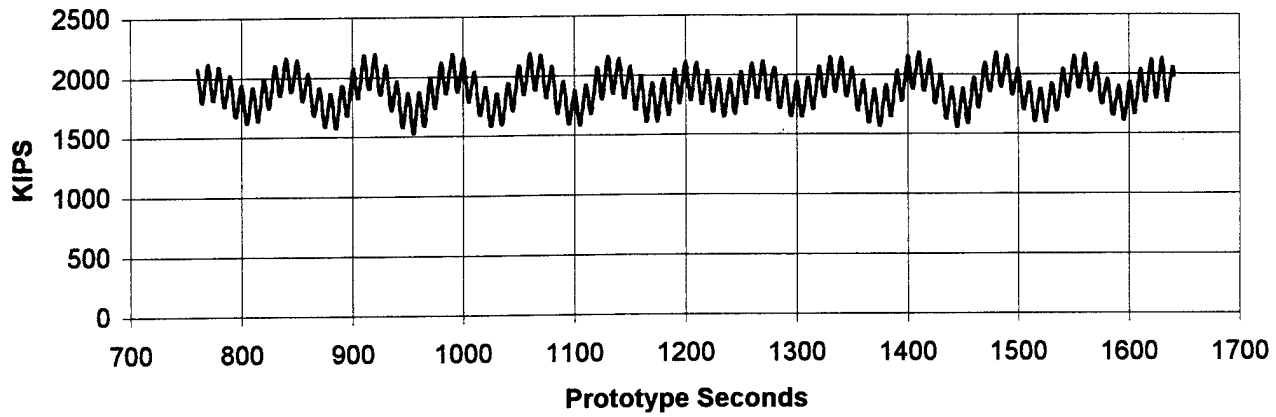


**Filtered High Frequency Time History**

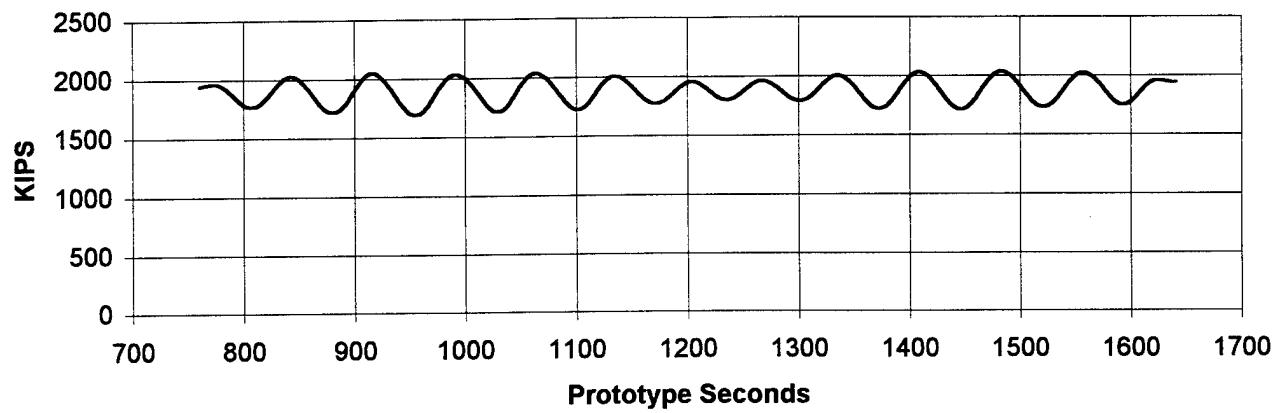


# TEST A551 - BUOY 1 TENSION

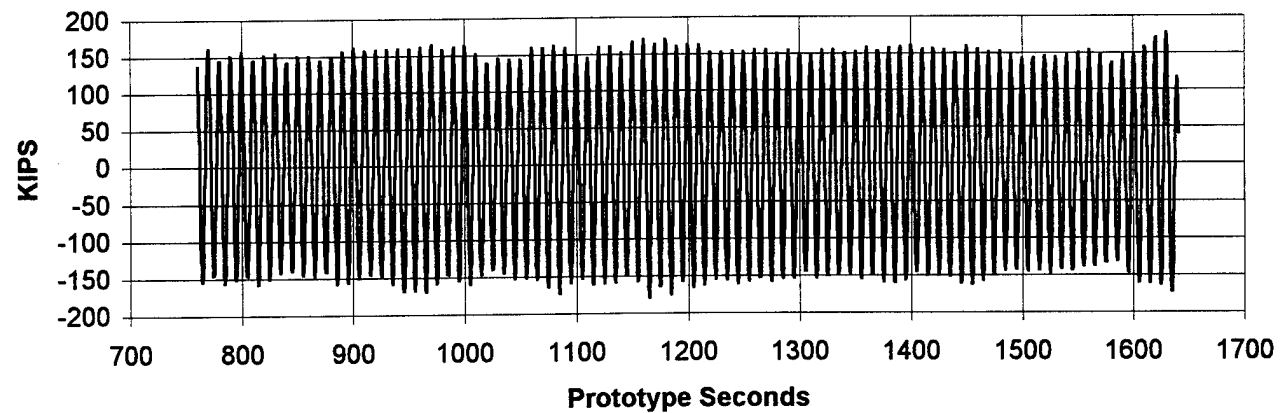
## Unfiltered Time History



## Filtered Low Frequency Time History

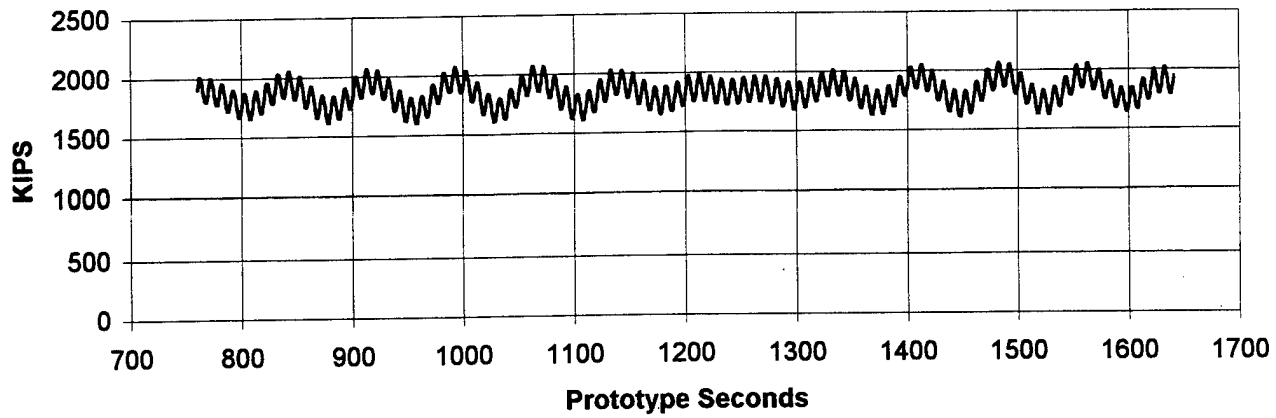


## Filtered High Frequency Time History

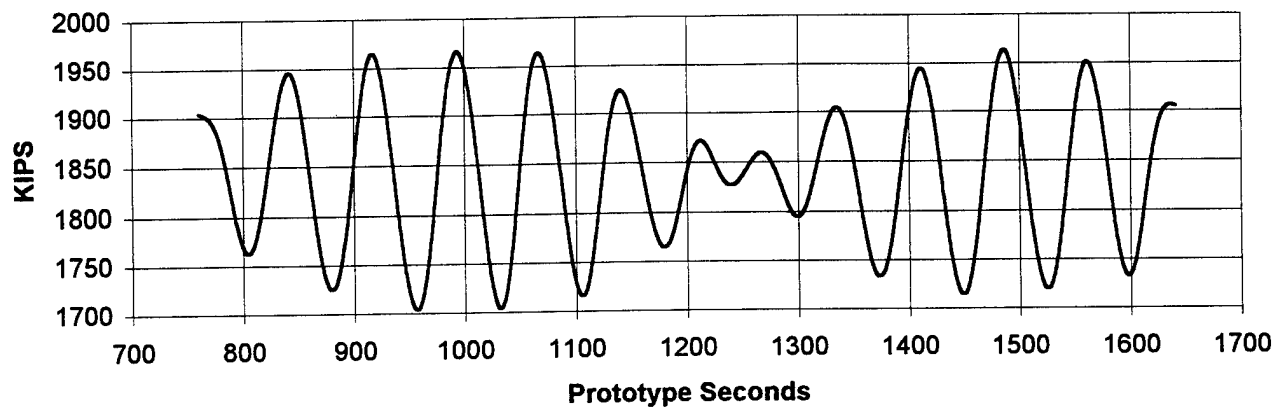


# TEST A551 - BUOY 2 TENSION

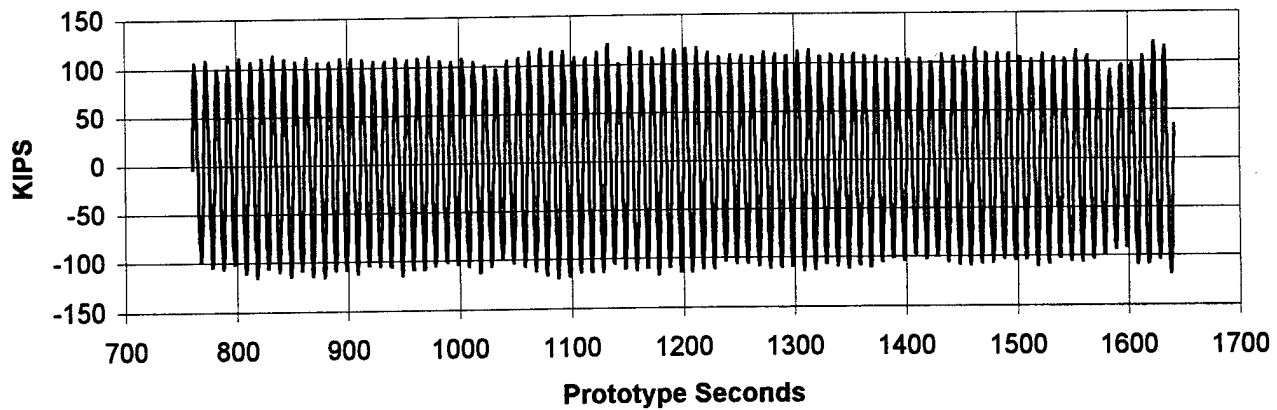
## Unfiltered Time History



## Filtered Low Frequency Time History

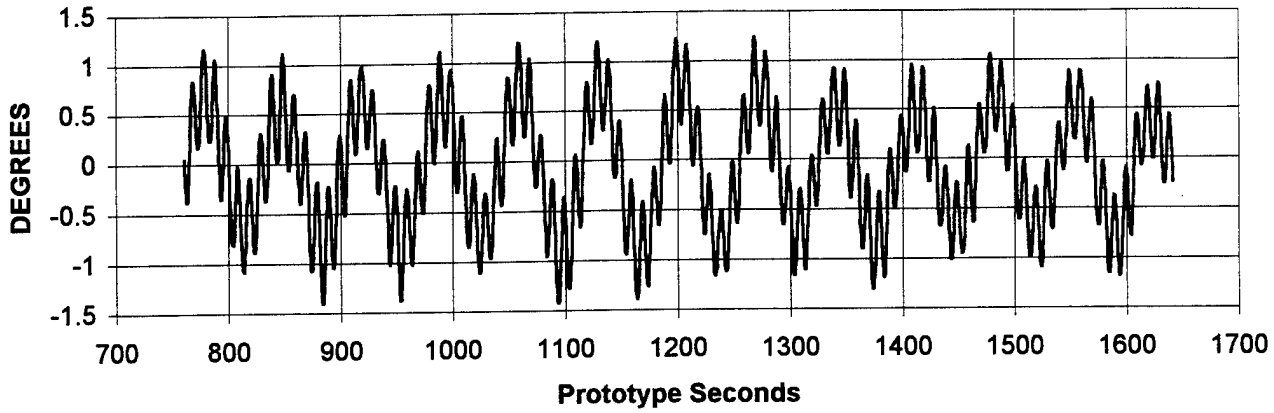


## Filtered High Frequency Time History

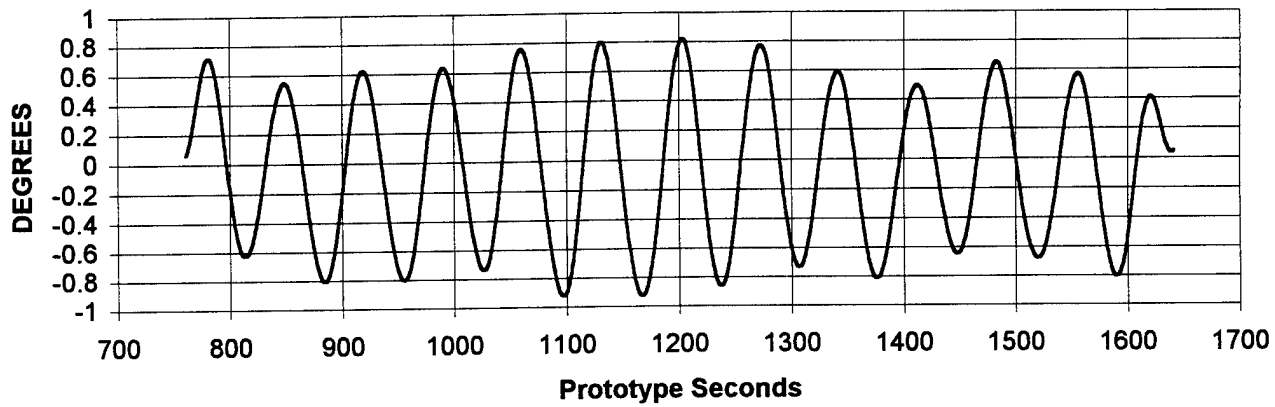


TEST A551 - PITCH

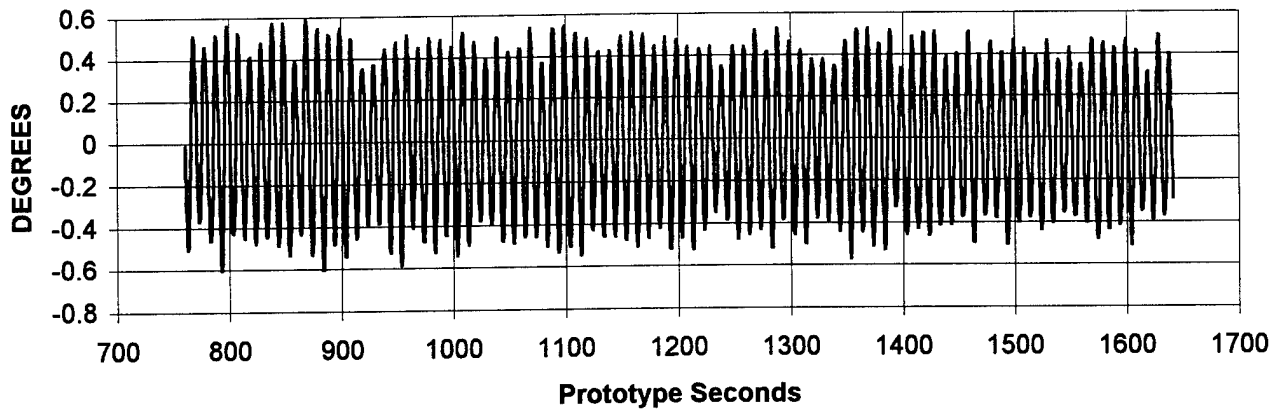
Unfiltered Time History



Filtered Low Frequency Time History

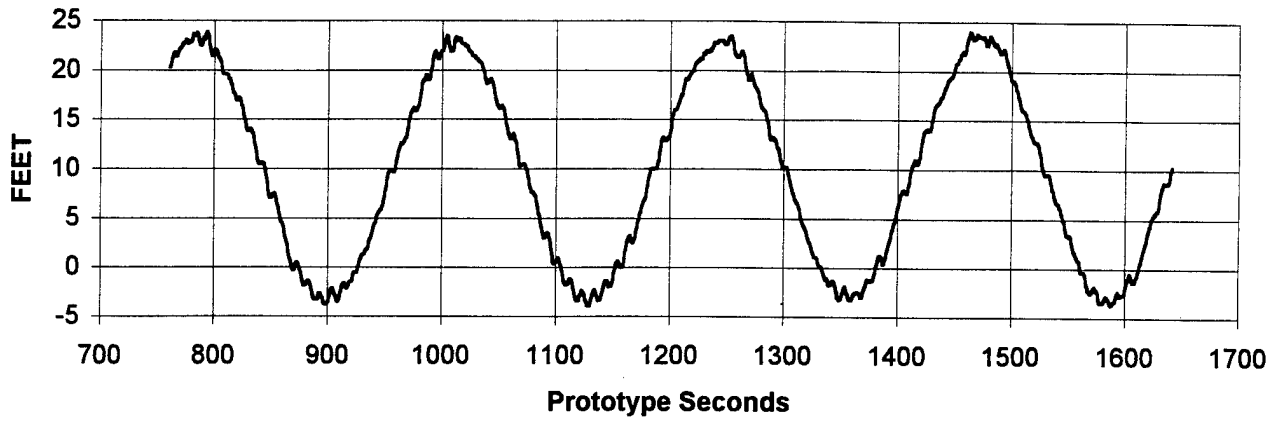


Filtered High Frequency Time History

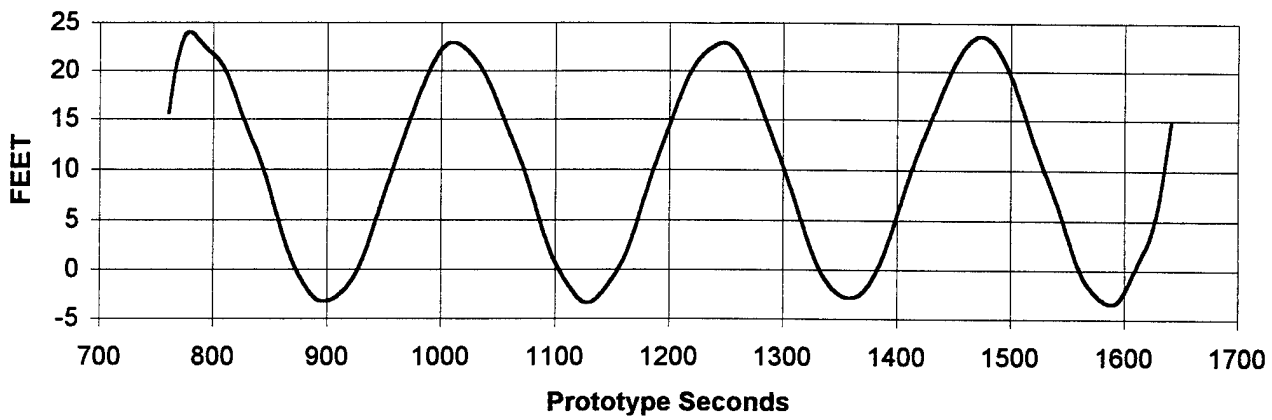


TEST A551 - PT SURGE

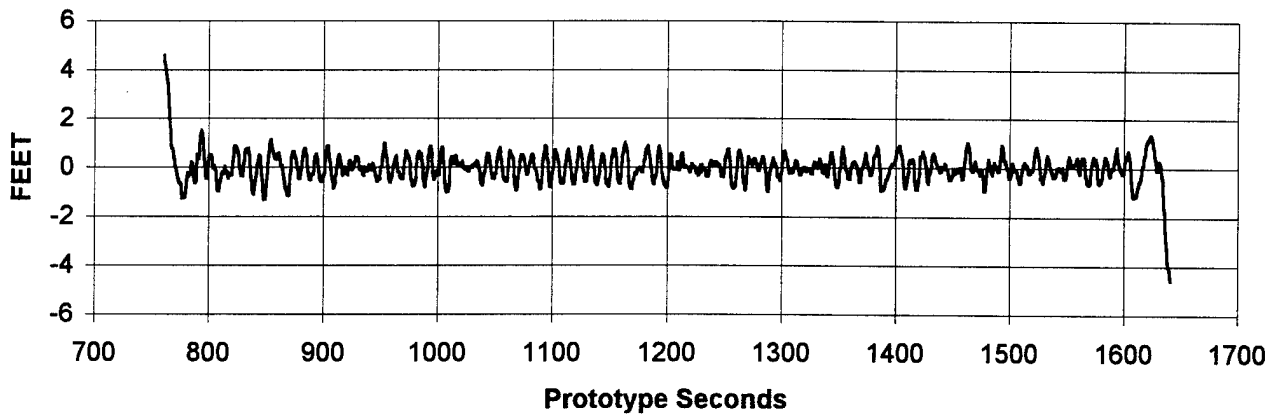
Unfiltered Time History



Filtered Low Frequency Time History

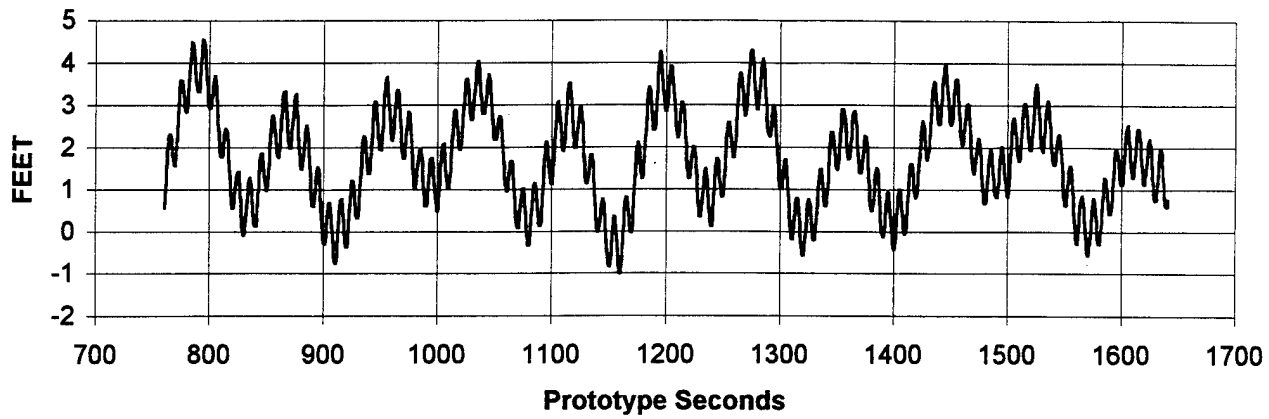


Filtered High Frequency Time History

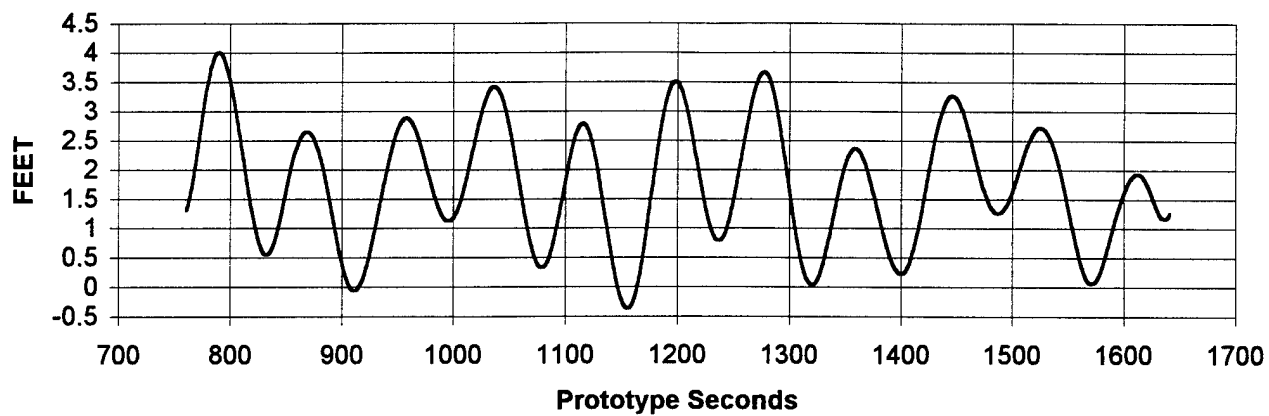


TEST A551 - PT HEAVE

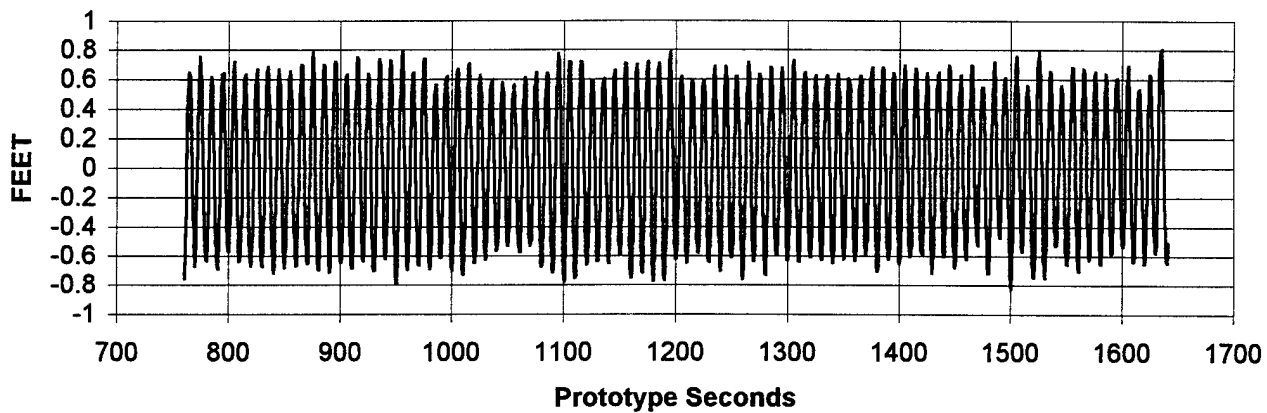
Unfiltered Time History



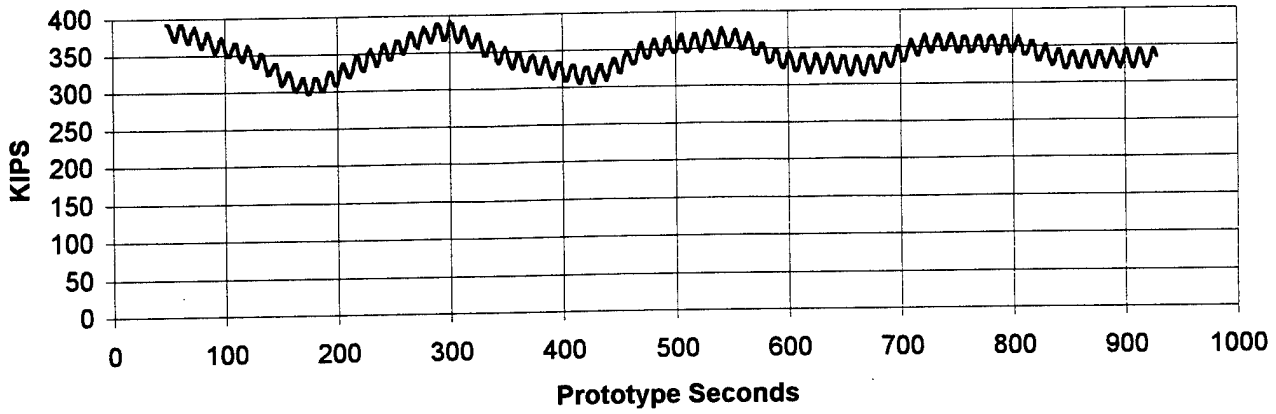
Filtered Low Frequency Time History



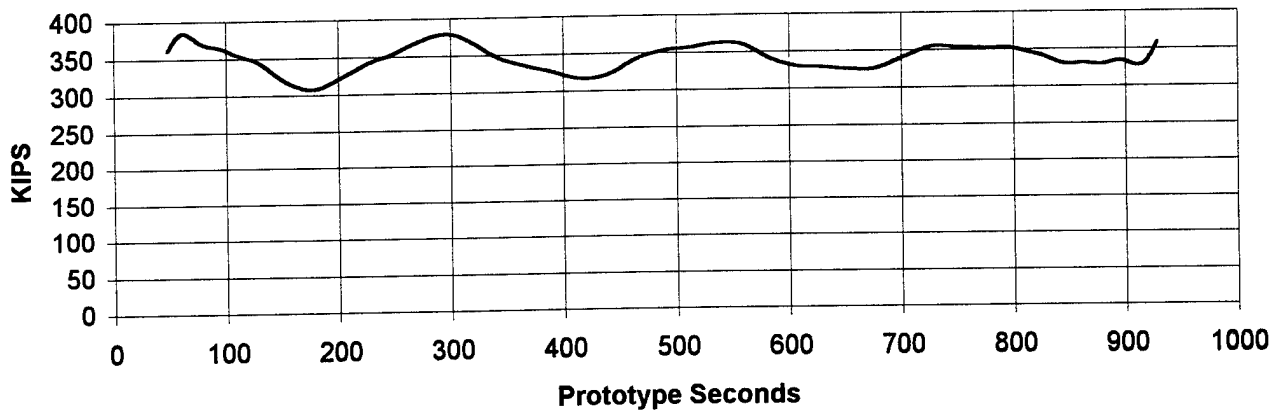
Filtered High Frequency Time History



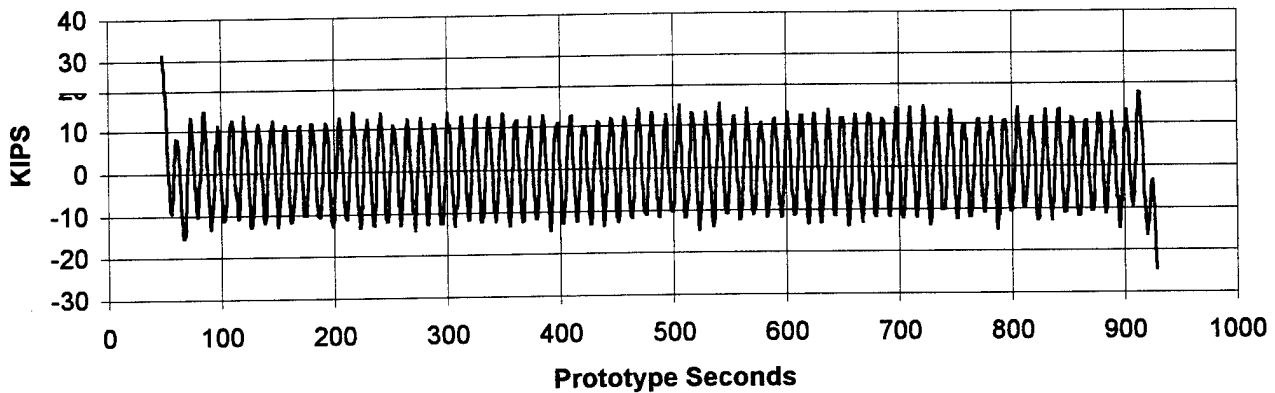
### Unfiltered Time History



### Filtered Low Frequency Time History



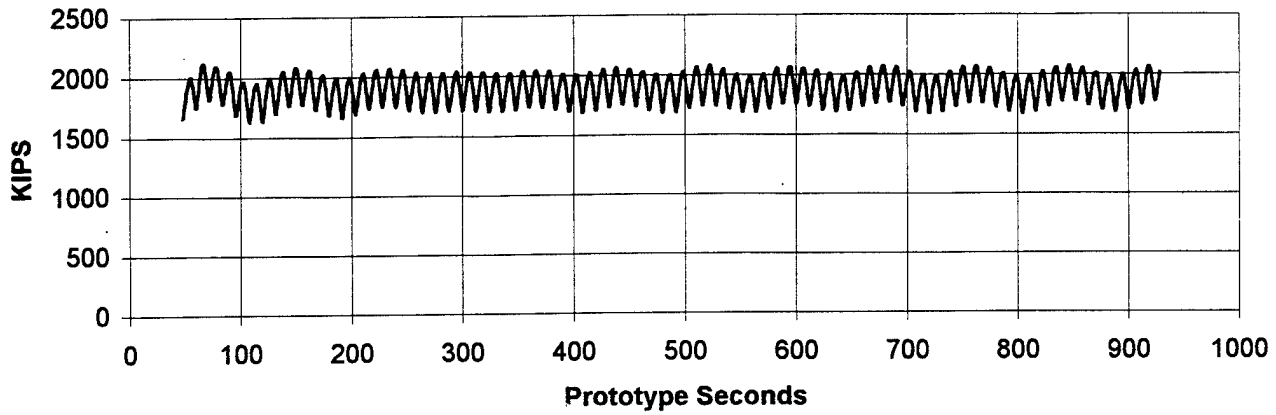
### Filtered High Frequency Time History



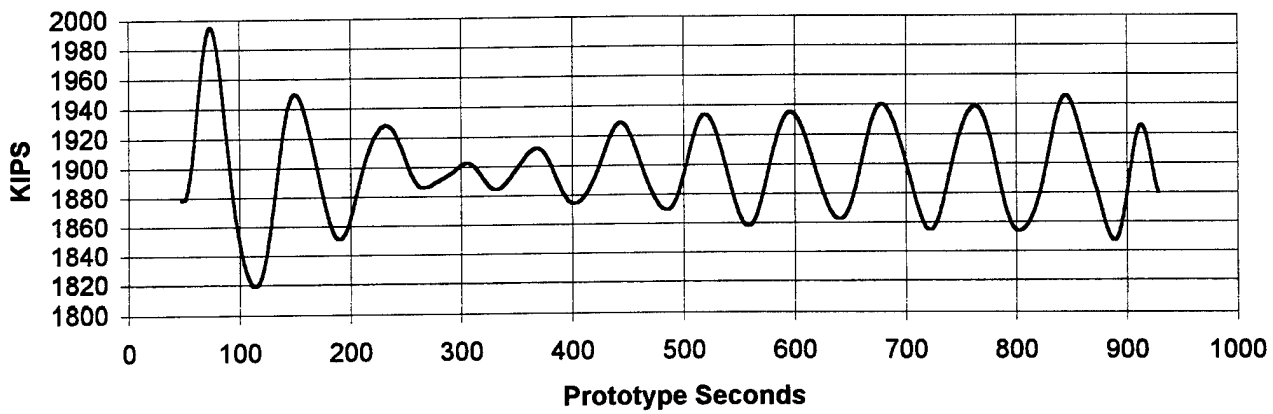


TEST A552 - BUOY 1 TENSION

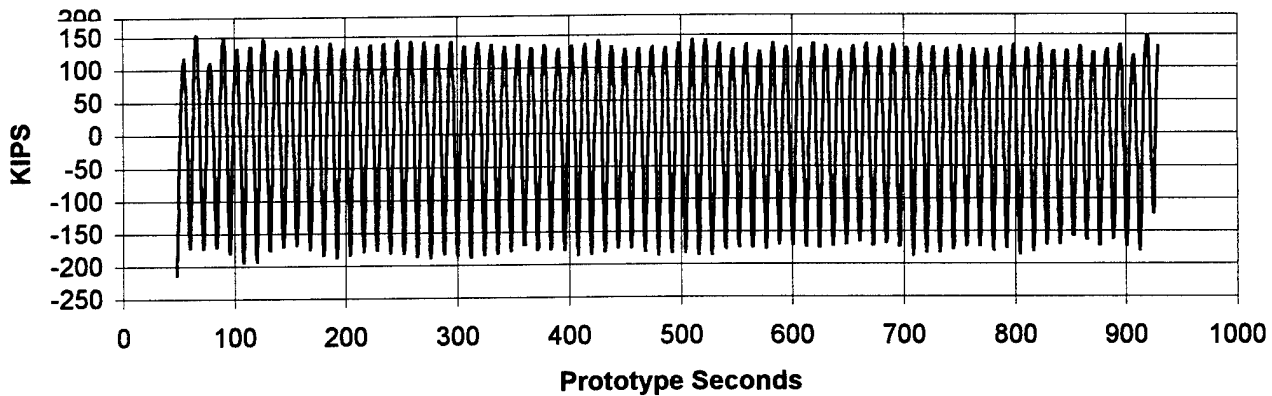
Unfiltered Time History



Filtered Low Frequency Time History

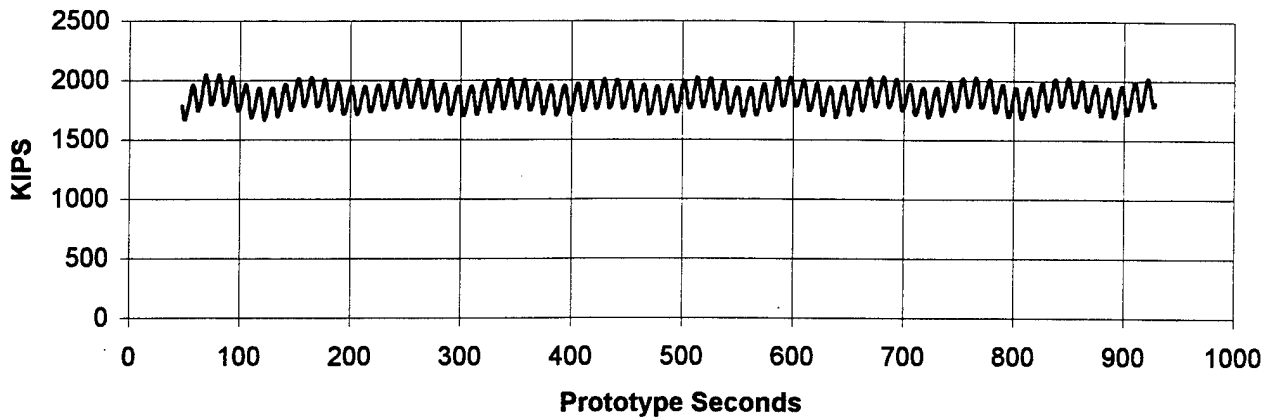


Filtered High Frequency Time History

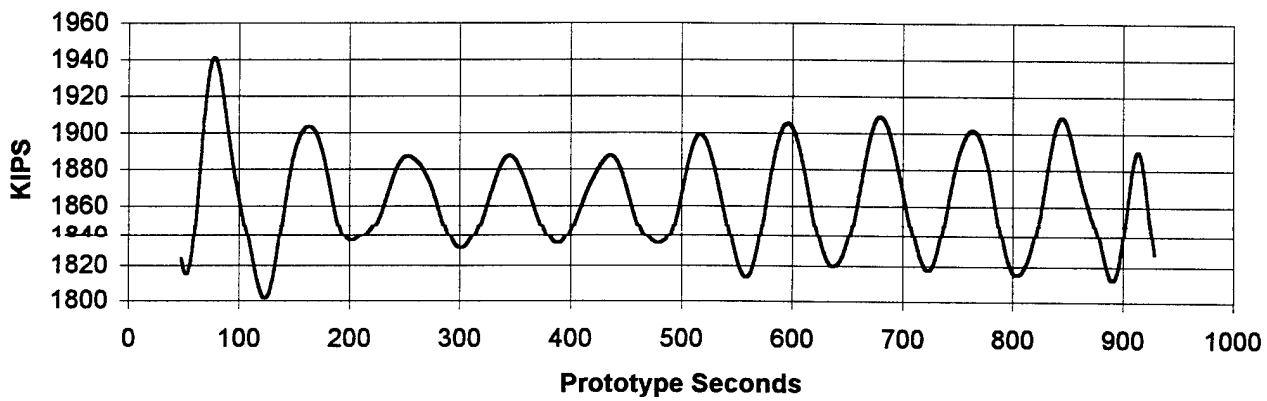


TEST A552 - BUOY 2 TENSION

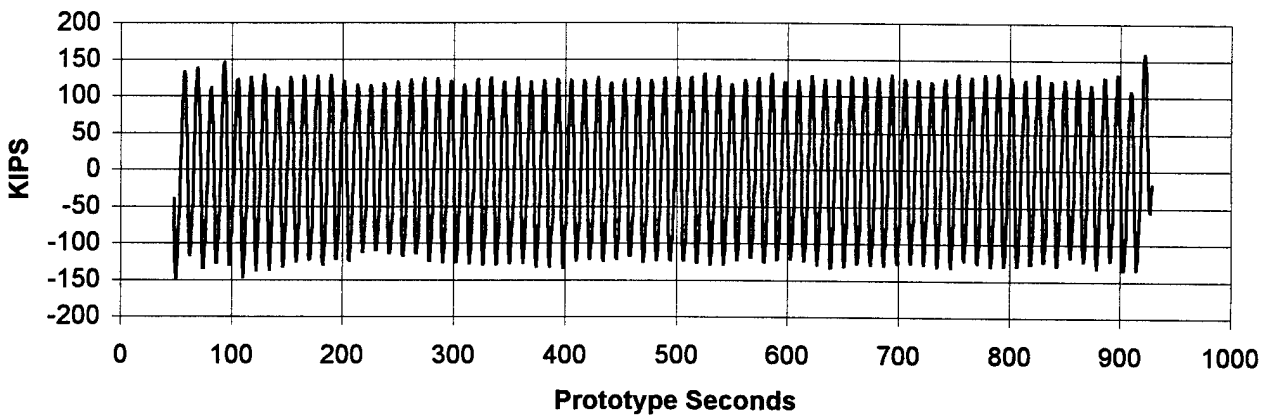
Unfiltered Time History



Filtered Low Frequency Time History

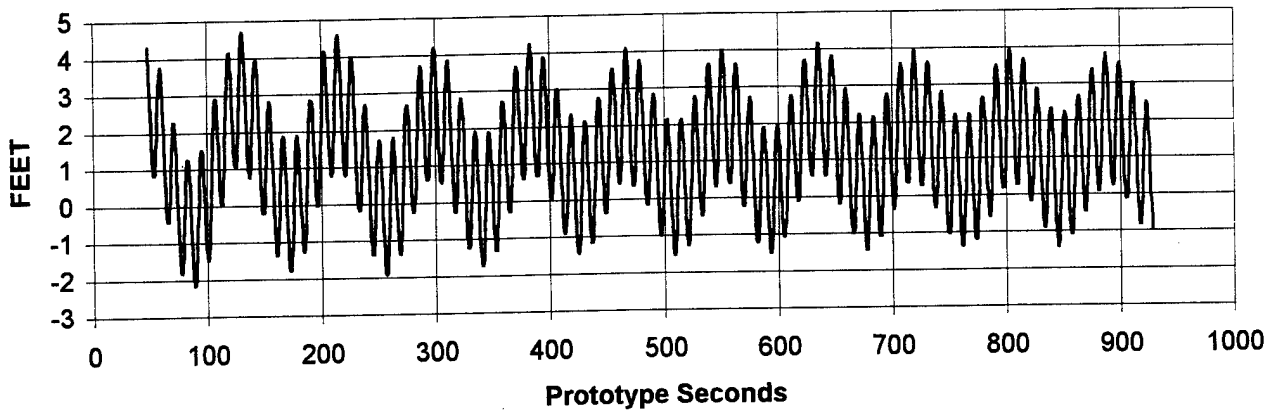


Filtered High Frequency Time History

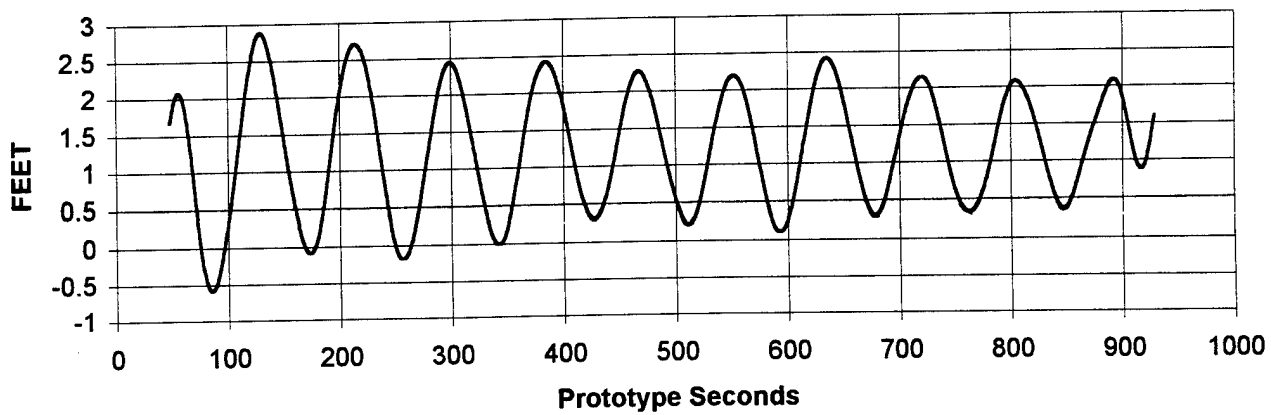


TEST A552 - PT HEAVE

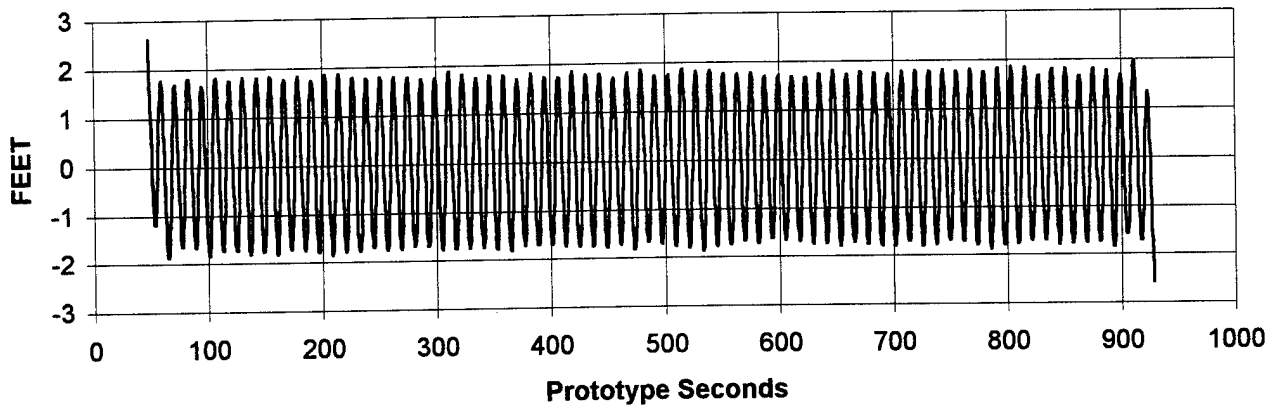
Unfiltered Time History



Filtered Low Frequency Time History

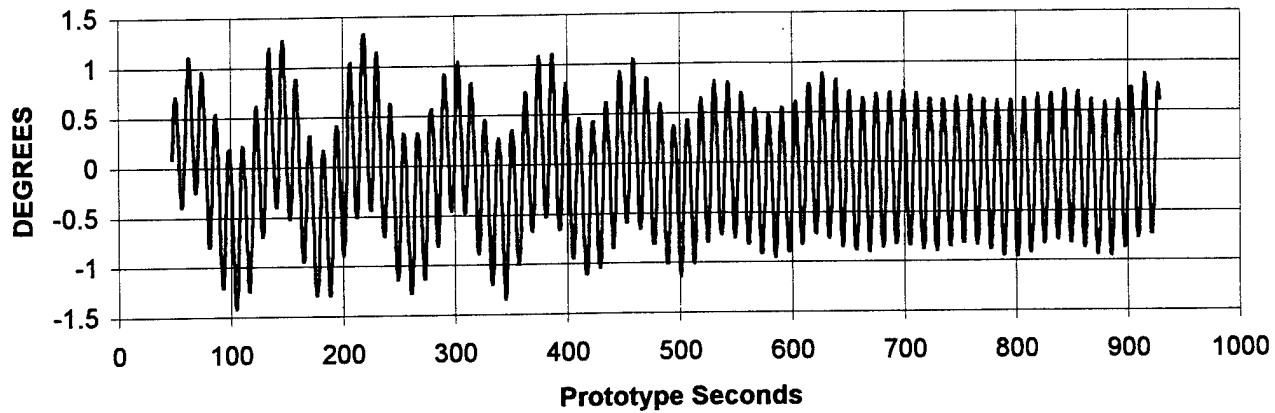


Filtered High Frequency Time History

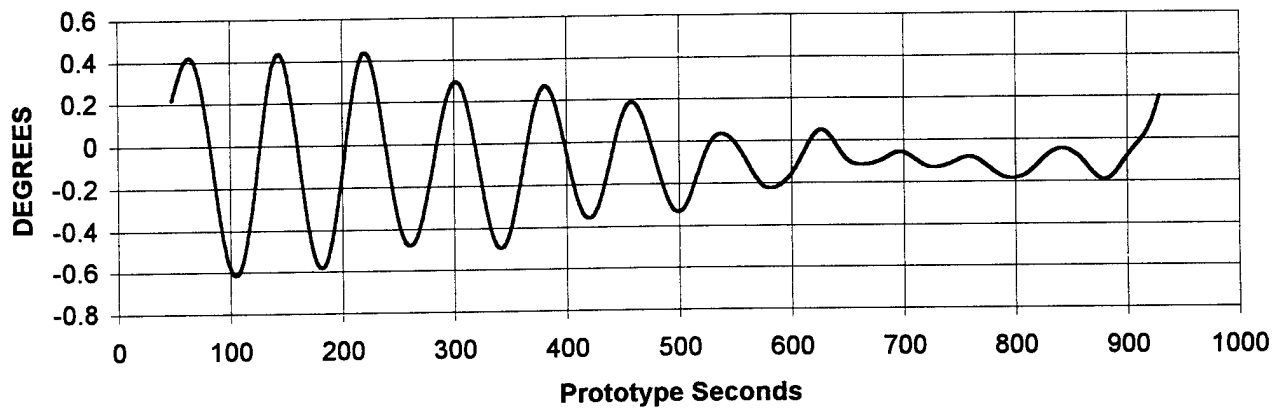


# TEST A552 - PITCH

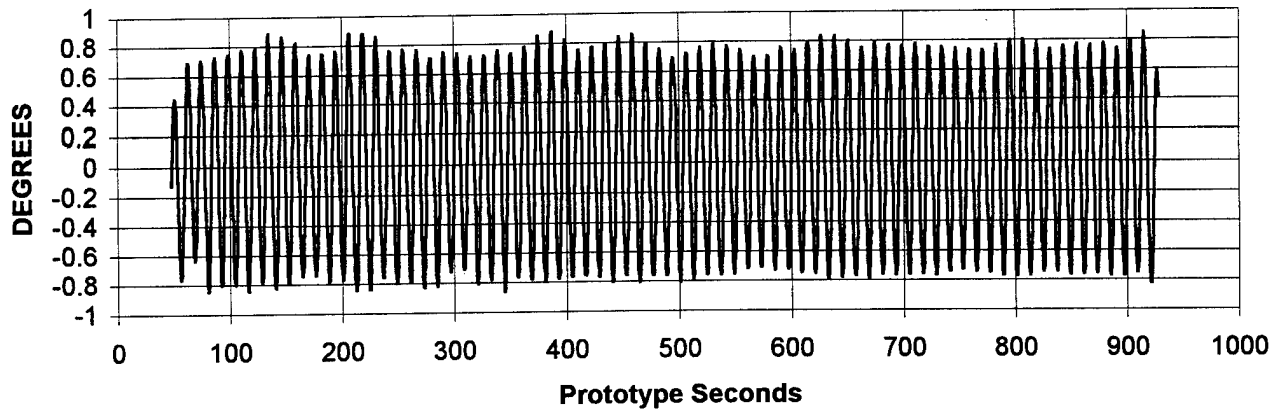
## Unfiltered Time History



## Filtered Low Frequency Time History

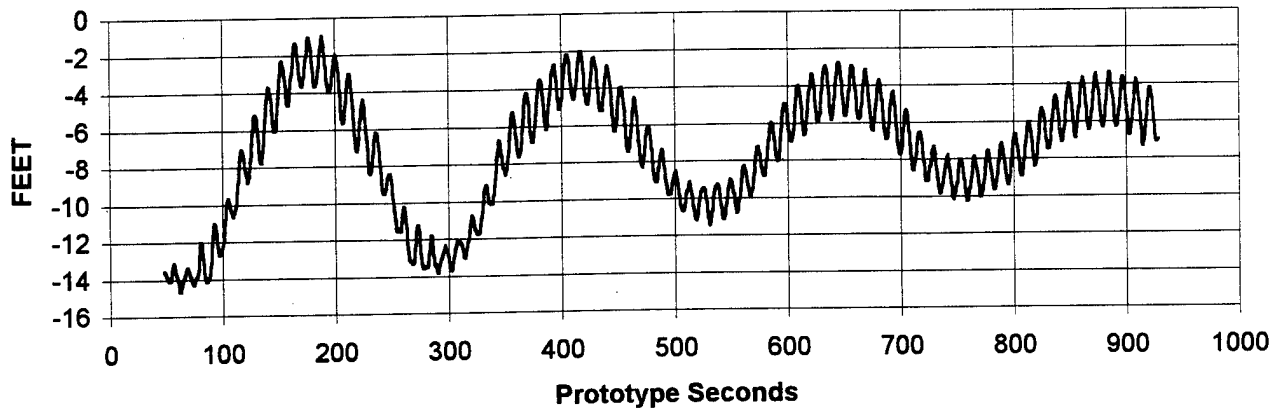


## Filtered High Frequency Time History

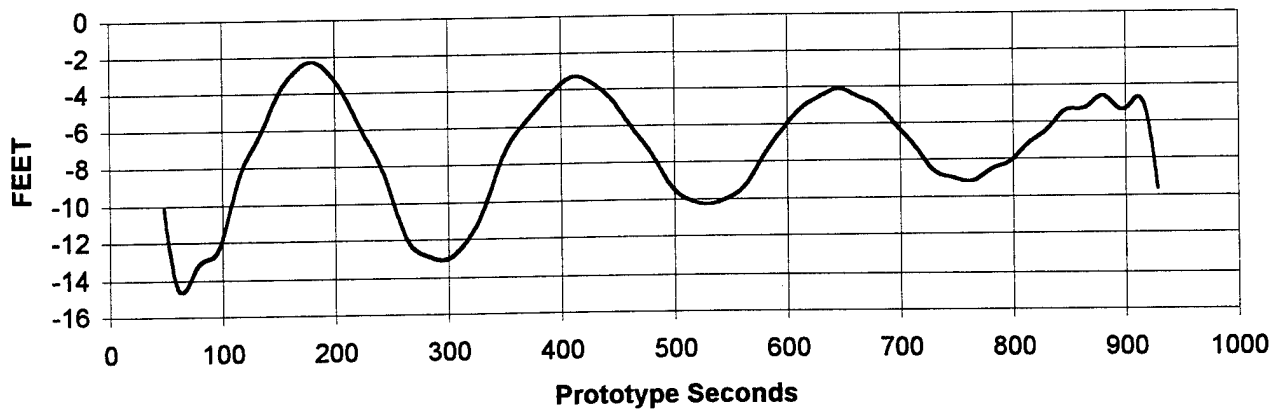


# TEST A552 - PT SURGE

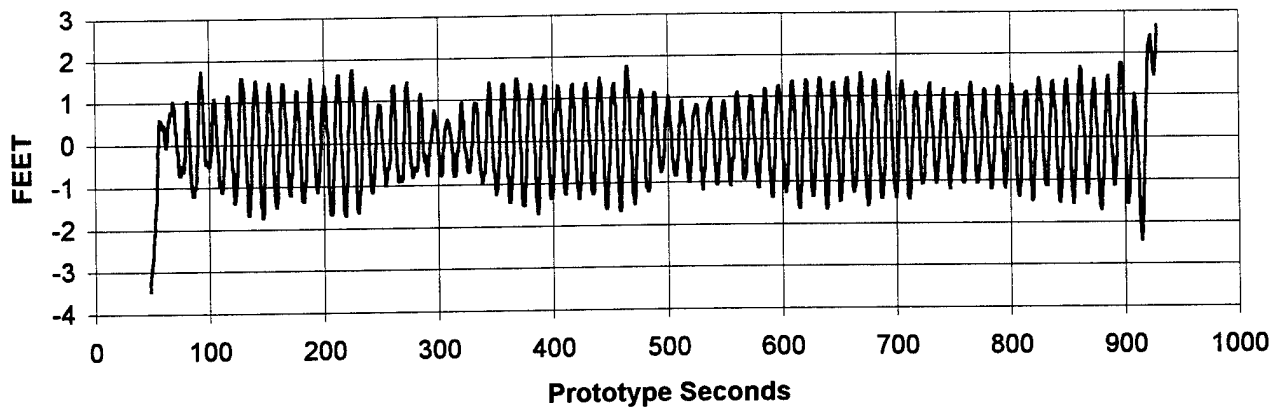
## Unfiltered Time History



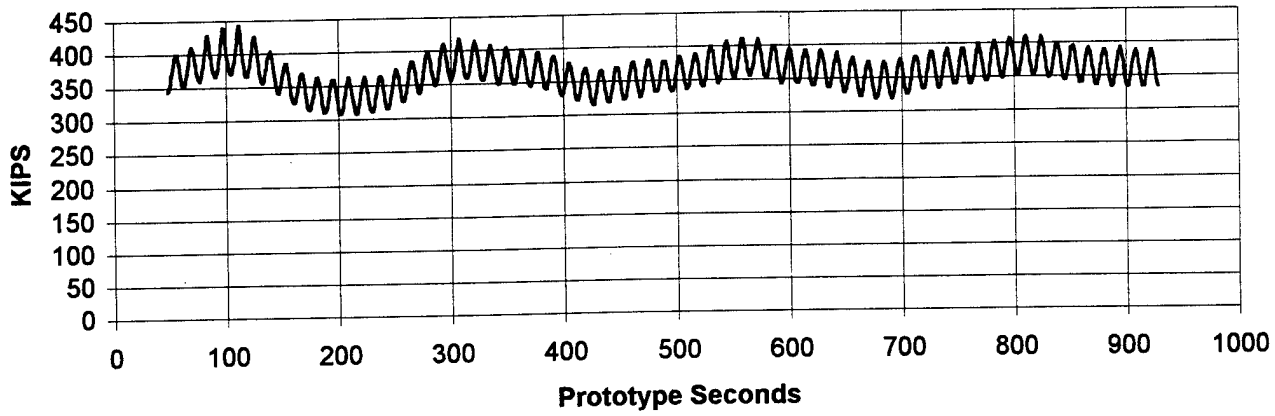
## Filtered Low Frequency Time History



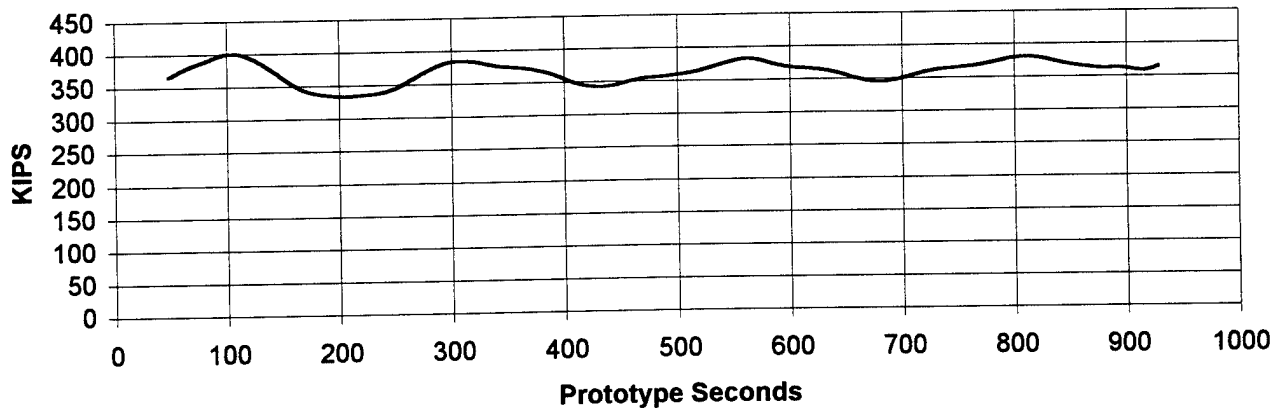
## Filtered High Frequency Time History



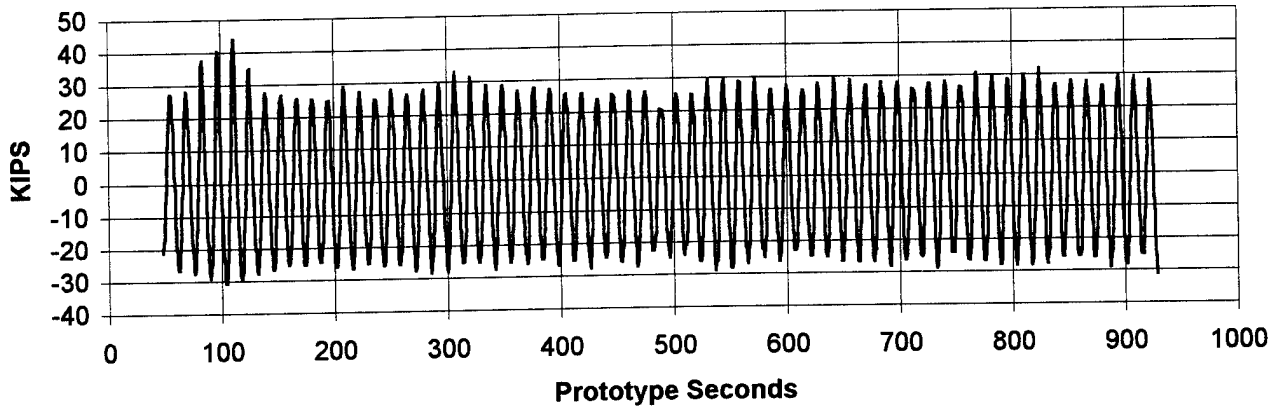
**Unfiltered Time History**



**Filtered Low Frequency Time History**

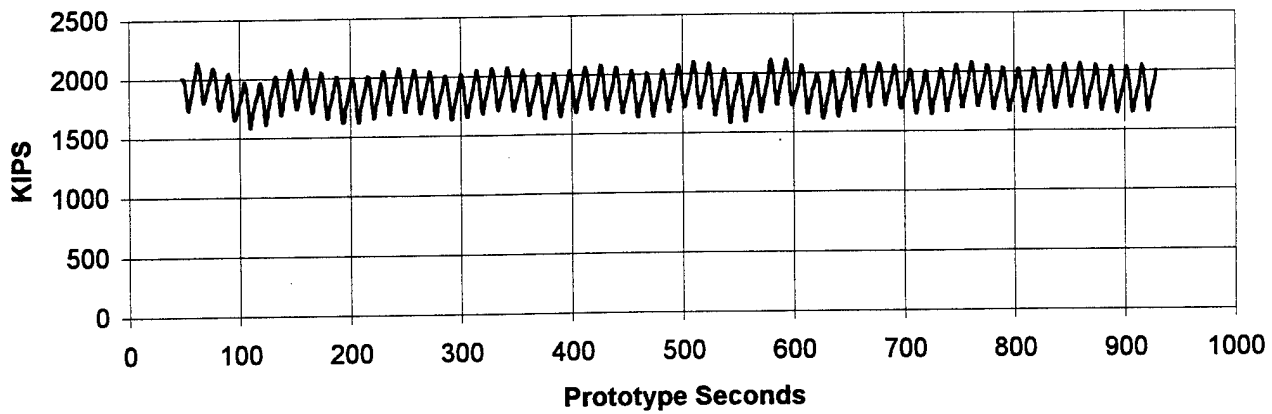


**Filtered High Frequency Time History**

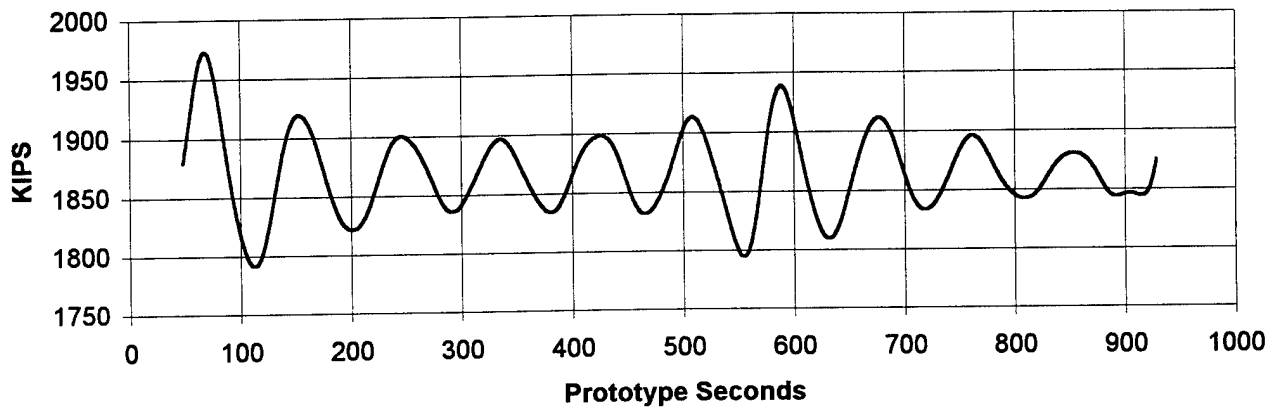


# TEST A553 - BUOY 1 TENSION

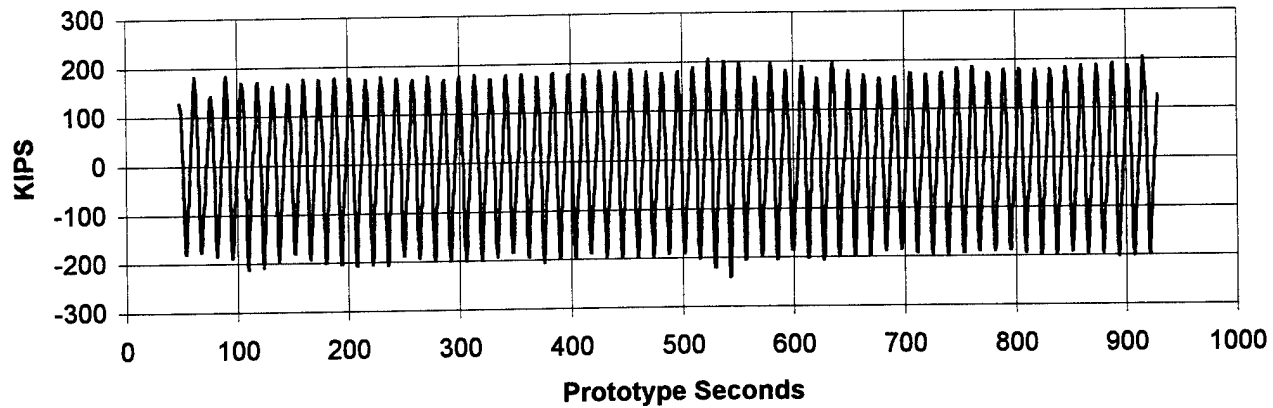
## Unfiltered Time History



## Filtered Low Frequency Time History

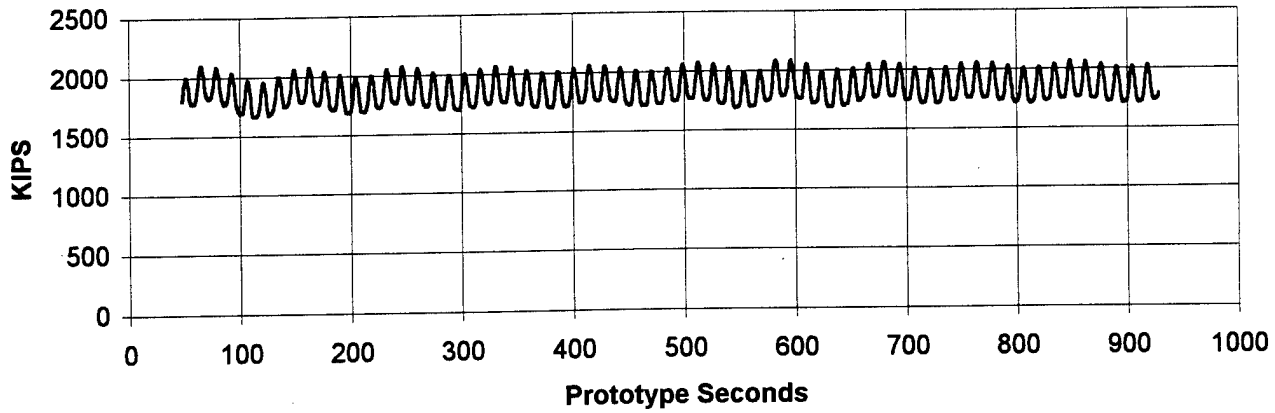


## Filtered High Frequency Time History

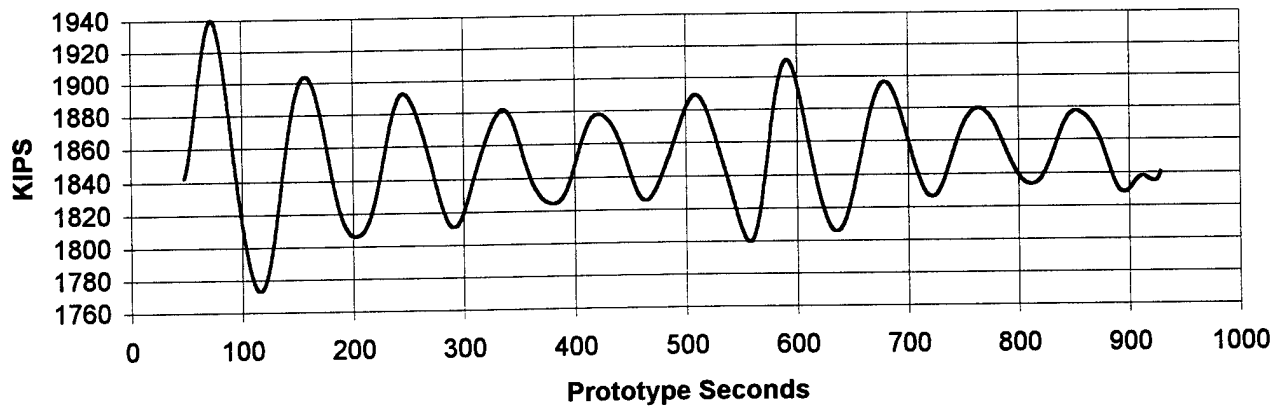


TEST A553 - BUOY 2 TENSION

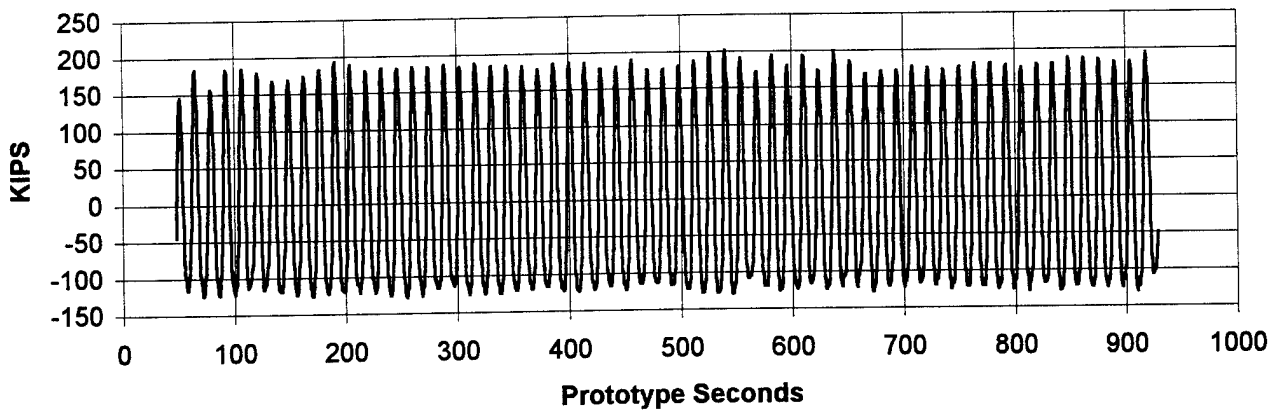
Unfiltered Time History



Filtered Low Frequency Time History



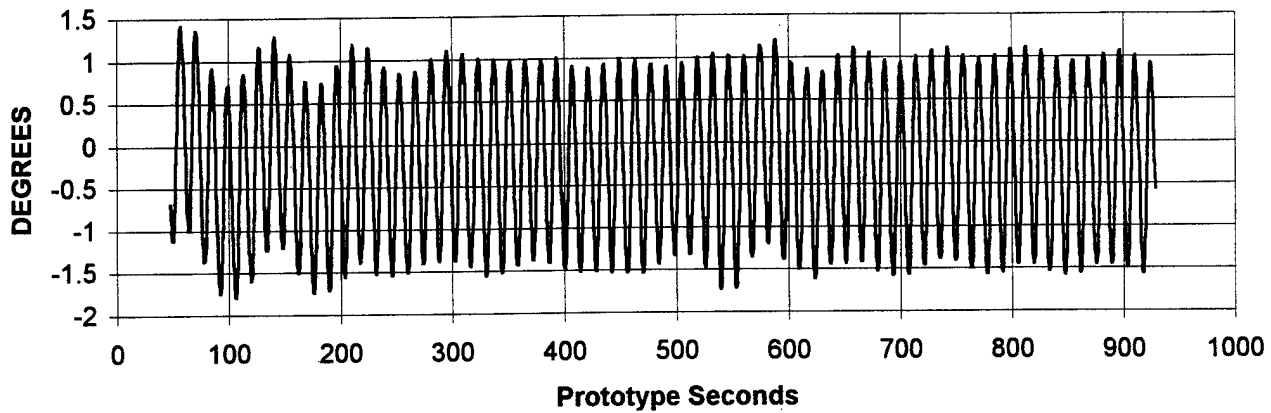
Filtered High Frequency Time History



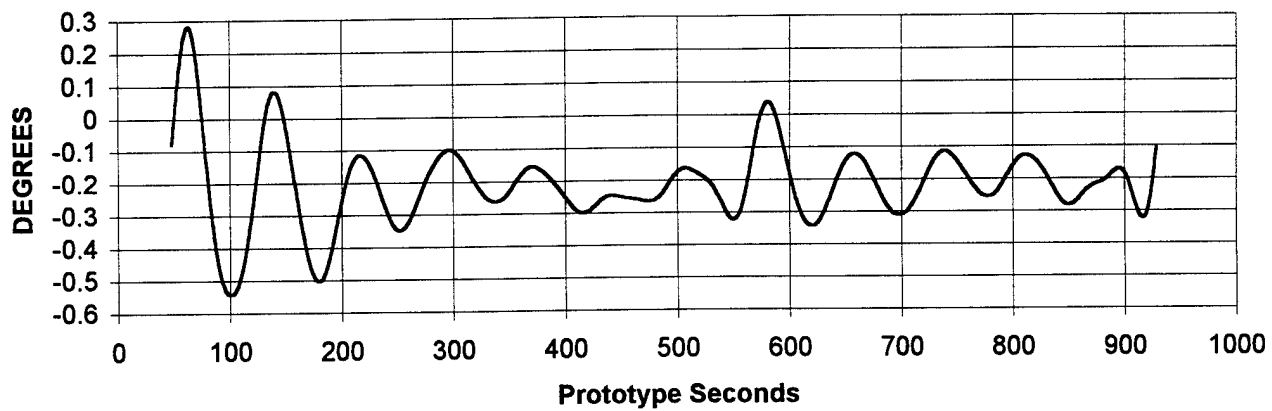


# TEST A553 - PITCH

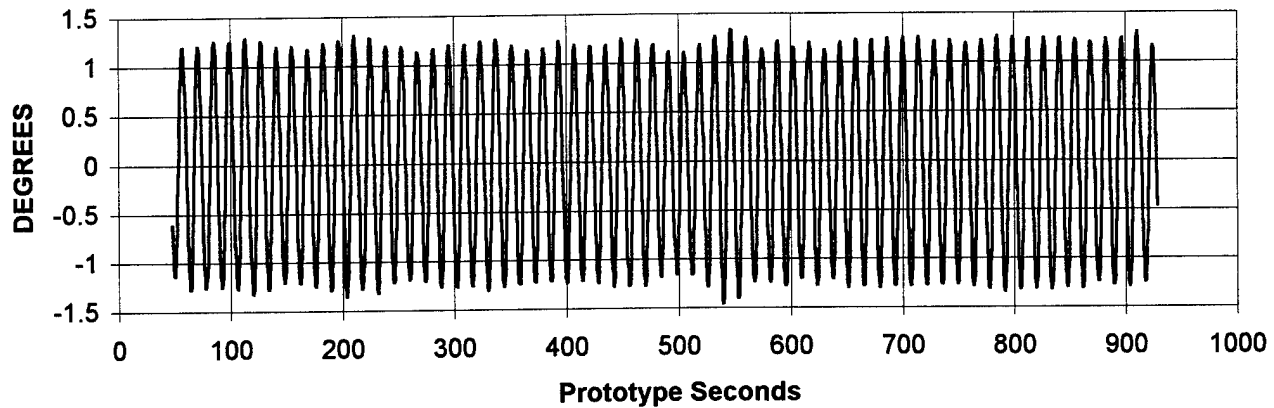
## Unfiltered Time History



## Filtered Low Frequency Time History

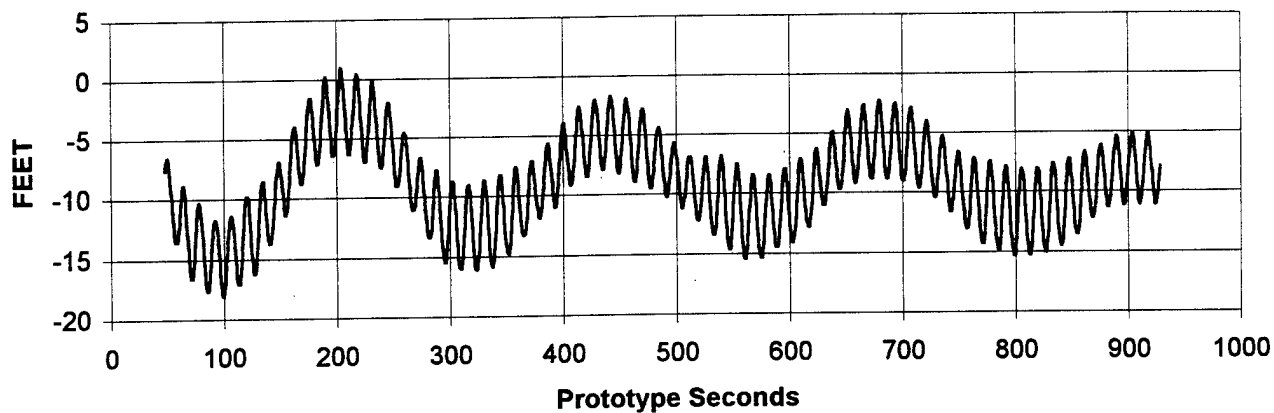


## Filtered High Frequency Time History

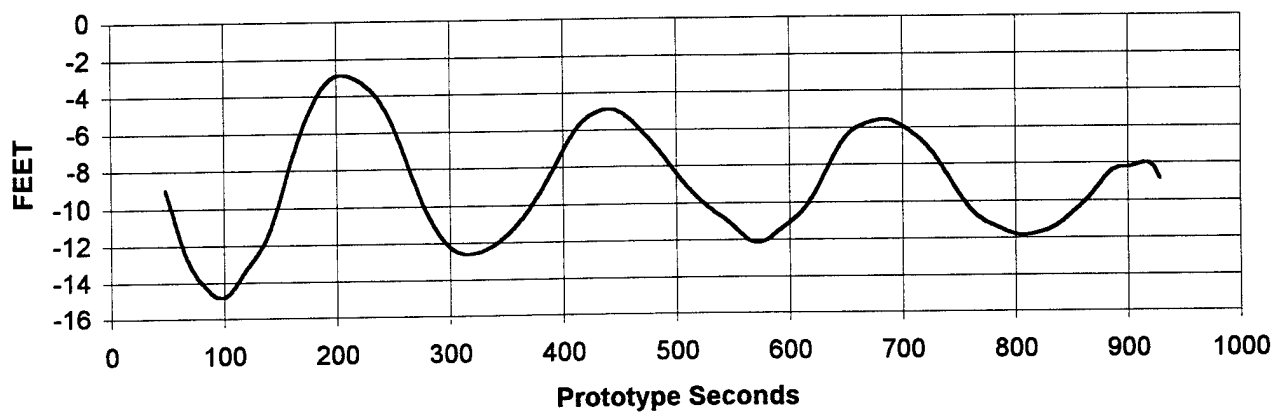


TEST A553 - PT SURGE

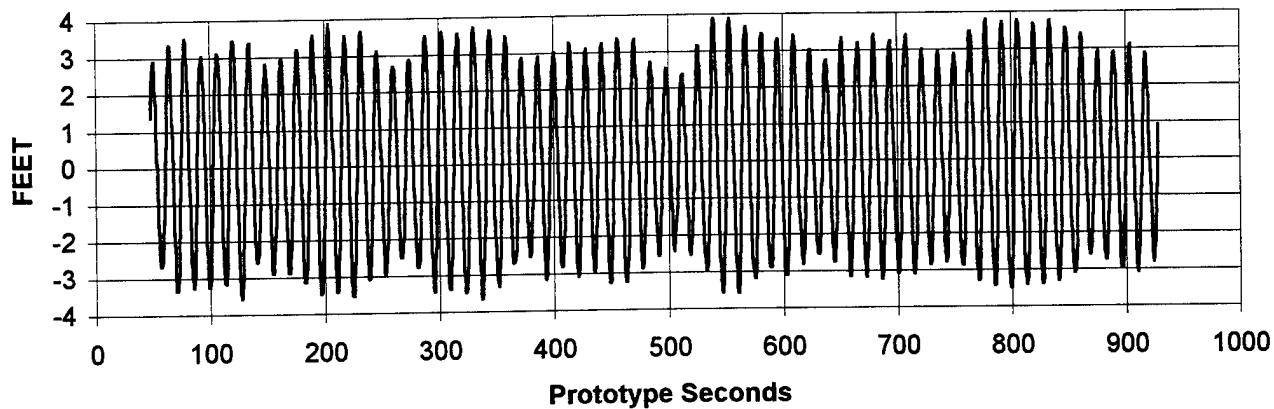
Unfiltered Time History



Filtered Low Frequency Time History

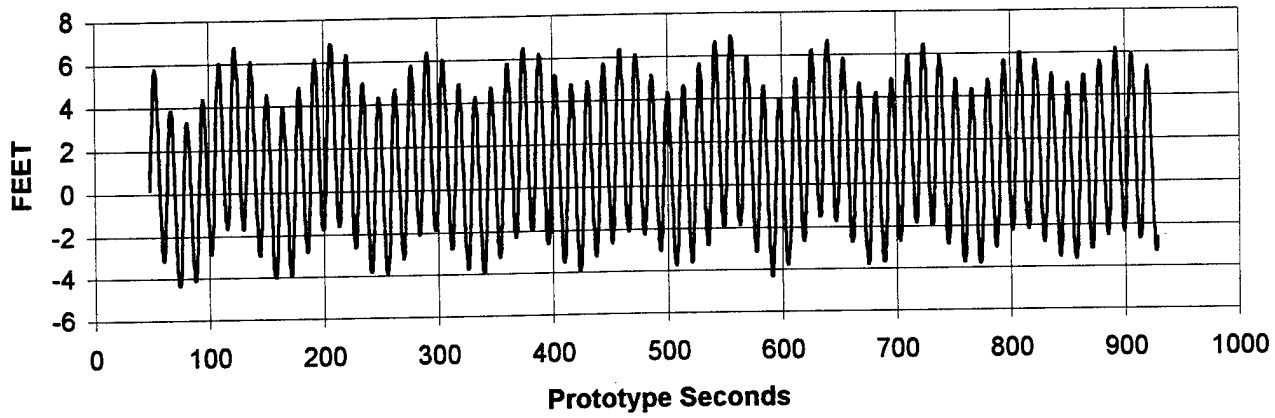


Filtered High Frequency Time History

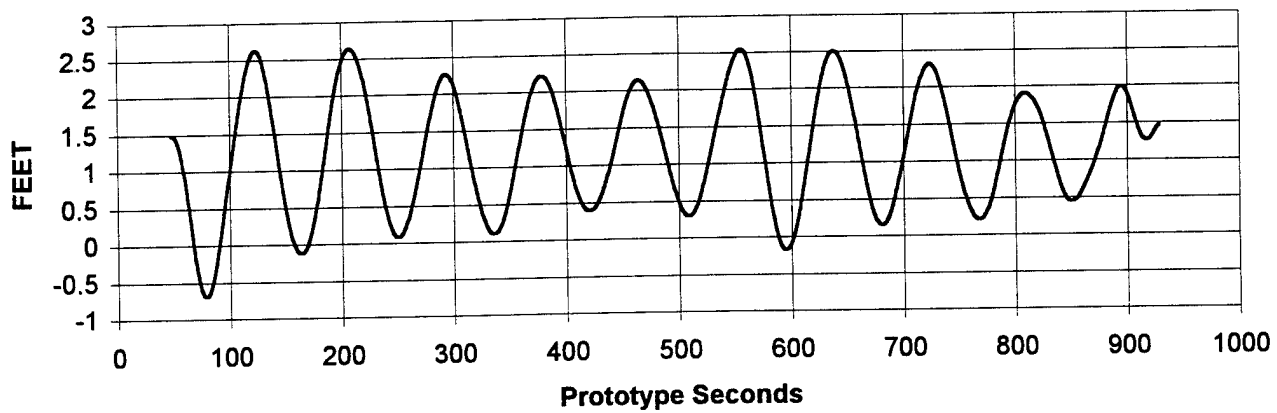


TEST A553 - PT HEAVE

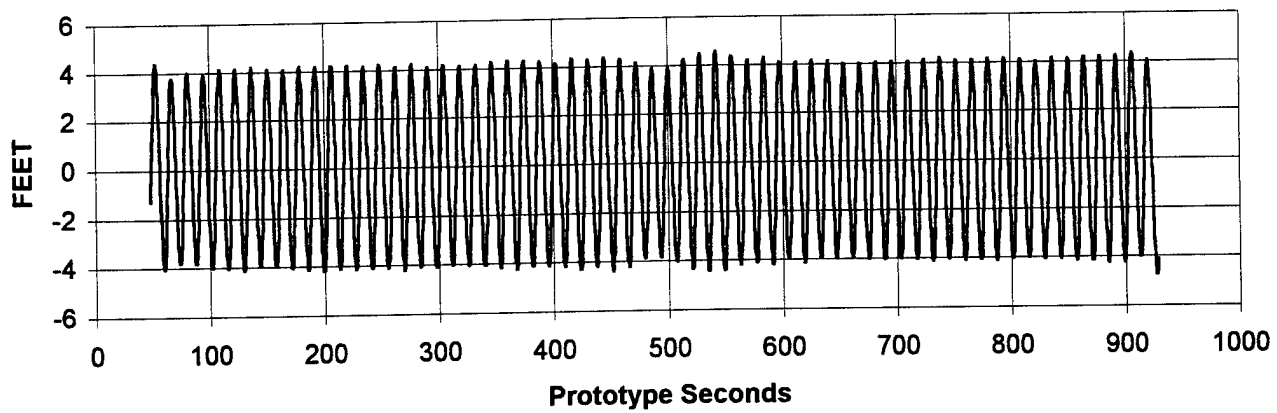
Unfiltered Time History



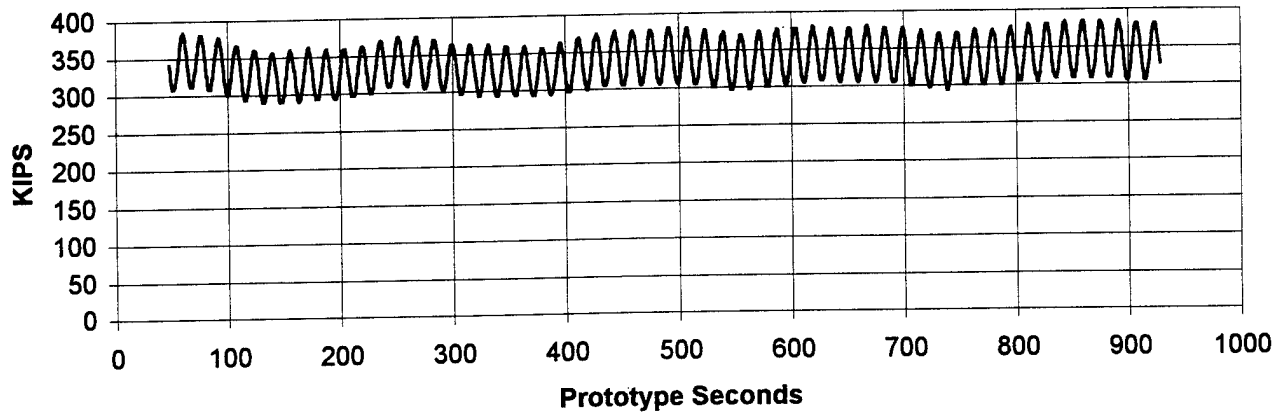
Filtered Low Frequency Time History



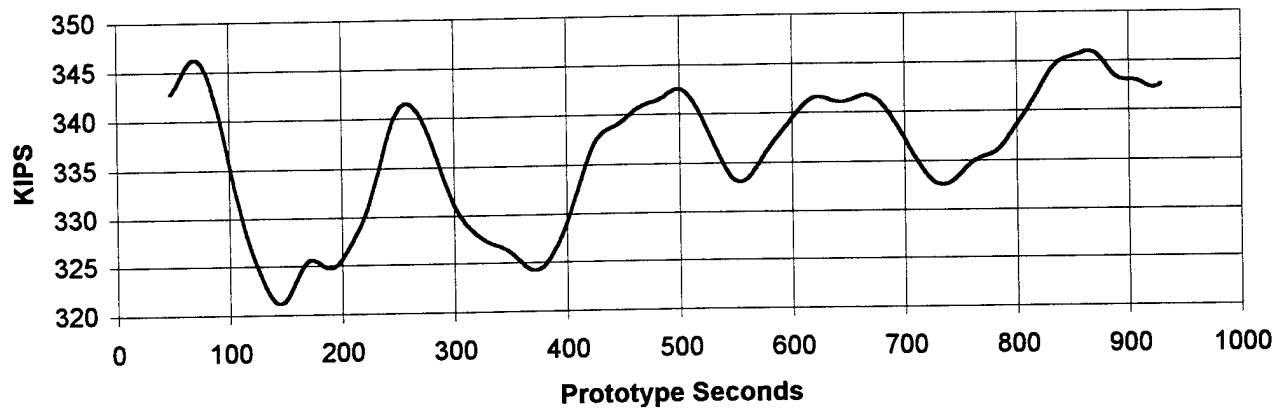
Filtered High Frequency Time History



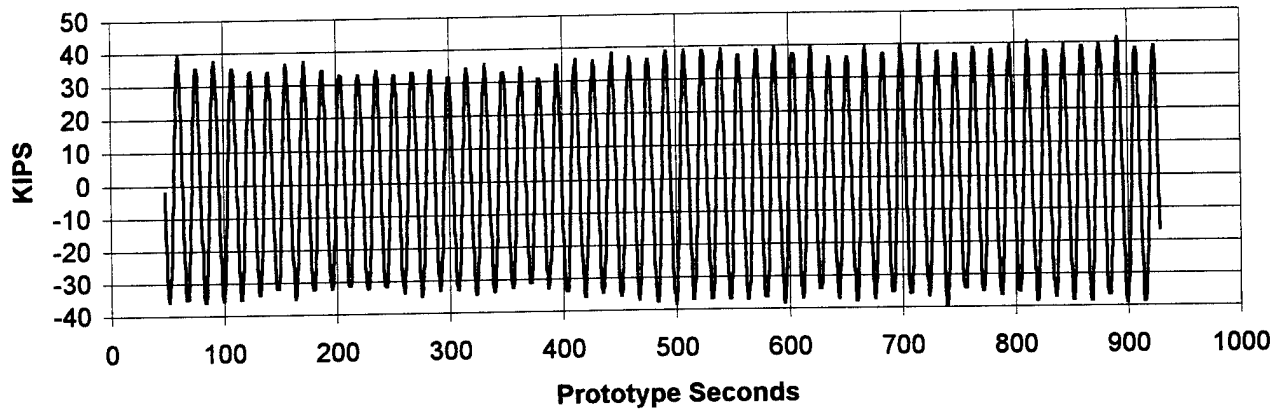
**Unfiltered Time History**



**Filtered Low Frequency Time History**

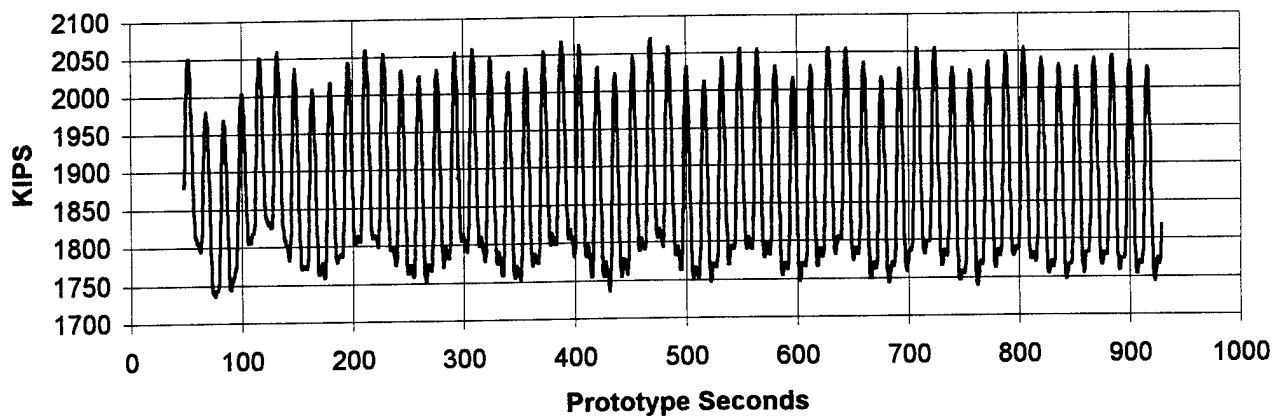


**Filtered High Frequency Time History**

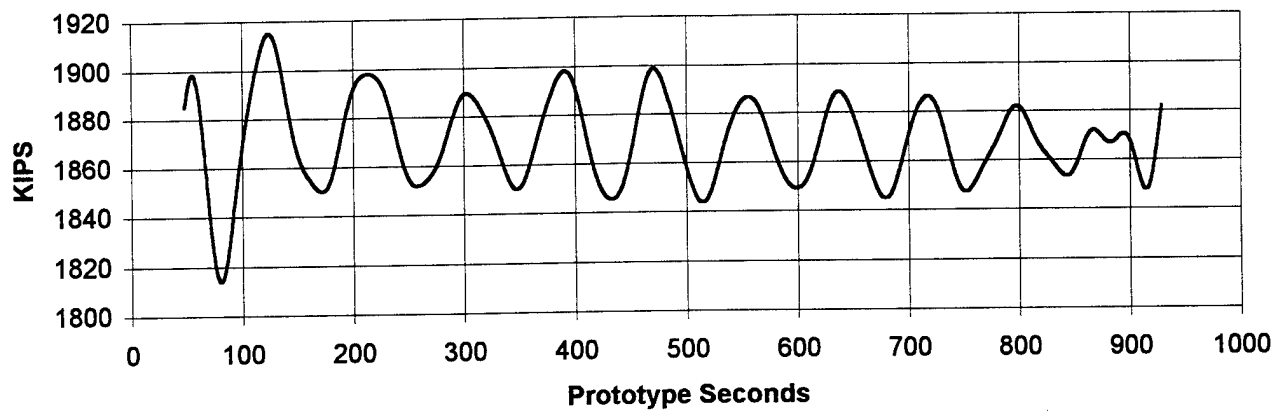


TEST A554 - BUOY 1 TENSION

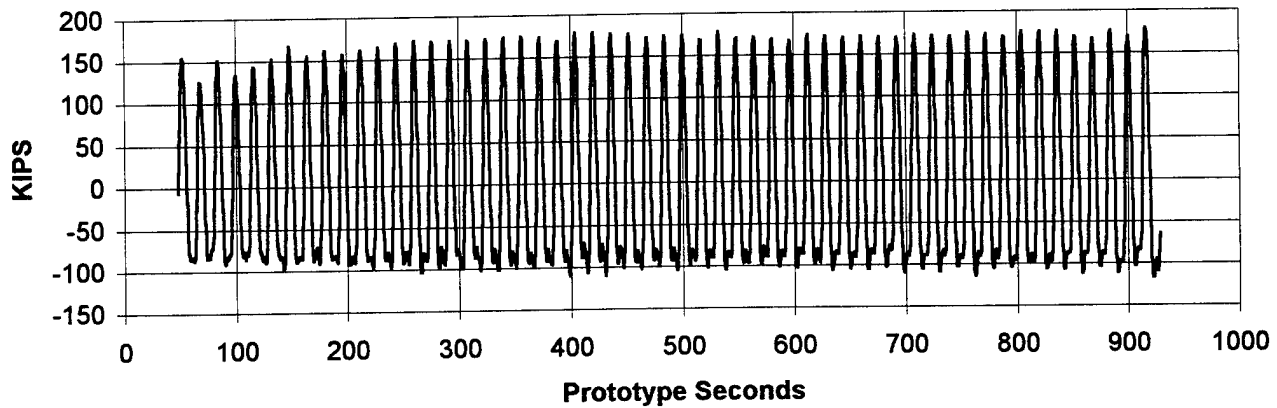
Unfiltered Time History



Filtered Low Frequency Time History

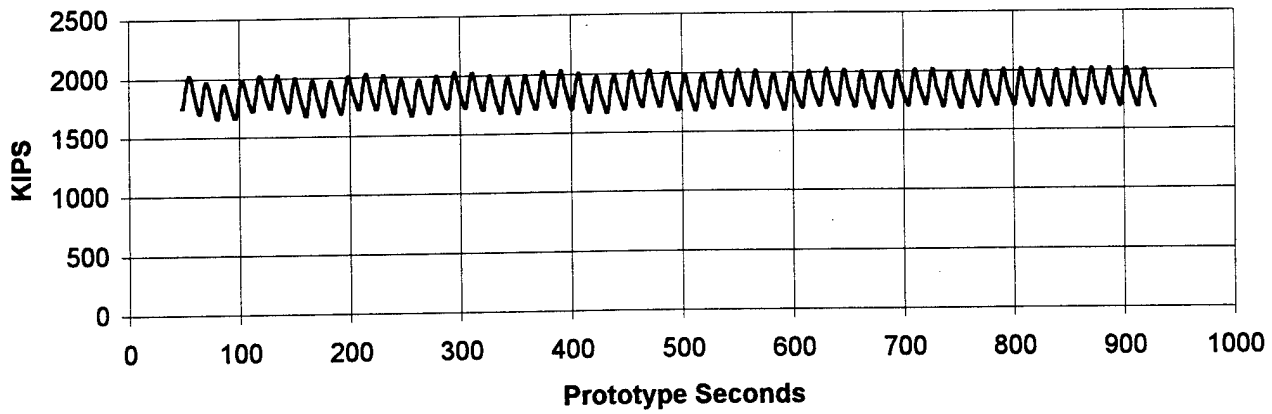


Filtered High Frequency Time History

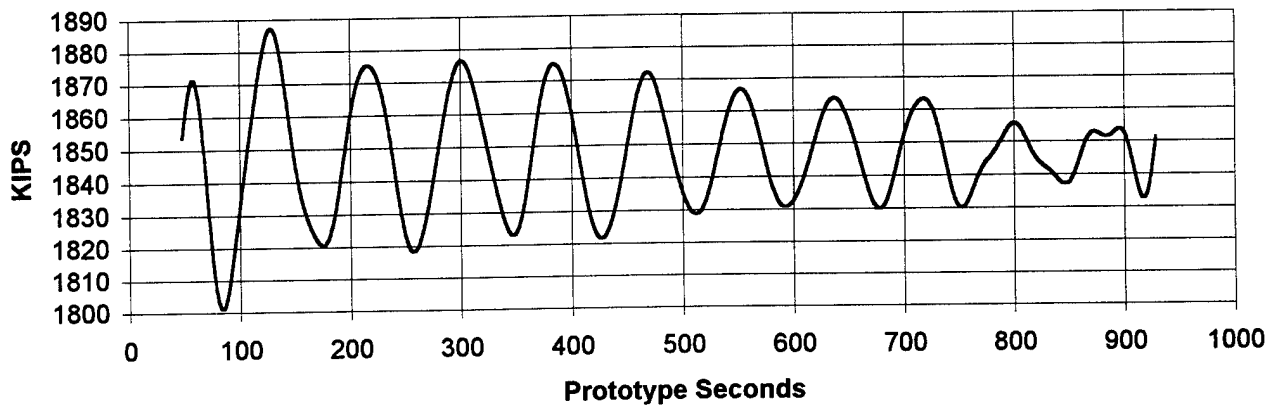


TEST A554 - BUOY 2 TENSION

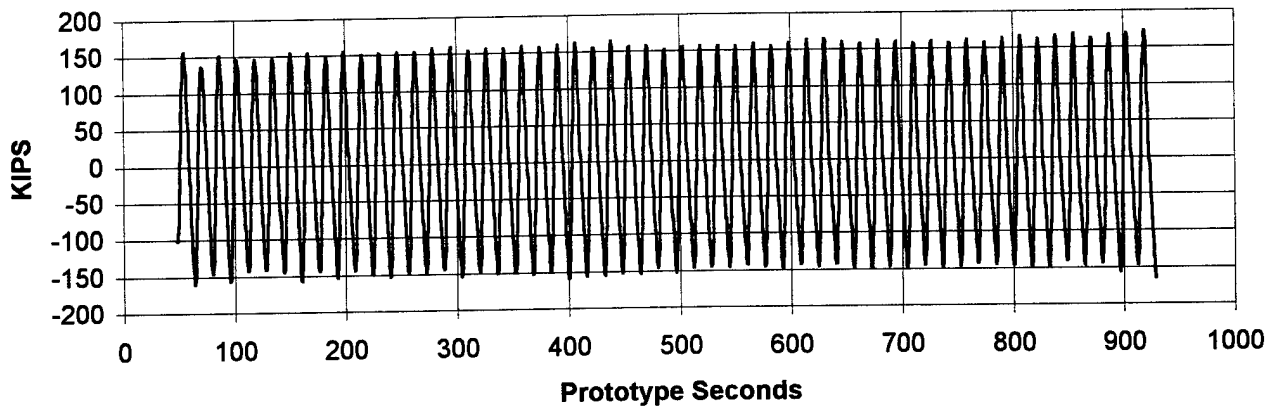
Unfiltered Time History



Filtered Low Frequency Time History

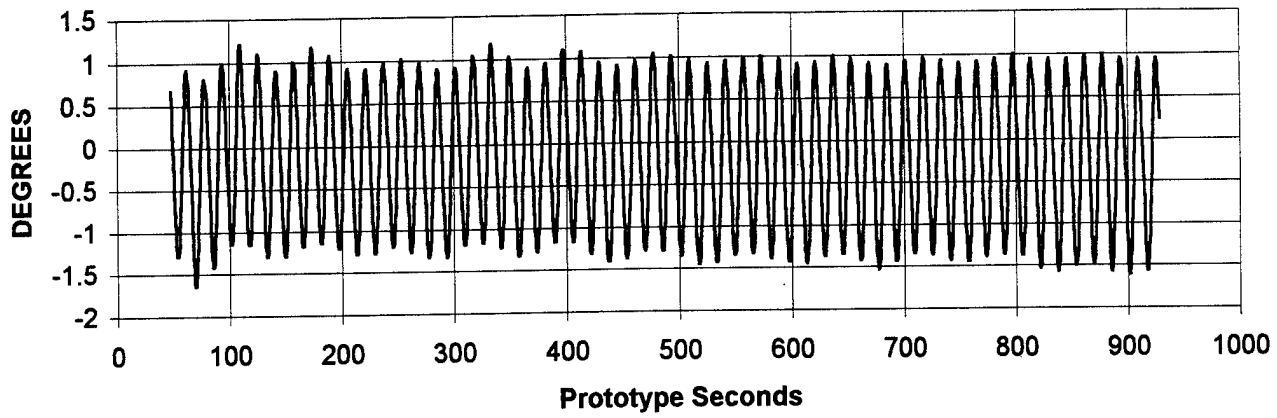


Filtered High Frequency Time History

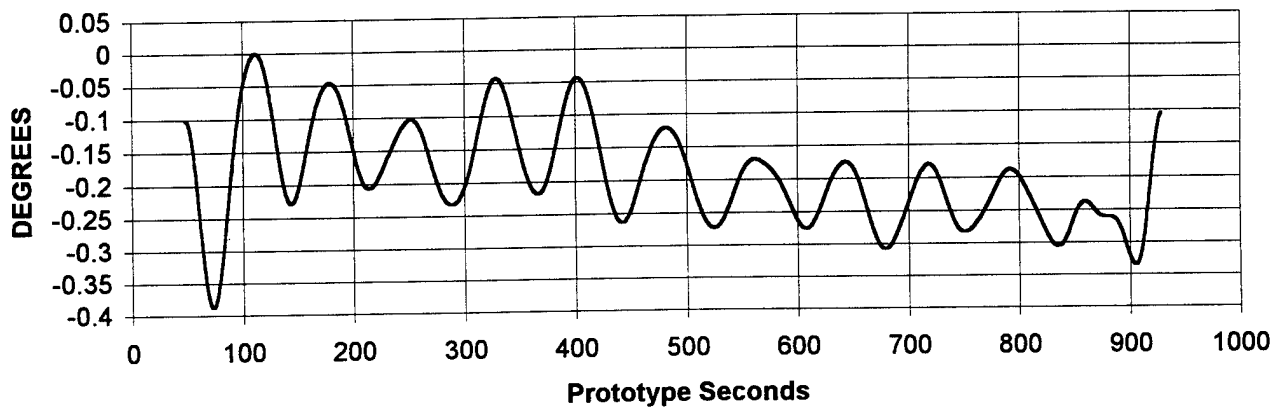


TEST A554 - PITCH

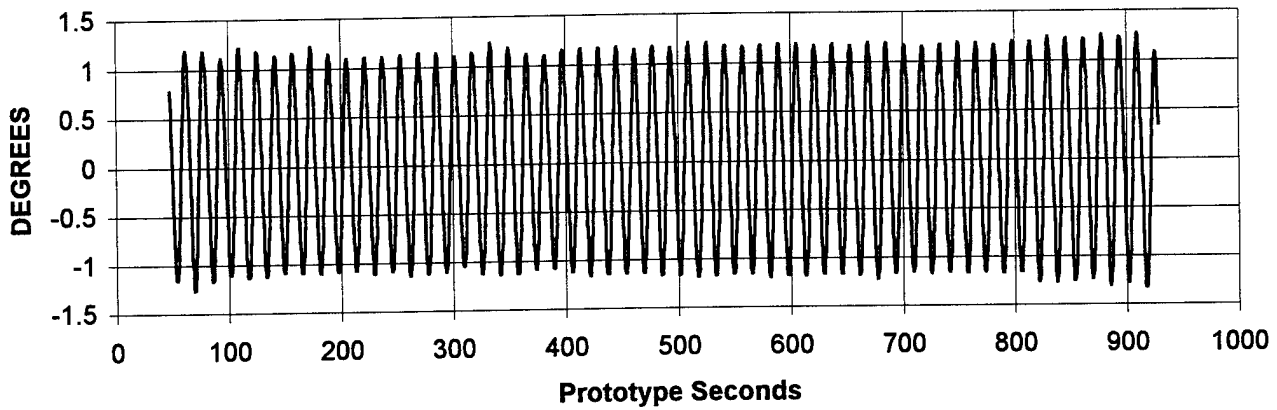
Unfiltered Time History



Filtered Low Frequency Time History

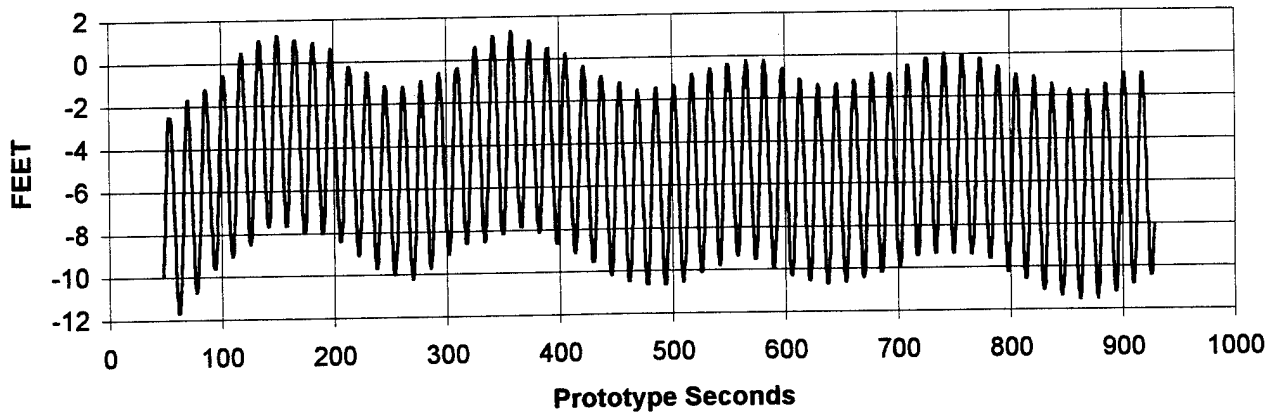


Filtered High Frequency Time History

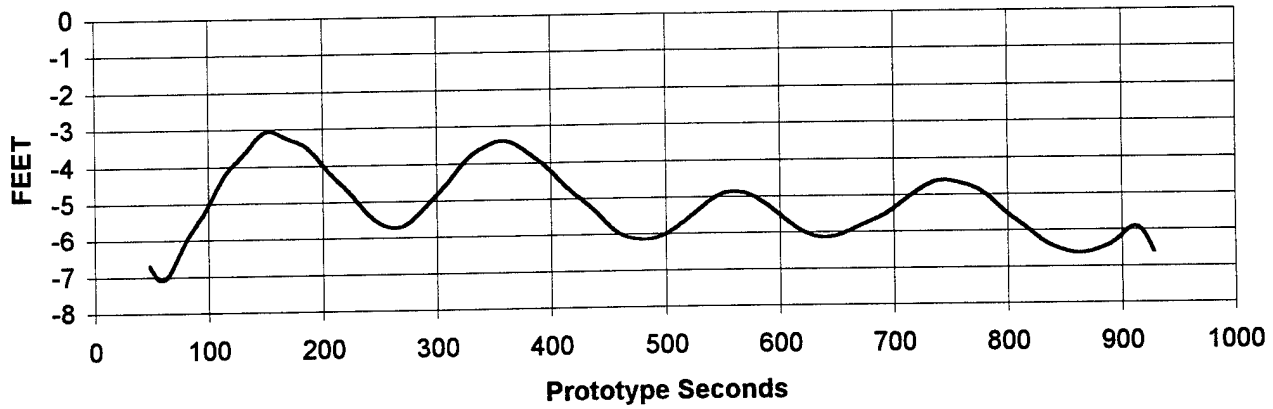


TEST A554 - PT SURGE

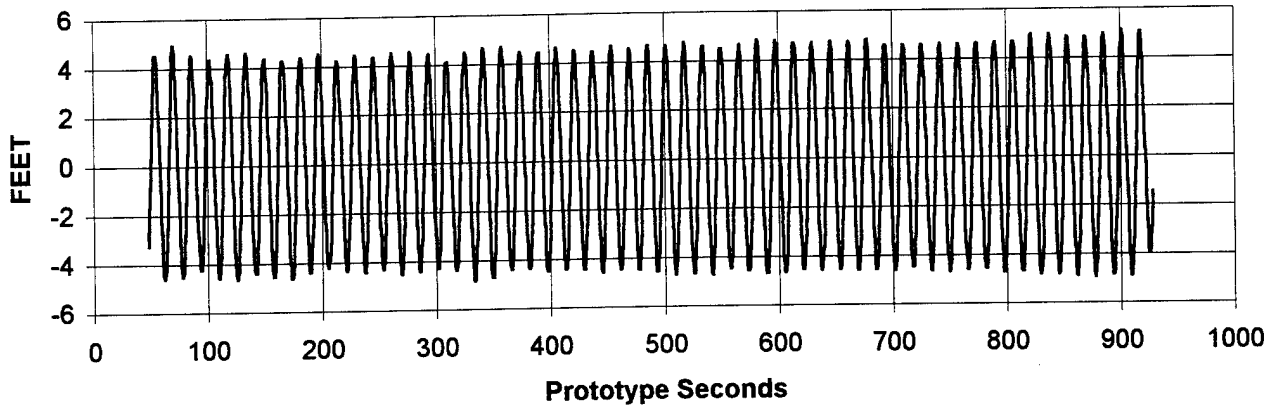
Unfiltered Time History



Filtered Low Frequency Time History



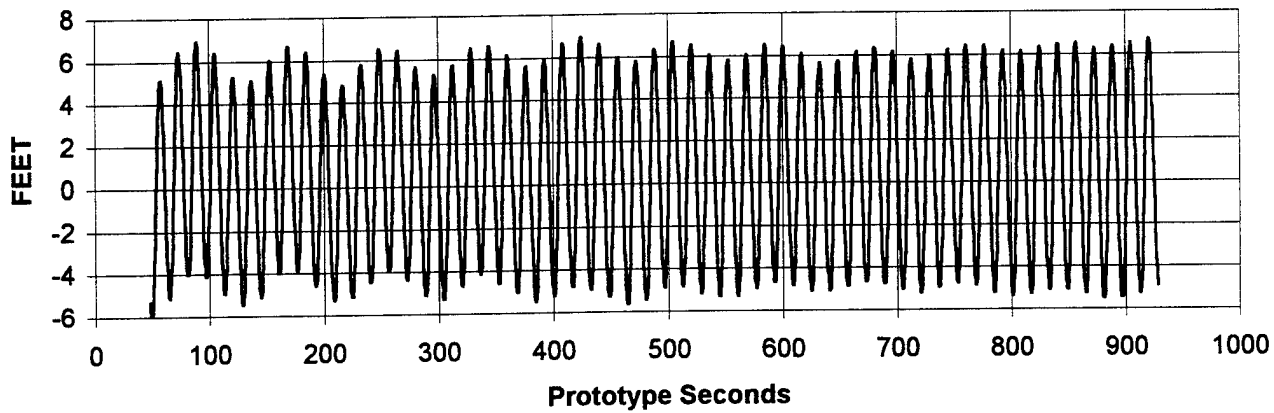
Filtered High Frequency Time History



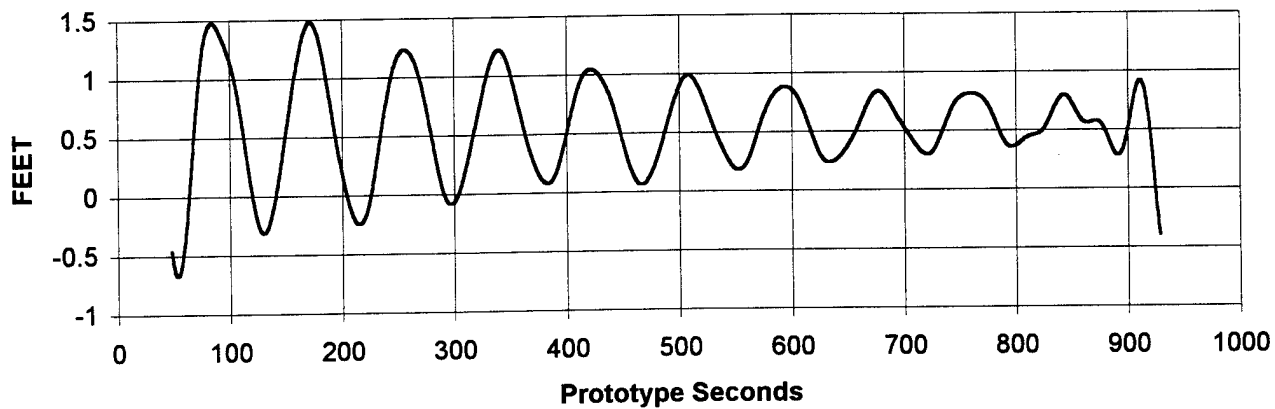


TEST A554 - PT HEAVE

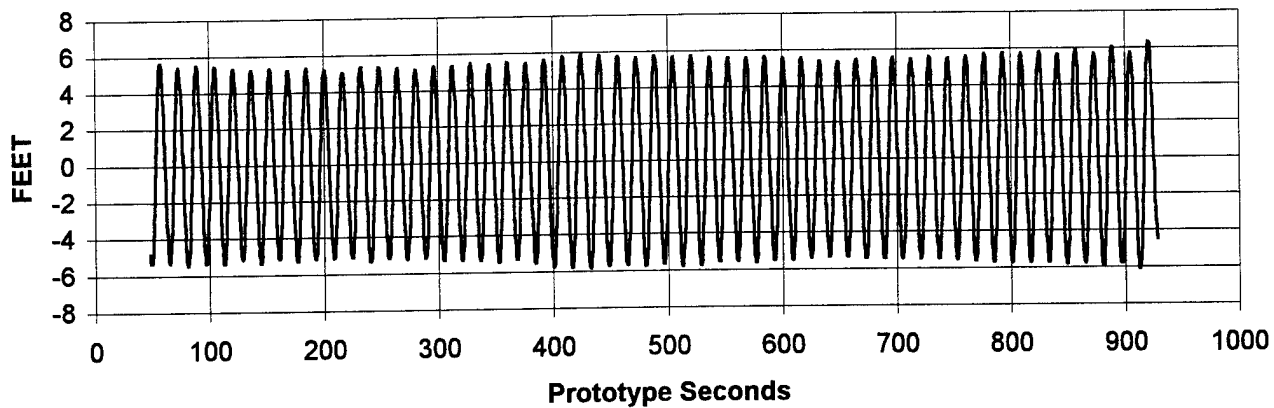
Unfiltered Time History



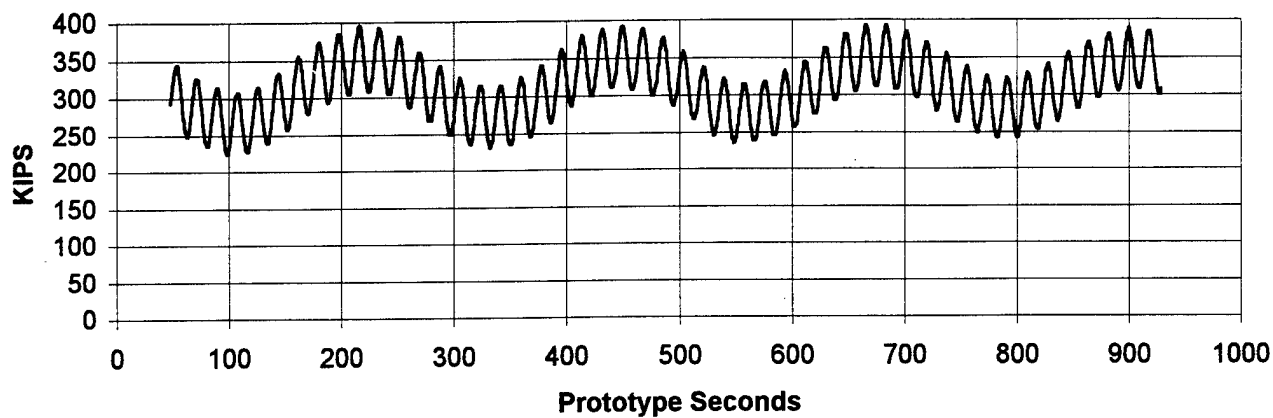
Filtered Low Frequency Time History



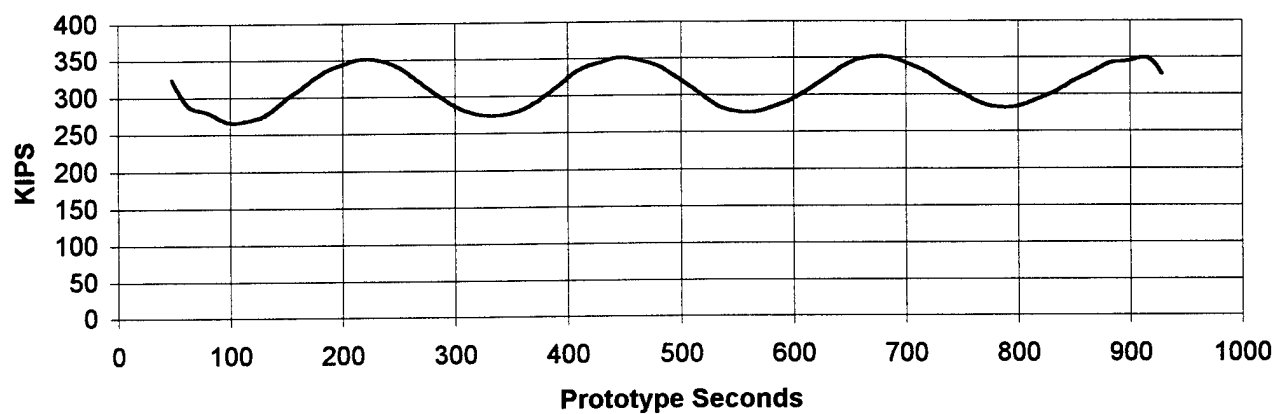
Filtered High Frequency Time History



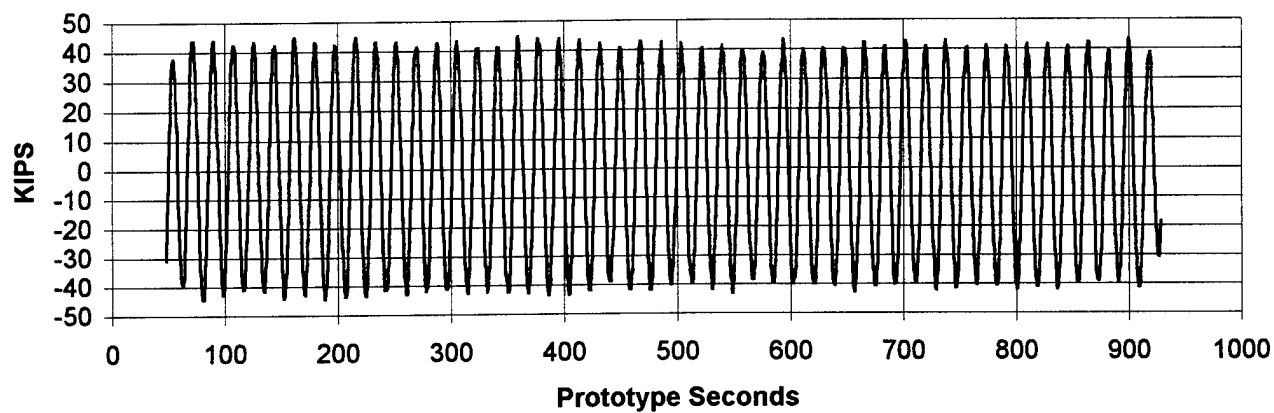
**Unfiltered Time History**



**Filtered Low Frequency Time History**

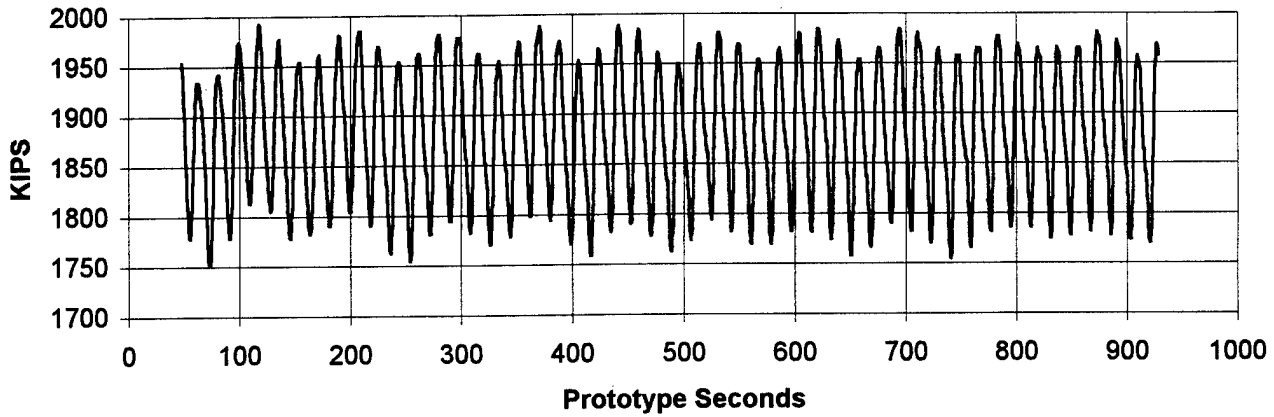


**Filtered High Frequency Time History**

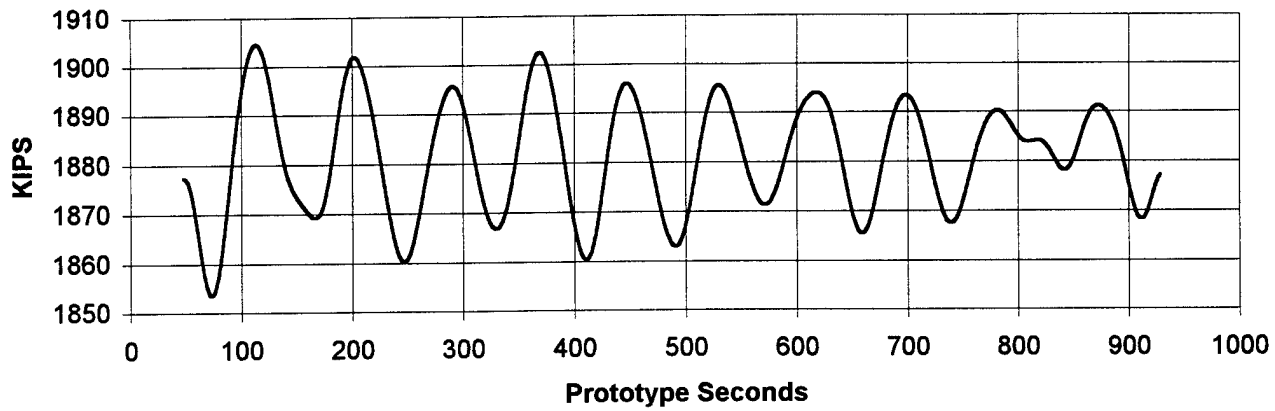


# TEST A555 - BUOY 1 TENSION

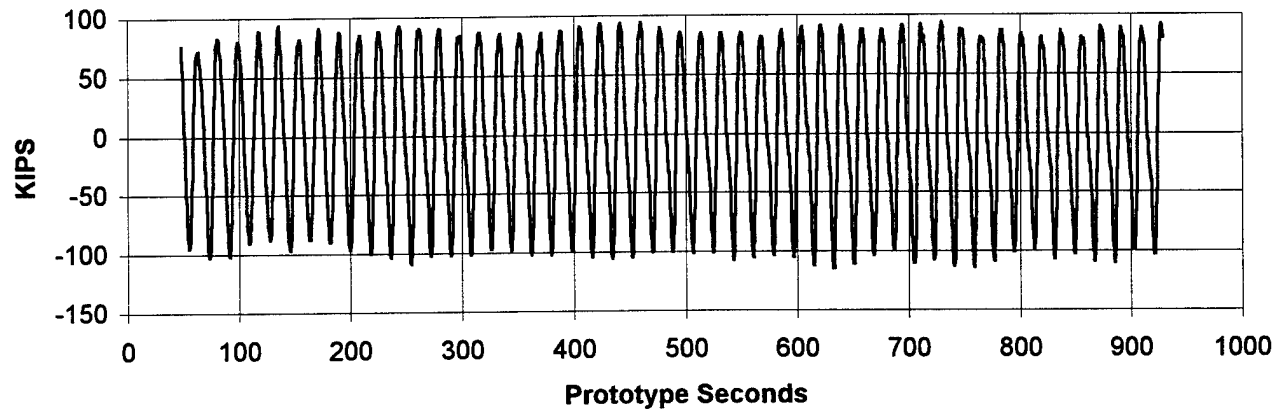
## Unfiltered Time History



## Filtered Low Frequency Time History

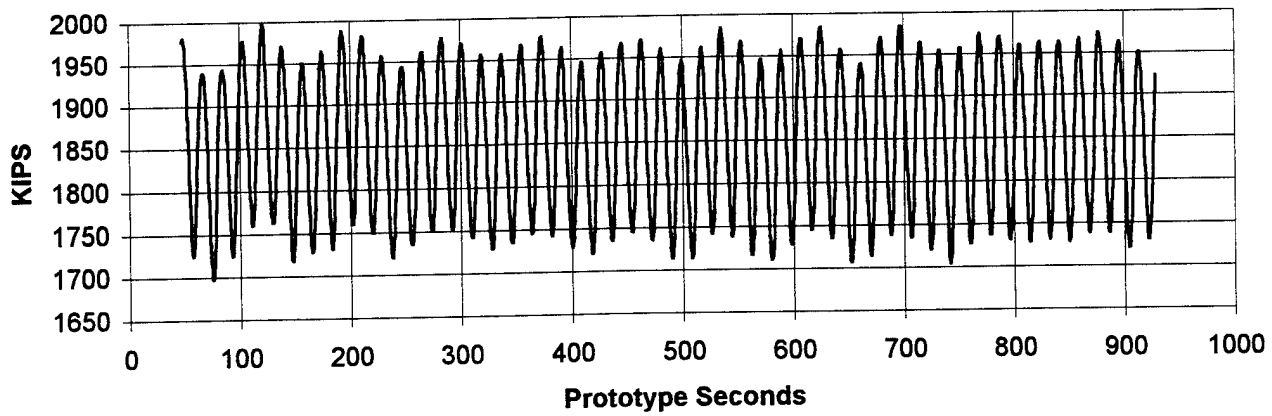


## Filtered High Frequency Time History

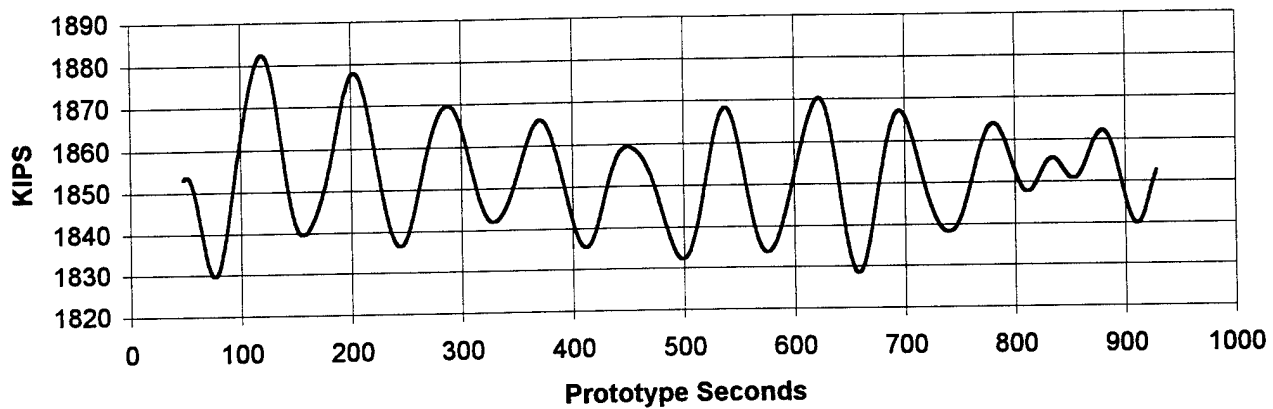


# TEST A555 - BUOY 2 TENSION

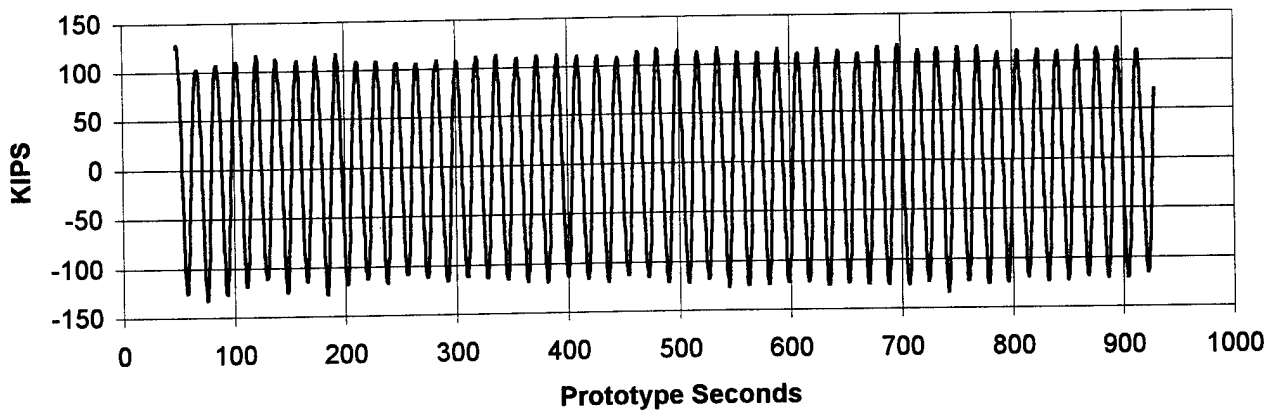
## Unfiltered Time History



## Filtered Low Frequency Time History

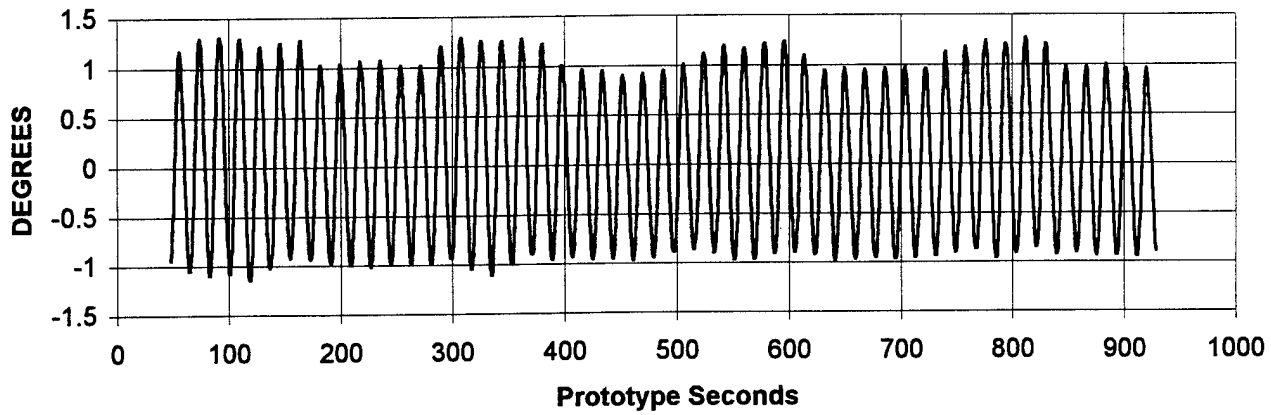


## Filtered High Frequency Time History

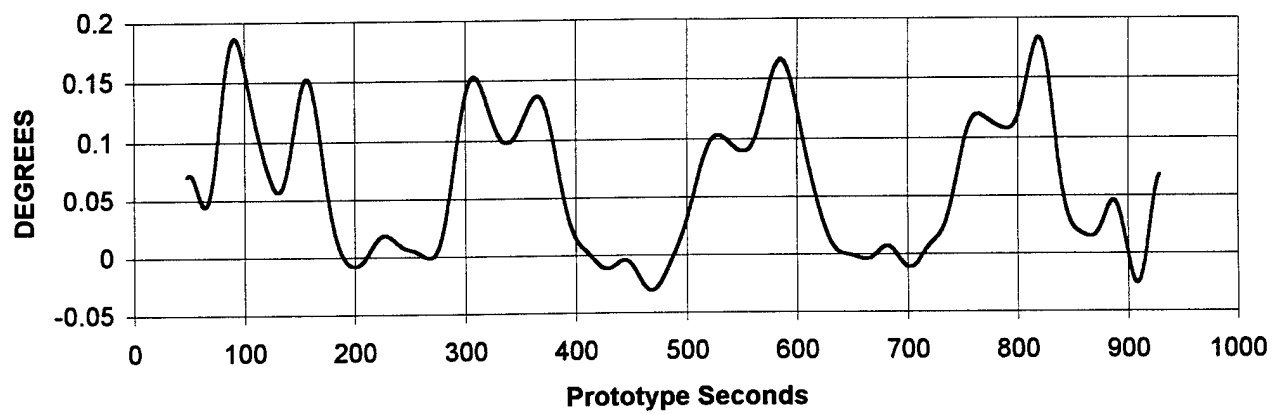


# TEST A555 - PITCH

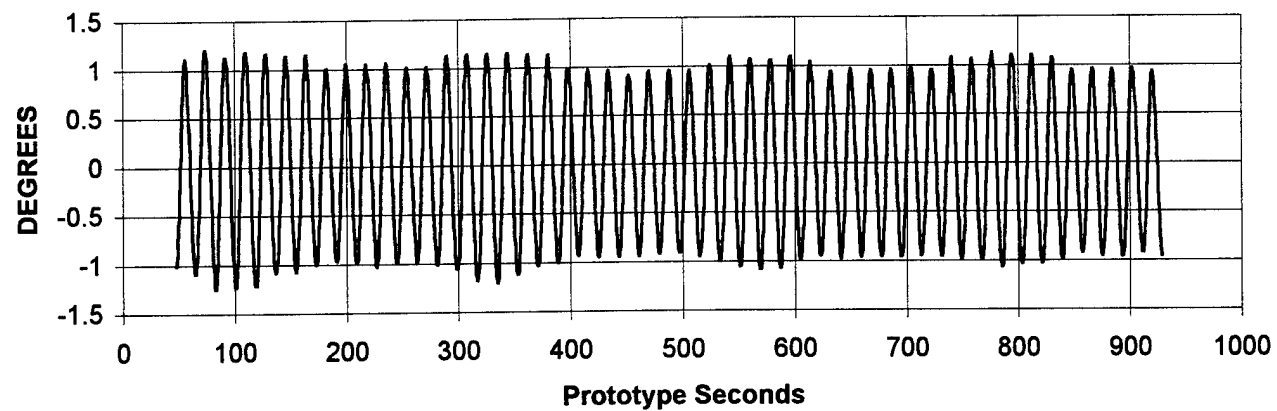
## Unfiltered Time History



## Filtered Low Frequency Time History

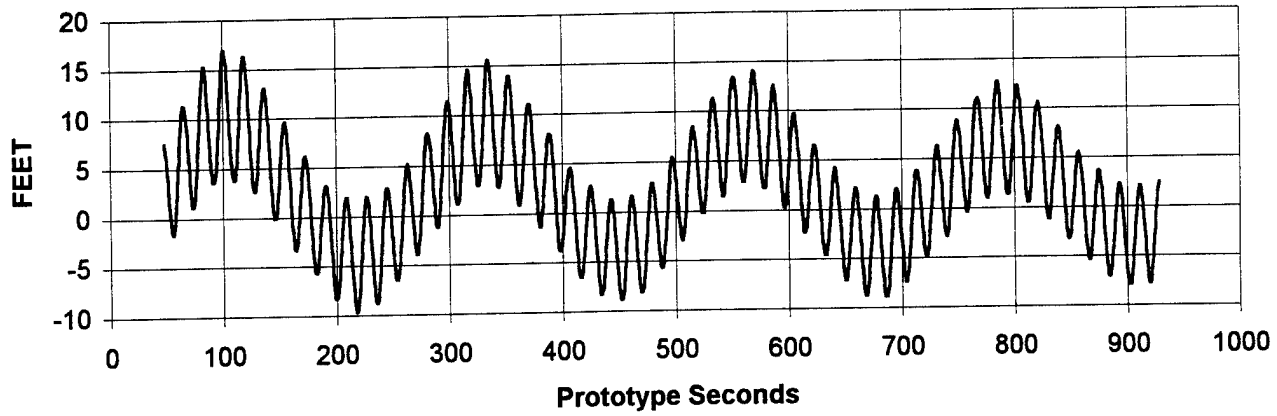


## Filtered High Frequency Time History

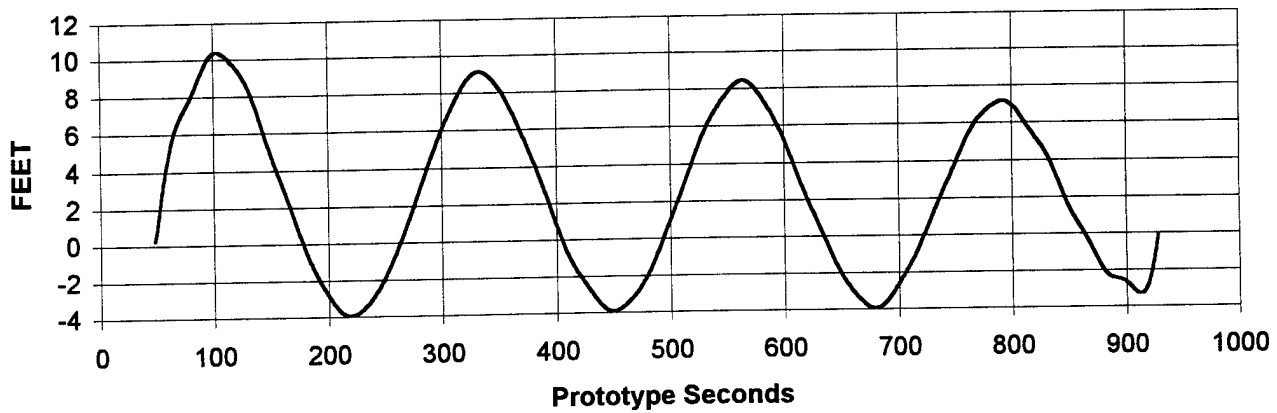


# TEST A555 - PT SURGE

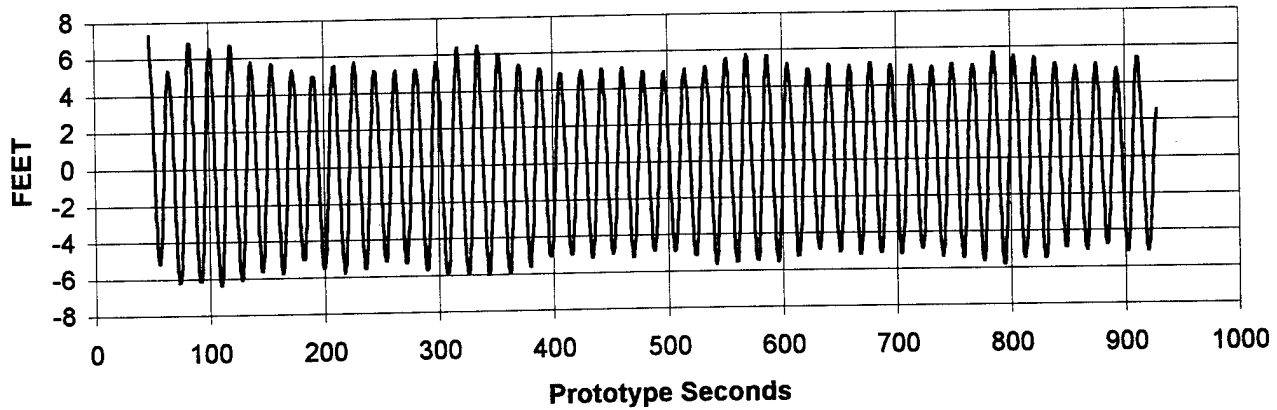
## Unfiltered Time History



## Filtered Low Frequency Time History

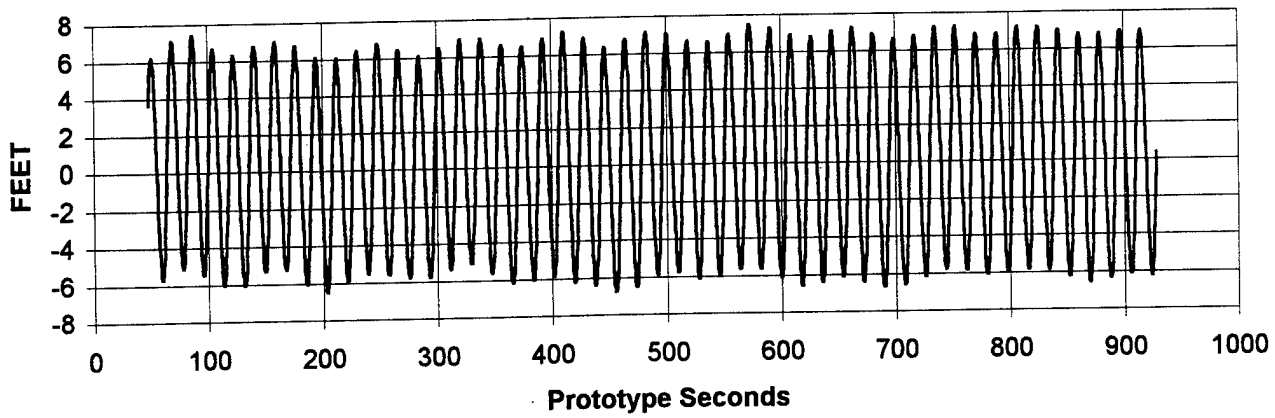


## Filtered High Frequency Time History

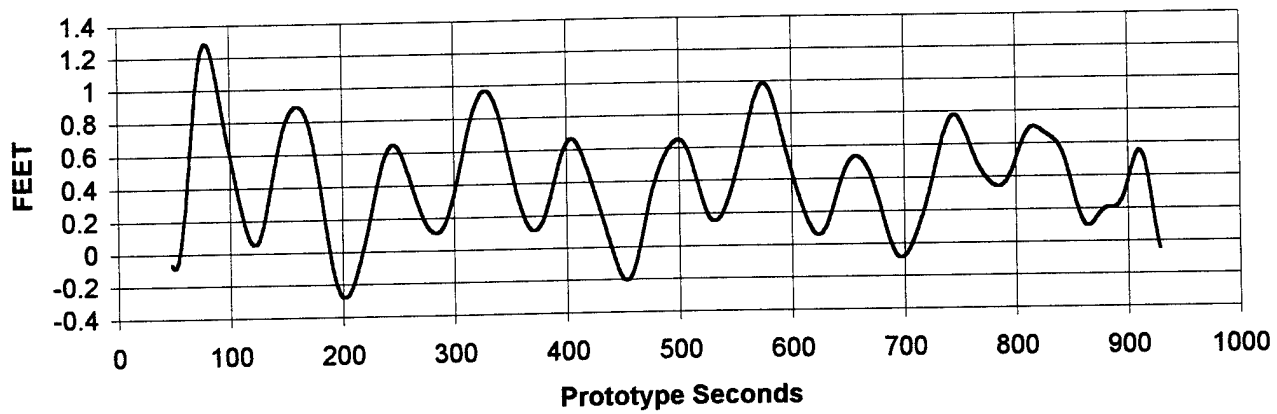


TEST A555 - PT HEAVE

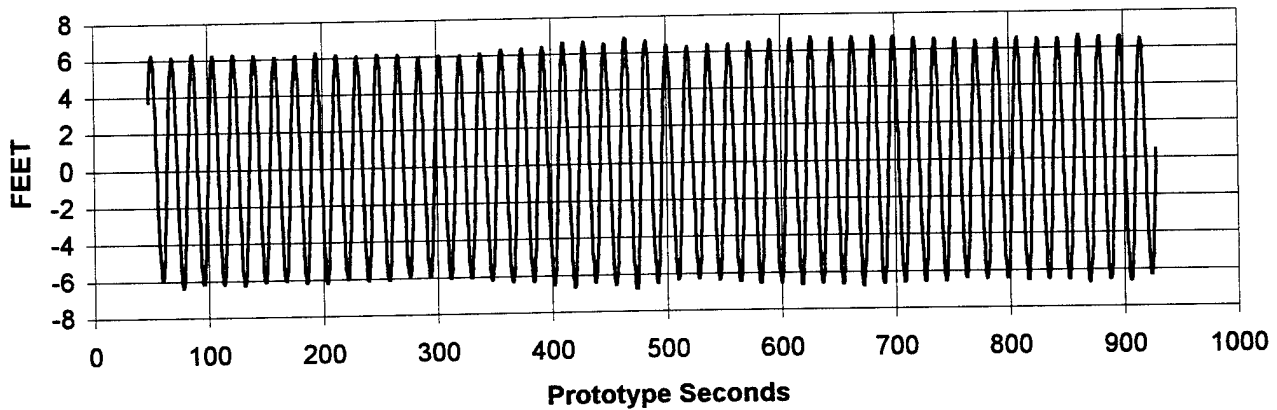
Unfiltered Time History



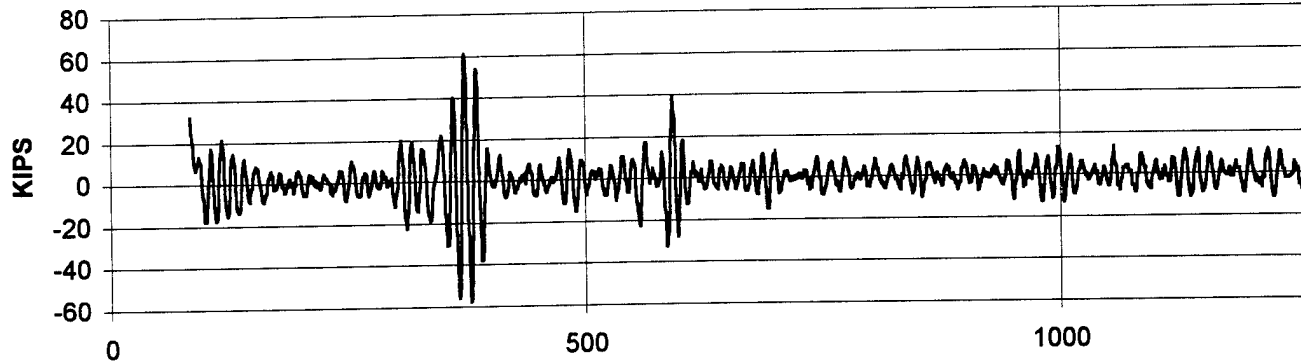
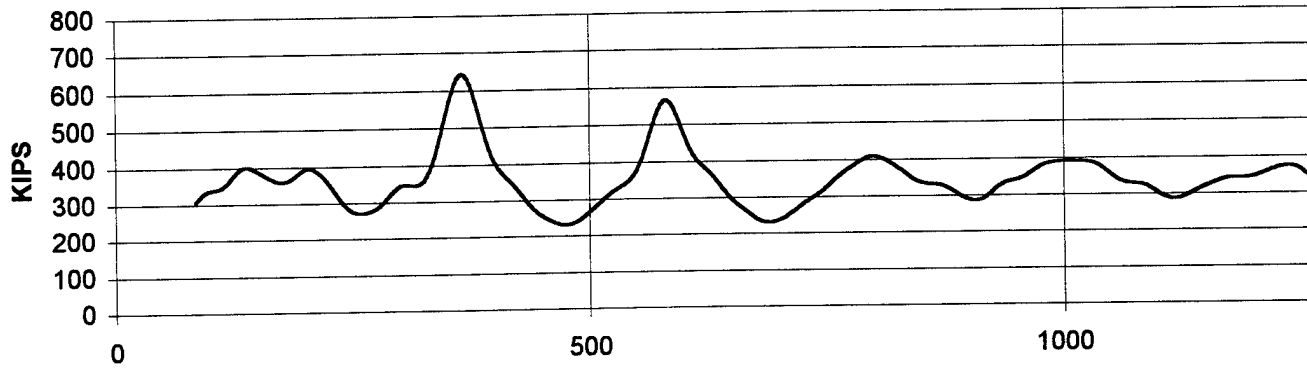
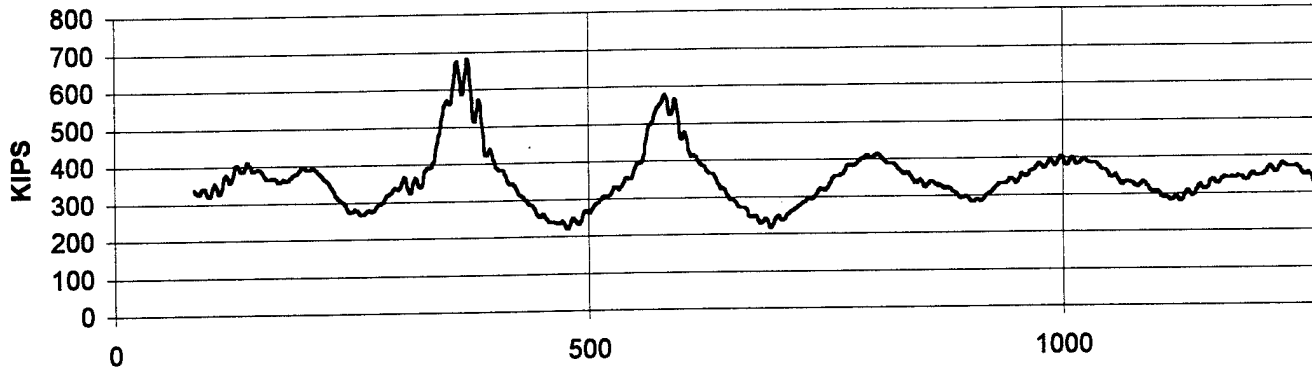
Filtered Low Frequency Time History



