Highly Compliant Riser
Large Scale Model Test
Joint Industry Project
Data Reduction and Report
Addendum Number 1: Hard Bottom Tests

SMS Project 97-504 16 December 1998

Prepared

for

PMB Engineering

50 Beale Street

Suite Number 333/15/D77

San Francisco, CA 94105

Prepared

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Model Test Report
(Hard Bottom Addendum)

Highly Compliant Rigid Riser
Large Scale Model Test and Analysis JIP

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Highly Compliant Rigid Riser
Large Scale Model Test and Analysis JIP

Model Test Report
(Hard Bottom Addendum)

Prepared for
Sponsoring Participants

by
Scientific Marine Services, Inc. (as Subcontractor to PMB Engineering Inc.)

December 23, 1998

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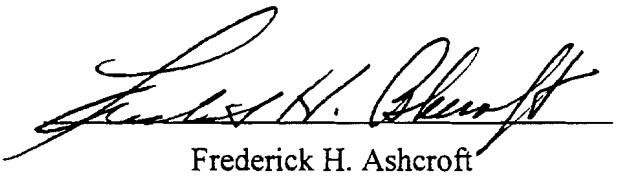
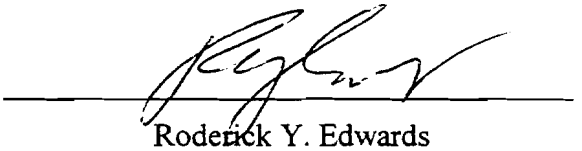


Frederick H. Ashcroft
Deputy Project Manager

Reviewed By



Roderick Y. Edwards
Project Manager

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1 Executive Summary

This Addendum to the HCR-JIP Data Reduction Report covers the vertical motion actuation tests on the hard bottom. All instrumentation, equipment, and data reduction techniques have been described in the parent report. This report covers only those things which are unique to the specified tests.

This test series was conducted only with the SCR riser configuration and provides data for riser response on a hard bottom to compare with the response measured with the riser on soft mud.

As with the soft bottom tests, data was collected , reduced to engineering units, and presented for further analysis by other parties. A sample of the reduced data is presented in this report and all the raw data and processed data are included on the Hard Bottom CD-ROM, which was delivered with the parent report to the hard bottom participants.

2 Introduction

The purpose of these tests was to provide comparative data between SCR riser response when laid on a soft (mud) or hard bottom.

To accomplish this test, a hard bottom mat was installed on the lake bottom. This mat provided a hard contact surface for the riser, simulating a hard natural bottom. This type of hard bottom was conceived by SMS and designed and fabricated by PMB. Installation and removal of the hard bottom was accomplished by ARD personnel under the direct supervision of PMB senior engineers. Support was provided by SMS personnel for positioning of the Kamloops barge and ROV operations.

The riser model was excited through several vertical amplitudes and a range of frequencies. At each frequency, the steady state response was recorded for riser top tension, pup tension and bending at each pup, riser leaving angle, the vertical acceleration of the actuator mechanism, and the five degree of freedom motions of the Kamloops barge (yaw was not measured).

High accuracy GPS units were used to determine the location of the hard bottom during installation and the riser top while positioning the riser over the hard bottom.

3 Test Instrumentation

The test instrumentation is described in § 3.1 through 3.8 in the parent report.

4 HCR Test Equipment

All the test equipment except for the hard bottom is described in § 4.1 through 4.8 in the parent report. The hard bottom is described below.

4.1 The Hard Bottom

The hard bottom was conceived by SMS and designed and fabricated by PMB. It consisted of sixteen panels hinged together as an accordion. The frame was constructed of steel channel and decked with plywood. The panels are 16 feet wide and 8 feet long, thus when fully deployed, the bottom was 16 feet wide by 128 feet long. Two cylindrical weights were used to unfold the bottom and then anchor one end of the unit to the lake bottom. The lowering and retrieval line was buoyed off to the side after deployment to avoid entangling the riser. The retrieval of the hard bottom was the reverse of the deployment. Photographs of the hard bottom being deployed are given in Figures 4-1 through 4-3.

Figure 4-1: Hard Bottom Folded, Prior to Deployment

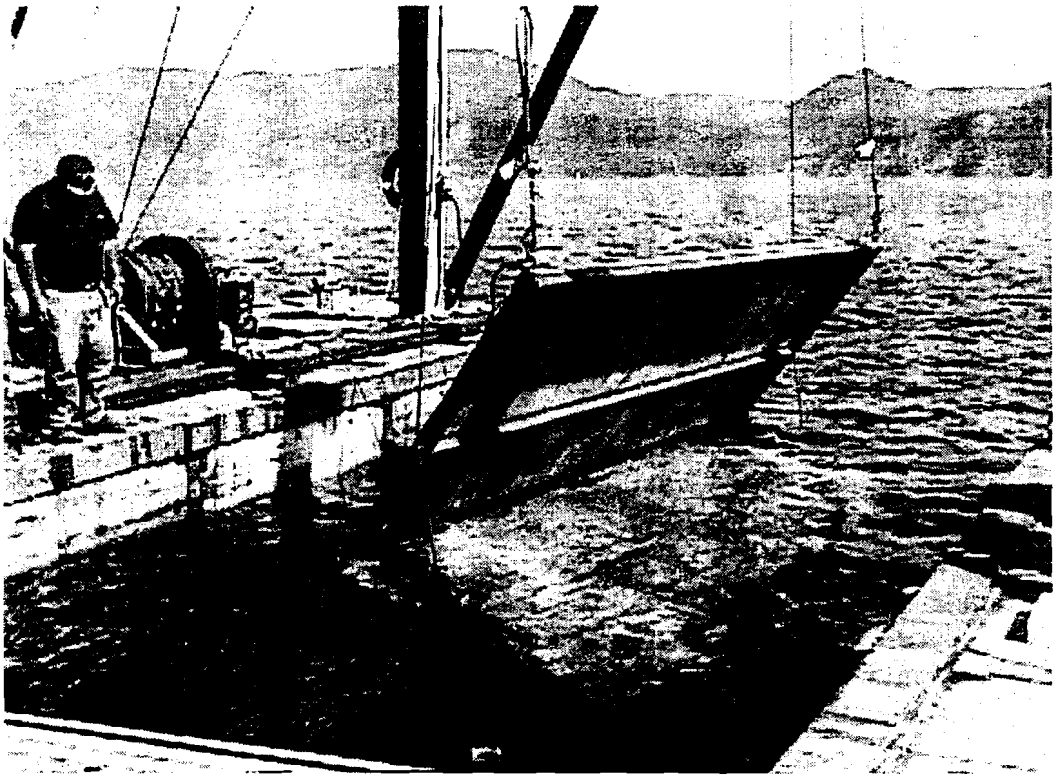

Figure 4-2: Hard Bottom Partially Unzipped

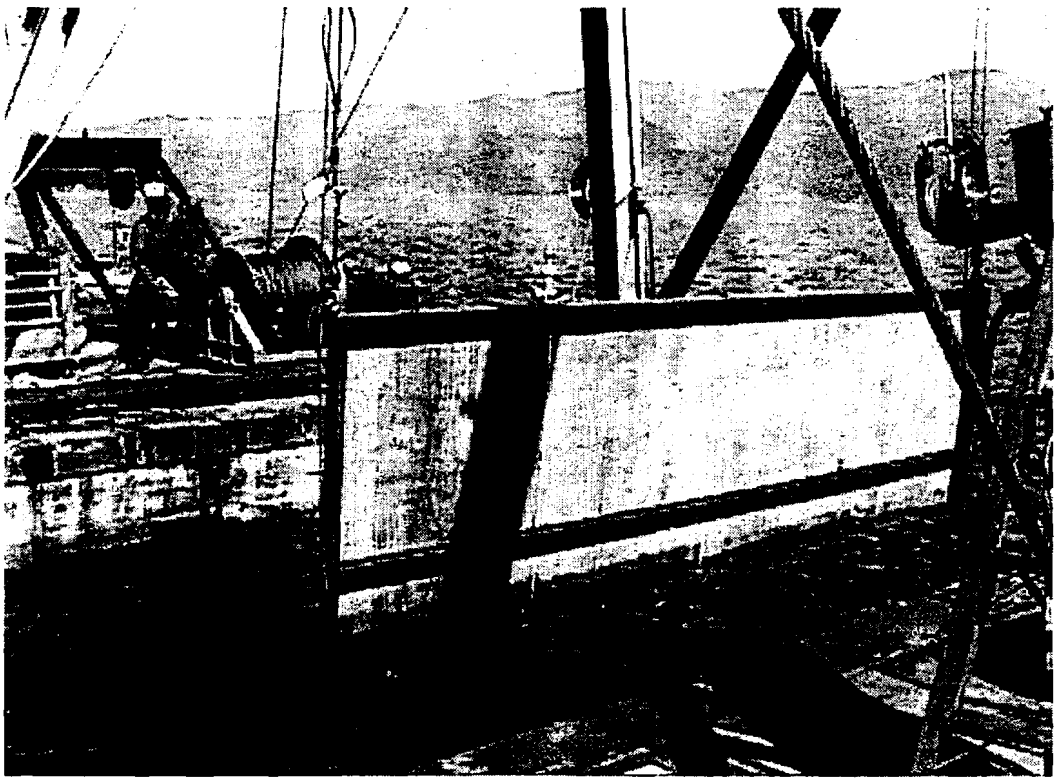

Figure 4-3: Hard Bottom Fully Unzipped and Ready to Lower to Lake Bottom

5 Test Configurations

The riser assembly procedures are described in § 5.1 of the parent report. The only configuration tested for vertical actuation on the hard bottom was the SCR. The details are given in the following sections.

5.1 Configuration Descriptions

Only the SCR riser configuration was tested for vertical excitation on the artificial hard bottom.

The pups were always numbered from 1 to 8, starting at the end nearest the actuator. It is important to know which physical calibration file corresponds to which pup. Table 5-1 provides the pup order reference data for the SCR:

Table 5-1: Pup Order Reference Numbers

Order No.	SCR
1	10
2	2
3	3
4	4
5	5
6	6
7	7
8	9

The SCR configuration was deployed in accordance with the layout given in Figure 5-1. The pipe joint installation schedule is given in Table 5-2. During this installation, due to an error, instrumented pups numbers 5 and 6 (also known as pup physical reference numbers 5 and 6) were installed upside down. This will result in the sign of the Y bending and Y axis accelerations being reversed from the standard sign convention in the raw data. This problem was addressed in the SCR2MAT and SCR2CSV programs, so that after running either program, the derived channels for the final corrected out of plane bending for these pups have the correct sign, consistent with the standard reference system and all the other pups. It should be noted that the raw data is not altered in any way, therefore people who wish to manipulate these data themselves should be aware that the signs for the raw Y axis bending and accelerometers are reversed. All other pups were installed in the correct orientation.

Also for this configuration, one pup (pup order number 1, physical reference number 10) was installed near the top attachment. In order to maintain the total number of eight instruments, one was removed from the sag bend region, therefore for the SCR, there are 7 pups in the sag bend region and 1 pup close to the top attachment point. When pup 10 was installed in the line, the calibration factor was altered to increase the sensitivity as requested for all other pups after the CVAR tests. Unfortunately, the Command Data Word (CDW: the programming command which sets the properties of the A/D converter on each pup) was never altered in the pup, so the electronic gain remained as originally set. This problem has been corrected in the post test reduction by correctly matching the calibration factor to the electrical gain. The result is that the tension readings for this pup have half the resolution of the other 7 pups in the string. Since this pup was located near the top where the tension readings are the highest, this should not be a significant problem.

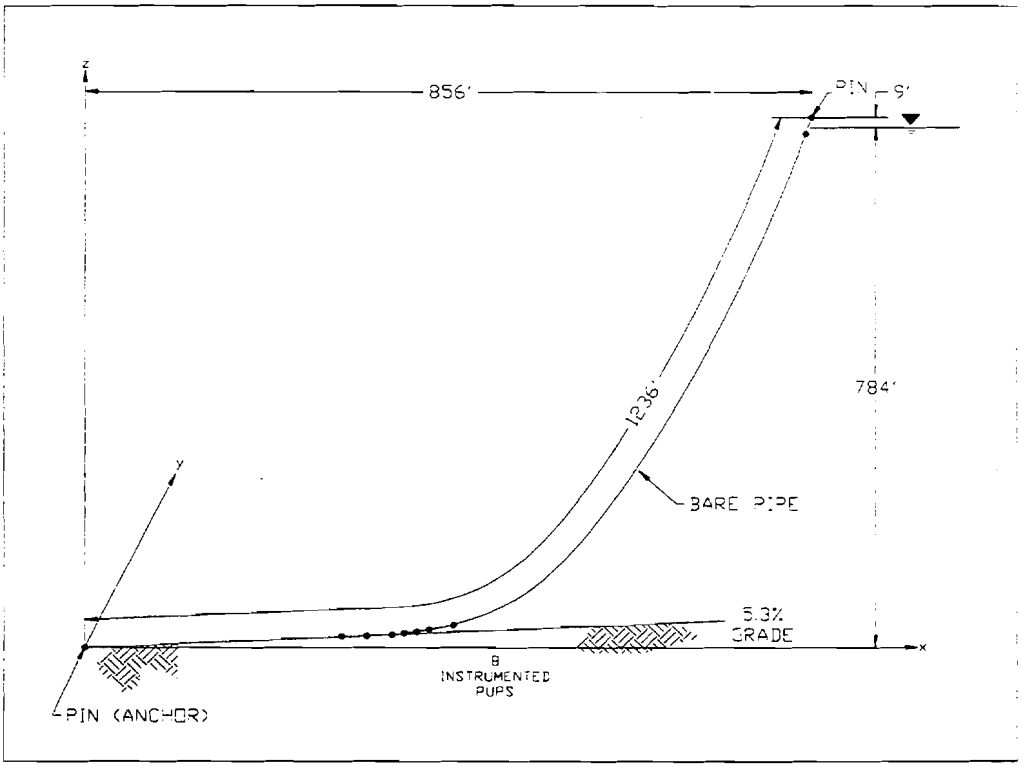

Figure 5-1: SCR Profile and Dimensions

Pipe joints 9 through 28 had fairing cones bolted on at the flanges to prevent the flange from becoming stuck on the hinged joints of the hard bottom. A photograph of a typical cone installation is given in Figure 5-2.

Figure 5-2: SCR Pipe Joint Fairing Cones

Table 5-2: SCR Pipe Joint Schedule

Joint #	Pipe #	Distance from anchor to top of member	Nominal Length	Actual Length	Actual dist. From anchor to top of member	cone?
0	on anchor	5.5	anchor arm	5.5	5.5	
1	24-049	29.5	24	24.01	29.51	
2	24-051	53.5	24	24.01	53.52	
3	24-052	77.5	24	24.01	77.53	
4	24-053	101.5	24	24.01	101.54	
5	24-060	125.5	24	24.01	125.55	
6	24-061	149.5	24	24.01	149.56	
7	24-062	173.5	24	24.01	173.57	
8	24-063	197.5	24	24.01	197.58	
9	X24-008	221.5	24	24.01	221.59	c
10	X24-010	245.5	24	24.016	245.606	c
11	X12-003	257.5	12	12	257.606	c
12	pup8	259.5	2	2	259.606	c
13	X24-006	283.5	24	24.016	283.622	c
14	pup7	285.5	2	2	285.622	c
15	X12-002/X12-006	309.5	24	24.01	309.632	c
16	pup6	311.5	2	2	311.632	c
17	X12-007	323.5	12	11.979	323.611	c
18	pup5	325.5	2	2	325.611	c
19	X12-004	337.5	12	12	337.611	c
20	pup4	339.5	2	2	339.611	c
21	X12-005	351.5	12	12	351.611	c/Tape
22	pup3	353.5	2	2	353.611	c
23	X24-007	377.5	24	24.01	377.621	c
24	pup2	379.5	2	2	379.621	c
25	X24-001	403.5	24	24.021	403.642	c
26	X24-005	427.5	24	24.01	427.652	c
27	X24-003	451.5	24	24.01	451.662	c
28	X24-004	475.5	24	24.021	475.683	c
29	24-016	499.5	24	24	499.683	
30	24-018	523.5	24	24.01	523.693	
31	24-019	547.5	24	24.01	547.703	
32	24-020	571.5	24	24	571.703	
33	24-022	595.5	24	24	595.703	
34	24-023	619.5	24	24.016	619.719	
35	24-024	643.5	24	24.01	643.729	
36	24-025	667.5	24	24.01	667.739	
37	24-026	691.5	24	24.01	691.749	
38	24-027	715.5	24	24.005	715.754	
39	24-031	739.5	24	24.01	739.764	
40	24-030	763.5	24	24.01	763.774	
41	24-032	787.5	24	24.01	787.784	
42	24-033	811.5	24	24.01	811.794	
43	24-034	835.5	24	24.005	835.799	
44	24-035	859.5	24	24.016	859.815	
45	24-036	883.5	24	24.01	883.825	
46	24-037	907.5	24	24.01	907.835	
47	24-038	931.5	24	24.01	931.845	
48	24-039	955.5	24	24.016	955.861	
49	24-043	979.5	24	24.005	979.866	
50	24-044	1003.5	24	24.01	1003.876	
51	24-042	1027.5	24	24.01	1027.886	
52		1051.5	24	24.005	1051.891	
53		1075.5	24	24.016	1075.907	
54	24-046	1099.5	24	24.021	1099.928	
55	24-047	1123.5	24	24.021	1123.949	
56	24-045	1147.5	24	24.01	1147.959	
57	24-041	1171.5	24	24.01	1171.969	
58	24-021	1195.5	24	24.01	1195.979	
59	24-040	1219.5	24	24.01	1219.989	
60	pup1	1221.5	2	2	1221.989	
61	X12-001	1233.5	12	12	1233.989	

6 Test Procedures

The test procedures used are described in detail in § 6.1 through 6.4 of the parent report.

7 Test Results

7.1 Description of Actual Data Runs

Table 7-1 provides a description of the actual data runs made for this riser configuration. The date of the run, file designation (format is one letter configuration designator, day, hour, minute i.e.: H211555 is an HCR JIP test, performed on 21 September, at 1555 PDT), test name, motor RPM, actuator RPM, actuator amplitude, and period are given.

Table 7-1 SCR on Hard Bottom Vertical Test Runs

Date	File Name	Test Name	Motor RPM	Actuator RPM	Amplitude (Feet)	Riser Period (s)
9/21/98	H211555	SM1	450	6.00	3	10.00
9/21/98	H211558	SM1	500	6.67	3	9.00
9/21/98	H211604	SM1	563	7.51	3	7.99
9/21/98	H211608	SM1	643	8.57	3	7.00
9/21/98	H211611	SM1	750	10.00	3	6.00
9/21/98	H211613	SM1	900	12.00	3	5.00
9/21/98	H211616	SM1	1125	15.00	3	4.00
9/21/98	H211619	SM1	1500	20.00	3	3.00
9/21/98	H211622	SM1	1600	21.33	3	2.81
9/22/98	H221734	SM2	450	6.00	3	10.00
9/22/98	H221737	SM2	500	6.67	3	9.00
9/22/98	H221741	SM2	563	7.51	3	7.99
9/22/98	H221745	SM2	643	8.57	3	7.00
9/22/98	H221748	SM2	692	9.23	3	6.50
9/22/98	H221751	SM2	750	10.00	3	6.00
9/22/98	H221753	SM2	900	12.00	3	5.00
9/22/98	H221756	SM2	1125	15.00	3	4.00
9/22/98	H221759	SM2	1500	20.00	3	3.00
9/22/98	H221803	SM2	1600	21.33	3	2.81
9/23/98	H230909	SM3	450	6.00	2	10.00
9/23/98	H230912	SM3	500	6.67	2	9.00
9/23/98	H230915	SM3	563	7.51	2	7.99
9/23/98	H230919	SM3	643	8.57	2	7.00
9/23/98	H230927	SM3	643	8.57	2	7.00
9/23/98	H230930	SM3	692	9.23	2	6.50
9/23/98	H230933	SM3	750	10.00	2	6.00
9/23/98	H230935	SM3	900	12.00	2	5.00
9/23/98	H230941	SM3	1125	15.00	2	4.00
9/23/98	H230941A	SM3	1500	20.00	2	3.00
9/23/98	H230944	SM3	1600	21.33	2	2.81

7.2 Description of Reduction Methods and Algorithms

Data reduction methods are described in § 7.2.1 through § 7.3.3 in the parent report.

7.3 Reduced Constant Frequency Statistics

The steady state data from all test runs was reduced and converted to engineering units using the appropriate RAW2MAT conversion program. The data were then processed using proprietary Matlab routines to produce the required statistics. Two sets of output files have been generated for each tested riser configuration: one for the barge motions and a second for the tension and bending information.

The barge motion files contain the following information for each period and amplitude:

1. Channel Name
2. Units (Physical Units)
3. Minimum
4. Maximum
5. Mean
6. Standard Deviation
7. Significant Amplitude
8. Period (Mean Zero Up-crossing Period)

The data presented is:

1. Barge Roll
2. Barge Pitch
3. Barge Surge Acceleration NOG
4. Barge Sway Acceleration NOG
5. Barge Heave Acceleration NOG

These data are not evaluated as part of this report.

The tension and bending moment files contain the following information for each period and amplitude:

1. Channel Name
2. Units (Physical Units)
3. Minimum

4. Maximum
5. Mean
6. Average Peak to Peak (Time Domain)
7. Ratio Peak to Peak (Time Domain)
8. RAO (Frequency Domain)
9. Phase

The data presented is:

1. Actuator Load
2. Actuator Heave NOG
3. Pup 1 Bending In Plane (Post Processed)
4. Pup 1 Bending Out Plane (Post Processed)
5. Pup 1 Tension (Post Processed)
6. Pup 2 Bending In Plane (Post Processed)
7. Pup 2 Bending Out Plane (Post Processed)
8. Pup 2 Tension (Post Processed)
9. Pup 3 Bending In Plane (Post Processed)
10. Pup 3 Bending Out Plane (Post Processed)
11. Pup 3 Tension (Post Processed)
12. Pup 4 Bending In Plane (Post Processed)
13. Pup 4 Bending Out Plane (Post Processed)
14. Pup 4 Tension (Post Processed)
15. Pup 5 Bending In Plane (Post Processed)
16. Pup 5 Bending Out Plane (Post Processed)
17. Pup 5 Tension (Post Processed)
18. Pup 6 Bending In Plane (Post Processed)
19. Pup 6 Bending Out Plane (Post Processed)
20. Pup 6 Tension (Post Processed)
21. Pup 7 Bending In Plane (Post Processed)
22. Pup 7 Bending Out Plane (Post Processed)
23. Pup 7 Tension (Post Processed)
24. Pup 8 Bending In Plane (Post Processed)
25. Pup 8 Bending Out Plane (Post Processed)

26. Pup 8 Tension (Post Processed)

27. Displacement (this is the double integrated actuator heave NOG)

The tabulated statistics contain the maximum, minimum, mean, average peak to peak, Ratio of the average peak to peak response to the average peak to peaks of the actuator displacement, the RAO calculated from the peak of the FFT closest to the excitation frequency divided by the peak of the actuator displacement FFT.

SMS decided not to filter the data beyond the filtering provided by the analog anti-aliasing filters(10 Hz cutoff). Consequently, even the tension and in-plane responses contain significant harmonic content different from the fundamental. As a result, the Average Peak to Peak listed in the statistics tables often does not reflect the peak to peak of the fundamental response. The zero crossing routine was confused by the higher harmonics. Consequently, the "Ratio P-P" is also of limited value. However, the RAO has been calculated from the response at the fundamental excitation frequency and is a valid number.

The peak to peak values listed in the statistical summaries should be used only for the cases where the "Ratio P-P" is in close agreement with "RAO".

Comparison of the tension RAO values for the Actuator and Pup 1 show excellent agreement, although the mean values do not agree. The tension measurements of the other pups (except Pup 3) in relation to the actuator load indicates that the dynamic tension response is good even if the mean values are suspect.

Although Pup 3 tension and Top X and Y accelerometers failed on 18 September, the other sensors in this pup remained functional. We believe that the bending measurements for this pup are probably valid.

Barge motion files for these tests are stored on the Hard Bottom Data CD-ROM.

7.4 Pup Motion Analysis

The X and Y accelerometer data from the pups was double integrated to determine the motion of each pup. To perform this analysis, a Matlab routine was prepared which corrected the accelerometers for the effects of gravity due to tilt and roll, transforming them to the mid-point of the pup and then into "X Acc NOG" and "Y Acc NOG" accelerations. These accelerations were then double integrated to produce "X Positions" "(In-Plane values) and "Y Positions" (Out-of-Plane values). Both corrected top and bottom accelerations and the processed channels are presented.

The methodology used for this analysis is outlined in § 7.3.5 in the parent report. All the same procedures used in reduction of the soft bottom test data were also used to reduce these data, therefore all the assumptions stated in § 7.3.5 apply to these data as well. Note that pups 1, 2, and 3 were not in contact with the hard bottom and that pup 4 was in intermittent contact. The other pups were in contact with the hard bottom. As in the parent report data reduction, the cut off frequency selected for batch processing the double integration of the accelerometer time histories has resulted in the generation of a large amplitude subharmonic motion in some tests.

We believe that this motion is suspect, and that processing these data may require individual assessment of each run or pup response.

