



Entergy Nuclear Operations, Inc.  
Pilgrim Station  
600 Rocky Hill Road  
Plymouth, MA 02360

Stephen J. Bethay  
Director, Nuclear Assessment

May 24, 2005

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D.C. 20555-0001

SUBJECT: Entergy Nuclear Operations, Inc.  
Pilgrim Nuclear Power Station  
Docket No. 50-293  
License No. DPR-35

Response to NRC Request for Additional Information Related to Pilgrim  
In-service Testing (IST) Relief Request PR-03 (TAC NO. MB8773)

LETTER NUMBER: 2.05.042

- REFERENCES:
1. NRC letter, Request for Additional Information Regarding Relief Request PR-03, High-Pressure Coolant Injection Pump, dated May 5, 2005.
  2. Entergy Letter No. 2.05.012, Pilgrim Fourth Ten-Year In-service Testing (IST) Program, IST Relief Request, PR-03, Rev. 2, dated February 24, 2005.

Dear Sir or Madam:

This letter provides Pilgrim response to NRC Request for Additional Information (Reference 1) to complete the review and approval of IST Relief Request, PR-03 (Reference 2).

This letter contains no new commitments.

If you have any questions or require additional information, please contact Mr. Bryan Ford, Licensing Manager, at (508) 830-8403.

Sincerely,

Stephen J. Bethay

WGL/dm

Attachment 1: Response to NRC Request for Additional Information (50 pages)

cc: Next page

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A047

Entergy Nuclear Operations, Inc.  
Pilgrim Nuclear Power Station

Letter Number: 2.05.042  
Page 2

cc: Mr. John P. Boska, Project Manager  
Office of Nuclear Reactor Regulation  
Mail Stop: 0-8B-1  
U.S. Nuclear Regulatory Commission  
1 White Flint North  
11555 Rockville Pike  
Rockville, MD 20852

U.S. Nuclear Regulatory Commission  
Region 1  
475 Allendale Road  
King of Prussia, PA 19406

Senior Resident Inspector  
Pilgrim Nuclear Power Station

ATTACHMENT 1



att001.PDF

## ATTACHMENT 1

### RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION

#### REGARDING IST RELIEF REQUEST PR-03

By letter dated February 24, 2005, Entergy Nuclear Operations, Inc. (Entergy) submitted a revision to the relief request dated December 2, 2002, as supplemented February 10, and June 2, 2004, for the high-pressure coolant injection pump for the Pilgrim Nuclear Power Station. The Nuclear Regulatory Commission (NRC) staff has the following questions regarding the information provided:

#### NRC Question 1:

The note under table for the main pump on page 6 of the revision dated February 24, 2005, states a frequency spectrum analysis will be performed for each comprehensive pump test. Will vibration monitoring be done quarterly? Will frequency spectrum analysis be done quarterly?

#### Pilgrim Response:

As stated in Paragraph 2 of item 2, on page 2 of February 24, 2005 submittal (PR-03, Rev. 2), vibration monitoring will be performed quarterly as part of Group B Hydraulic Tests and spectrum analysis as part of the vibration monitoring will also be performed quarterly.

#### NRC Question 2:

Attachment 4 of the revision dated February 24, 2005, added vibration data for vibration monitoring points P3H and P4H to fill in the years from 1994 to 2004. Please provide the data taken during those tests for the vibration monitoring points P3V, P3A, P4V, P7H, P7V, P8H, P8V, and P8A.

#### Pilgrim Response:

As requested, vibration spectra sheets (48 pages) are attached, as follows:

##### Point P3V Data

1. P3V HPCI Vibration Spectrum Data, Nov. 24, 2004
2. P3V HPCI Vibration Spectrum Data, Aug. 24, 2004
3. P3V HPCI Vibration Spectrum Data, Dec. 17, 1997
4. P3V HPCI Vibration Spectrum Data, May 06, 1996
5. P3V HPCI Vibration Spectrum Data, Nov. 20, 1995
6. P3V HPCI Vibration Spectrum Data, May 25, 1994

##### Point P3A Data

7. P3A HPCI Vibration Spectrum Data, Nov. 24, 2004
8. P3A HPCI Vibration Spectrum Data, Aug. 24, 2004
9. P3A HPCI Vibration Spectrum Data, Dec. 17, 1997
10. P3A HPCI Vibration Spectrum Data, May 06, 1996
11. P3A HPCI Vibration Spectrum Data, Nov. 20, 1995
12. P3A HPCI Vibration Spectrum Data, May 25, 1994

##### Point P4V Data

13. P4V HPCI Vibration Spectrum Data, Nov. 24, 2004
14. P4V HPCI Vibration Spectrum Data, Aug. 24, 2004

15. P4V HPCI Vibration Spectrum Data, Dec. 17, 1997
16. P4V HPCI Vibration Spectrum Data, May 06, 1996
17. P4V HPCI Vibration Spectrum Data, Nov. 20, 1995
18. P4V HPCI Vibration Spectrum Data, May 25, 1994

Point P7H Data

19. P7H HPCI Vibration Spectrum Data, Nov. 24, 2004
20. P7H HPCI Vibration Spectrum Data, Aug. 24, 2004
21. P7H HPCI Vibration Spectrum Data, Dec. 17, 1997
22. P7H HPCI Vibration Spectrum Data, May 06, 1996
23. P7H HPCI Vibration Spectrum Data, Nov. 20, 1995
24. P7H HPCI Vibration Spectrum Data, May 25, 1994

Point P7V Data

25. P7V HPCI Vibration Spectrum Data, Nov. 24, 2004
26. P7V HPCI Vibration Spectrum Data, Aug. 24, 2004
27. P7V HPCI Vibration Spectrum Data, Dec. 17, 1997
28. P7V HPCI Vibration Spectrum Data, May 06, 1996
29. P7V HPCI Vibration Spectrum Data, Nov. 20, 1995
30. P7V HPCI Vibration Spectrum Data, May 25, 1994

Point P8H Data

31. P8H HPCI Vibration Spectrum Data, Nov. 24, 2004
32. P8H HPCI Vibration Spectrum Data, Aug. 24, 2004
33. P8H HPCI Vibration Spectrum Data, Dec. 17, 1997
34. P8H HPCI Vibration Spectrum Data, May 06, 1996
35. P8H HPCI Vibration Spectrum Data, Nov. 20, 1995
36. P8H HPCI Vibration Spectrum Data, May 25, 1994

Point P8V Data

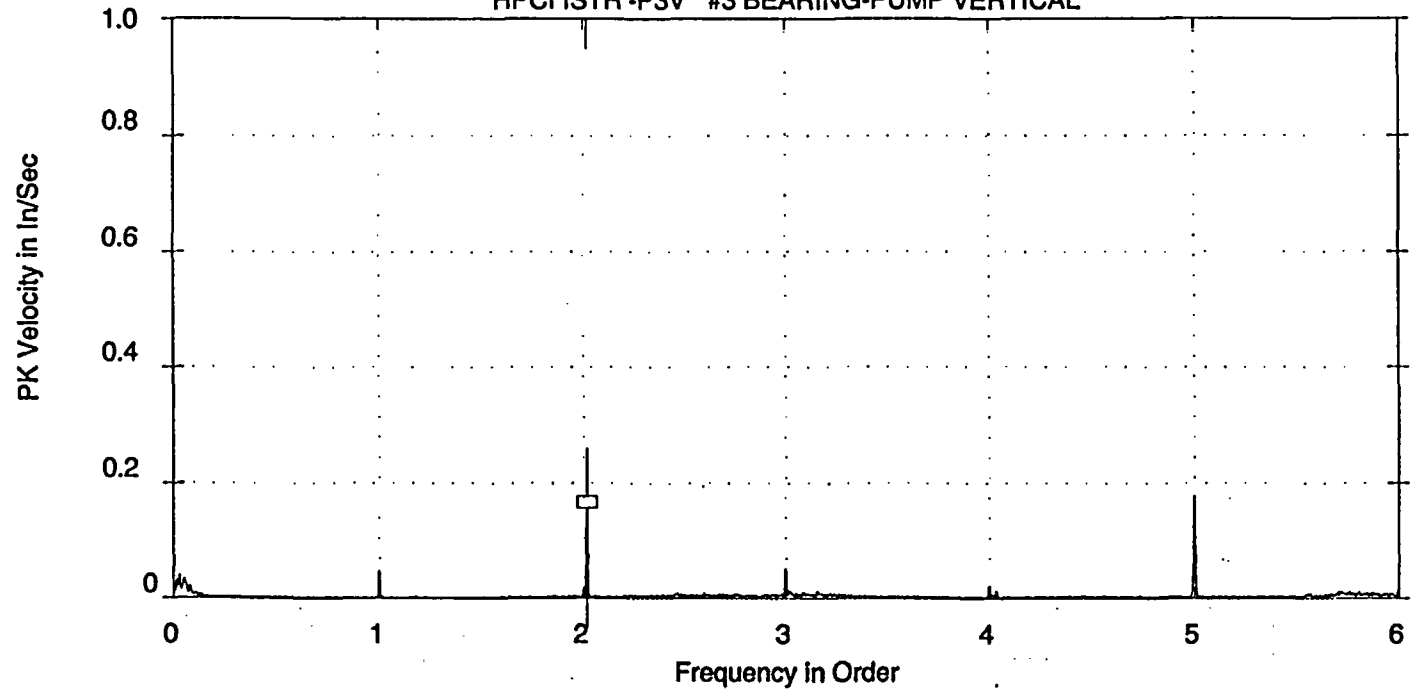
37. P8V HPCI Vibration Spectrum Data, Nov. 24, 2004
38. P8V HPCI Vibration Spectrum Data, Aug. 24, 2004
39. P8V HPCI Vibration Spectrum Data, Dec. 17, 1997
40. P8V HPCI Vibration Spectrum Data, May 06, 1996
41. P8V HPCI Vibration Spectrum Data, Nov. 20, 1995
42. P8V HPCI Vibration Spectrum Data, May 25, 1994

Point P8A Data

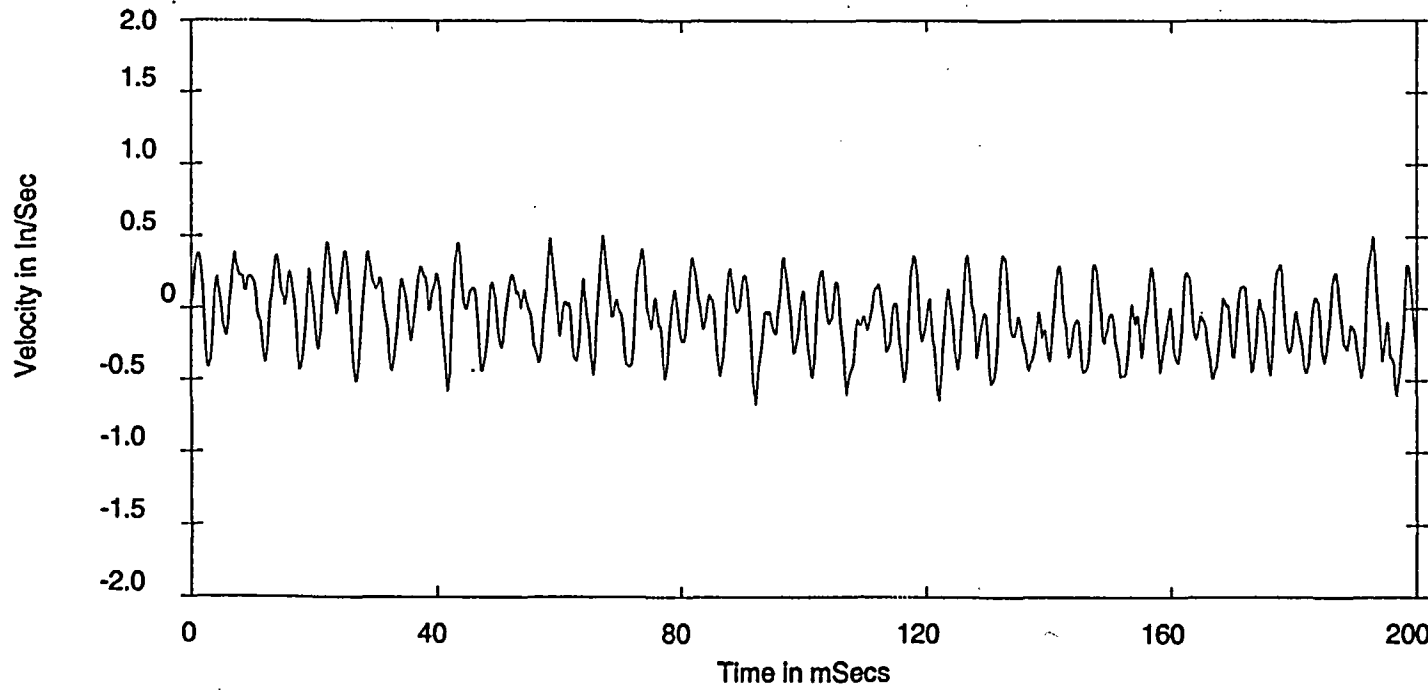
43. P8A HPCI Vibration Spectrum Data, Nov. 24, 2004
44. P8A HPCI Vibration Spectrum Data, Aug. 24, 2004
45. P8A HPCI Vibration Spectrum Data, Dec. 17, 1997
46. P8A HPCI Vibration Spectrum Data, July 31, 1996\*
47. P8A HPCI Vibration Spectrum Data, Nov. 20, 1995
48. P8A HPCI Vibration Spectrum Data, May 25, 1994

\*July 31, 1996 data is submitted since May 06, 1996 data is not available for point P8A.

IST - IST, P205 HPCI @42.5k  
HPCI ISTR-P3V #3 BEARING-PUMP VERTICAL



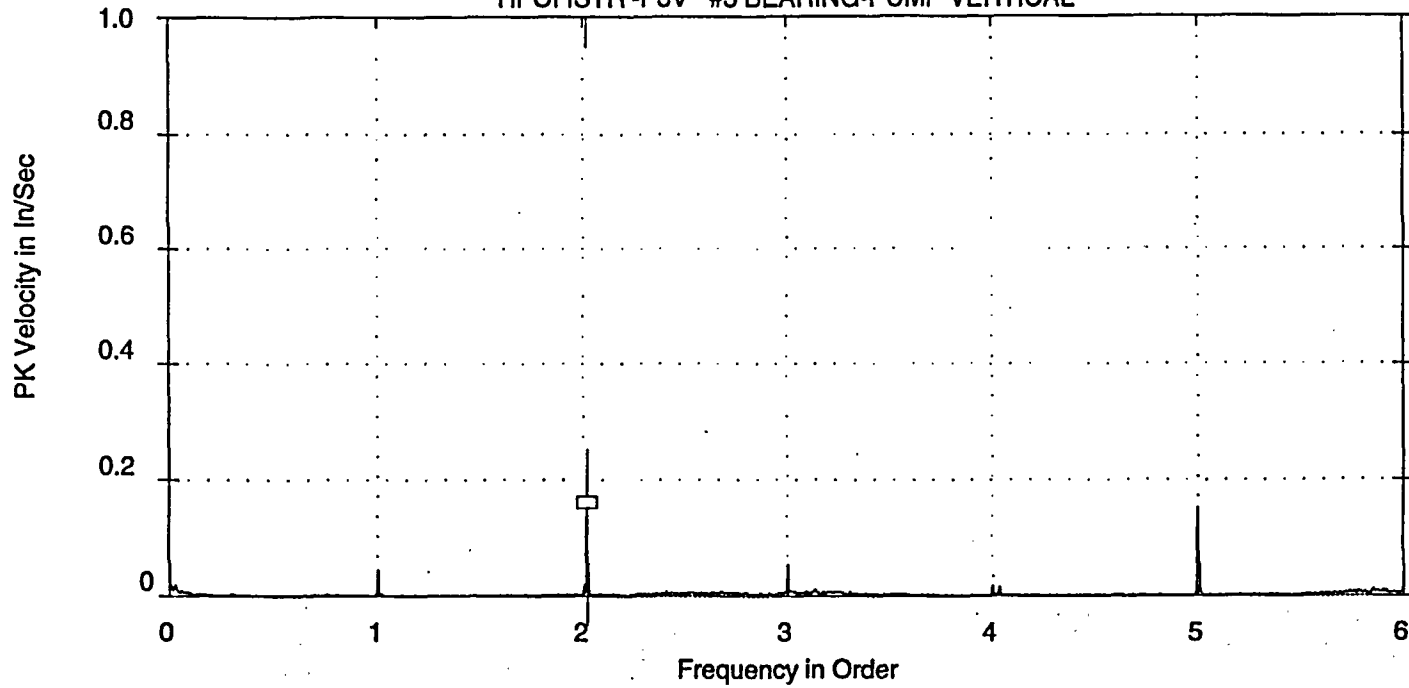
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RPS = 66.90



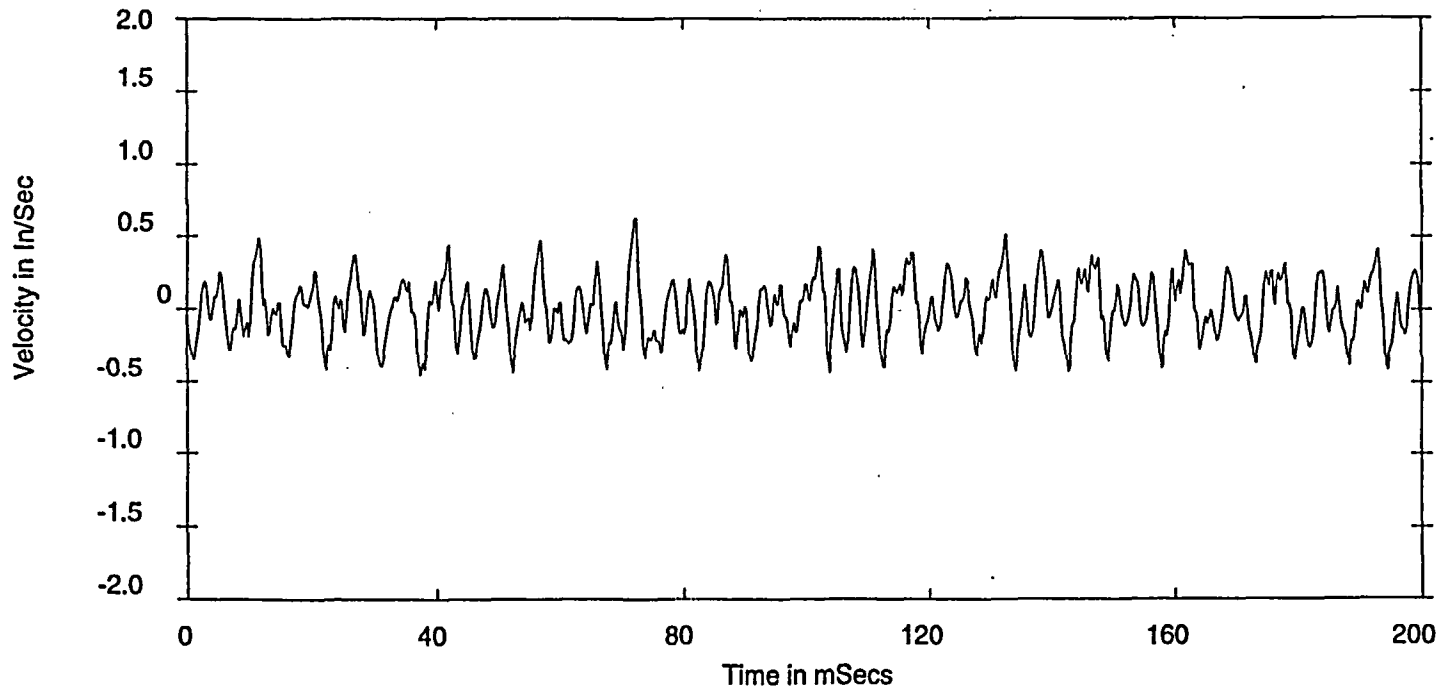
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PK = .3405  
PK(+) = .5724  
PK(-) = .6078  
CRESTF= 2.59

Ordr: 2.018  
Freq: 135.00  
Spec: .157

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HPCI ISTR-P3V #3 BEARING-PUMP VERTICAL



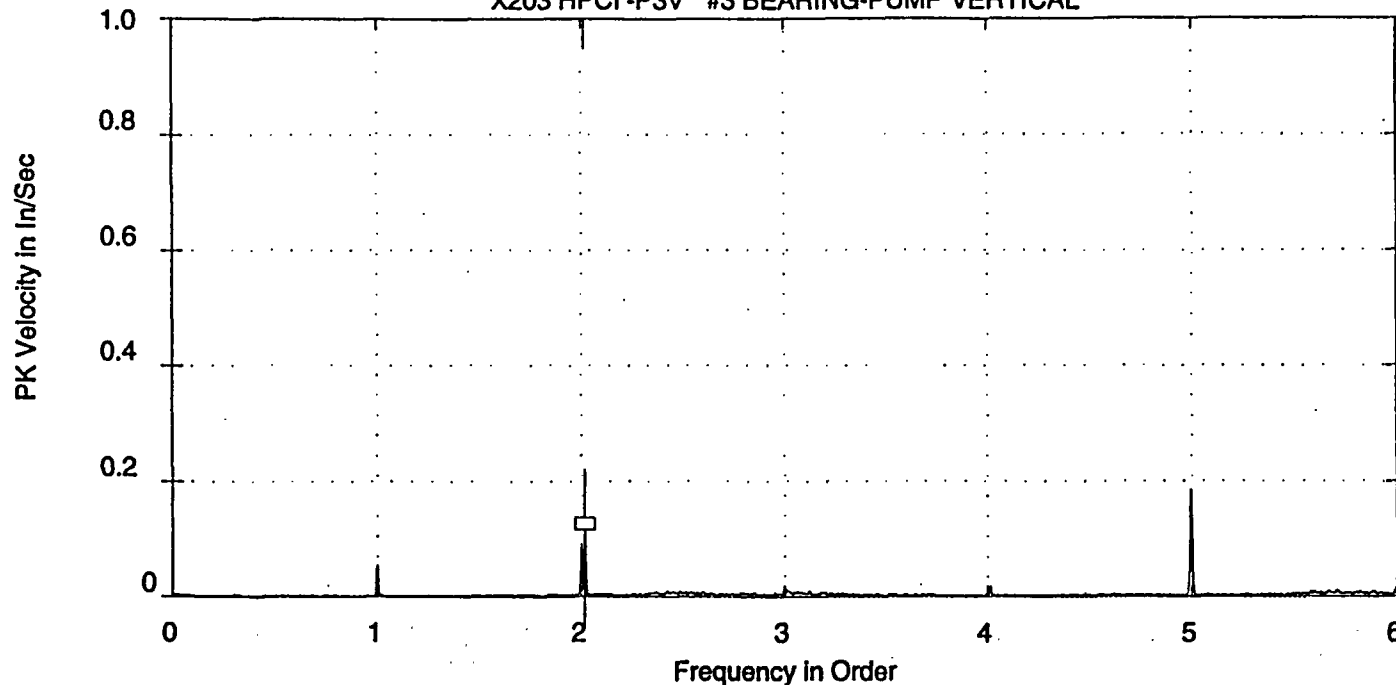
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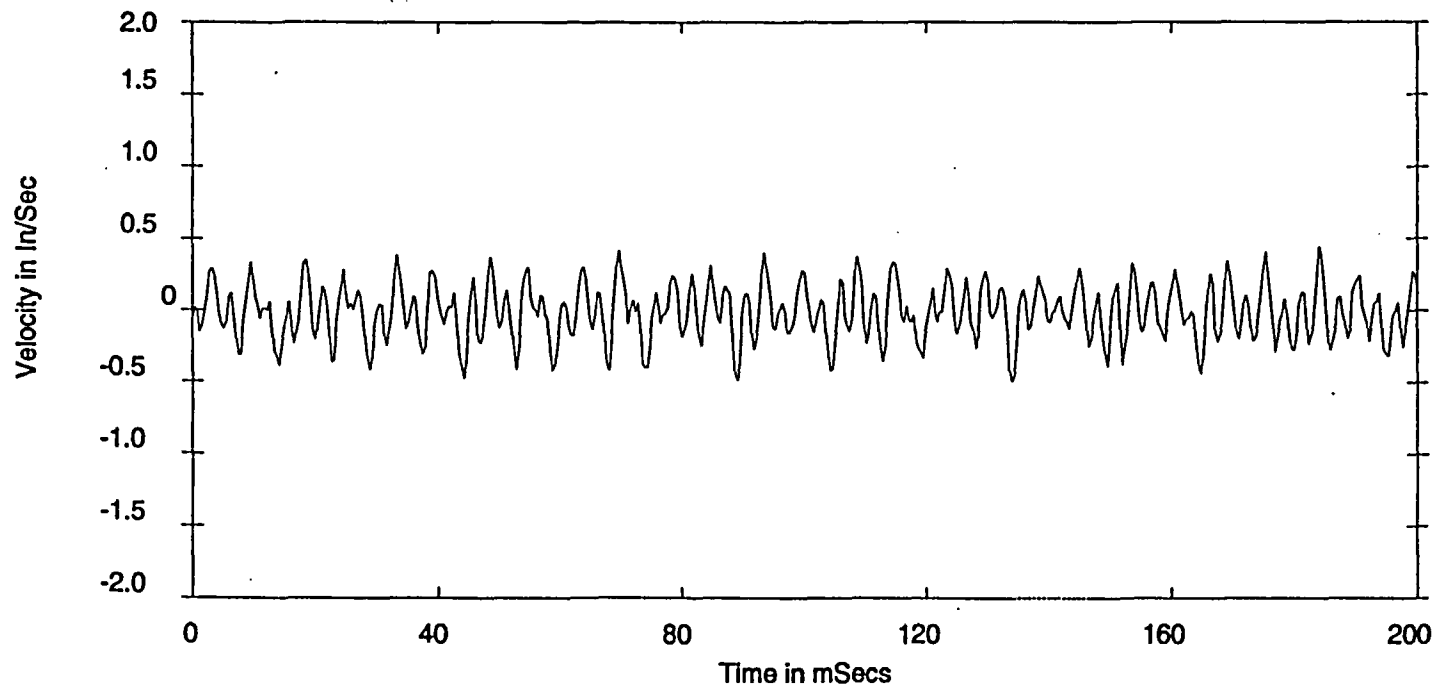
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CRESTF= 3.05

Ordr: 2.019  
Freq: 133.59  
Spec: .151

RX - X203,P205 HPCI TURB & PUMP  
X203 HPCI -P3V #3 BEARING-PUMP VERTICAL



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RPS = 66.50

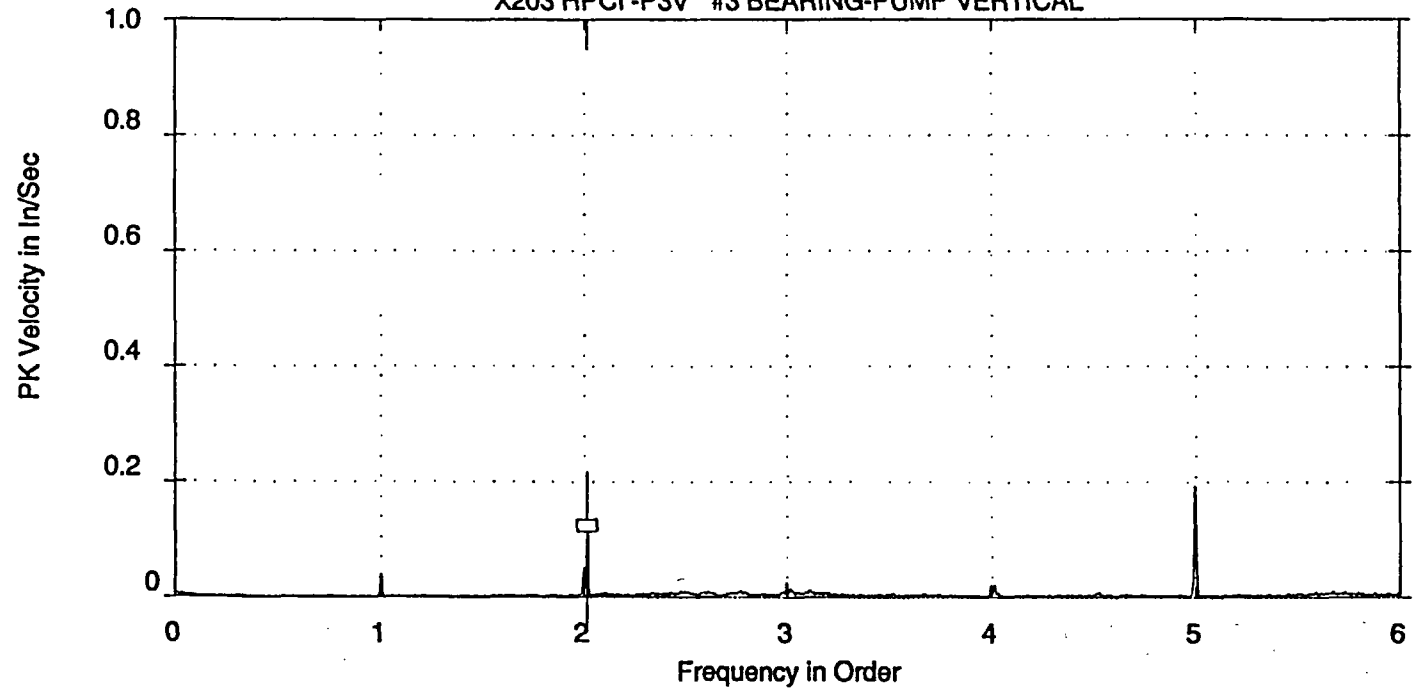


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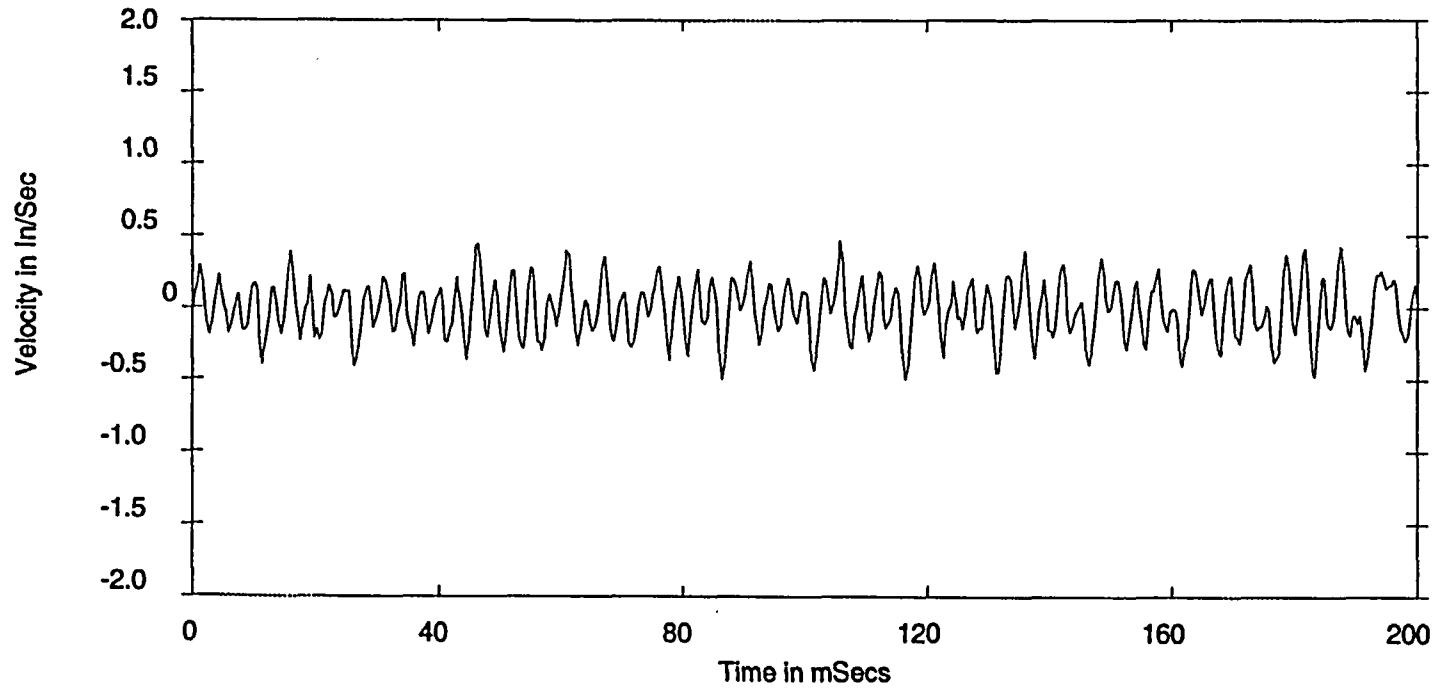
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Spec: .118



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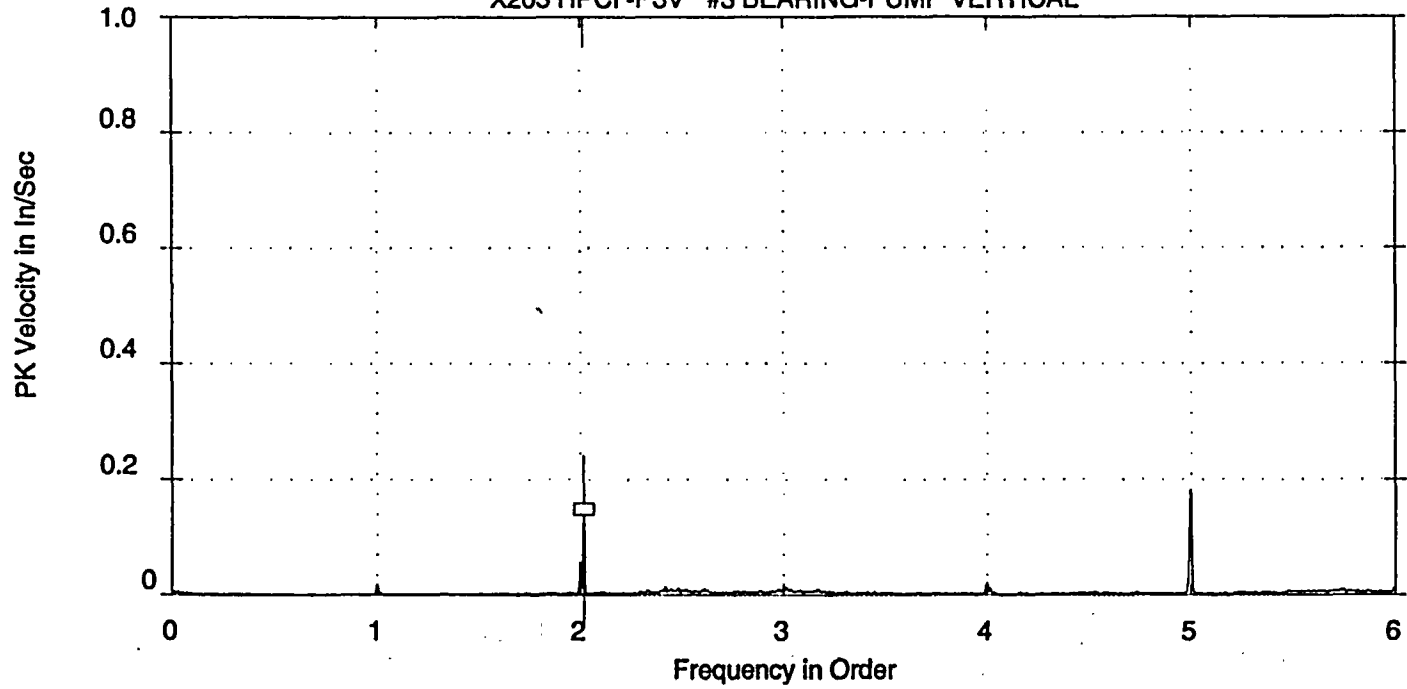
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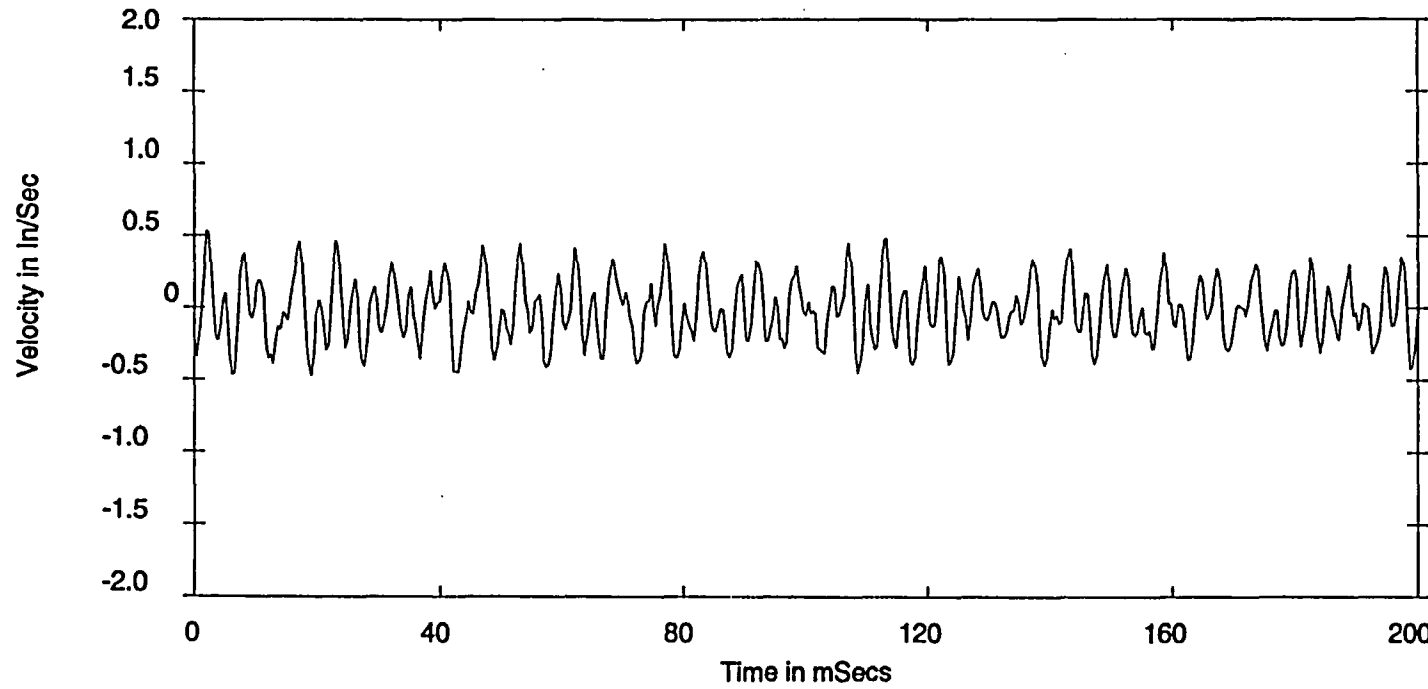
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Ordr: 2.016  
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Spec: .125

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X203 HPCI -P3V #3 BEARING-PUMP VERTICAL