Filtered High Frequency Time History

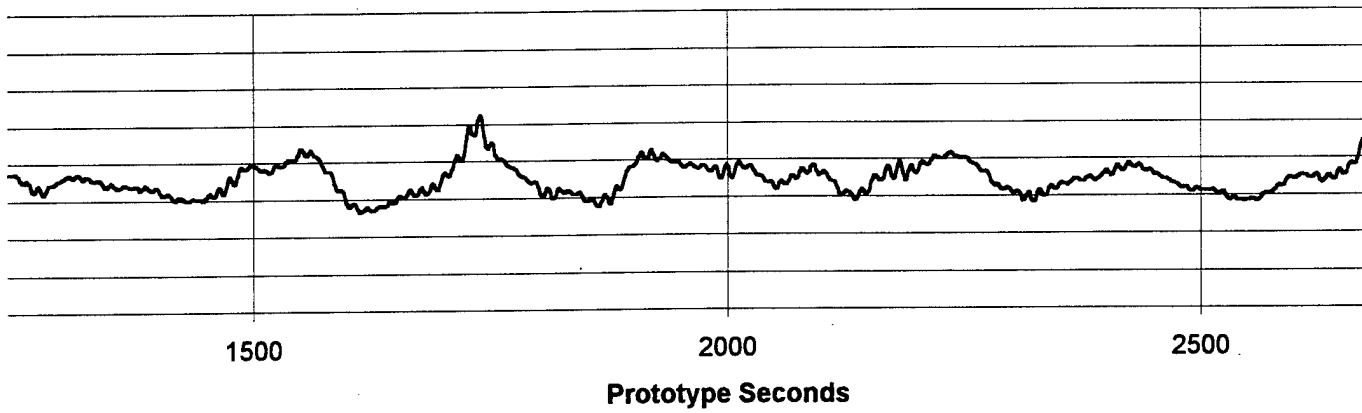


TEST A556B - ML\_1

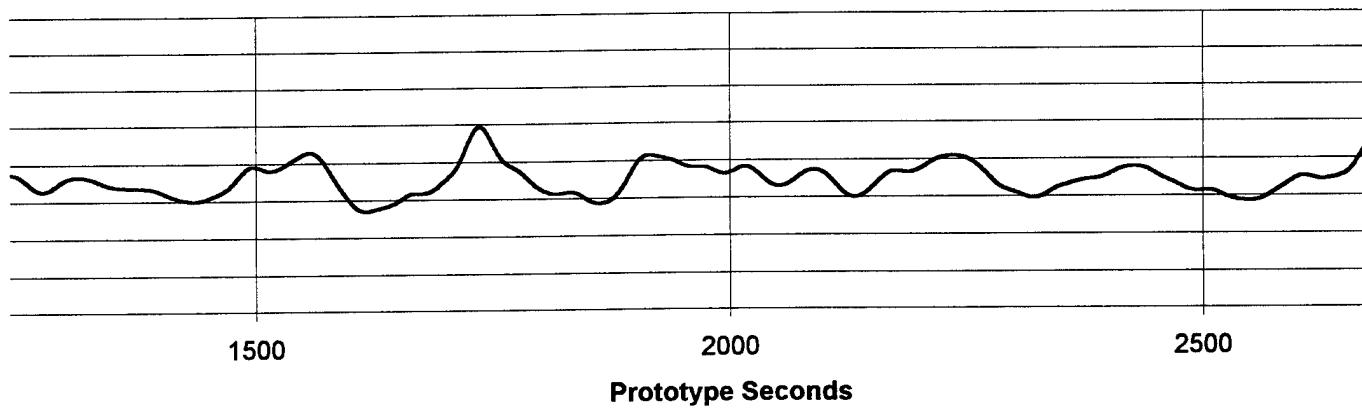




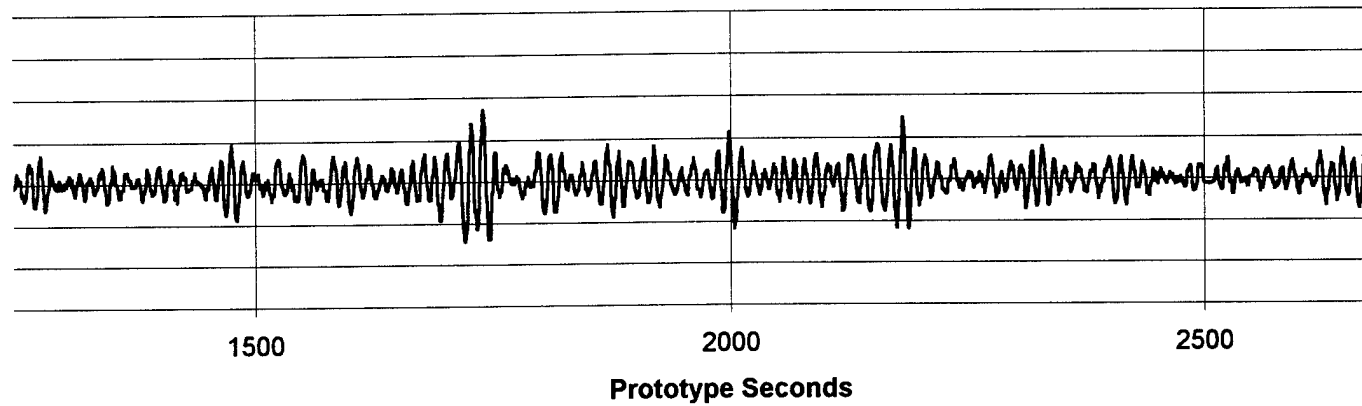
**Unfiltered Time History**



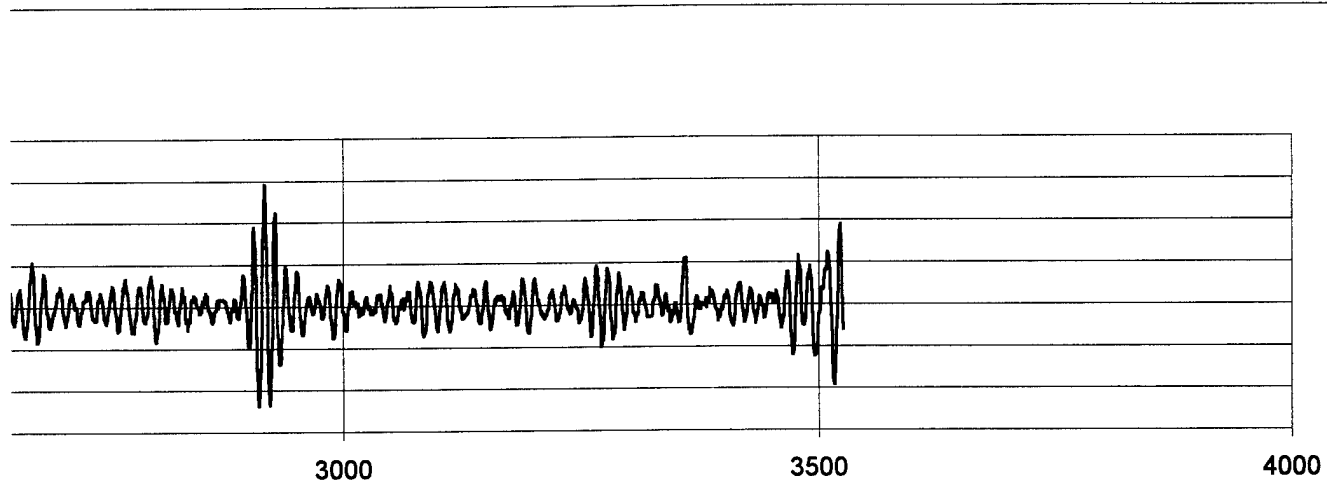
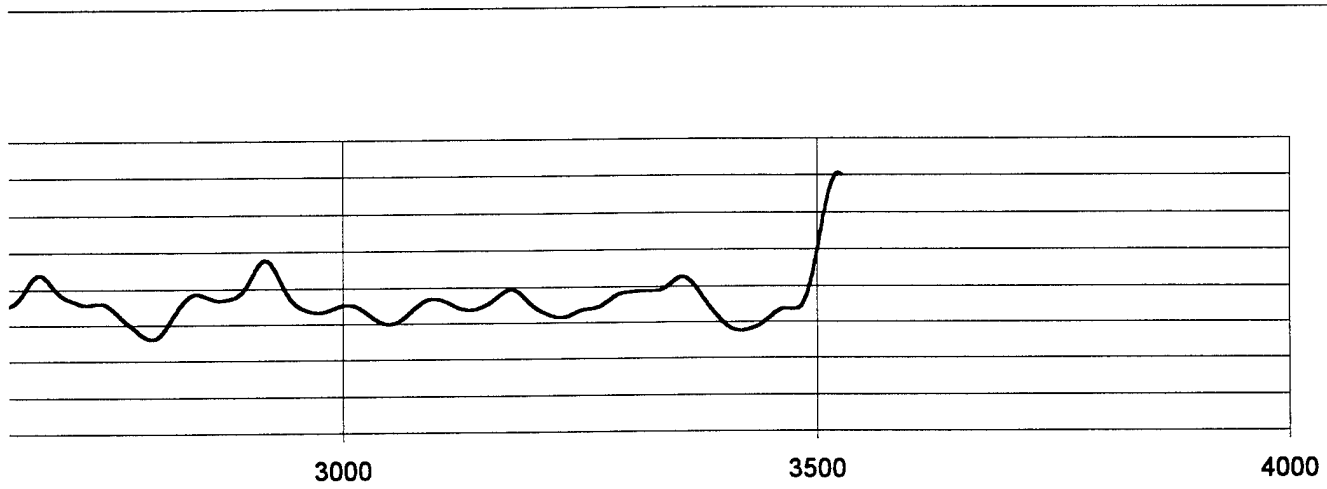
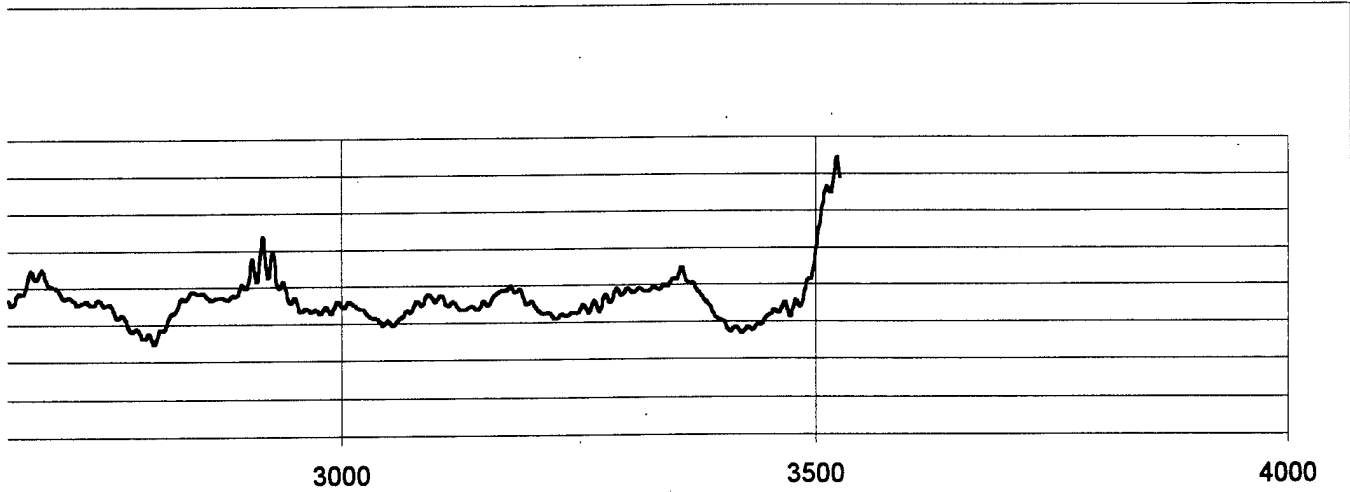
**Filtered Low Frequency Time History**



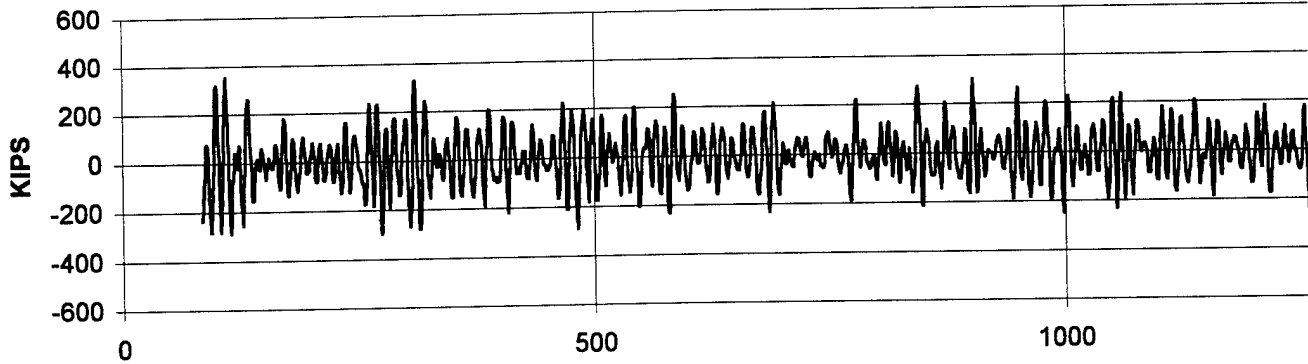
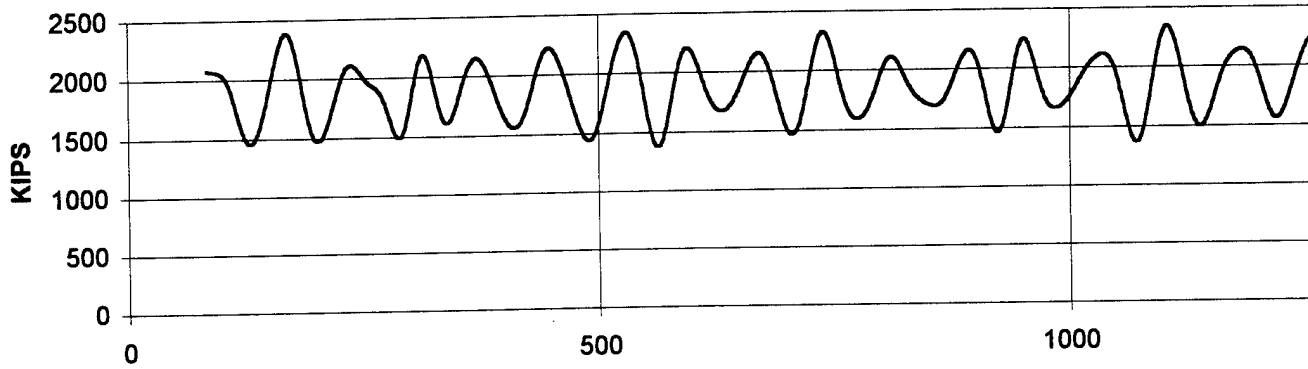
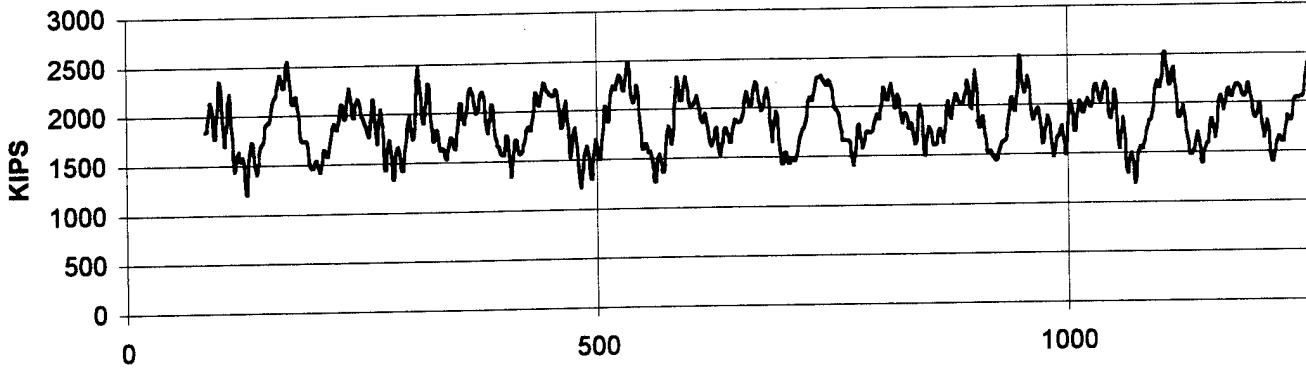
**Filtered High Frequency Time History**



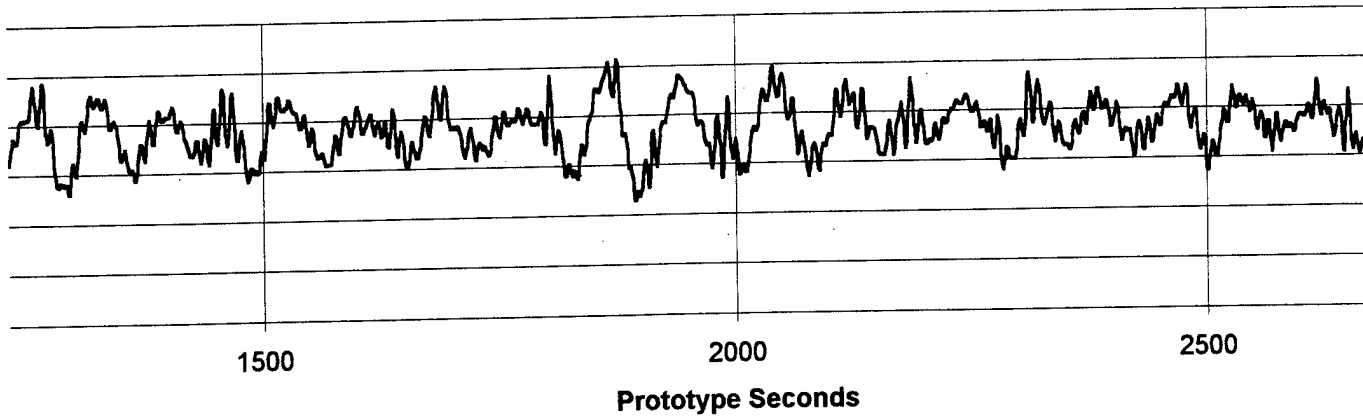
TEST A556B - ML\_1



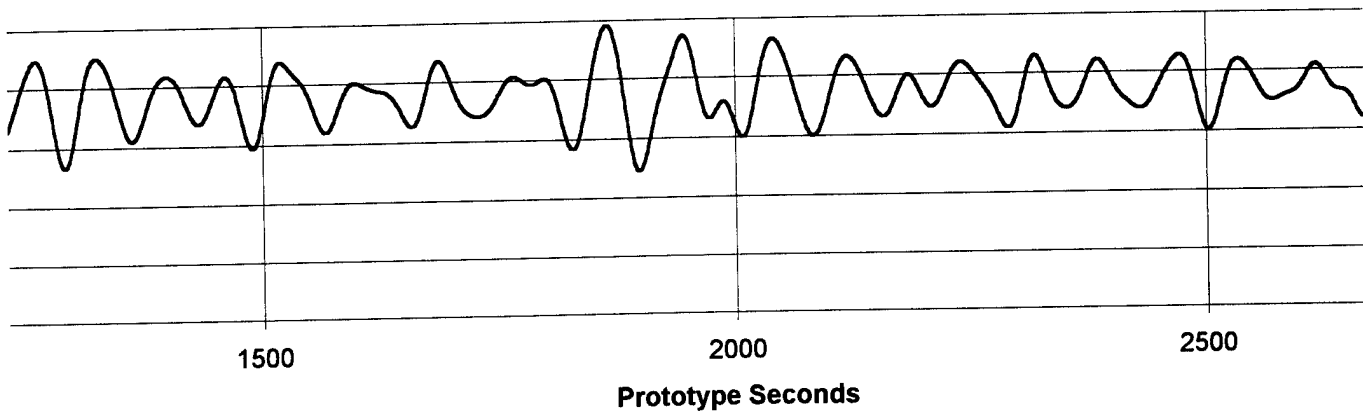
TEST A556B - BUOY 1 TENSION



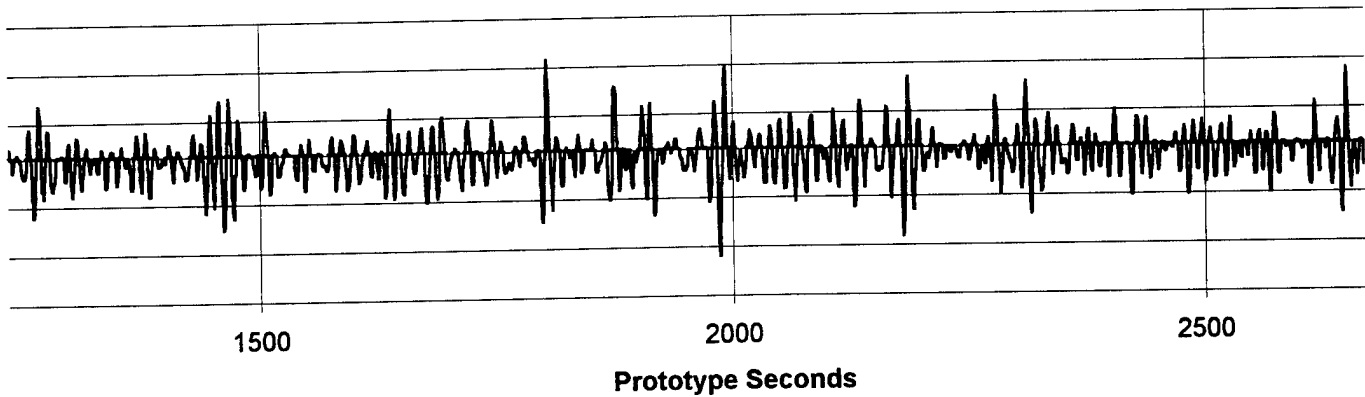
**Unfiltered Time History**



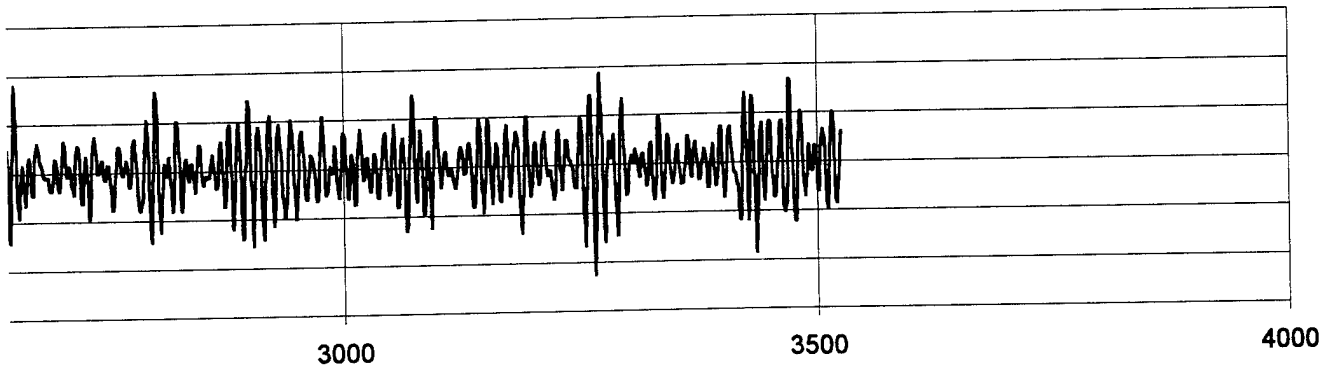
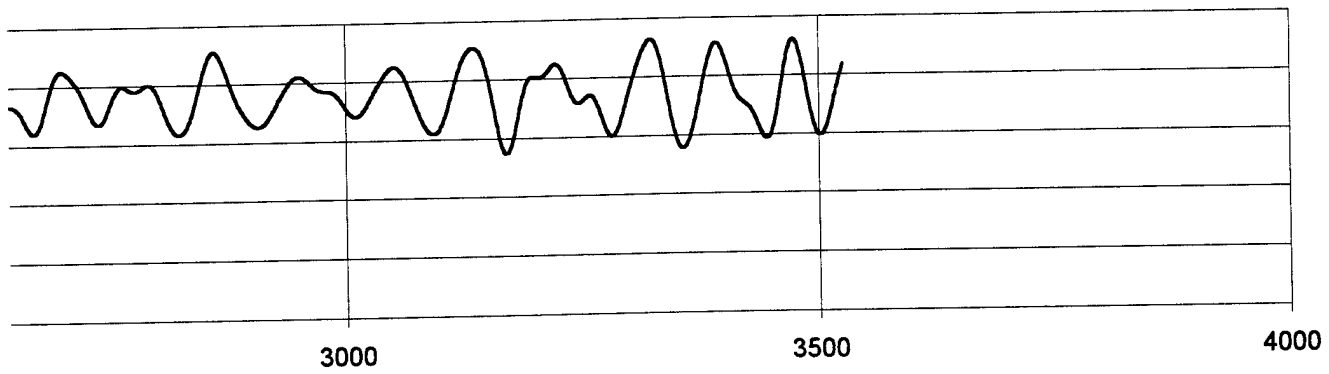
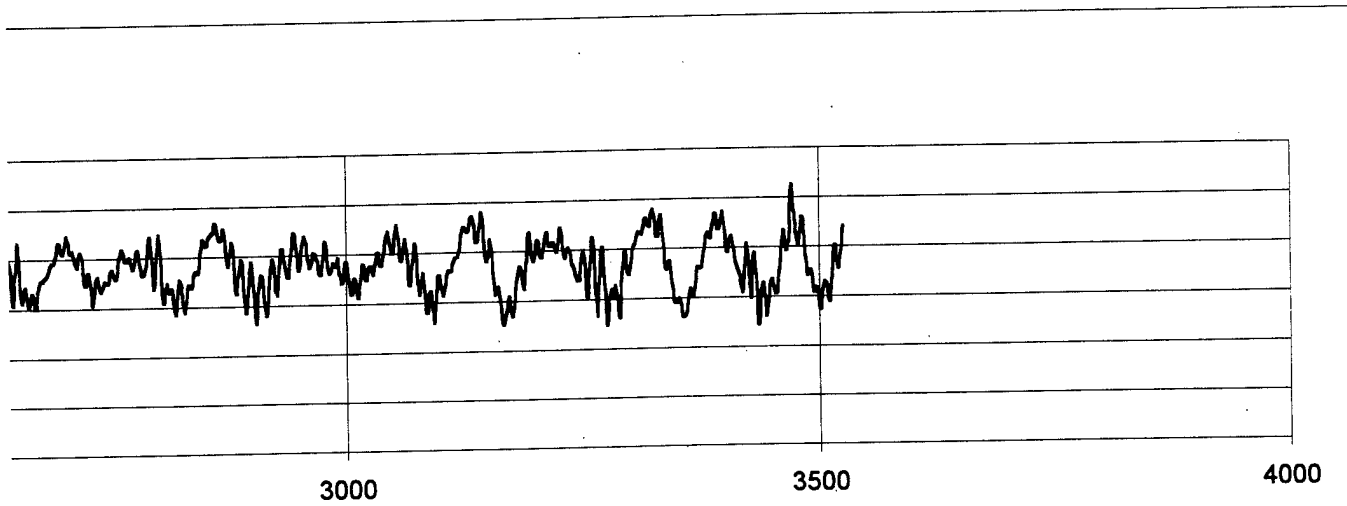
**Filtered Low Frequency Time History**



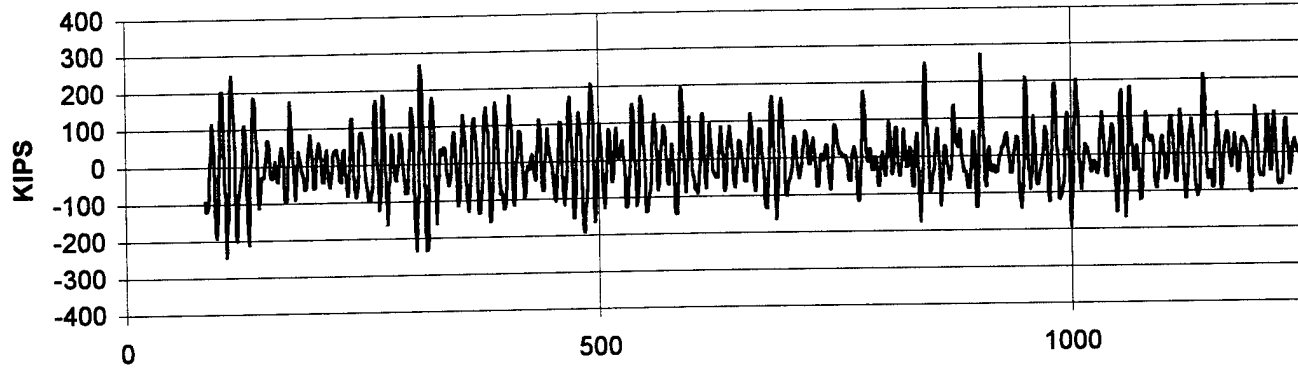
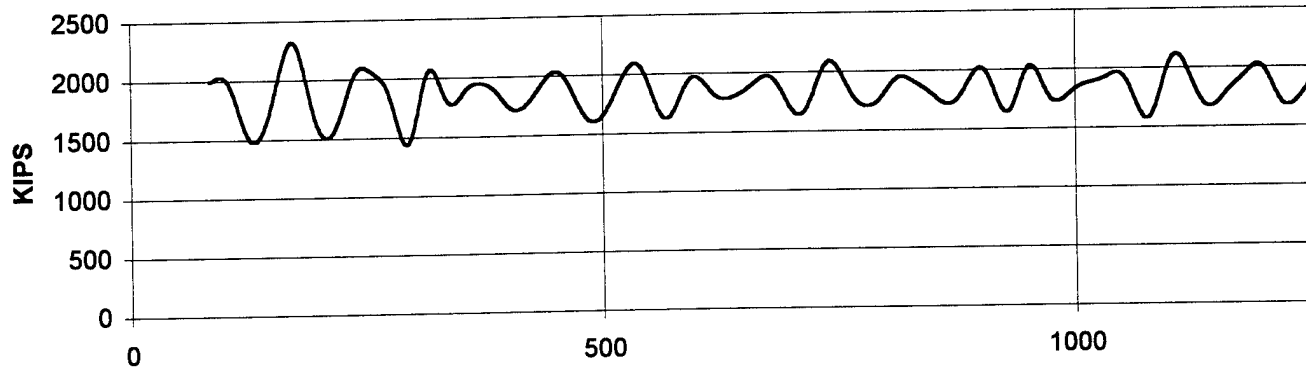
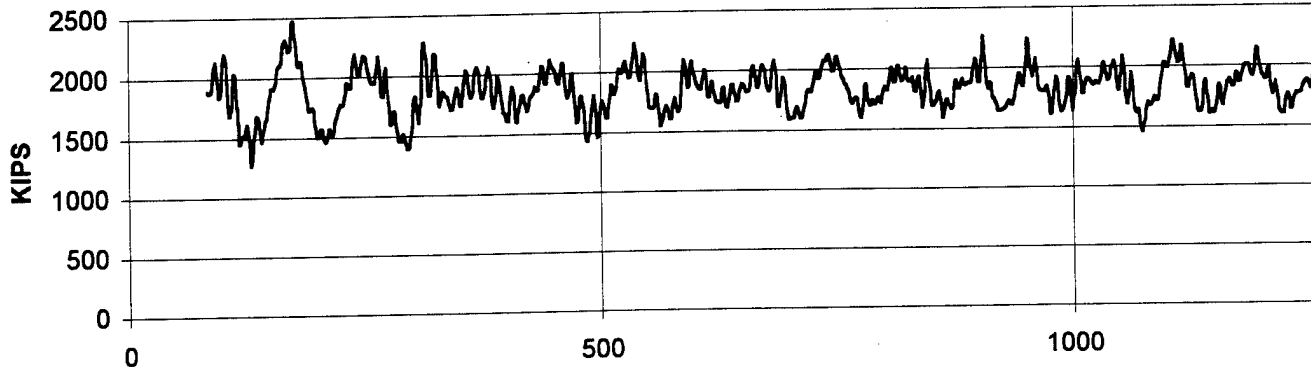
**Filtered High Frequency Time History**



TEST A556B - BUOY 1 TENSION

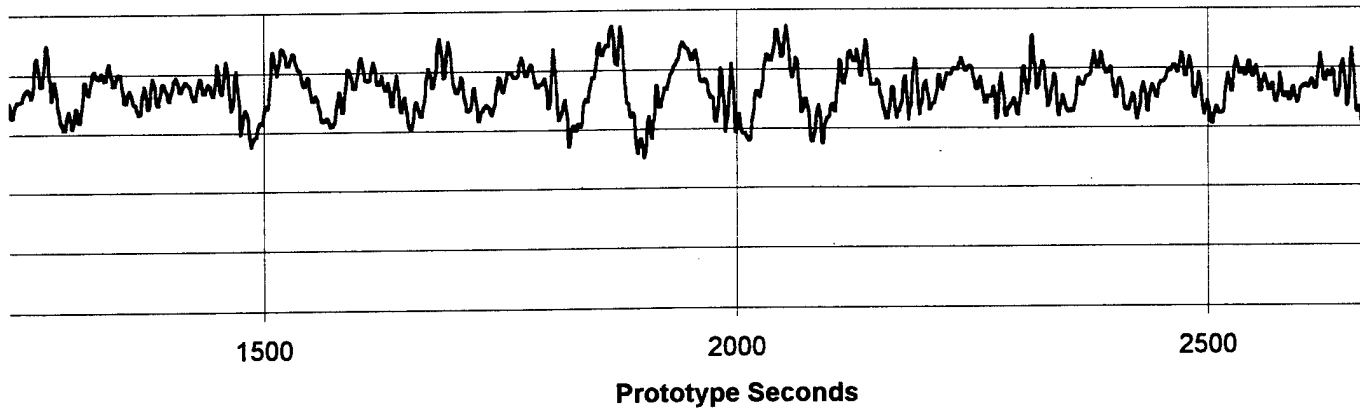


TEST A556B - BUOY 2 TENSION

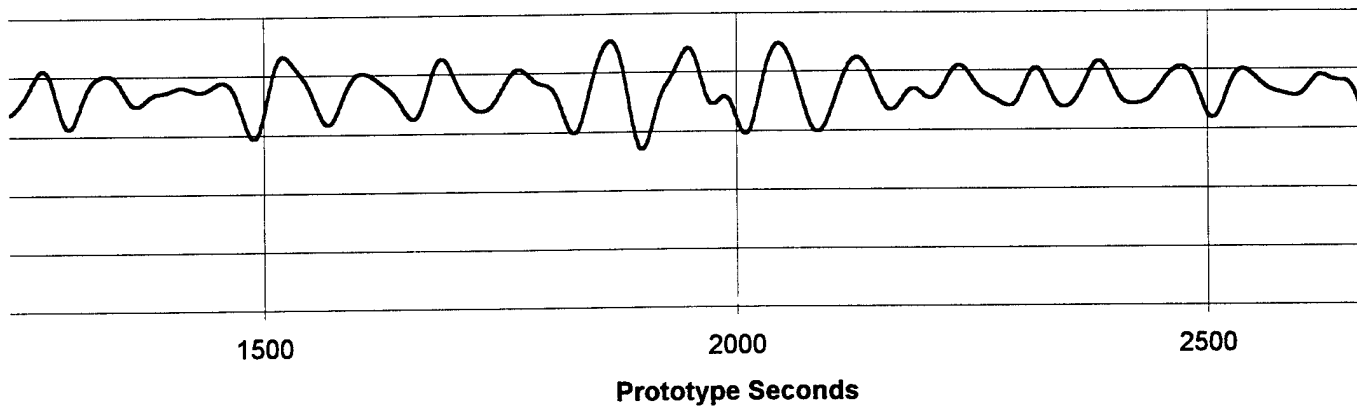


TEST A556B - BUOY 2 TENSION

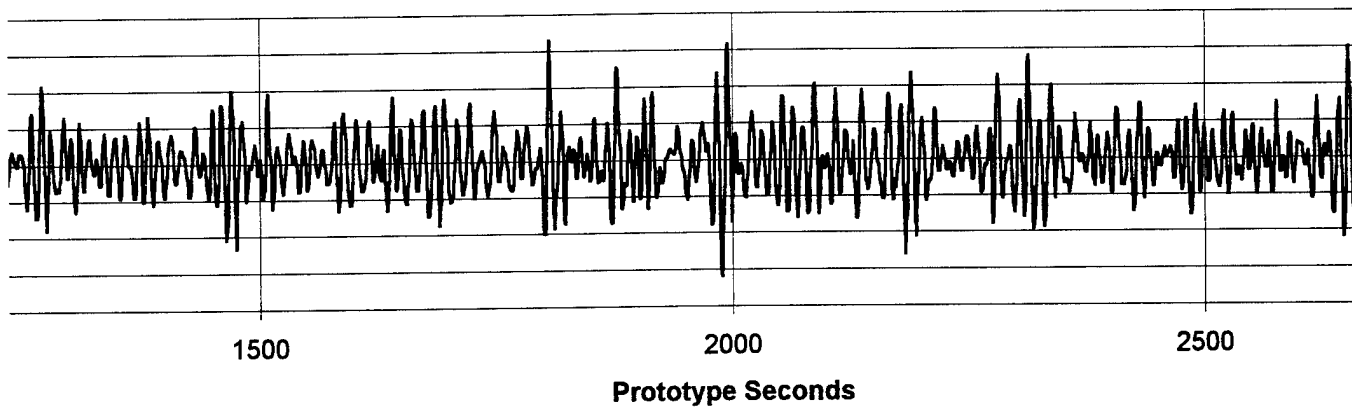
Unfiltered Time History



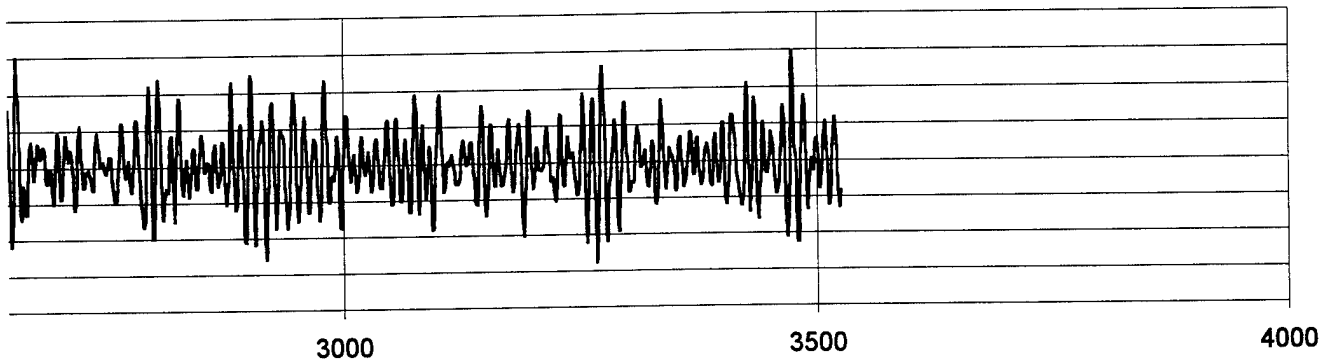
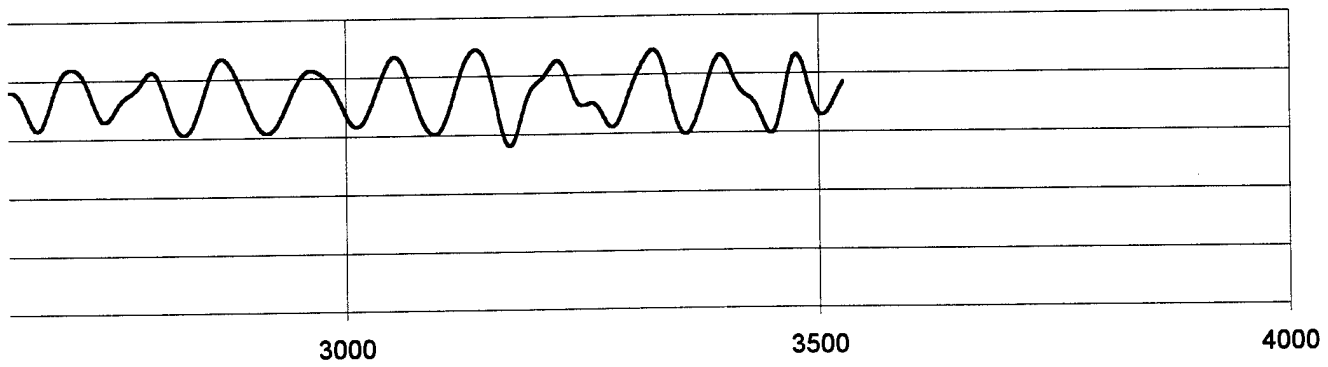
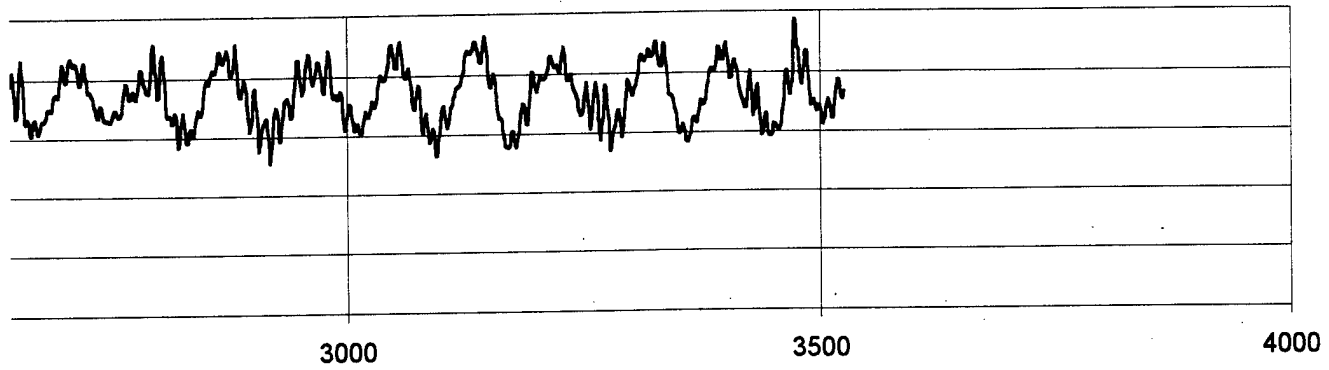
Filtered Low Frequency Time History



Filtered High Frequency Time History

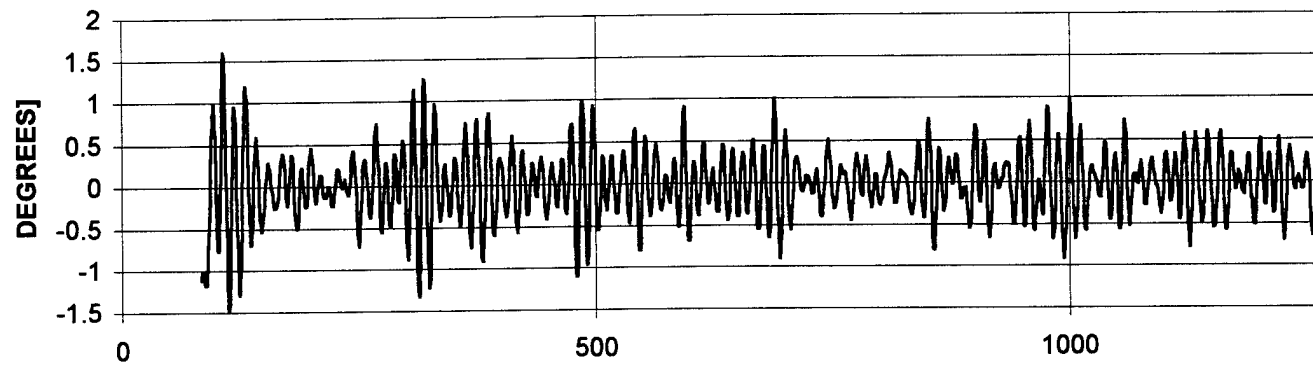
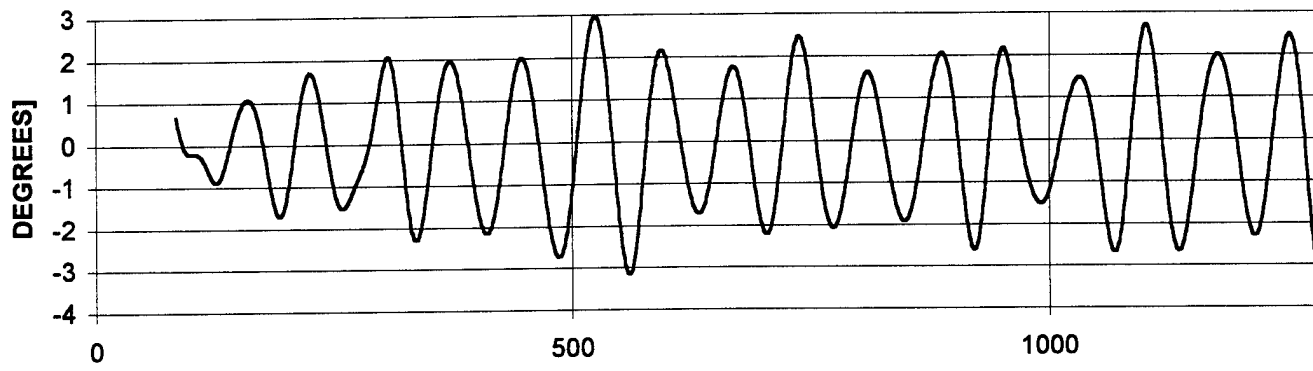
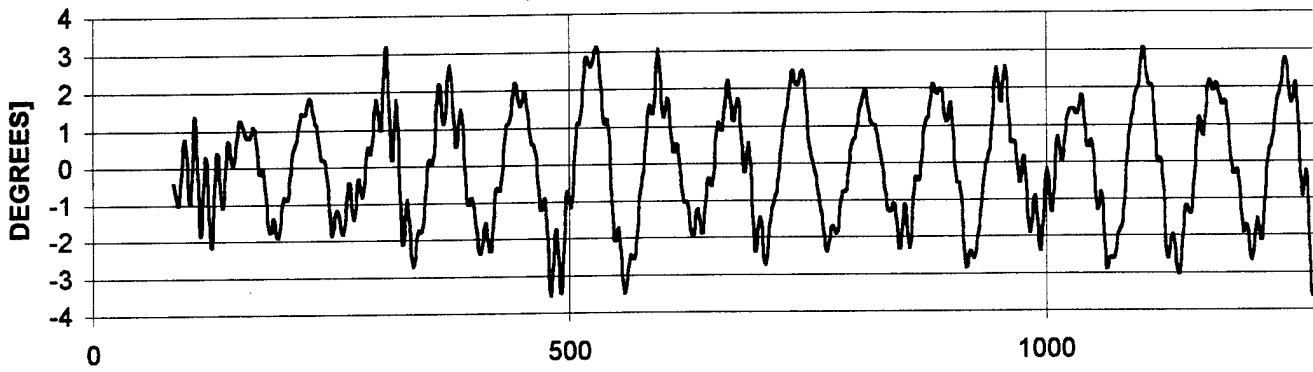


TEST A556B - BUOY 2 TENSION



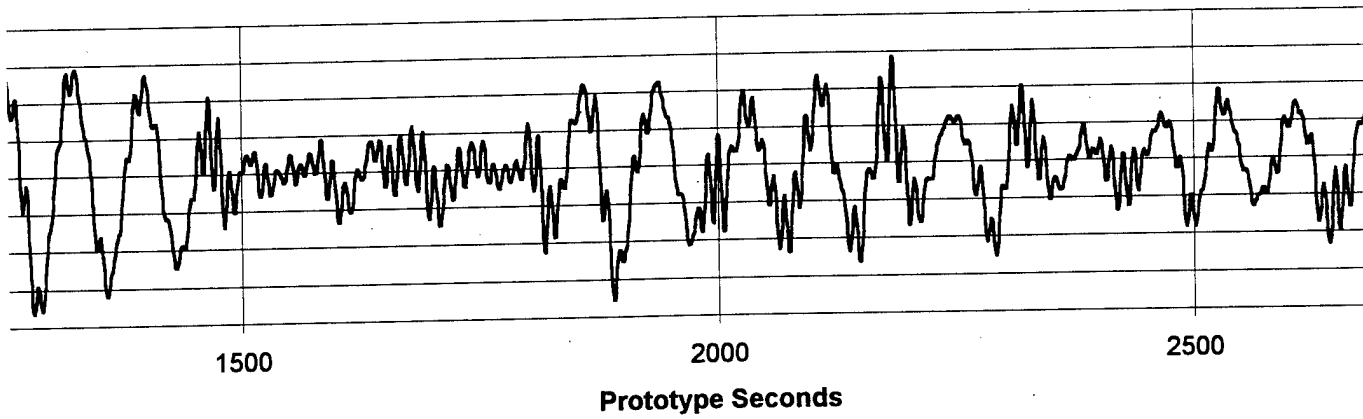


# TEST A556B - PITCH

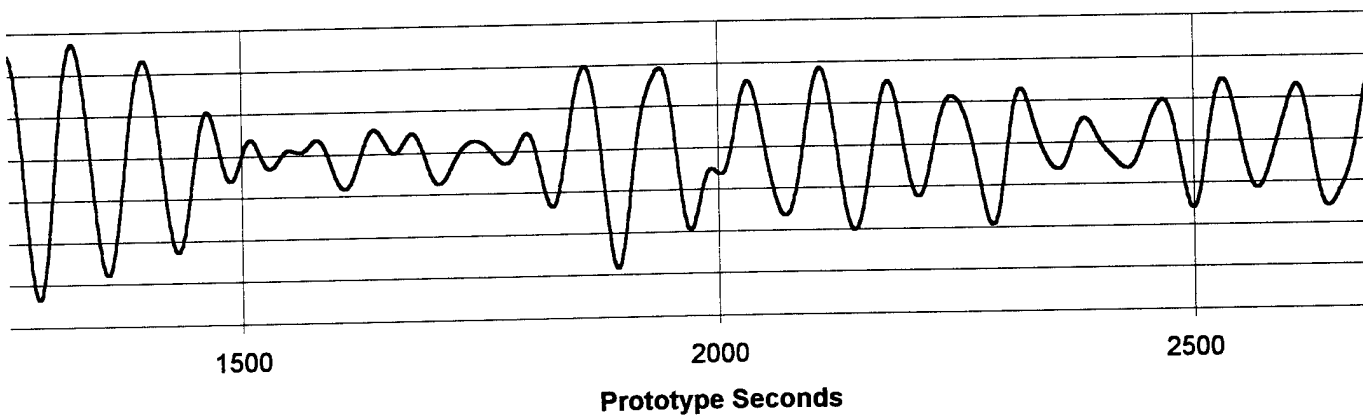


TEST A556B - PITCH

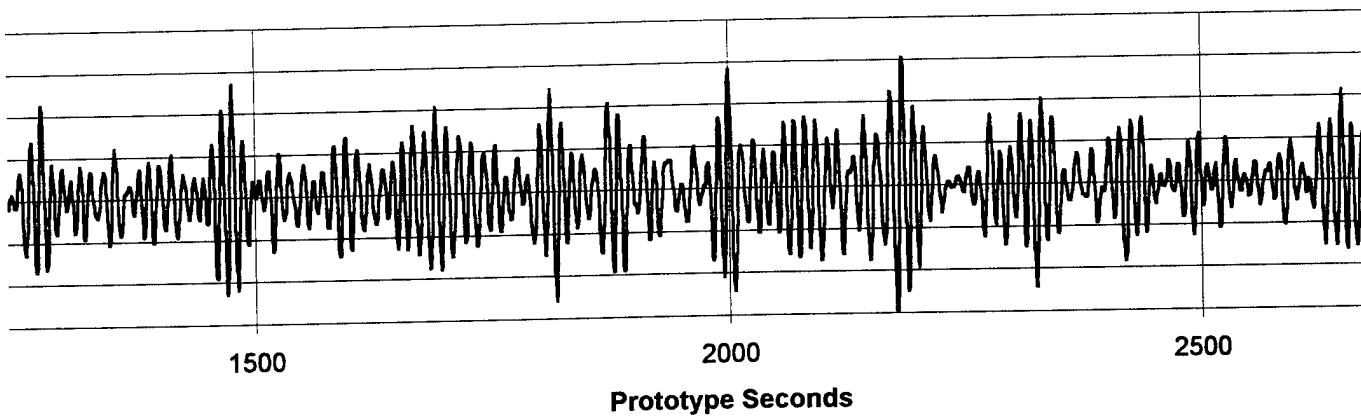
Unfiltered Time History



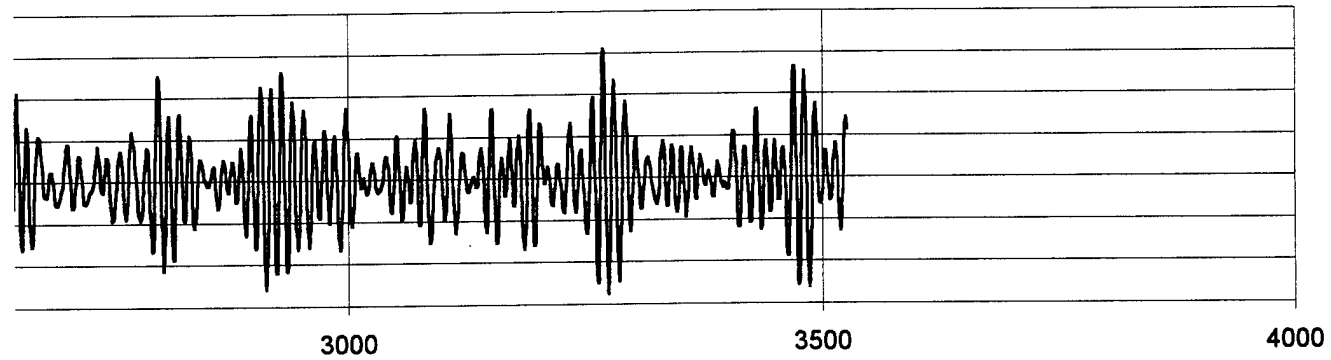
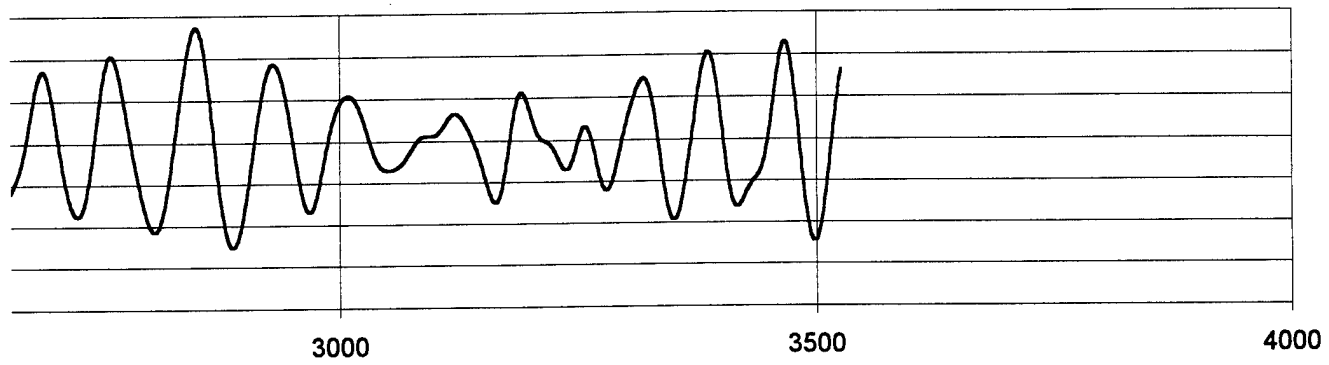
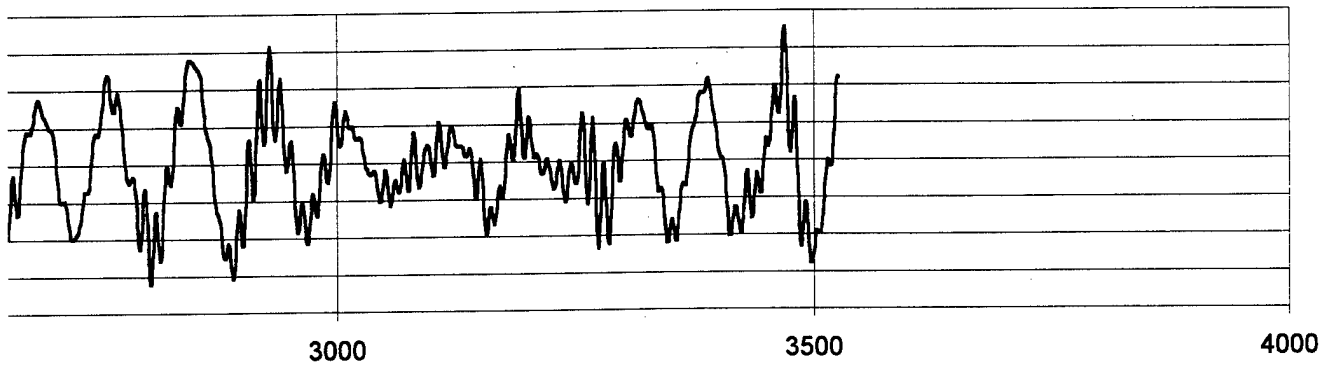
Filtered Low Frequency Time History



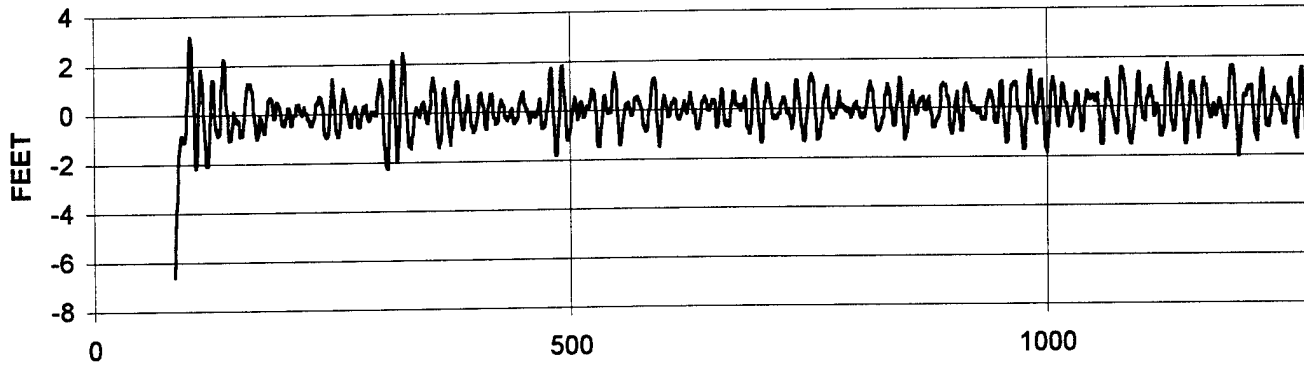
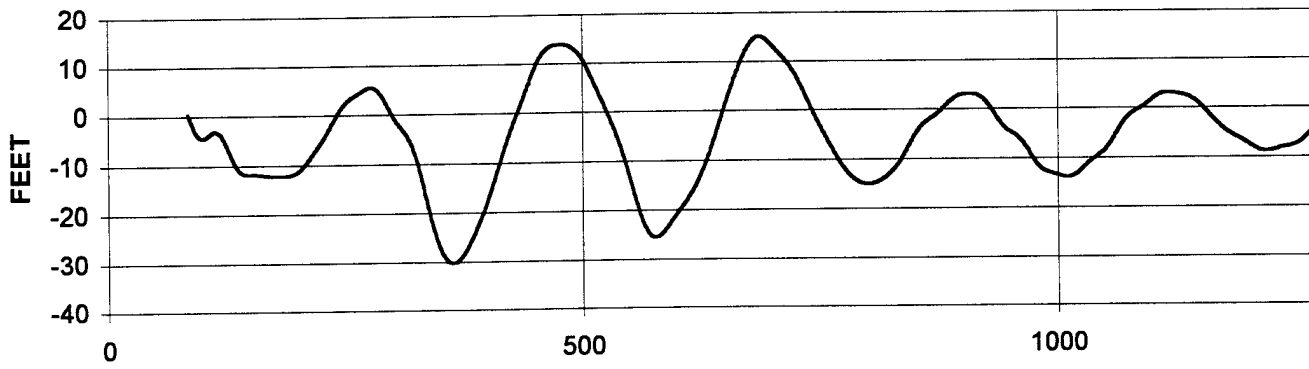
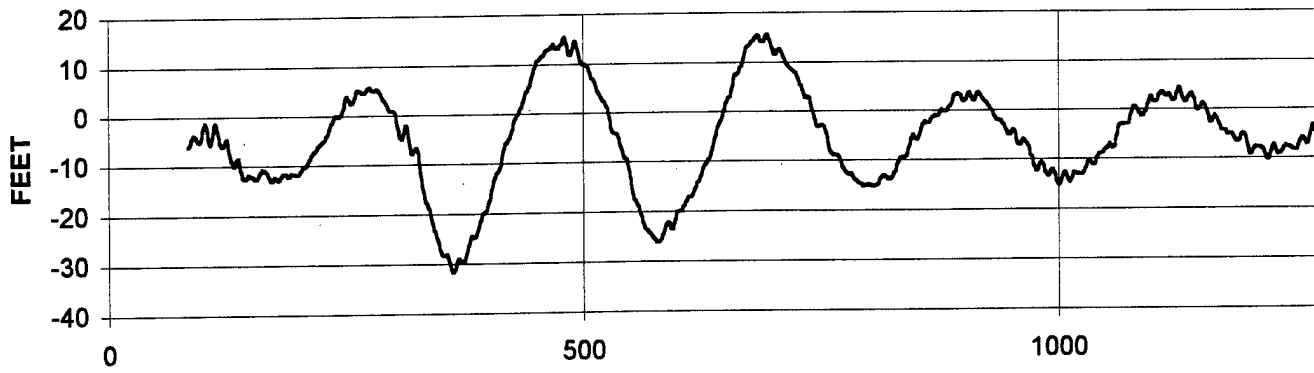
Filtered High Frequency Time History



TEST A556B - PITCH

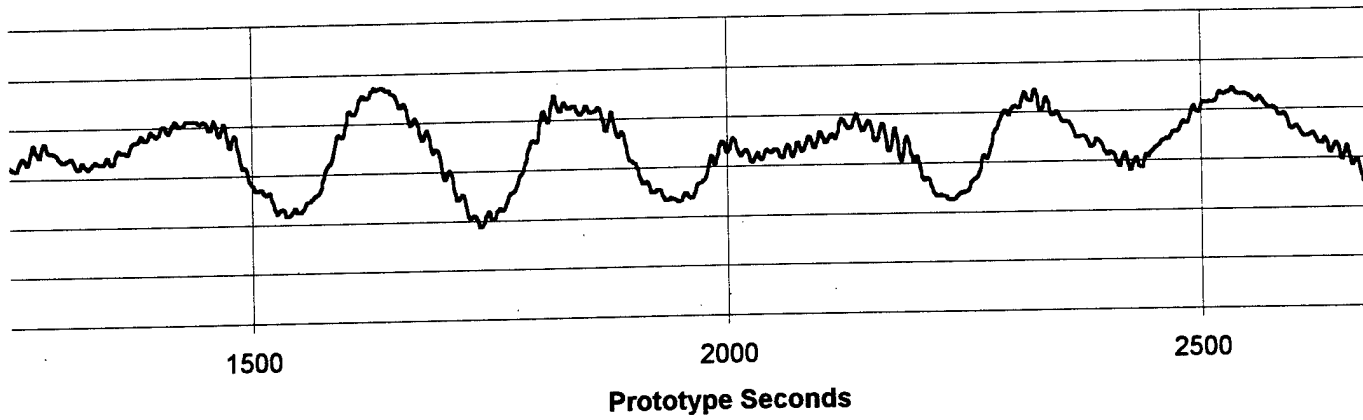


TEST A556B - PT SURGE

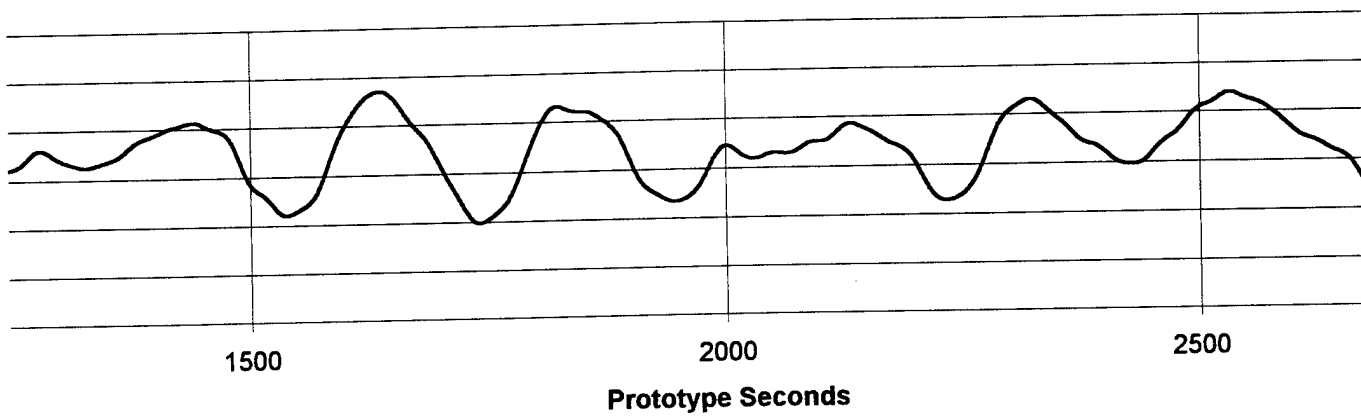


TEST A556B - PT SURGE

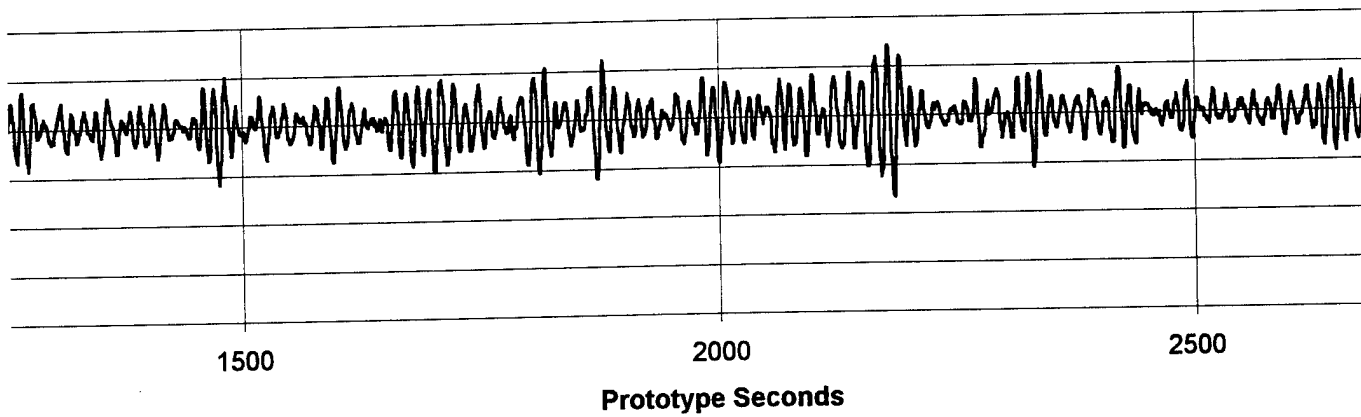
Unfiltered Time History



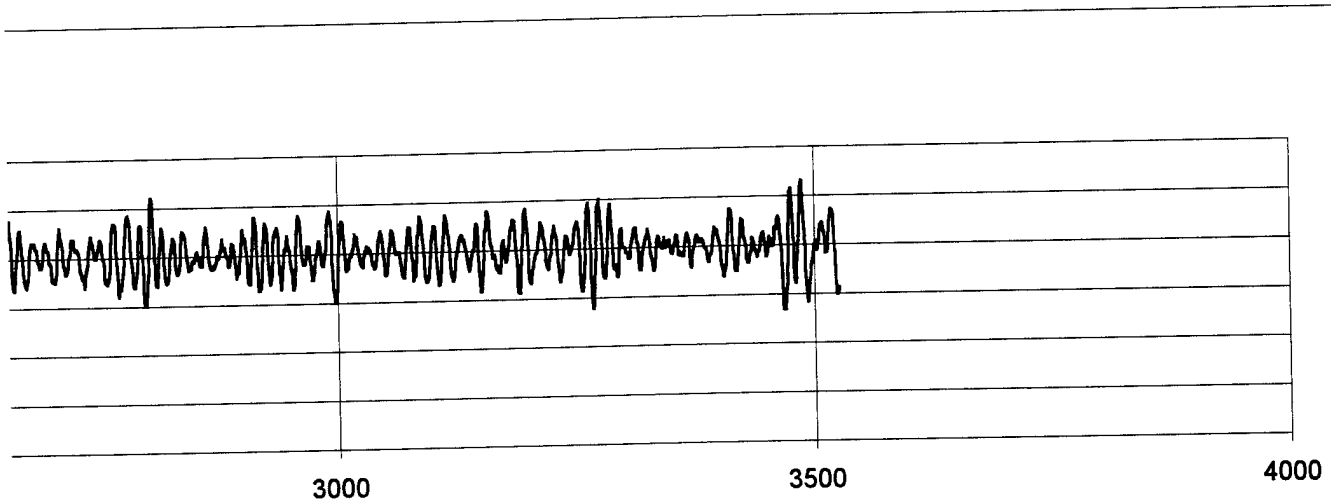
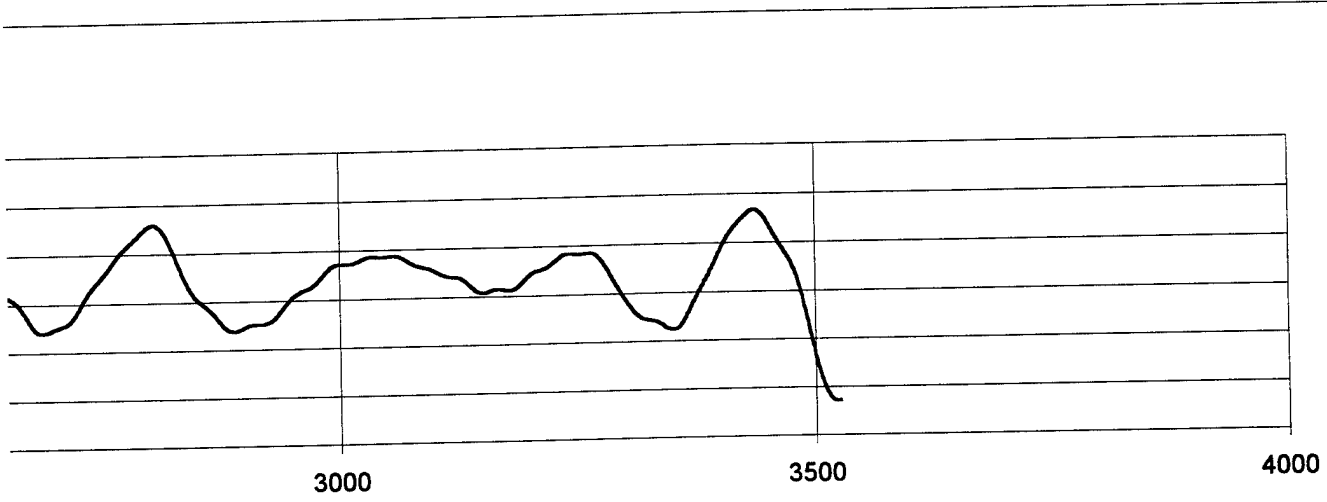
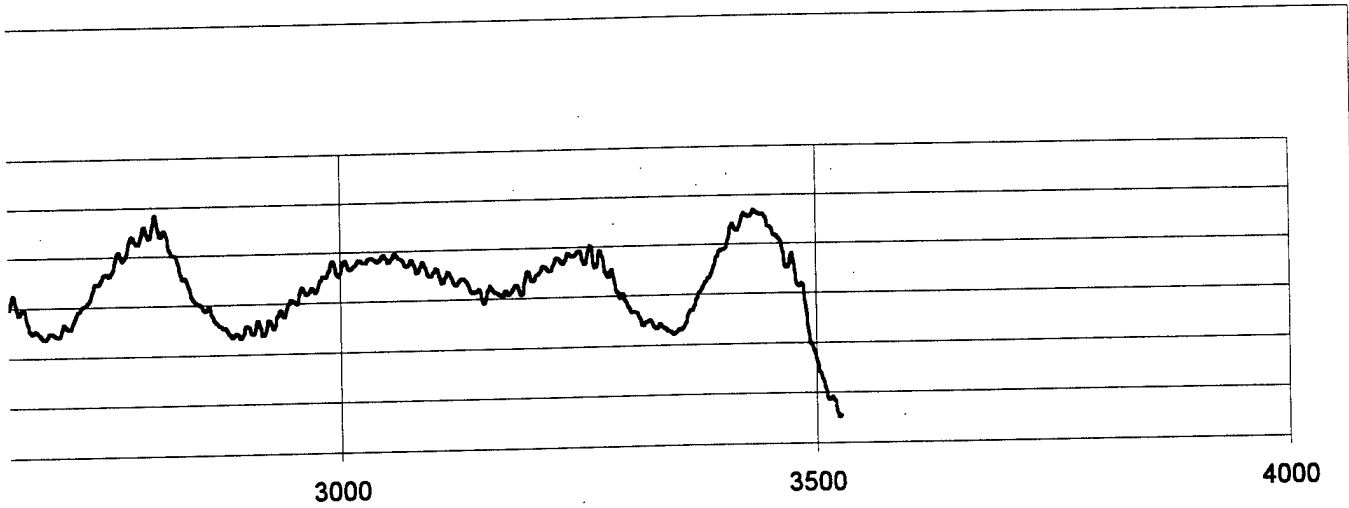
Filtered Low Frequency Time History



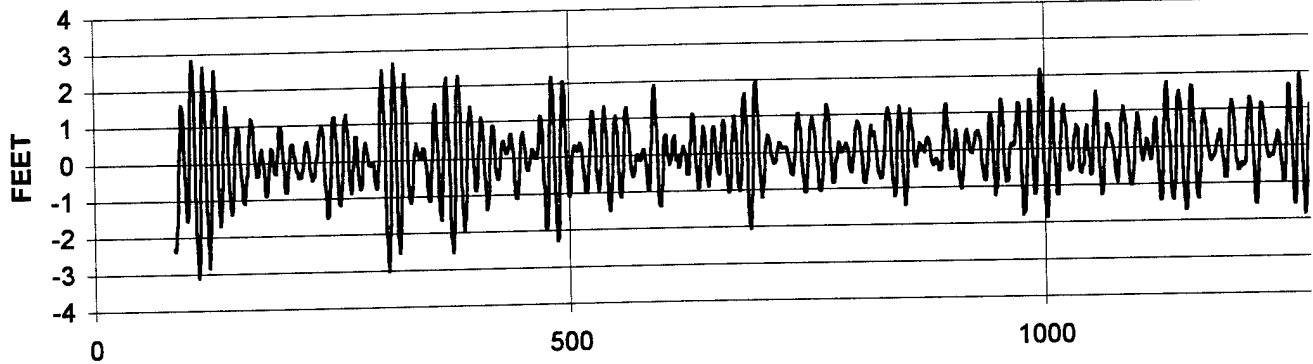
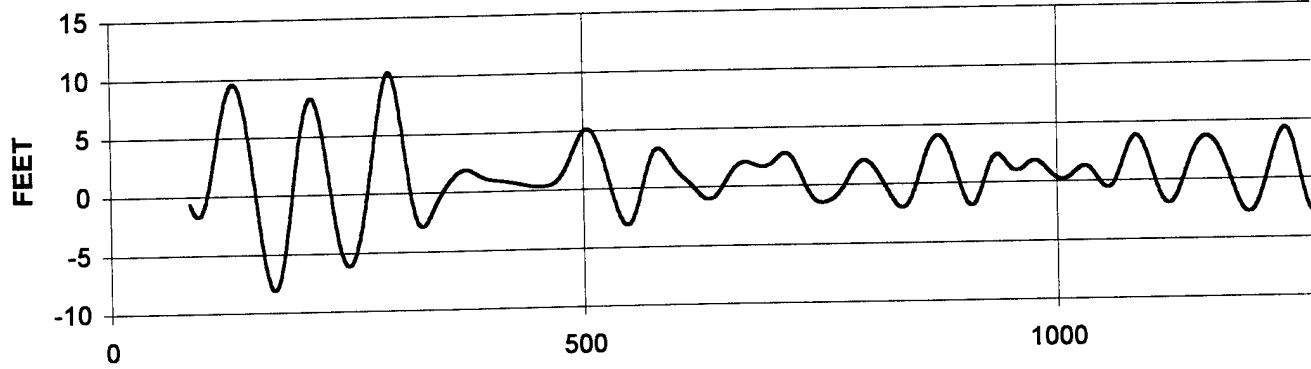
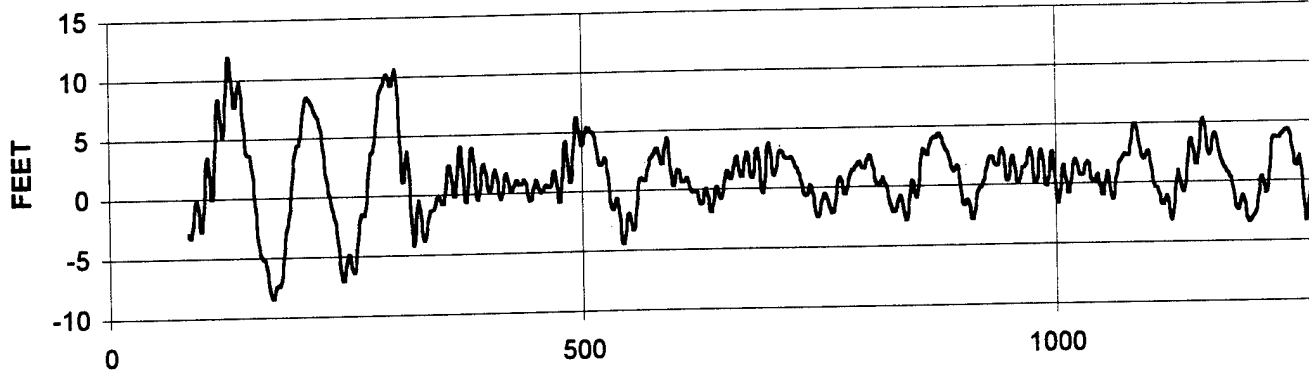
Filtered High Frequency Time History



TEST A556B - PT SURGE

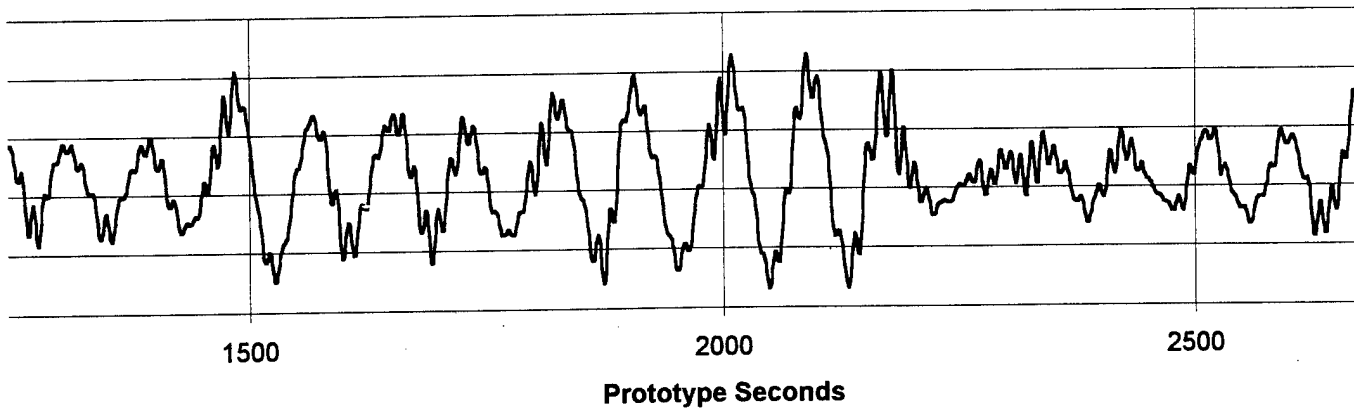


TEST A556B - PT HEAVE

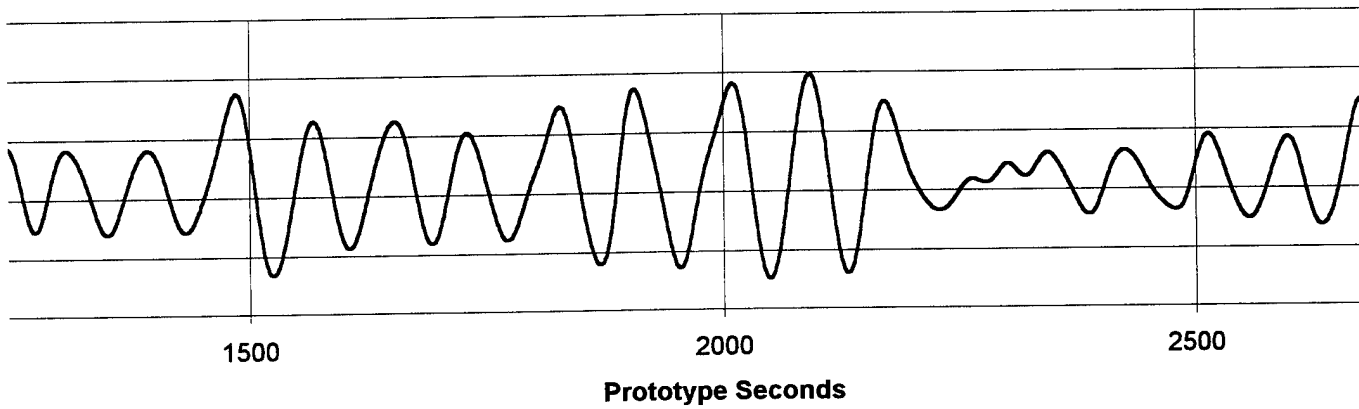


TEST A556B - PT HEAVE

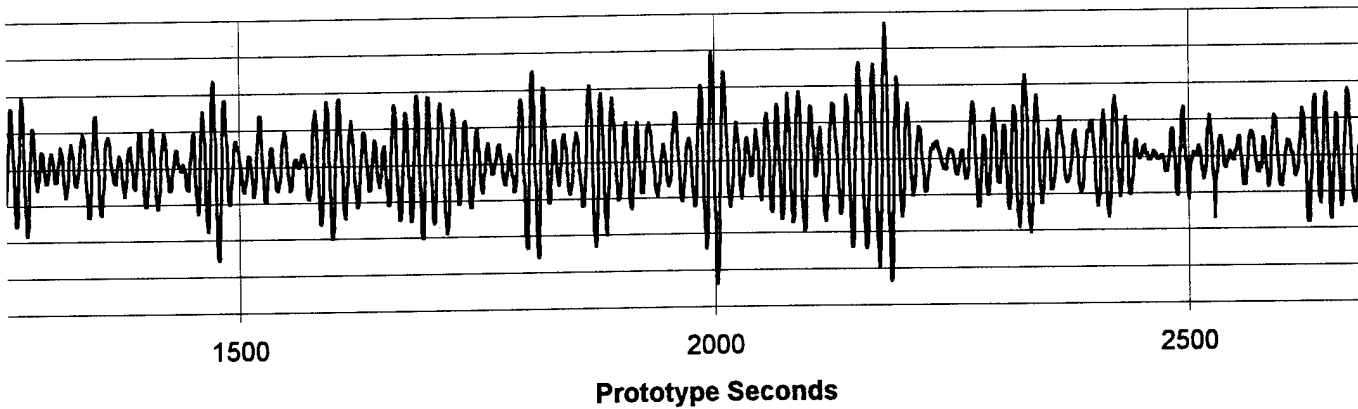
Unfiltered Time History



Filtered Low Frequency Time History

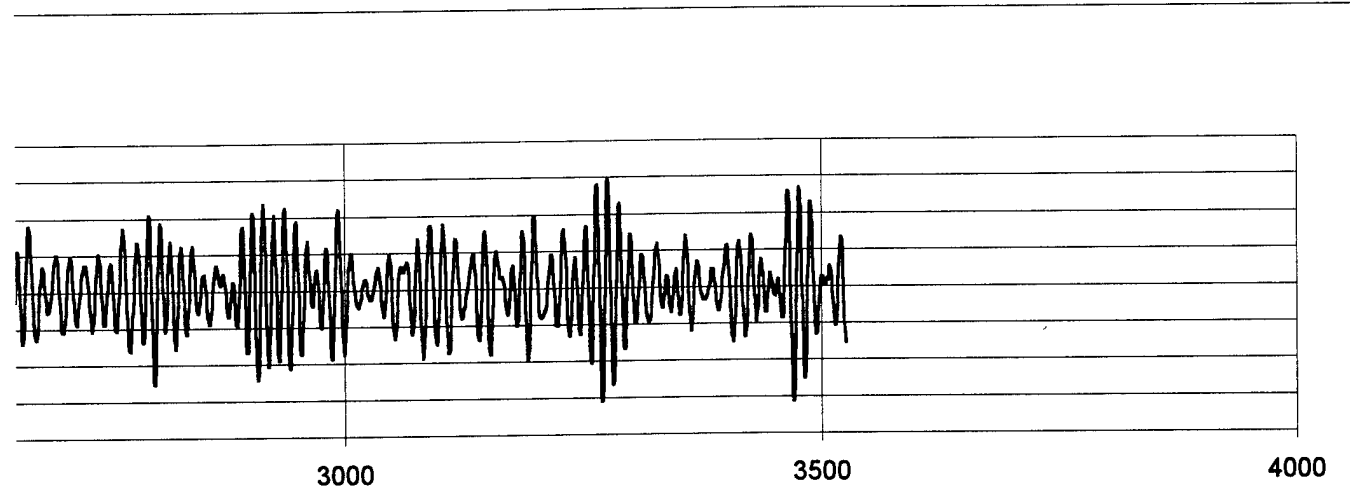
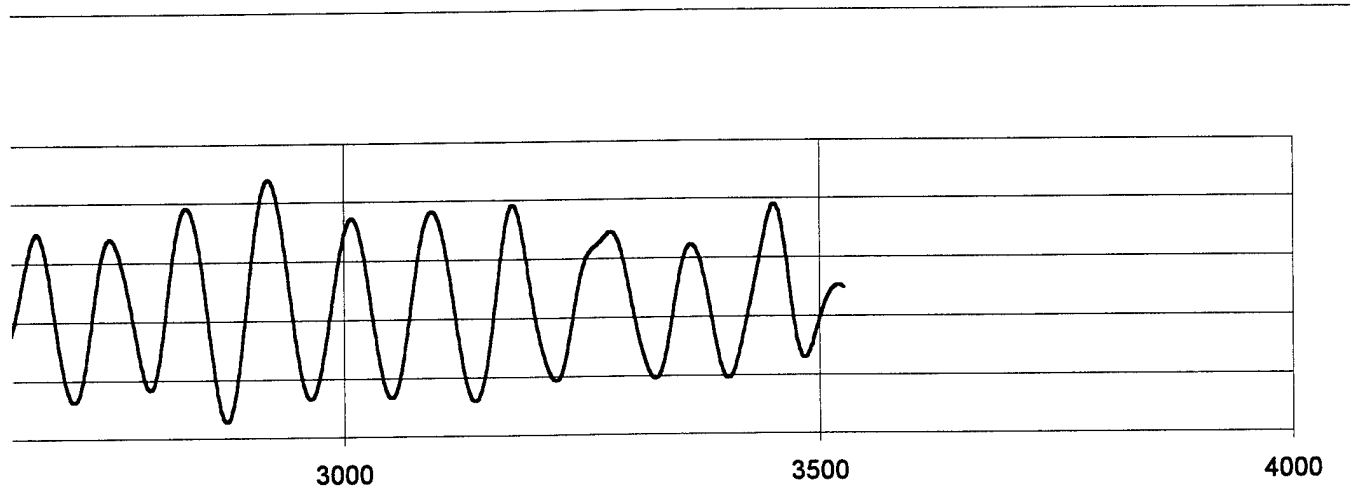
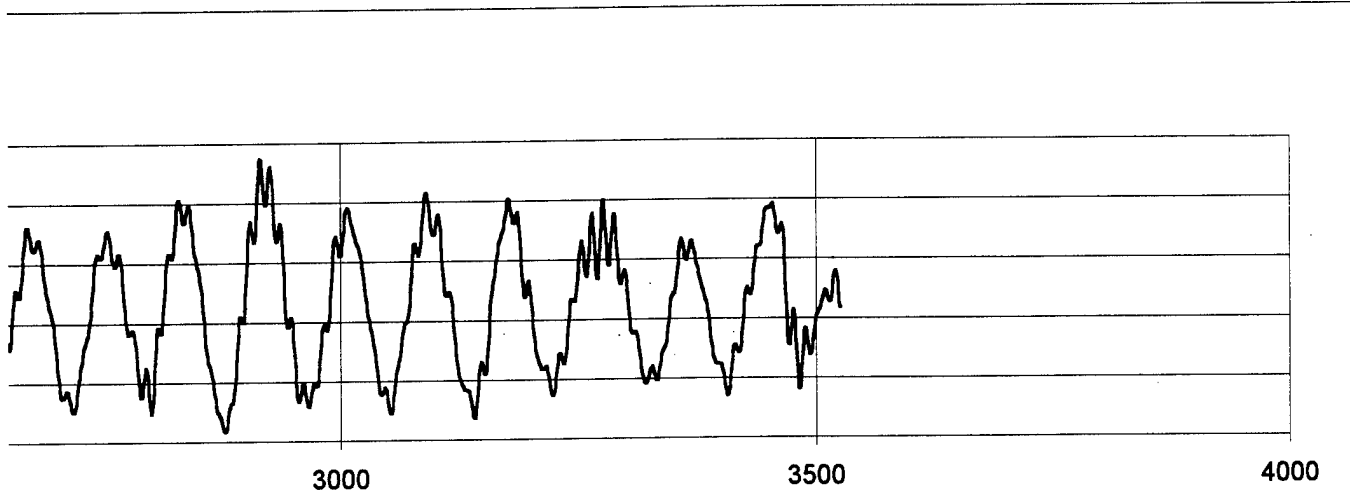


Filtered High Frequency Time History

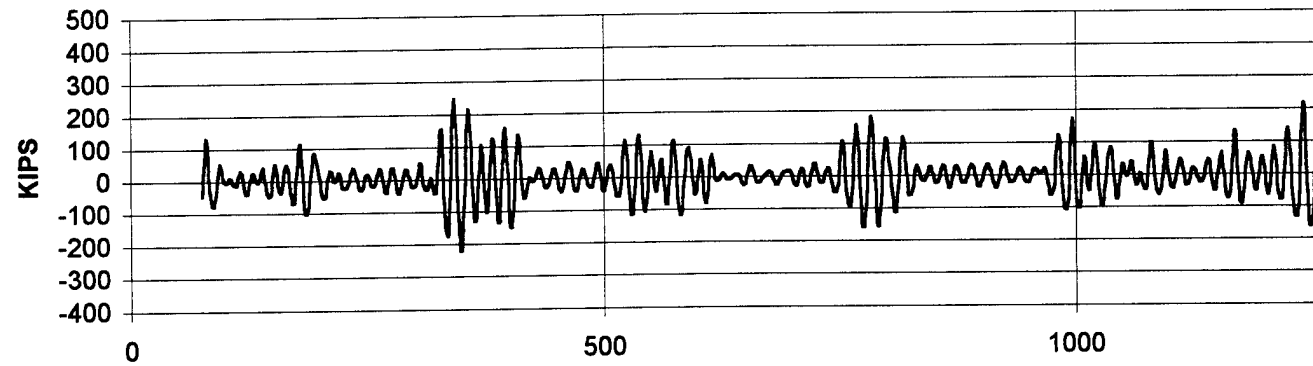
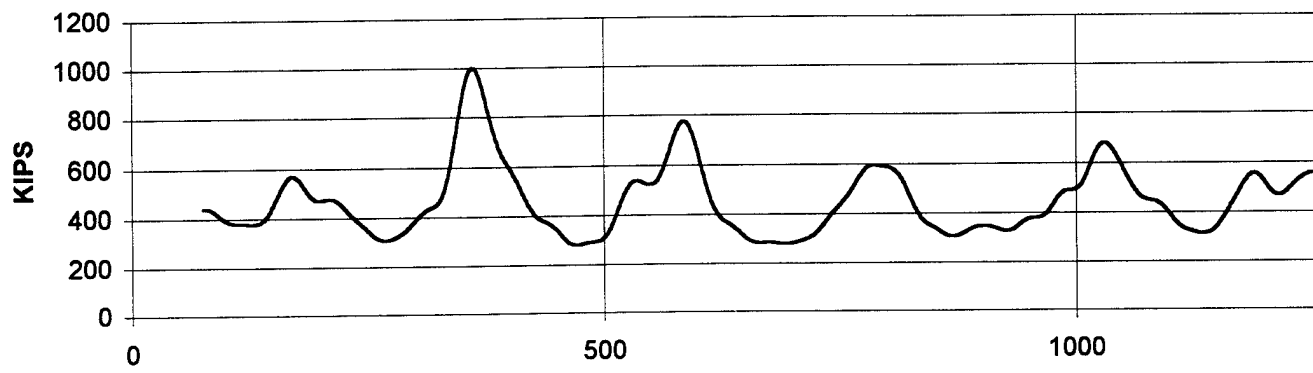
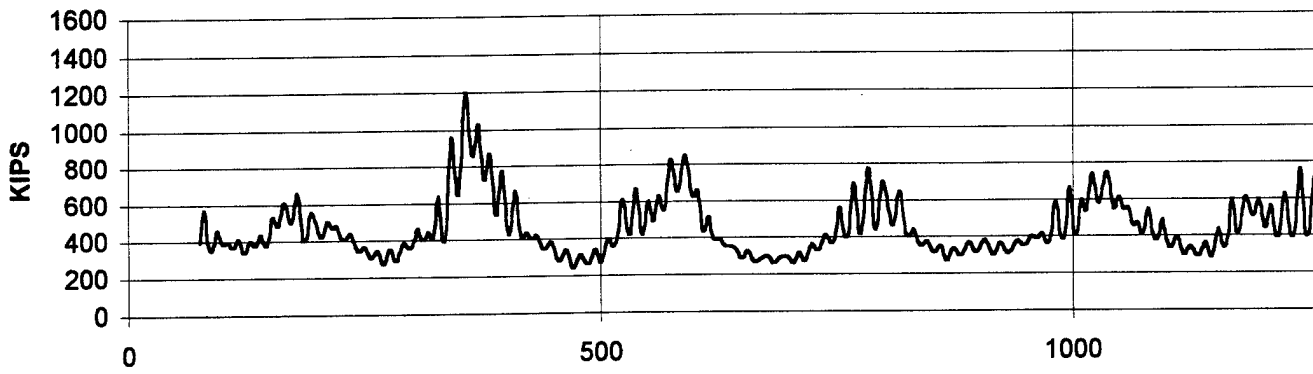




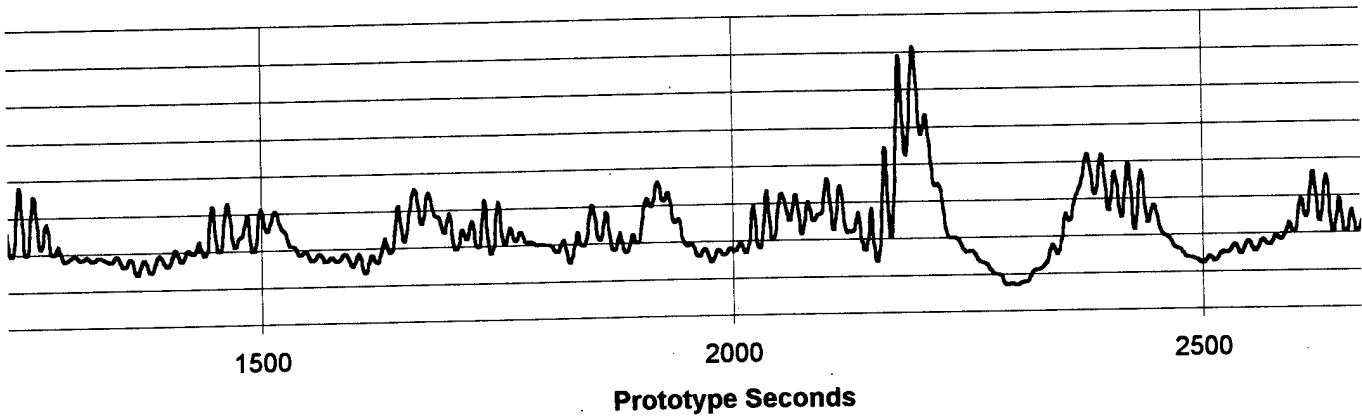
TEST A556B - PT HEAVE



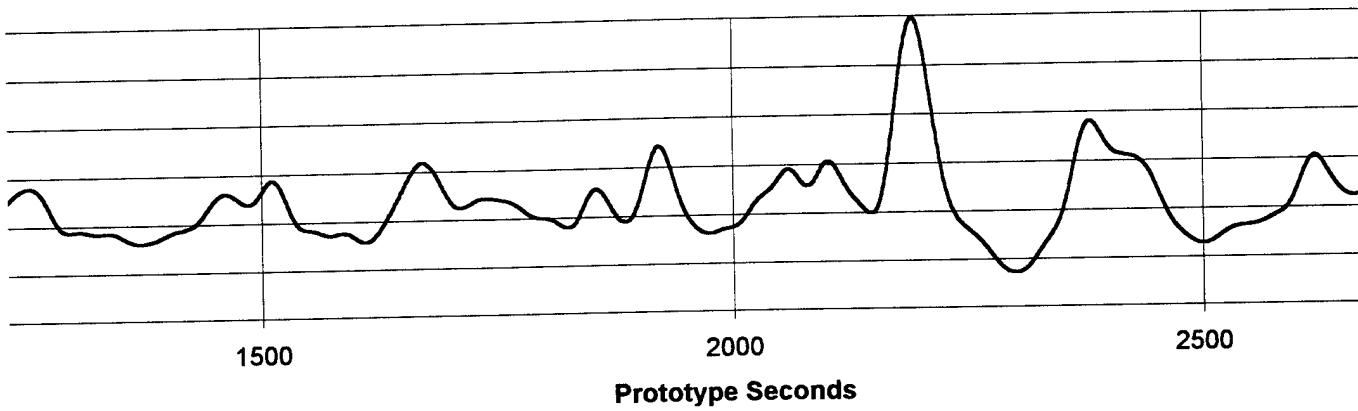
TEST A557 - ML\_1



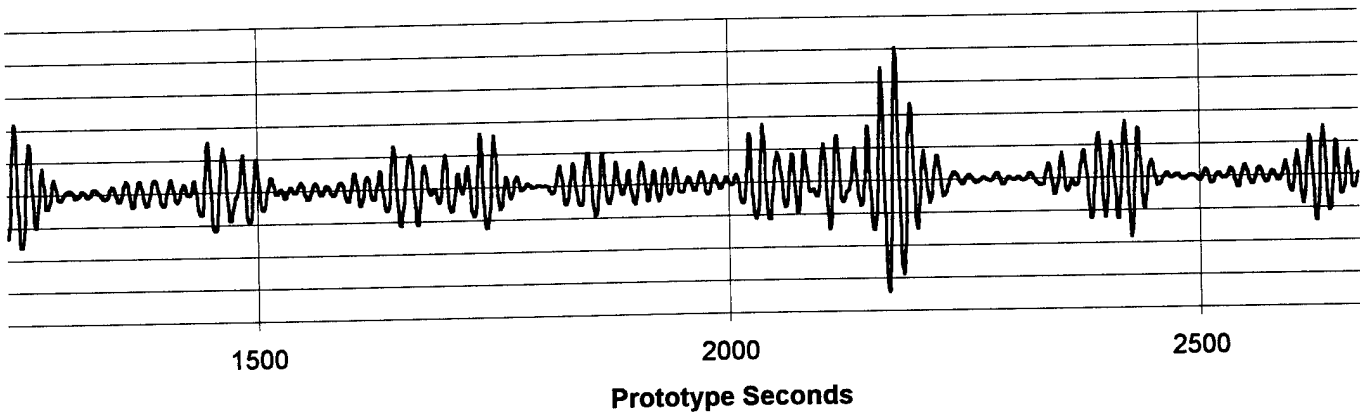
**Unfiltered Time History**



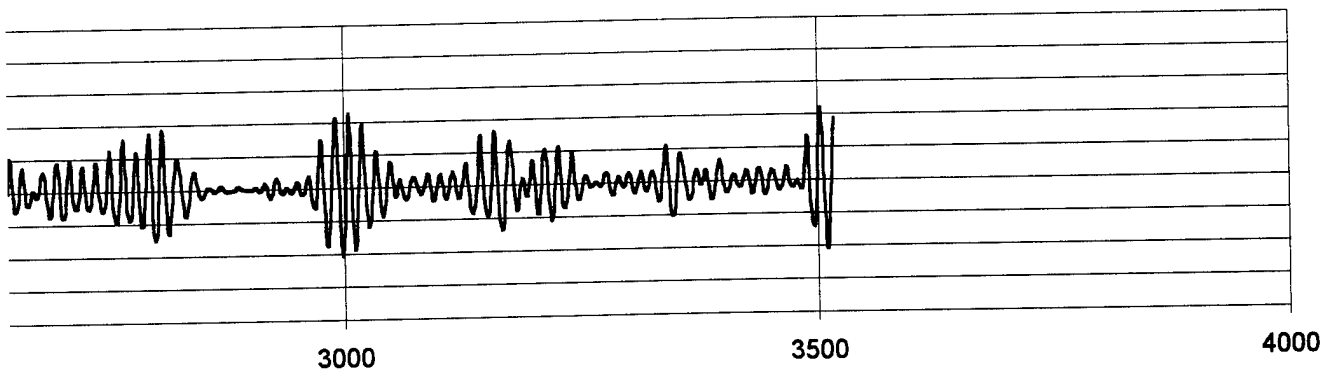
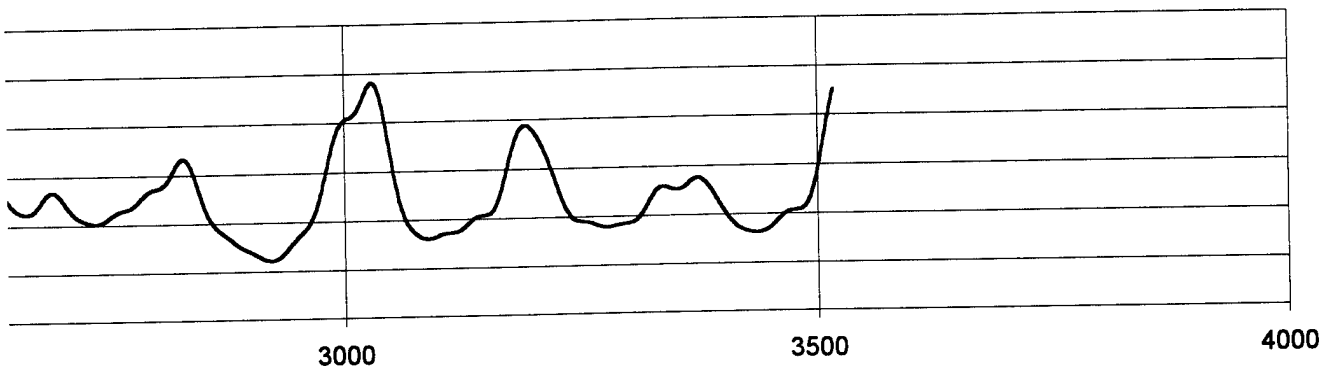
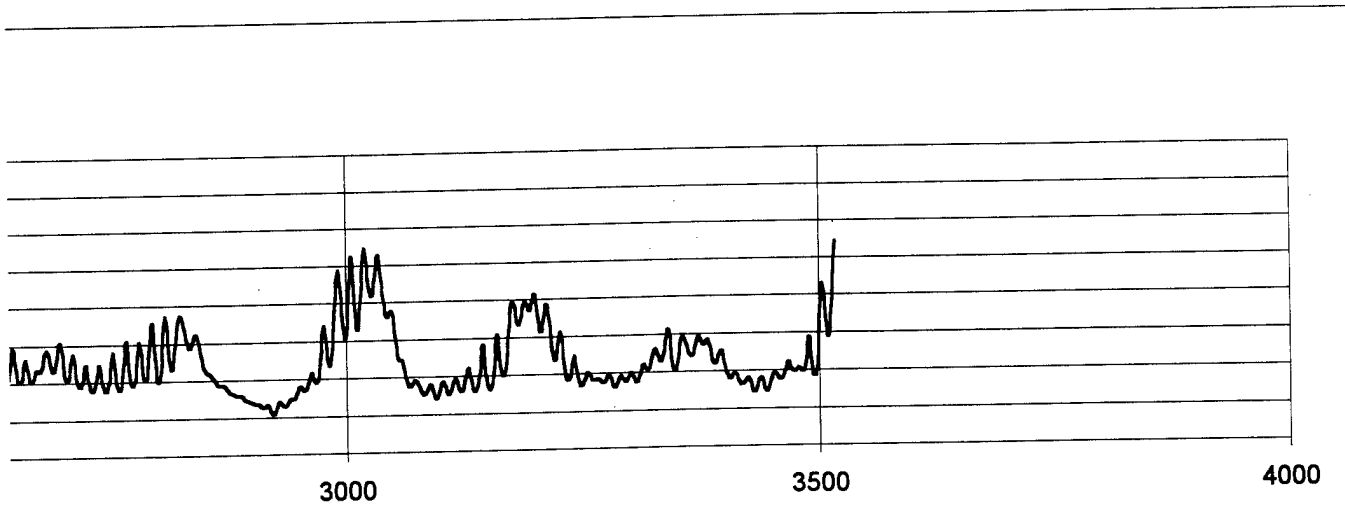
**Filtered Low Frequency Time History**



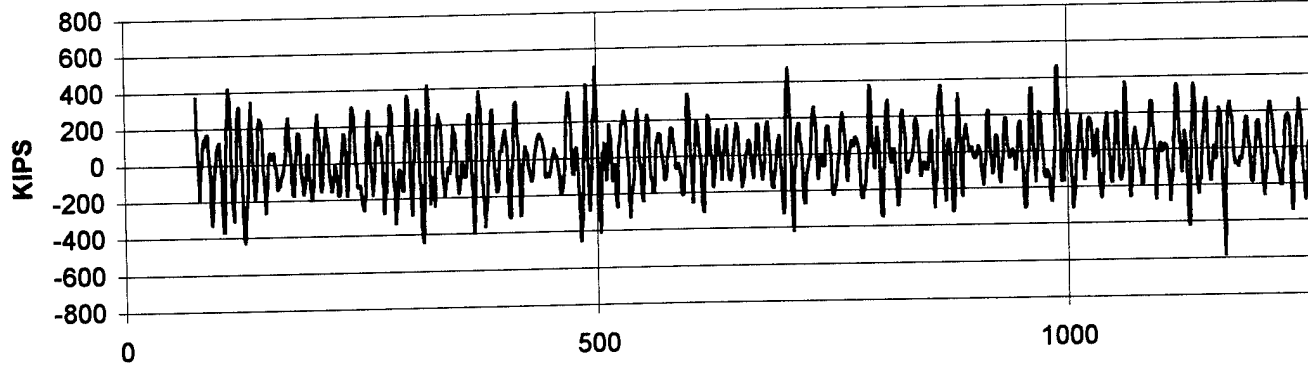
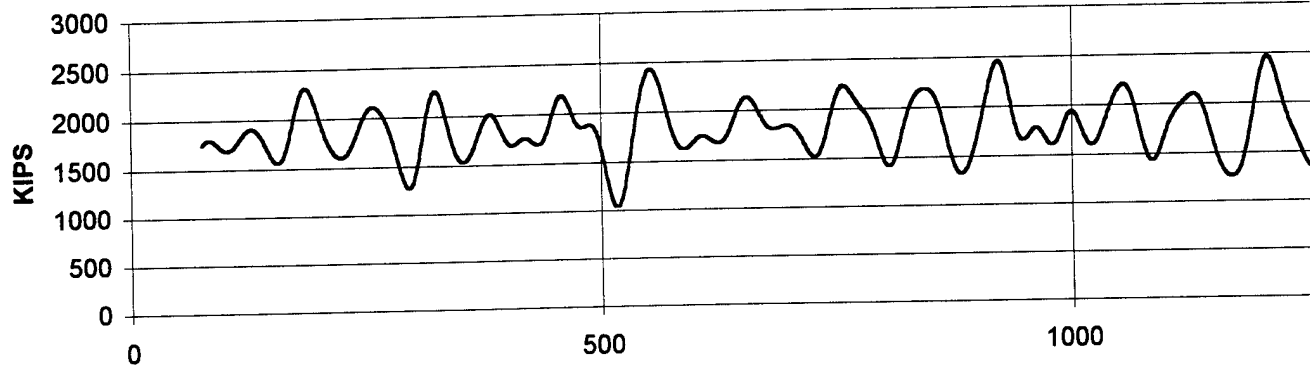
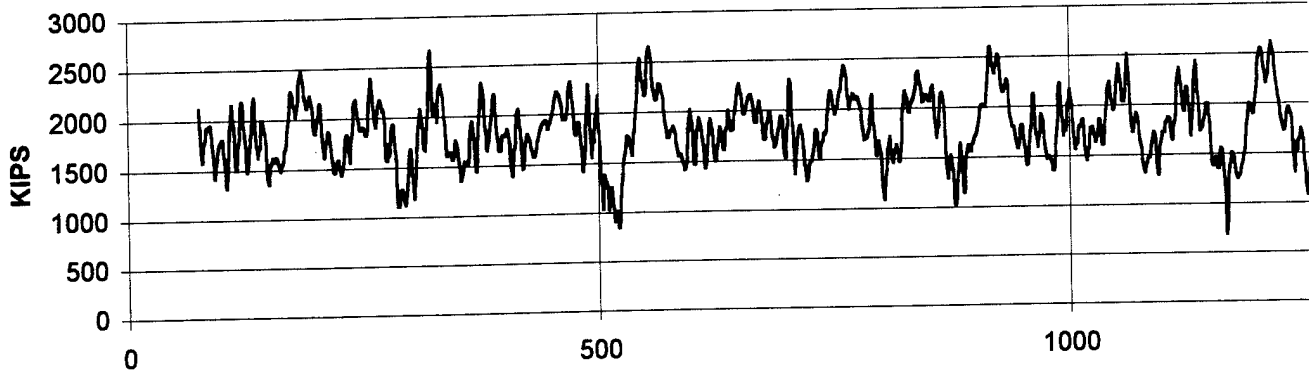
**Filtered High Frequency Time History**



TEST A557 - ML\_1

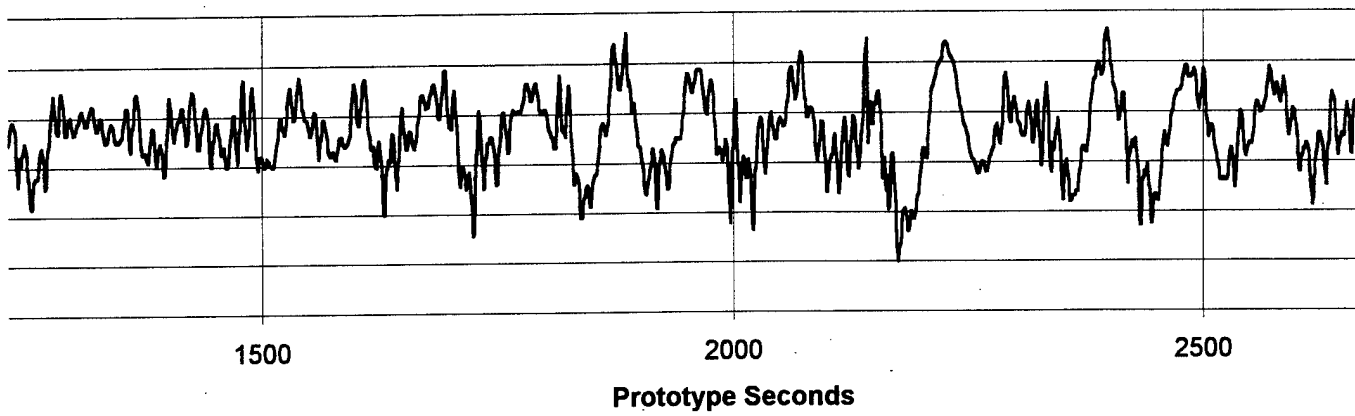


# TEST A557 - BUOY 1 TENSION

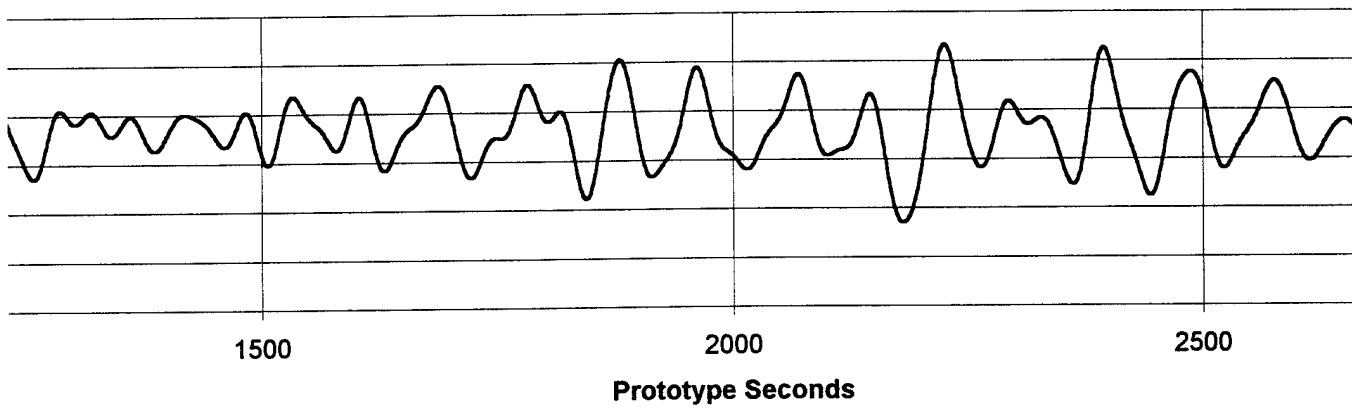


TEST A557 - BUOY 1 TENSION

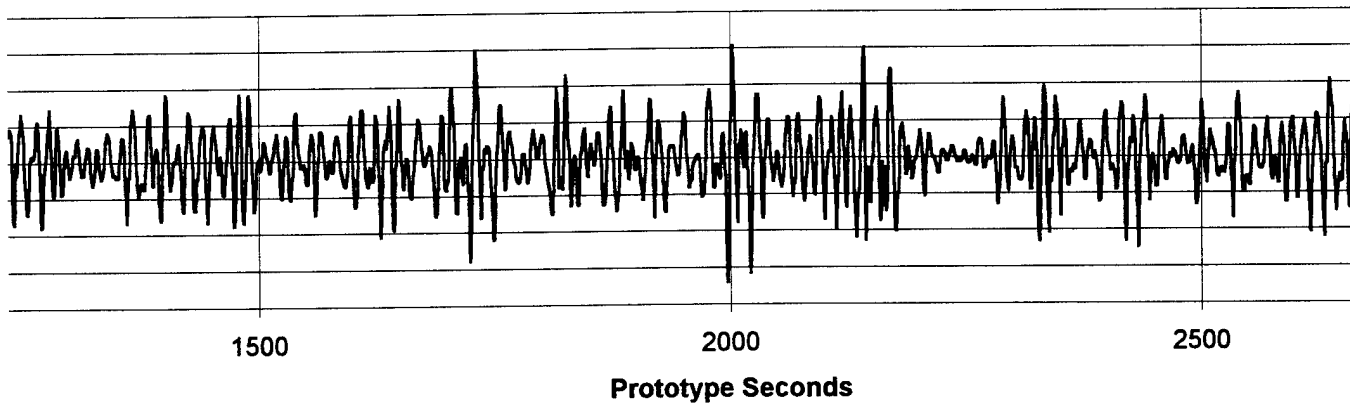
Unfiltered Time History



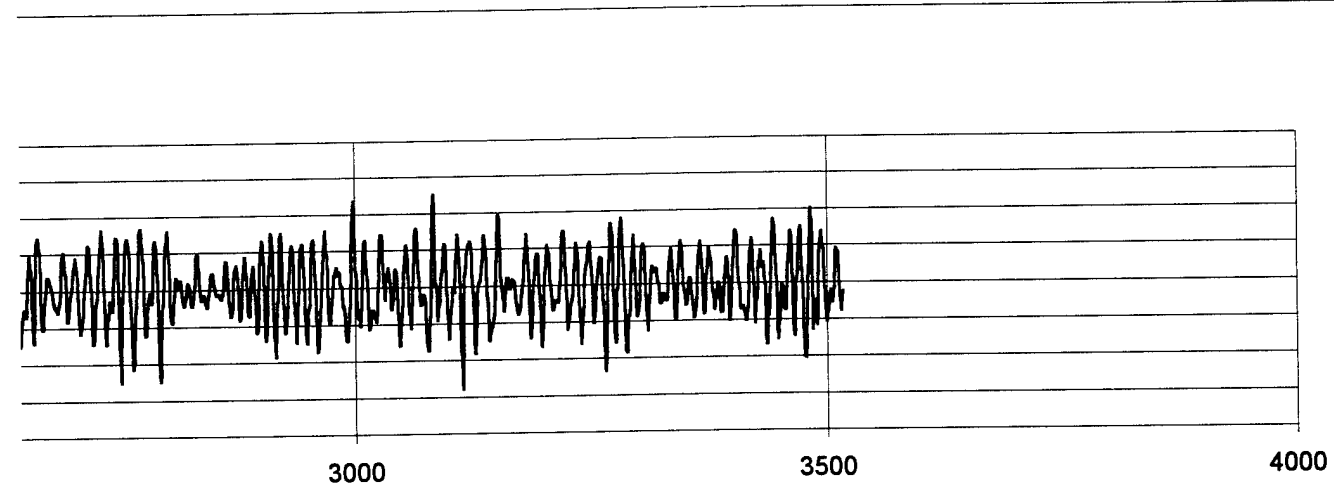
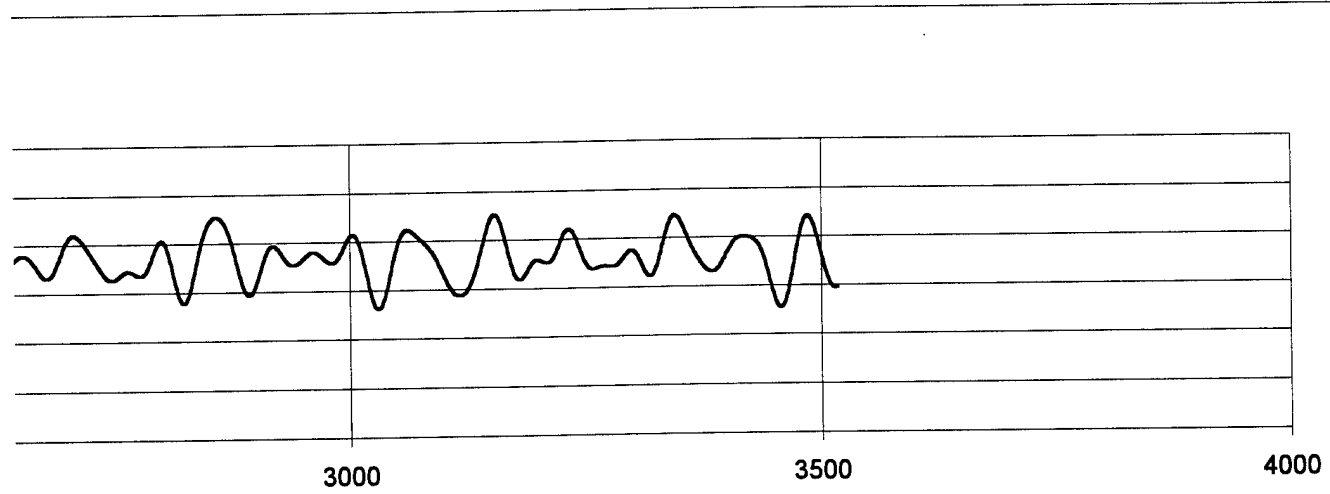
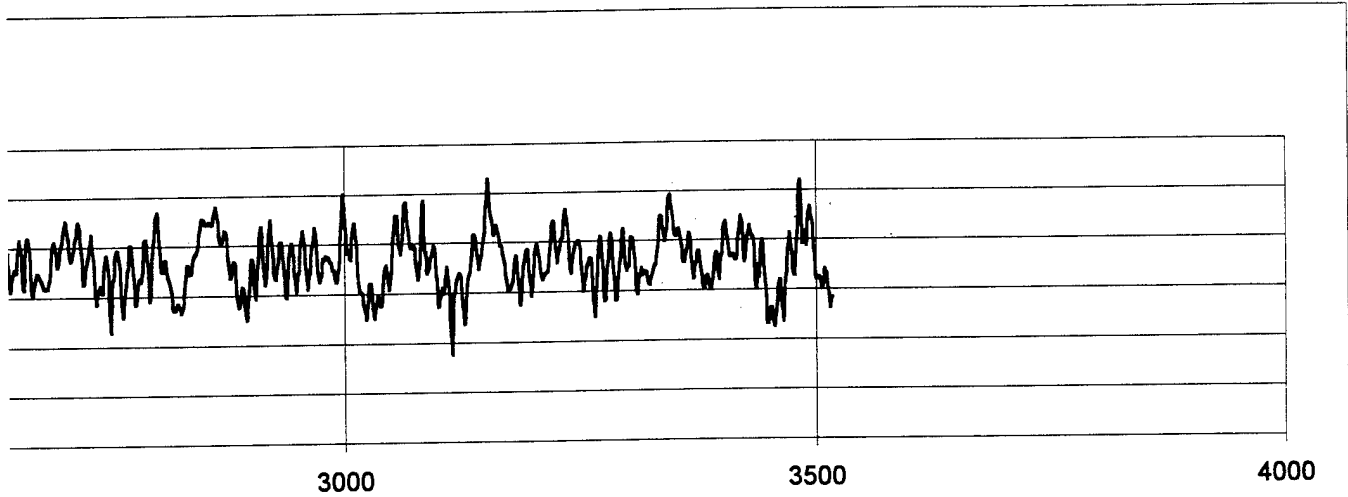
Filtered Low Frequency Time History



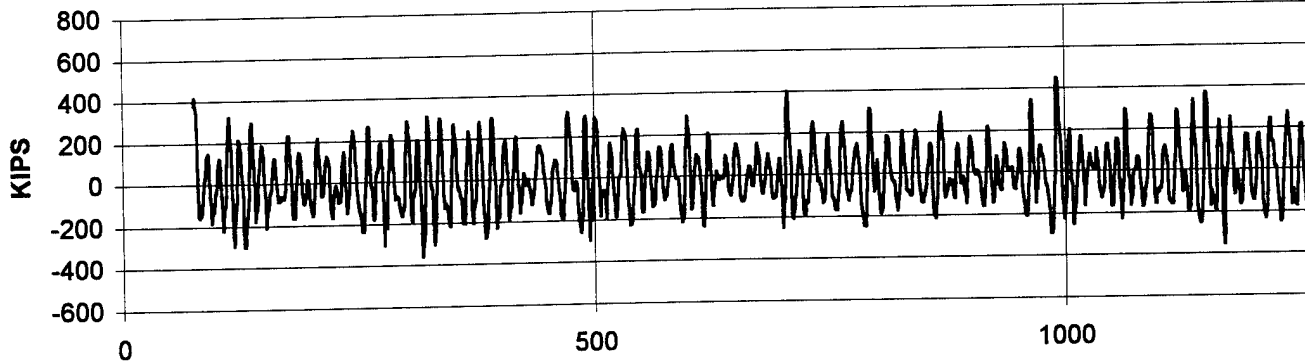
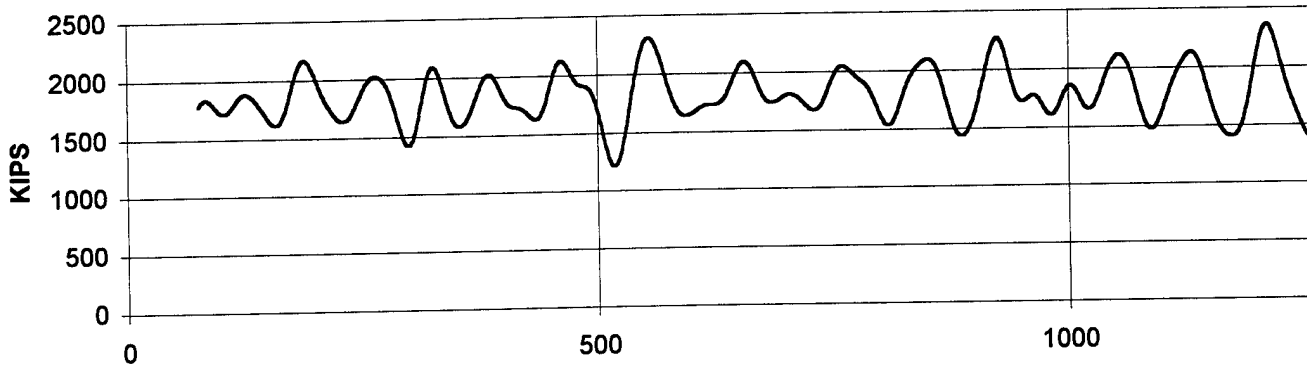
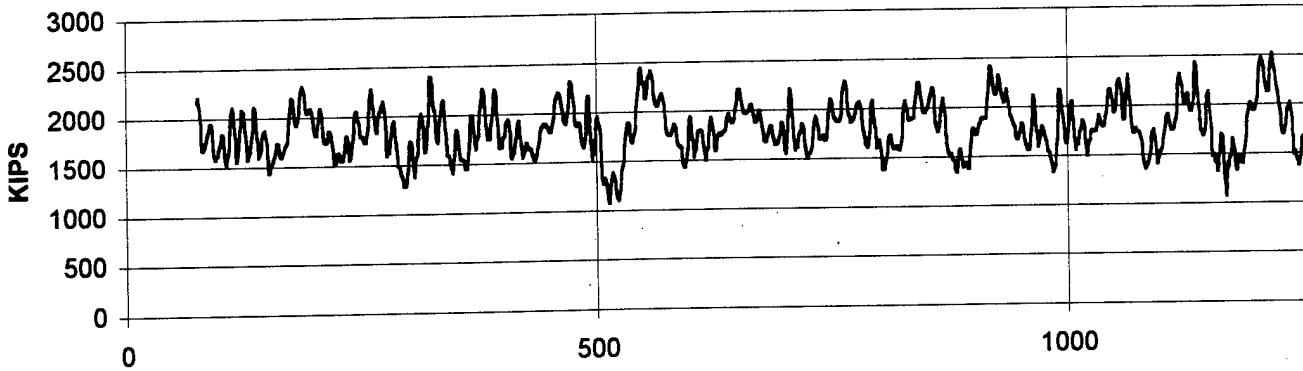
Filtered High Frequency Time History



TEST A557 - BUOY 1 TENSION



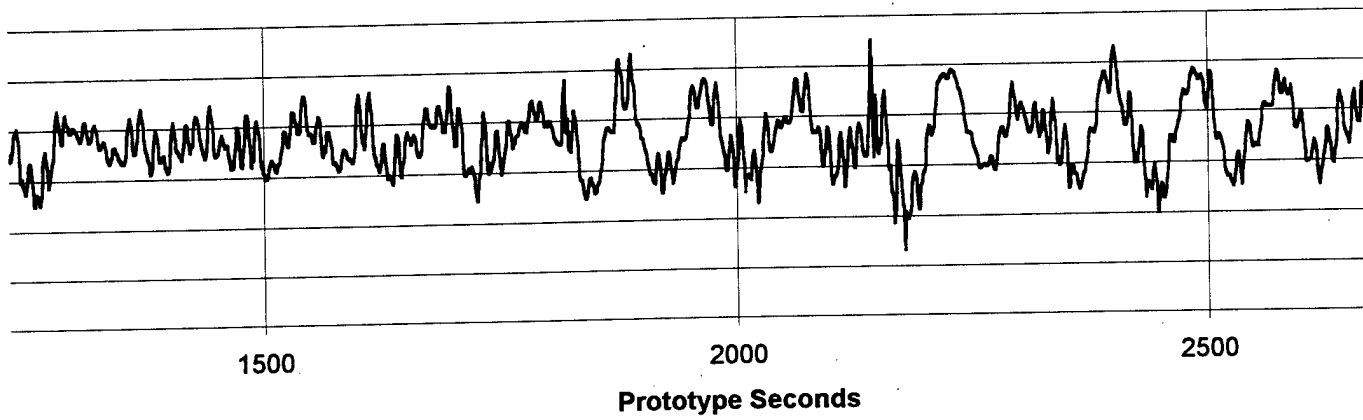
# TEST A557 - BUOY 2 TENSION



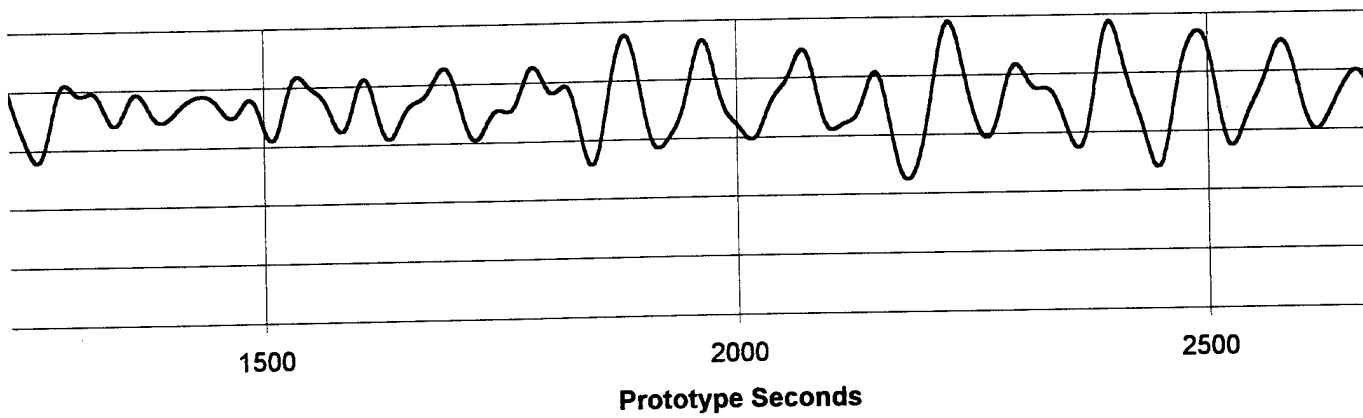


TEST A557 - BUOY 2 TENSION

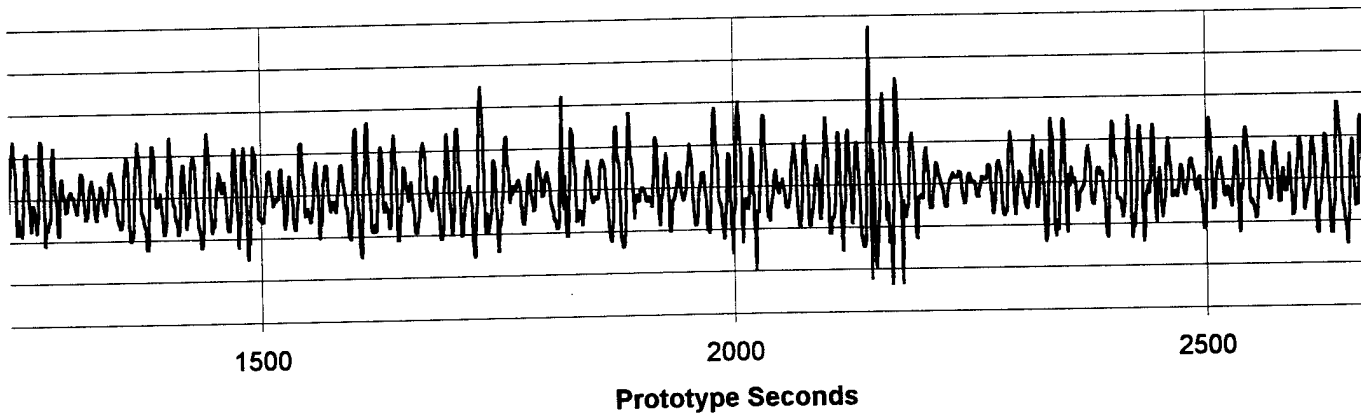
Unfiltered Time History



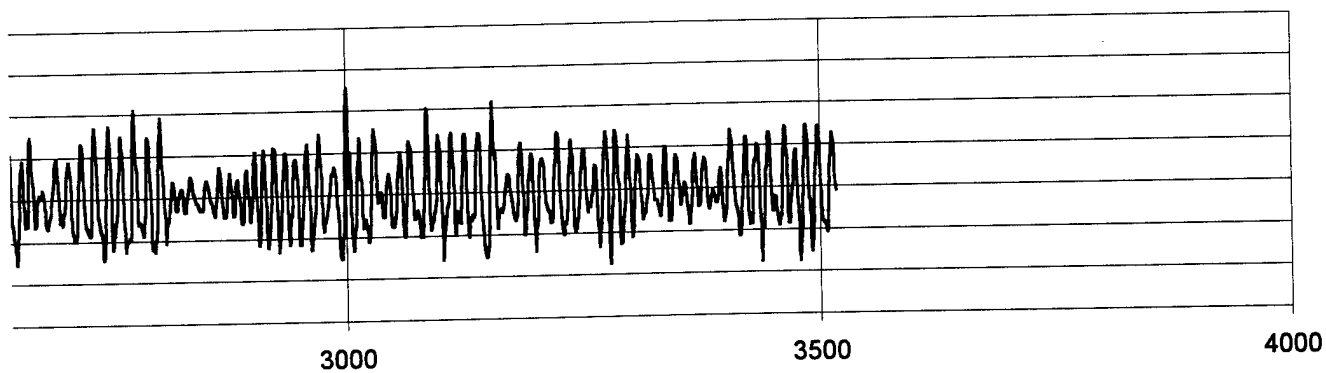
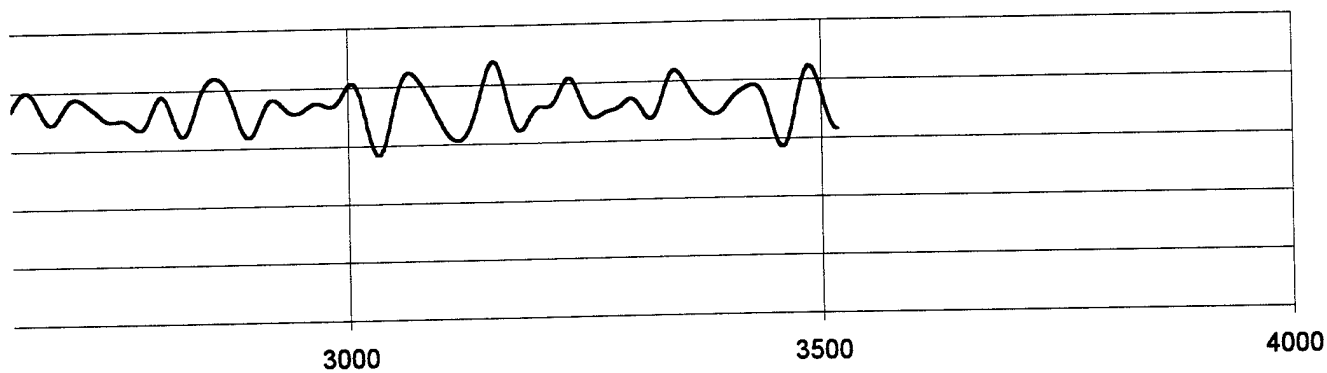
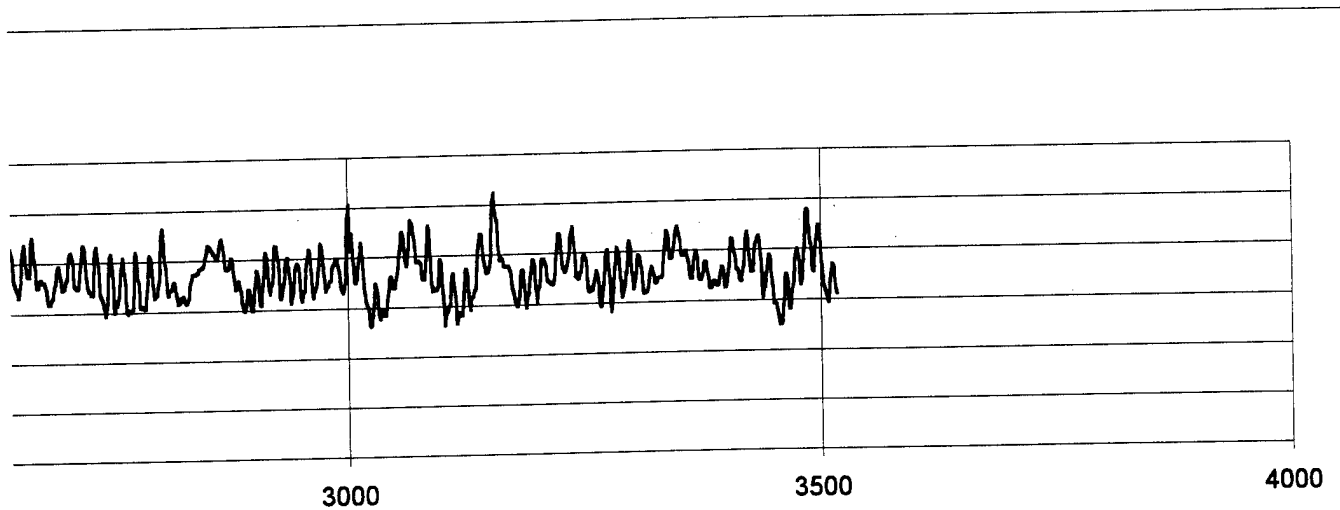
Filtered Low Frequency Time History



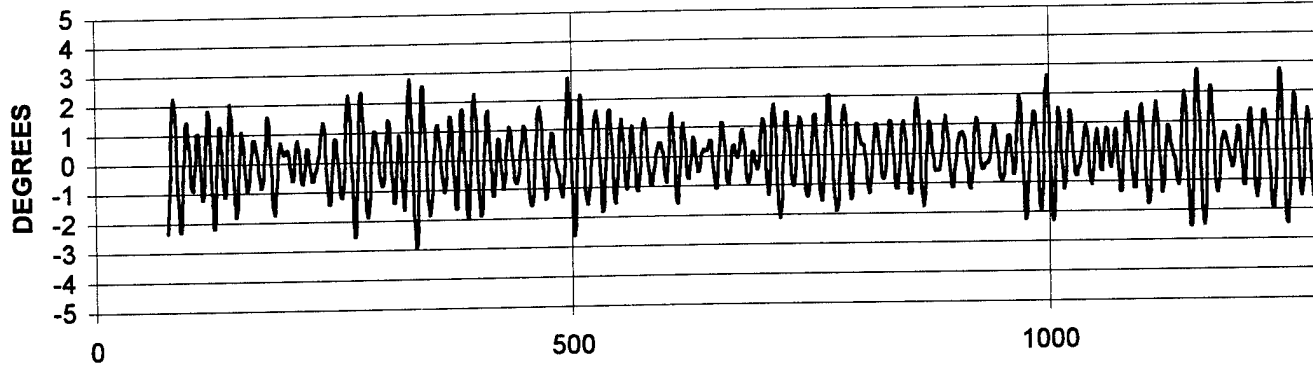
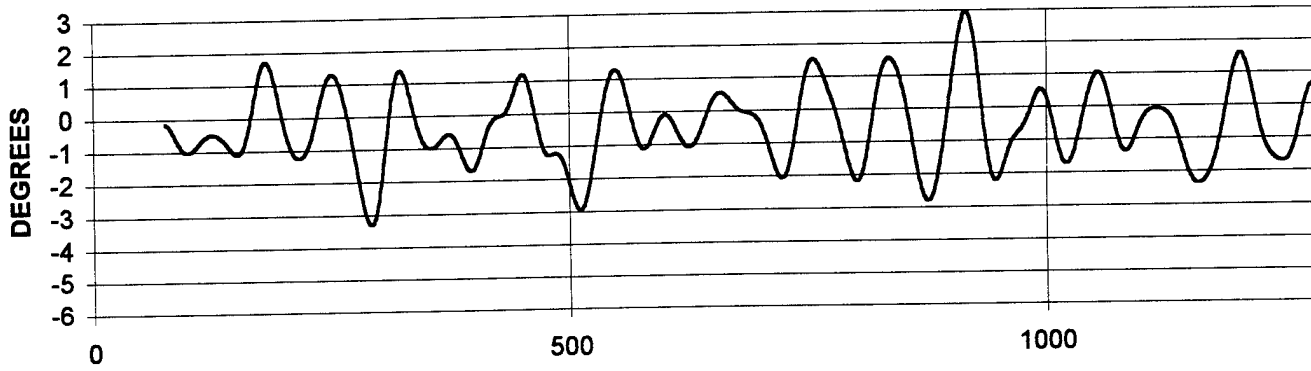
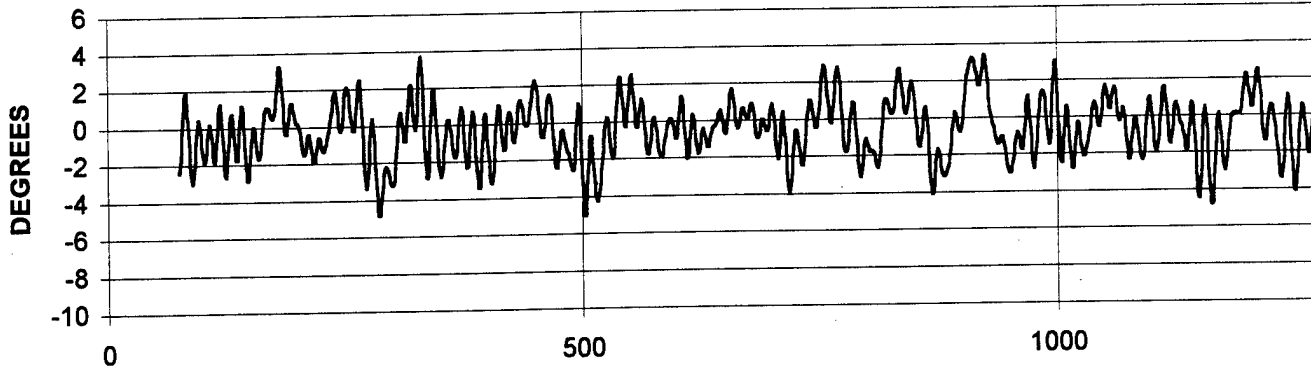
Filtered High Frequency Time History