The pup motion files contain the following information for each period and amplitude:

1. Channel Name
2. Units (Physical Units)
3. Minimum
4. Maximum
5. Mean
6. Standard Deviation
7. Significant Amplitude
8. Period (Mean Zero Up-crossing Period)

The data presented is:

1. Pup 1 Top Y Acc COR
2. Pup 1 Top X Acc COR
3. Pup 1 Bot Y Acc COR
4. Pup 1 Bot X Acc COR
5. Pup 2 Top Y Acc COR
6. Pup 2 Top X Acc COR
7. Pup 2 Bot Y Acc COR
8. Pup 2 Bot X Acc COR
9. Pup 3 Top Y Acc COR
10. Pup 3 Top X Acc COR
11. Pup 3 Bot Y Acc COR
12. Pup 3 Bot X Acc COR
13. Pup 4 Top Y Acc COR
14. Pup 4 Top X Acc COR
15. Pup 4 Bot Y Acc COR
16. Pup 4 Bot X Acc COR
17. Pup 5 Top Y Acc COR
18. Pup 5 Top X Acc COR
19. Pup 5 Bot Y Acc COR

20. Pup 5 Bot X Acc COR
21. Pup 6 Top Y Acc COR
22. Pup 6 Top X Acc COR
23. Pup 6 Bot Y Acc COR
24. Pup 6 Bot X Acc COR
25. Pup 7 Top Y Acc COR
26. Pup 7 Top X Acc COR
27. Pup 7 Bot Y Acc COR
28. Pup 7 Bot X Acc COR
29. Pup 8 Top Y Acc COR
30. Pup 8 Top X Acc COR
31. Pup 8 Bot Y Acc COR
32. Pup 8 Bot X Acc COR
33. Displacement
34. Pup 1 X Acc NOG
35. Pup 1 Y Acc NOG
36. Pup 1 X Position
37. Pup 1 Y Position
38. Pup 1 X Acc NOG
39. Pup 1 Y Acc NOG
40. Pup 1 X Position
41. Pup 2 Y Position
42. Pup 3 X Acc NOG
43. Pup 3 Y Acc NOG
44. Pup 3 X Position
45. Pup 3 Y Position
46. Pup 4 X Acc NOG
47. Pup 4 Y Acc NOG
48. Pup 4 X Position
49. Pup 4 Y Position
50. Pup 5 X Acc NOG
51. Pup 5 Y Acc NOG

52. Pup 5 X Position
53. Pup 5 Y Position
54. Pup 6 X Acc NOG
55. Pup 6 Y Acc NOG
56. Pup 6 X Position
57. Pup 6 Y Position
58. Pup 7 X Acc NOG
59. Pup 7 Y Acc NOG
60. Pup 7 X Position
61. Pup 7 Y Position
62. Pup 8 X Acc NOG
63. Pup 8 Y Acc NOG
64. Pup 8 X Position
65. Pup 8 Y Position

The complete statistics output for the pup motions for this riser configuration is given on the Hard Bottom CD-ROM.

7.5 Known Sensor Problems

Known sensor problems are given in § 7.3.6 in the parent report.

7.6 Analysis of Specific Examples

The output from the data reduction routines for this condition is in a labeled CSV file on the Hard Bottom CD-ROM. Hard copy output for specified test runs, along with plots of selected data and derived channels is provided in Appendix A.

The test runs specified for hard copy output are given in Table 7-2. The same comments made in the parent report about low frequency information in the response data and short data records for use with such broad banded data apply to these data as well.

Table 7-2: Data Cases Specified for Hard Copy Output

Case	Period (s)	Amplitude (ft)	Amplitude Orientation
SCR 1	10	3.0	Vertical
SCR 2	7	3.0	Vertical
SCR 3	5	3.0	Vertical
SCR 4	3	3.0	Vertical

7.7 Description of File Formats

The description of the file formats is given in § 7.3.8 of the parent report.

7.8 Extracting Specific Test Runs From the CD-ROM Files

The description of how to extract specific data runs is given in § 7.3.9 of the parent report. For these tests, all raw and processed data as well as the calibration files are given on the Hard Bottom CD-ROM. The appropriate RAW2MAT and RAW2CSV programs are also included on the CD.

Appendix A

Plots From Specified Select Data Runs

hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16

Channel Name	Units	Minimum	Maximum	Mean	Avg P-P	Ratio P-P	RAO	Phase
Actuator Load	lbs	1112.3275	1483.8175	1297.1749	196.3590	32.9985	48.3042	111.8434
Actuator Heave Acc NOG	ft/s^2	-1.9728	2.1801	0.0298	1.5951	0.2681	0.3956	-179.8679
PUP 1 Bend Inplane COR	ft-lbs	-20.9188	-15.3653	-18.1446	1.6358	0.2749	0.1066	-78.5577
PUP 1 Bend Outplane COR	ft-lbs	-7.2787	4.5183	-1.5006	2.3850	0.4008	0.0272	-81.4822
PUP 1 Tension COR	lbs	1271.7357	1644.6578	1455.7335	346.2608	58.1897	48.1217	108.5224
PUP 2 Bend Inplane COR	ft-lbs	-125.3217	-44.6948	-73.1270	27.4958	4.6207	8.9291	65.9120
PUP 2 Bend Outplane COR	ft-lbs	-32.4430	23.7471	-3.8440	9.6477	1.6213	1.0757	78.6889
PUP 2 Tension COR	lbs	-11.2801	319.0852	151.9557	309.0358	51.9340	41.8306	84.0930
PUP 3 Bend Inplane COR	ft-lbs	-92.2909	32.0810	-30.4476	84.3348	14.1726	17.2973	-146.0347
PUP 3 Bend Outplane COR	ft-lbs	-6.7796	36.7459	15.3037	13.3390	2.2416	0.6692	25.8537
PUP 3 Tension COR	lbs	2503.9196	2549.0821	2525.9103	3.1657	0.5320	4.7926	-144.5067
PUP 4 Bend Inplane COR	ft-lbs	-34.4300	-1.5057	-12.9096	26.6126	4.4723	2.5485	-144.6156
PUP 4 Bend Outplane COR	ft-lbs	-27.1239	19.3931	-2.2596	6.5791	1.1056	0.9180	-125.7380
PUP 4 Tension COR	lbs	178.3812	463.8431	307.4113	273.2091	45.9132	36.3006	83.6269
PUP 5 Bend Inplane COR	ft-lbs	-25.5783	-12.2401	-18.3862	2.6018	0.4372	0.2731	123.1790
PUP 5 Bend Outplane COR	ft-lbs	-14.2164	16.1052	-0.0549	8.6344	1.4510	0.1212	-162.7893
PUP 5 Tension COR	lbs	78.6618	348.5825	198.9972	251.9985	42.3488	35.6906	78.3146
PUP 6 Bend Inplane COR	ft-lbs	-3.3075	0.6024	-0.6524	0.8331	0.1400	0.2419	-127.4415
PUP 6 Bend Outplane COR	ft-lbs	-3.2936	17.1665	7.0226	14.9517	2.5127	0.0755	-178.7176
PUP 6 Tension COR	lbs	-4.2429	267.6071	122.0056	118.5455	19.9218	35.3526	73.4427
PUP 7 Bend Inplane COR	ft-lbs	33.8568	37.4282	35.8167	0.7888	0.1326	0.2391	-45.5724
PUP 7 Bend Outplane COR	ft-lbs	10.3733	31.5163	21.2996	1.5678	0.2635	0.3240	26.4968
PUP 7 Tension COR	lbs	-0.4395	261.7434	121.8829	124.5698	20.9342	32.9492	68.9442
PUP 8 Bend Inplane COR	ft-lbs	2.4043	3.2176	3.1761	0.7790	0.1309	0.0154	-122.6946
PUP 8 Bend Outplane COR	ft-lbs	5.3999	7.0399	6.3792	0.8200	0.1378	0.0951	61.7806
PUP 8 Tension COR	lbs	363.7259	570.8651	460.1057	197.6465	33.2148	28.4638	60.3570
Displacement	ft	-2.9753	2.9753	0.0000	5.9506	1.0000	1.0000	0.0000

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hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16

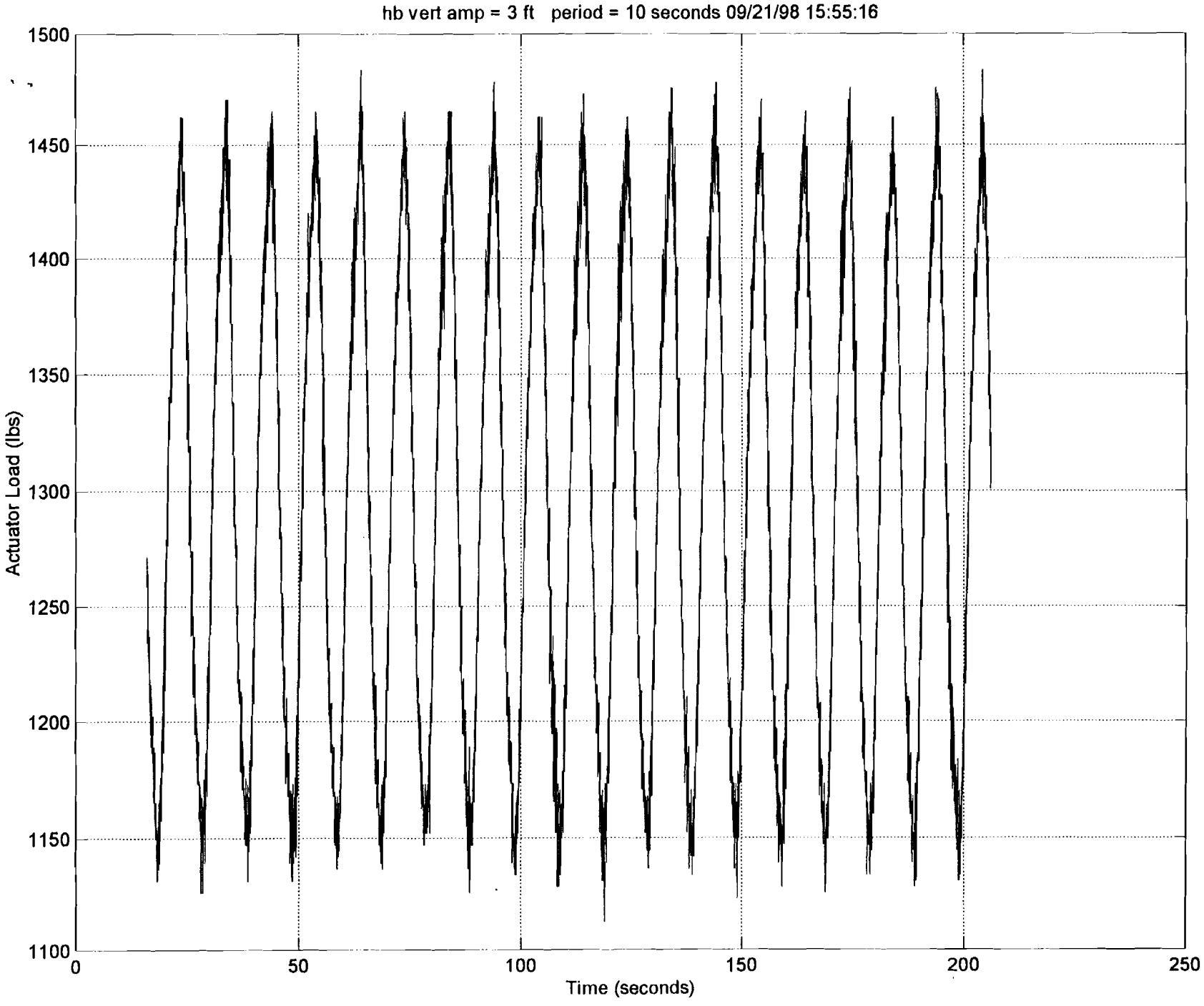
Channel Name	Units	Minimum	Maximum	Mean	Std Dev	Sig Amp	Period
Barge Roll	deg	-0.4022	-0.1226	-0.2579	0.0271	0.0553	0.7546
Barge Pitch	deg	-1.2714	-0.9318	-1.1105	0.0193	0.0485	0.5028
Barge Surge Acc NOG	ft/s^2	-0.2267	0.3879	0.0609	0.0601	0.1310	0.3227
Barge Sway Acc NOG	ft/s^2	-2.6381	-2.0708	-2.3175	0.0490	0.1036	0.3589
Barge Heave Acc NOG	ft/s^2	-0.4011	0.3135	-0.0765	0.0739	0.1571	0.3271

hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16

Channel Name	Units	Minimum	Maximum	Mean	Std Dev	Sig Amp	Period
PUP 1 Top Y Acc COR	ft/s^2	-9.4108	8.8095	-0.5404	2.2828	4.6812	0.4982
PUP 1 Top X Acc COR	ft/s^2	-0.8764	8.8386	4.0386	1.1495	2.4827	0.4651
PUP 1 Bot Y Acc COR	ft/s^2	-239.3074	-222.6089	-231.0031	2.1829	4.4727	0.5165
PUP 1 Bot X Acc COR	ft/s^2	2.3382	11.8077	7.5560	1.1587	2.5549	0.4829
PUP 2 Top Y Acc COR	ft/s^2	-17.6685	8.6994	-5.2964	3.5620	7.3975	0.4907
PUP 2 Top X Acc COR	ft/s^2	22.3639	35.8803	29.1709	1.7363	3.2462	0.6230
PUP 2 Bot Y Acc COR	ft/s^2	-13.6723	13.6587	-0.7573	3.8102	7.9084	0.4820
PUP 2 Bot X Acc COR	ft/s^2	25.1021	37.7661	31.6179	1.7138	3.2258	0.5928
PUP 3 Top Y Acc COR	ft/s^2	-47.4334	-15.4571	-31.4053	3.0703	7.3003	0.4623
PUP 3 Top X Acc COR	ft/s^2	43.5621	56.7526	48.0435	1.0750	2.7089	0.4788
PUP 3 Bot Y Acc COR	ft/s^2	-17.3626	8.4889	-4.2133	2.5946	6.2157	0.4501
PUP 3 Bot X Acc COR	ft/s^2	26.7145	40.6286	31.1195	1.0736	2.8453	0.5355
PUP 4 Top Y Acc COR	ft/s^2	-13.0043	19.4212	3.6844	3.3047	7.6065	0.4347
PUP 4 Top X Acc COR	ft/s^2	26.6616	38.8168	32.6930	1.0195	2.6529	0.4277
PUP 4 Bot Y Acc COR	ft/s^2	-10.2065	19.1399	4.7758	3.0997	7.1268	0.4268
PUP 4 Bot X Acc COR	ft/s^2	24.1477	35.9830	30.2926	0.9528	2.3795	0.4296
PUP 5 Top Y Acc COR	ft/s^2	-10.4263	8.2308	-1.9466	2.0370	4.6753	0.4063
PUP 5 Top X Acc COR	ft/s^2	28.1599	36.3285	32.3135	0.6293	1.4386	0.3879
PUP 5 Bot Y Acc COR	ft/s^2	-11.4884	8.6442	-2.0149	2.0229	4.7682	0.3921
PUP 5 Bot X Acc COR	ft/s^2	29.3683	36.5450	32.8615	0.5988	1.3803	0.3786
PUP 6 Top Y Acc COR	ft/s^2	-11.9513	1.9713	-2.9053	0.8287	1.9081	0.4160
PUP 6 Top X Acc COR	ft/s^2	32.7085	33.9112	33.3919	0.1306	0.2865	0.4083
PUP 6 Bot Y Acc COR	ft/s^2	-10.9376	1.5025	-2.8764	0.7279	1.7475	0.4556
PUP 6 Bot X Acc COR	ft/s^2	29.9933	30.9139	30.4971	0.0970	0.2359	0.8133
PUP 7 Top Y Acc COR	ft/s^2	-2.3299	5.6505	1.8792	0.6674	1.6184	0.4435
PUP 7 Top X Acc COR	ft/s^2	31.4629	32.7018	32.0749	0.1359	0.2914	0.4319
PUP 7 Bot Y Acc COR	ft/s^2	-0.6381	4.1144	1.4879	0.4946	1.1167	0.4745
PUP 7 Bot X Acc COR	ft/s^2	31.0621	31.6995	31.4272	0.0861	0.2149	0.6085
PUP 8 Top Y Acc COR	ft/s^2	-0.0270	2.1418	0.9881	0.2517	0.5324	0.5453
PUP 8 Top X Acc COR	ft/s^2	32.0776	32.5491	32.2390	0.1046	0.1241	0.4642
PUP 8 Bot Y Acc COR	ft/s^2	0.7013	2.6945	1.5166	0.2490	0.5197	0.5544
PUP 8 Bot X Acc COR	ft/s^2	32.6949	33.1989	32.9845	0.0887	0.1652	0.6036

hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16

Channel Name	Units	Minimum	Maximum	Mean	Std Dev	Sig Amp	Period
Displacement	ft	-2.9753	2.9753	0.0004	2.1041	2.9753	10.0000
Pup 1 X Acc NOG	ft/s2	17.2423	28.5852	22.3653	1.8838	3.0149	1.0607
Pup 1 Y Acc NOG	ft/s2	-125.1267	-107.8041	-116.6304	2.2245	4.5379	0.5042
Pup 1 X Position	ft	-6.7571	6.8059	0.0006	3.7966	6.1620	10.0028
Pup 1 Y Position	ft	-0.4068	0.5392	0.0001	0.2119	0.3599	8.5762
Pup 2 X Acc NOG	ft/s2	30.4261	43.7753	36.8964	2.1367	3.4977	0.8598
Pup 2 Y Acc NOG	ft/s2	-14.1429	12.7030	-1.6816	3.6319	7.5168	0.4895
Pup 2 X Position	ft	-7.1780	6.6926	-0.0006	4.0770	6.5974	10.0097
Pup 2 Y Position	ft	-0.6868	0.4724	0.0000	0.2496	0.4861	6.6435
Pup 3 X Acc NOG	ft/s2	40.5194	56.0261	45.1108	1.2321	3.0557	0.8328
Pup 3 Y Acc NOG	ft/s2	-29.3470	-0.9760	-15.2441	2.7898	6.6524	0.4610
Pup 3 X Position	ft	-4.3604	4.2393	-0.0001	1.8288	3.4971	10.0181
Pup 3 Y Position	ft	-0.9033	0.8466	0.0001	0.4559	0.7937	9.5105
Pup 4 X Acc NOG	ft/s2	30.5295	42.2975	36.7255	1.0003	2.6470	0.5543
Pup 4 Y Acc NOG	ft/s2	-14.3347	16.0706	1.5888	3.1712	7.2501	0.4287
Pup 4 X Position	ft	-2.0799	2.4813	-0.0002	0.7937	1.5792	10.5809
Pup 4 Y Position	ft	-0.6995	0.7451	0.0000	0.3218	0.5939	8.5833
Pup 5 X Acc NOG	ft/s2	32.6602	40.3686	36.1663	0.6628	1.4747	0.5072
Pup 5 Y Acc NOG	ft/s2	-9.6865	8.6299	-1.0323	1.9955	4.5758	0.3936
Pup 5 X Position	ft	-2.1022	2.1006	-0.0001	0.7089	1.4816	10.5265
Pup 5 Y Position	ft	-0.7364	0.6894	0.0001	0.3845	0.6622	10.0250
Pup 6 X Acc NOG	ft/s2	35.2778	37.3134	36.0900	0.3064	0.4110	1.7590
Pup 6 Y Acc NOG	ft/s2	-9.7192	2.7164	-1.1768	0.7487	1.7554	0.4379
Pup 6 X Position	ft	-1.5943	1.6638	-0.0001	0.7229	1.3315	10.4441
Pup 6 Y Position	ft	-0.7336	0.7281	0.0000	0.4101	0.6900	10.0361
Pup 7 X Acc NOG	ft/s2	34.5177	36.3224	35.3141	0.2778	0.3479	1.5324
Pup 7 Y Acc NOG	ft/s2	-1.9488	4.0948	0.8935	0.5610	1.3015	0.4414
Pup 7 X Position	ft	-1.9617	1.7132	-0.0001	0.7707	1.4176	10.4897
Pup 7 Y Position	ft	-0.6677	0.6894	-0.0001	0.3723	0.6212	10.0347
Pup 8 X Acc NOG	ft/s2	34.1643	36.1908	35.0169	0.3728	0.4062	2.1997
Pup 8 Y Acc NOG	ft/s2	-0.2933	1.8038	0.6289	0.2432	0.5103	0.5512
Pup 8 X Position	ft	-2.3437	2.1137	-0.0001	0.9106	1.6716	9.9750
Pup ' Position	ft	-0.4793	' 36	0.0000	0.2766	0.4489	1 347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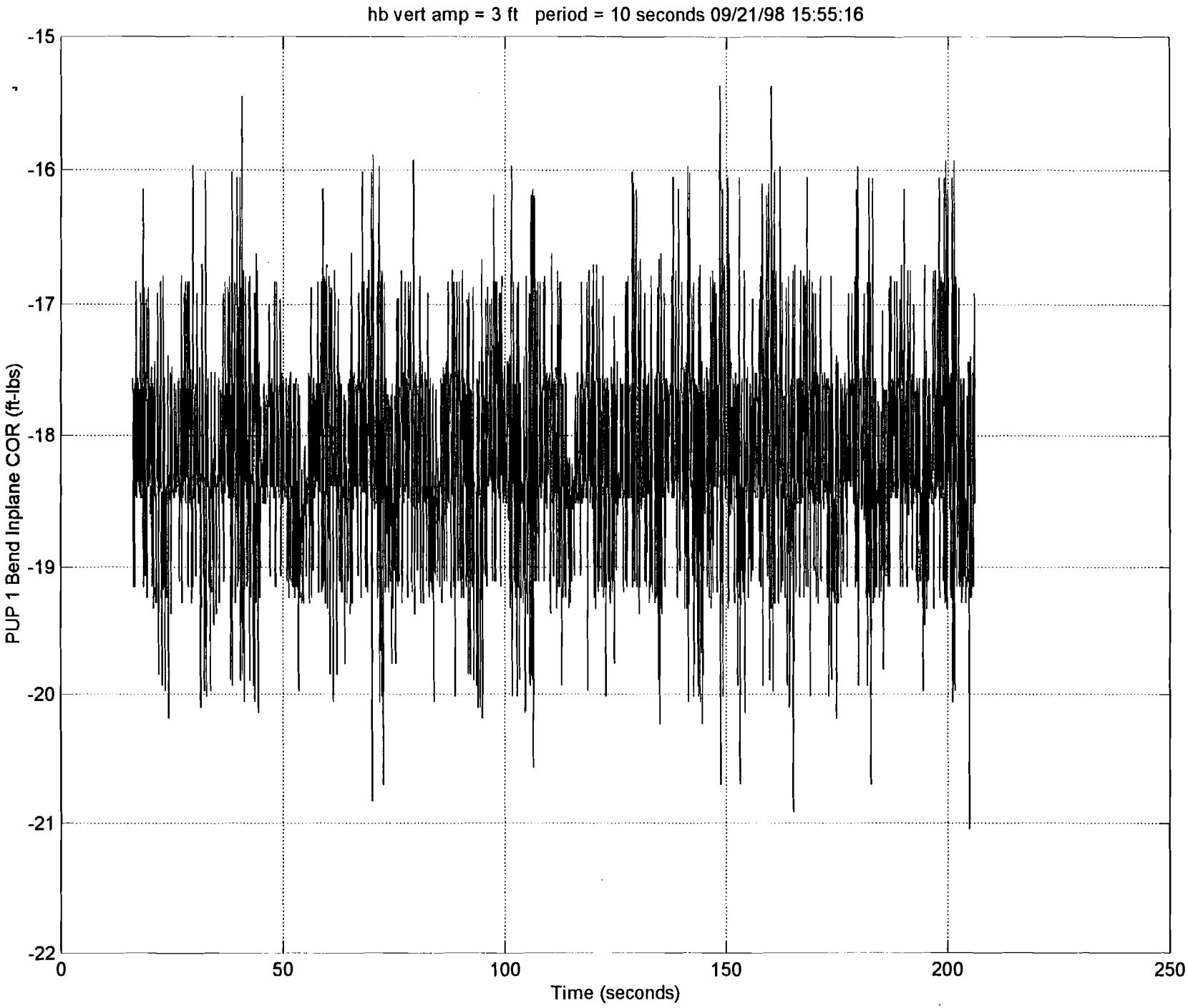
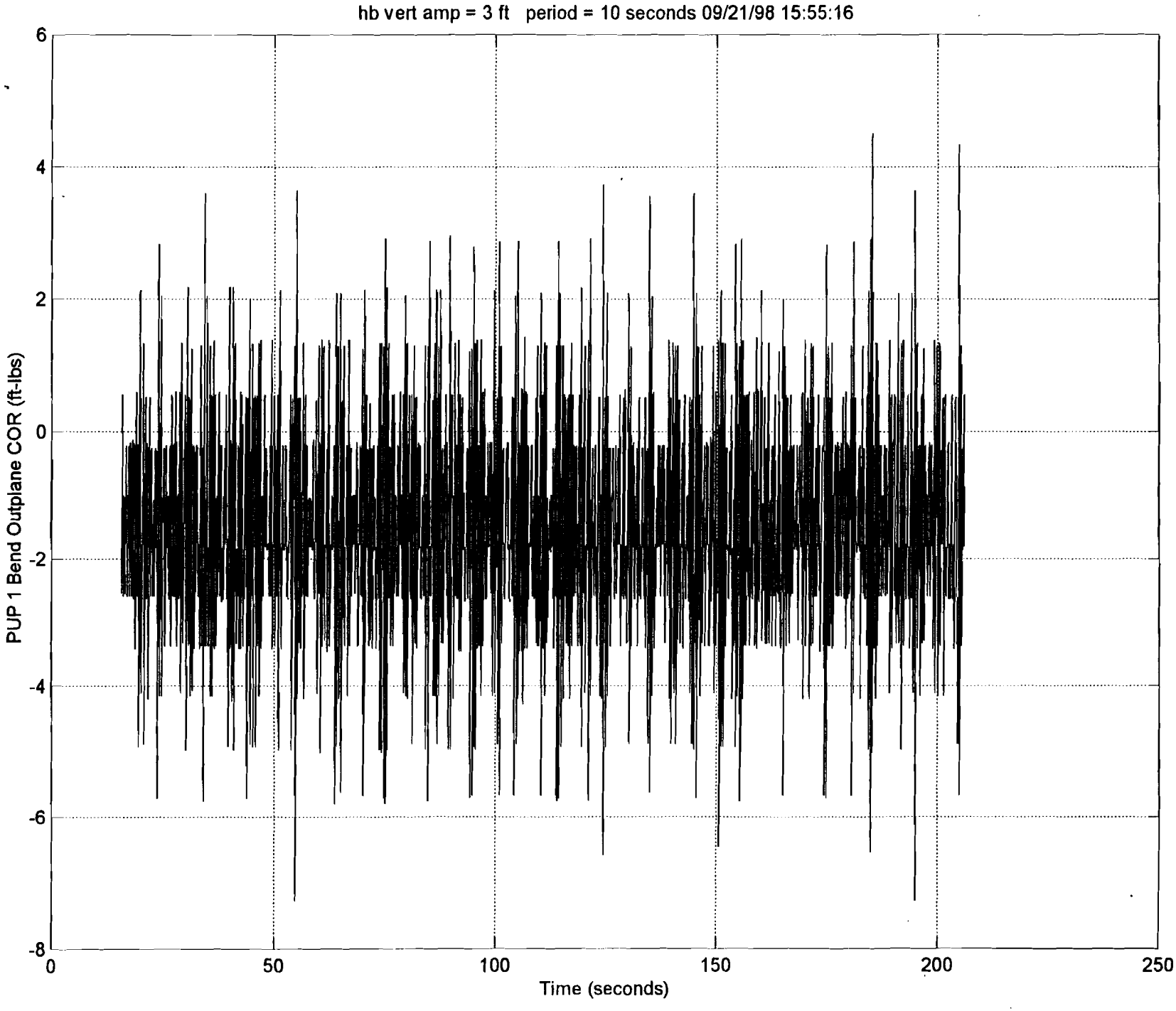
Actuator Load (lbs)
1500
1450
1400
1350
1300
1250
1200
1150
1100
0
50
100
150
200
250
Time (seconds)


hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
PUP 1 Bend Inplane COR (ft-lbs)
-15
-16
-17
-18
-19
-20
-21
-22
0
50
100
150
200
250
Time (seconds)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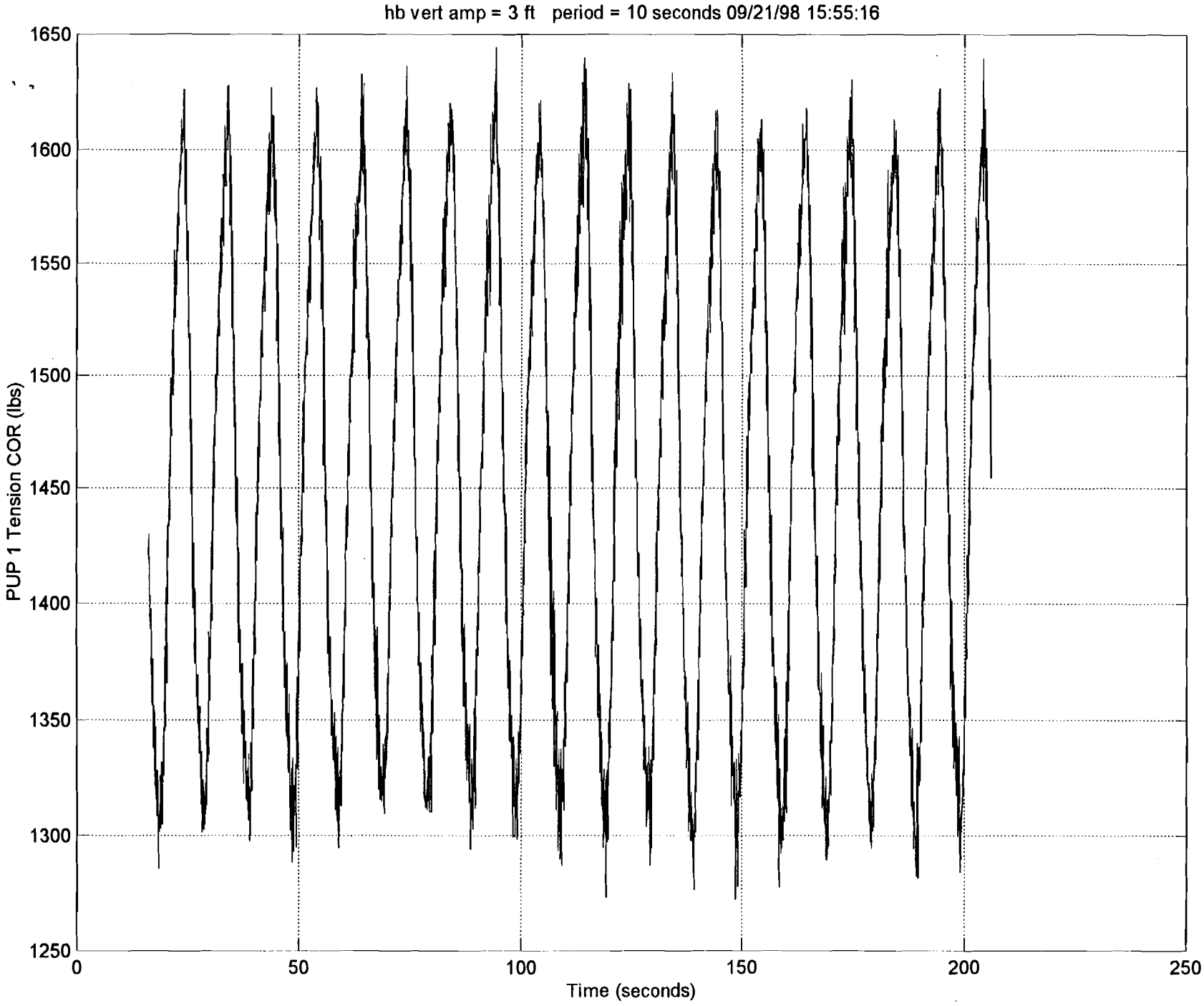
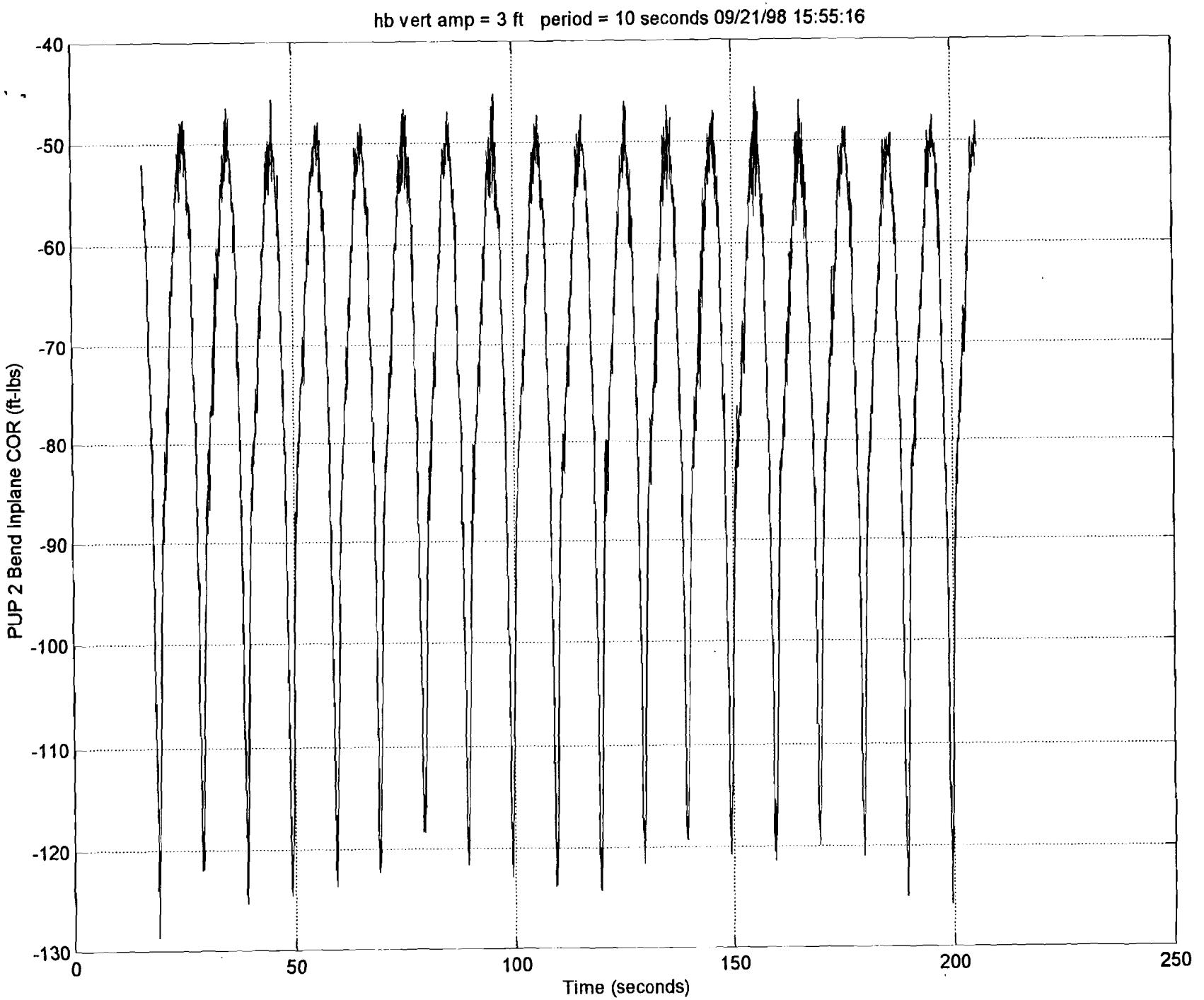
PUP 1 Bend Outplane COR (ft-lbs)
Time (seconds)
6
4
2
0
-2
-4
-6
-8
0
50
100
150
200
250


hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
PUP 1 Tension COR (lbs)
1650
1600
1550
1500
1450
1400
1350
1300
1250
0
50
100
150
200
250
Time (seconds)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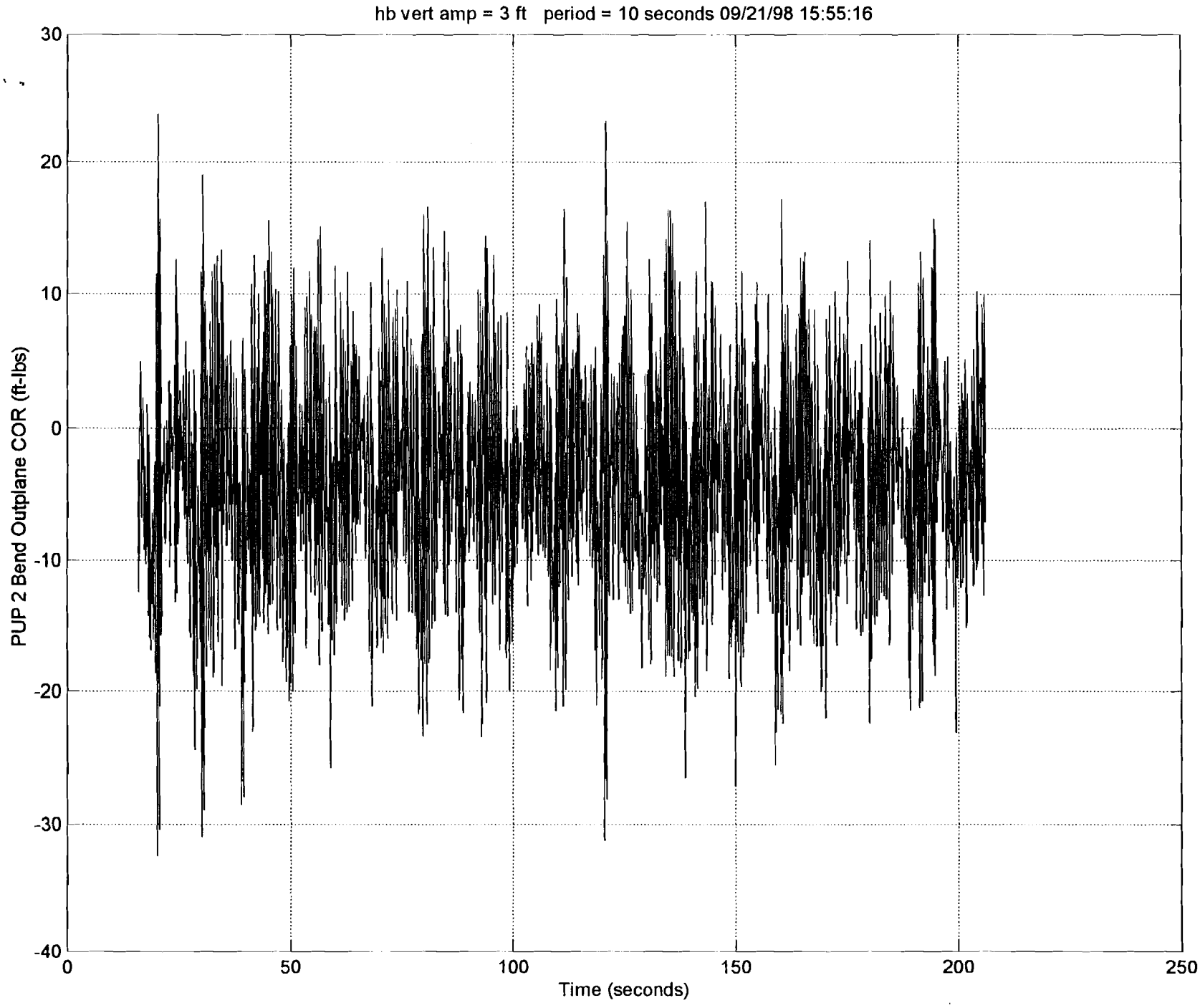
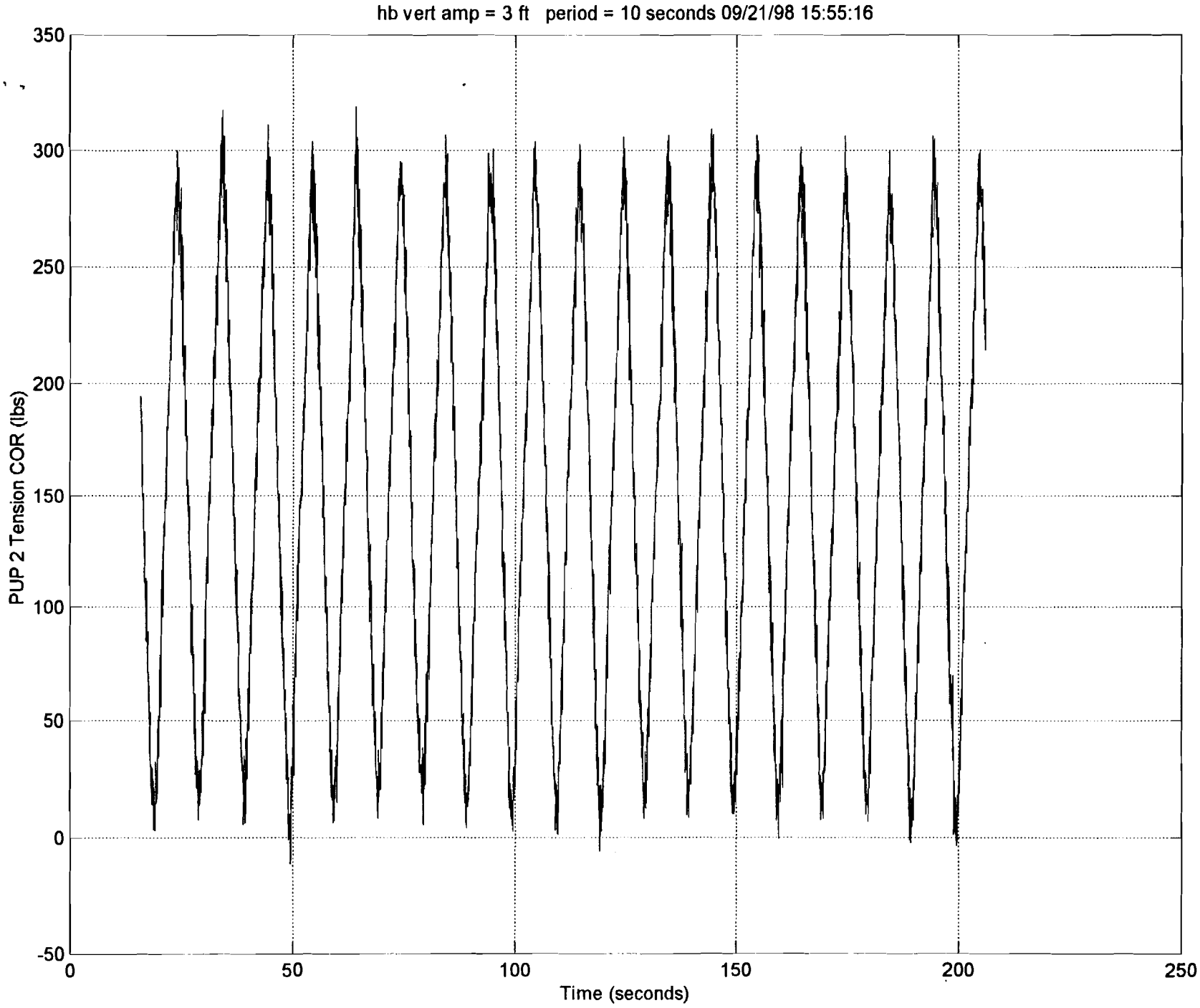
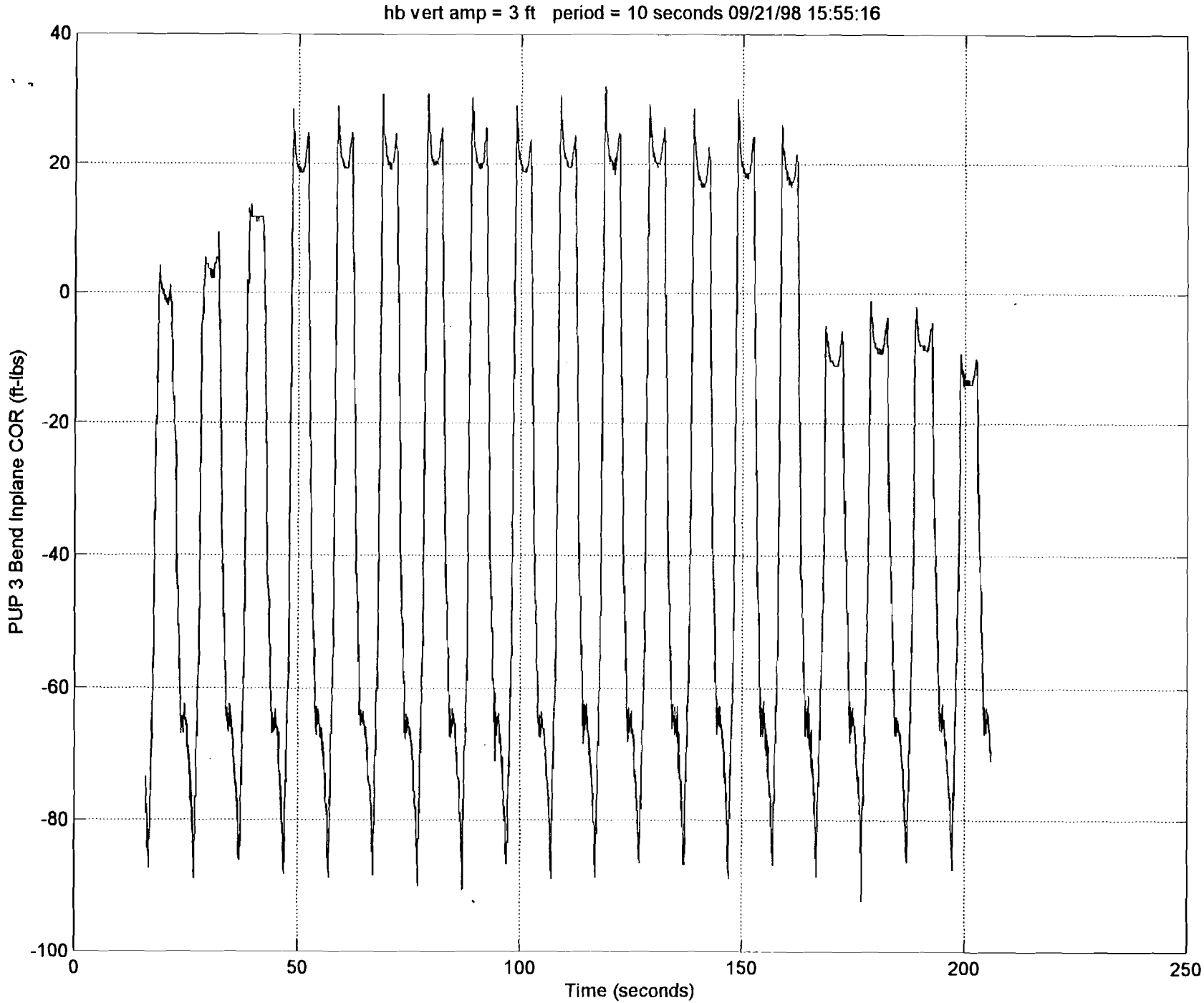
PUP 2 Bend Inplane COR (ft-lbs)
-40
-50
-60
-70
-80
-90
-100
-110
-120
-130
0
50
100
150
200
250
Time (seconds)


hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
PUP 2 Bend Outplane COR (ft-lbs)
Time (seconds)
30
20
10
0
-10
-20
-30
-40
0
50
100
150
200
250


hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
PUP 2 Tension COR (lbs)
350
300
250
200
150
100
50
0
-50
0
50
100
150
200
250
Time (seconds)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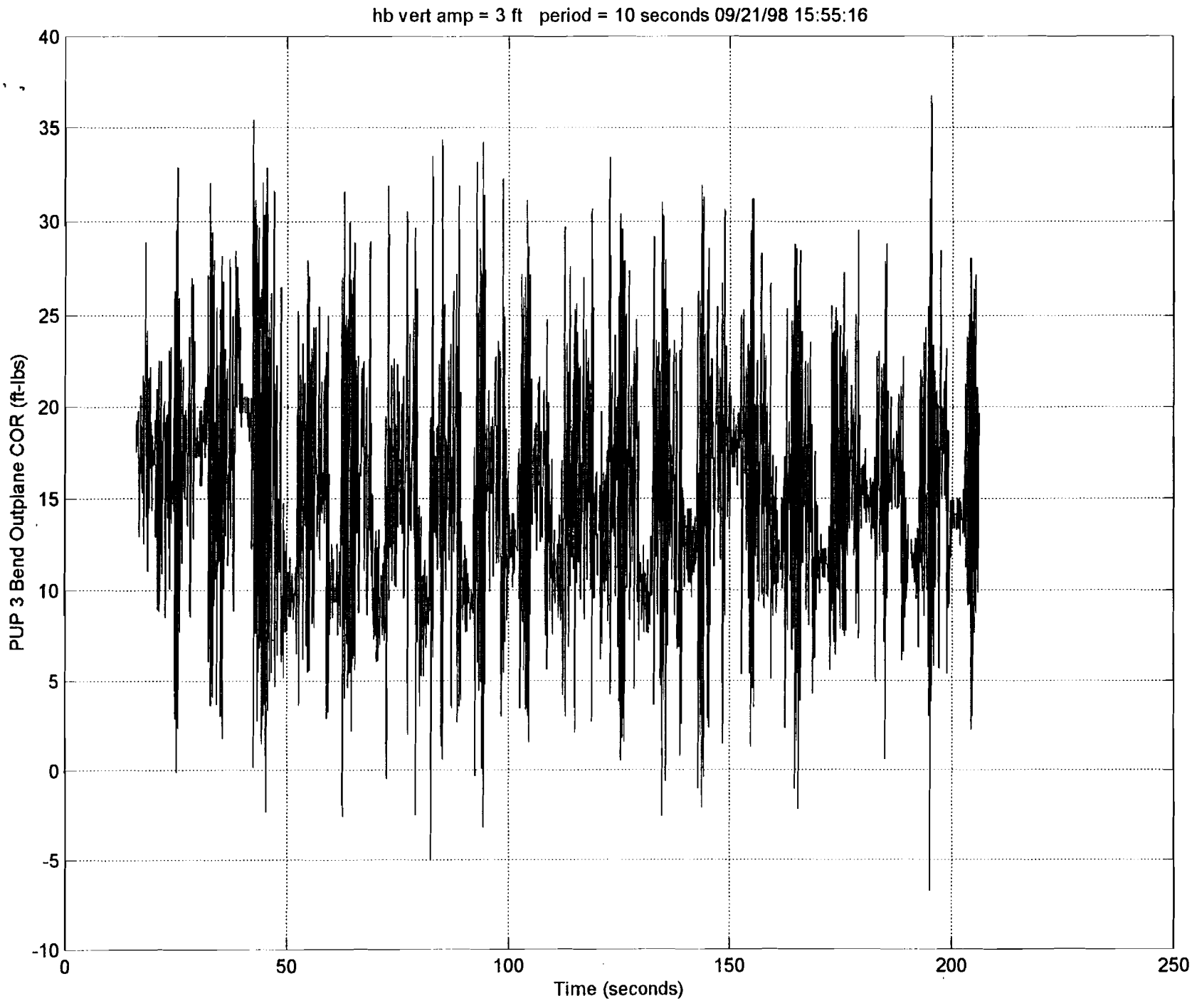
PUP 3 Bend Inplane COR (ft-lbs)
40
20
0
-20
-40
-60
-80
-100
0
50
100
150
200
250
Time (seconds)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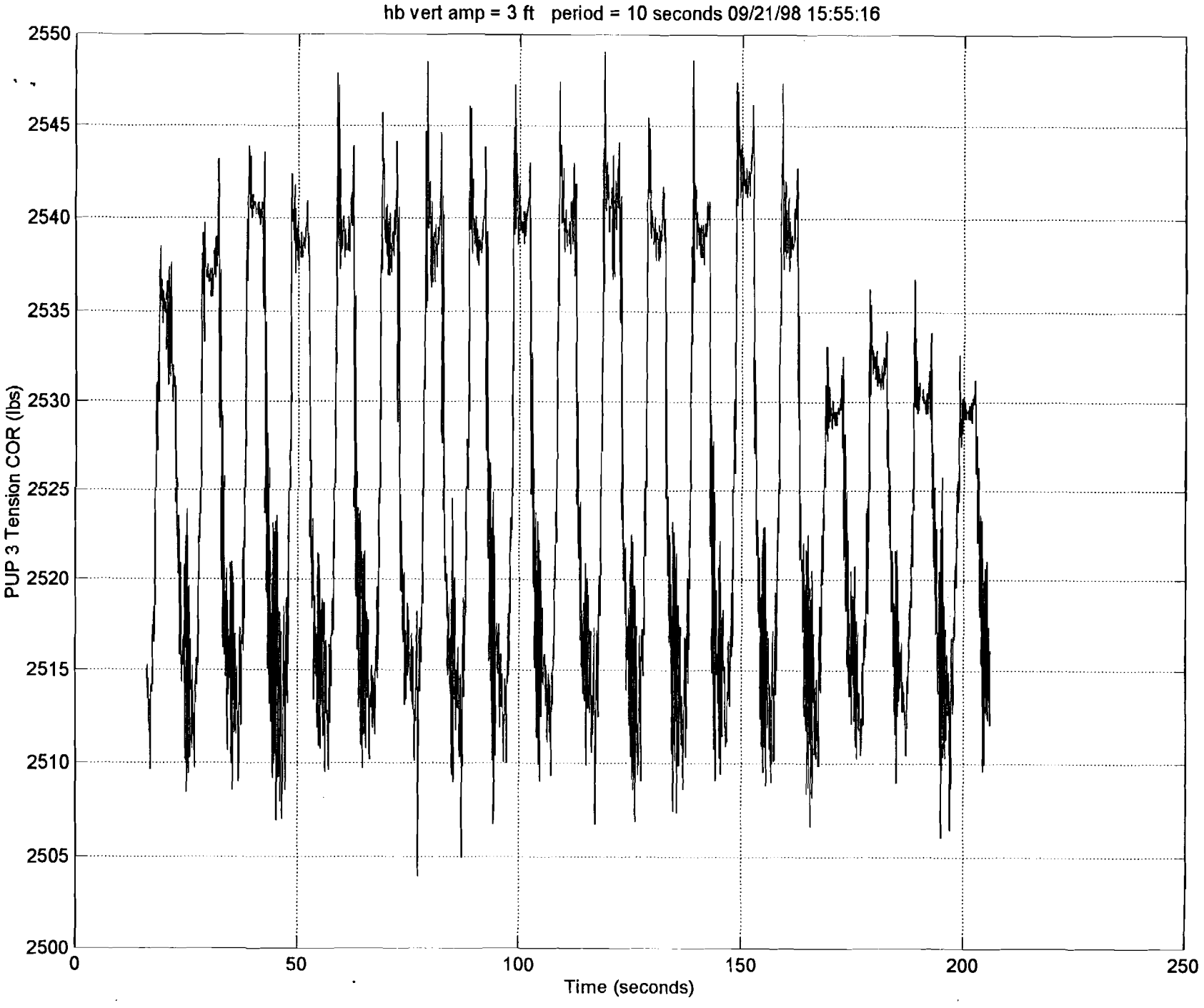
PUP 3 Bend Outplane COR (ft-lbs)
Time (seconds)
40
35
30
25
20
15
10
5
0
-5
-10
0
50
100
150
200
250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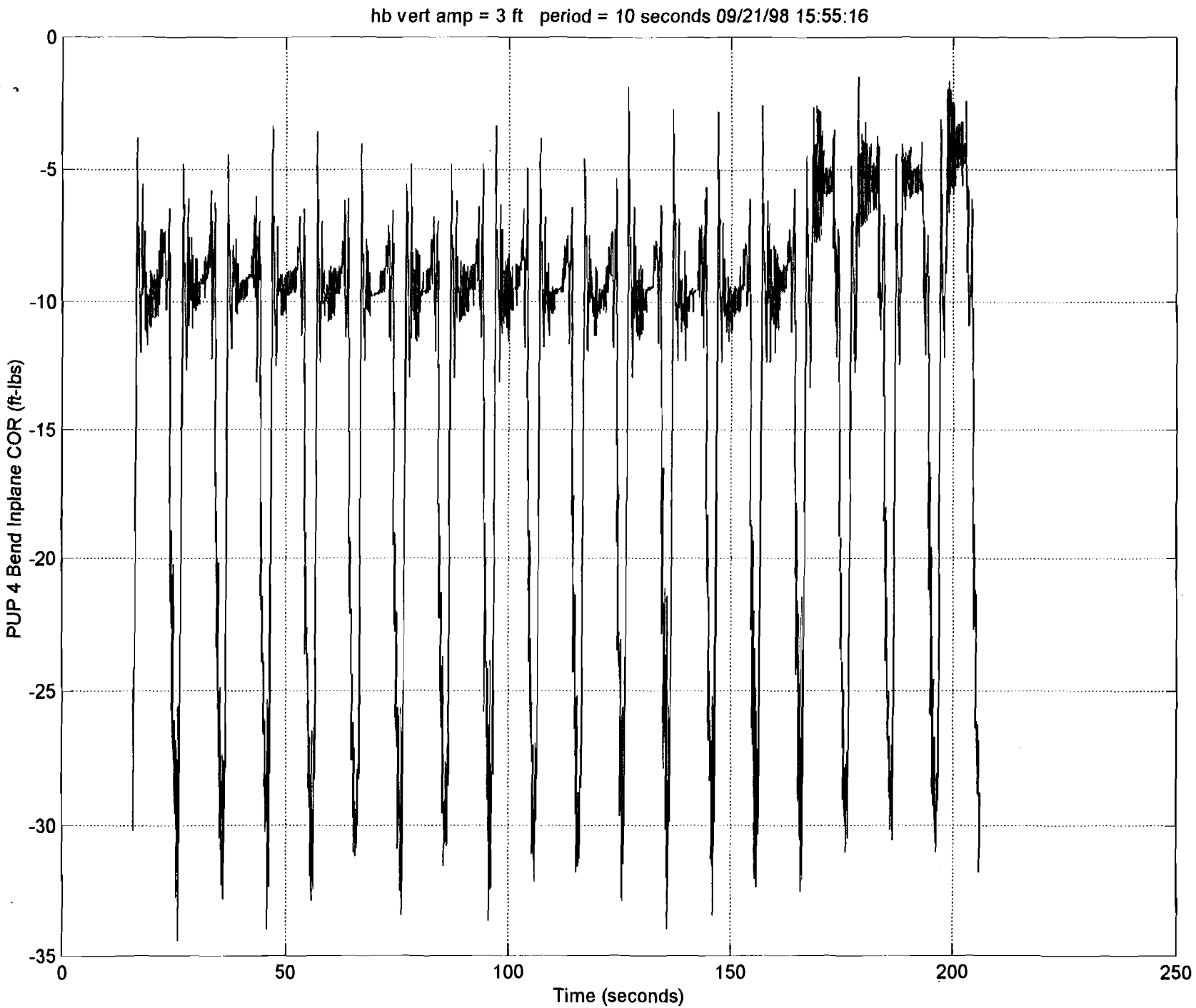
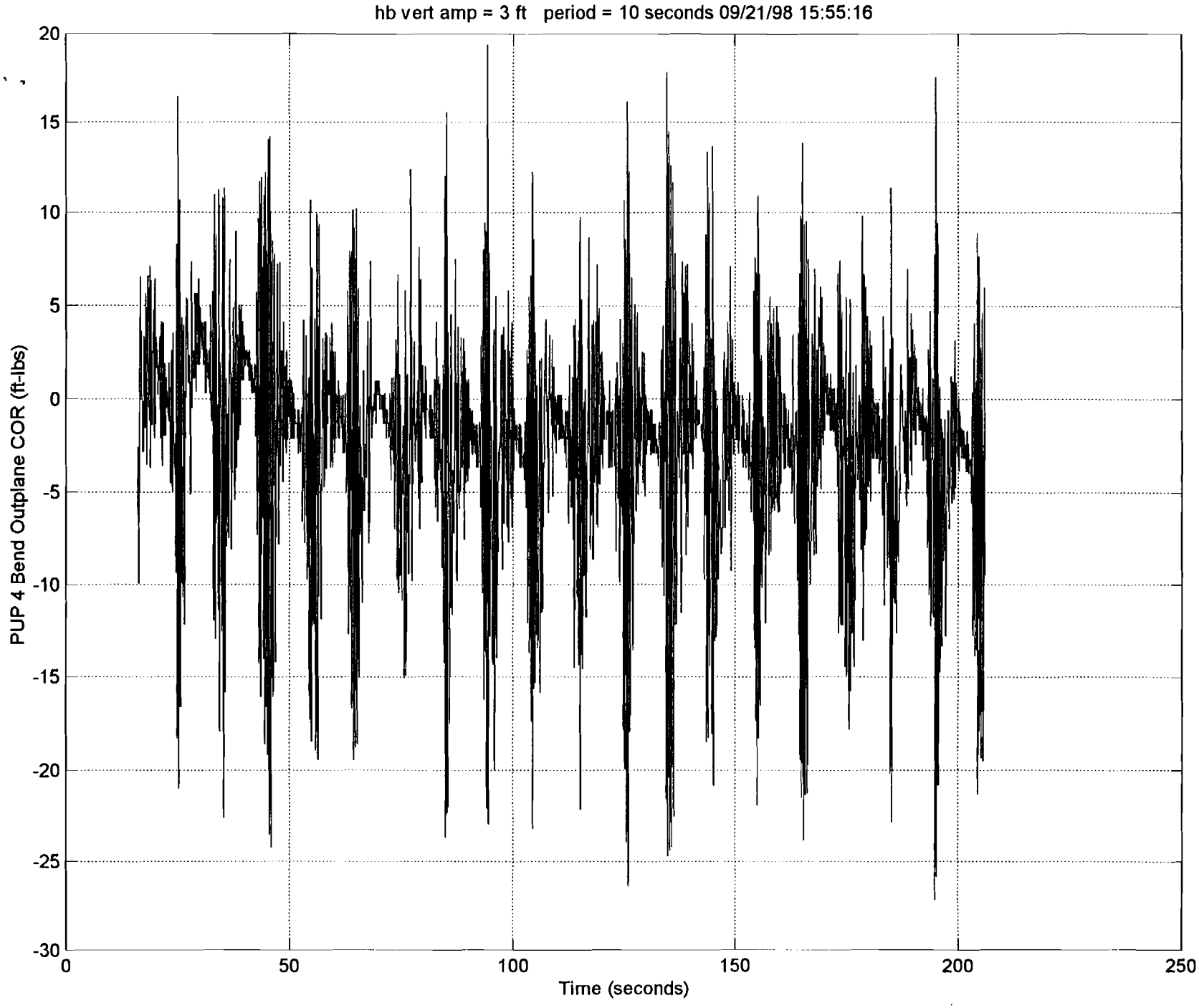
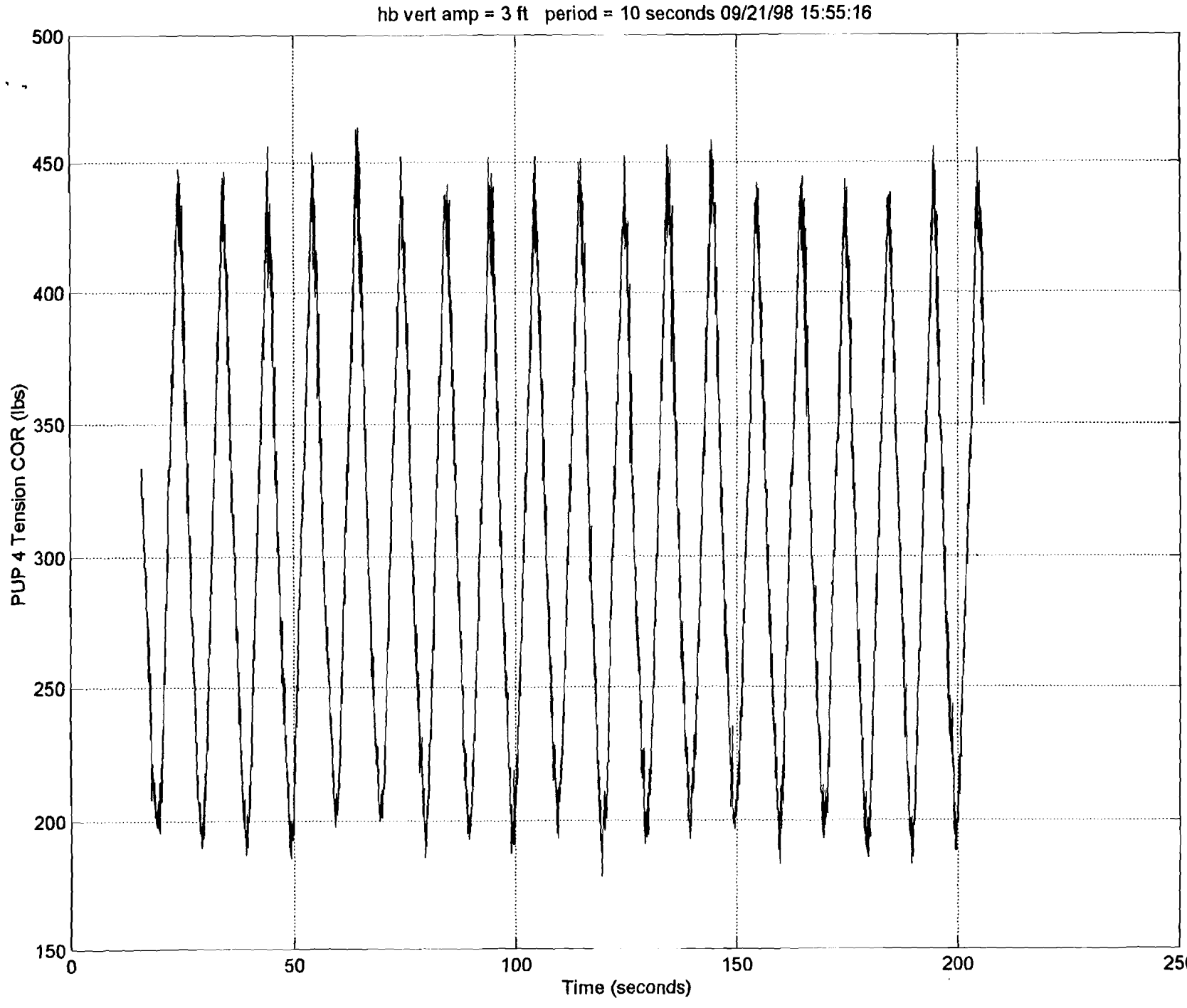
PUP 3 Tension COR (lbs)
2550
2545
2540
2535
2530
2525
2520
2515
2510
2505
2500
0
50
100
150
200
250
Time (seconds)


hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
PUP 4 Bend Inplane COR (ft-lbs)
0
-5
-10
-15
-20
-25
-30
-35
0
50
100
150
200
250
Time (seconds)


hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
PUP 4 Bend Outplane COR (ft-lbs)
Time (seconds)
20
15
10
5
0
-5
-10
-15
-20
-25
-30
0
50
100
150
200
250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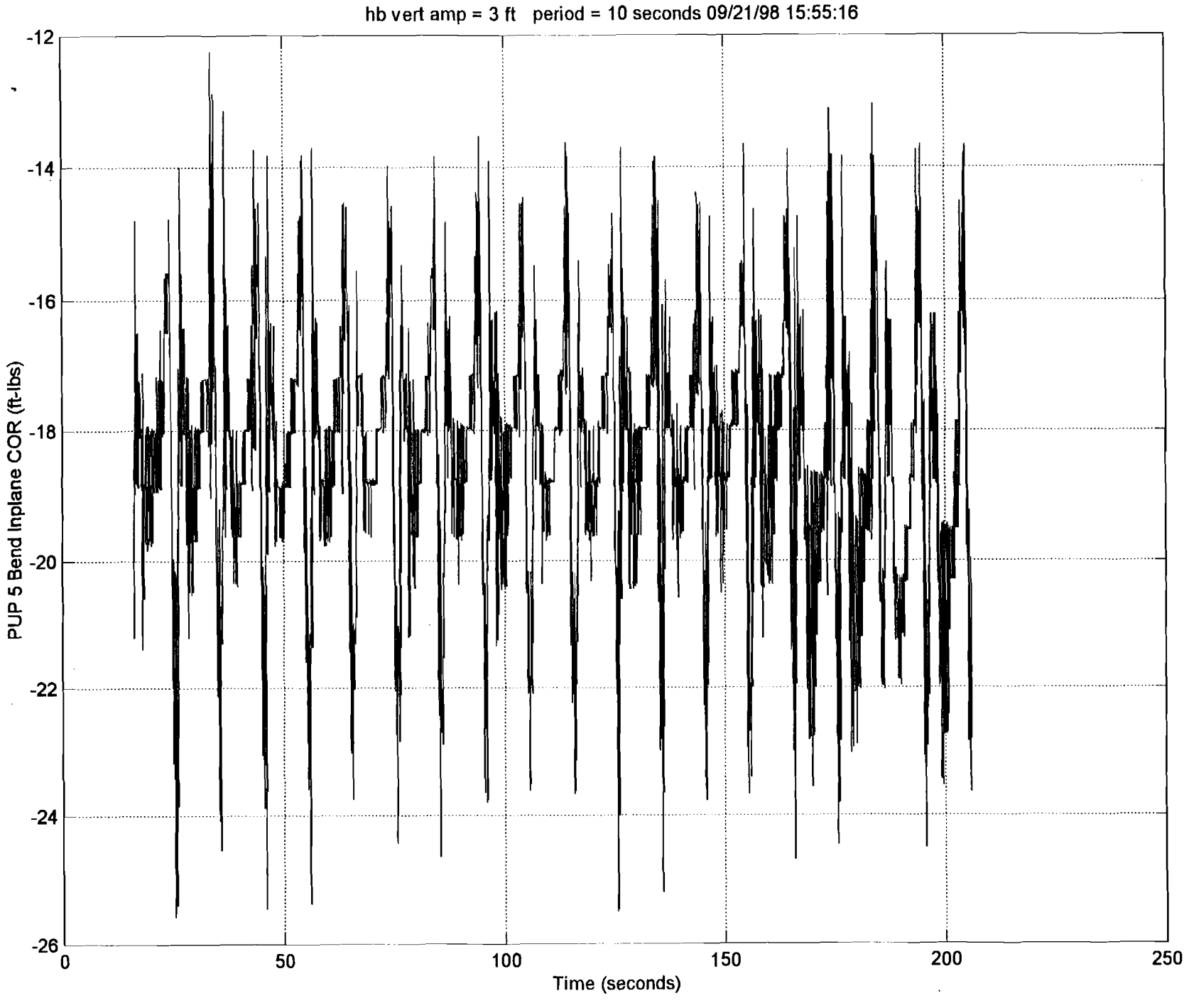
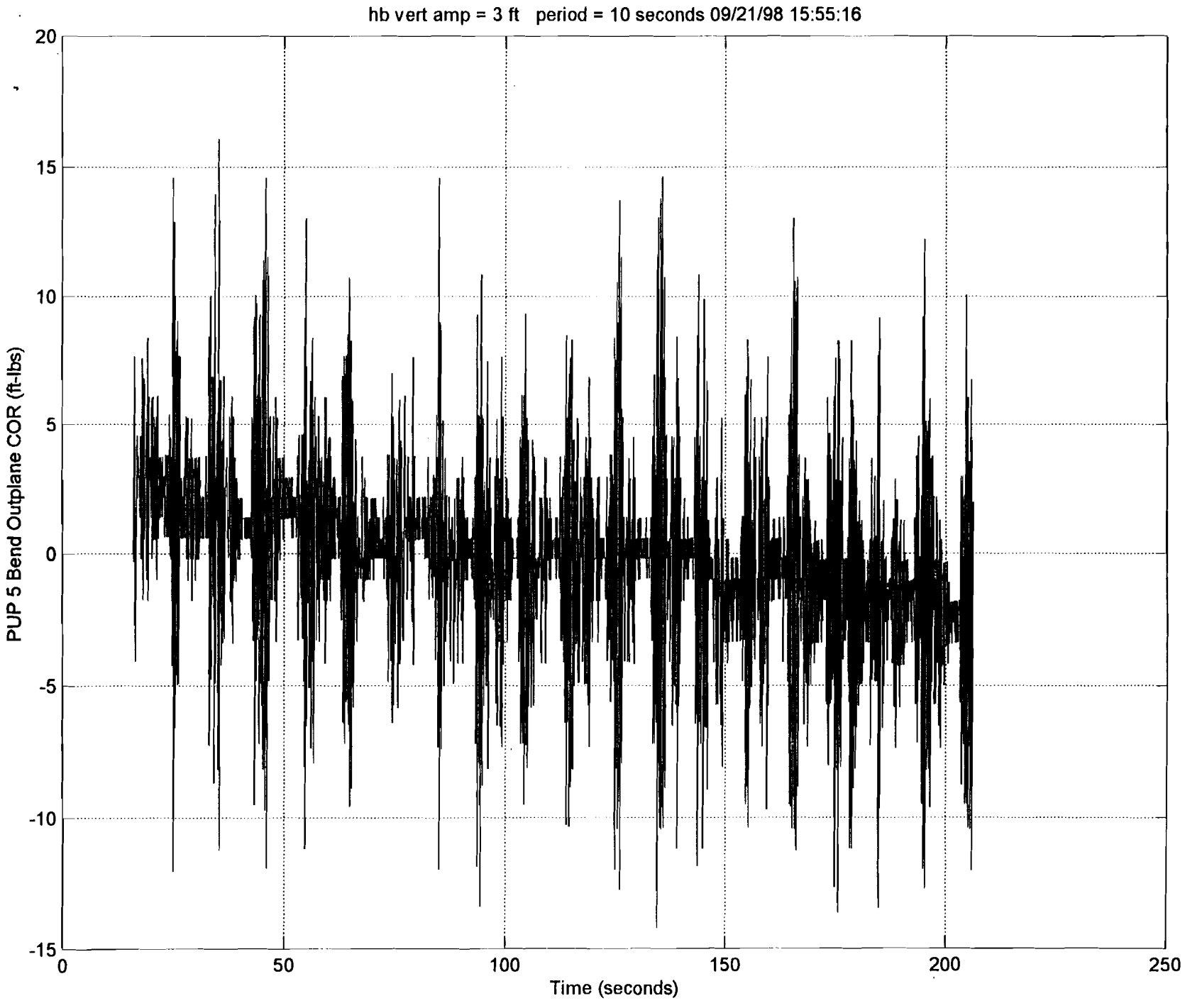
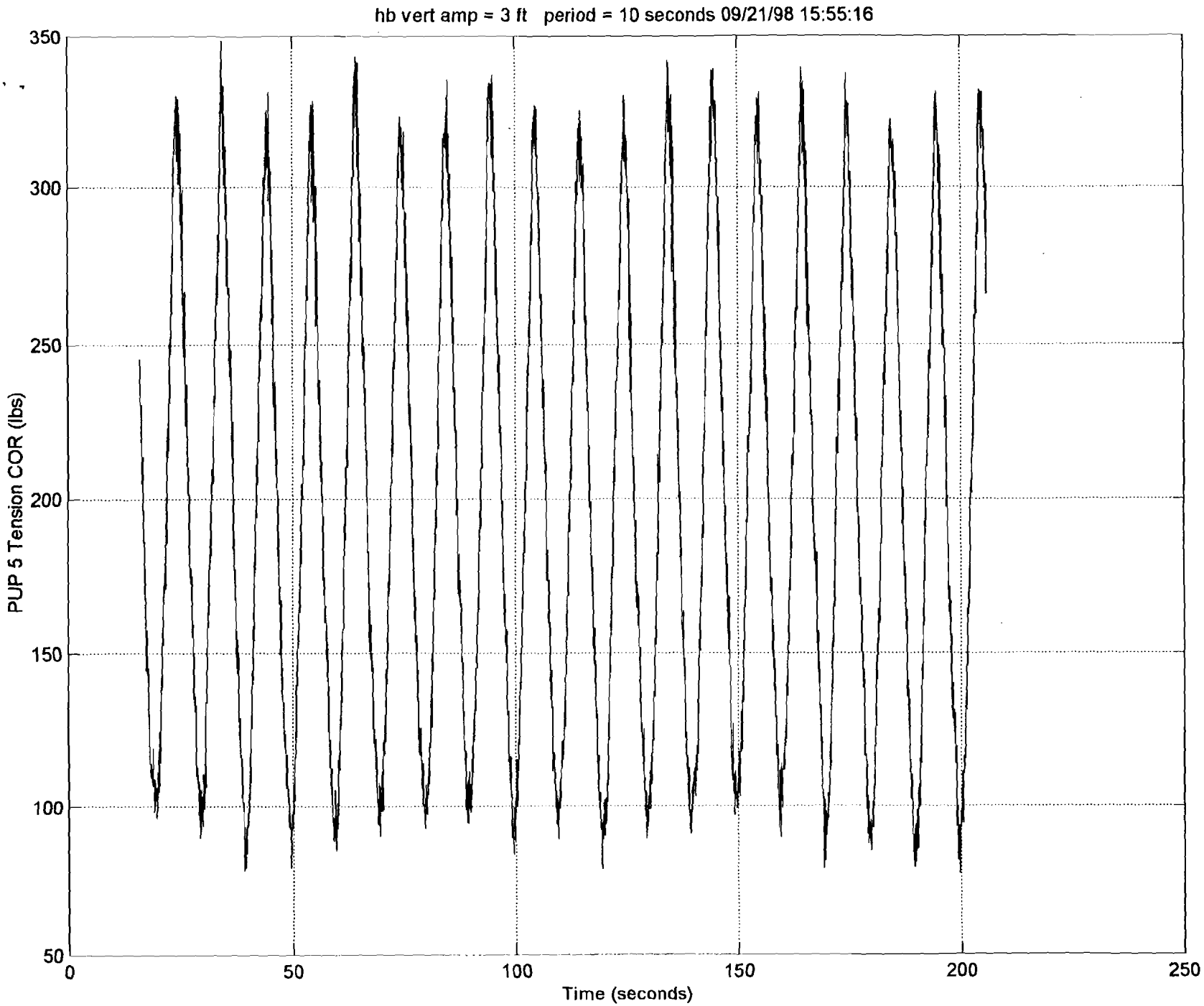
PUP 4 Tension COR (lbs)
500
450
400
350
300
250
200
150
0
50
100
150
200
250
Time (seconds)


hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
PUP 5 Bend Inplane COR (ft-lbs)
-12
-14
-16
-18
-20
-22
-24
-26
0
50
100
150
200
250
Time (seconds)


hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
PUP 5 Bend Outplane COR (ft-lbs)
Time (seconds)
20
15
10
5
0
-5
-10
-15
0
50
100
150
200
250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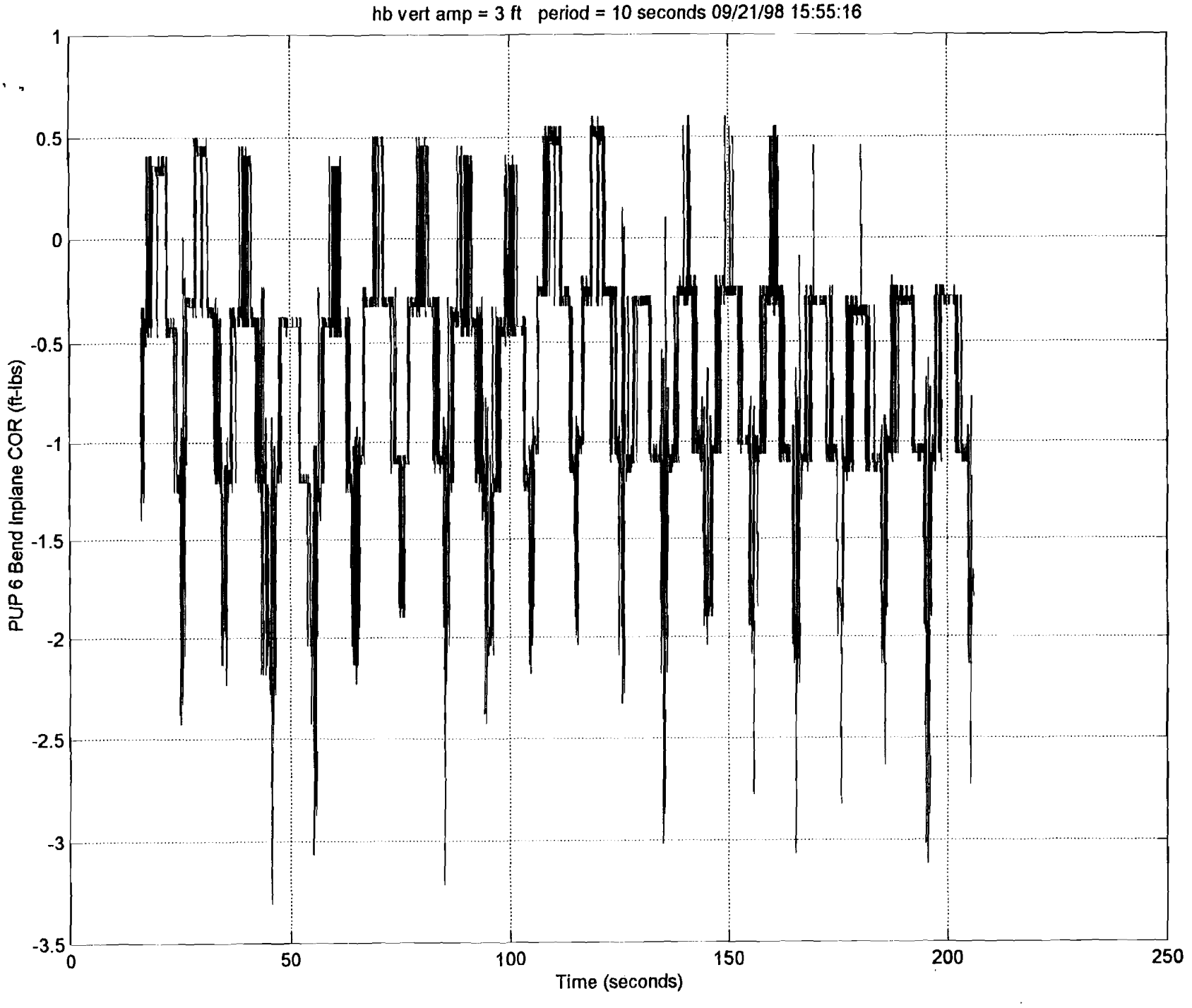
PUP 5 Tension COR (lbs)
Time (seconds)
350
300
250
200
150
100
50
0
50
100
150
200
250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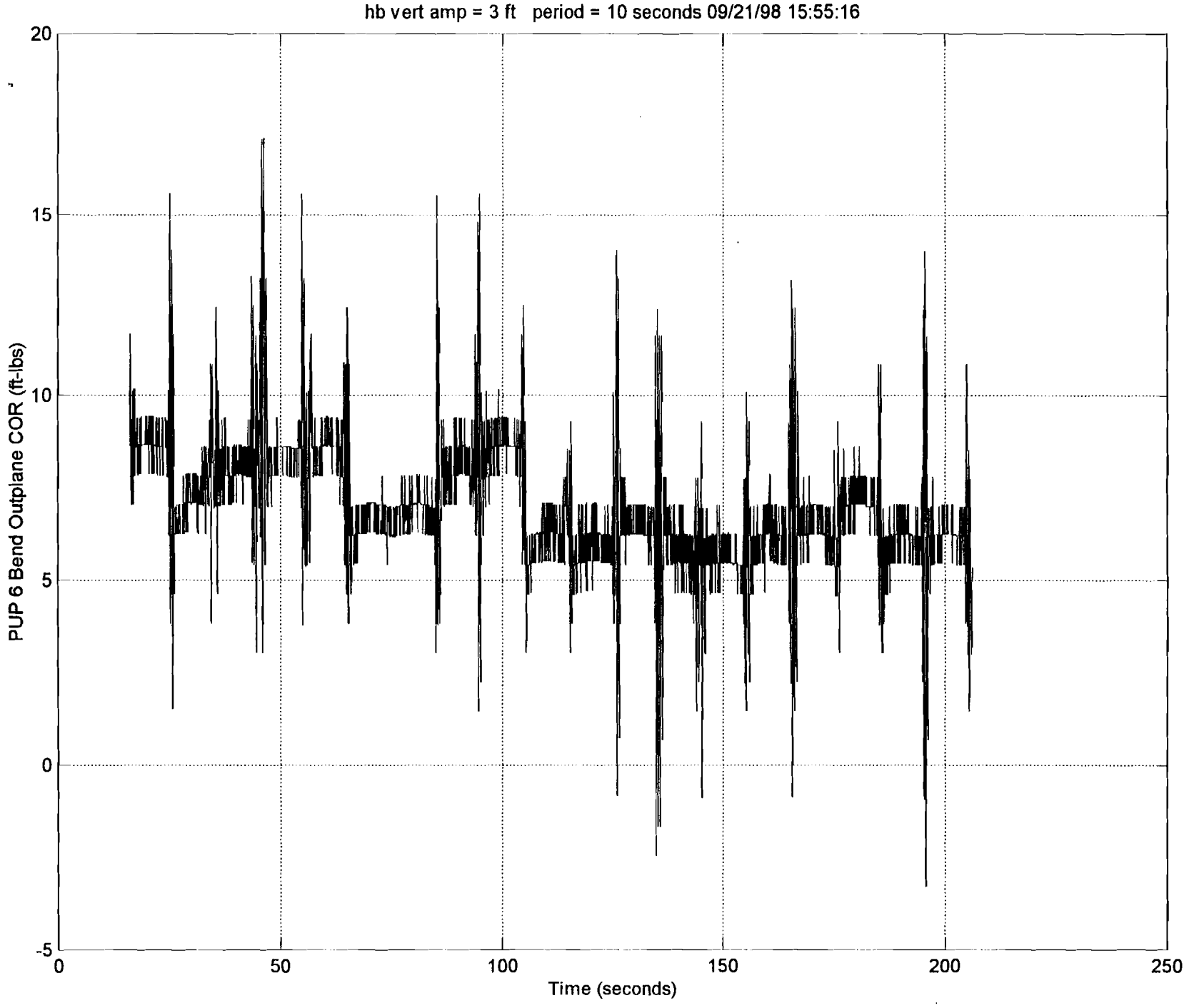
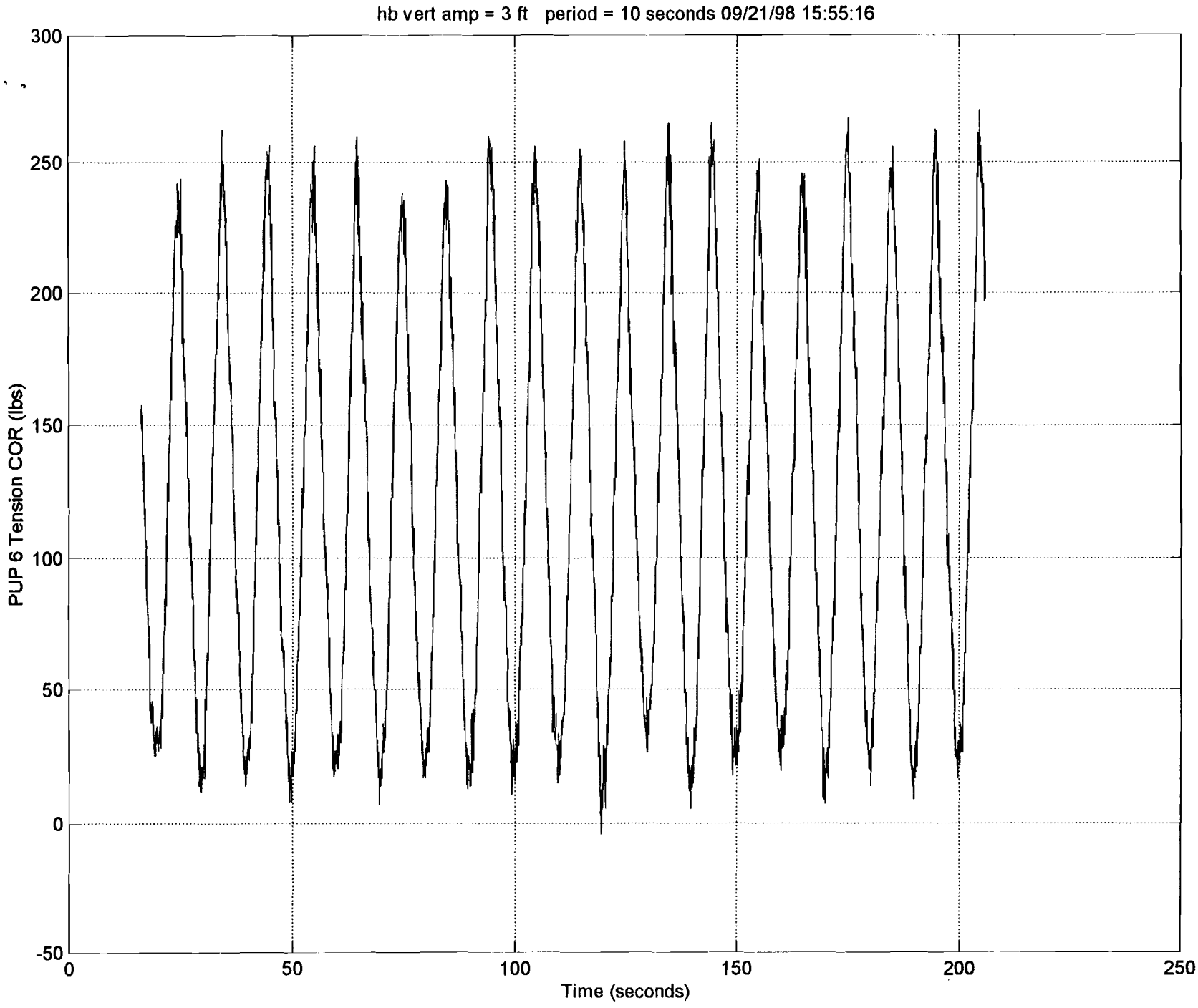
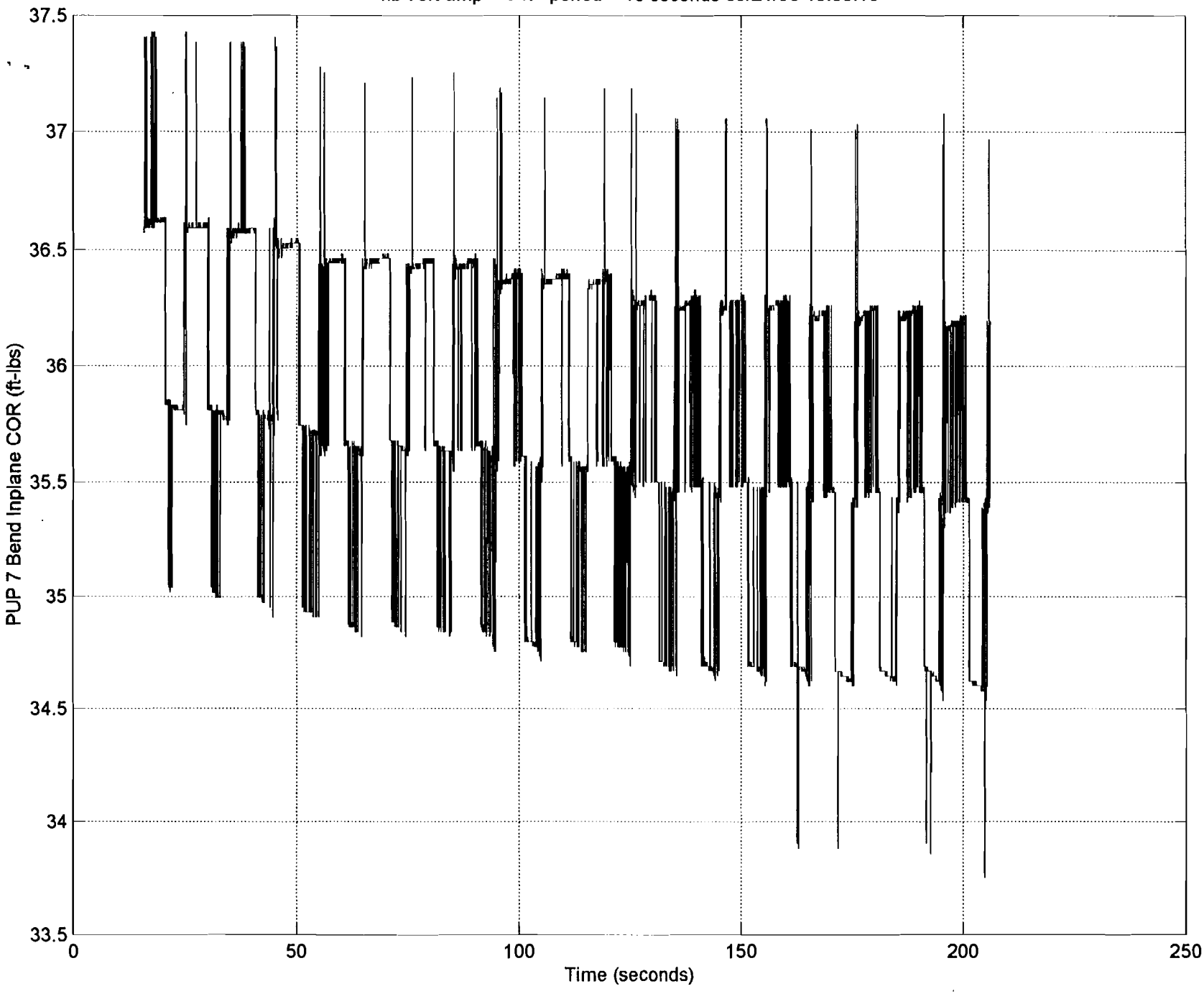
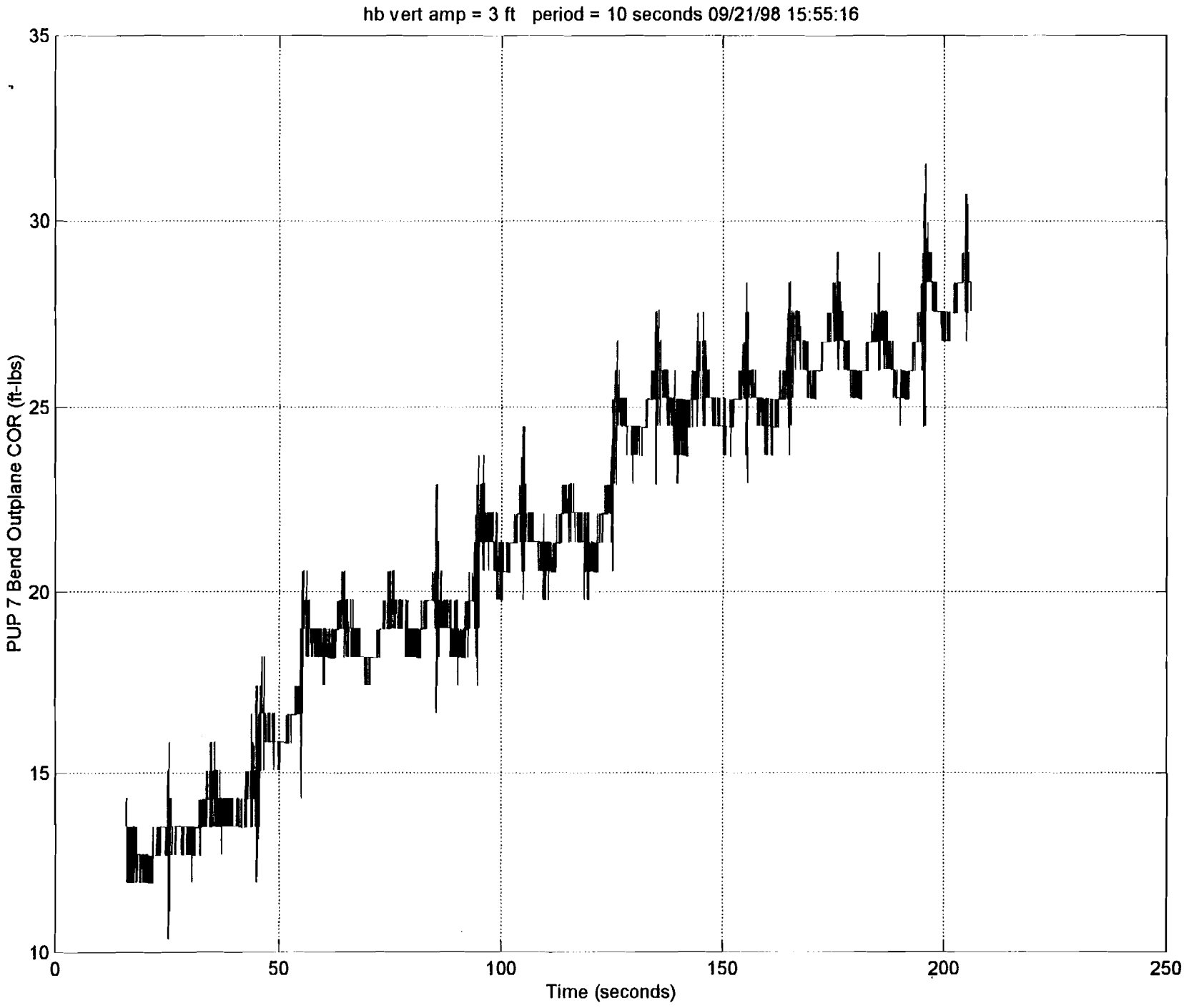
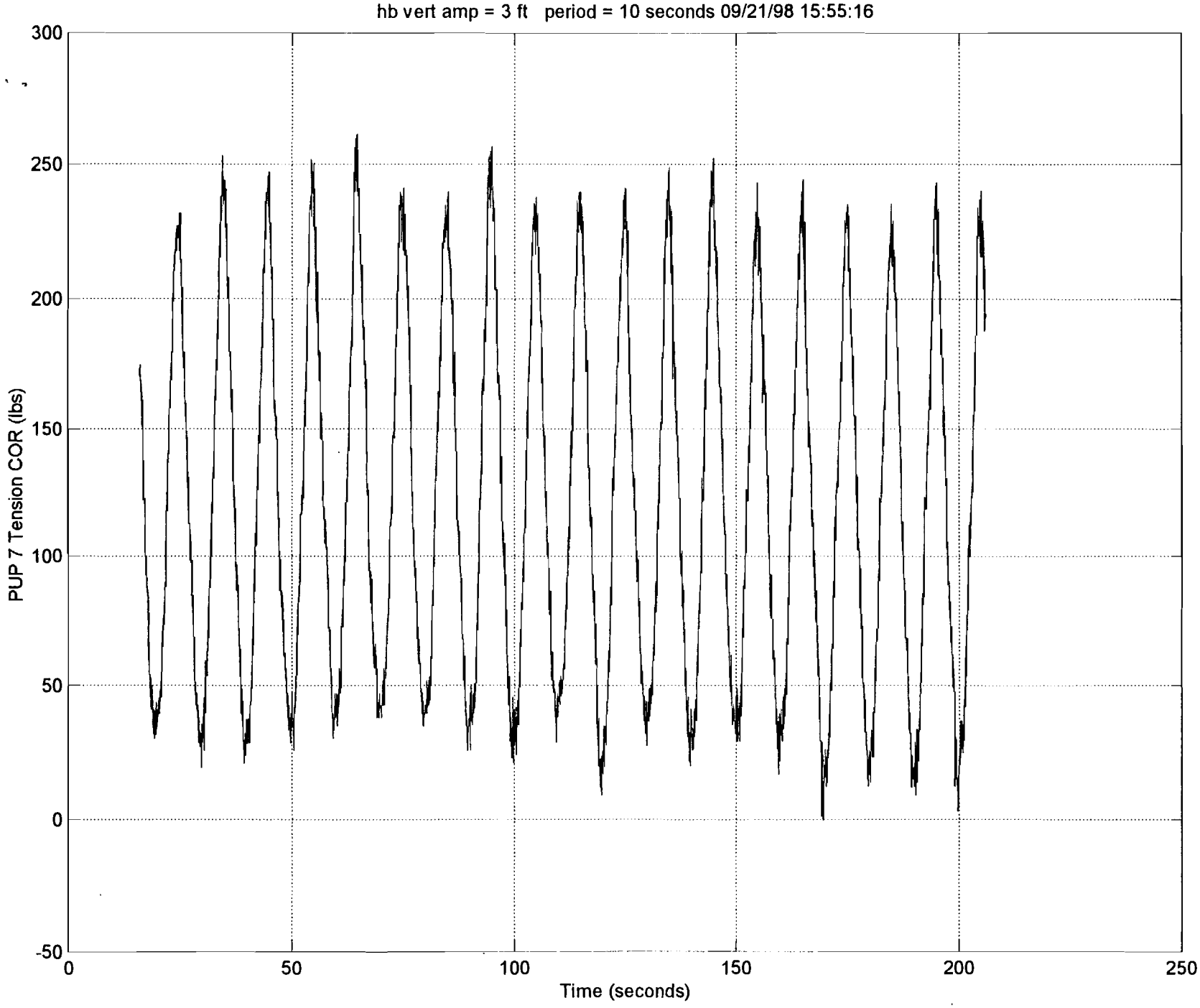
PUP 6 Bend Inplane COR (ft-lbs)
1
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
-3.5
0
50
100
150
200
250
Time (seconds)