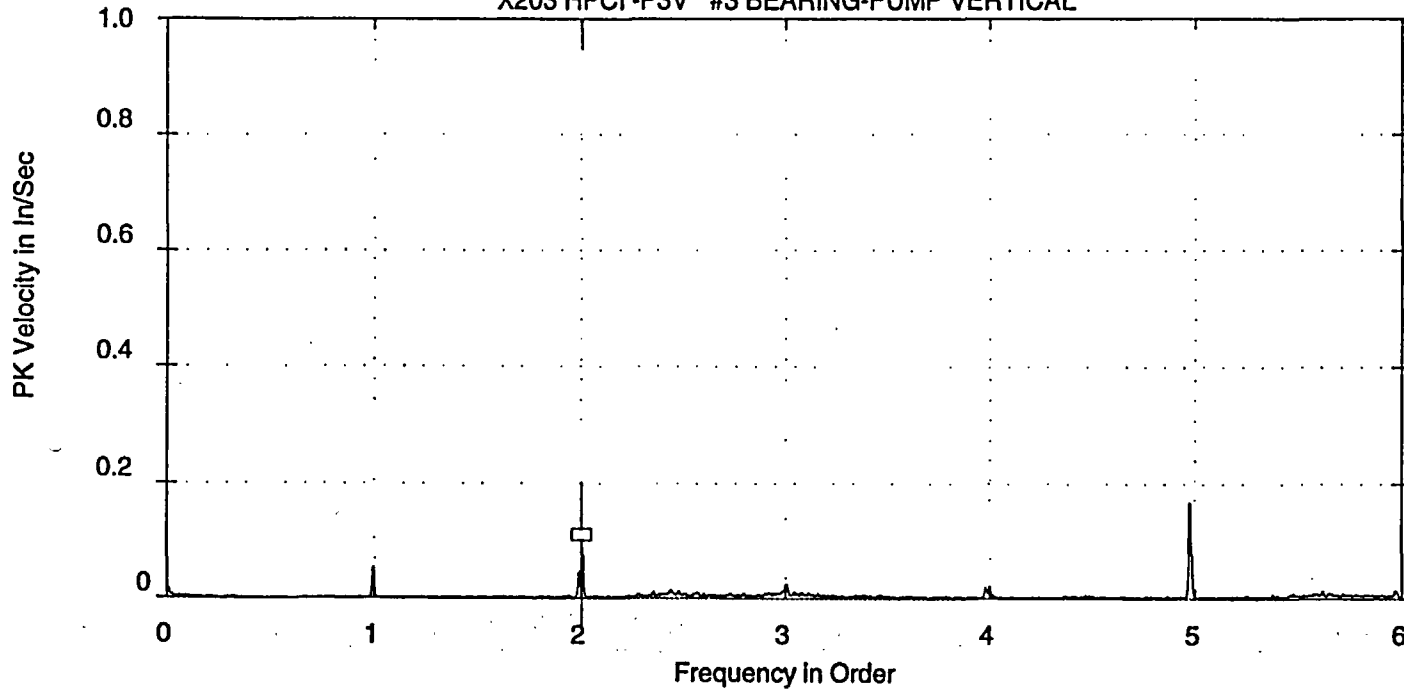
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RPM = 4001.  
RPS = 66.68



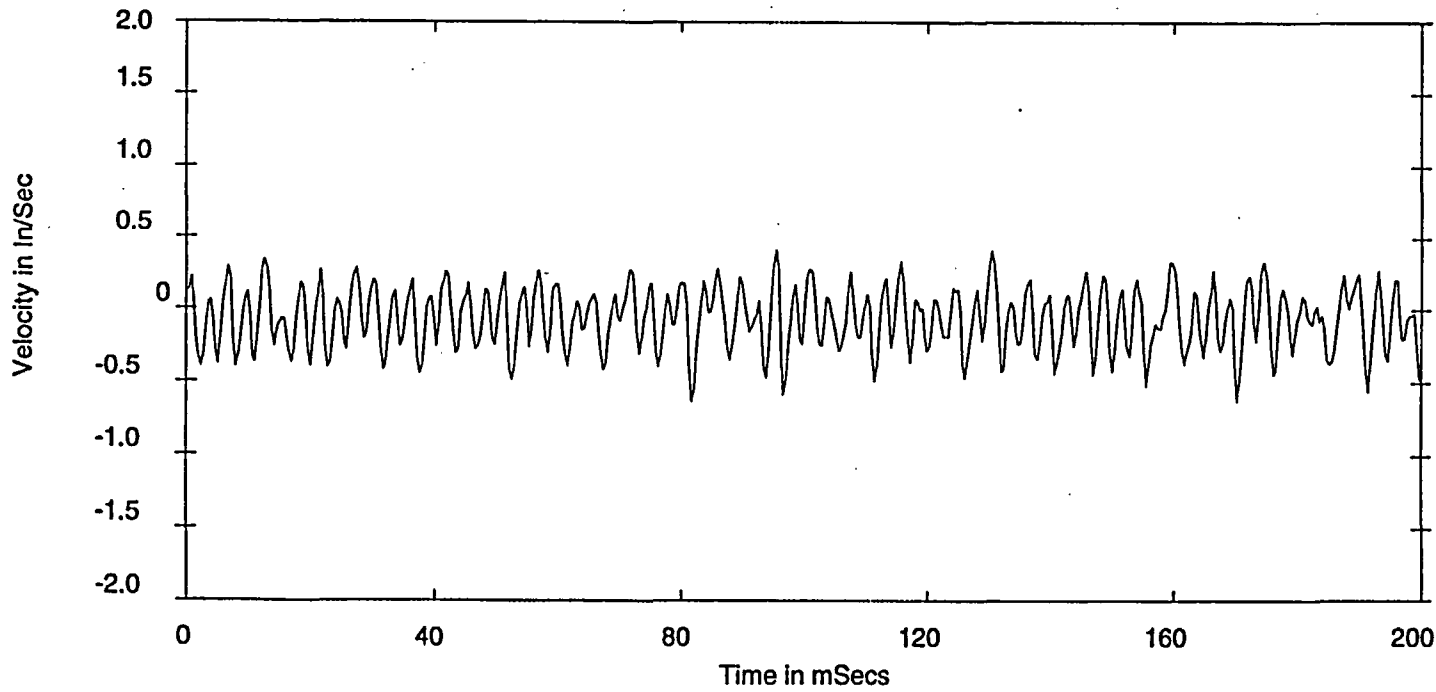
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Ordr: 2.016  
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Spec: .140

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X203 HPCI -P3V #3 BEARING-PUMP VERTICAL



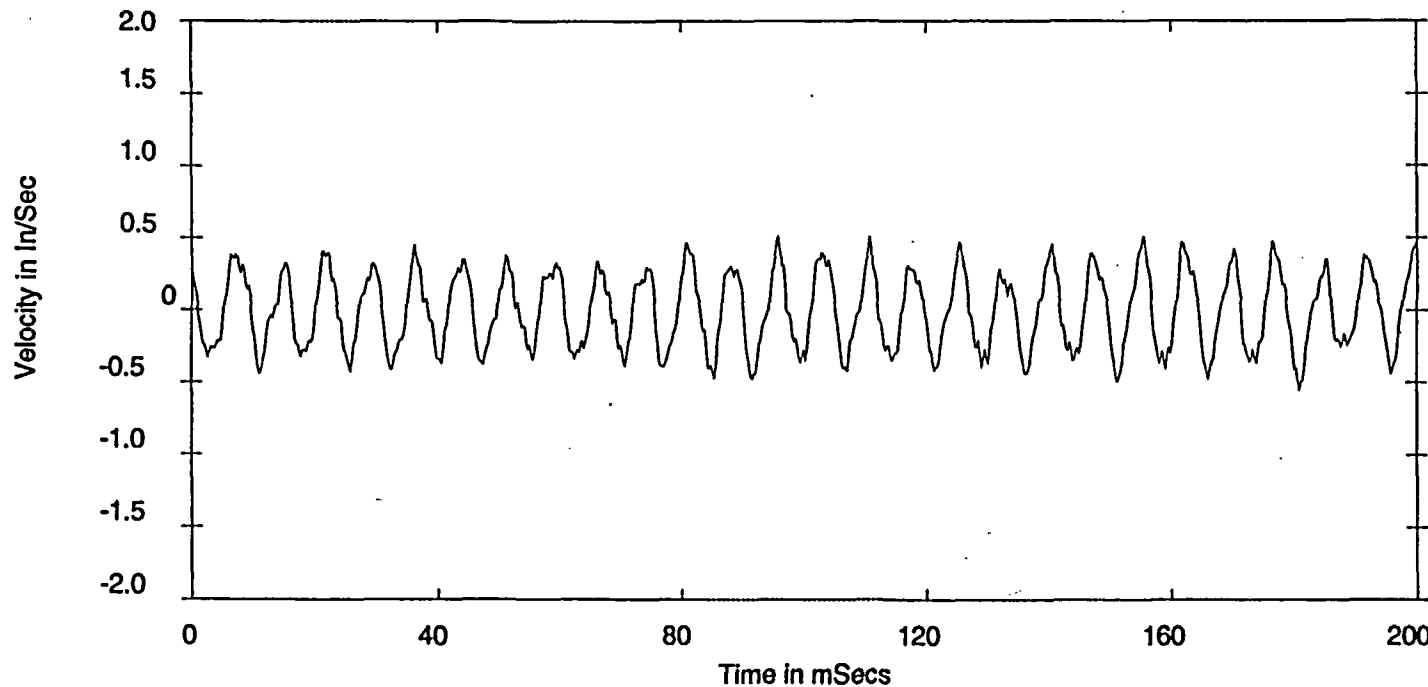
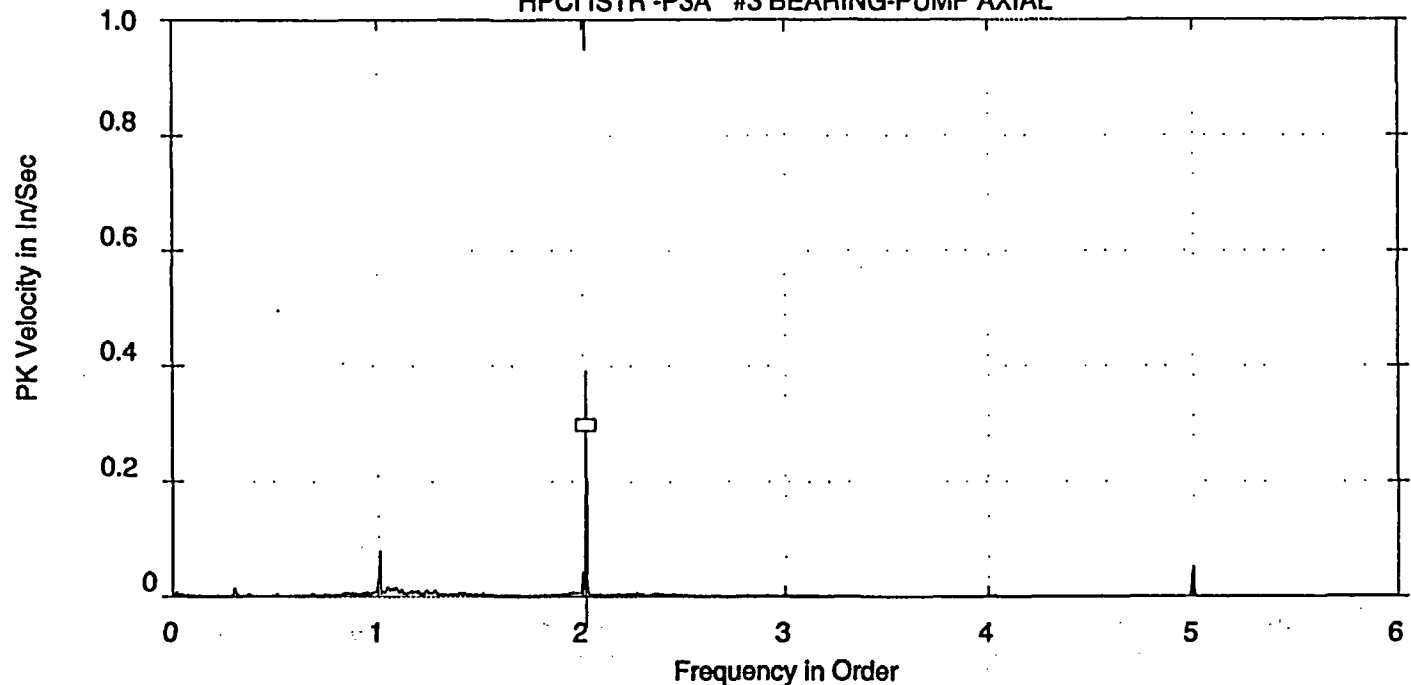
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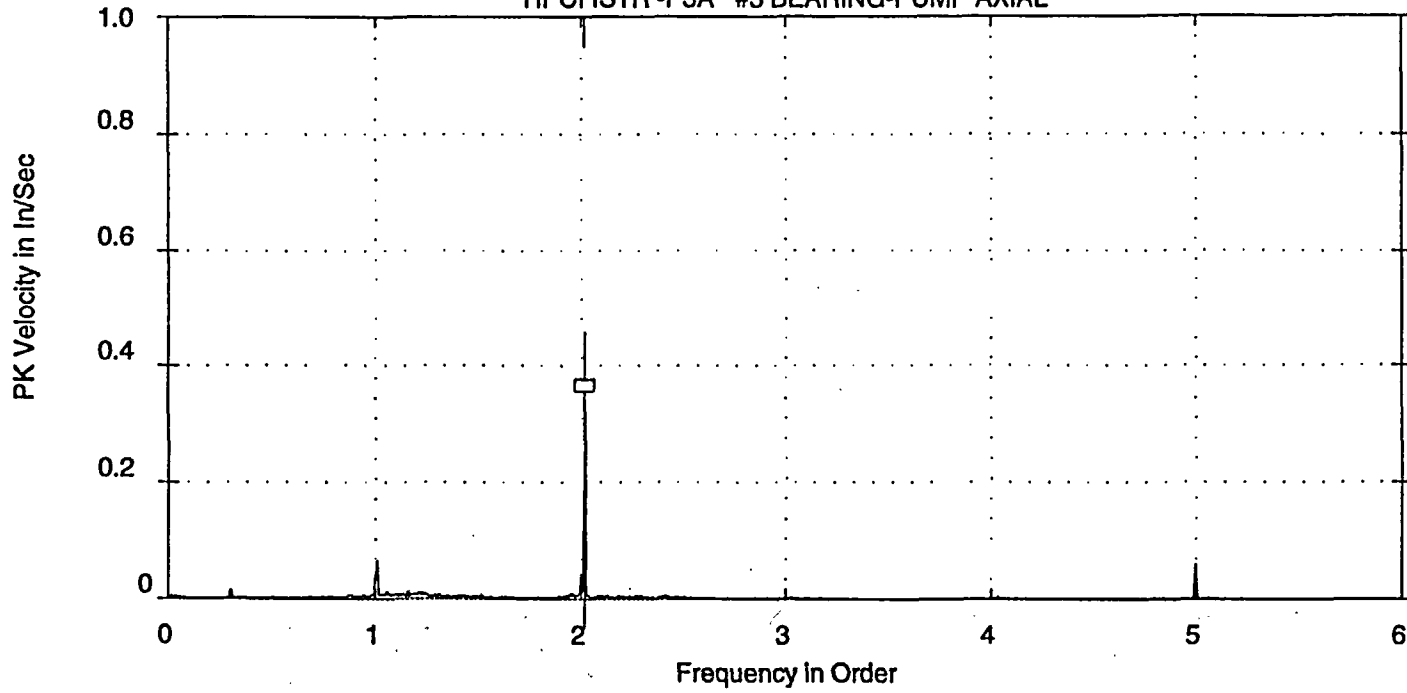
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Ordr: 2.006  
Freq: 136.25  
Spec: .100

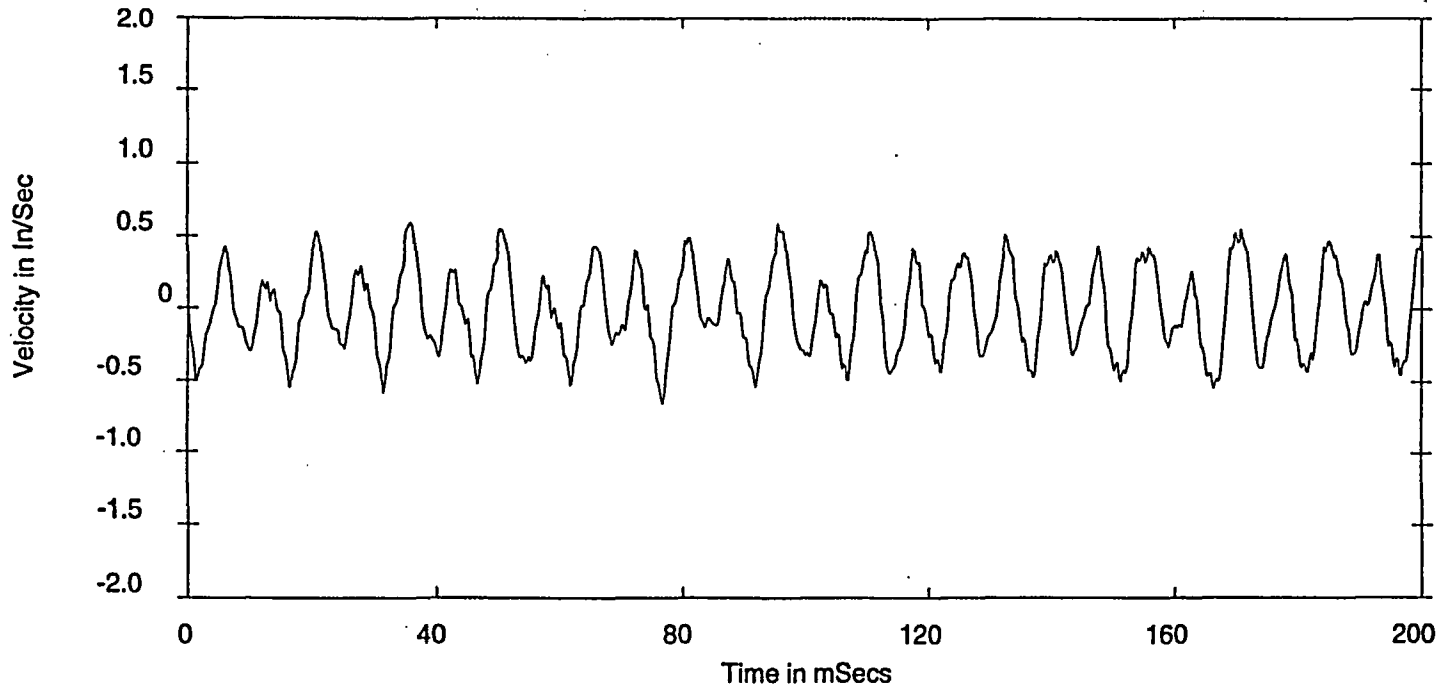
IST - IST, P205 HPCI @42.5k  
HPCI ISTR -P3A #3 BEARING-PUMP AXIAL



IST - IST, P205 HPCI @42.5k  
HPCI ISTR -P3A #3 BEARING-PUMP AXIAL



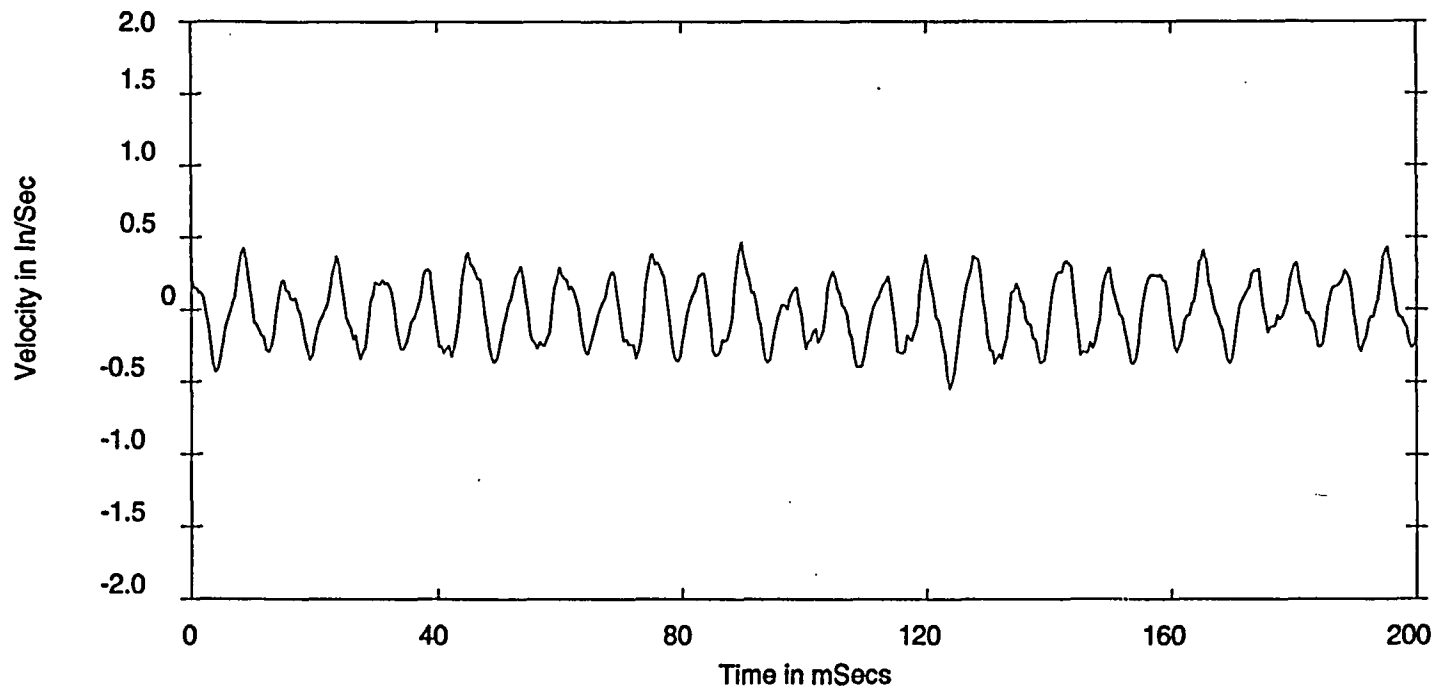
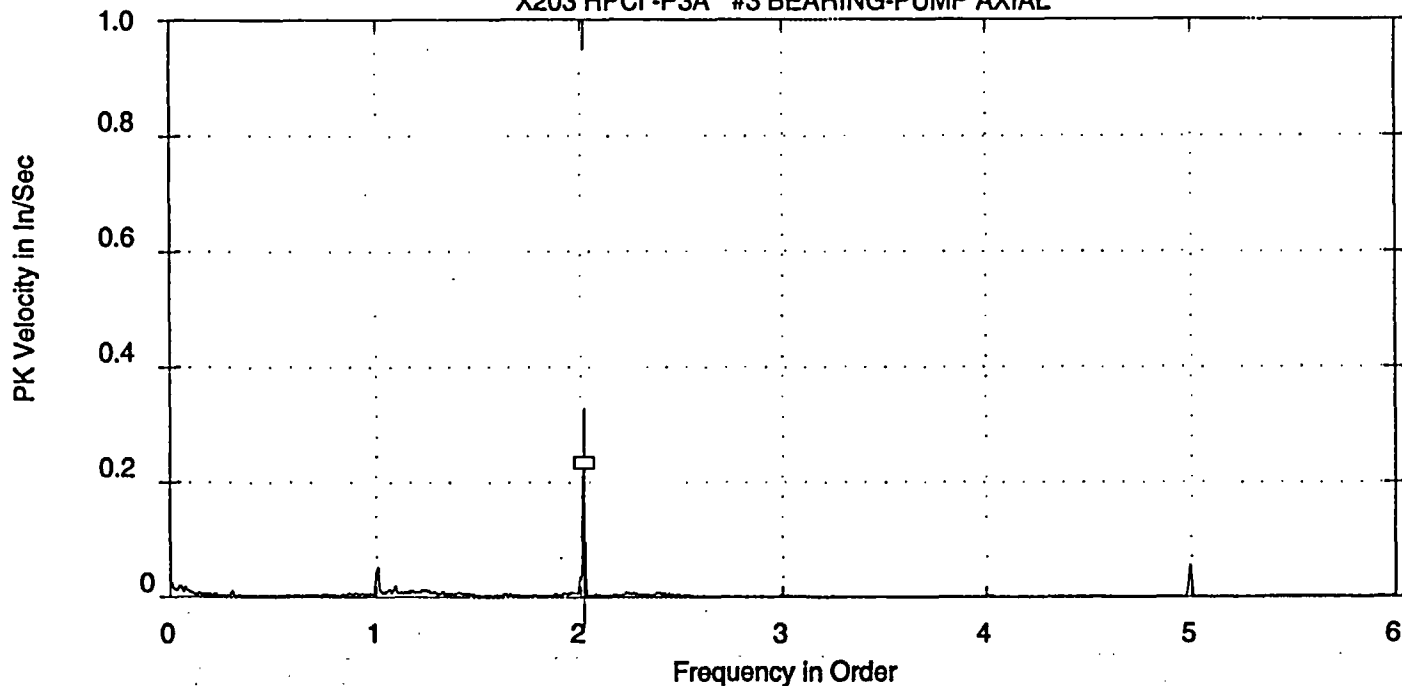
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RPS = 66.25



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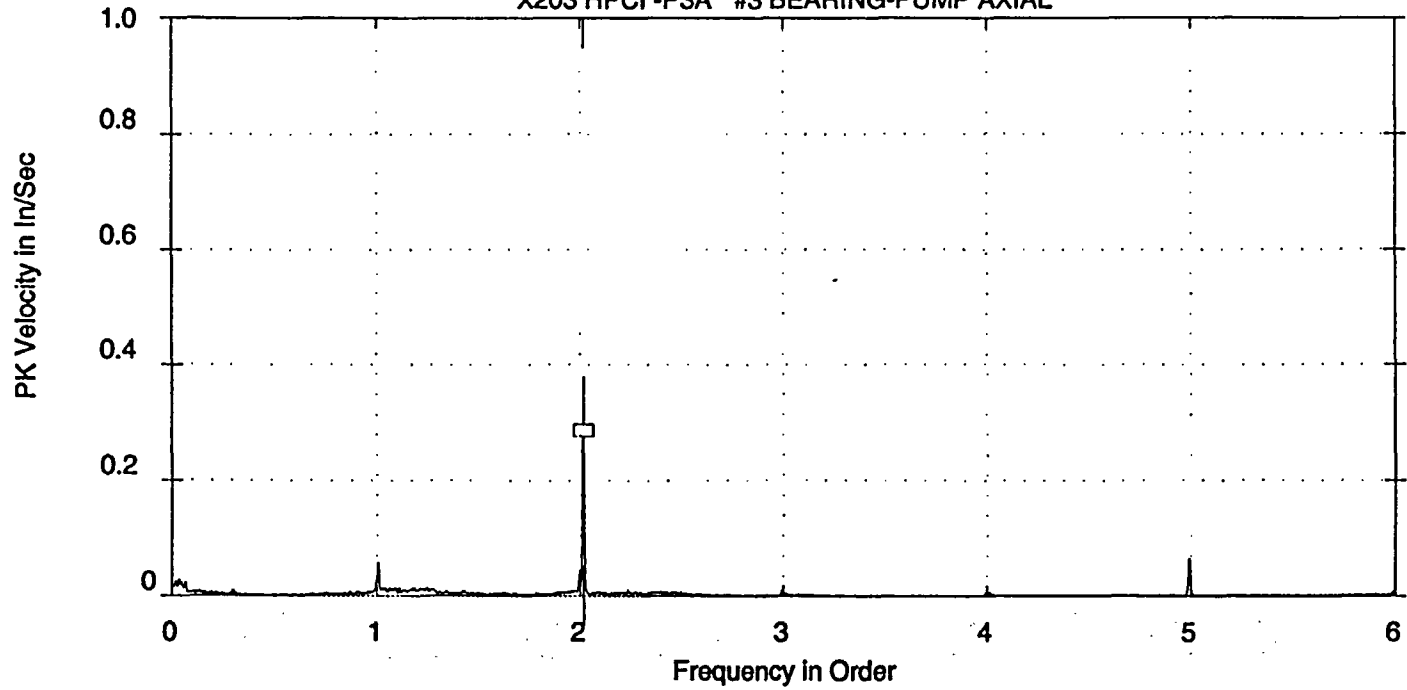
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Spec: .363

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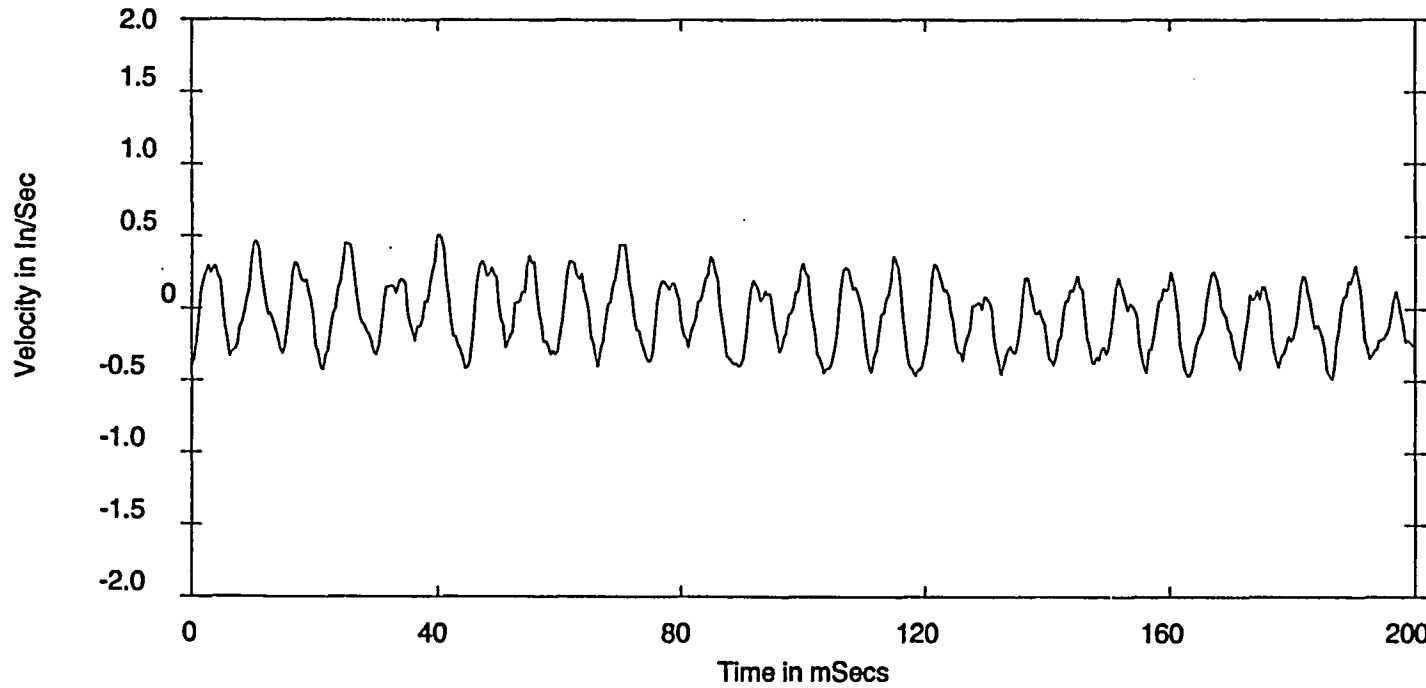


Ordr: 2.014  
Freq: 134.24  
Spec: .254

RX - X203,P205 HPCI TURB & PUMP  
X203 HPCI -P3A #3 BEARING-PUMP AXIAL



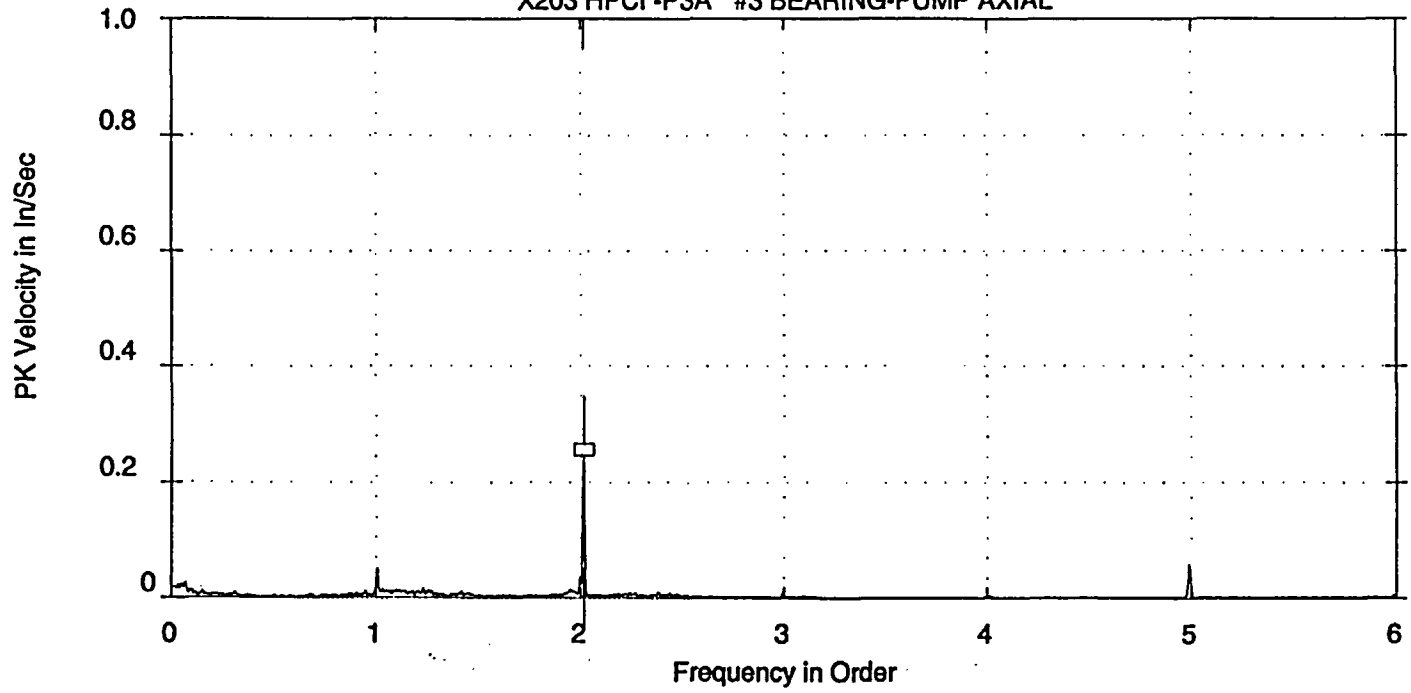
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RPS = 66.80



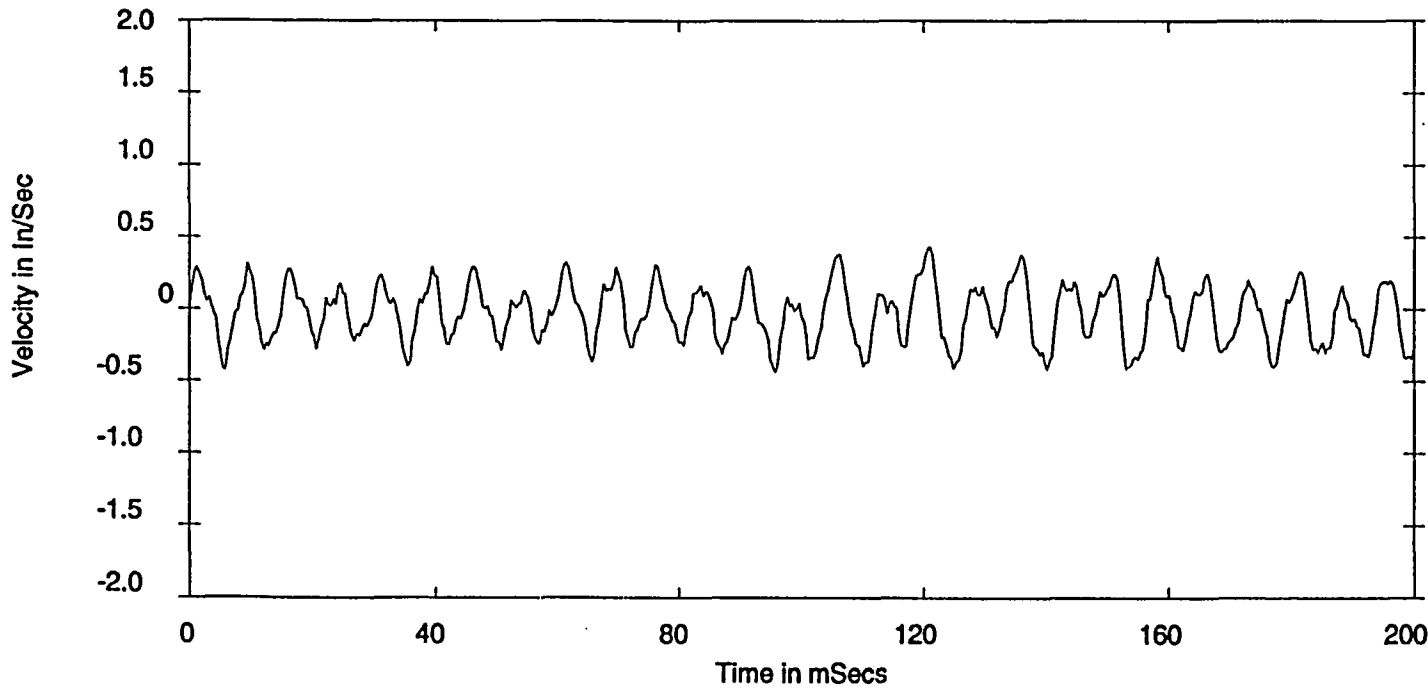
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CRESTF= 2.71

Ordr: 2.014  
Freq: 134.56  
Spec: .310

RX - X203, P205 HPCI TURB & PUMP  
X203 HPCI -P3A #3 BEARING-PUMP AXIAL



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RPS = 66.69

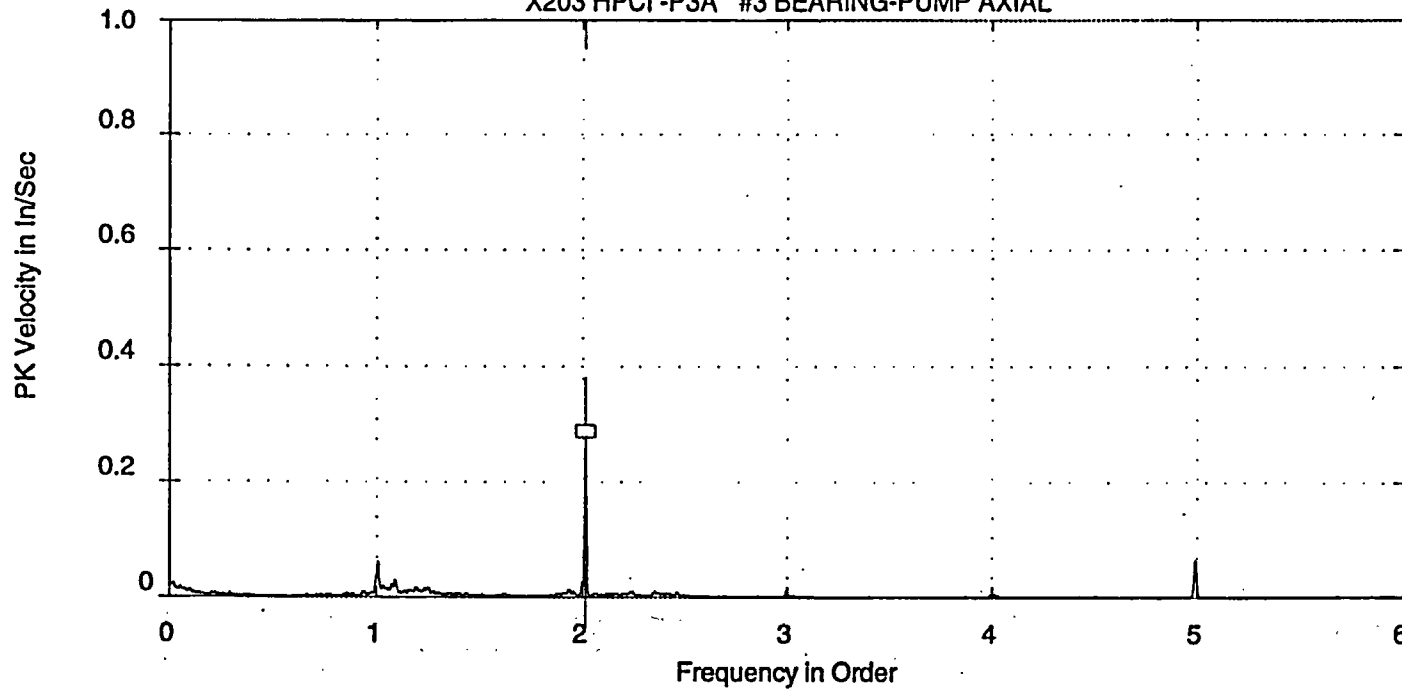


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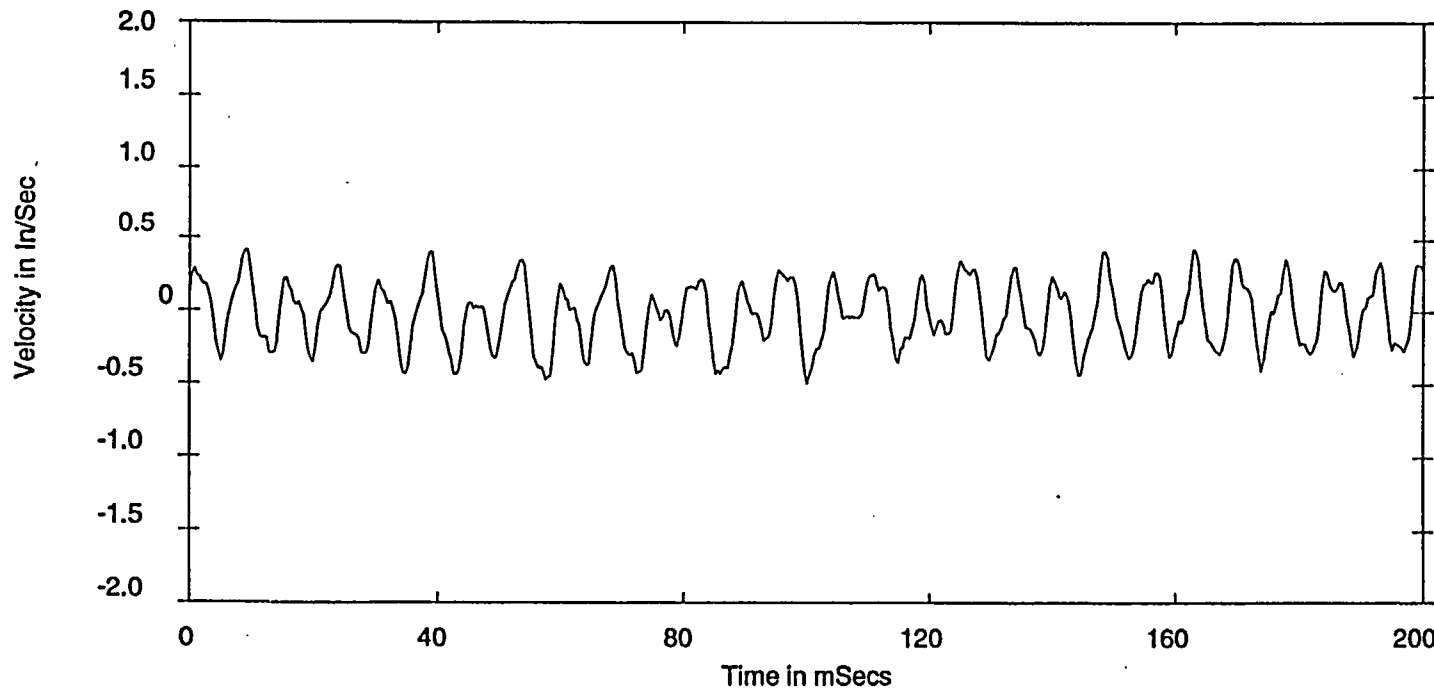
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Freq: 134.29  
Spec: .258