TEST A557 - BUOY 2 TENSION

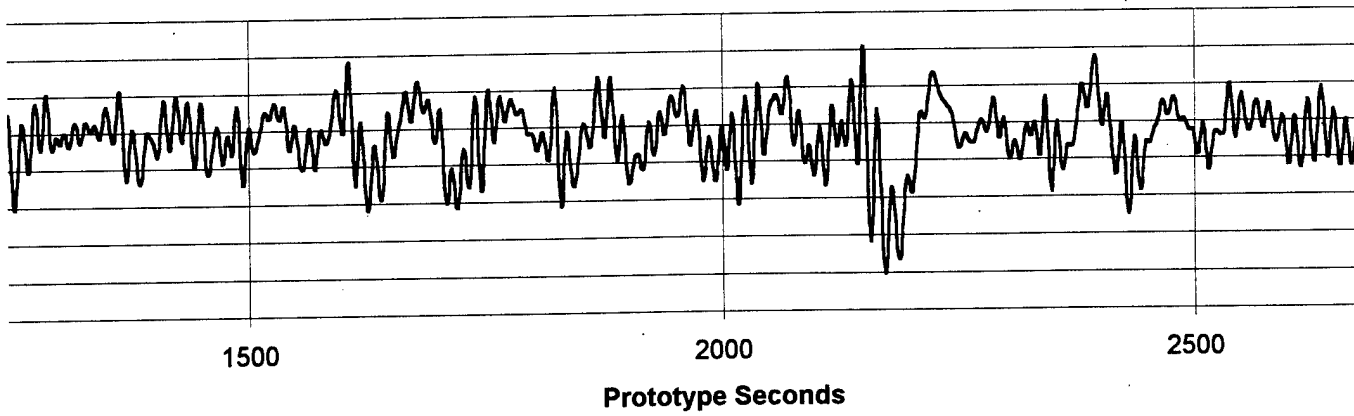


TEST A557 - PITCH

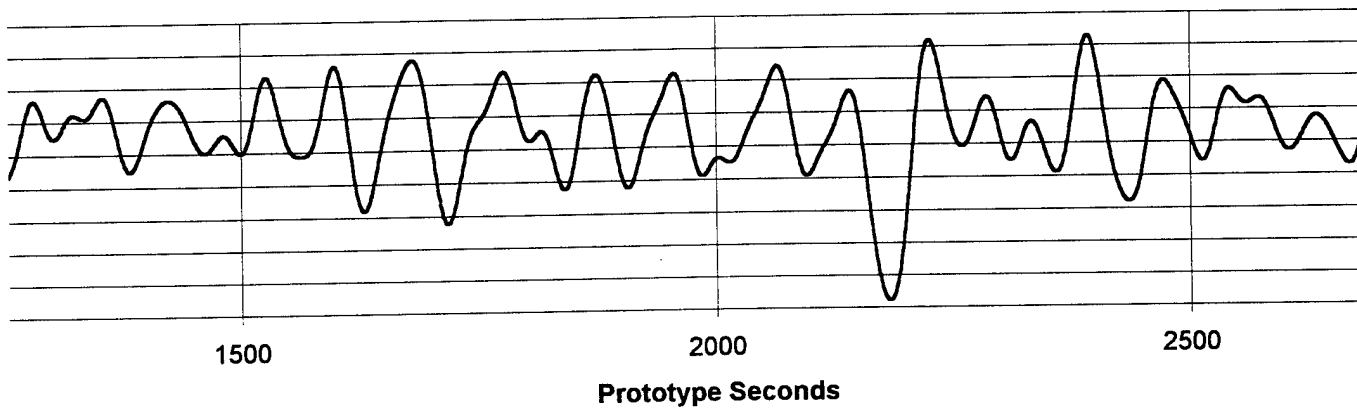


TEST A557 - PITCH

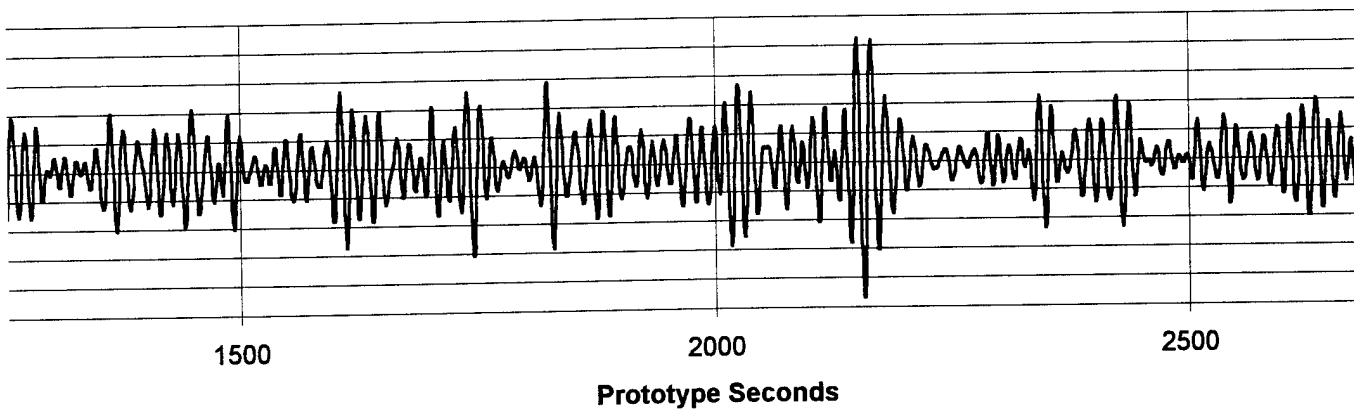
Unfiltered Time History



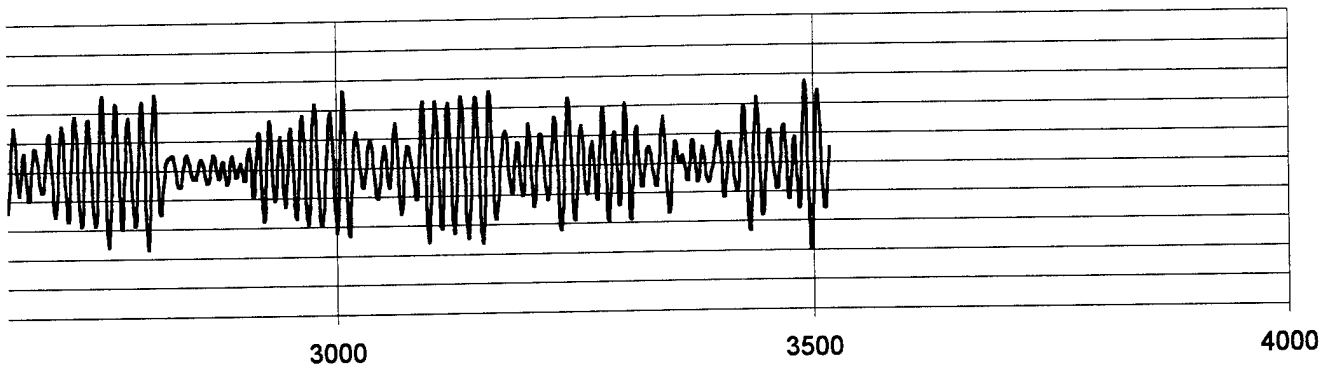
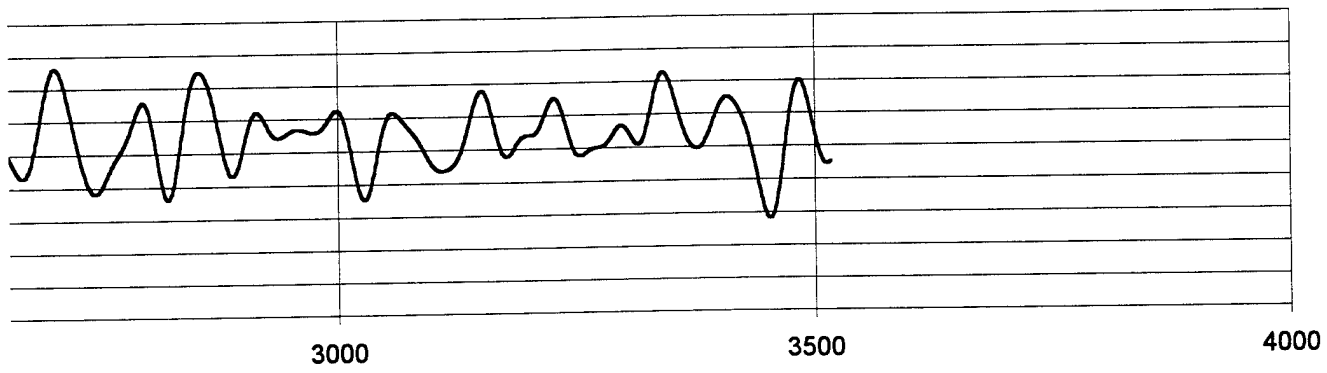
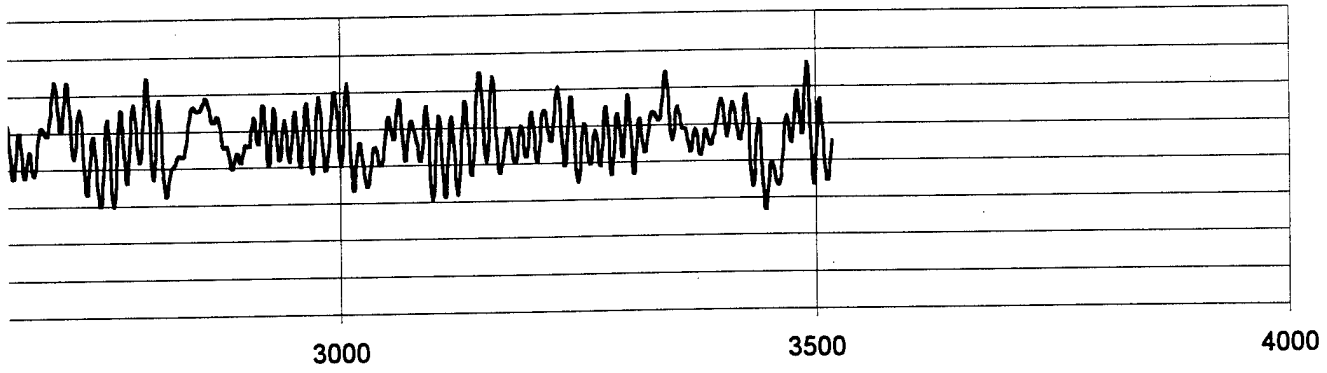
Filtered Low Frequency Time History



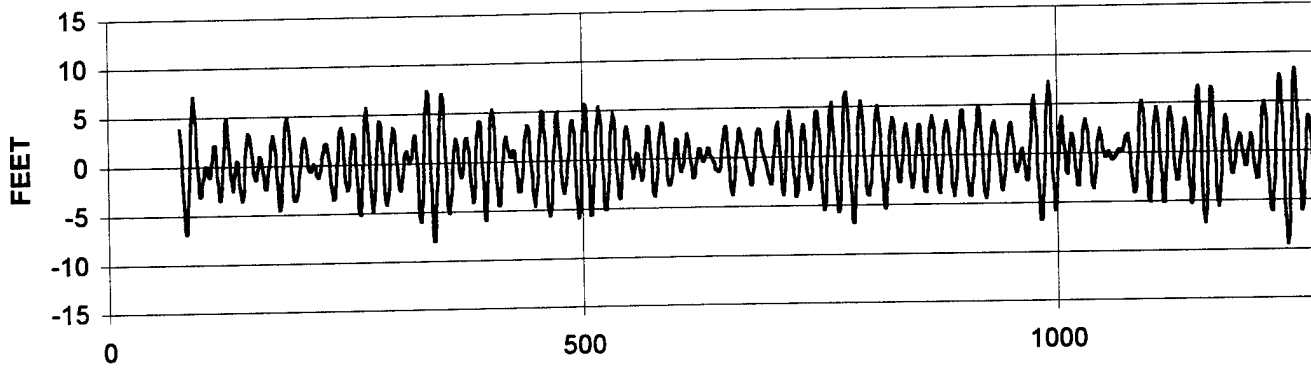
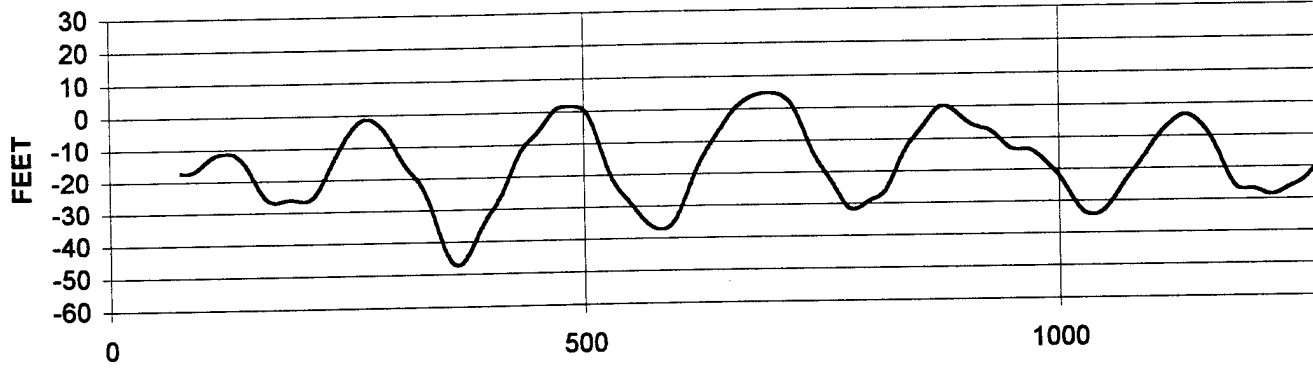
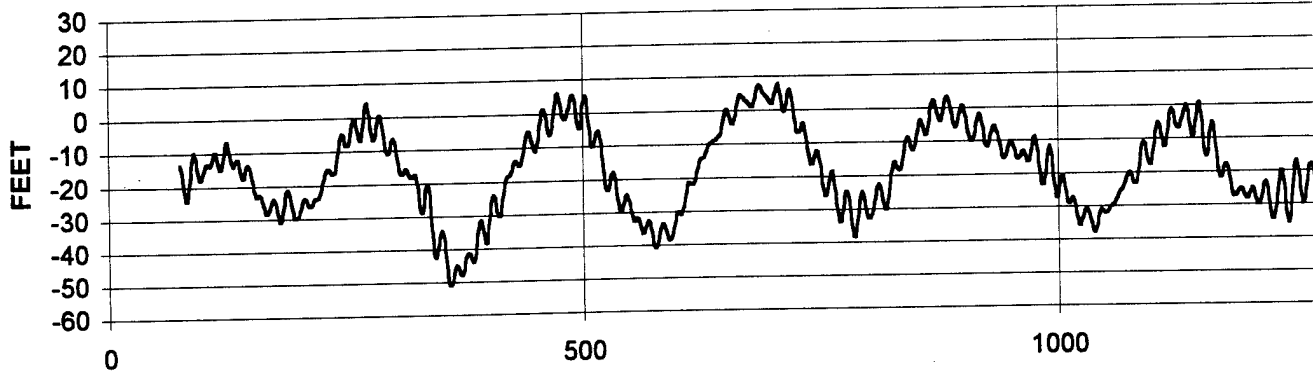
Filtered High Frequency Time History



TEST A557 - PITCH

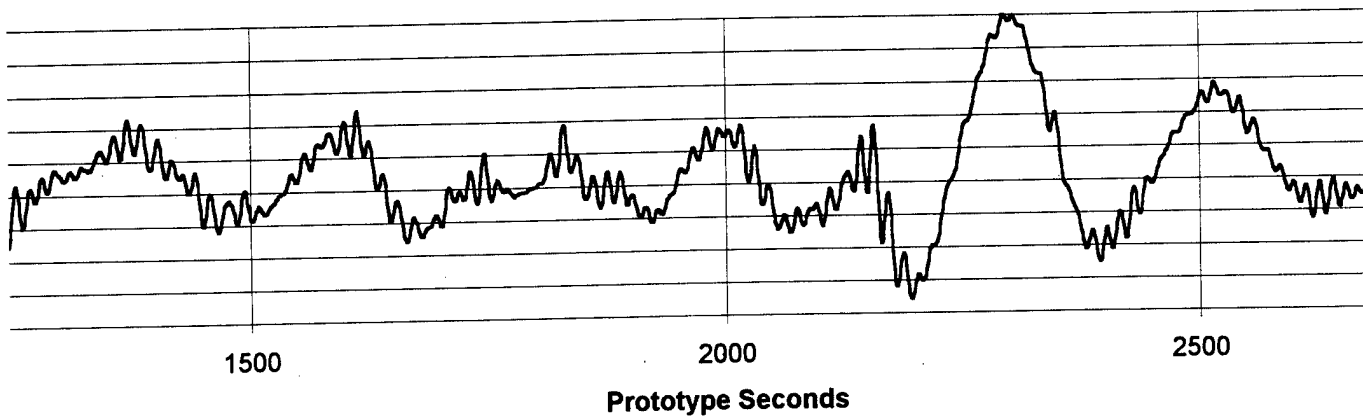


TEST A557 - PT SURGE

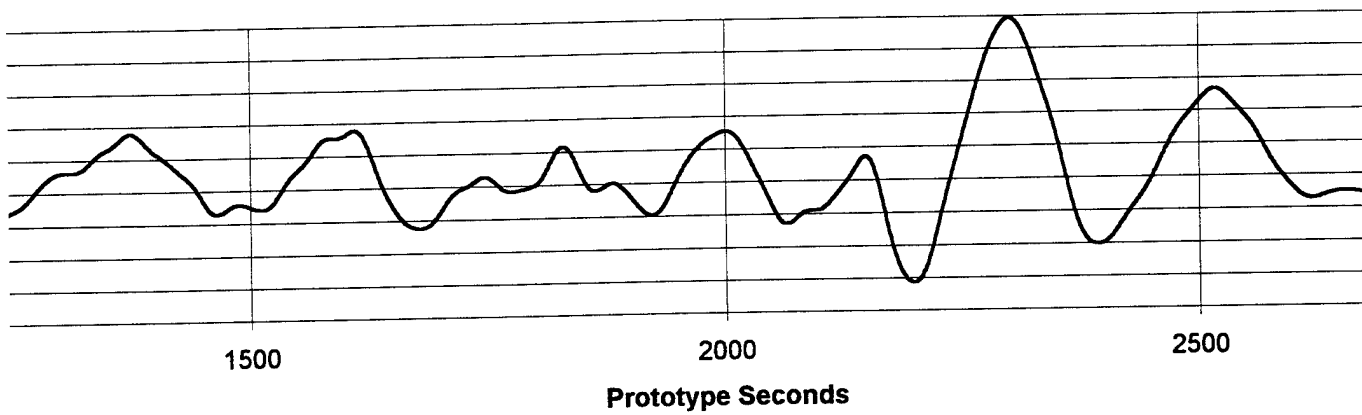


TEST A557 - PT SURGE

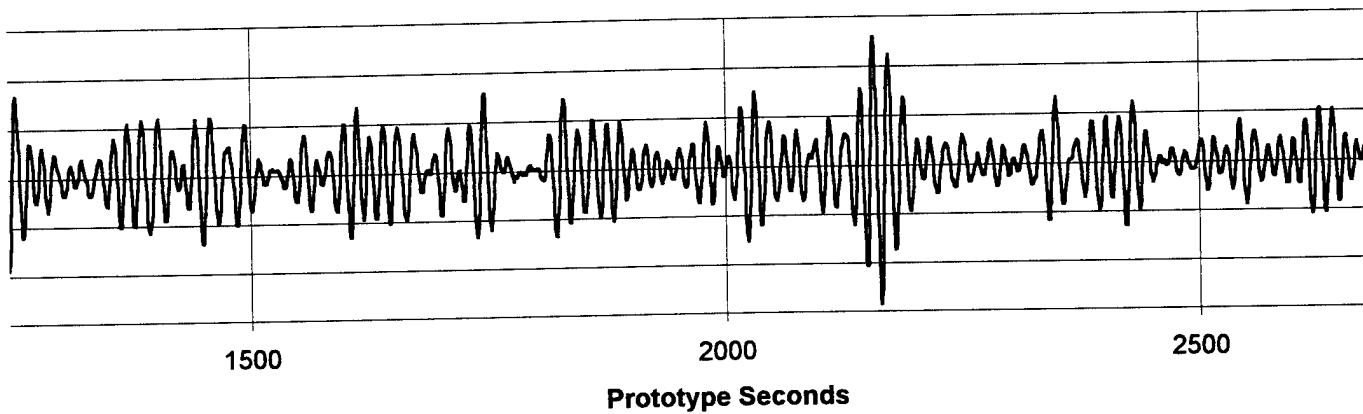
Unfiltered Time History



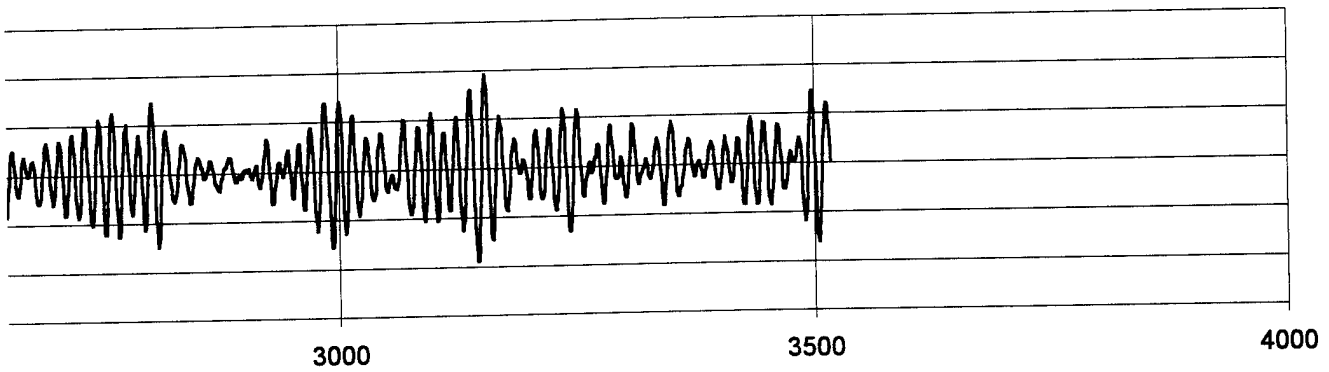
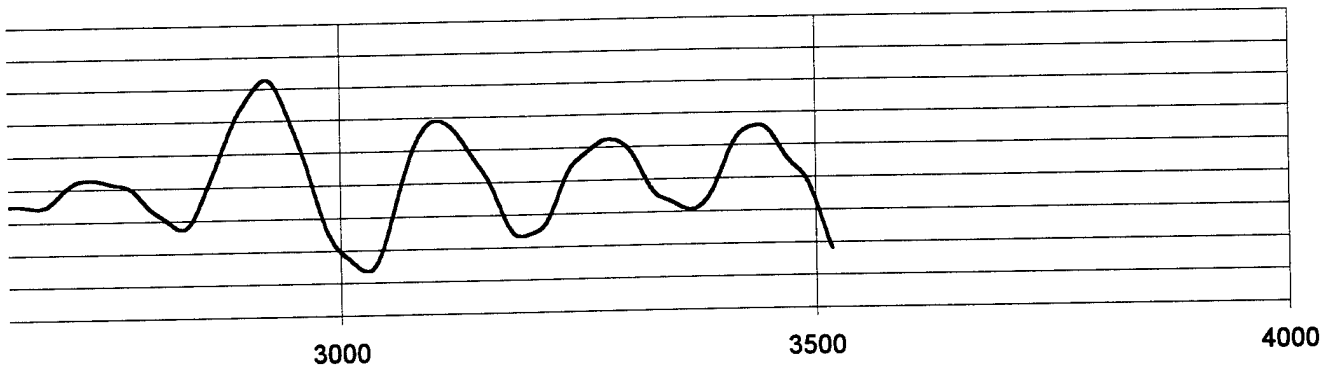
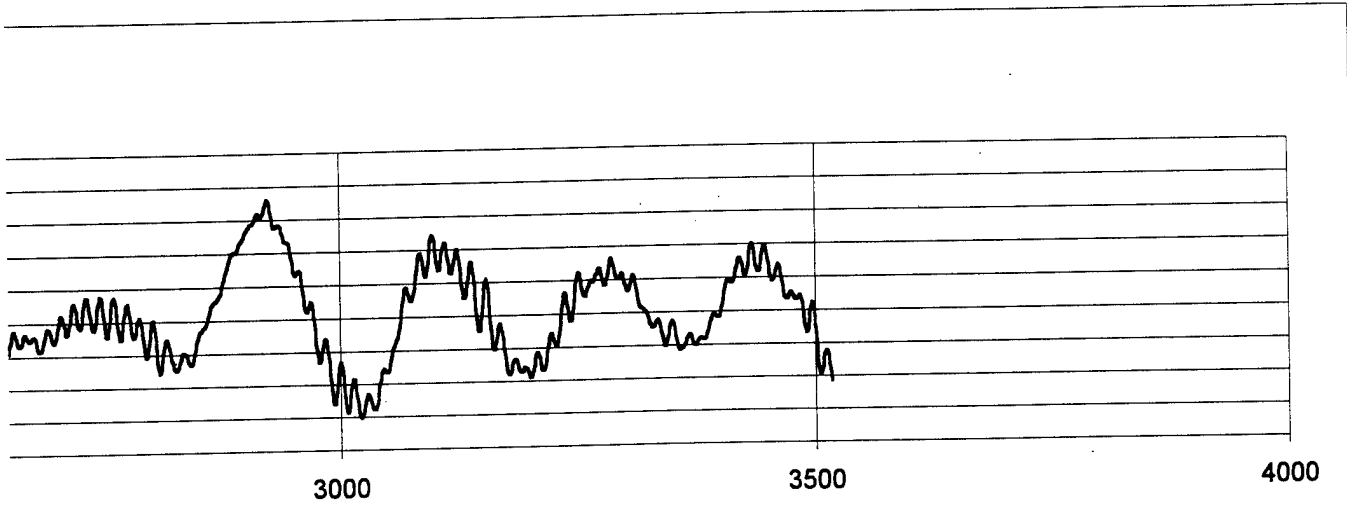
Filtered Low Frequency Time History



Filtered High Frequency Time History

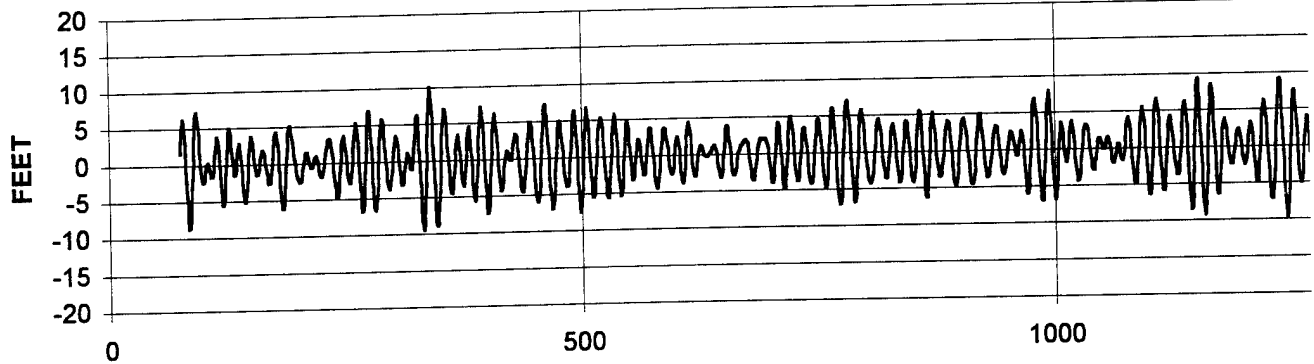
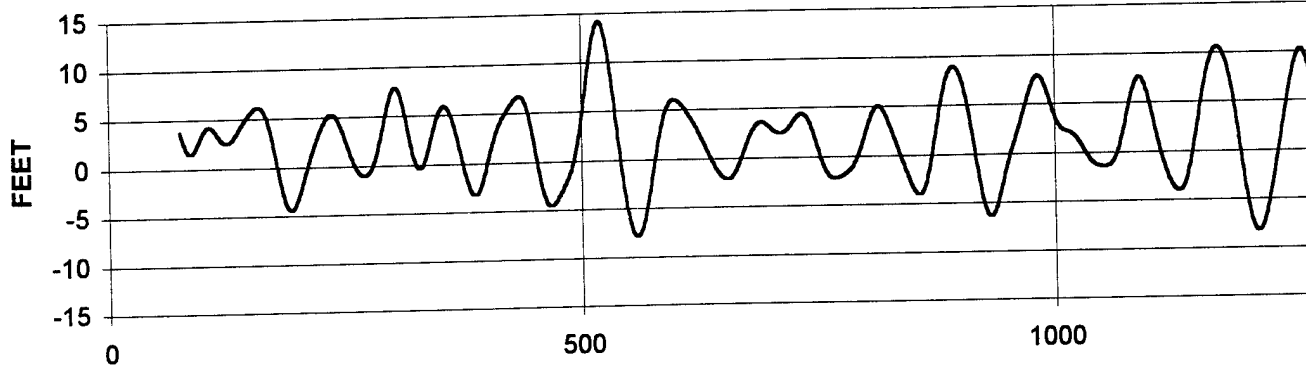
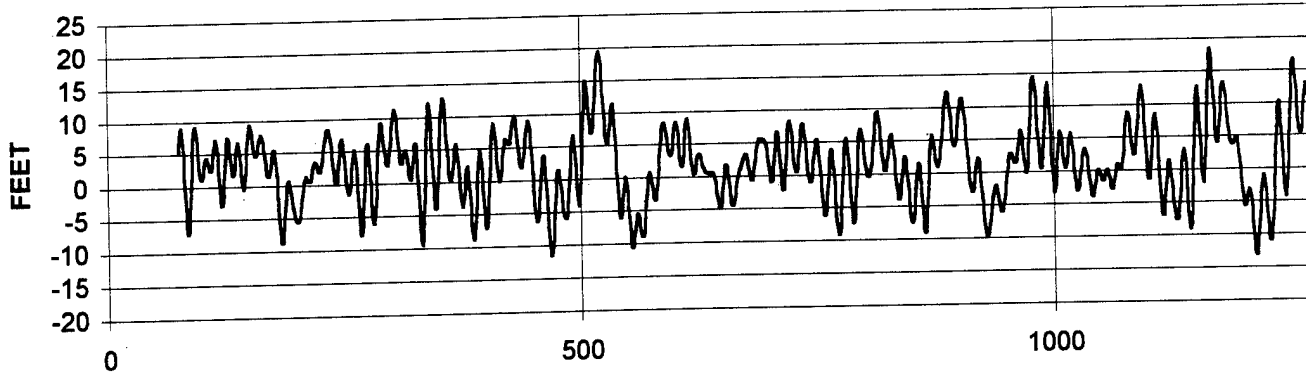


TEST A557 - PT SURGE

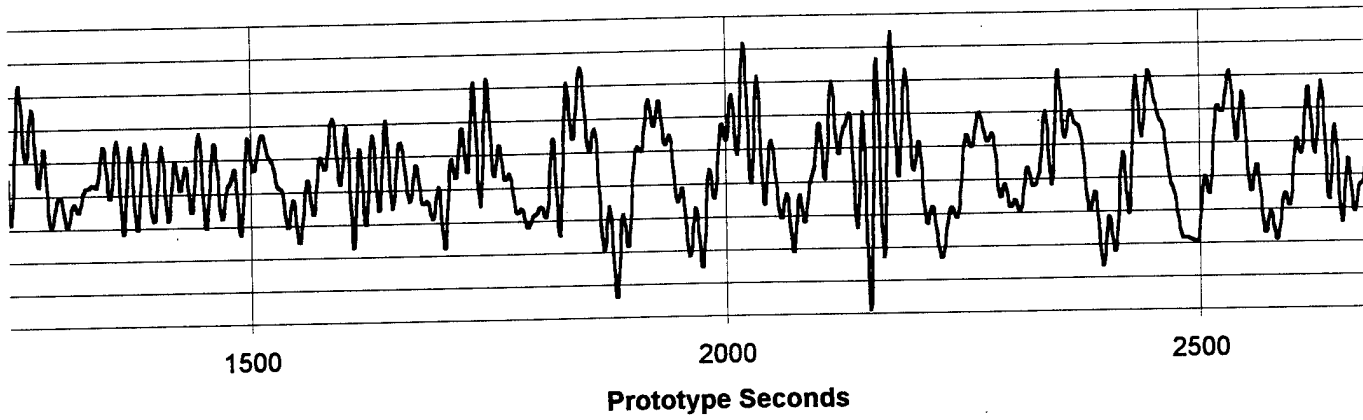




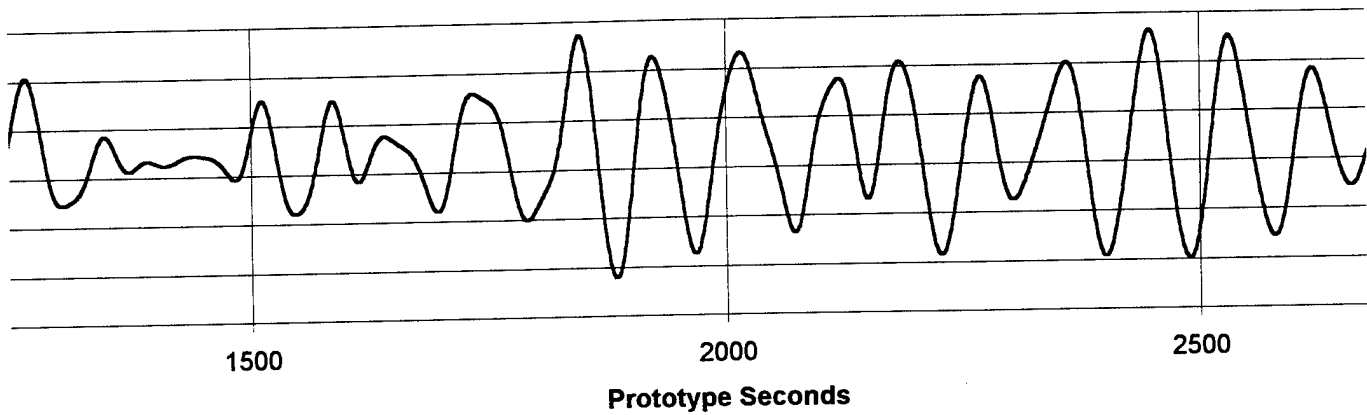
TEST A557 - PT HEAVE



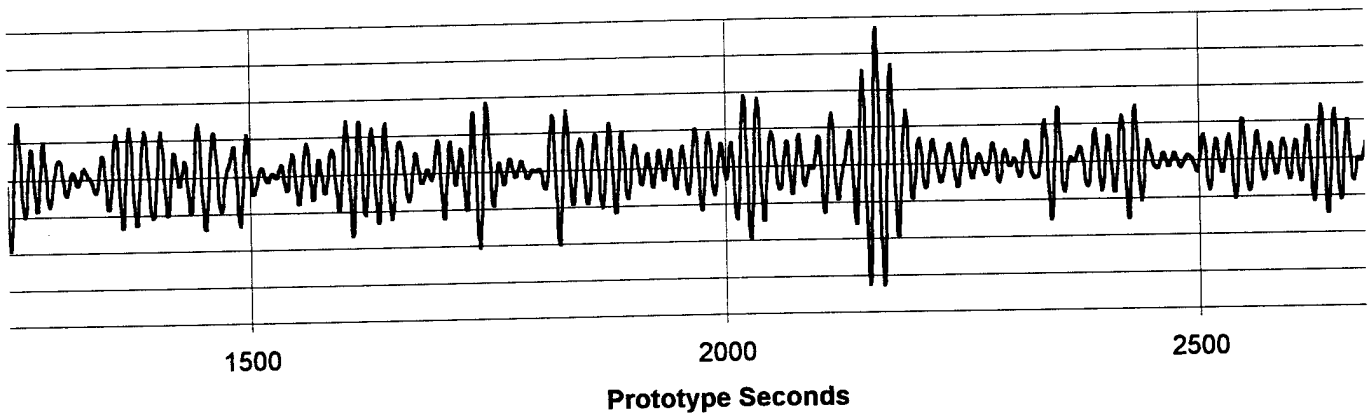
**Unfiltered Time History**



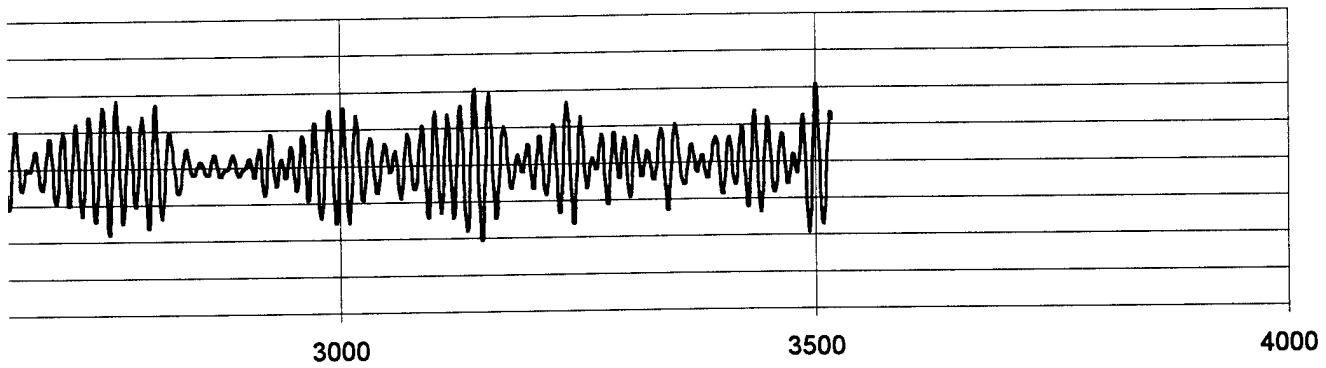
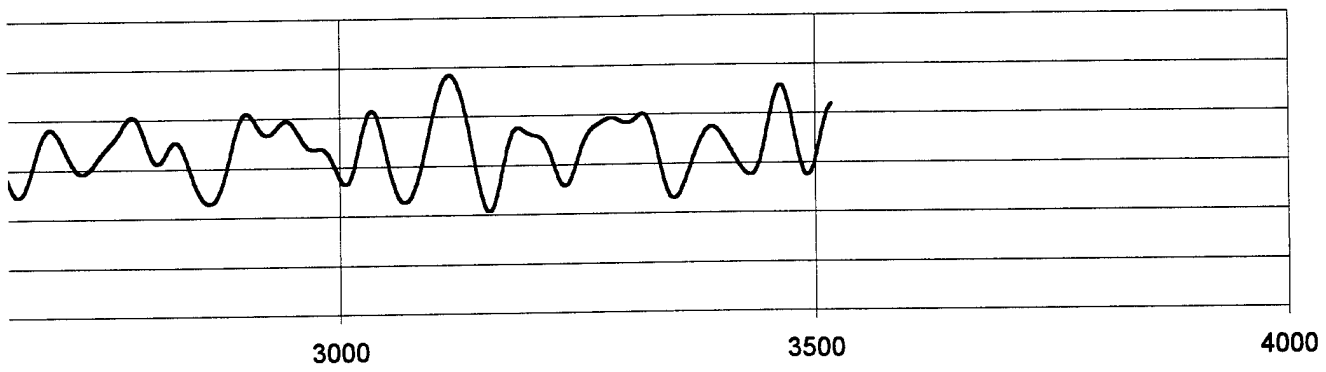
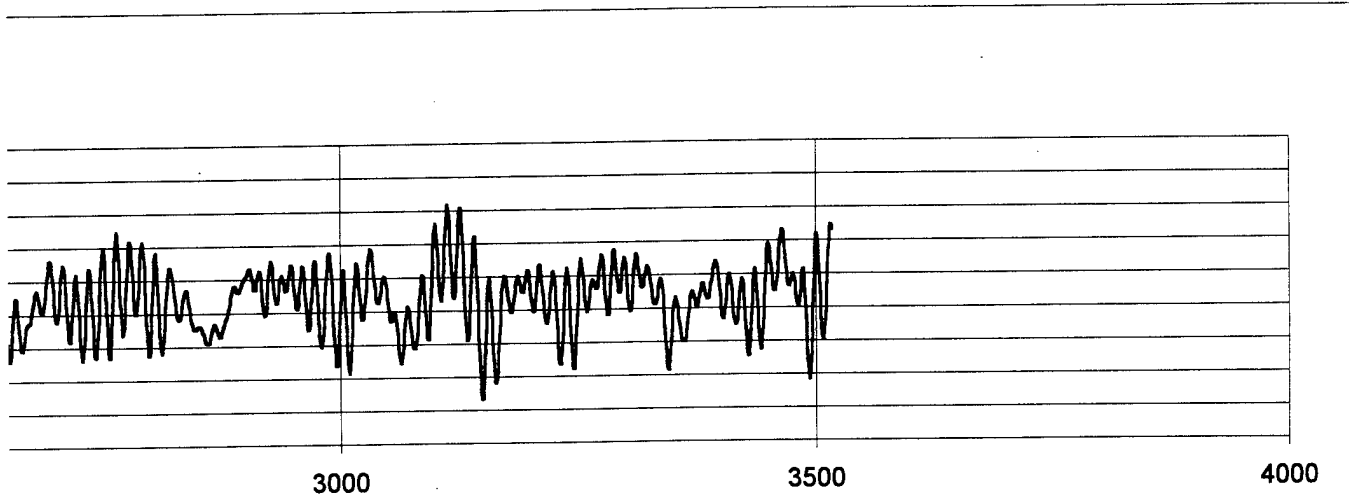
**Filtered Low Frequency Time History**



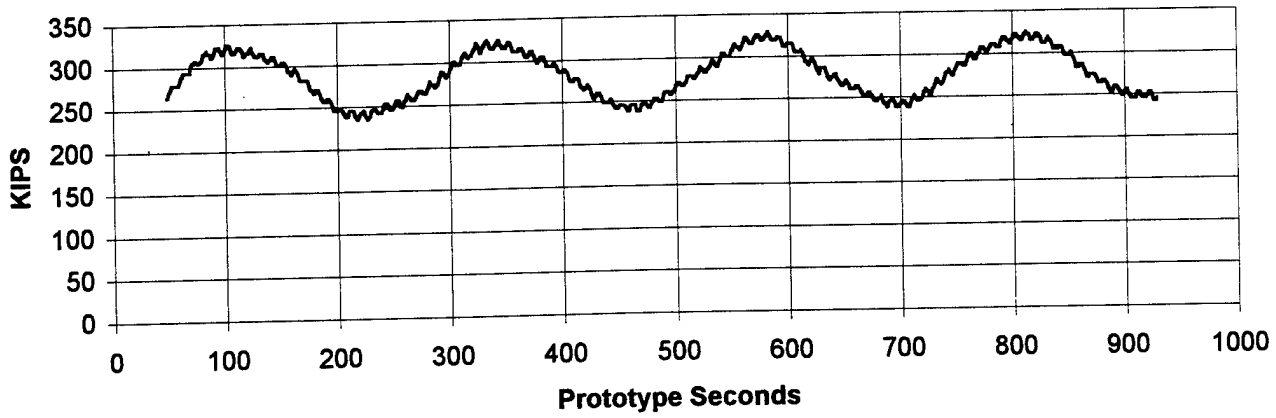
**Filtered High Frequency Time History**



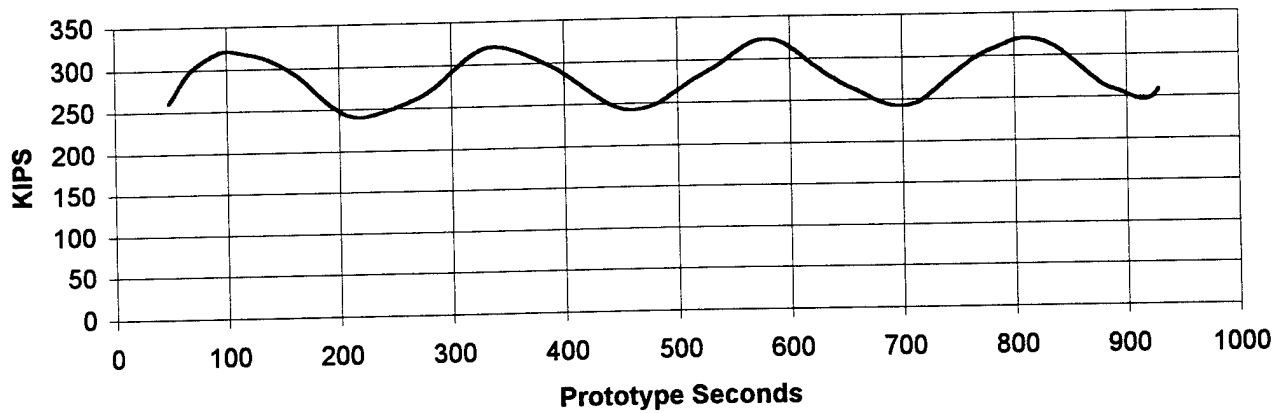
TEST A557 - PT HEAVE



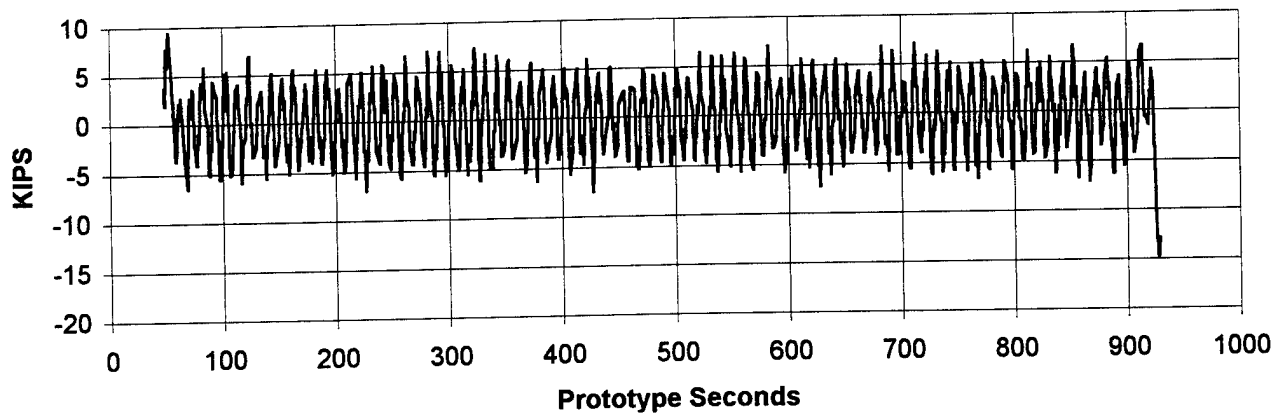
**Unfiltered Time History**



**Filtered Low Frequency Time History**

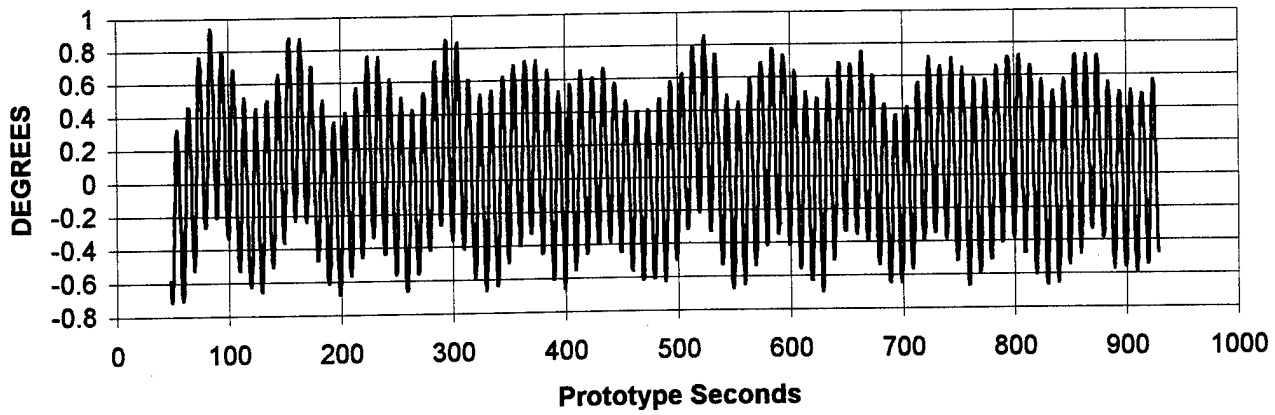


**Filtered High Frequency Time History**

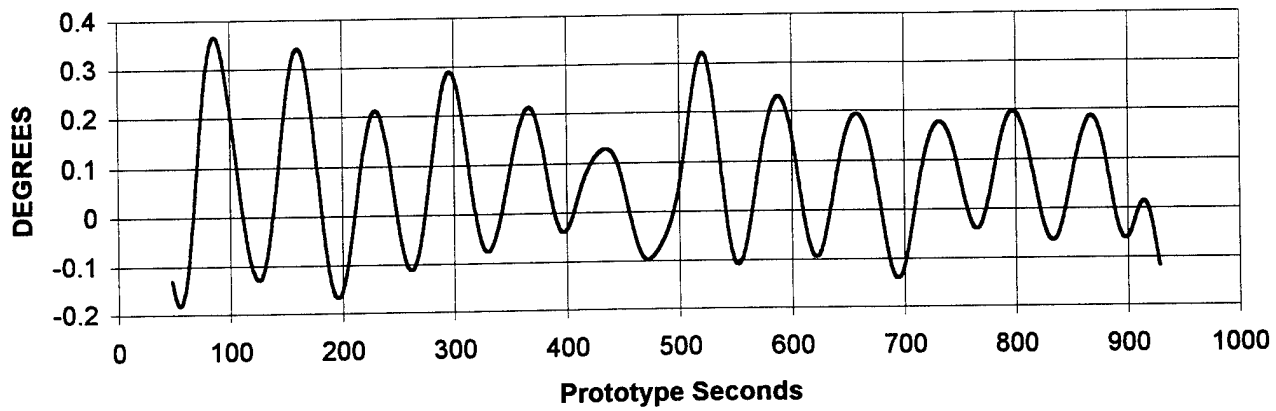


# TEST A581 - PITCH

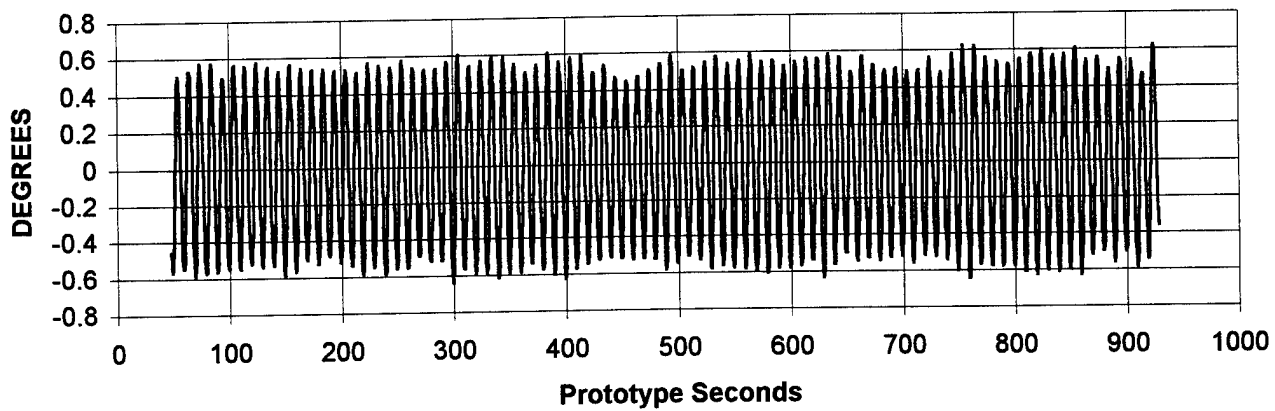
## Unfiltered Time History



## Filtered Low Frequency Time History

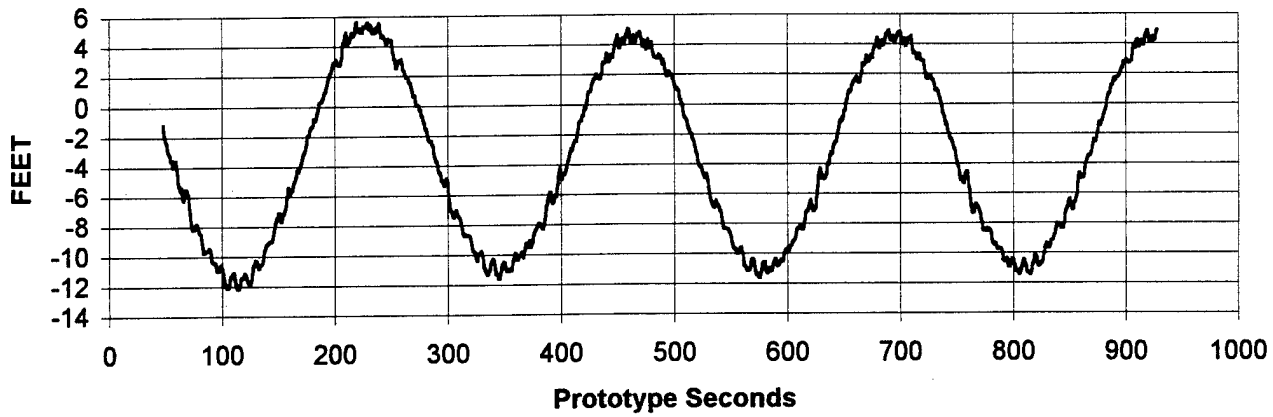


## Filtered High Frequency Time History

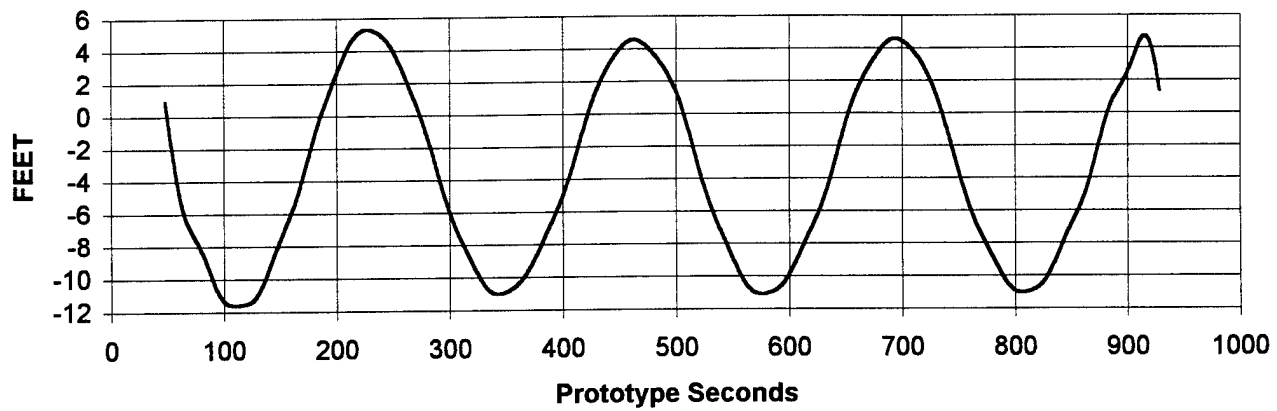


# TEST A581 - PT SURGE

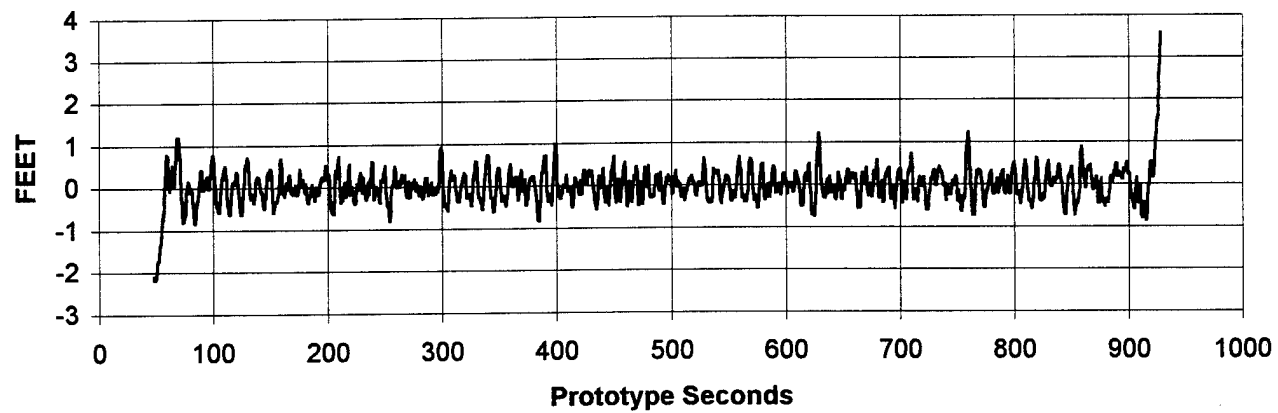
## Unfiltered Time History



## Filtered Low Frequency Time History

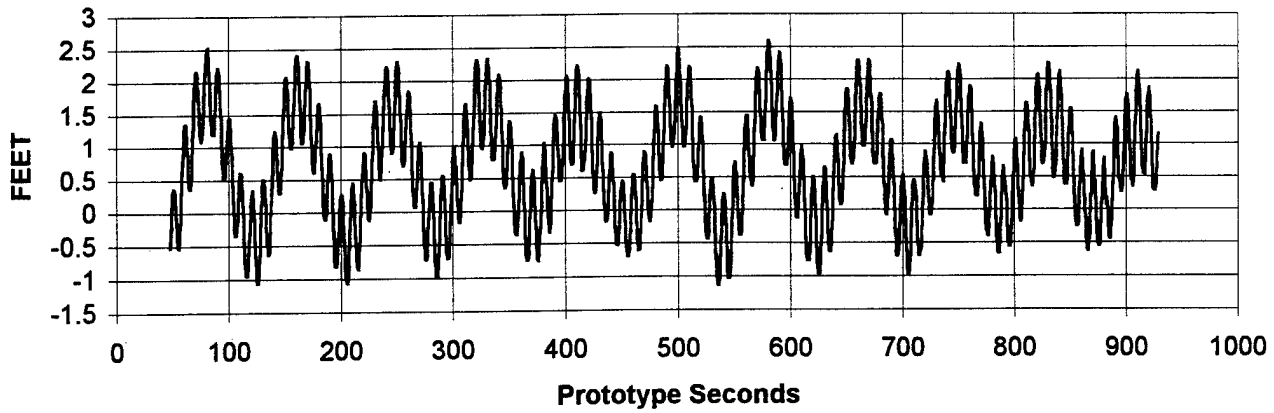


## Filtered High Frequency Time History

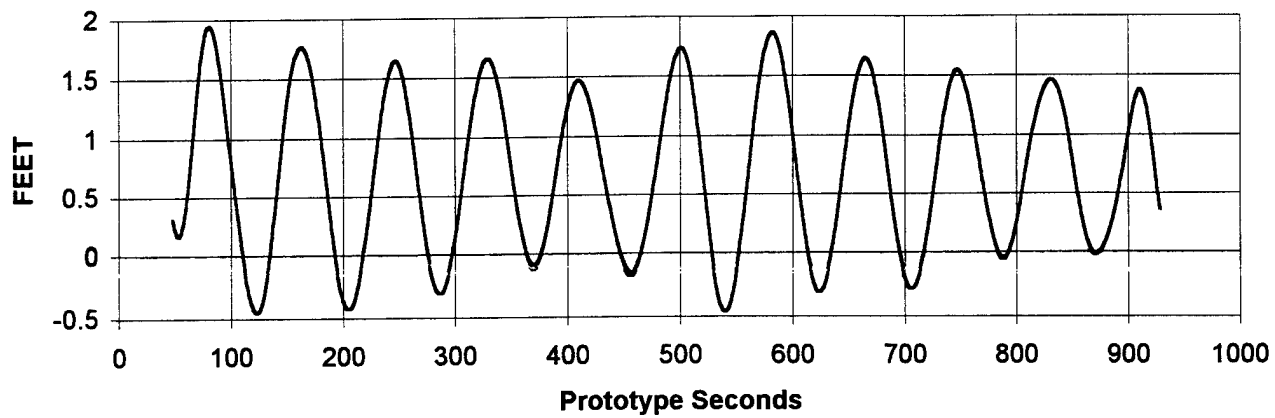


TEST A581 - PT HEAVE

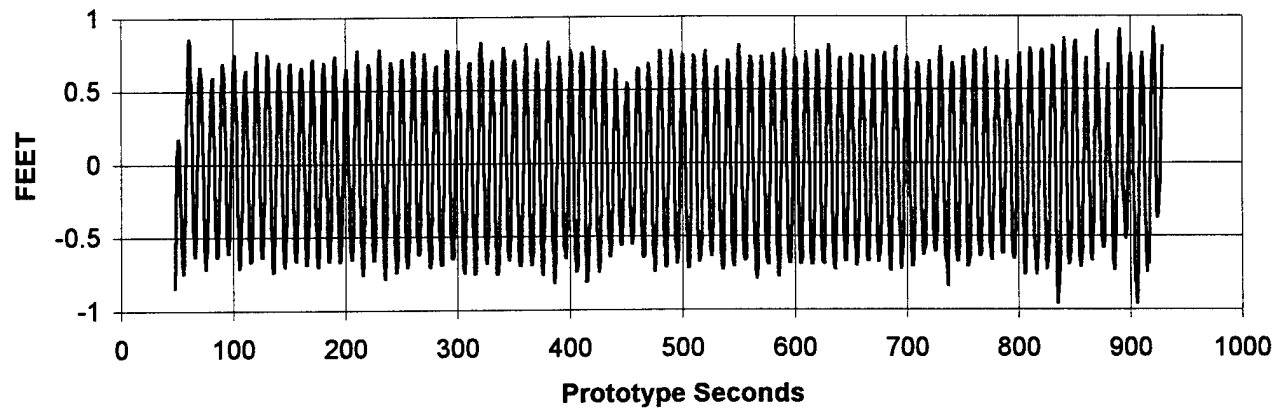
Unfiltered Time History



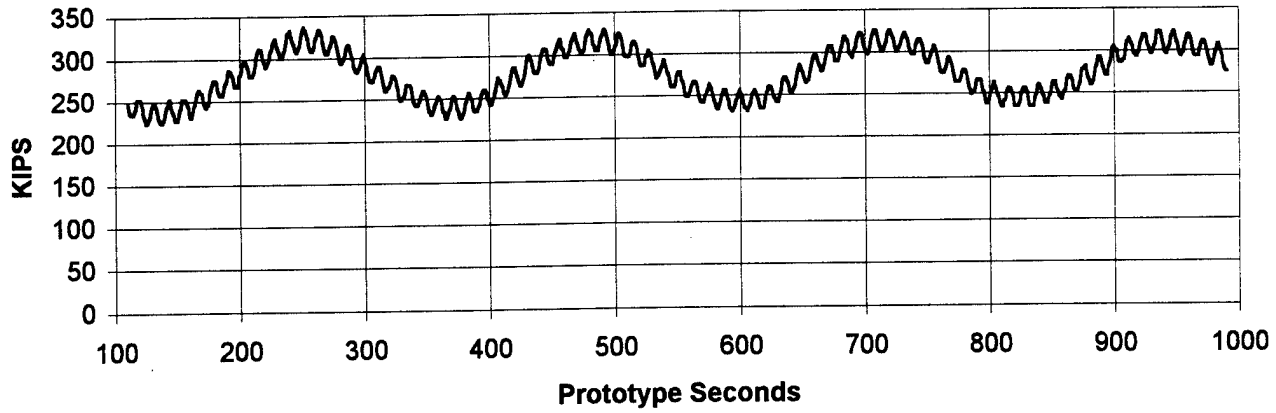
Filtered Low Frequency Time History



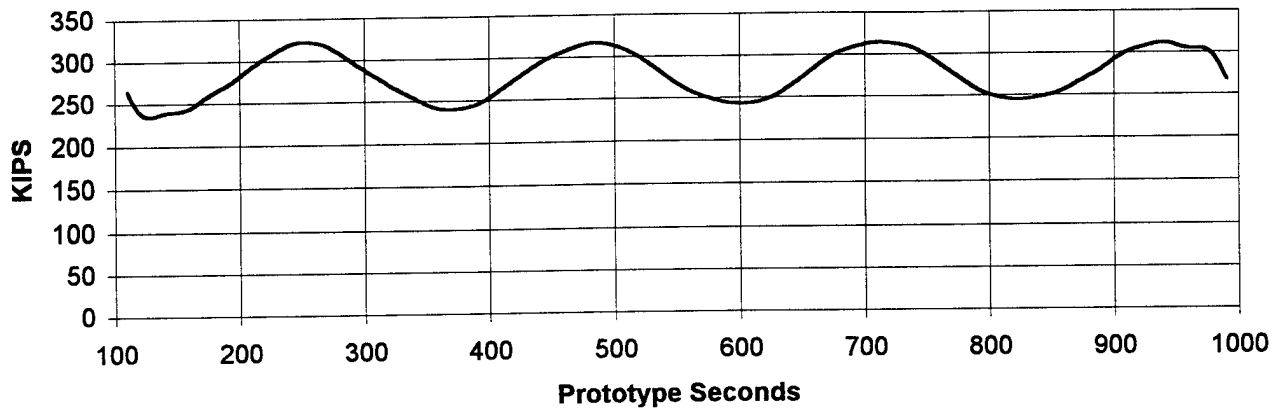
Filtered High Frequency Time History



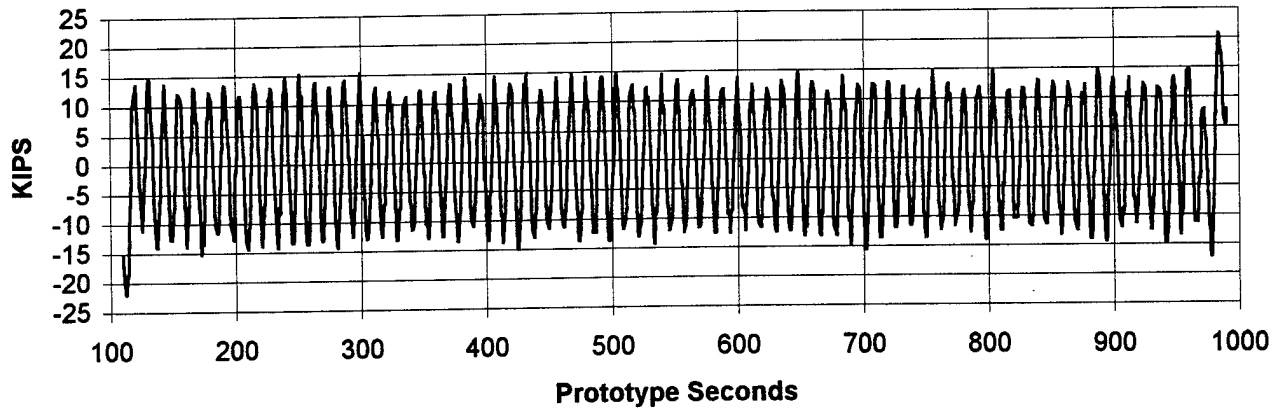
**Unfiltered Time History**



**Filtered Low Frequency Time History**



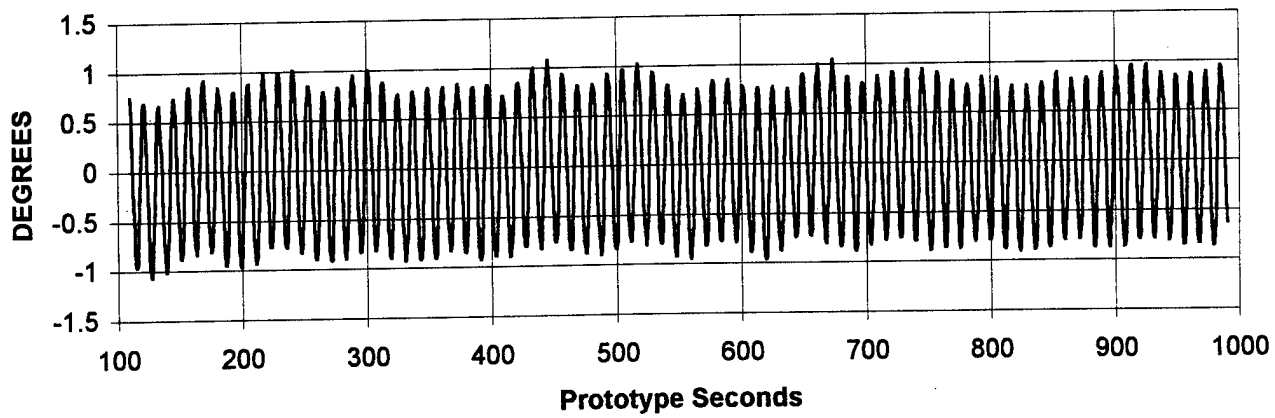
**Filtered High Frequency Time History**



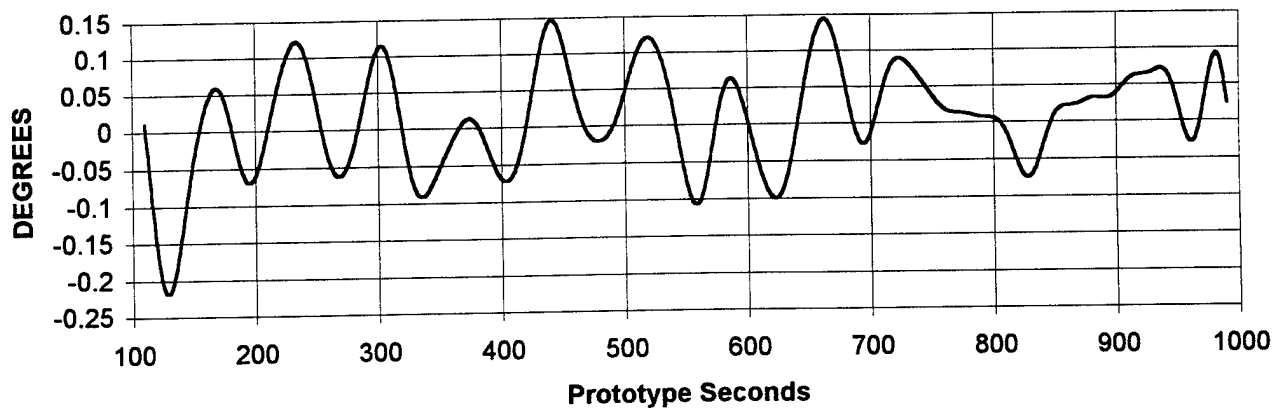


# TEST A582 - PITCH

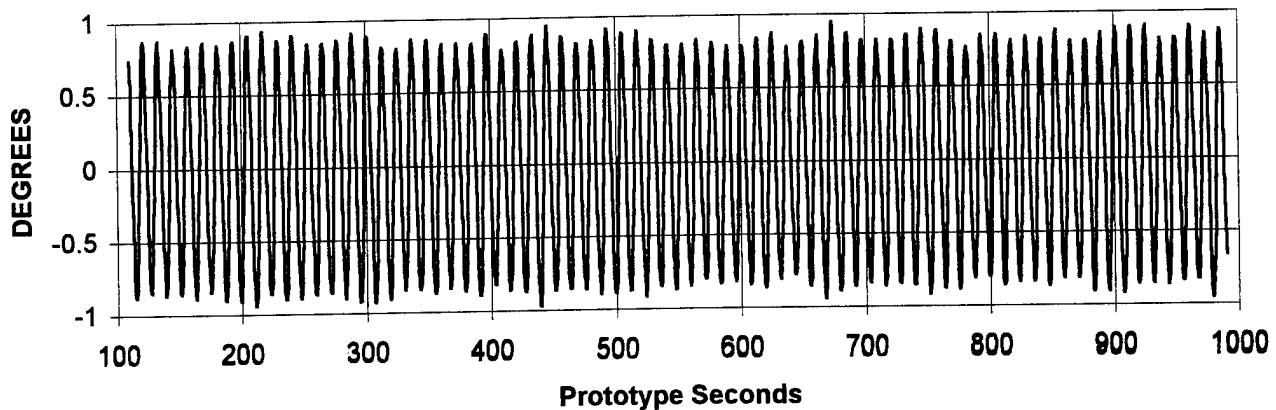
## Unfiltered Time History



## Filtered Low Frequency Time History

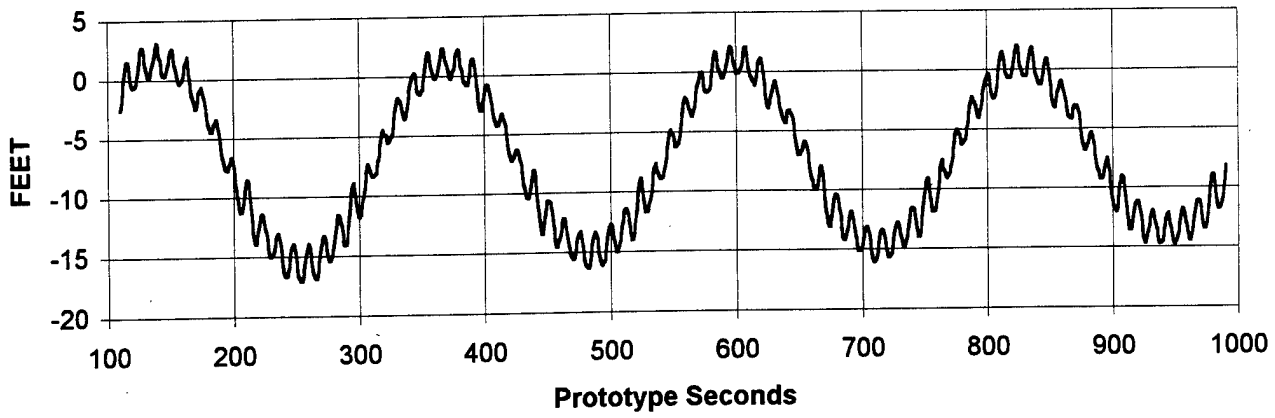


## Filtered High Frequency Time History

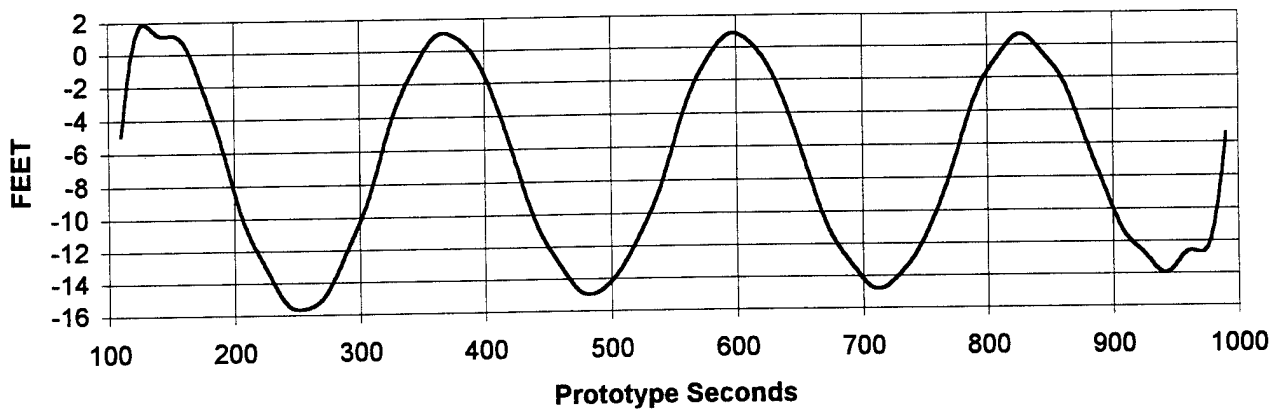


TEST A582 - PT SURGE

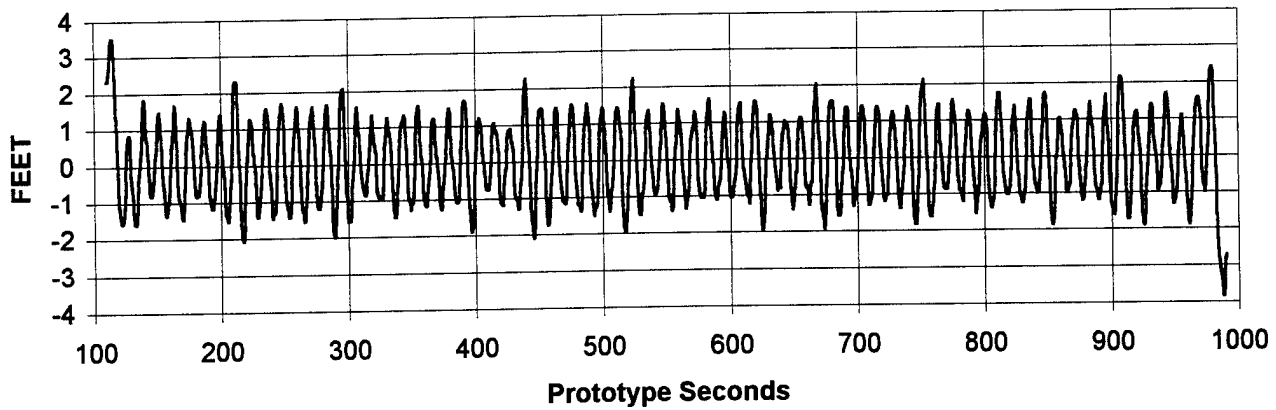
Unfiltered Time History



Filtered Low Frequency Time History

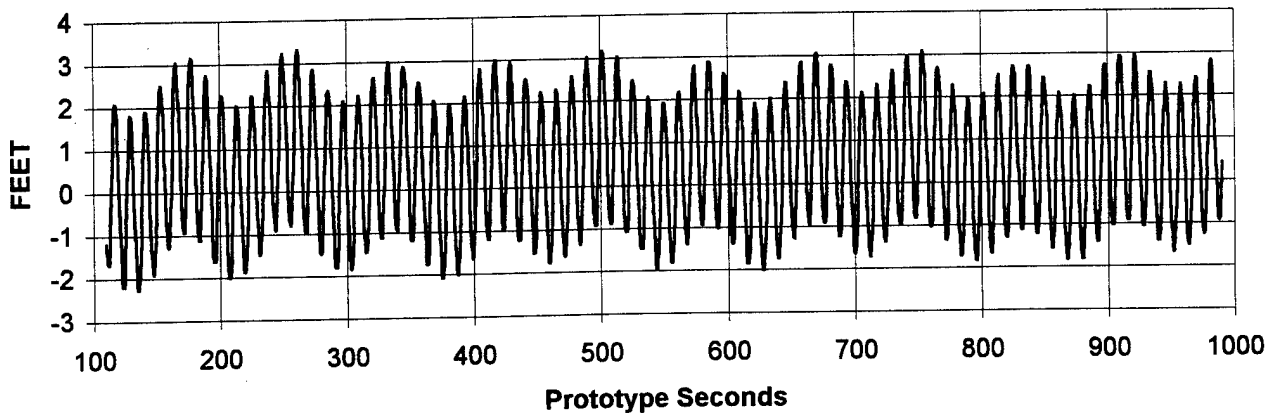


Filtered High Frequency Time History

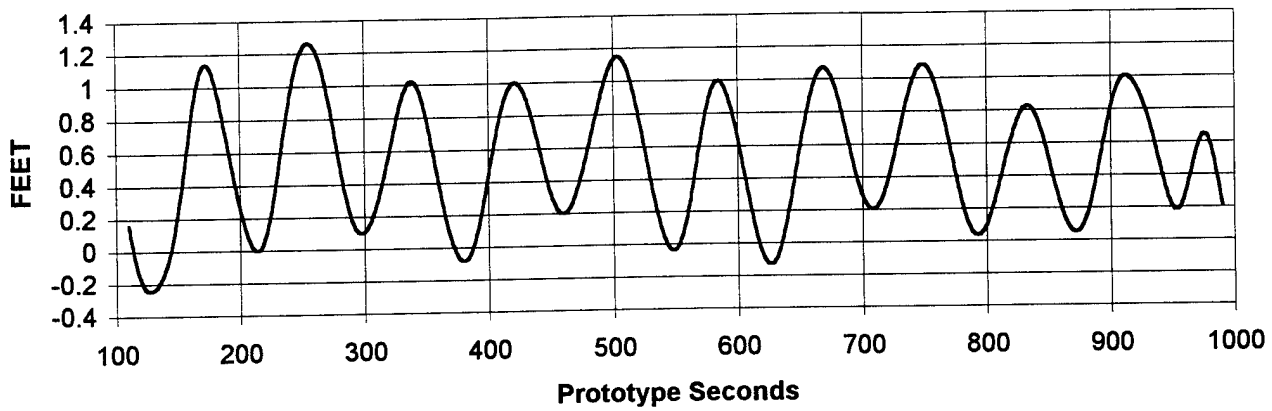


TEST A582 - PT HEAVE

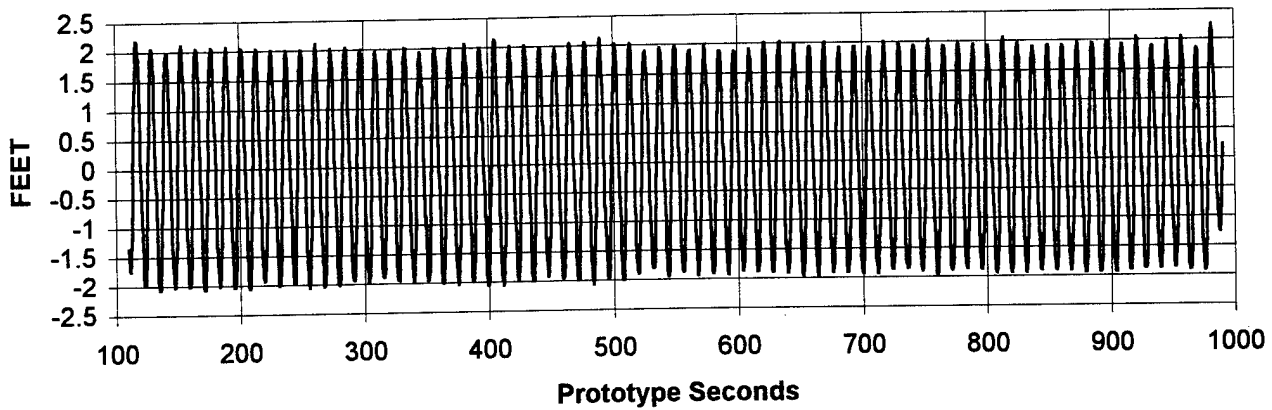
Unfiltered Time History



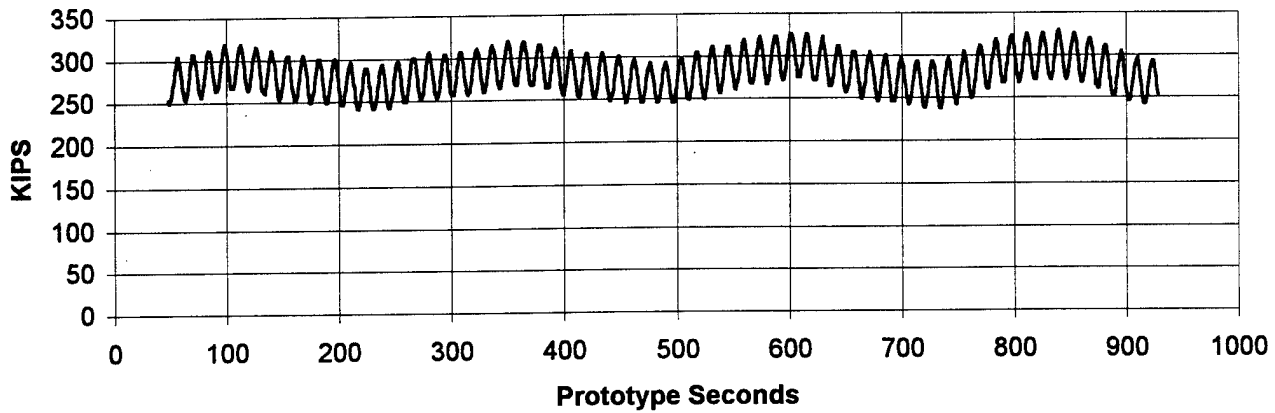
Filtered Low Frequency Time History



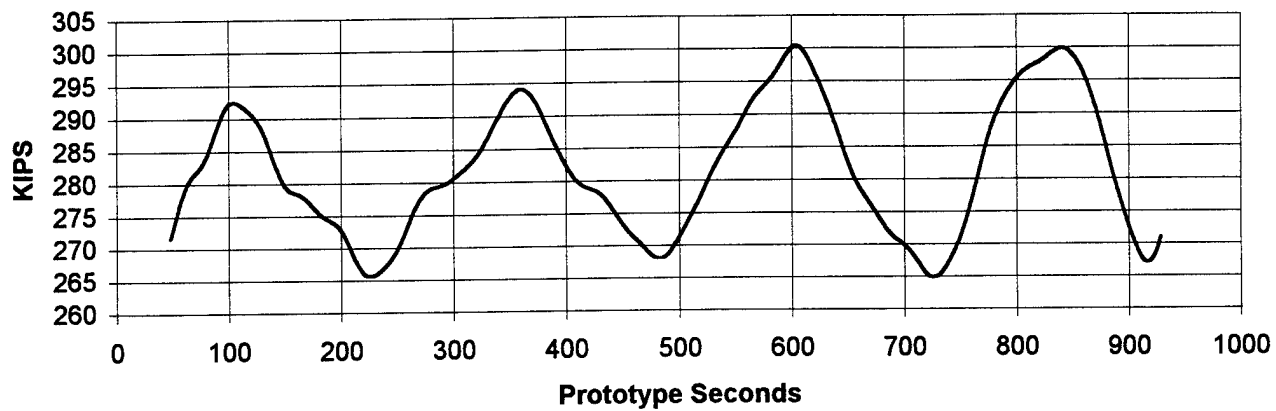
Filtered High Frequency Time History



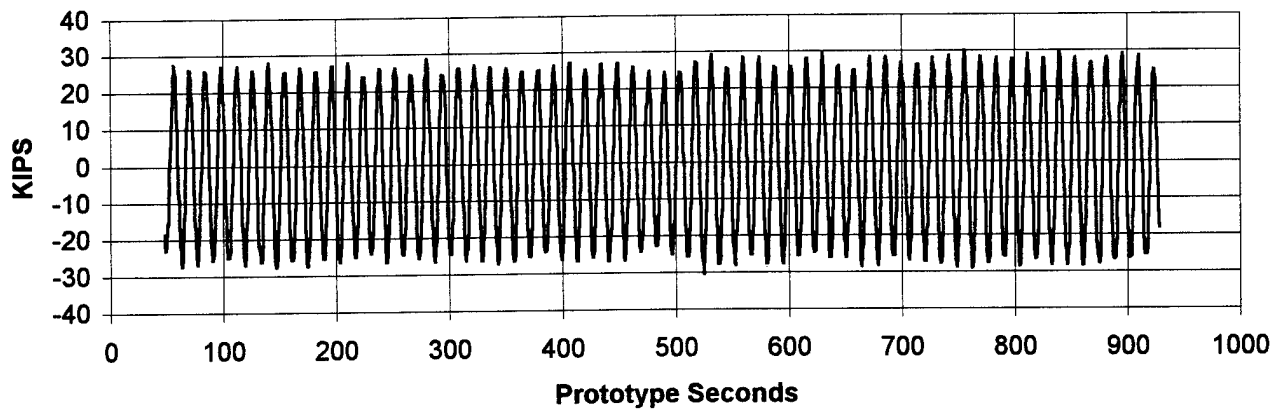
**Unfiltered Time History**



**Filtered Low Frequency Time History**

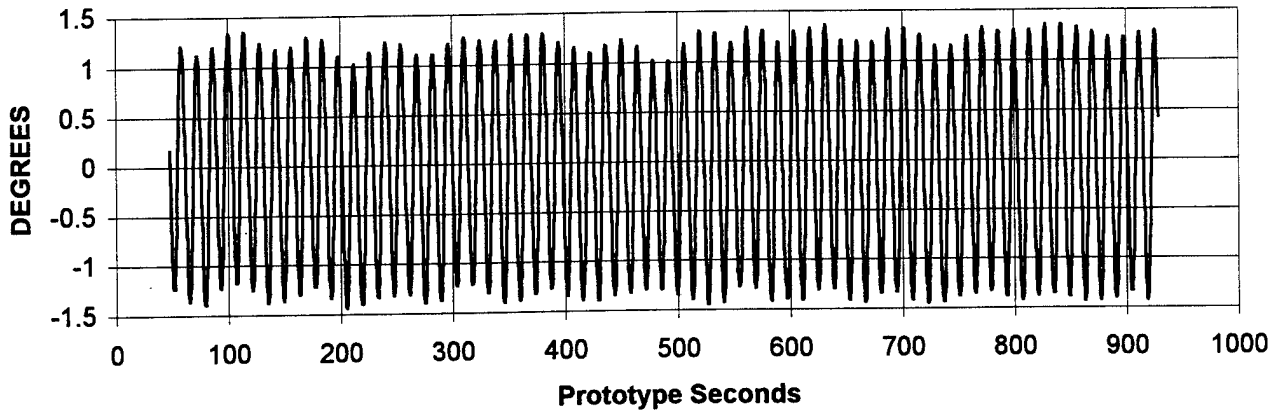


**Filtered High Frequency Time History**

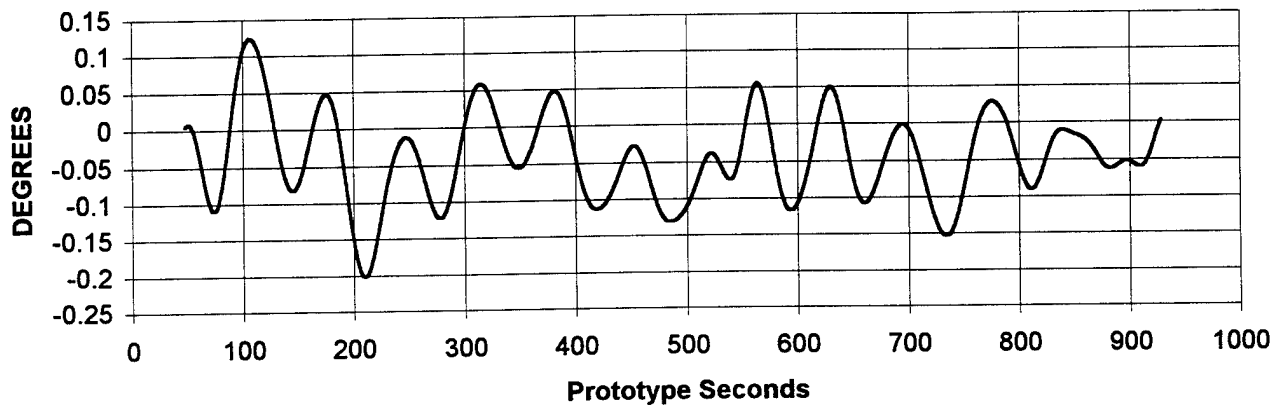


# TEST A583 - PITCH

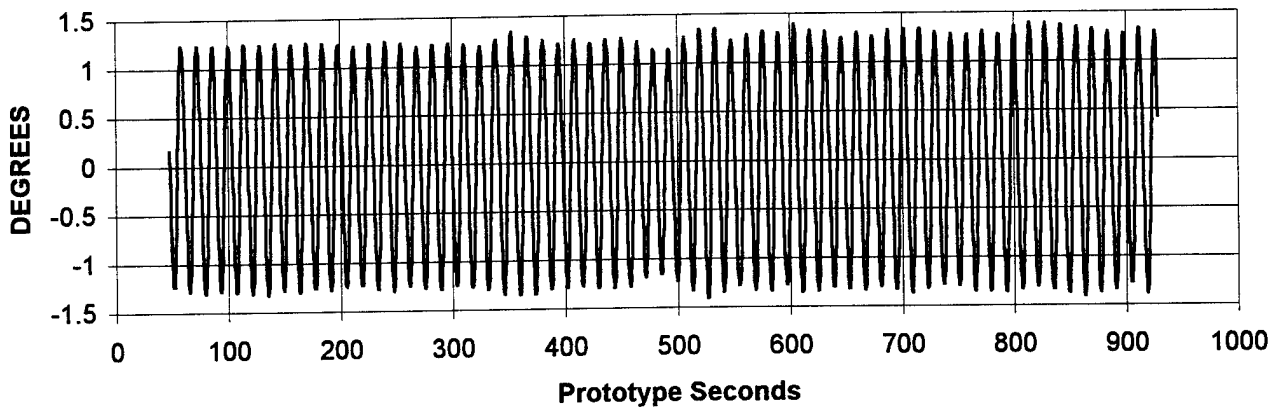
## Unfiltered Time History



## Filtered Low Frequency Time History

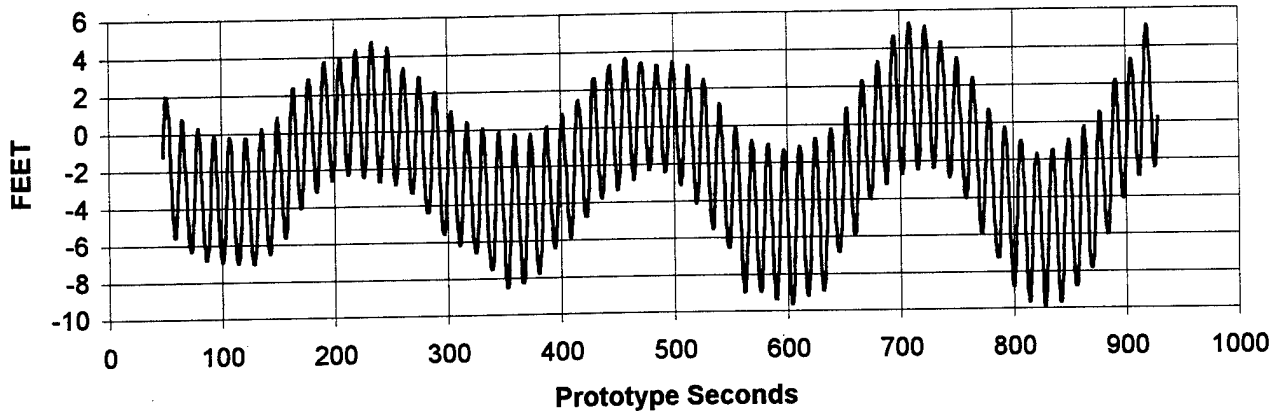


## Filtered High Frequency Time History

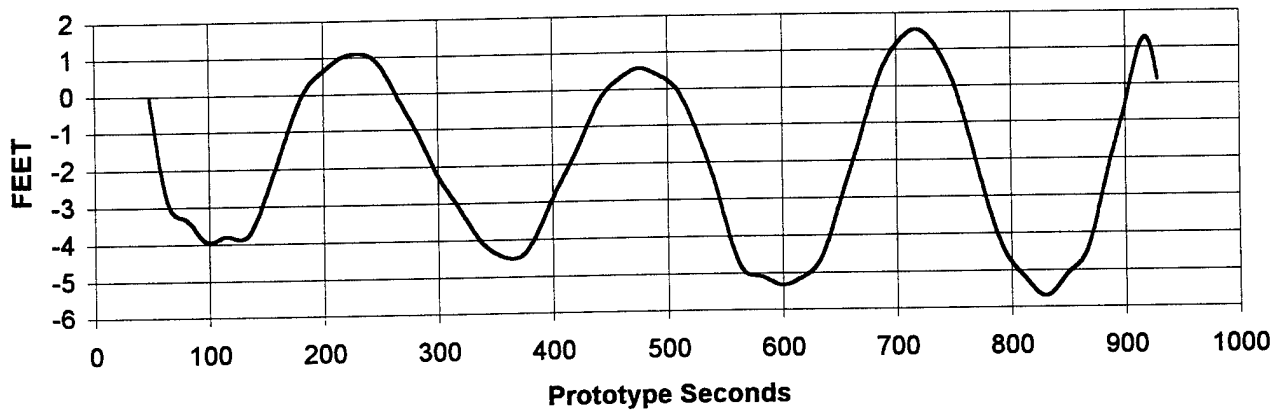


TEST A583 - PT SURGE

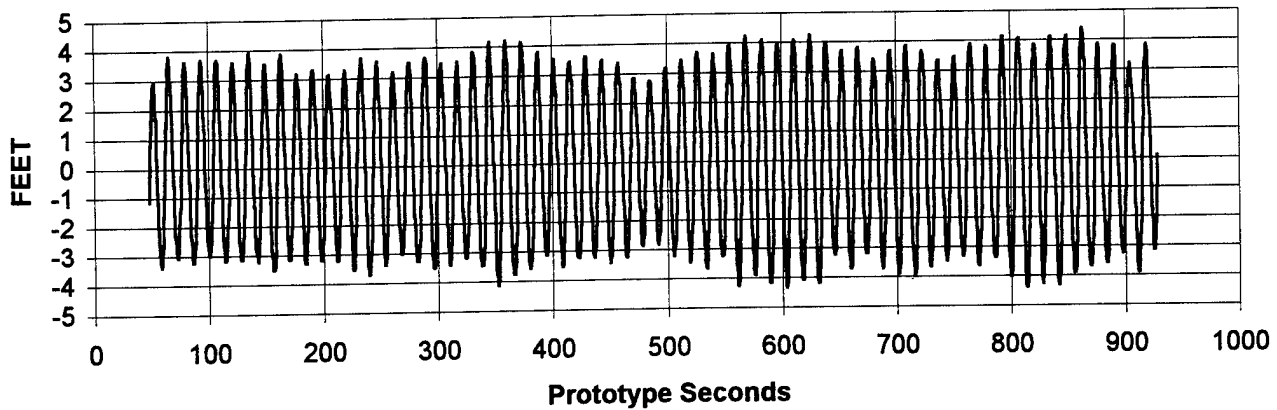
Unfiltered Time History



Filtered Low Frequency Time History

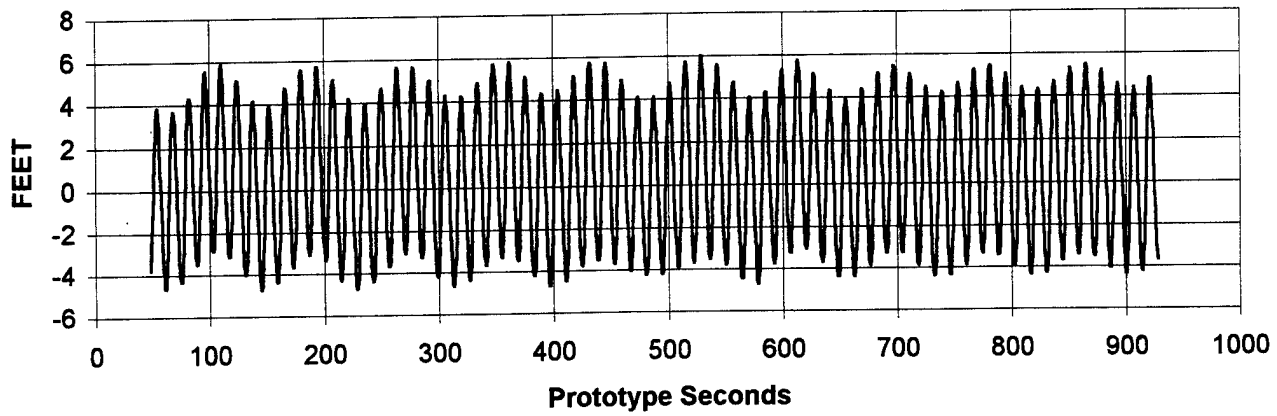


Filtered High Frequency Time History

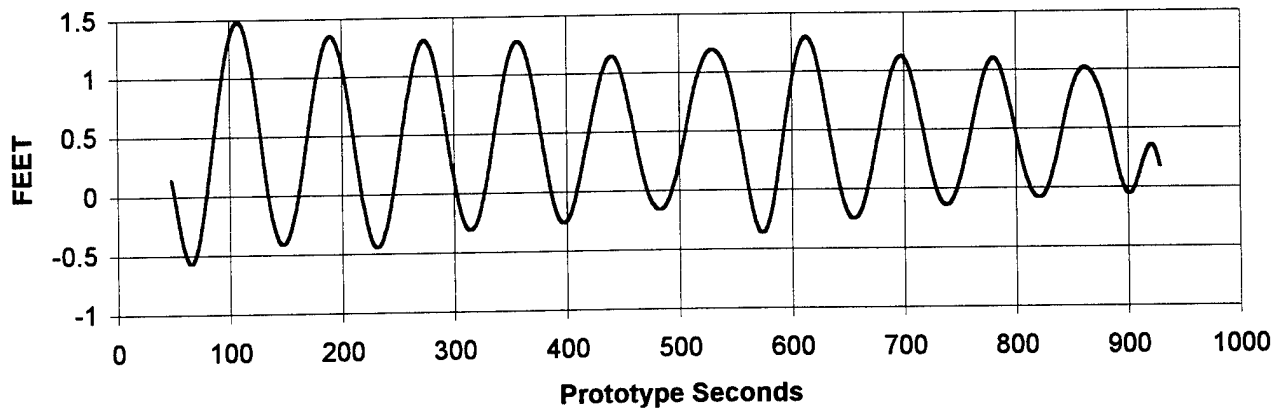


TEST A583 - PT HEAVE

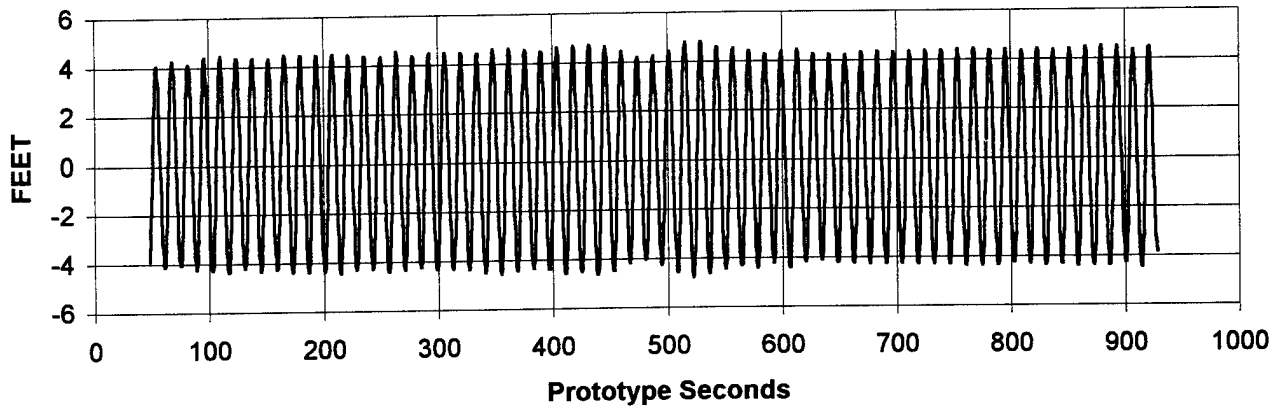
Unfiltered Time History



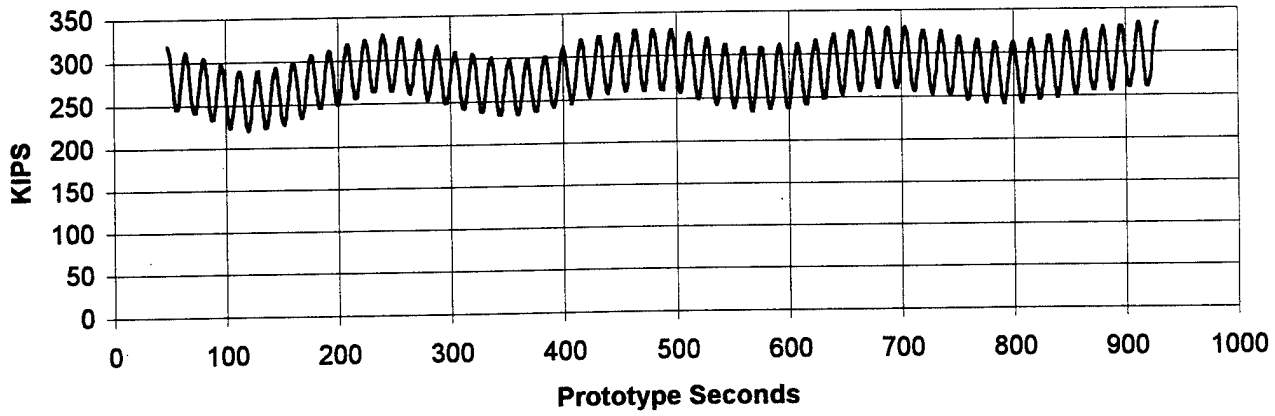
Filtered Low Frequency Time History



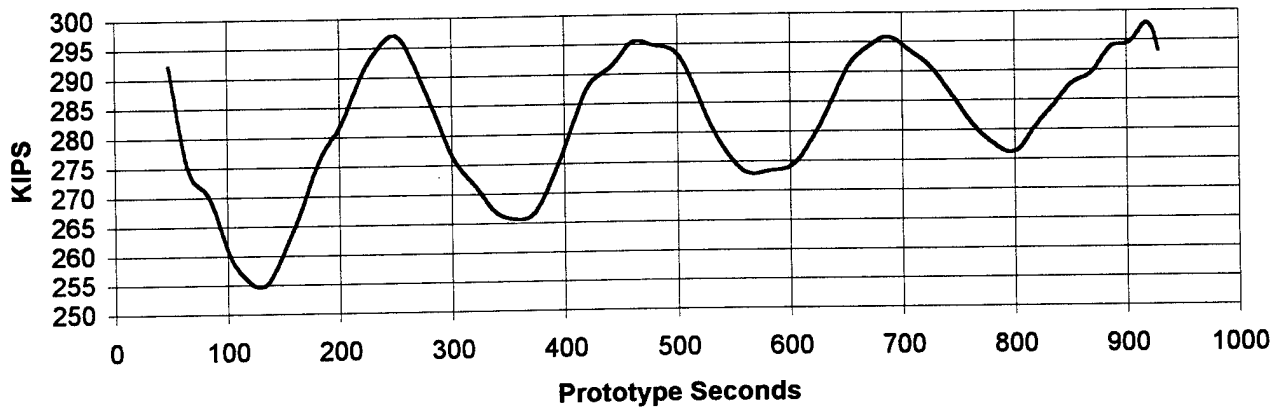
Filtered High Frequency Time History



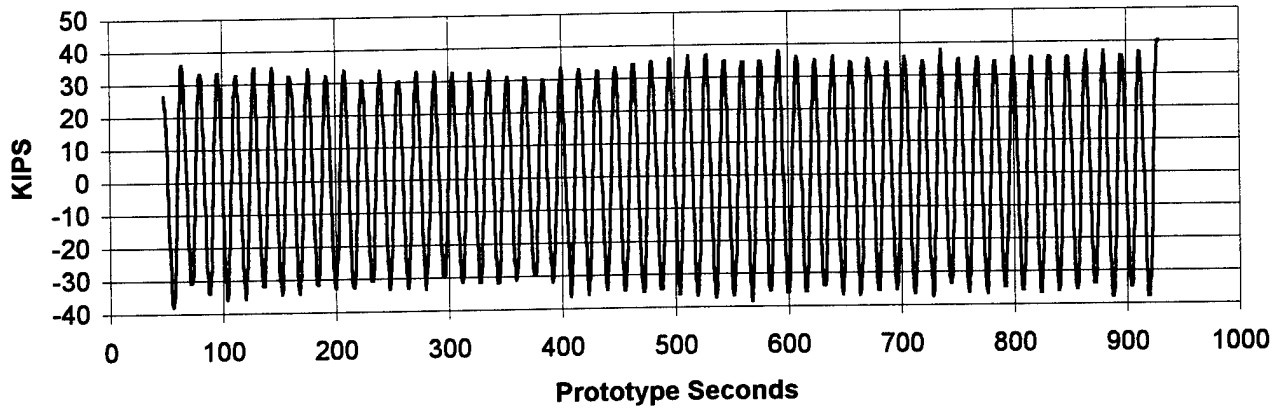
**Unfiltered Time History**



**Filtered Low Frequency Time History**



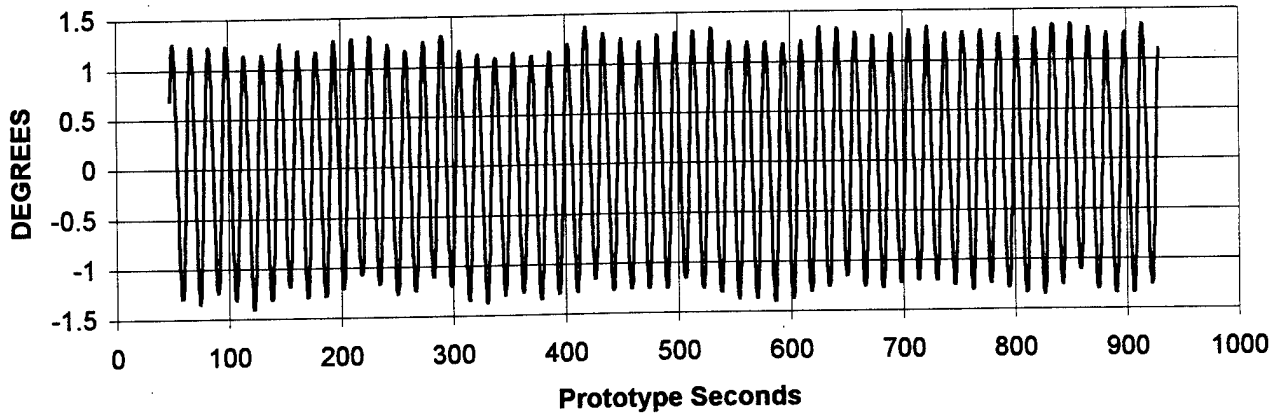
**Filtered High Frequency Time History**



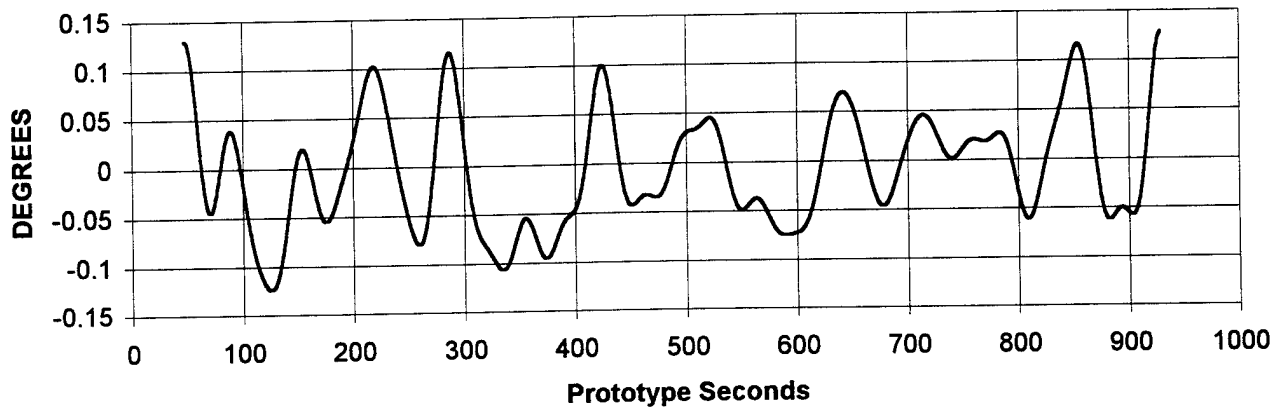


# TEST A584 - PITCH

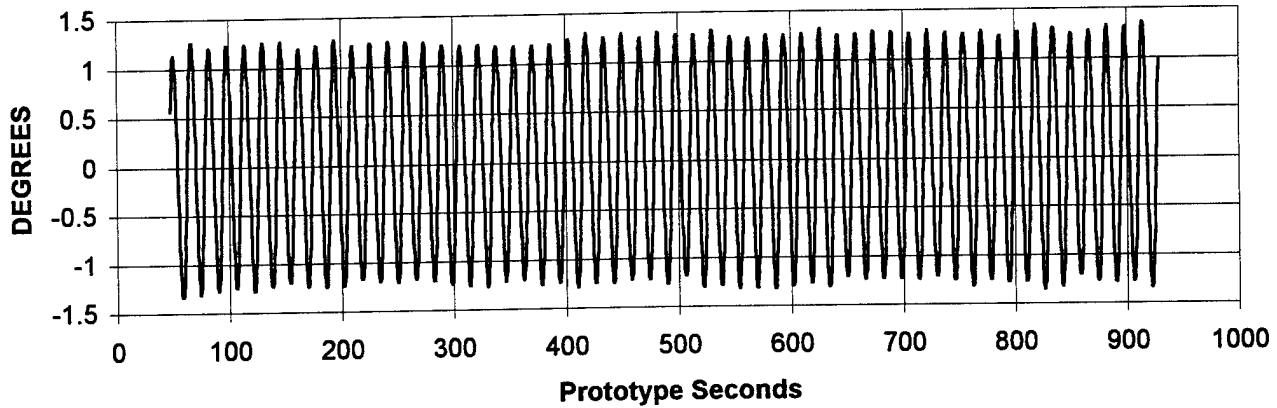
## Unfiltered Time History



## Filtered Low Frequency Time History

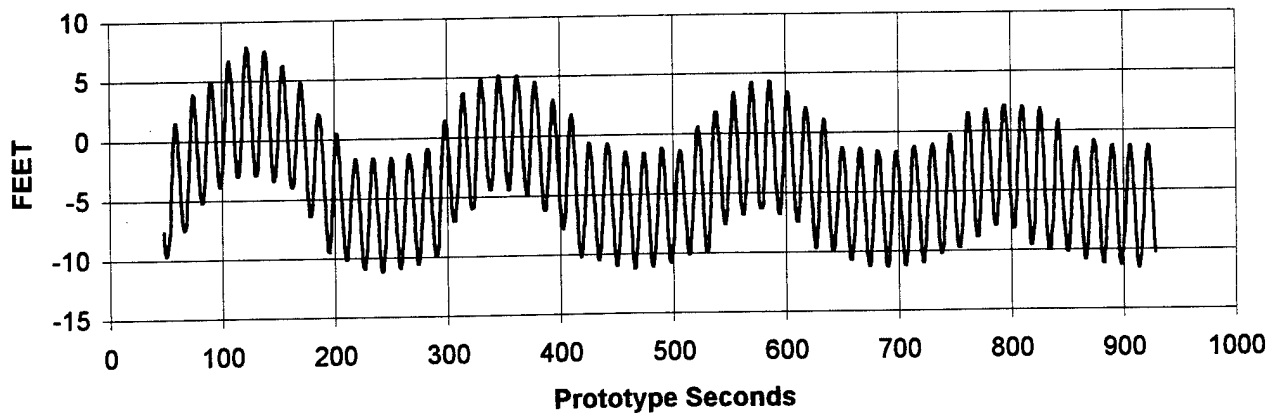


## Filtered High Frequency Time History

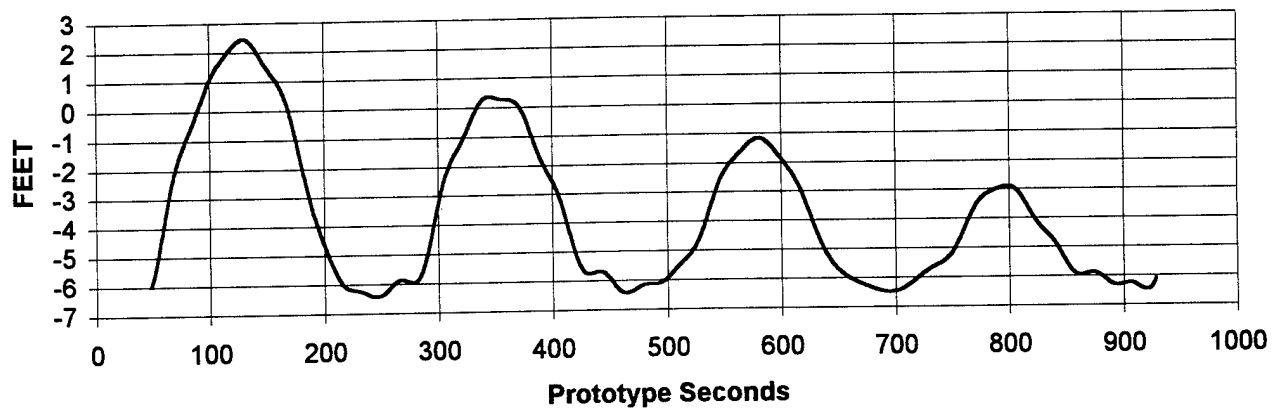


TEST A584 - PT SURGE

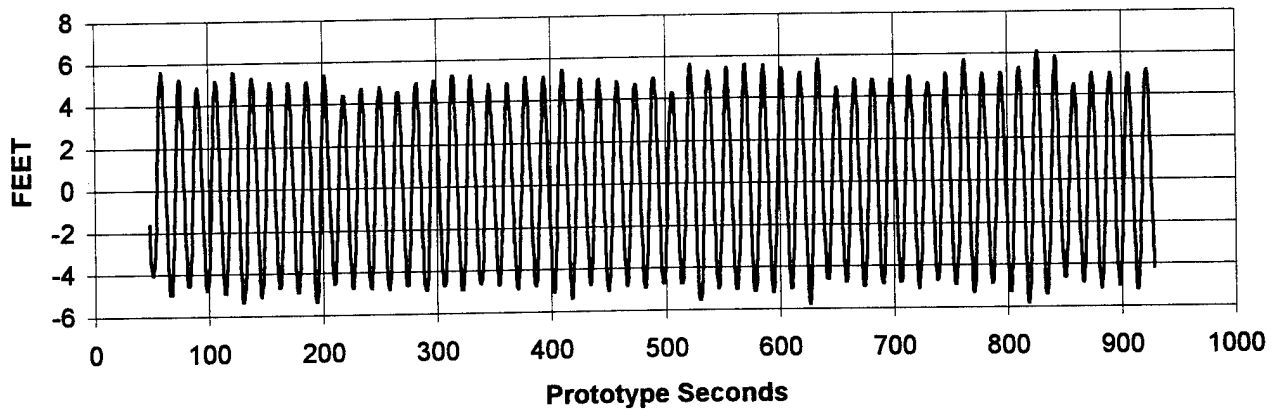
Unfiltered Time History



Filtered Low Frequency Time History

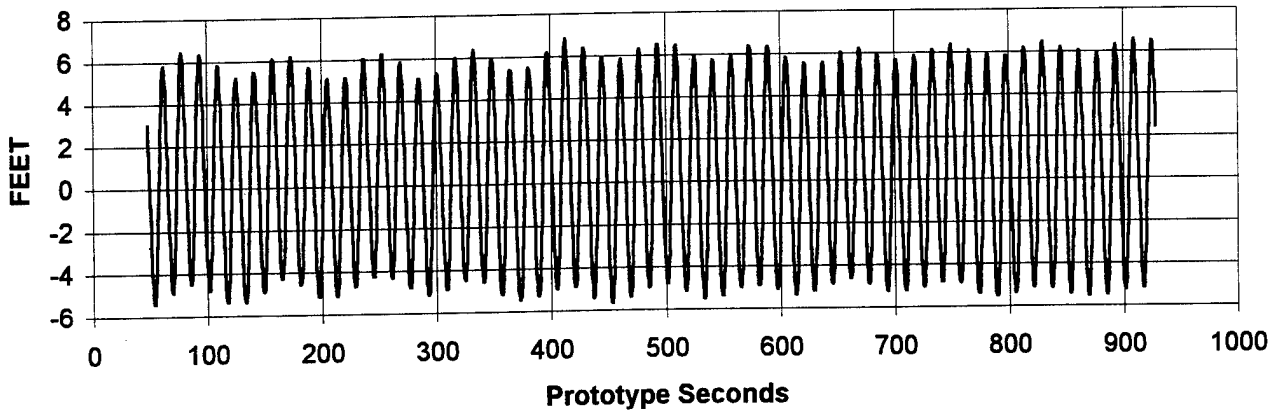


Filtered High Frequency Time History

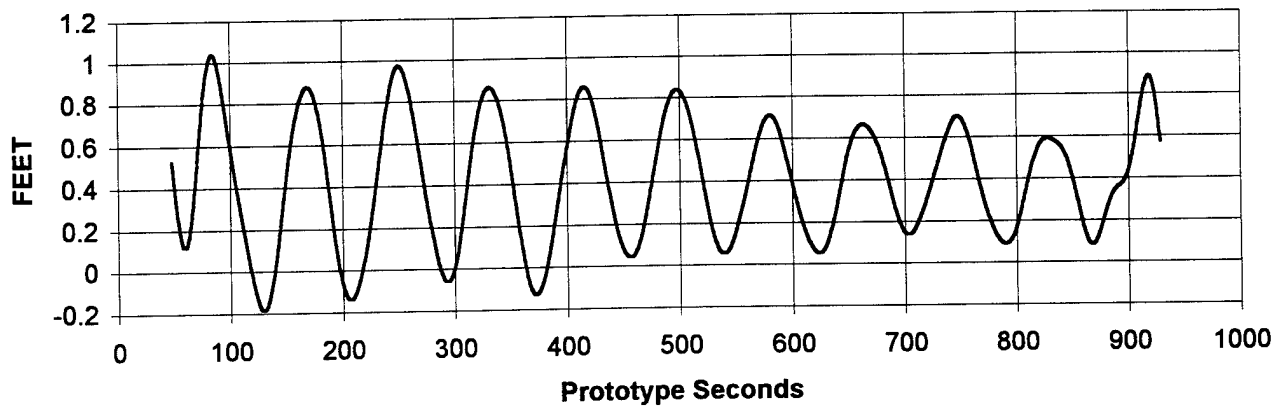


TEST A584 - PT HEAVE

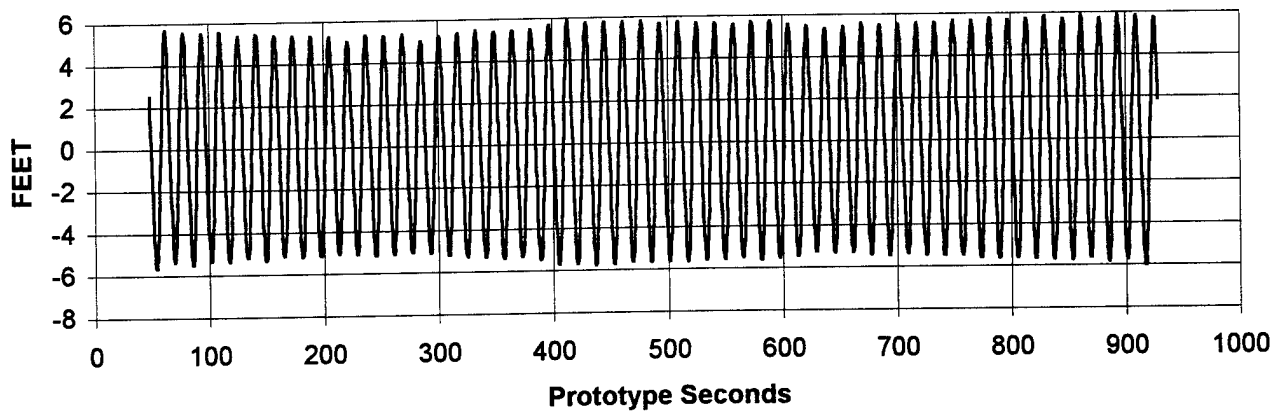
Unfiltered Time History



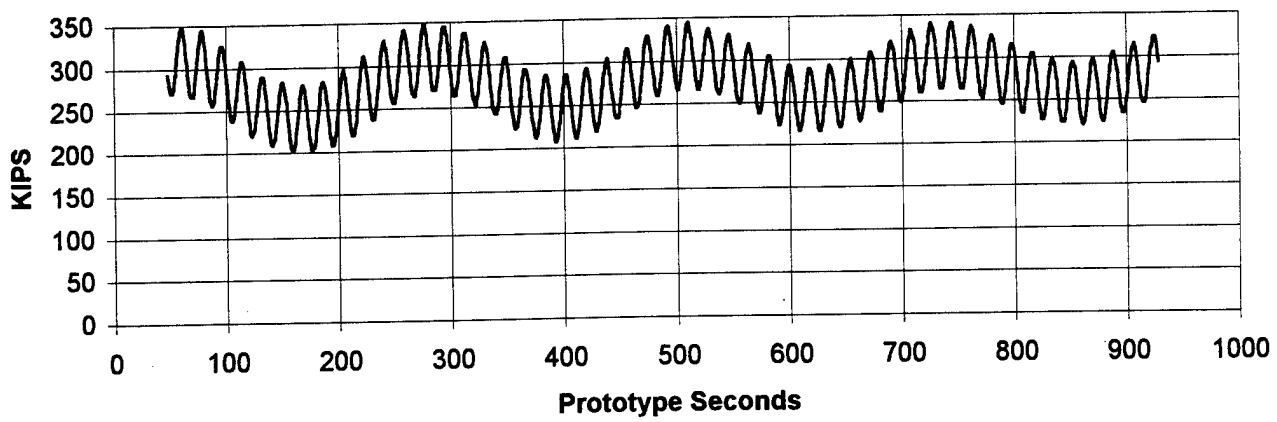
Filtered Low Frequency Time History



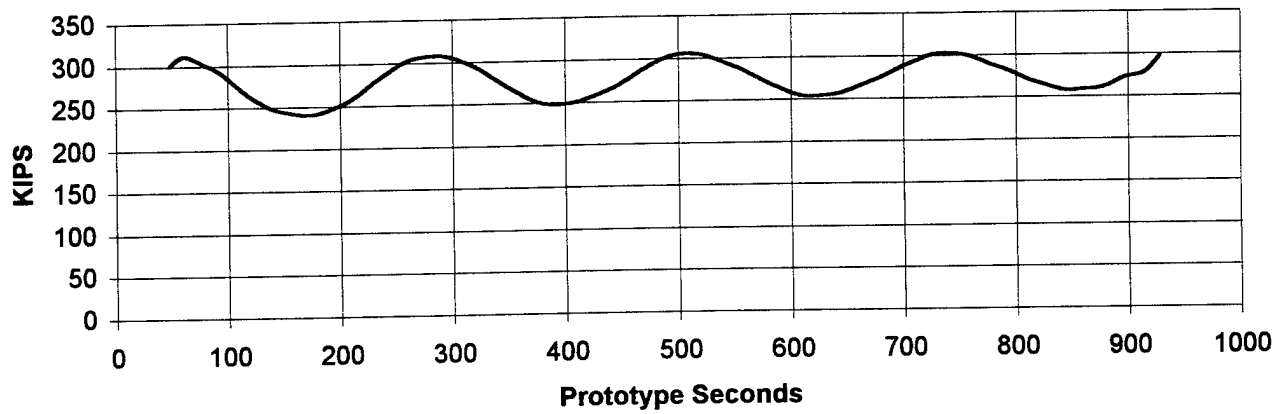
Filtered High Frequency Time History



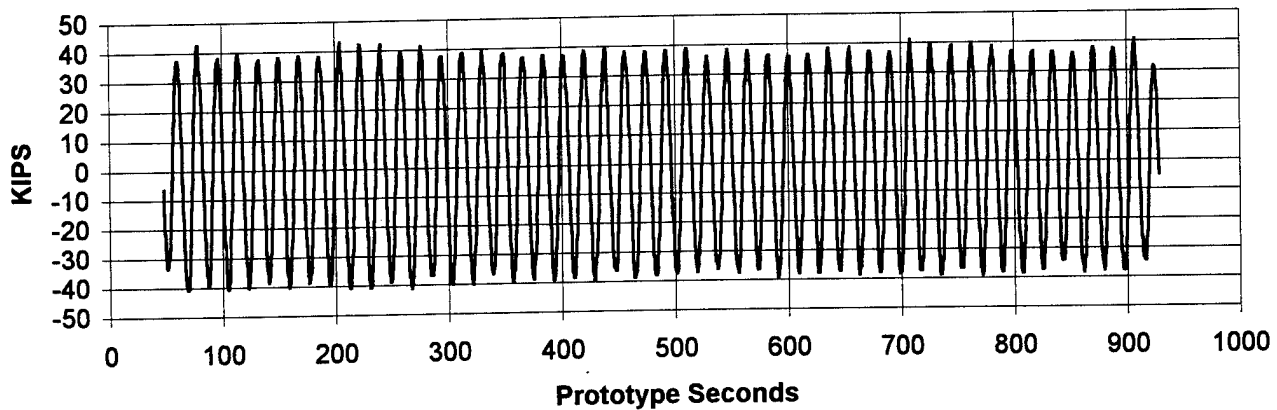
**Unfiltered Time History**



**Filtered Low Frequency Time History**

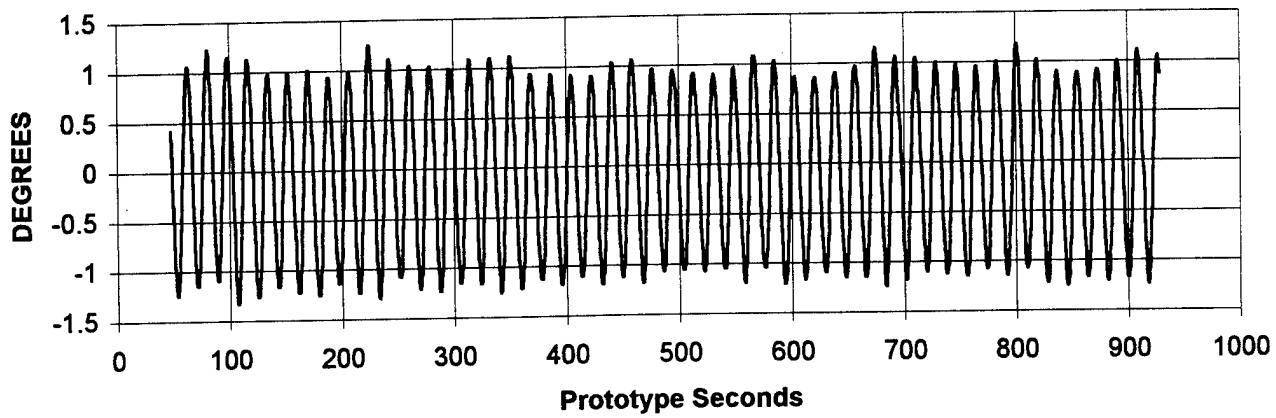


**Filtered High Frequency Time History**

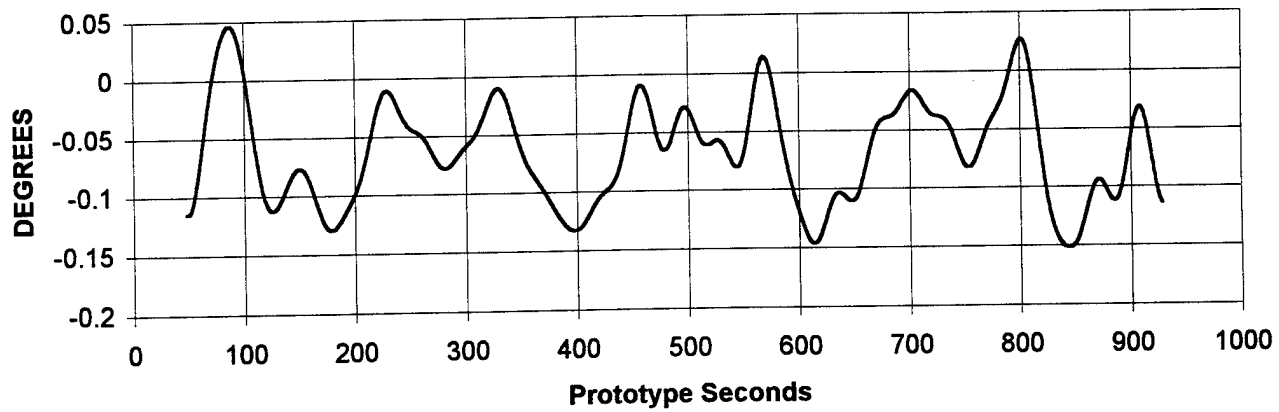


# TEST A585 - PITCH

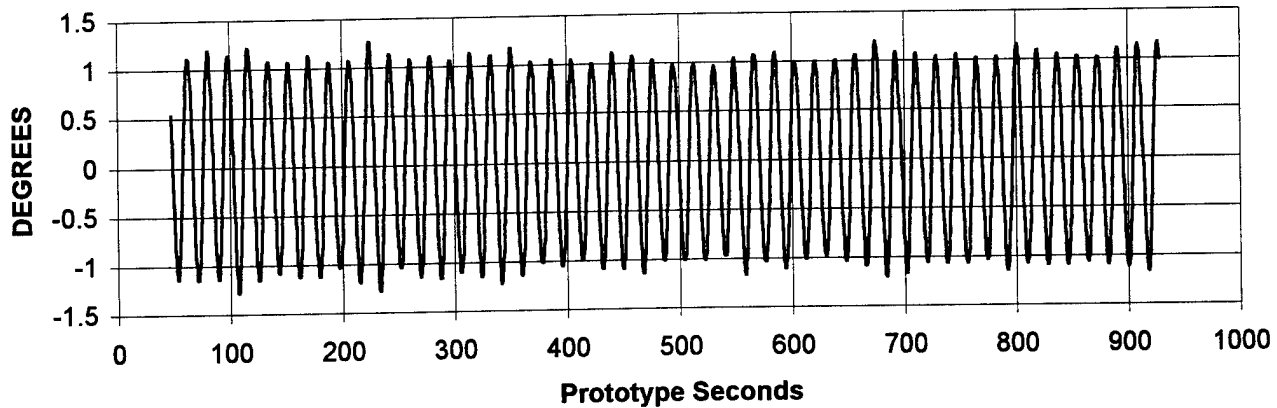
## Unfiltered Time History



## Filtered Low Frequency Time History

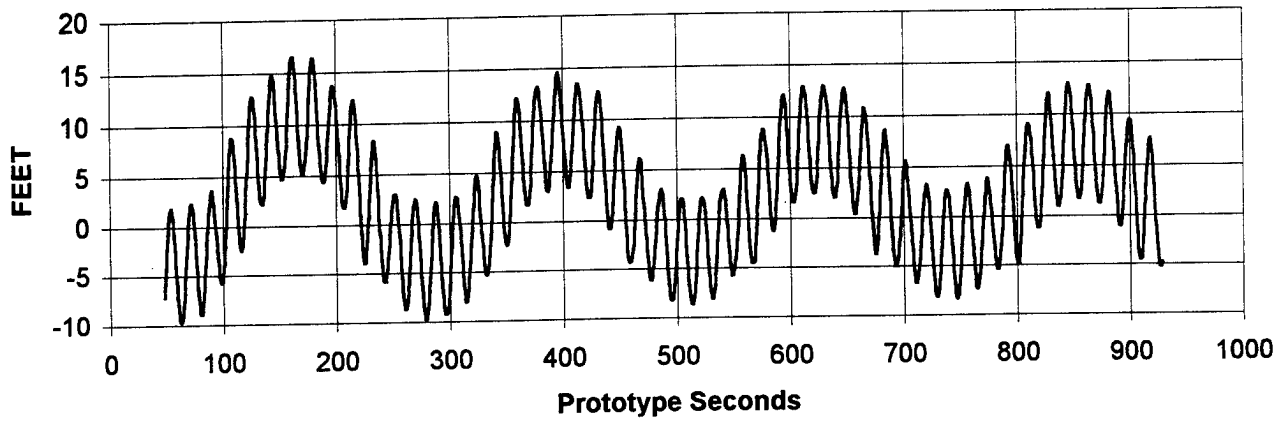


## Filtered High Frequency Time History

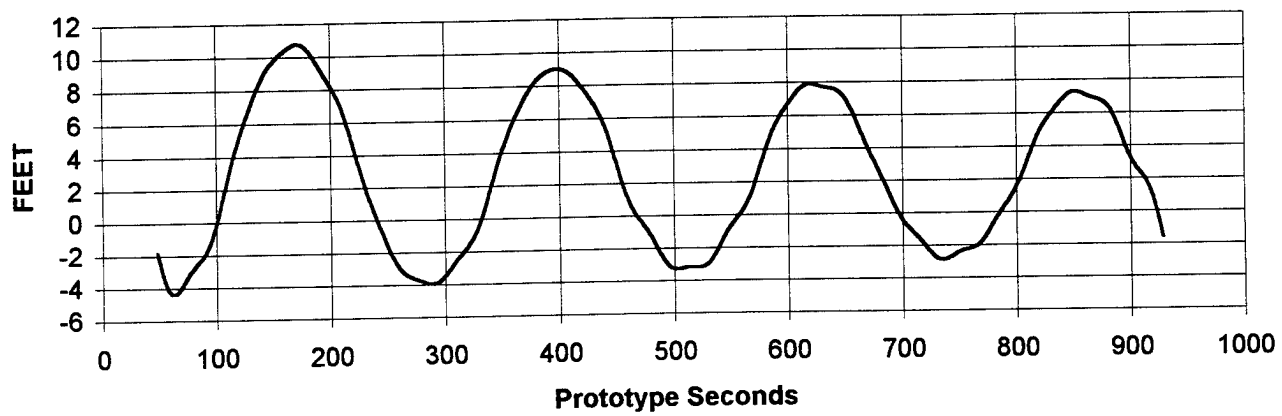


TEST A585 - PT SURGE

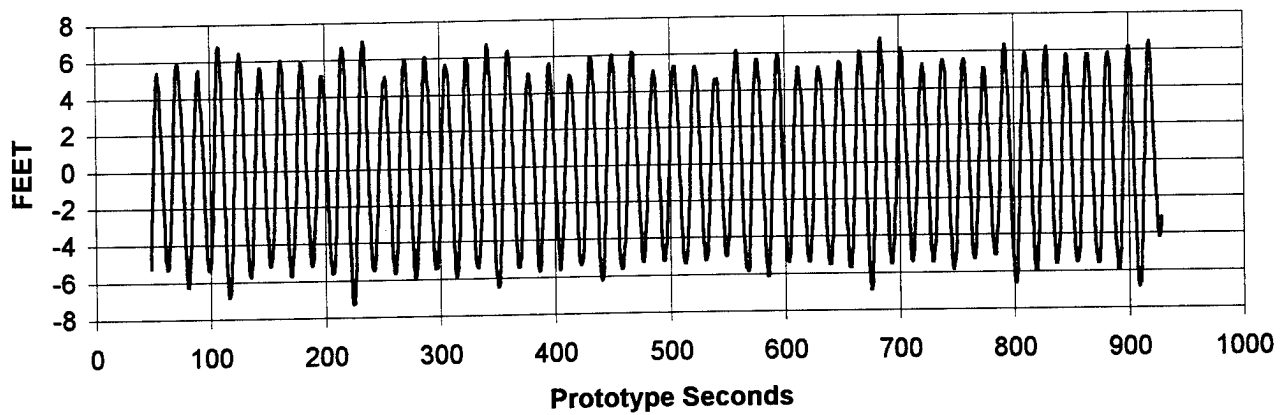
Unfiltered Time History



Filtered Low Frequency Time History

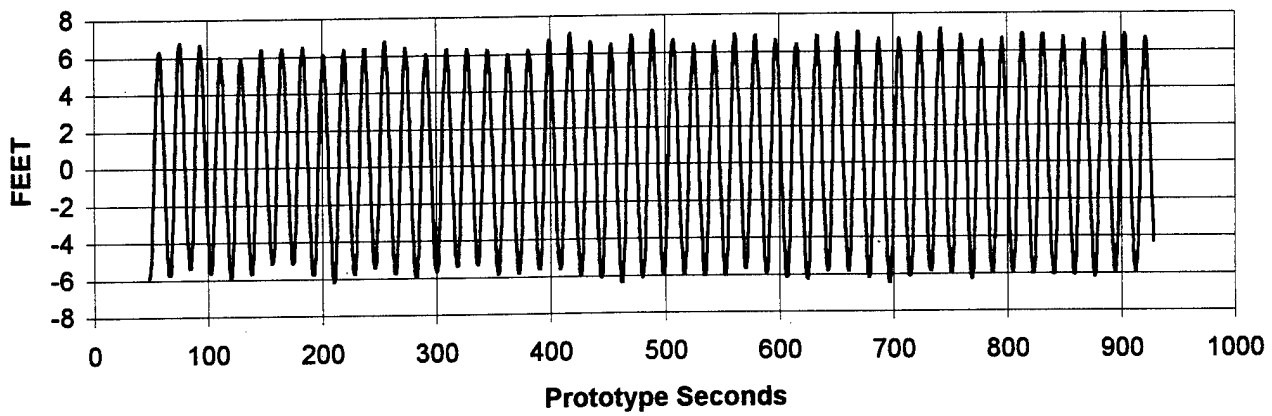


Filtered High Frequency Time History

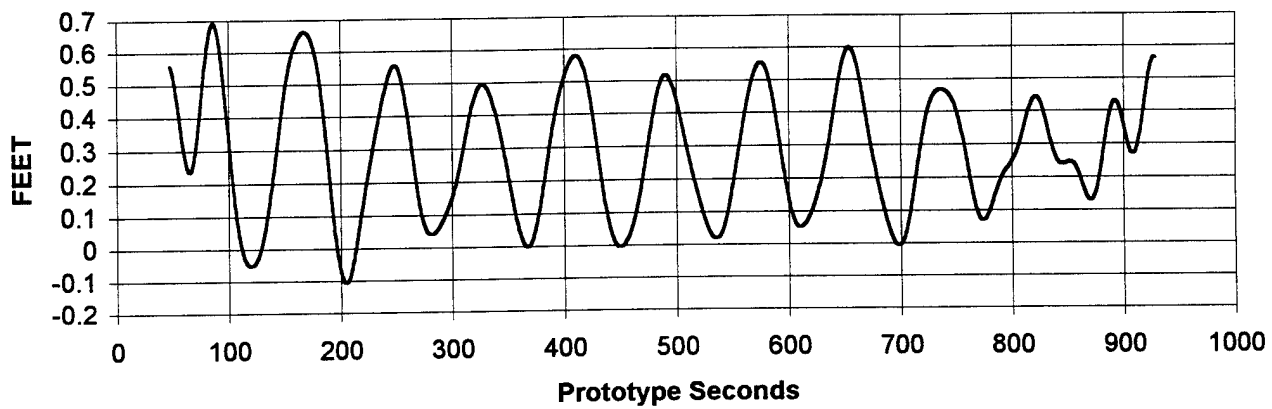


TEST A585 - PT HEAVE

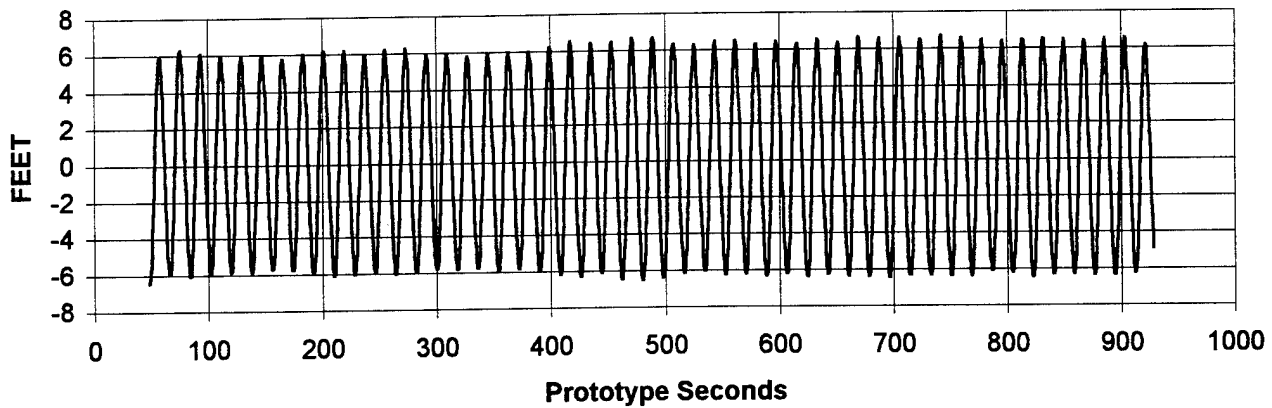
Unfiltered Time History



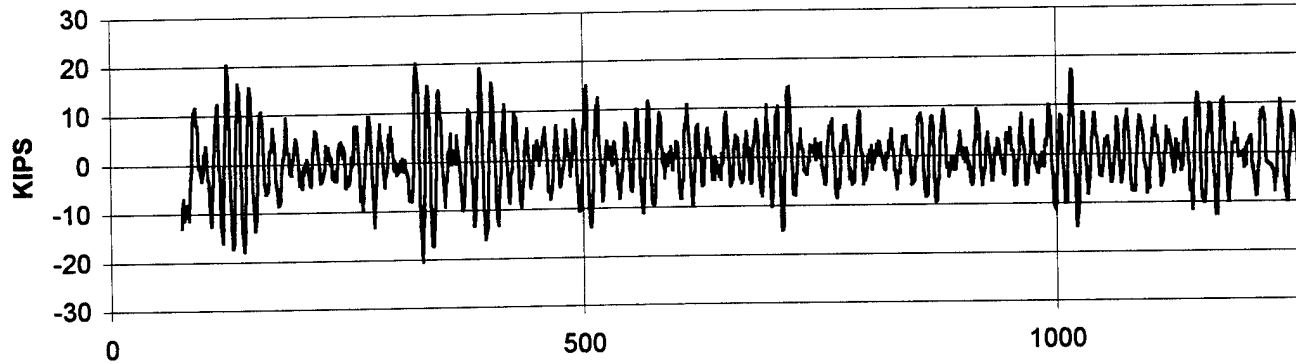
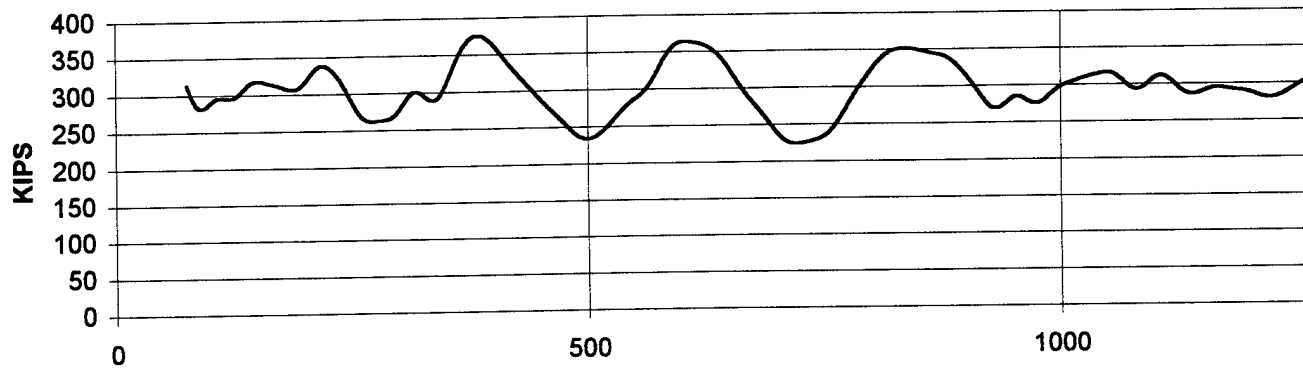
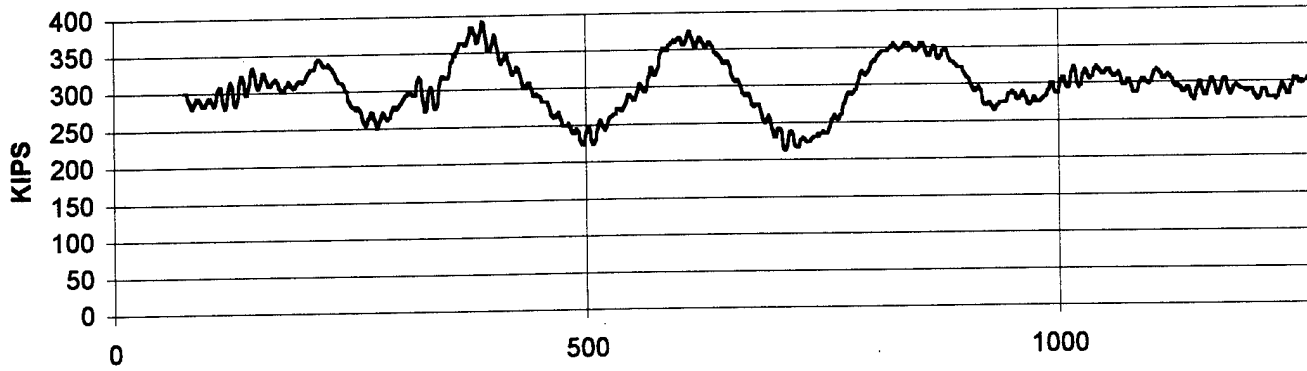
Filtered Low Frequency Time History



Filtered High Frequency Time History

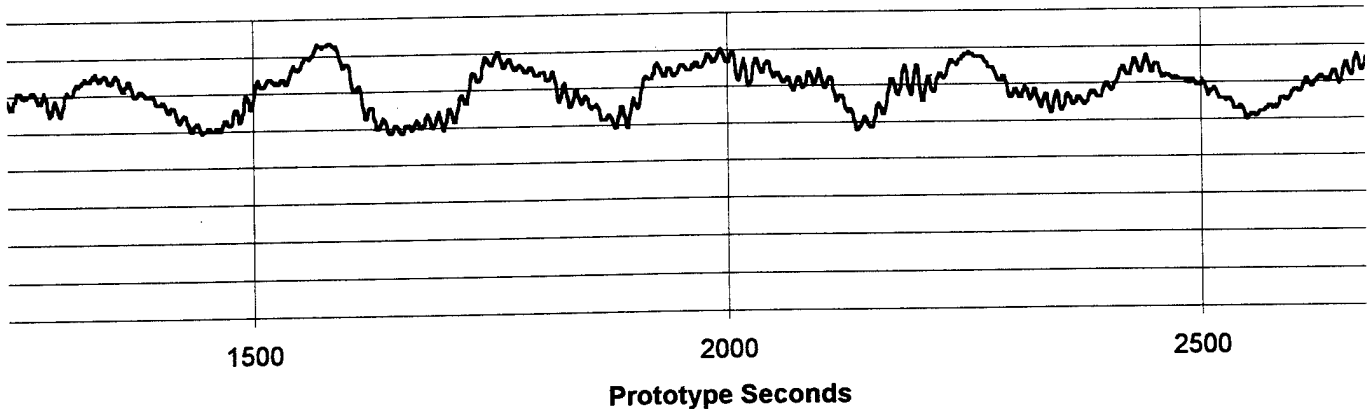


TEST A586 - ML\_1

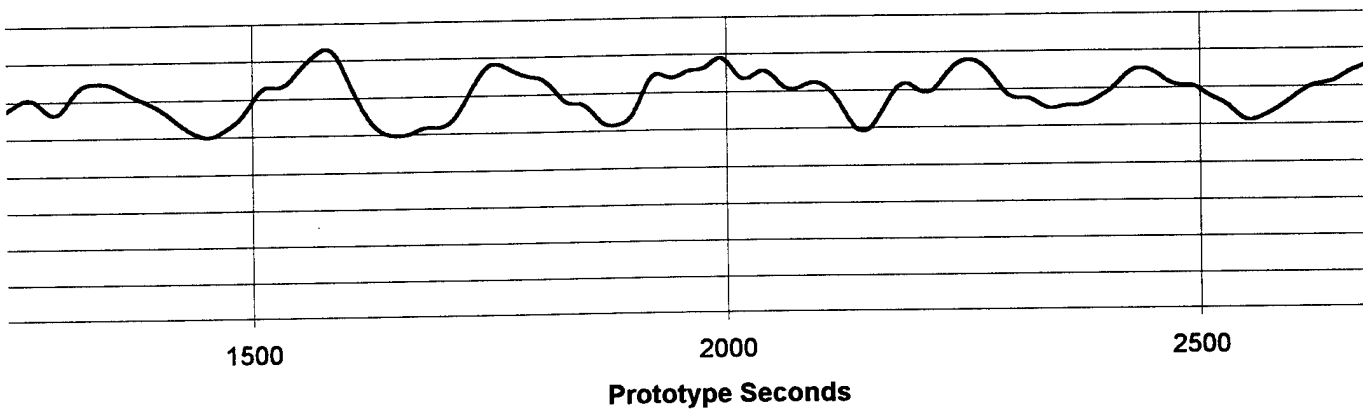




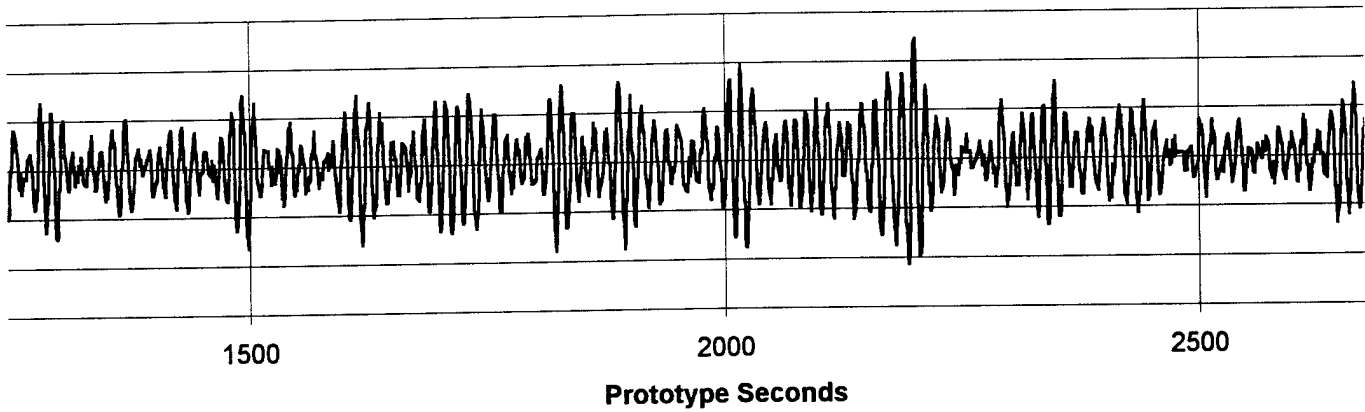
**Unfiltered Time History**



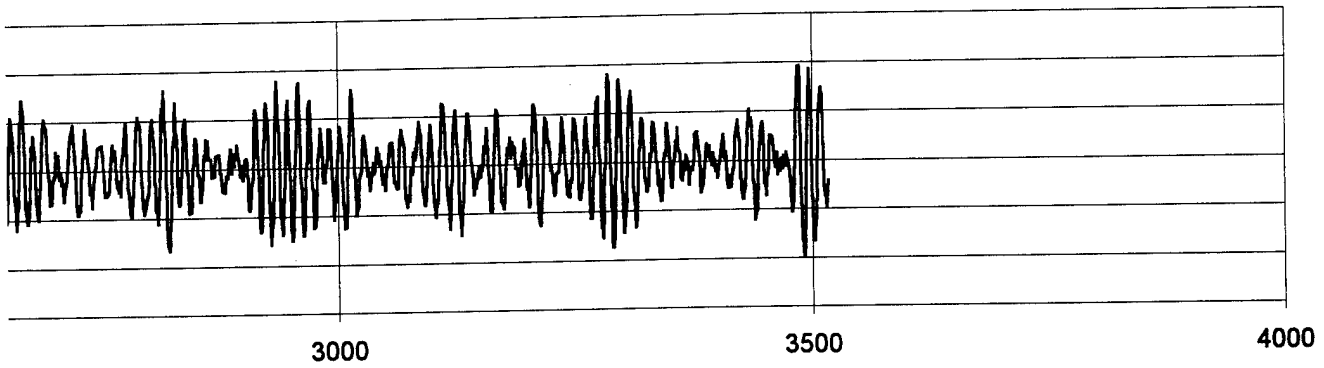
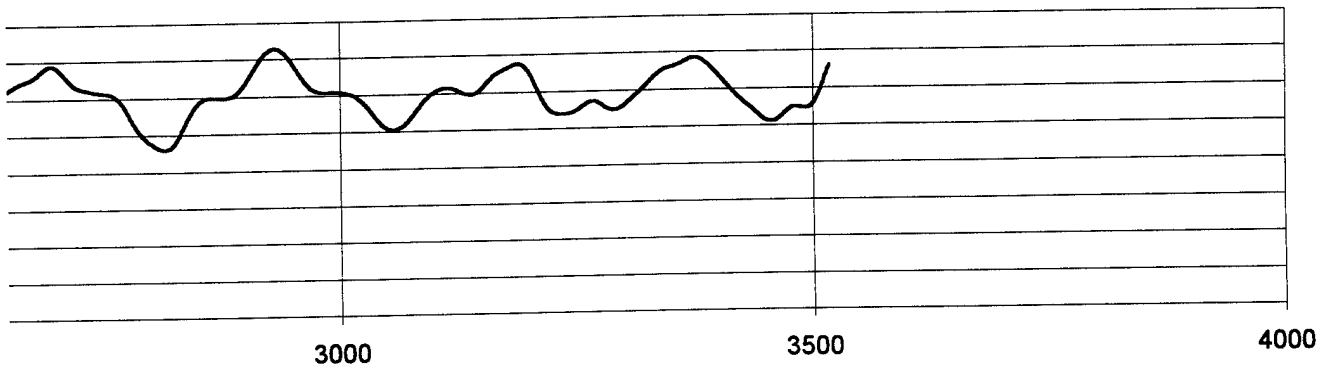
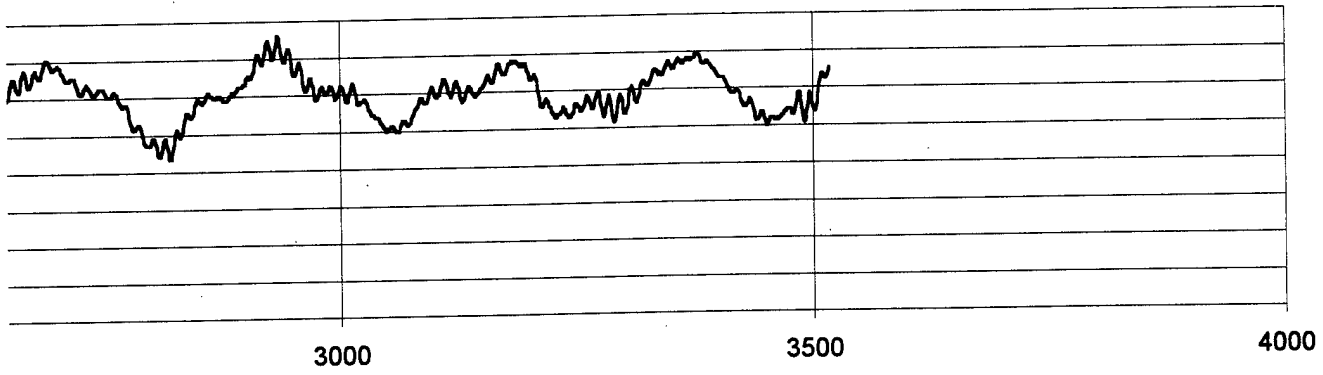
**Filtered Low Frequency Time History**