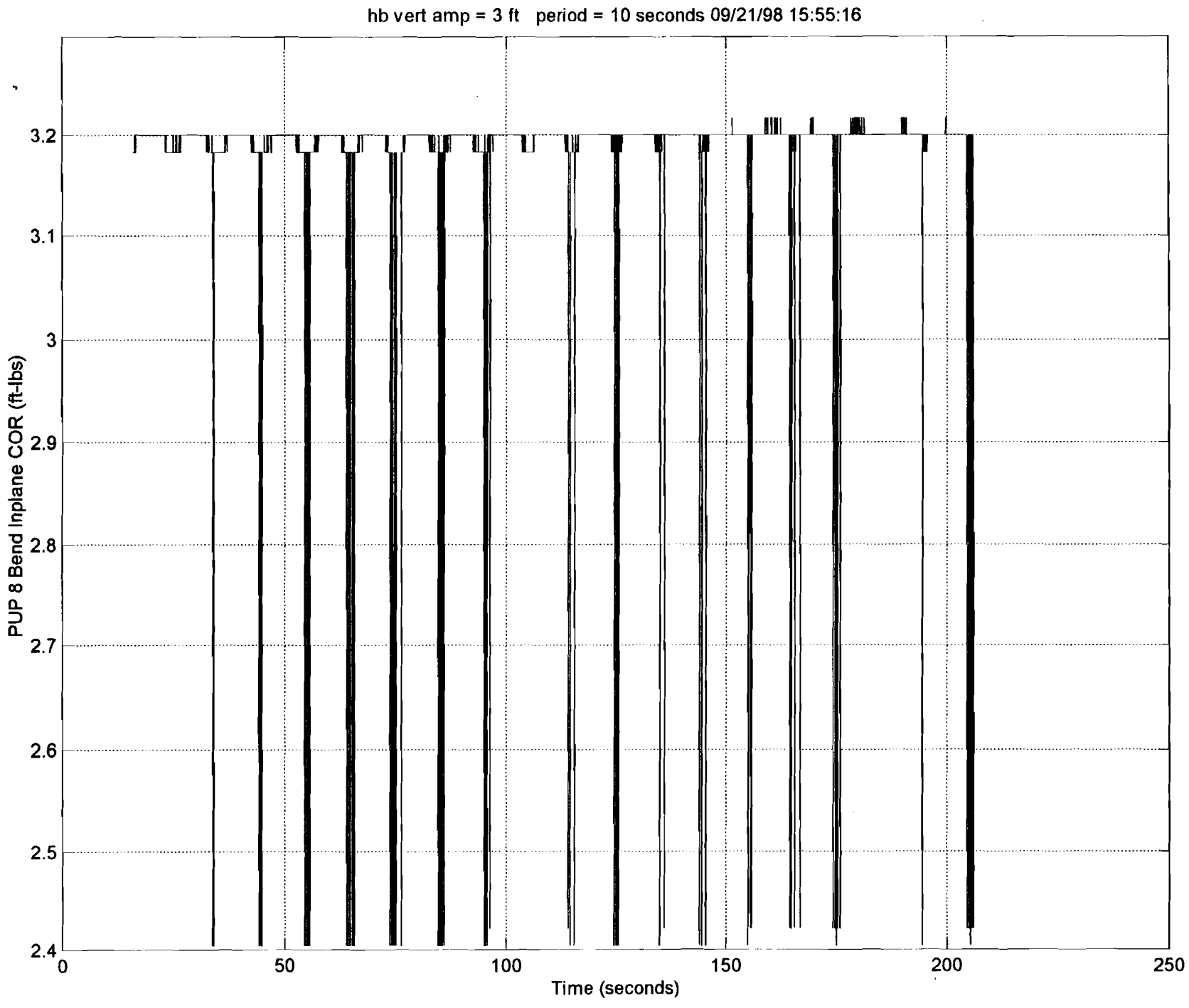

hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
PUP 6 Bend Outplane COR (ft-lbs)
Time (seconds)
20
15
10
5
0
-5
0
50
100
150
200
250

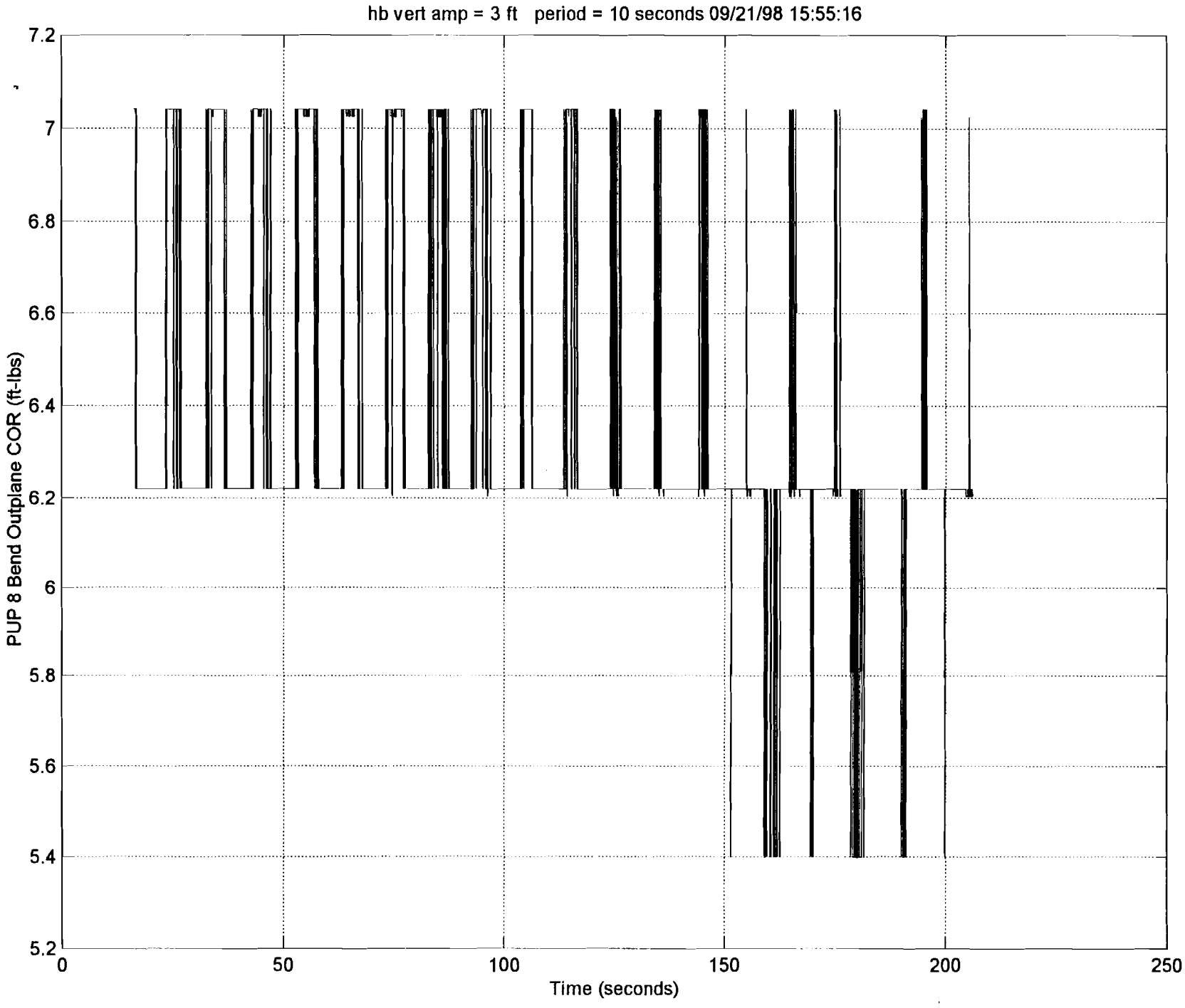

hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
PUP 6 Tension COR (lbs)
300
250
200
150
100
50
0
-50
0
50
100
150
200
250
Time (seconds)

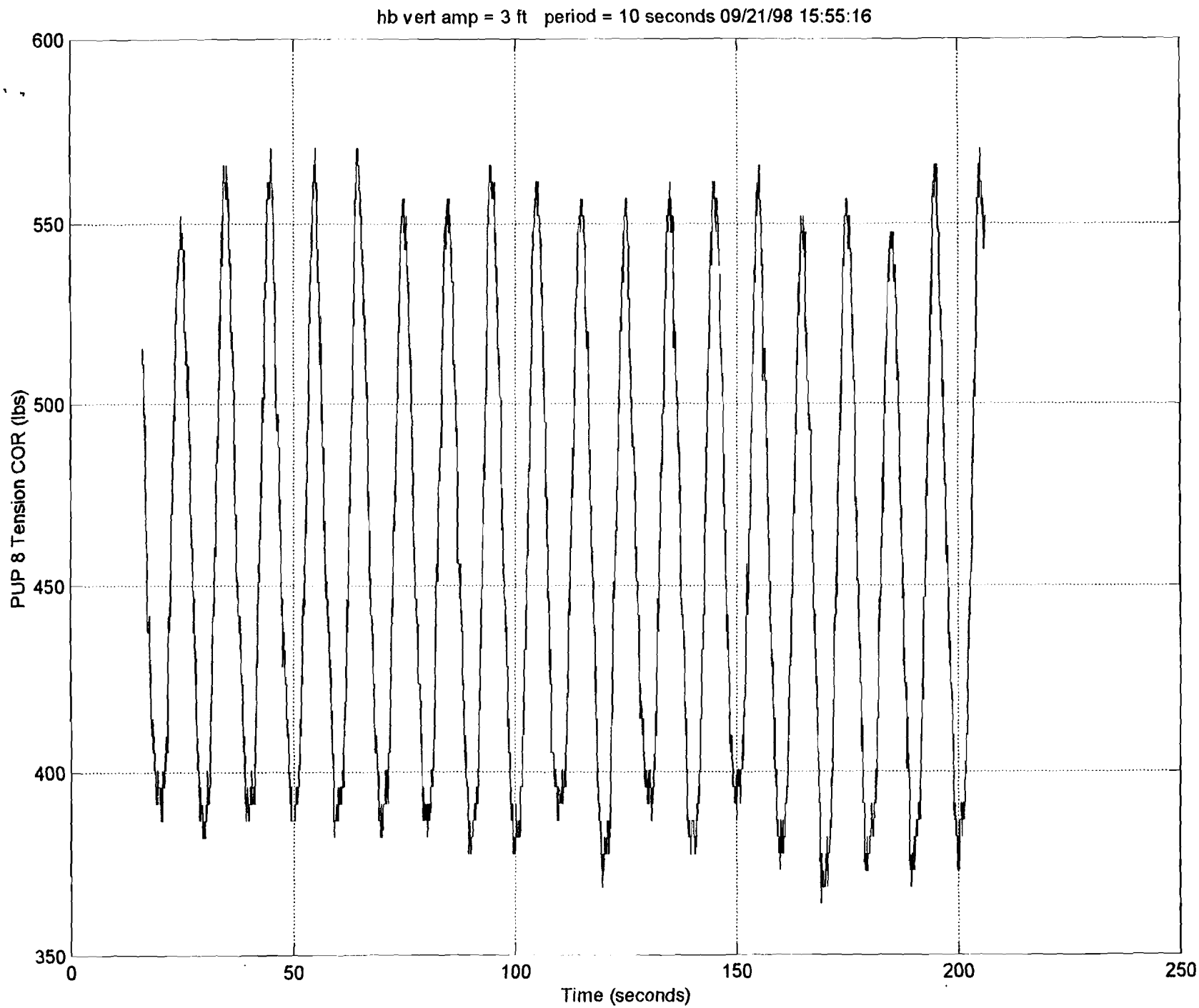

hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
PUP 7 Bend Inplane COR (ft-lbs)
37.5
37
36.5
36
35.5
35
34.5
34
33.5
0
50
100
150
200
250
Time (seconds)

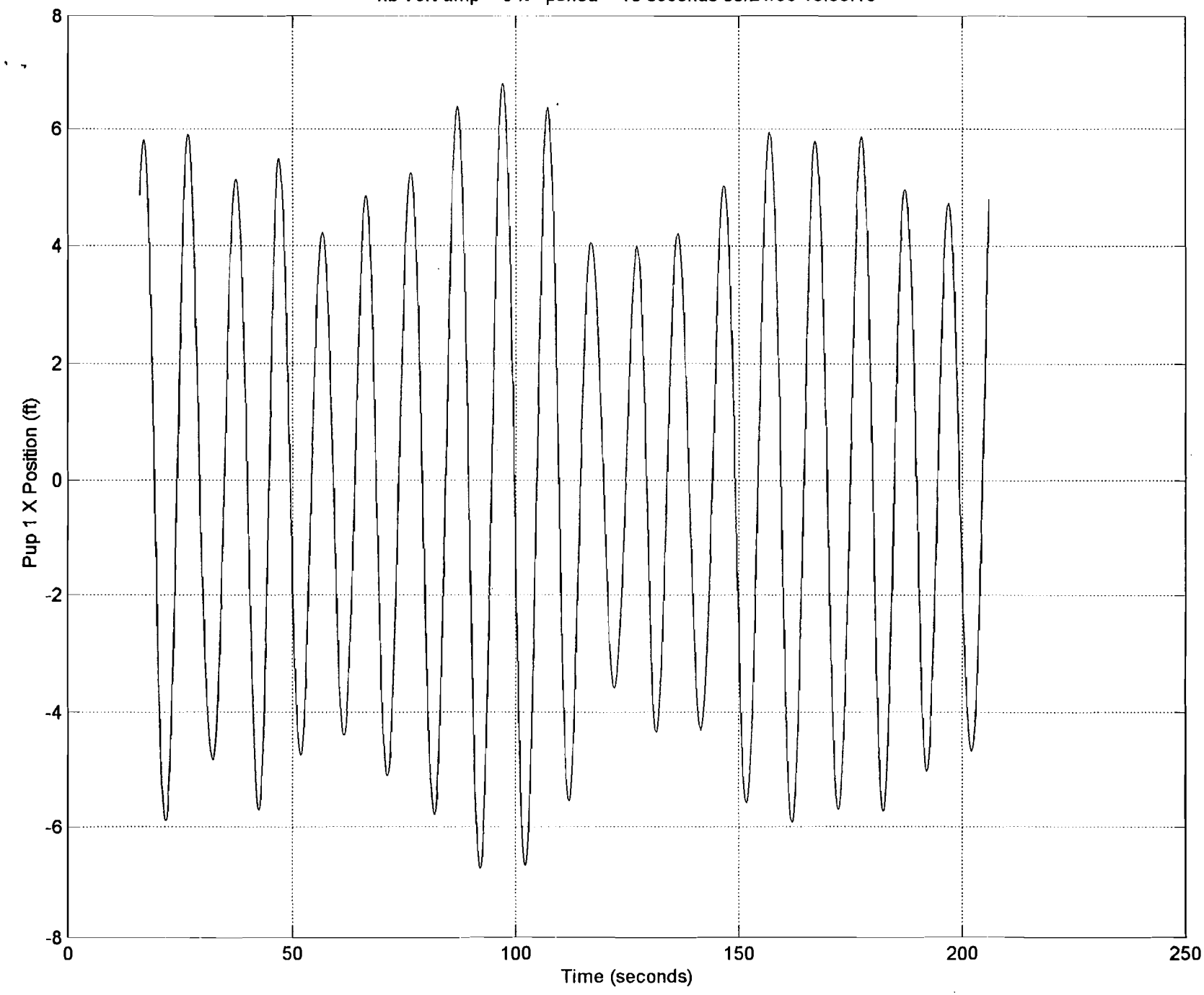

hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
PUP 7 Bend Outplane COR (ft-lbs)
Time (seconds)
35
30
25
20
15
10
0
50
100
150
200
250

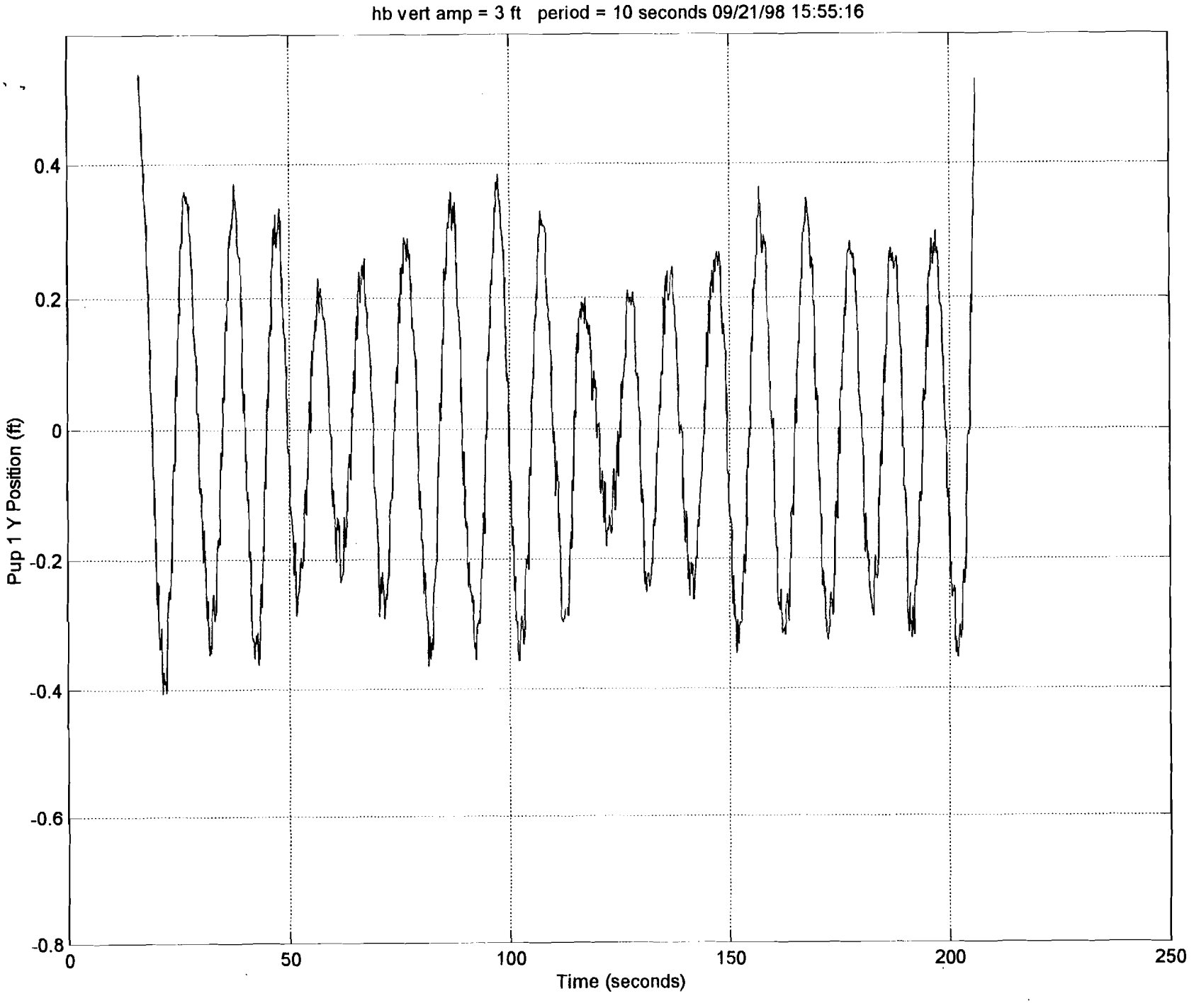

hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
PUP 7 Tension COR (lbs)
Time (seconds)
300
250
200
150
100
50
0
-50
0
50
100
150
200
250

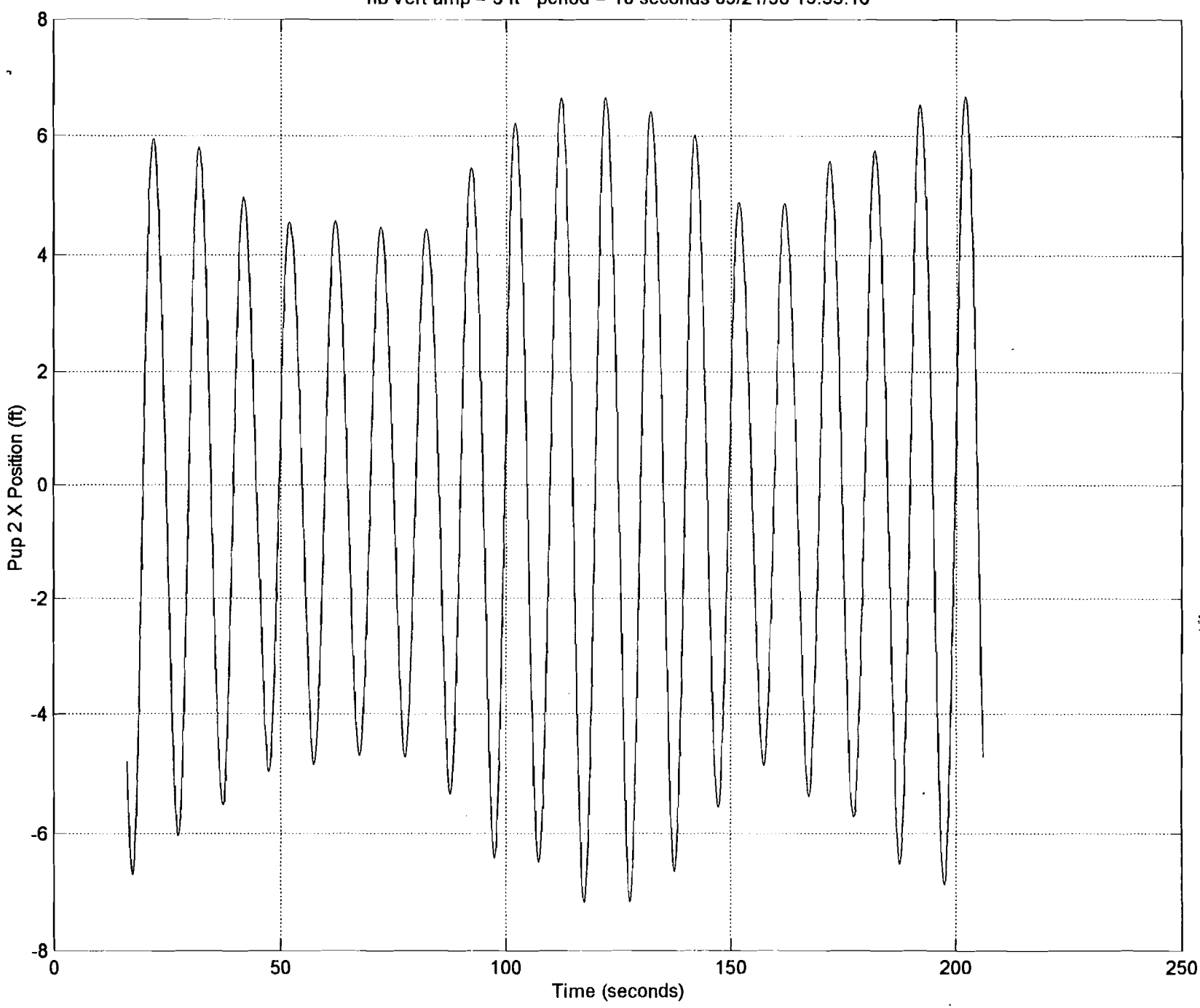

hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
PUP 8 Bend Inplane COR (ft-lbs)
3.2
3.1
3
2.9
2.8
2.7
2.6
2.5
2.4
0
50
100
150
200
250
Time (seconds)