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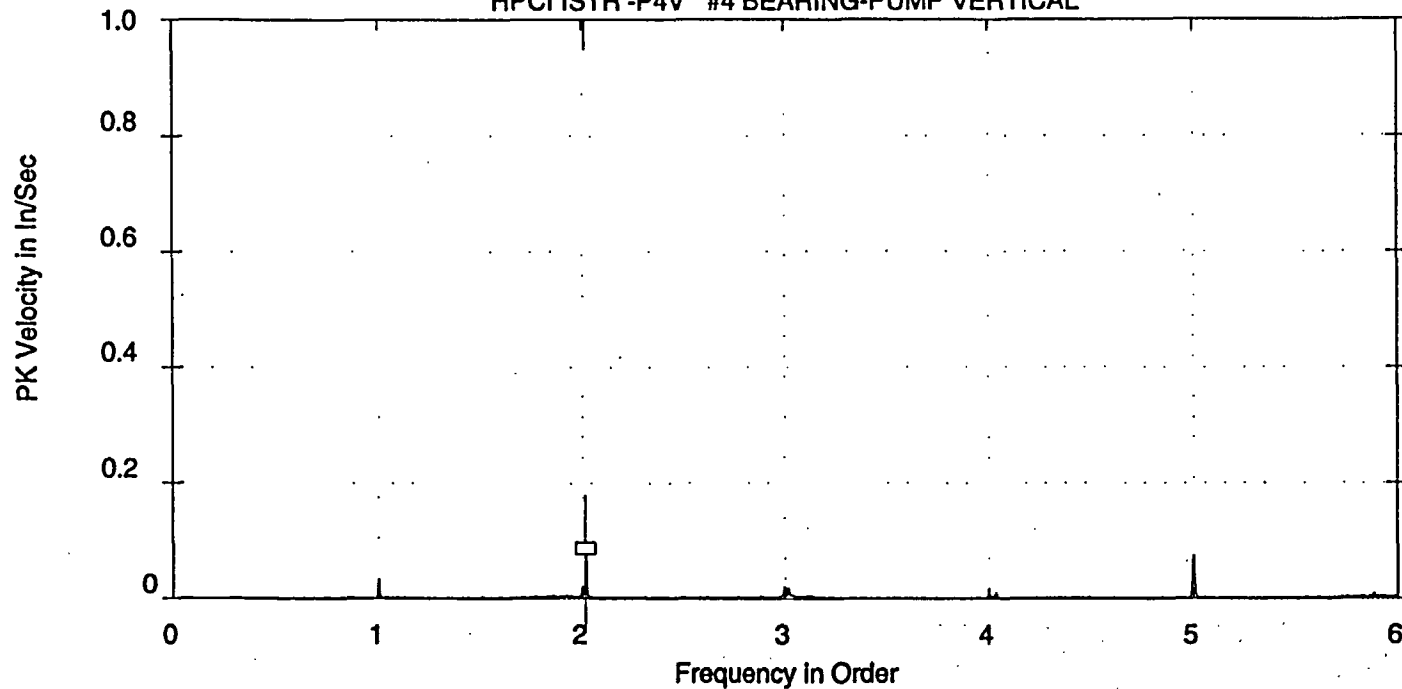
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RPS = 67.64



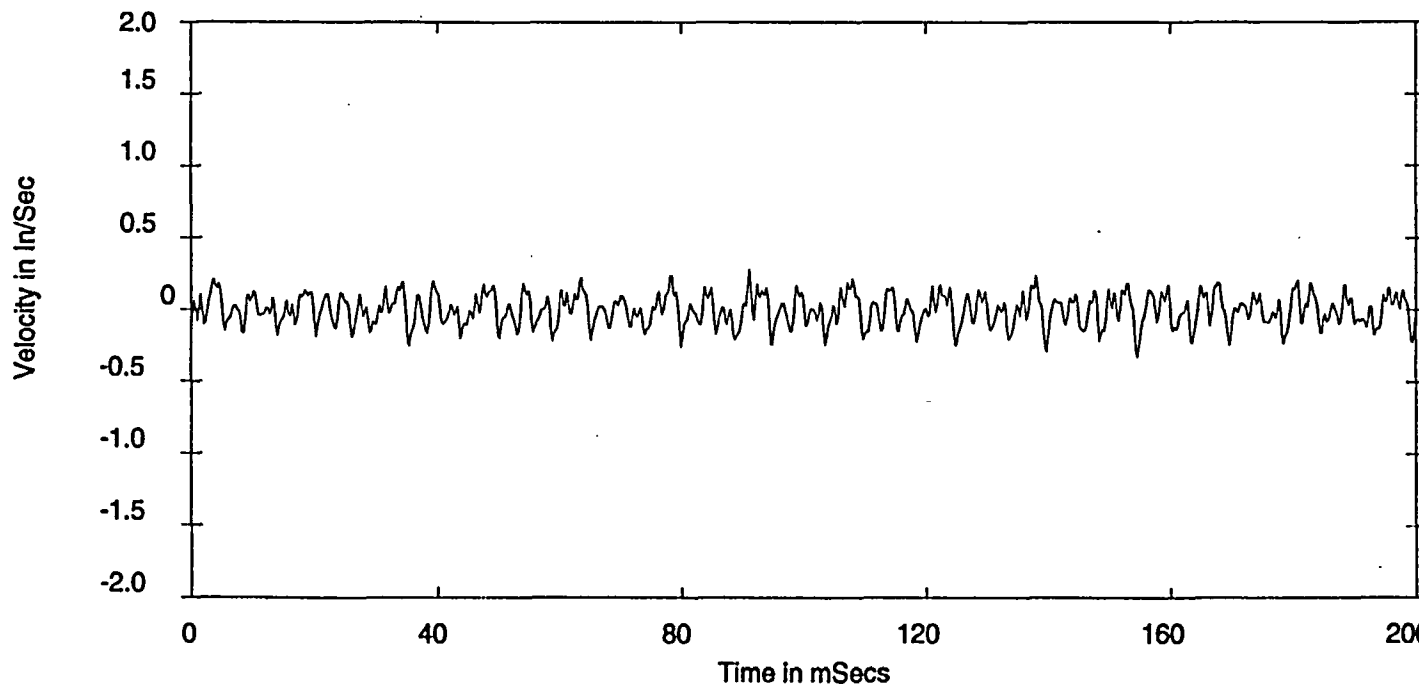
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CRESTF= 2.25

Ordr: 2.014  
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Spec: .280

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HPCI ISTR -P4V #4 BEARING-PUMP VERTICAL



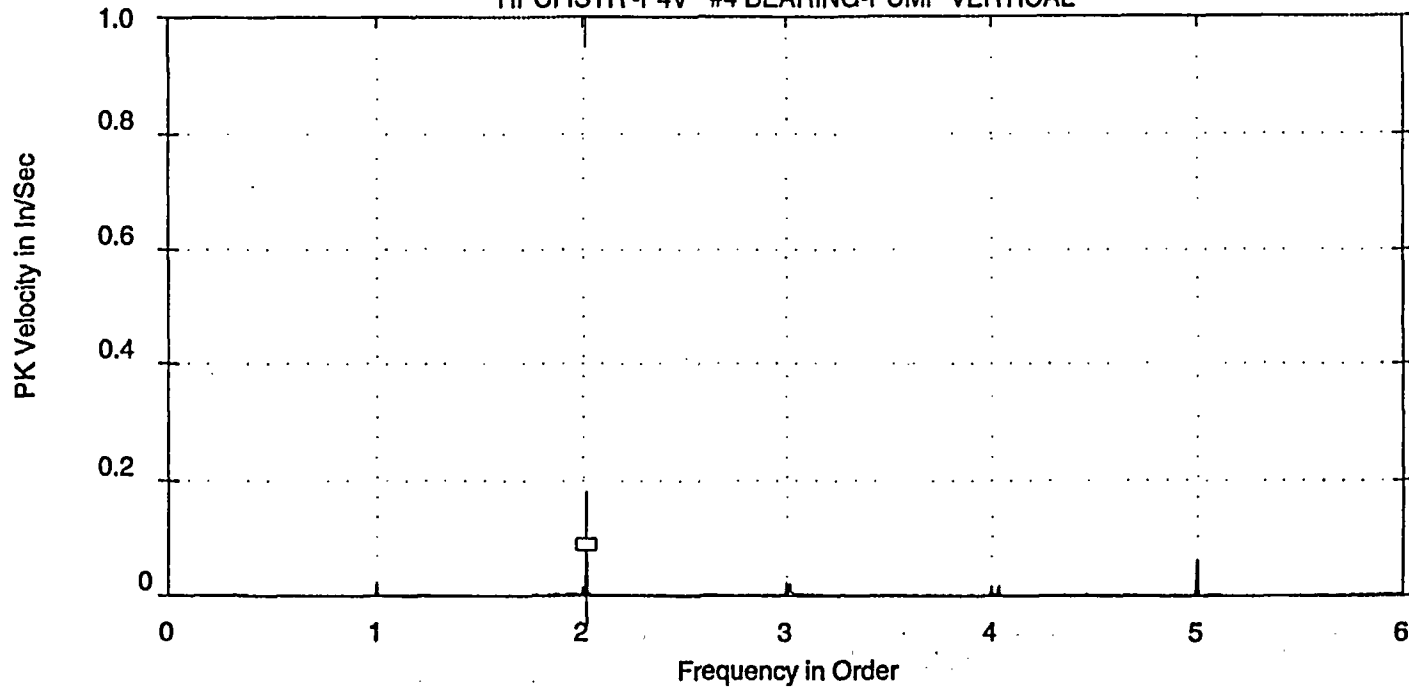
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RPS = 66.98



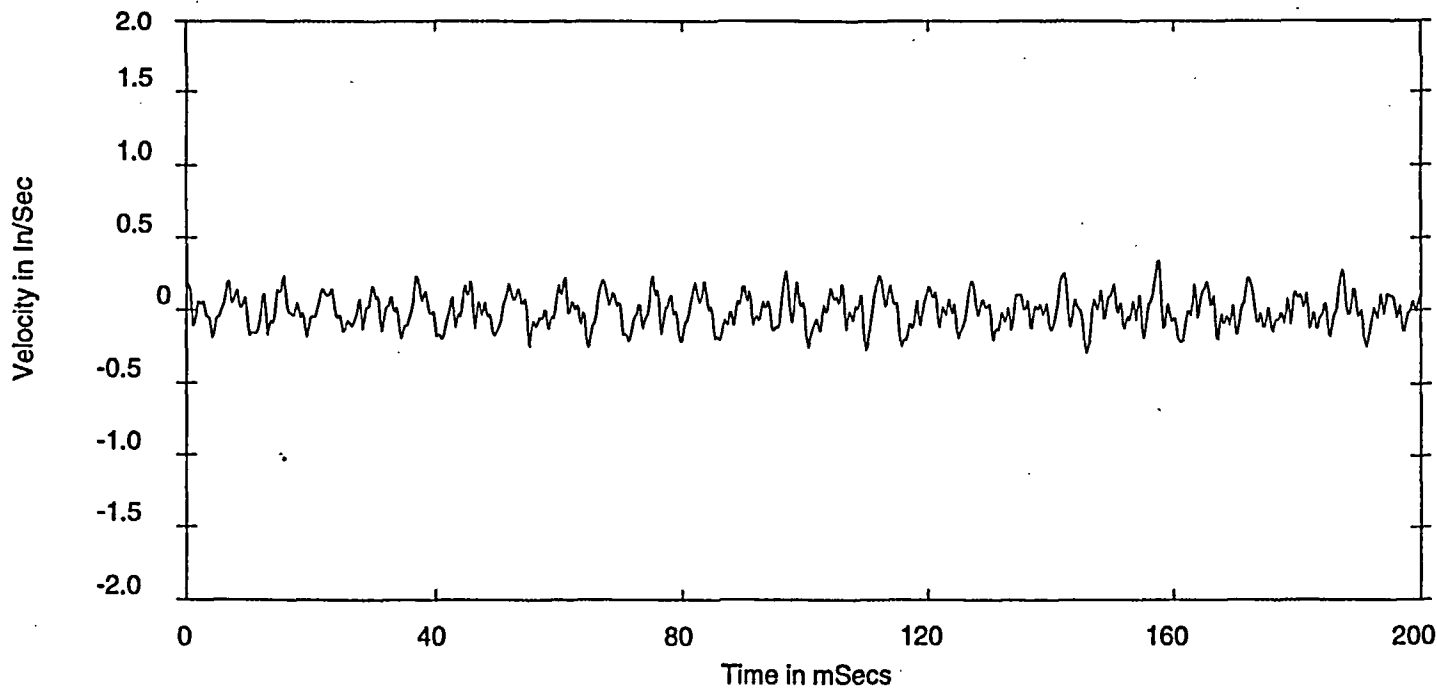
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Ordr: 2.016  
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Spec: .07664

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HPCI ISTR -P4V #4 BEARING-PUMP VERTICAL



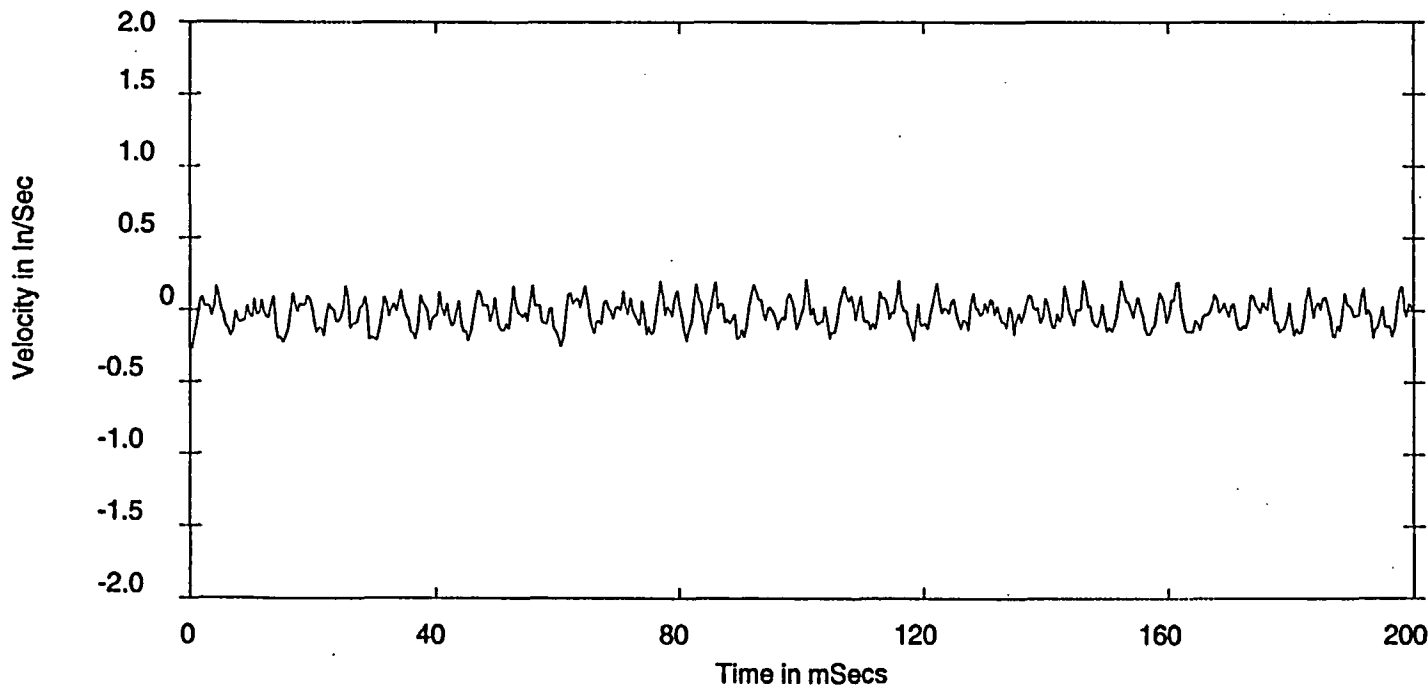
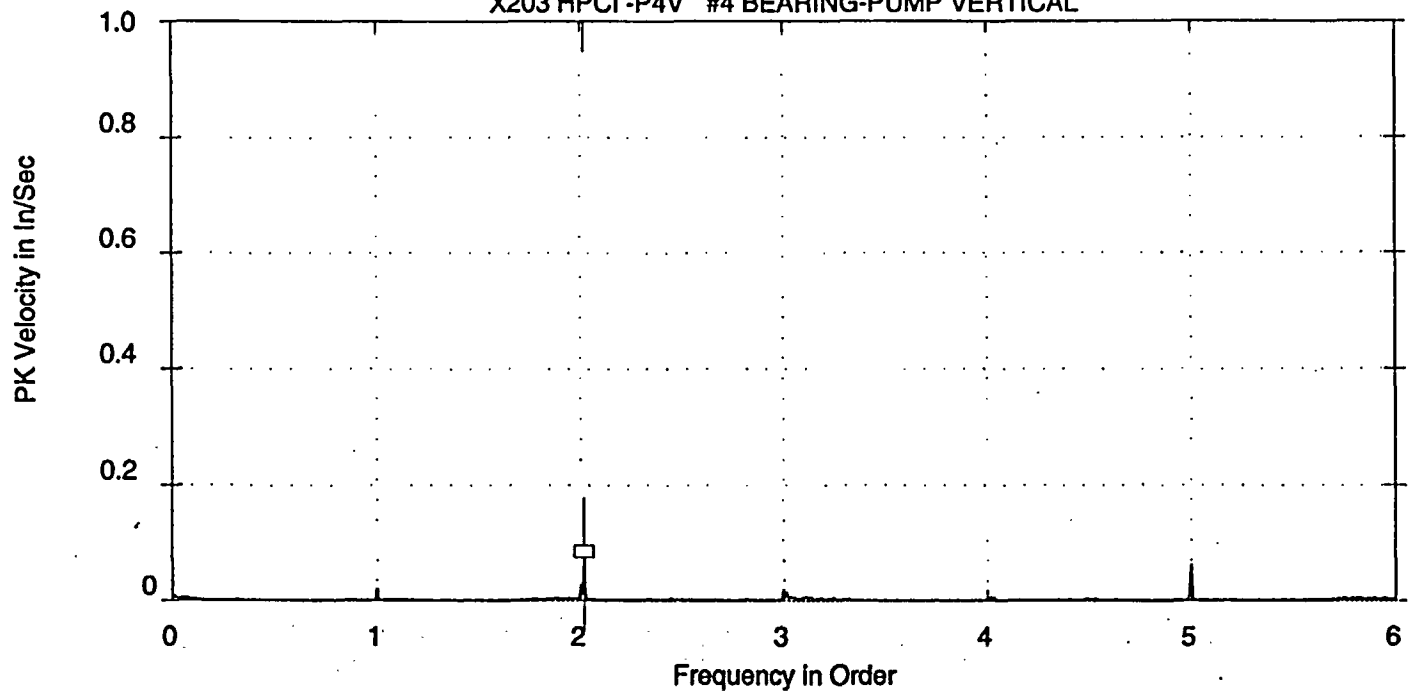
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RPS = 66.27



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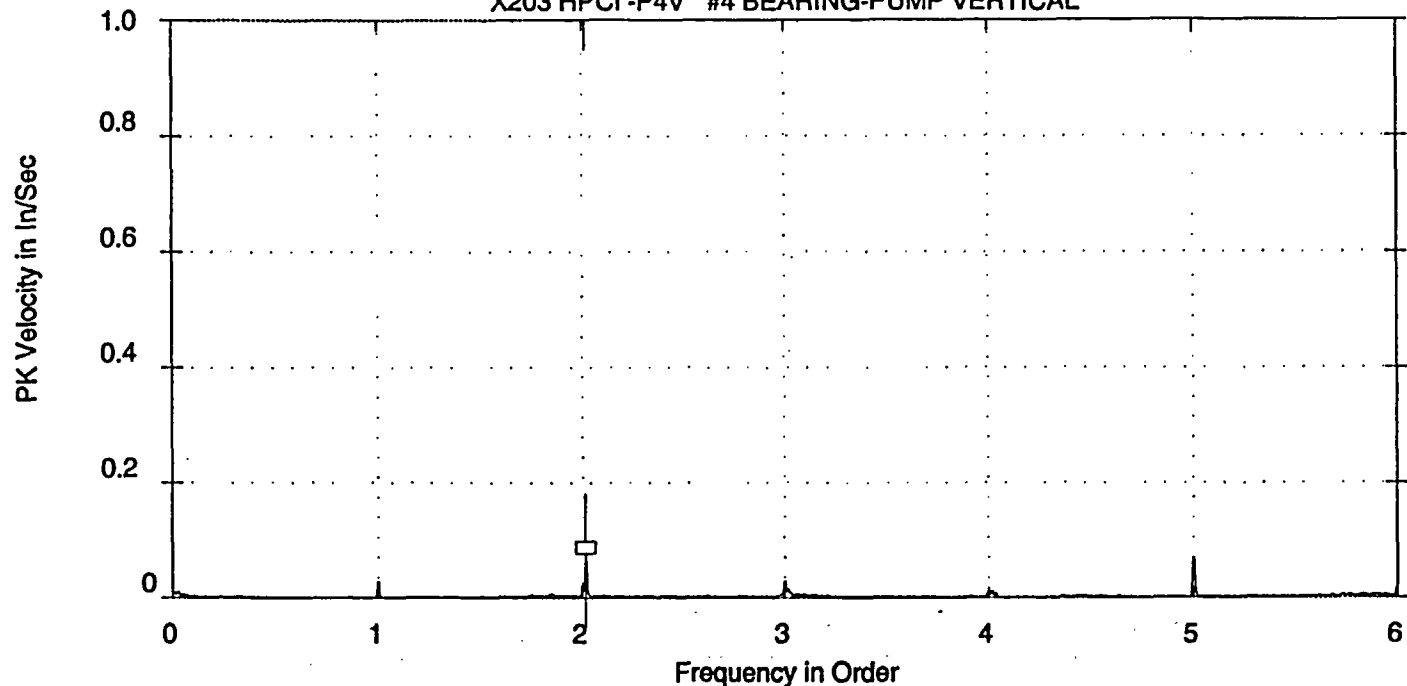
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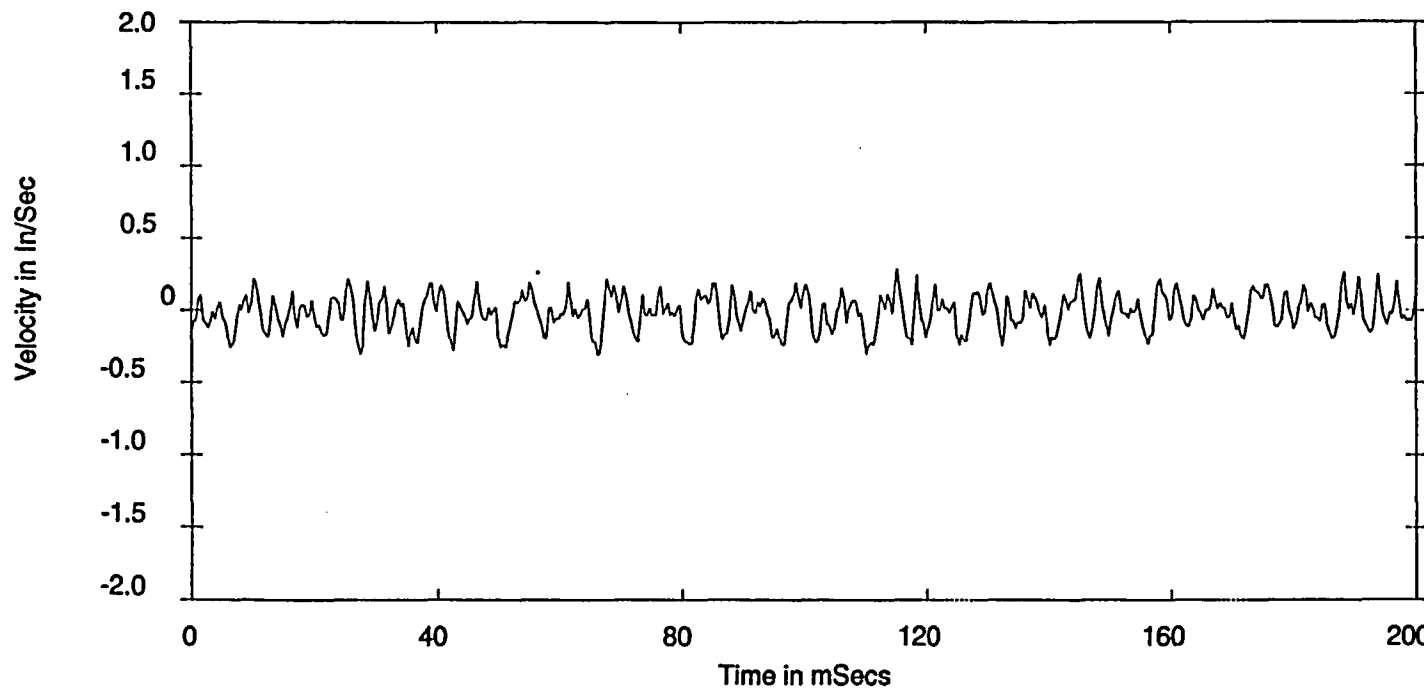


Ordr: 2.017  
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Spec: .07982

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X203 HPCI -P4V #4 BEARING-PUMP VERTICAL



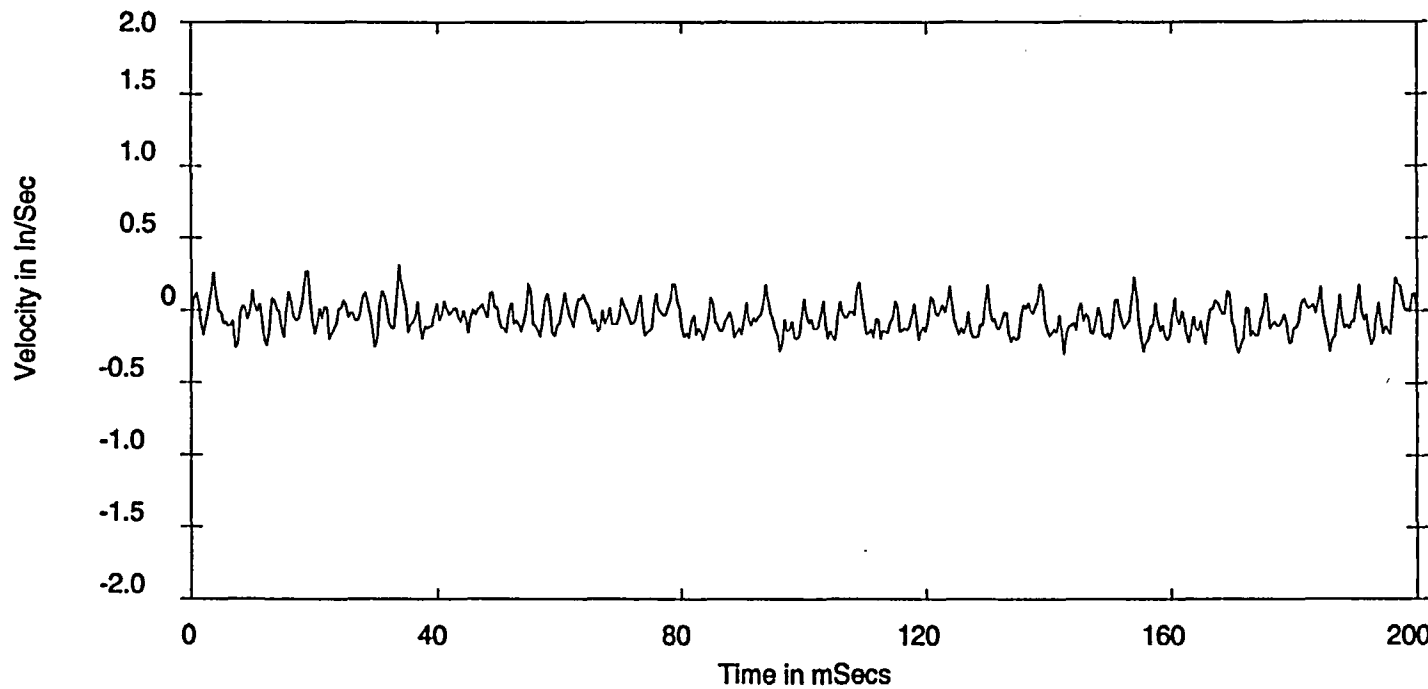
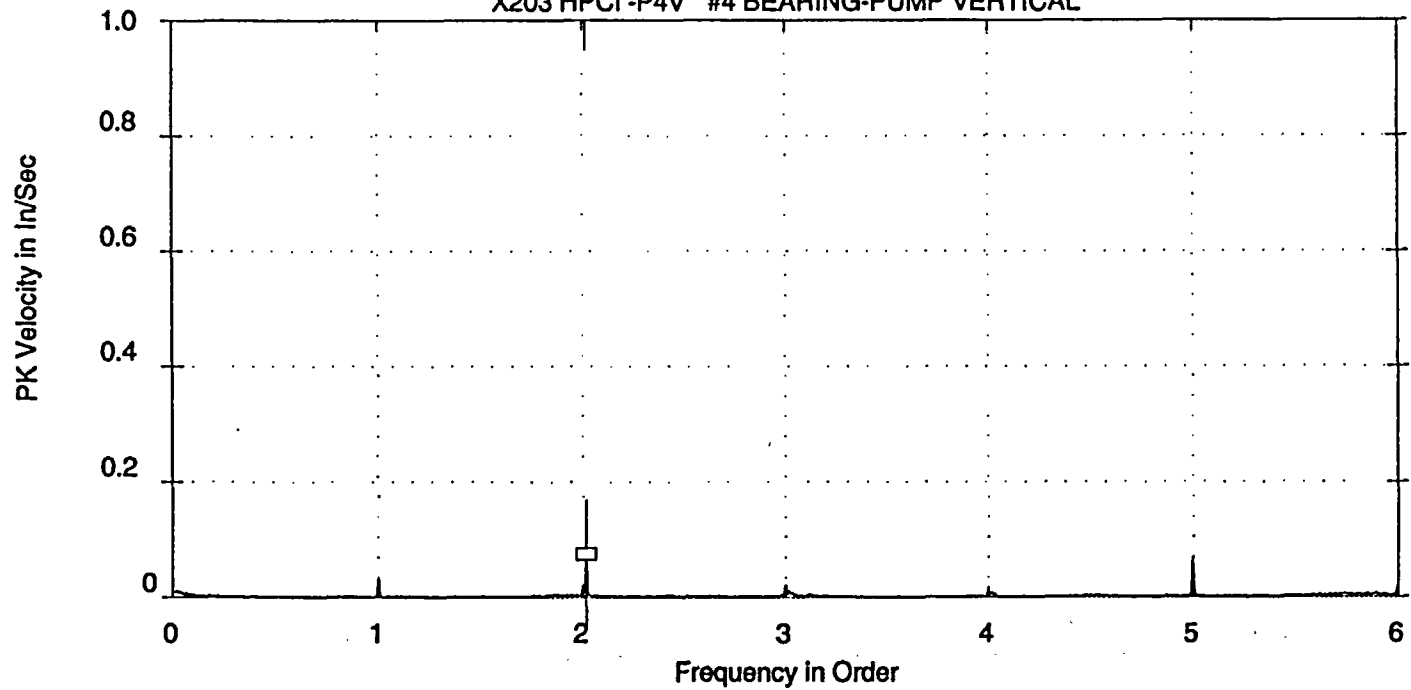
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RPS = 66.66



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PK(-) = .2944  
CRESTF= 2.88

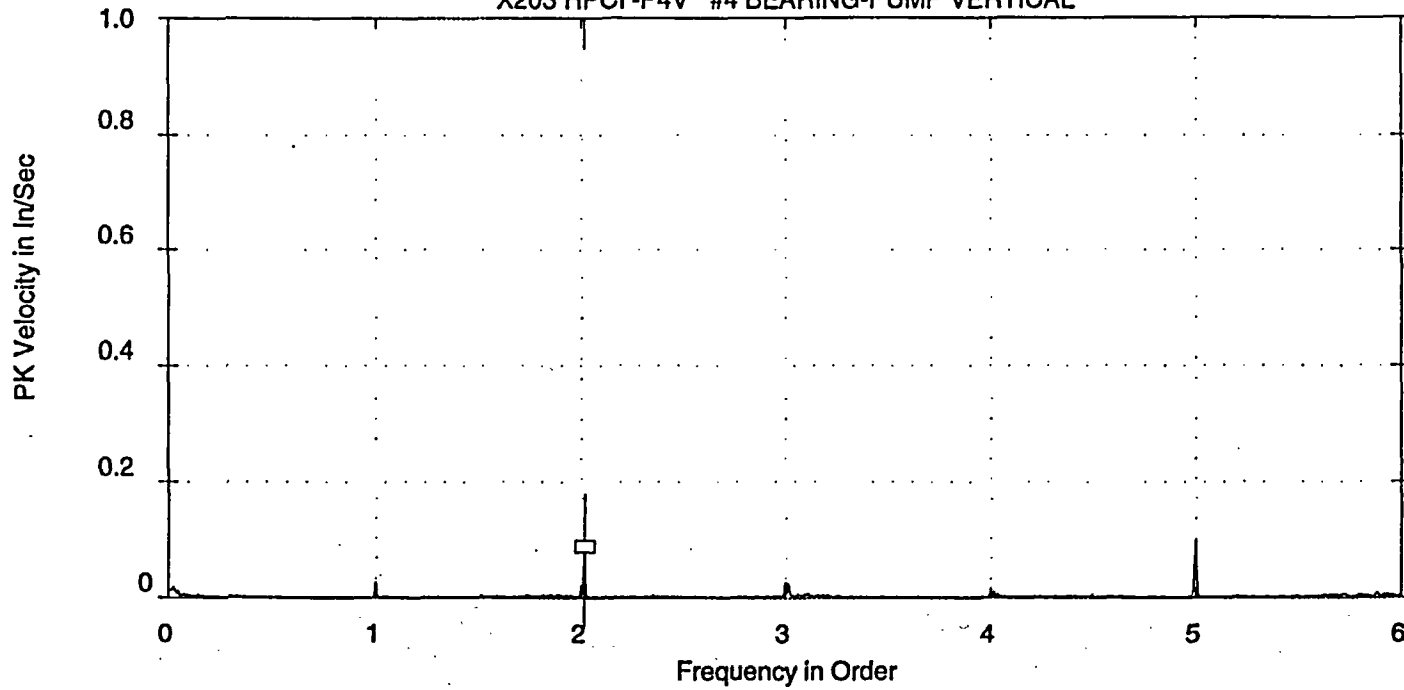
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Freq: 134.47  
Spec: .08144

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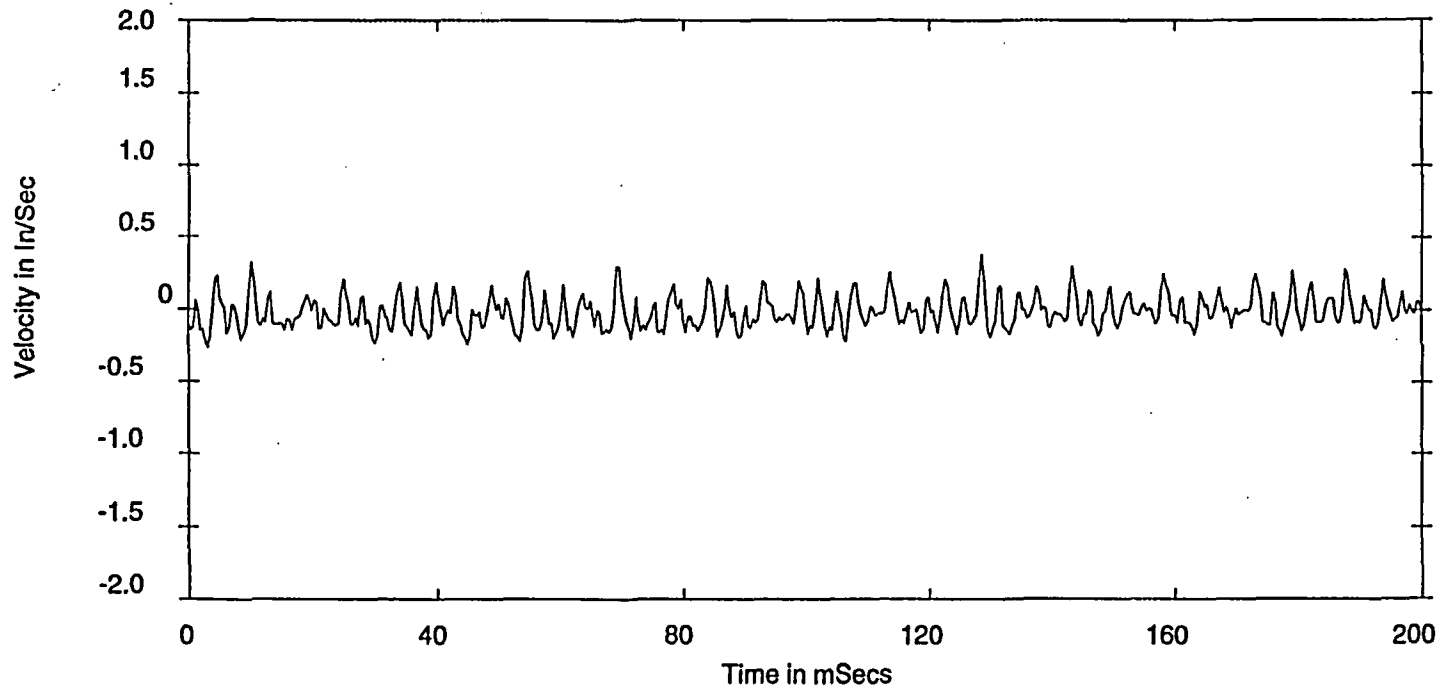