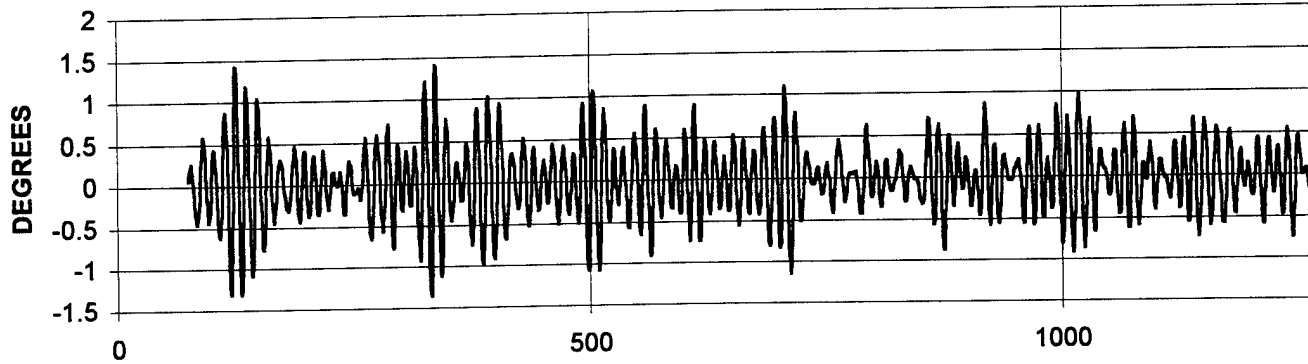
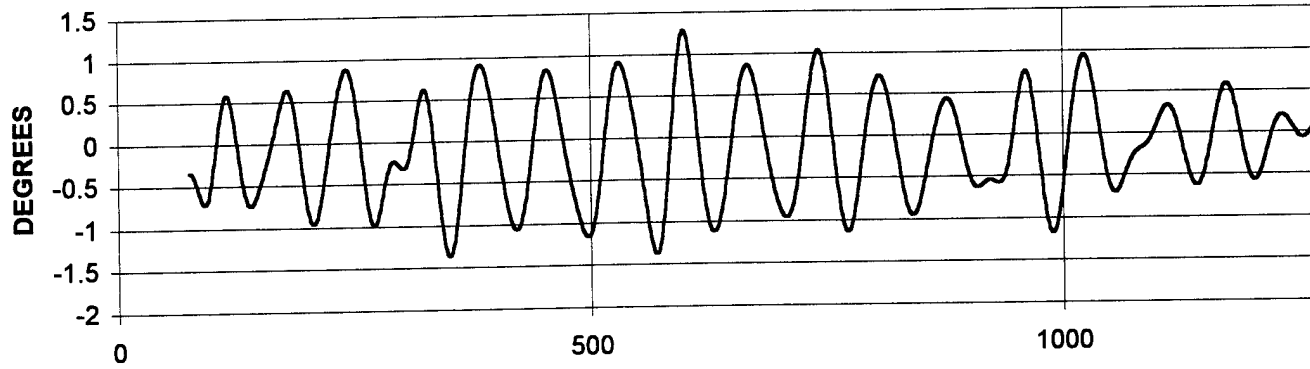
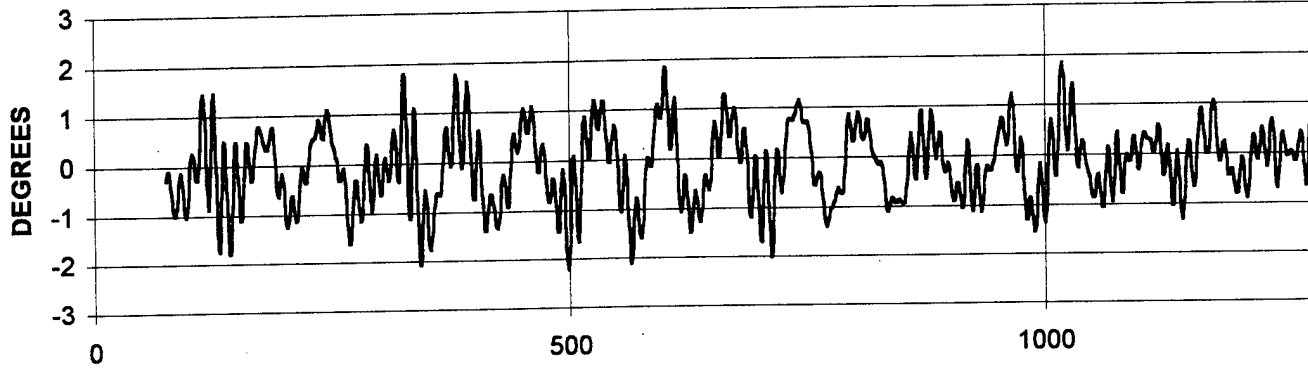
**Filtered High Frequency Time History**



TEST A586 - ML\_1

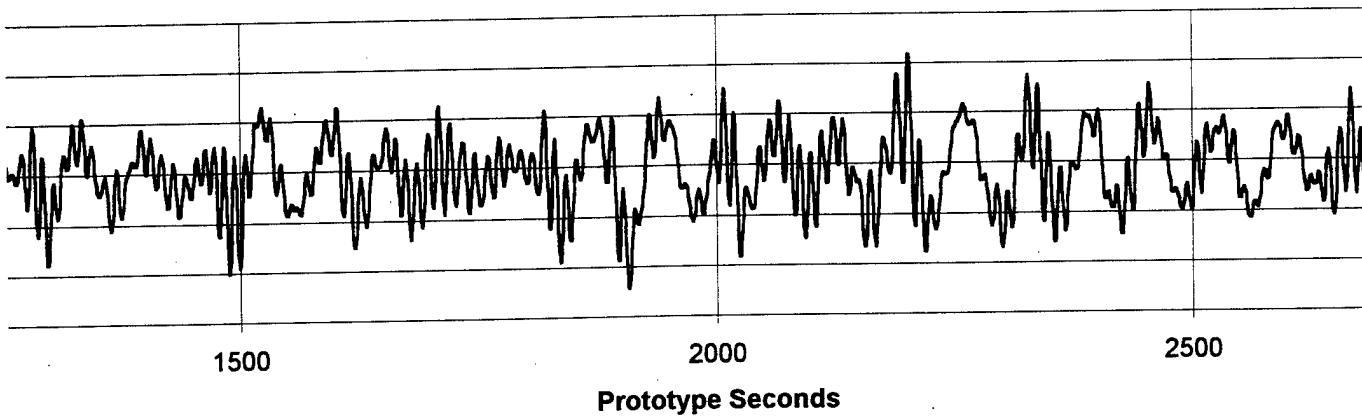


TEST A586 - PITCH

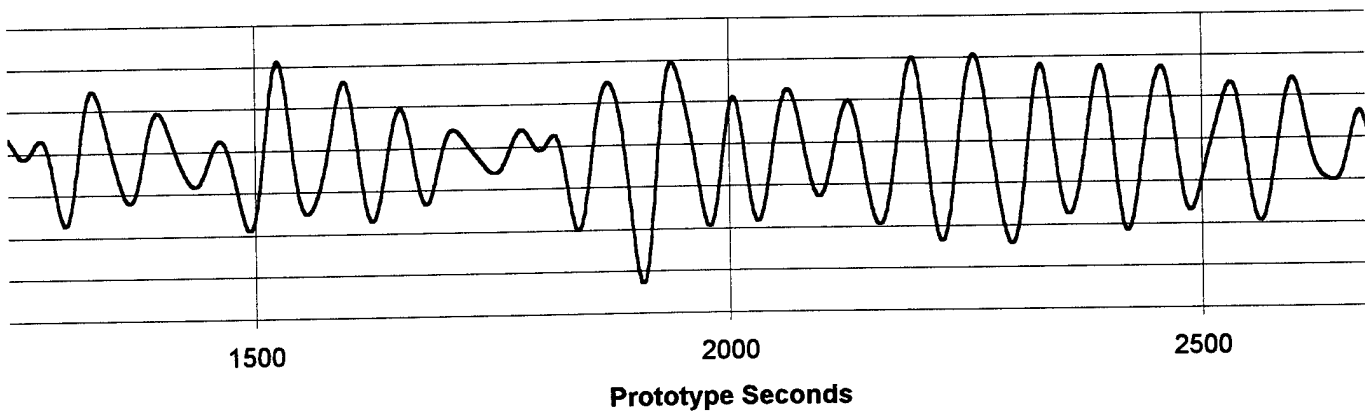


TEST A586 - PITCH

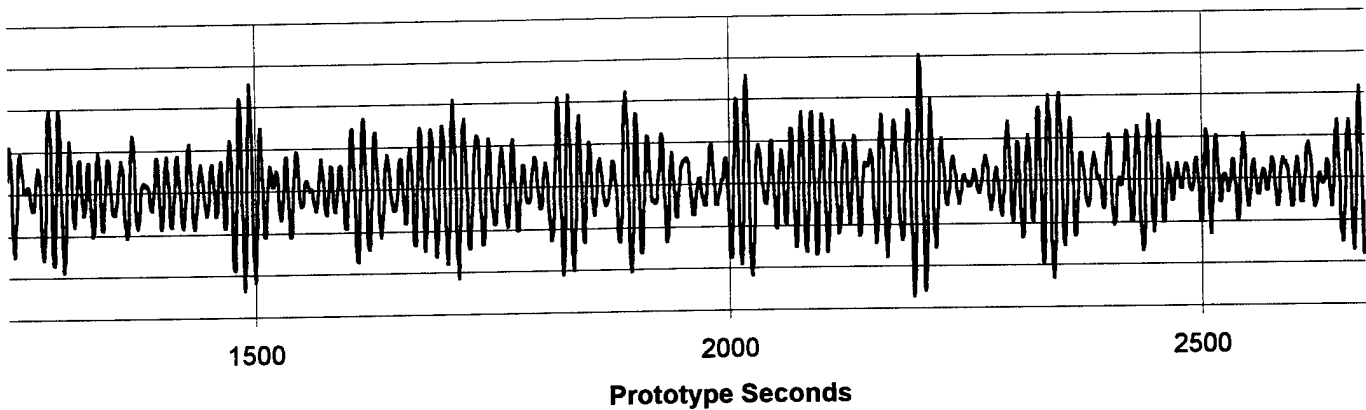
**Unfiltered Time History**



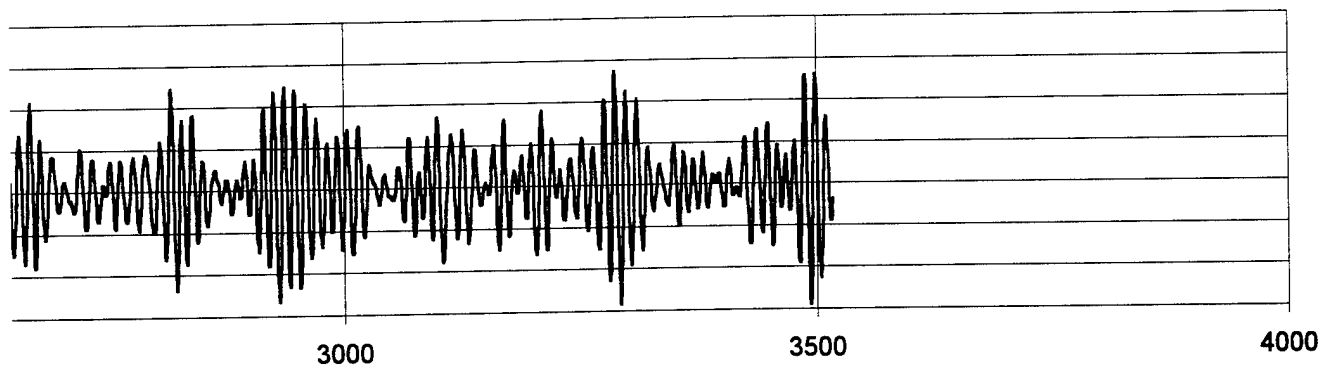
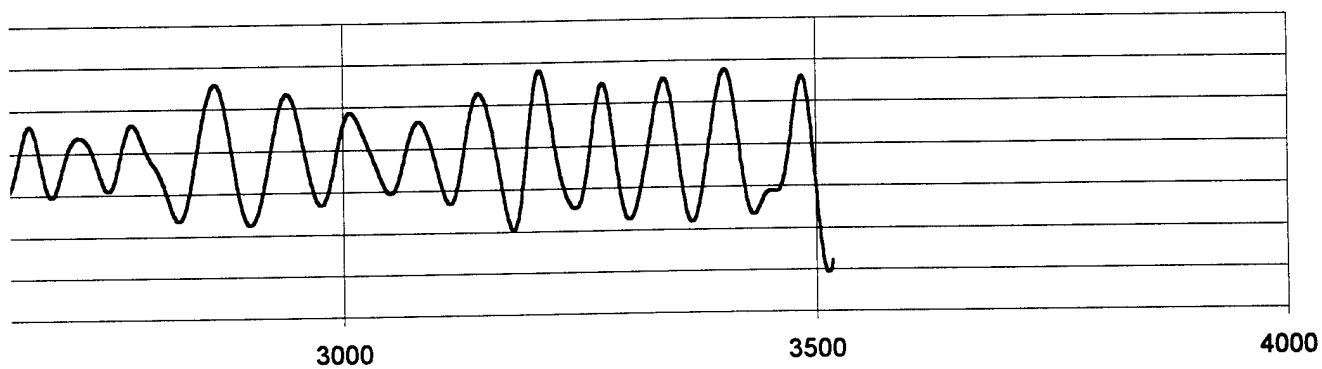
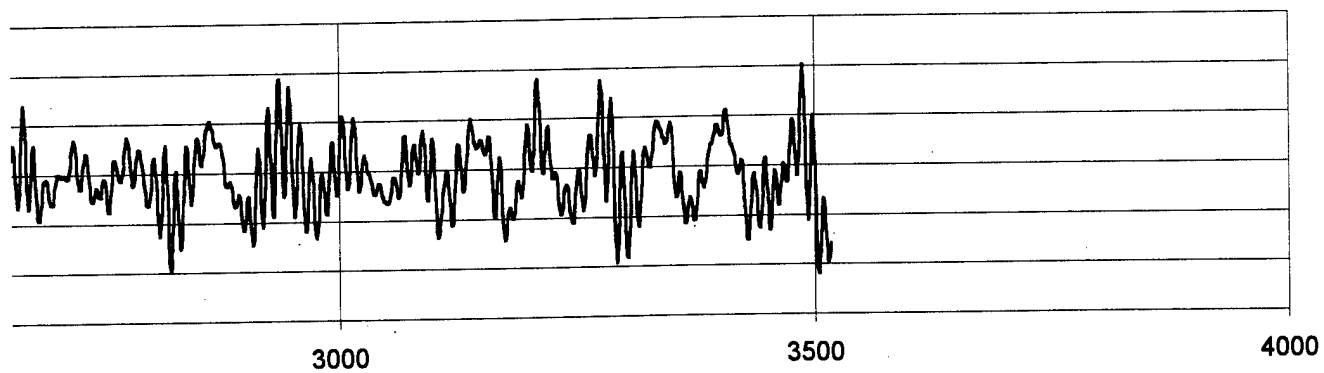
**Filtered Low Frequency Time History**



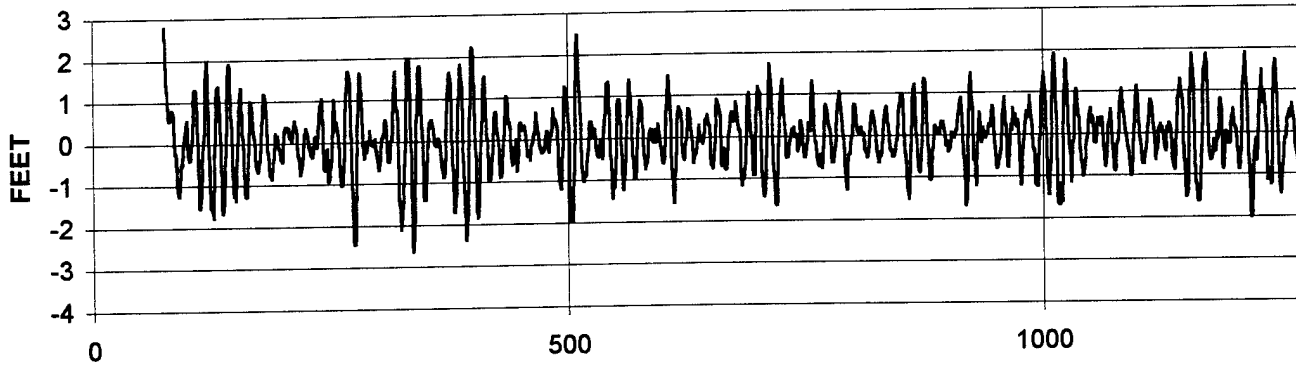
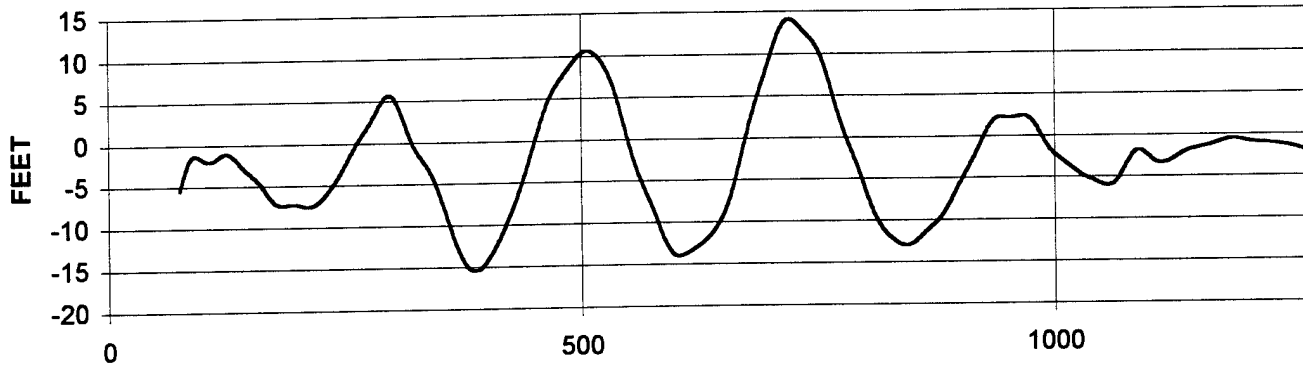
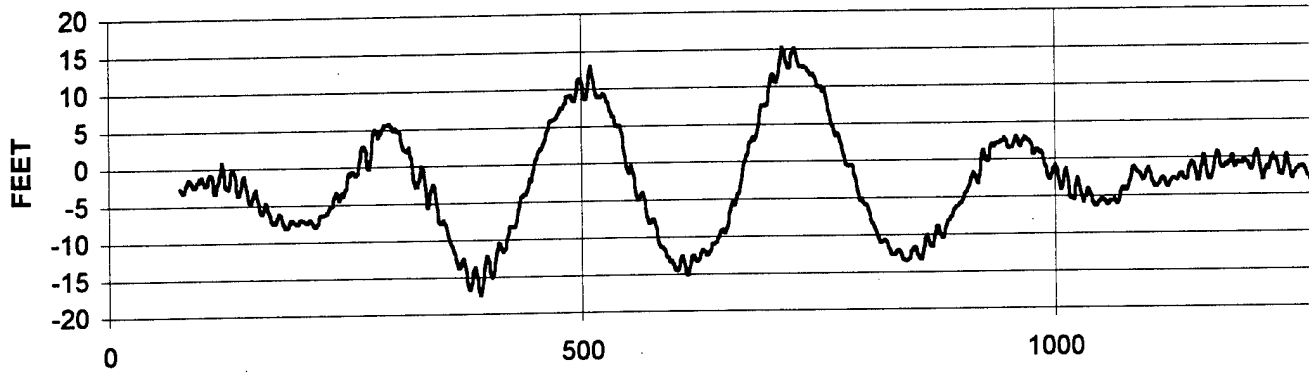
**Filtered High Frequency Time History**



TEST A586 - PITCH

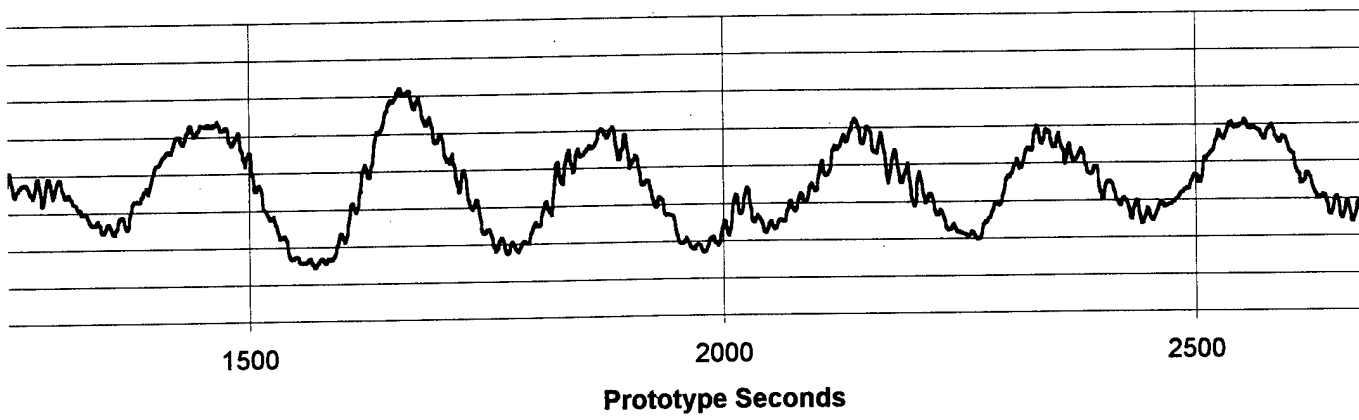


TEST A586 - PT SURGE

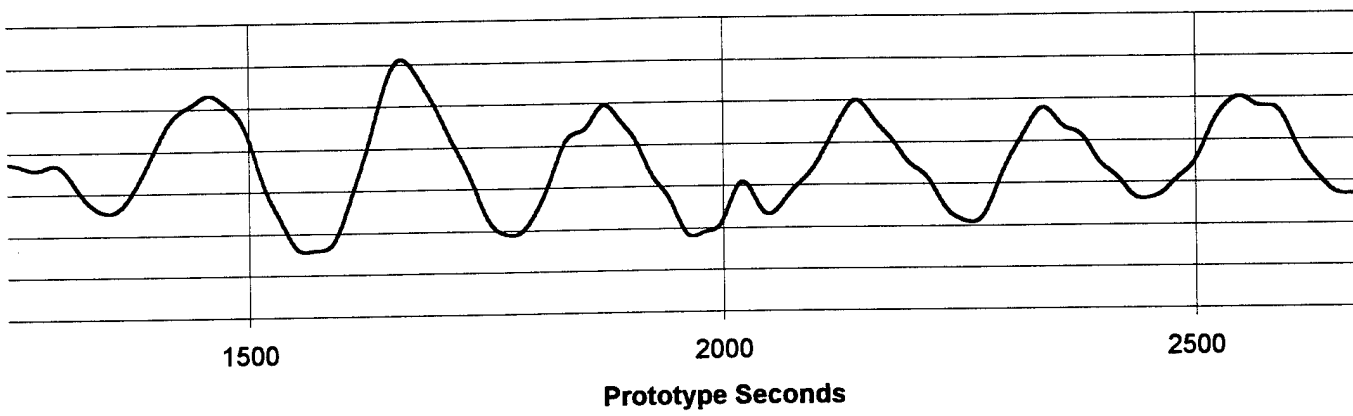


TEST A586 - PT SURGE

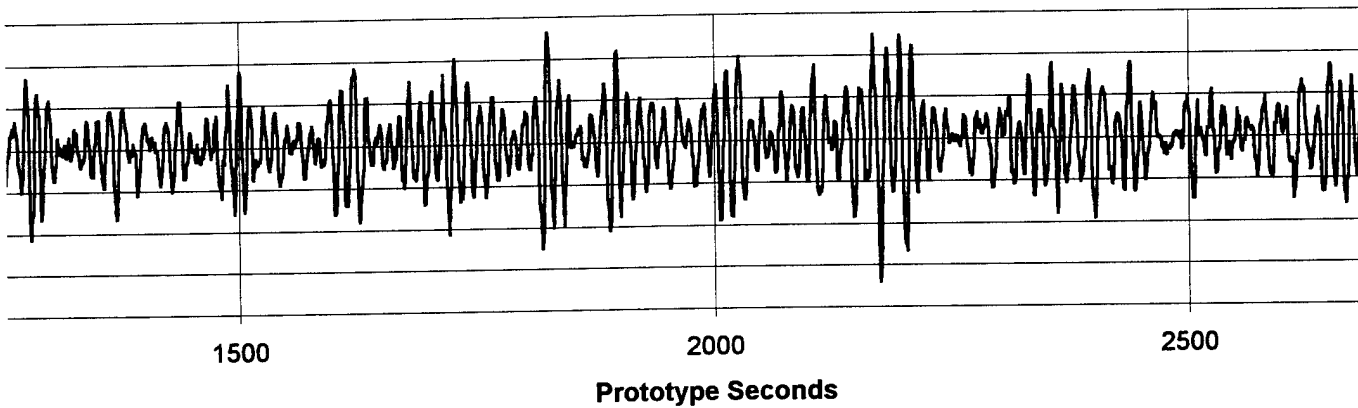
Unfiltered Time History



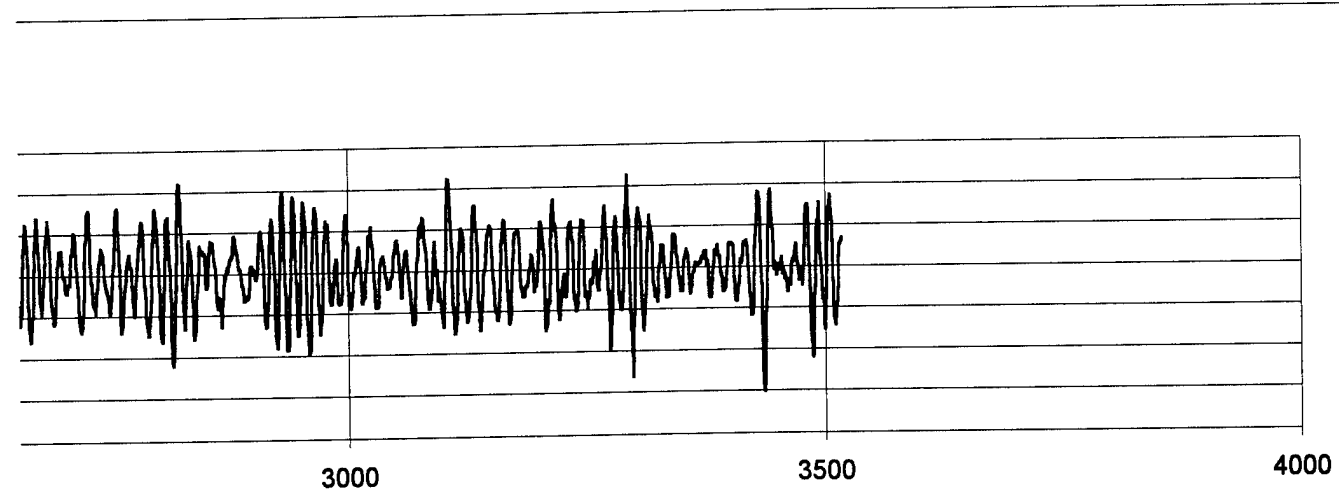
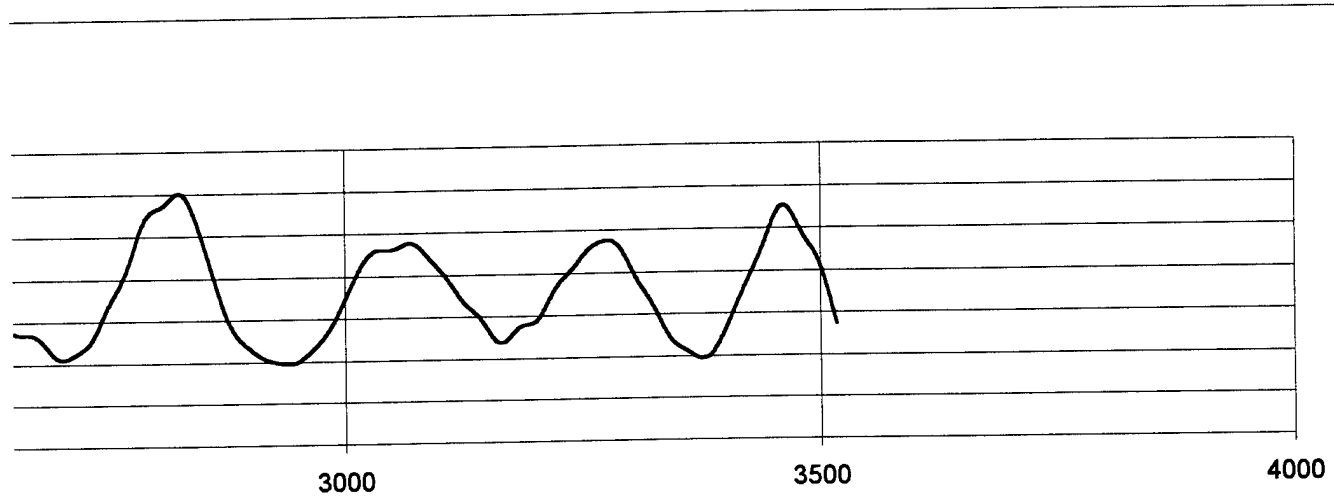
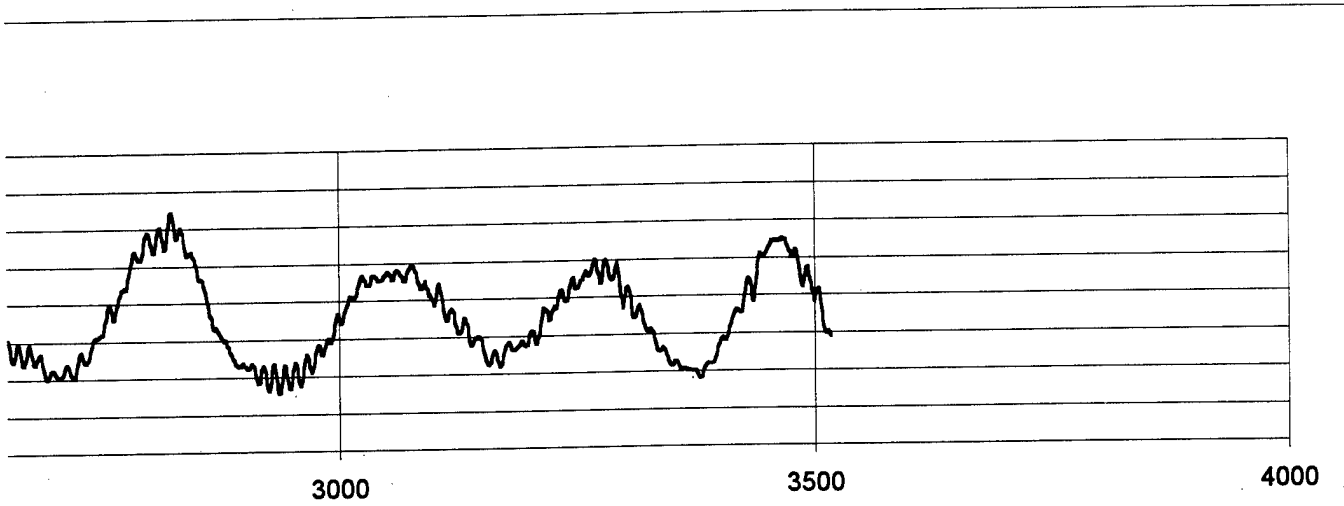
Filtered Low Frequency Time History



Filtered High Frequency Time History

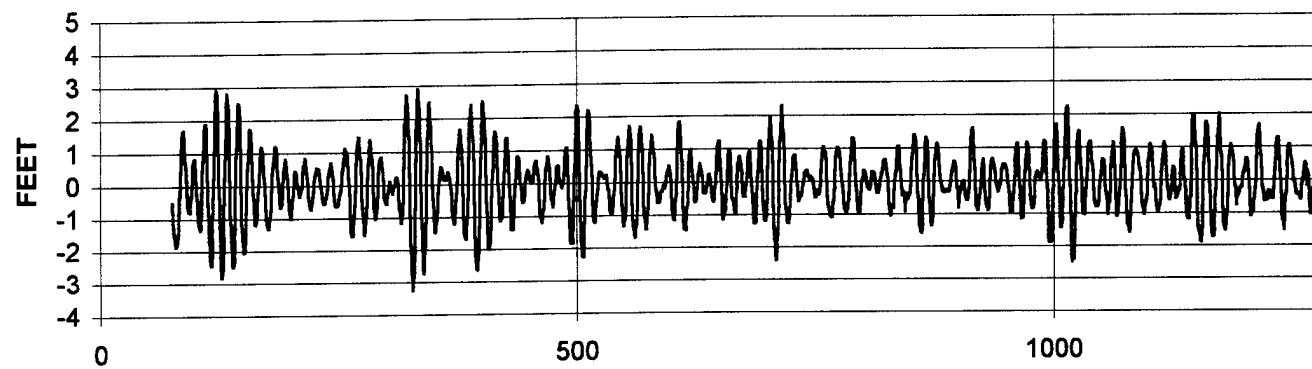
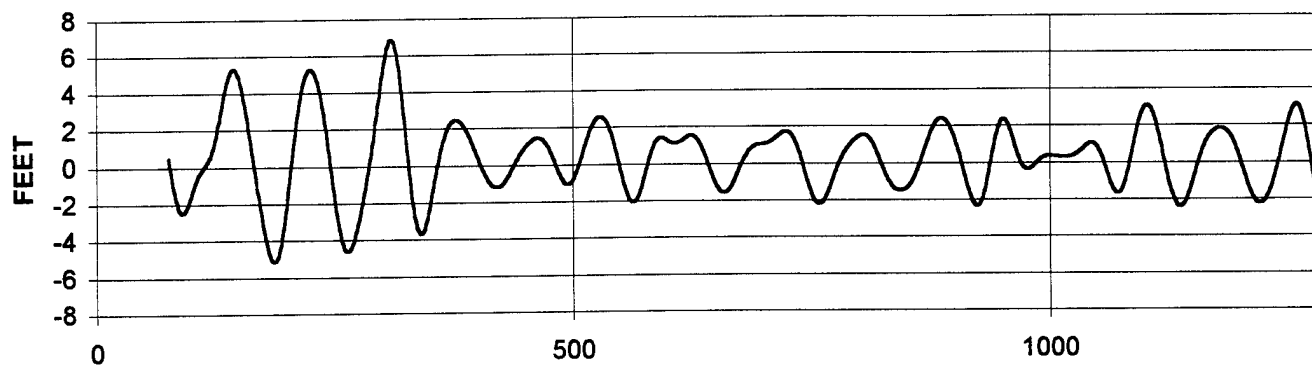
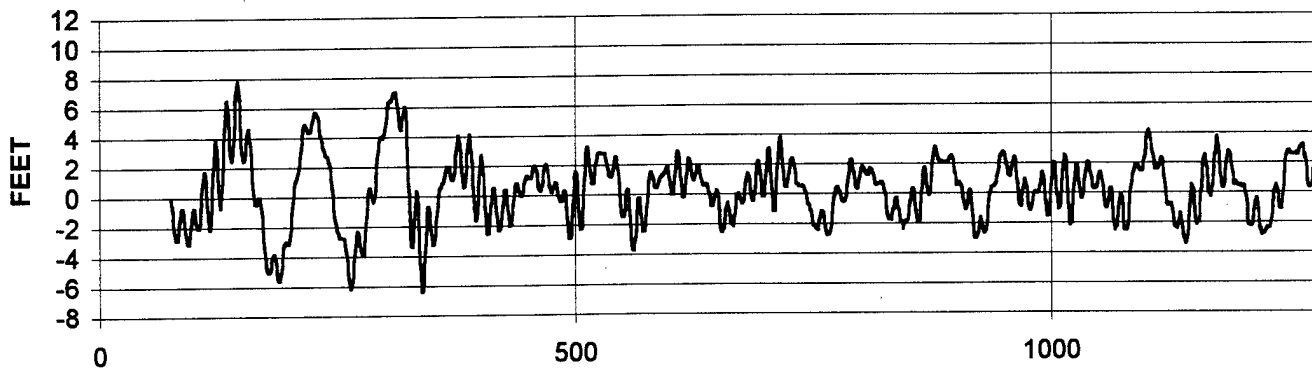


TEST A586 - PT SURGE

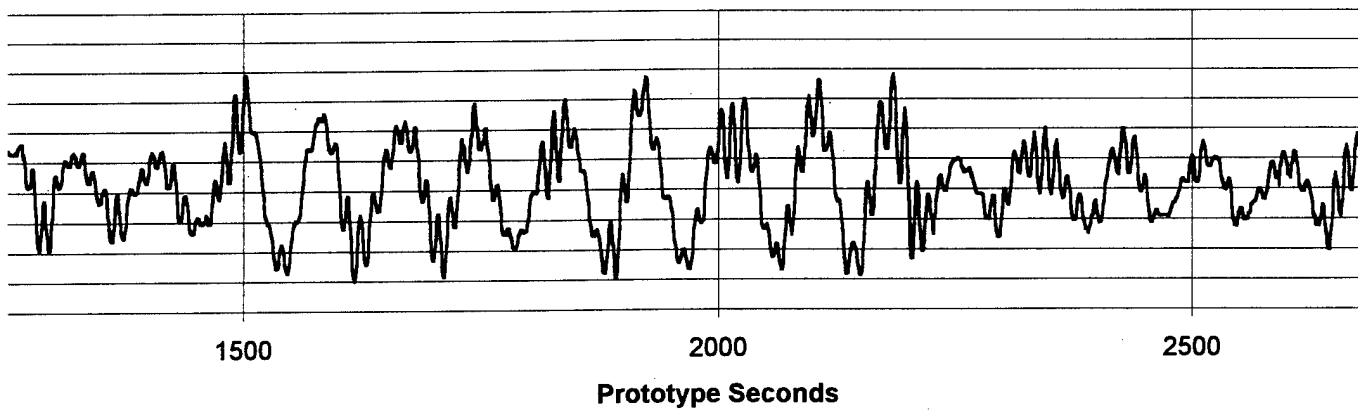




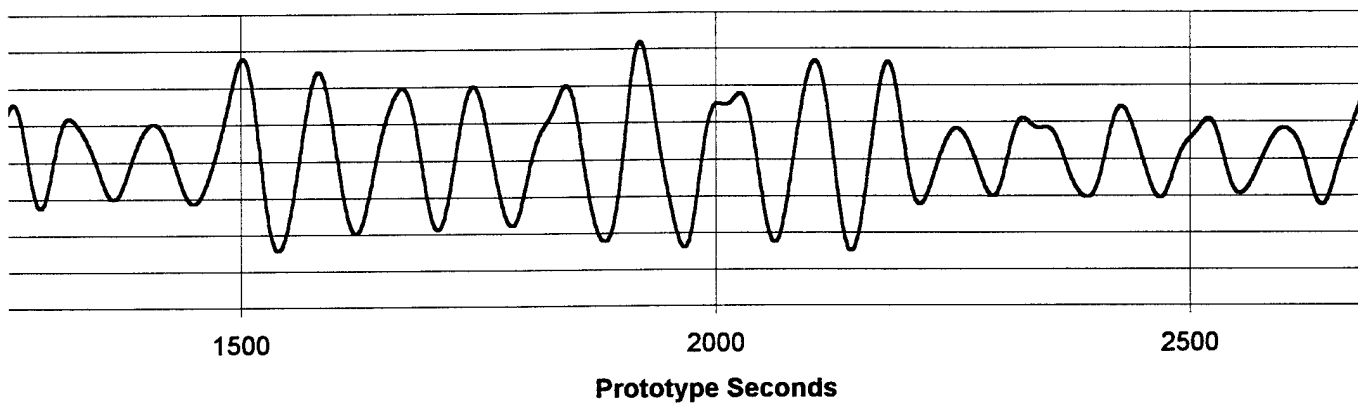
TEST A586 - PT HEAVE



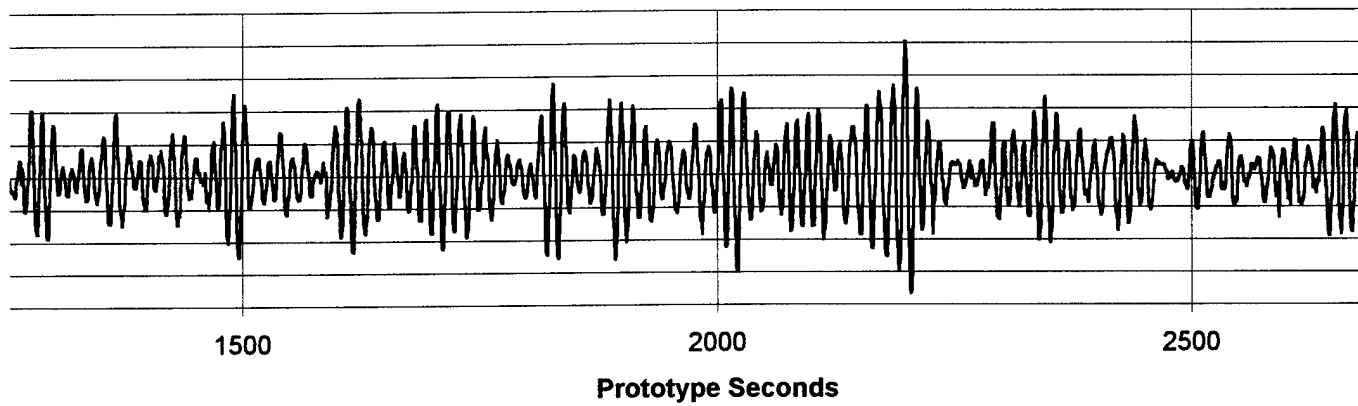
**Unfiltered Time History**



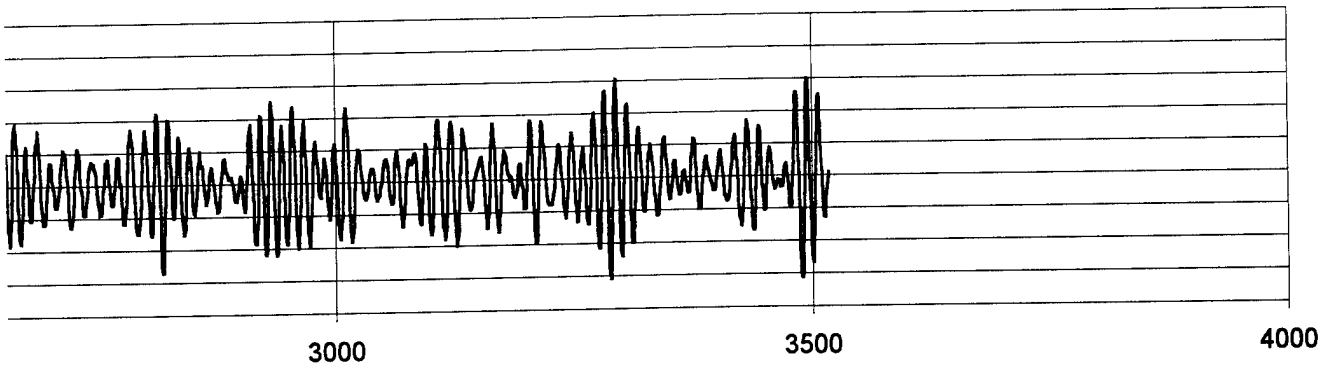
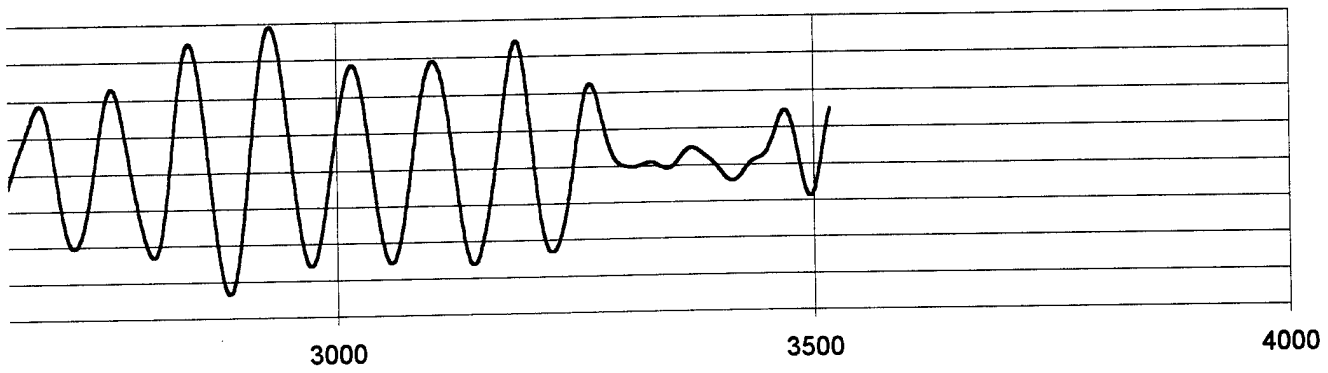
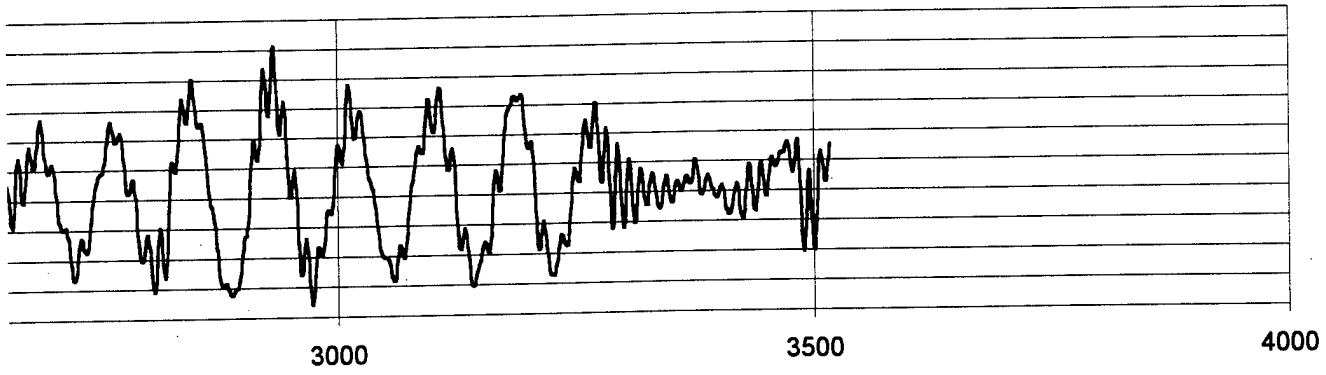
**Filtered Low Frequency Time History**



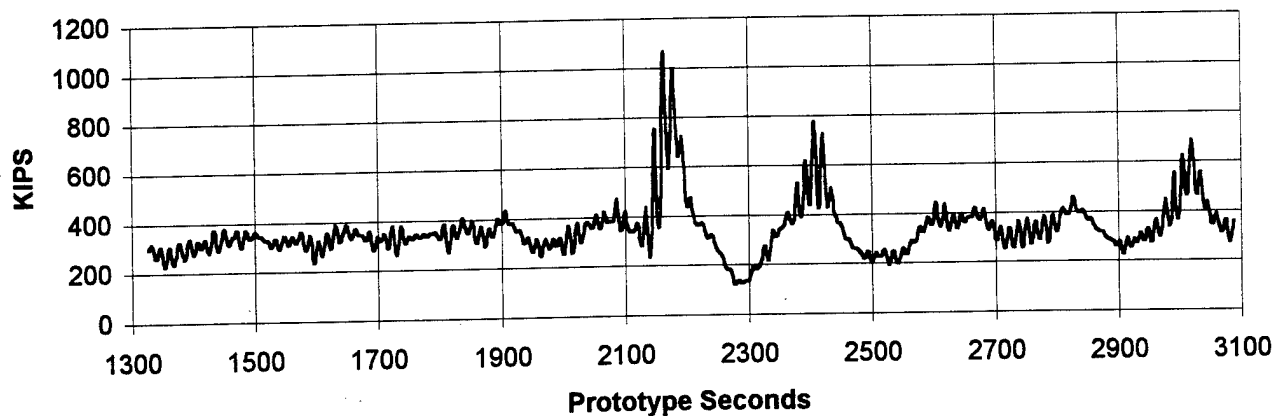
**Filtered High Frequency Time History**



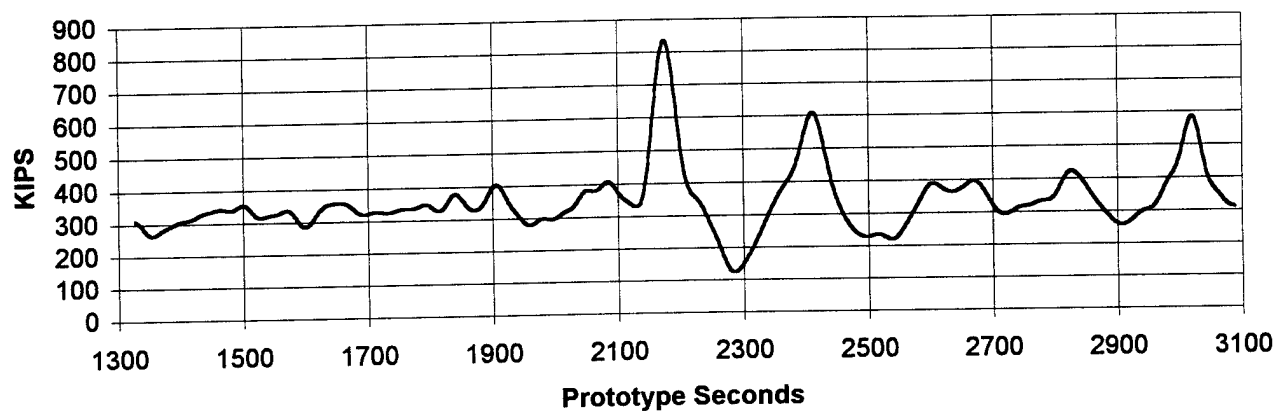
TEST A586 - PT HEAVE



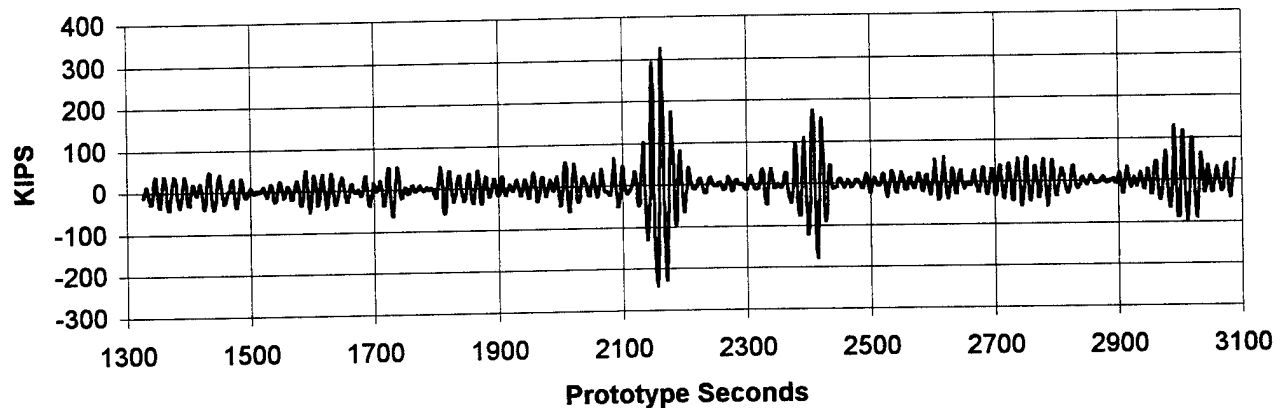
### Unfiltered Time History



### Filtered Low Frequency Time History

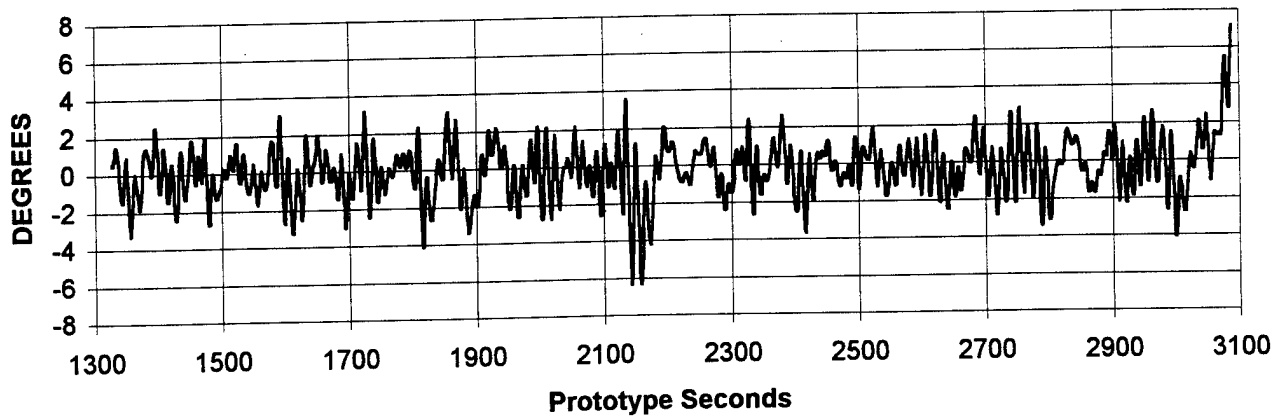


### Filtered High Frequency Time History

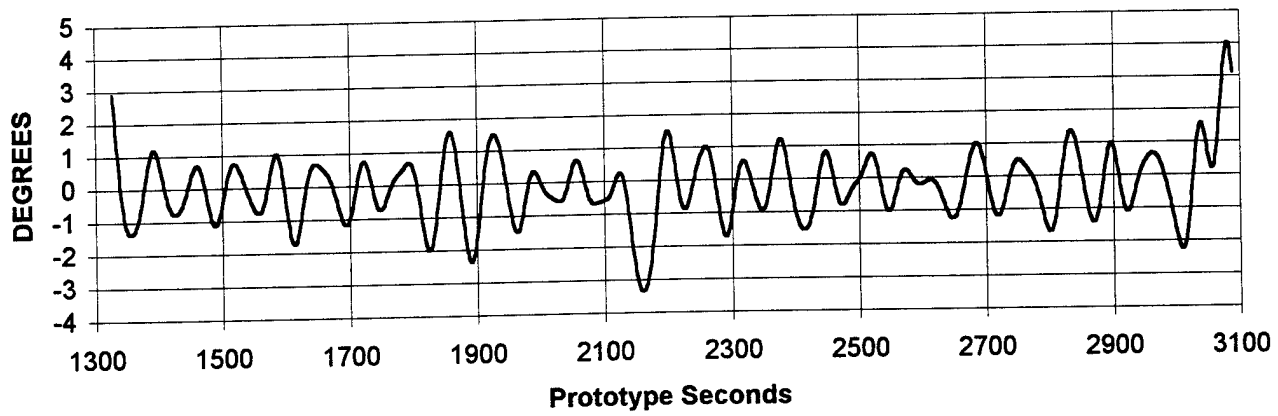


TEST A587 - PITCH

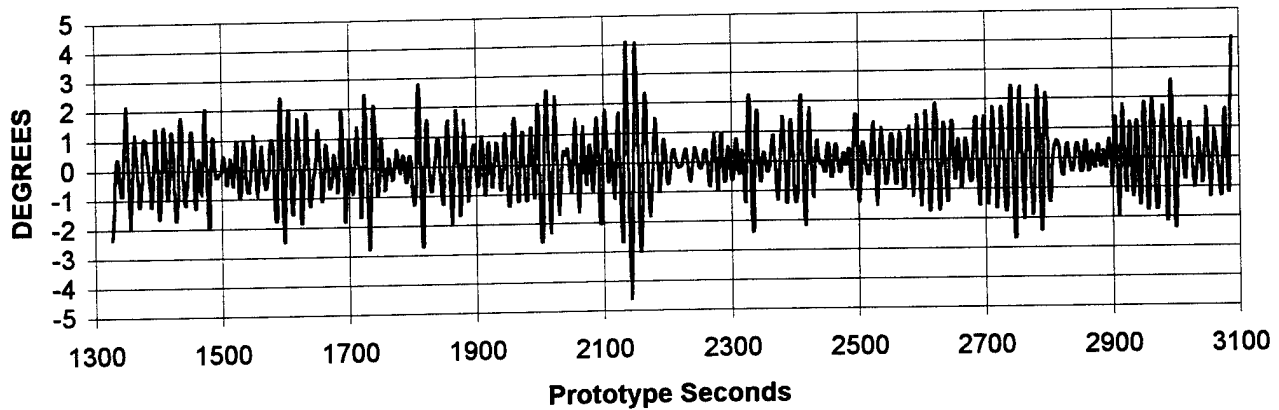
Unfiltered Time History



Filtered Low Frequency Time History

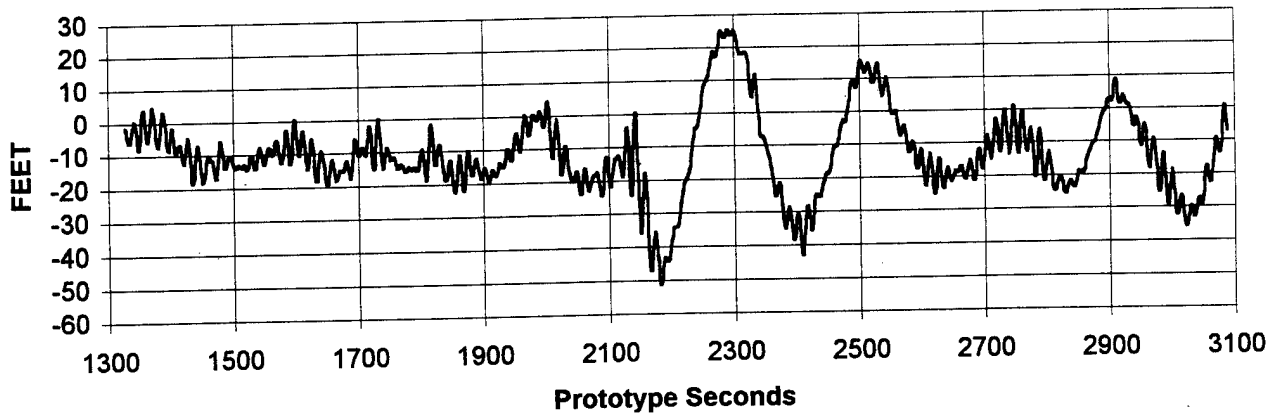


Filtered High Frequency Time History

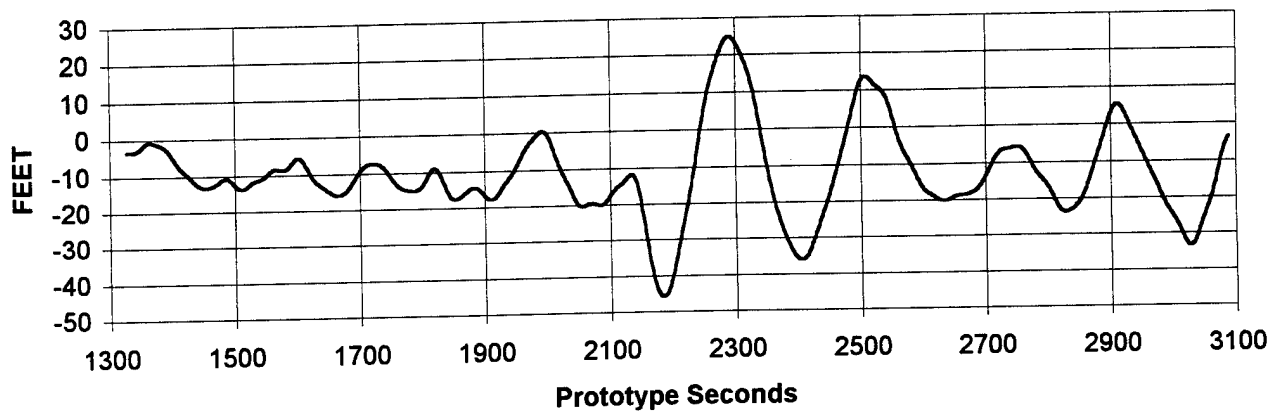


# TEST A587 - PT SURGE

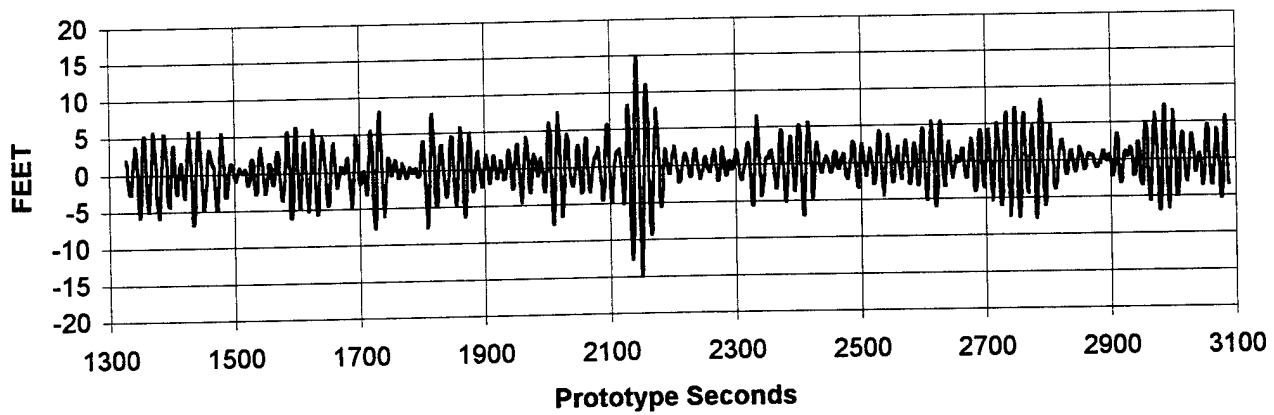
## Unfiltered Time History



## Filtered Low Frequency Time History

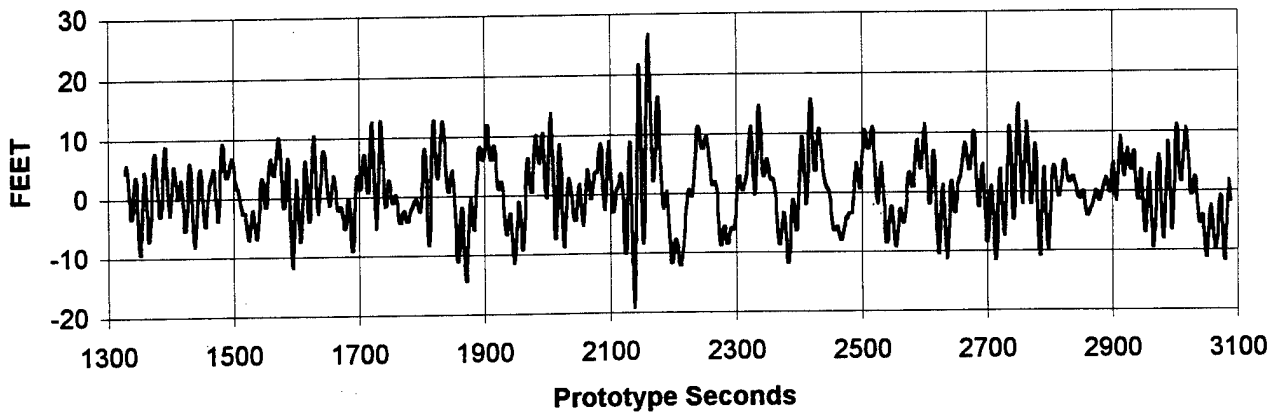


## Filtered High Frequency Time History

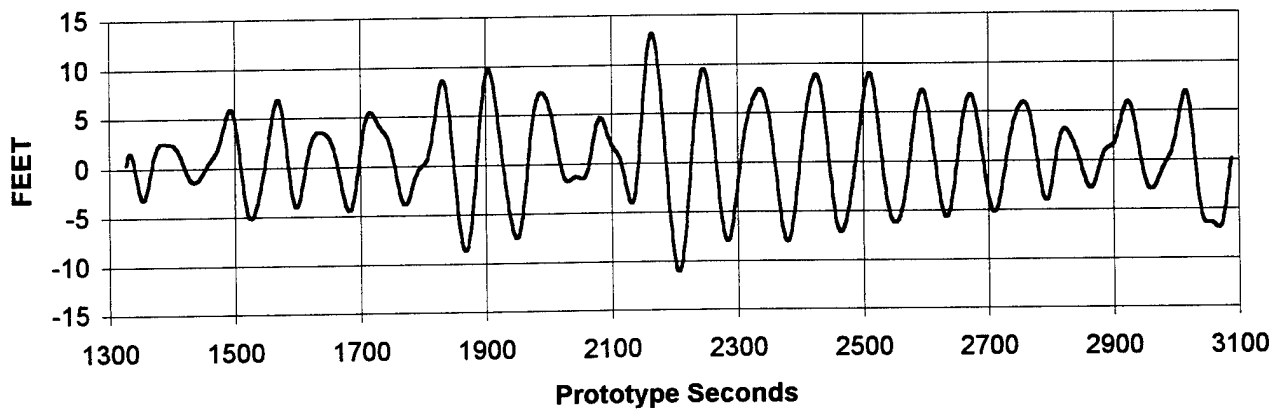


TEST A587 - PT HEAVE

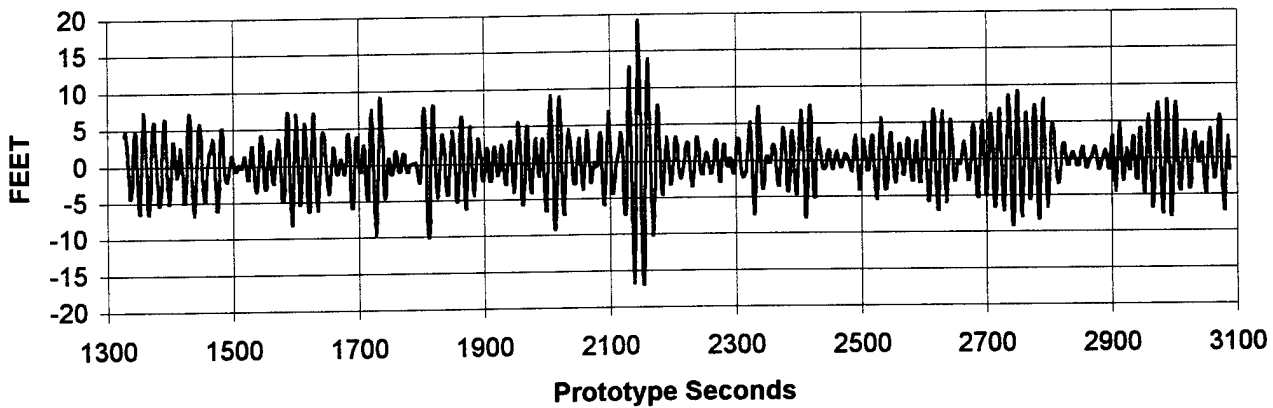
Unfiltered Time History



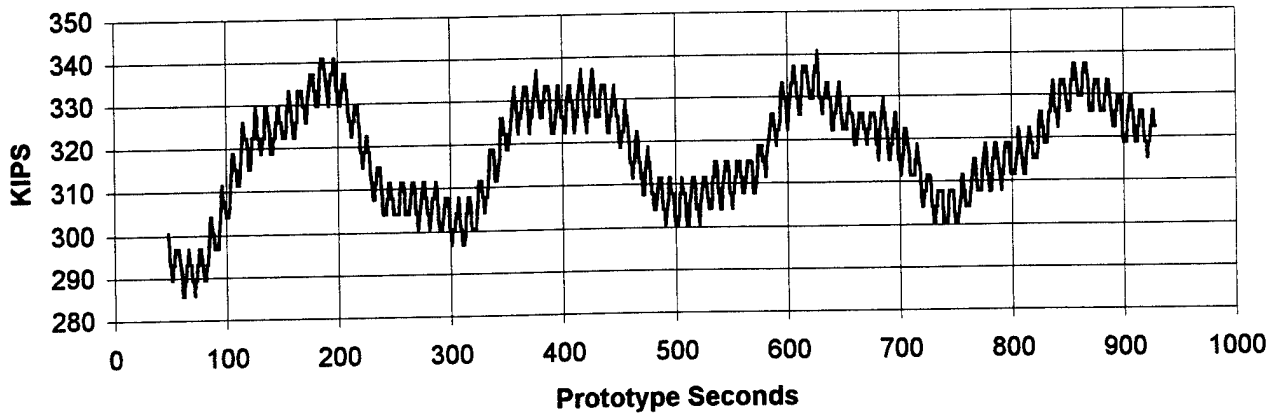
Filtered Low Frequency Time History



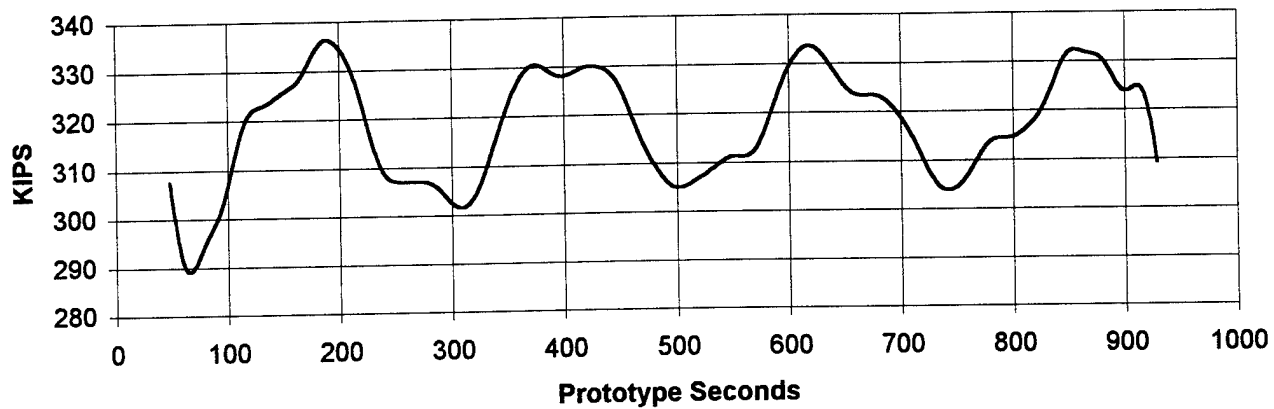
Filtered High Frequency Time History



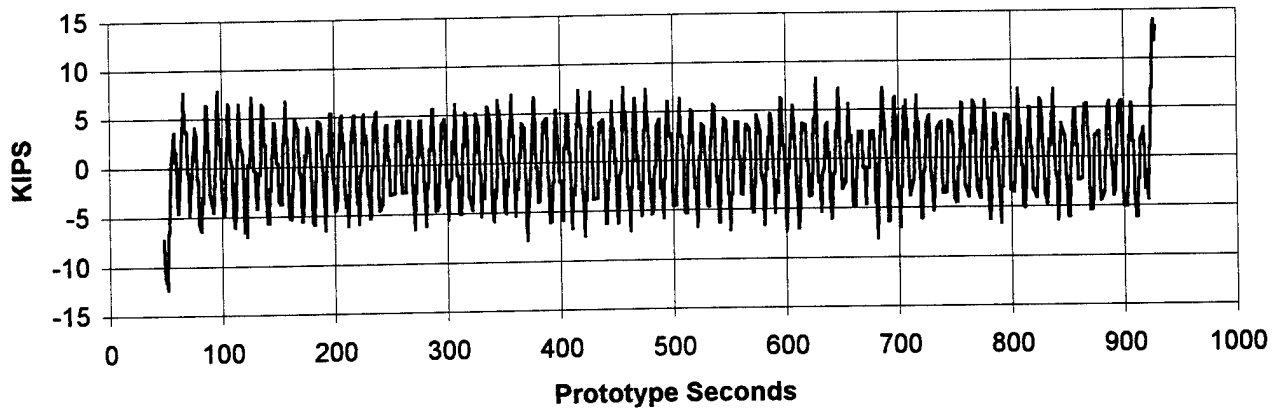
**Unfiltered Time History**



**Filtered Low Frequency Time History**



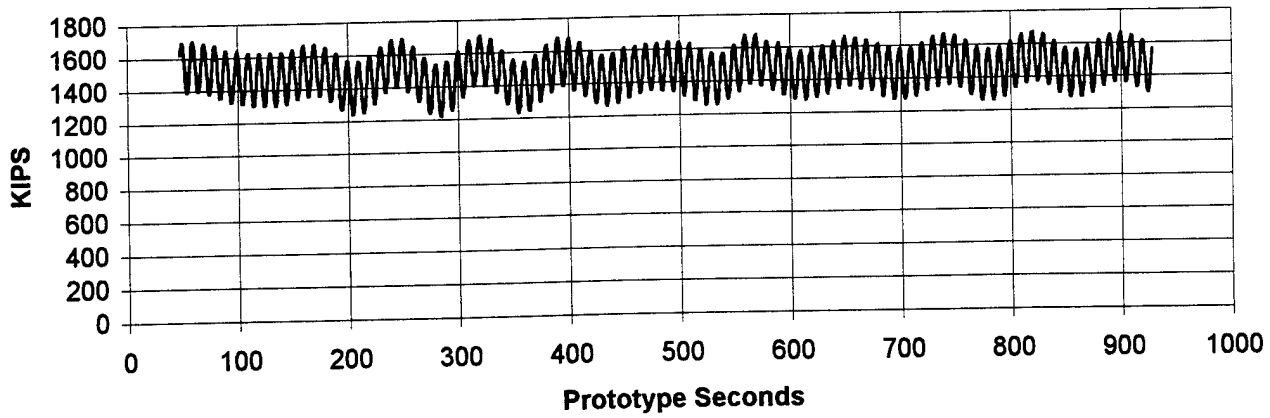
**Filtered High Frequency Time History**