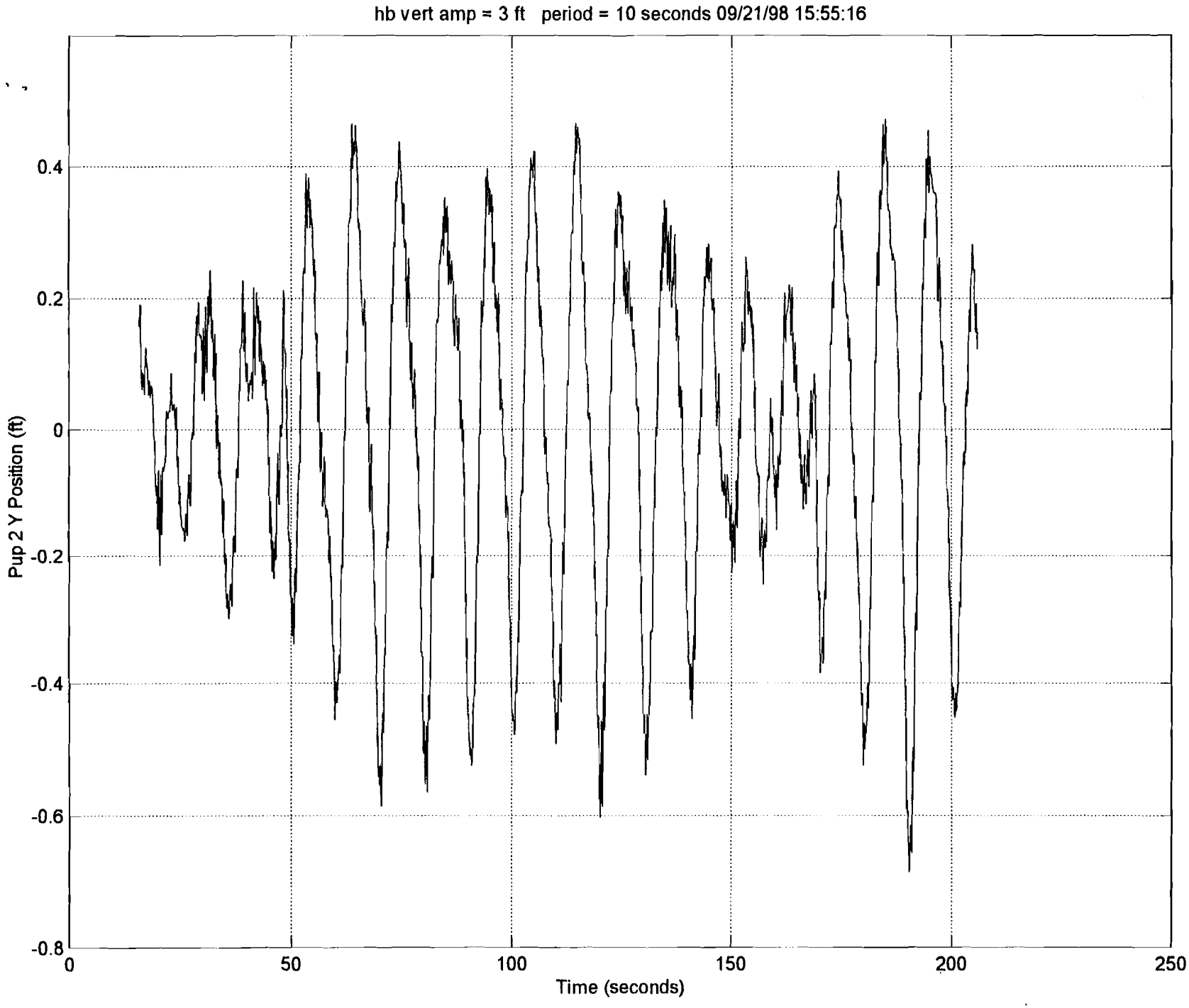

hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
PUP 8 Bend Outplane COR (ft-lbs)
Time (seconds)
7.2
7
6.8
6.6
6.4
6.2
6
5.8
5.6
5.4
5.2
0
50
100
150
200
250

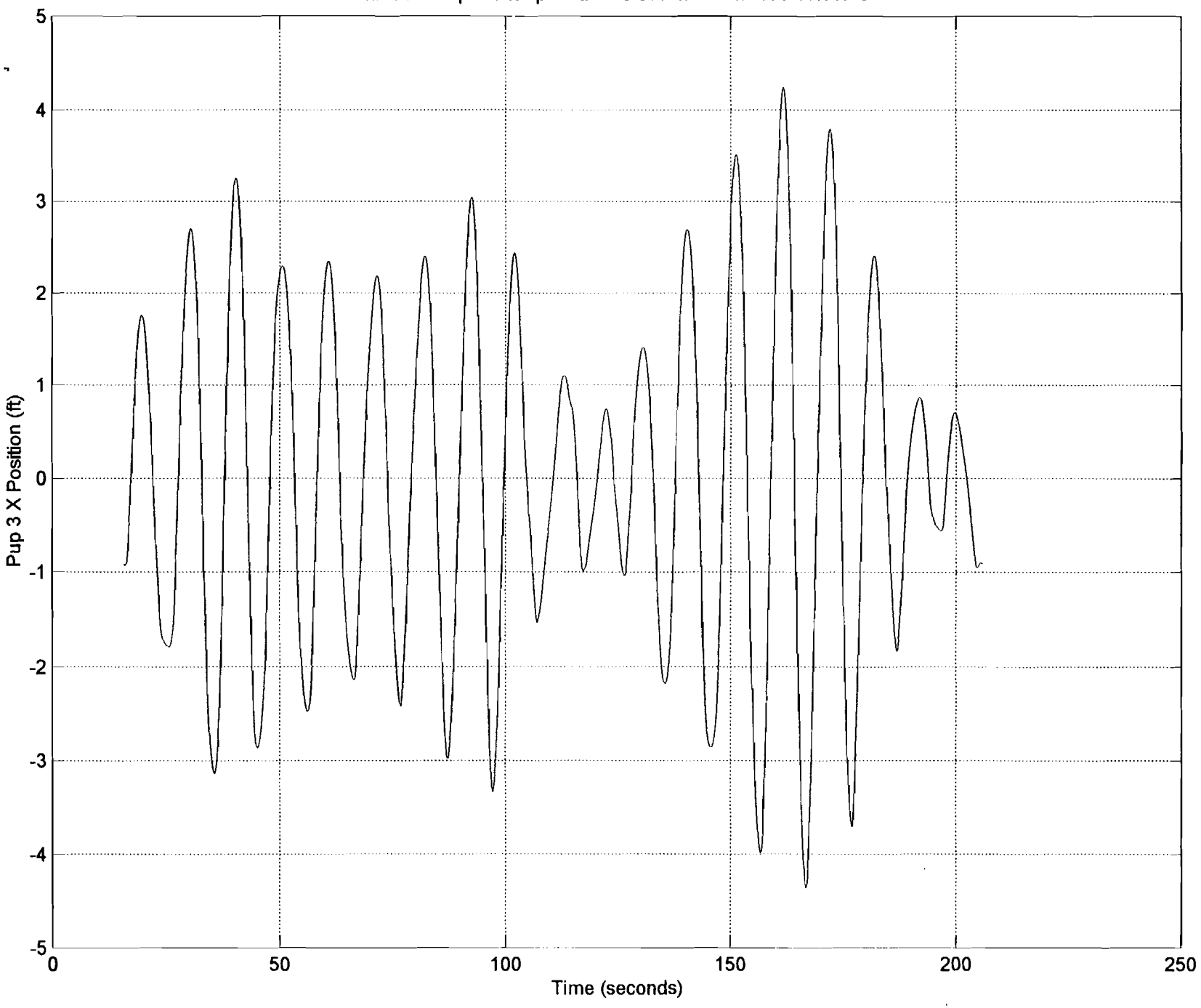

hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
PUP 8 Tension COR (lbs)
600
550
500
450
400
350
0
50
100
150
200
250
Time (seconds)

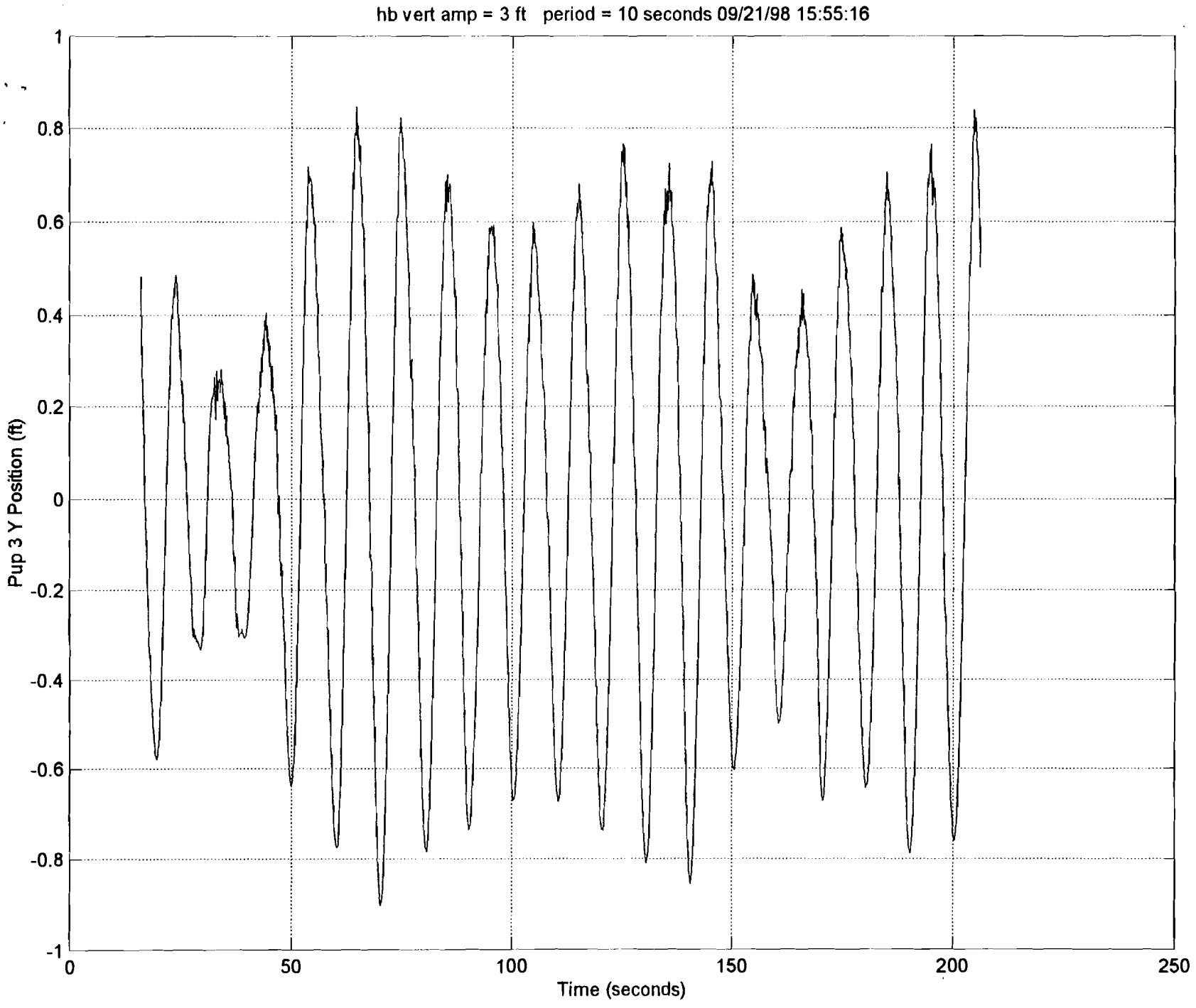

hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
Pup 1 X Position (ft)
Time (seconds)
8
6
4
2
0
-2
-4
-6
-8
0
50
100
150
200
250

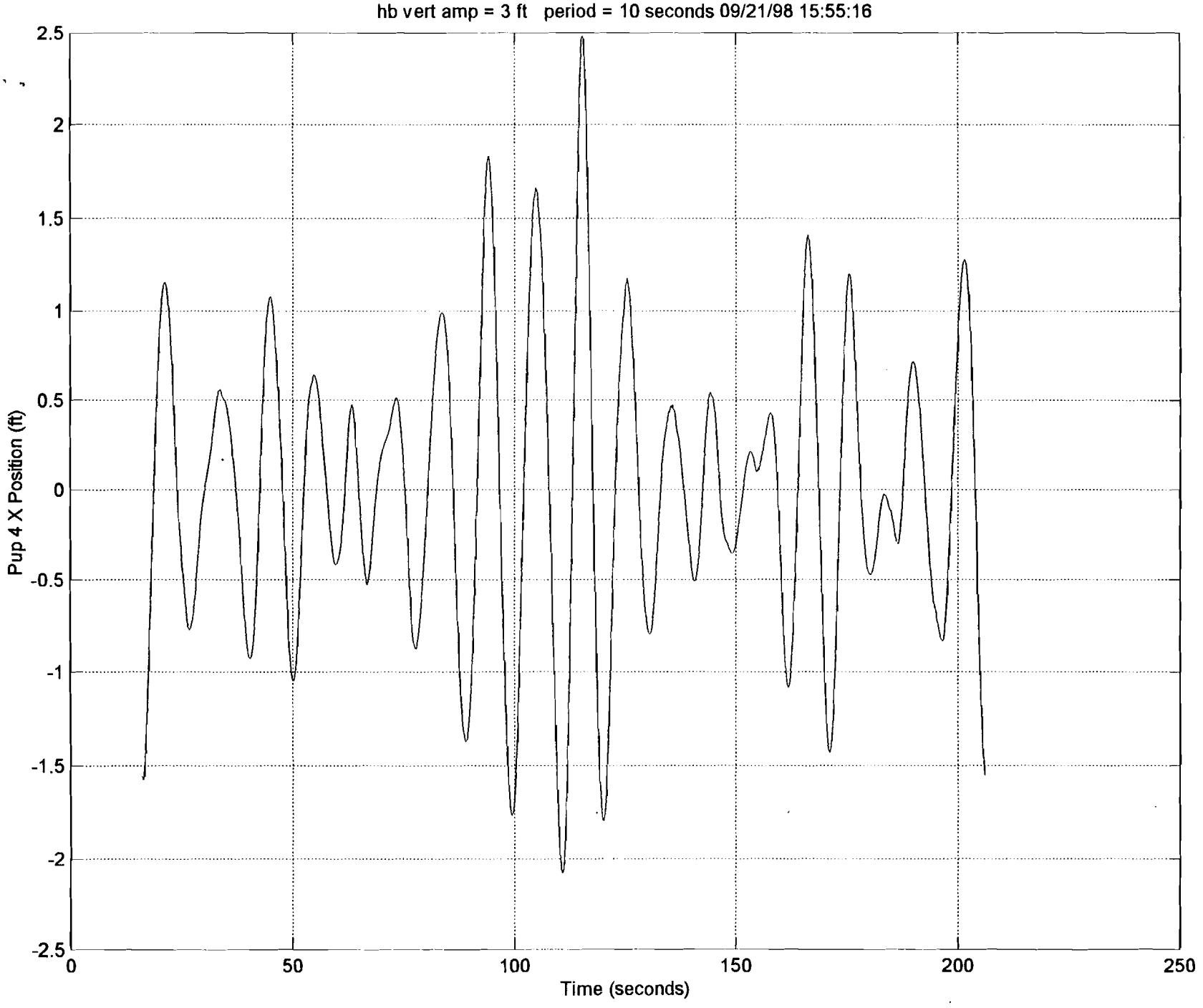

hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
Pup 1 Y Position (ft)
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
0
50
100
150
200
250
Time (seconds)

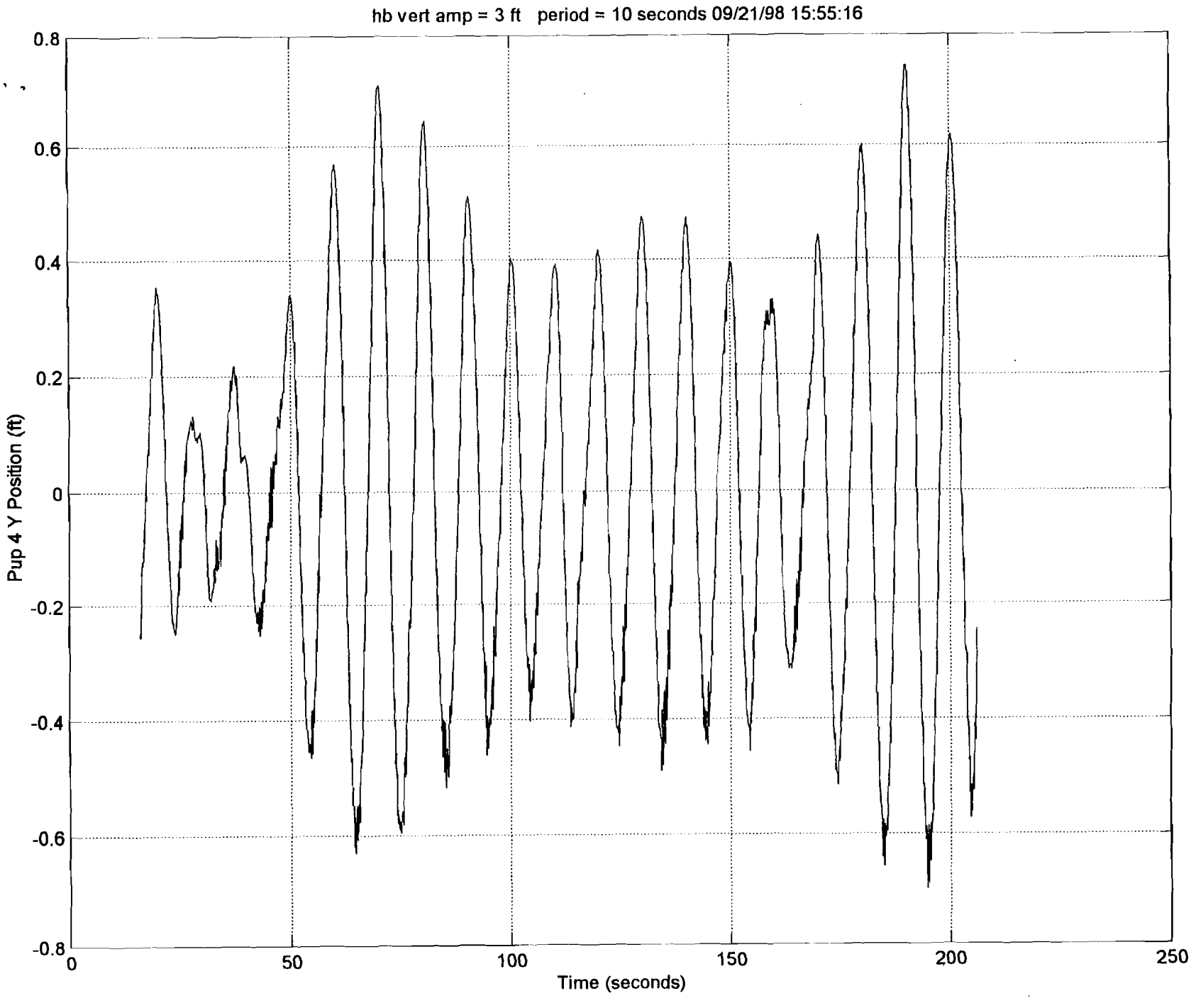

hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
Pup 2 X Position (ft)
Time (seconds)
8
6
4
2
0
-2
-4
-6
-8
0
50
100
150
200
250

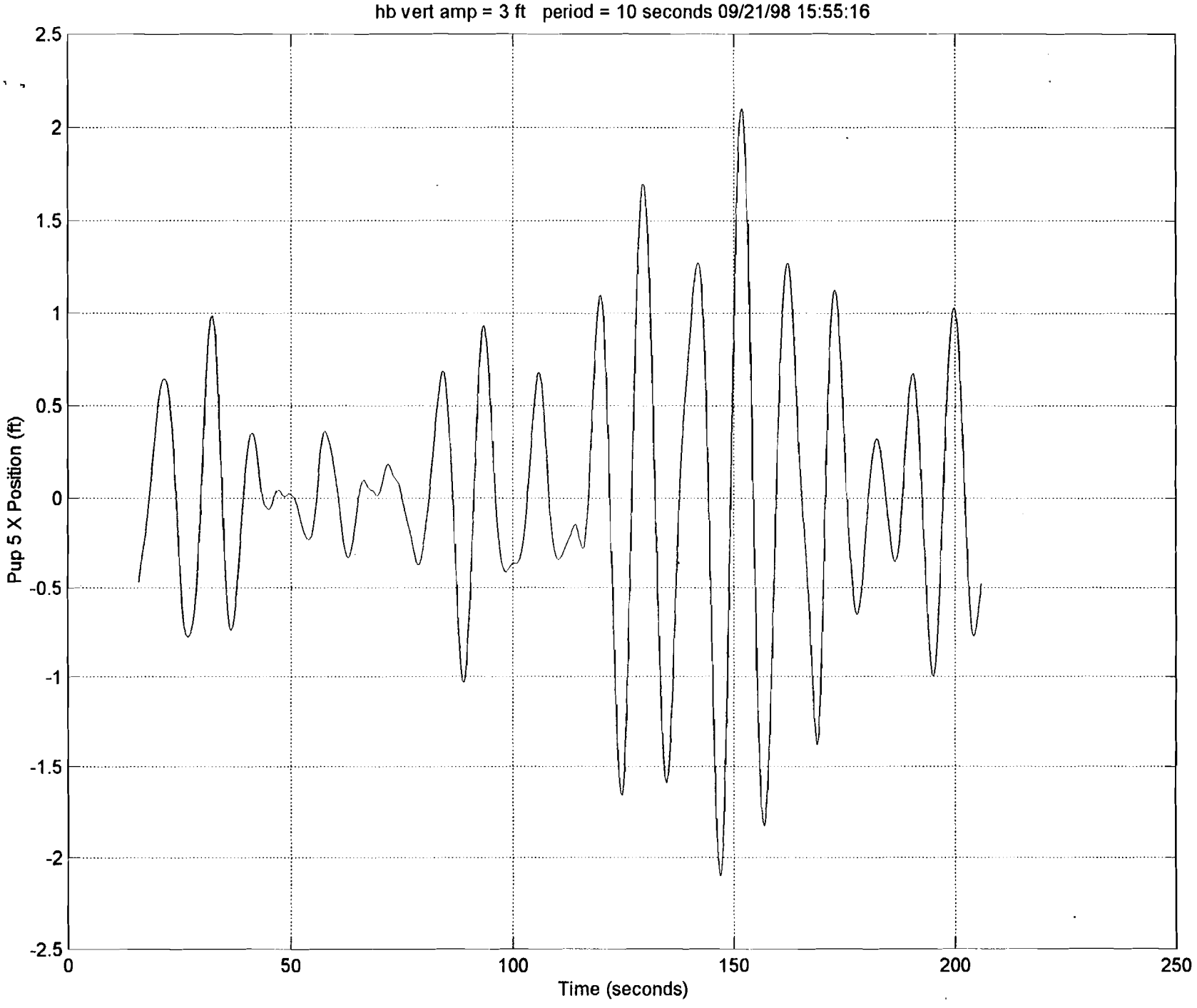

hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
Pup 2 Y Position (ft)
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
0
50
100
150
200
250
Time (seconds)

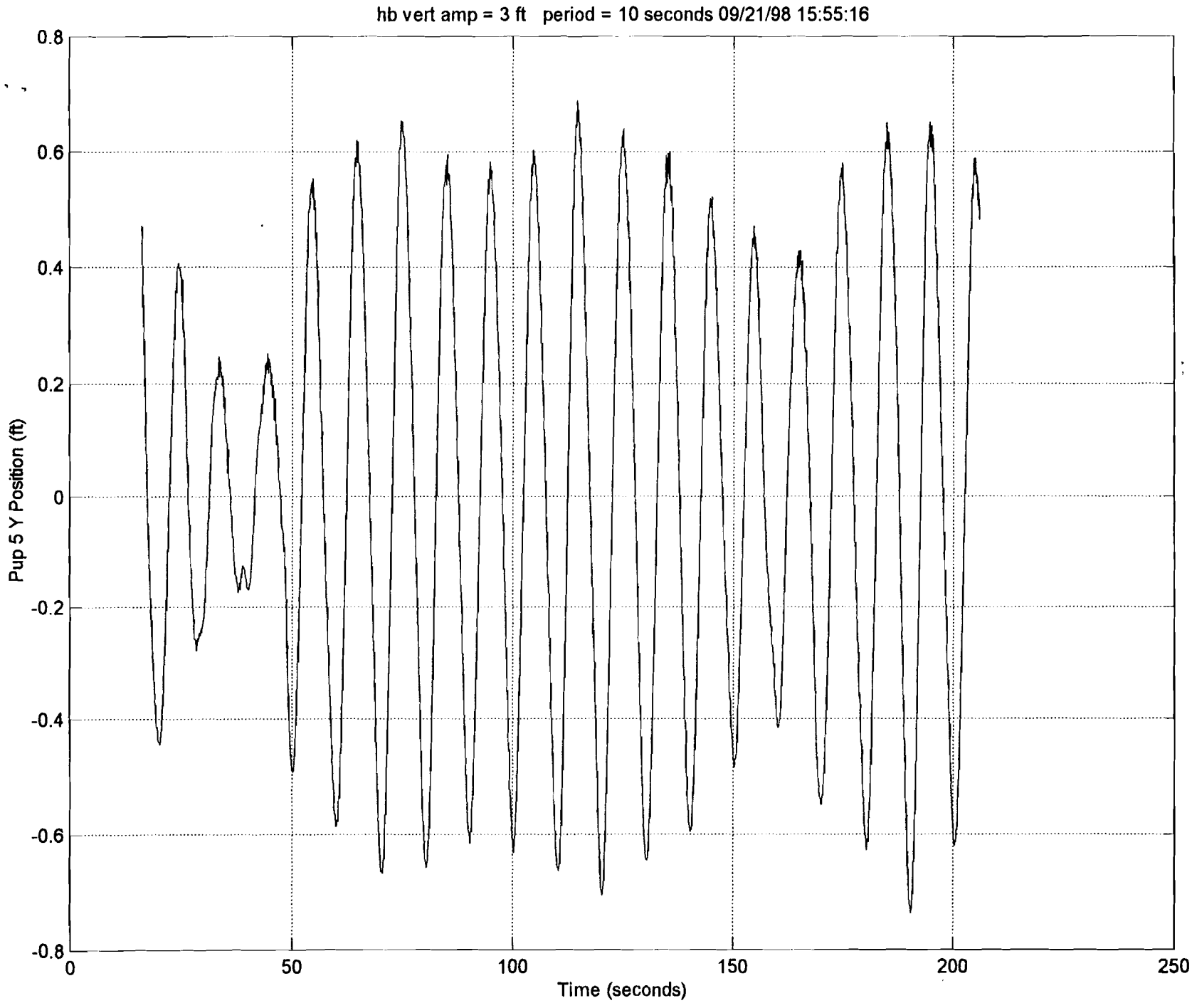

hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
Pup 3 X Position (ft)
Time (seconds)
5
4
3
2
1
0
-1
-2
-3
-4
-5
0
50
100
150
200
250