Ordr: 2.016  
Freq: 134.17  
Spec: .06989

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X203 HPCI-P4V #4 BEARING-PUMP VERTICAL



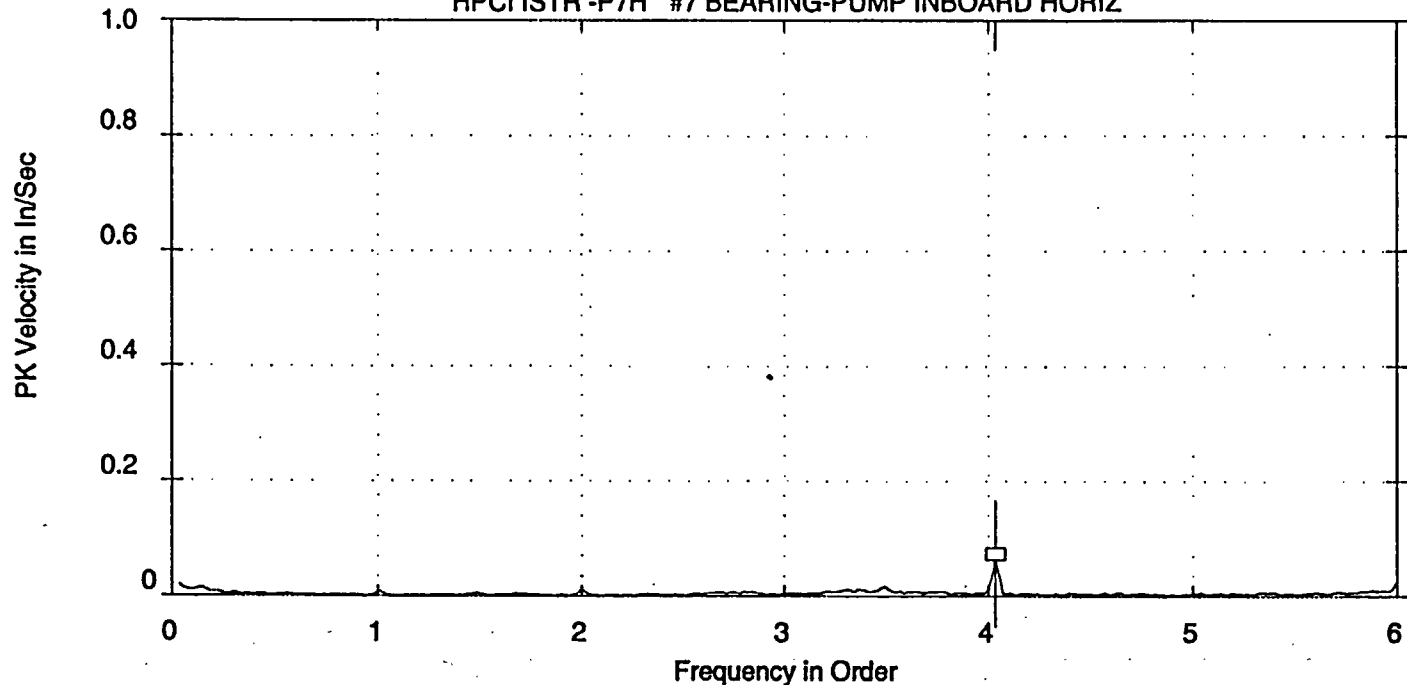
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RPS = 67.58



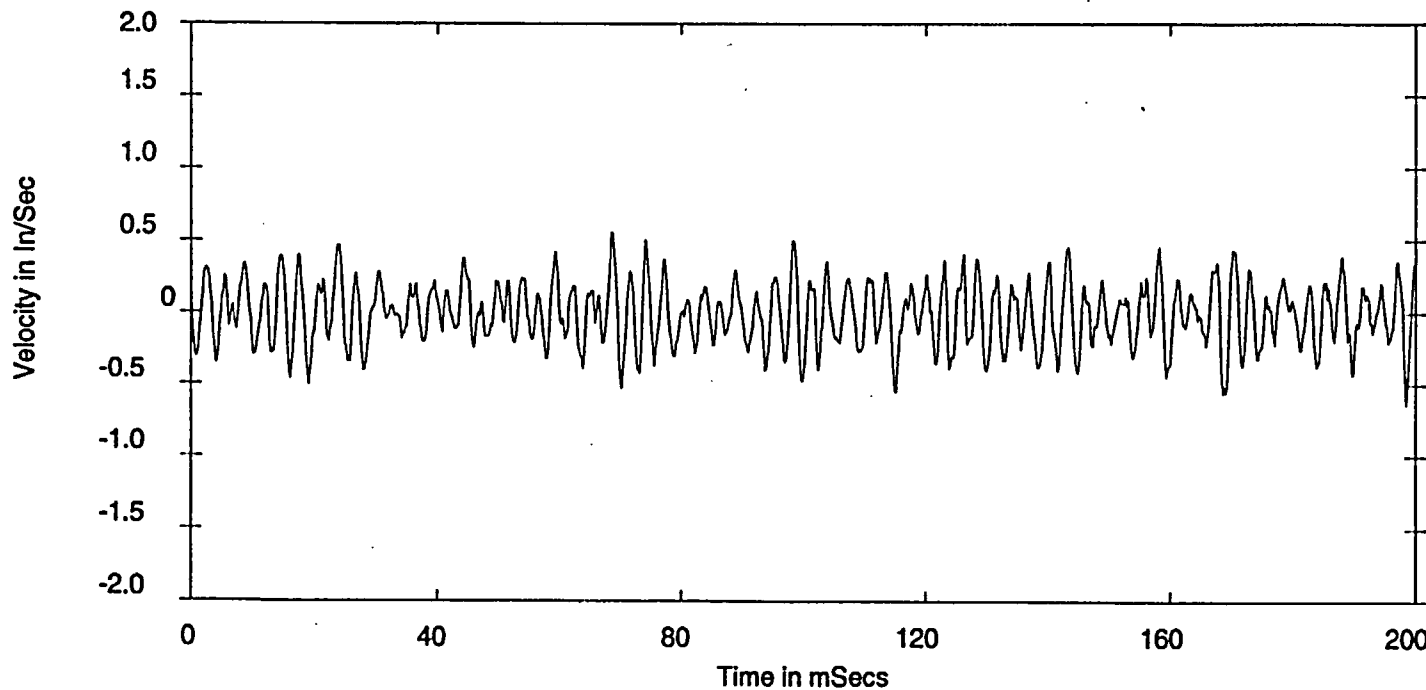
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PK(-) = .2620  
CRESTF= 3.35

Ordr: 2.016  
Freq: 136.25  
Spec: .07871

IST - IST, P205 HPCI @42.5k  
HPCI ISTR -P7H #7 BEARING-PUMP INBOARD HORIZ



ROUTE SPECTRUM  
24-NOV-04 00:47:45  
OVRALL= .2981 V-DG  
PK = .1027  
LOAD =4250.0  
RPM = 2008.  
RPS = 33.47

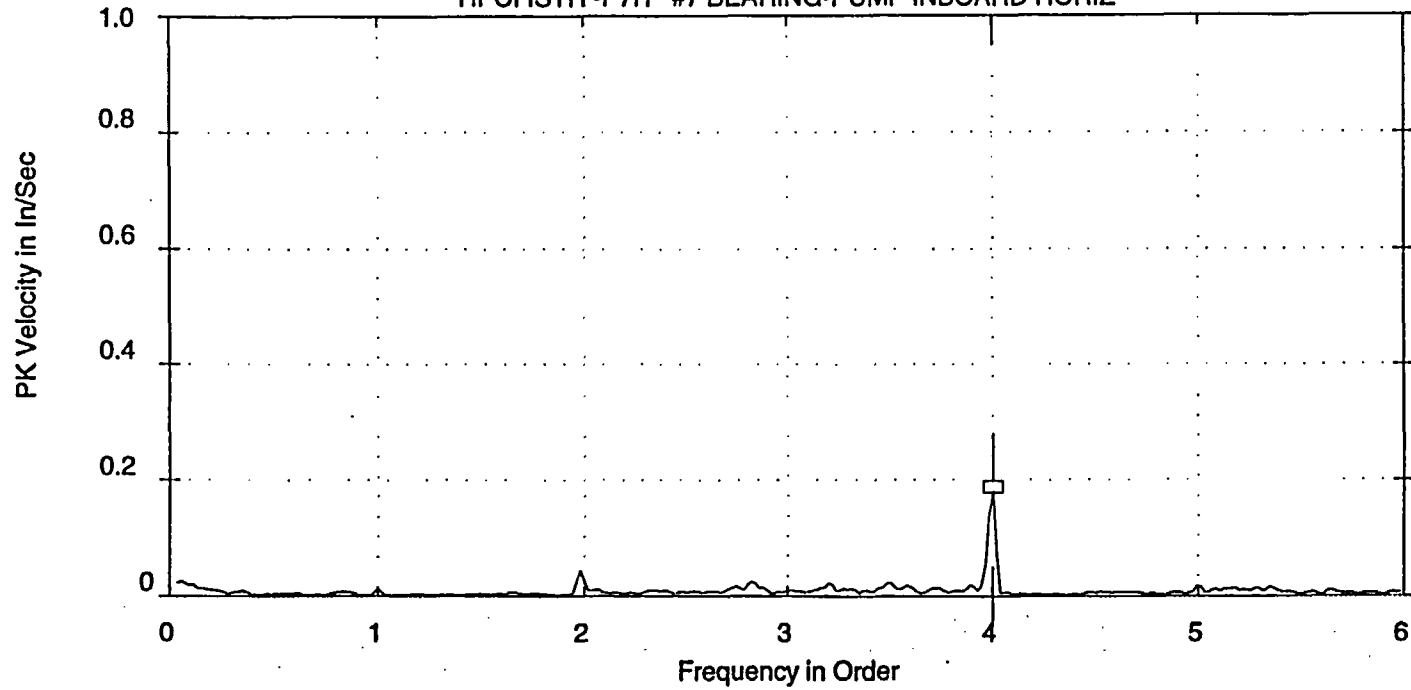


ROUTE WAVEFORM  
24-NOV-04 00:47:45  
PK = .3023  
PK(+) = .5694  
PK(-) = .6280  
CRESTF= 2.94

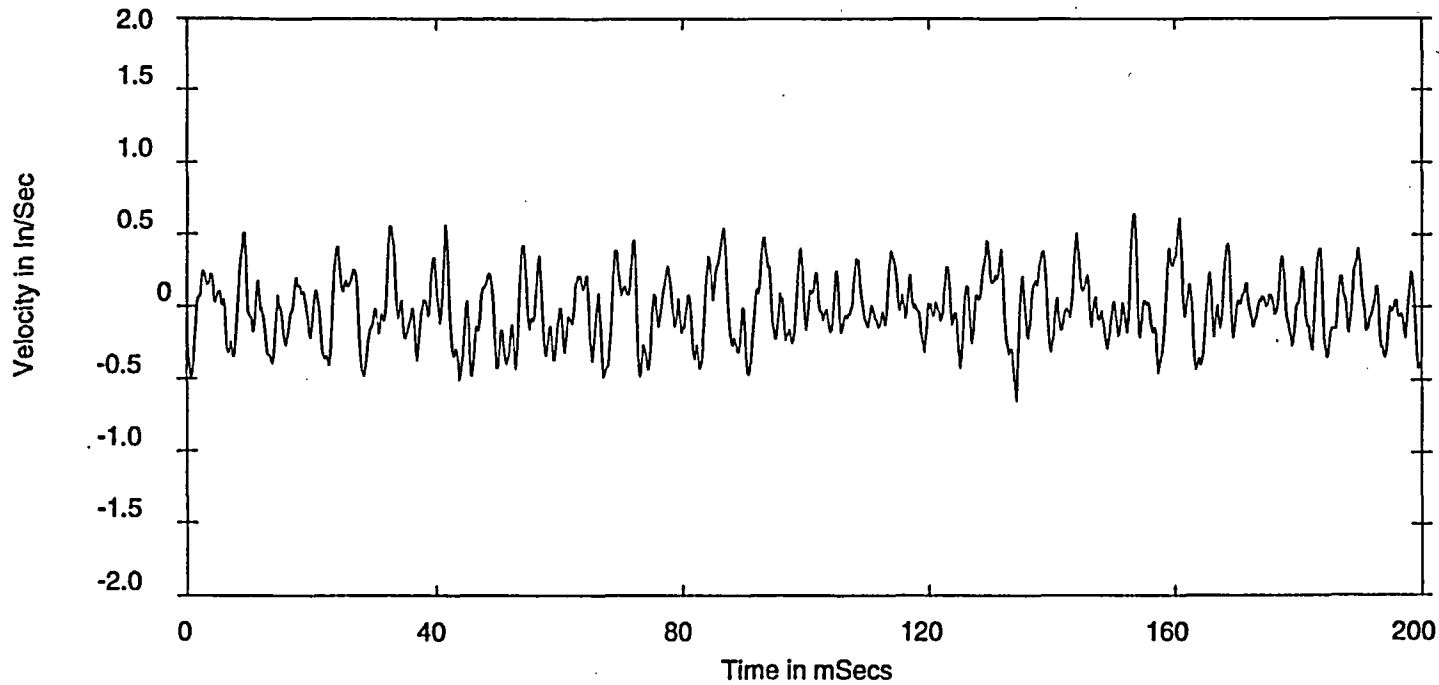
Ordr: 4.035  
Freq: 135.04  
Spec: .06375



IST - IST, P205 HPCI @42.5k  
HPCI ISTR -P7H #7 BEARING-PUMP INBOARD HORIZ



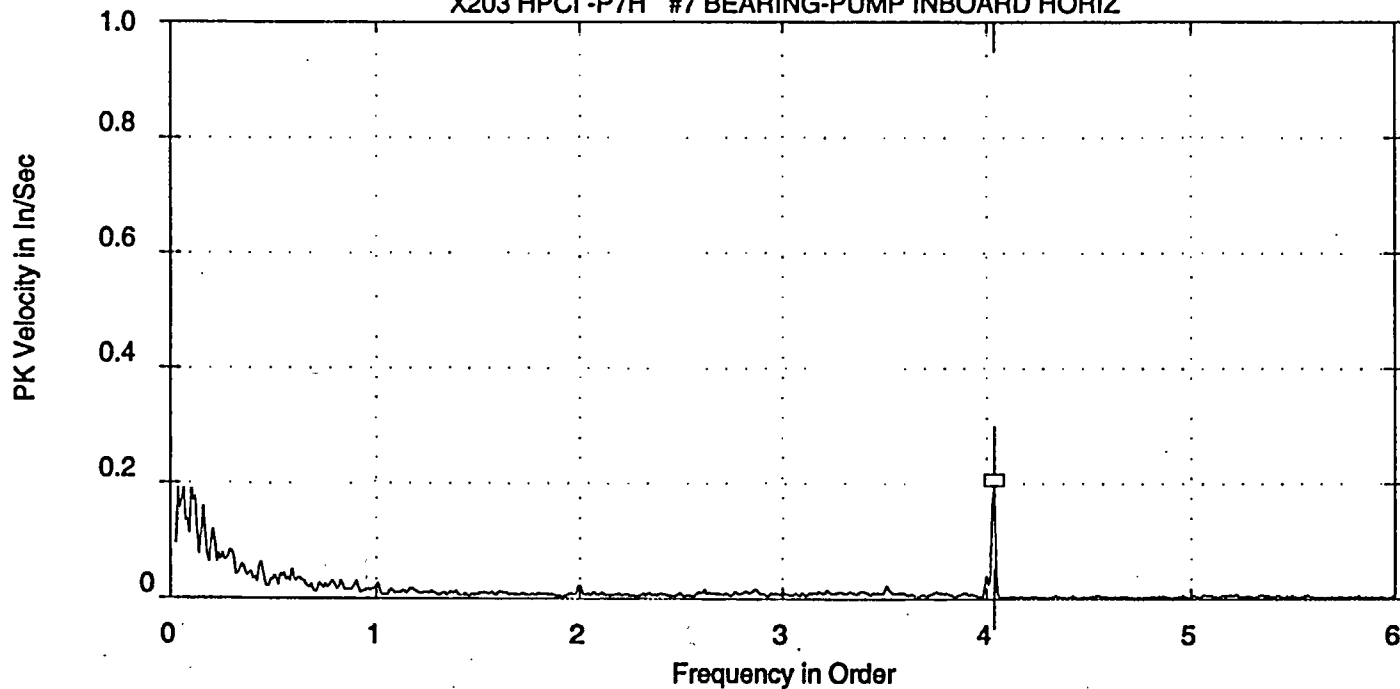
ROUTE SPECTRUM  
24-AUG-04 20:51:42  
OVRALL= .3277 V-DG  
PK = .2404  
LOAD =4250.0  
RPM = 2005.  
RPS = 33.42



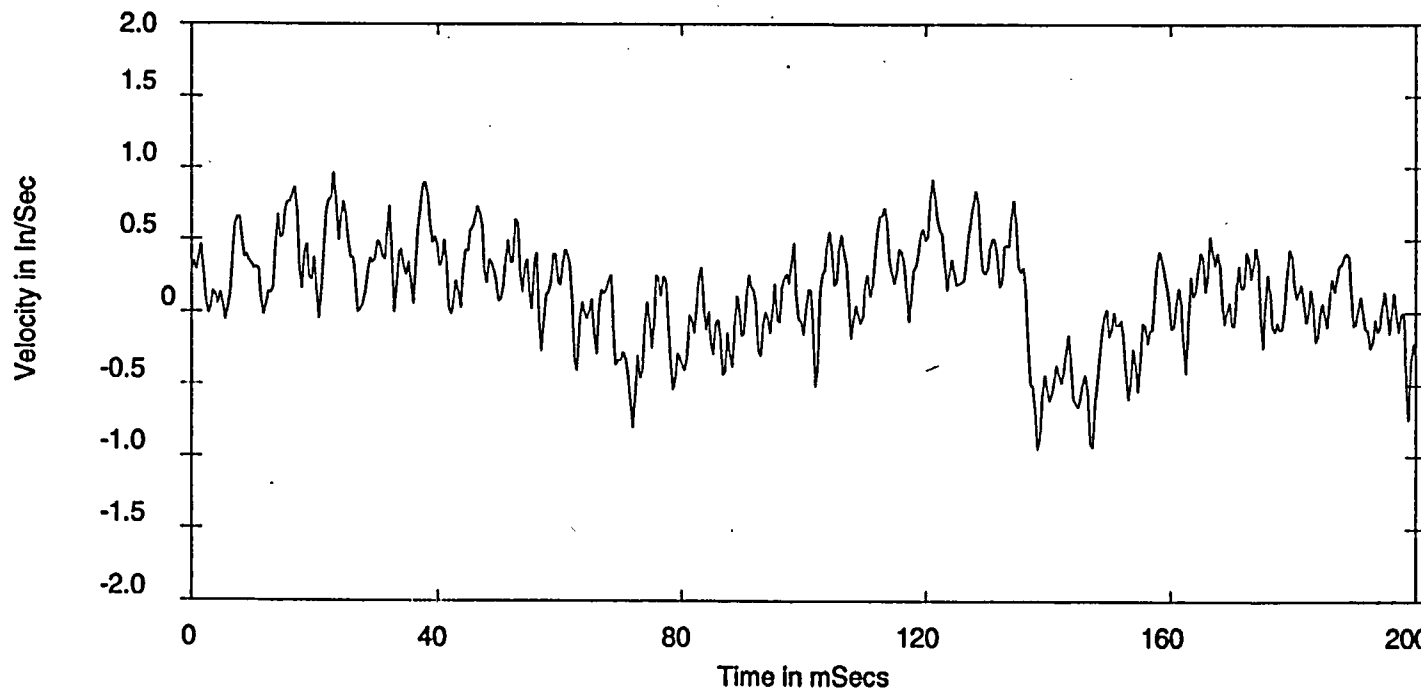
ROUTE WAVEFORM  
24-AUG-04 20:51:42  
PK = .3180  
PK(+) = .6541  
PK(-) = .6249  
CRESTF= 2.91

Ordr: 4.002  
Freq: 133.75  
Spec: .178

RX - X203,P205 HPCI TURB & PUMP  
X203 HPCI -P7H #7 BEARING-PUMP INBOARD HORIZ



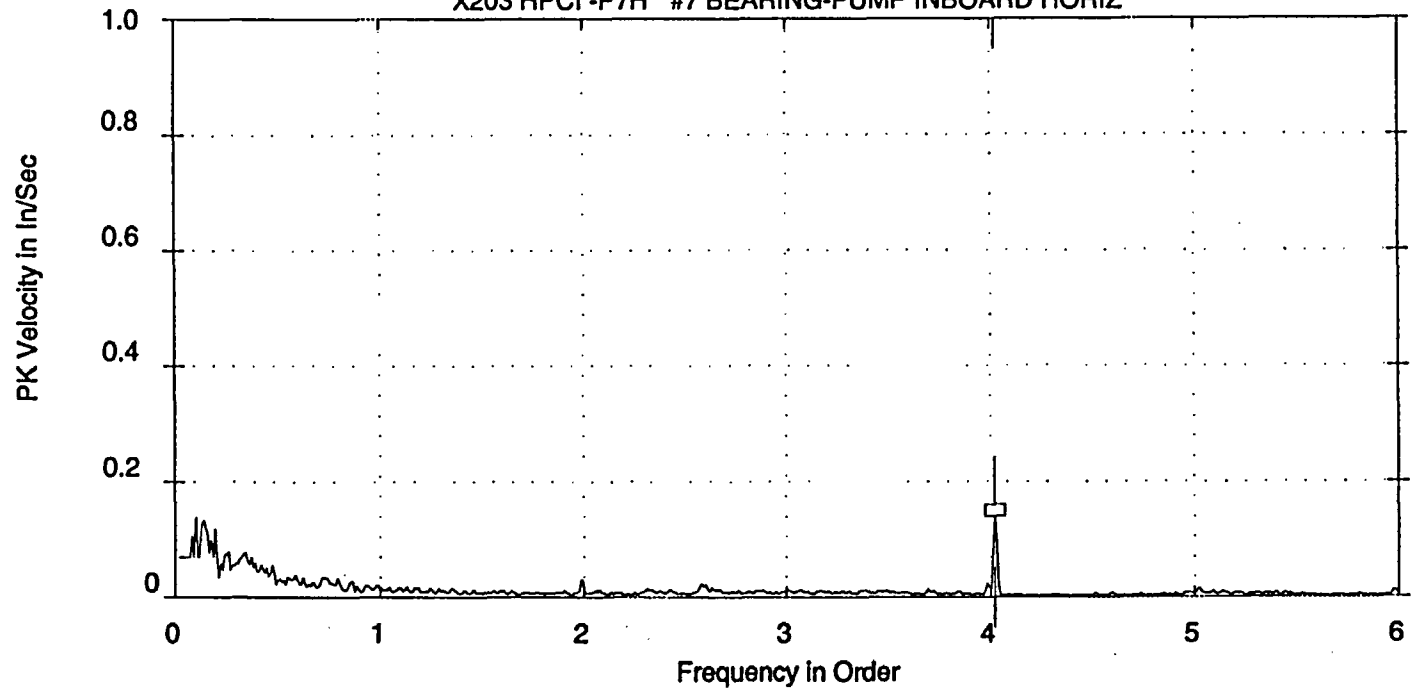
ROUTE SPECTRUM  
17-DEC-97 21:49:48  
OVRALL= 1.98 V-AP  
PK = .6538  
LOAD =4250.0  
RPM = 1993.  
RPS = 33.21



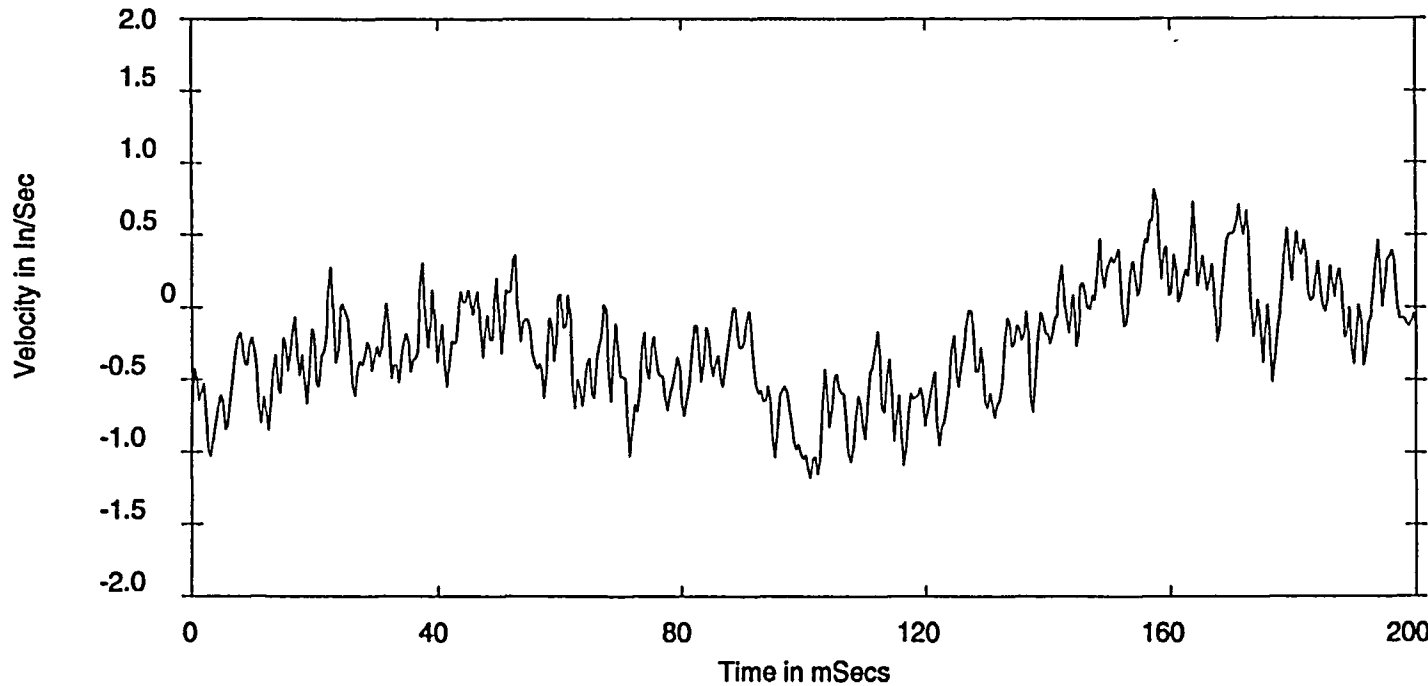
WAVEFORM DISPLAY  
17-DEC-97 21:49:48  
PK = .4923  
PK(+) = 1.14  
PK(-) = 1.21  
CRESTF= 3.11

Ordr: 4.033  
Freq: 133.95  
Spec: .214

RX - X203,P205 HPCI TURB & PUMP  
X203 HPCI -P7H #7 BEARING-PUMP INBOARD HORIZ



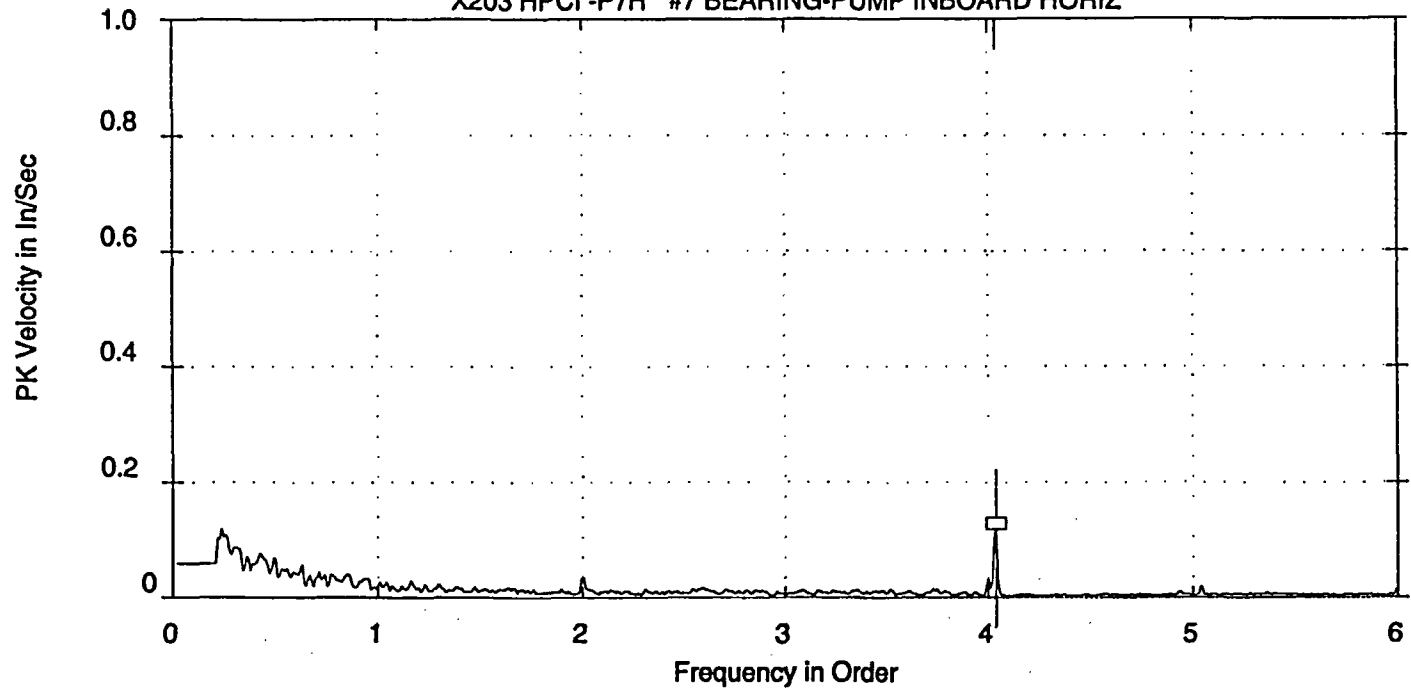
ROUTE SPECTRUM  
06-MAY-96 09:29:26  
OVRALL= .3314 V-DG  
PK = .5015  
LOAD =4250.0  
RPM = 2010.  
RPS = 33.50



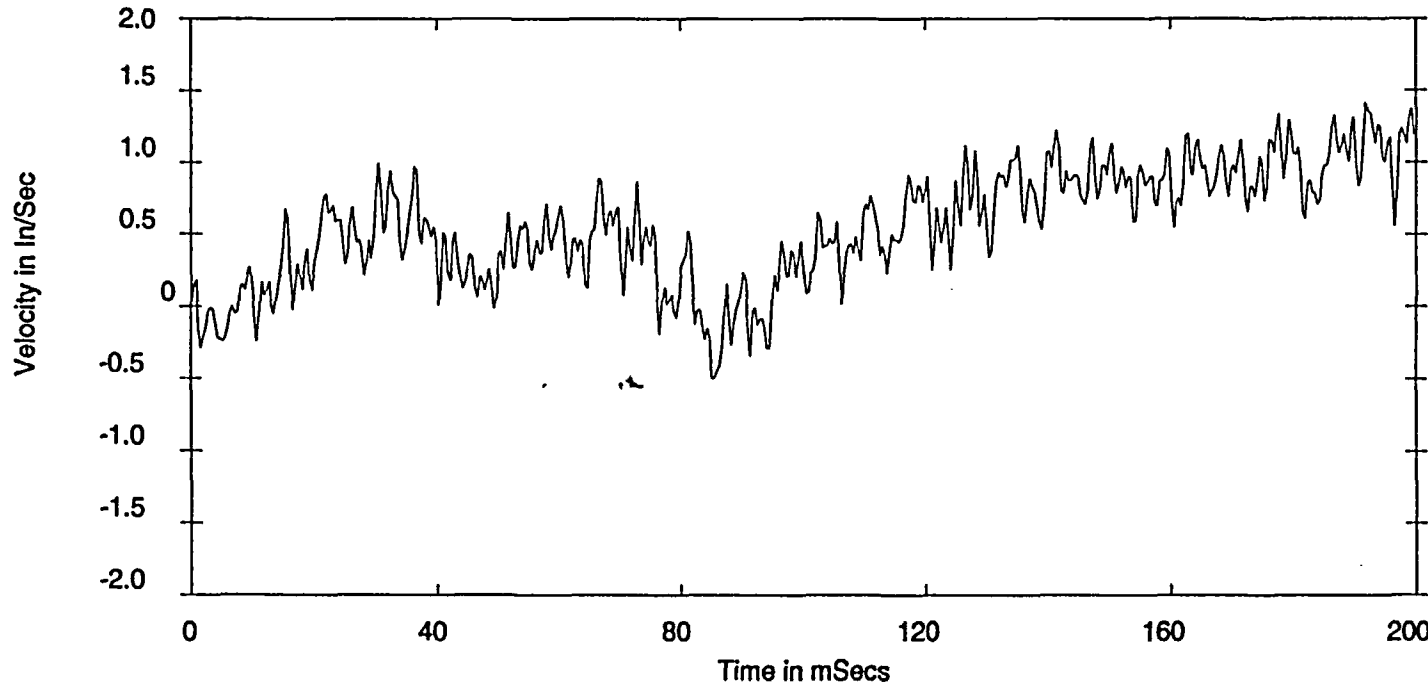
WAVEFORM DISPLAY  
06-MAY-96 09:29:26  
PK = .5512  
PK(+) = 1.09  
PK(-) = 1.16  
CRESTF= 2.71

Ordr: 4.022  
Freq: 134.75  
Spec: .144

RX - X203, P205 HPCI TURB & PUMP  
X203 HPCI -P7H #7 BEARING-PUMP INBOARD HORIZ



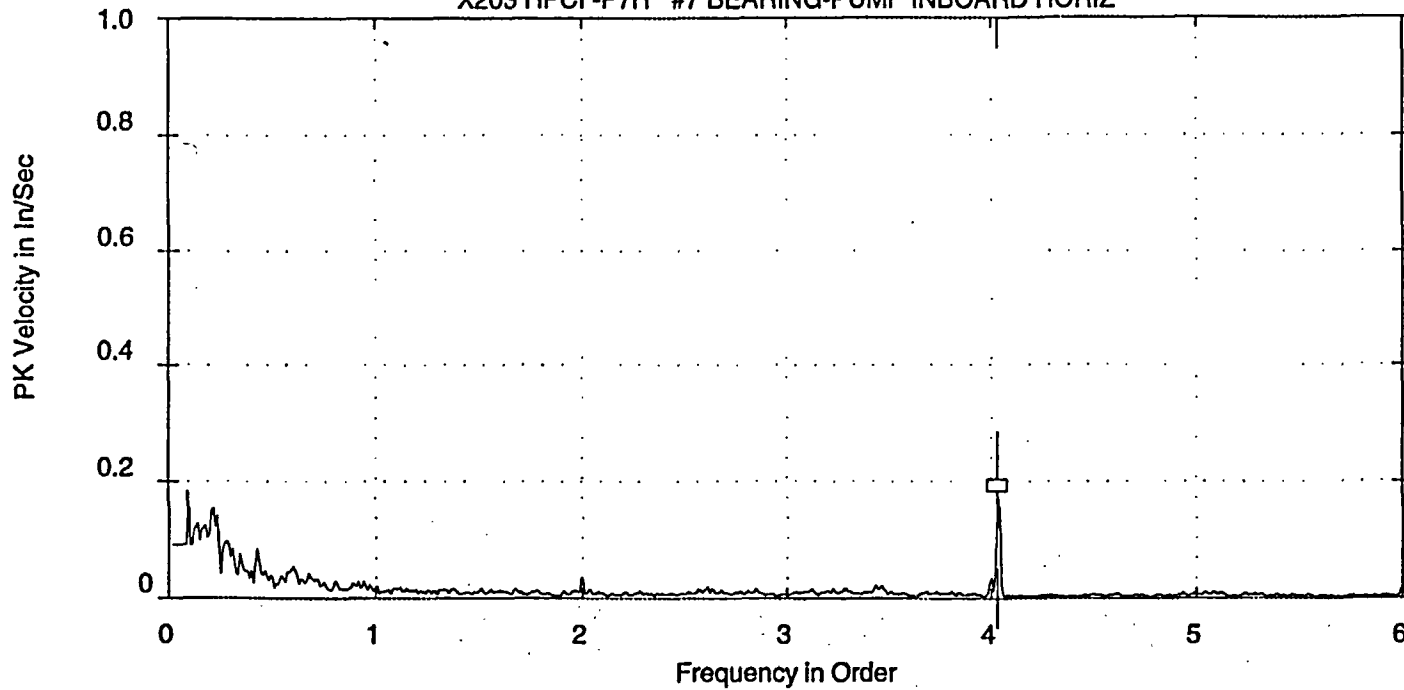
ROUTE SPECTRUM  
20-NOV-95 02:04:06  
OVRALL= .3748 V-DG  
PK = .5115  
LOAD =4250.0  
RPM = 2002.  
RPS = 33.36



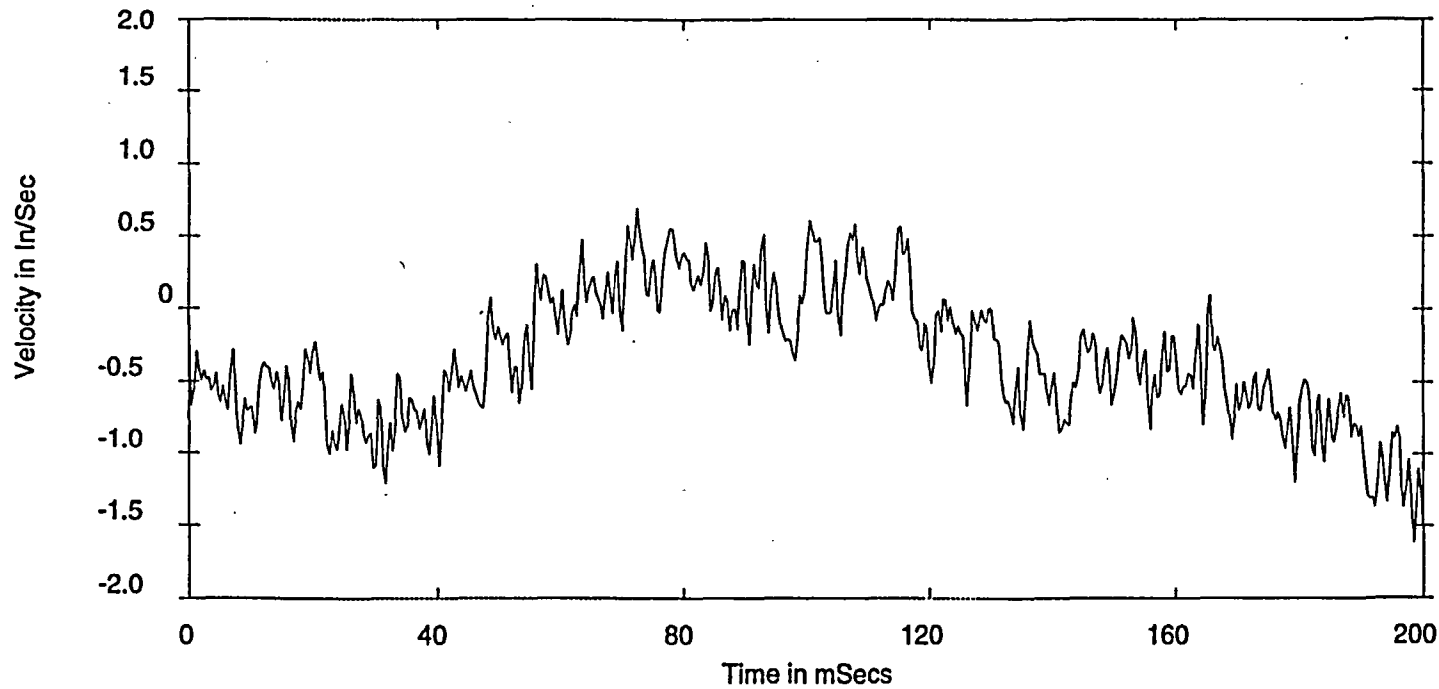
WAVEFORM DISPLAY  
20-NOV-95 02:04:06  
PK = .5685  
PK(+) = 1.32  
PK(-) = 1.41  
CRESTF= 2.37