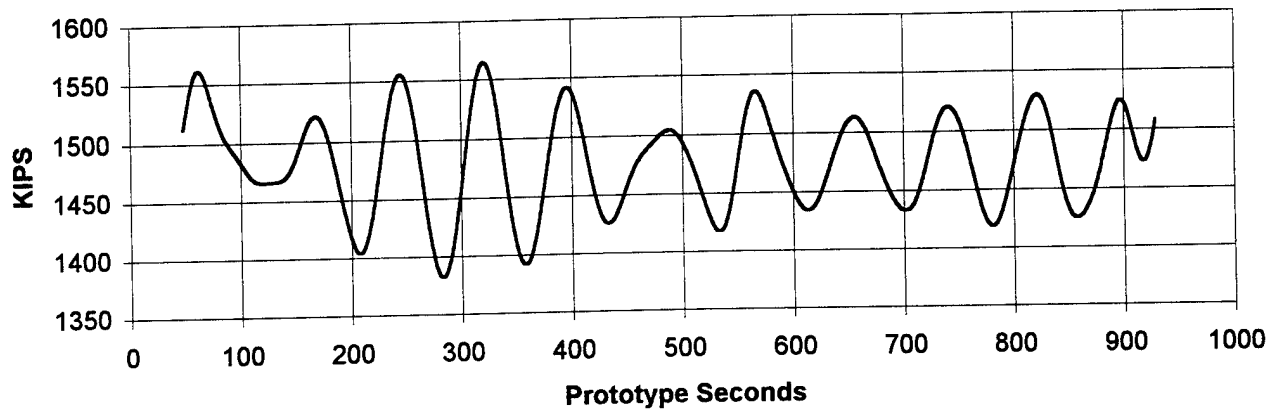


# TEST A593 - BUOY 1 TENSION

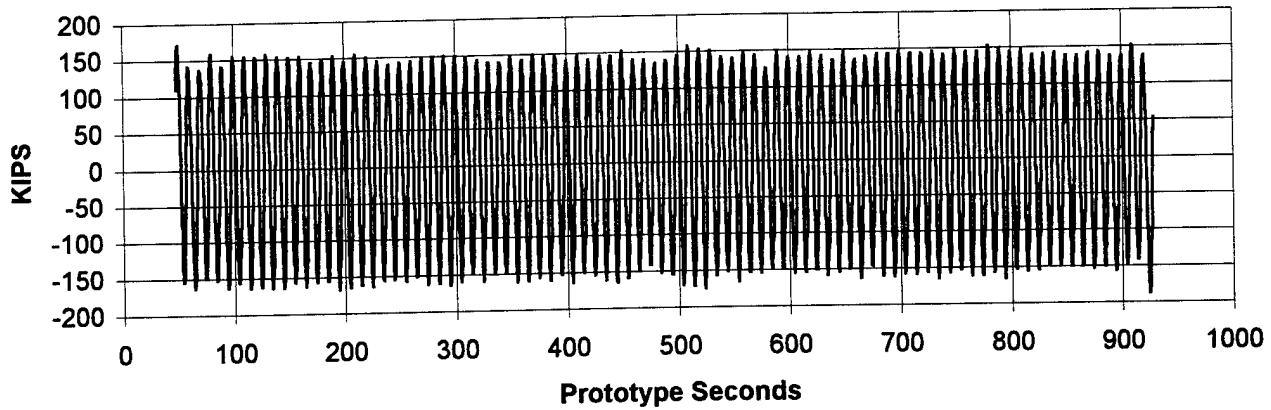
## Unfiltered Time History



## Filtered Low Frequency Time History

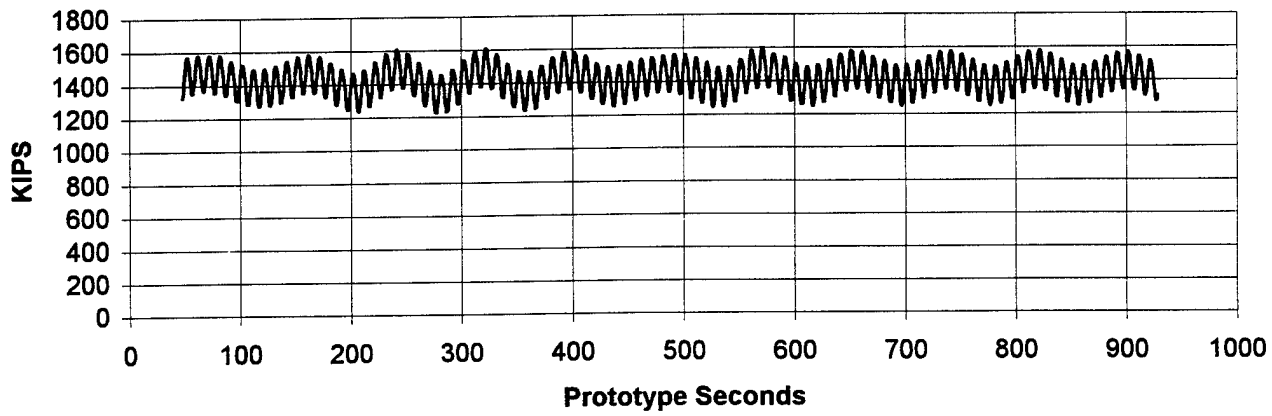


## Filtered High Frequency Time History

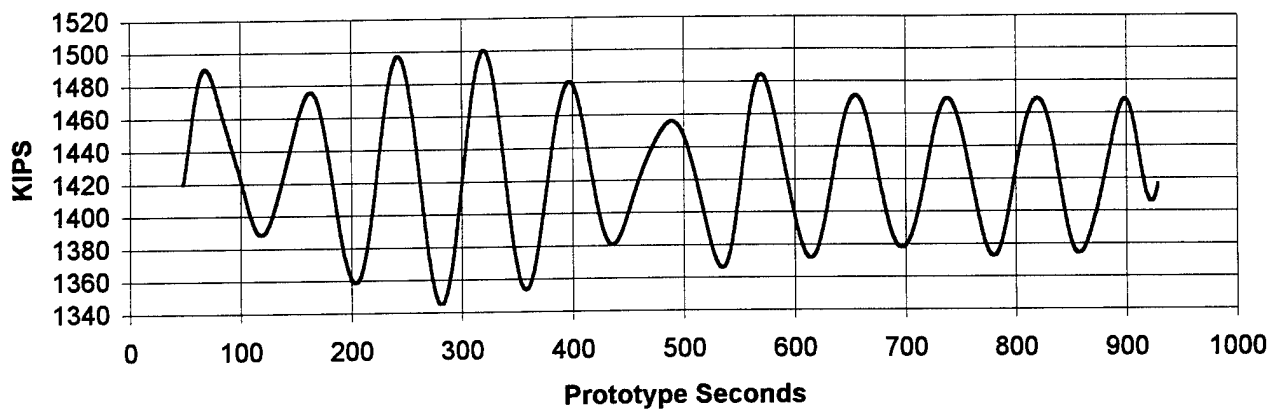


# TEST A593 - BUOY 2 TENSION

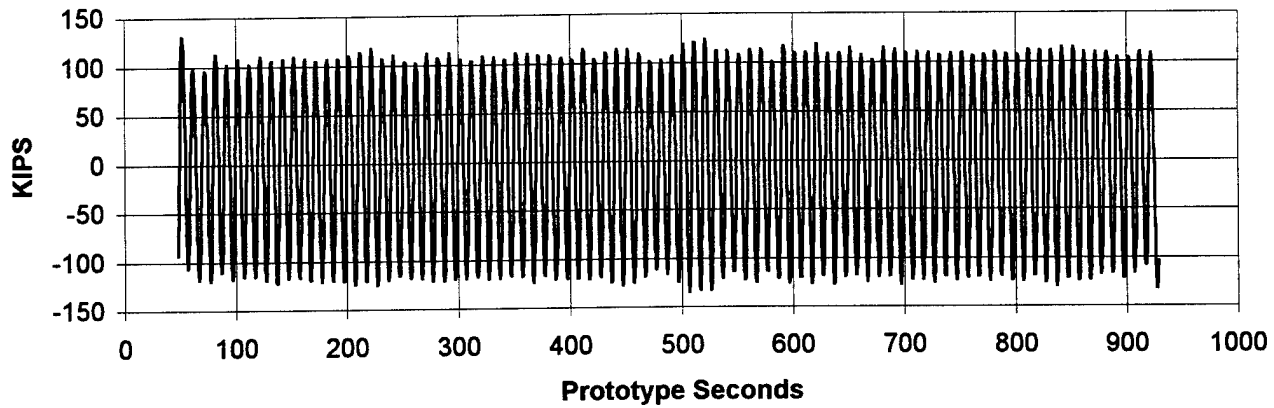
## Unfiltered Time History



## Filtered Low Frequency Time History

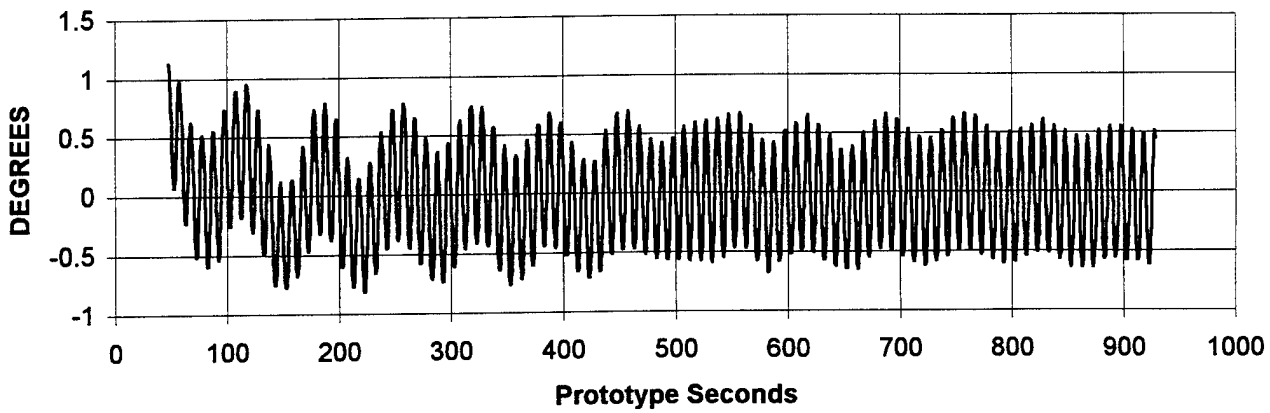


## Filtered High Frequency Time History

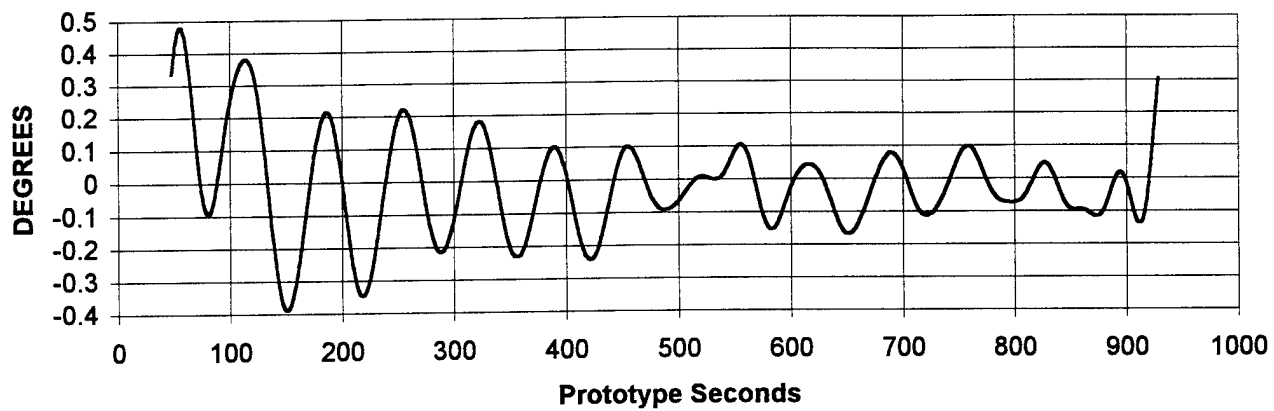


# TEST A593 - PITCH

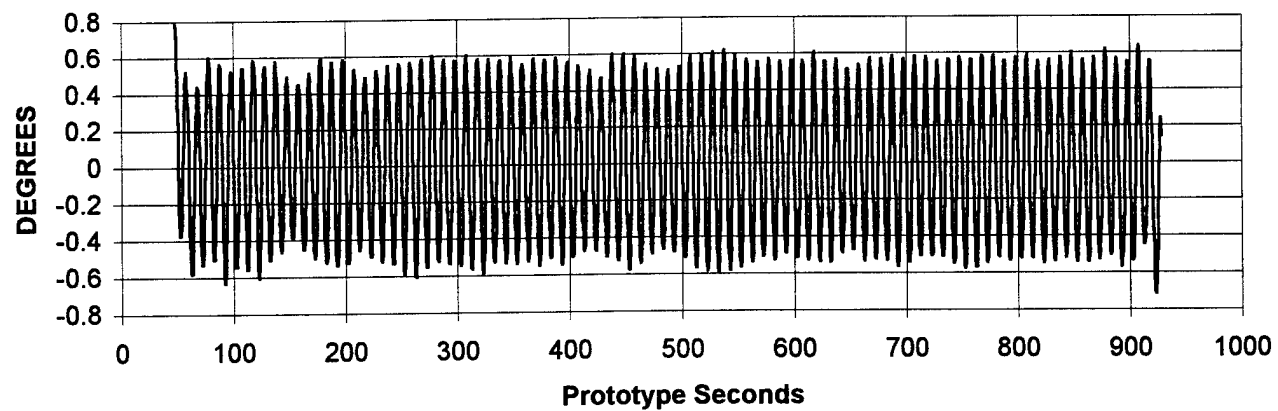
## Unfiltered Time History



## Filtered Low Frequency Time History

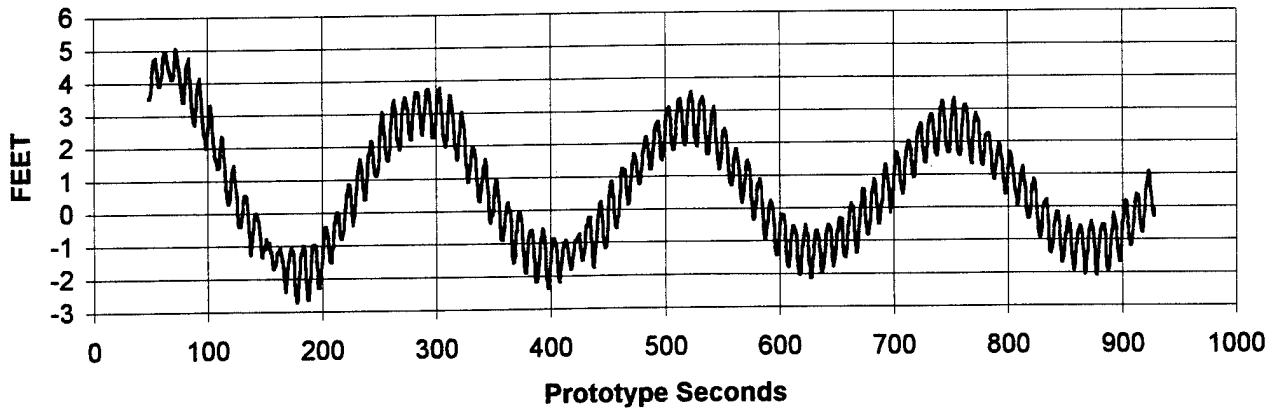


## Filtered High Frequency Time History

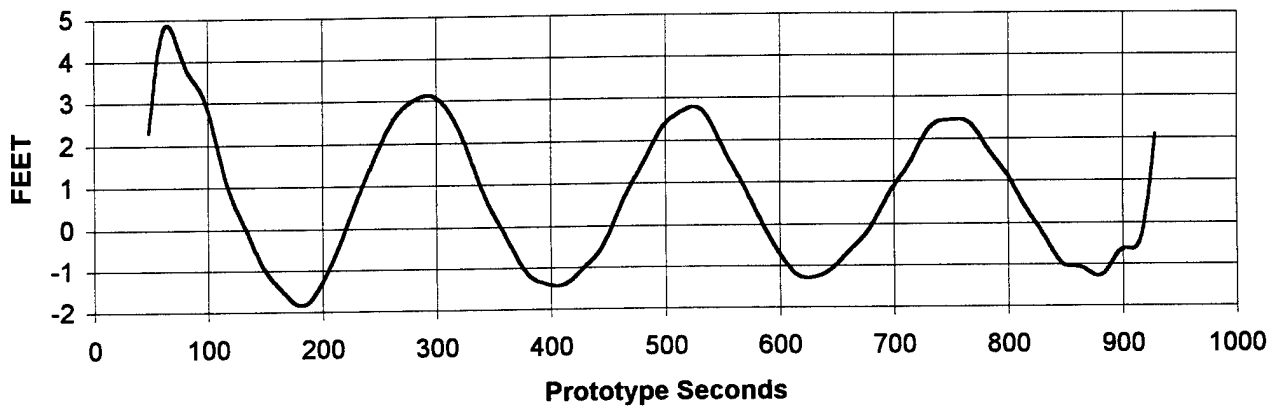


TEST A593 - PT SURGE

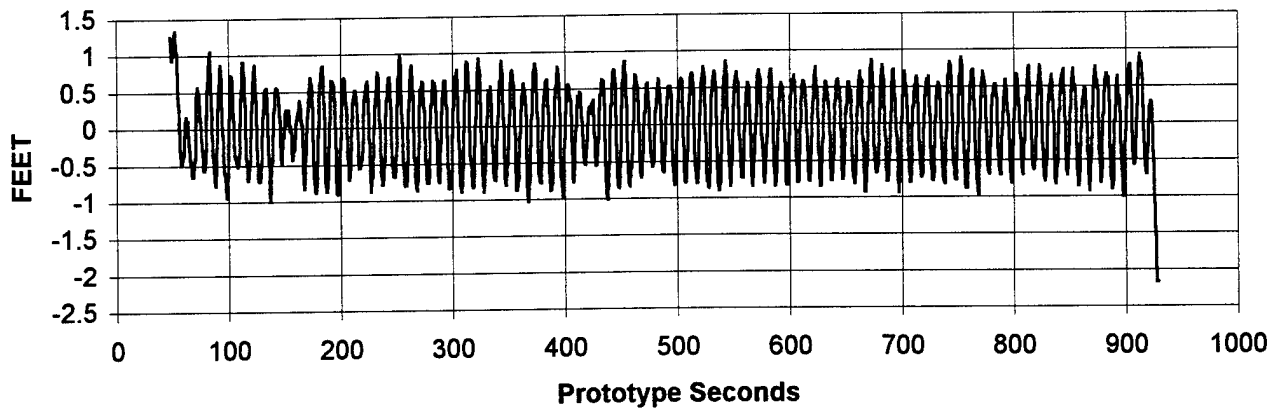
Unfiltered Time History



Filtered Low Frequency Time History

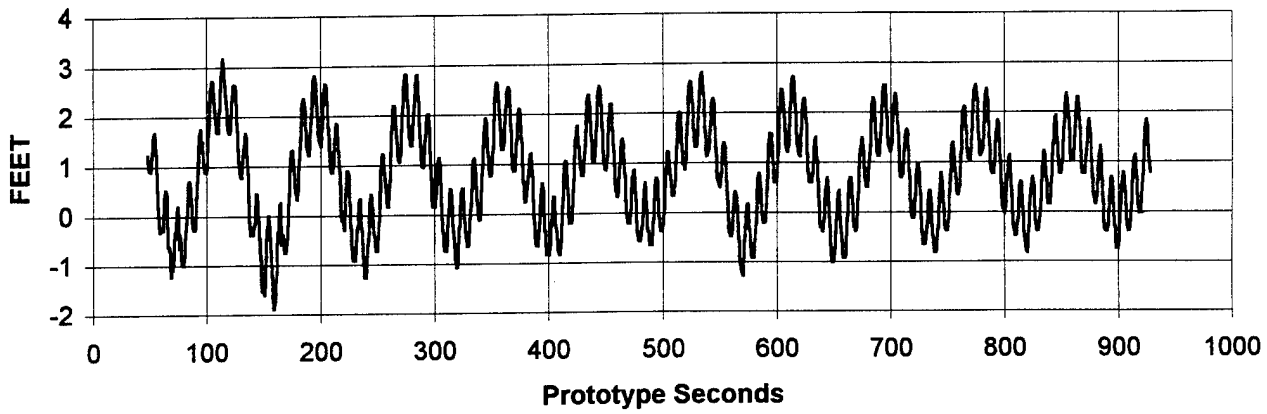


Filtered High Frequency Time History

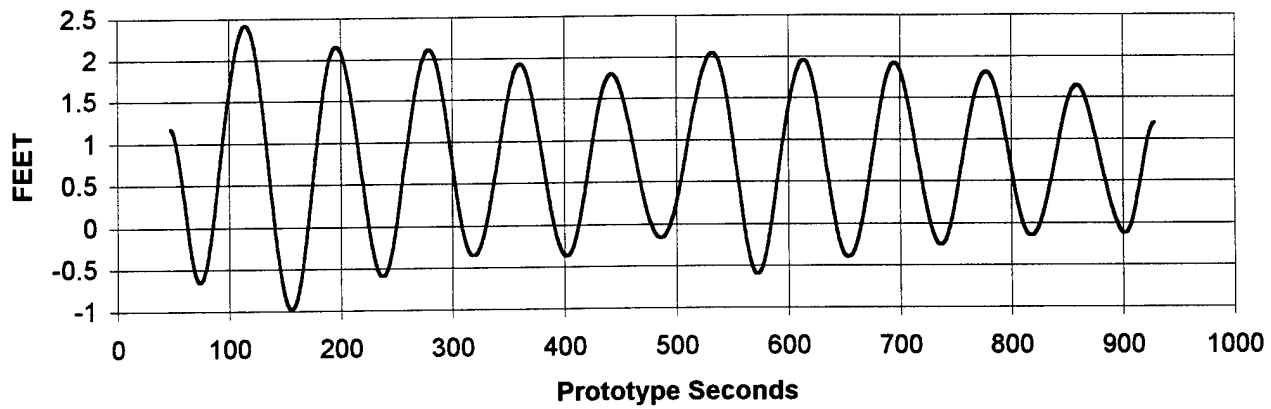


TEST A593 - PT HEAVE

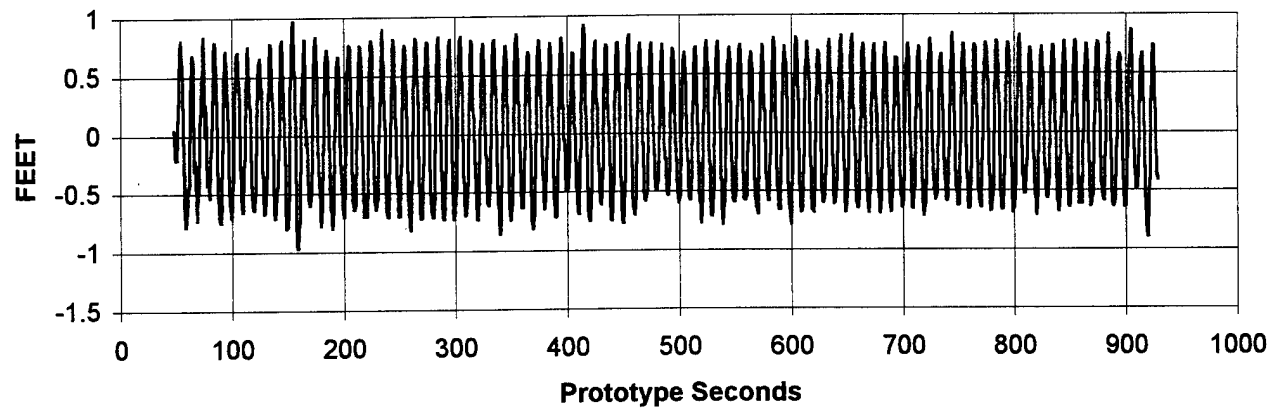
Unfiltered Time History



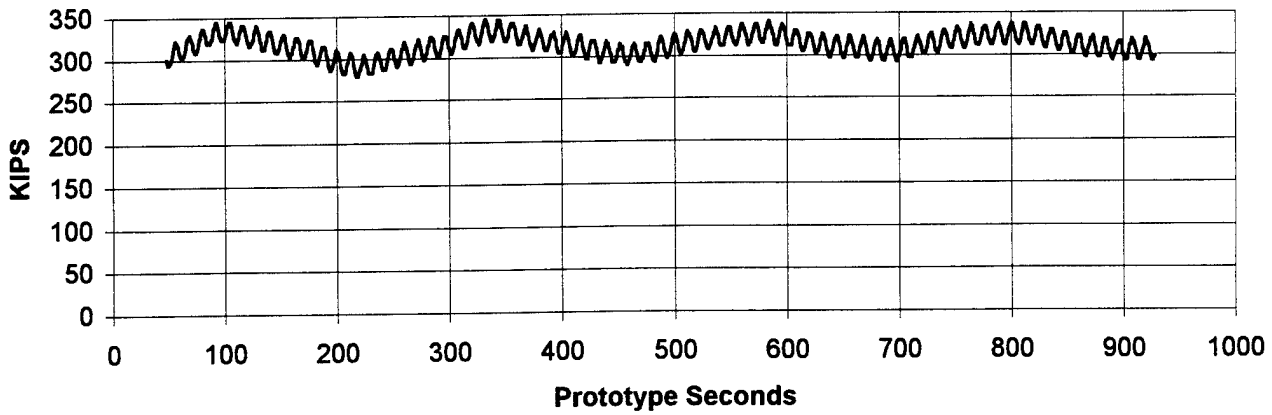
Filtered Low Frequency Time History



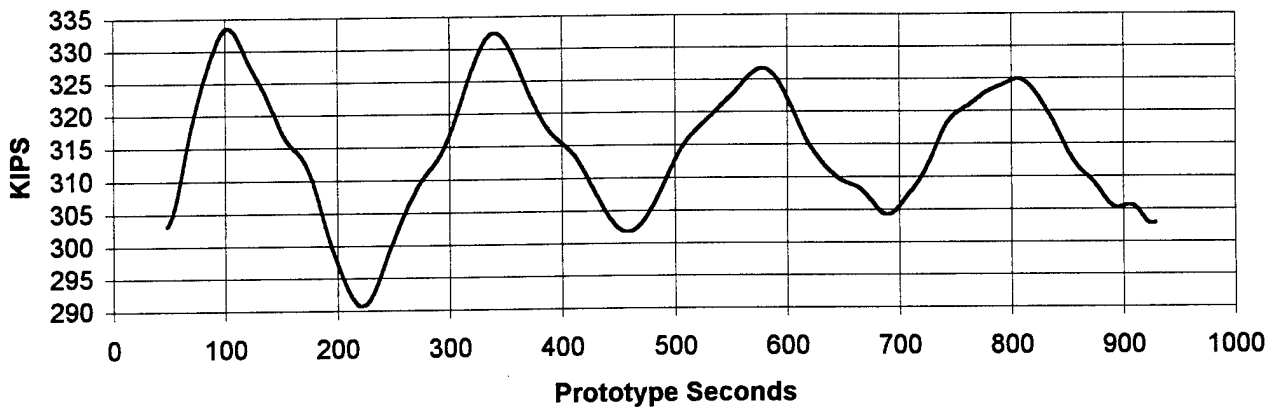
Filtered High Frequency Time History



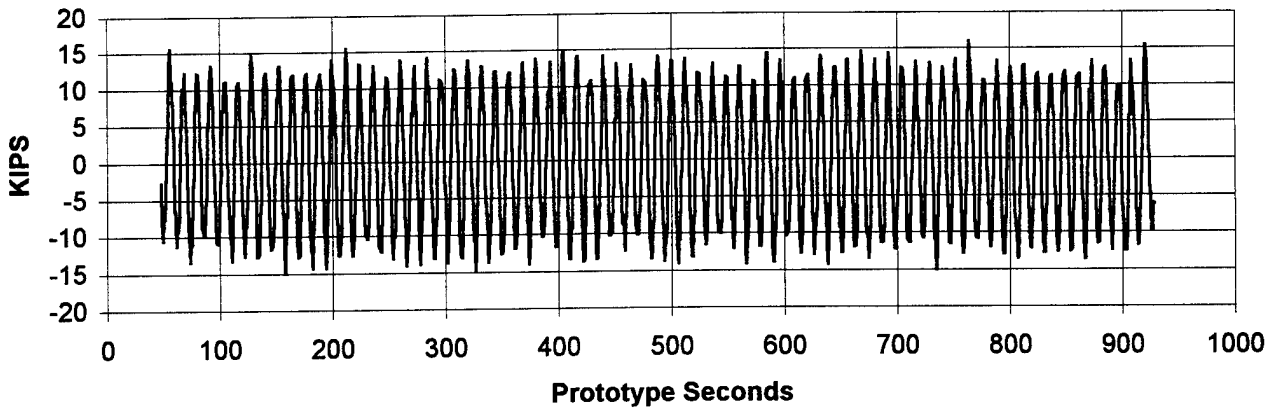
**Unfiltered Time History**



**Filtered Low Frequency Time History**

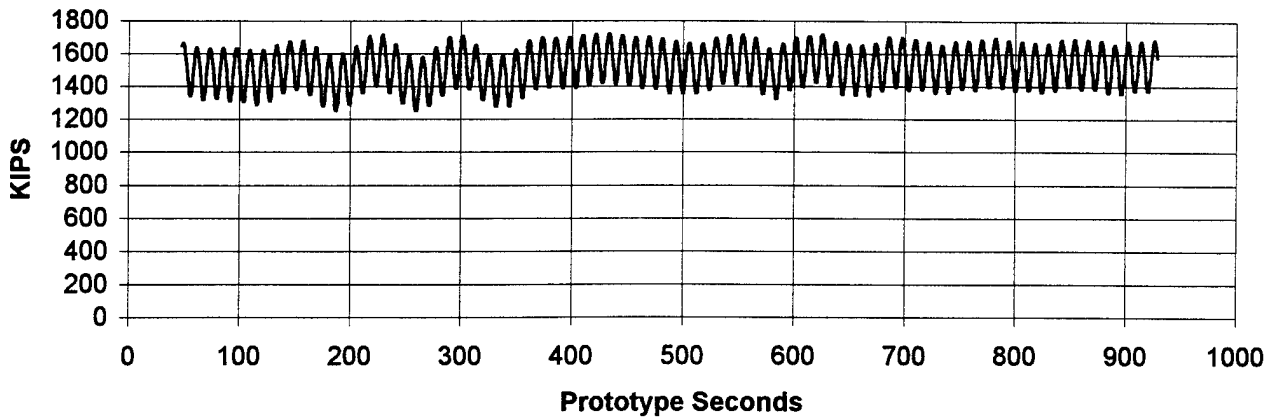


**Filtered High Frequency Time History**

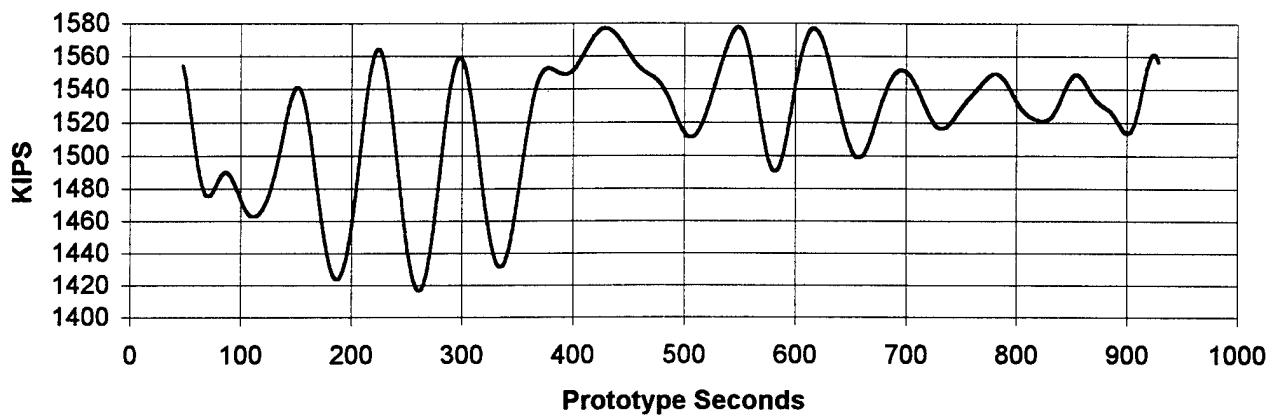


# TEST A594 - BUOY 2 TENSION

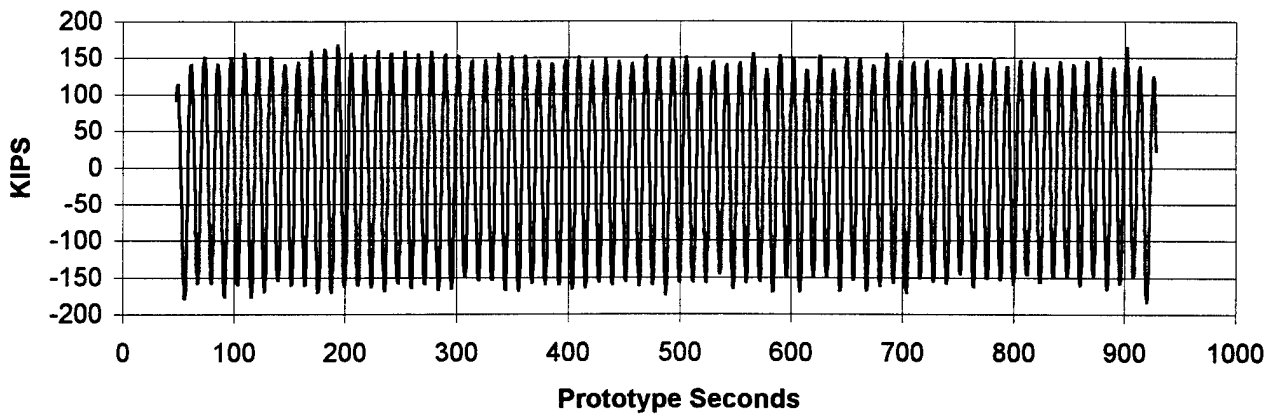
## Unfiltered Time History



## Filtered Low Frequency Time History

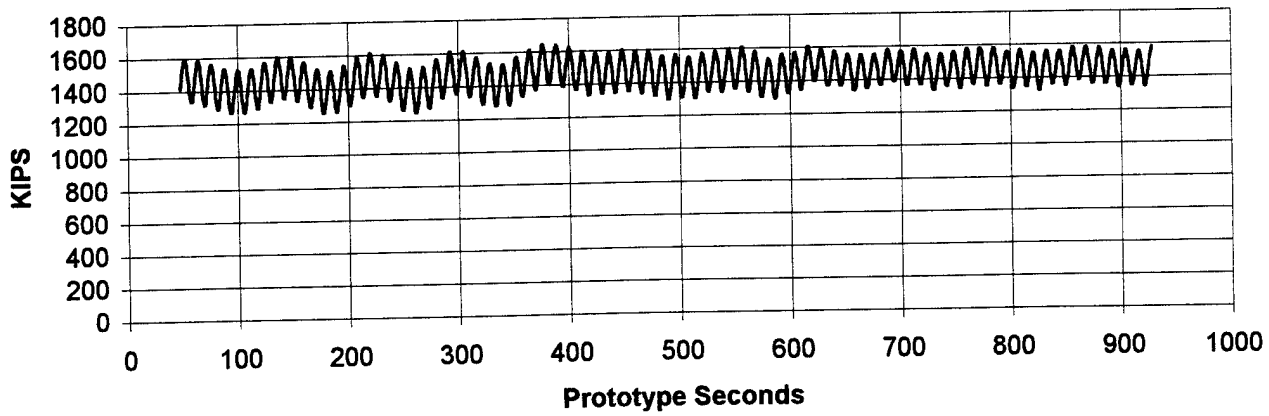


## Filtered High Frequency Time History

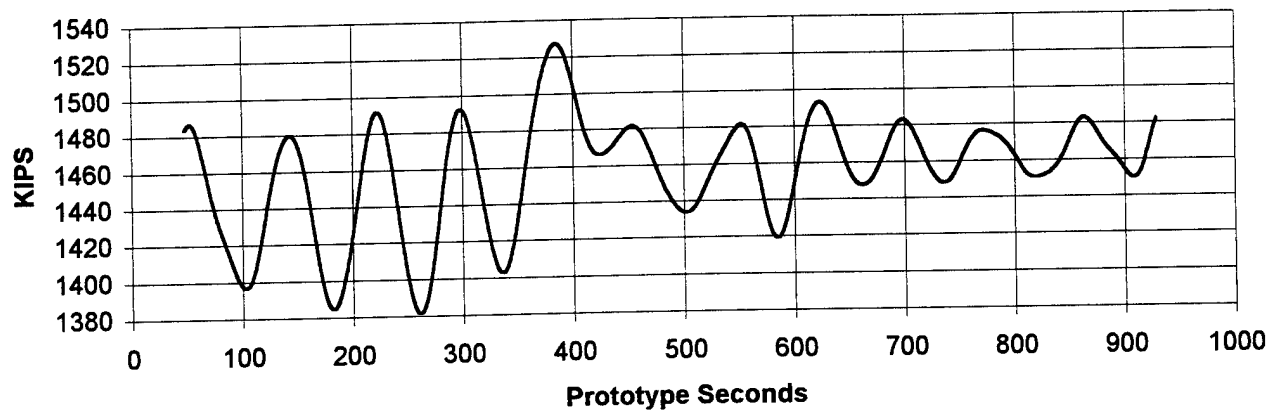


# TEST A594 - BUOY 2 TENSION

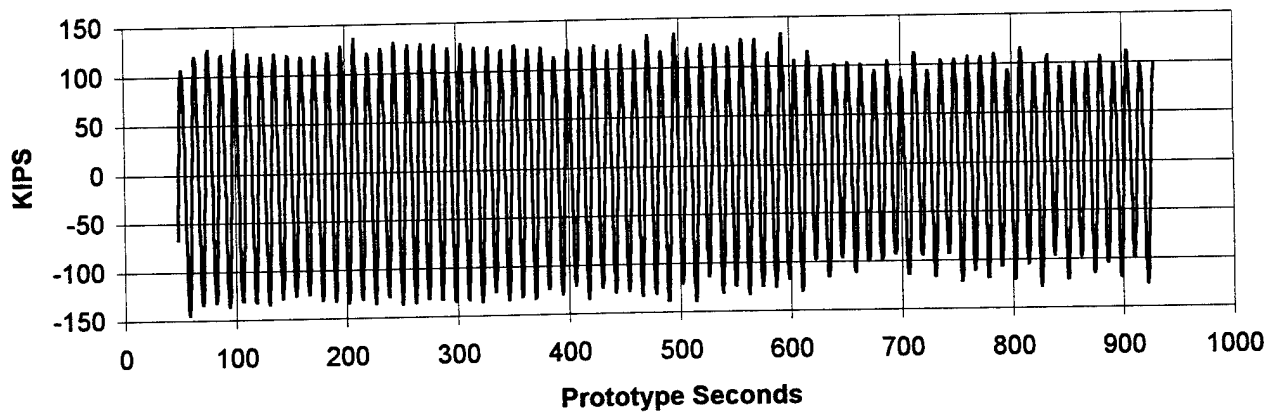
## Unfiltered Time History



## Filtered Low Frequency Time History



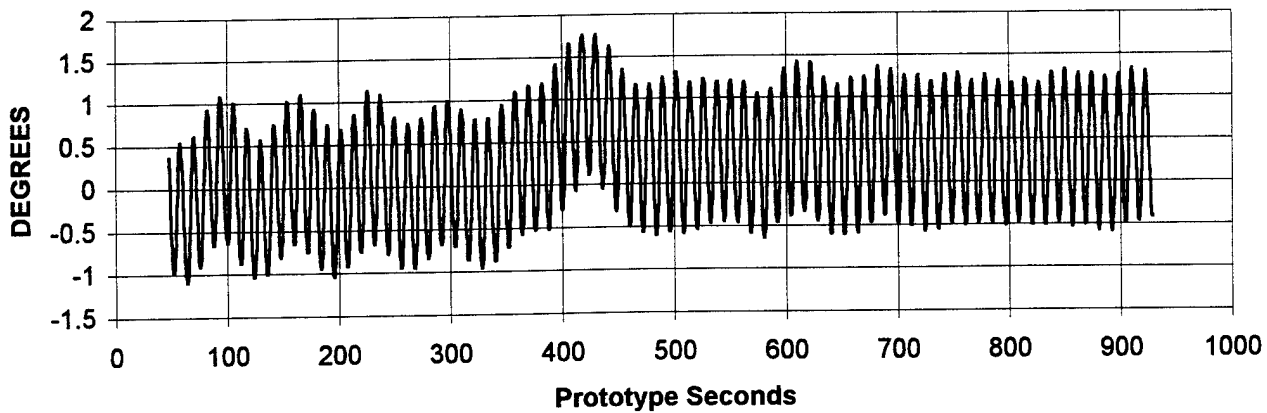
## Filtered High Frequency Time History



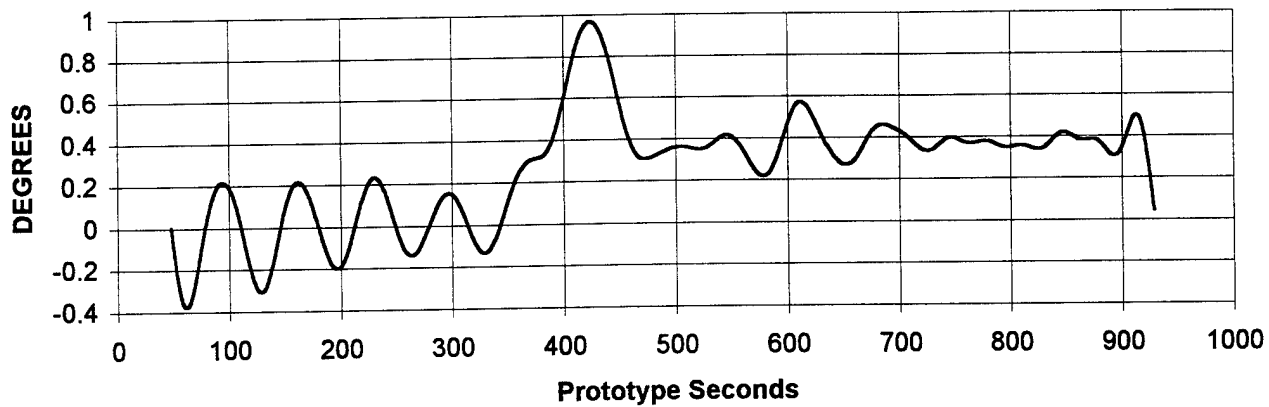


# TEST A594 - PITCH

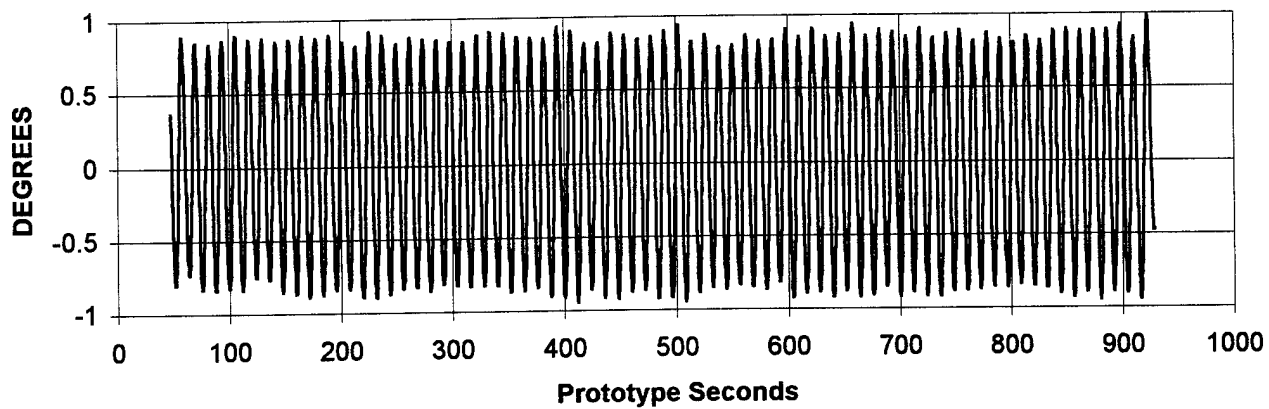
## Unfiltered Time History



## Filtered Low Frequency Time History

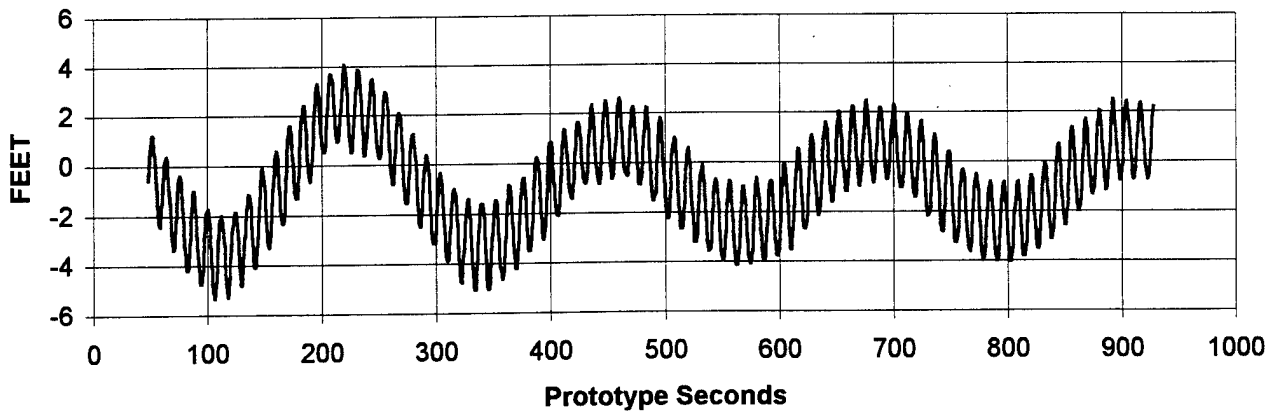


## Filtered High Frequency Time History

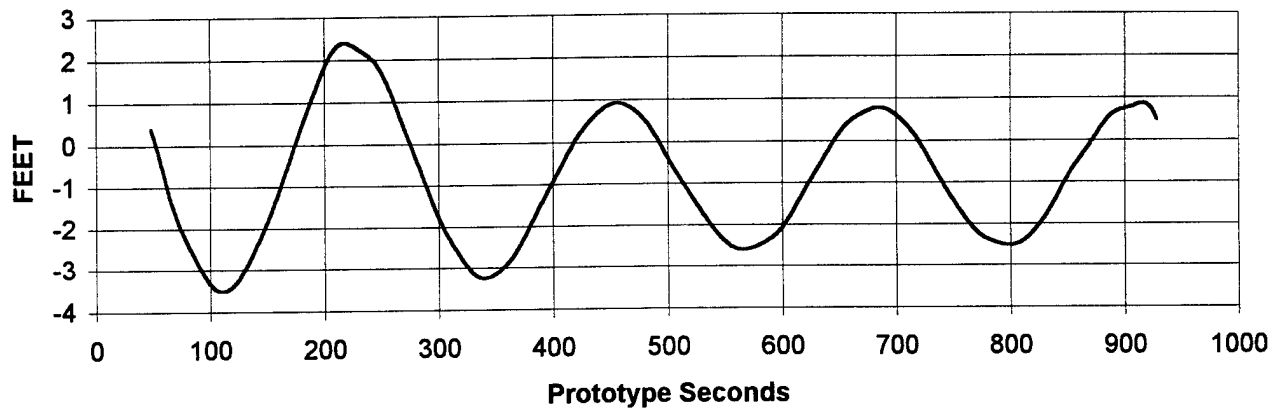


# TEST A594 - PT SURGE

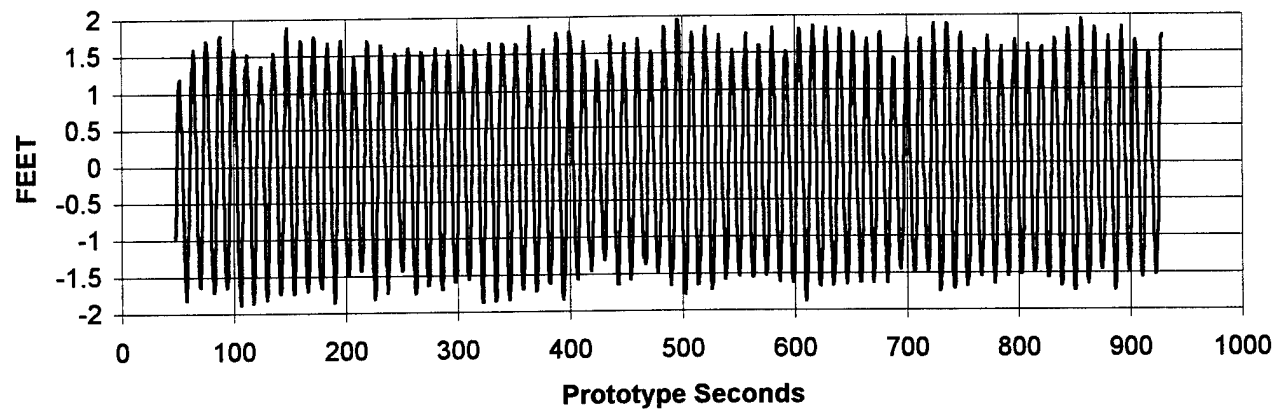
## Unfiltered Time History



## Filtered Low Frequency Time History

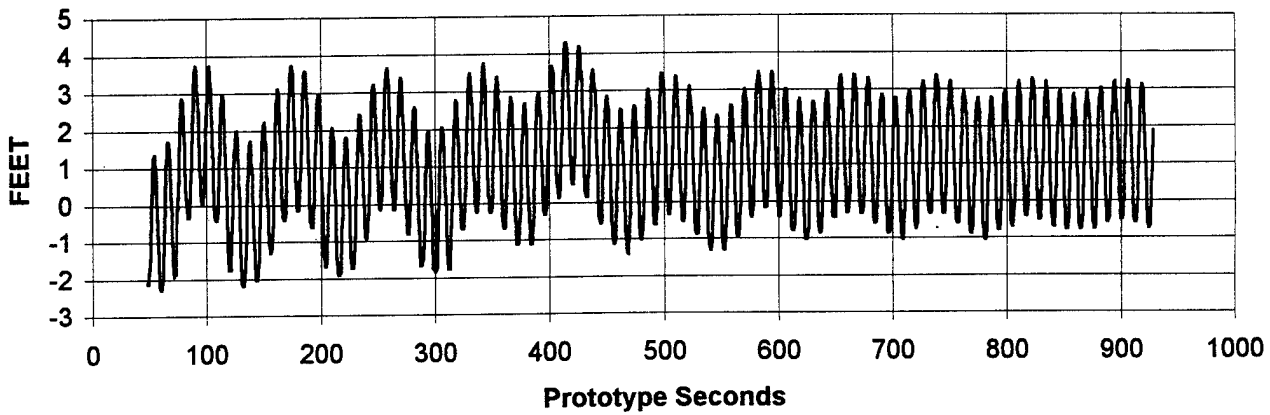


## Filtered High Frequency Time History

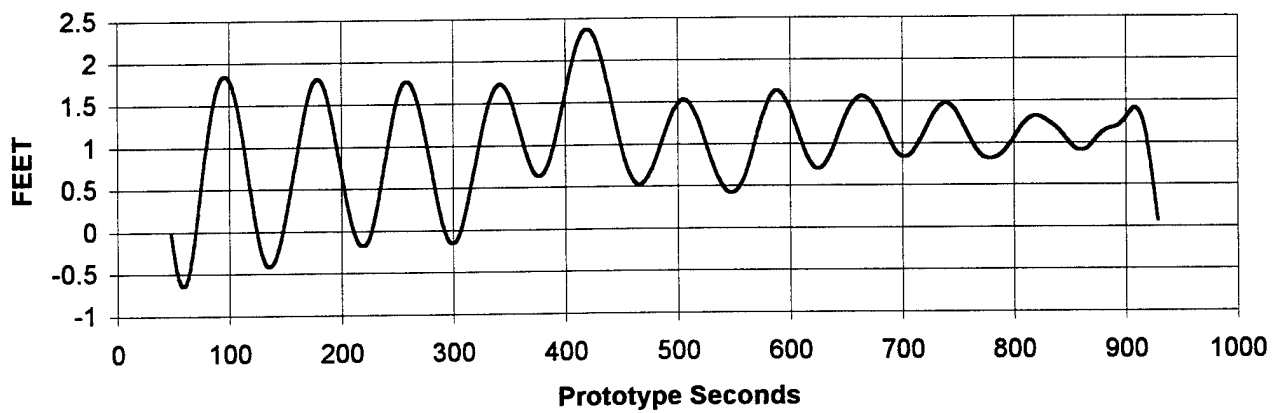


TEST A594 - PT HEAVE

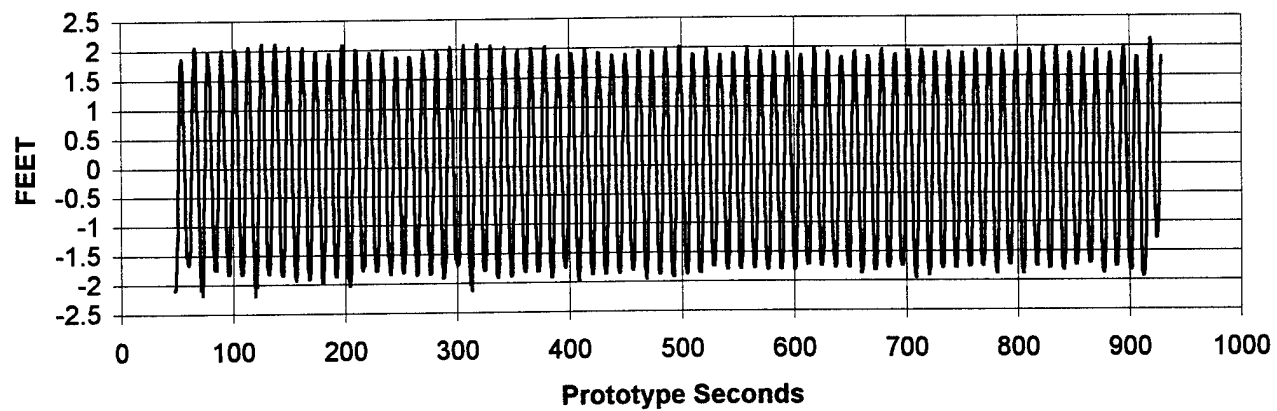
Unfiltered Time History



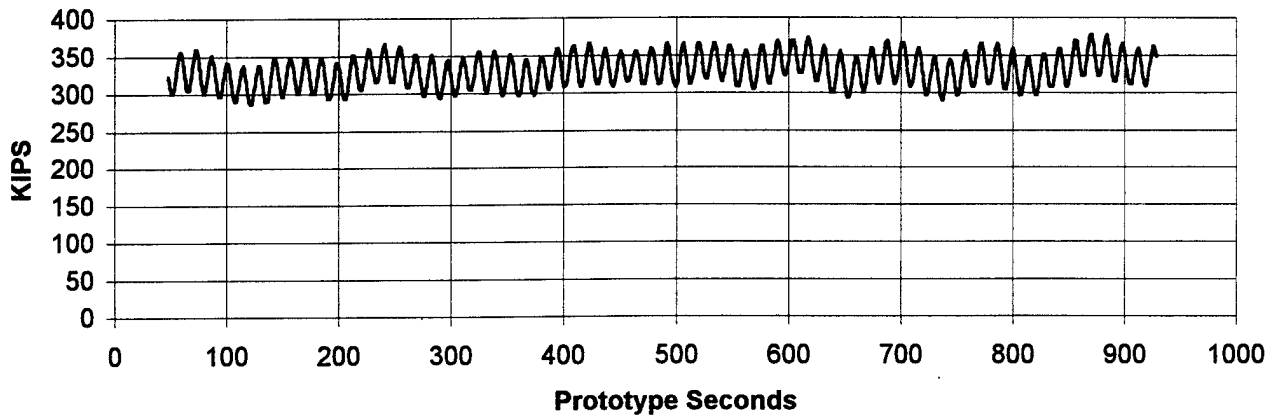
Filtered Low Frequency Time History



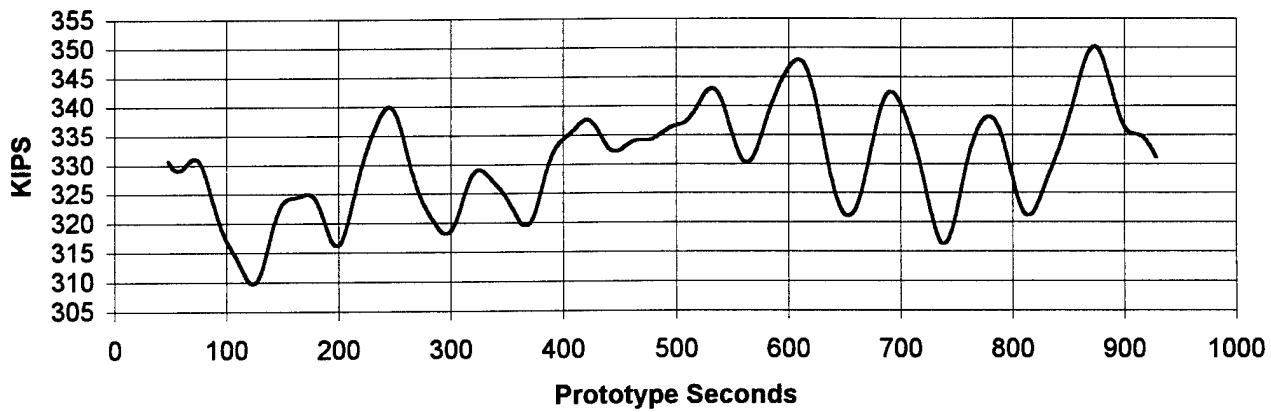
Filtered High Frequency Time History



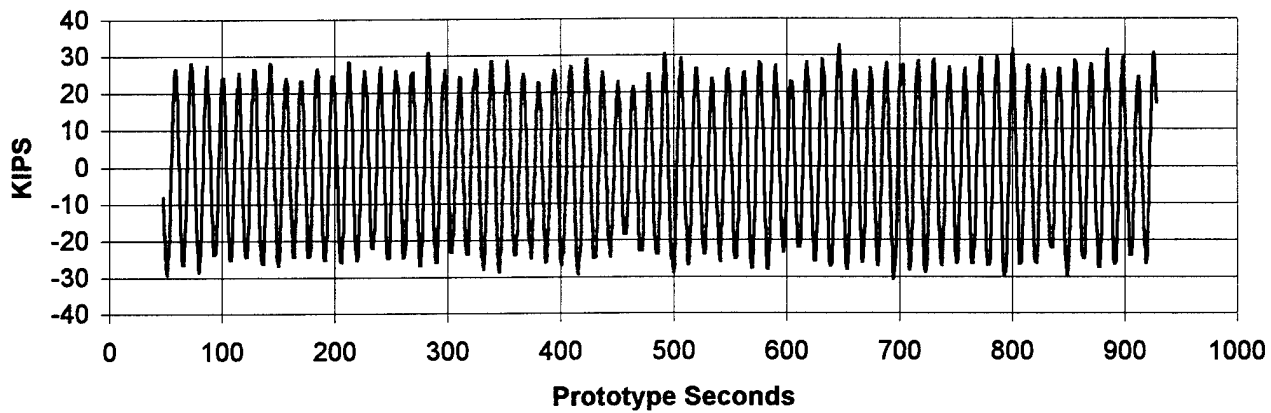
**Unfiltered Time History**



**Filtered Low Frequency Time History**

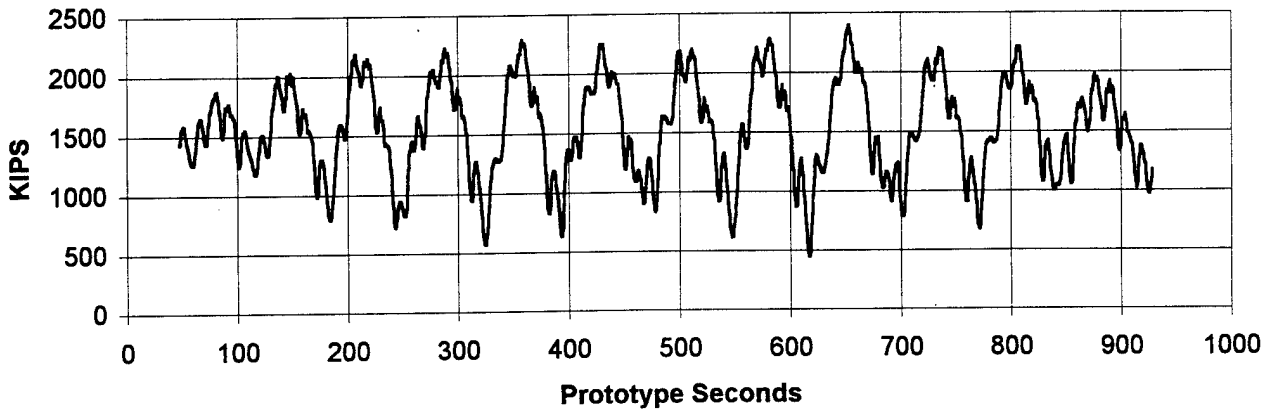


**Filtered High Frequency Time History**

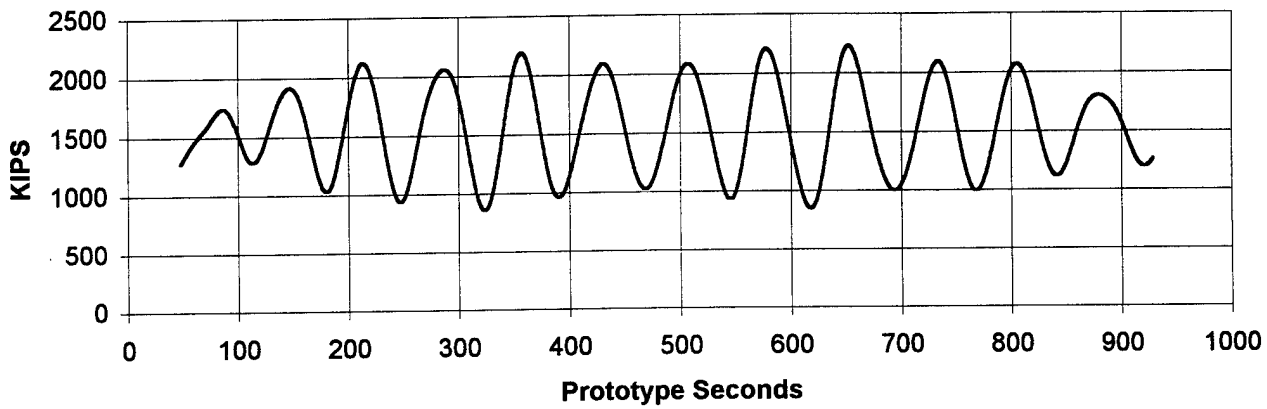


# TEST A595 - BUOY 1 TENSION

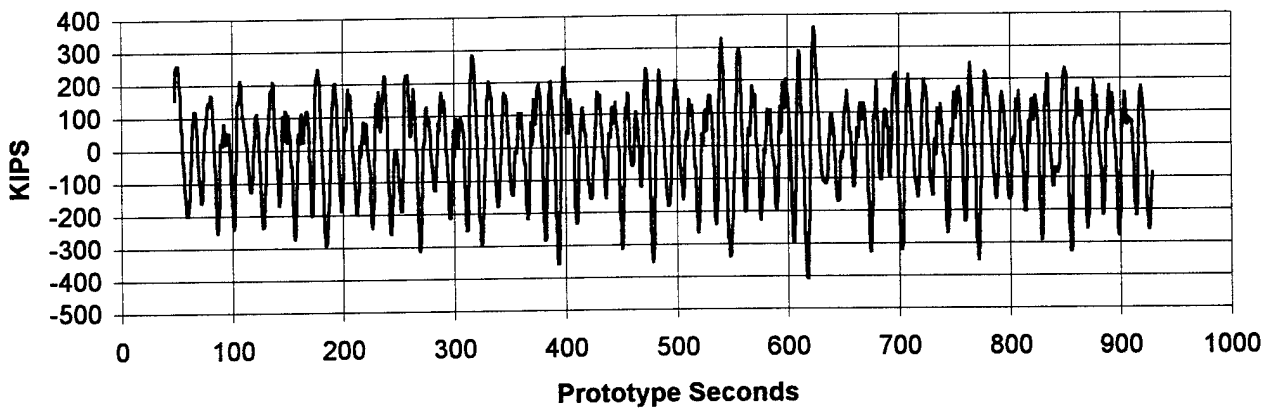
## Unfiltered Time History



## Filtered Low Frequency Time History

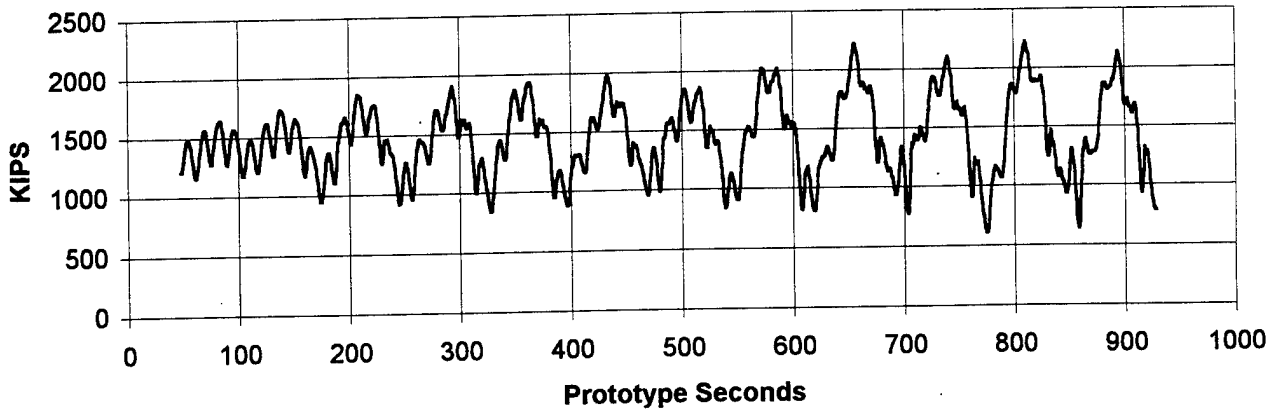


## Filtered High Frequency Time History

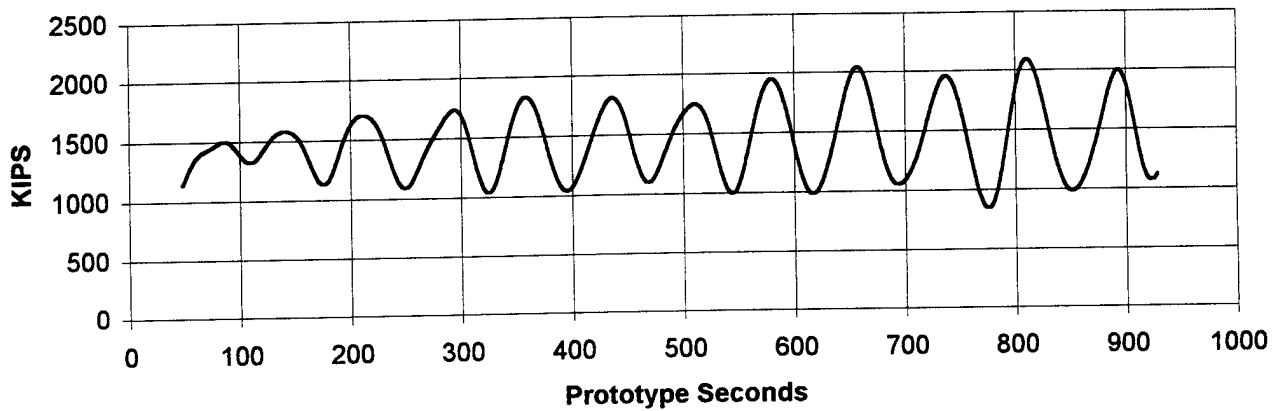


TEST A595 - BUOY 2 TENSION

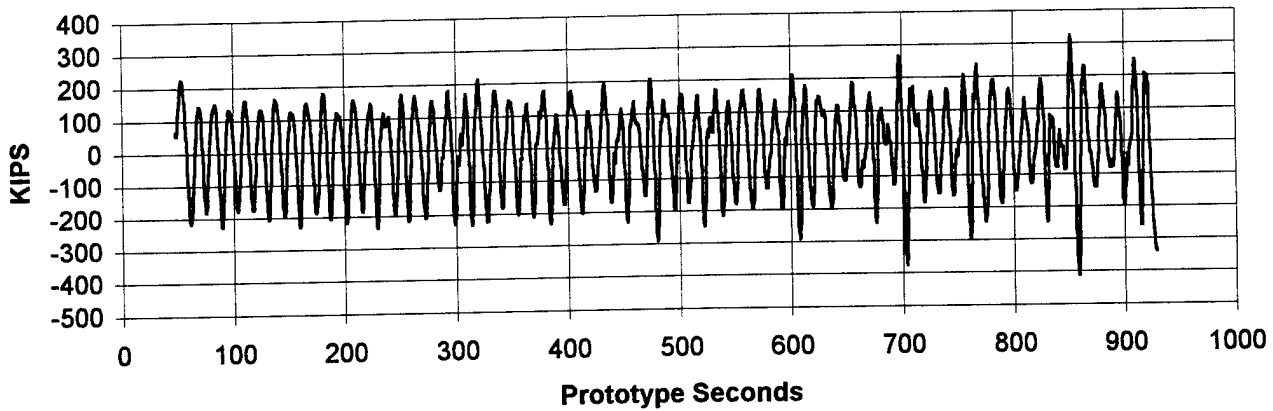
Unfiltered Time History



Filtered Low Frequency Time History

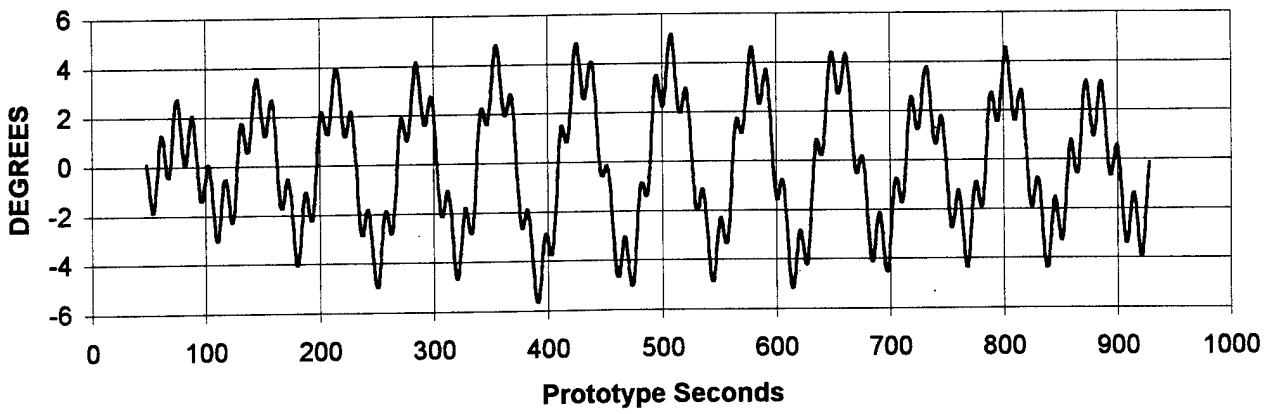


Filtered High Frequency Time History

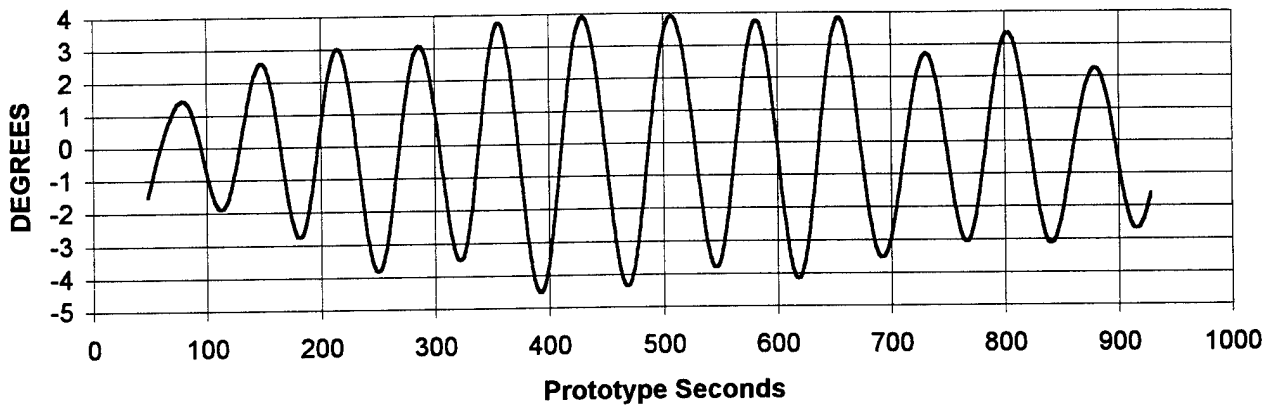


TEST A595 - PITCH

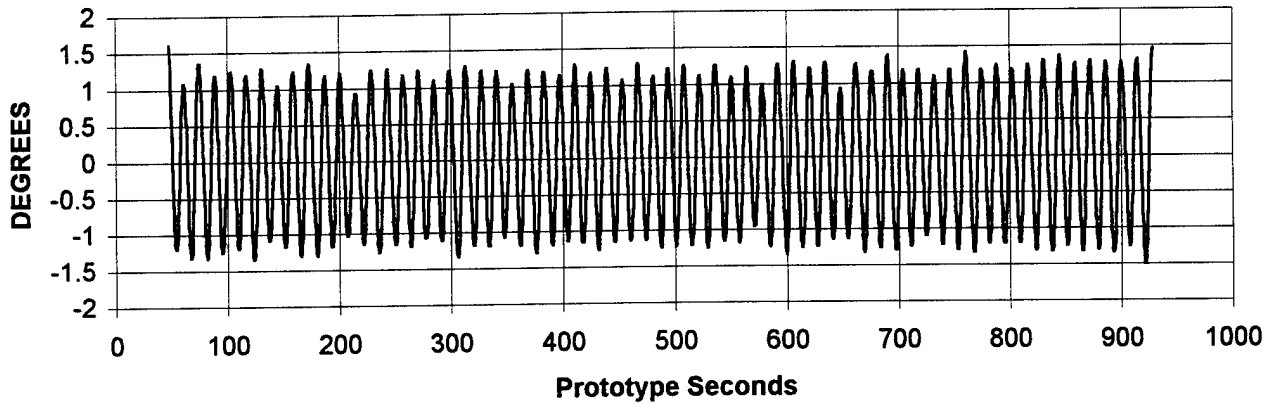
Unfiltered Time History



Filtered Low Frequency Time History

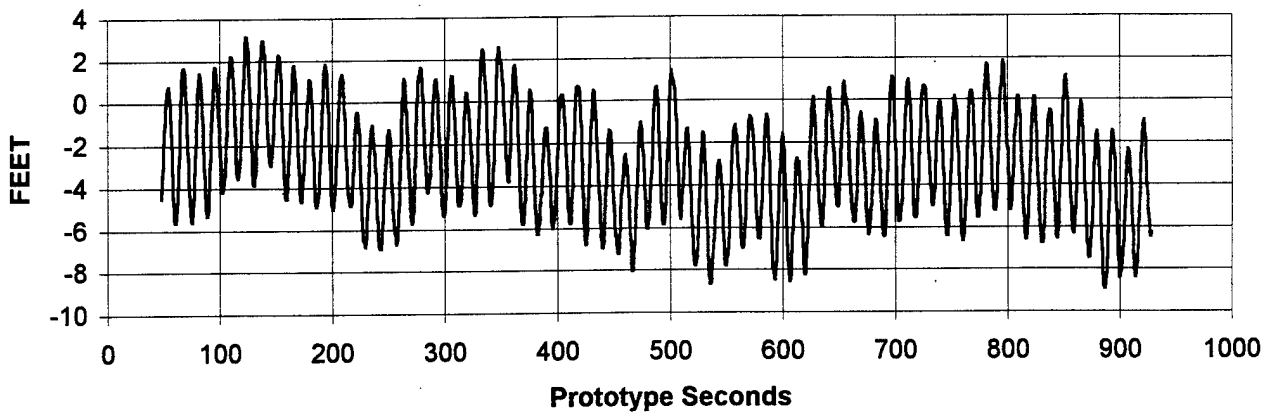


Filtered High Frequency Time History

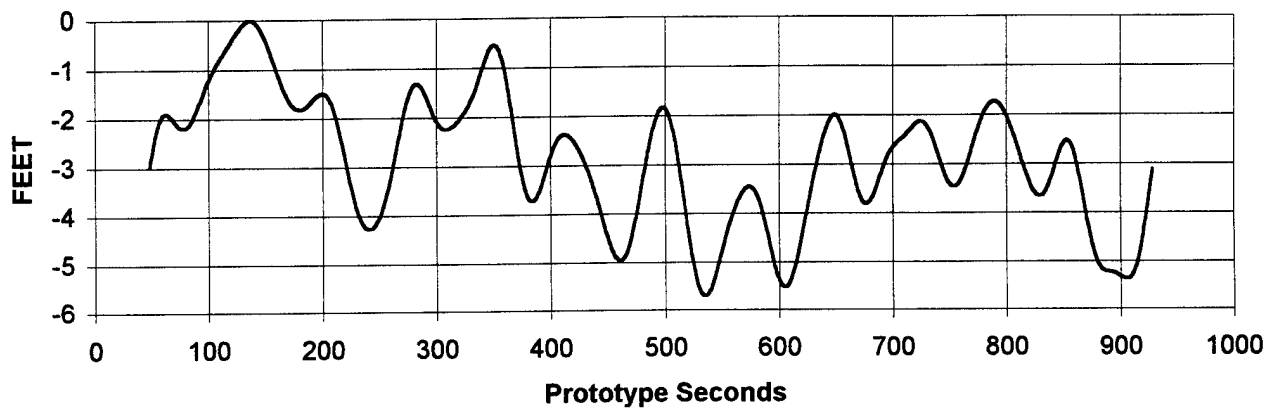


TEST A595 - PT SURGE

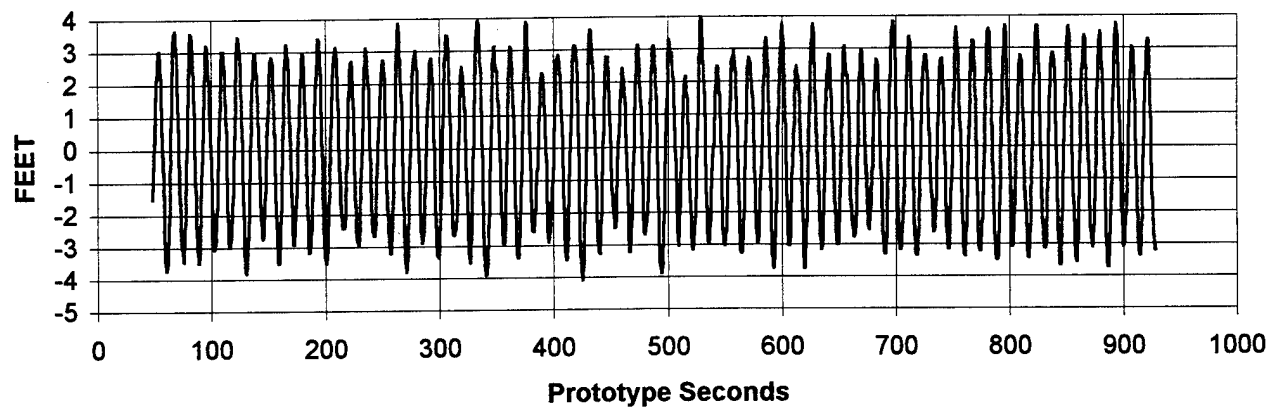
Unfiltered Time History



Filtered Low Frequency Time History



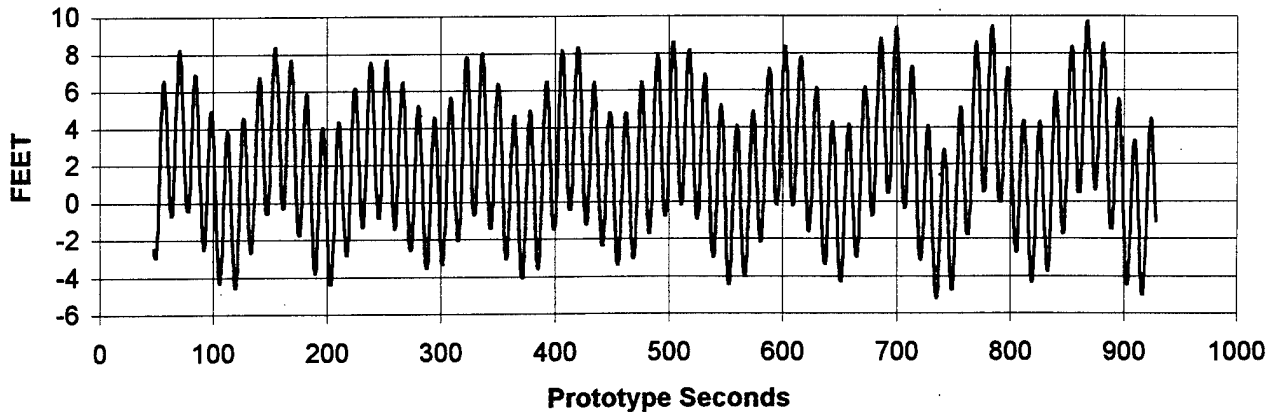
Filtered High Frequency Time History



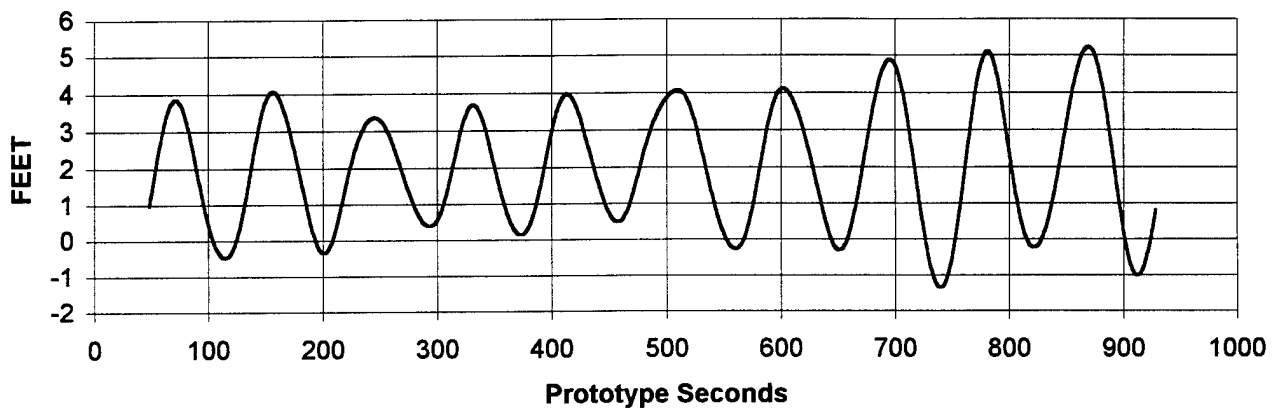


TEST A595 - PT HEAVE

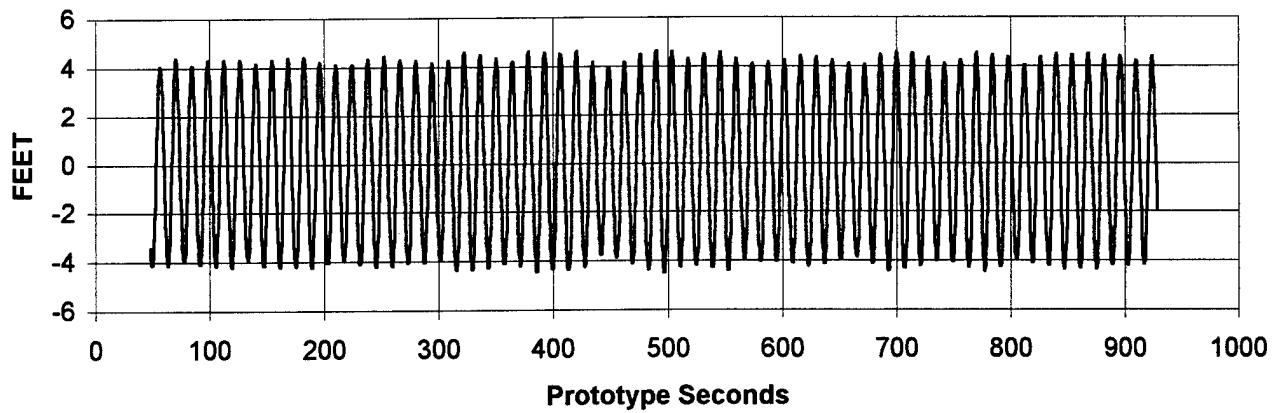
Unfiltered Time History



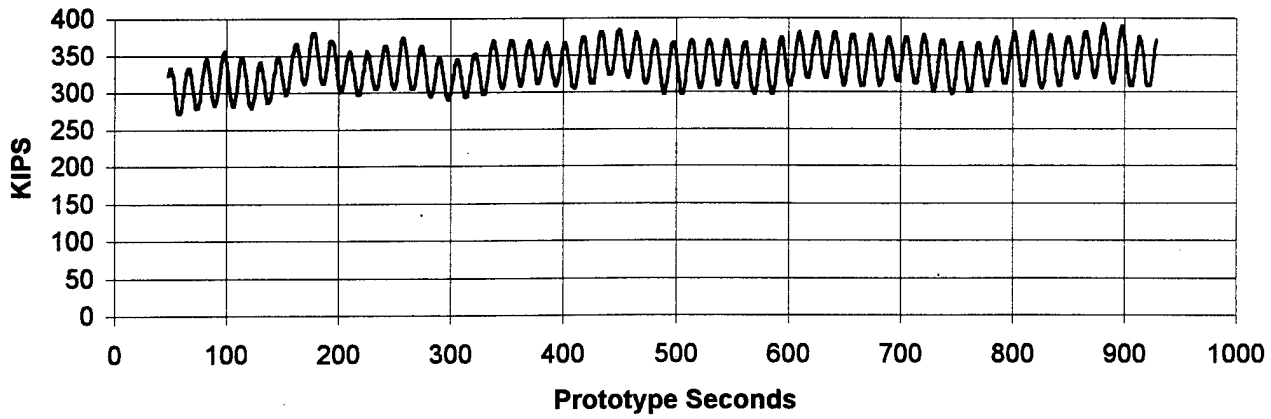
Filtered Low Frequency Time History



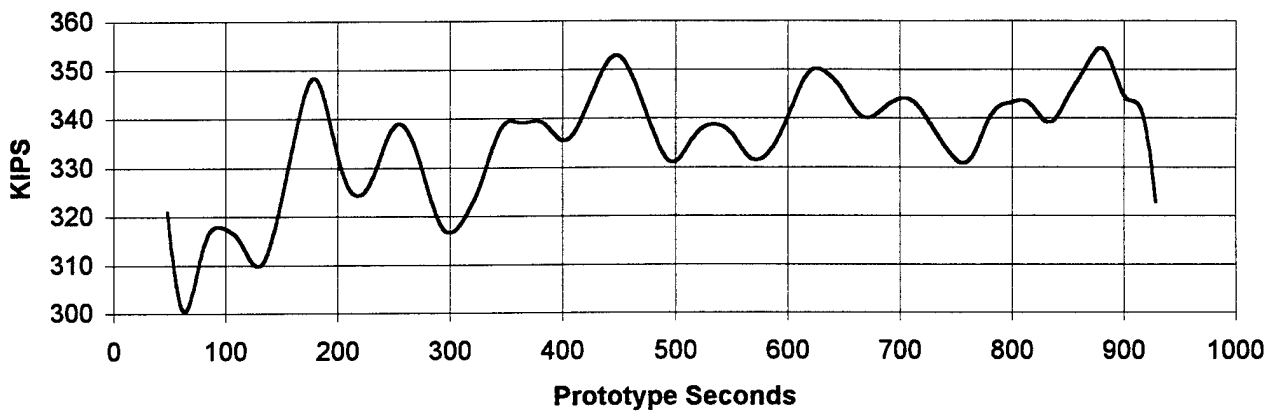
Filtered High Frequency Time History



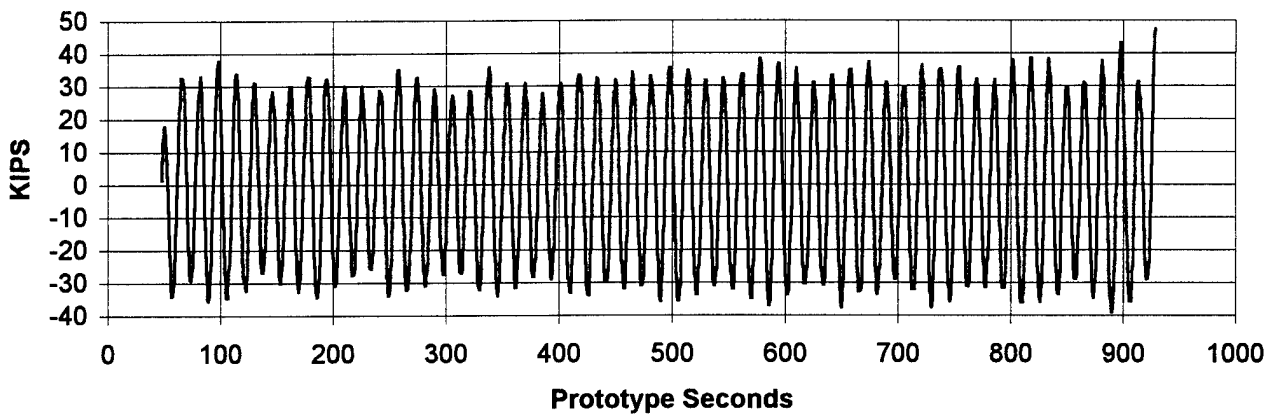
**Unfiltered Time History**



**Filtered Low Frequency Time History**

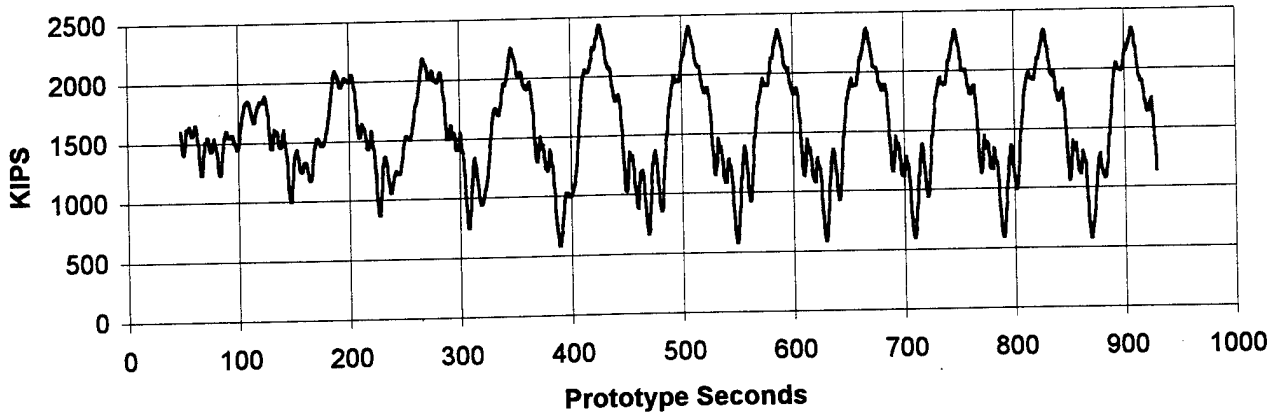


**Filtered High Frequency Time History**

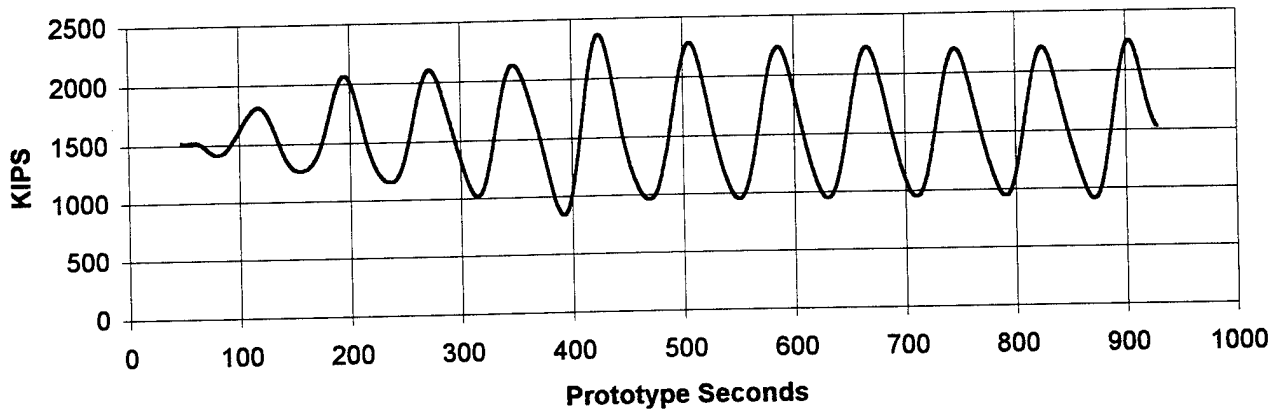


# TEST A596 - BUOY 1 TENSION

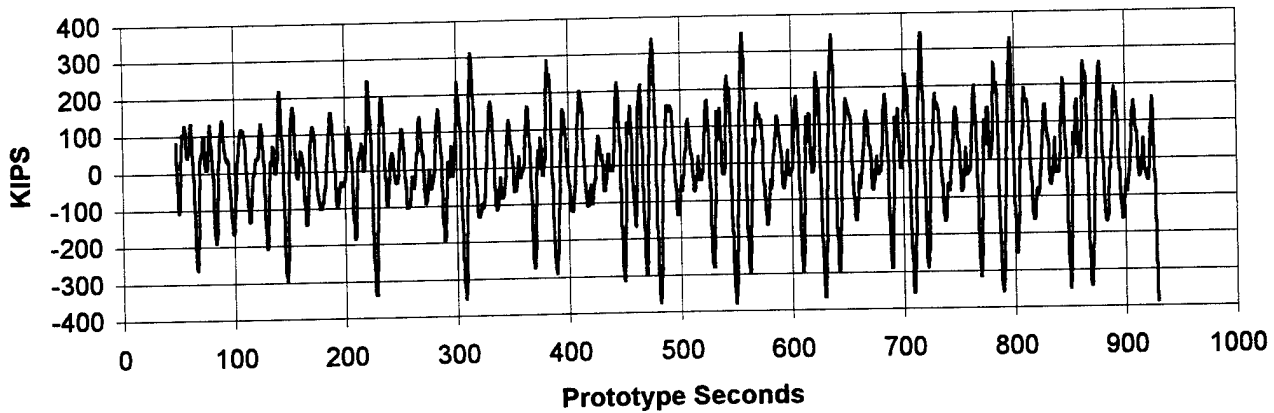
## Unfiltered Time History



## Filtered Low Frequency Time History

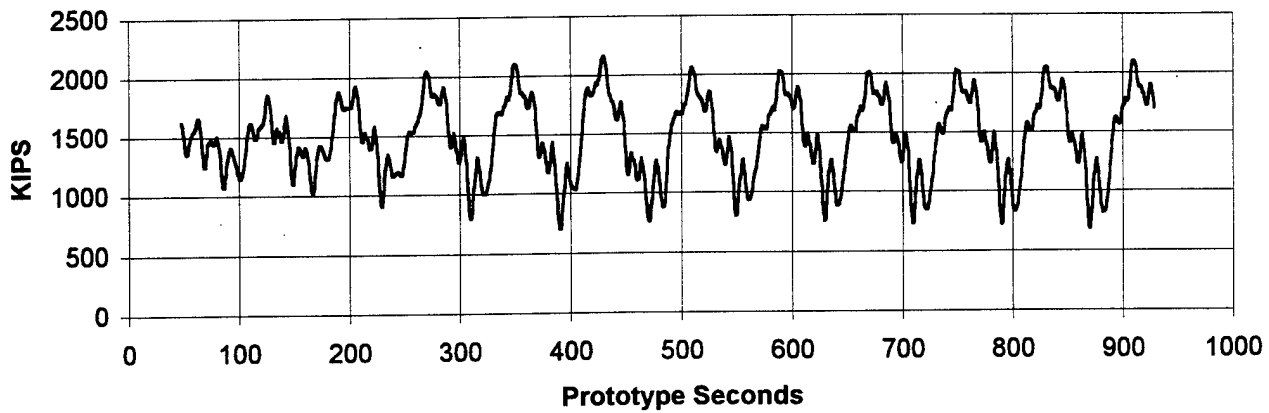


## Filtered High Frequency Time History

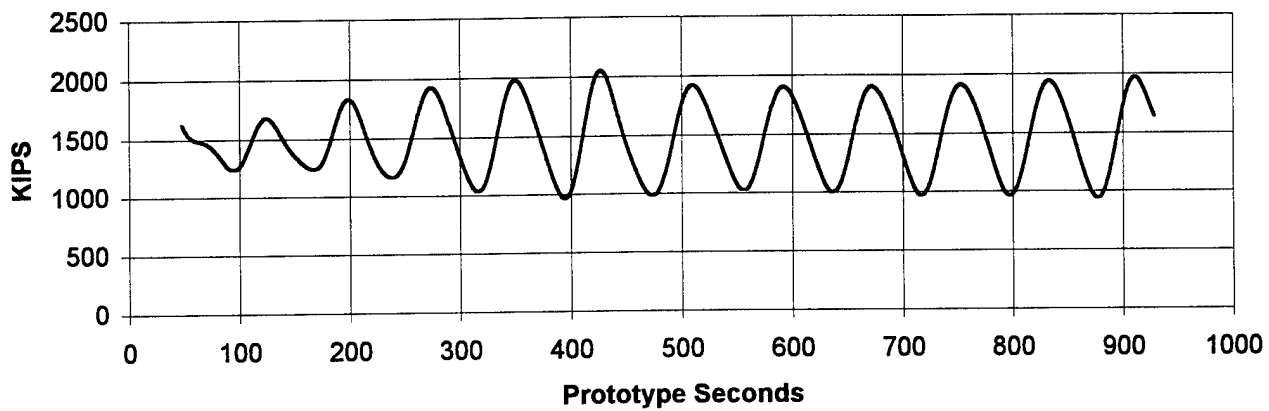


# TEST A596 - BUOY 2 TENSION

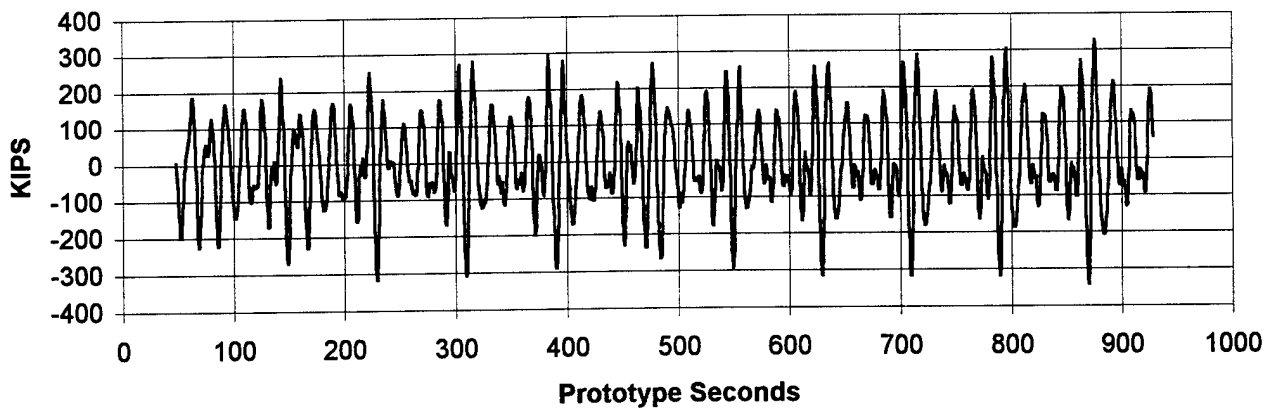
## Unfiltered Time History



## Filtered Low Frequency Time History

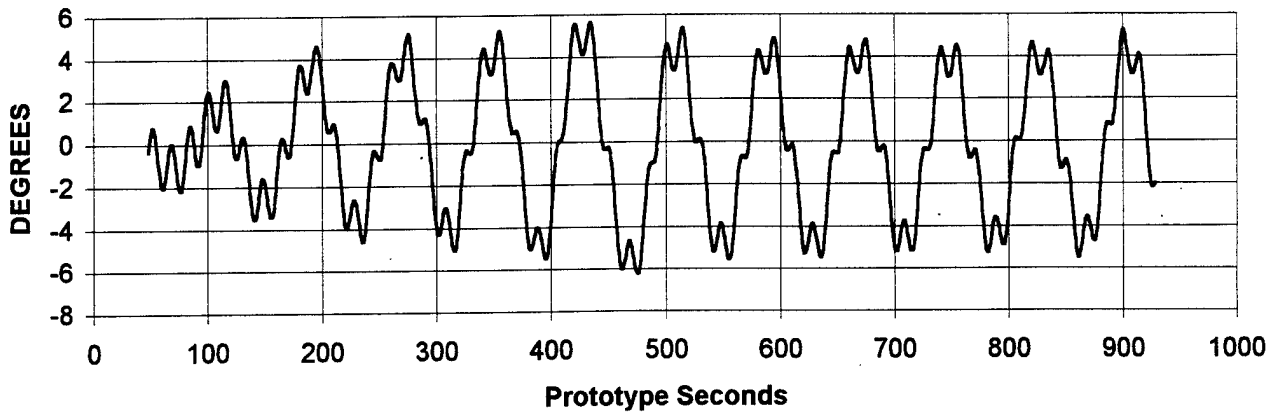


## Filtered High Frequency Time History

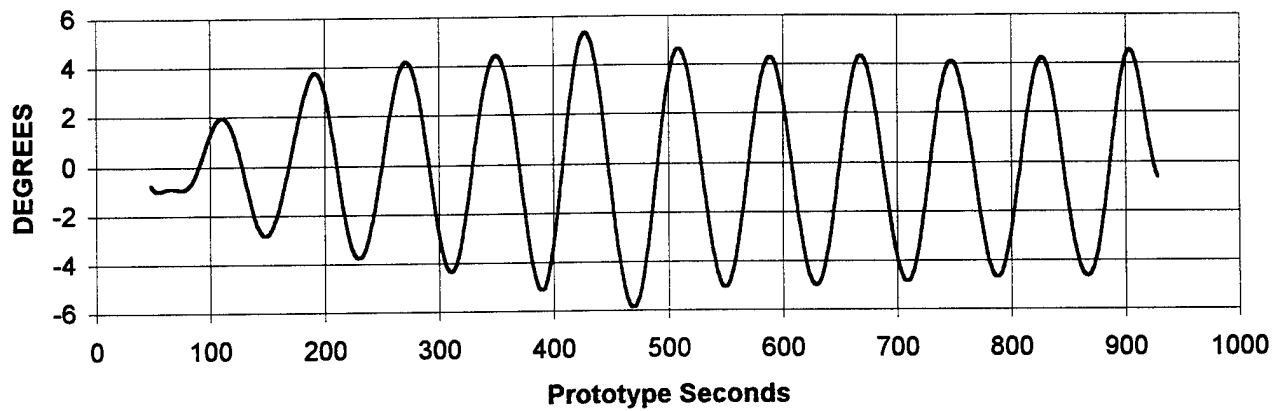


# TEST A596 - PITCH

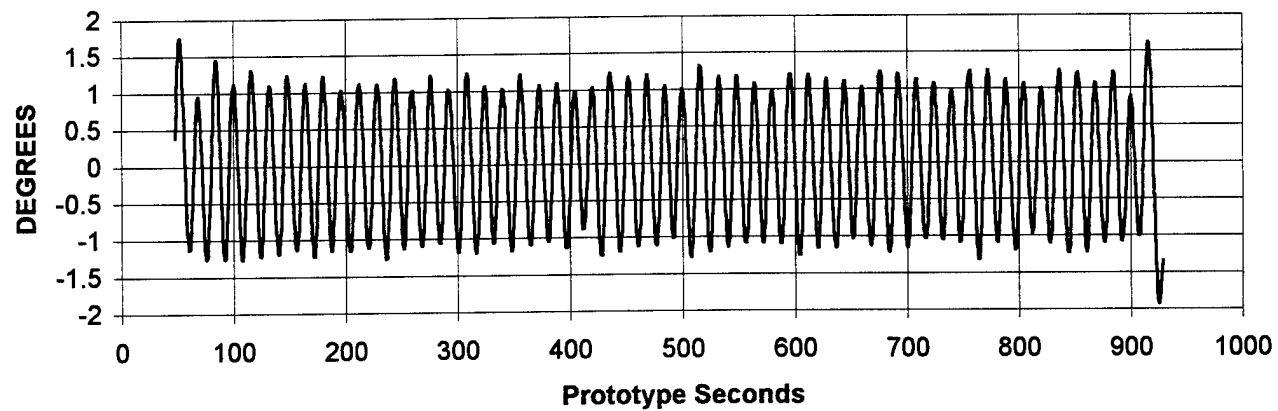
## Unfiltered Time History



## Filtered Low Frequency Time History

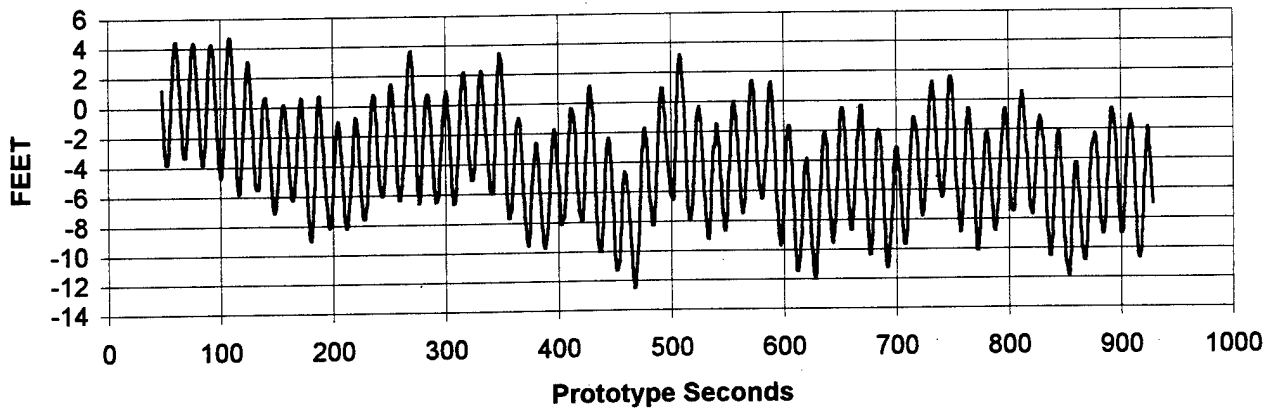


## Filtered High Frequency Time History

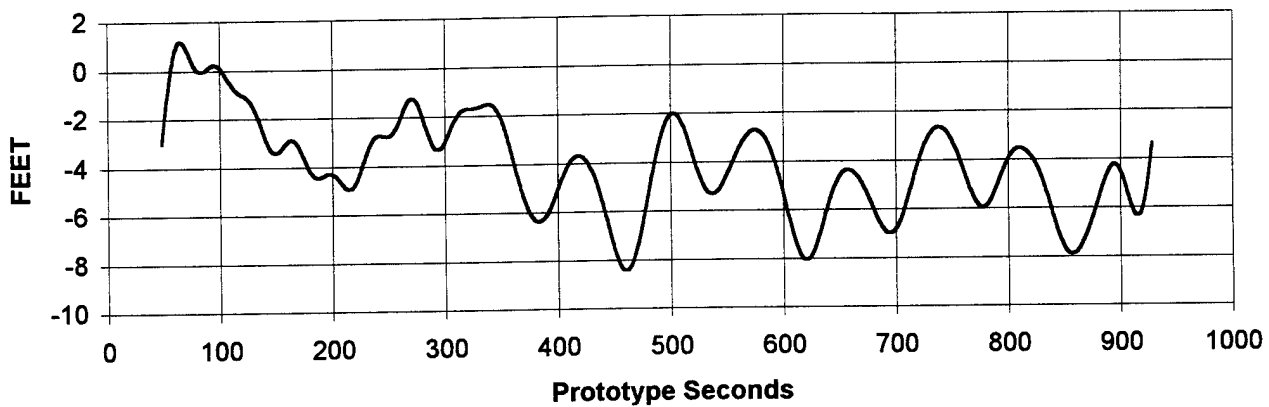


TEST A596 - PT SURGE

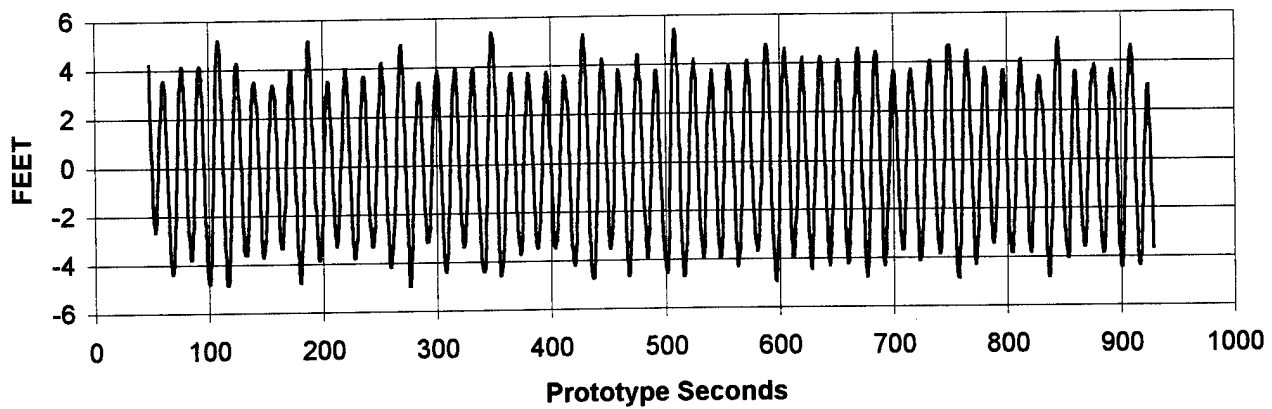
Unfiltered Time History



Filtered Low Frequency Time History

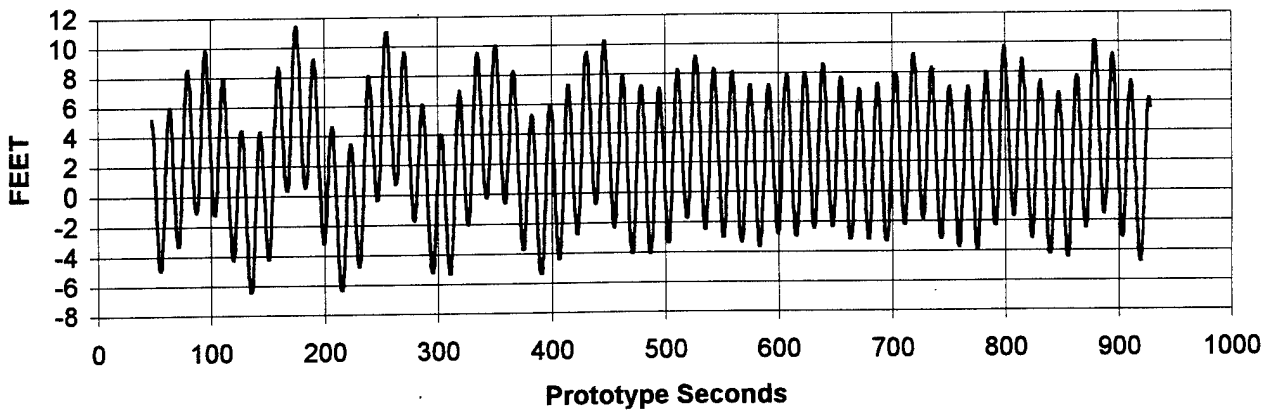


Filtered High Frequency Time History

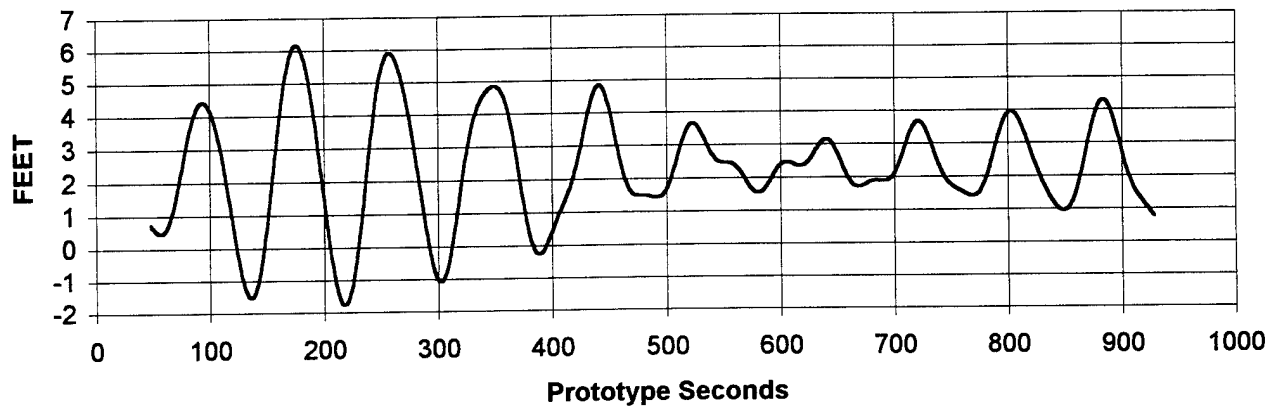


TEST A596 - PT HEAVE

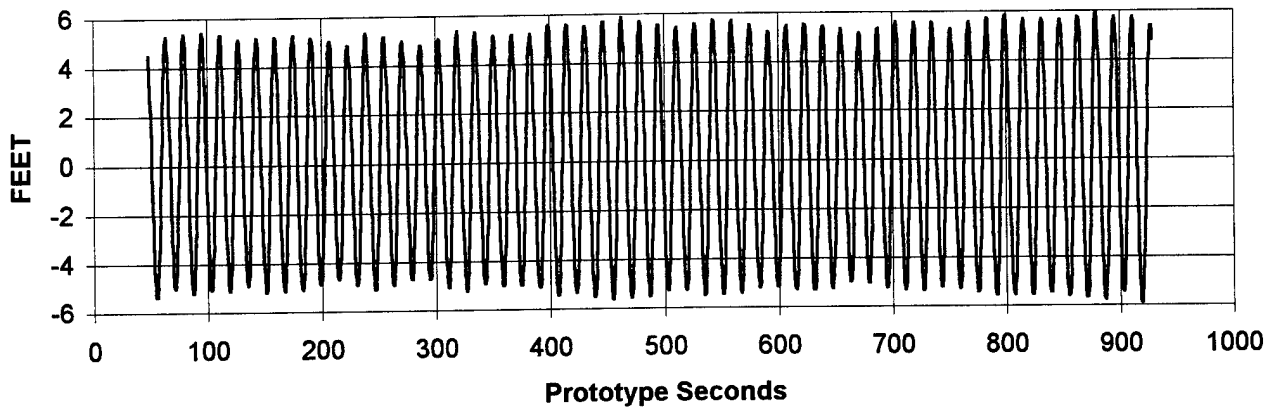
Unfiltered Time History



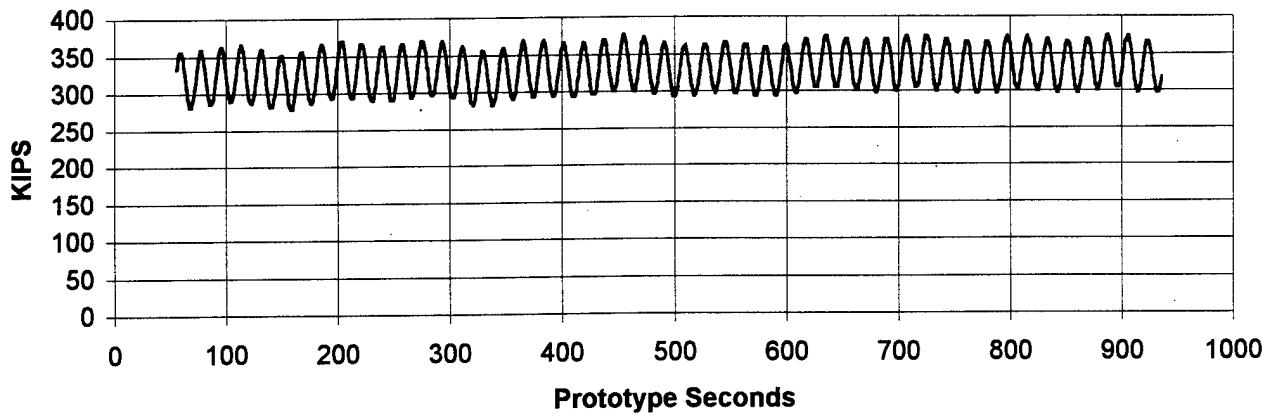
Filtered Low Frequency Time History



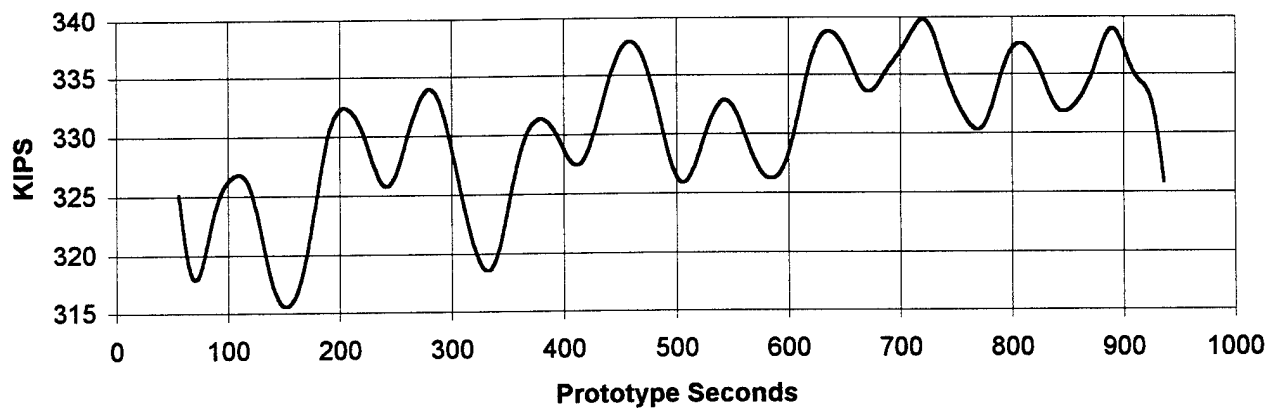
Filtered High Frequency Time History



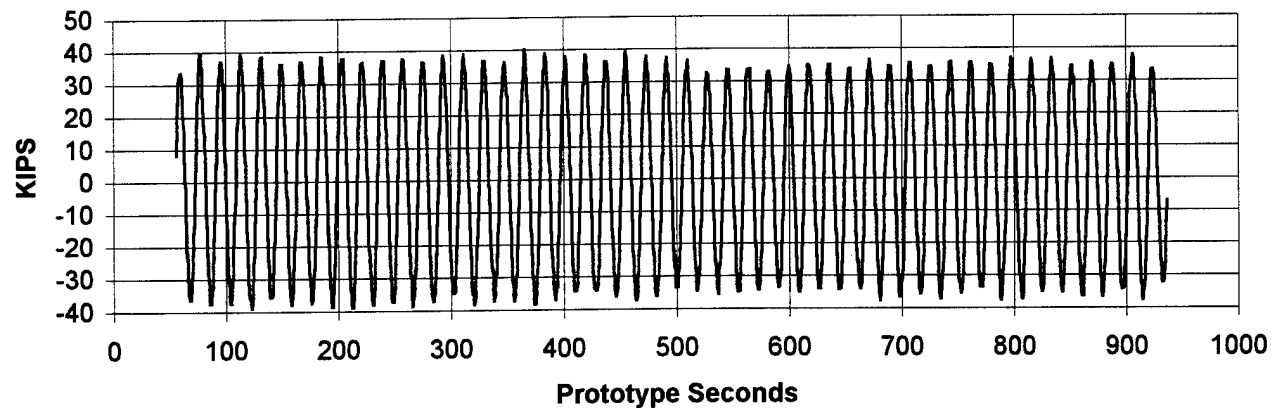
**Unfiltered Time History**



**Filtered Low Frequency Time History**



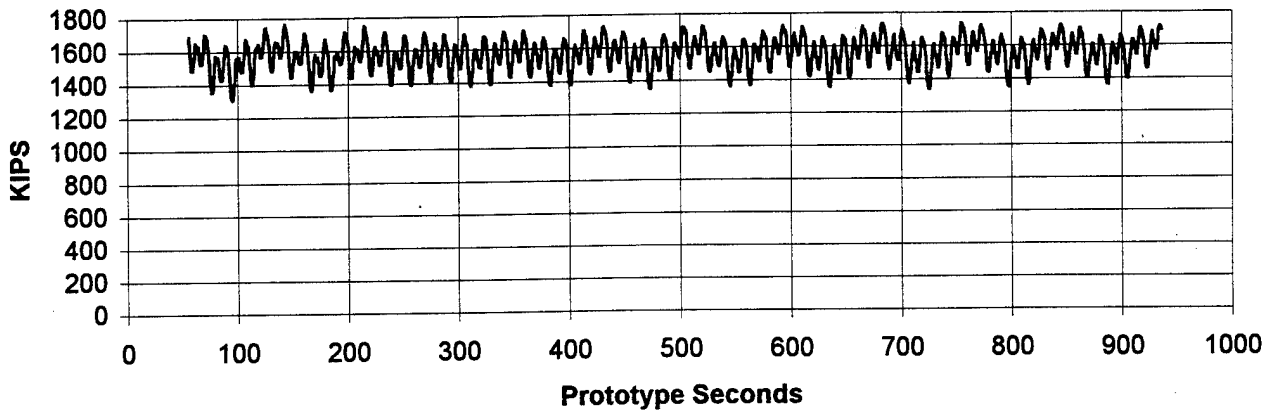
**Filtered High Frequency Time History**



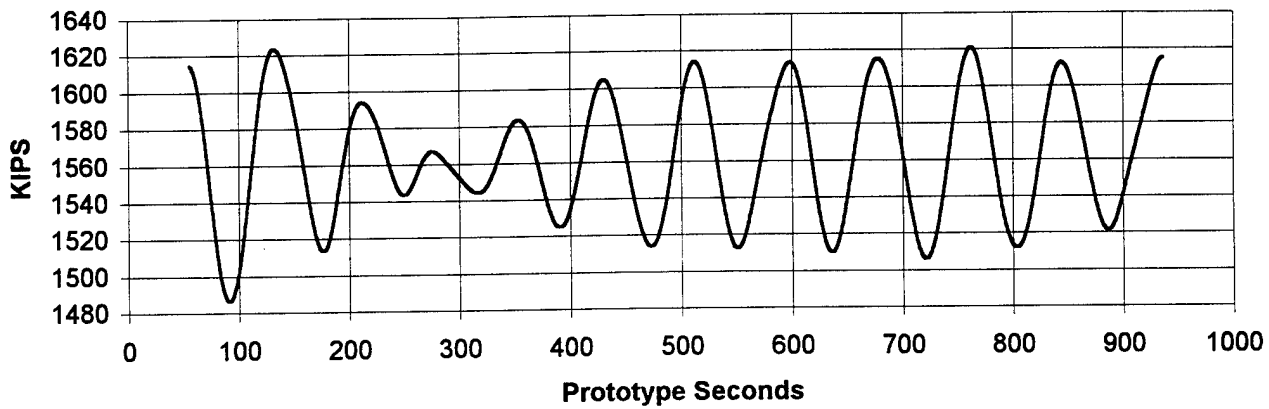


# TEST A597 - BUOY 1 TENSION

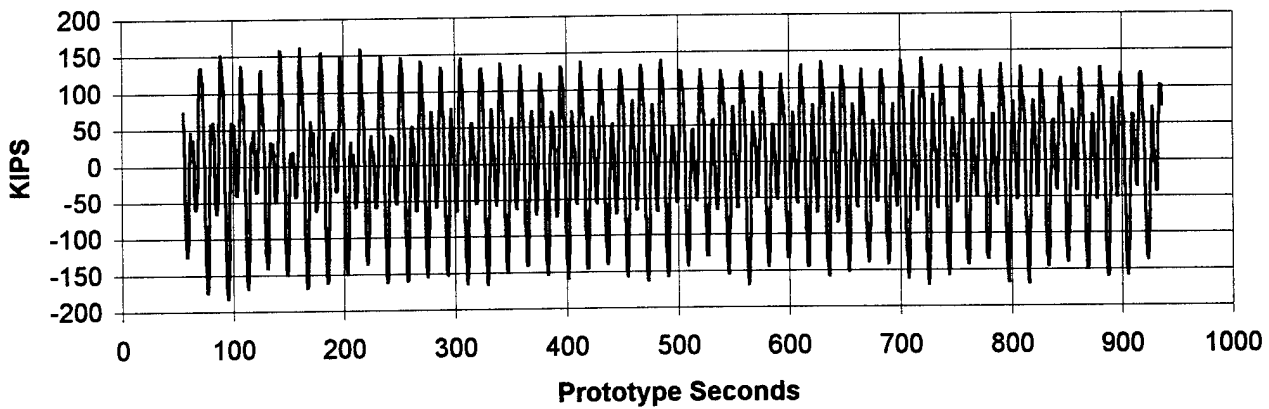
## Unfiltered Time History



## Filtered Low Frequency Time History

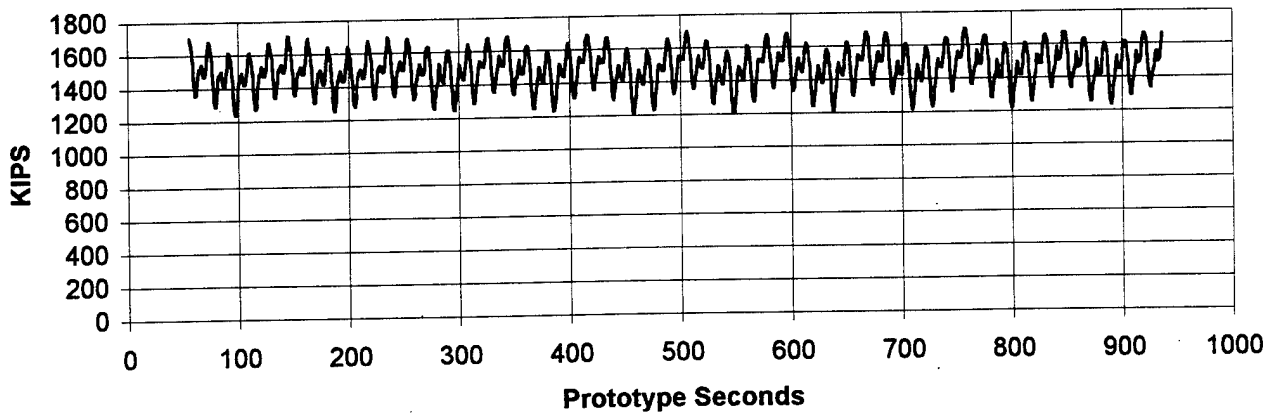


## Filtered High Frequency Time History

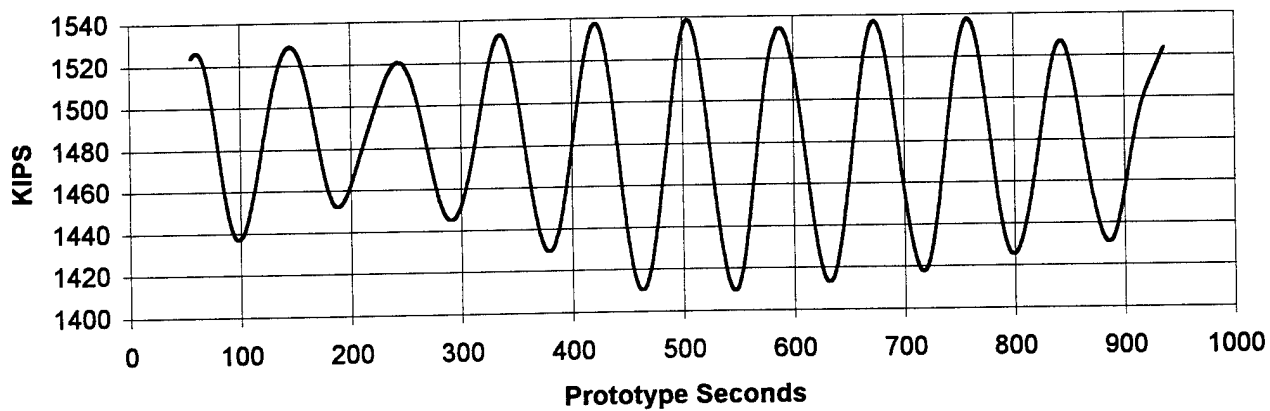


# TEST A597 - BUOY 2 TENSION

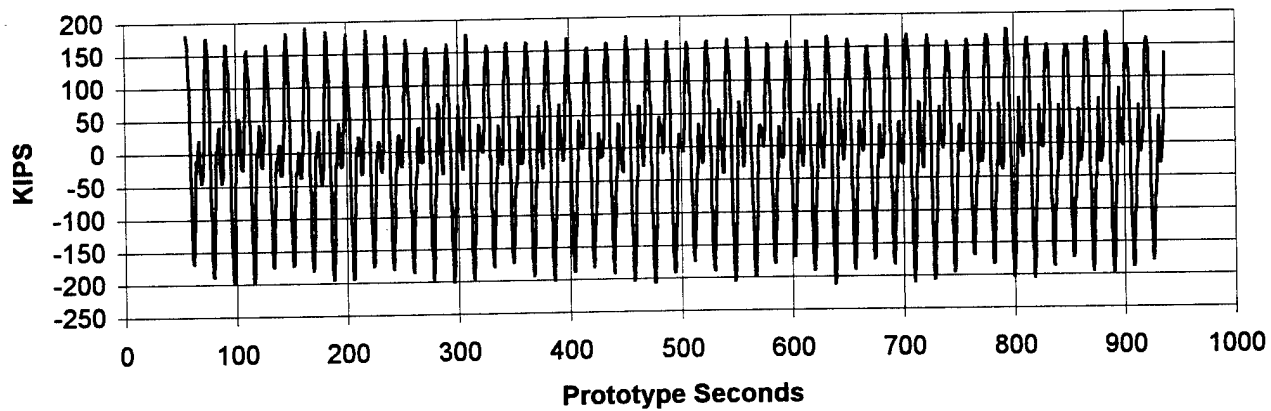
## Unfiltered Time History



## Filtered Low Frequency Time History

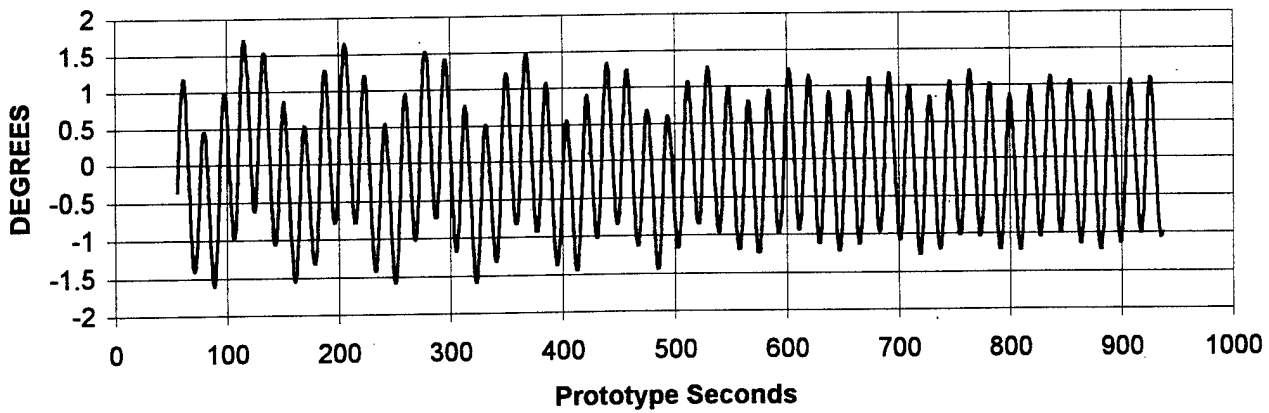


## Filtered High Frequency Time History

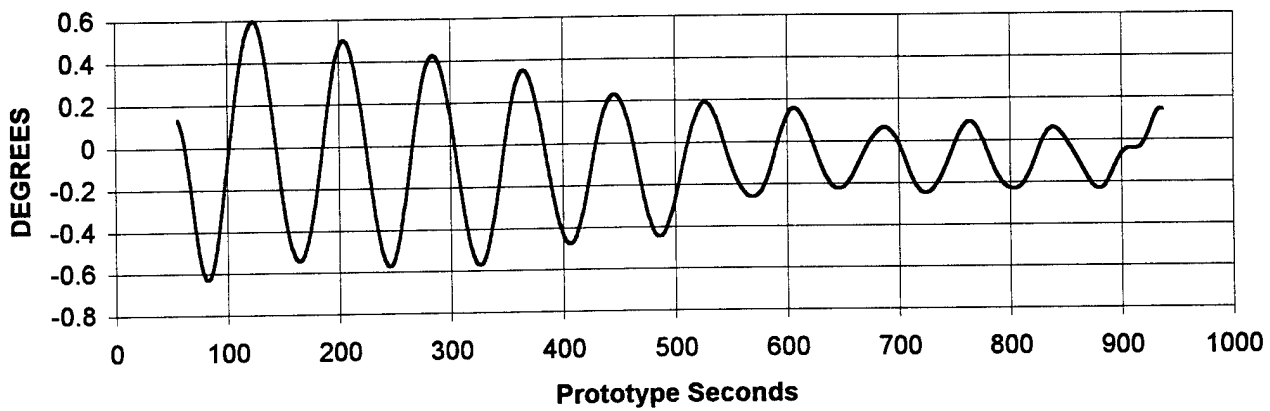


# TEST A597 - PITCH

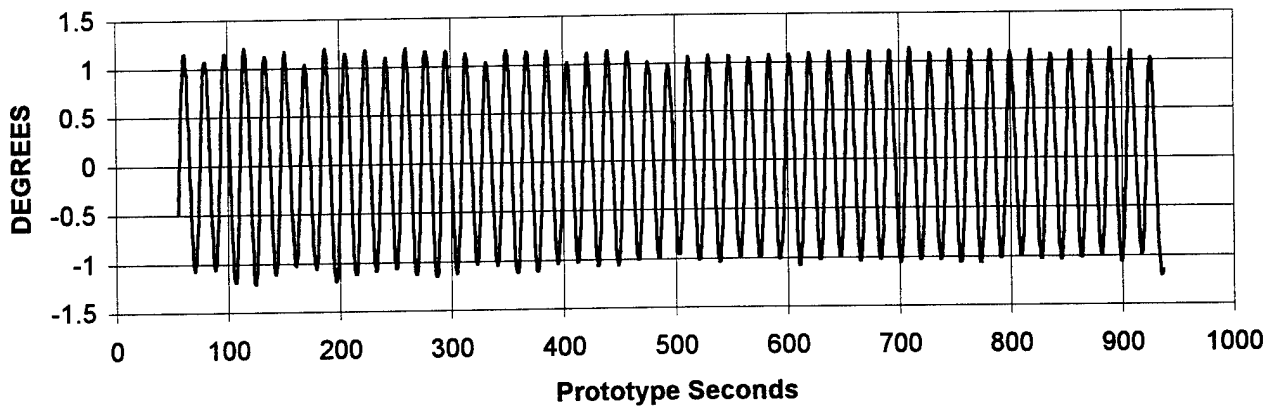
## Unfiltered Time History



## Filtered Low Frequency Time History

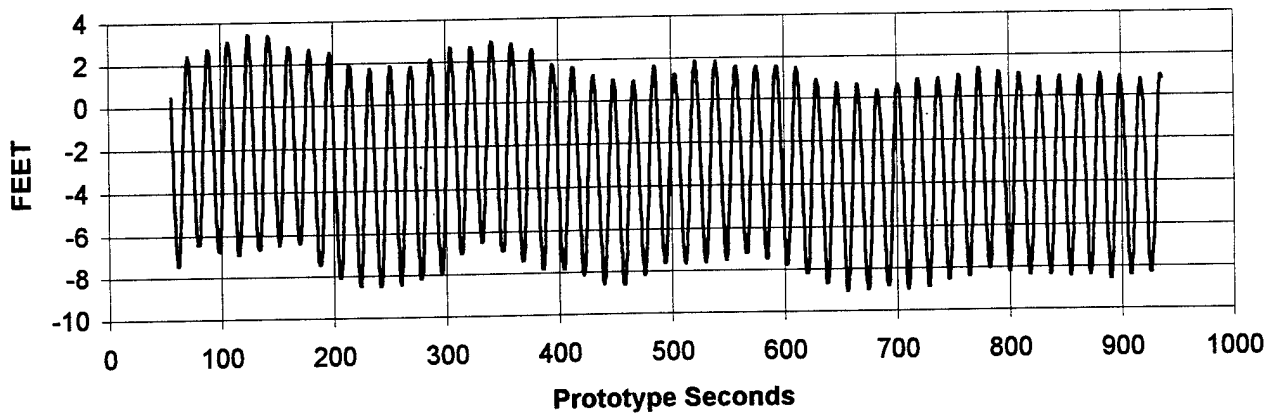


## Filtered High Frequency Time History

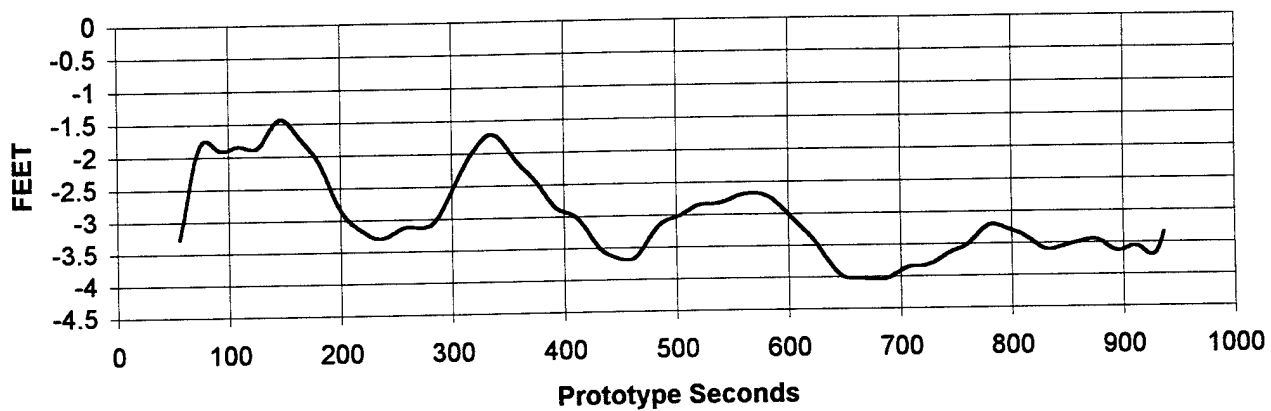


# TEST A597 - PT SURGE

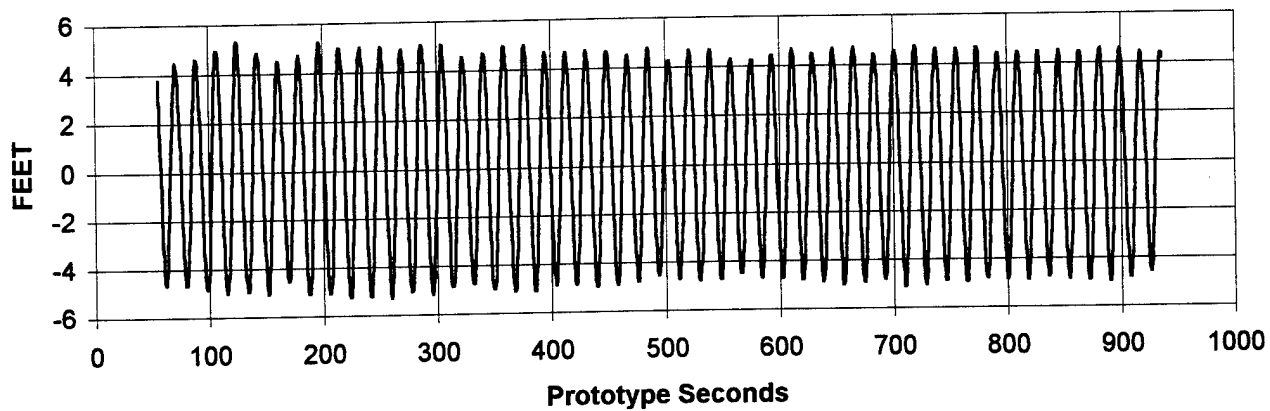
## Unfiltered Time History



## Filtered Low Frequency Time History

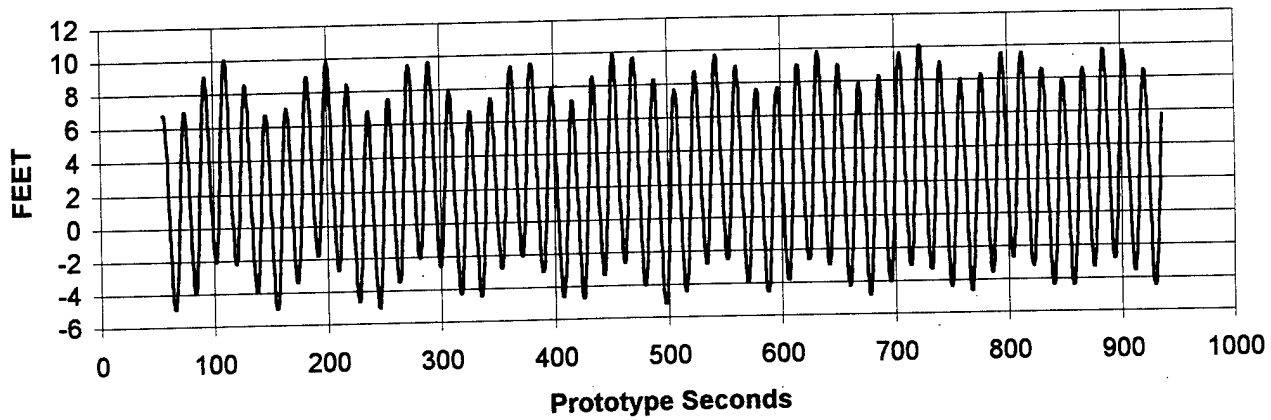


## Filtered High Frequency Time History

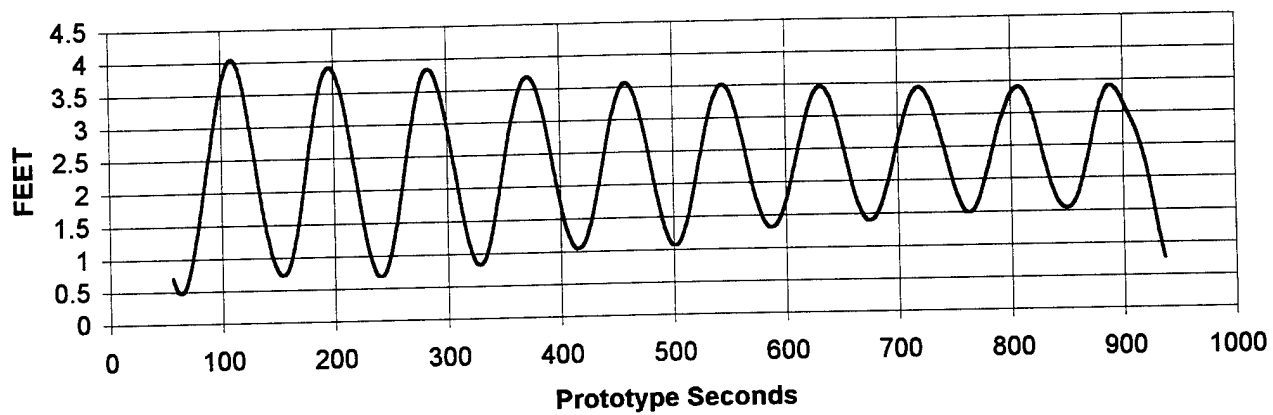


TEST A597 - PT HEAVE

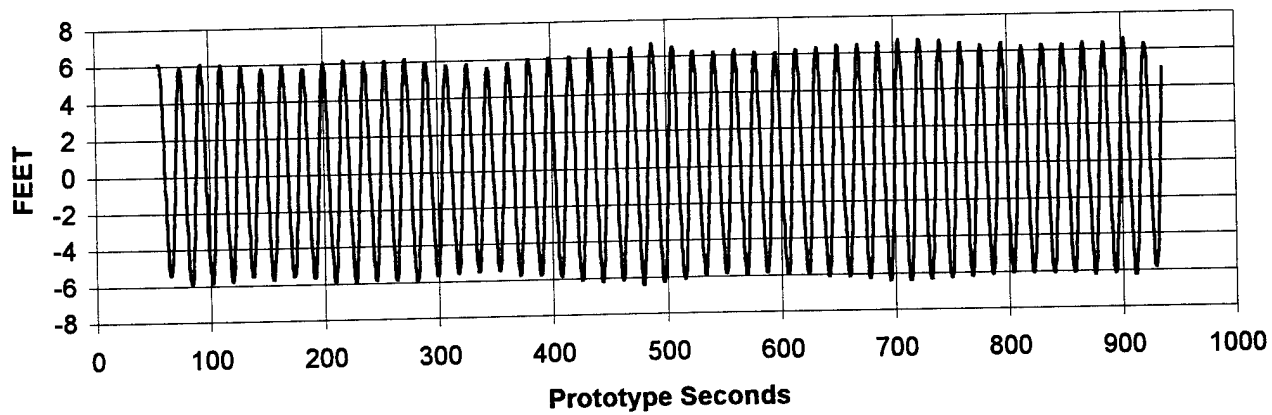
Unfiltered Time History



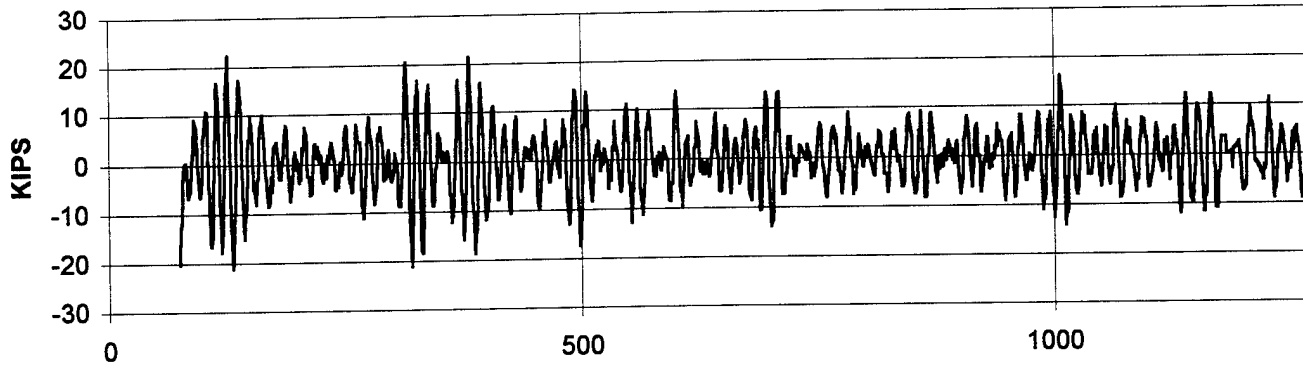
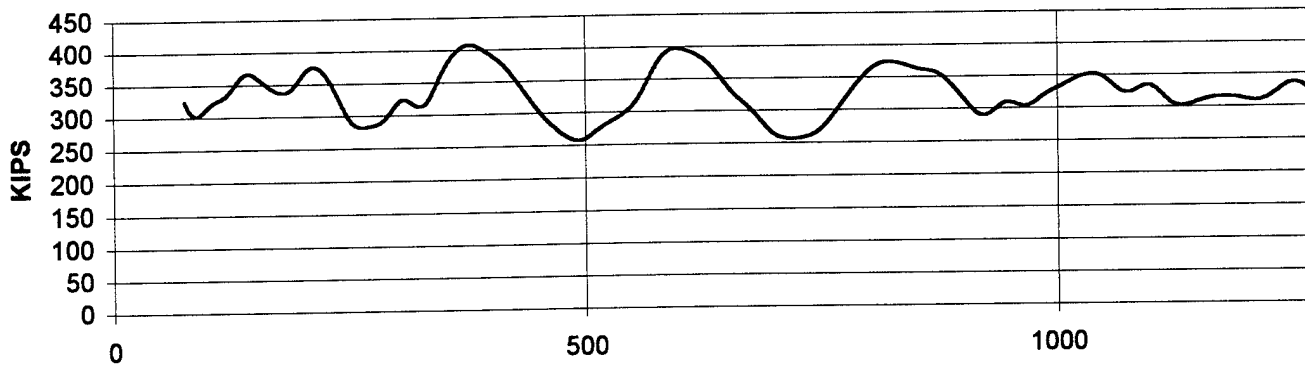
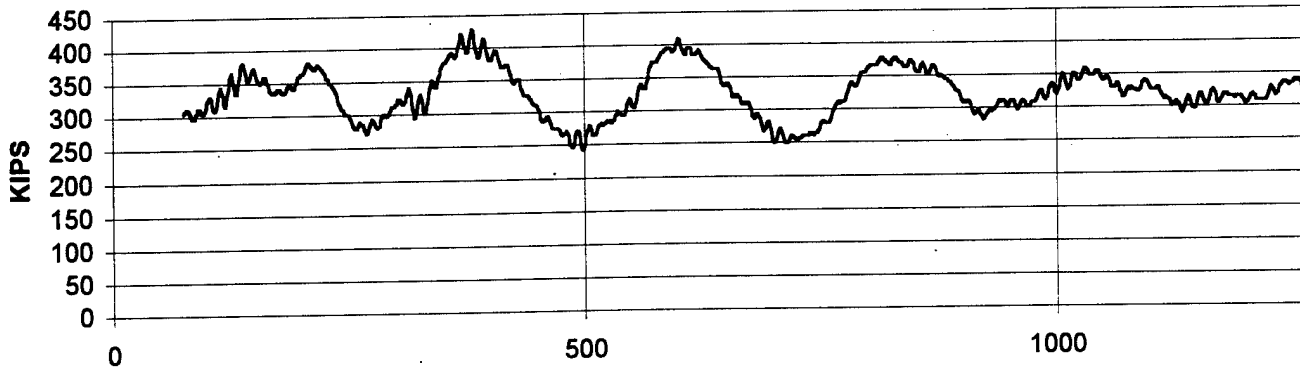
Filtered Low Frequency Time History



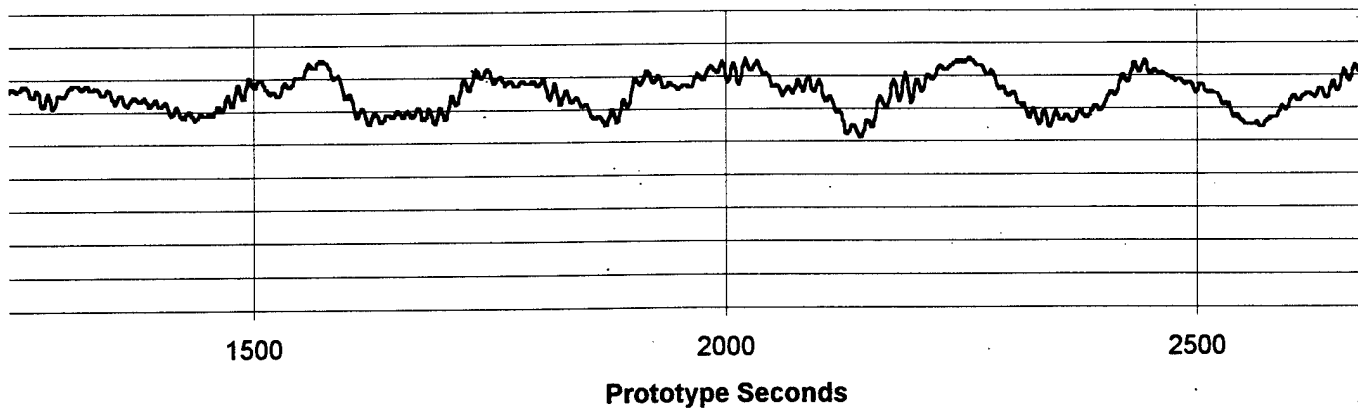
Filtered High Frequency Time History



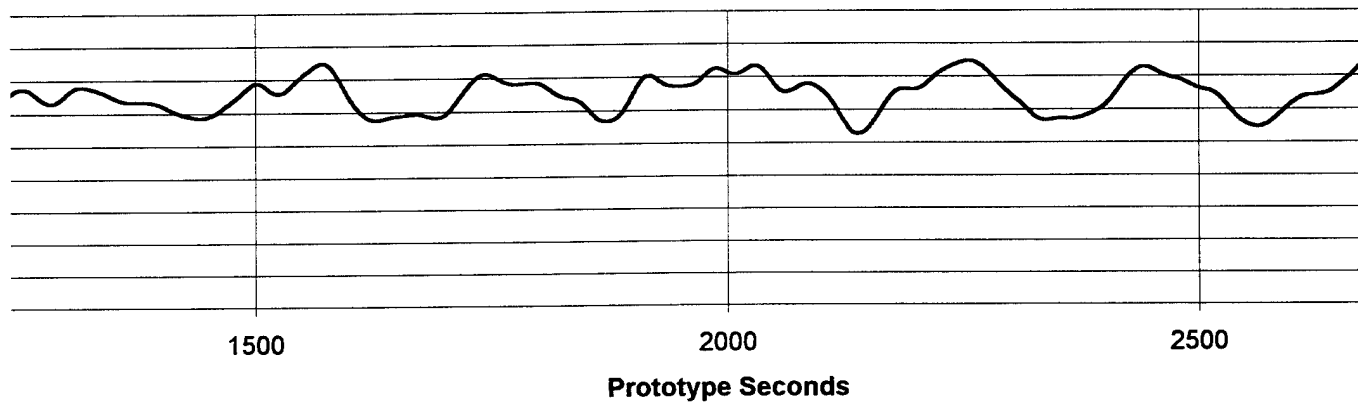
TEST A598 - ML\_1



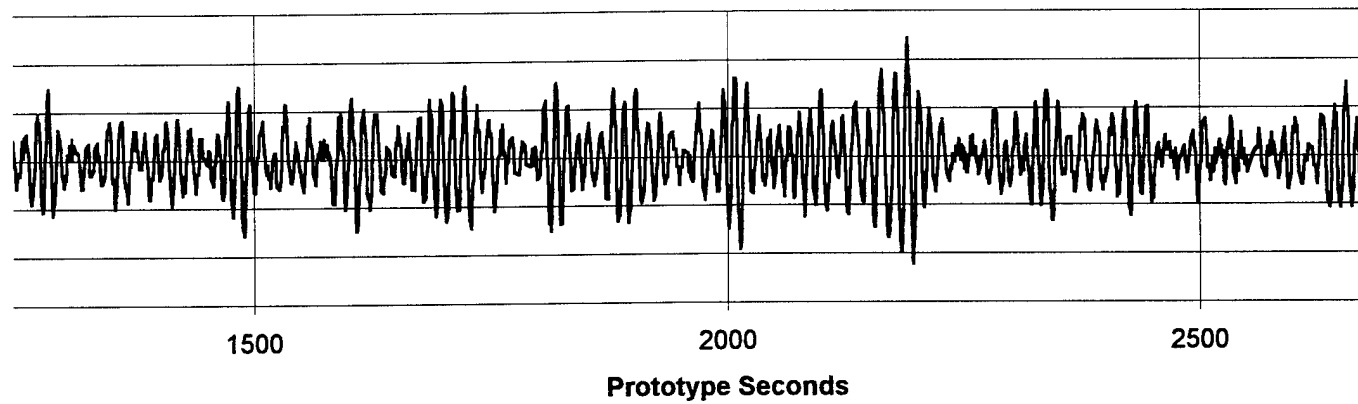
**Unfiltered Time History**



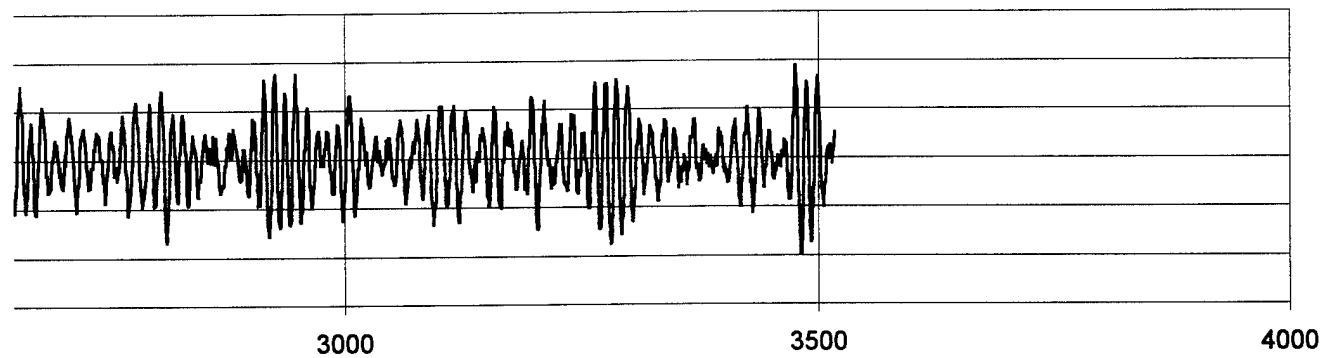
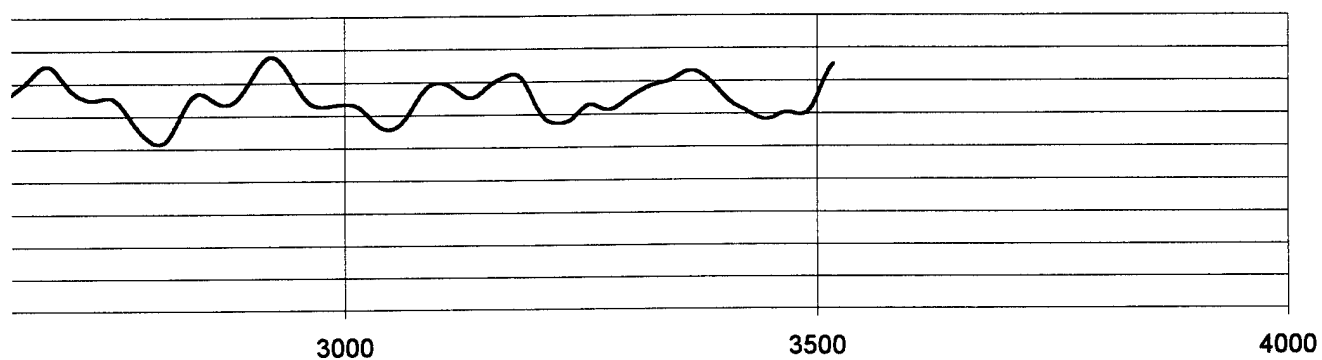
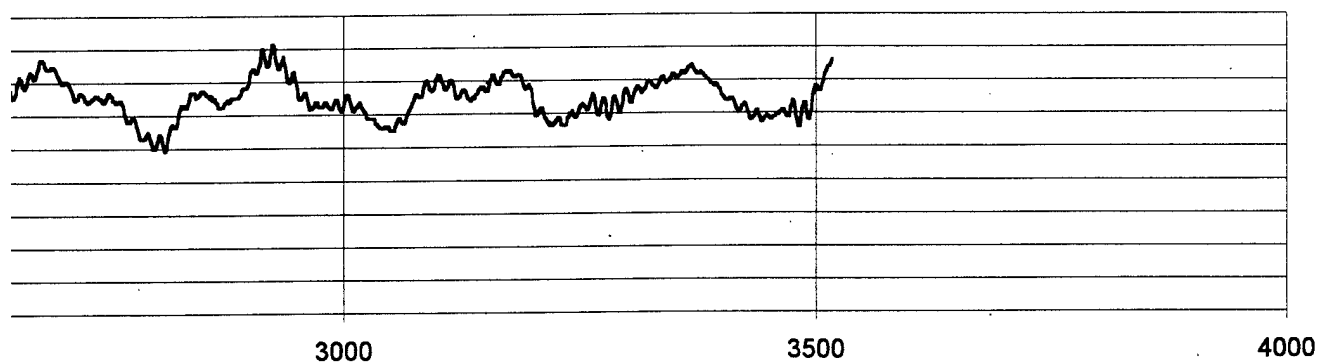
**Filtered Low Frequency Time History**



**Filtered High Frequency Time History**

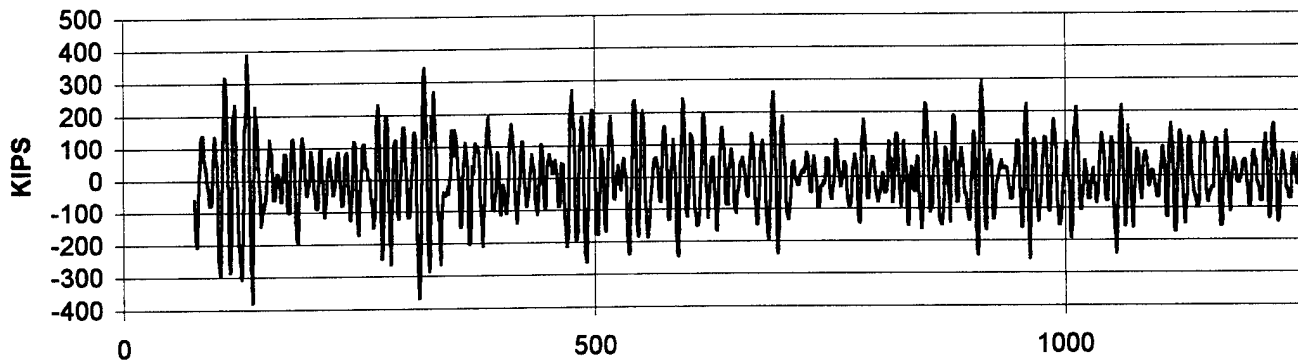
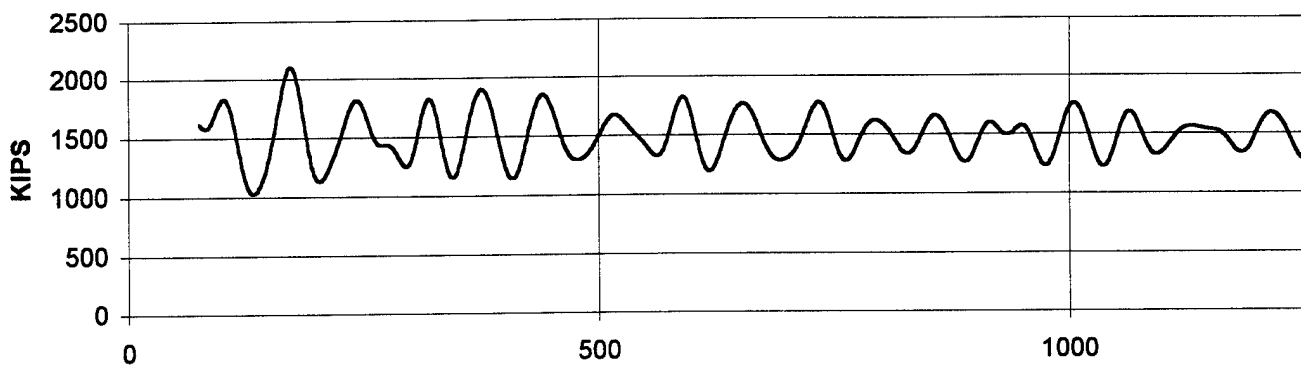
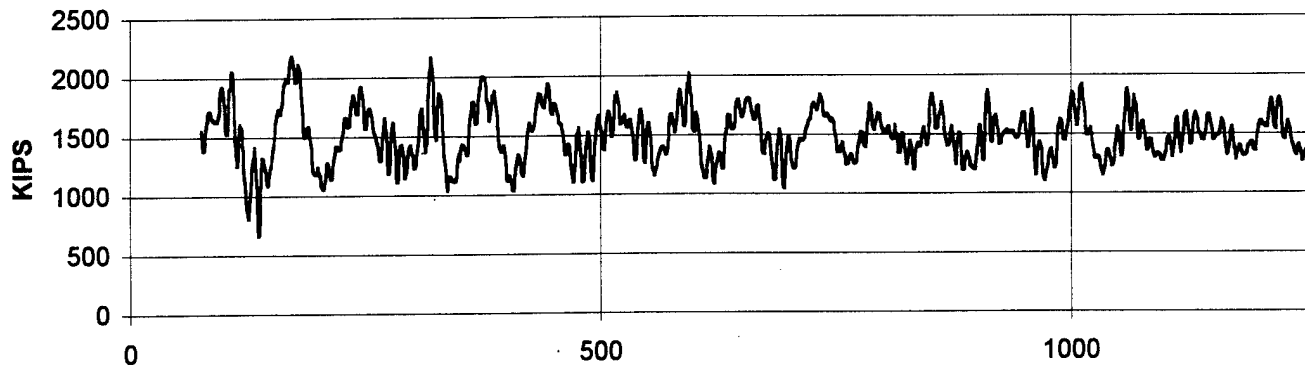


TEST A598 - ML\_1



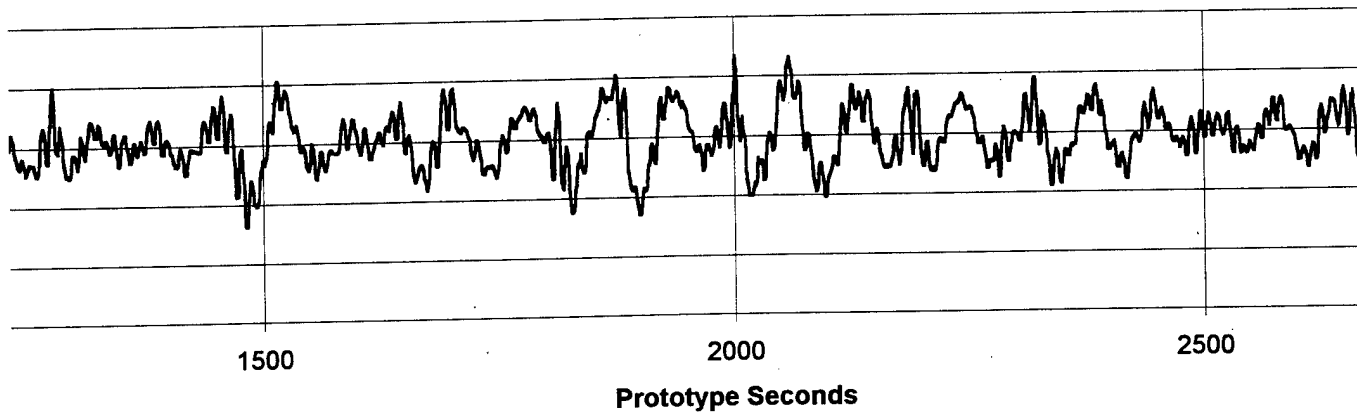


TEST A598 - BUOY 1 TENSION

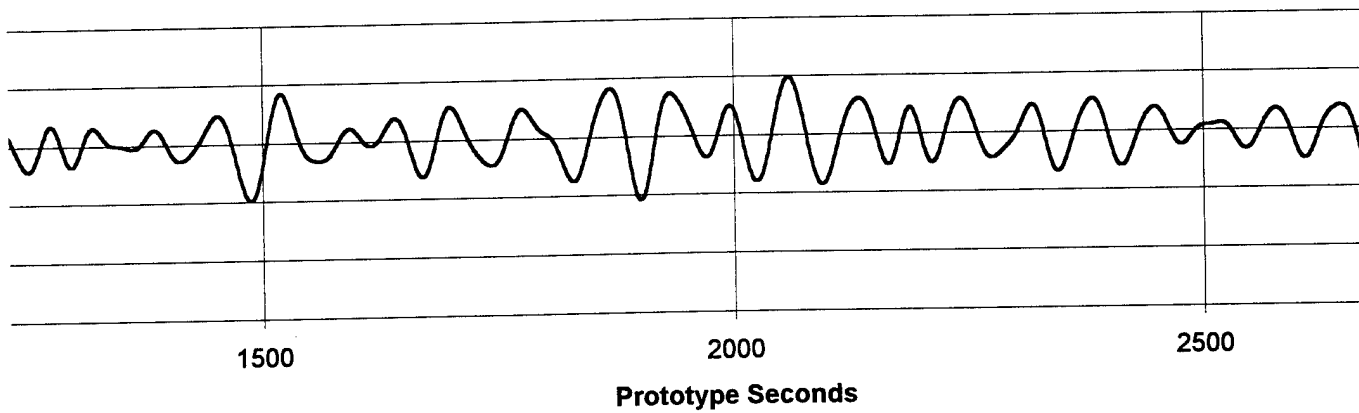


TEST A598 - BUOY 1 TENSION

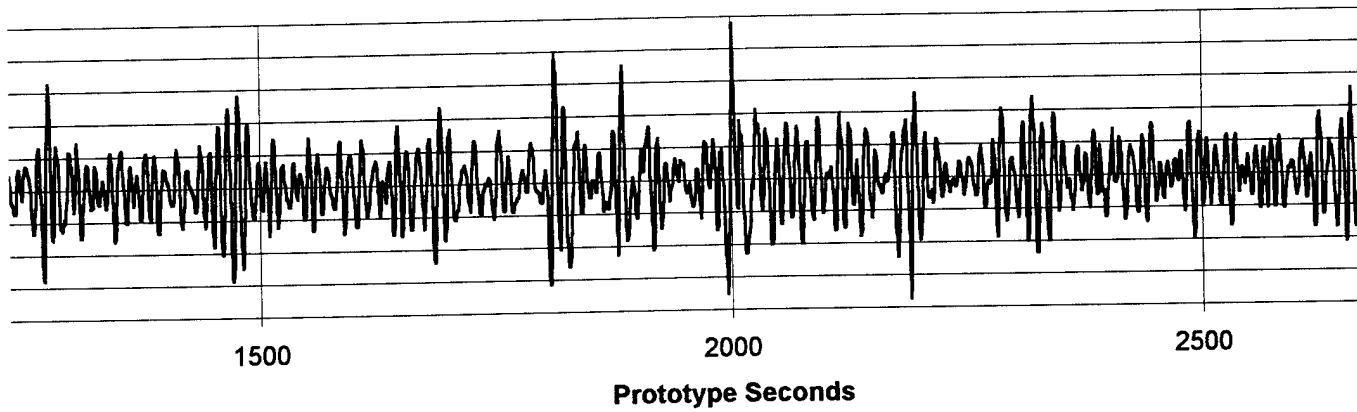
Unfiltered Time History



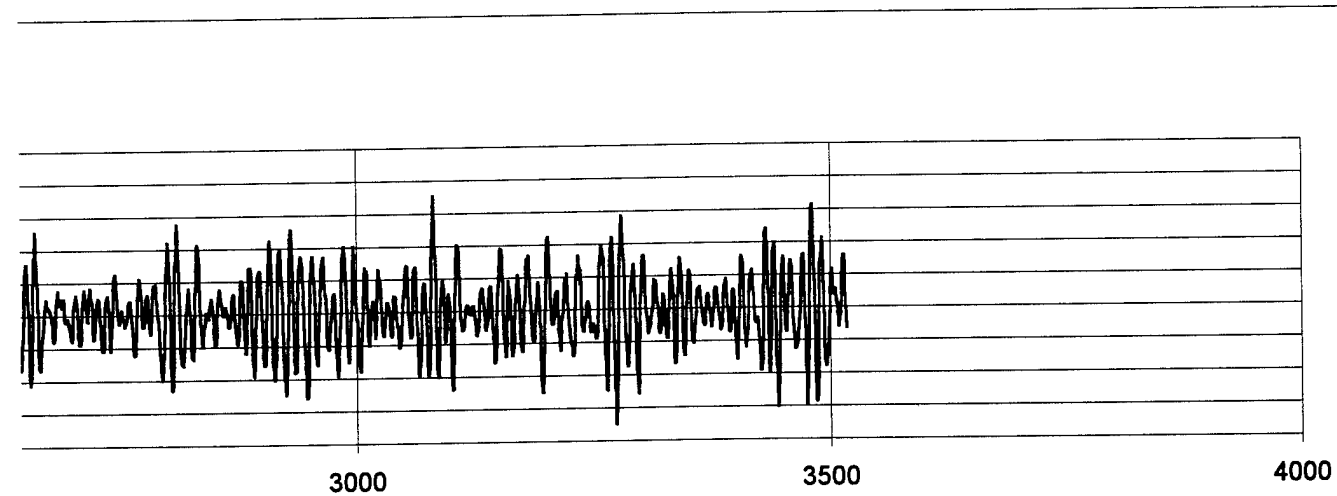
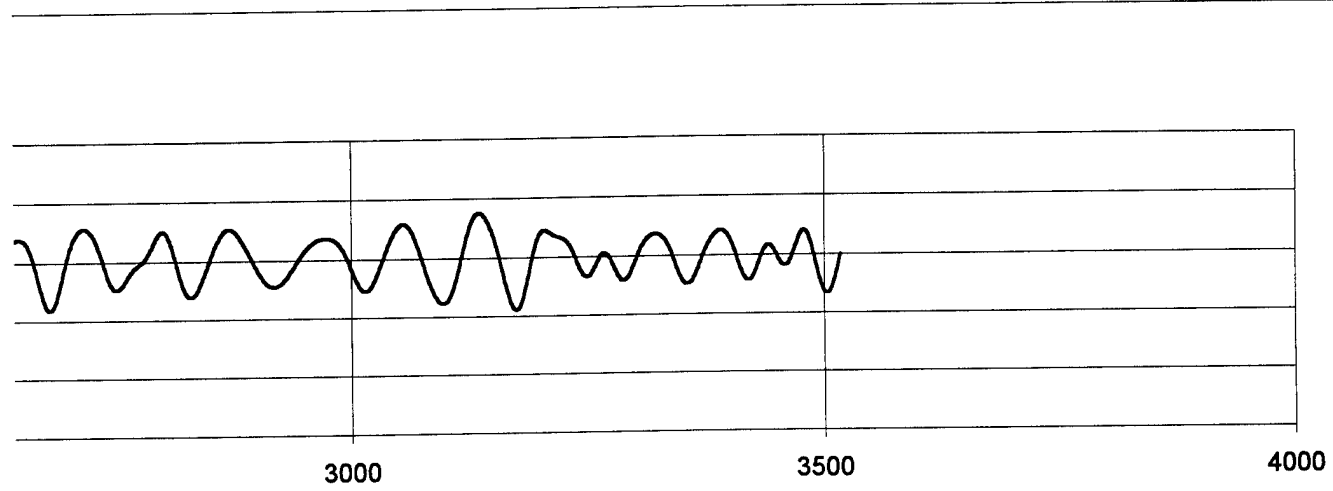
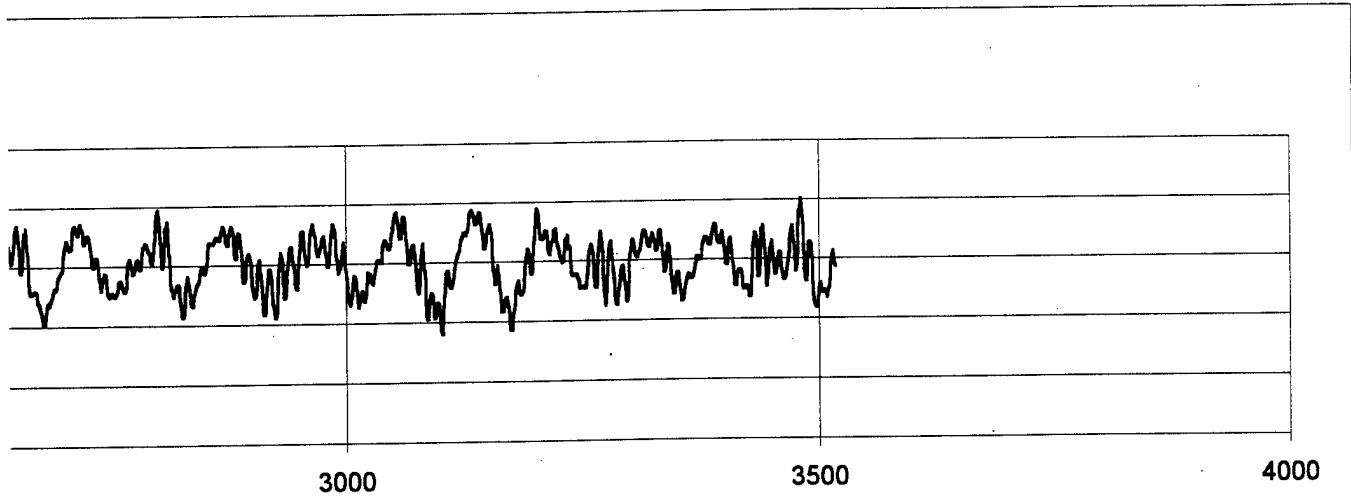
Filtered Low Frequency Time History



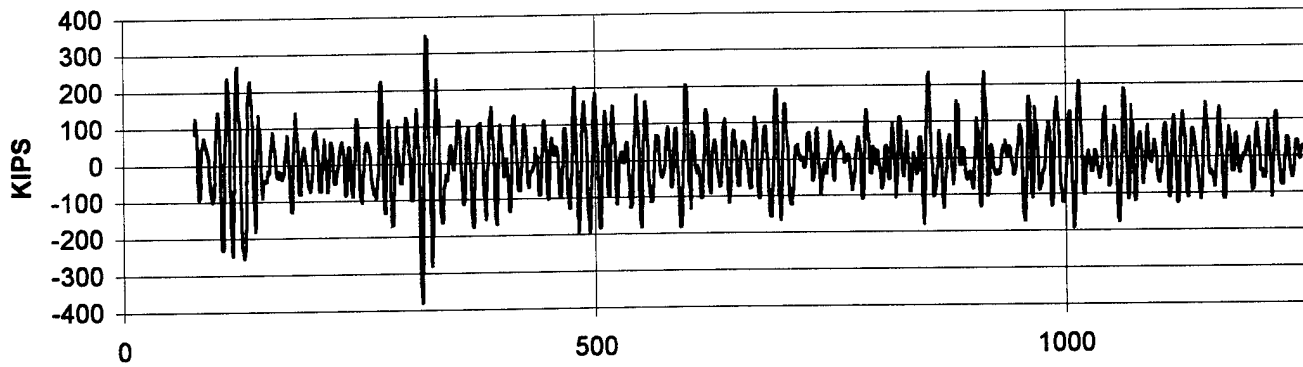
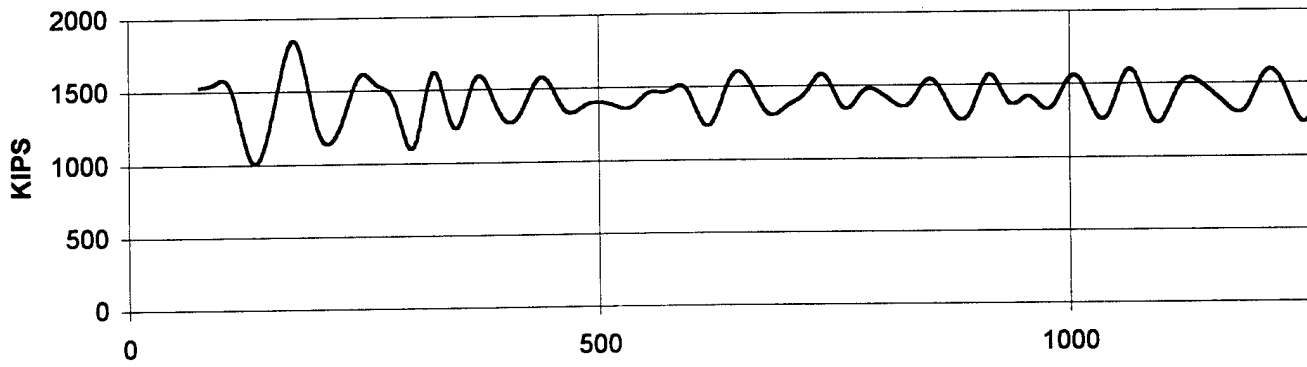
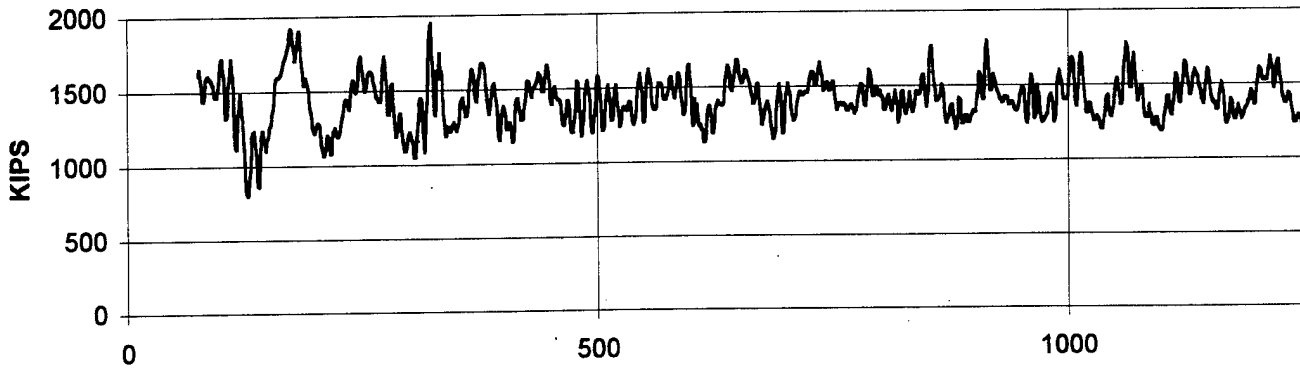
Filtered High Frequency Time History



TEST A598 - BUOY 1 TENSION

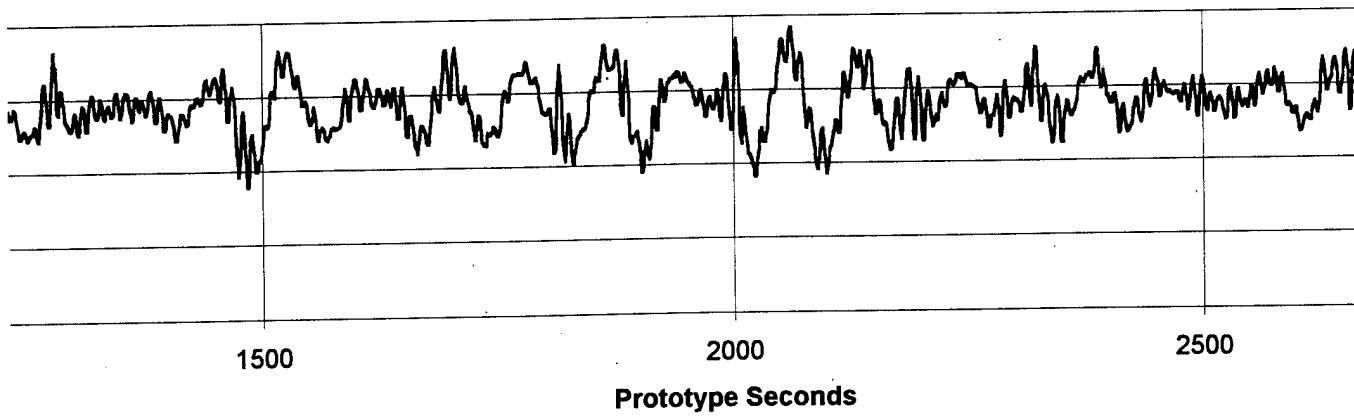


TEST A598 - BUOY 2 TENSION

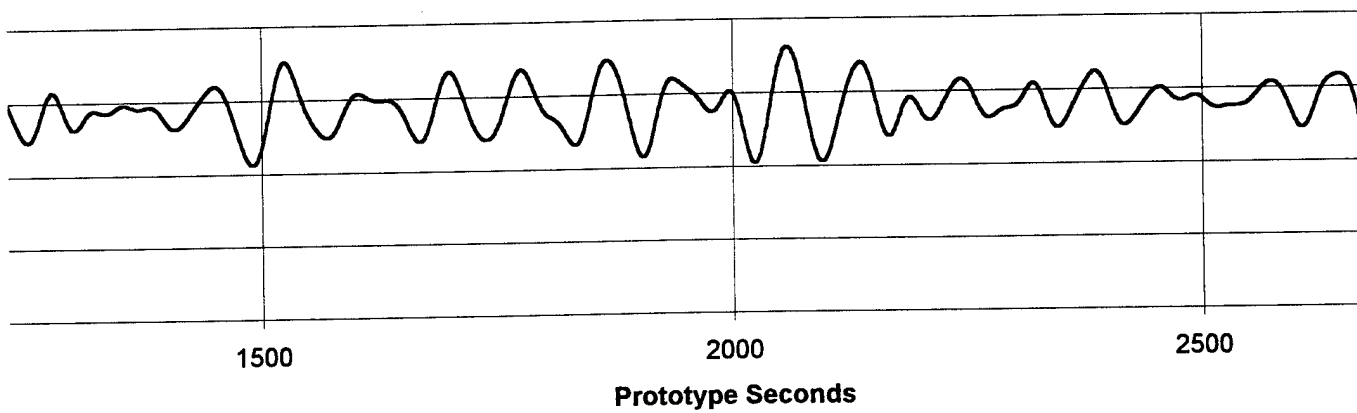


TEST A598 - BUOY 2 TENSION

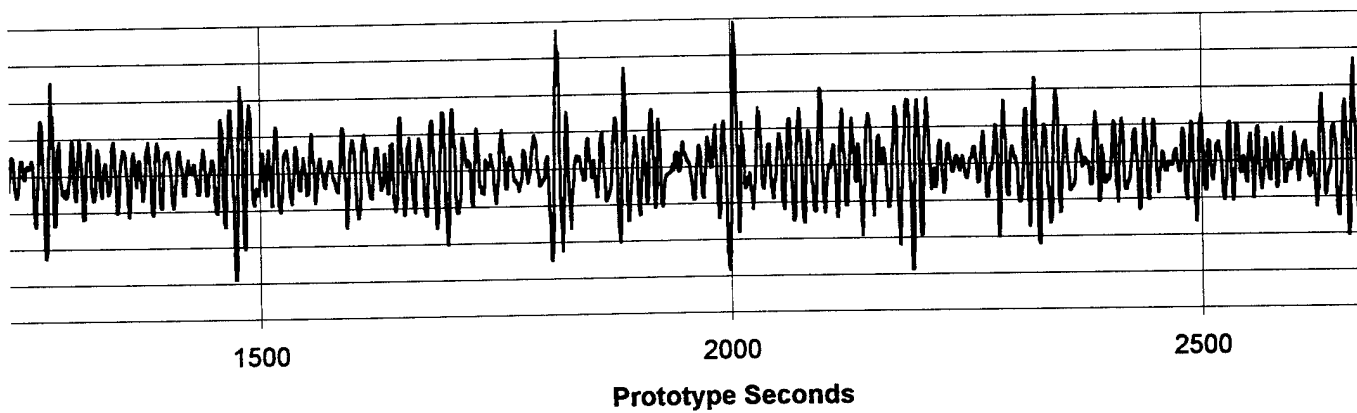
Unfiltered Time History



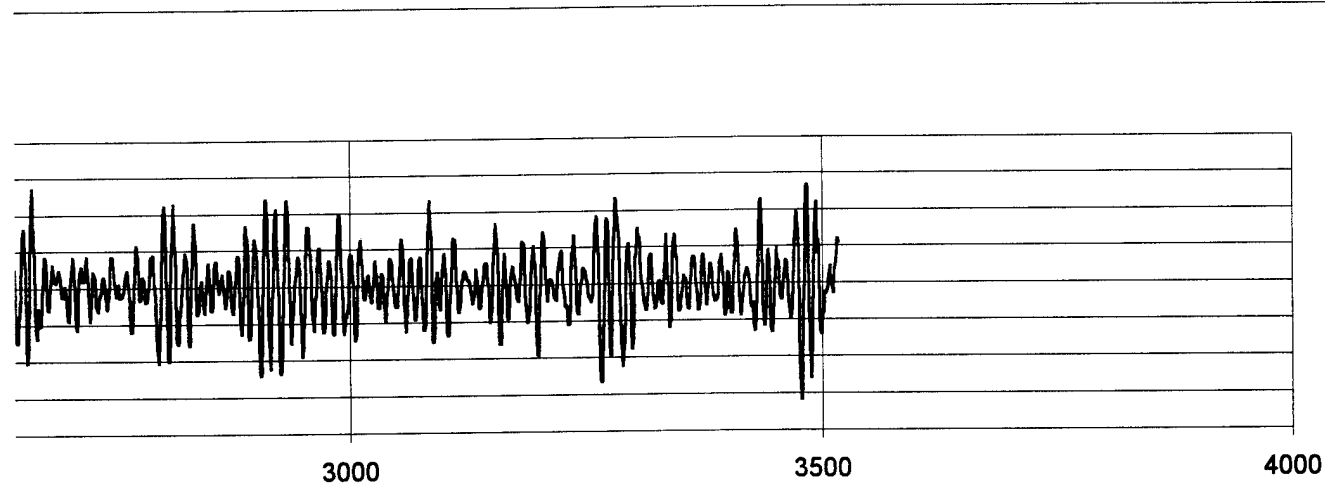
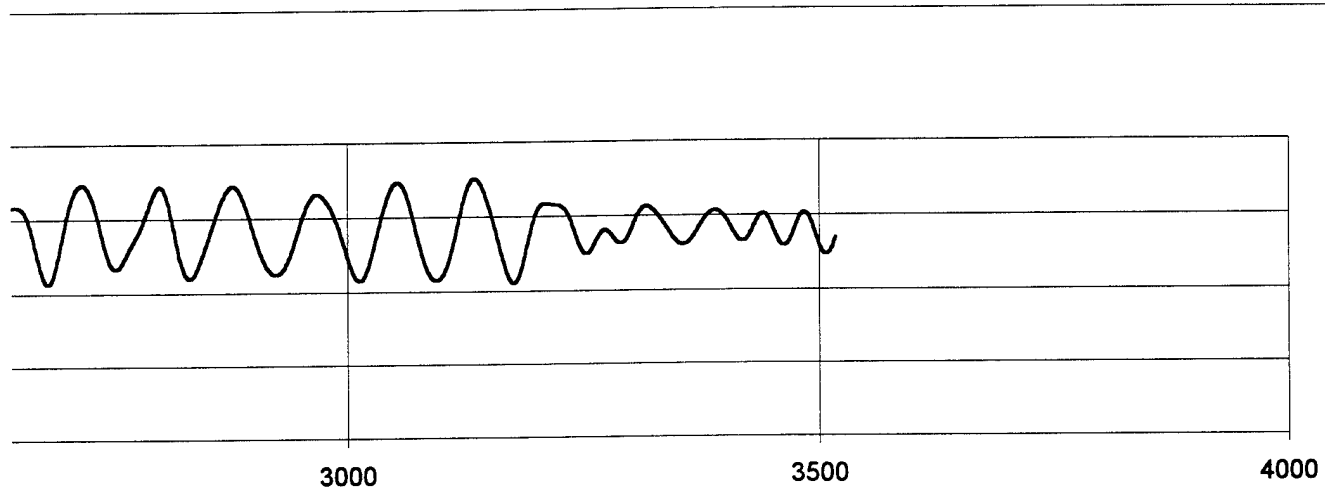
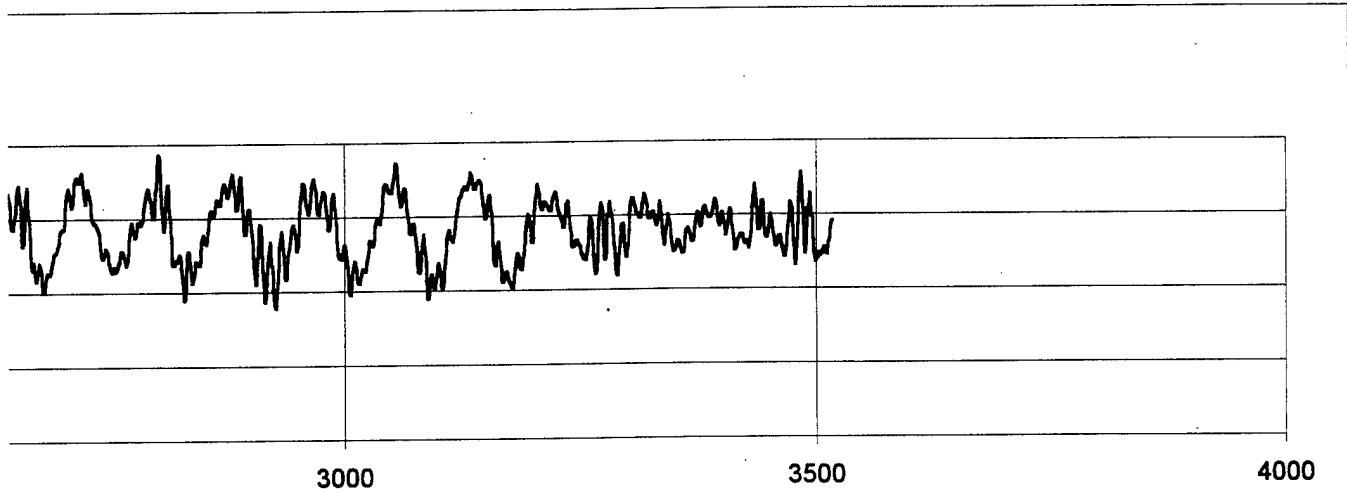
Filtered Low Frequency Time History



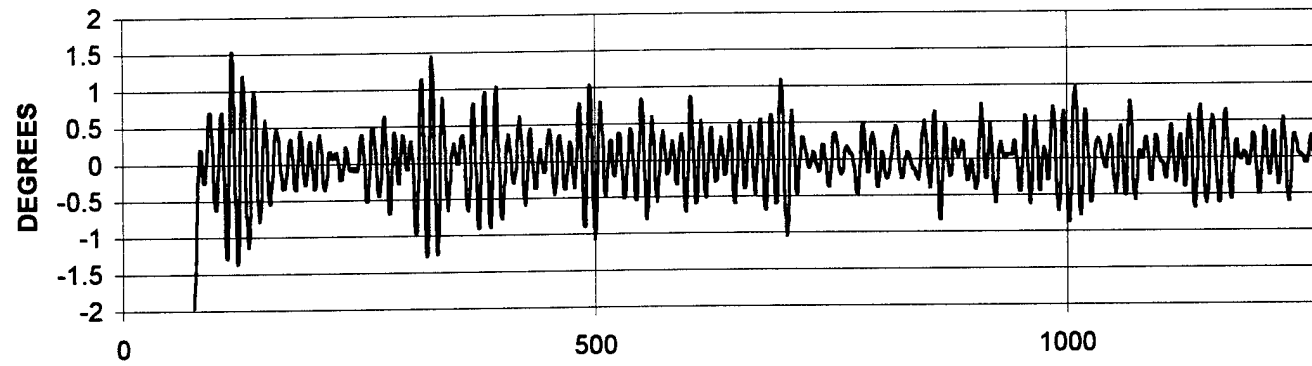
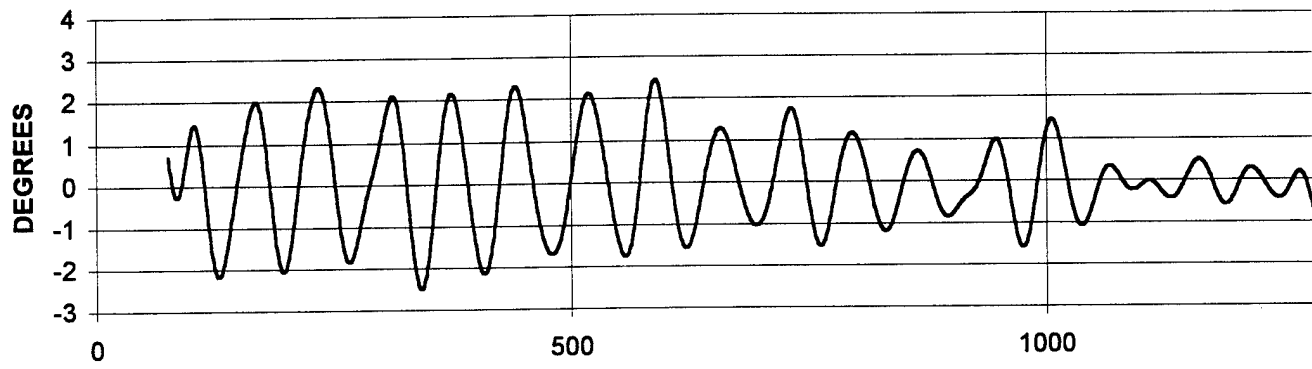
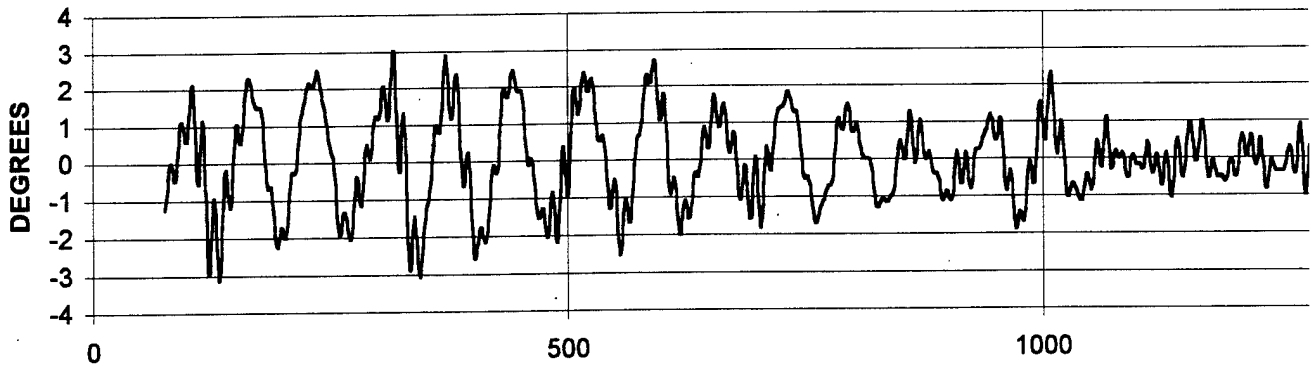
Filtered High Frequency Time History



TEST A598 - BUOY 2 TENSION

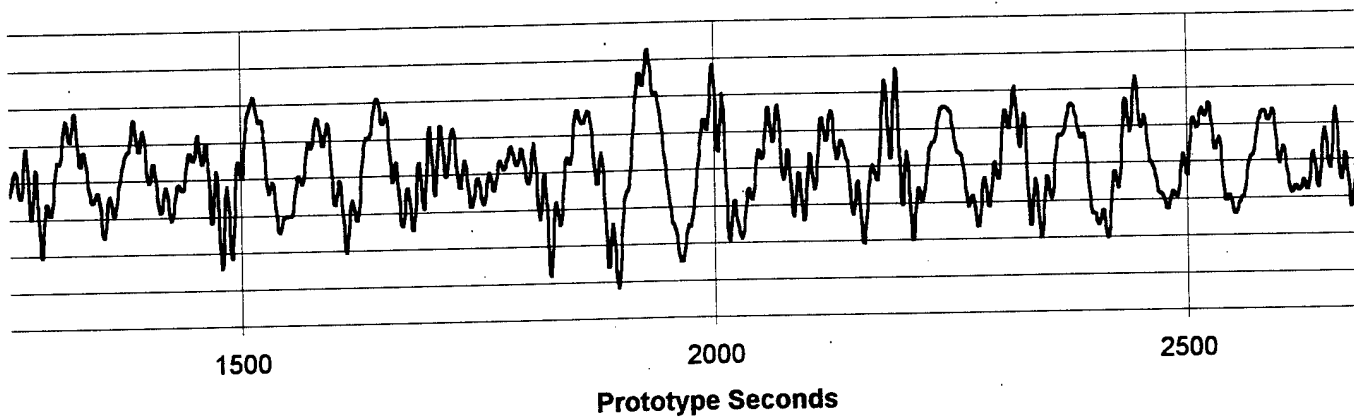


# TEST A598 - PITCH

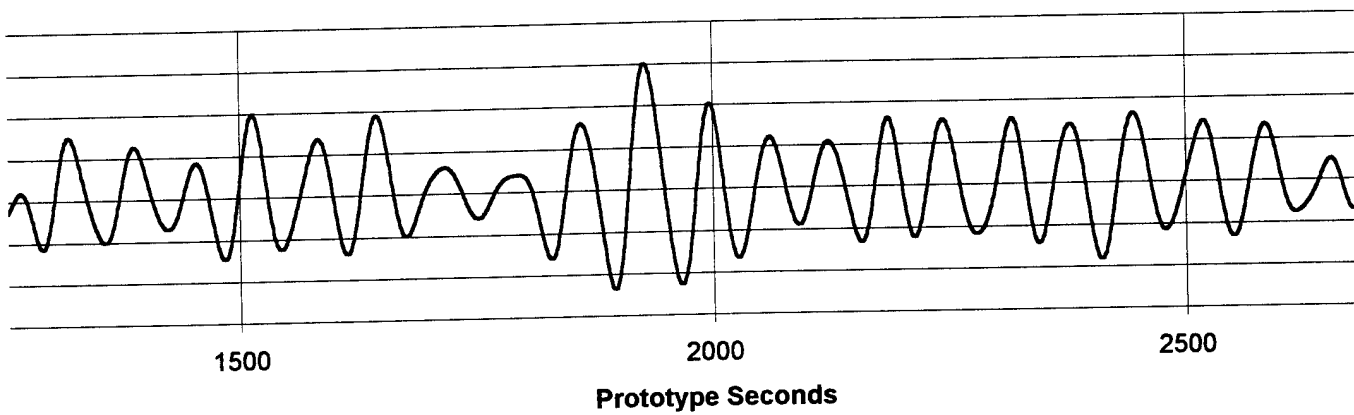


TEST A598 - PITCH

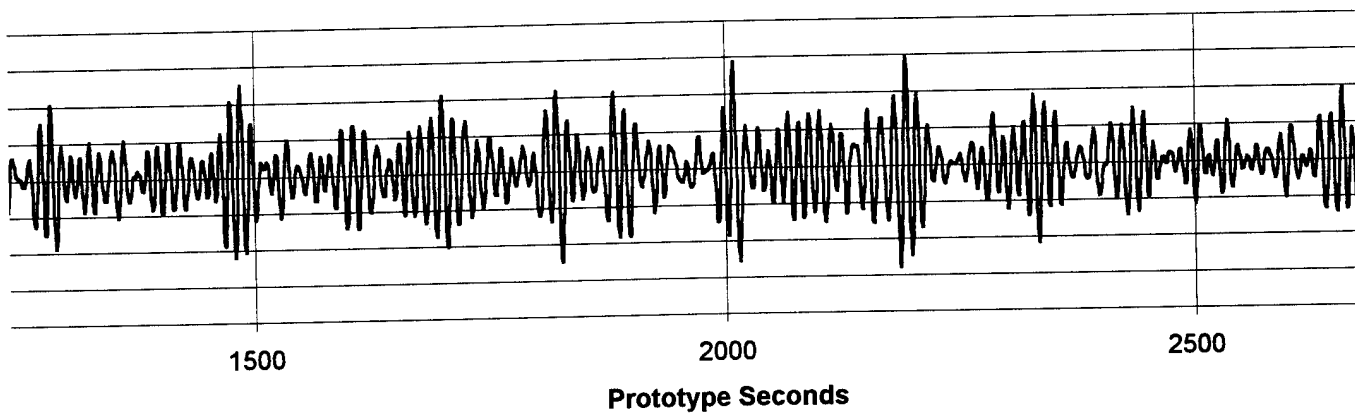
Unfiltered Time History



Filtered Low Frequency Time History

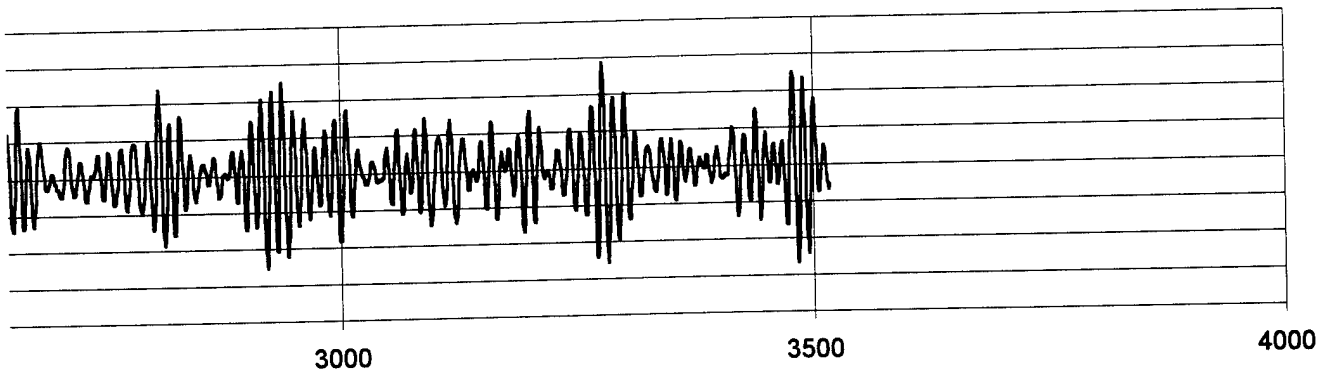
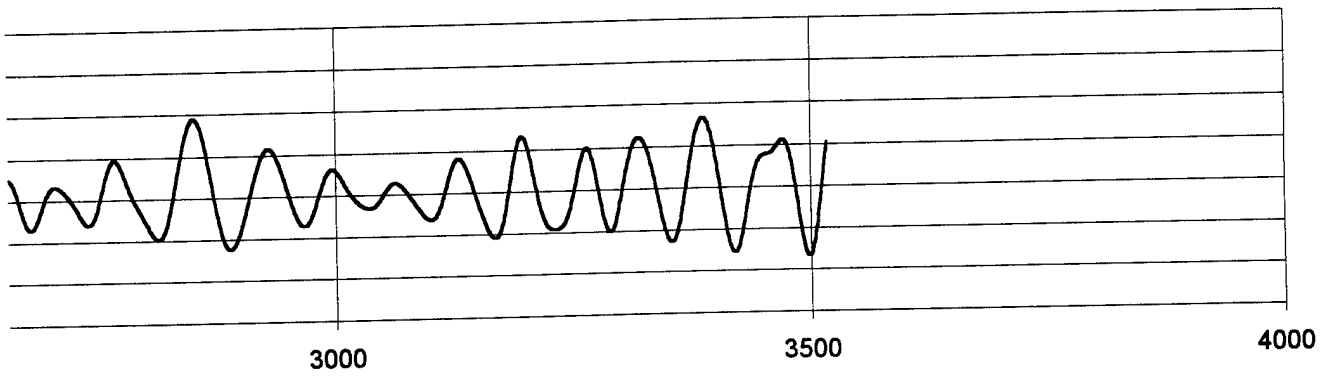
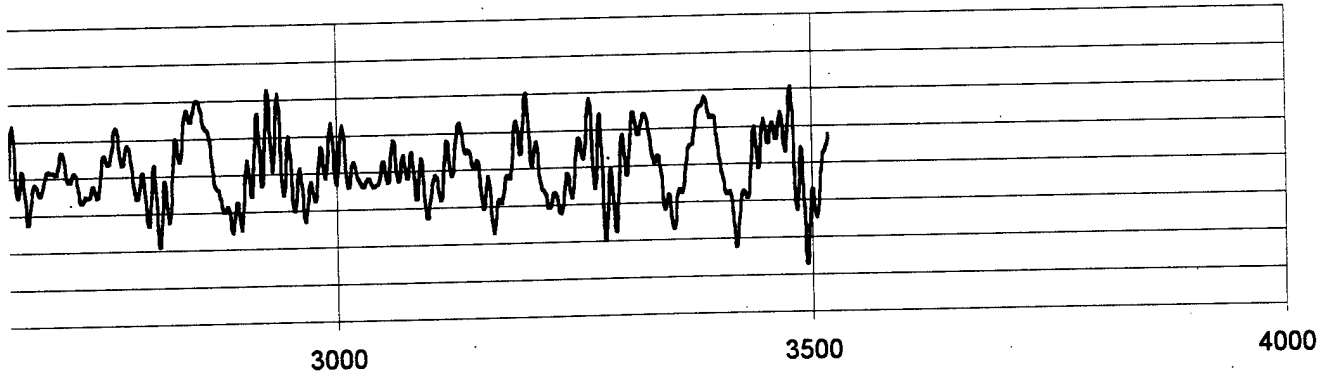


Filtered High Frequency Time History

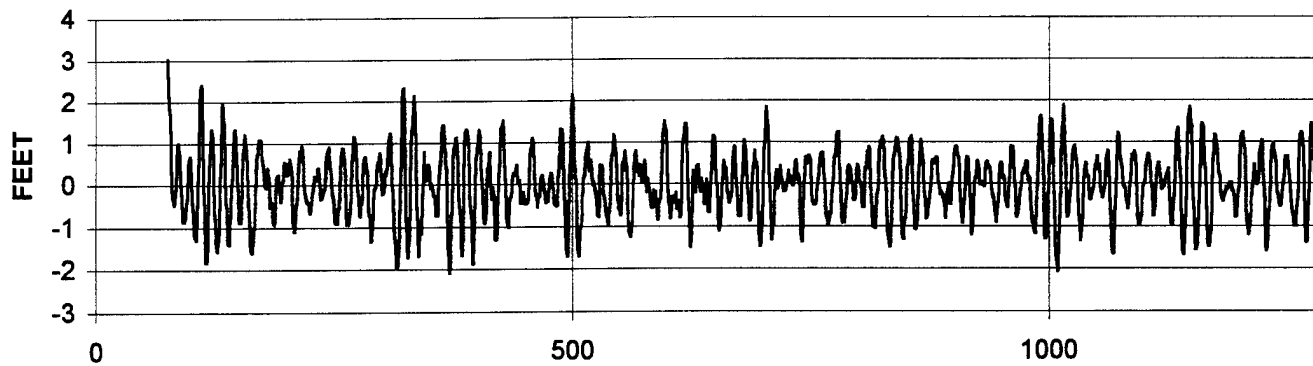
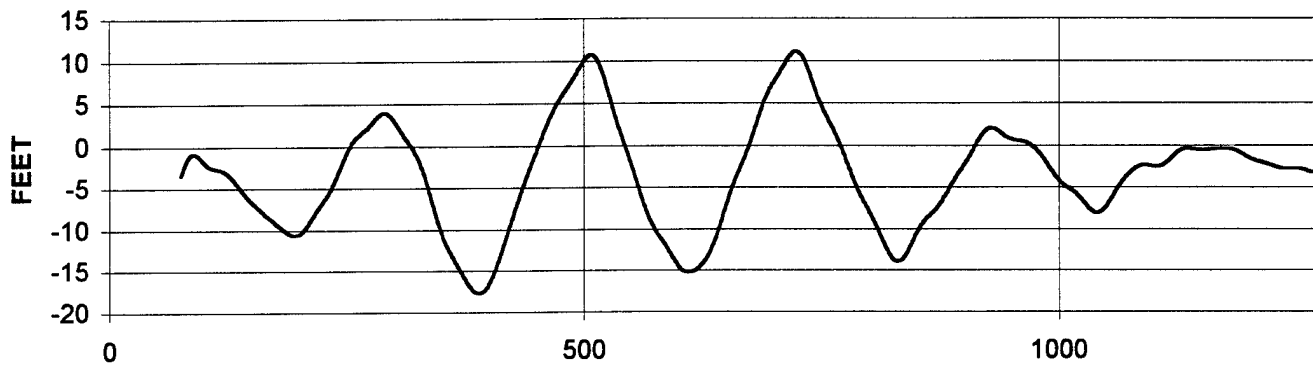
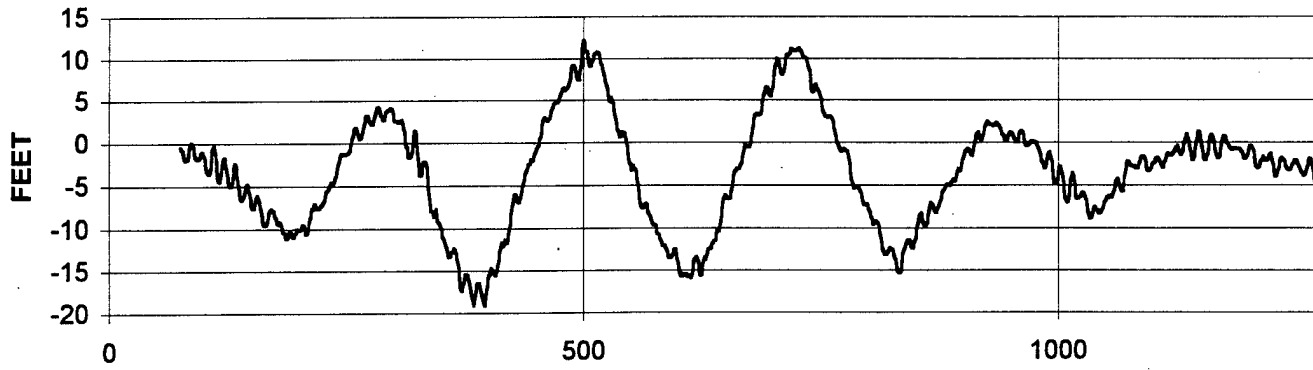




TEST A598 - PITCH

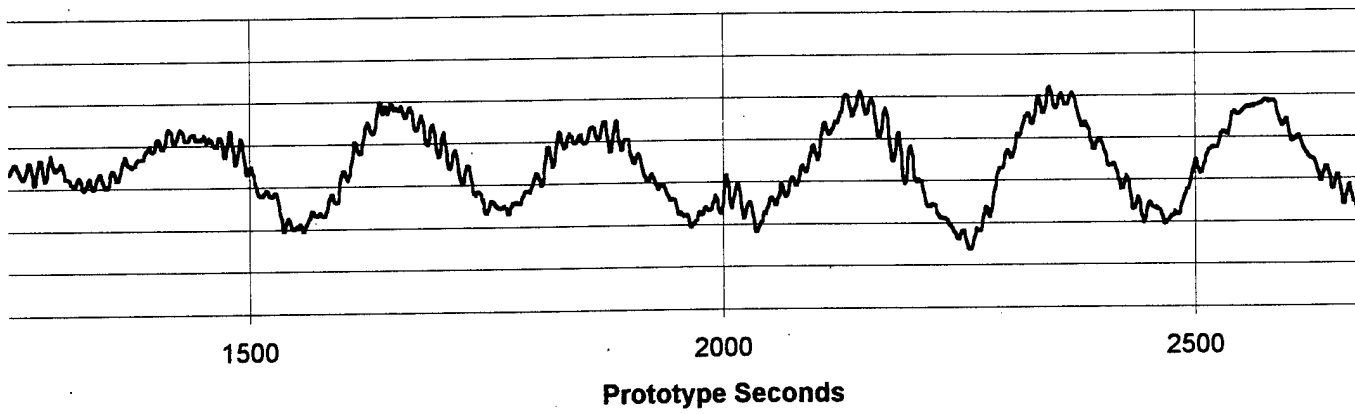


TEST A598 - PT SURGE

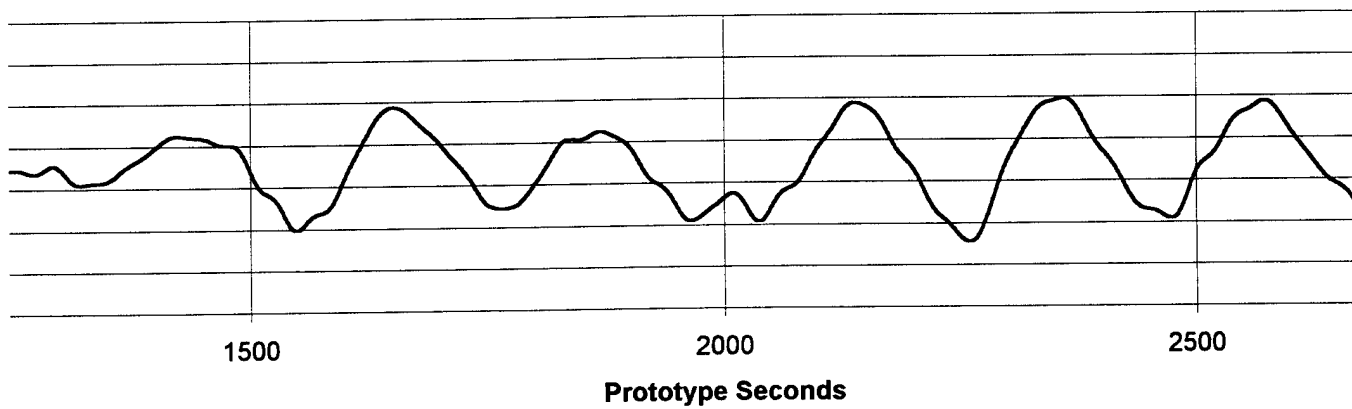


TEST A598 - PT SURGE

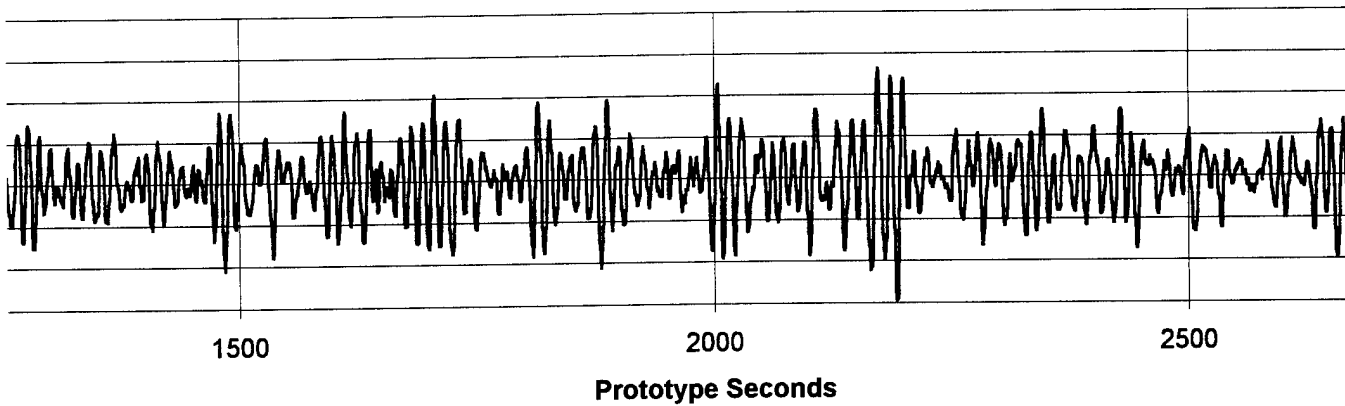
Unfiltered Time History



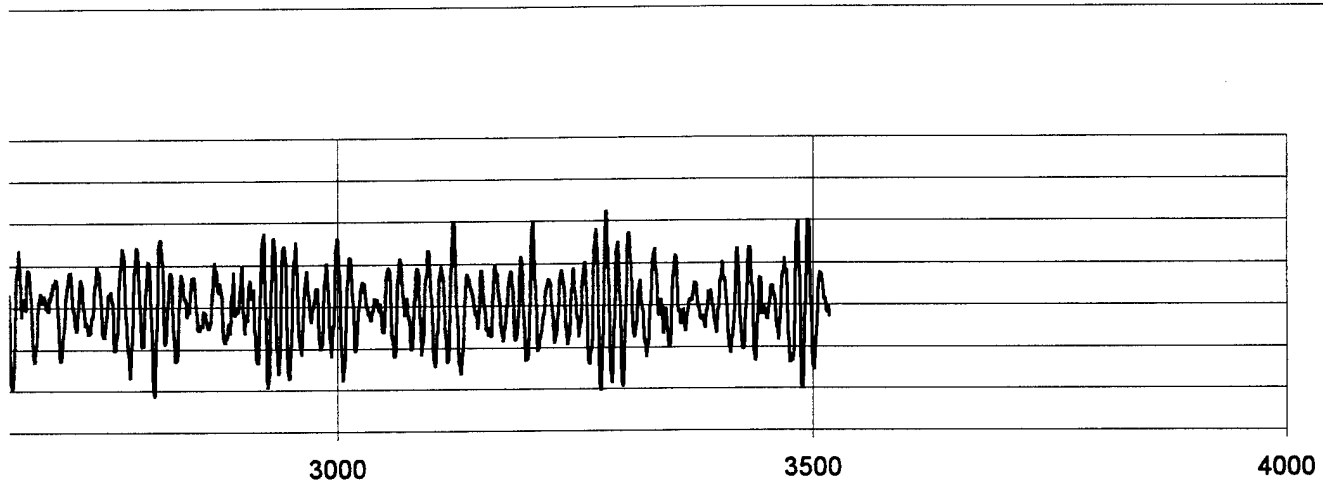
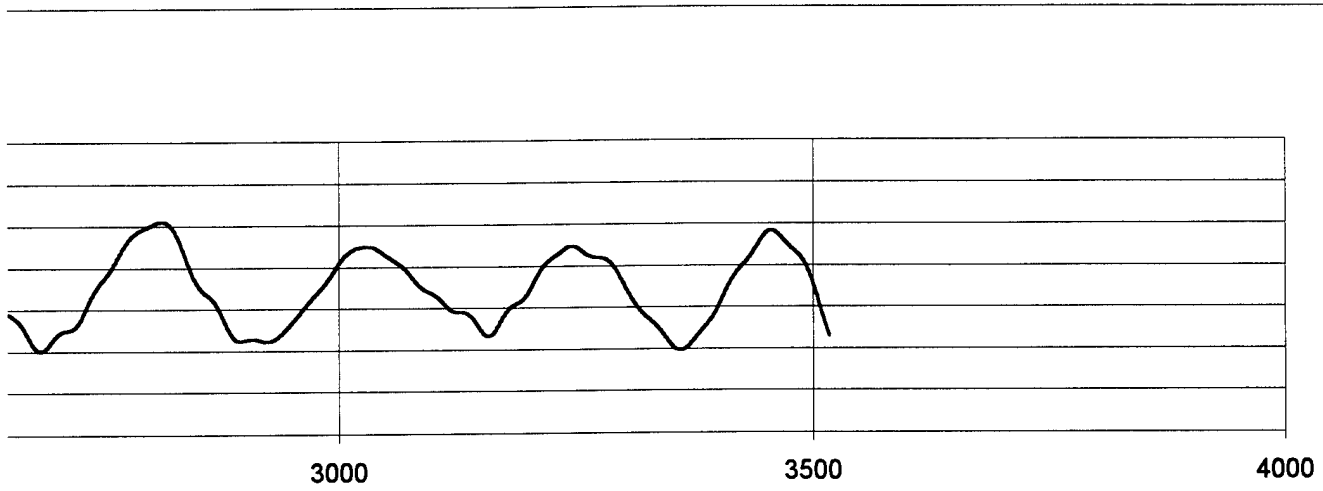
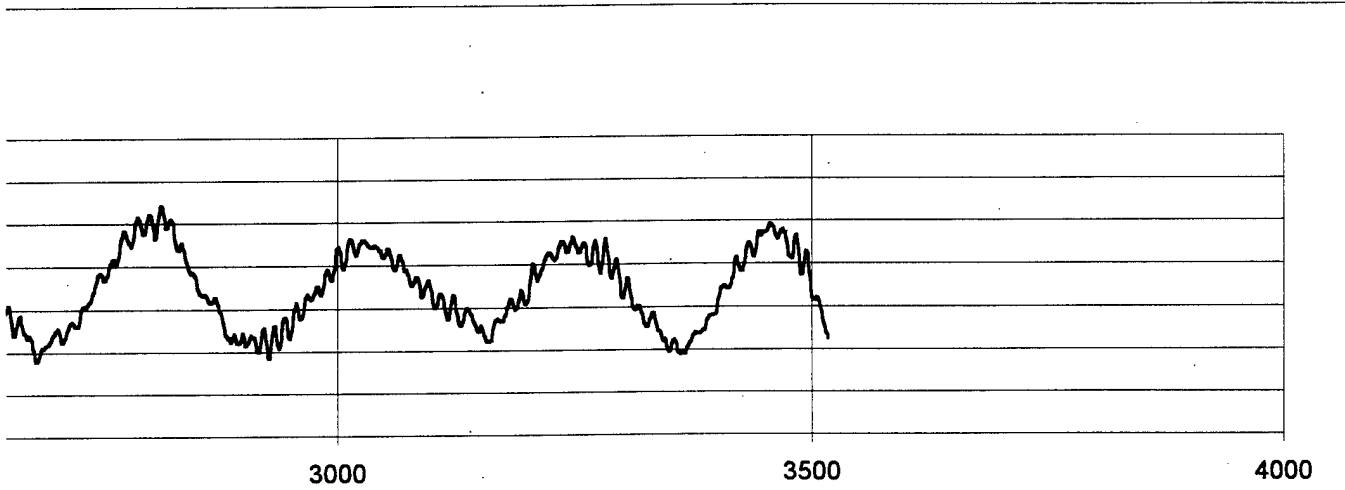
Filtered Low Frequency Time History



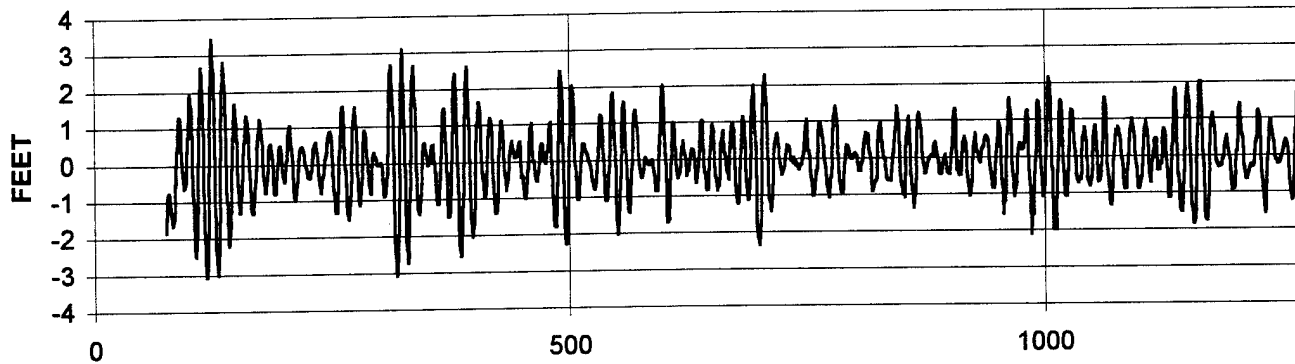
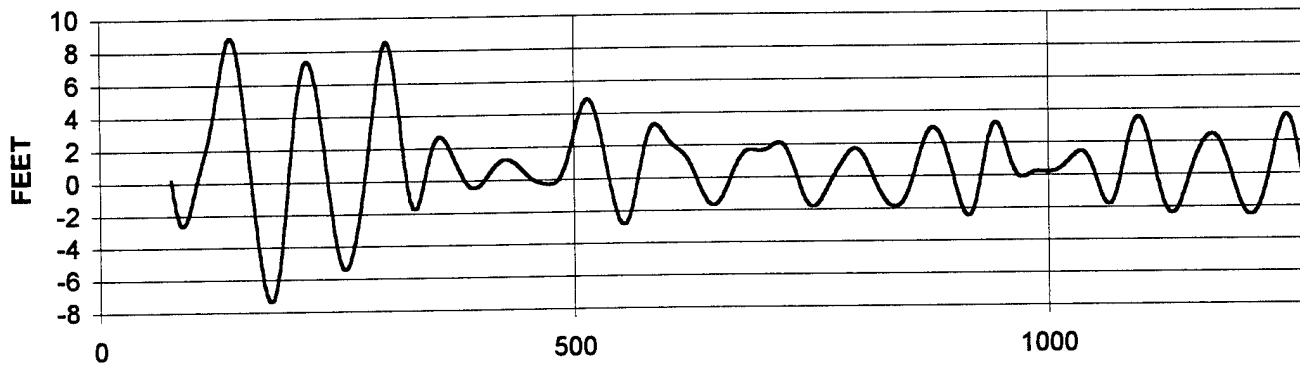
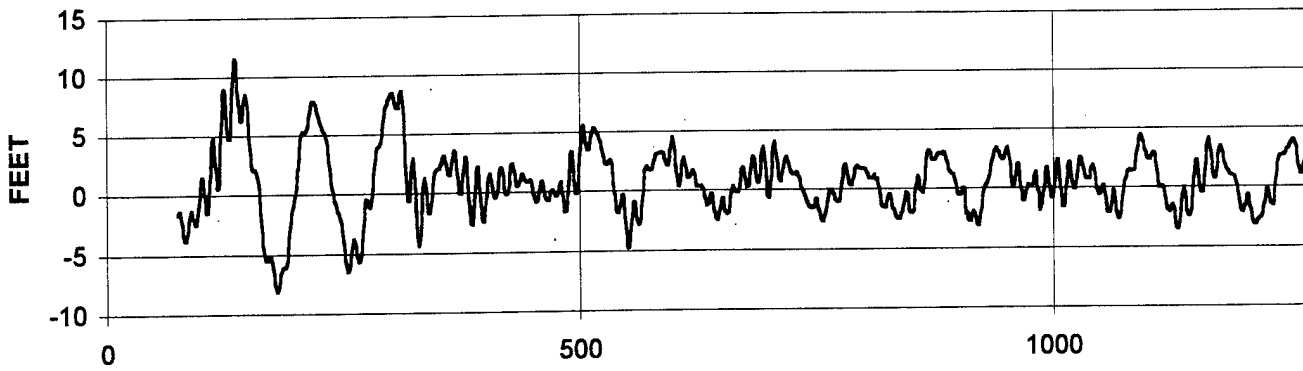
Filtered High Frequency Time History



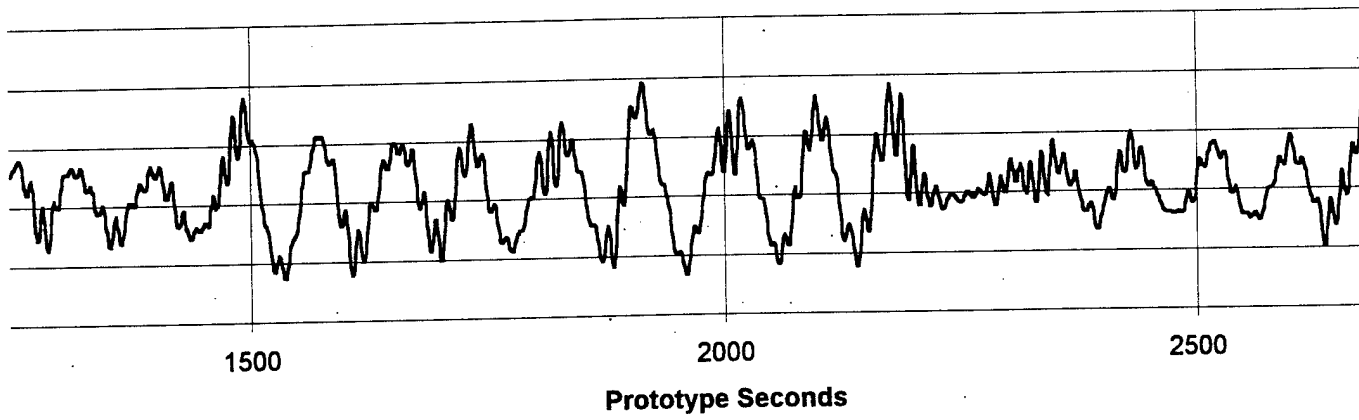
TEST A598 - PT SURGE



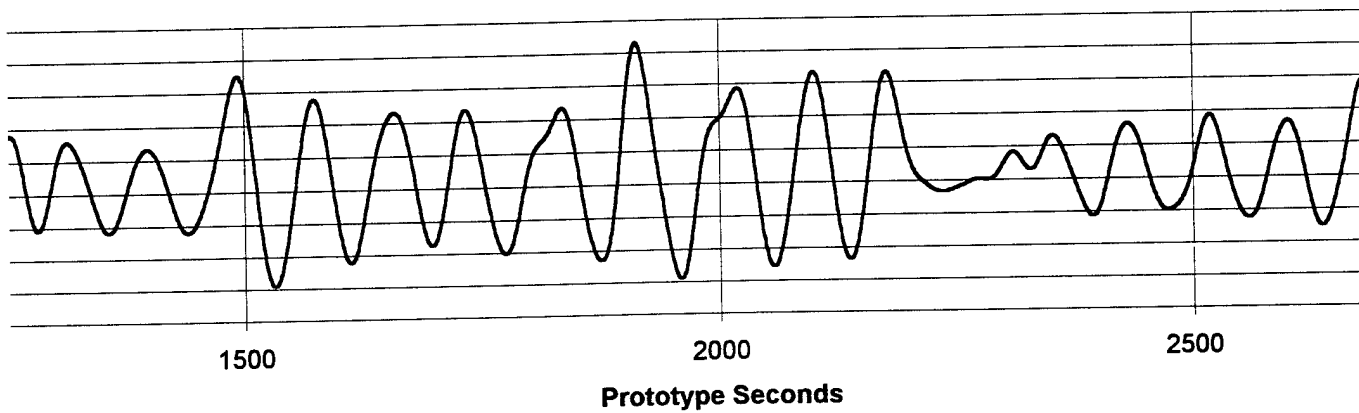
TEST A598 - PT HEAVE



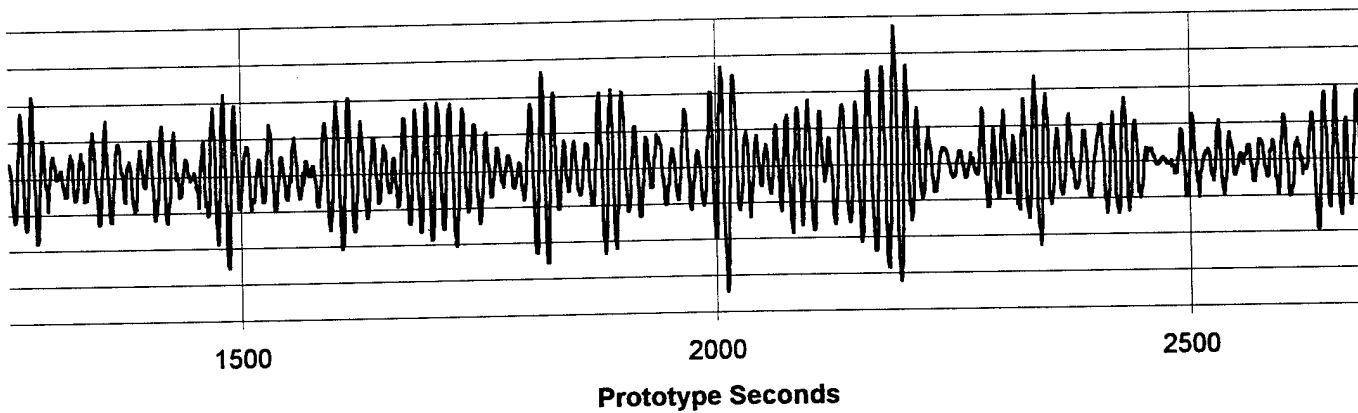
**Unfiltered Time History**



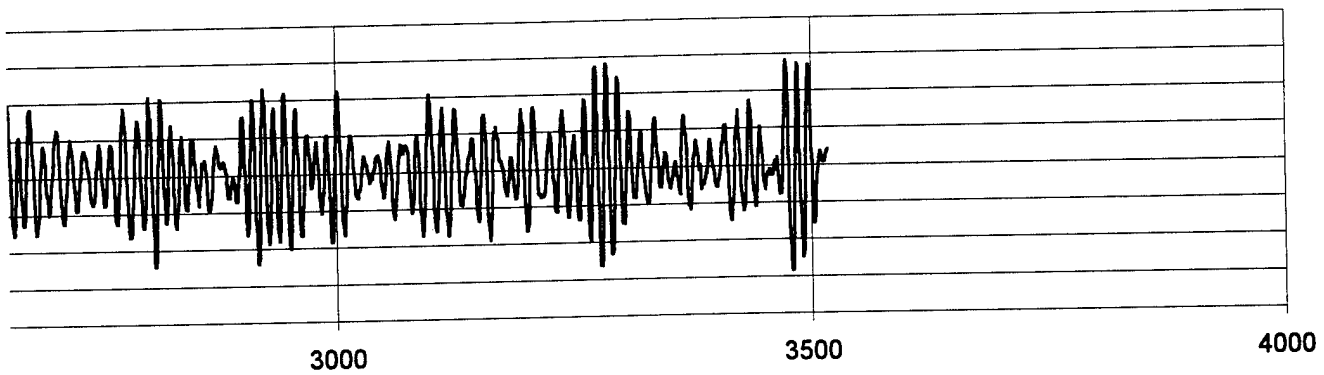
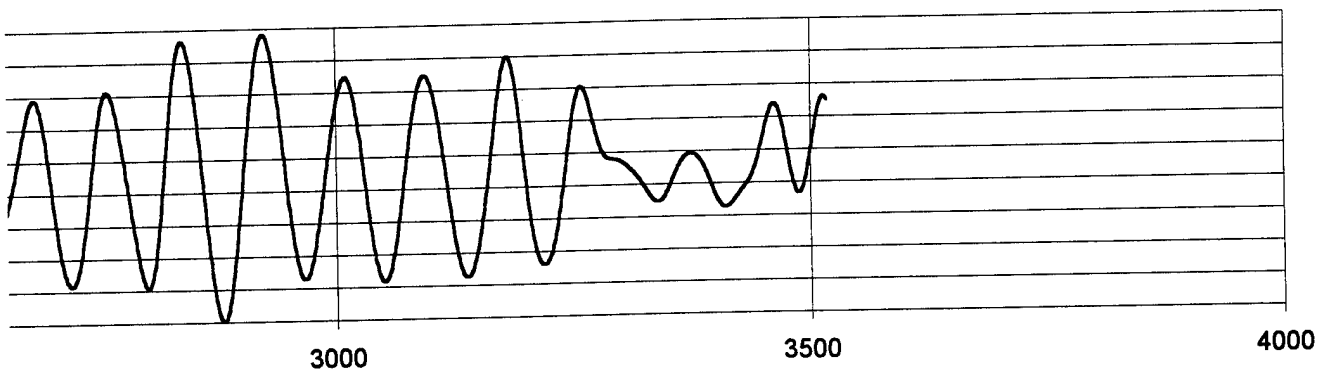
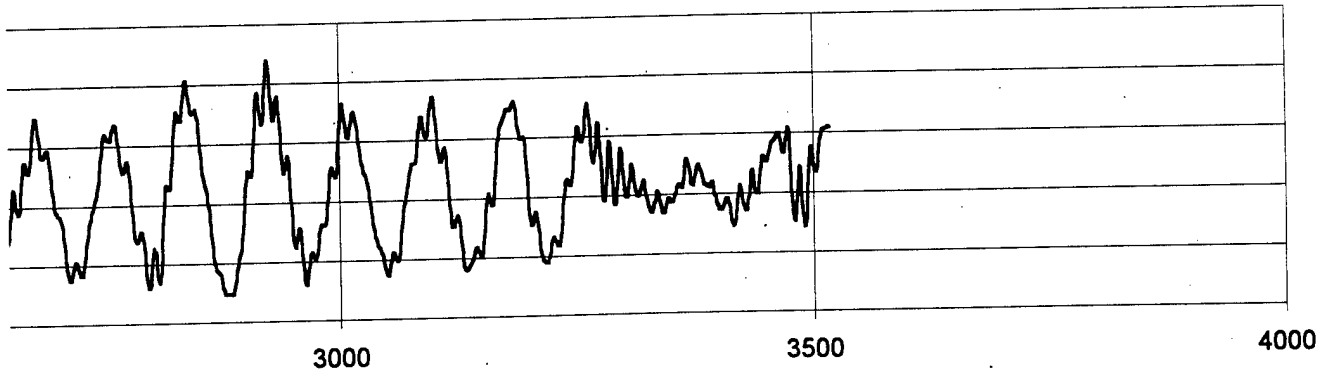
**Filtered Low Frequency Time History**



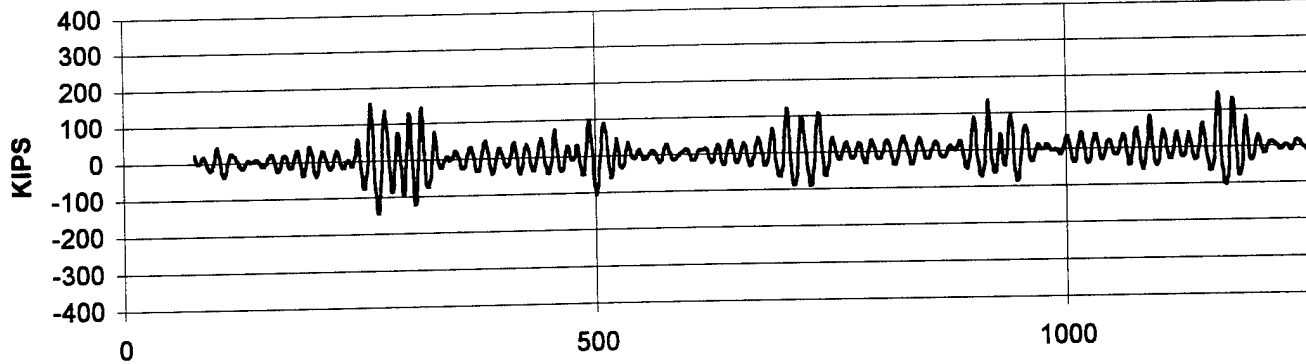
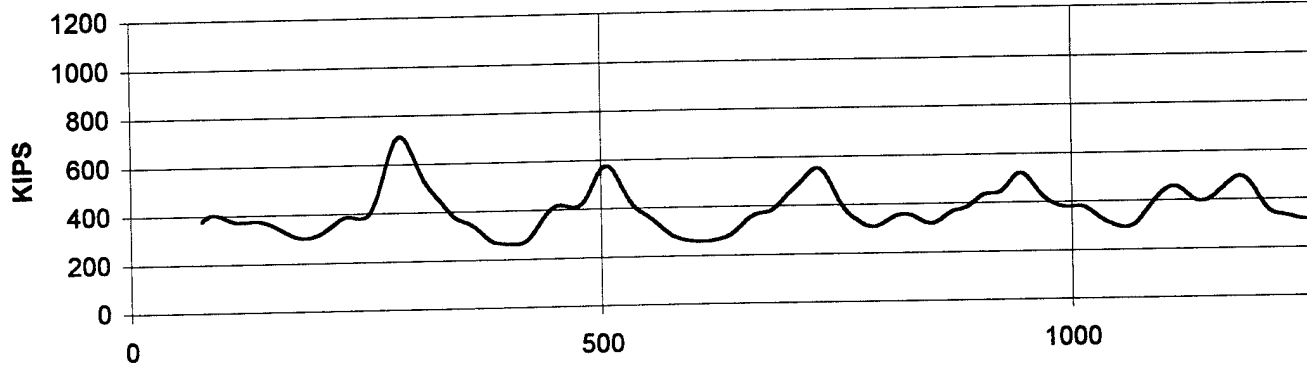
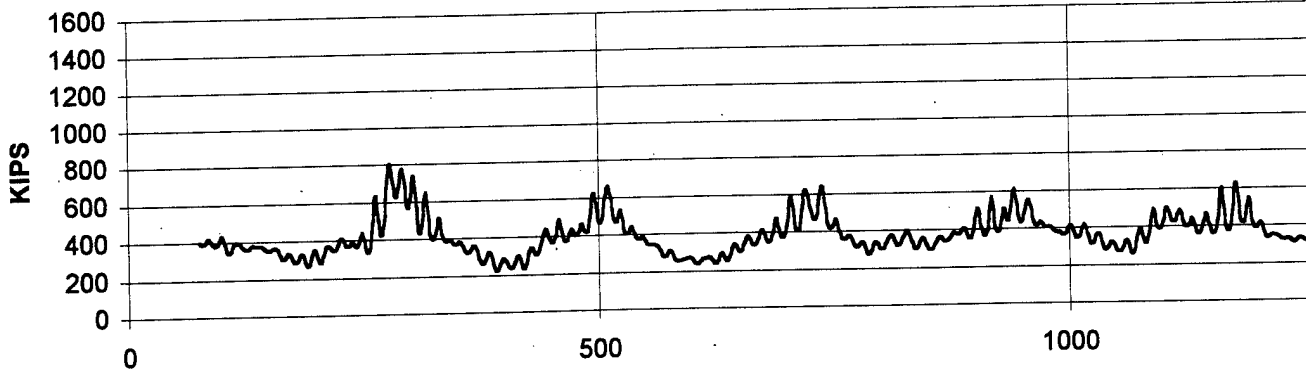
**Filtered High Frequency Time History**



TEST A598 - PT HEAVE

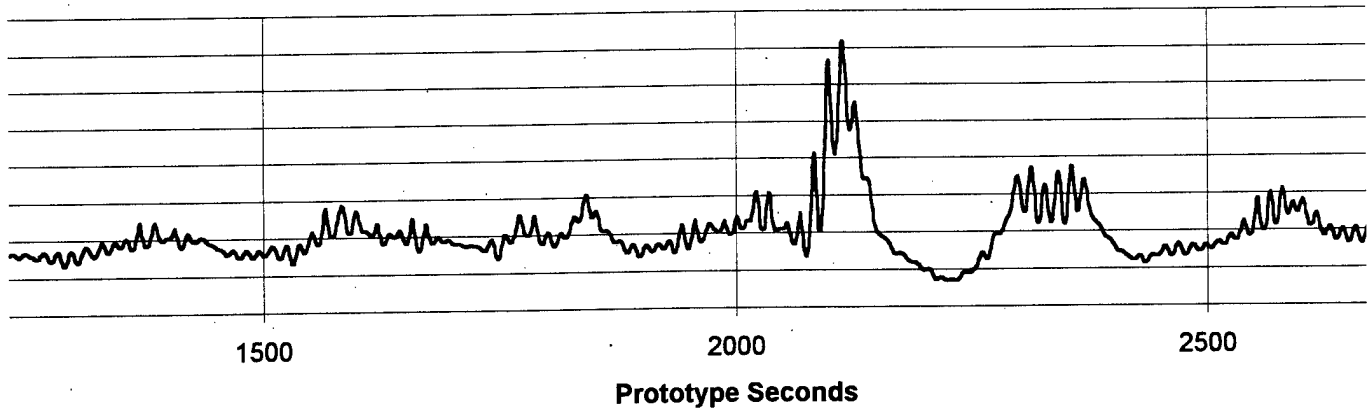


TEST A599 - ML\_1

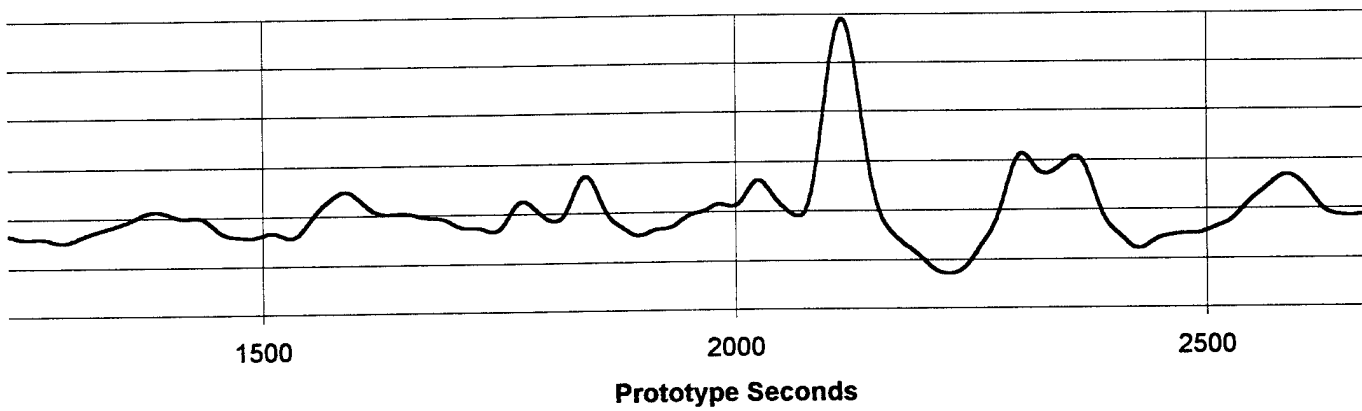




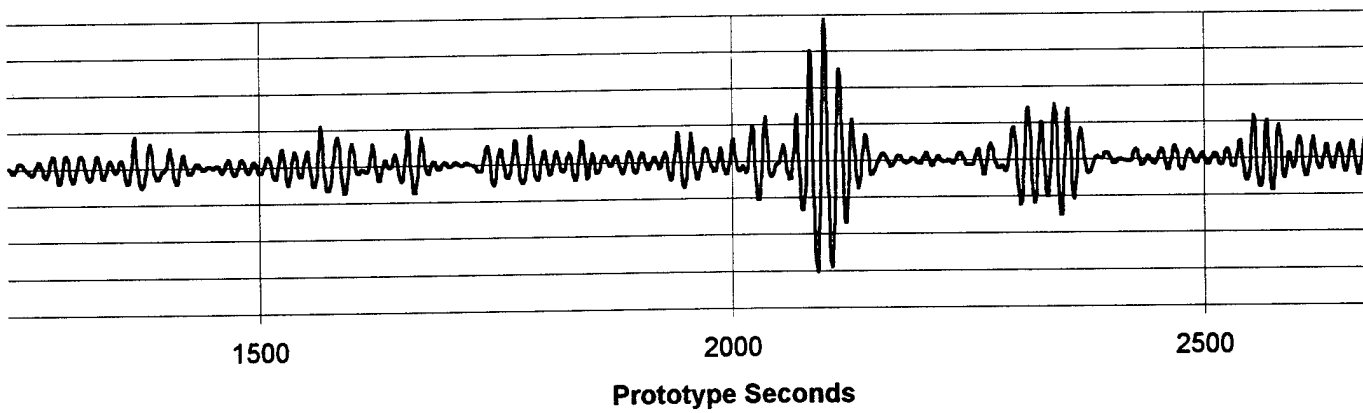
**Unfiltered Time History**

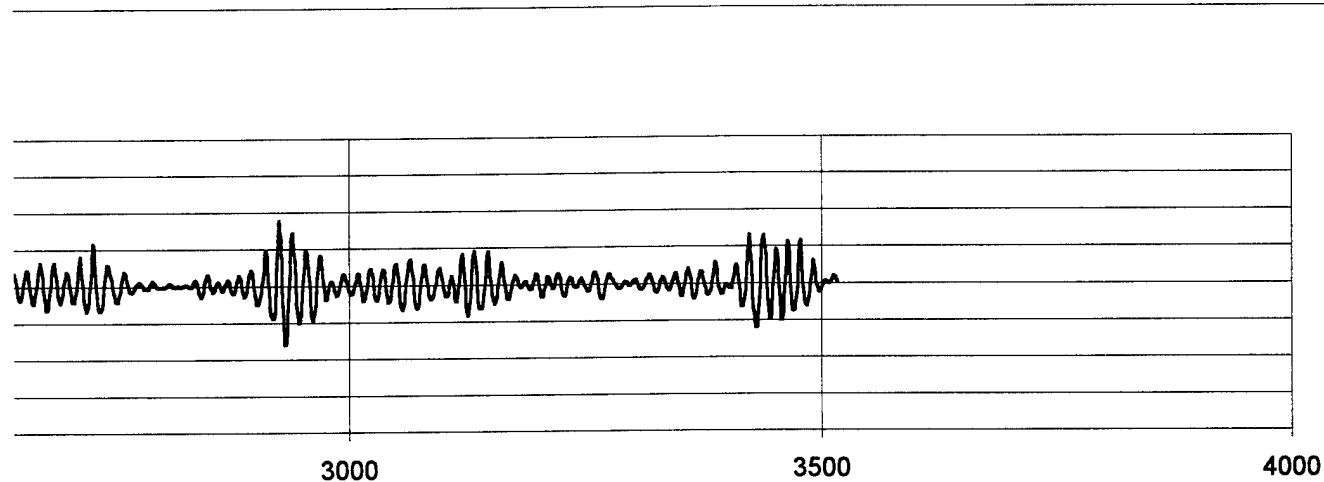
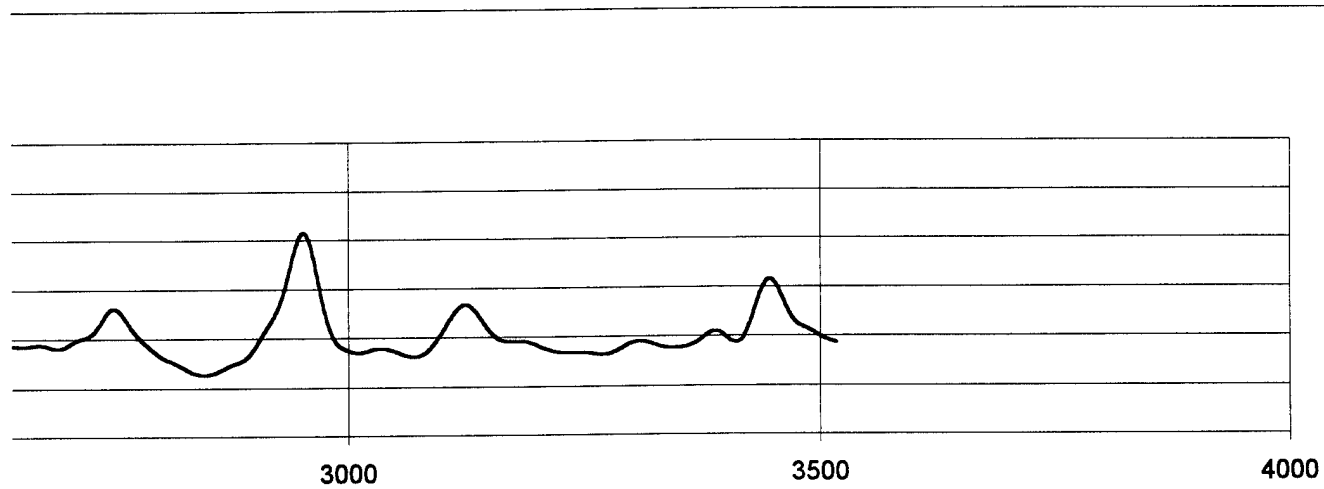
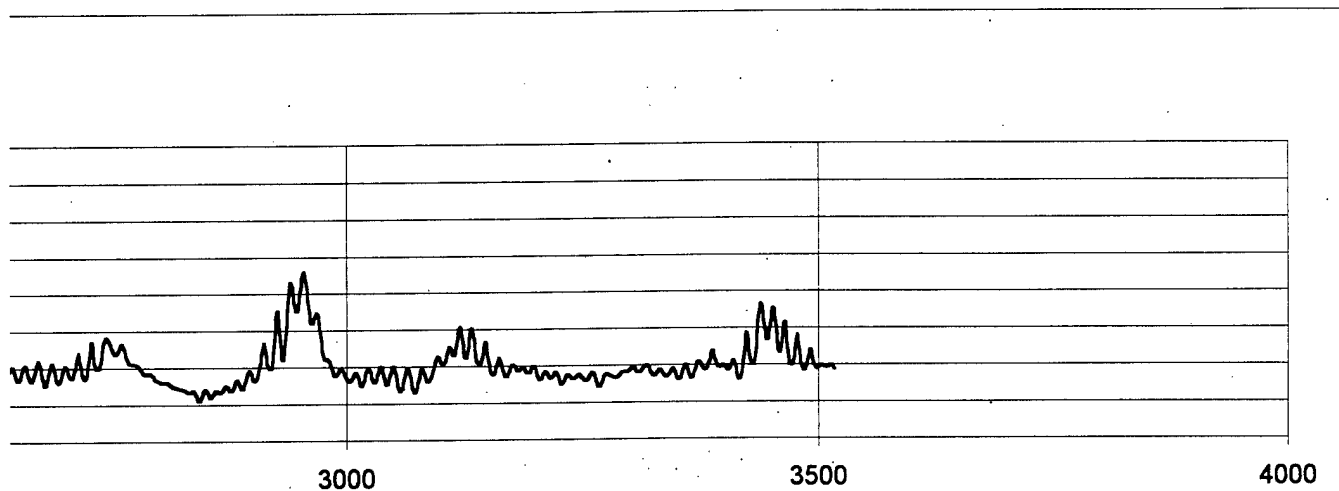


**Filtered Low Frequency Time History**

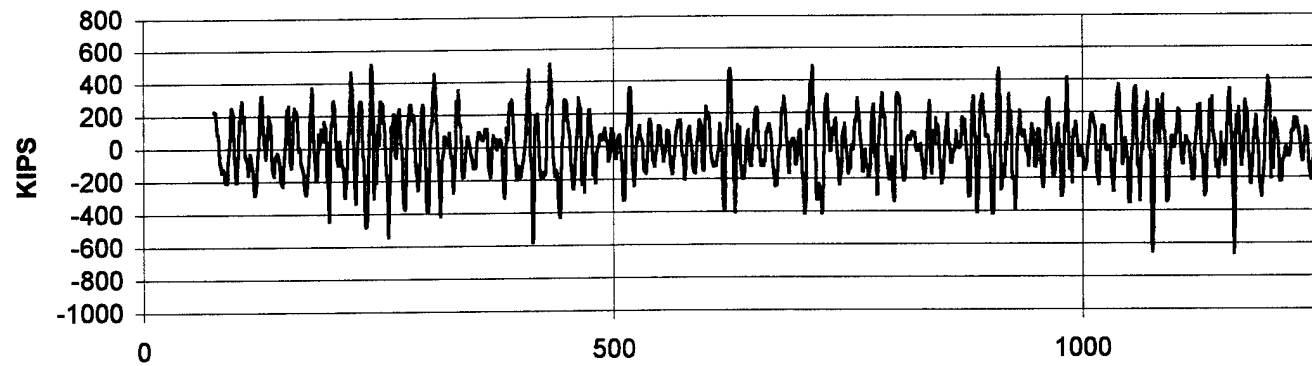
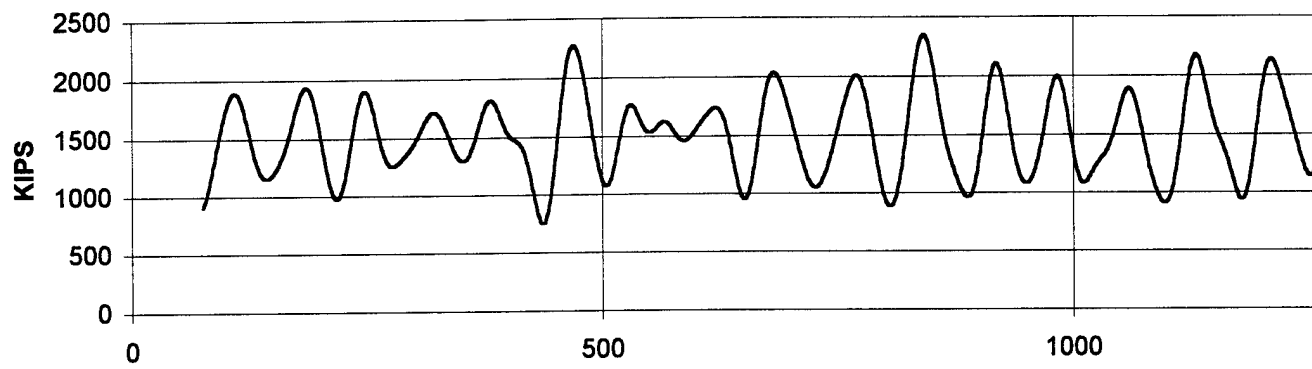
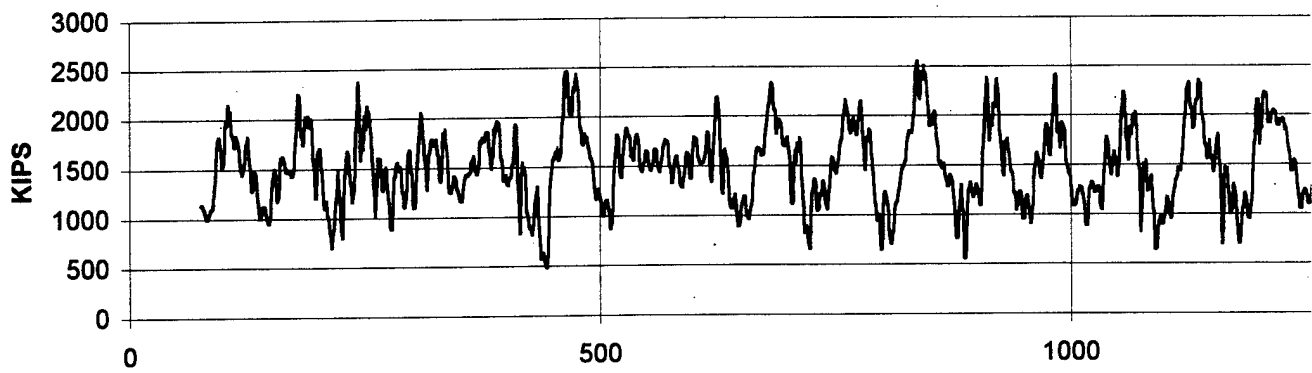


**Filtered High Frequency Time History**



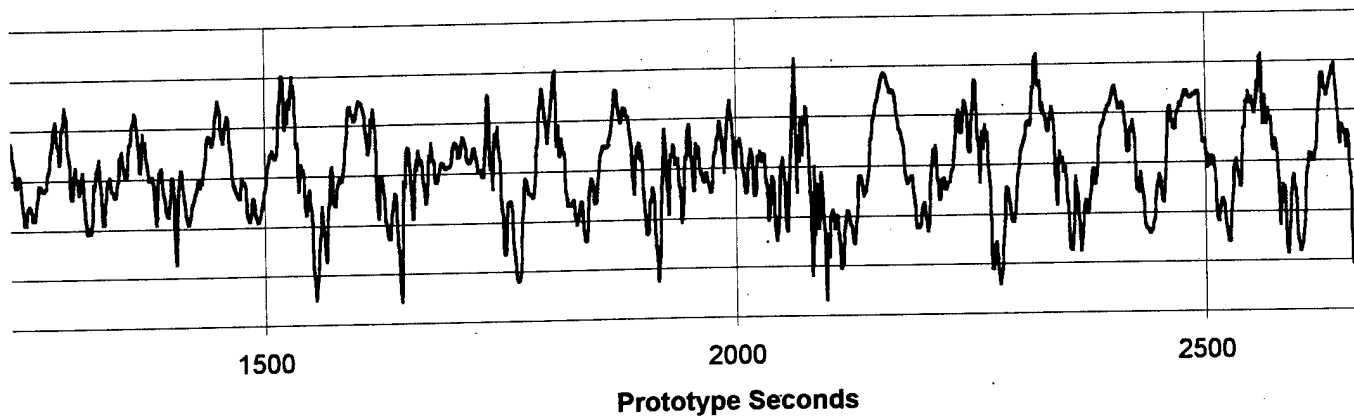


# TEST A599 - BUOY 1 TENSION

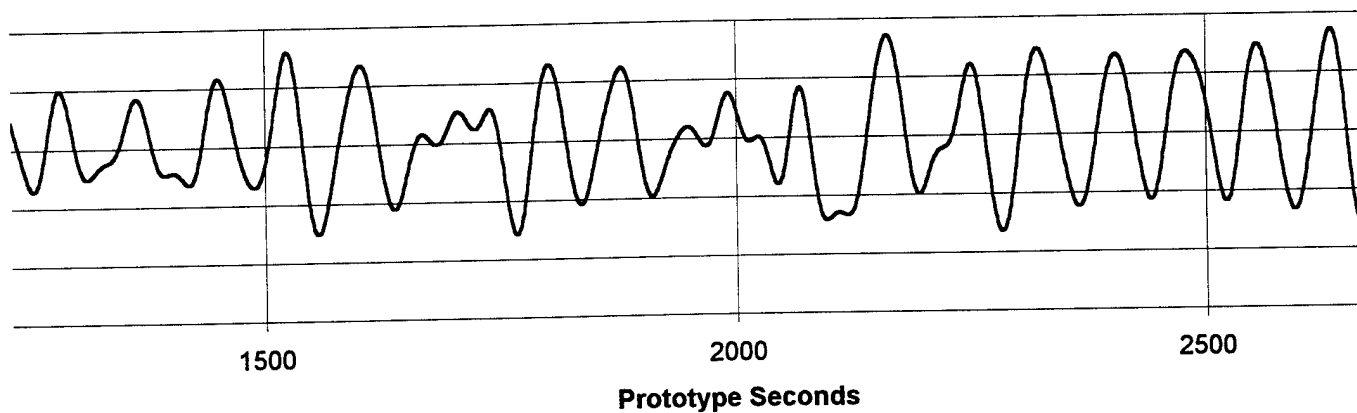


TEST A599 - BUOY 1 TENSION

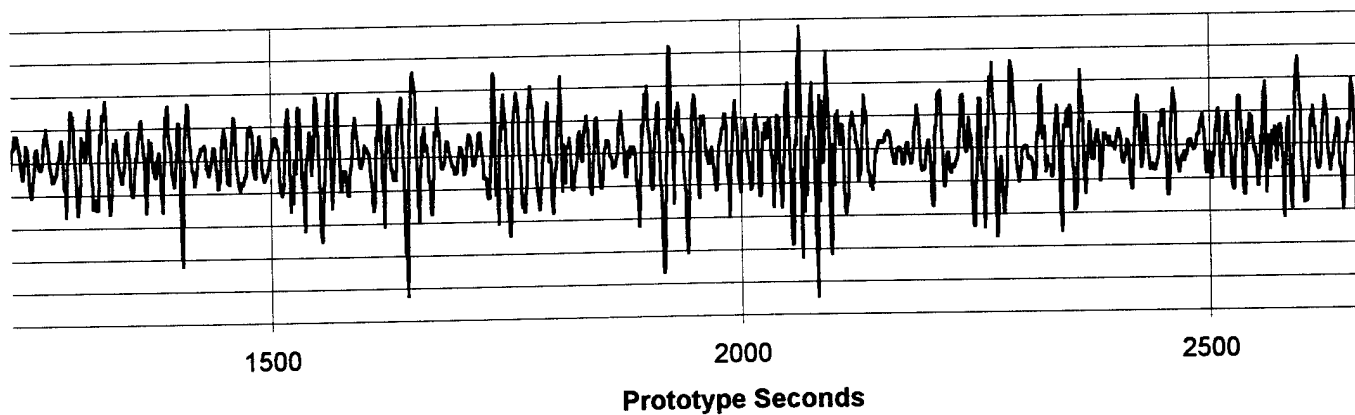
Unfiltered Time History



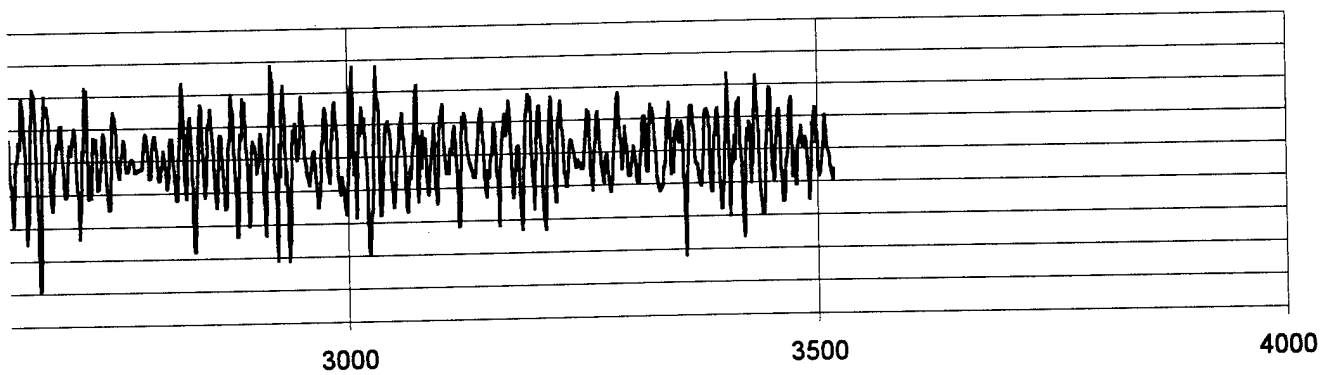
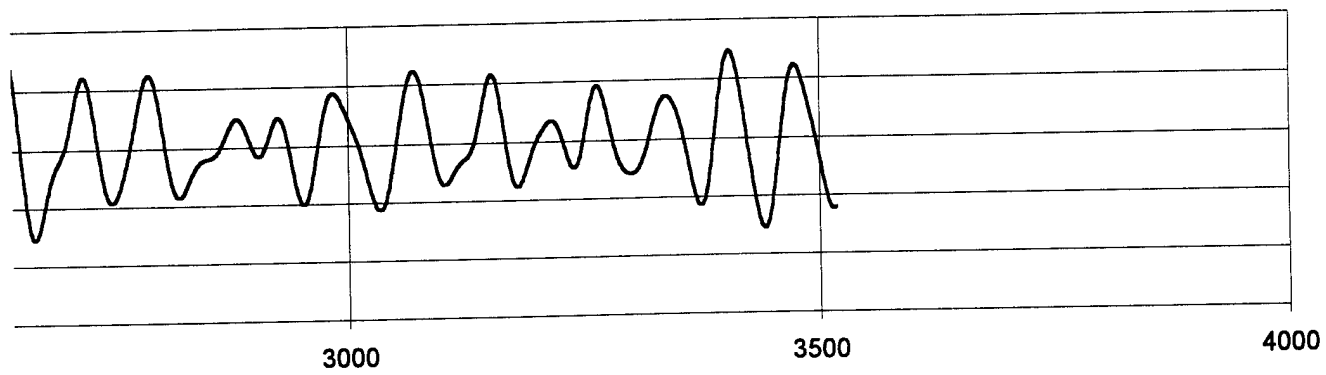
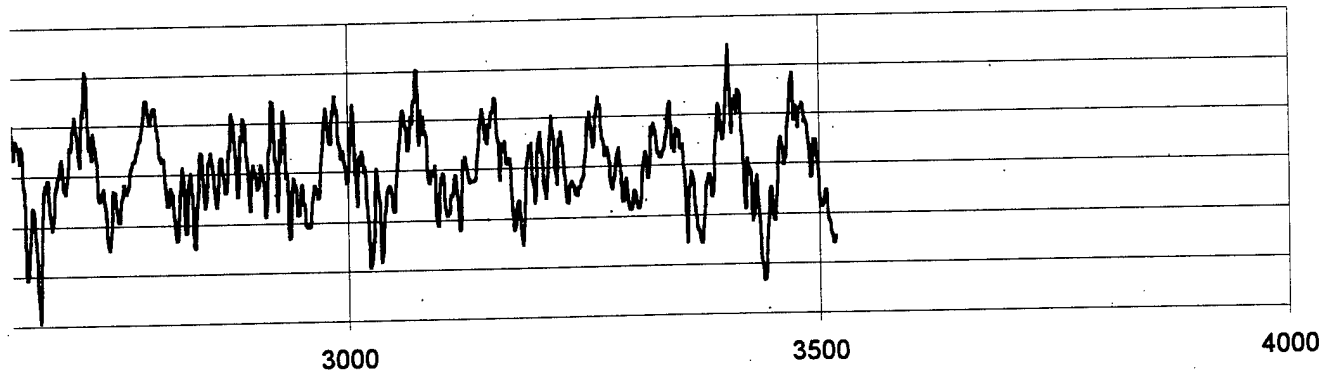
Filtered Low Frequency Time History



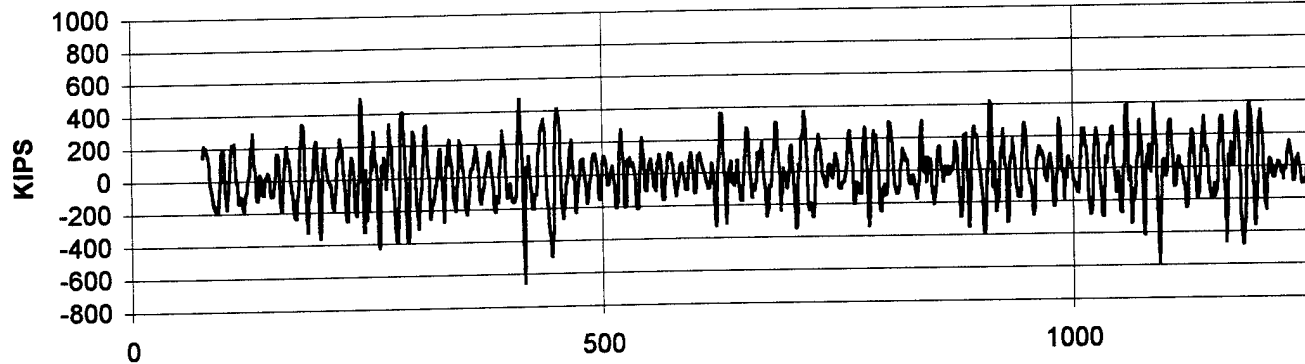
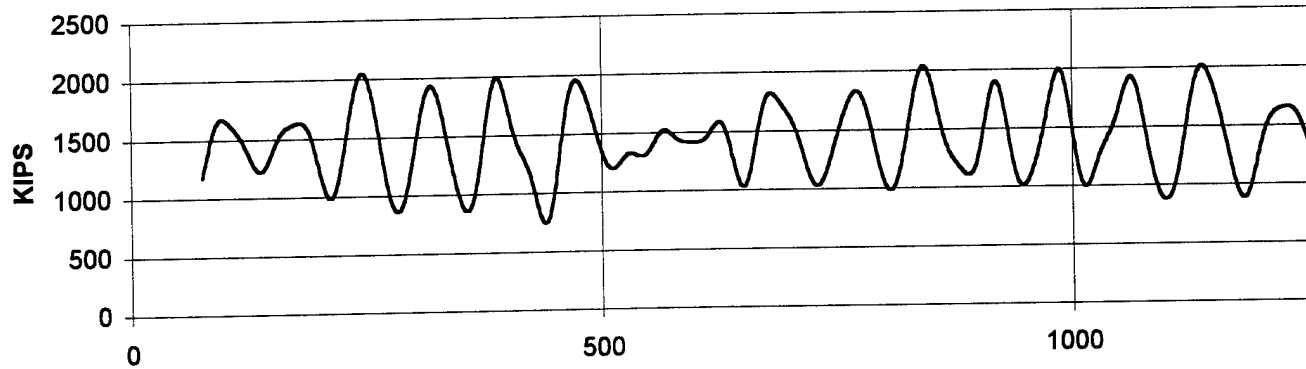
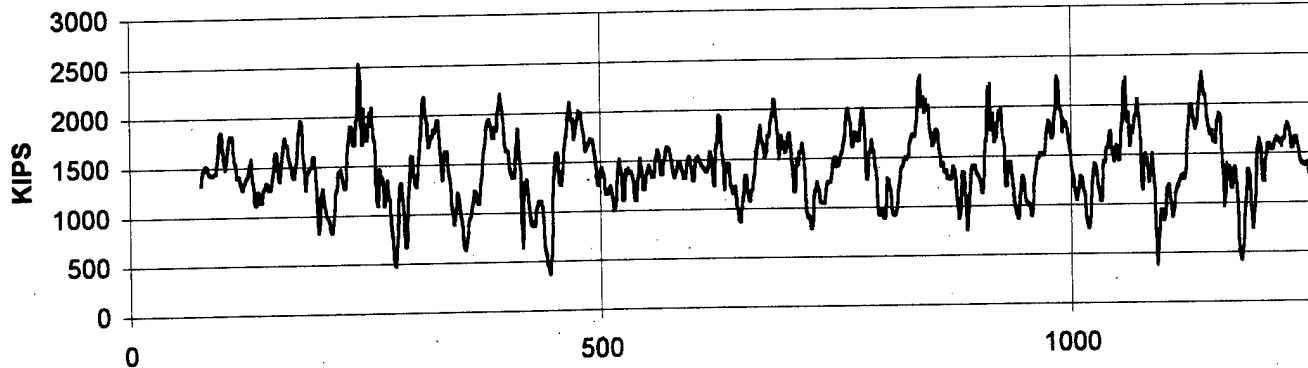
Filtered High Frequency Time History



TEST A599 - BUOY 1 TENSION

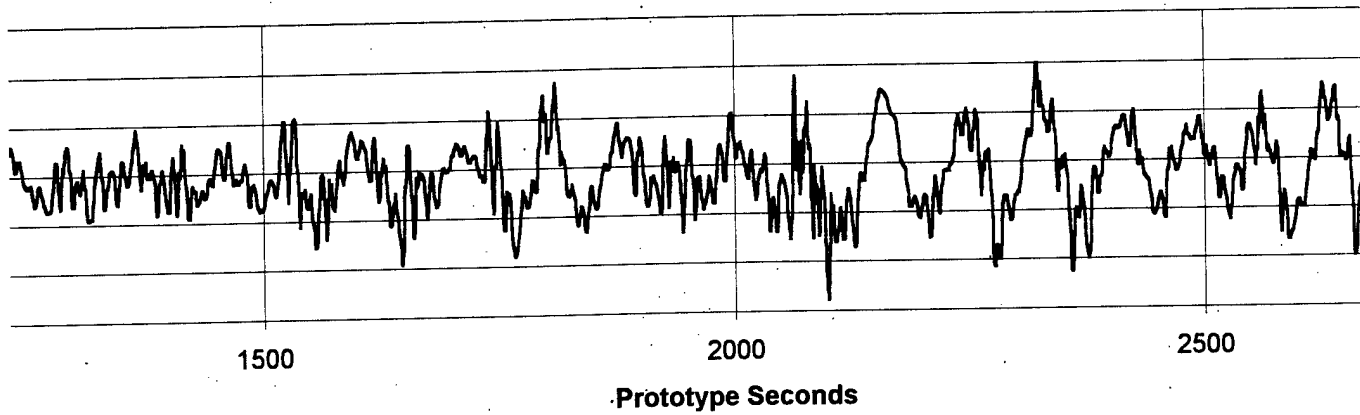


TEST A599 - BUOY 2 TENSION

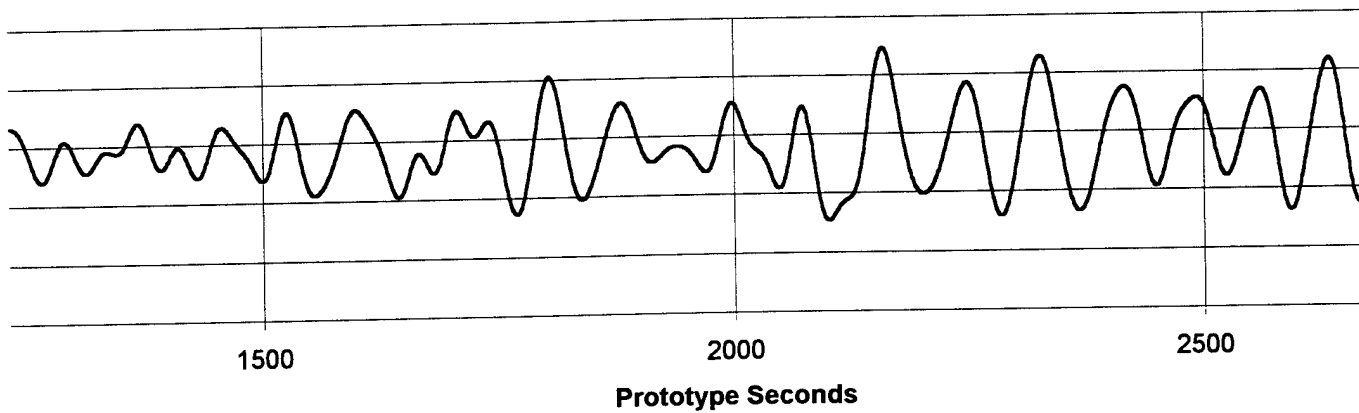


TEST A599 - BUOY 2 TENSION

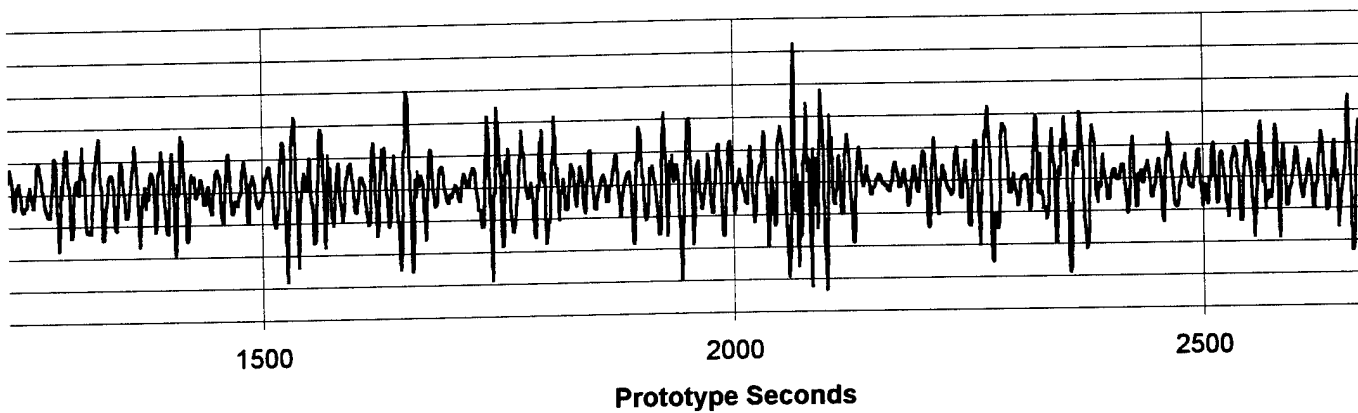
Unfiltered Time History



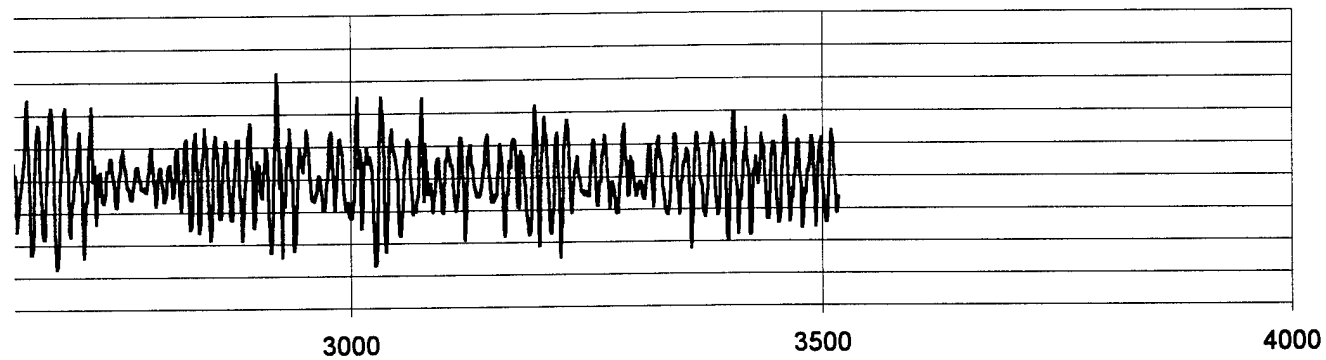
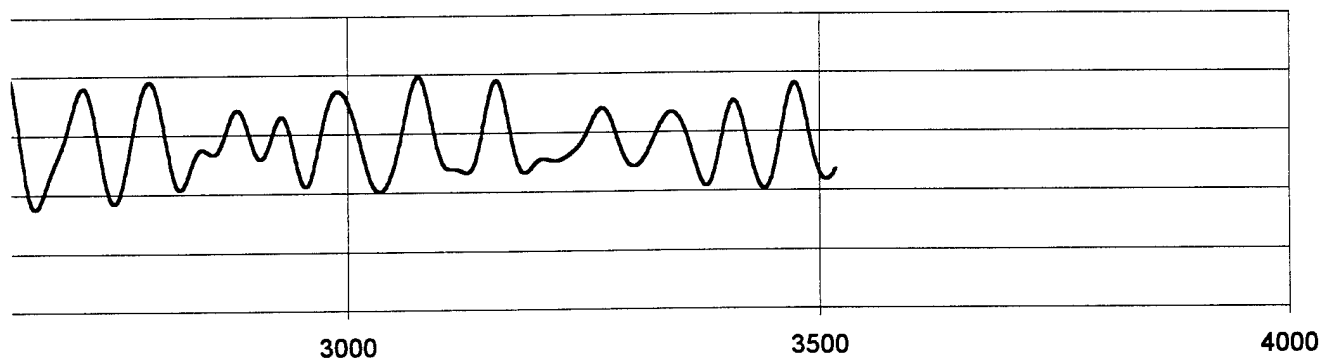
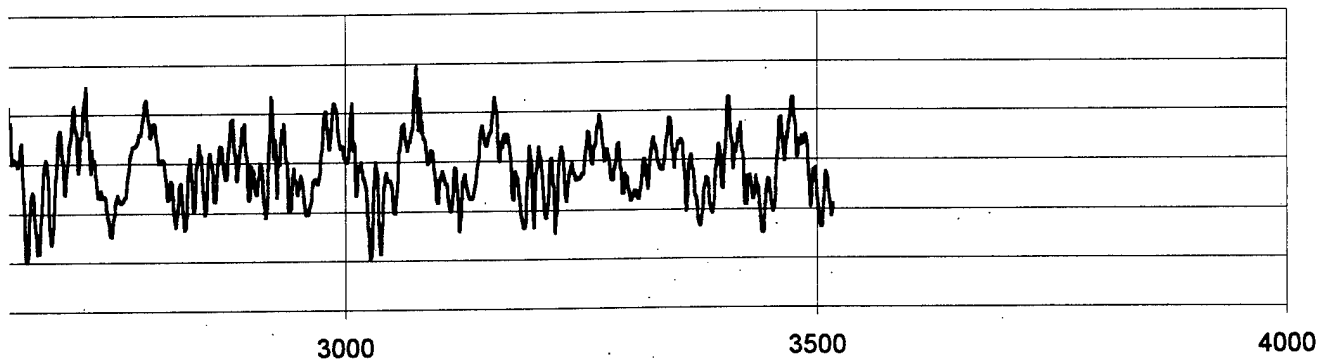
Filtered Low Frequency Time History



Filtered High Frequency Time History

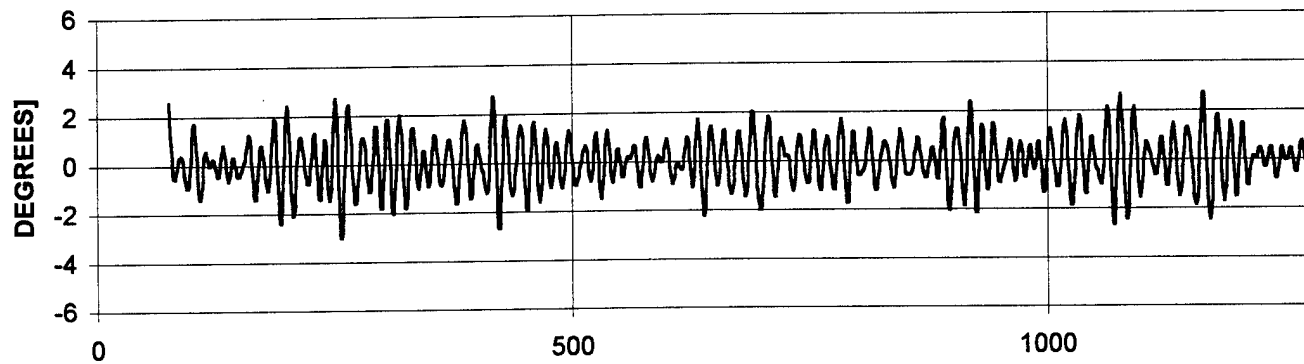
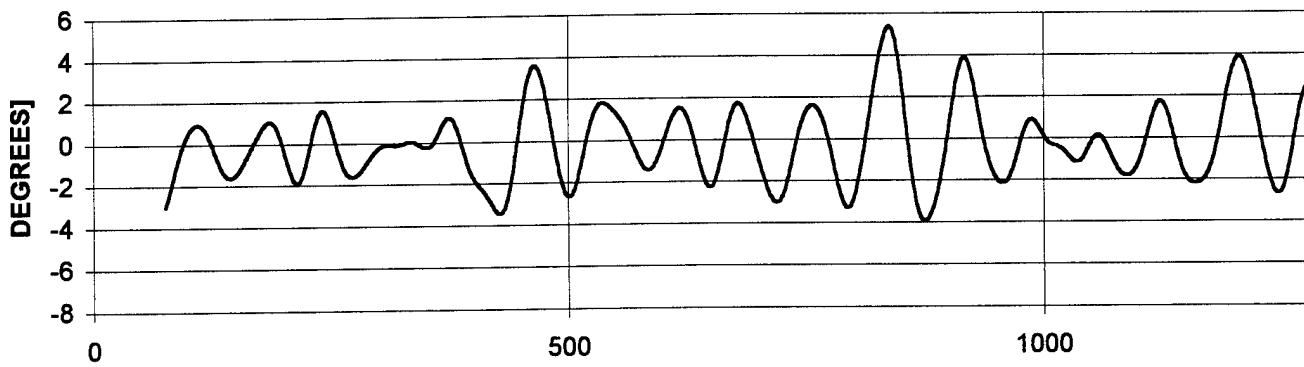
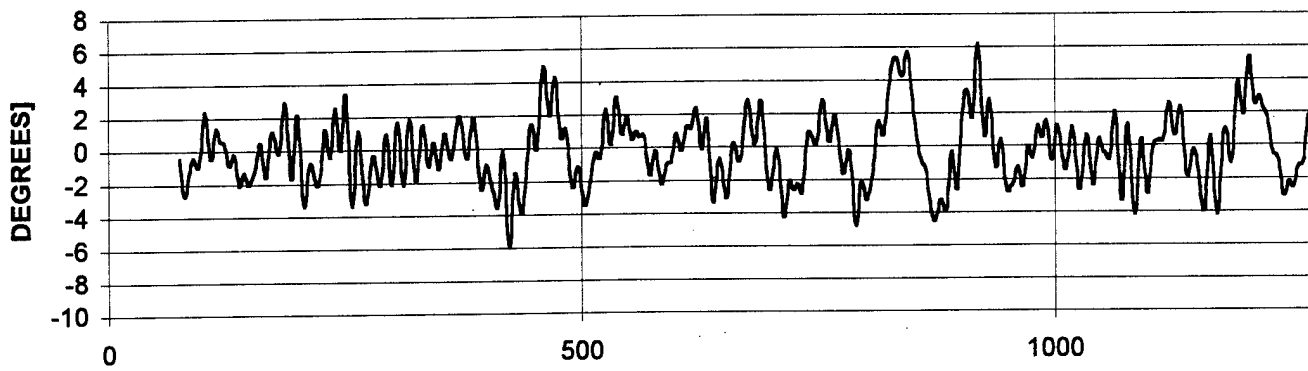


TEST A599 - BUOY 2 TENSION



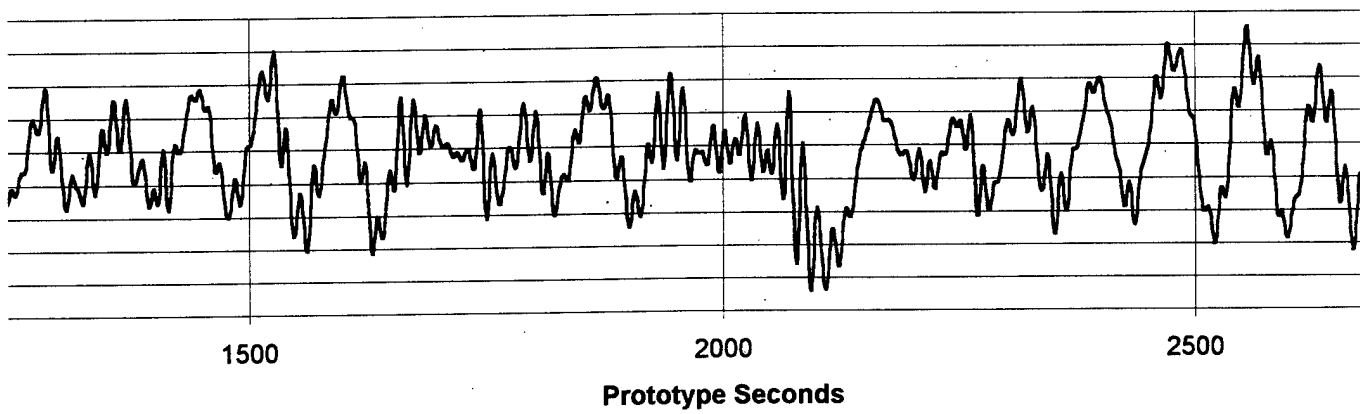


TEST A599 - PITCH

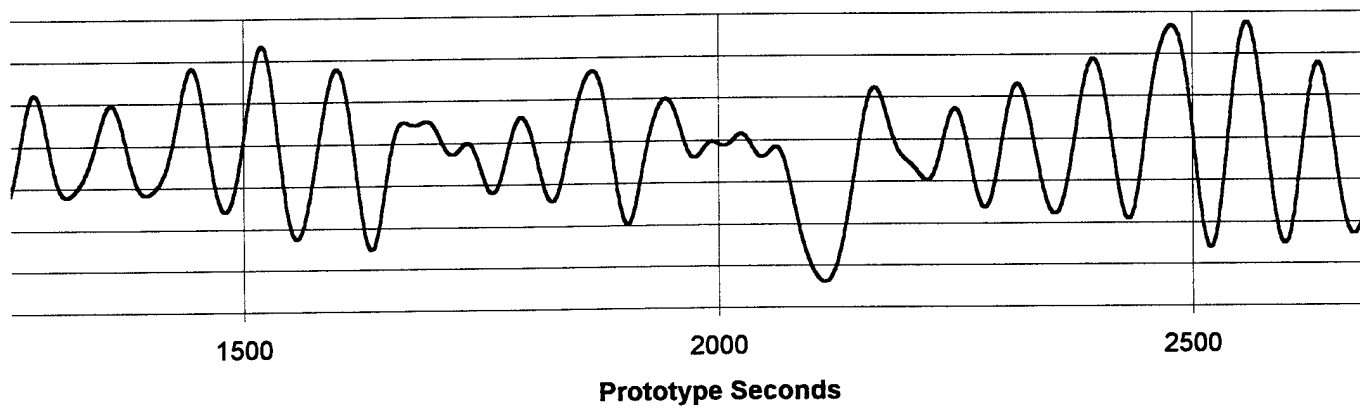


TEST A599 - PITCH

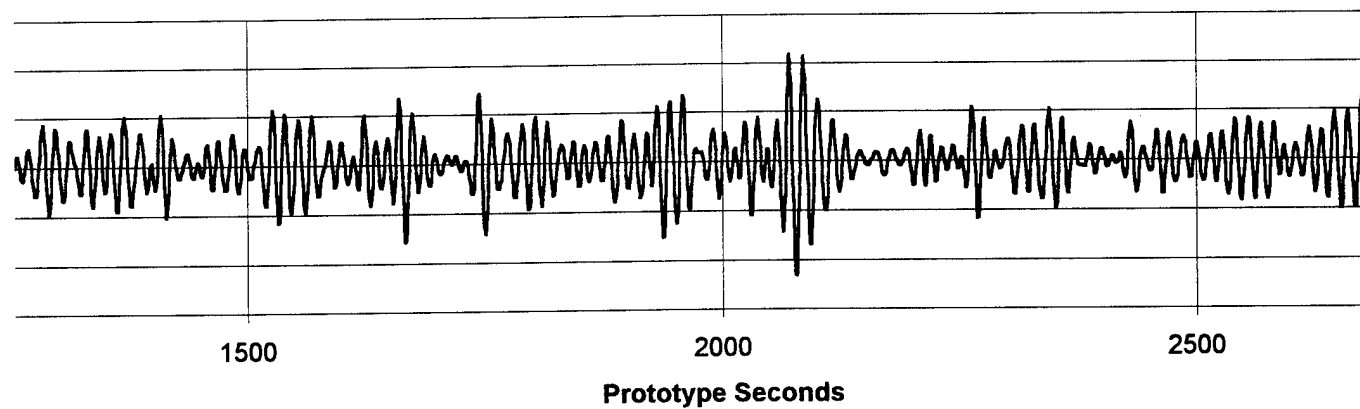
Unfiltered Time History



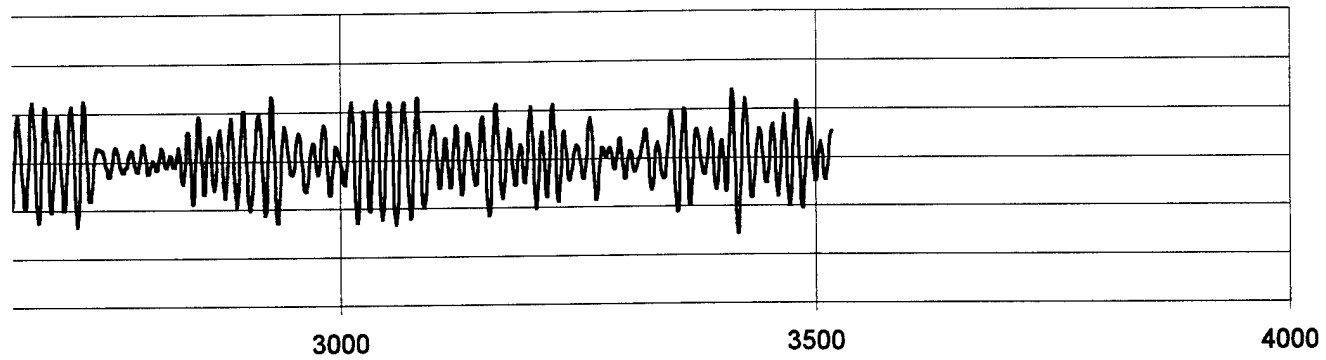
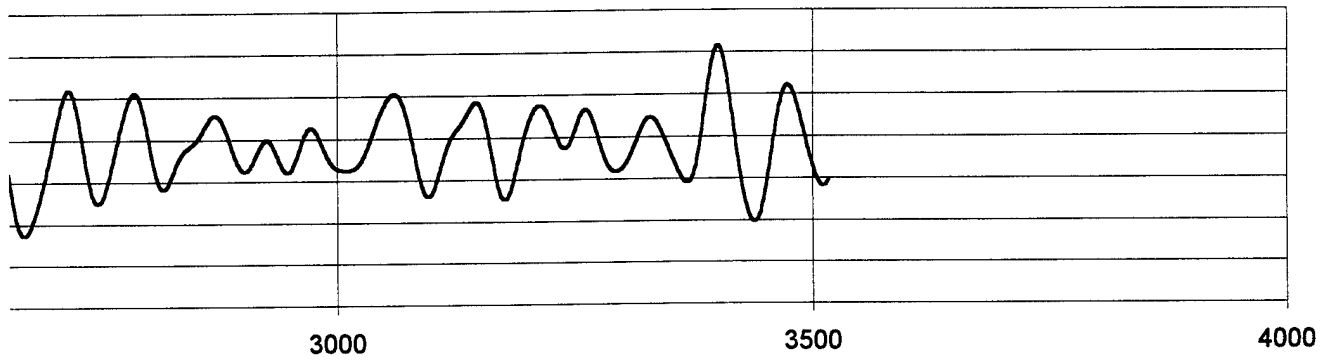
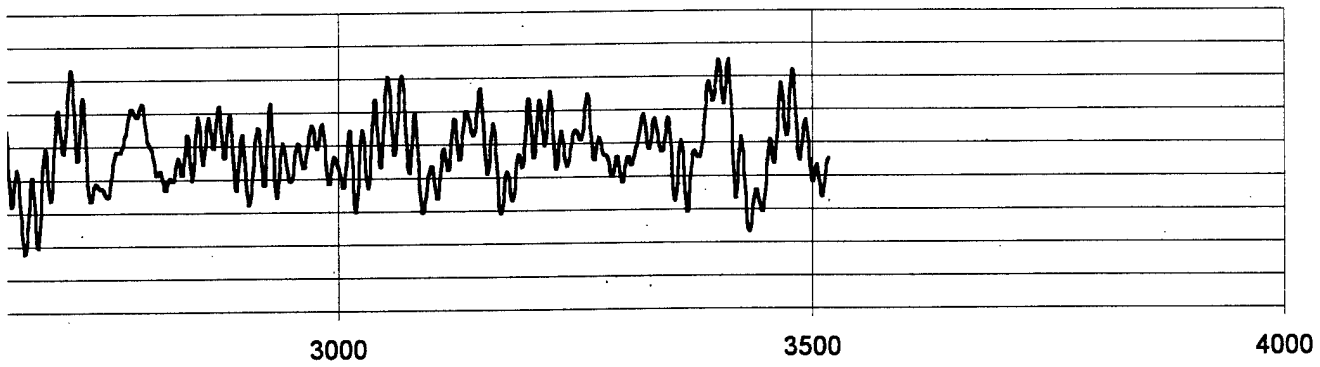
Filtered Low Frequency Time History



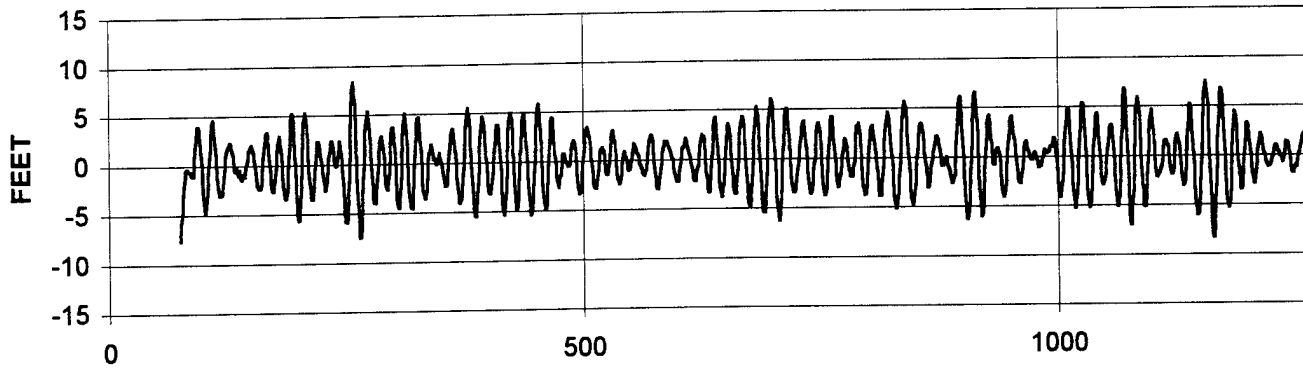
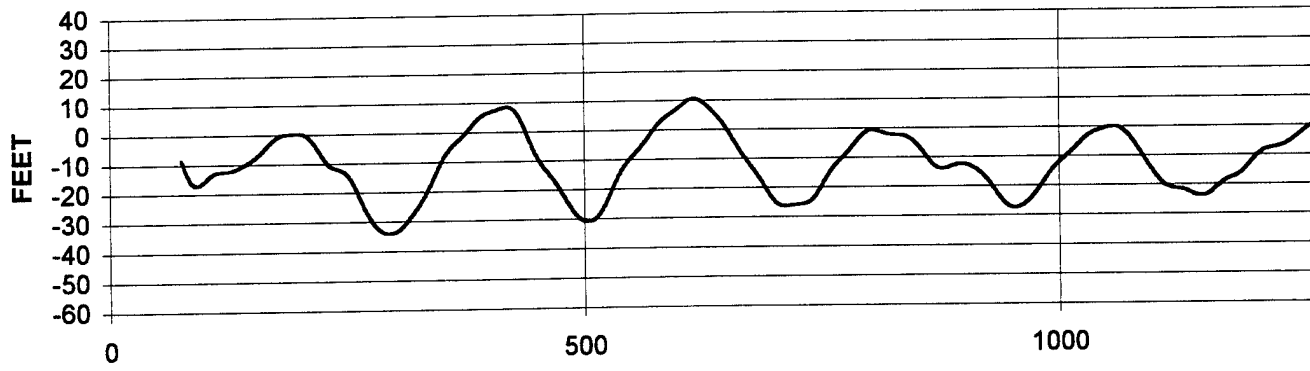
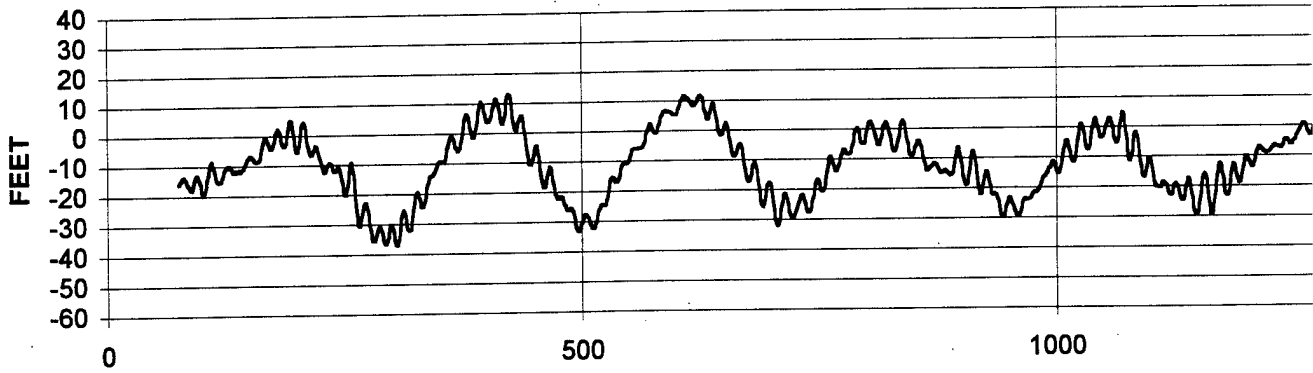
Filtered High Frequency Time History



TEST A599 - PITCH

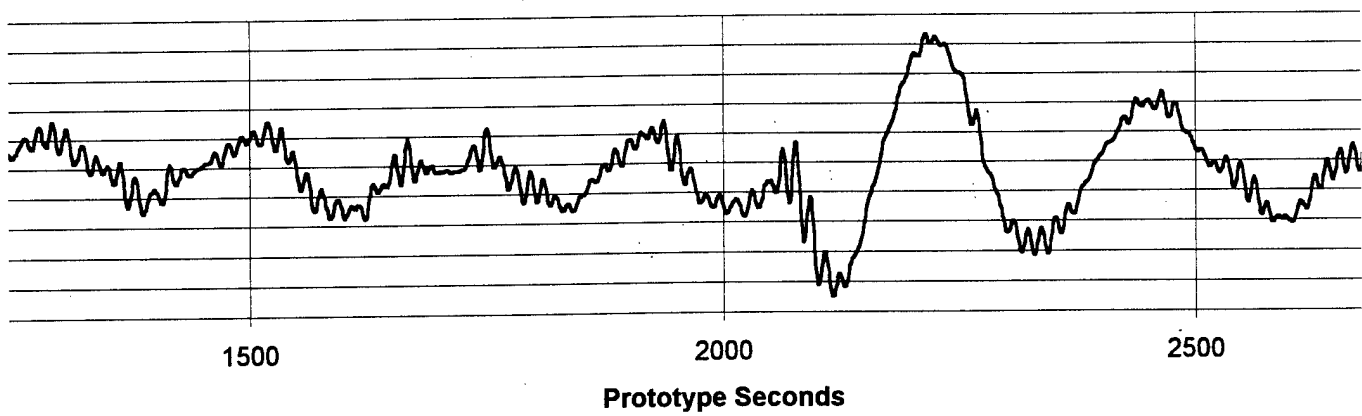


TEST A599 - PT SURGE

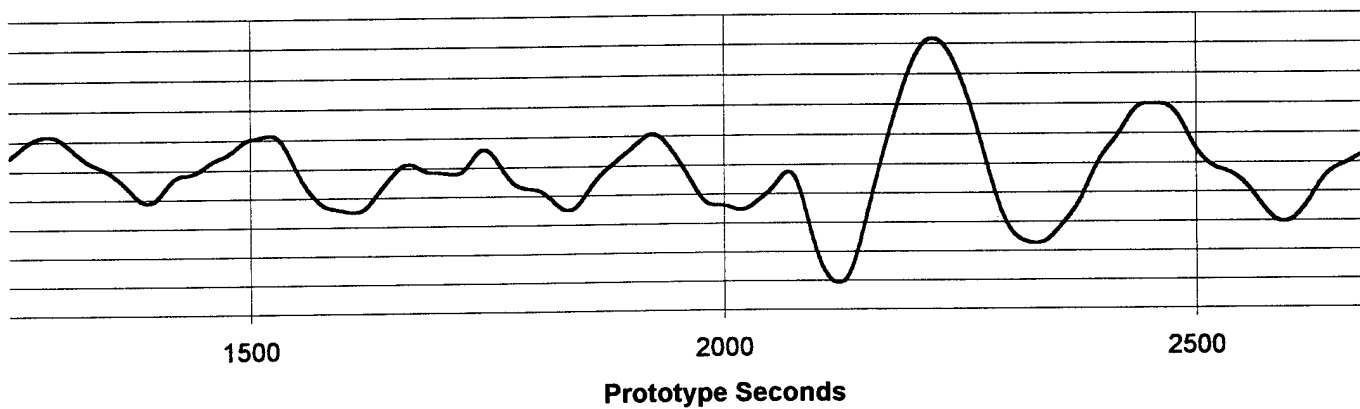


TEST A599 - PT SURGE

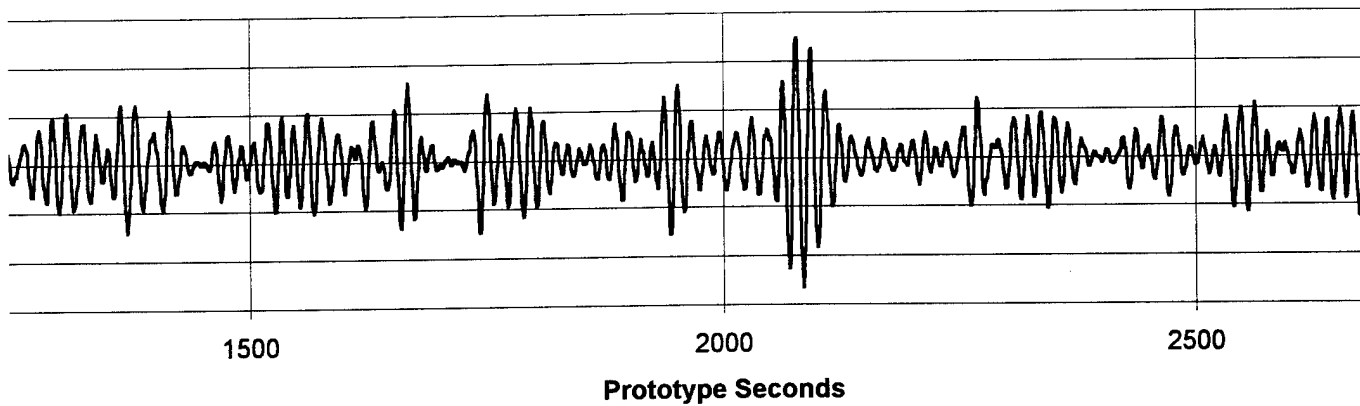
Unfiltered Time History



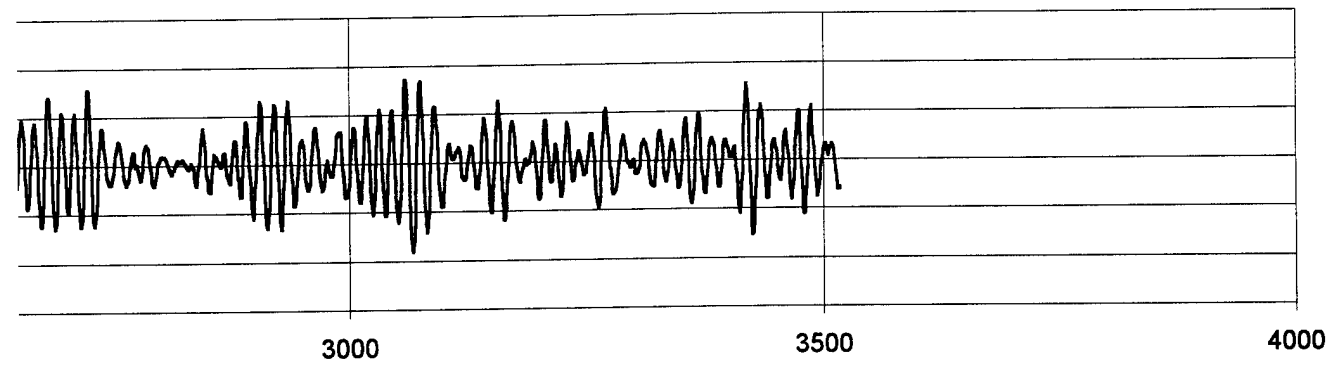
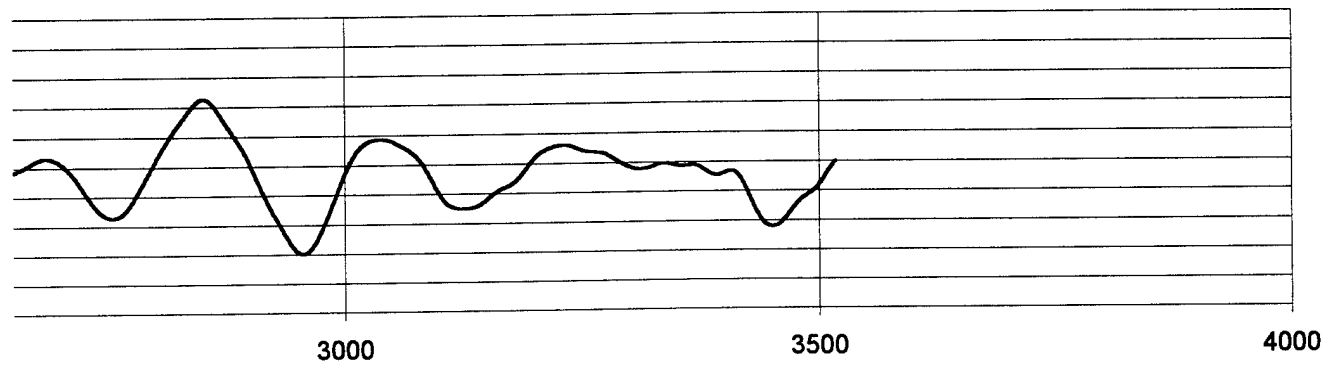
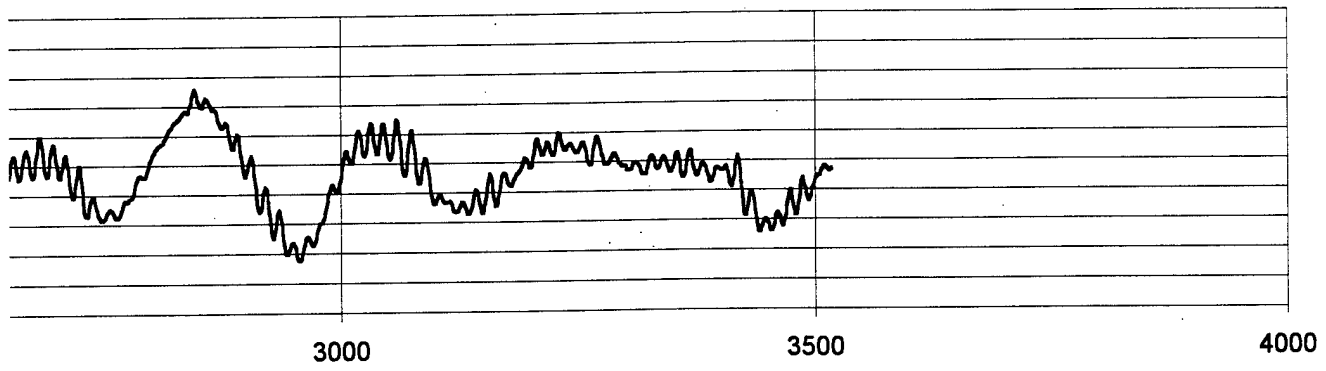
Filtered Low Frequency Time History



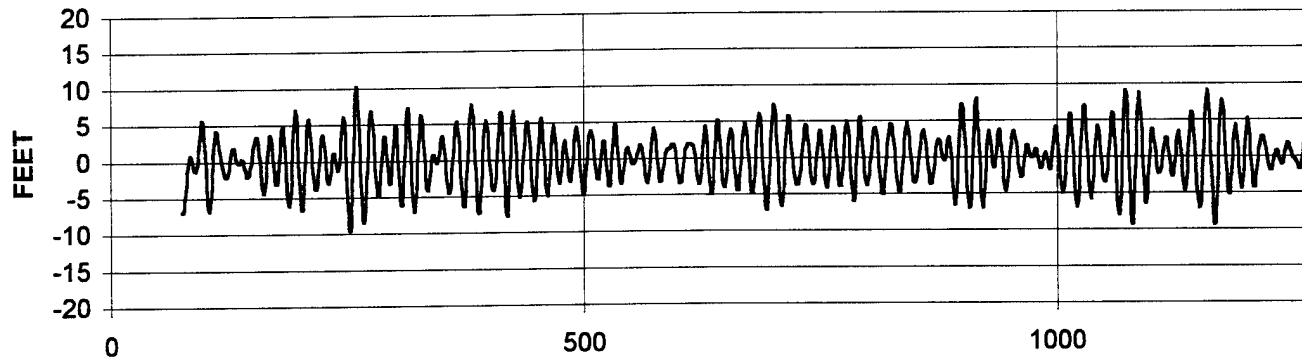
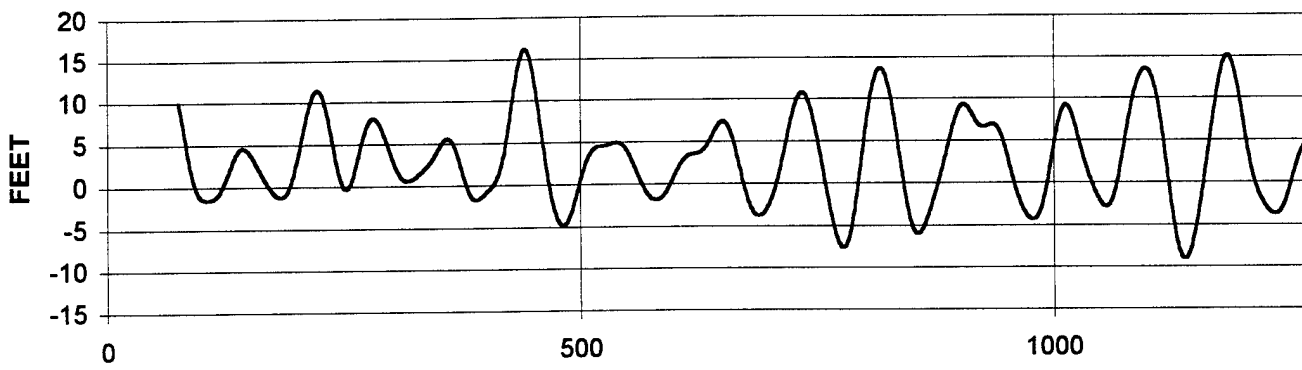
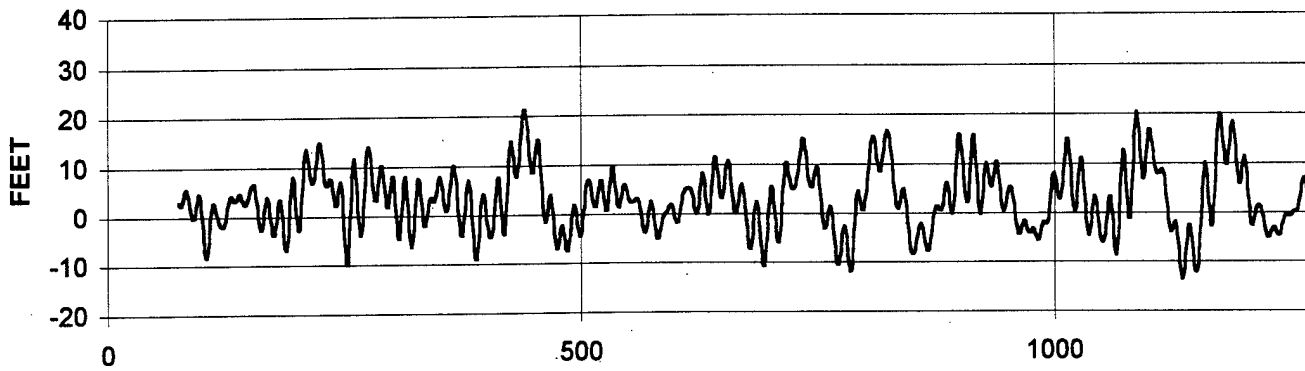
Filtered High Frequency Time History



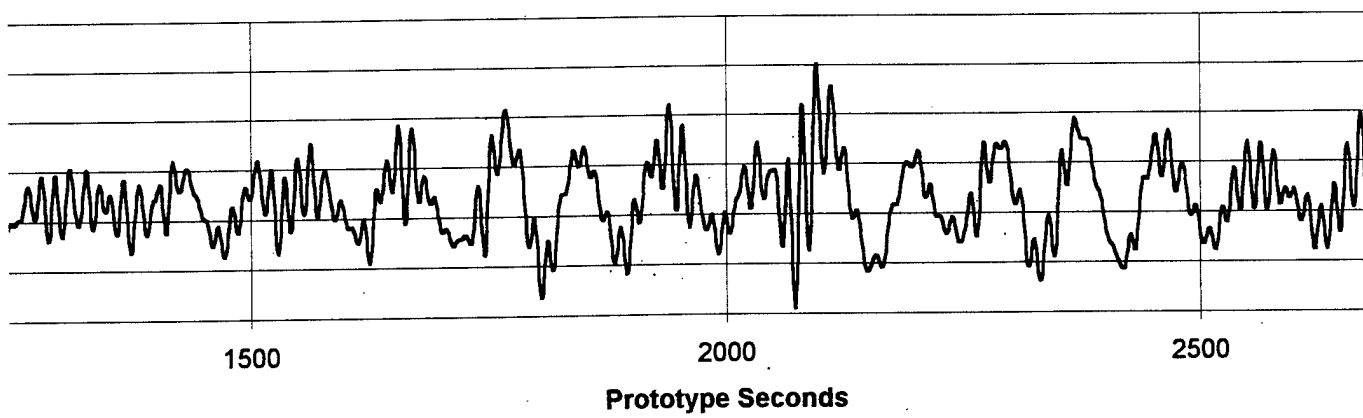
TEST A599 - PT SURGE



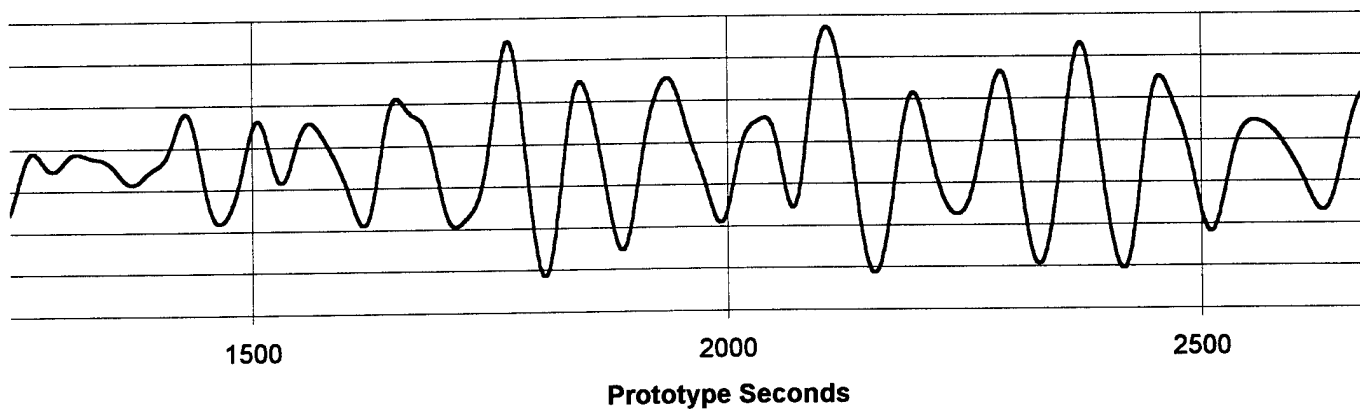
TEST A599 - PT HEAVE



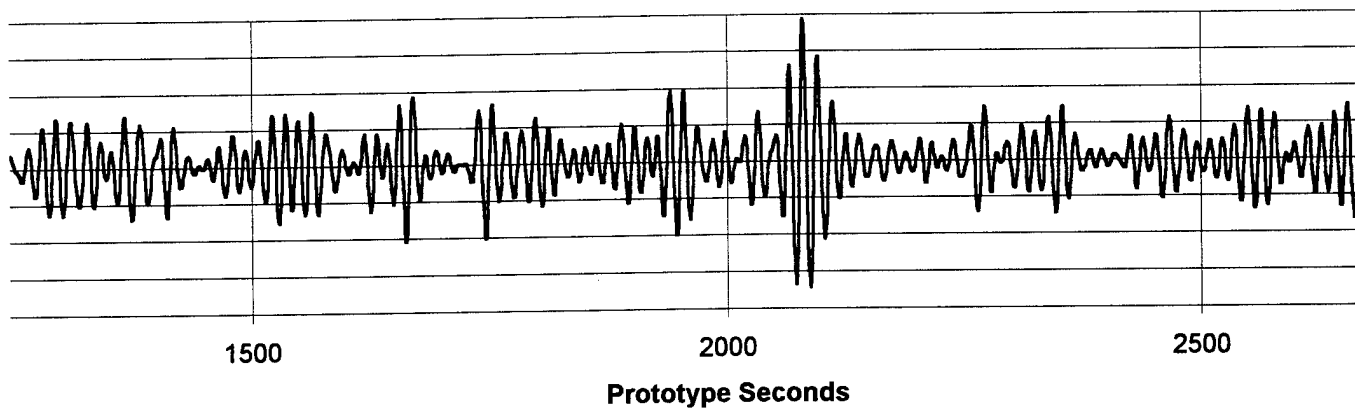
**Unfiltered Time History**



**Filtered Low Frequency Time History**

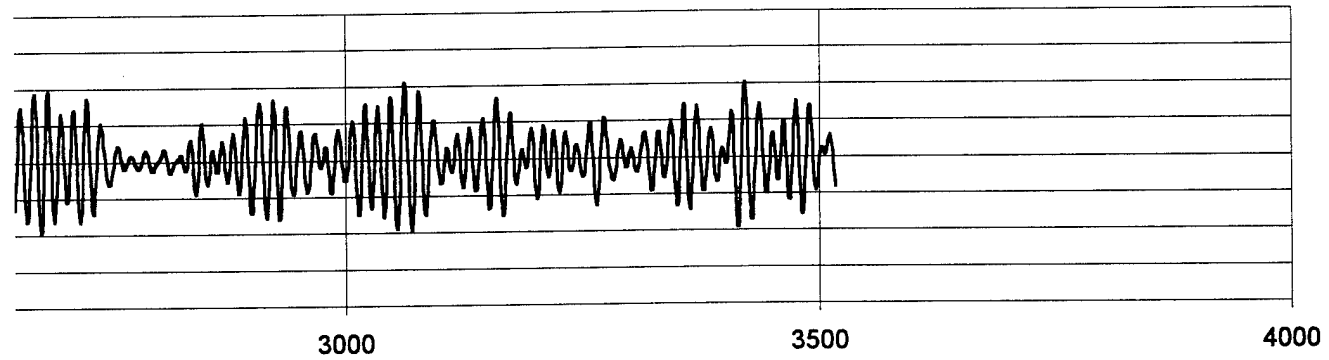
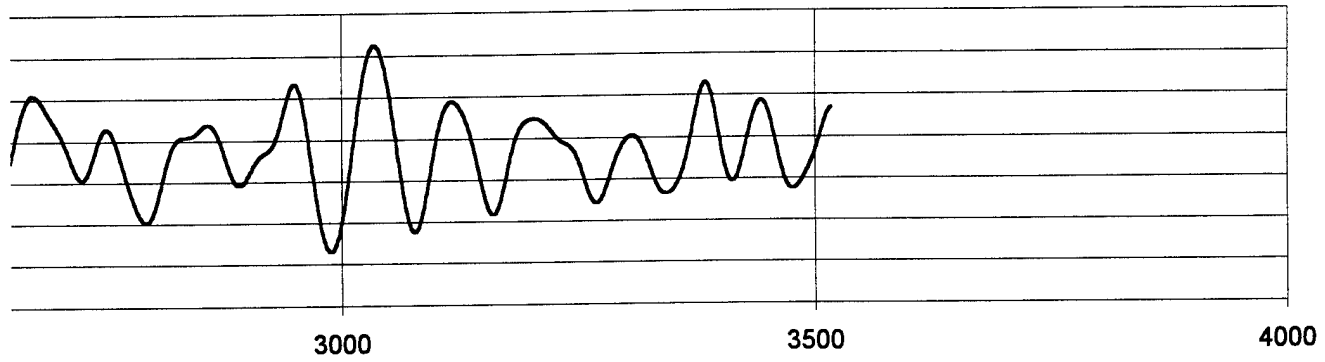
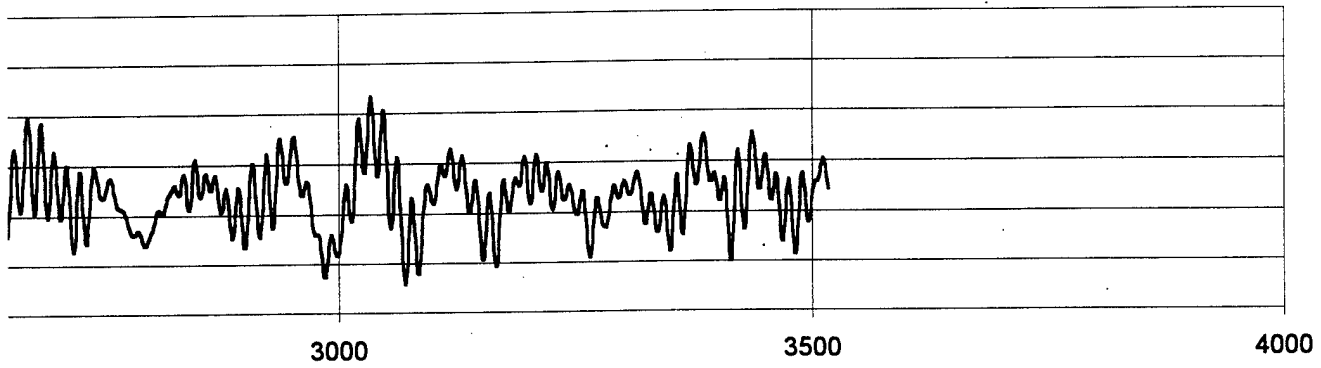