Ordr: 4.033  
Freq: 134.55  
Spec: .134

RX - X203, P205 HPCI TURB & PUMP  
X203 HPCI -P7H #7 BEARING-PUMP INBOARD HORIZ



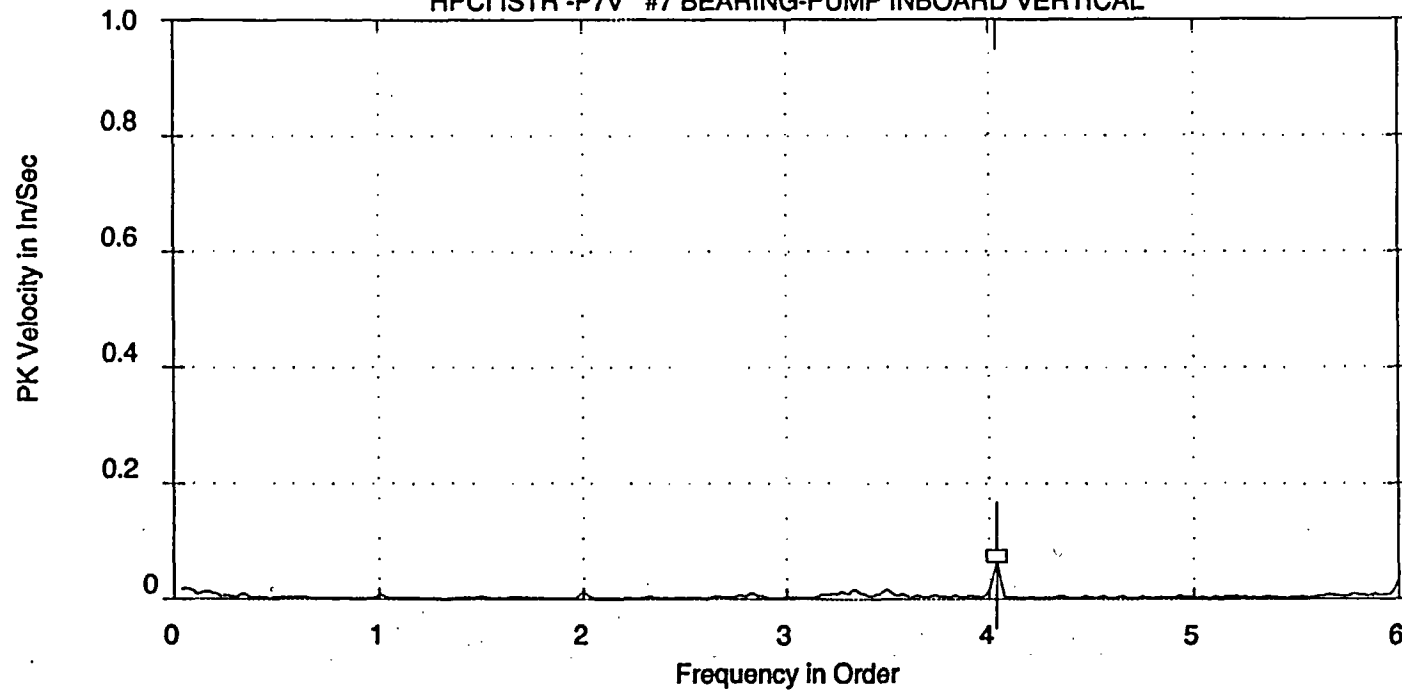
ROUTE SPECTRUM  
25-MAY-94 09:33:50  
OVRALL= .3657 V-DG  
PK = .6181  
LOAD =4250.0  
RPM = 2029.  
RPS = 33.81



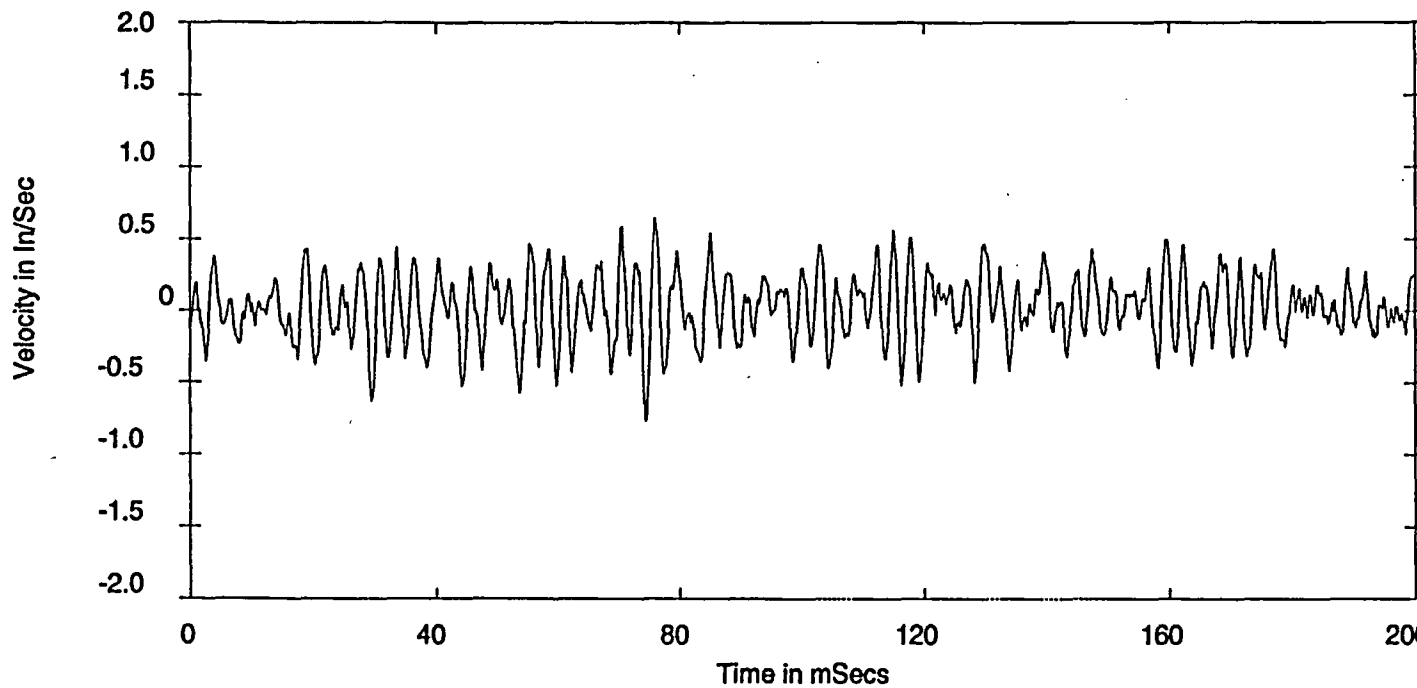
WAVEFORM DISPLAY  
25-MAY-94 09:33:50  
PK = .6344  
PK(+) = 1.20  
PK(-) = 1.13  
CRESTF= 2.74

Ordr: 4.033  
Freq: 136.36  
Spec: .198

IST - IST, P205 HPCI @42.5k  
HPCI ISTR -P7V #7 BEARING-PUMP INBOARD VERTICAL



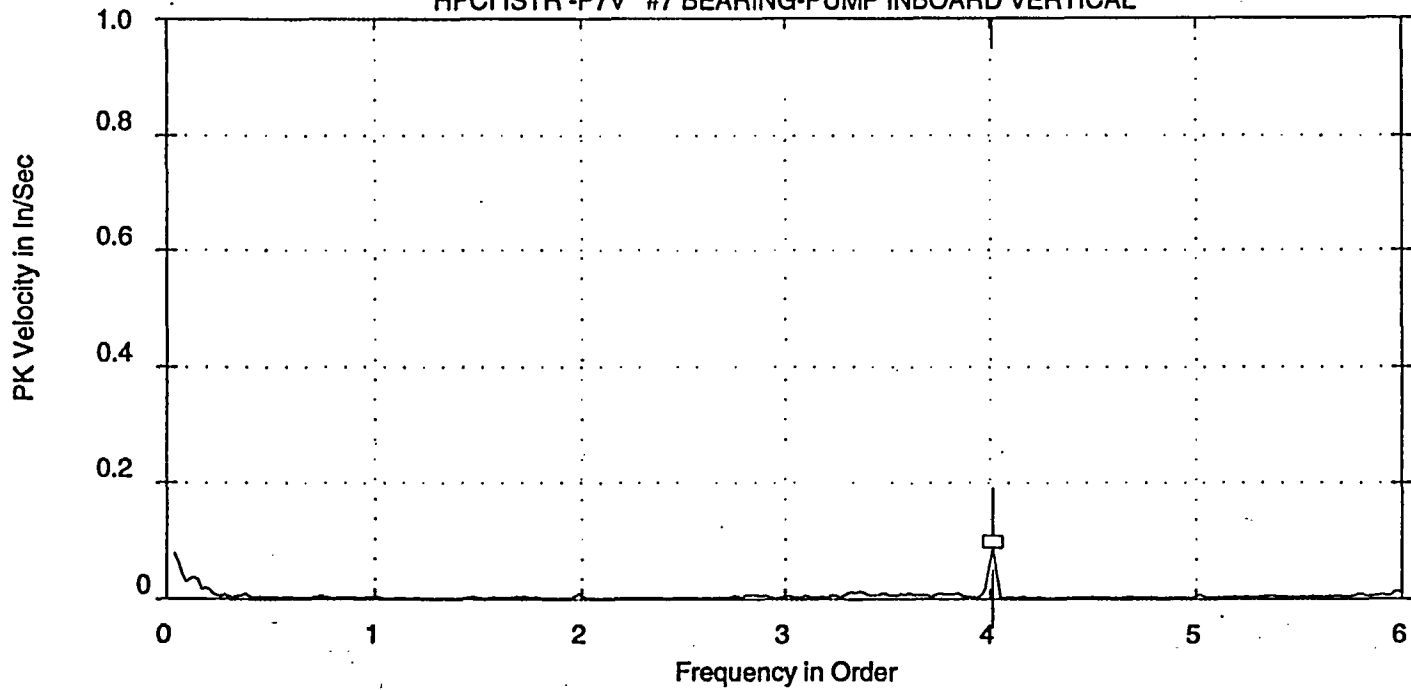
ROUTE SPECTRUM  
24-NOV-04 00:48:16  
OVRALL= .3021 V-DG  
PK = .1053  
LOAD =4250.0  
RPM = 2007.  
RPS = 33.45



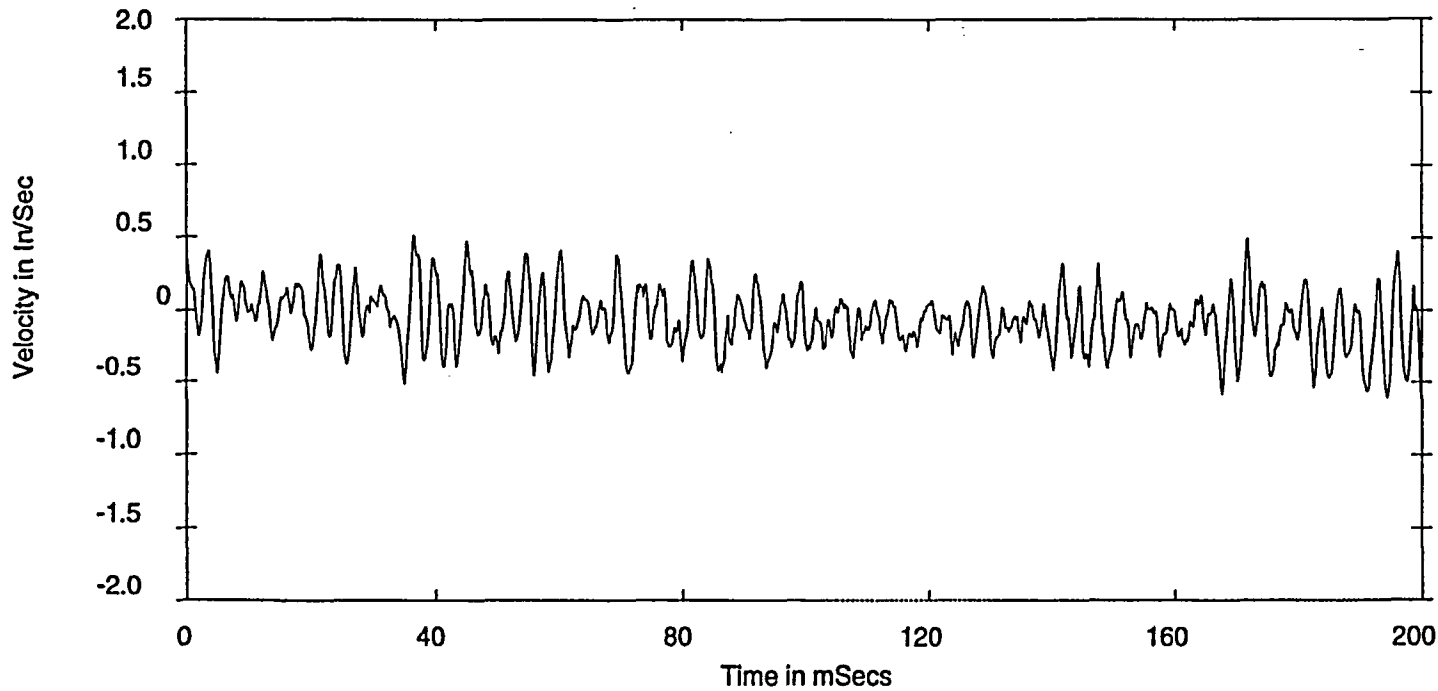
ROUTE WAVEFORM  
24-NOV-04 00:48:16  
PK = .3217  
PK(+) = .6252  
PK(-) = .7945  
CRESTF= 3.49

Ordr: 4.033  
Freq: 134.90  
Spec: .06539

IST - IST, P205 HPCI @42.5k  
HPCI ISTR -P7V #7 BEARING-PUMP INBOARD VERTICAL



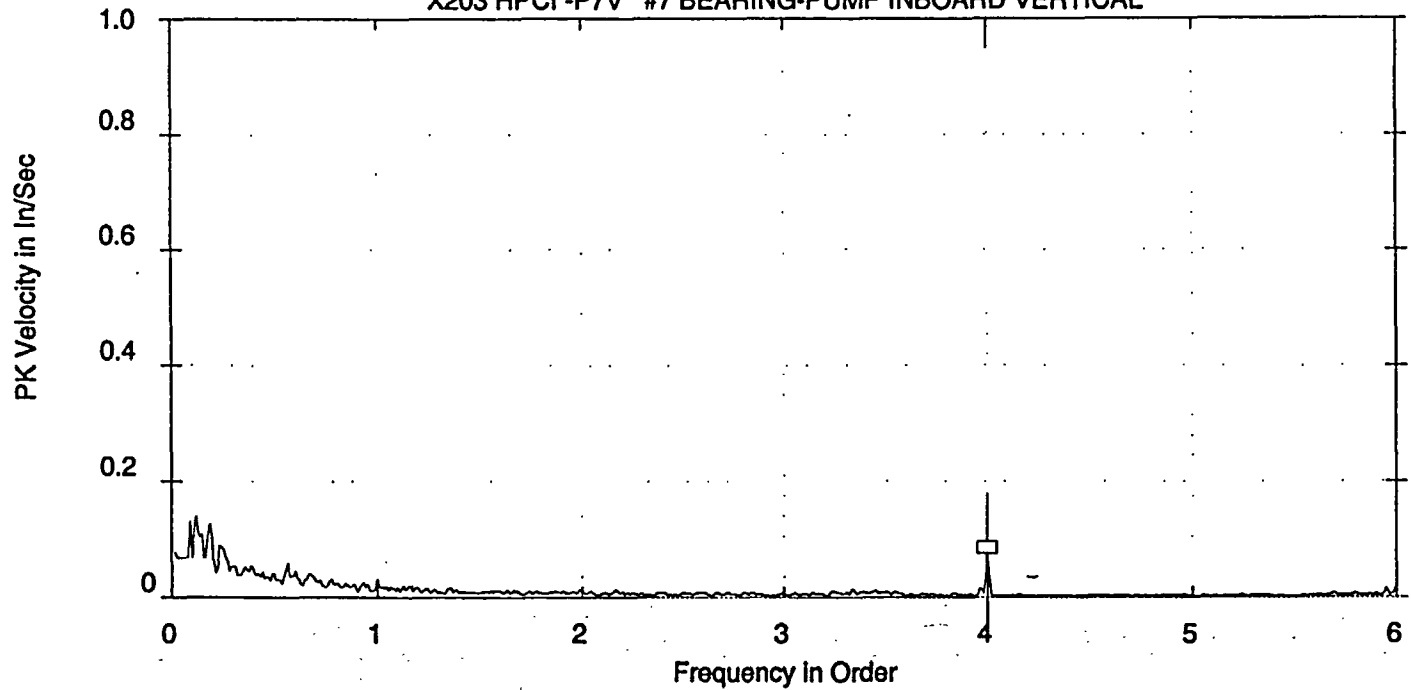
ROUTE SPECTRUM  
24-AUG-04 20:52:14  
OVRALL= .2490 V-DG  
PK = .1579  
LOAD =4250.0  
RPM = 2000.  
RPS = 33.33



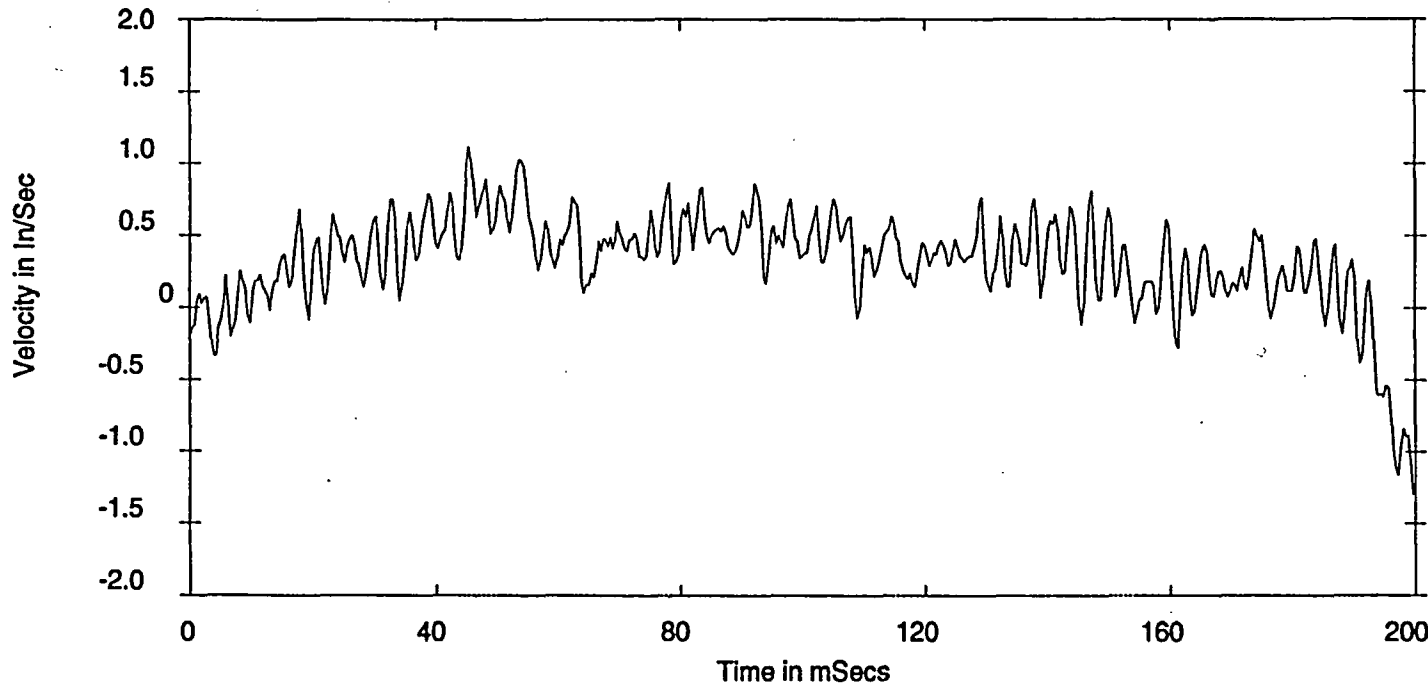
ROUTE WAVEFORM  
24-AUG-04 20:52:14  
PK = .2830  
PK(+) = .5677  
PK(-) = .5496  
CRESTF= 2.84

Ordr: 4.010  
Freq: 133.67  
Spec: .08995

RX - X203,P205 HPCI TURB & PUMP  
X203 HPCI -P7V #7 BEARING-PUMP INBOARD VERTICAL



ROUTE SPECTRUM  
17-DEC-97 21:50:32  
OVRALL= 1.54 V-AP  
PK = .4760  
LOAD =4250.0  
RPM = 2011.  
RPS = 33.52

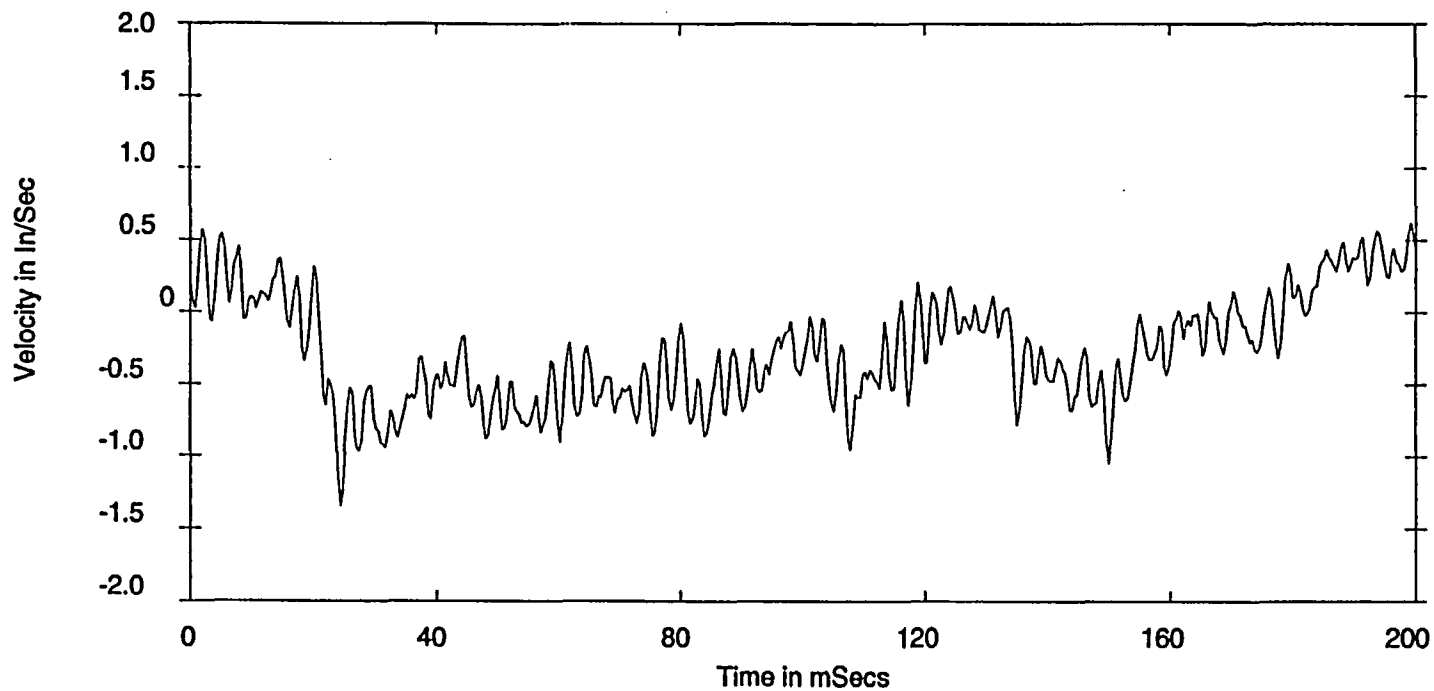
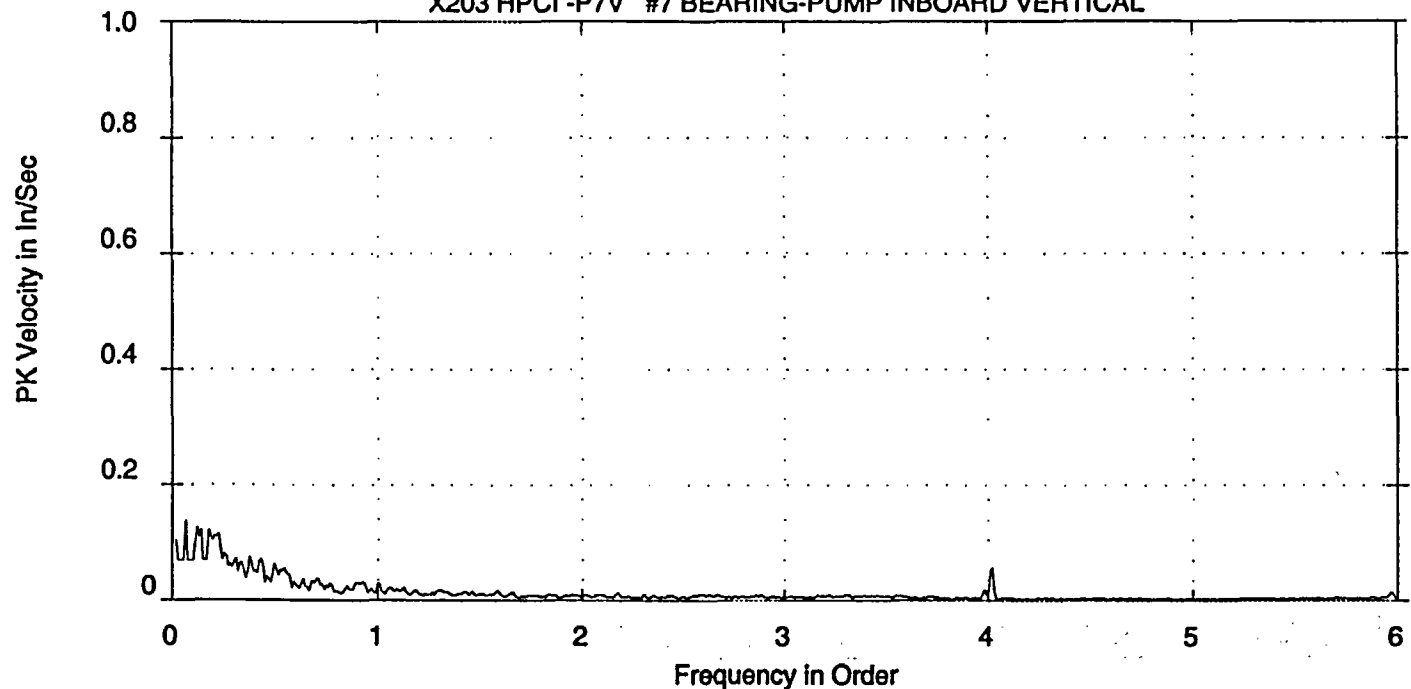


WAVEFORM DISPLAY  
17-DEC-97 21:50:32  
PK = .4769  
PK(+) = 1.02  
PK(-) = 1.76  
CRESTF= 4.05

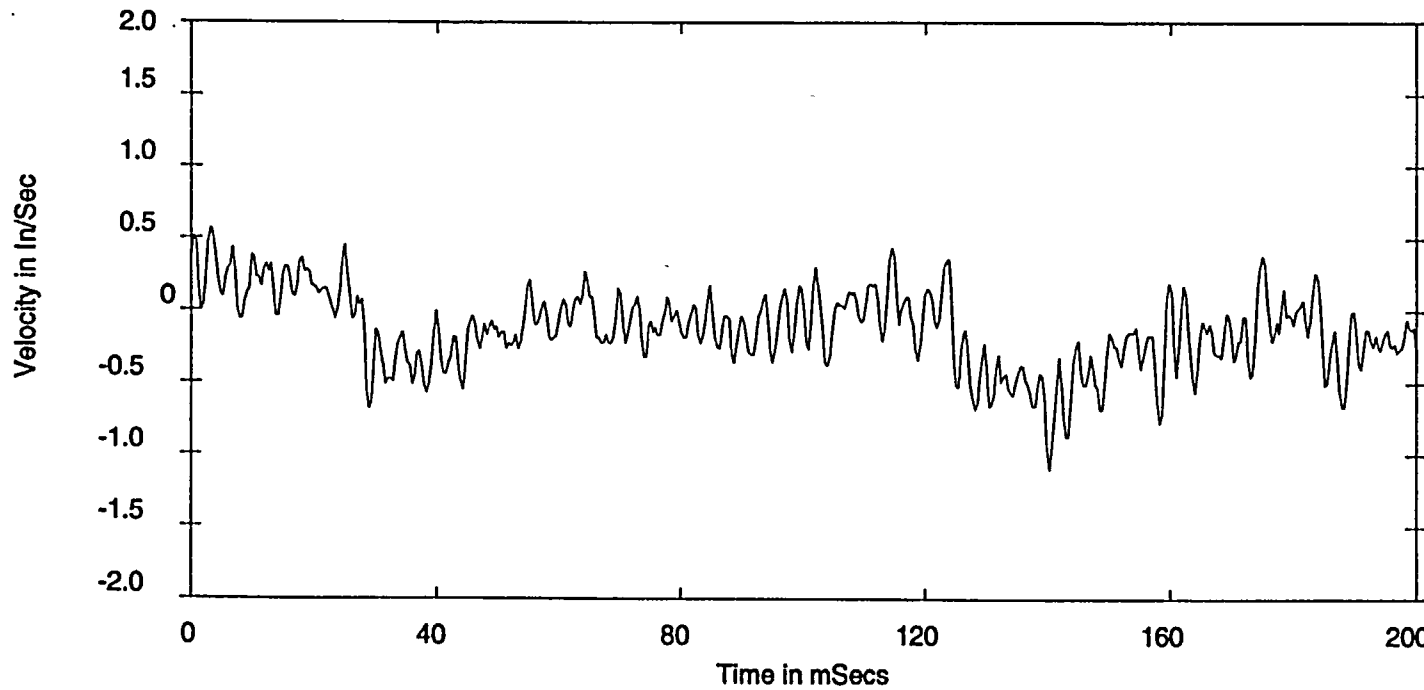
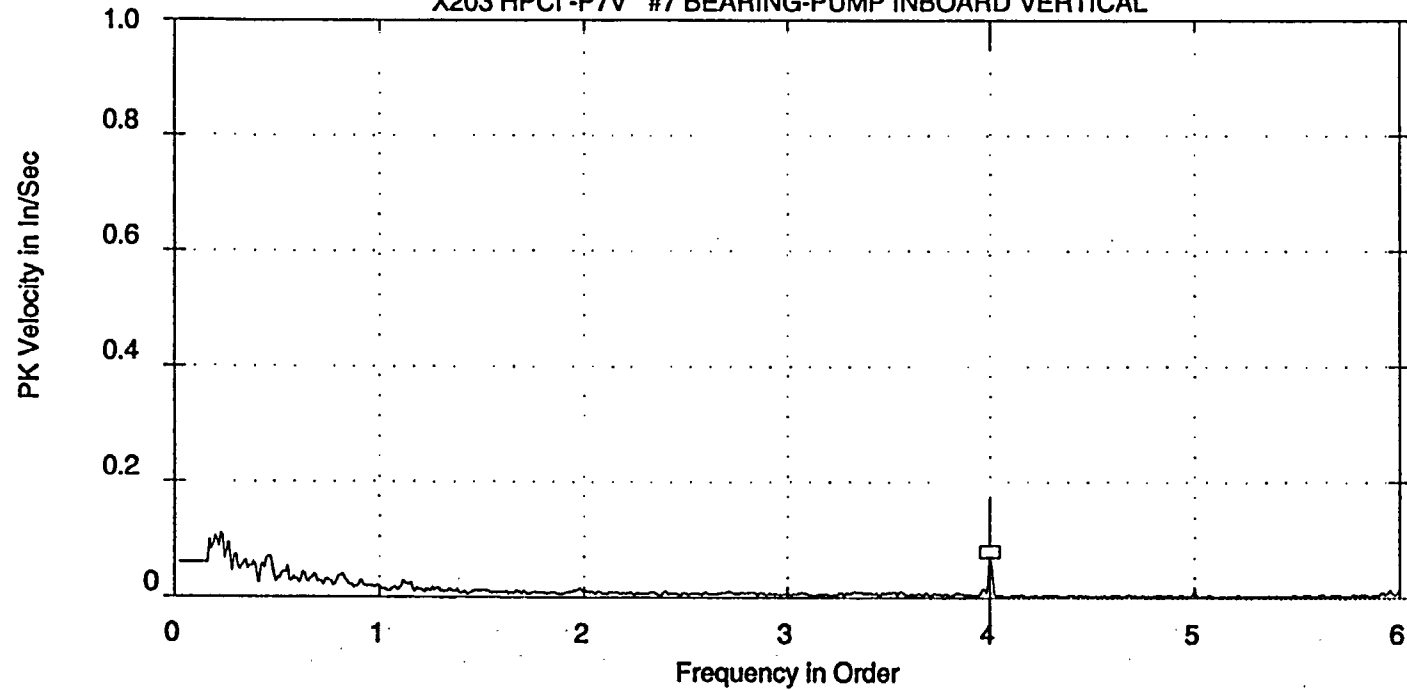
Ordr: 4.000  
Freq: 134.06  
Spec: .07595



RX - X203,P205 HPCI TURB & PUMP  
X203 HPCI -P7V #7 BEARING-PUMP INBOARD VERTICAL

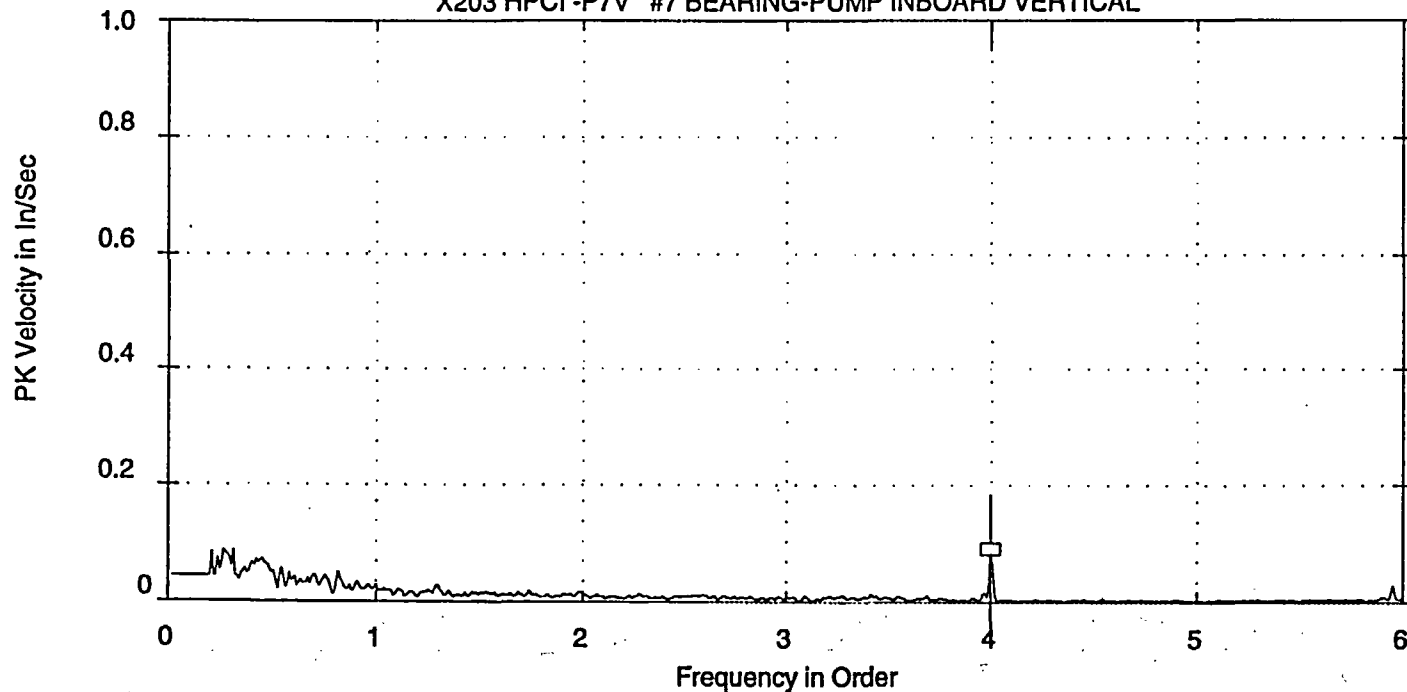


RX - X203, P205 HPCI TURB & PUMP  
X203 HPCI -P7V #7 BEARING-PUMP INBOARD VERTICAL

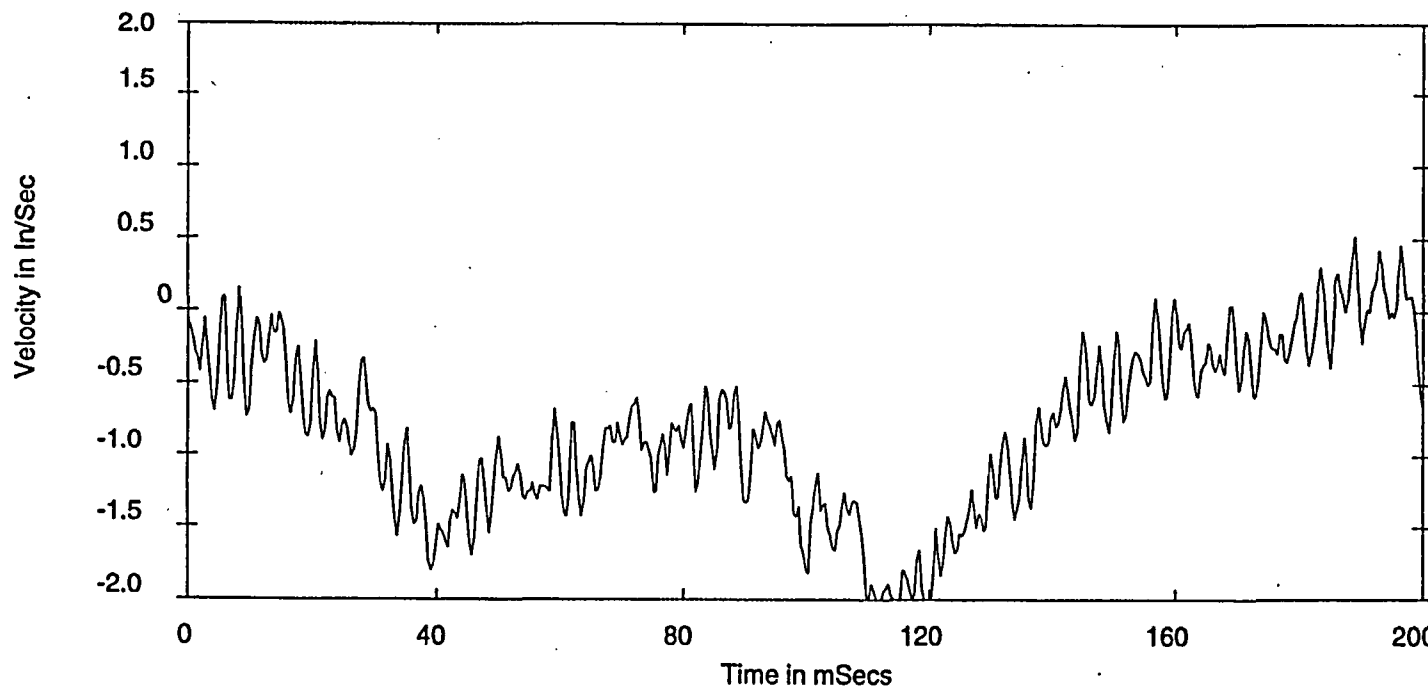


Ordr: 4.001  
Freq: 134.46  
Spec: .07230

RX - X203, P205 HPCI TURB & PUMP  
X203 HPCI -P7V #7 BEARING-PUMP INBOARD VERTICAL



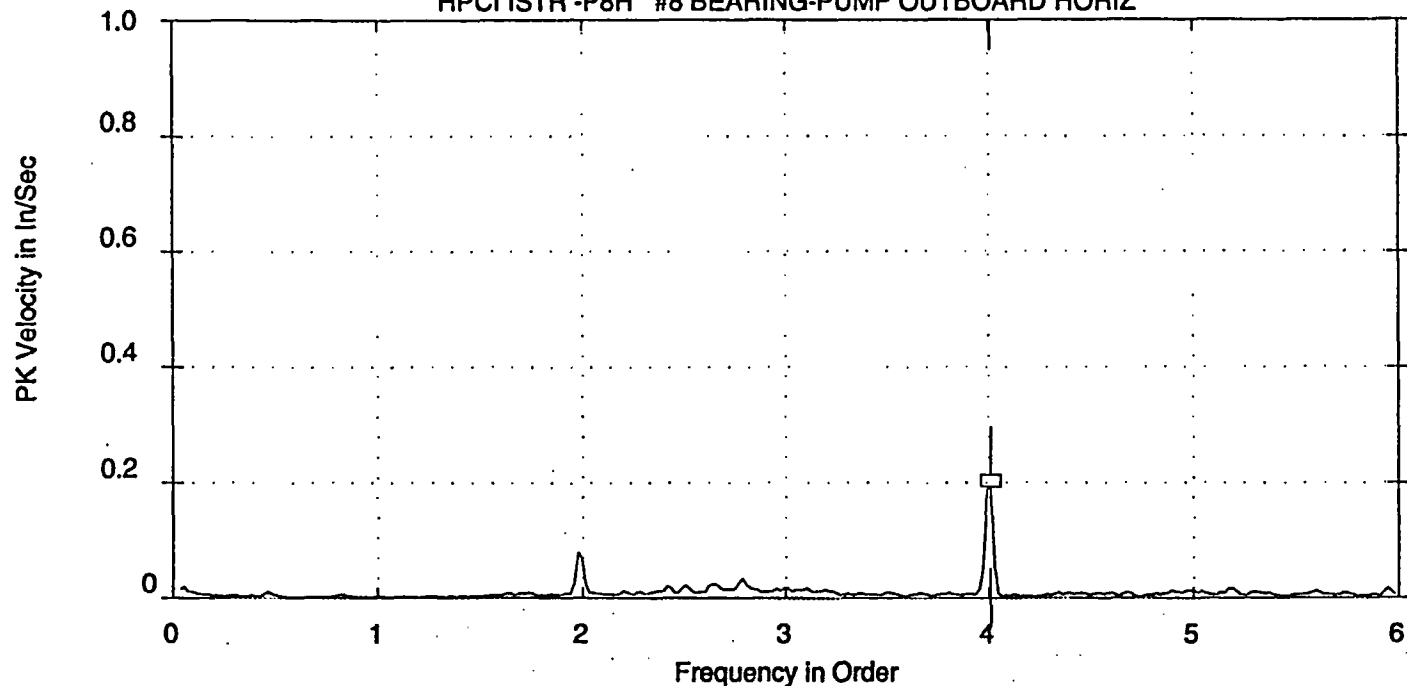
ROUTE SPECTRUM  
25-MAY-94 09:35:00  
OVRALL= .3629 V-DG  
PK = .4330  
LOAD =4250.0  
RPM = 2045.  
RPS = 34.08



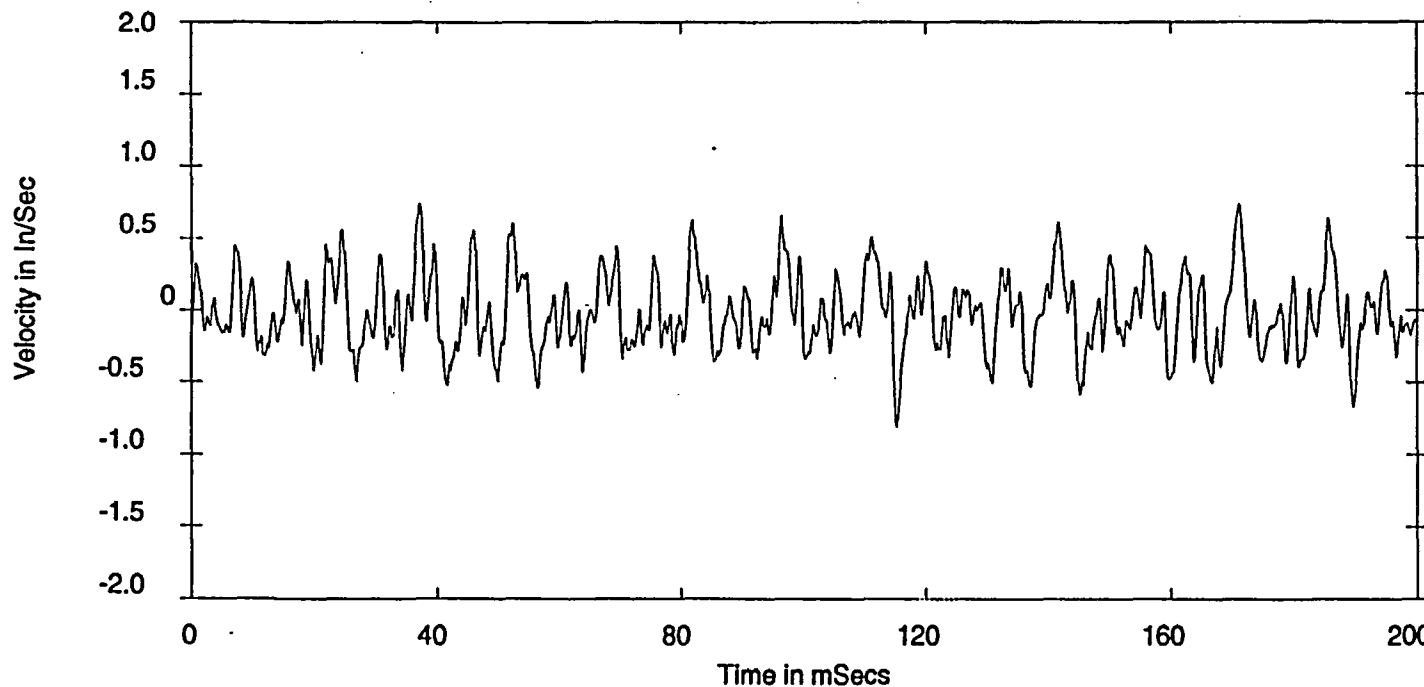
WAVEFORM DISPLAY  
25-MAY-94 09:35:00  
PK = .8398  
PK(+) = 1.41  
PK(-) = 2.08  
CRESTF= 2.97

Ordr: 4.000  
Freq: 136.34  
Spec: .08568

IST - IST, P205 HPCI @42.5k  
HPCI ISTR -P8H #8 BEARING-PUMP OUTBOARD HORIZ



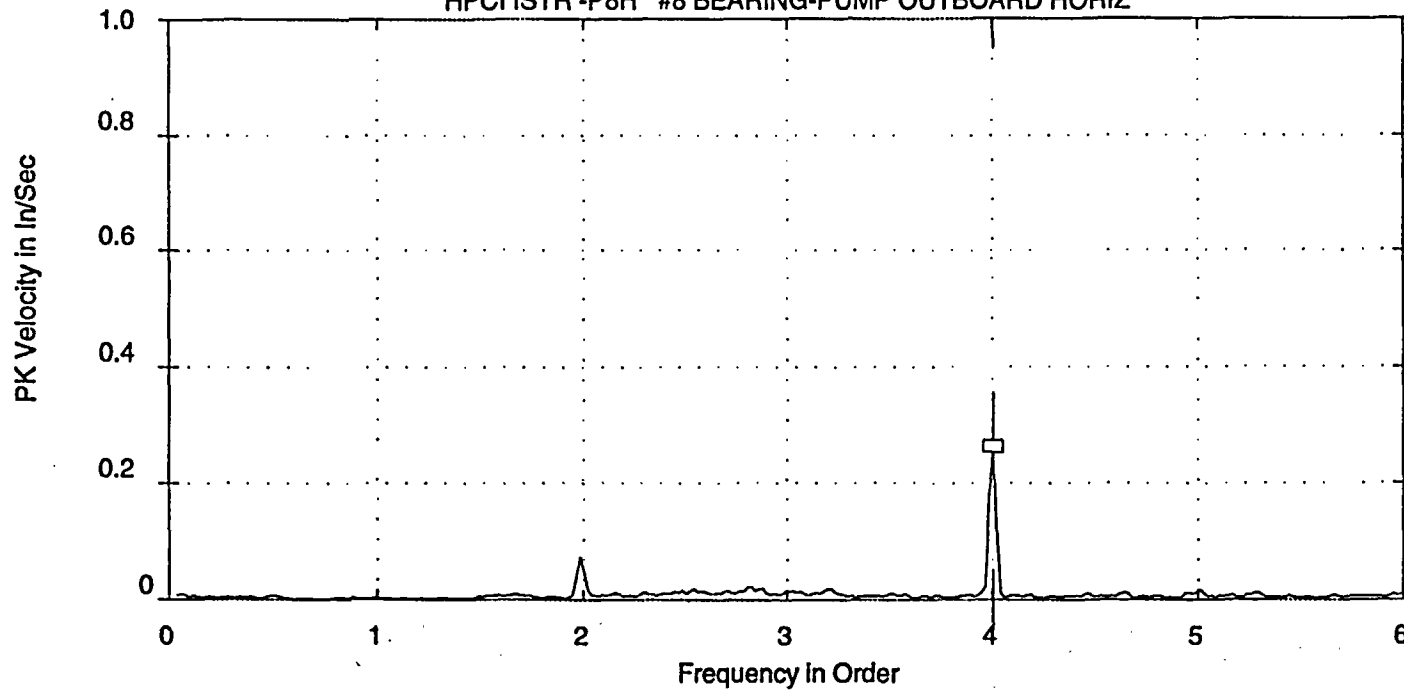
ROUTE SPECTRUM  
24-NOV-04 00:57:35  
OVRALL= .3549 V-DG  
PK = .2767  
LOAD =4250.0  
RPM = 2030.  
RPS = 33.84



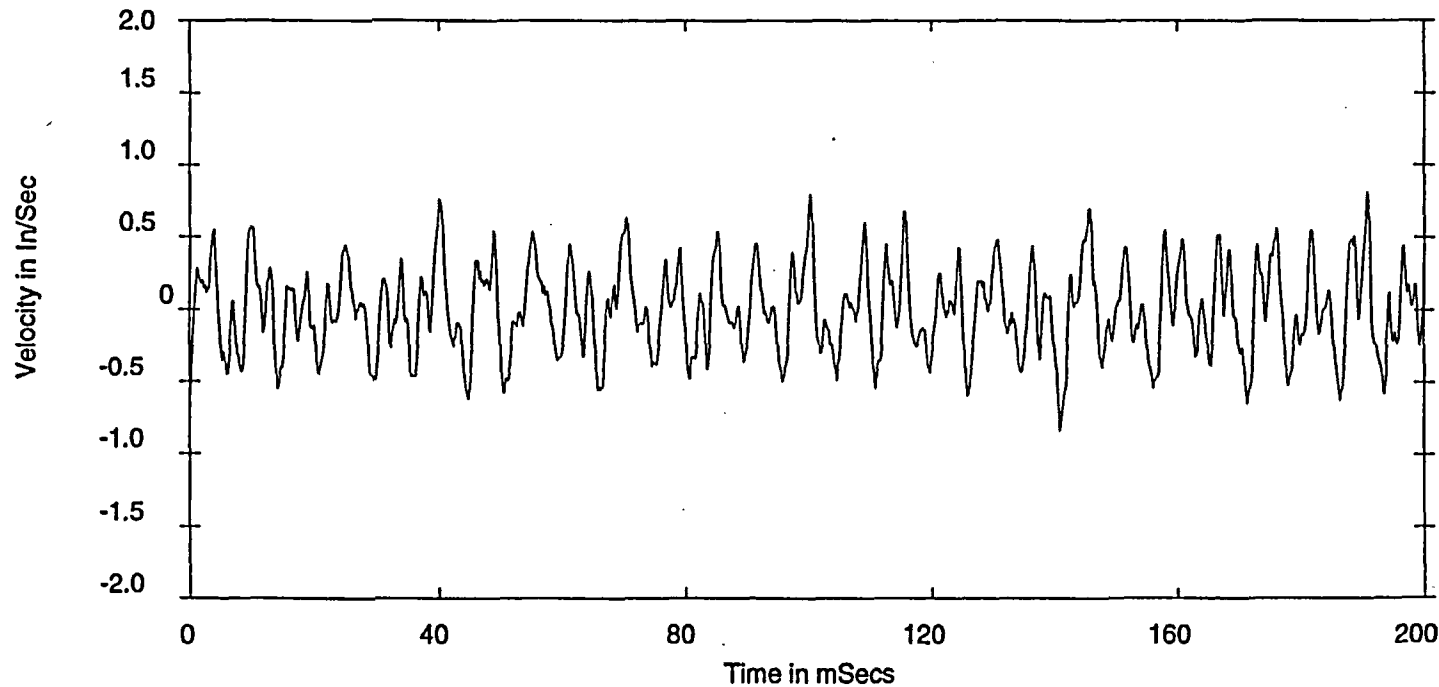
ROUTE WAVEFORM  
24-NOV-04 00:57:35  
PK = .3686  
PK(+) = .7586  
PK(-) = .7927  
CRESTF= 3.04

Ordr: 4.000  
Freq: 135.33  
Spec: .225

IST - IST, P205 HPCI @42.5k  
HPCI ISTR -P8H #8 BEARING-PUMP OUTBOARD HORIZ



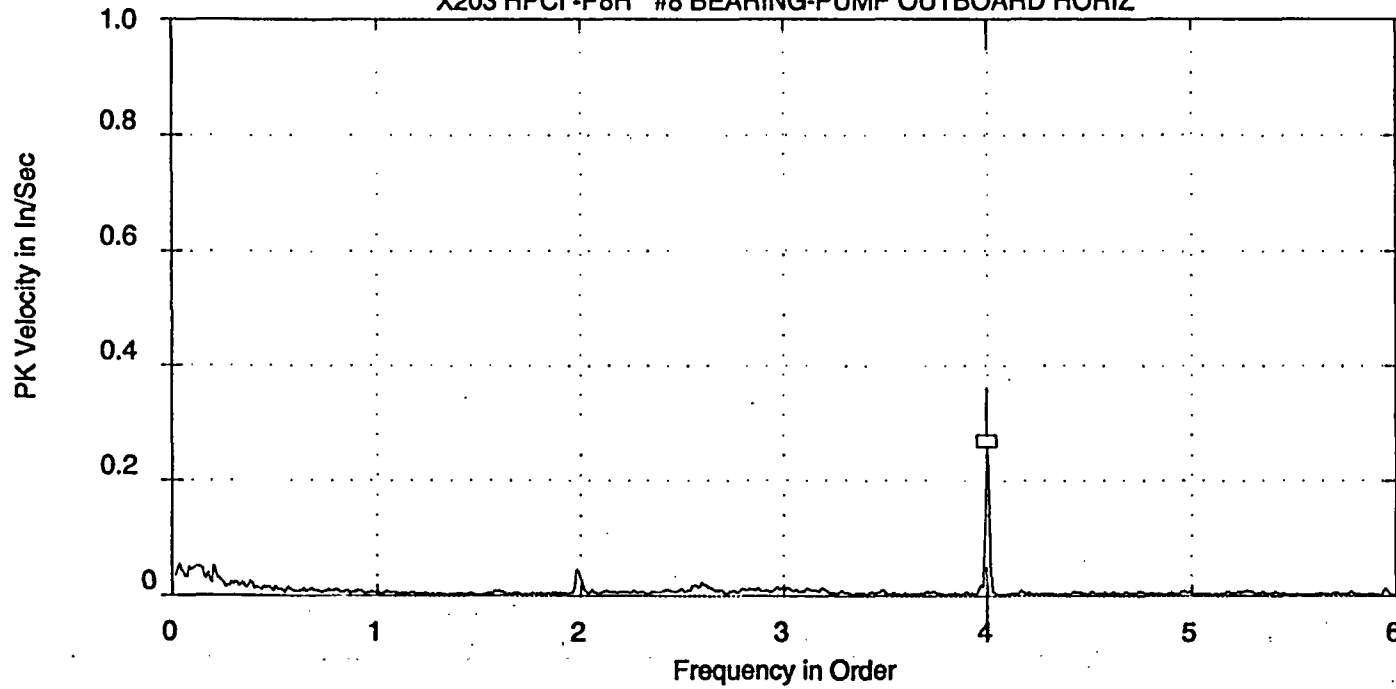
ROUTE SPECTRUM  
24-AUG-04 20:52:44  
OVRALL= .4133 V-DG  
PK = .3018  
LOAD =4250.0  
RPM = 2004.  
RPS = 33.40



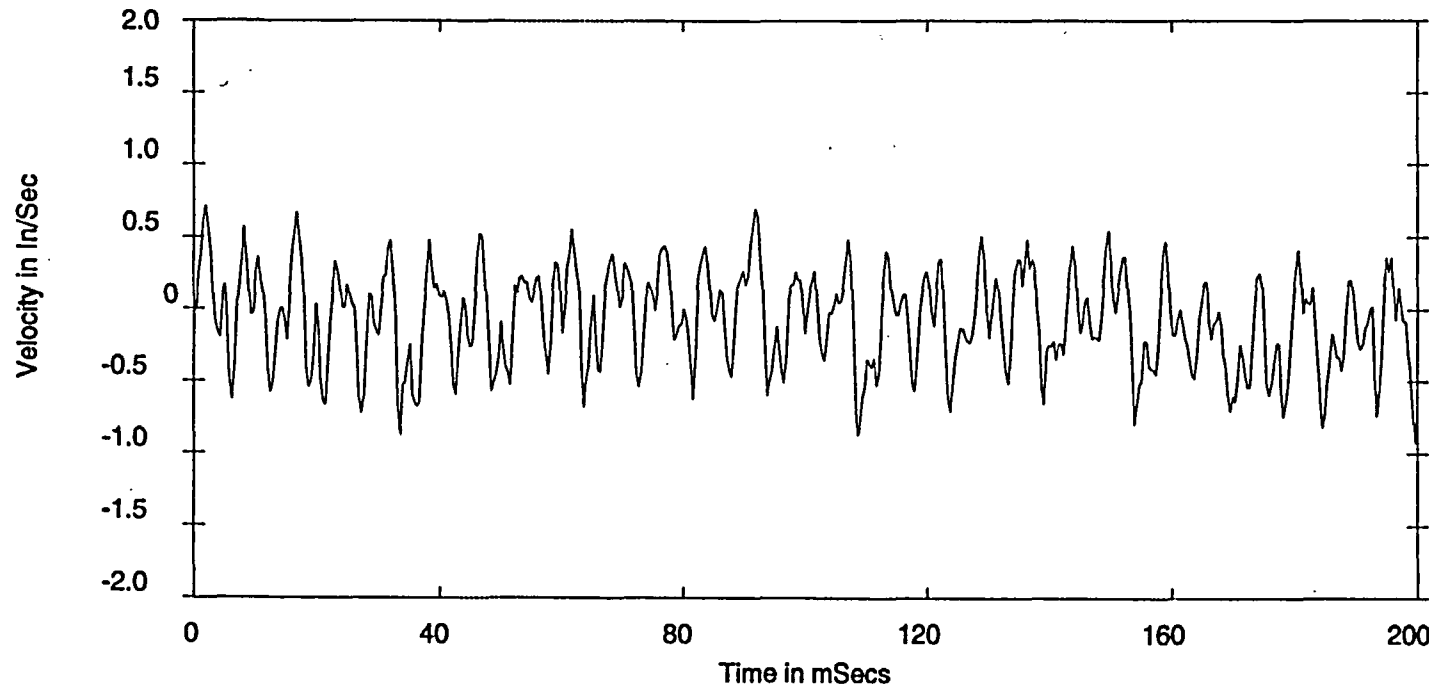
ROUTE WAVEFORM  
24-AUG-04 20:52:44  
PK = .4196  
PK(+) = .8194  
PK(-) = .8356  
CRESTF= 2.82

Ordr: 3.999  
Freq: 133.58  
Spec: .266

RX - X203,P205 HPCI TURB & PUMP  
X203 HPCI -P8H #8 BEARING-PUMP OUTBOARD HORIZ



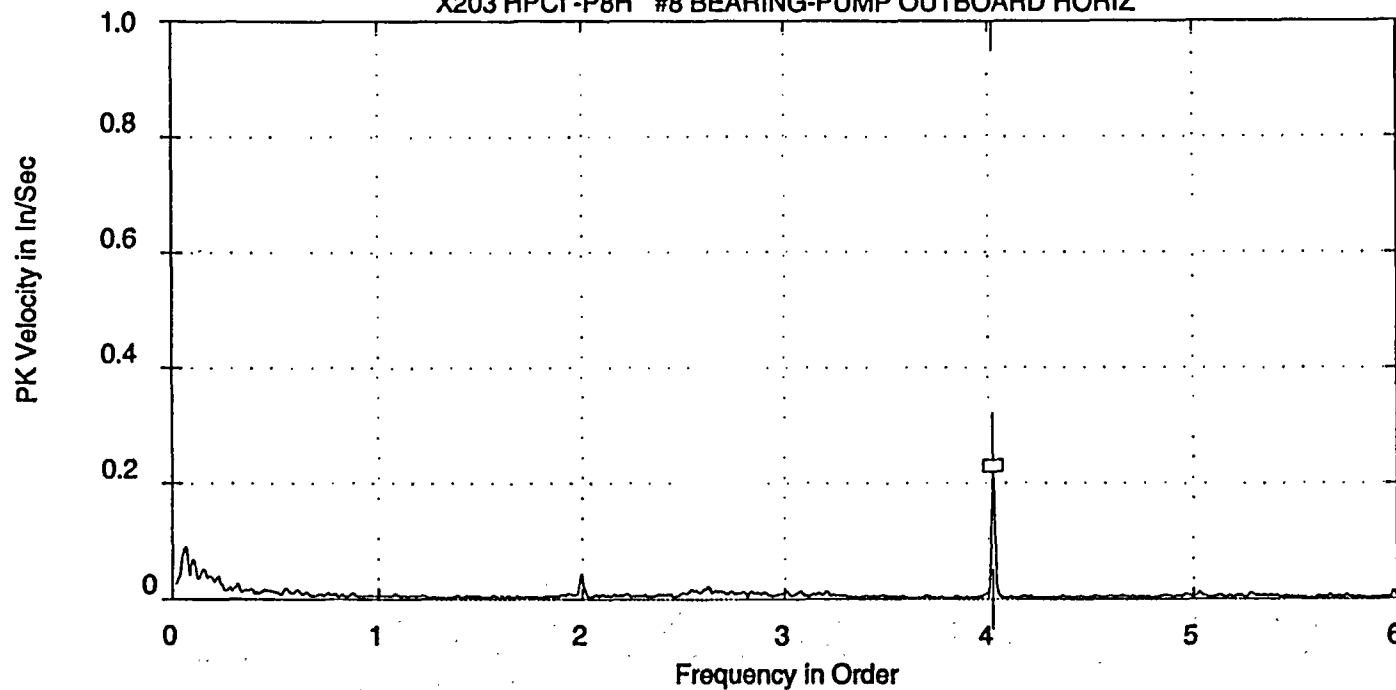
ROUTE SPECTRUM  
17-DEC-97 21:53:40  
OVRALL= 1.07 V-AP  
PK = .3725  
LOAD =4250.0  
RPM = 2009.  
RPS = 33.48



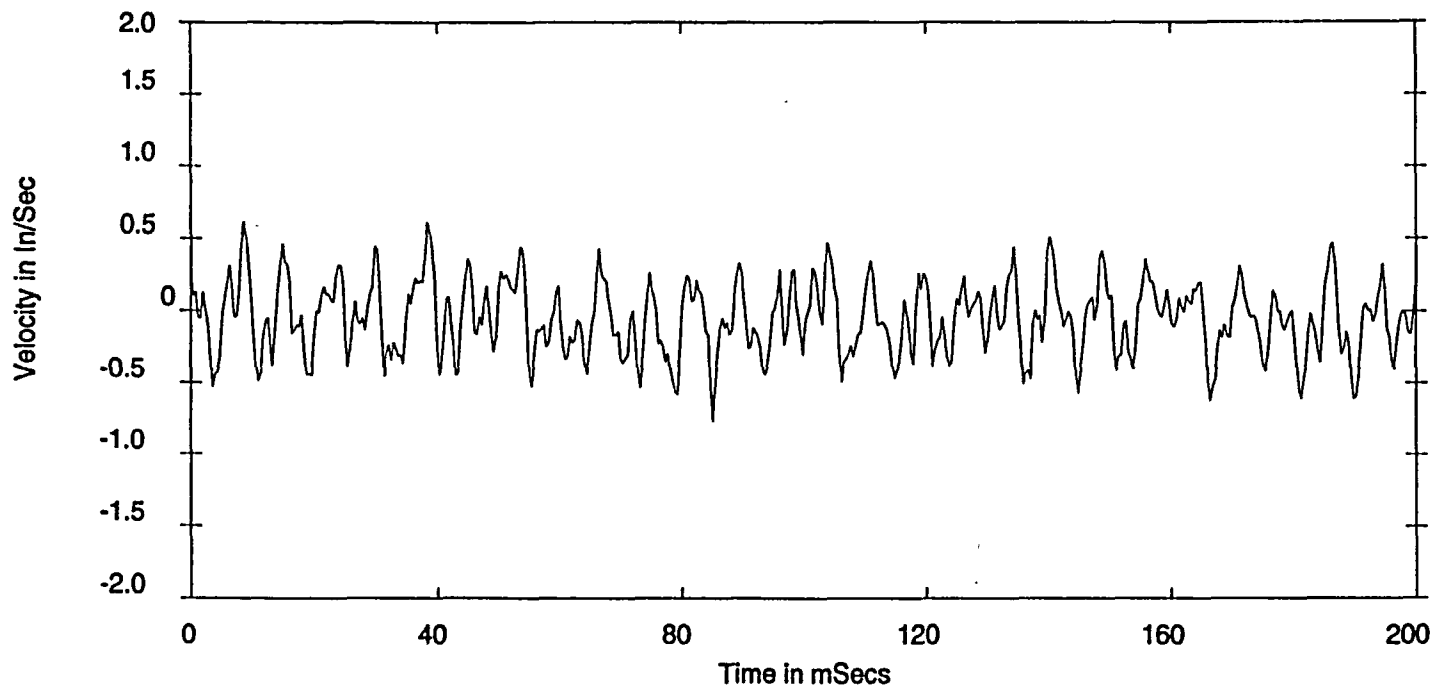
WAVEFORM DISPLAY  
17-DEC-97 21:53:40  
PK = .4679  
PK(+) = .8102  
PK(-) = .8995  
CRESTF= 2.81

Ordr: 3.999  
Freq: 133.87  
Spec: .285

RX - X203,P205 HPCI TURB & PUMP  
X203 HPCI -P8H #8 BEARING-PUMP OUTBOARD HORIZ



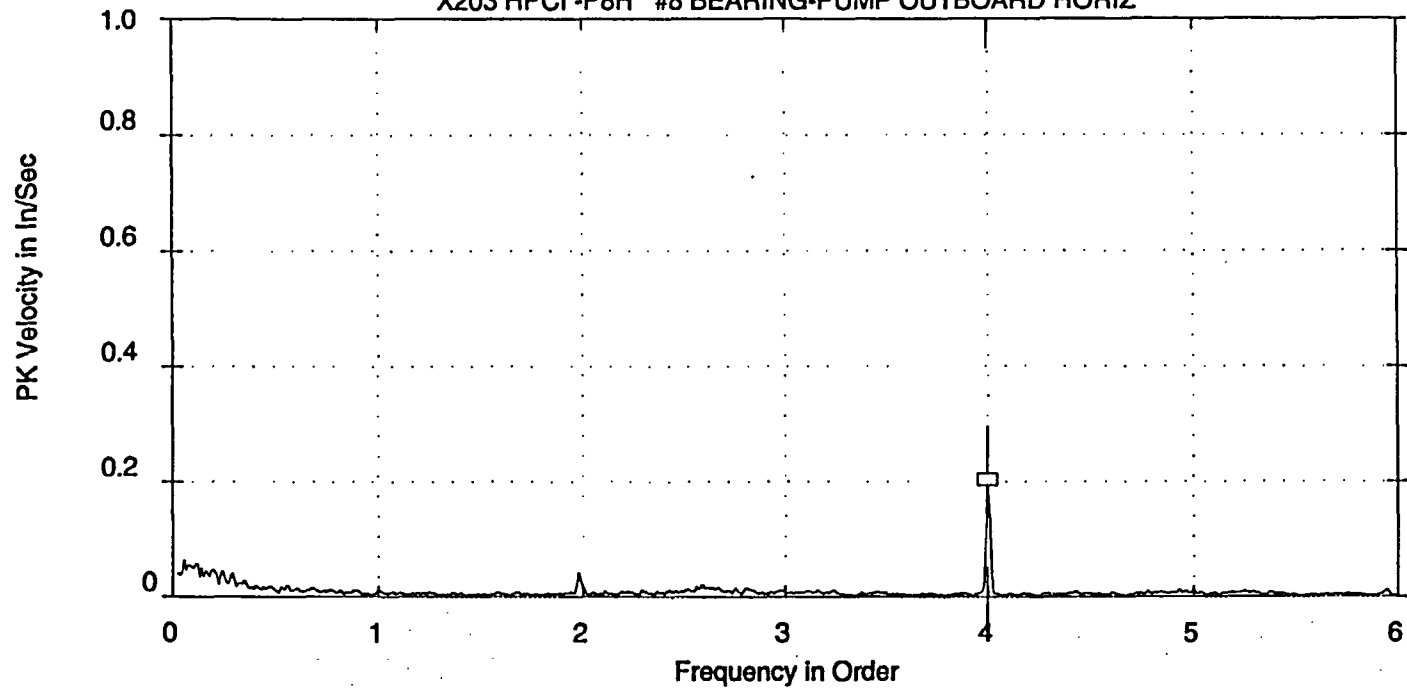
ROUTE SPECTRUM  
06-MAY-96 09:31:54  
OVRALL= .3510 V-DG  
PK = .3499  
LOAD =4250.0  
RPM = 2010.  
RPS = 33.50



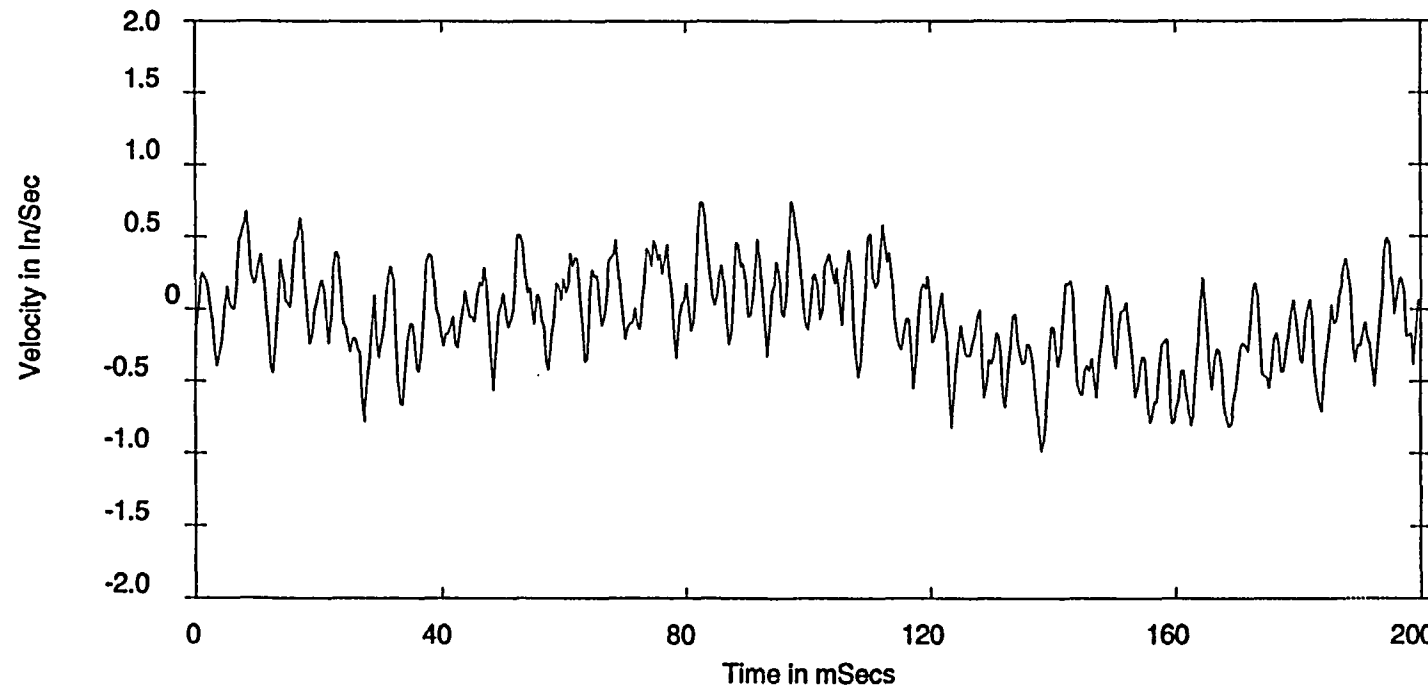
WAVEFORM DISPLAY  
06-MAY-96 09:31:54  
PK = .3538  
PK(+) = .8159  
PK(-) = .7937  
CRESTF= 3.05

Ordr: 4.023  
Freq: 134.78  
Spec: .234

RX - X203, P205 HPCI TURB & PUMP  
X203 HPCI -P8H #8 BEARING-PUMP OUTBOARD HORIZ



ROUTE SPECTRUM  
20-NOV-95 02:06:21  
OVRALL= .3581 V-DG  
PK = .3339  
LOAD =4250.0  
RPM = 2018.  
RPS = 33.63

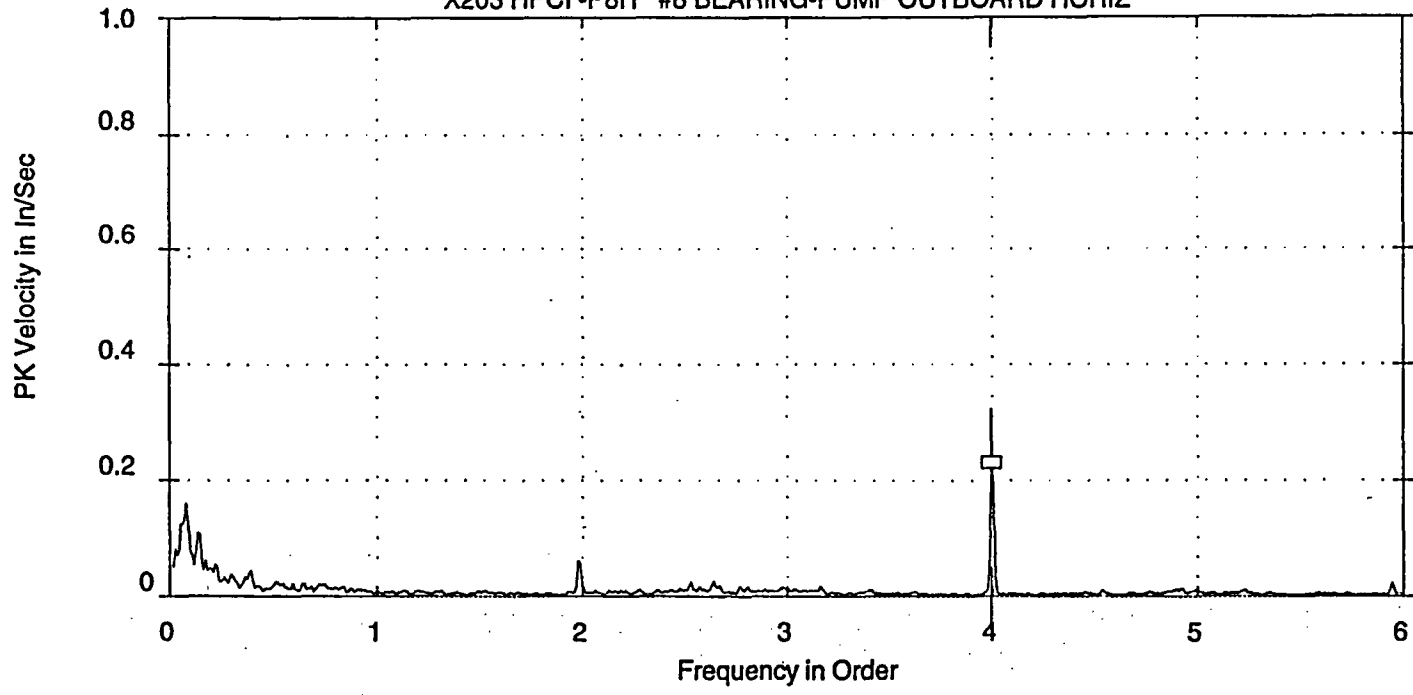


WAVEFORM DISPLAY  
20-NOV-95 02:06:21  
PK = .4641  
PK(+) = .8959  
PK(-) = .9881  
CRESTF= 3.11

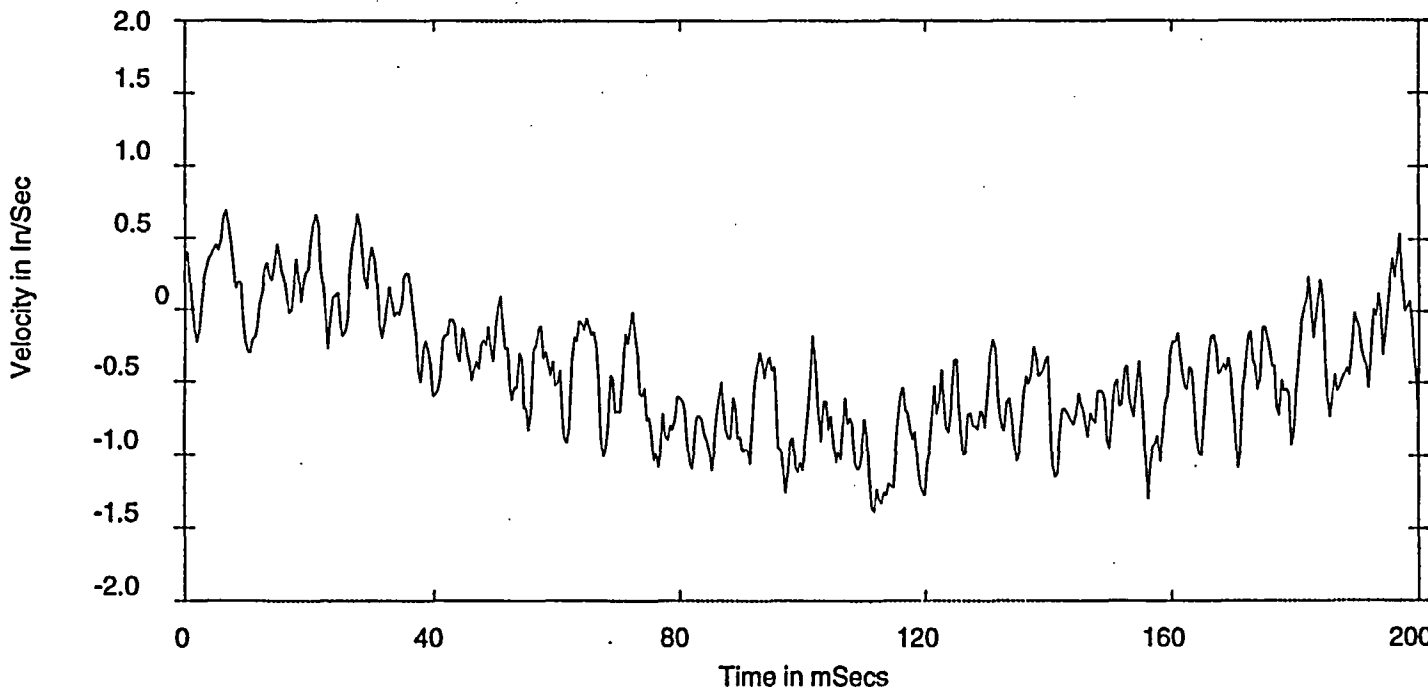
Ordr: 3.999  
Freq: 134.49  
Spec: .210



RX - X203, P205 HPCI TURB & PUMP  
X203 HPCI -P8H #8 BEARING-PUMP OUTBOARD HORIZ



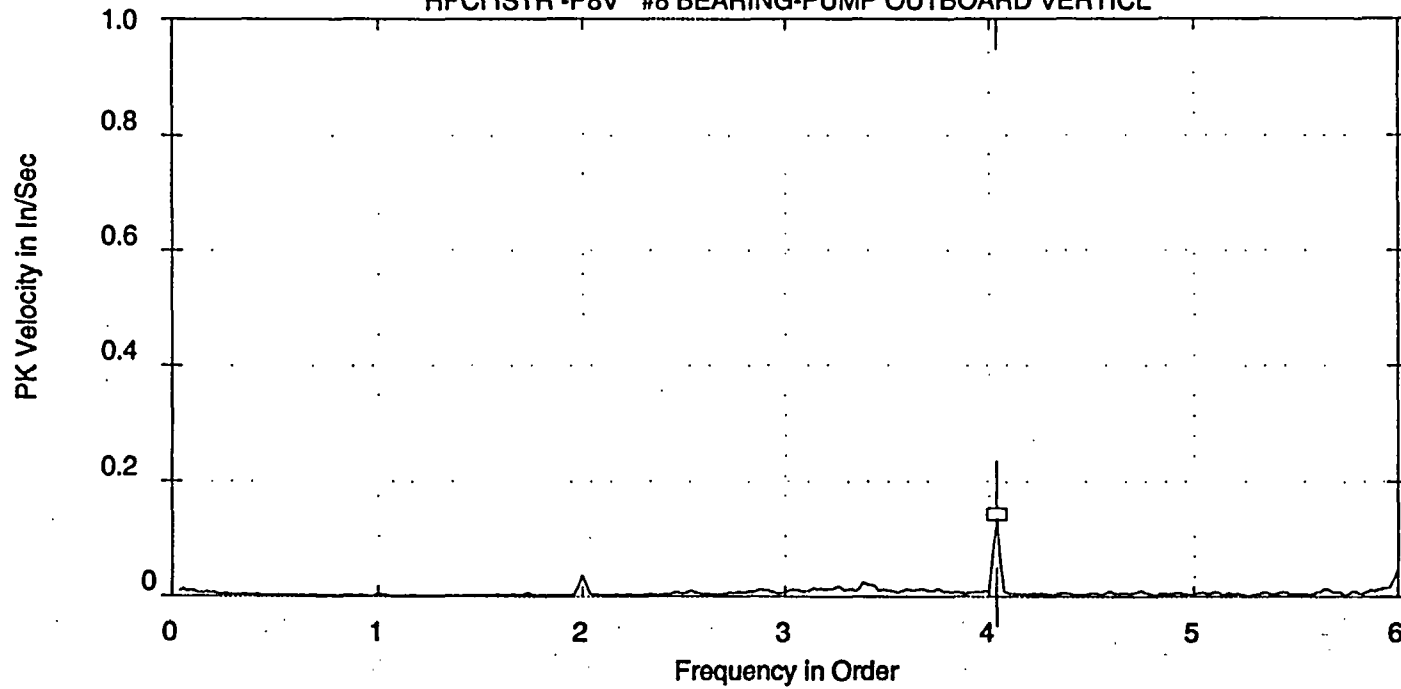
ROUTE SPECTRUM  
25-MAY-94 09:36:10  
OVRALL= .3571 V-DG  
PK = .4744  
LOAD =4250.0  
RPM = 2046.  
RPS = 34.11