**Filtered High Frequency Time History**

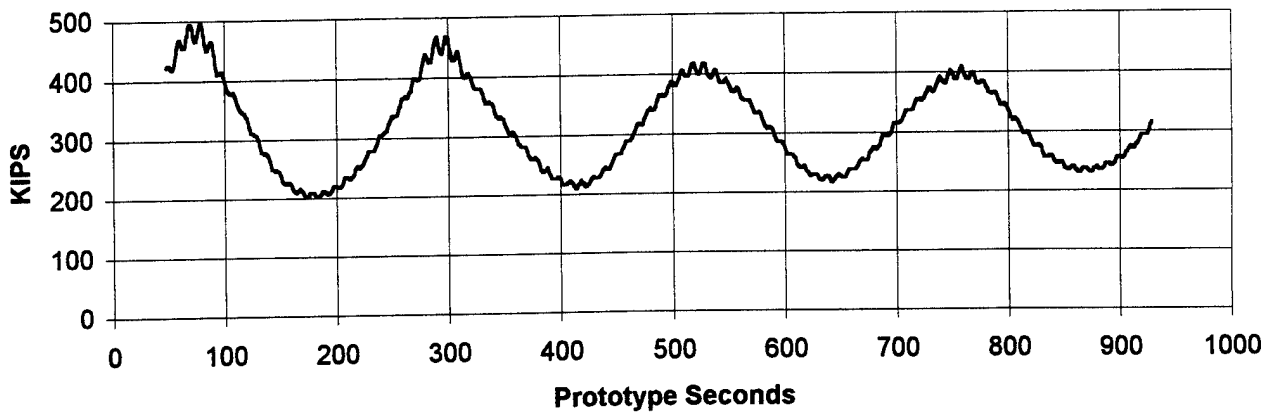




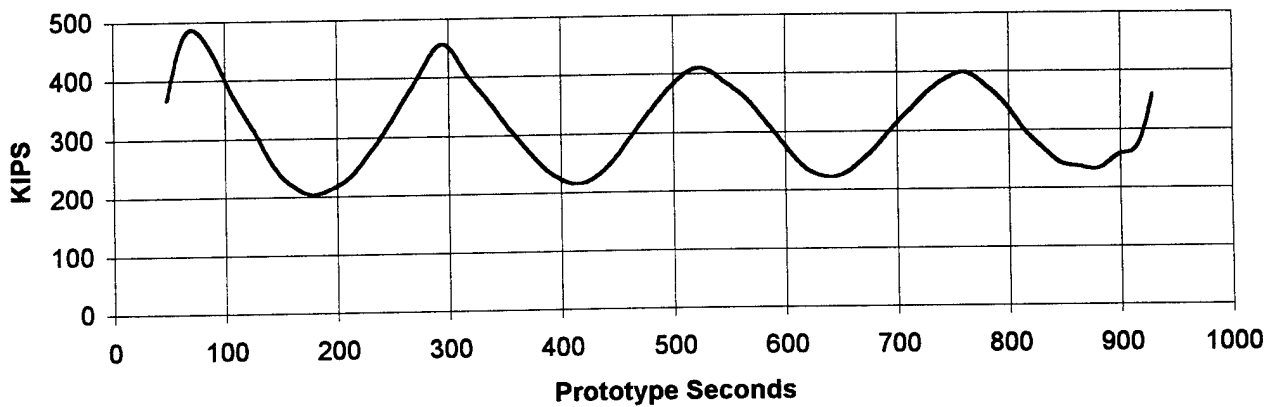
TEST A599 - PT HEAVE



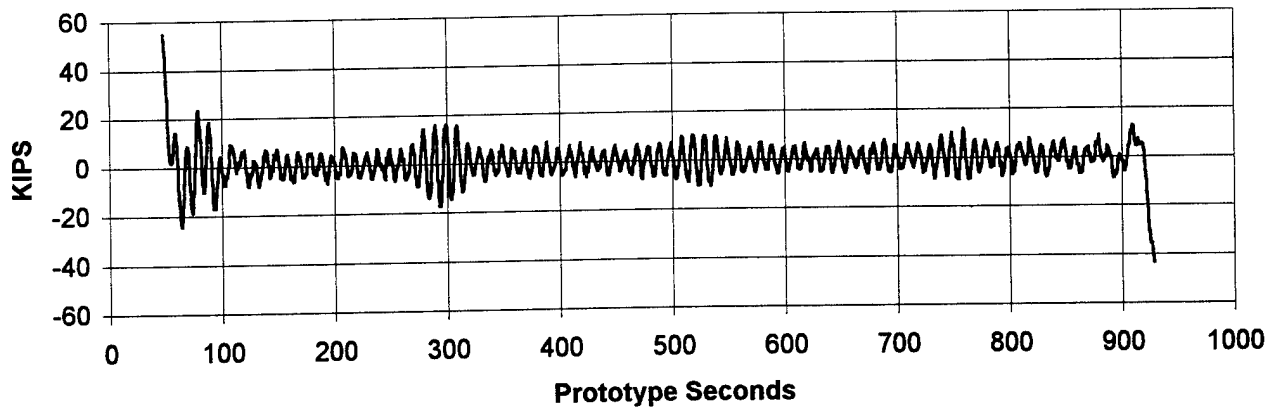
**Unfiltered Time History**



**Filtered Low Frequency Time History**

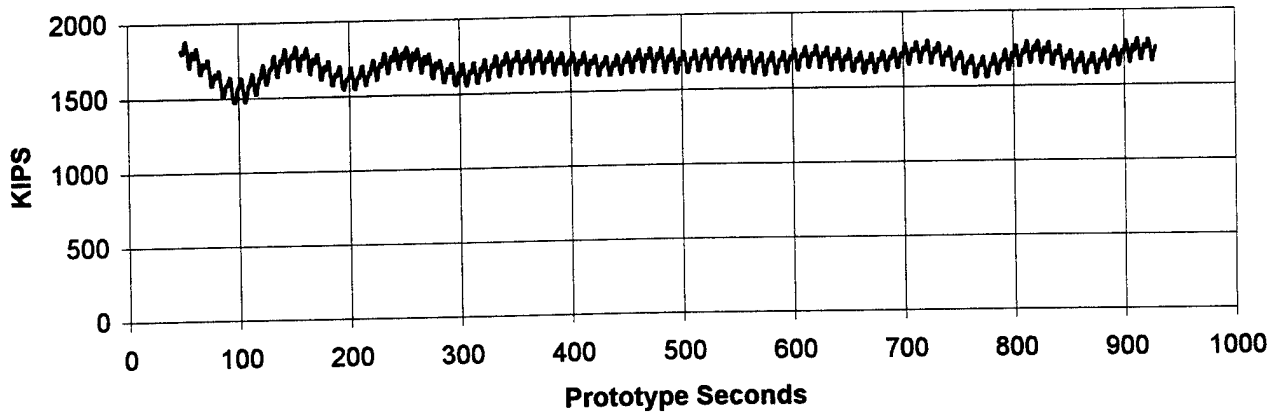


**Filtered High Frequency Time History**

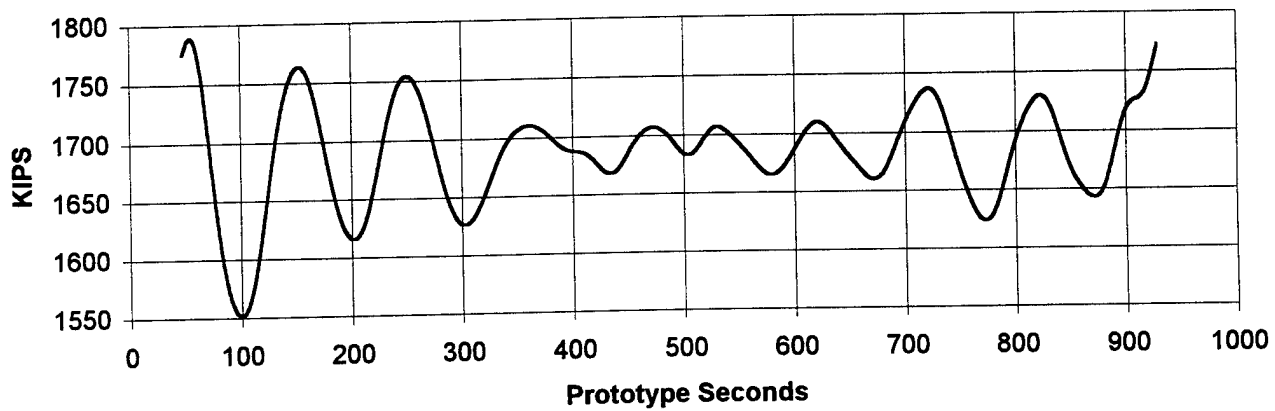


TEST A603 - BT\_1 TENSION

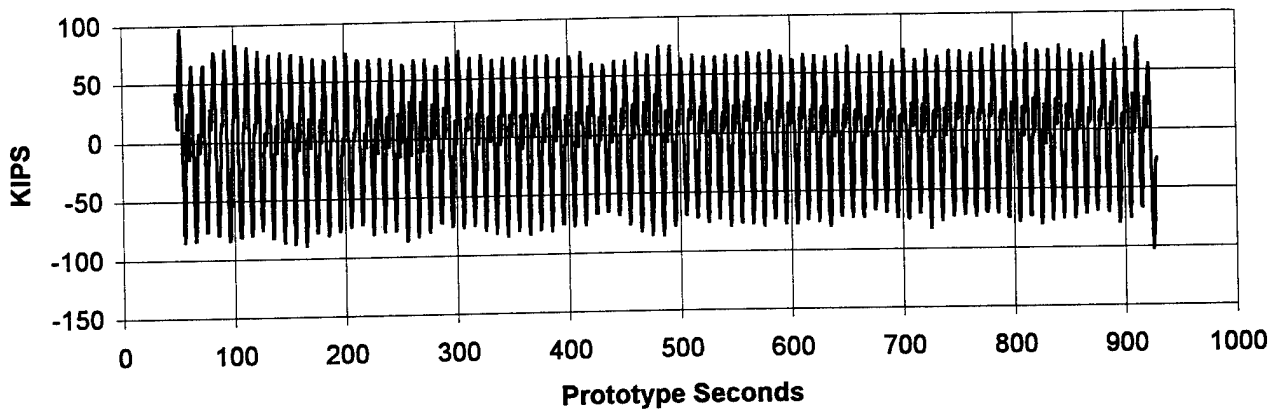
Unfiltered Time History



Filtered Low Frequency Time History

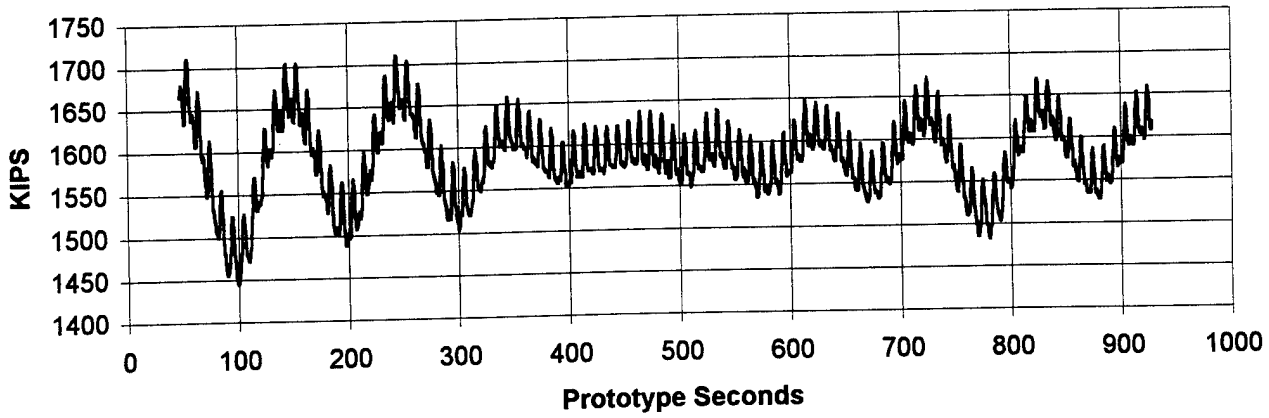


Filtered High Frequency Time History

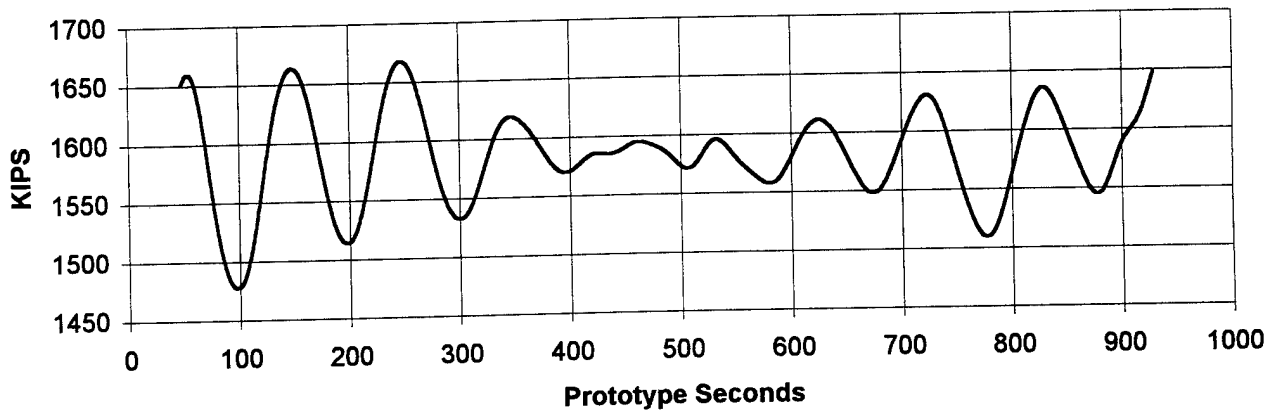


# TEST A603 - BOUY 2 TENSION

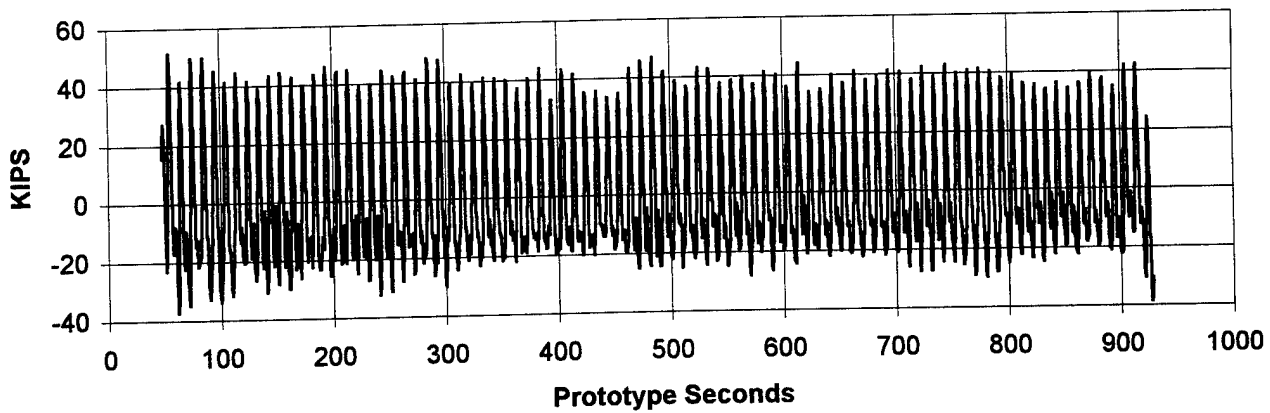
## Unfiltered Time History



## Filtered Low Frequency Time History

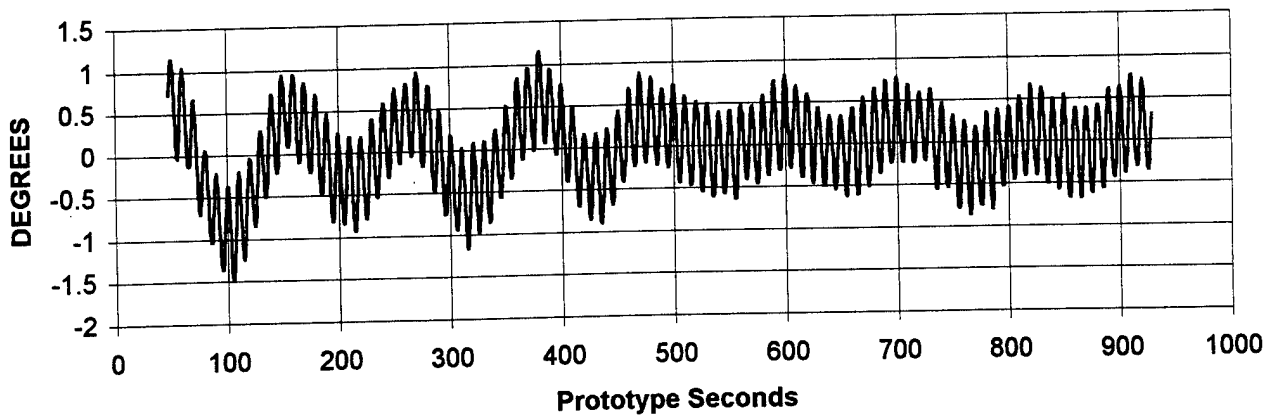


## Filtered High Frequency Time History

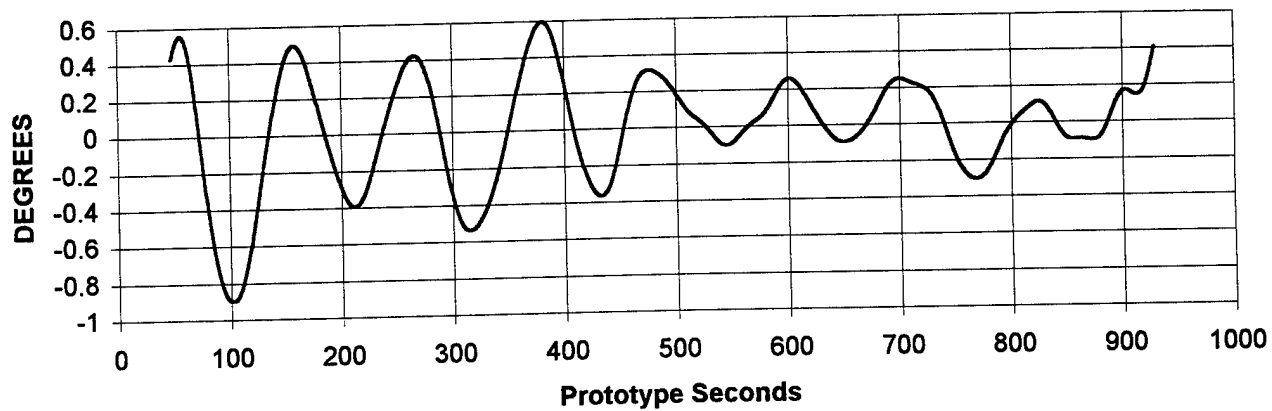


# TEST A603 - PITCH

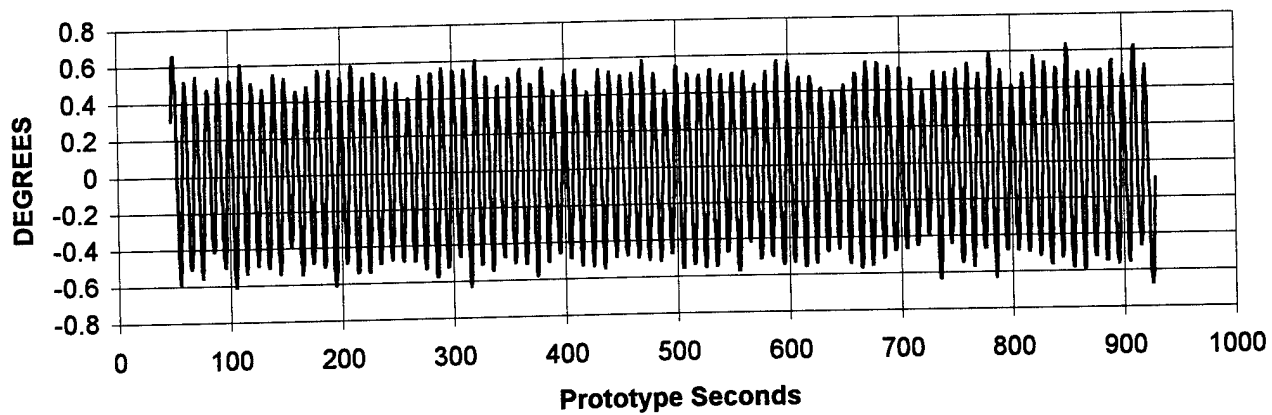
## Unfiltered Time History



## Filtered Low Frequency Time History

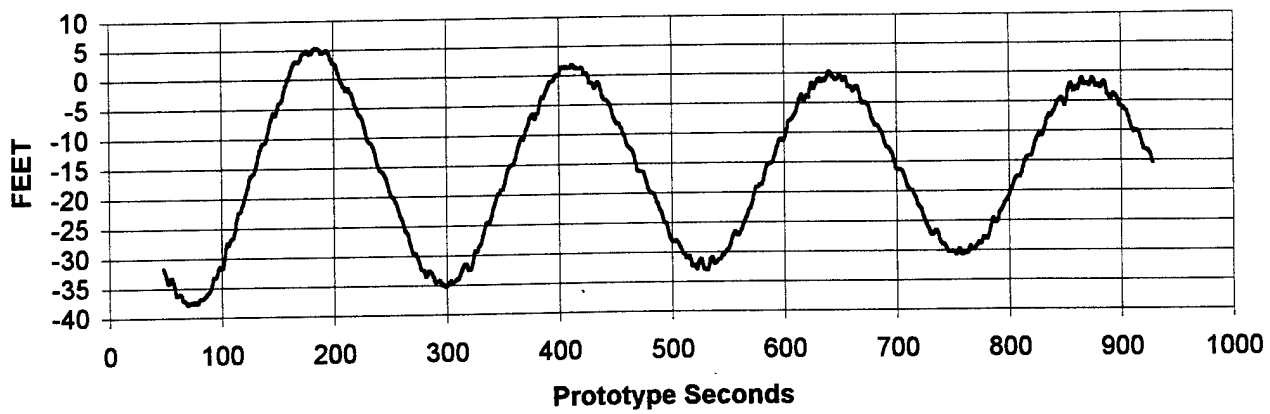


## Filtered High Frequency Time History

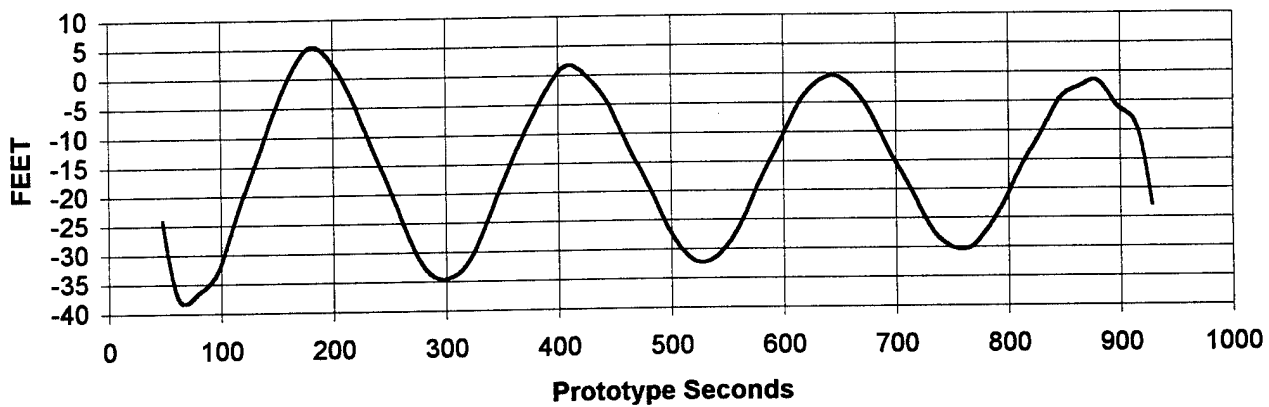


TEST A603 - PT SURGE

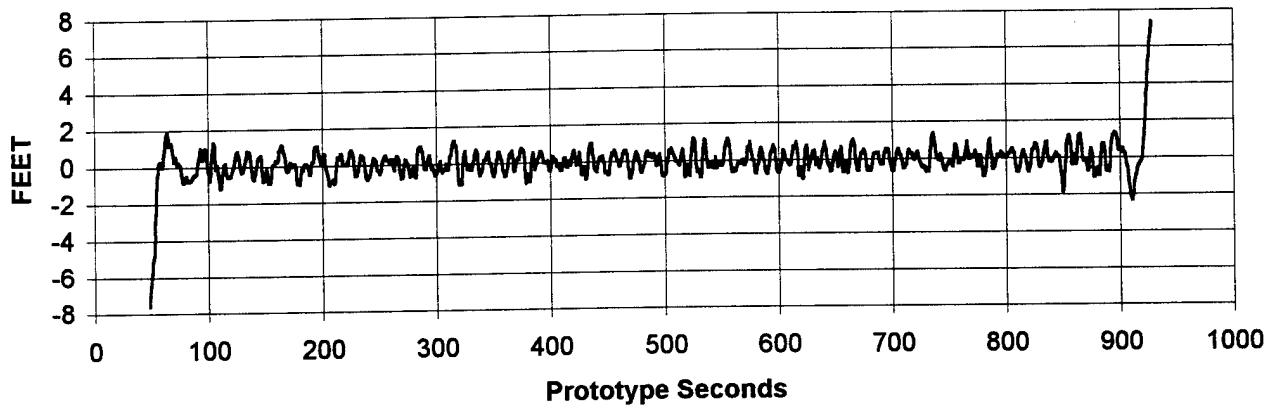
Unfiltered Time History



Filtered Low Frequency Time History

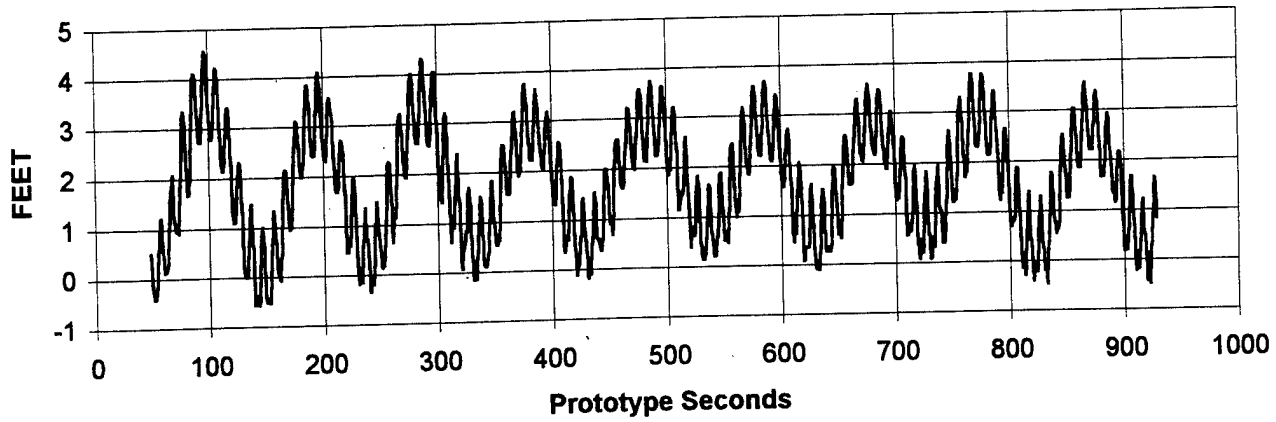


Filtered High Frequency Time History

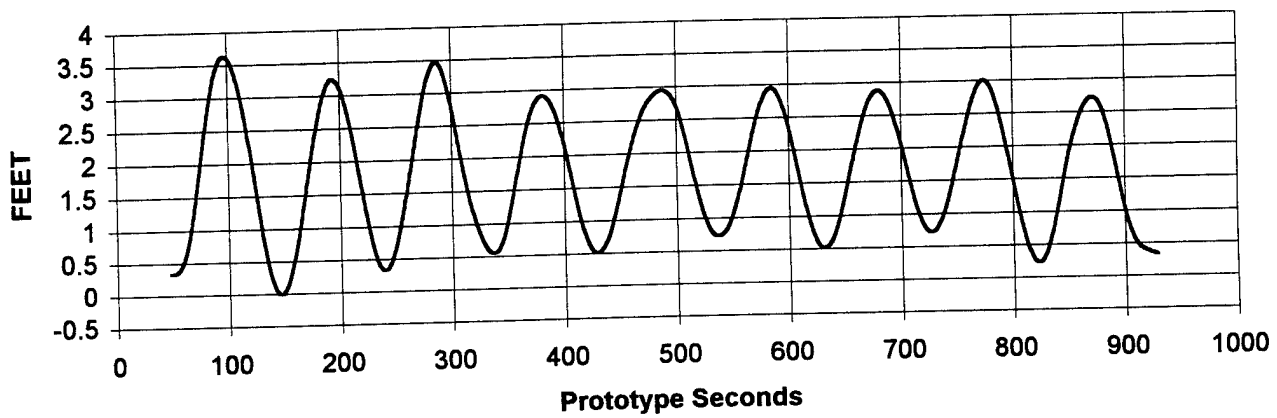


TEST A603 - PT HEAVE

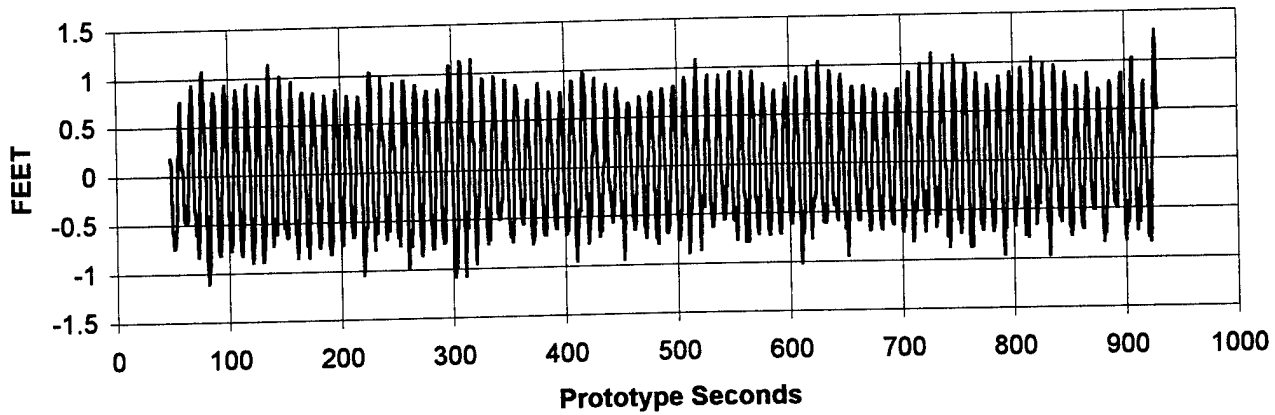
Unfiltered Time History



Filtered Low Frequency Time History

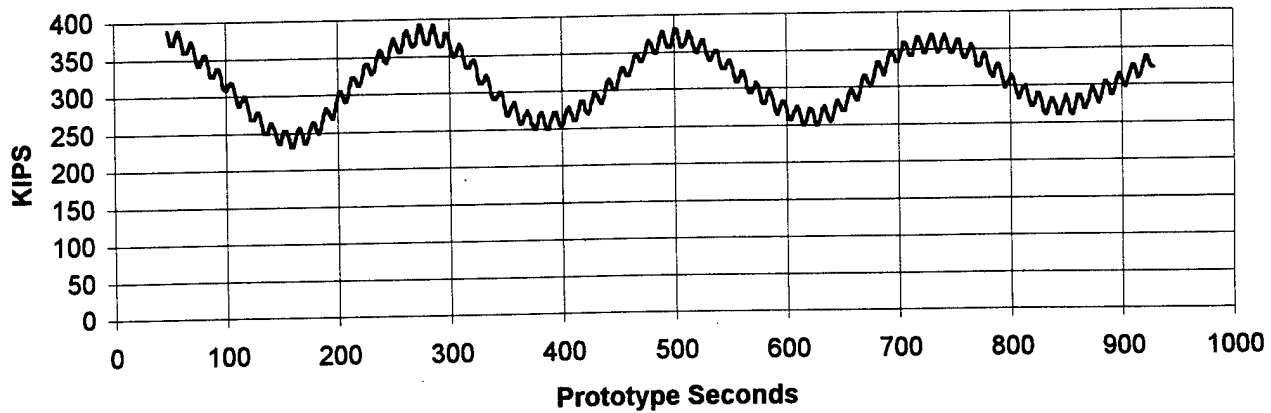


Filtered High Frequency Time History

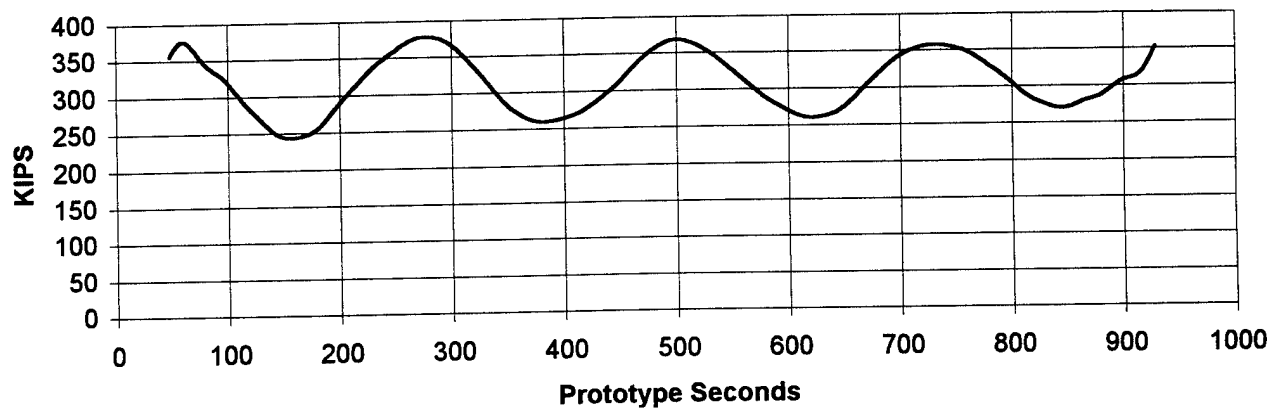


TEST A604 - ML\_1 TENSION

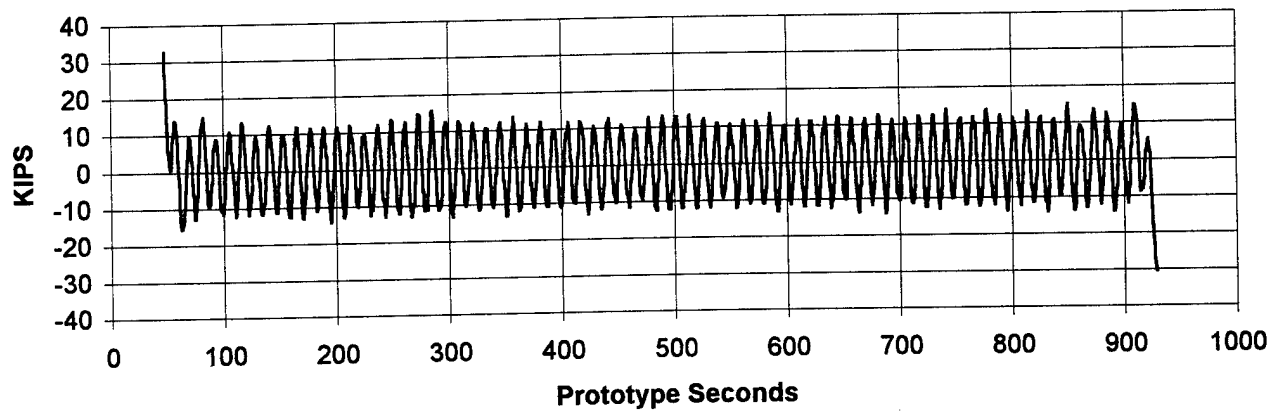
Unfiltered Time History



Filtered Low Frequency Time History



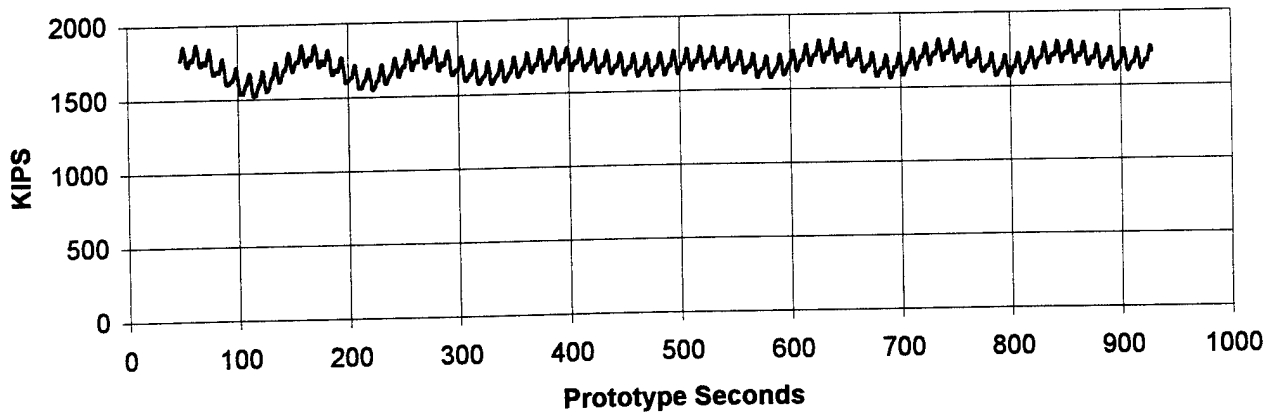
Filtered High Frequency Time History



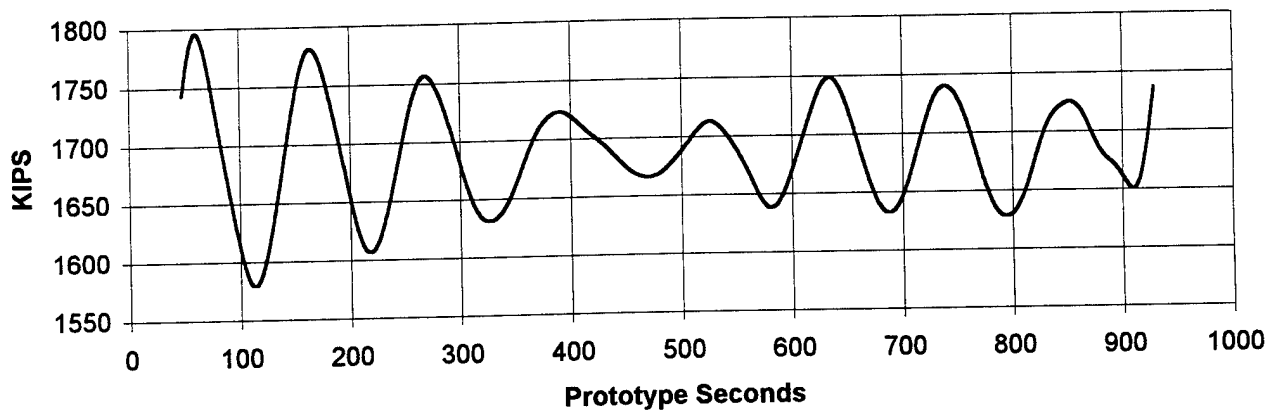


# TEST A604 - BUOY 1 TENSION

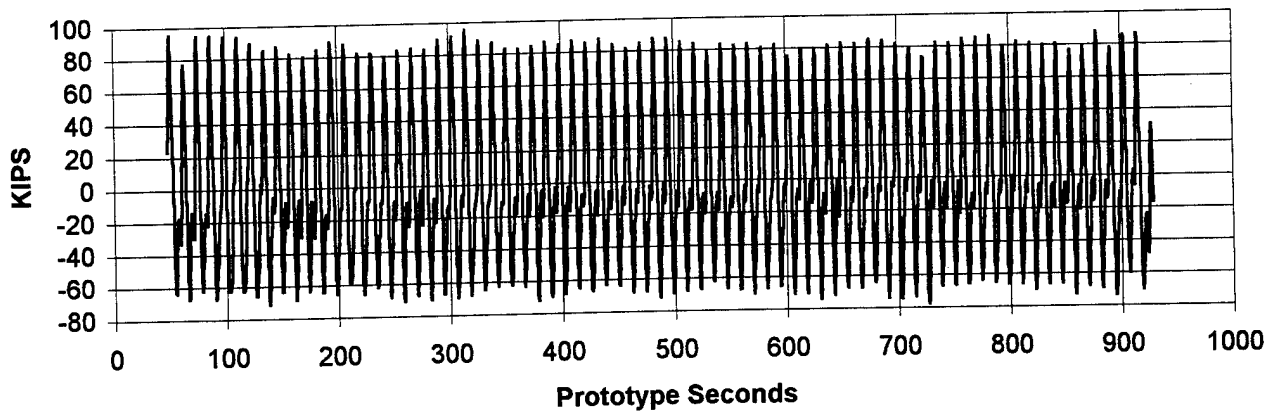
## Unfiltered Time History



## Filtered Low Frequency Time History

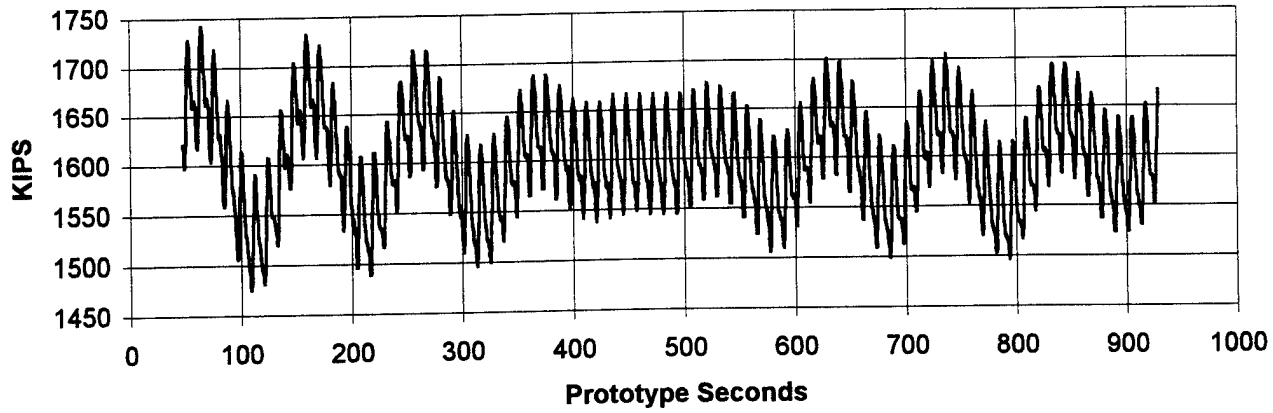


## Filtered High Frequency Time History

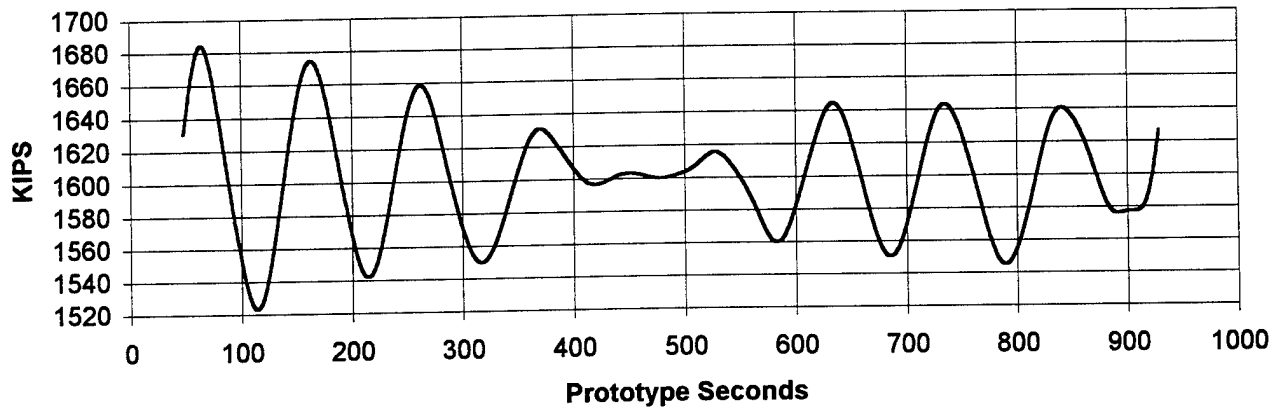


# TEST A604 - BUOY 2 TENSION

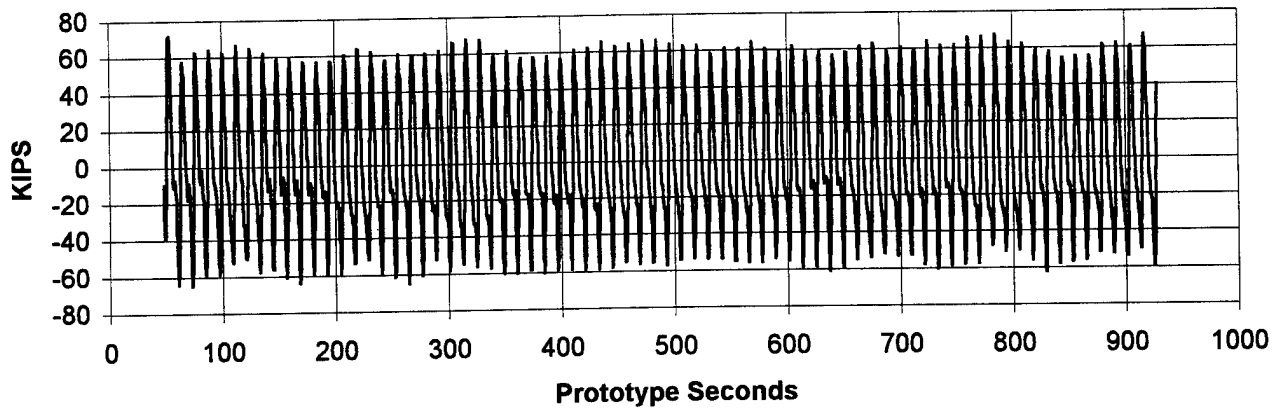
## Unfiltered Time History



## Filtered Low Frequency Time History

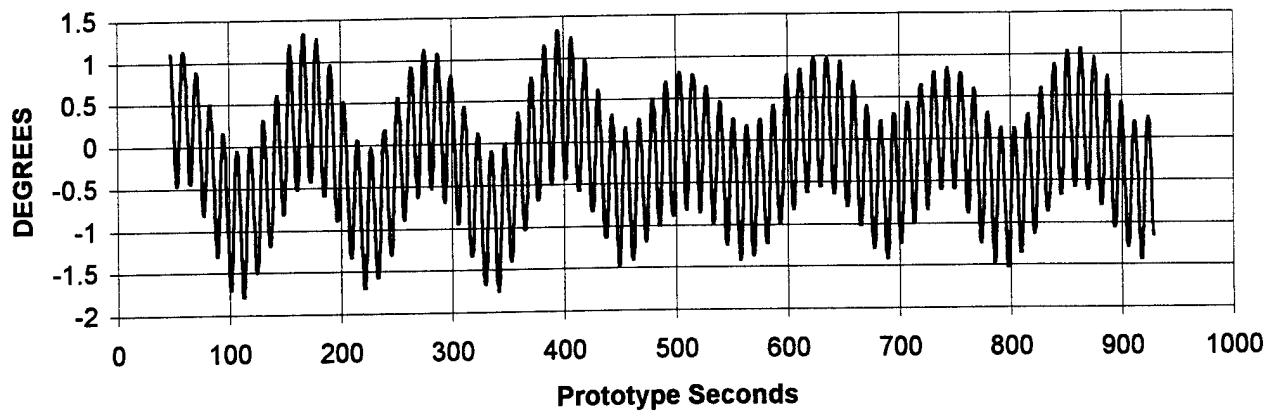


## Filtered High Frequency Time History

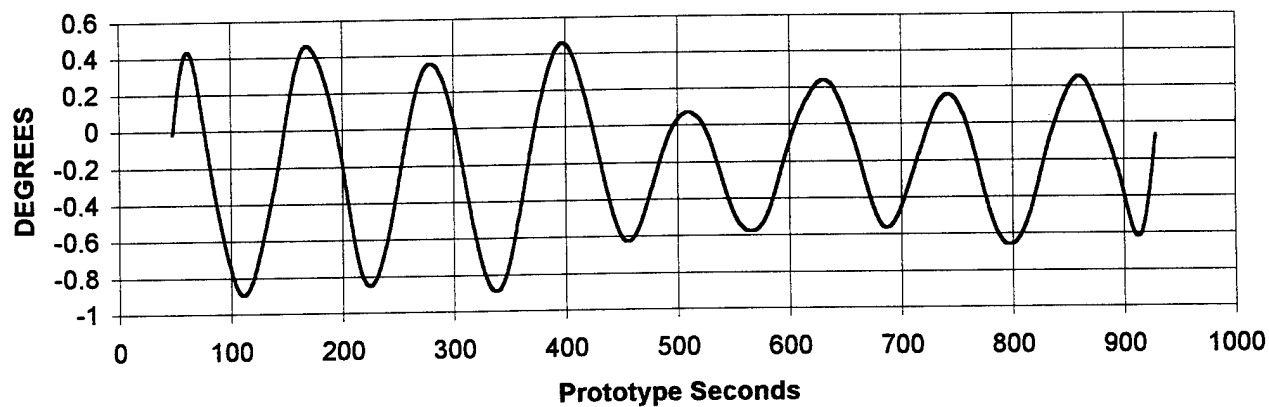


# TEST A604 - PITCH

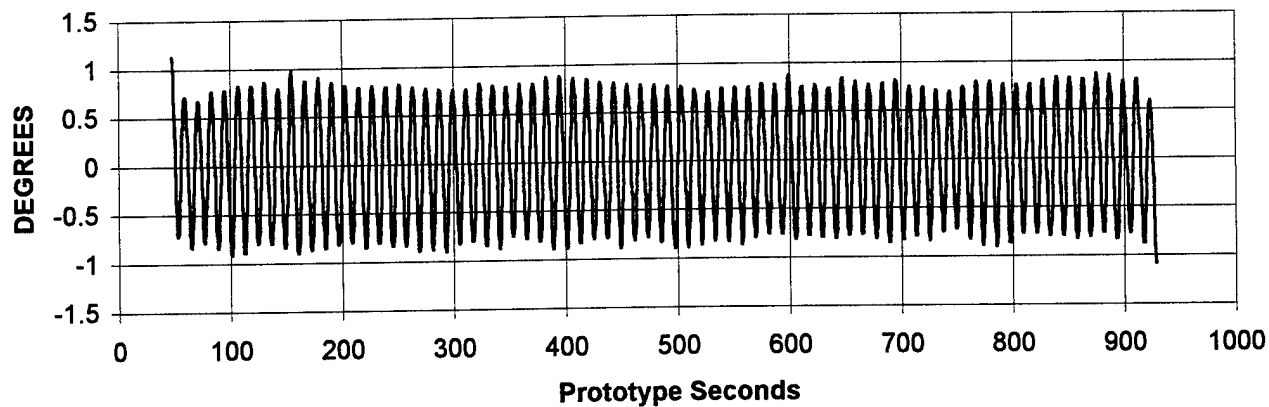
## Unfiltered Time History



## Filtered Low Frequency Time History

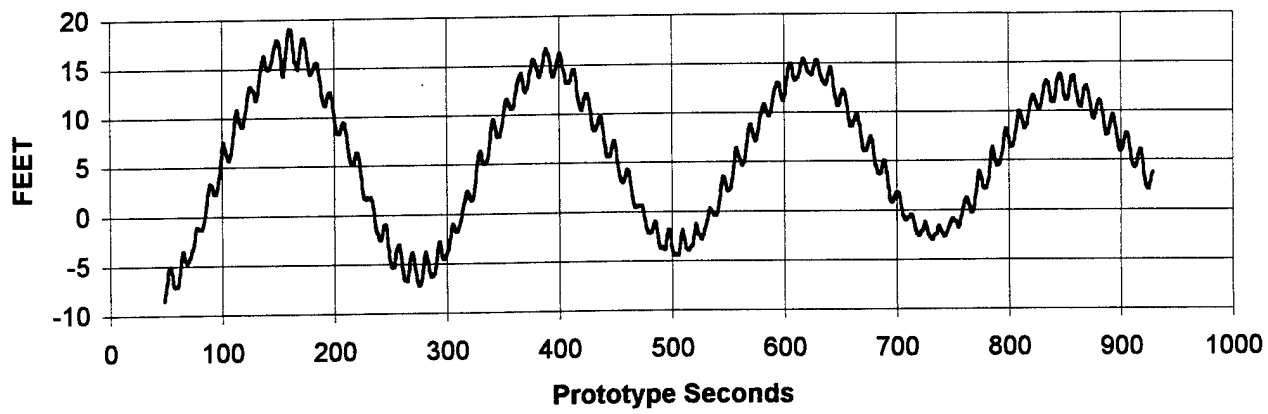


## Filtered High Frequency Time History

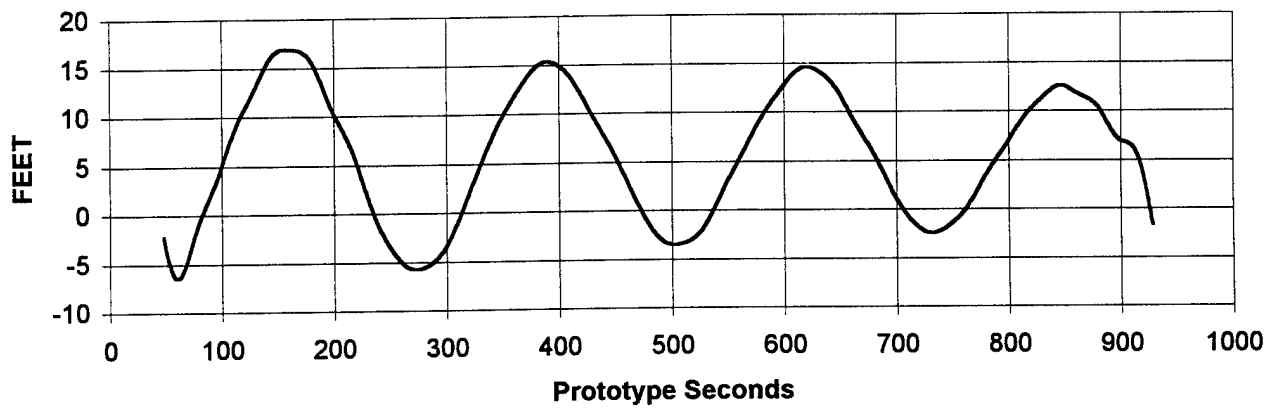


TEST A604 - PT SURGE

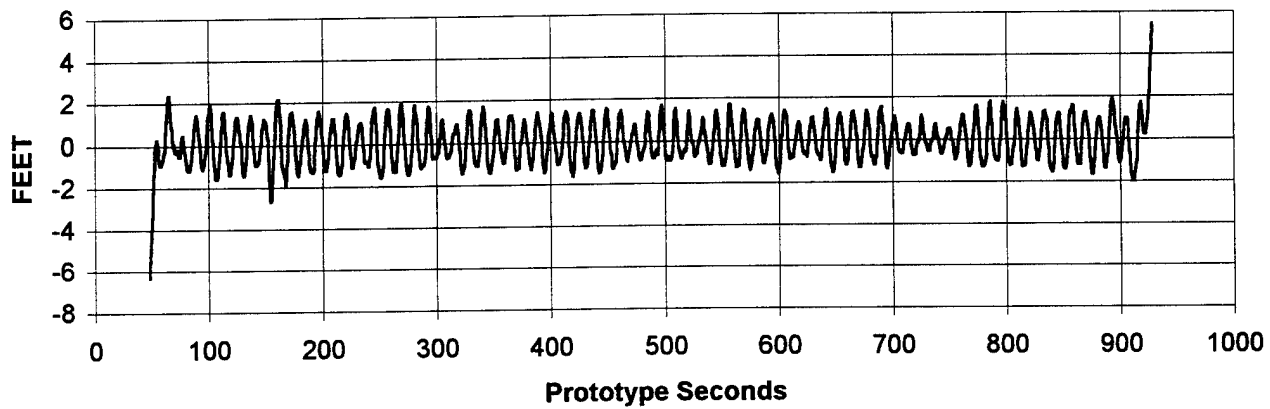
Unfiltered Time History



Filtered Low Frequency Time History

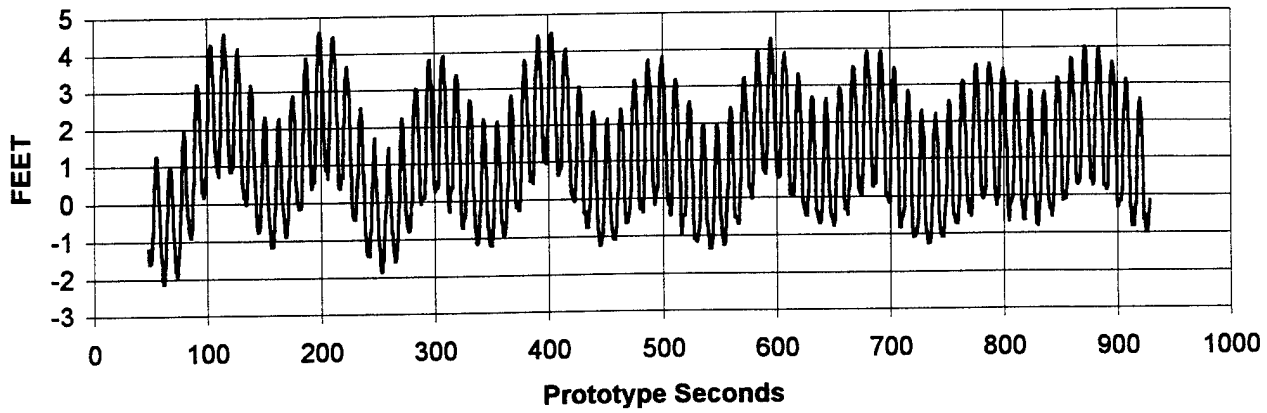


Filtered High Frequency Time History

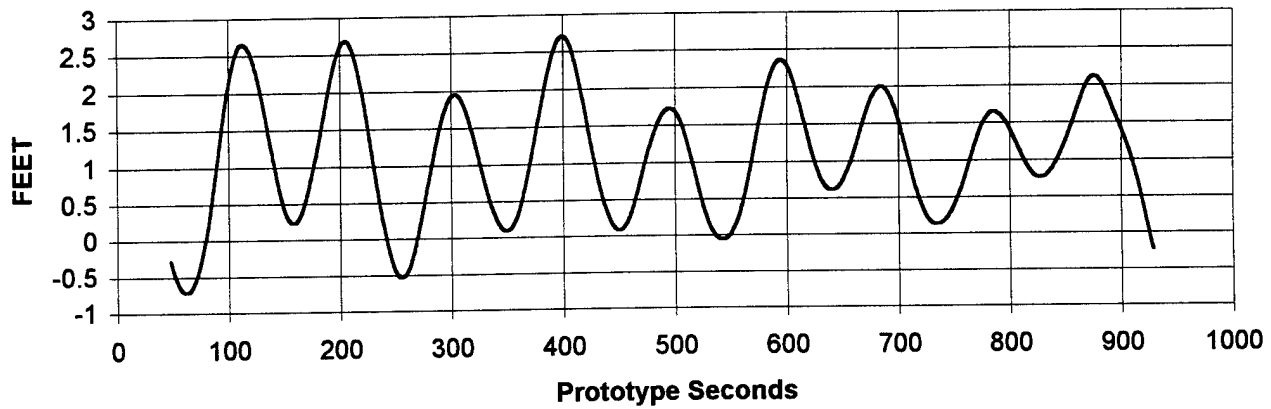


TEST A604 - PT HEAVE

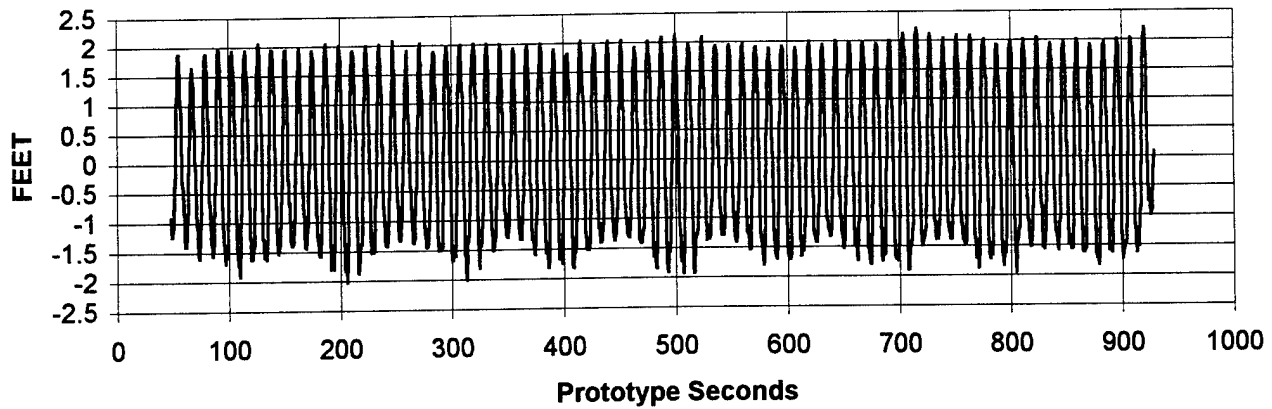
Unfiltered Time History



Filtered Low Frequency Time History

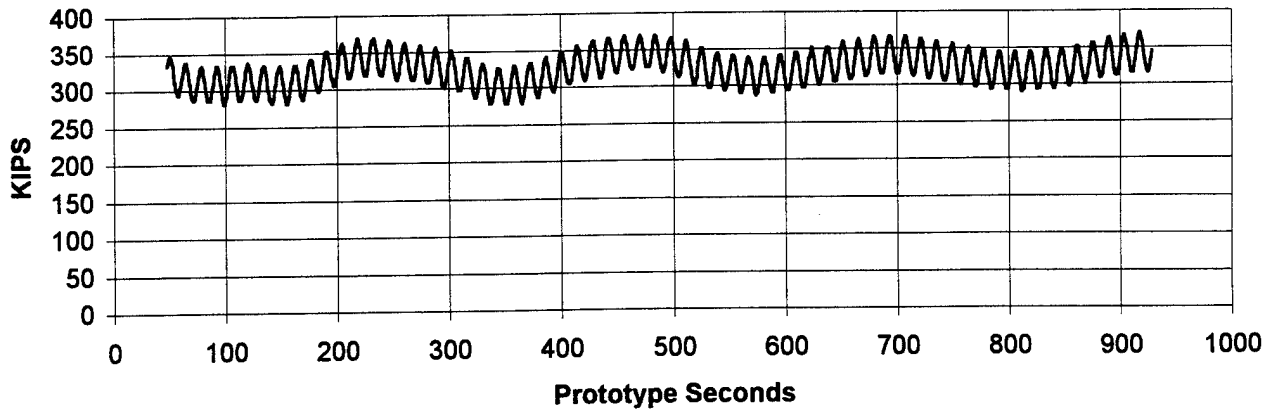


Filtered High Frequency Time History

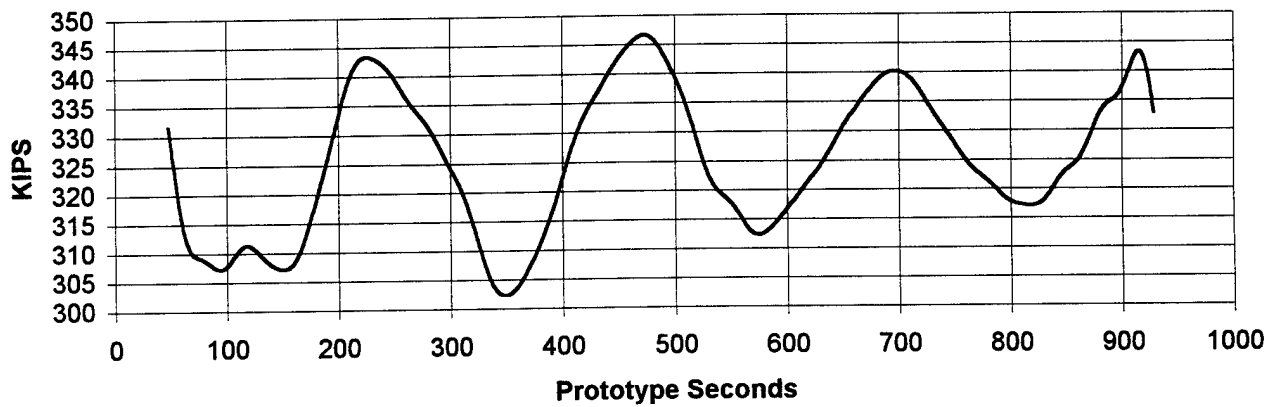


TEST A605 - ML\_1 TENSION

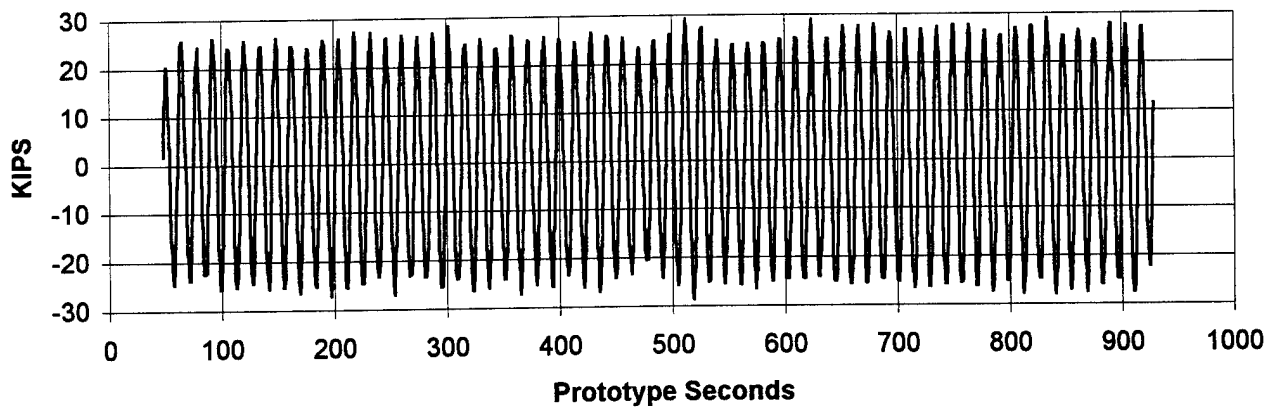
Unfiltered Time History



Filtered Low Frequency Time History

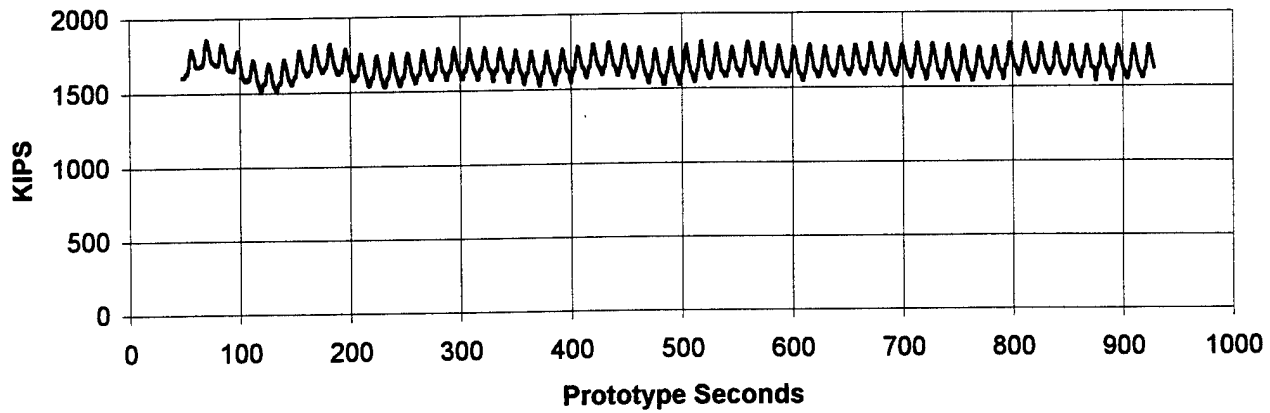


Filtered High Frequency Time History

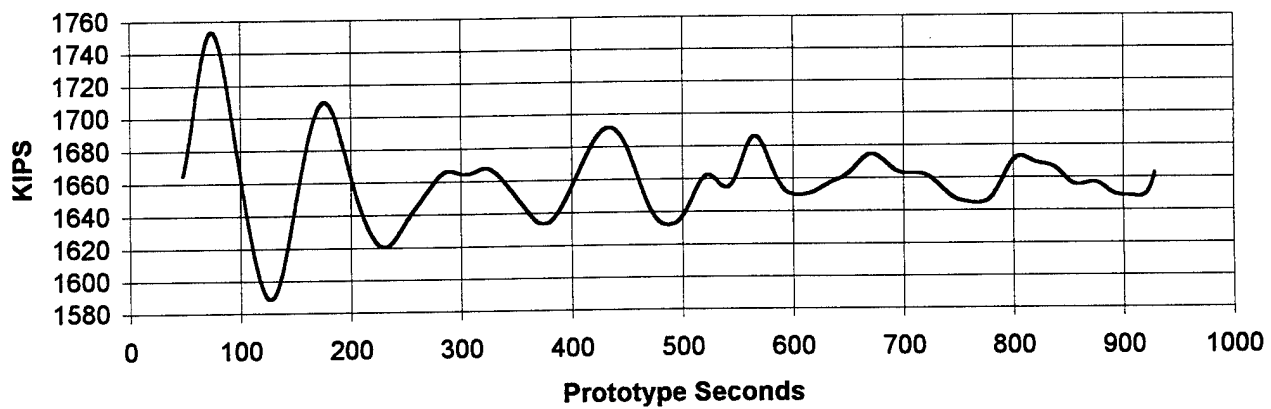


# TEST A605 - BUOY 1 TENSION

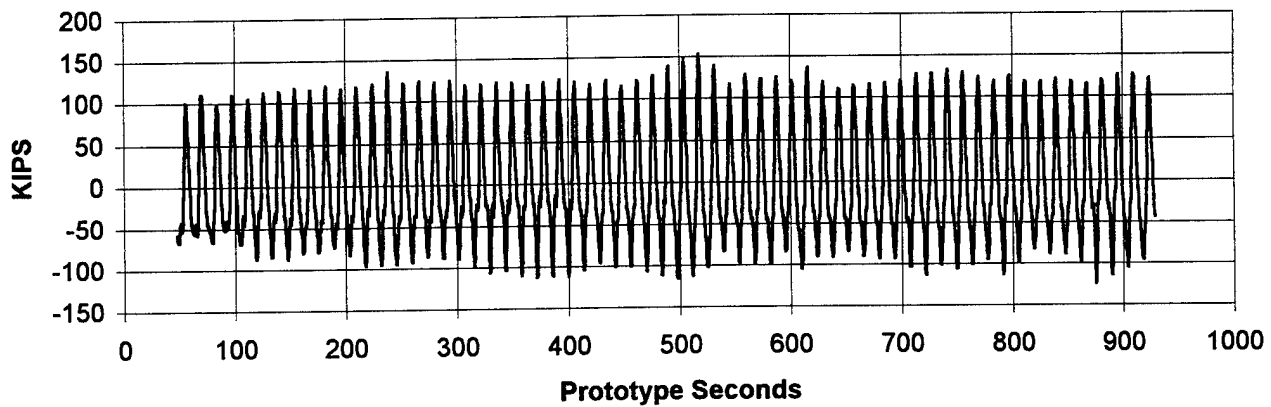
## Unfiltered Time History



## Filtered Low Frequency Time History

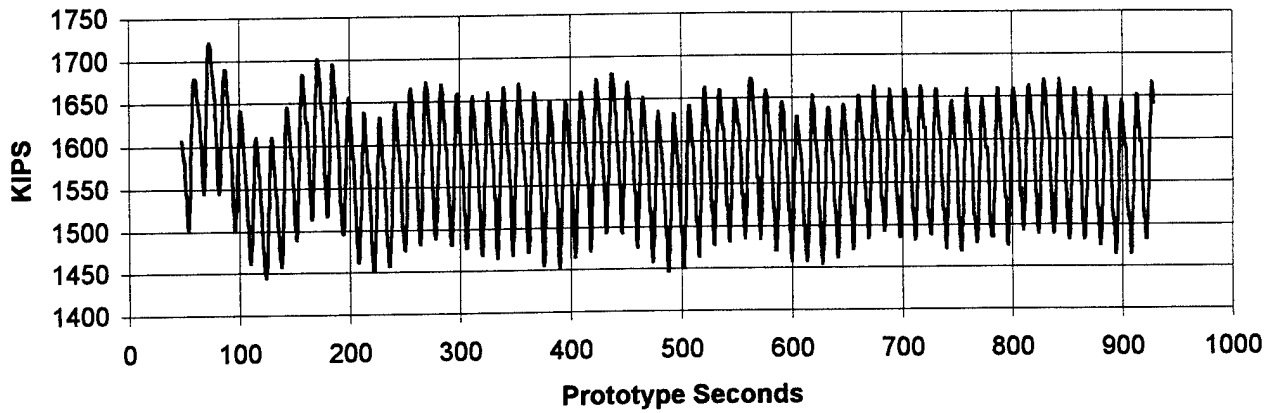


## Filtered High Frequency Time History

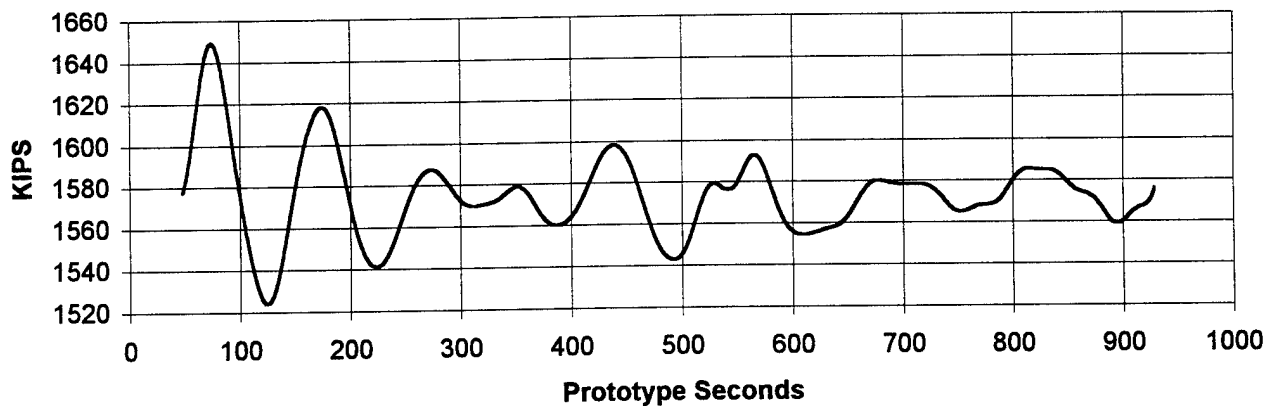


# TEST A605 - BUOY 2 TENSION

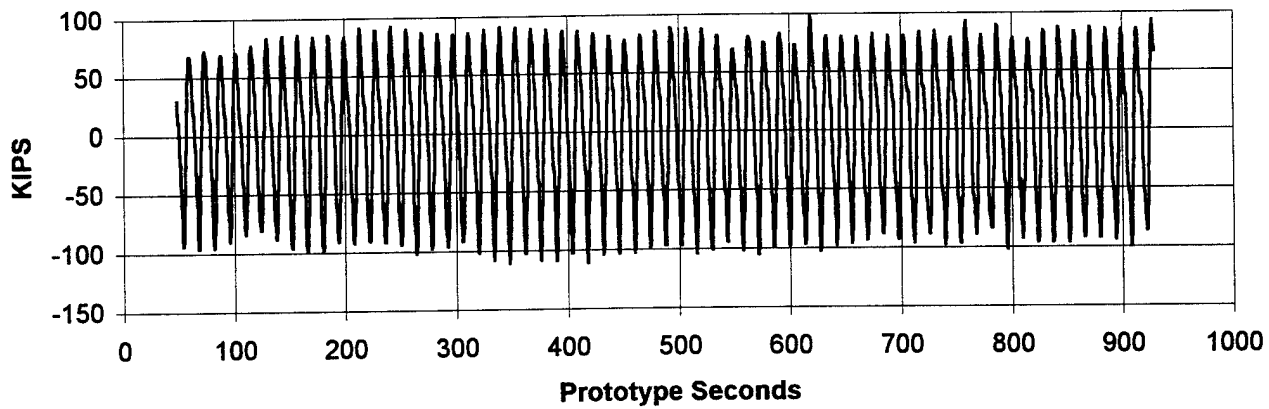
## Unfiltered Time History



## Filtered Low Frequency Time History



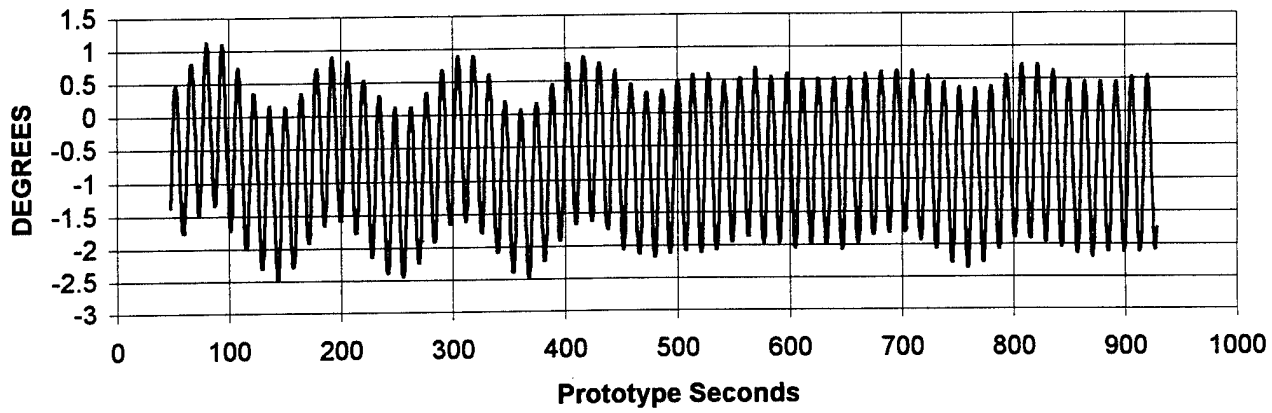
## Filtered High Frequency Time History



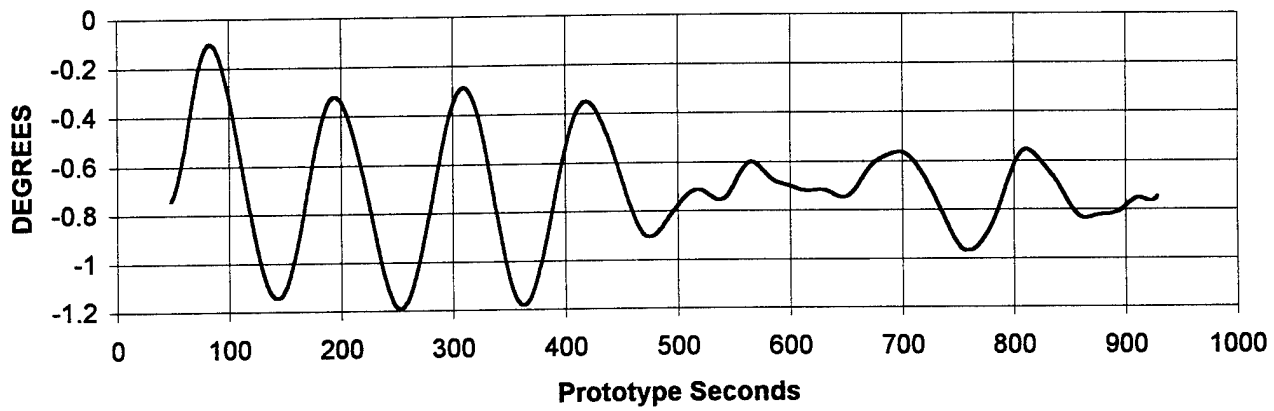


# TEST A605 - PITCH

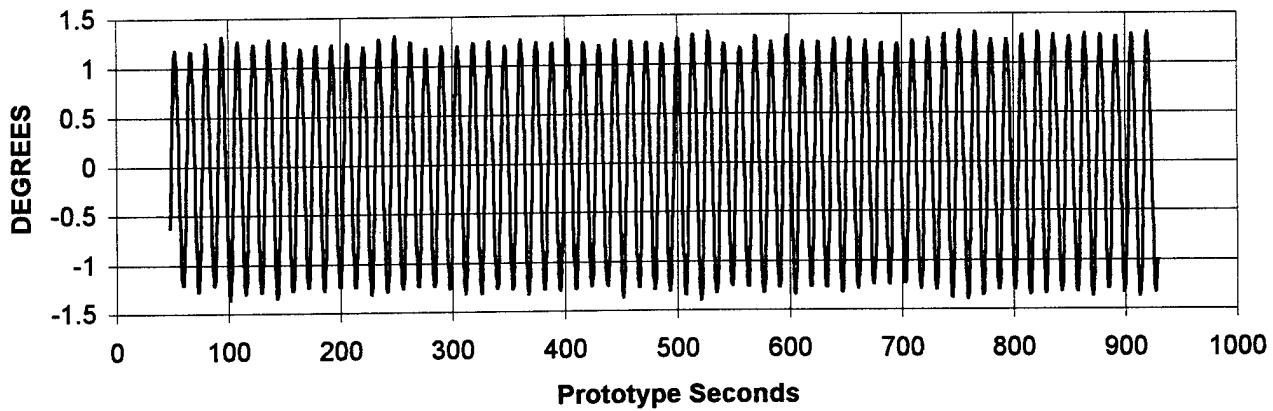
## Unfiltered Time History



## Filtered Low Frequency Time History

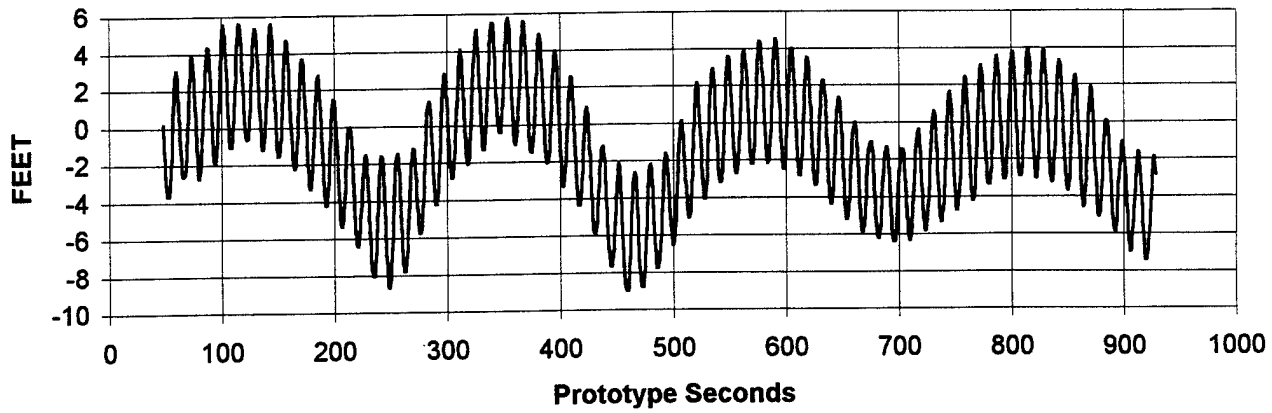


## Filtered High Frequency Time History

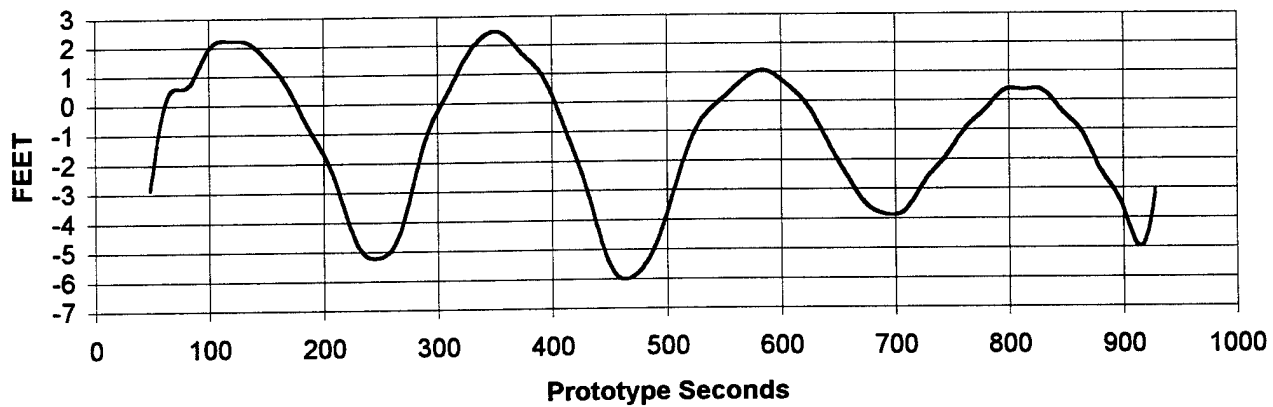


TEST A605 - PT SURGE

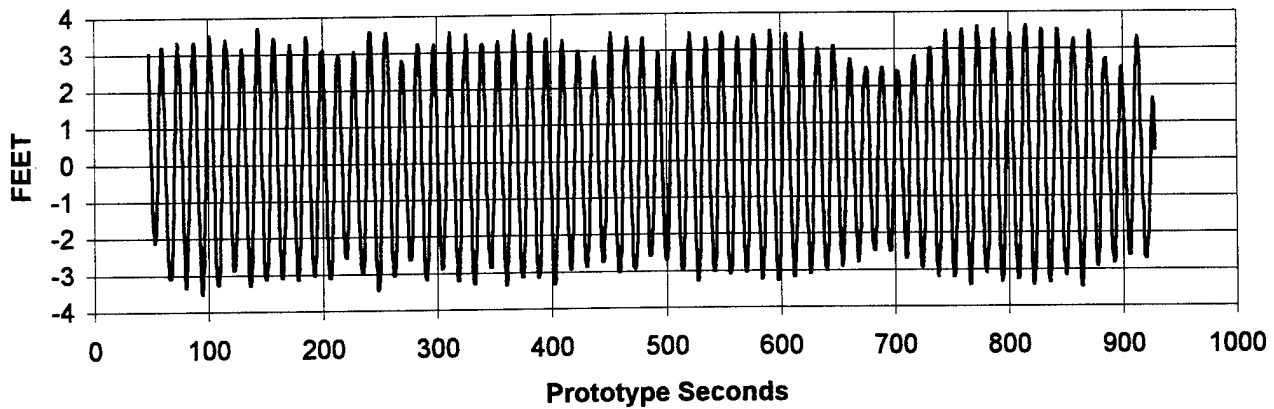
Unfiltered Time History



Filtered Low Frequency Time History

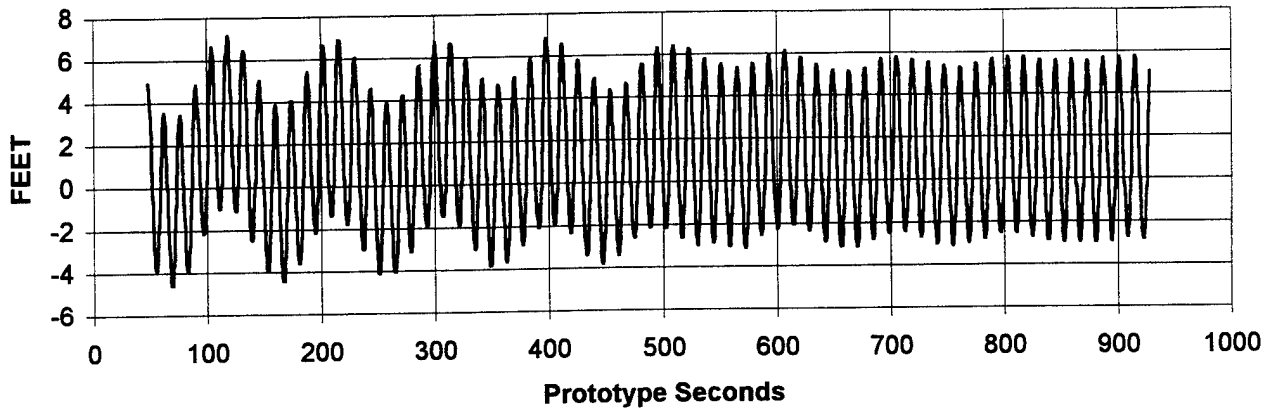


Filtered High Frequency Time History

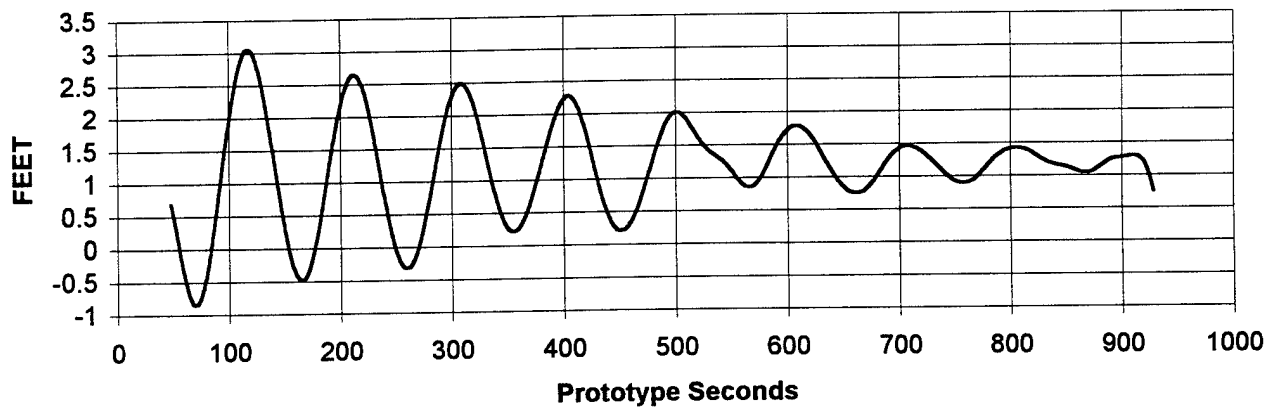


TEST A605 - PT HEAVE

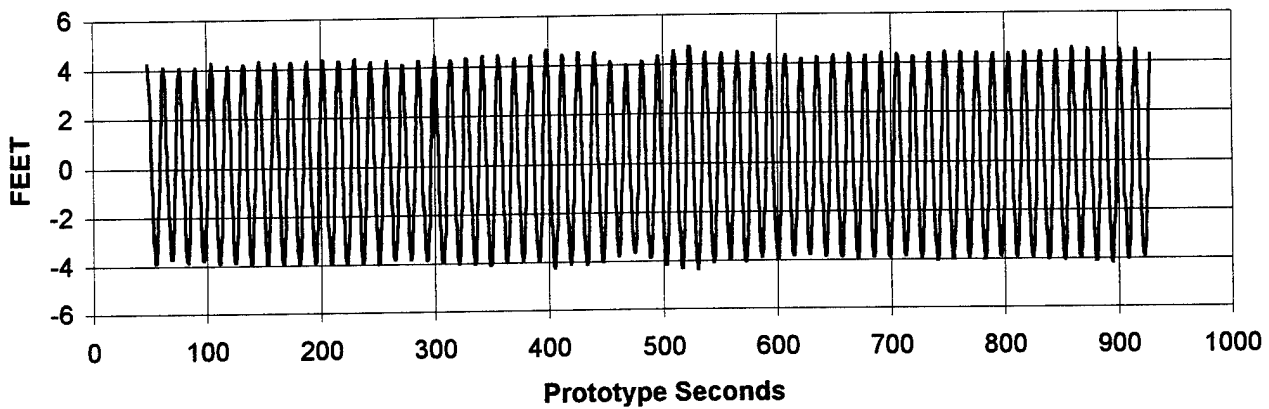
Unfiltered Time History



Filtered Low Frequency Time History

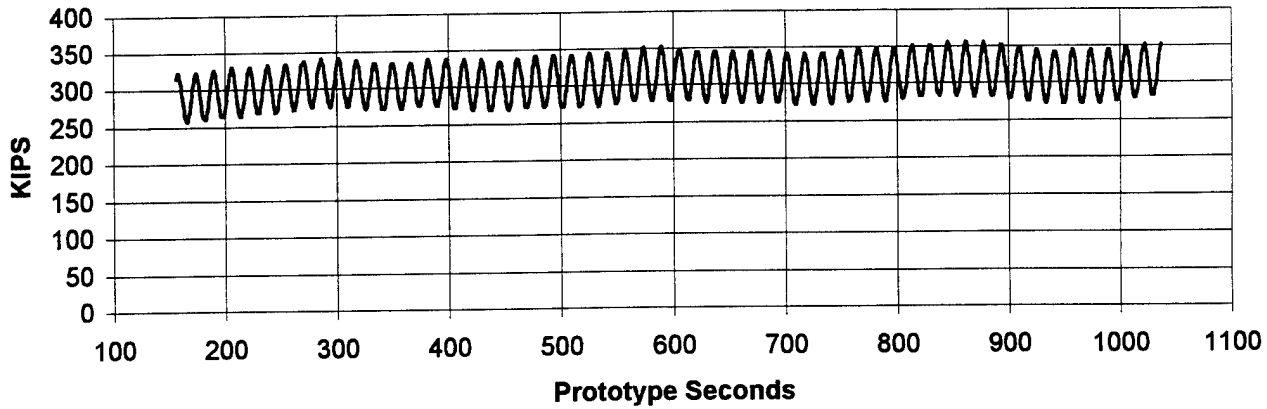


Filtered High Frequency Time History

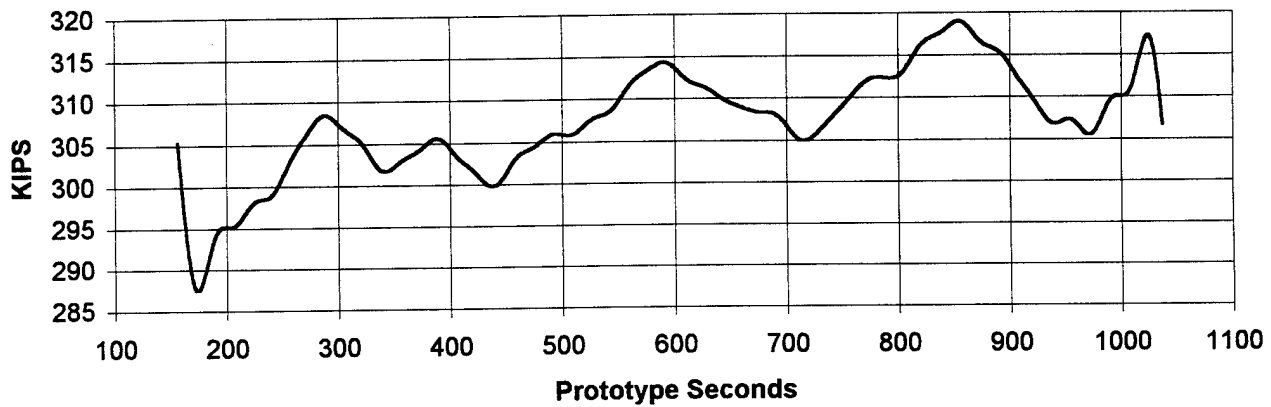


TEST A606 - ML\_1 TENSION

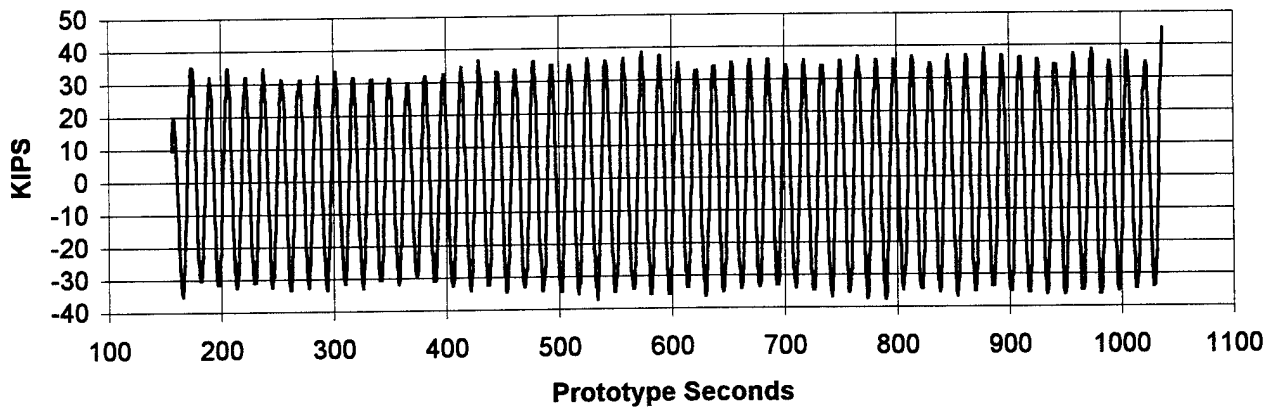
Unfiltered Time History



Filtered Low Frequency Time History

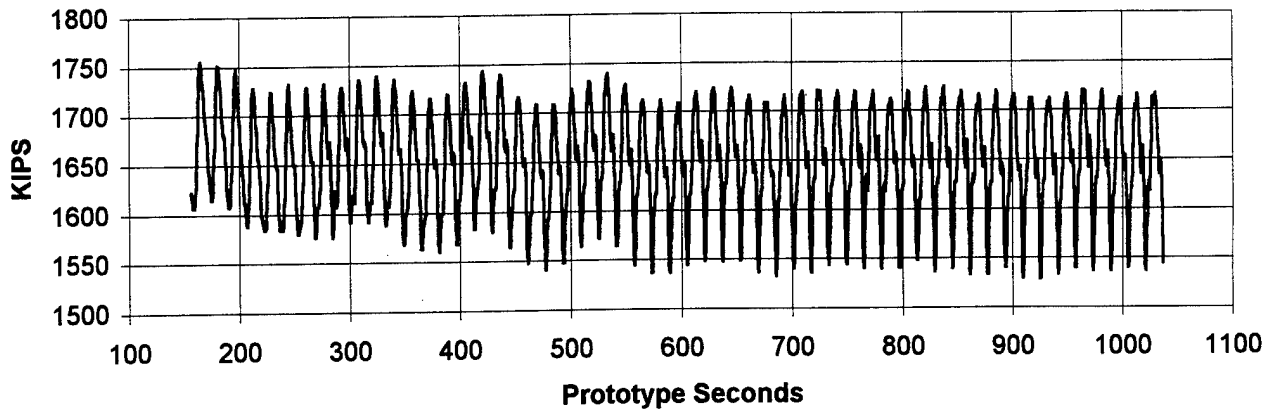


Filtered High Frequency Time History

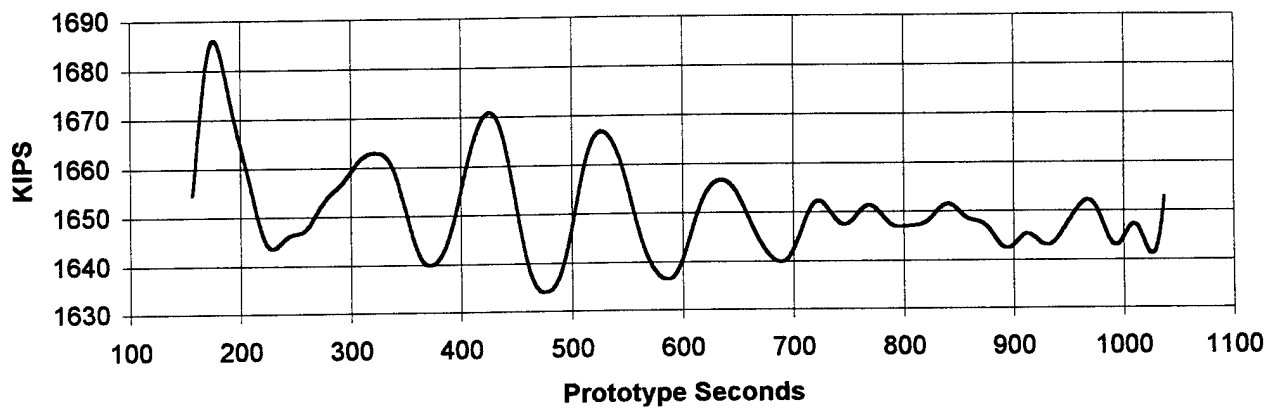


# TEST A606 - BUOY 1 TENSION

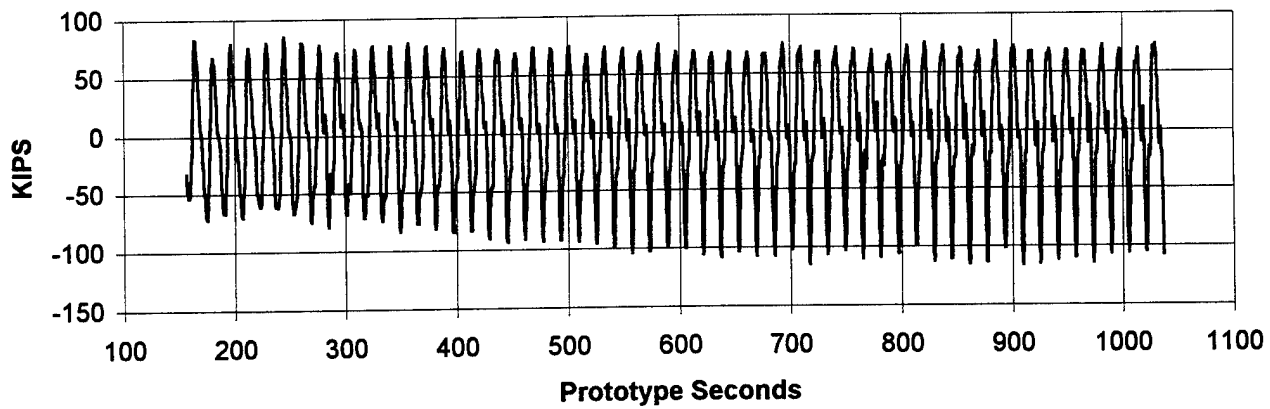
## Unfiltered Time History



## Filtered Low Frequency Time History

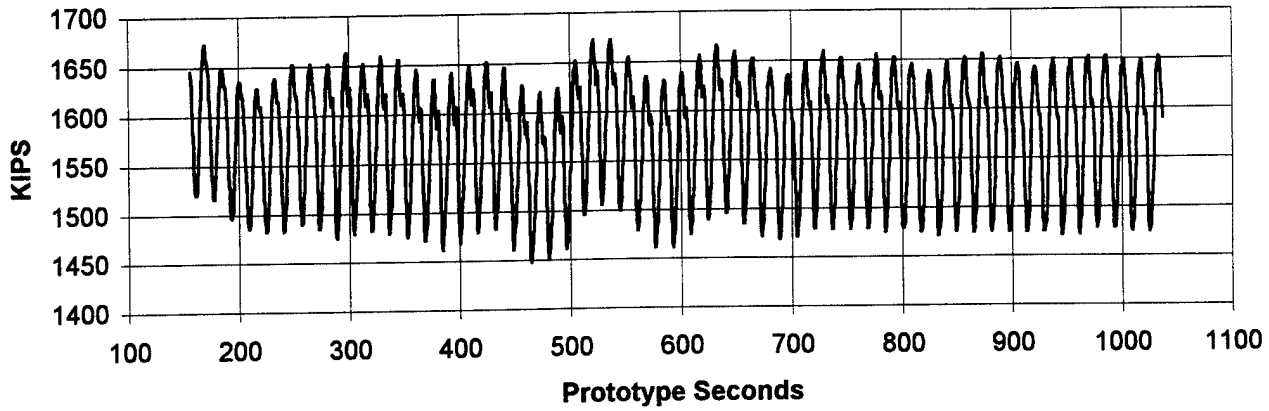


## Filtered High Frequency Time History

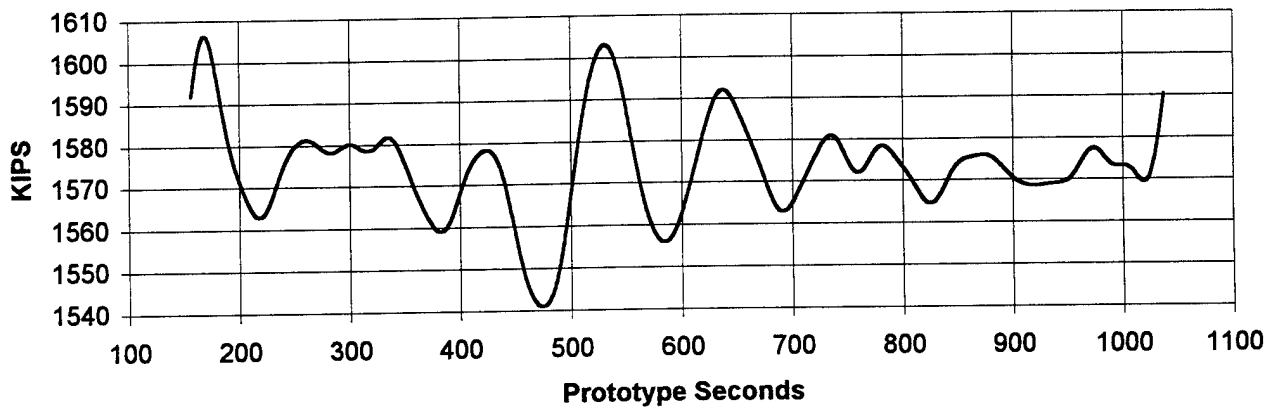


TEST A606 - BUOY 2 TENSION

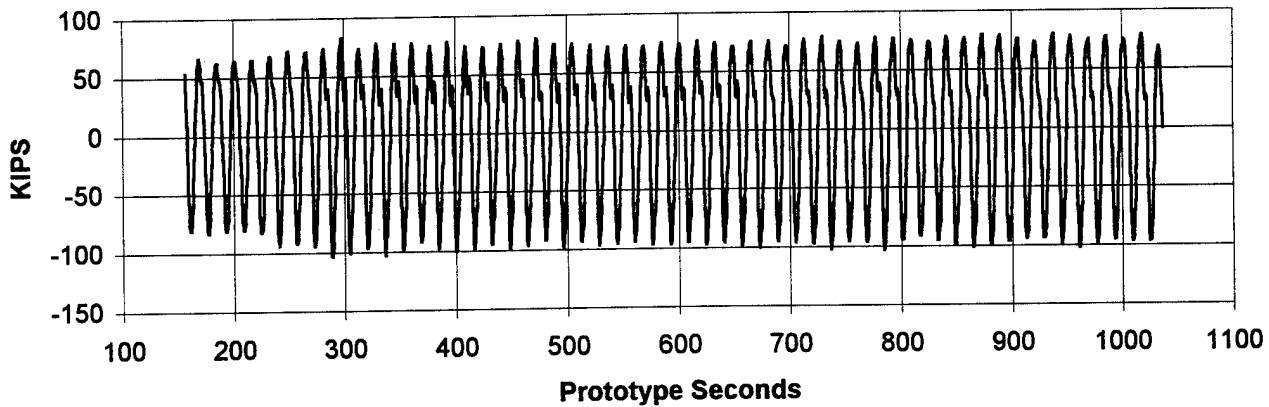
Unfiltered Time History



Filtered Low Frequency Time History

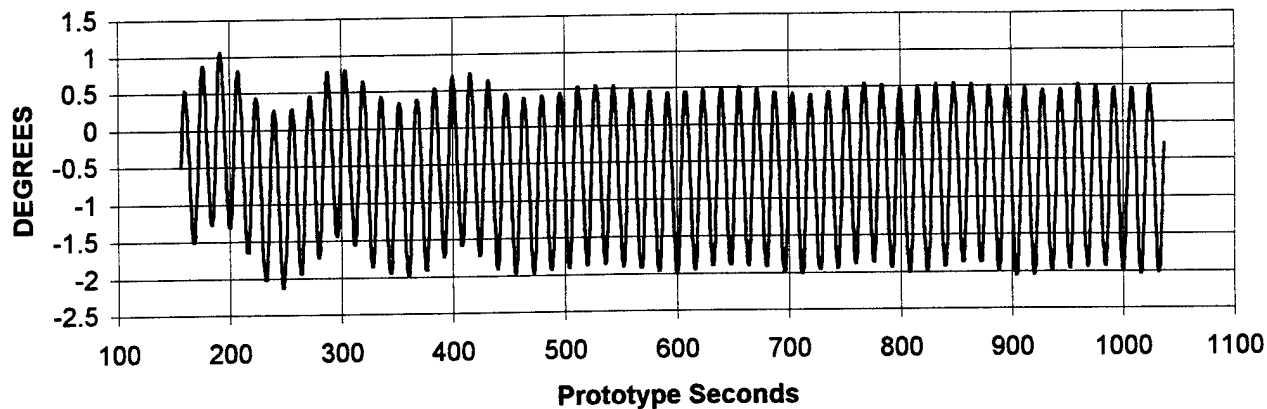


Filtered High Frequency Time History

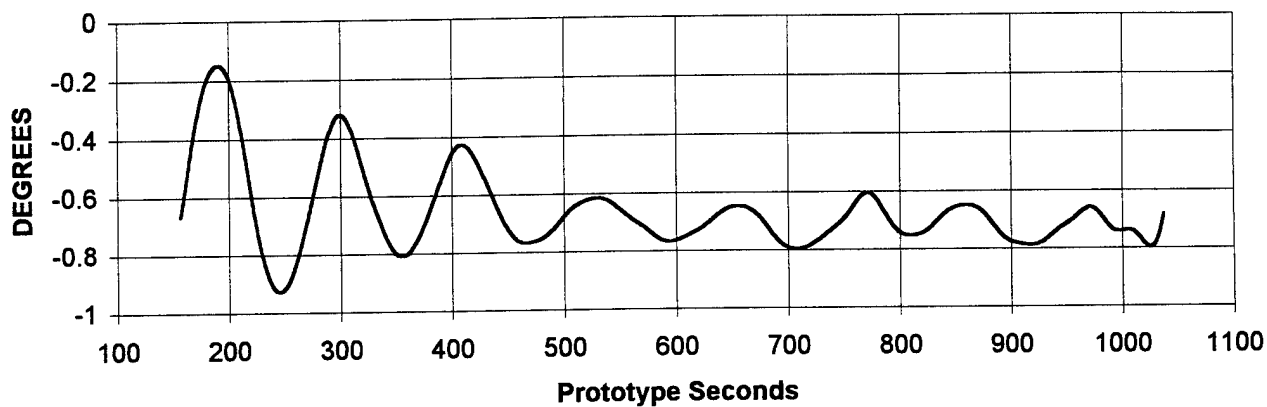


# TEST A606 - PITCH

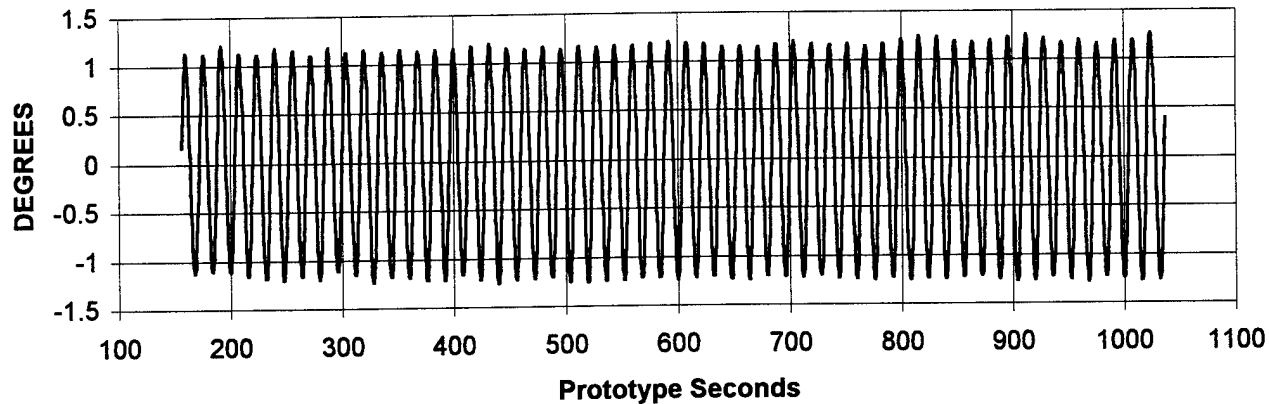
## Unfiltered Time History



## Filtered Low Frequency Time History

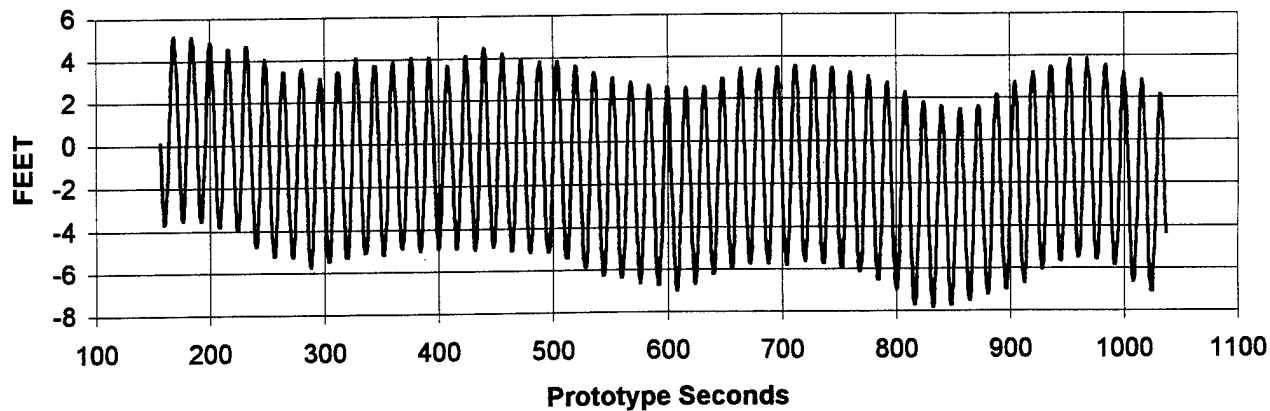


## Filtered High Frequency Time History

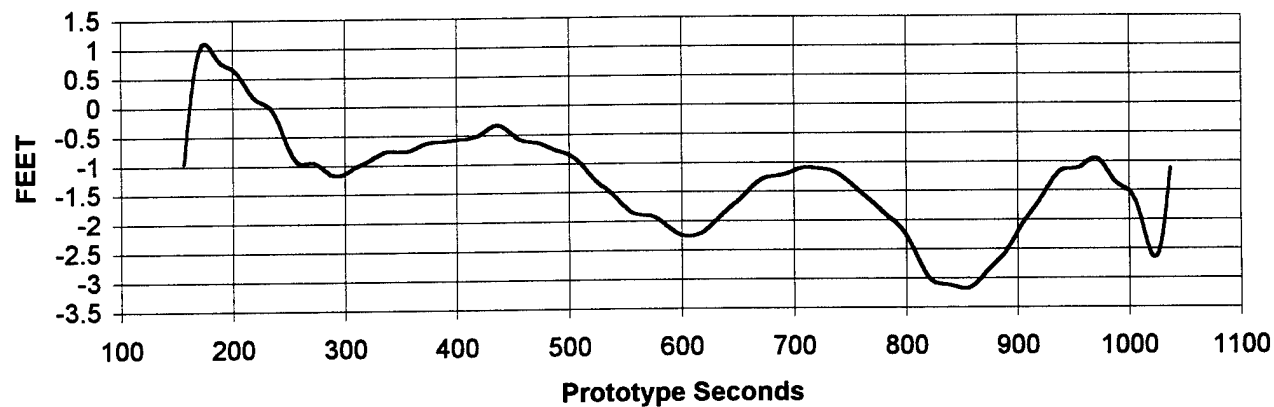


TEST A606 - PT SURGE

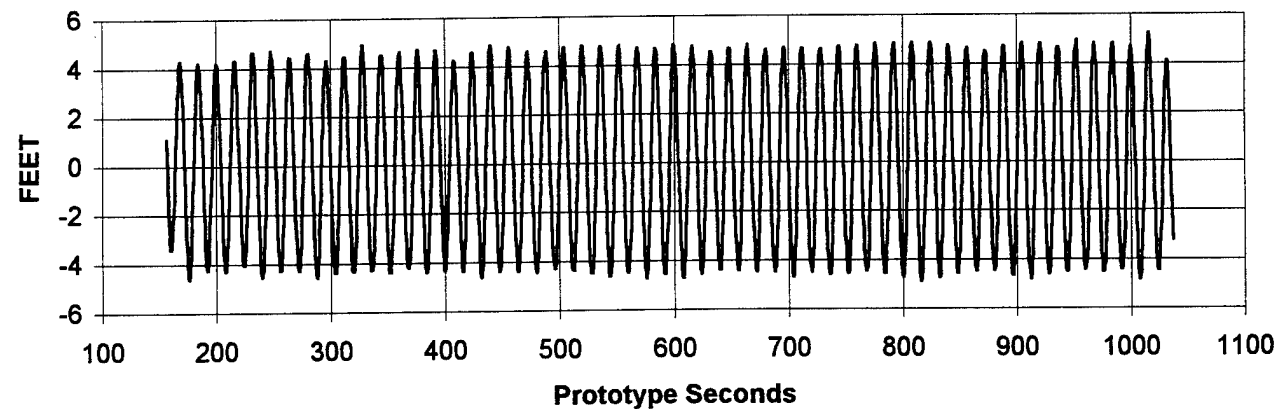
Unfiltered Time History



Filtered Low Frequency Time History



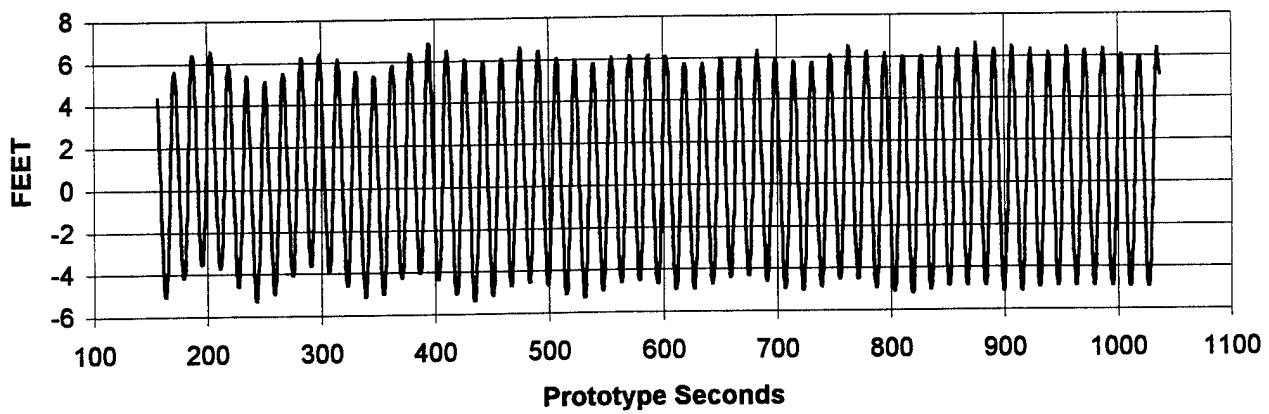
Filtered High Frequency Time History



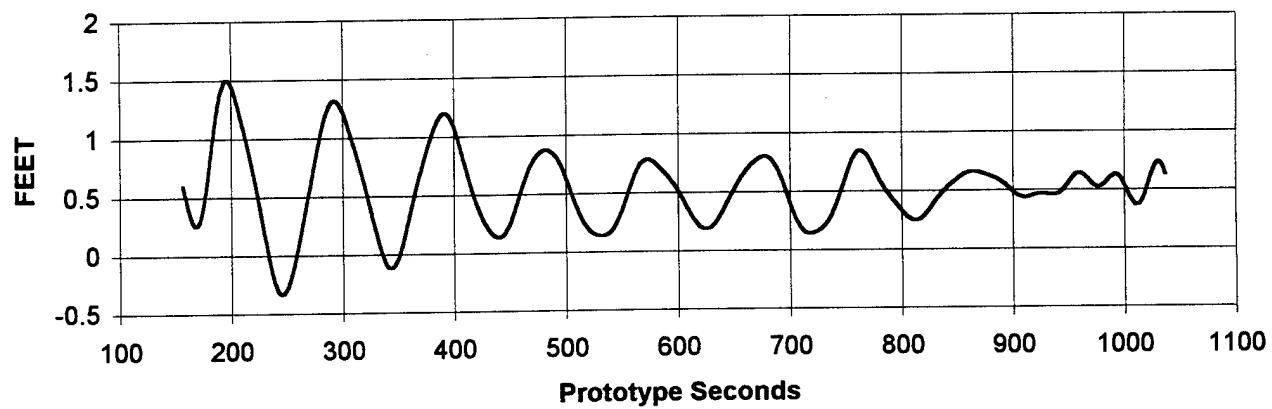


TEST A606 - PT HEAVE

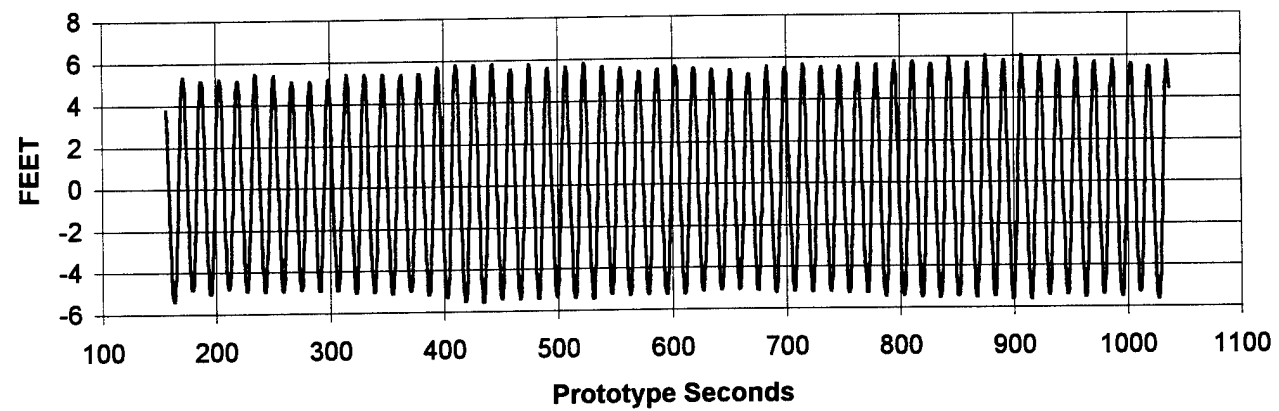
Unfiltered Time History



Filtered Low Frequency Time History

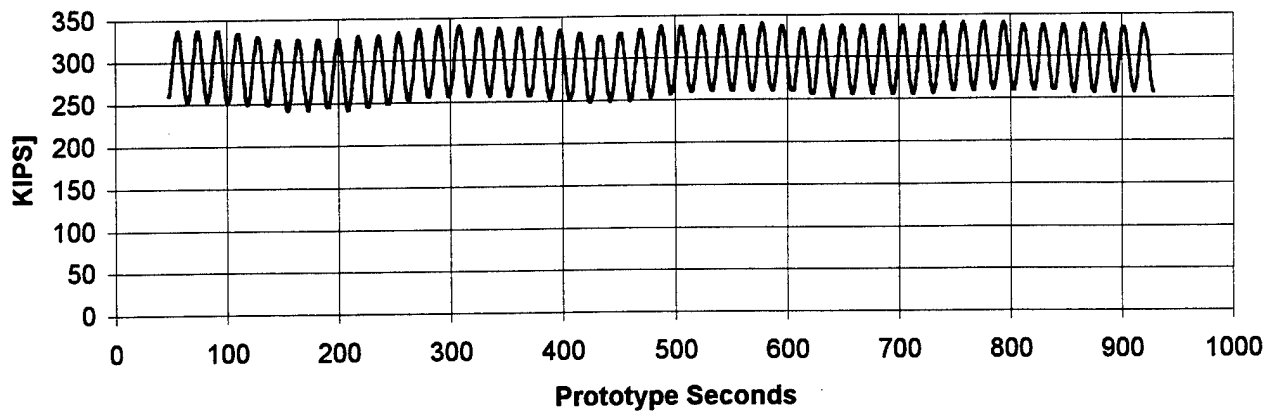


Filtered High Frequency Time History

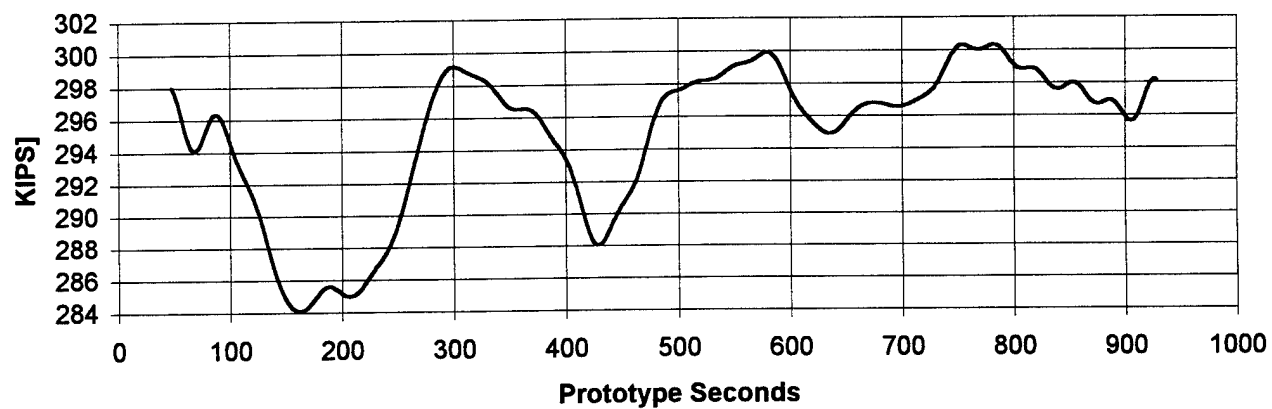


TEST A607 - ML\_1 TENSION

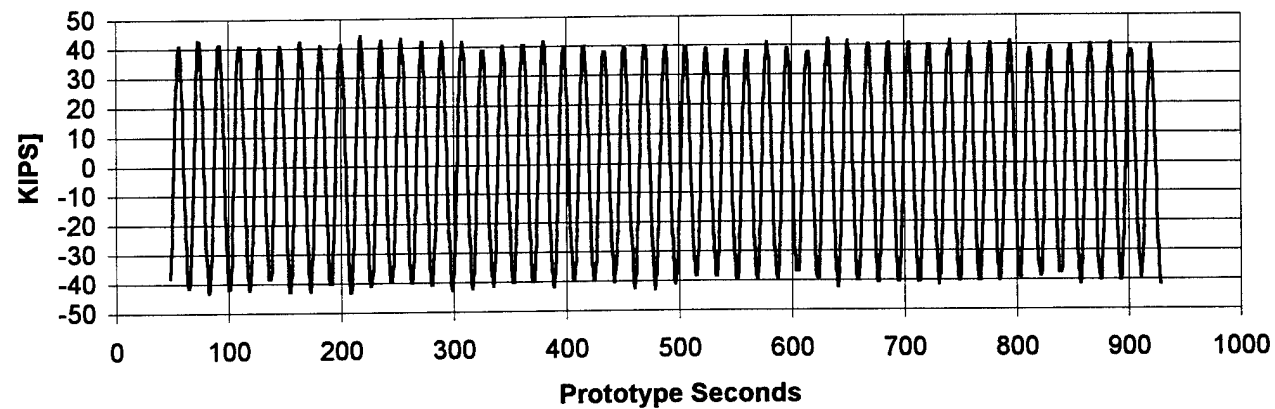
Unfiltered Time History



Filtered Low Frequency Time History

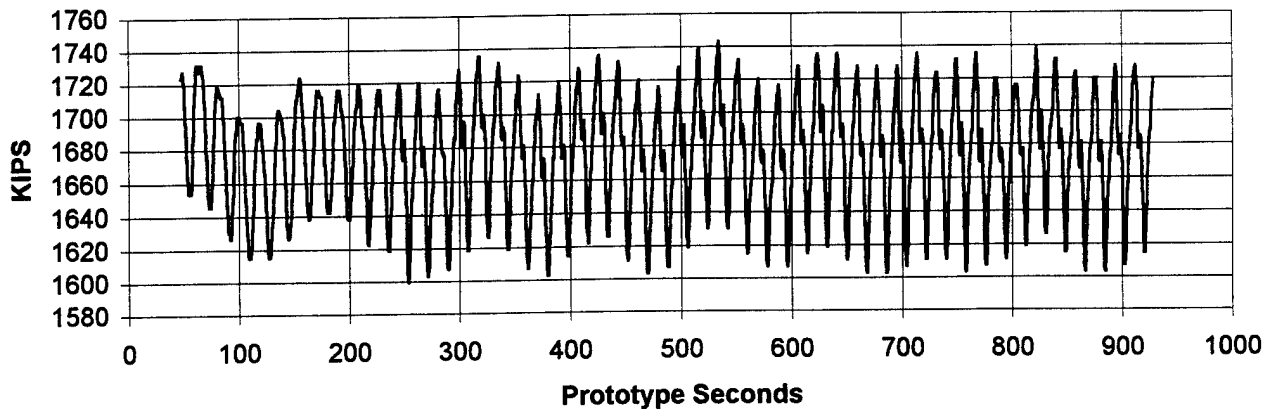


Filtered High Frequency Time History

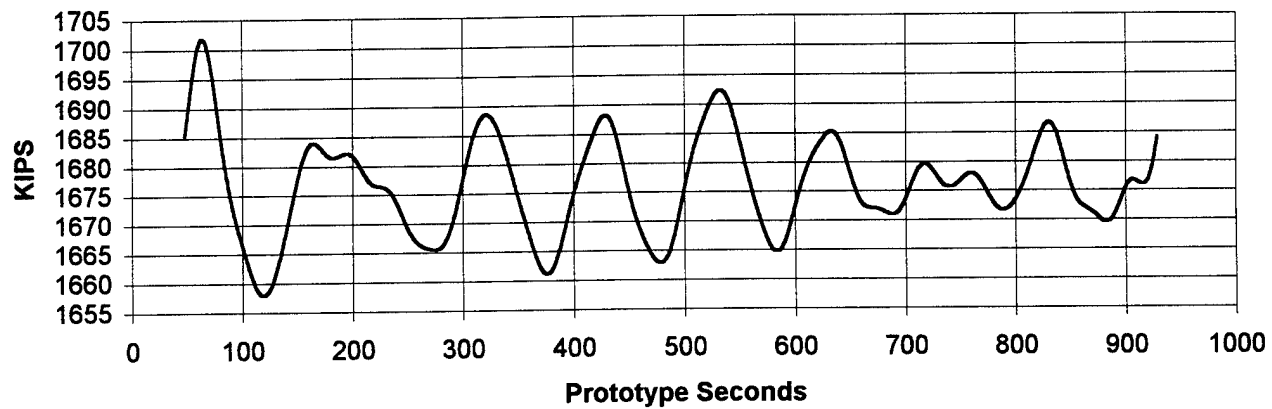


# TEST A607 - BUOY 1 TENSION

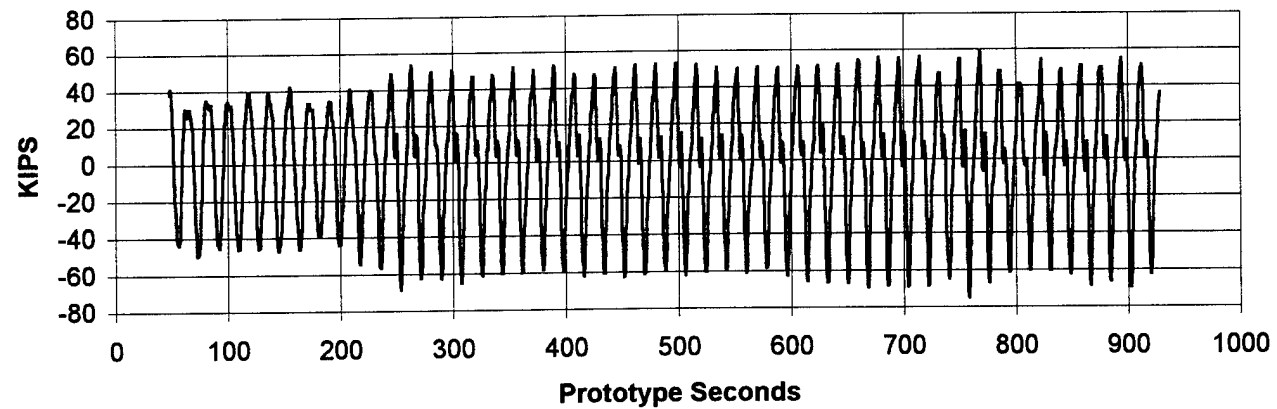
## Unfiltered Time History



## Filtered Low Frequency Time History

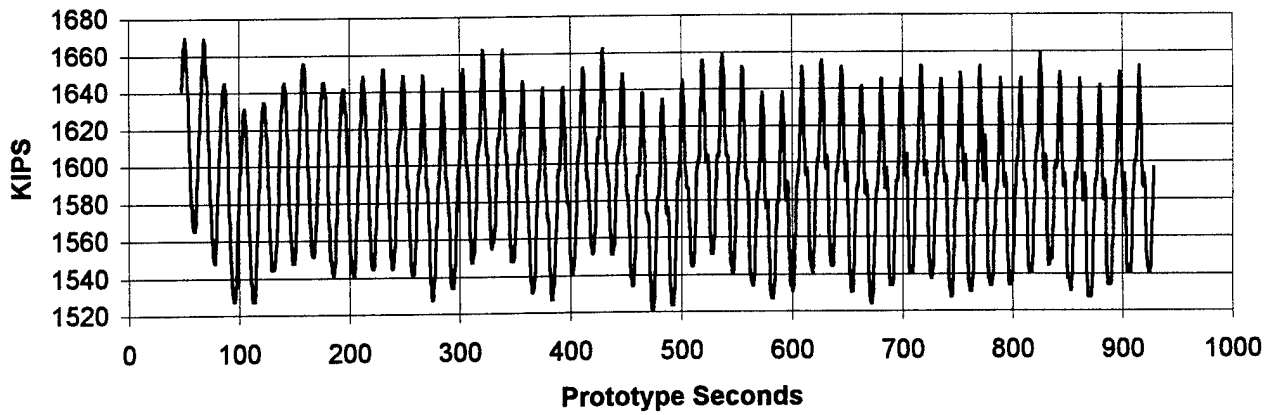


## Filtered High Frequency Time History

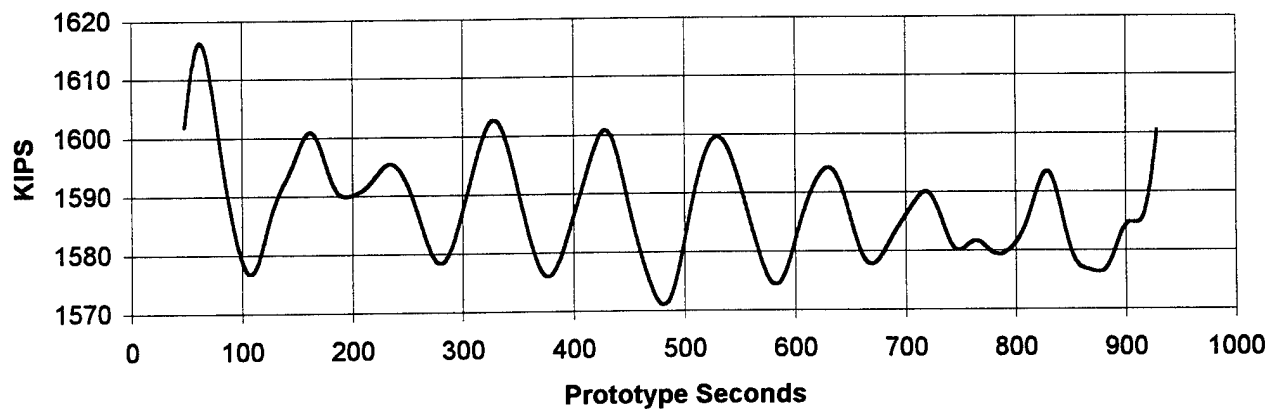


# TEST A607 - BUOY 2 TENSION

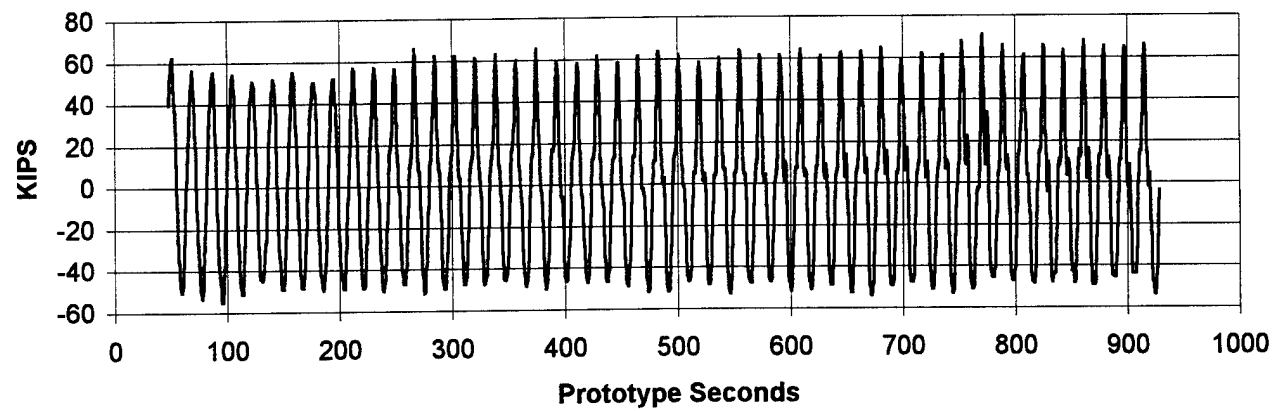
## Unfiltered Time History



## Filtered Low Frequency Time History

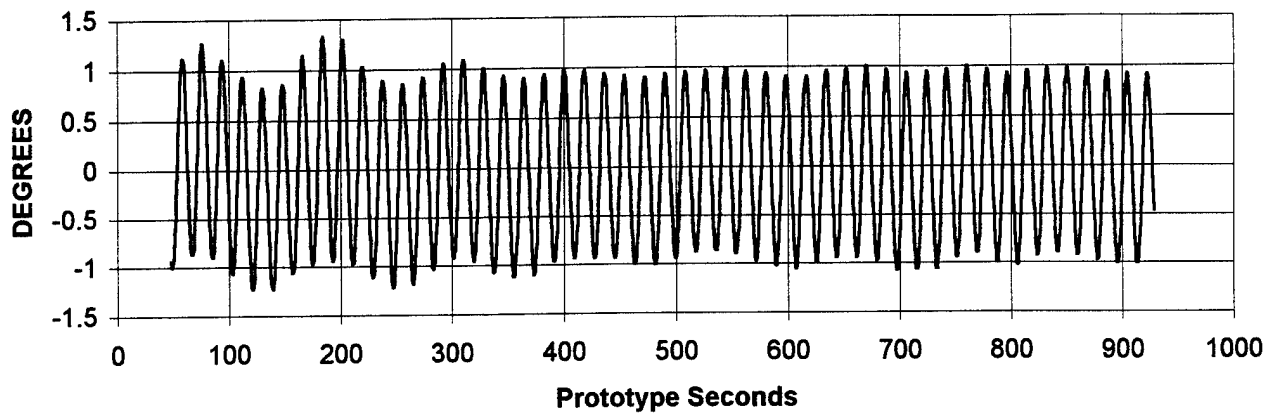


## Filtered High Frequency Time History

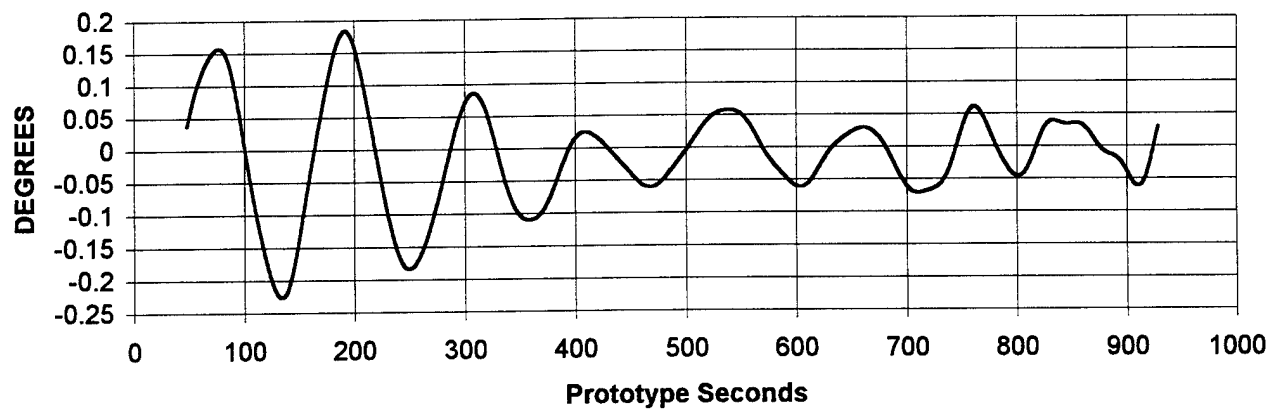


TEST A607 - PITCH

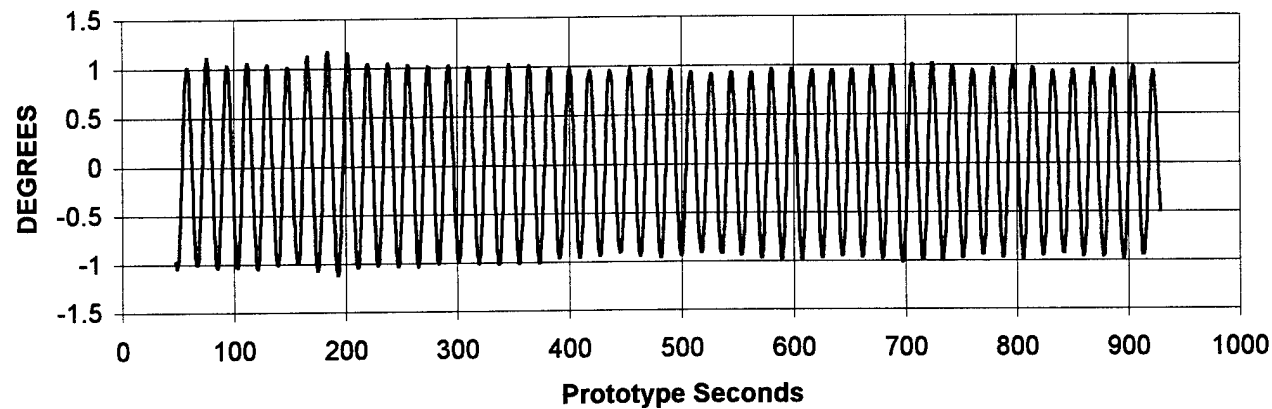
Unfiltered Time History



Filtered Low Frequency Time History

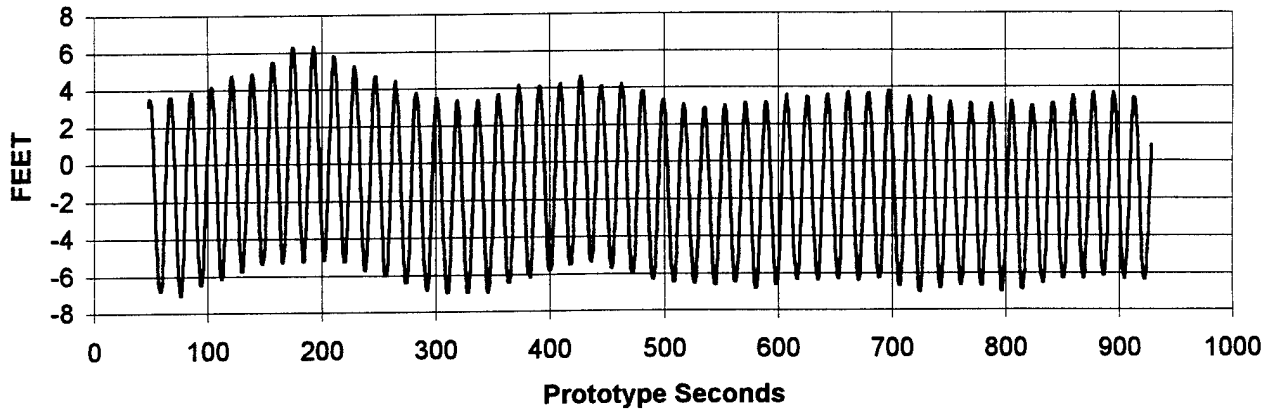


Filtered High Frequency Time History

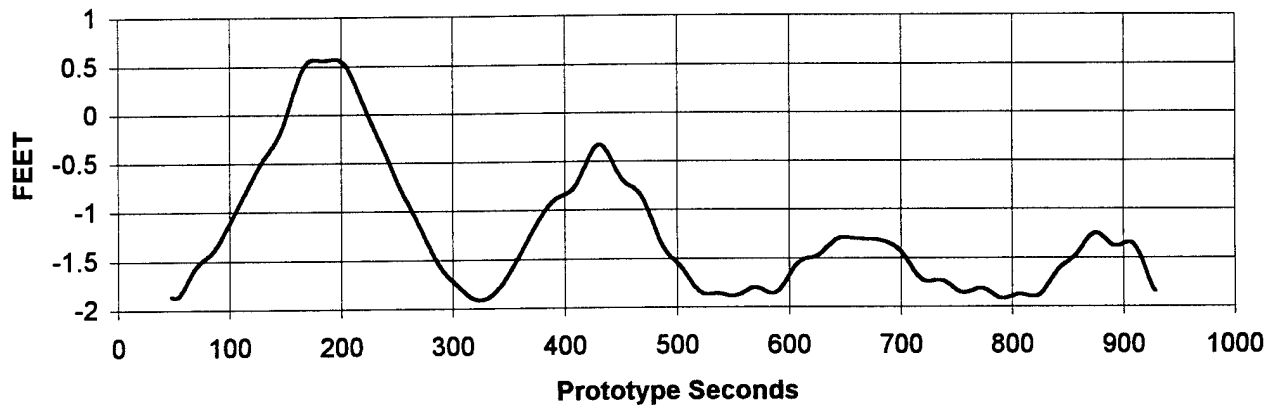


TEST A607 - PT SURGE

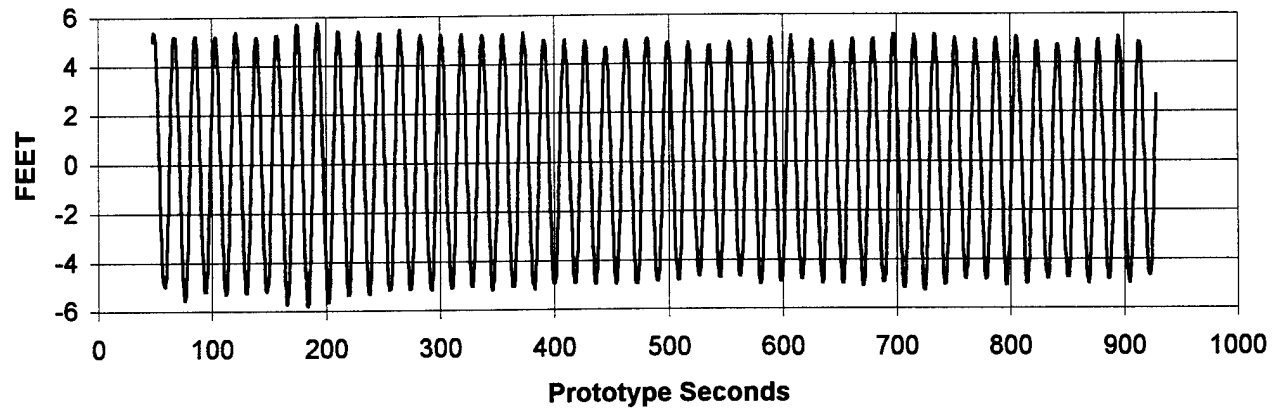
Unfiltered Time History



Filtered Low Frequency Time History

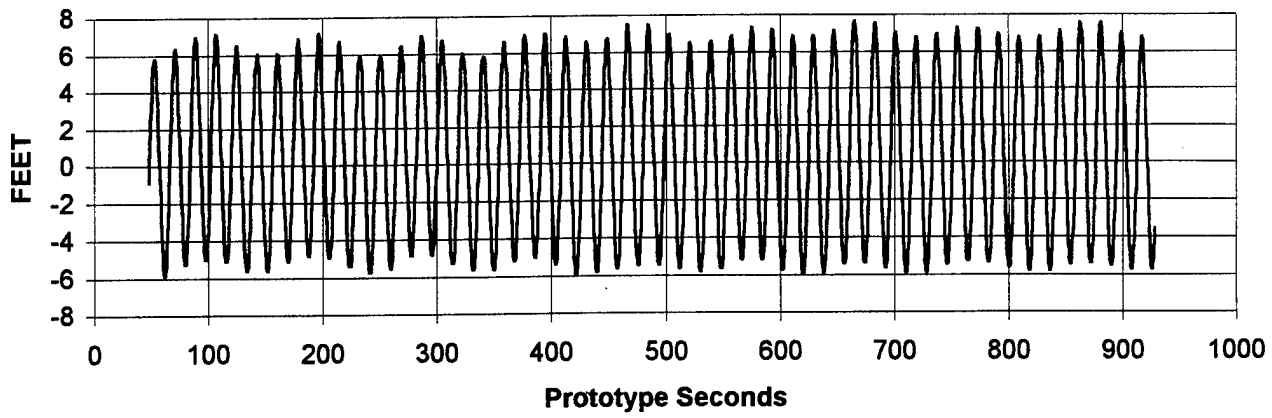


Filtered High Frequency Time History

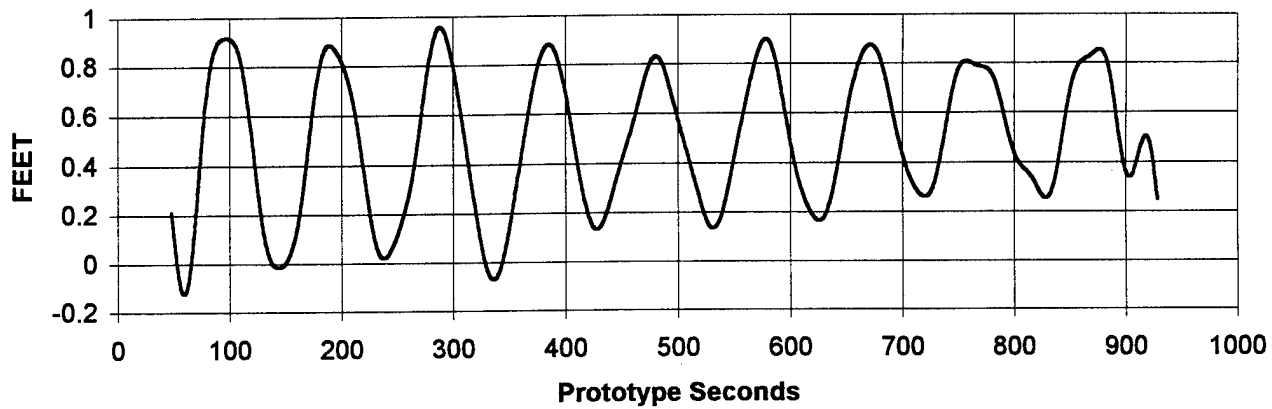


TEST A607 - PT HEAVE

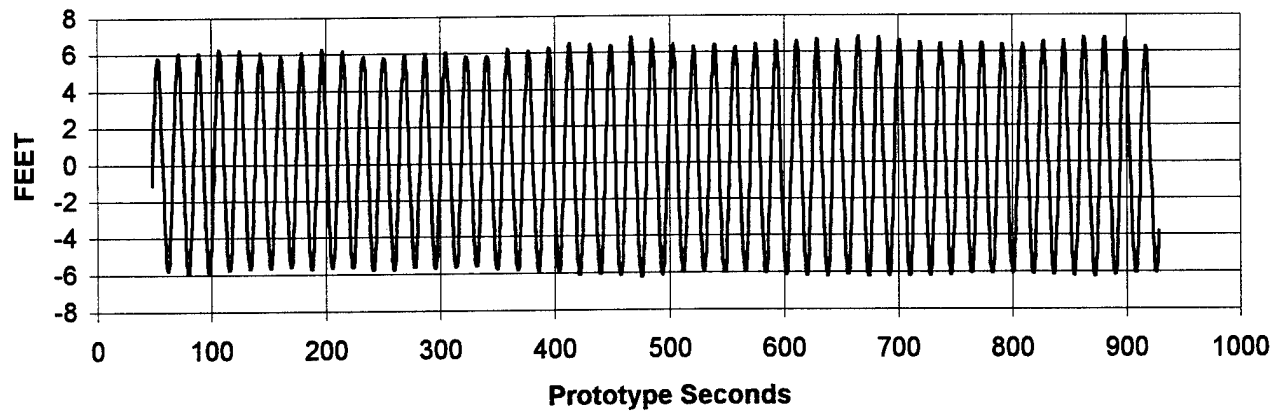
Unfiltered Time History



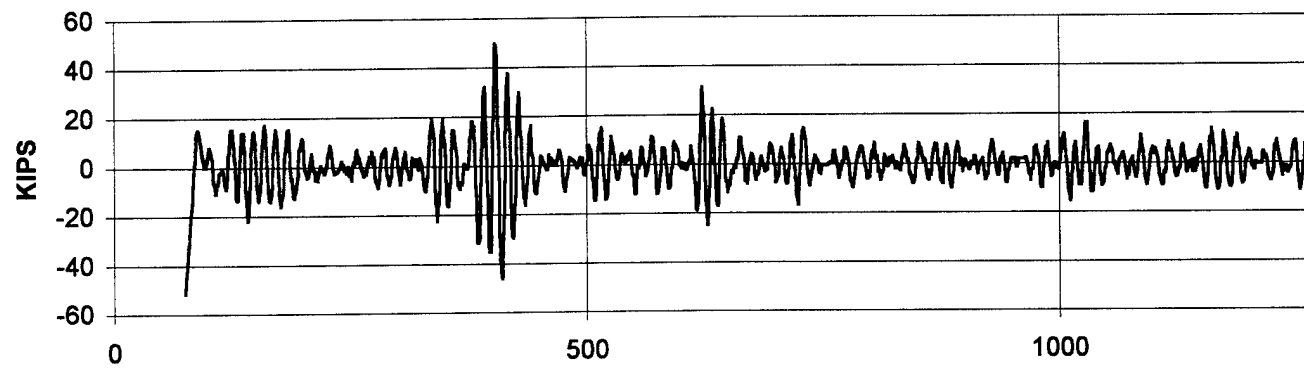
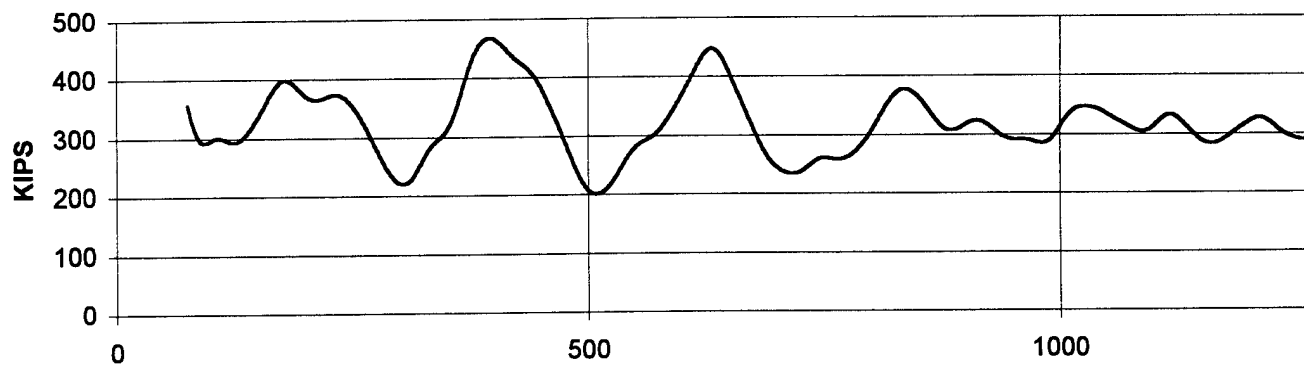
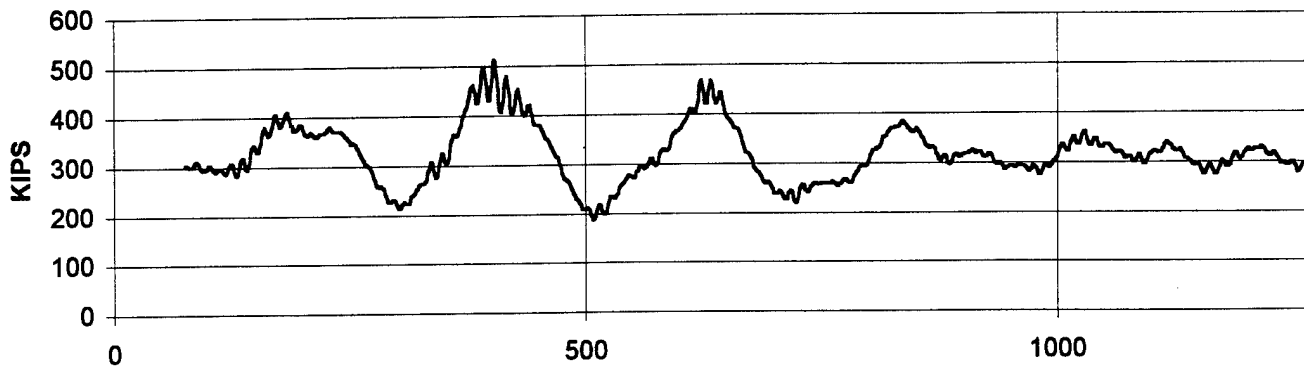
Filtered Low Frequency Time History



Filtered High Frequency Time History

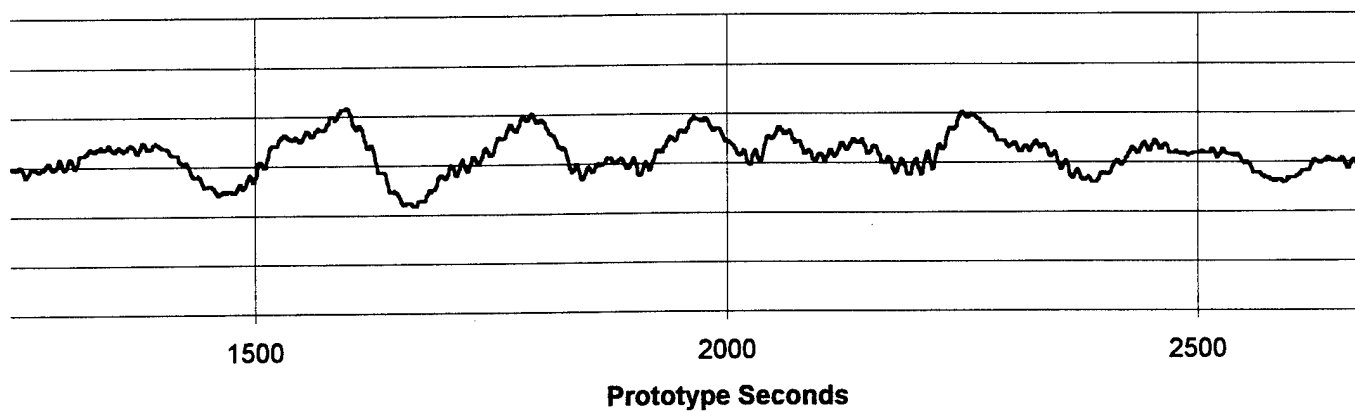


TEST A608 - ML\_1 TENSION

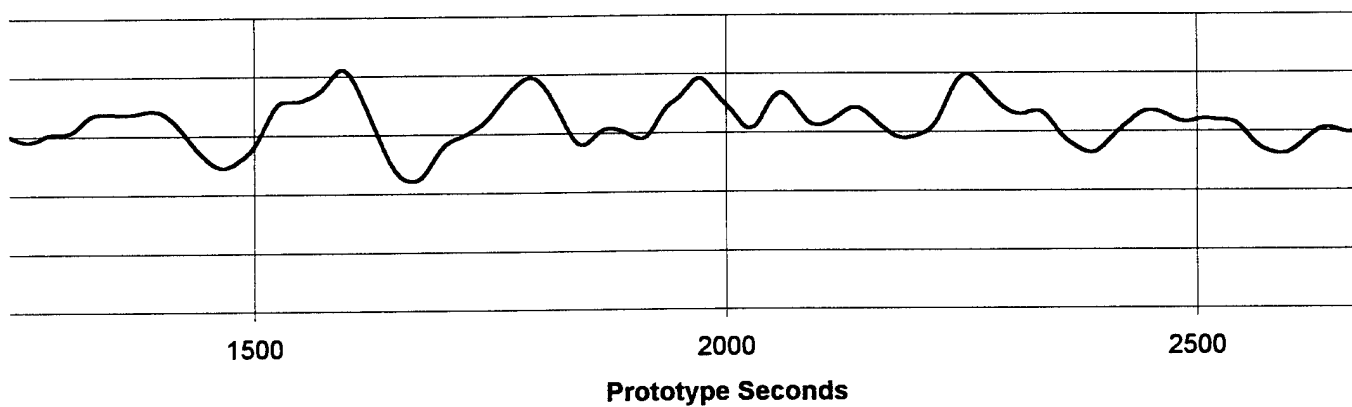




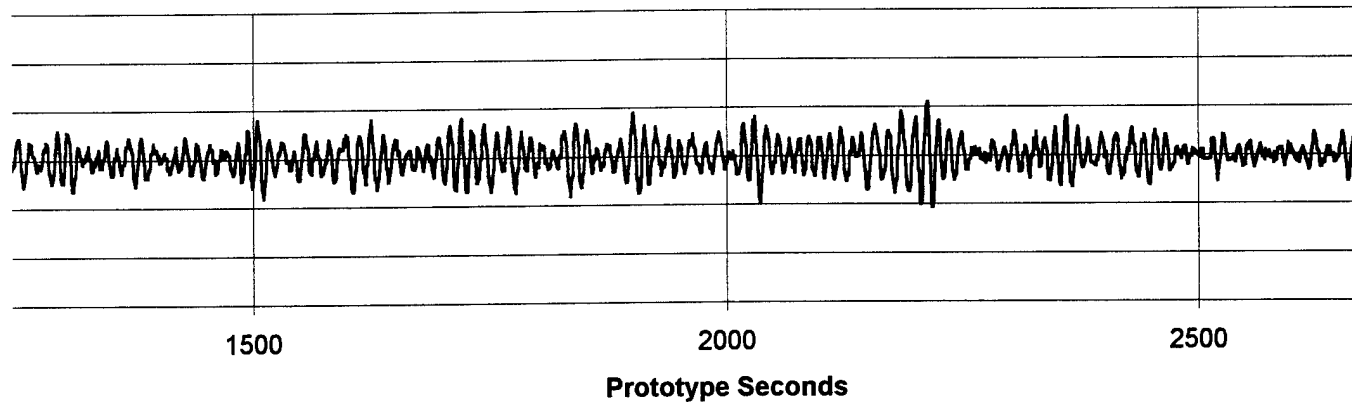
**Unfiltered Time History**



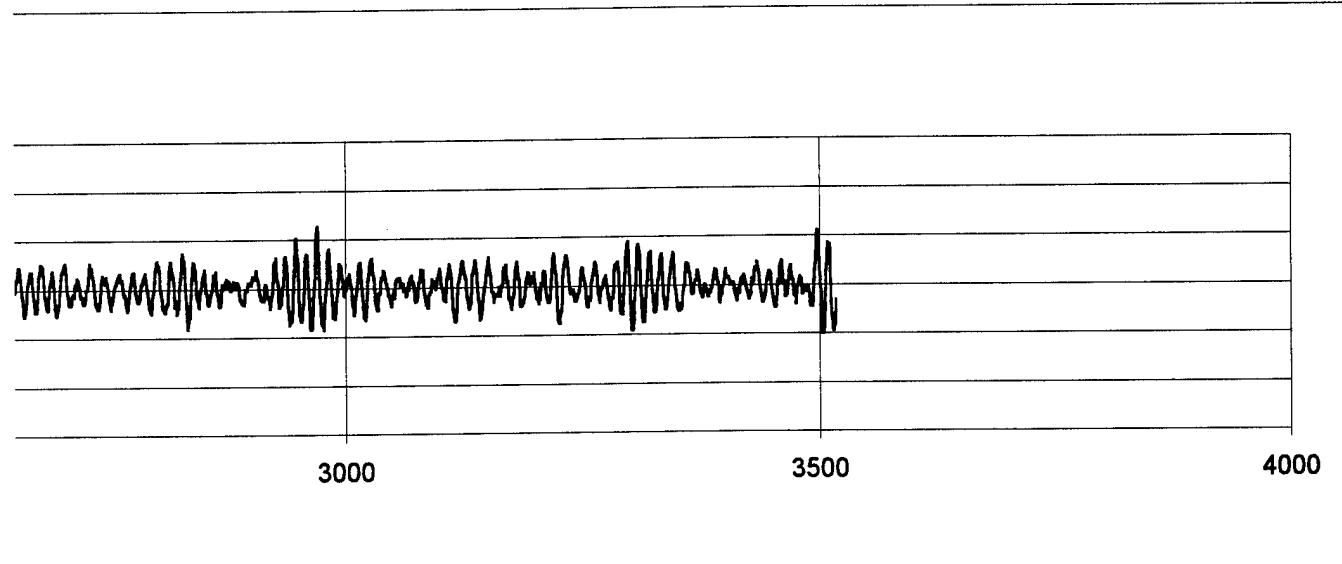
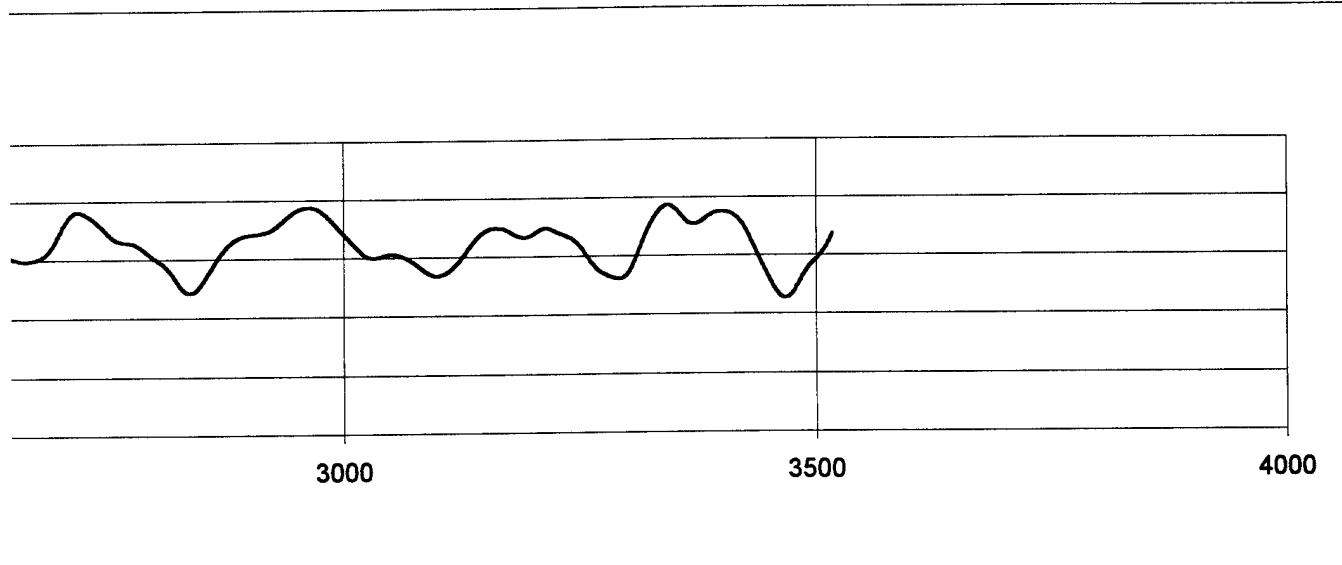
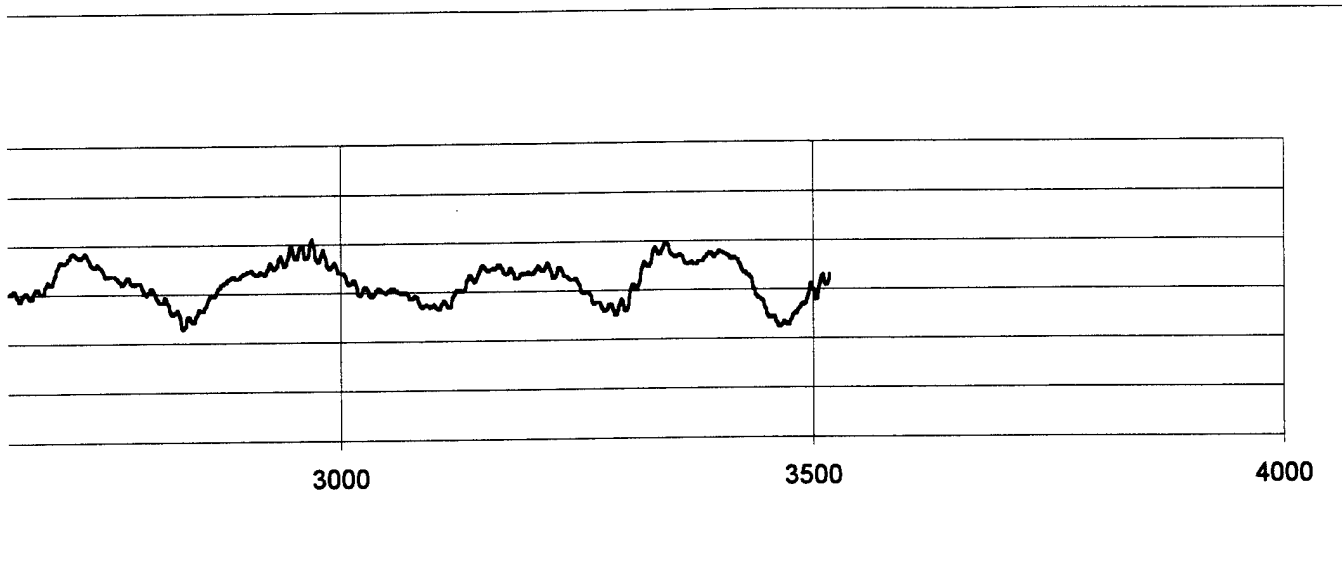
**Filtered Low Frequency Time History**



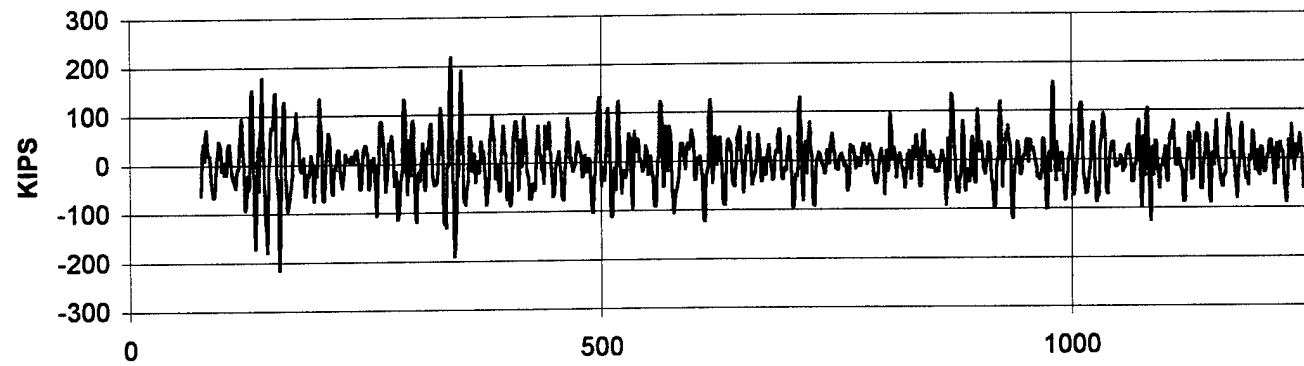
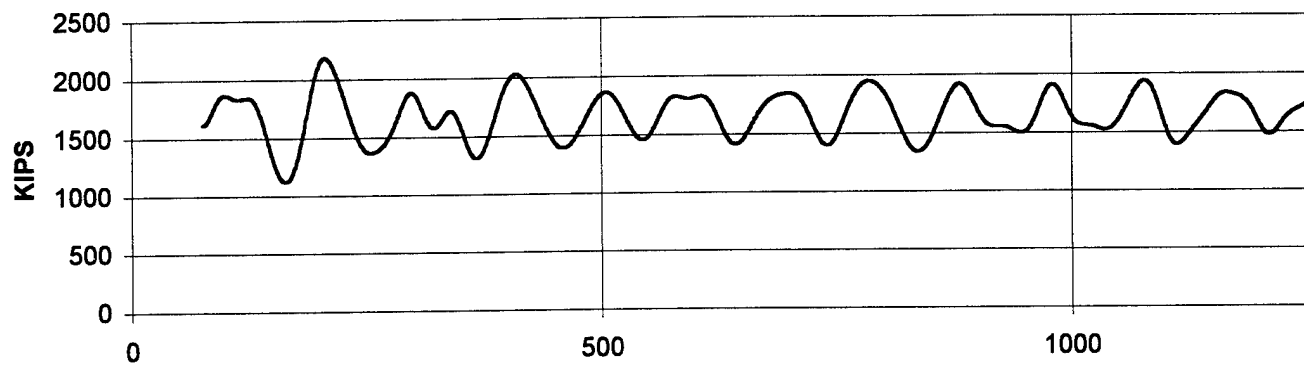
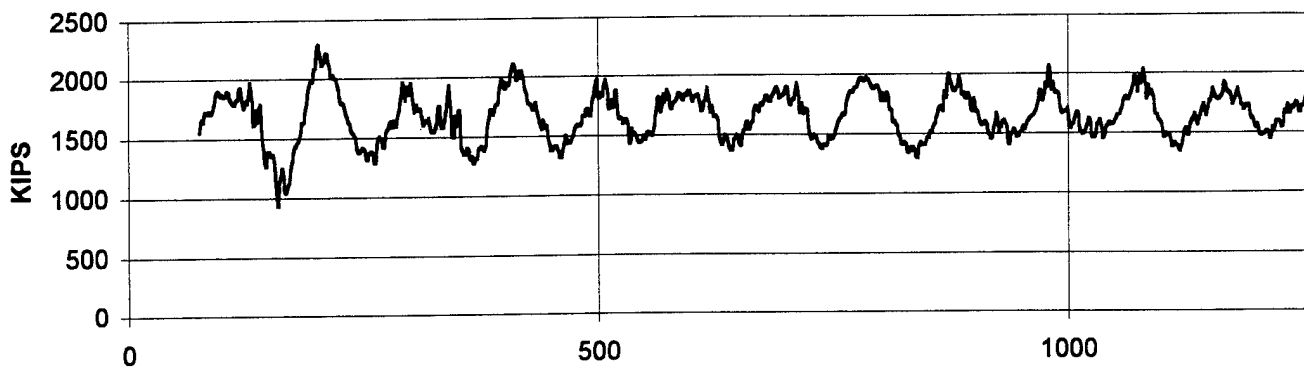
**Filtered High Frequency Time History**



TEST A608 - ML\_1 TENSION

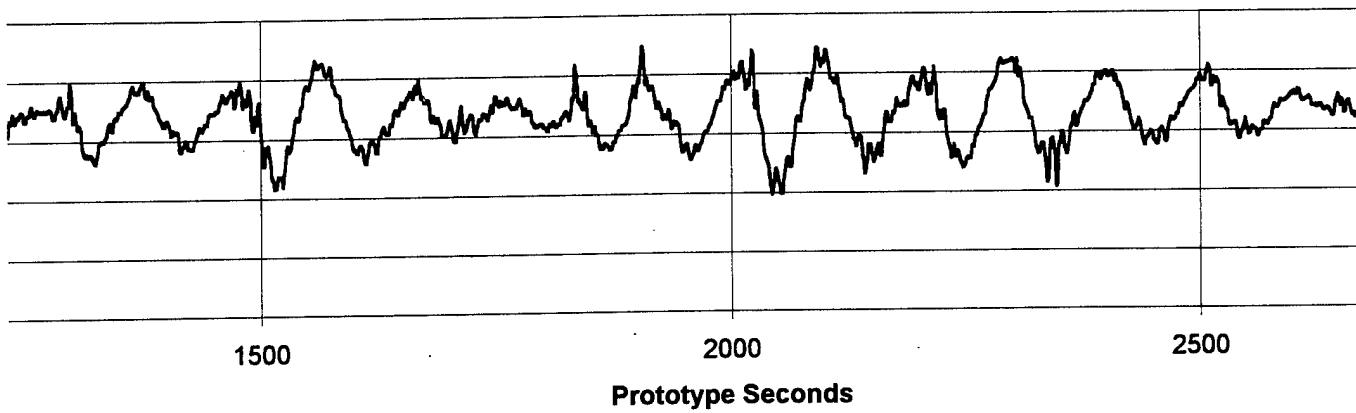


TEST A608 - BUOY 1 TENSION

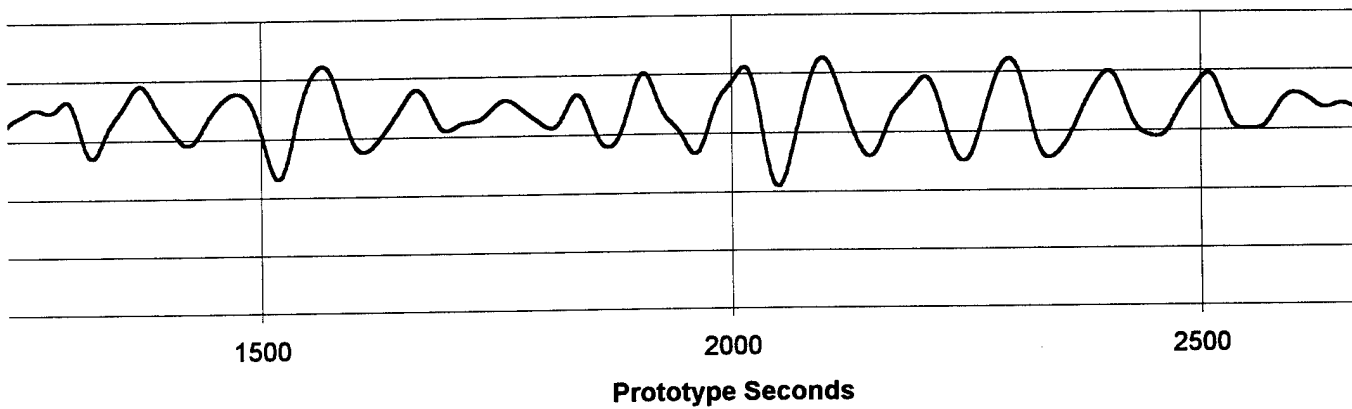


TEST A608 - BUOY 1 TENSION

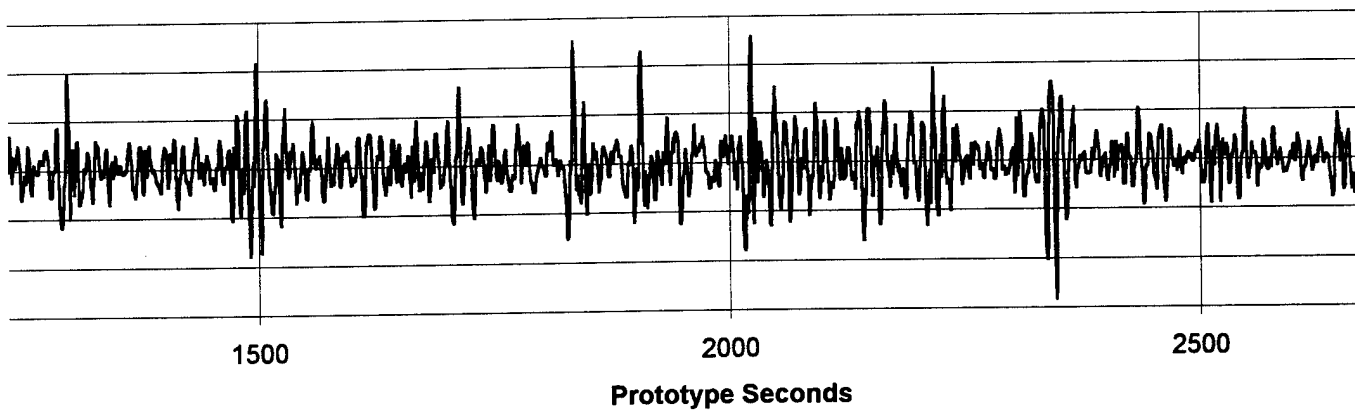
Unfiltered Time History



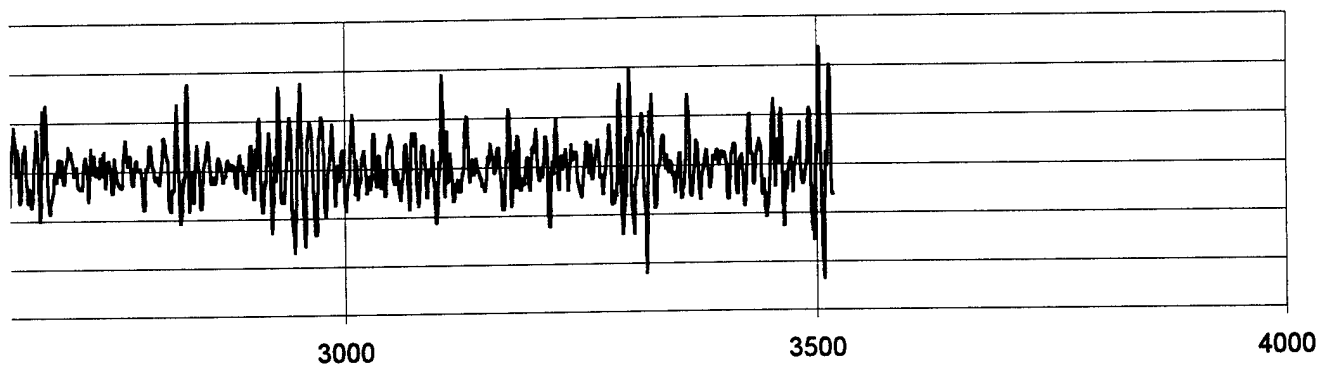
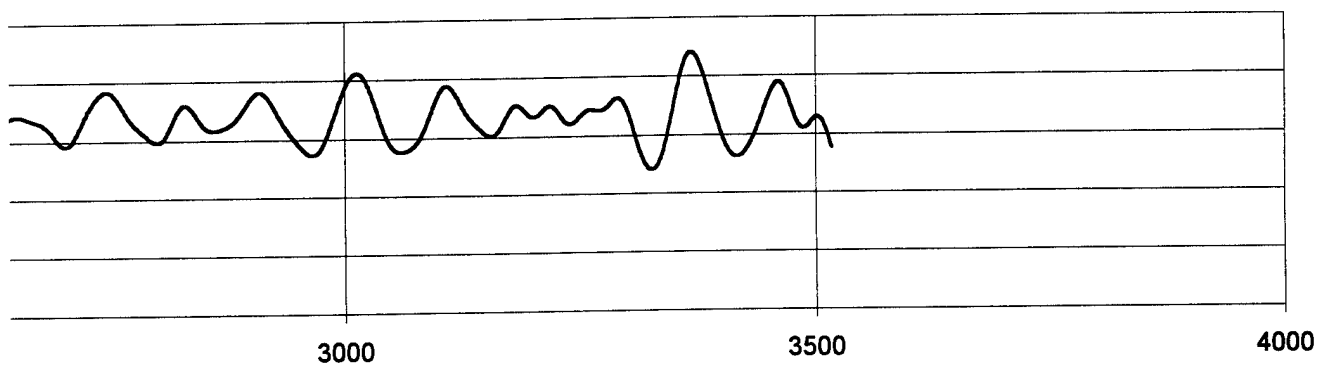
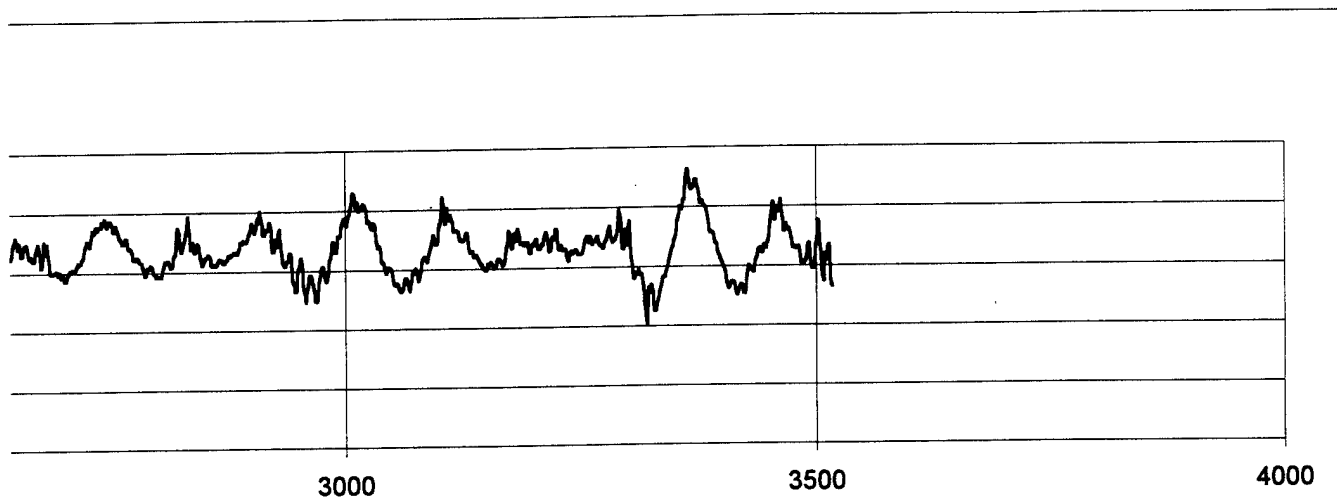
Filtered Low Frequency Time History



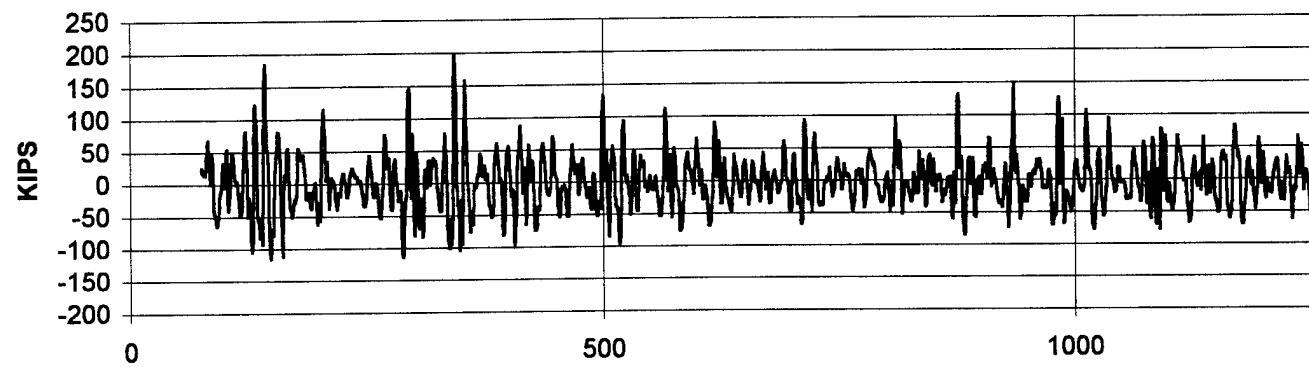
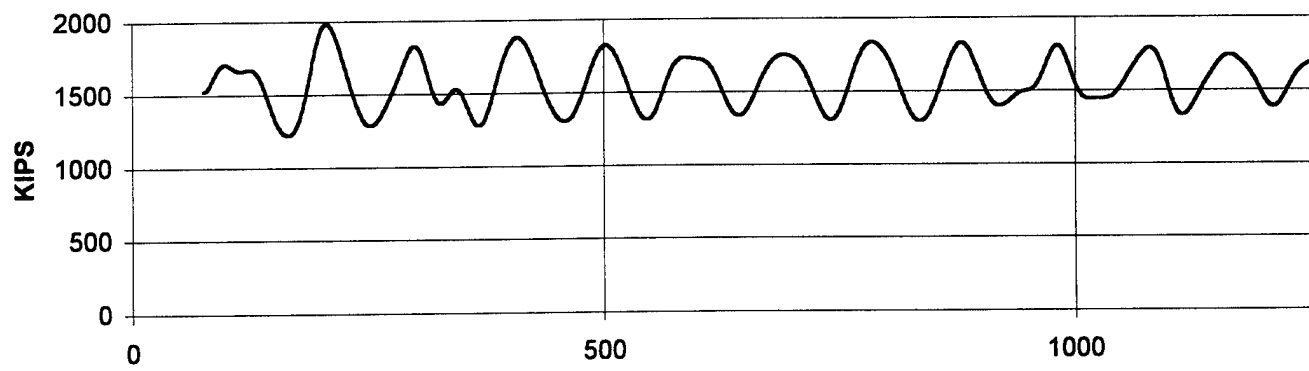
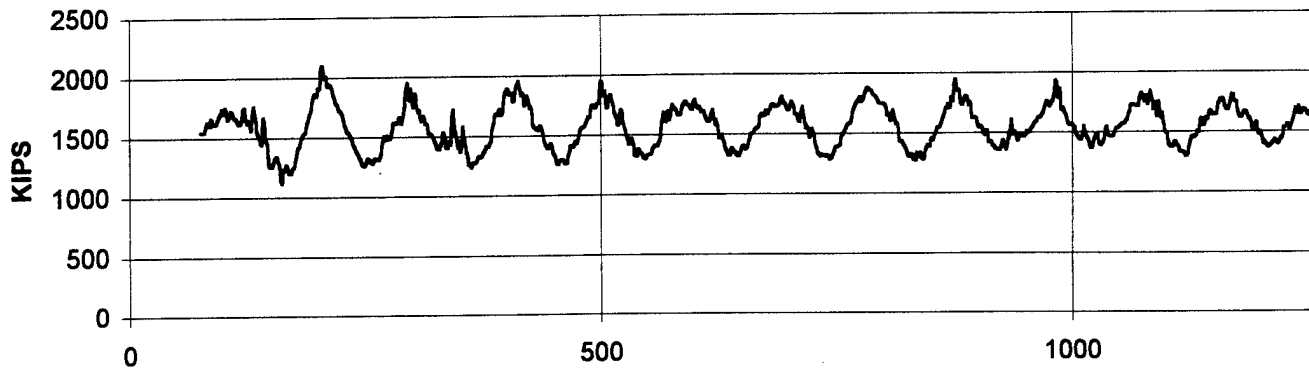
Filtered High Frequency Time History