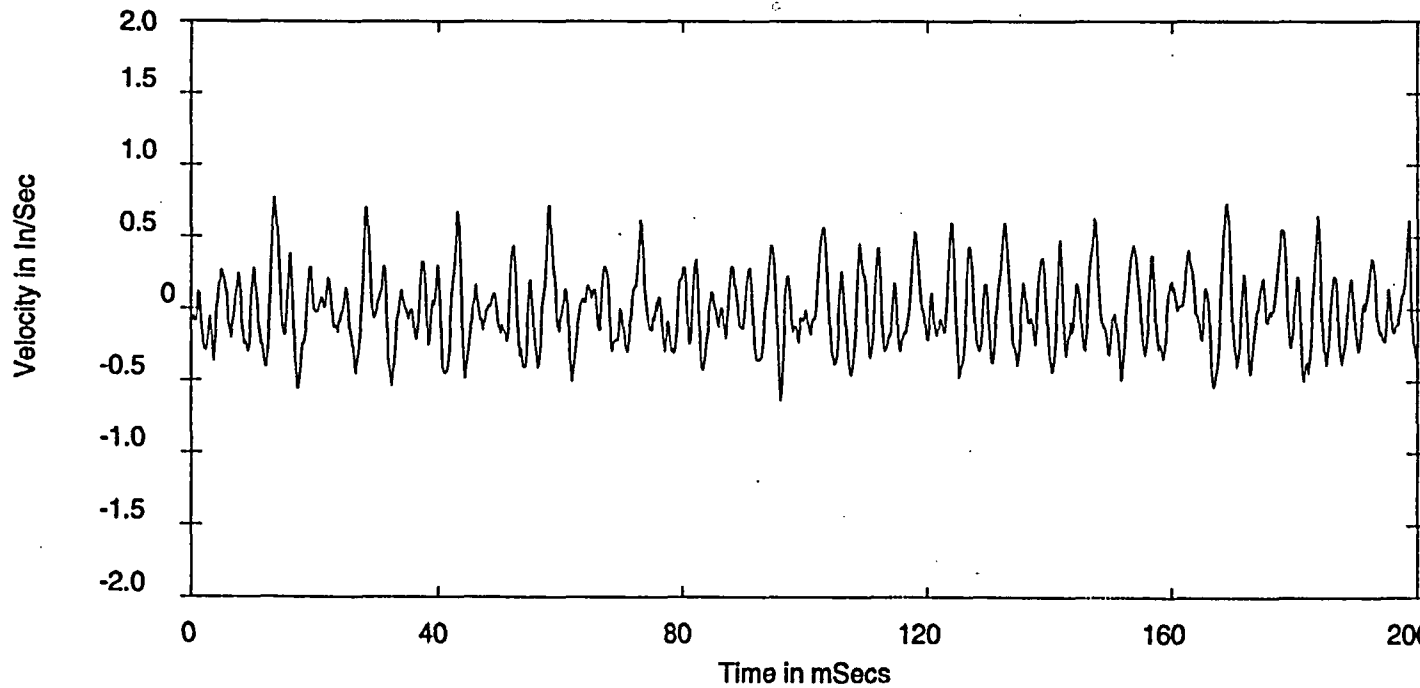
WAVEFORM DISPLAY  
25-MAY-94 09:36:10  
PK = .6248  
PK(+) = .9390  
PK(-) = 1.23  
CRESTF= 2.71

Ordr: 3.999  
Freq: 136.38  
Spec: .248

IST - IST, P205 HPCI @42.5k  
HPCI ISTR -P8V #8 BEARING-PUMP OUTBOARD VERTICL



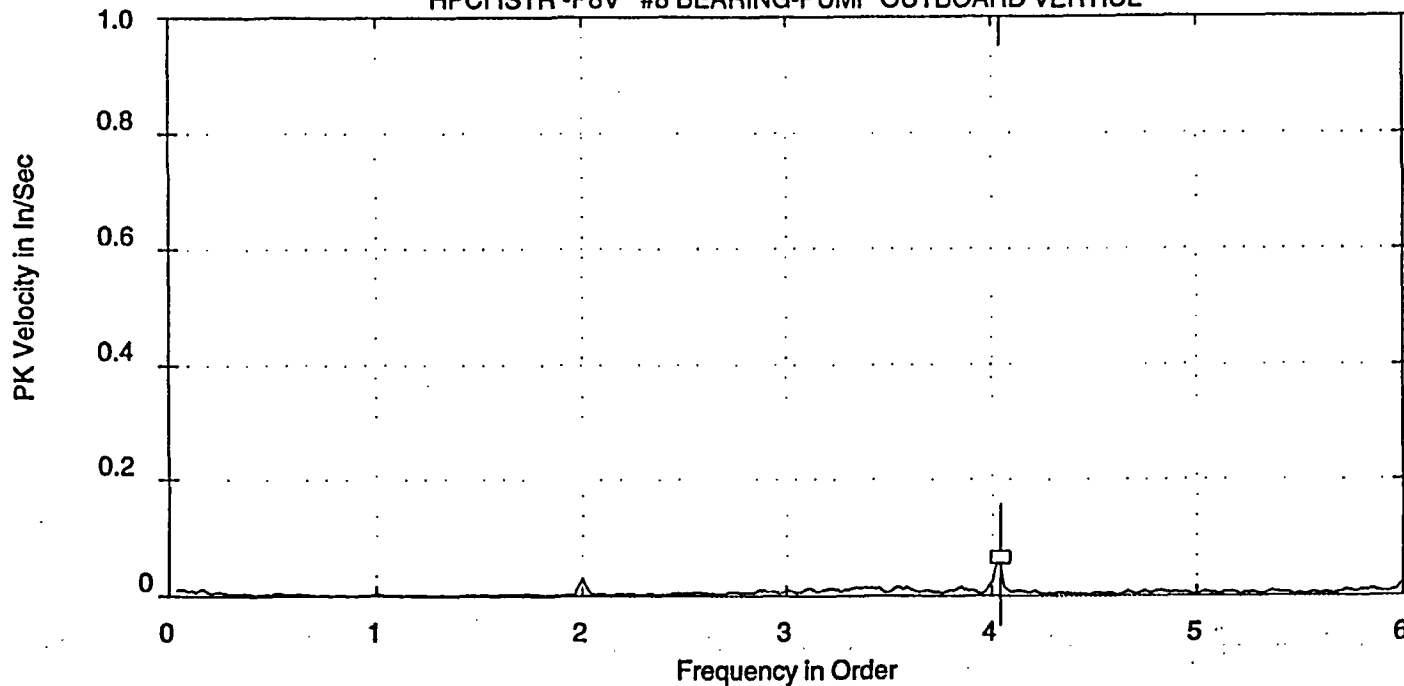
ROUTE SPECTRUM  
24-NOV-04 00:50:19  
OVRALL= .3576 V-DG  
PK = .1753  
LOAD =4250.0  
RPM = 2007.  
RPS = 33.45



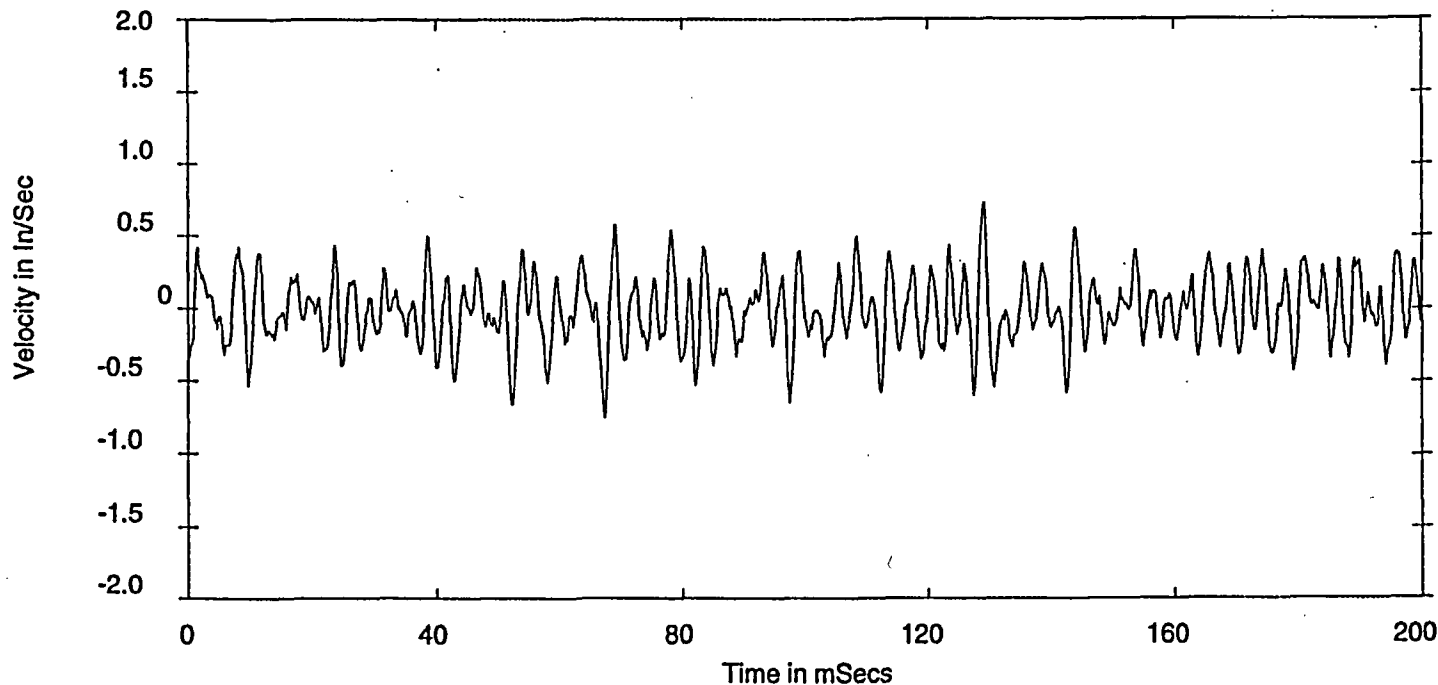
ROUTE WAVEFORM  
24-NOV-04 00:50:19  
PK = .3635  
PK(+) = .7824  
PK(-) = .6216  
CRESTF= 3.04

Ordr: 4.036  
Freq: 135.00  
Spec: .133

IST - IST, P205 HPCI @42.5k  
HPCI ISTR -P8V #8 BEARING-PUMP OUTBOARD VERTICL



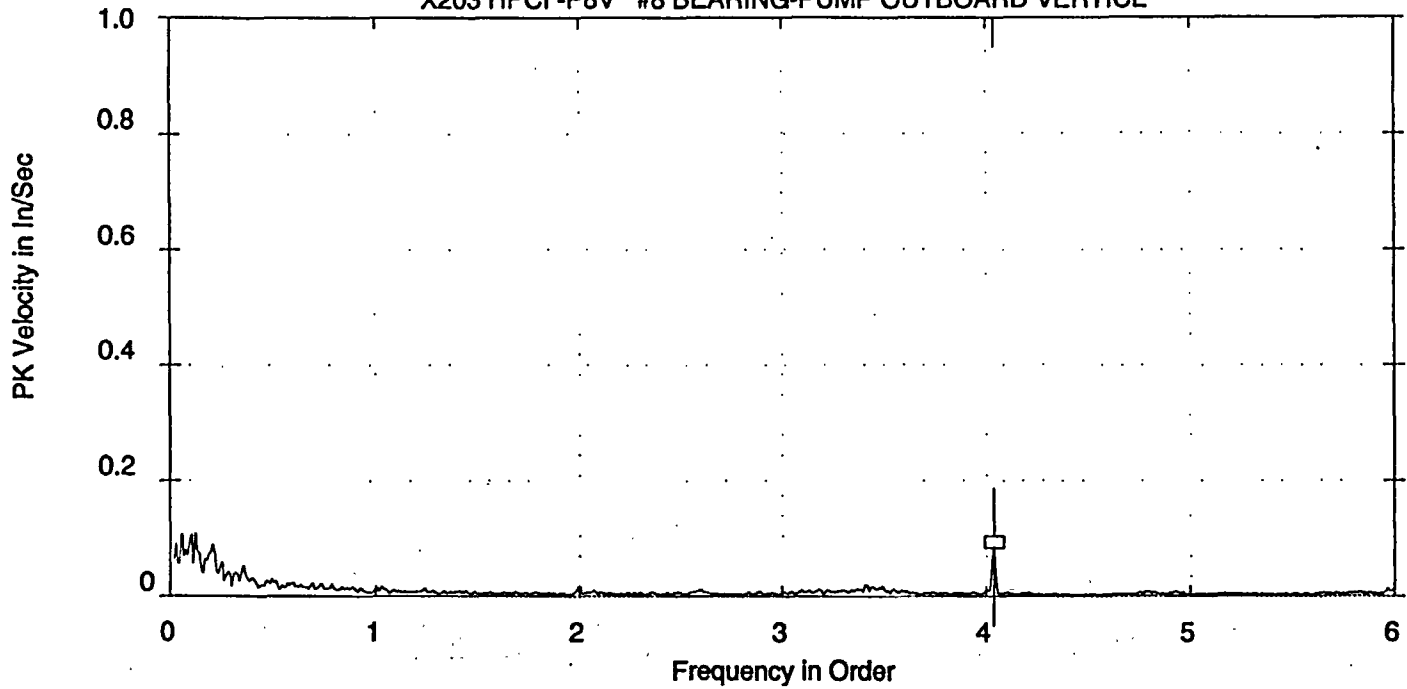
ROUTE SPECTRUM  
24-AUG-04 20:53:08  
OVRALL= .3336 V-DG  
PK = .1177  
LOAD =4250.0  
RPM = 1985.  
RPS = 33.09



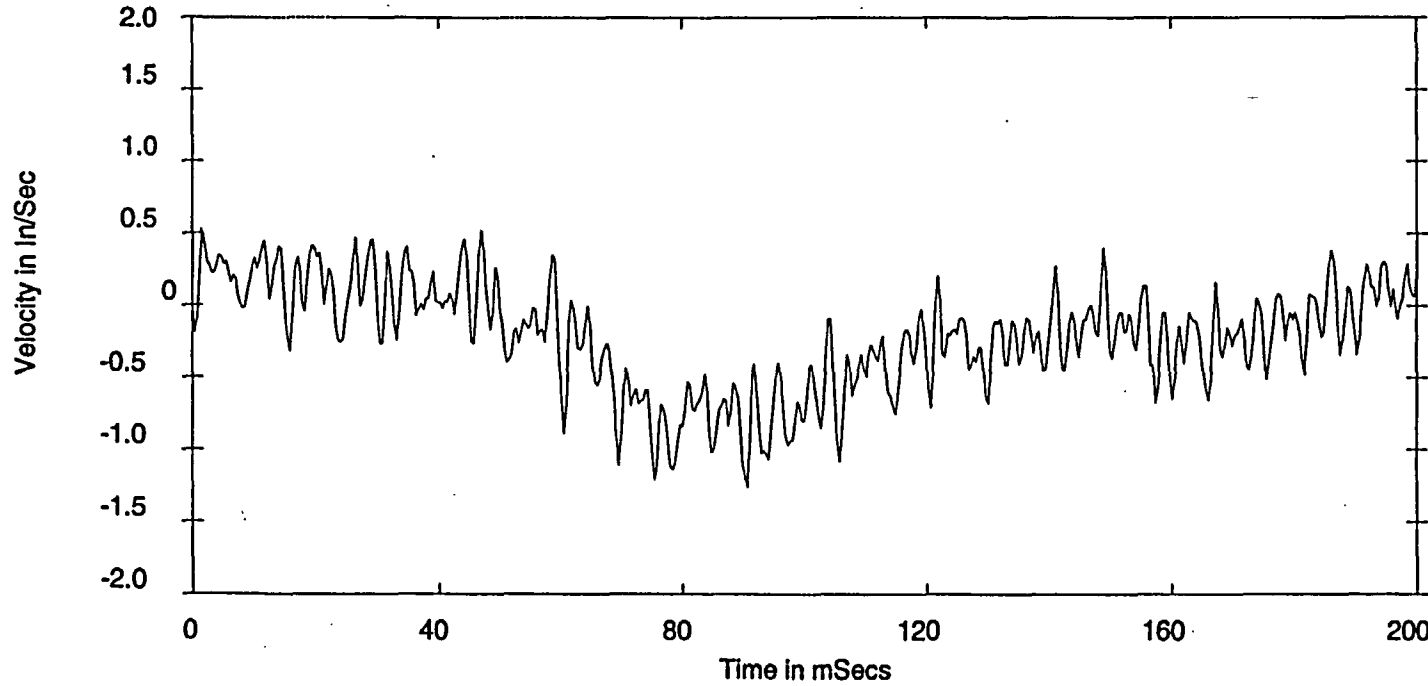
ROUTE WAVEFORM  
24-AUG-04 20:53:08  
PK = .3259  
PK(+) = .7410  
PK(-) = .7385  
CRESTF= 3.22

Ordr: 4.033  
Freq: 133.44  
Spec: .06510

RX - X203,P205 HPCI TURB & PUMP  
X203 HPCI -P8V #8 BEARING-PUMP OUTBOARD VERTICL



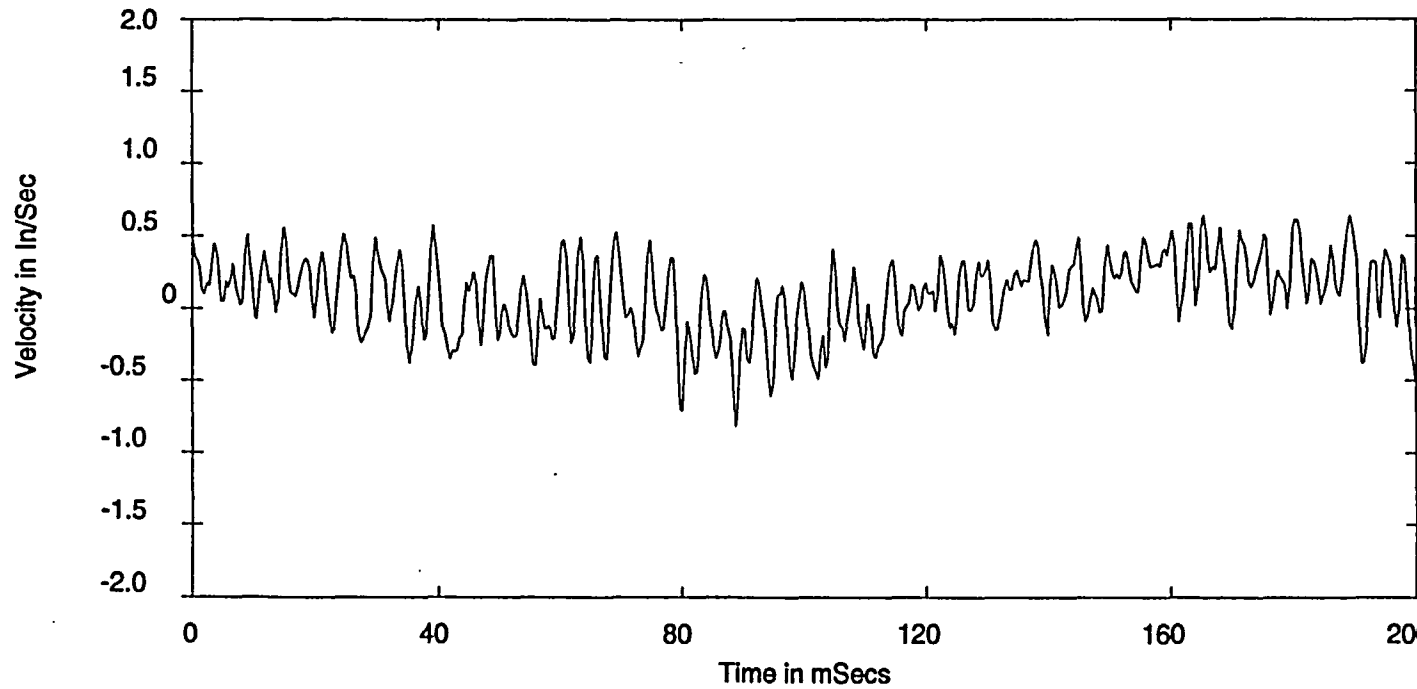
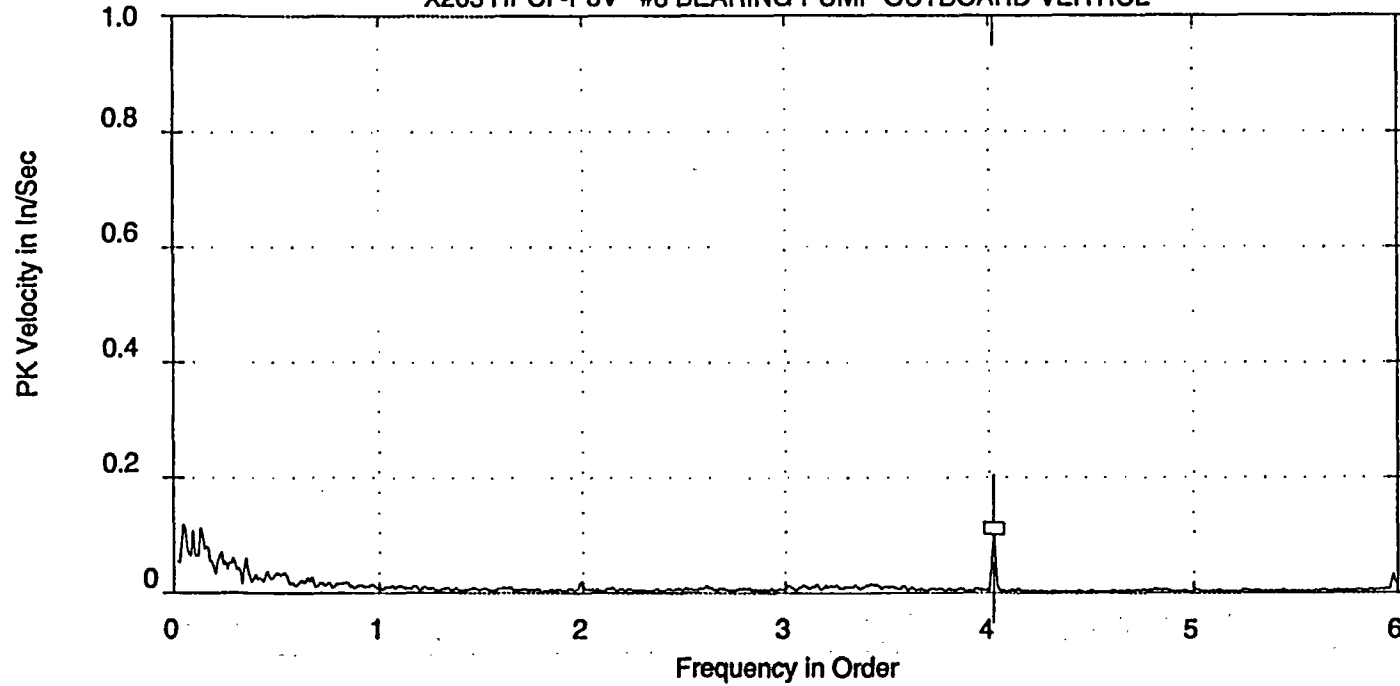
ROUTE SPECTRUM  
17-DEC-97 21:54:16  
OVRALL= 1.16 V-AP  
PK = .3738  
LOAD =4250.0  
RPM = 1992.  
RPS = 33.20



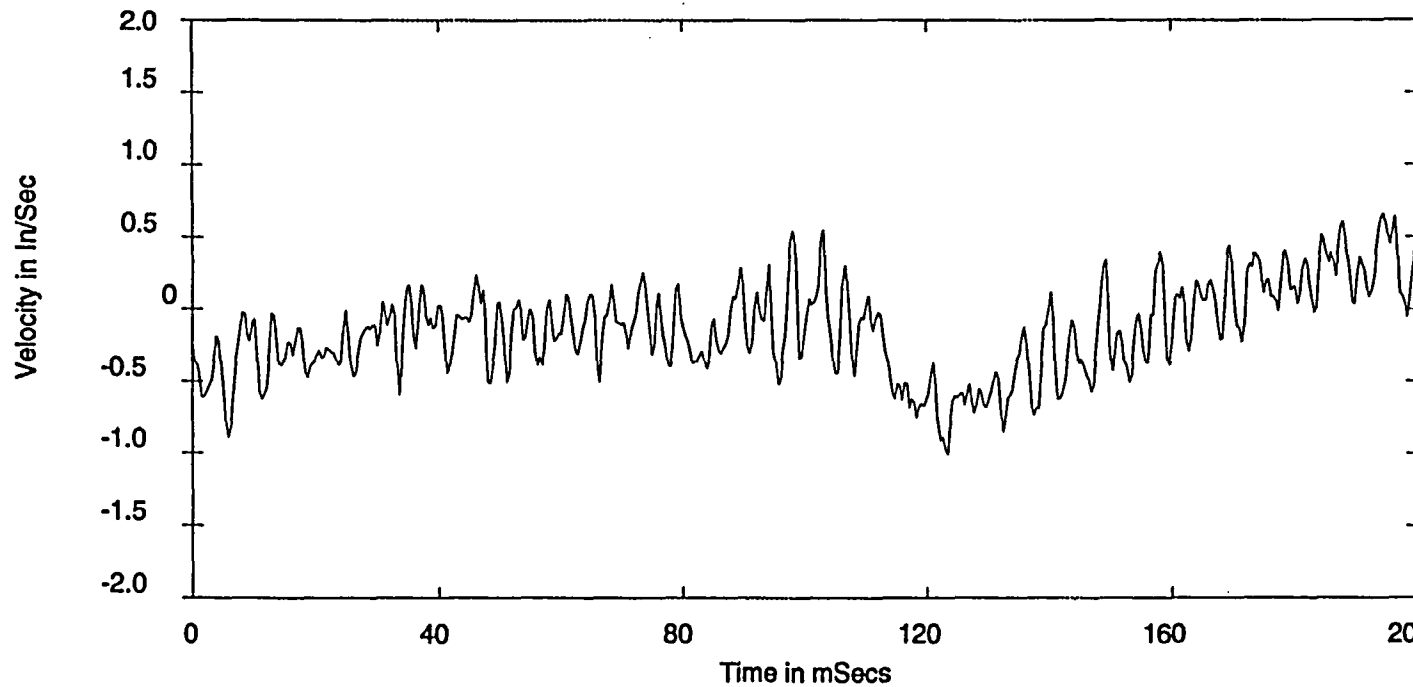
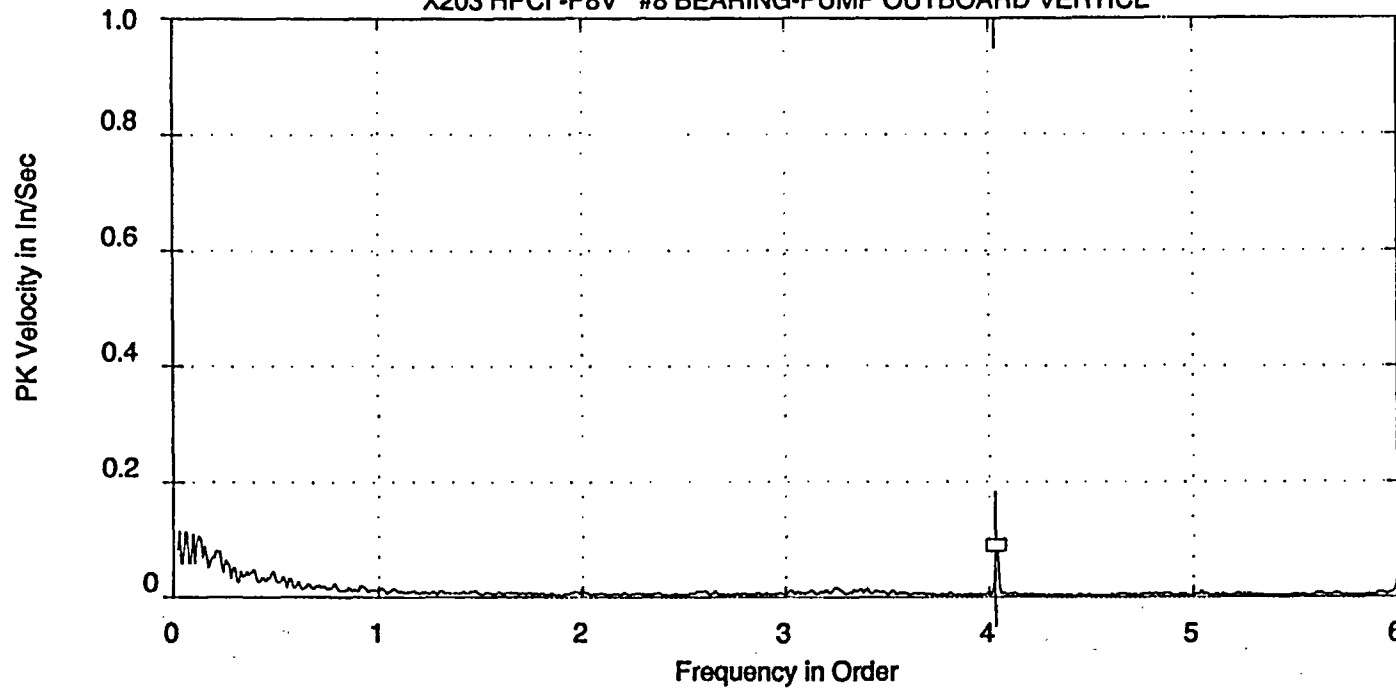
WAVEFORM DISPLAY  
17-DEC-97 21:54:16  
PK = .5256  
PK(+) = .7513  
PK(-) = 1.03  
CRESTF= 3.02

Ordr: 4.038  
Freq: 134.06  
Spec: .08389

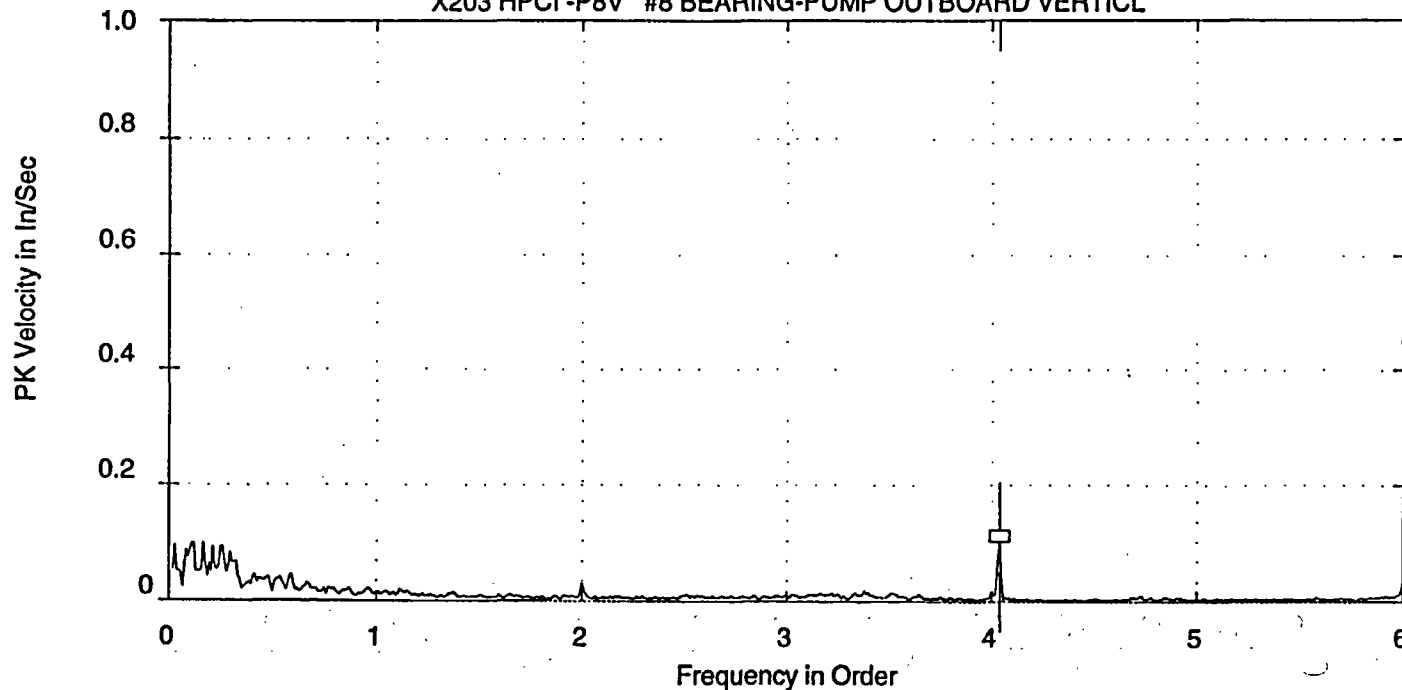
RX - X203,P205 HPCI TURB & PUMP  
X203 HPCI -P8V #8 BEARING-PUMP OUTBOARD VERTICL



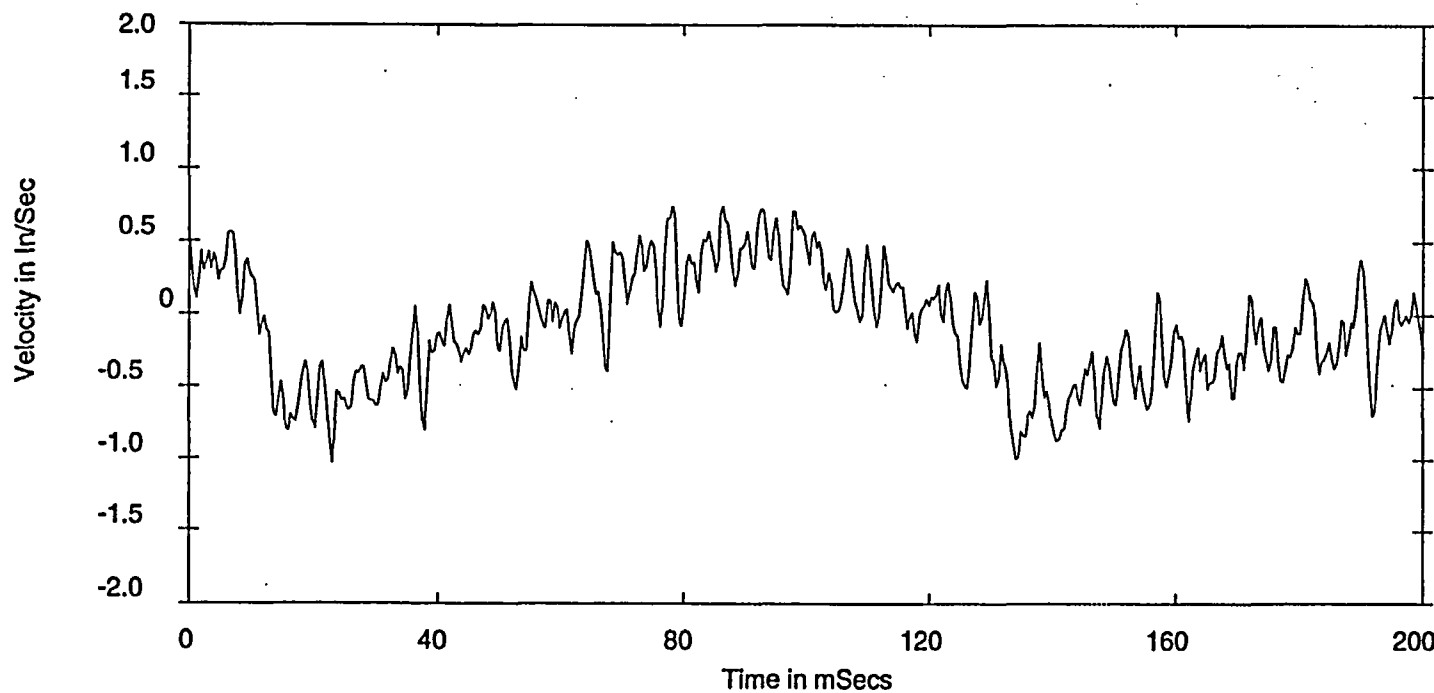
RX - X203, P205 HPCI TURB & PUMP  
X203 HPCI -P8V #8 BEARING-PUMP OUTBOARD VERTICL



RX - X203, P205 HPCI TURB & PUMP  
X203 HPCI -P8V #8 BEARING-PUMP OUTBOARD VERTICL



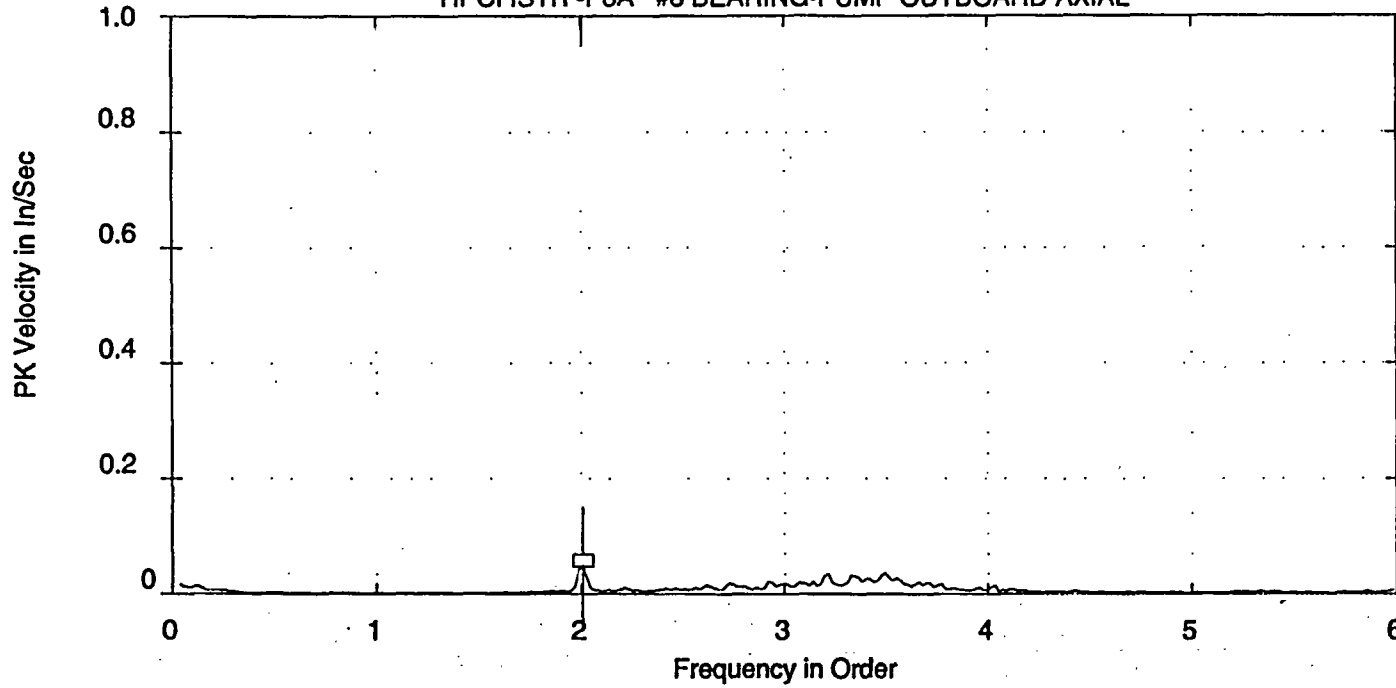
ROUTE SPECTRUM  
25-MAY-94 09:36:36  
OVRALL= .3279 V-DG  
PK = .4190  
LOAD =4250.0  
RPM = 2025.  
RPS = 33.75



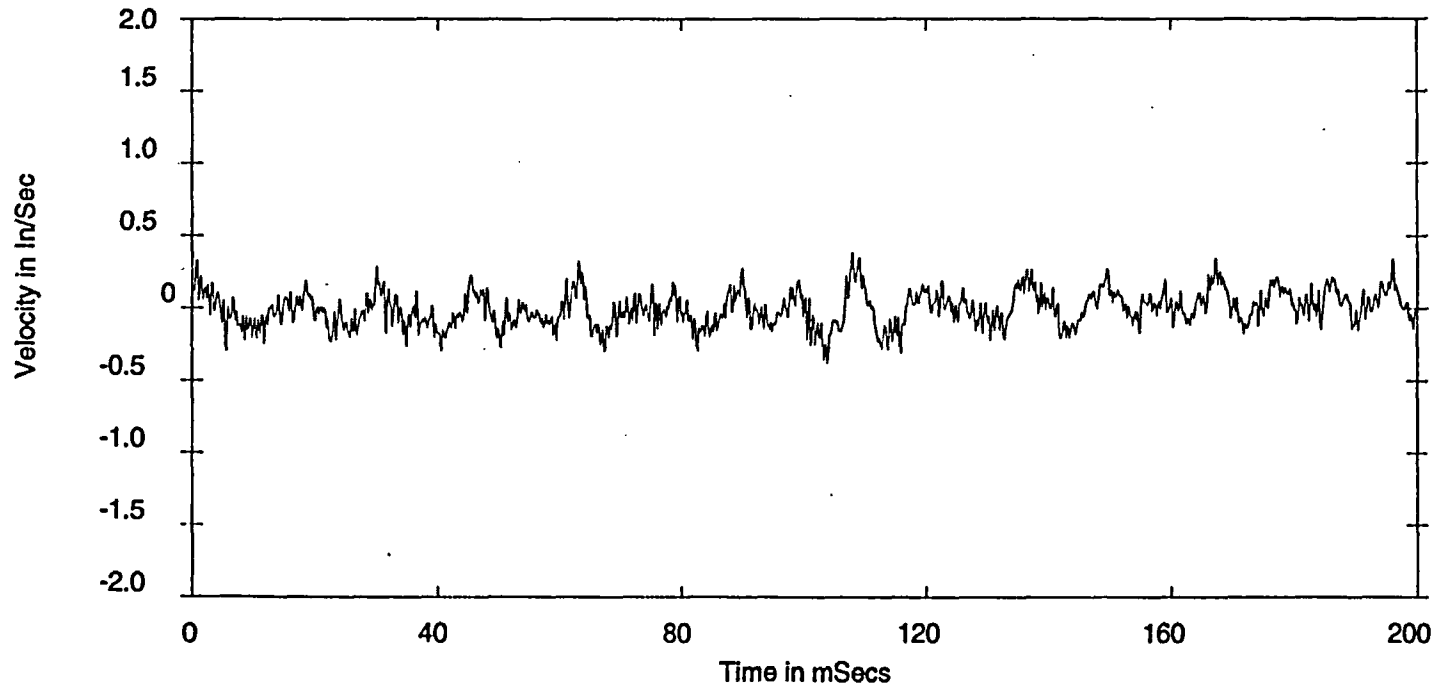
WAVEFORM DISPLAY  
25-MAY-94 09:36:36  
PK = .5485  
PK(+) = .8559  
PK(-) = 1.89  
CRESTF= 4.52

Ordr: 4.035  
Freq: 136.18  
Spec: .107

IST - IST, P205 HPCI @42.5k  
HPCI ISTR -P8A #8 BEARING-PUMP OUTBOARD AXIAL



ROUTE SPECTRUM  
24-NOV-04 00:57:05  
OVRALL= .1761 V-DG  
PK = .1523  
LOAD =4250.0  
RPM = 2017.  
RPS = 33.62

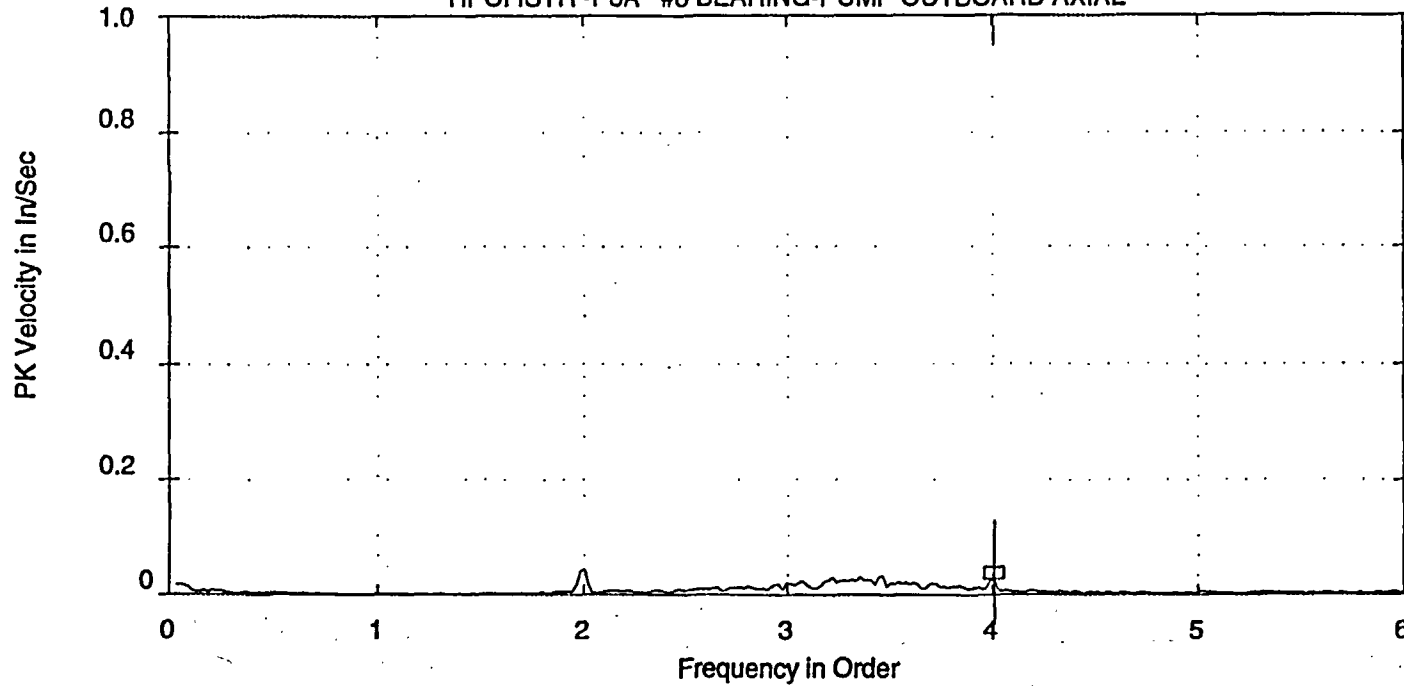


ROUTE WAVEFORM  
24-NOV-04 00:57:05  
PK = .1719  
PK(+) = .3898  
PK(-) = .3766  
CRESTF= 3.21

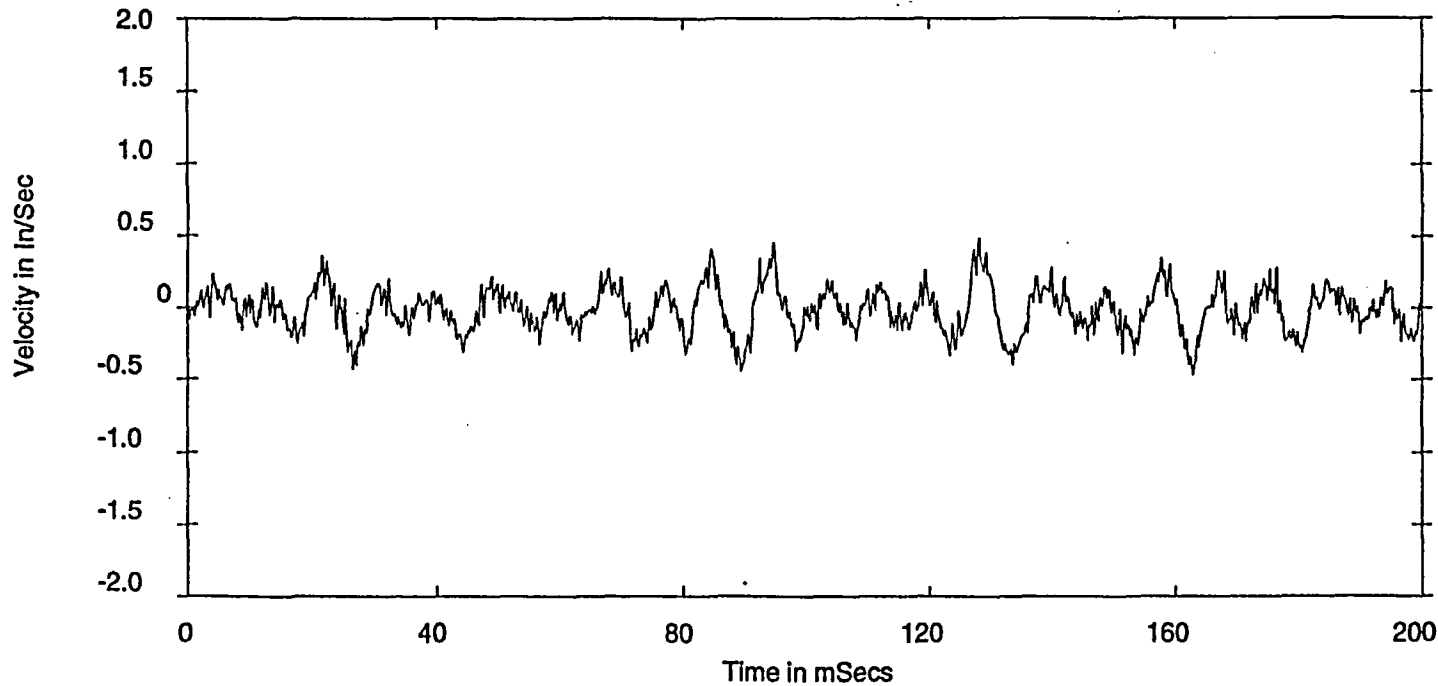
Ordr: 2.008  
Freq: 67.50  
Spec: .04798



IST - IST, P205 HPCI @42.5k  
HPCI ISTR -P8A #8 BEARING-PUMP OUTBOARD AXIAL



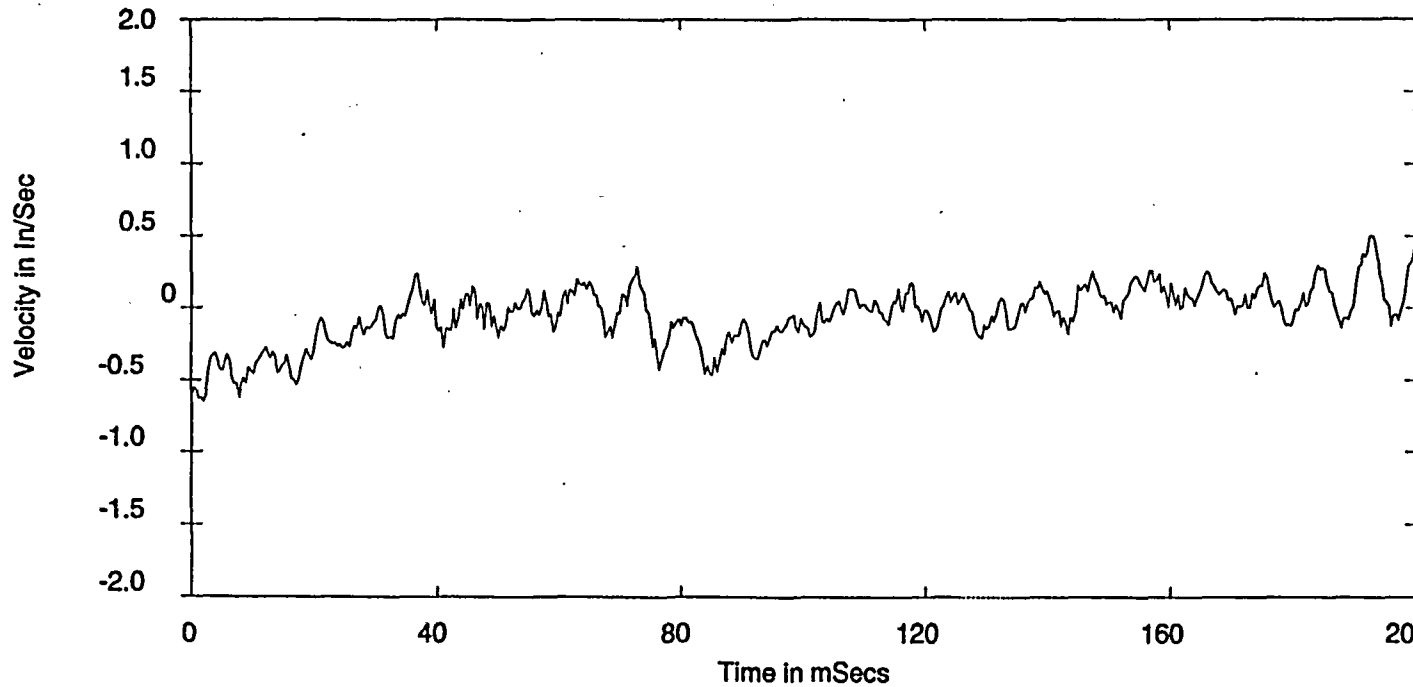
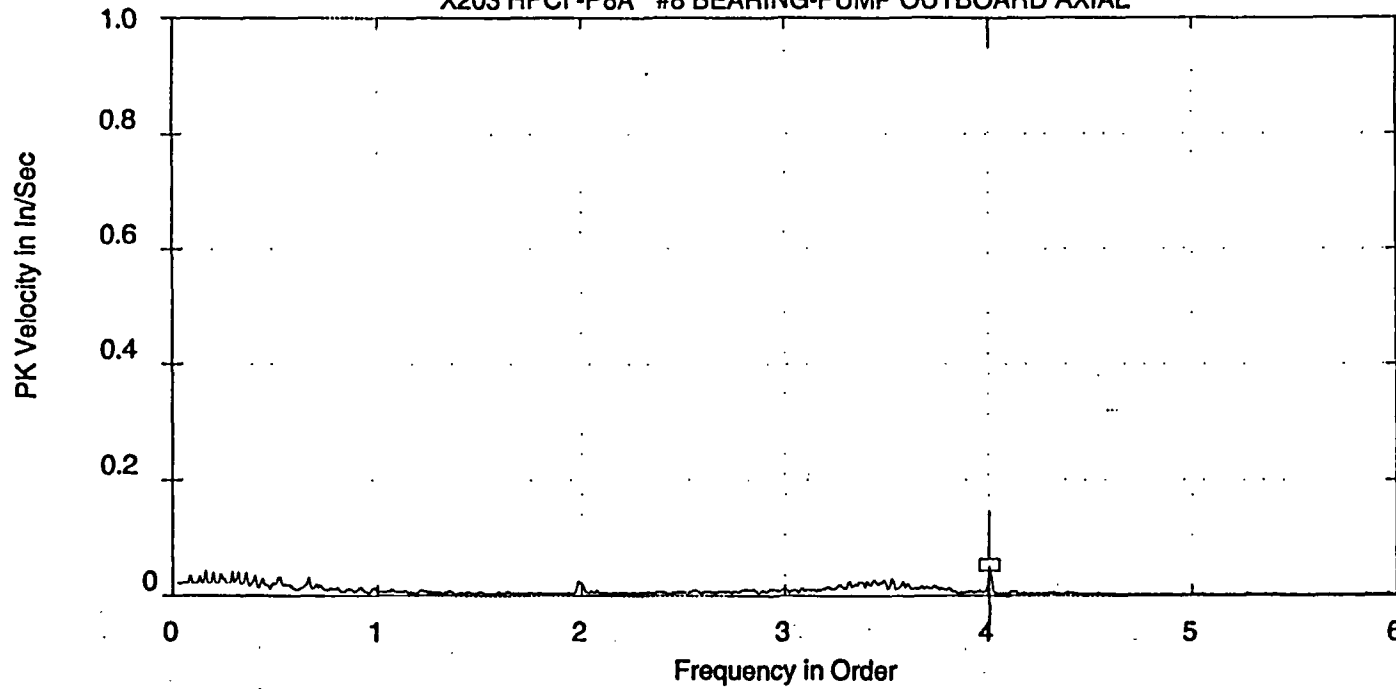
ROUTE SPECTRUM  
24-AUG-04 20:53:30  
OVRALL= .1736 V-DG  
PK = .1499  
LOAD =4250.0  
RPM = 2003.  
RPS = 33.38



ROUTE WAVEFORM  
24-AUG-04 20:53:30  
PK = .2222  
PK(+) = .4984  
PK(-) = .4466  
CRESTF= 3.17

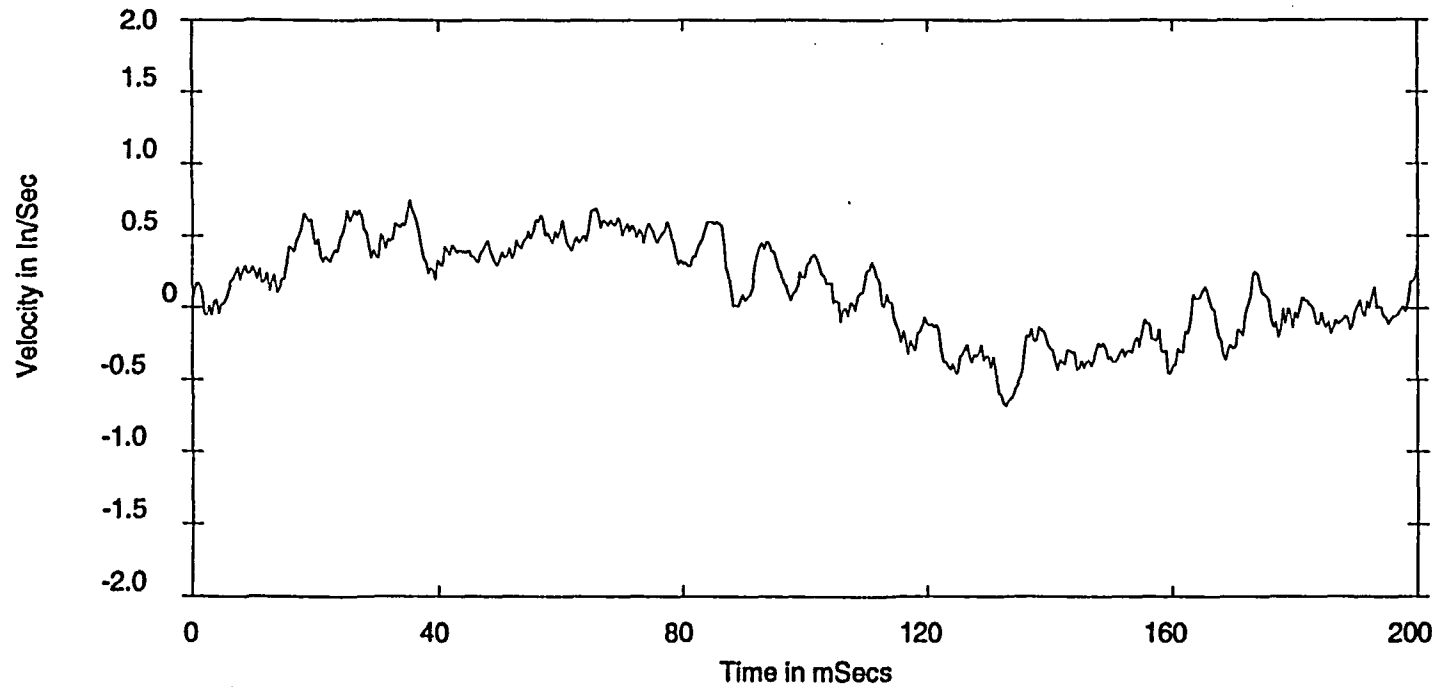
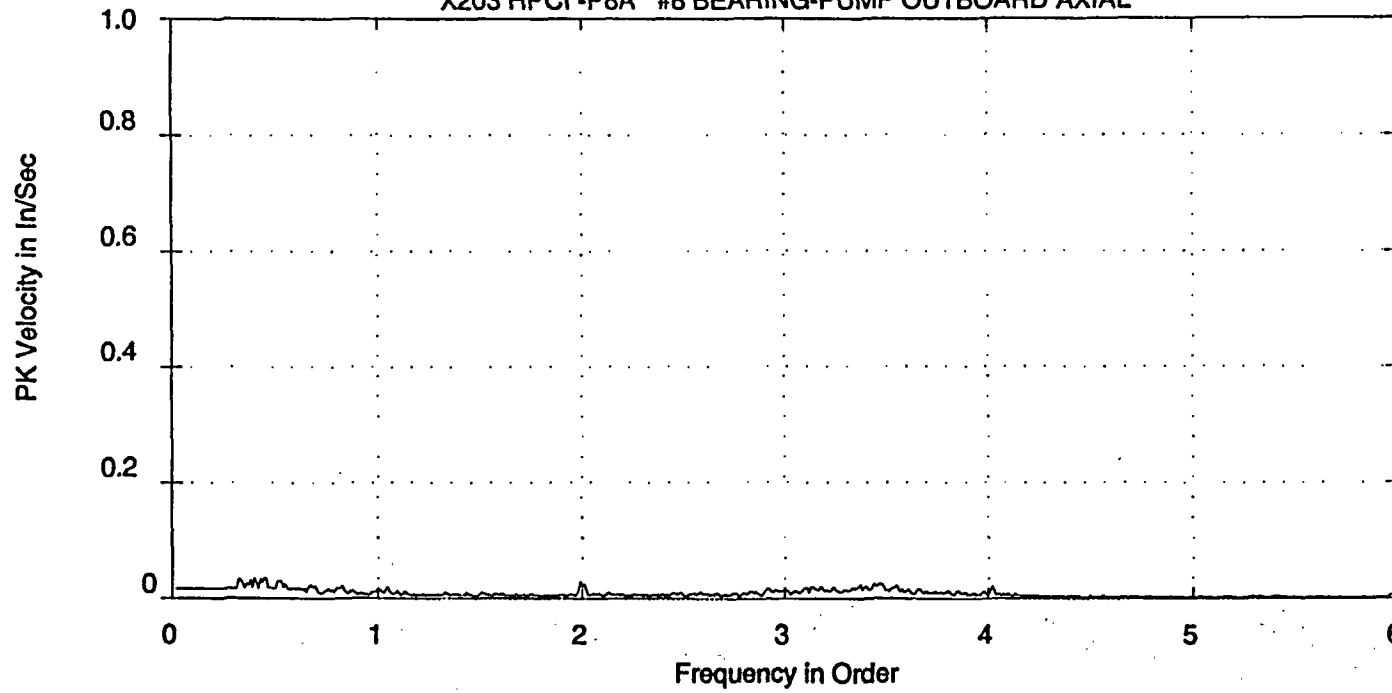
Ordr: 4.000  
Freq: 133.51  
Spec: .03090

RX - X203,P205 HPCI TURB & PUMP  
X203 HPCI -P8A #8 BEARING-PUMP OUTBOARD AXIAL



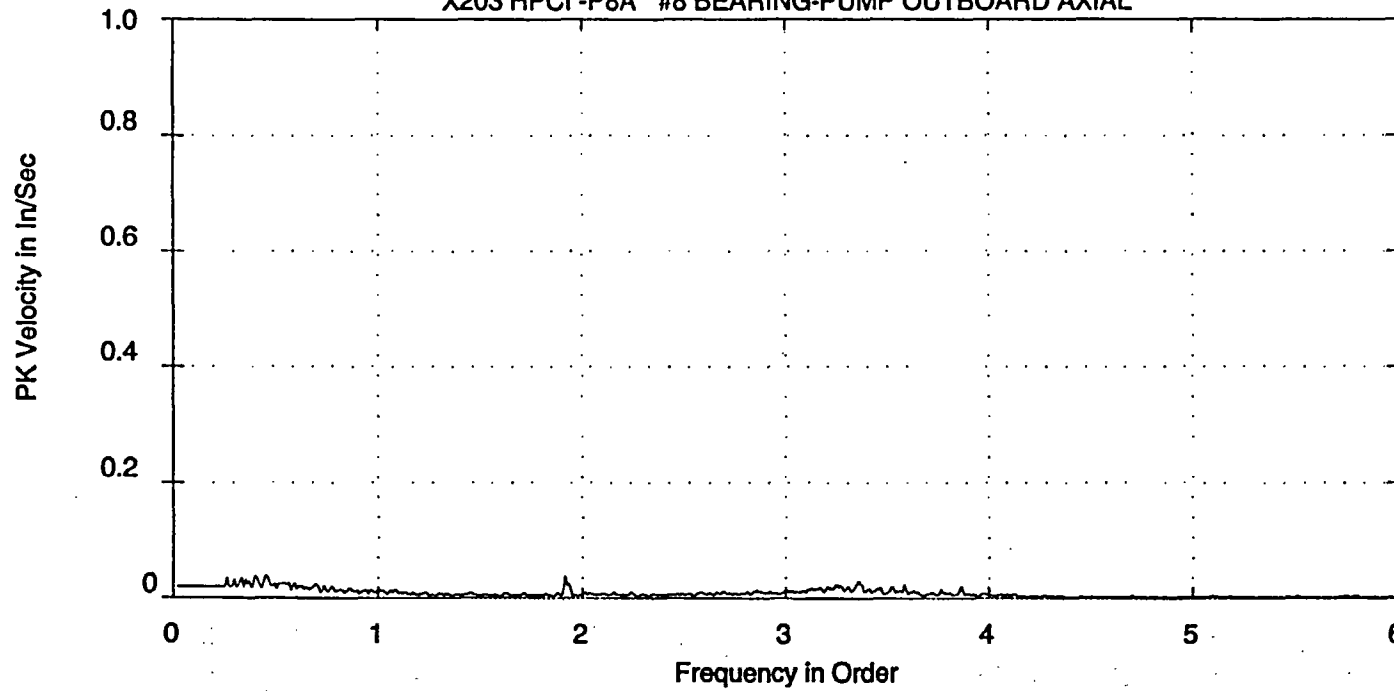
RX - X203,P205 HPCI TURB & PUMP  
X203 HPCI -P8A #8 BEARING-PUMP OUTBOARD AXIAL

ROUTE SPECTRUM  
31-JUL-96 09:54:50  
OVRALL= .2007 V-DG  
PK = .2261  
LOAD =4250.0  
RPM = 2025.  
RPS = 33.75

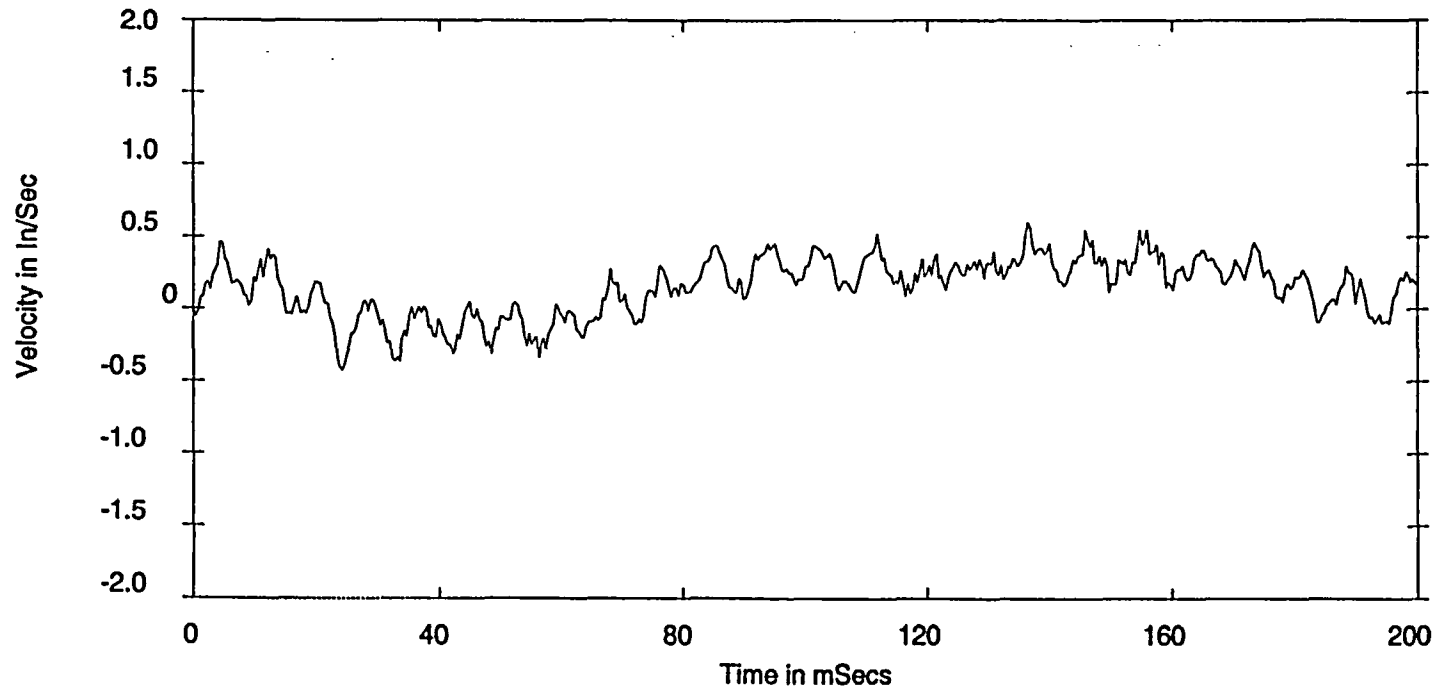


WAVEFORM DISPLAY  
31-JUL-96 09:54:50  
PK = .4697  
PK(+) = .9066  
PK(-) = 1.54  
CRESTF= 3.25

RX - X203, P205 HPCI TURB & PUMP  
X203 HPCI -P8A #8 BEARING-PUMP OUTBOARD AXIAL

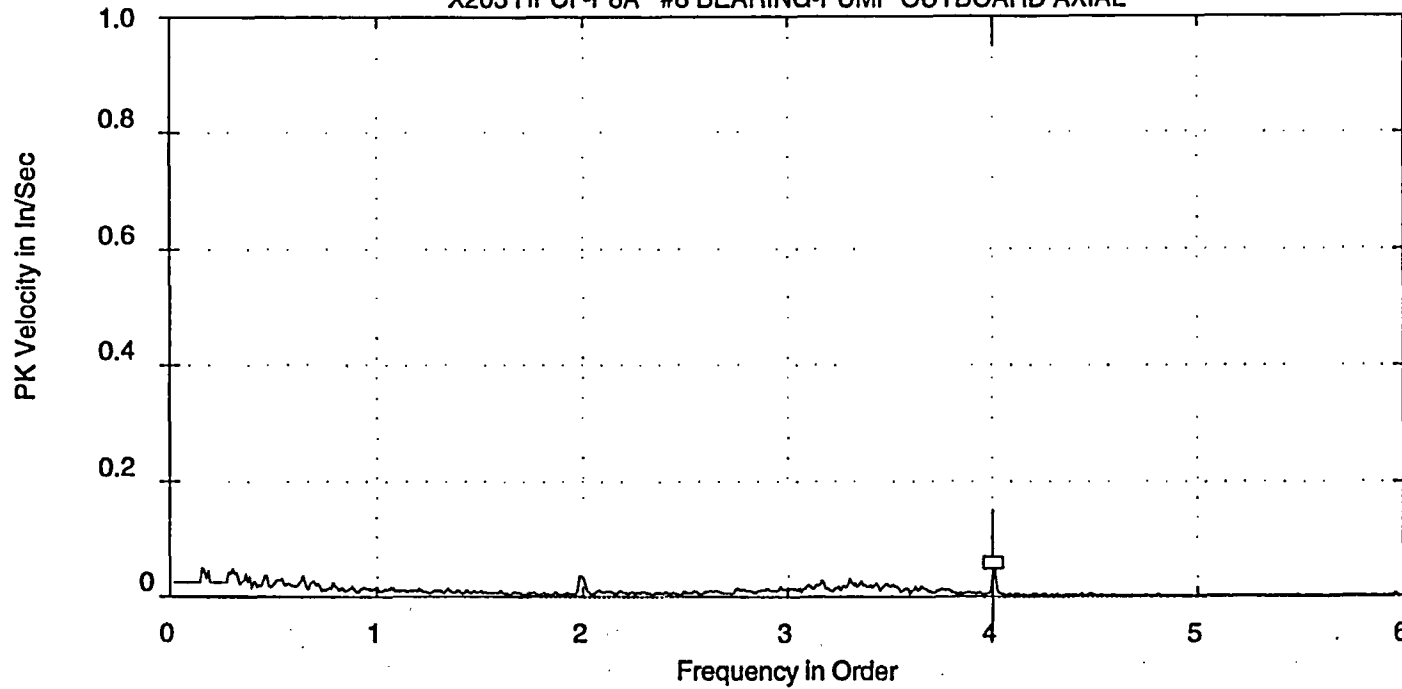


ROUTE SPECTRUM  
20-NOV-95 02:07:18  
OVRALL= .2017 V-DG  
PK = .2314  
LOAD =4250.0  
RPM = 2087.  
RPS = 34.78

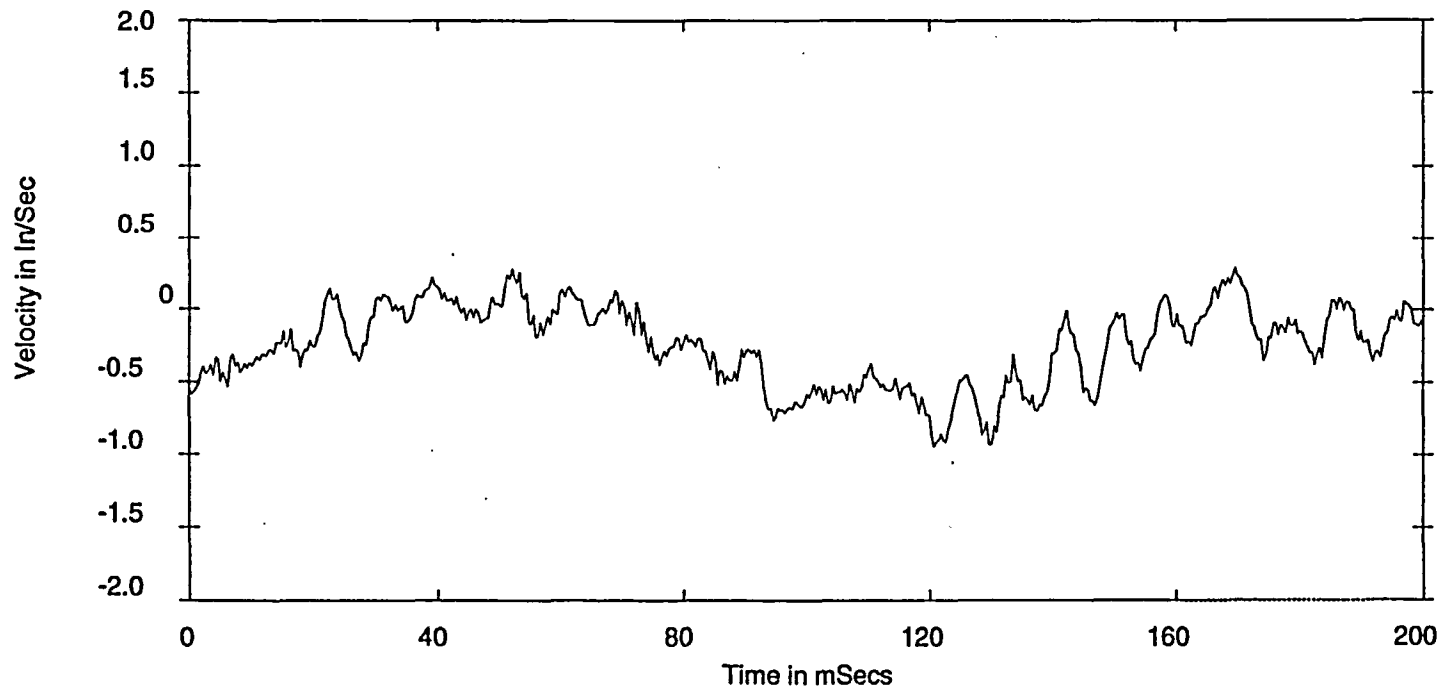


WAVEFORM DISPLAY  
20-NOV-95 02:07:18  
PK = .2857  
PK(+) = .5738  
PK(-) = 1.01  
CRESTF= 3.37

RX - X203, P205 HPCI TURB & PUMP  
X203 HPCI -P8A #8 BEARING-PUMP OUTBOARD AXIAL



ROUTE SPECTRUM  
25-MAY-94 09:37:08  
OVRALL= .2237 V-DG  
PK = .2715  
LOAD =4250.0  
RPM = 2042.  
RPS = 34.03



WAVEFORM DISPLAY  
25-MAY-94 09:37:08  
PK = .3873  
PK(+) = 1.02  
PK(-) = .8513  
CRESTF= 2.65

Ordr: 4.008  
Freq: 136.40  
Spec: .05659