TEST A608 - BUOY 1 TENSION

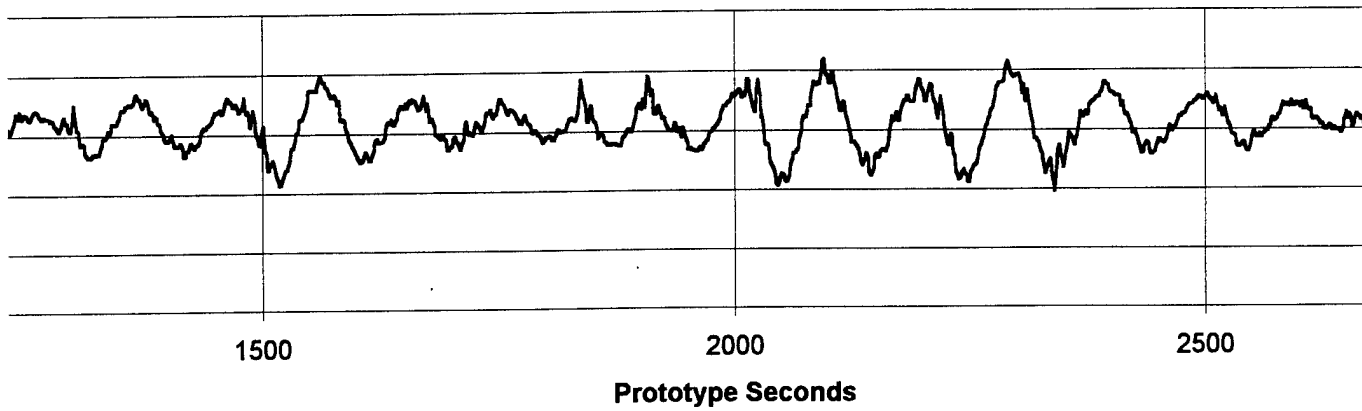


TEST A608 - BUOY 2 TENSION

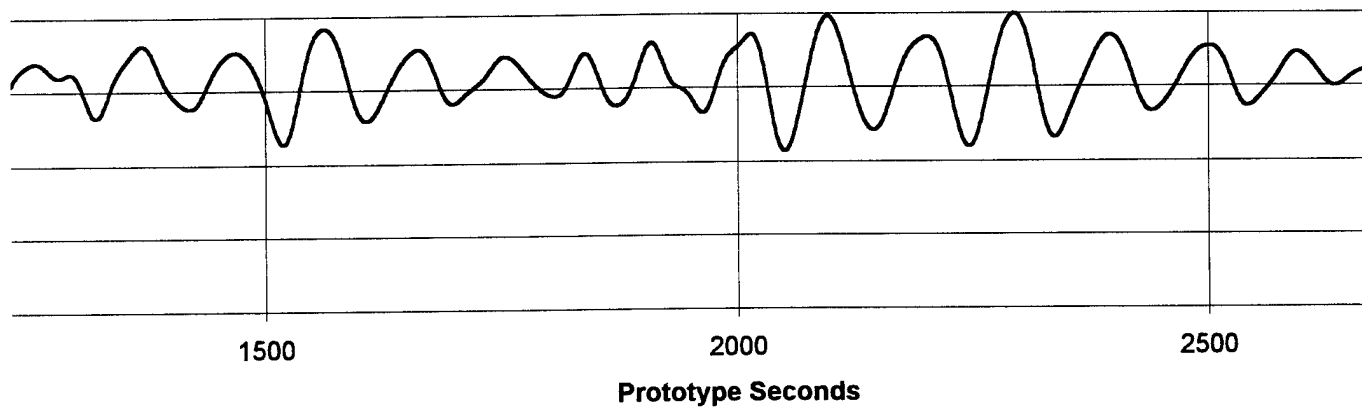


TEST A608 - BUOY 2 TENSION

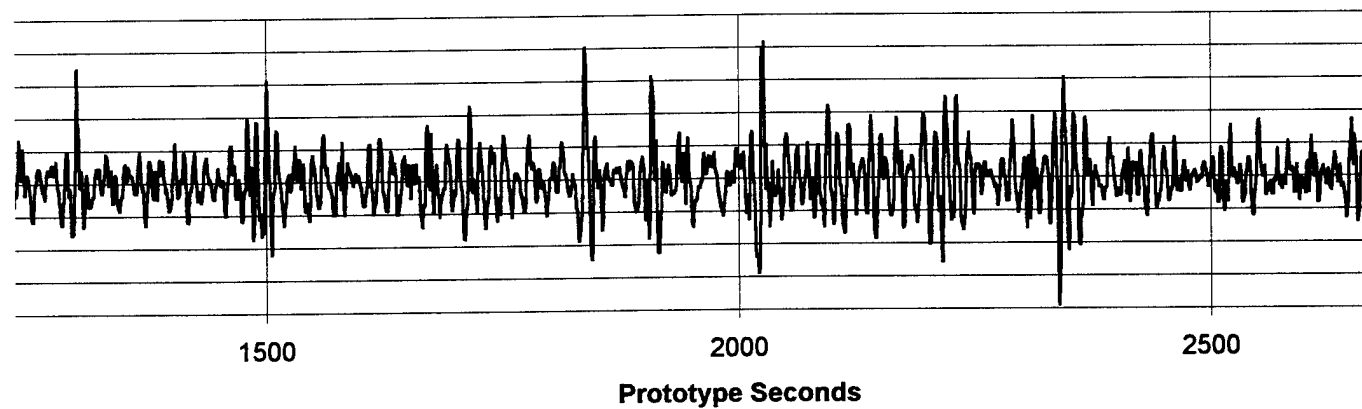
**Unfiltered Time History**



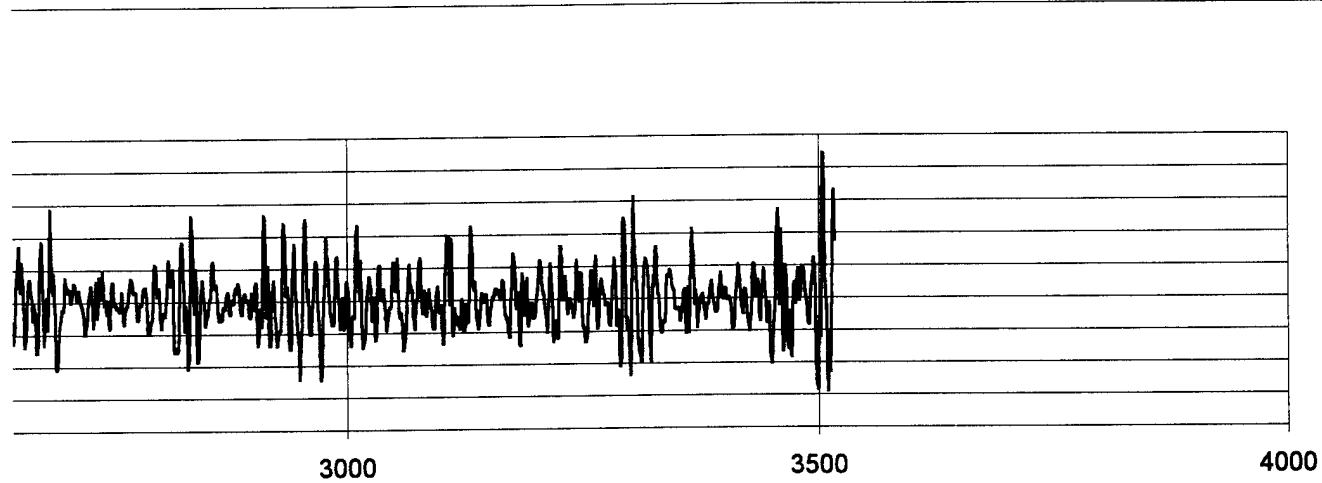
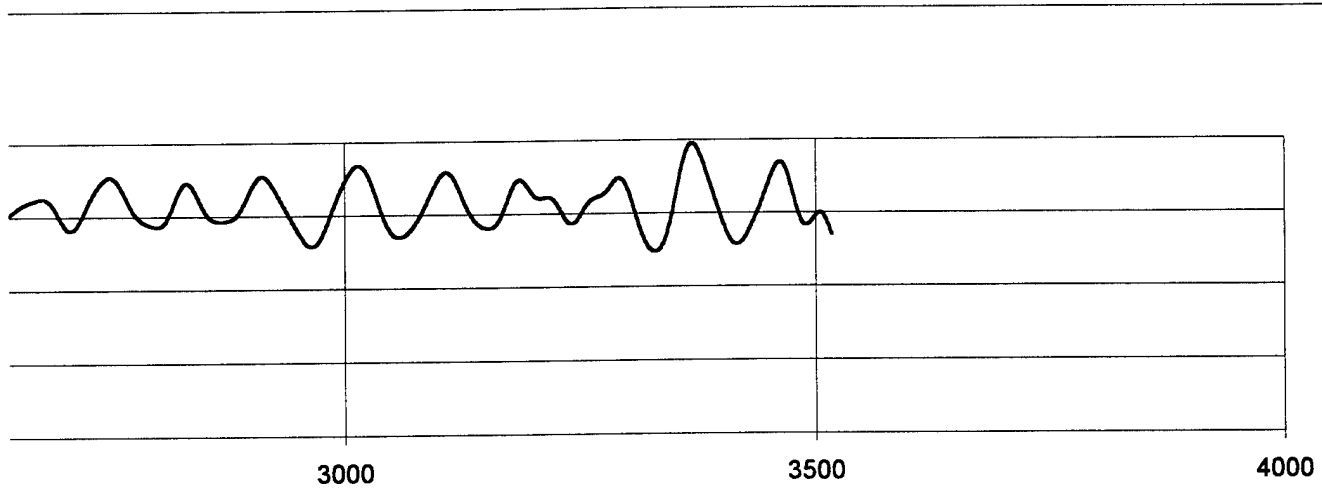
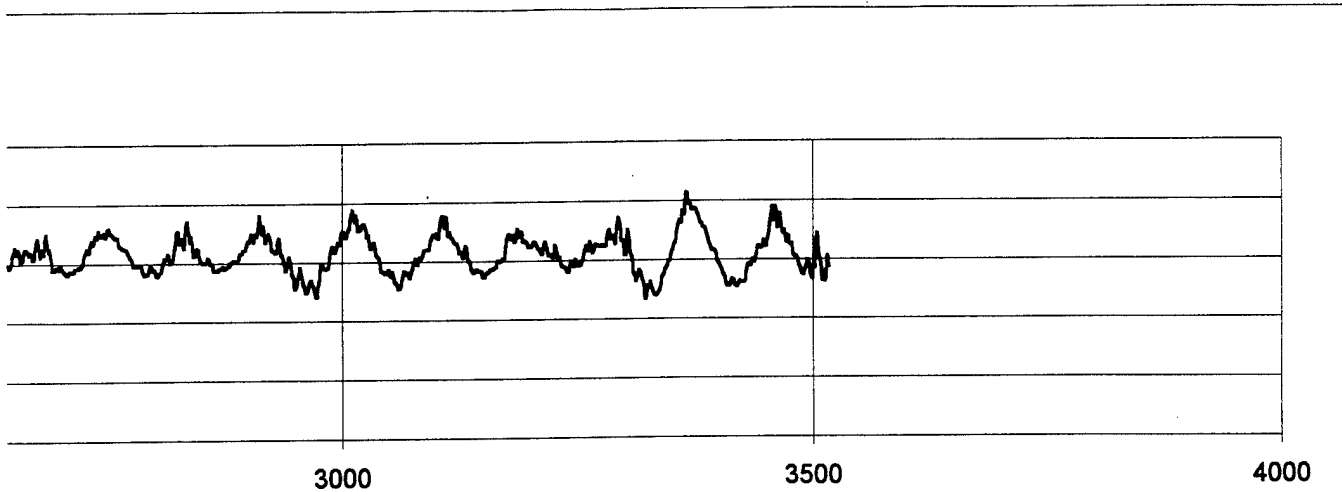
**Filtered Low Frequency Time History**



**Filtered High Frequency Time History**

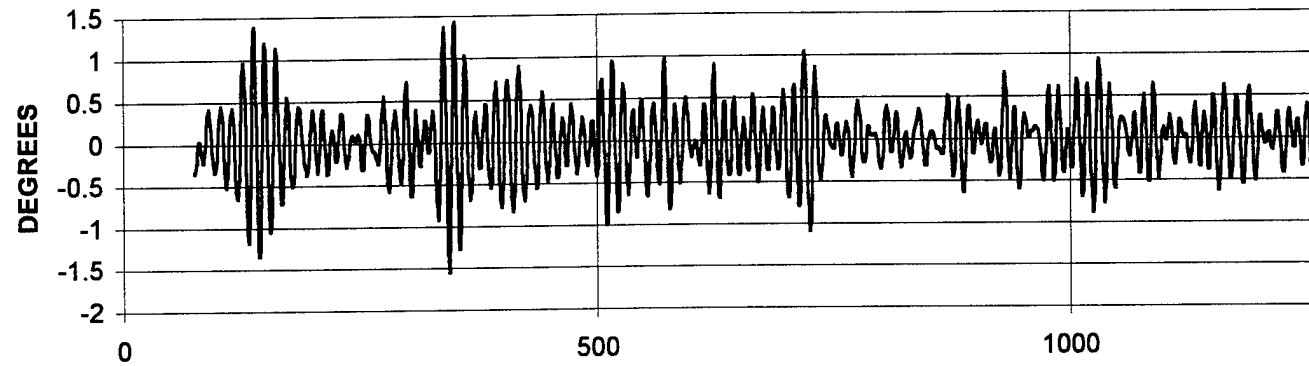
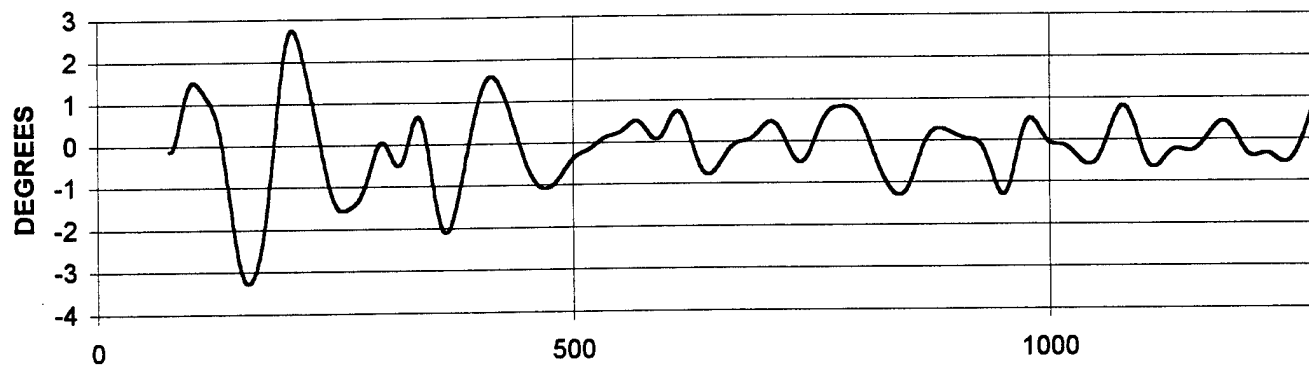
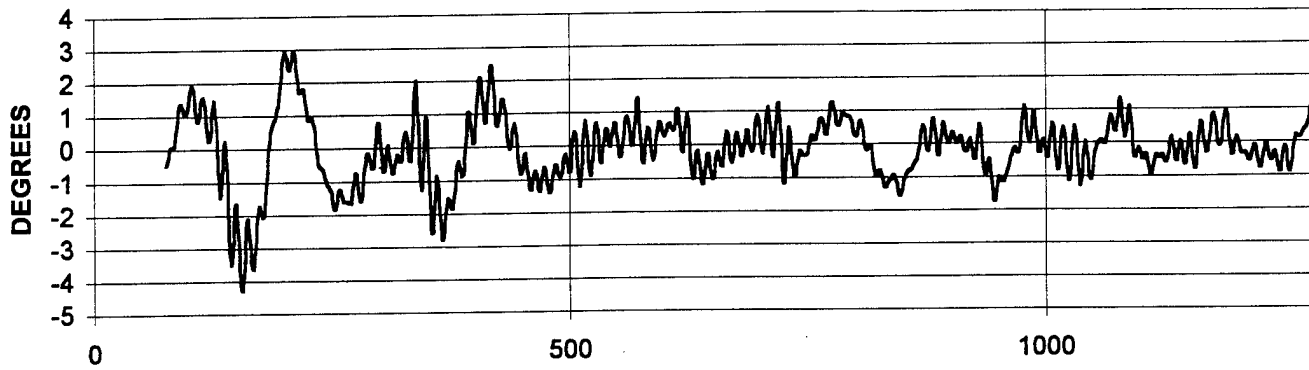


TEST A608 - BUOY 2 TENSION



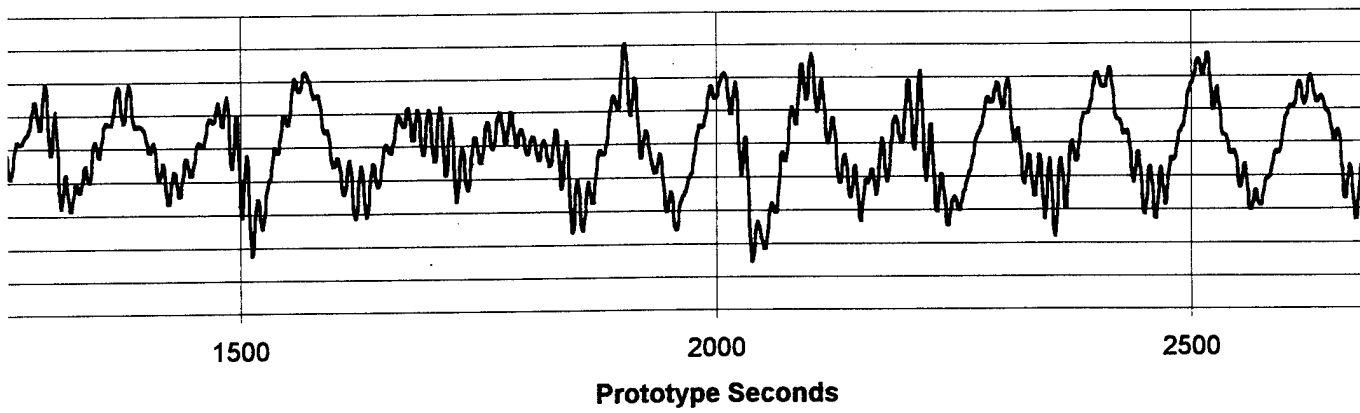


TEST A608 - PITCH

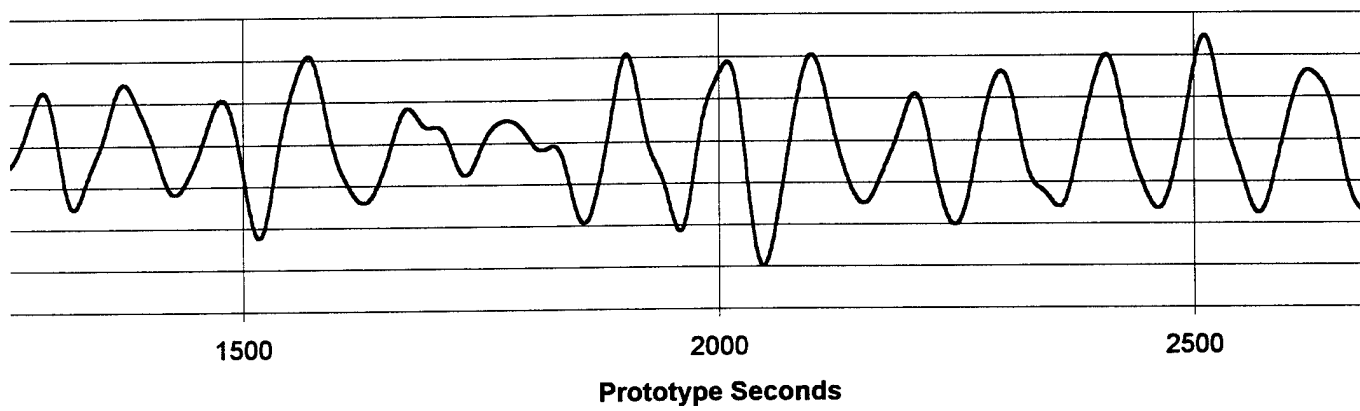


TEST A608 - PITCH

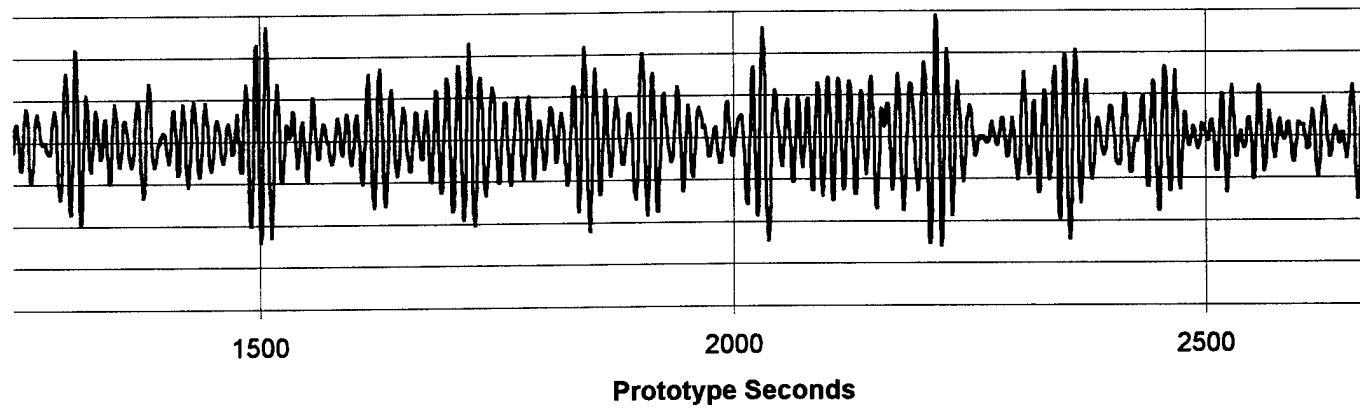
Unfiltered Time History



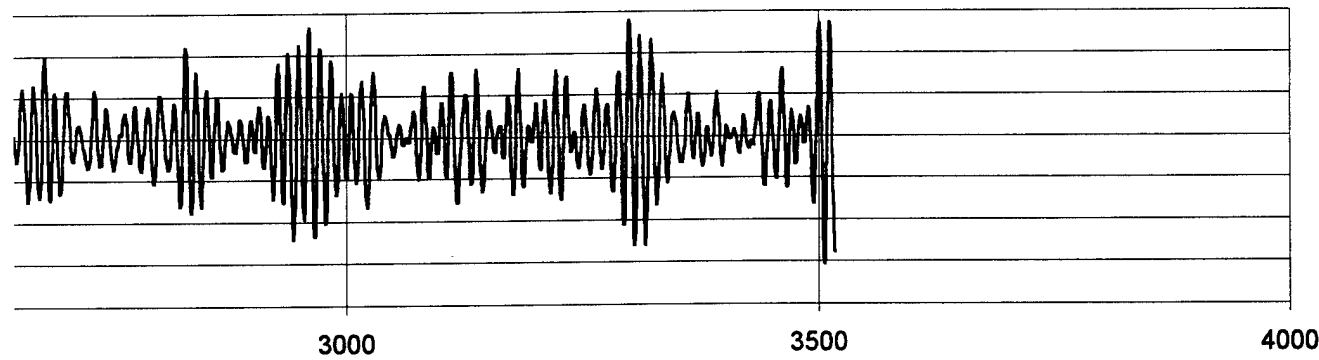
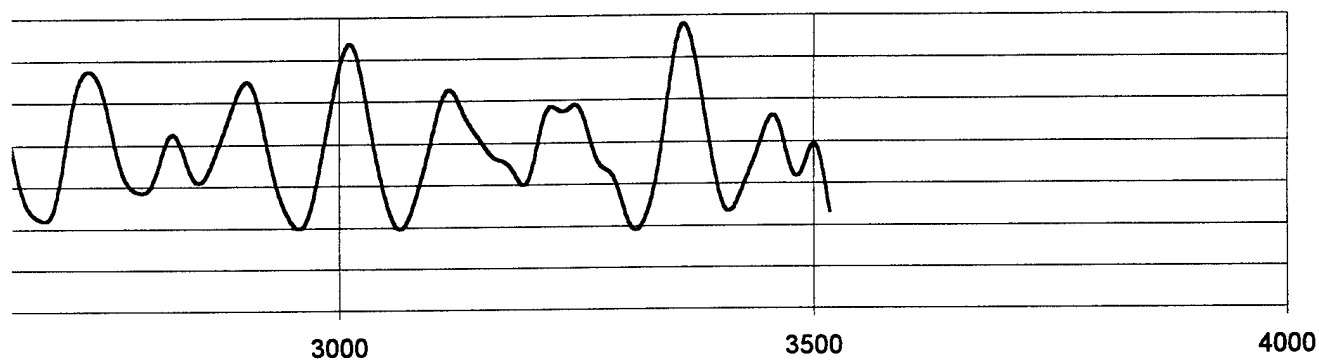
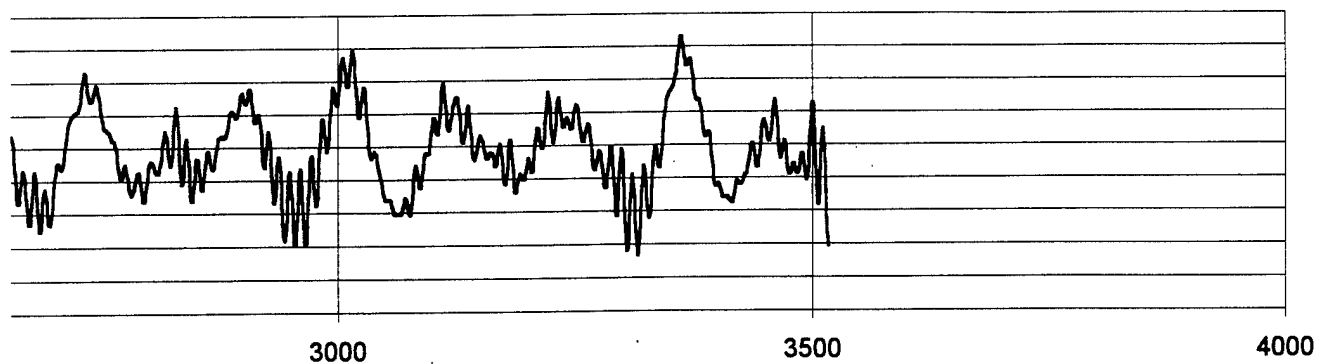
Filtered Low Frequency Time History



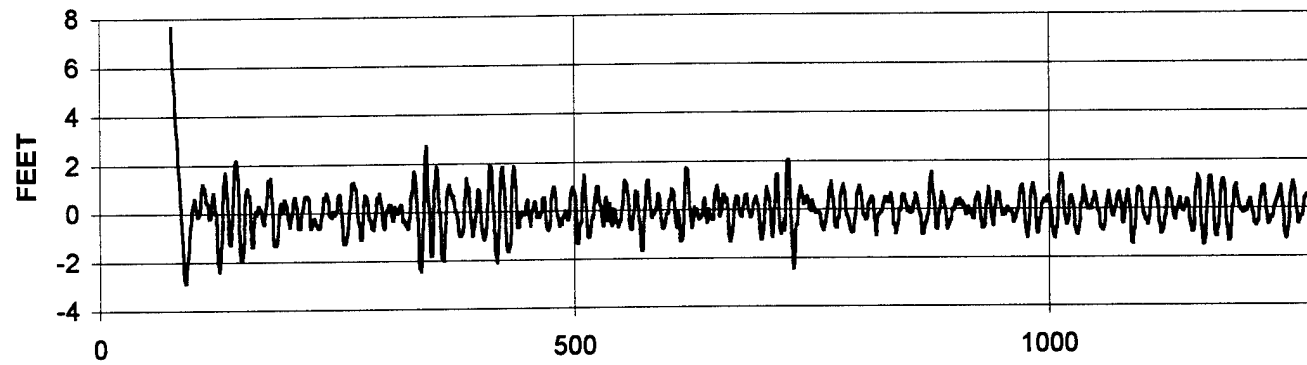
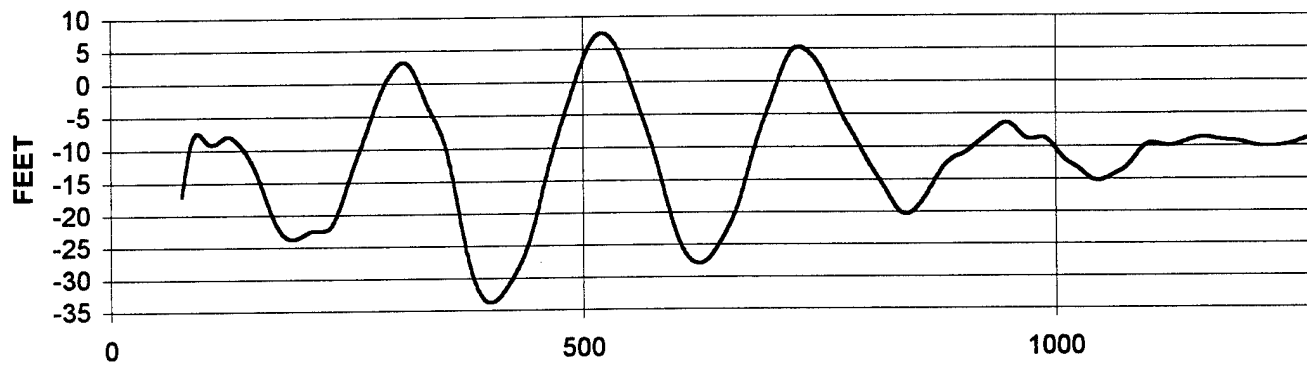
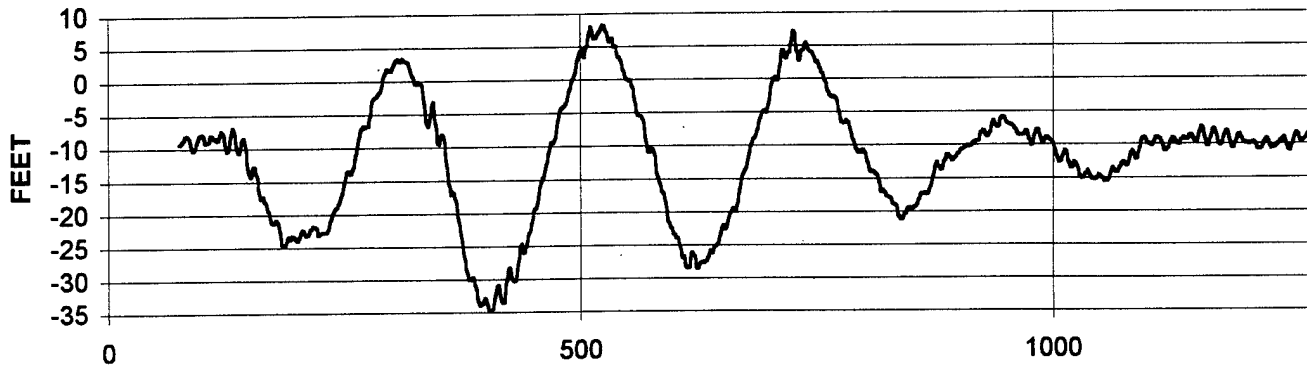
Filtered High Frequency Time History



TEST A608 - PITCH

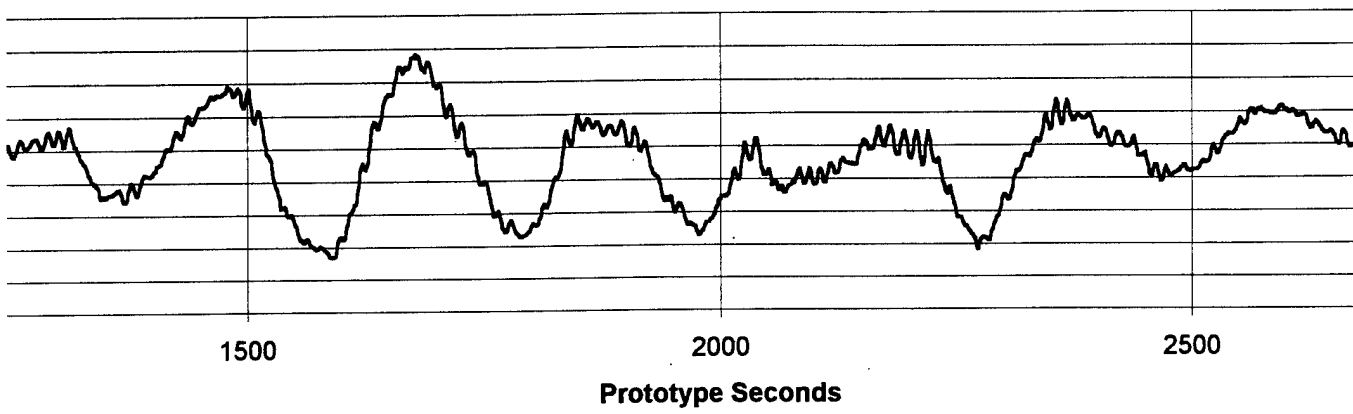


TEST A608 - PT SURGE

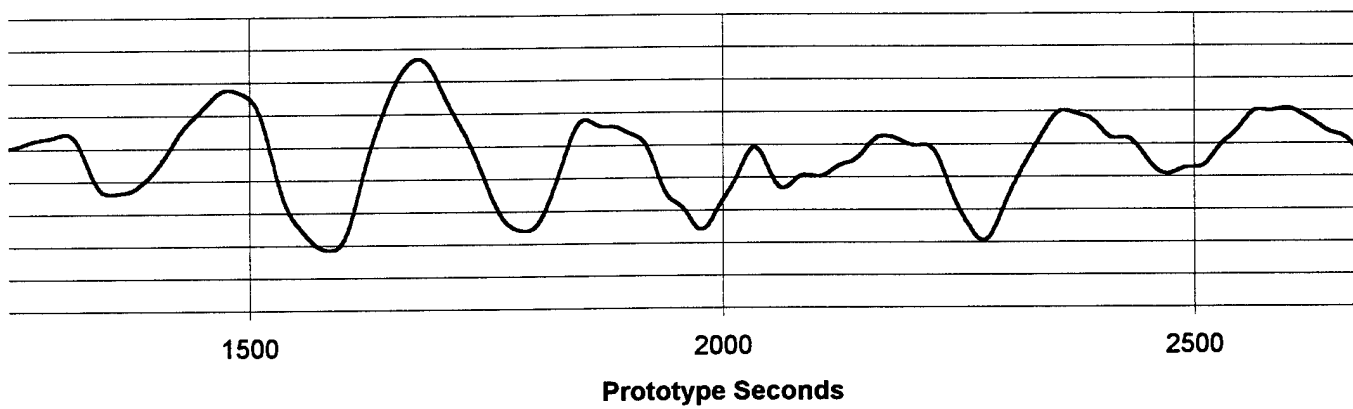


TEST A608 - PT SURGE

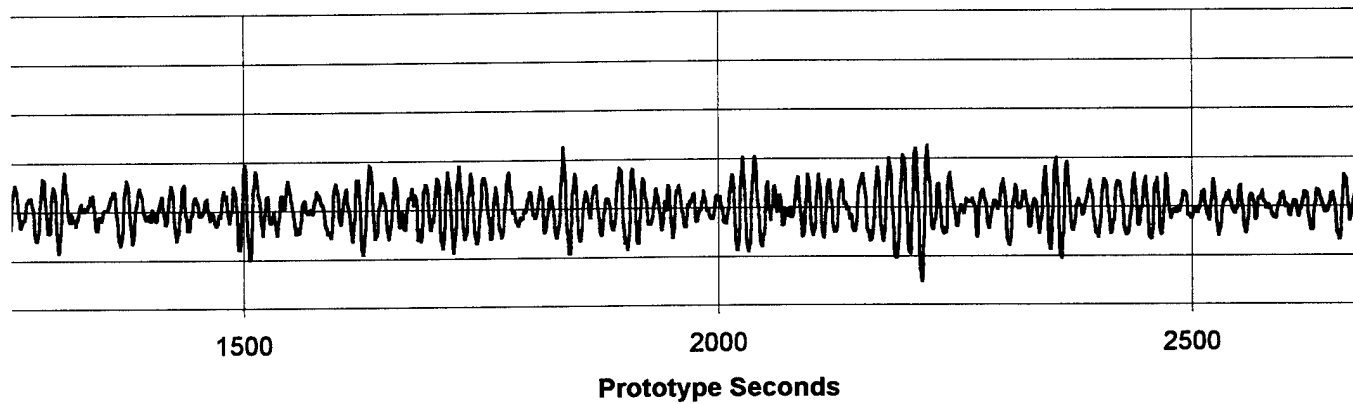
Unfiltered Time History



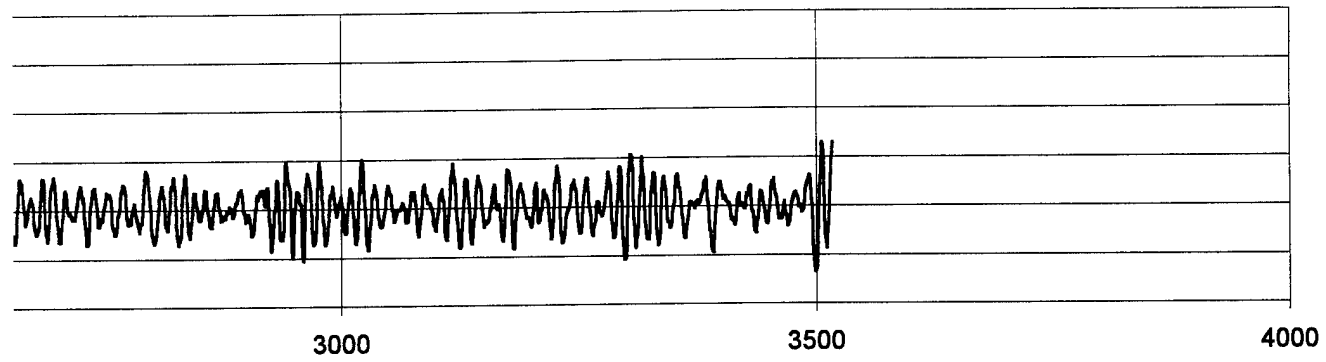
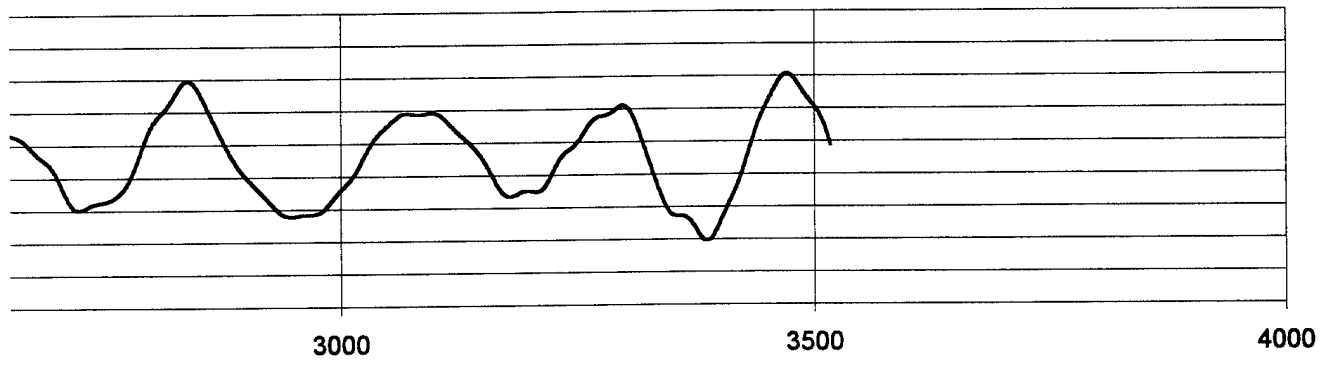
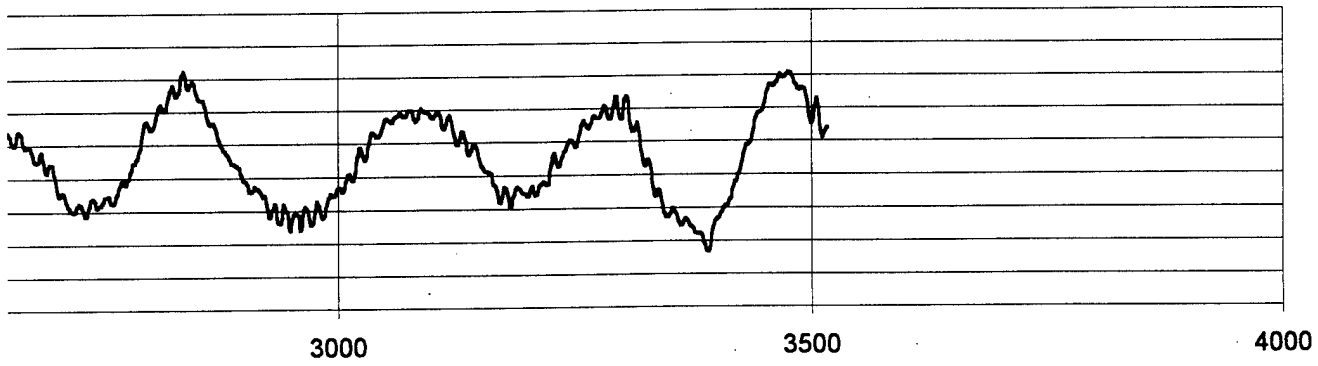
Filtered Low Frequency Time History



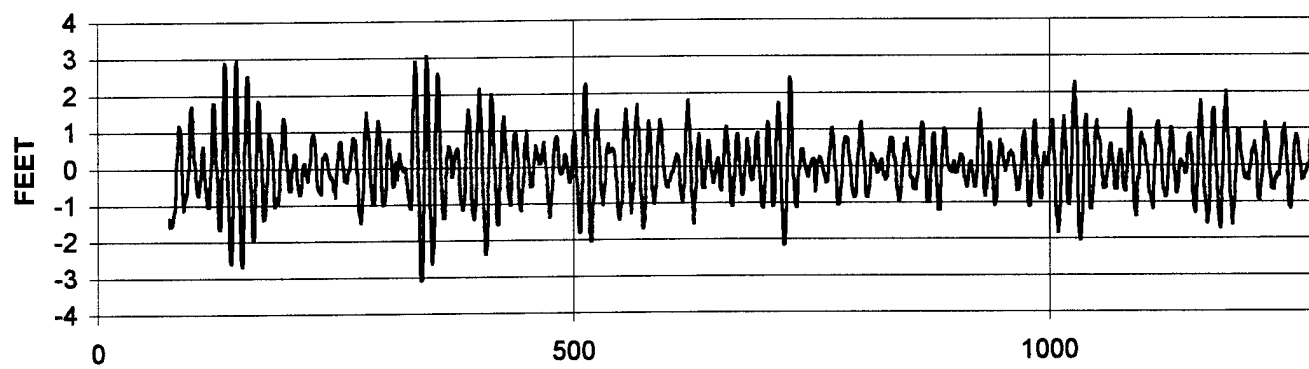
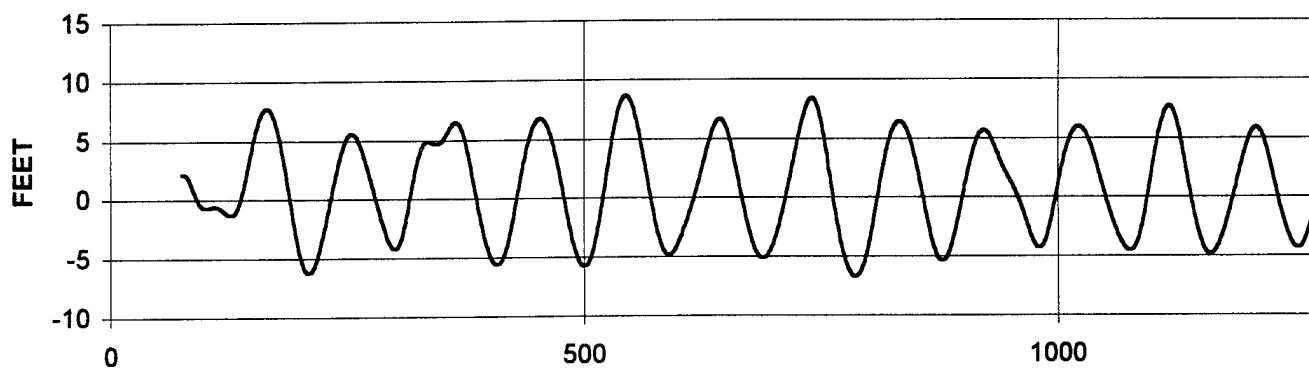
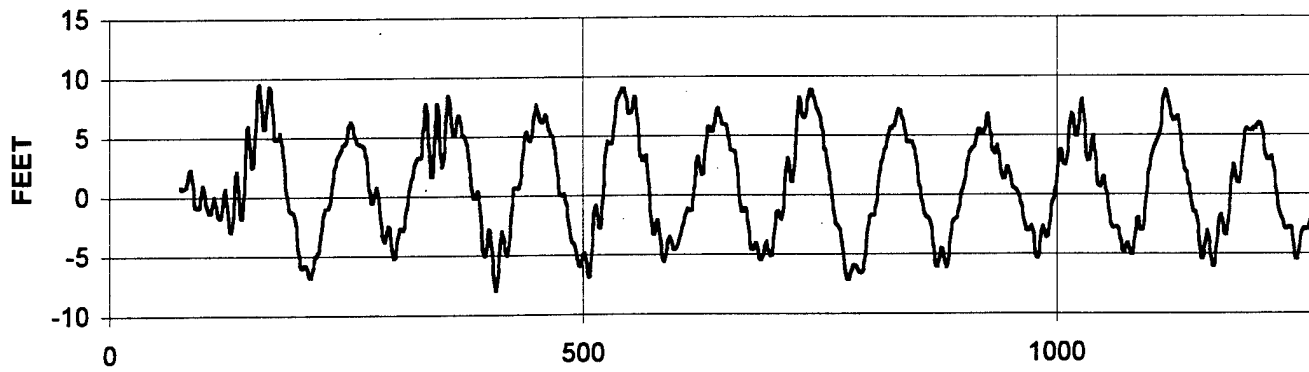
Filtered High Frequency Time History



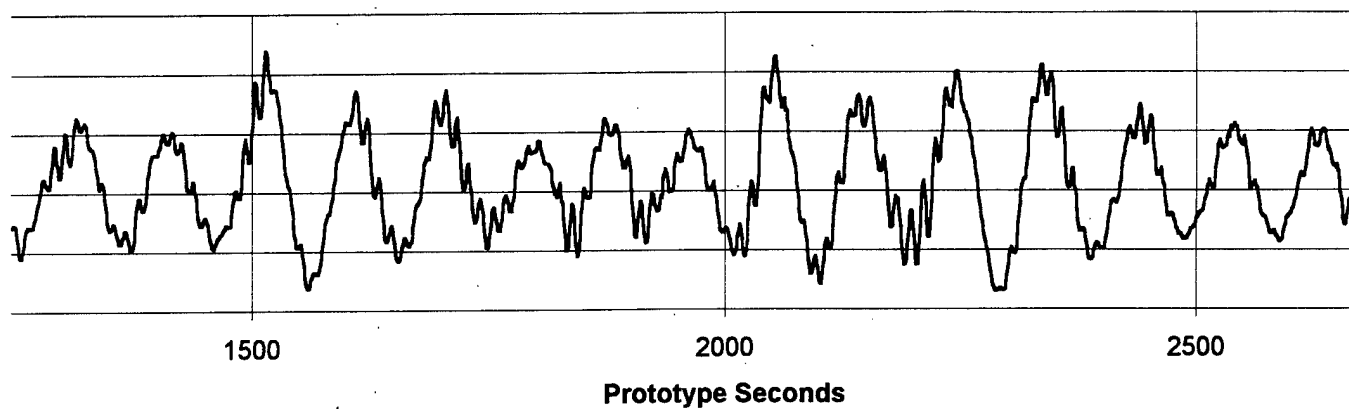
TEST A608 - PT SURGE



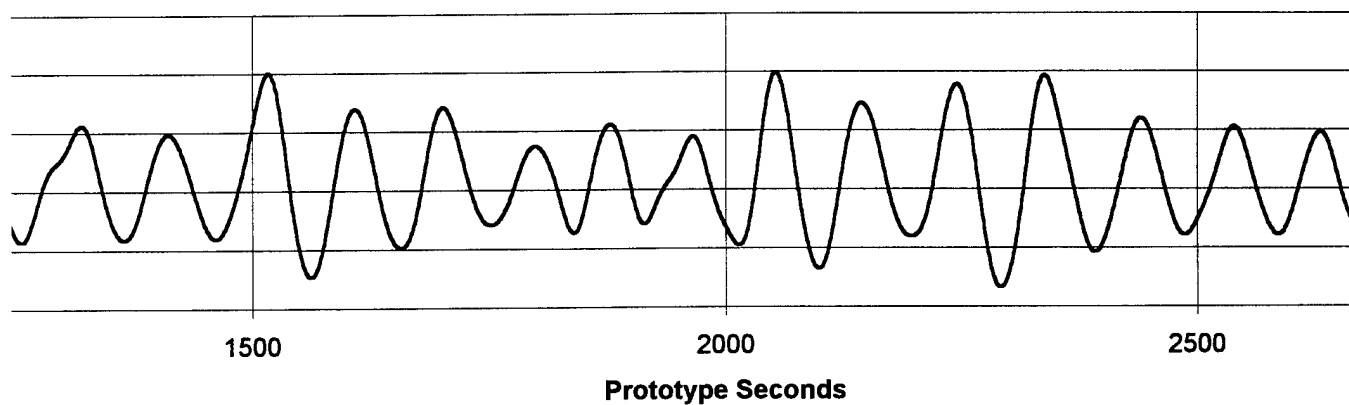
TEST A608 - PT HEAVE



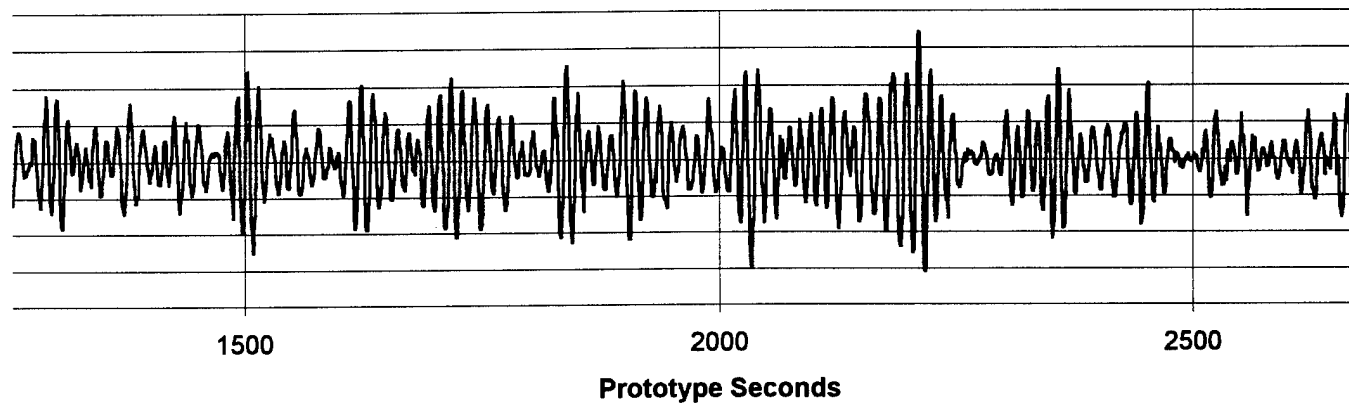
**Unfiltered Time History**



**Filtered Low Frequency Time History**

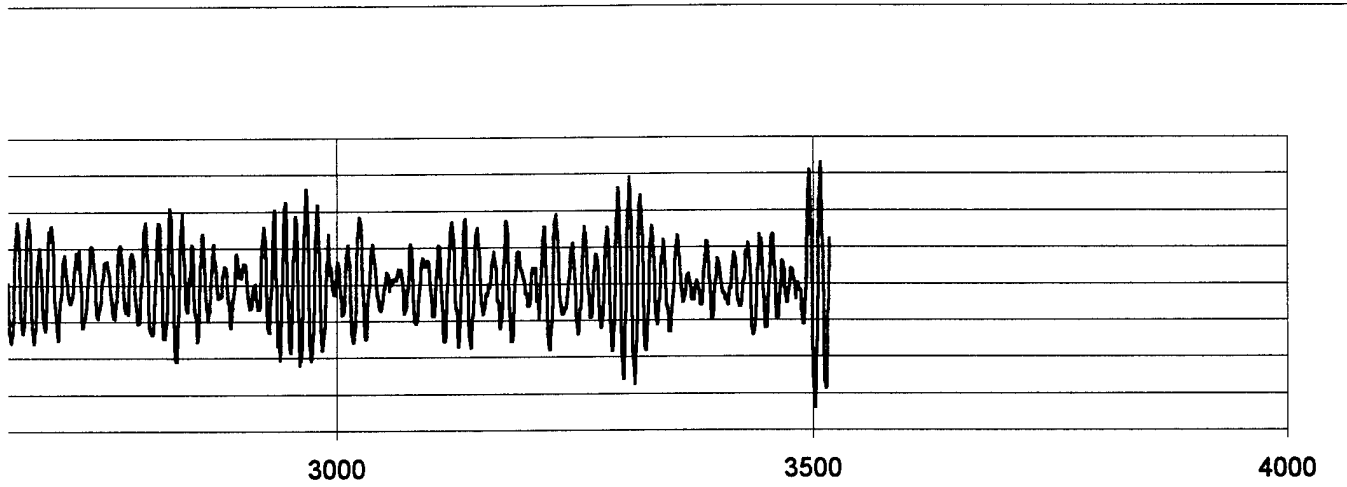
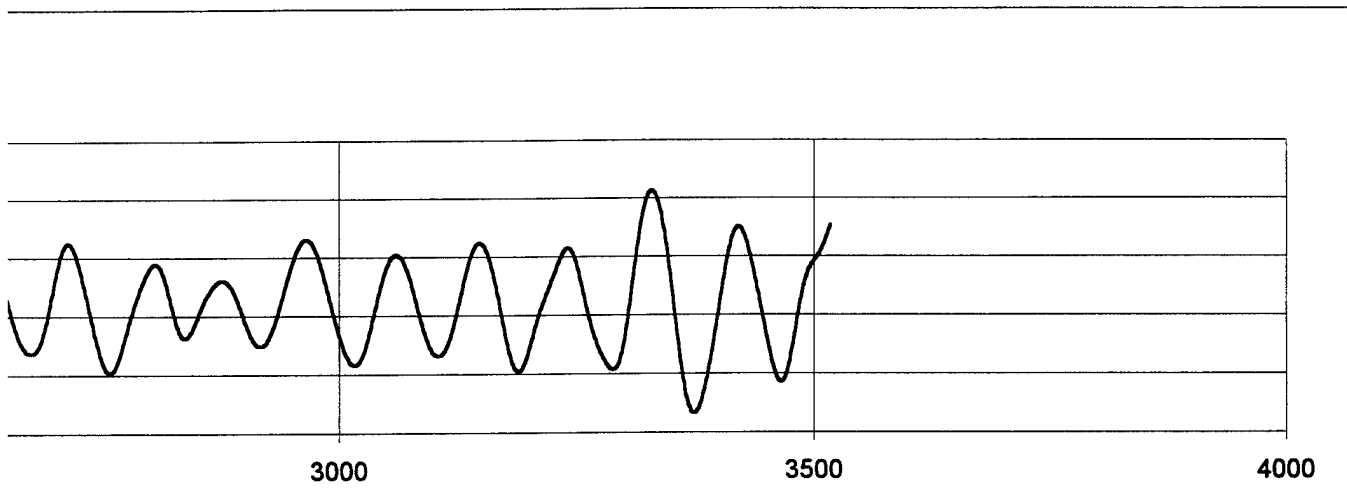
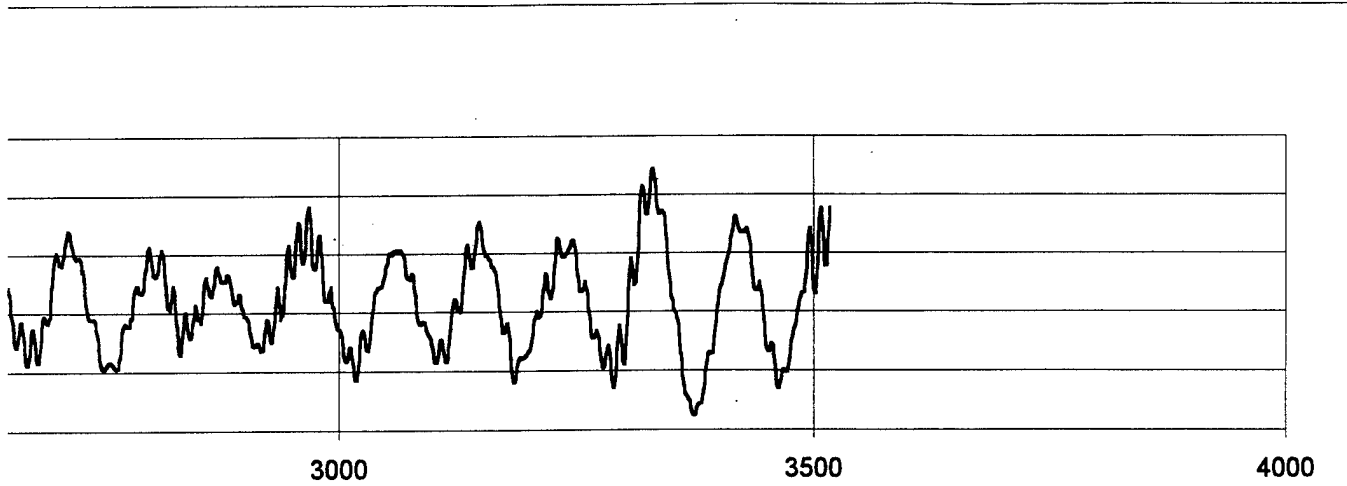


**Filtered High Frequency Time History**

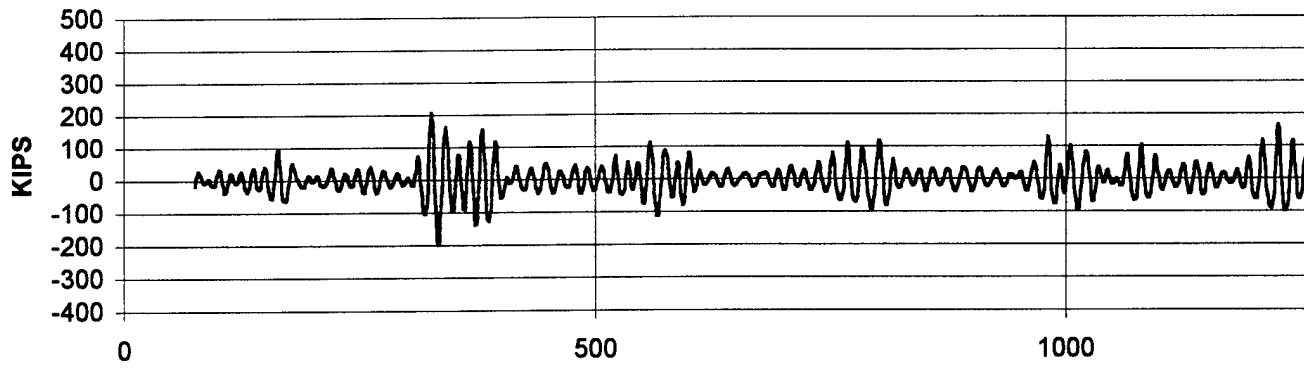
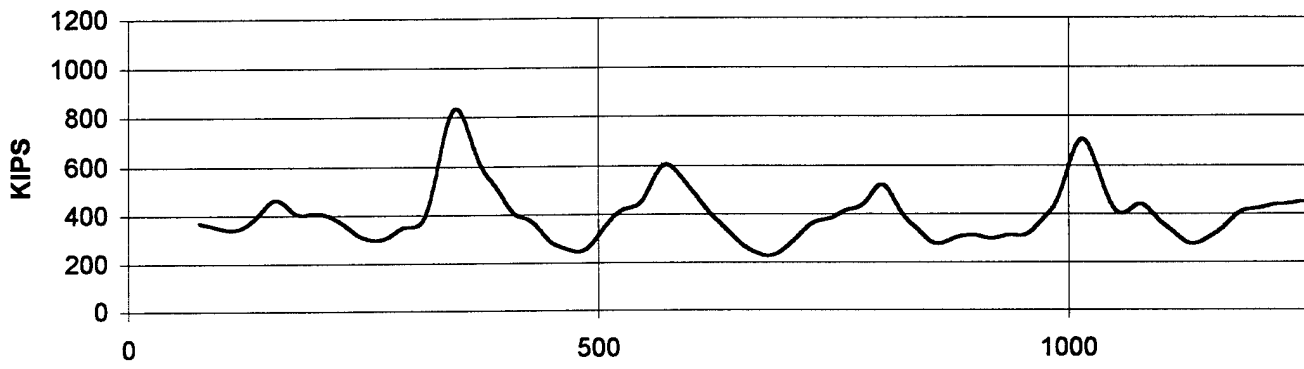
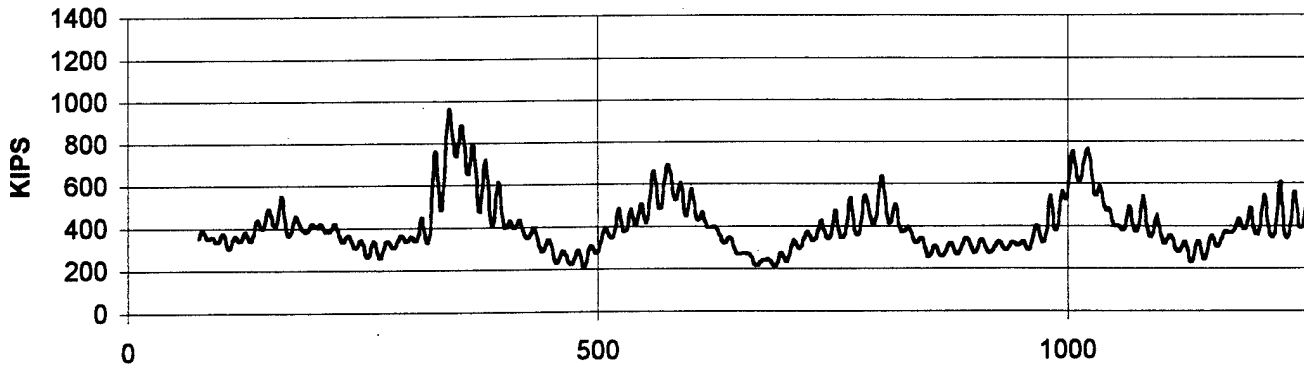




TEST A608 - PT HEAVE

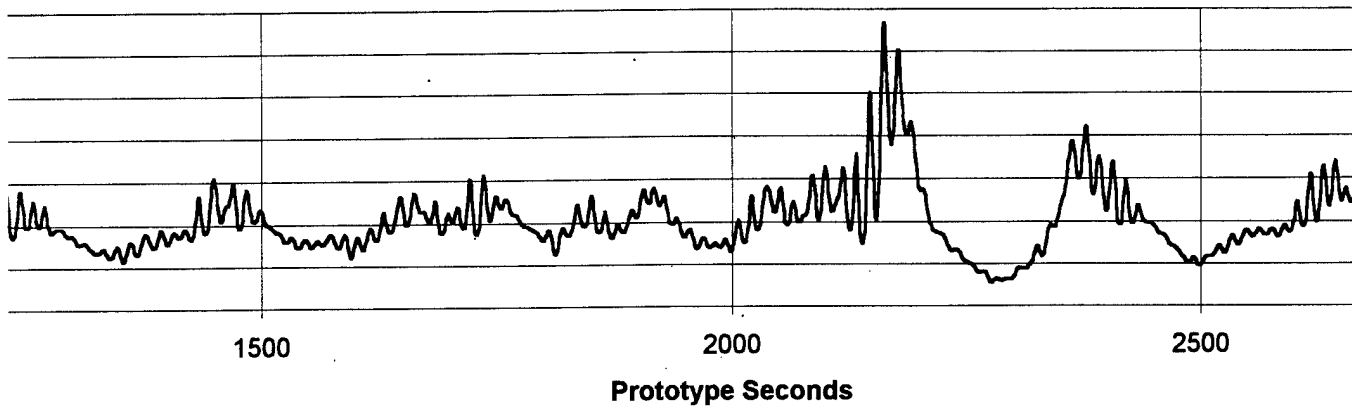


TEST A609 - ML\_1 TENSION

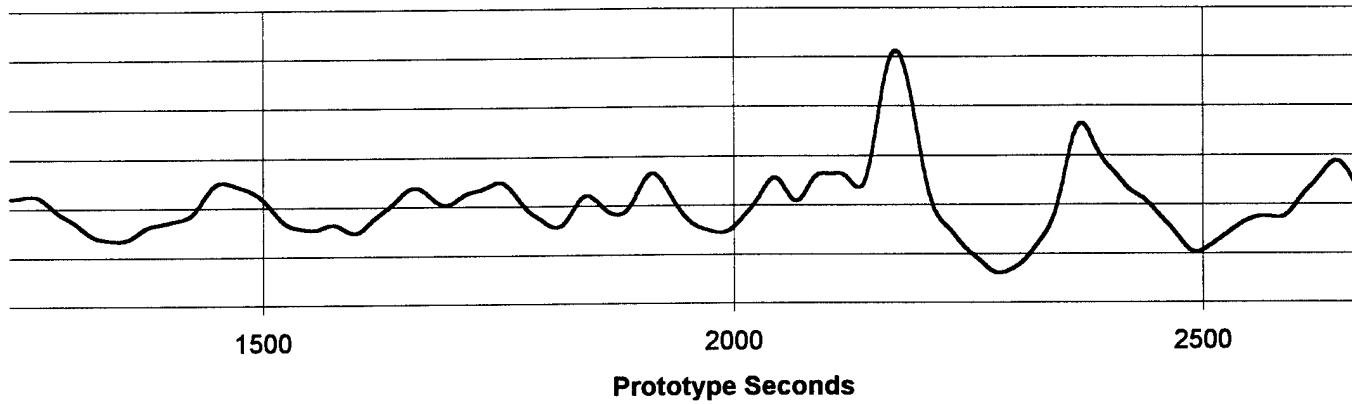


TEST A609 - ML\_1 TENSION

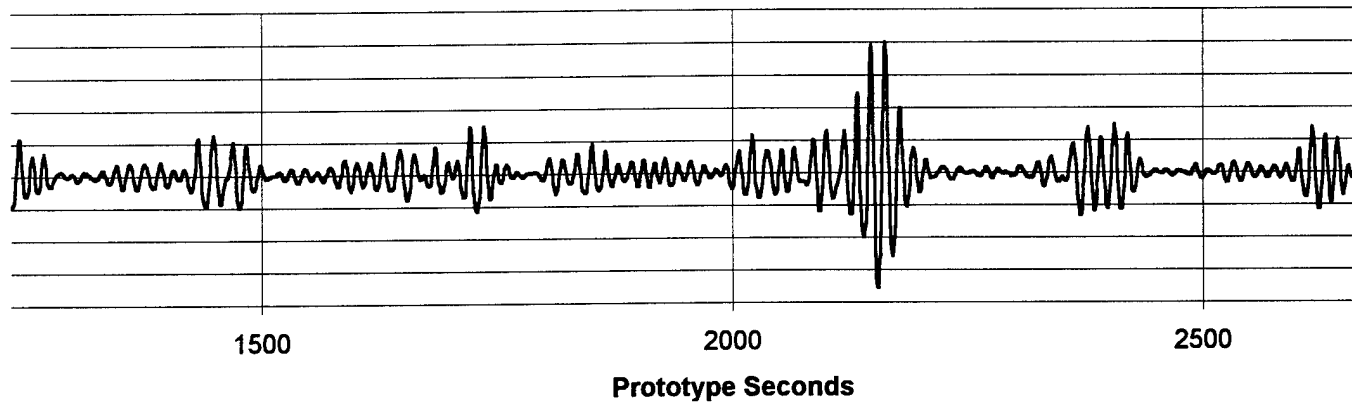
Unfiltered Time History



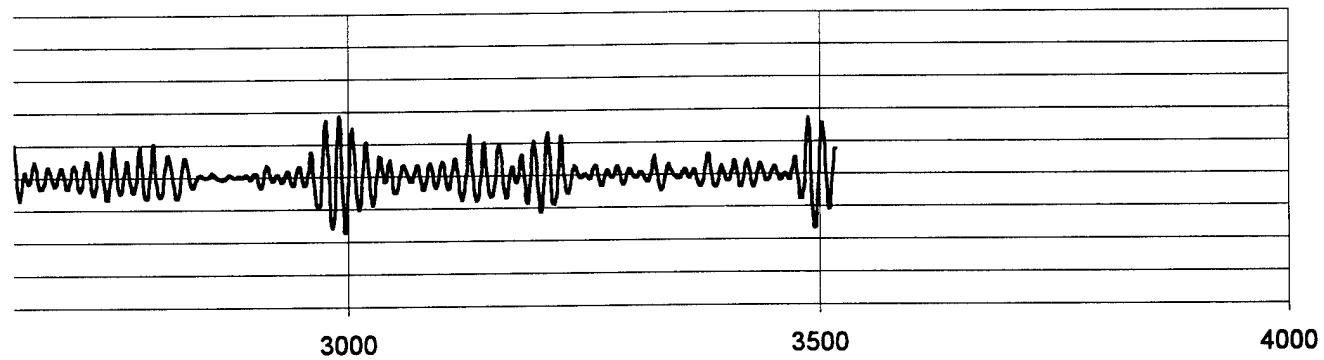
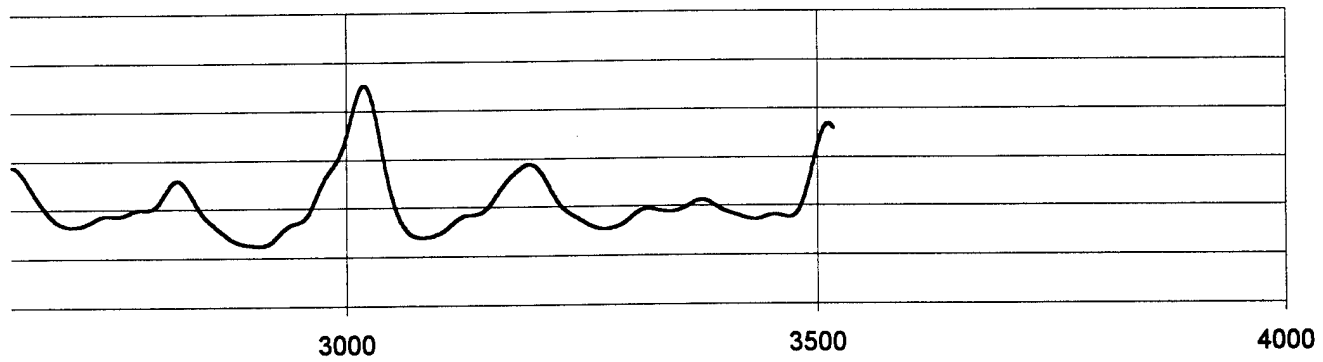
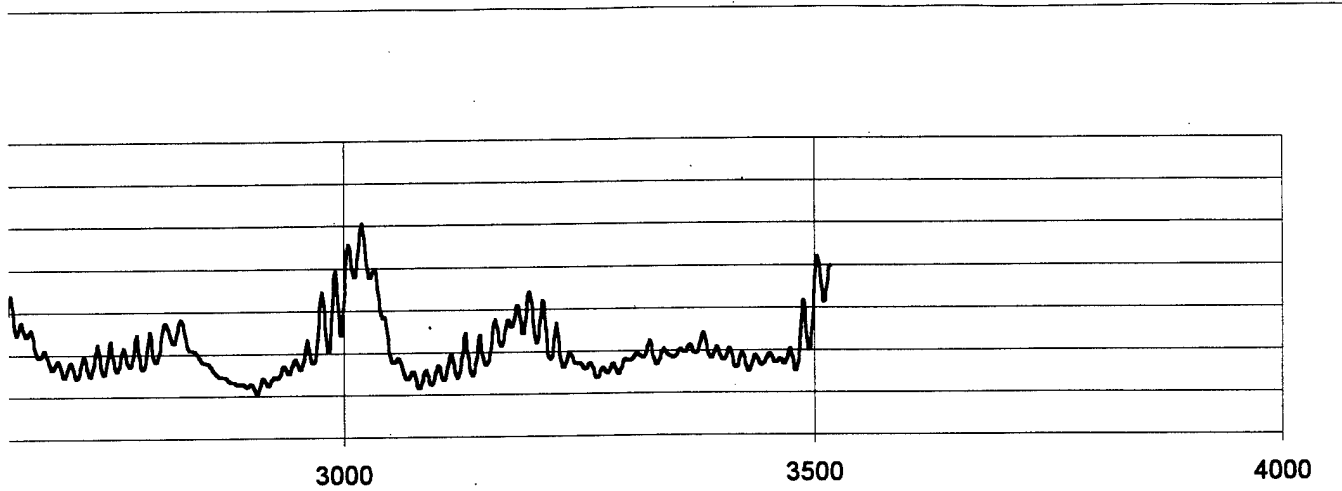
Filtered Low Frequency Time History



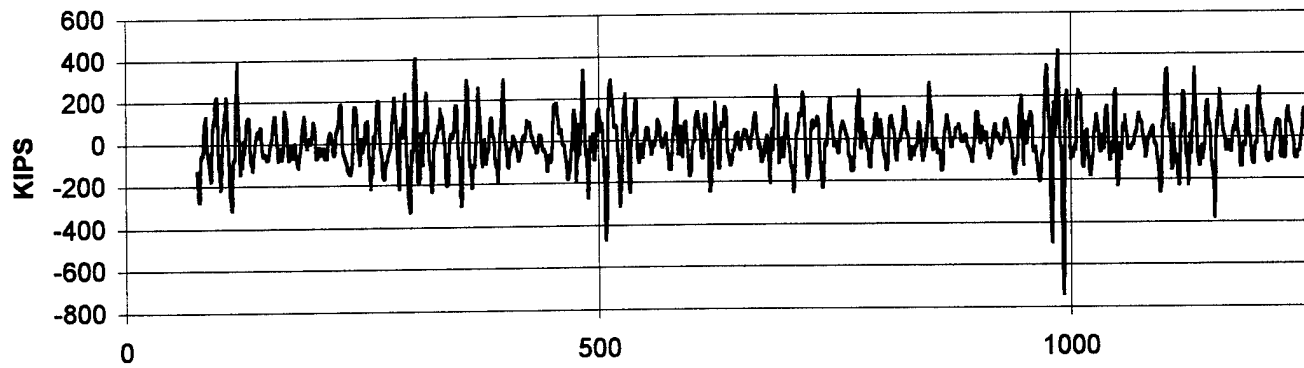
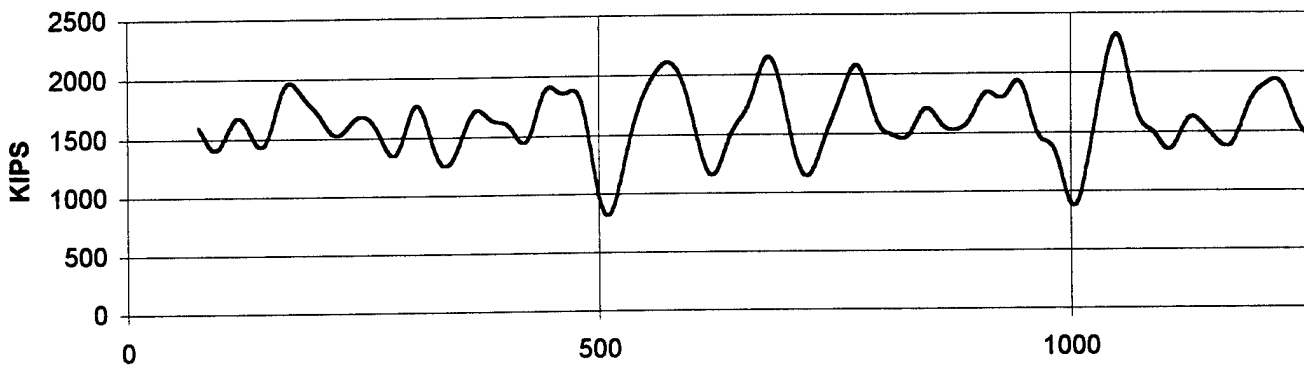
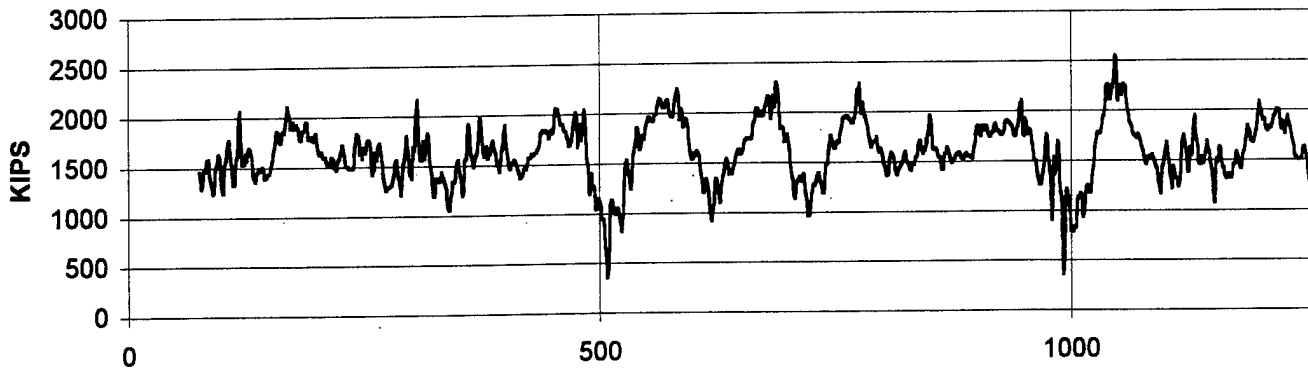
Filtered High Frequency Time History



TEST A609 - ML\_1 TENSION

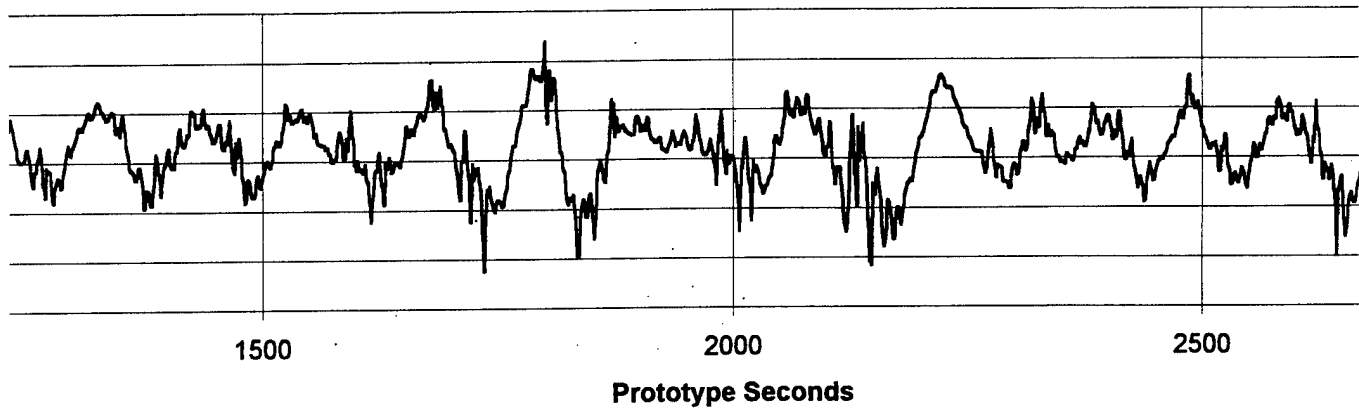


TEST A609 - BUOY 1 TENSION

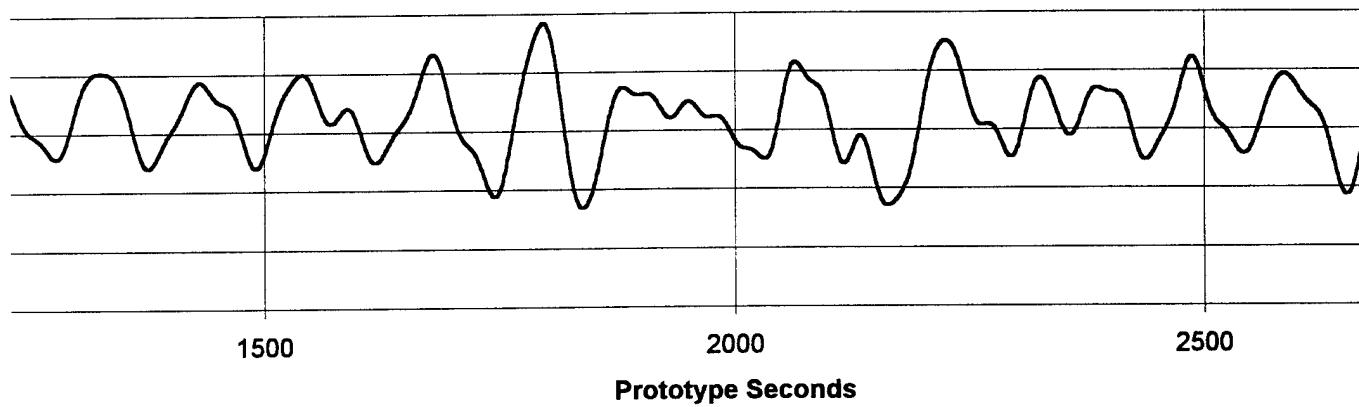


TEST A609 - BUOY 1 TENSION

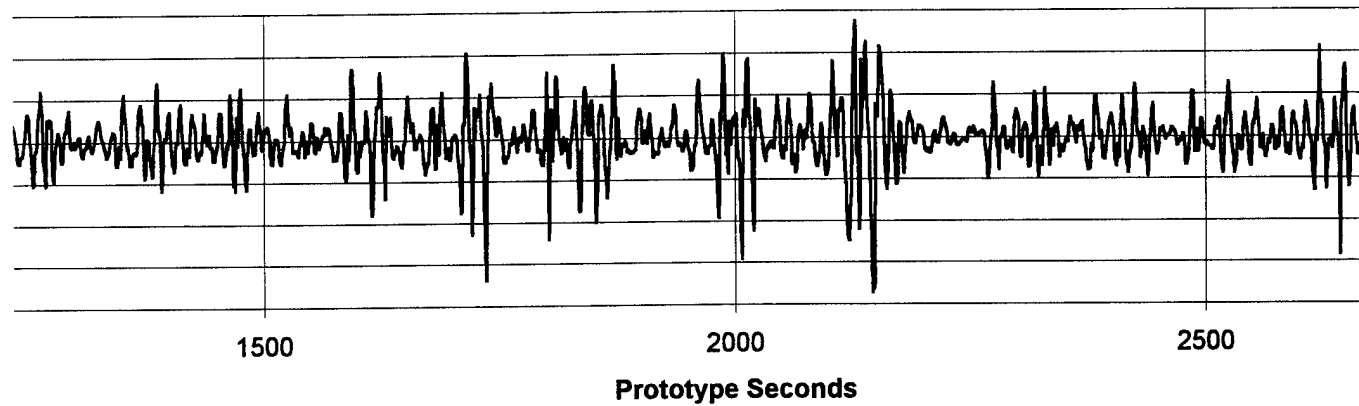
Unfiltered Time History



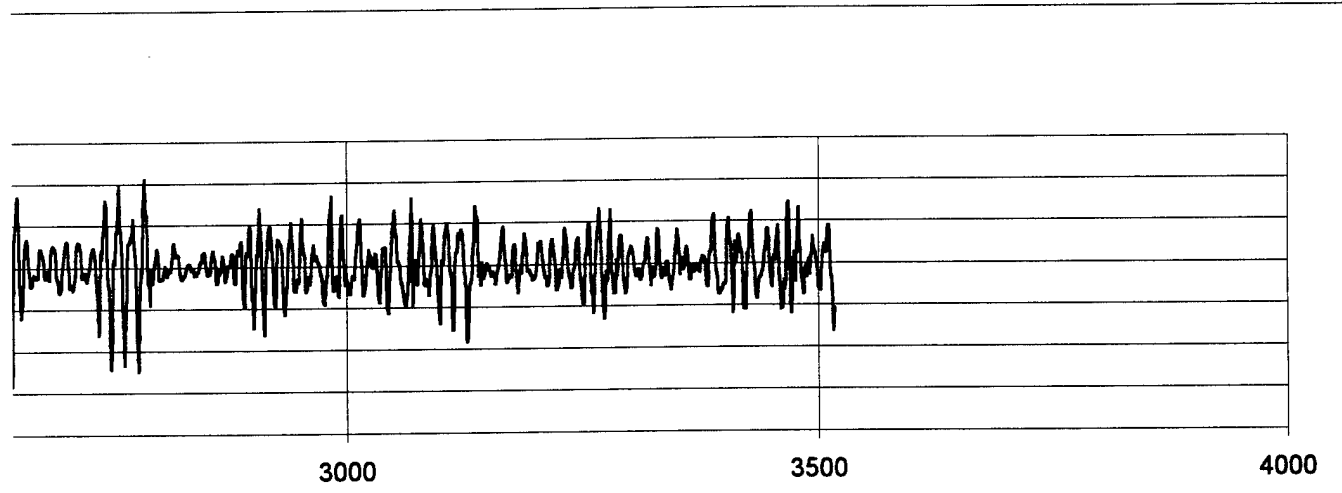
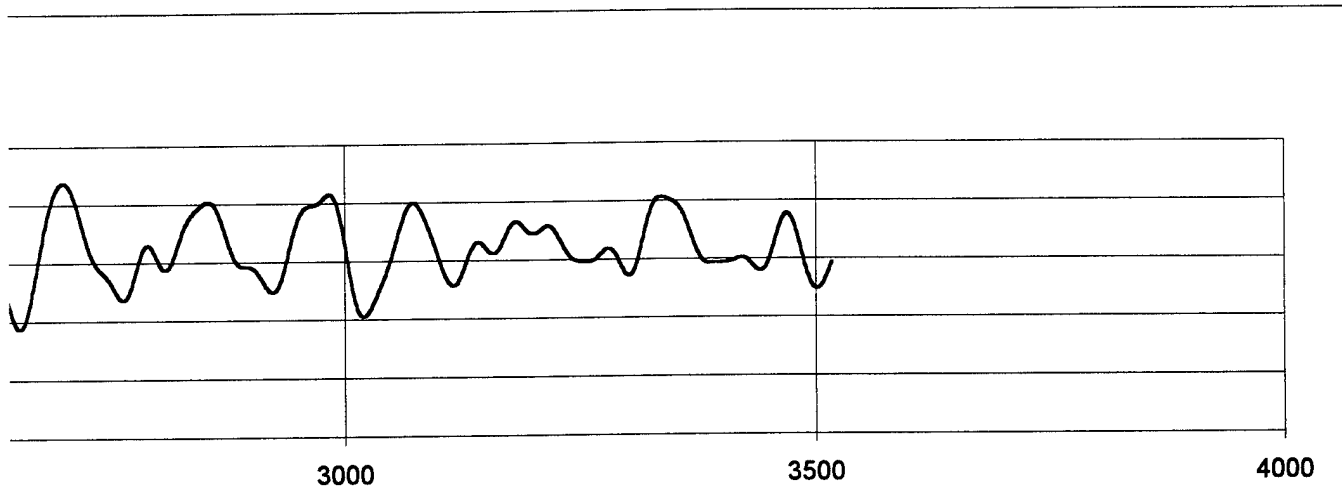
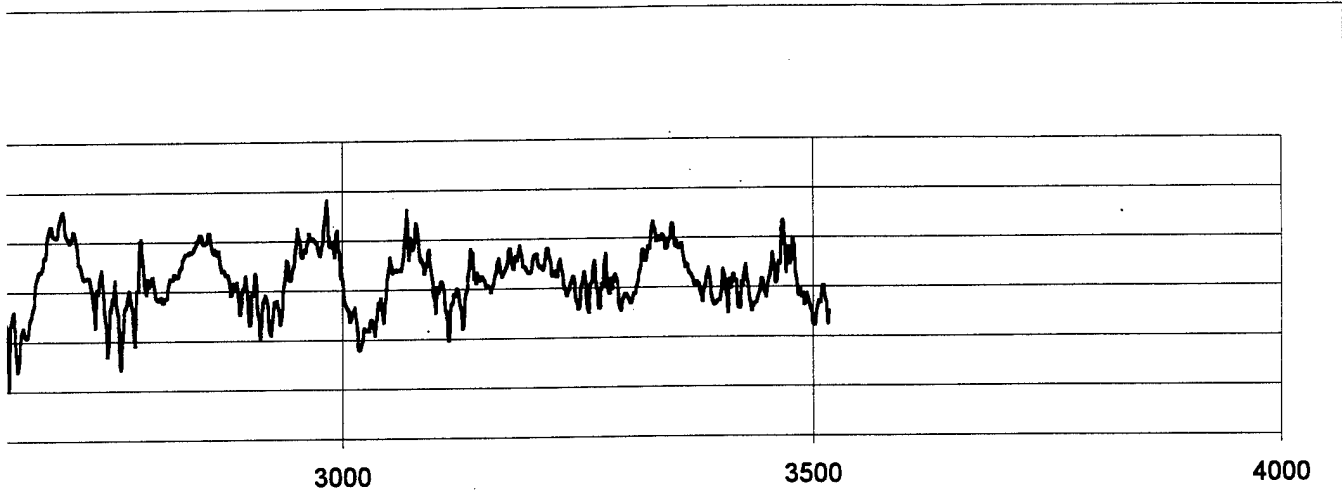
Filtered Low Frequency Time History



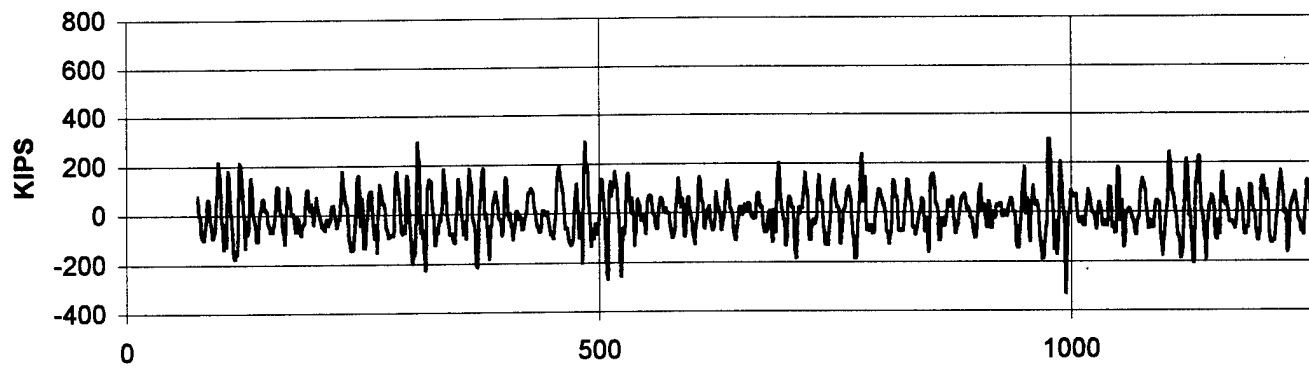
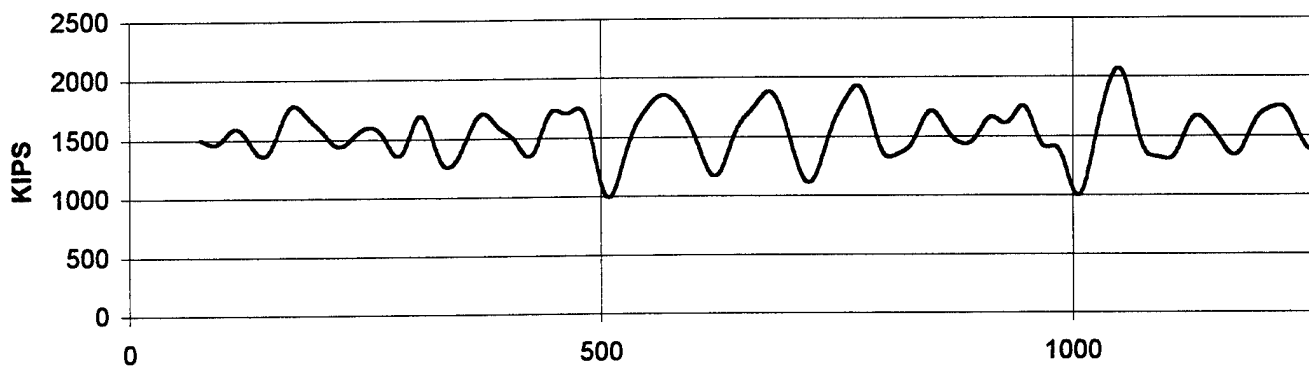
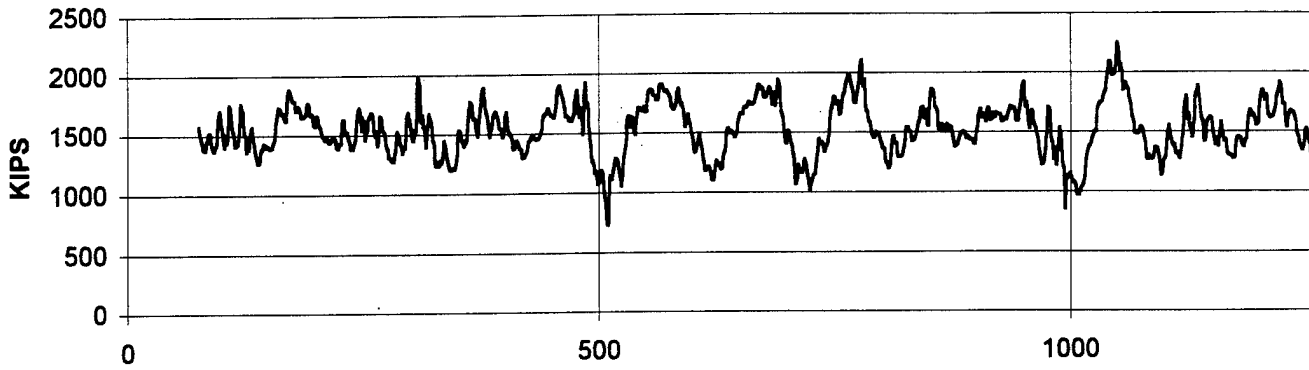
Filtered High Frequency Time History



TEST A609 - BUOY 1 TENSION



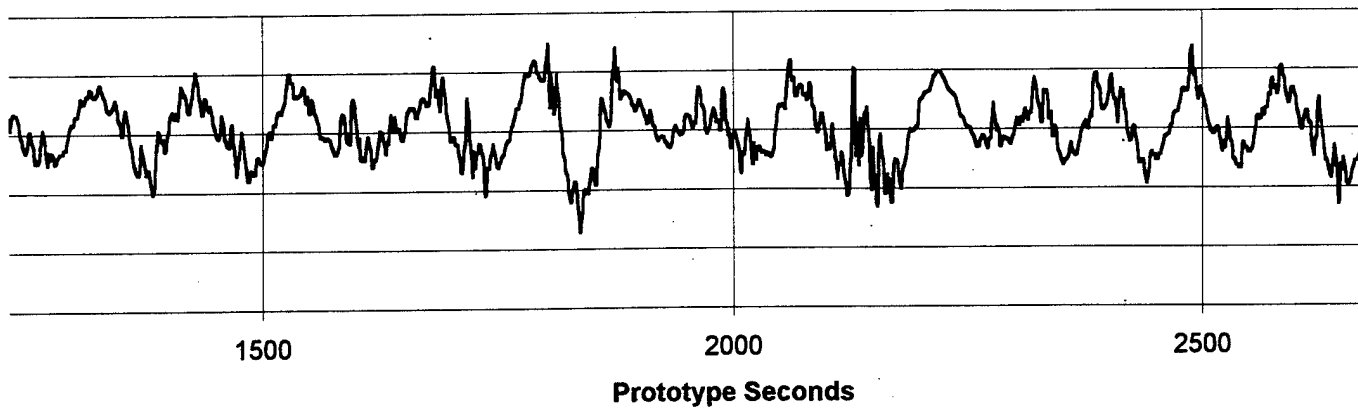
TEST A609 - BUOY 2 TENSION



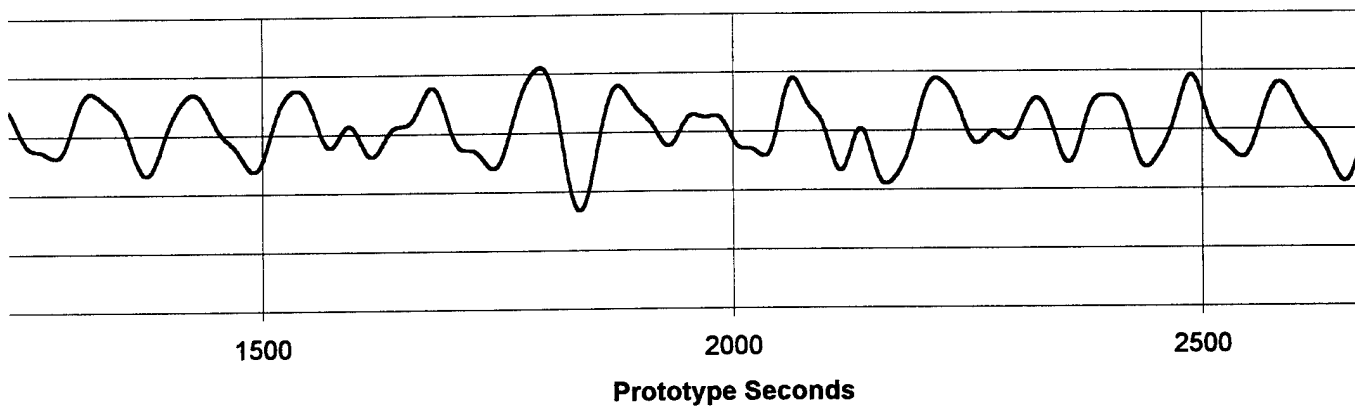


TEST A609 - BUOY 2 TENSION

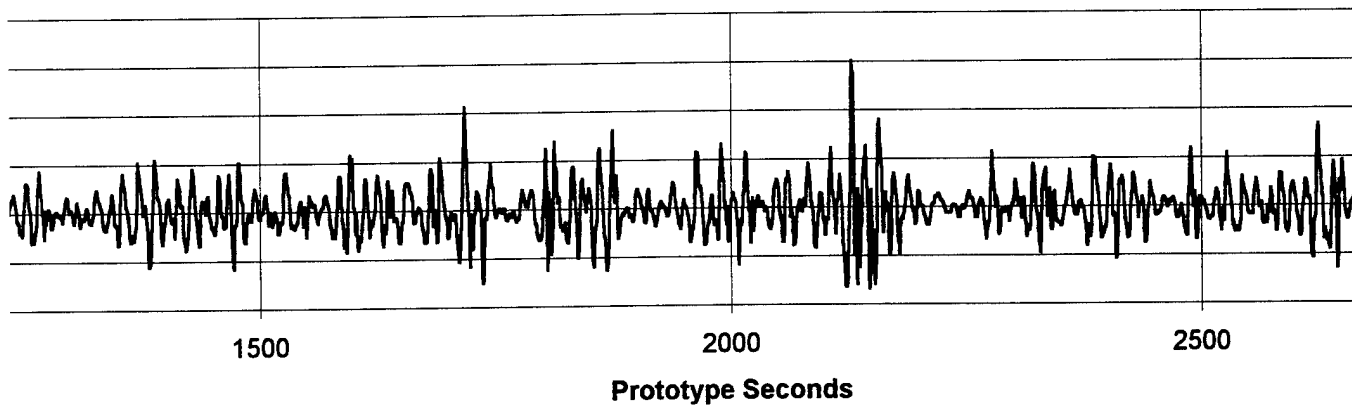
Unfiltered Time History



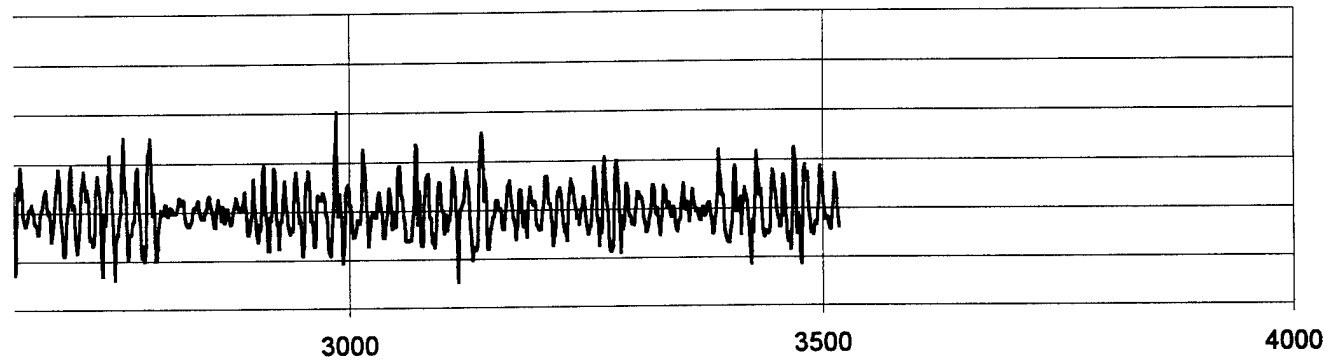
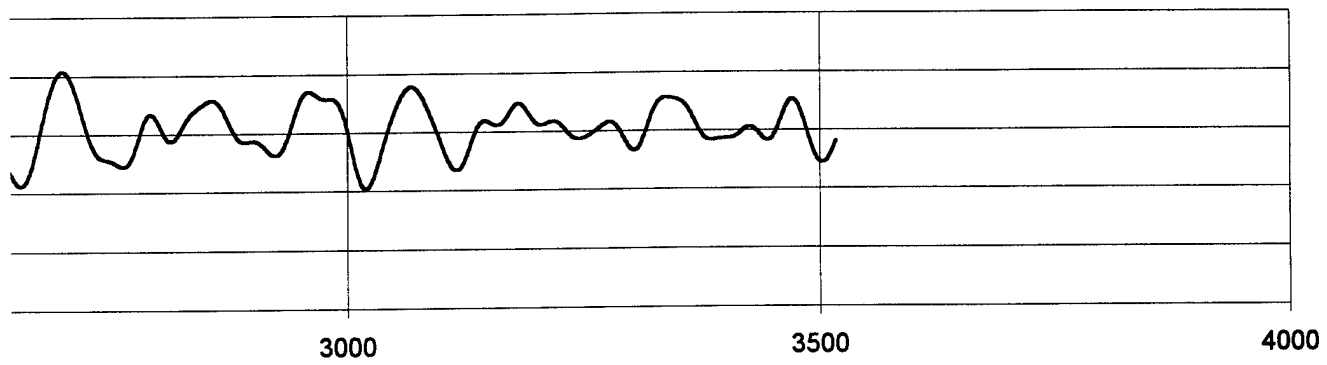
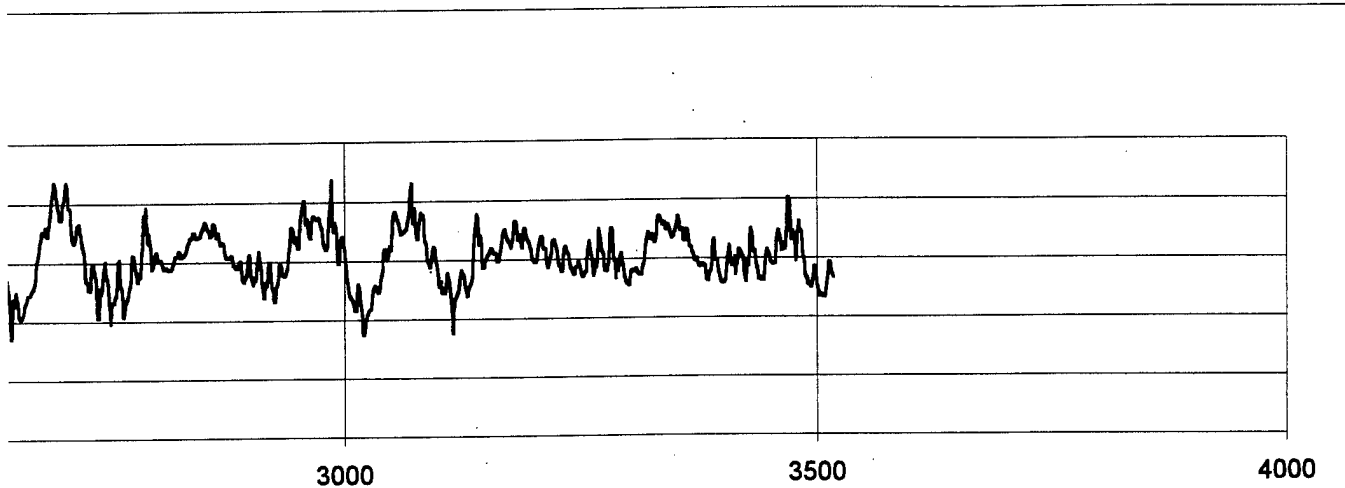
Filtered Low Frequency Time History



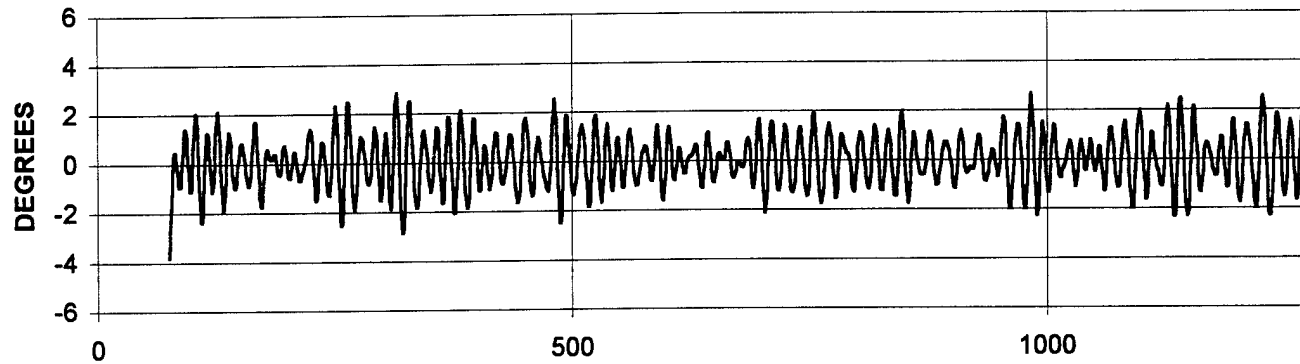
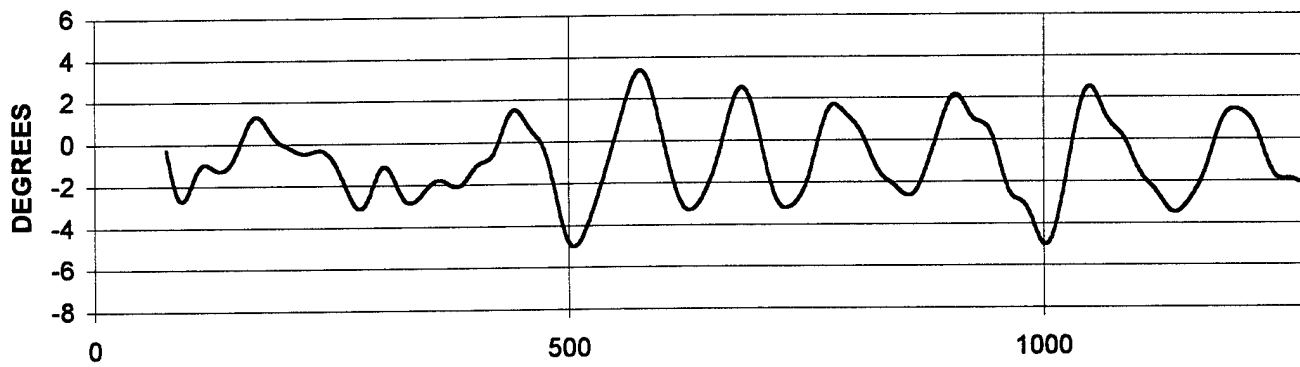
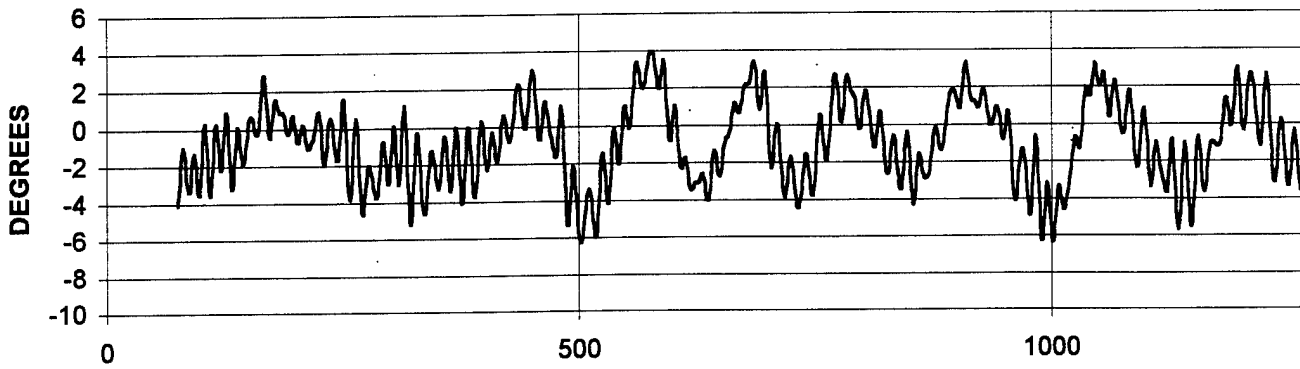
Filtered High Frequency Time History



TEST A609 - BUOY 2 TENSION

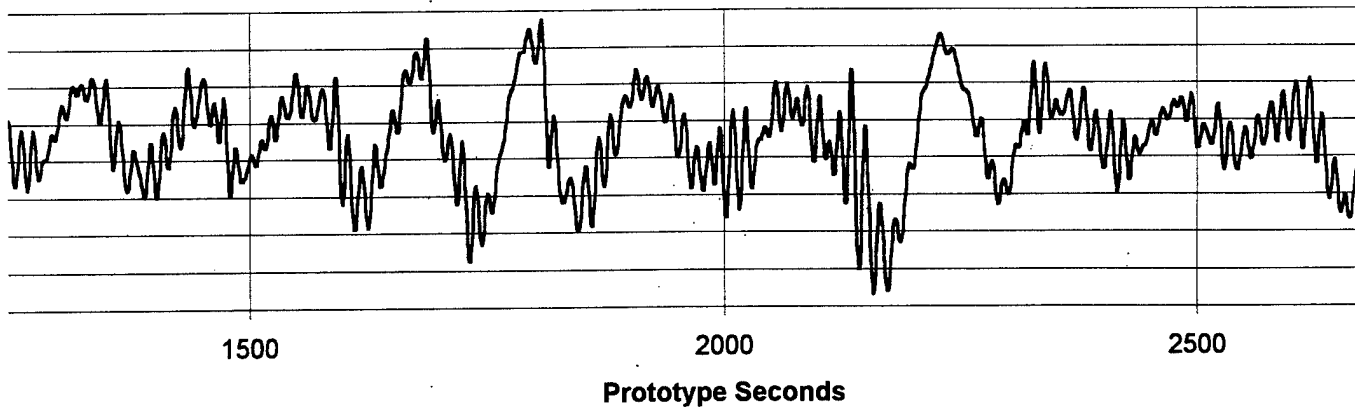


TEST A609 - PITCH

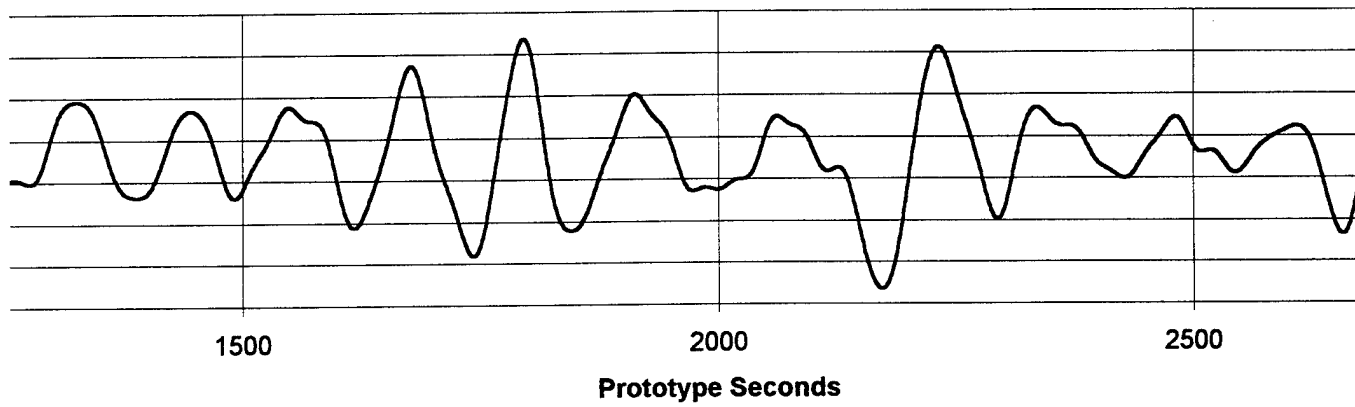


TEST A609 - PITCH

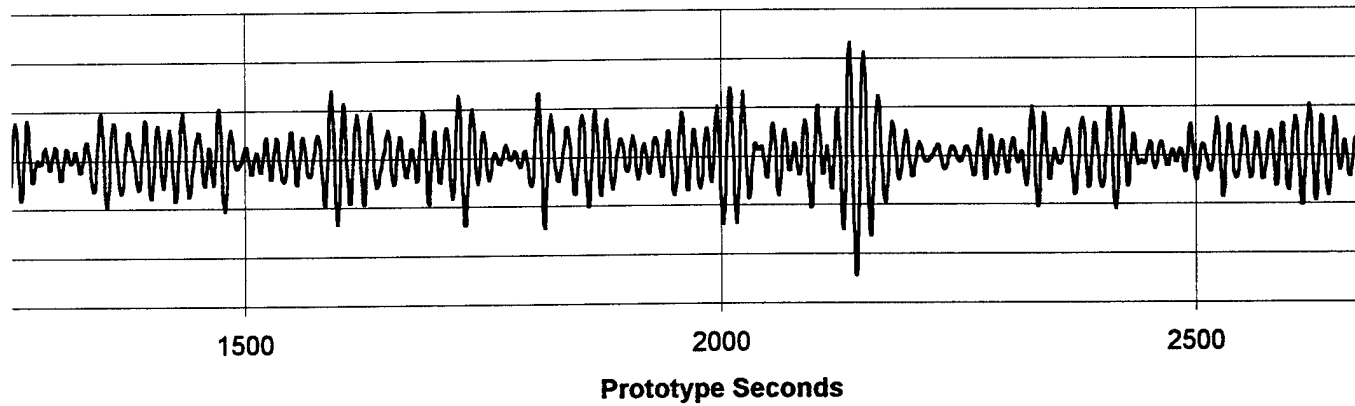
Unfiltered Time History



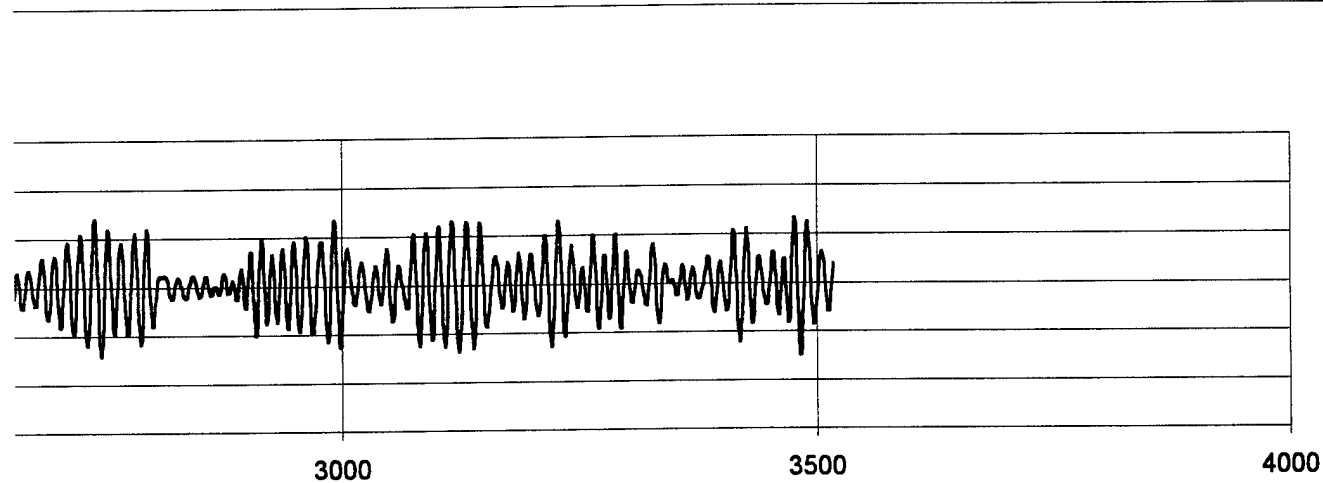
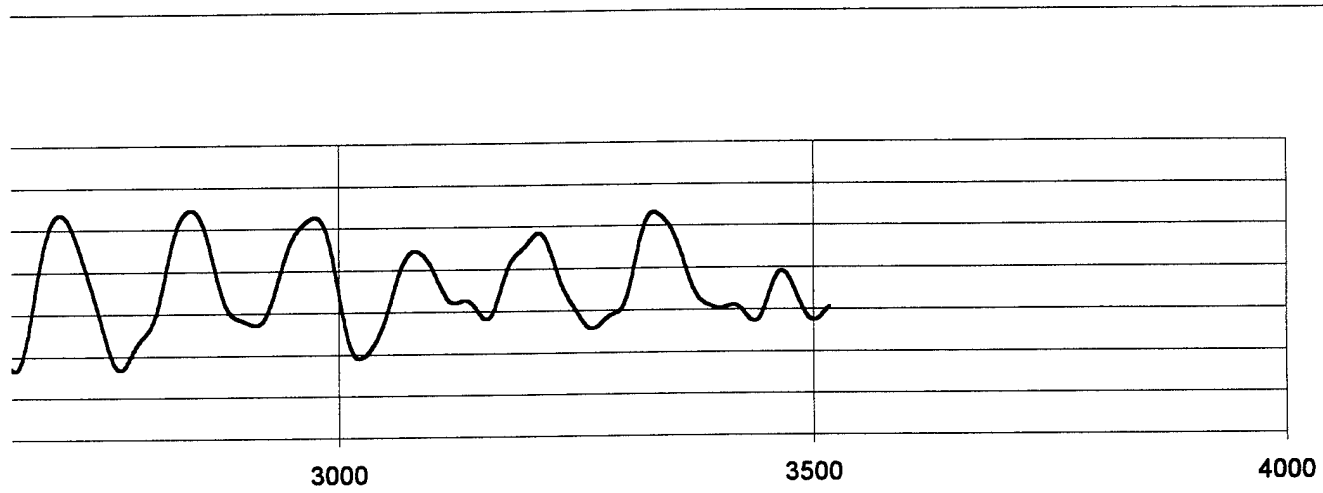
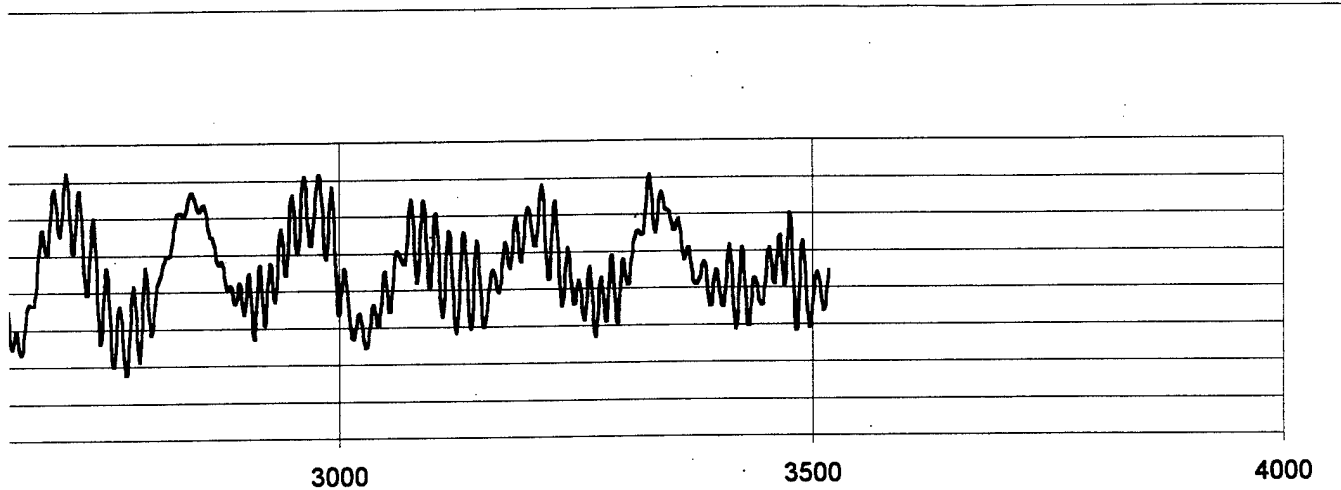
Filtered Low Frequency Time History



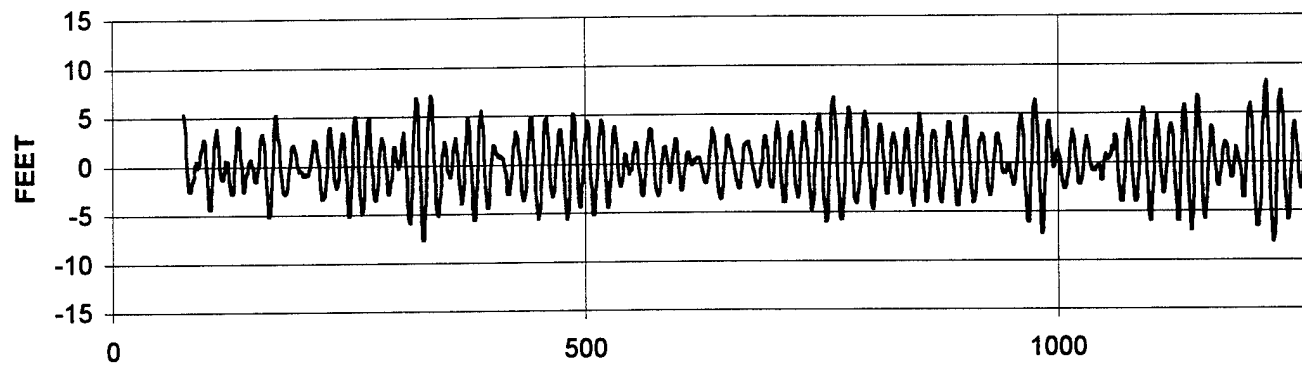
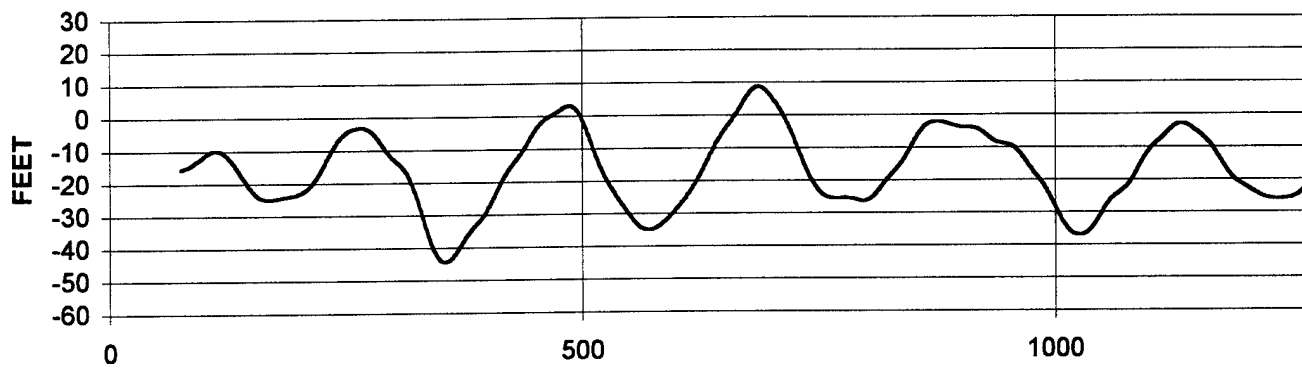
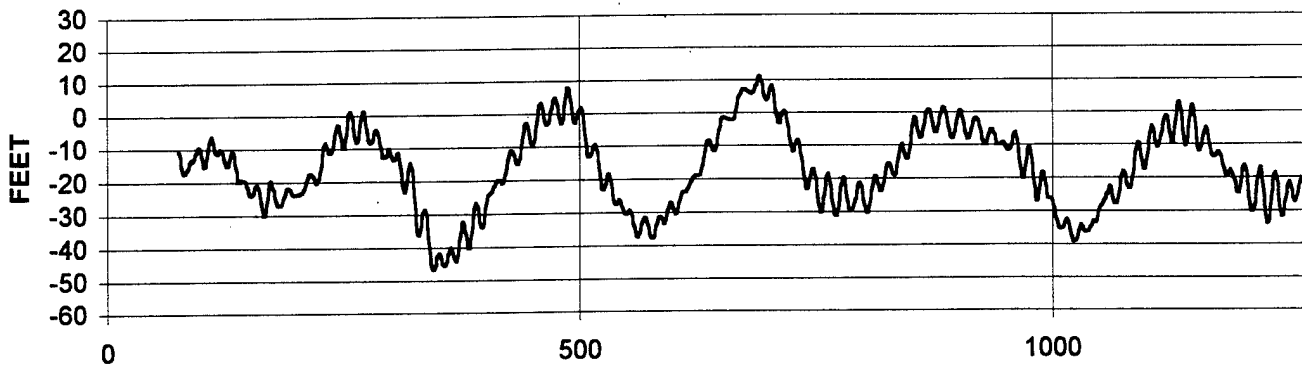
Filtered High Frequency Time History



TEST A609 - PITCH

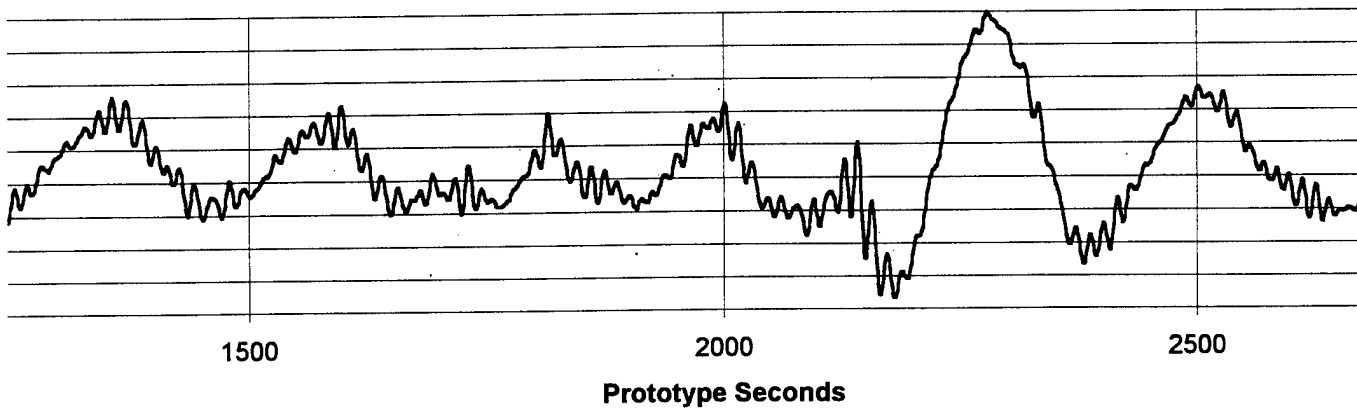


TEST A609 - PT SURGE

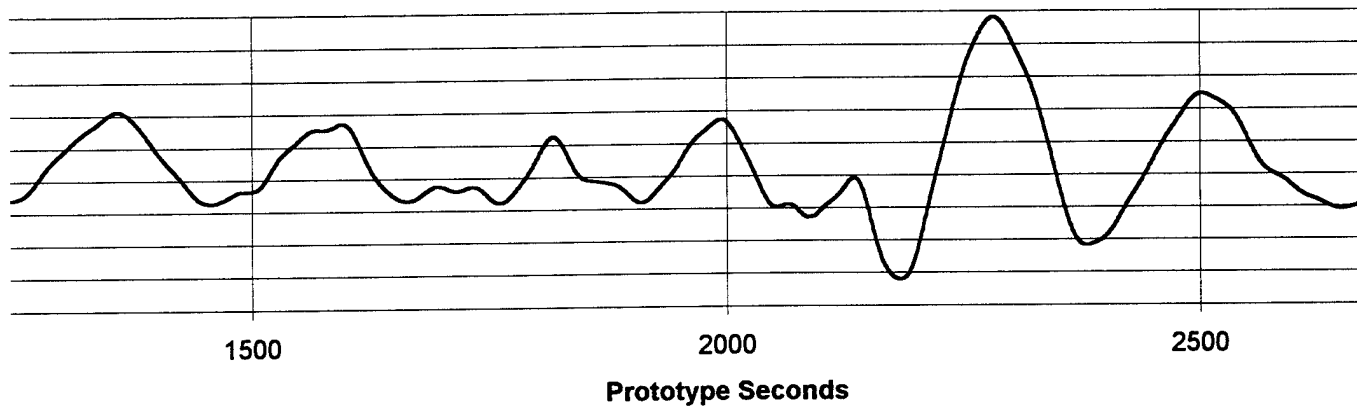


TEST A609 - PT SURGE

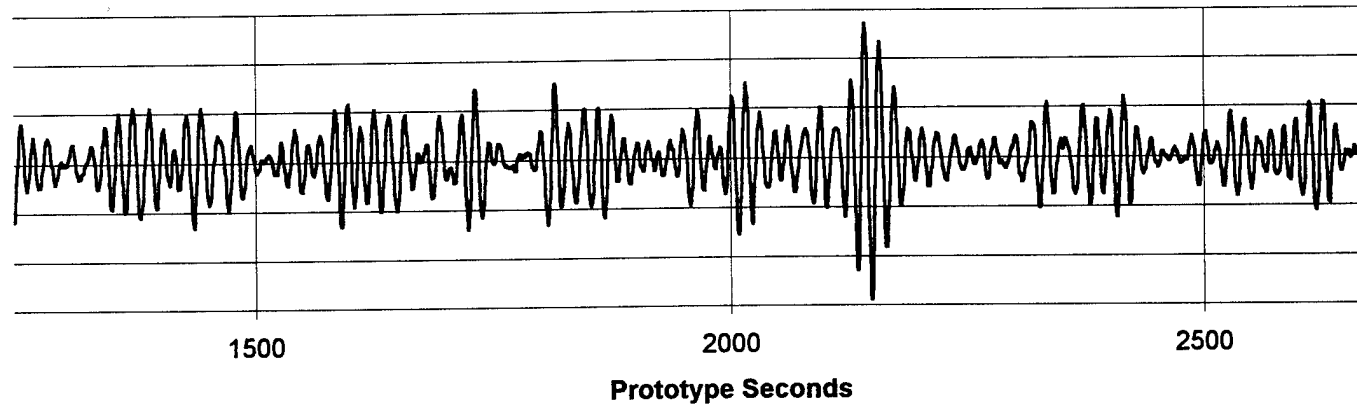
Unfiltered Time History



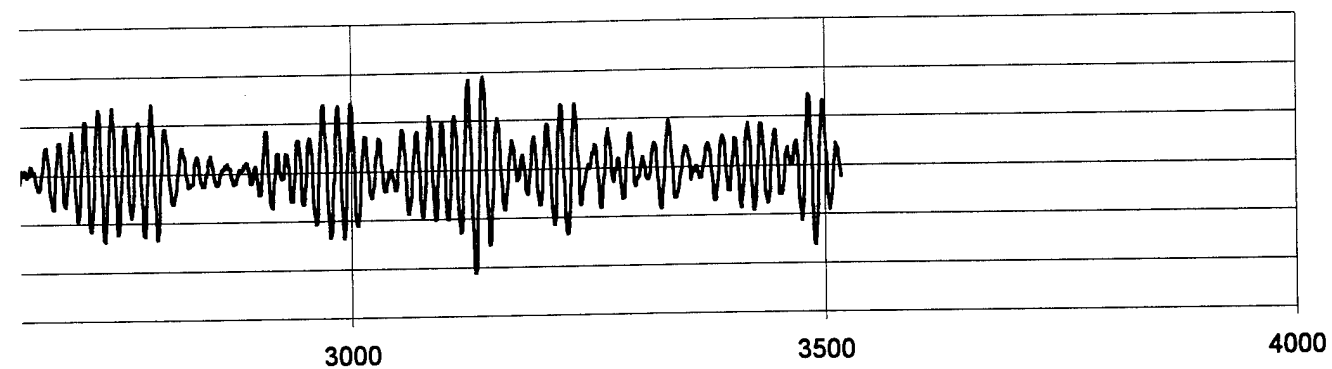
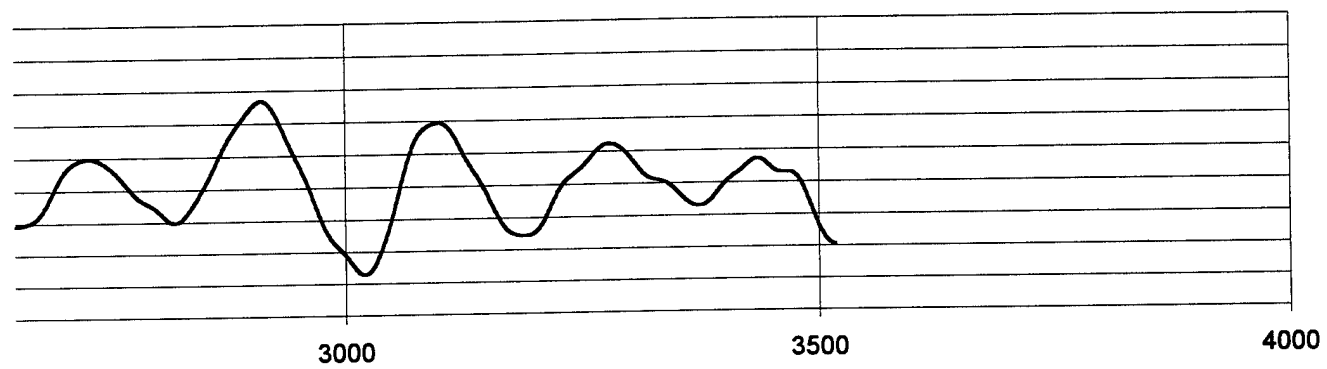
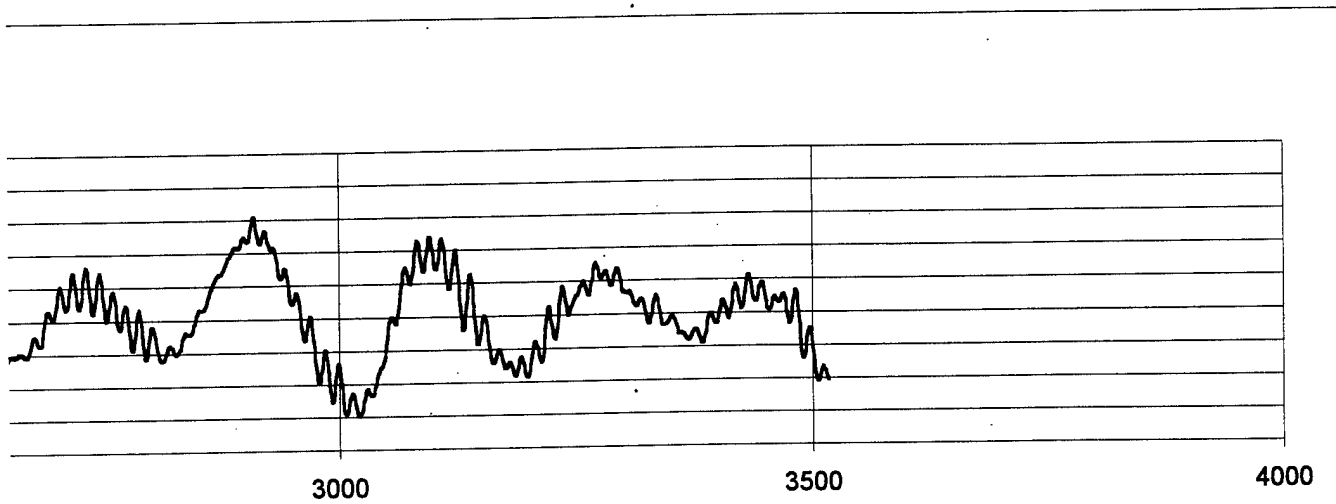
Filtered Low Frequency Time History



Filtered High Frequency Time History

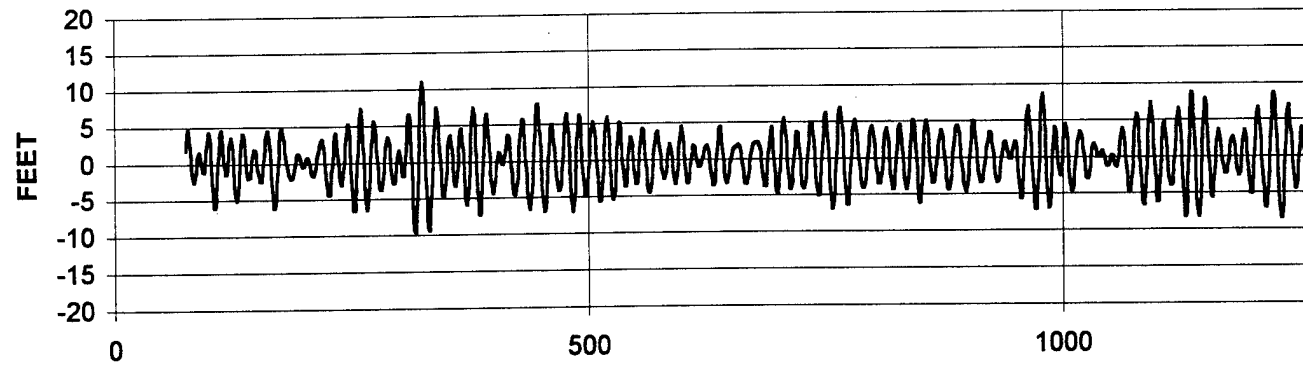
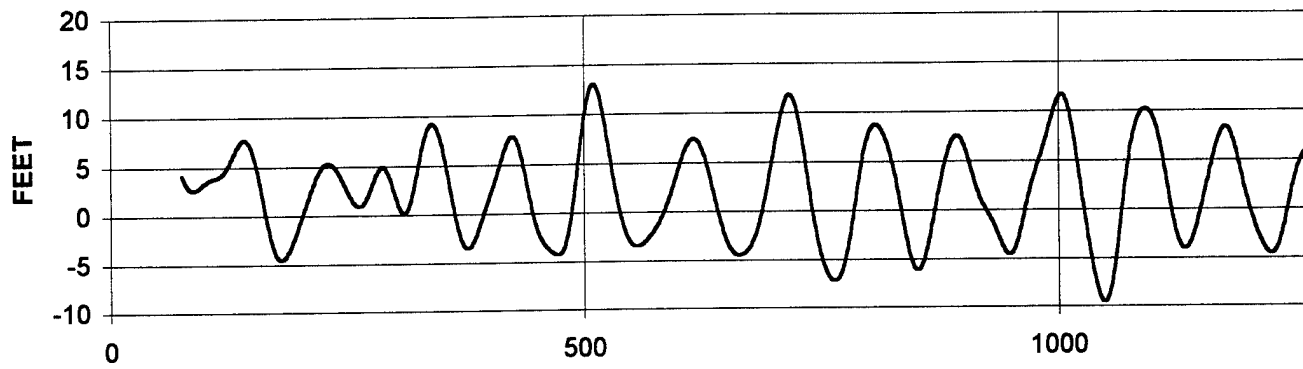
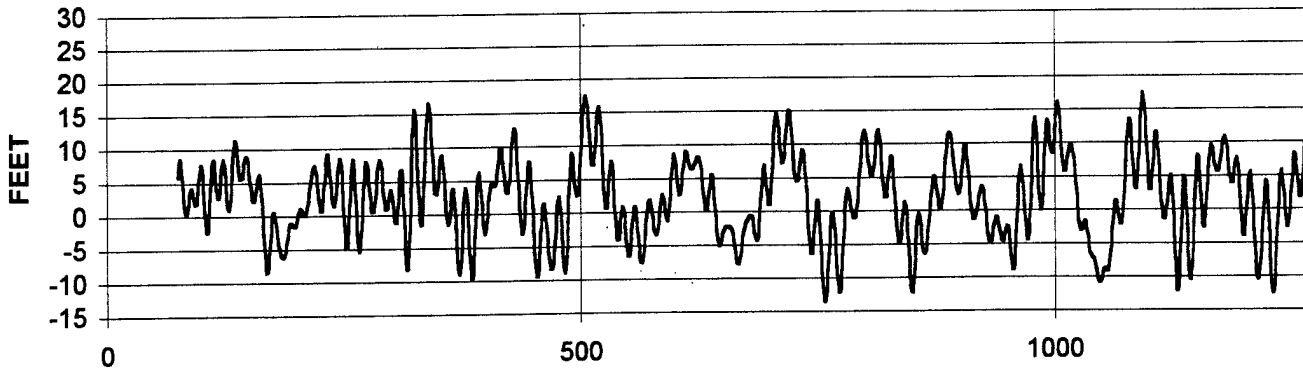


TEST A609 - PT SURGE

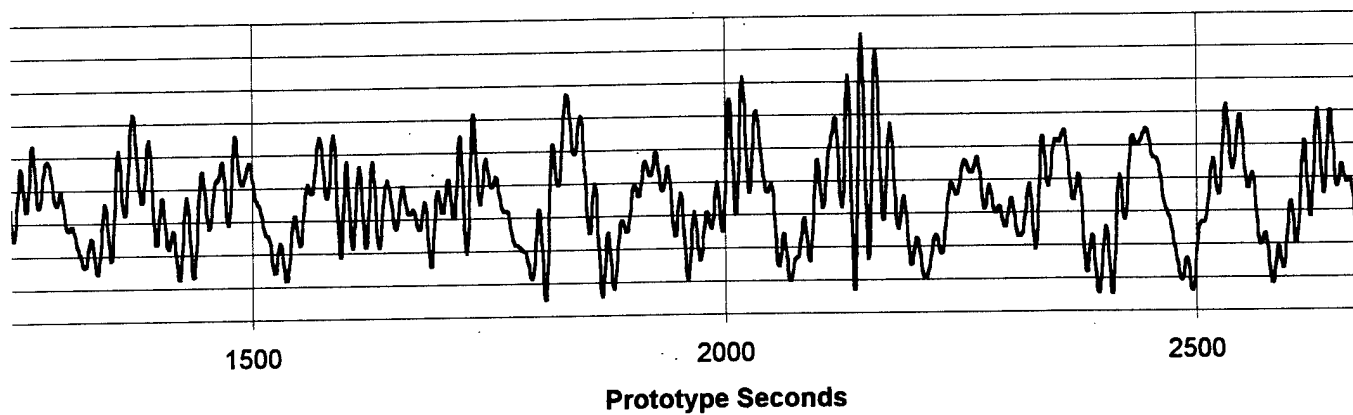




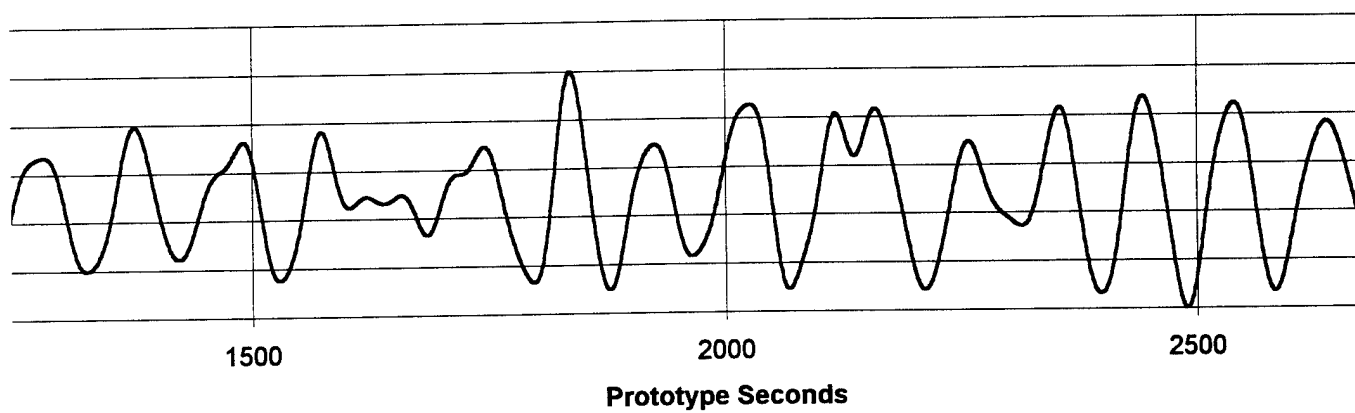
TEST A609 - PT HEAVE



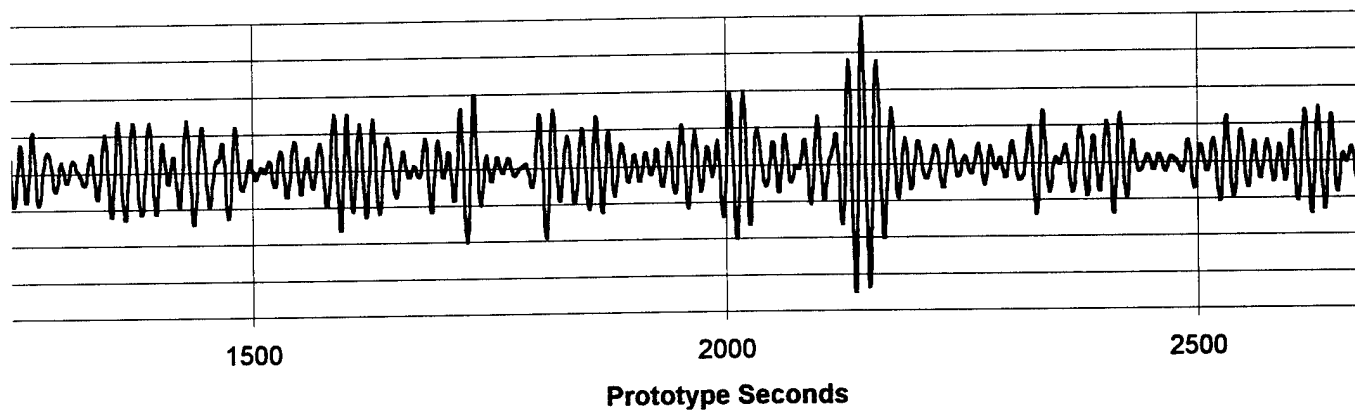
**Unfiltered Time History**



**Filtered Low Frequency Time History**



**Filtered High Frequency Time History**



TEST A609 - PT HEAVE