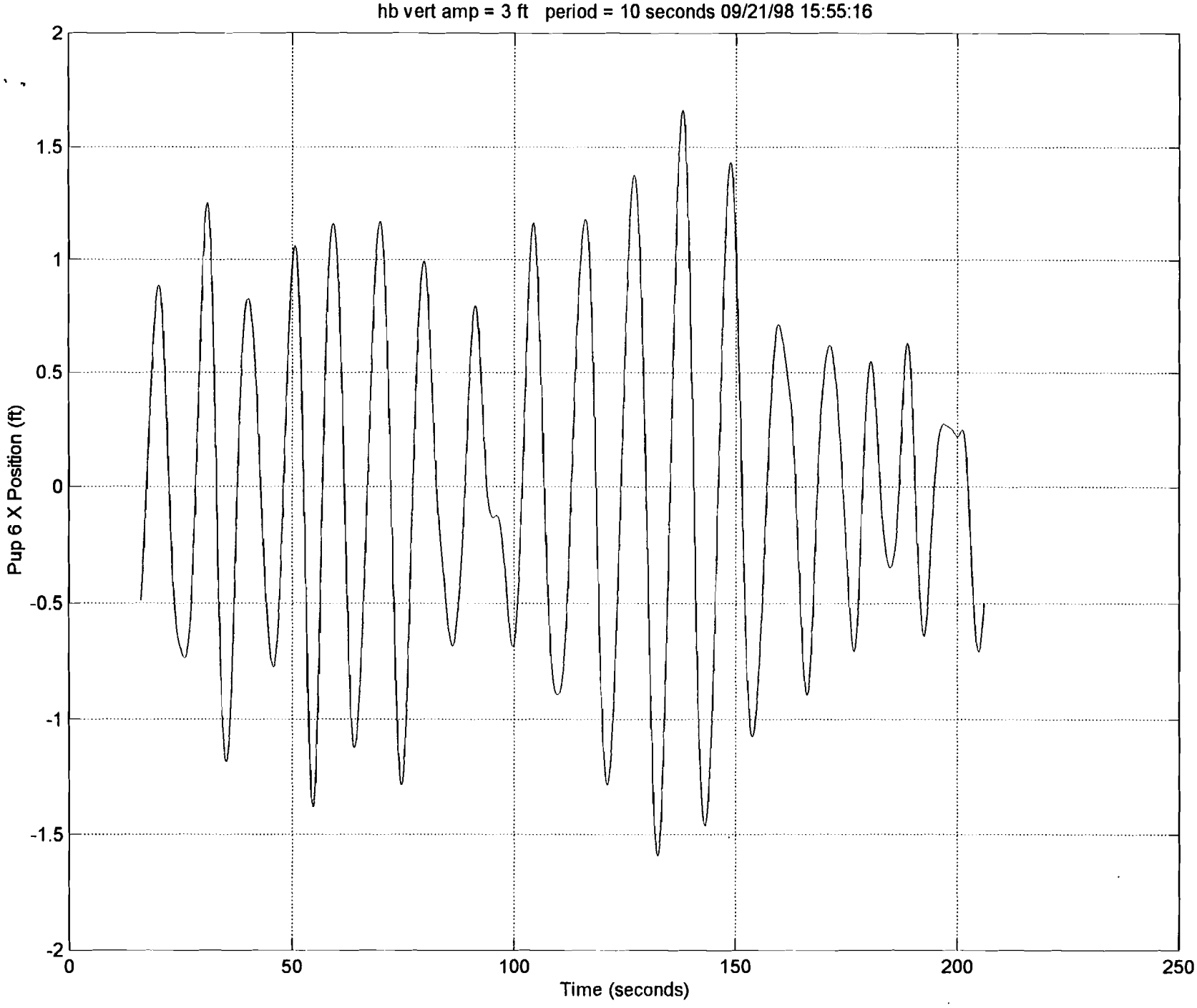

hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
Pup 3 Y Position (ft)
Time (seconds)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250

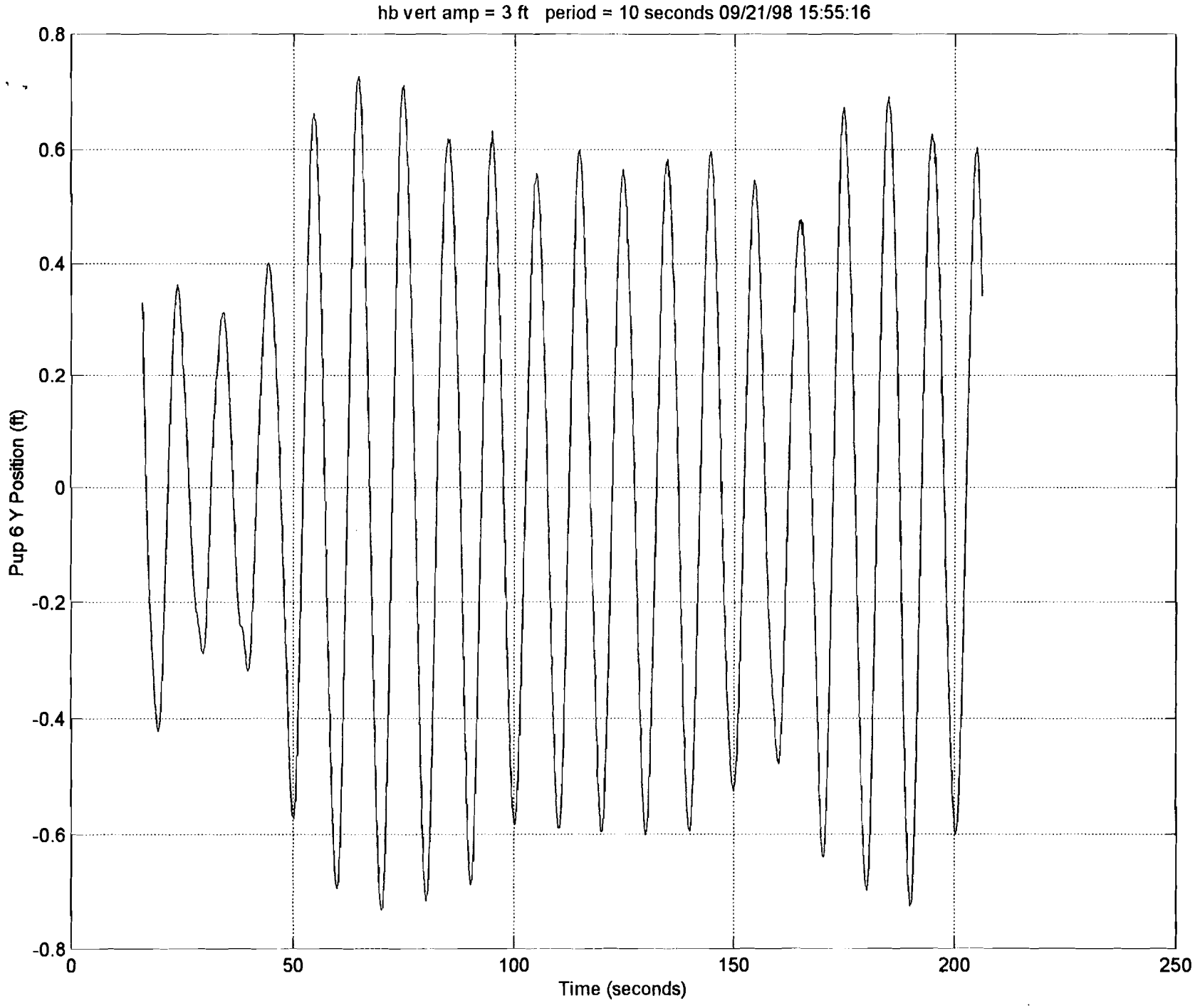

hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
Pup 4 X Position (ft)
Time (seconds)
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-2.5
0
50
100
150
200
250

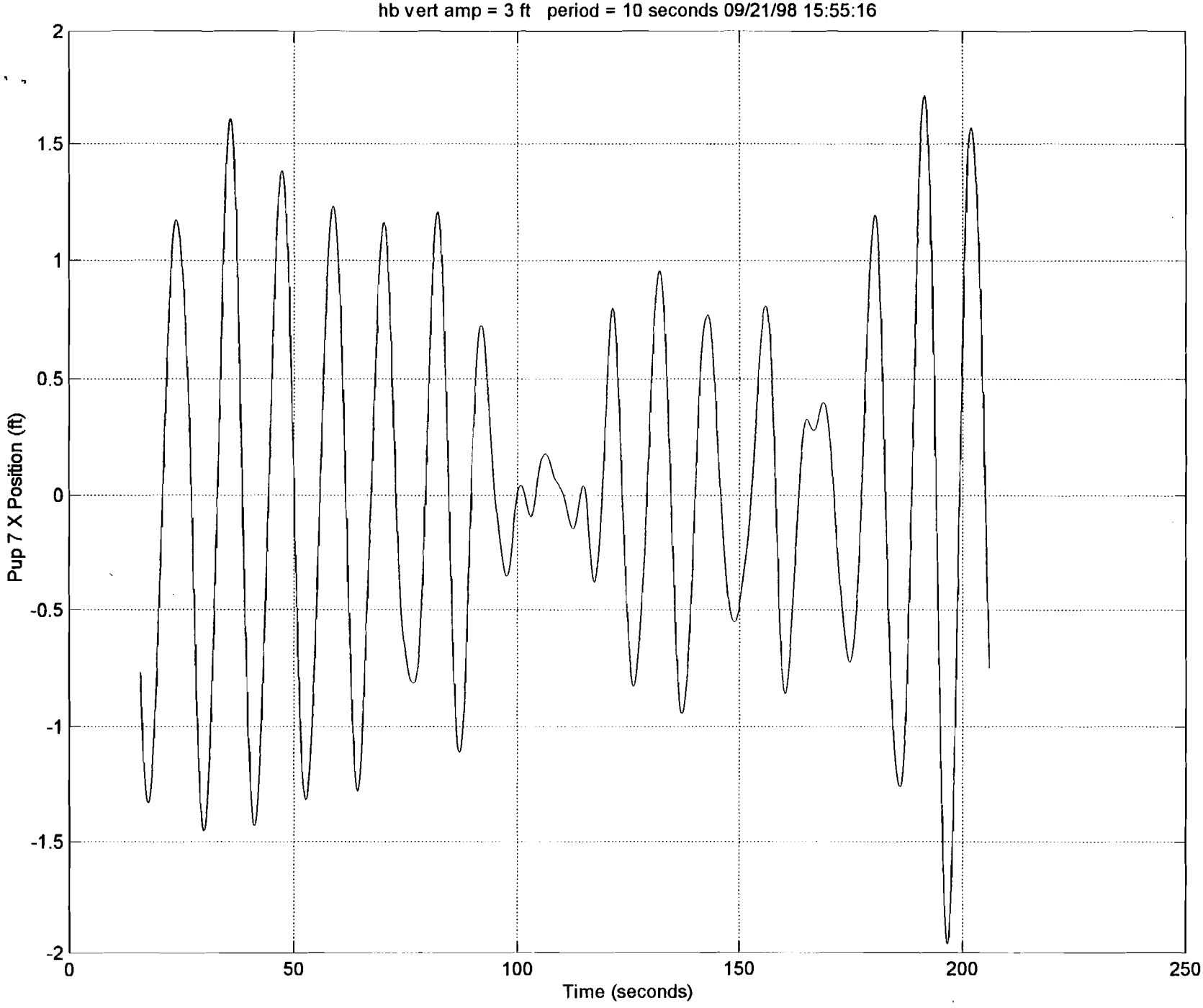

hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
Pup 4 Y Position (ft)
Time (seconds)
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
0
50
100
150
200
250

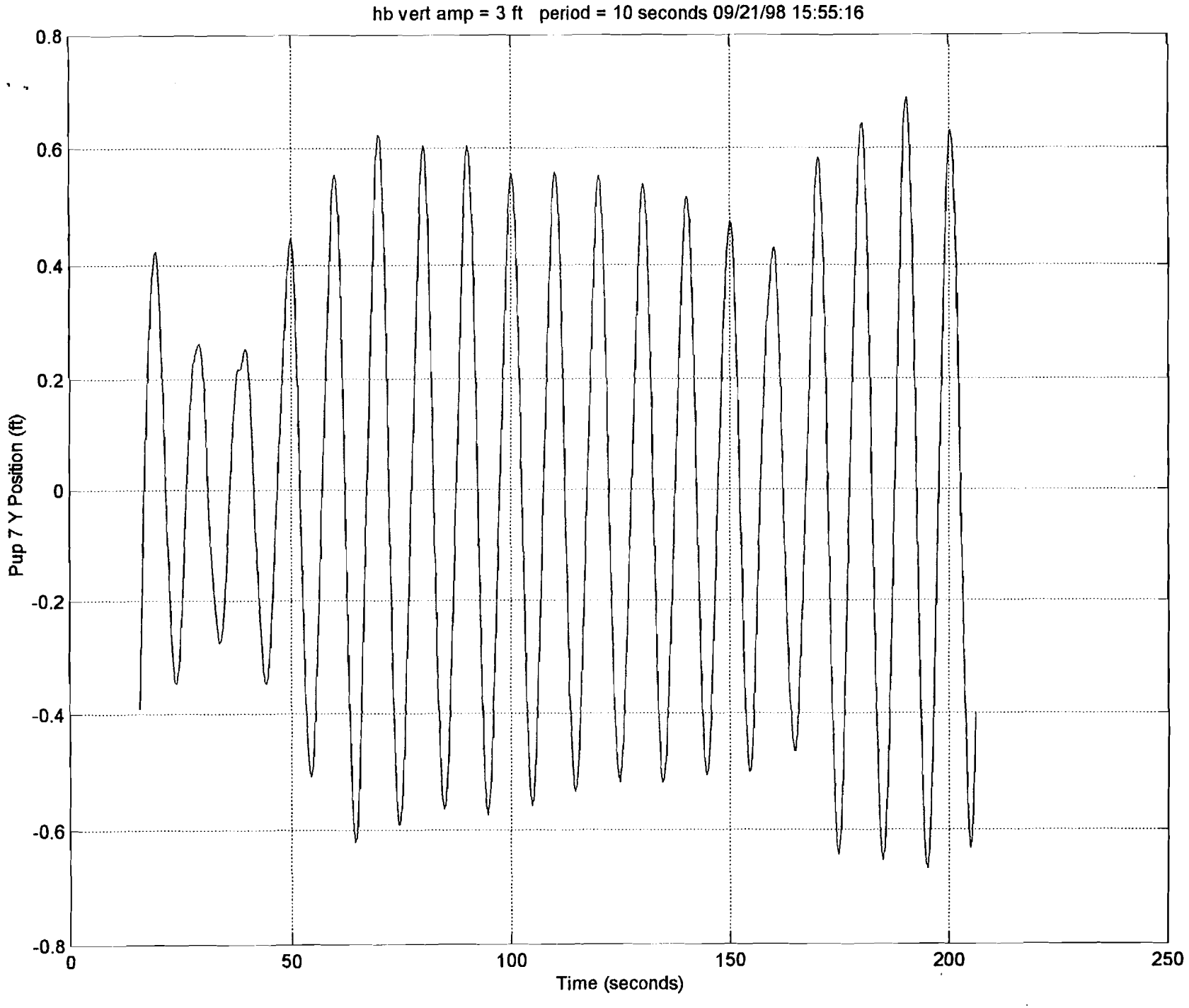

hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
Pup 5 X Position (ft)
Time (seconds)
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-2.5
0
50
100
150
200
250

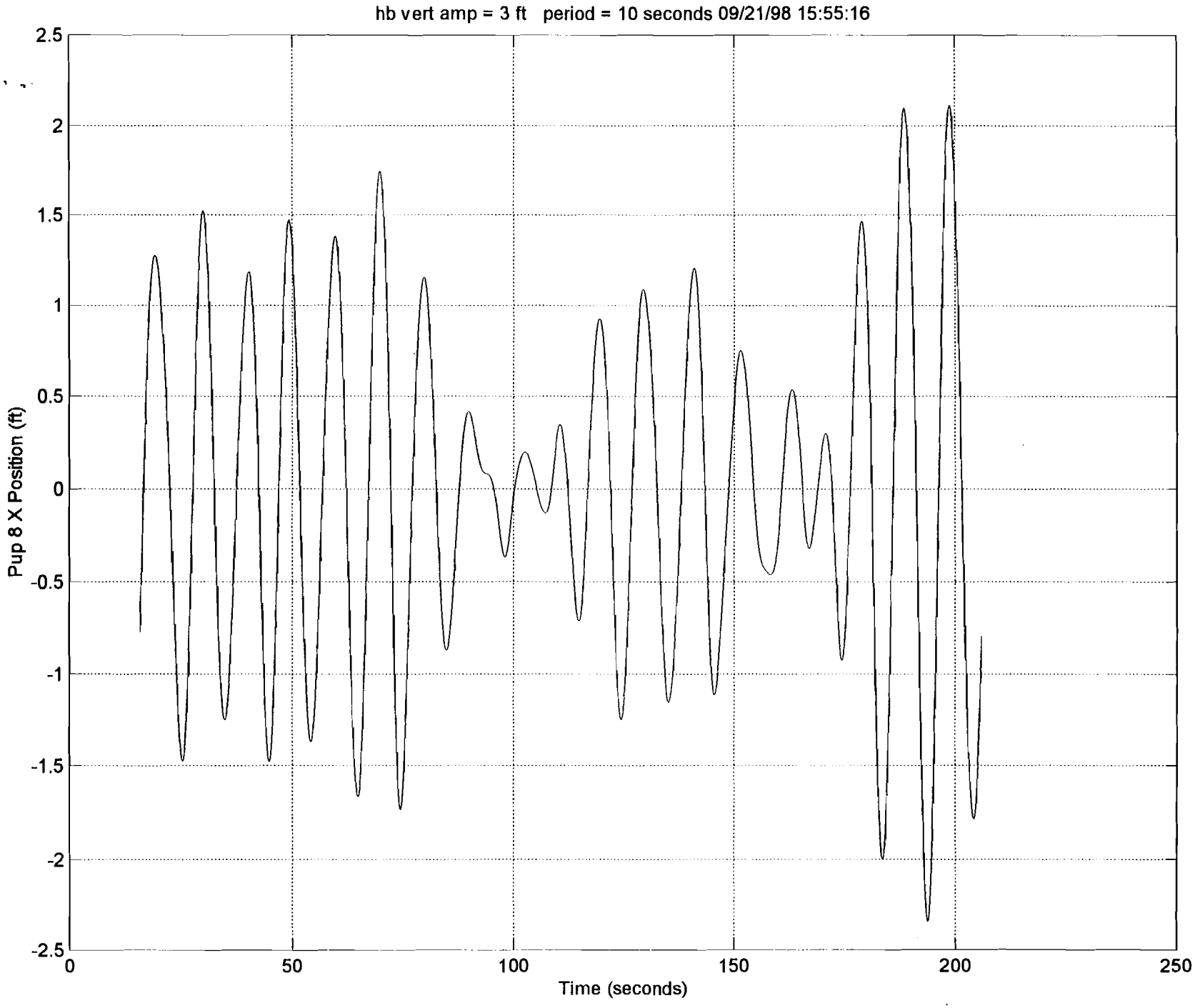

hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
Pup 5 Y Position (ft)
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
0
50
100
150
200
250
Time (seconds)

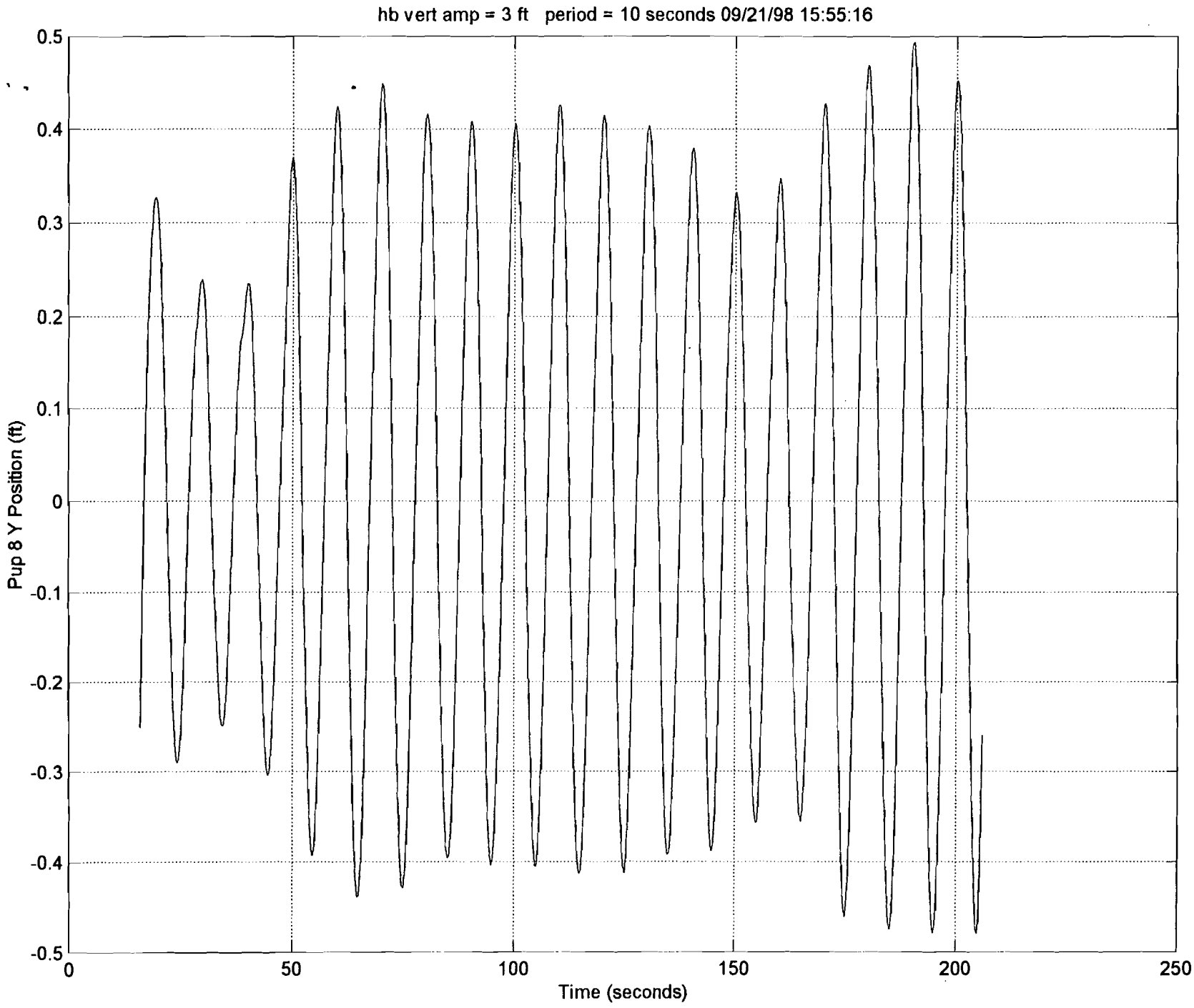

hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
Pup 6 X Position (ft)
Time (seconds)
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
0
50
100
150
200
250


hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
Pup 6 Y Position (ft)
Time (seconds)
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
0
50
100
150
200
250


hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
Pup 7 X Position (ft)
Time (seconds)
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
0
50
100
150
200
250


hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
Pup 7 Y Position (ft)
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
0
50
100
150
200
250
Time (seconds)


hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
Pup 8 X Position (ft)
Time (seconds)
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-2.5
0
50
100
150
200
250


hb vert amp = 3 ft period = 10 seconds 09/21/98 15:55:16
Pup 8 Y Position (ft)
Time (seconds)
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
0
50
100
150
200
250

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05

Channel Name	Units	Minimum	Maximum	Mean	Avg P-P	Ratio P-P	RAO	Phase
Actuator Load	lbs	958.4245	1635.0670	1292.7638	634.1865	105.9298	93.5249	115.2913
Actuator Heave Acc NOG	ft/s^2	-3.5018	4.0410	0.0310	3.9209	0.6549	0.7894	179.5093
PUP 1 Bend Inplane COR	ft-lbs	-22.3827	-14.4185	-18.0073	3.1427	0.5249	0.1724	-69.1958
PUP 1 Bend Outplane COR	ft-lbs	-9.6637	5.2991	-1.5458	3.2937	0.5502	0.0536	-64.3855
PUP 1 Tension COR	lbs	1119.5740	1791.3710	1451.0405	629.1437	105.0875	93.0506	110.6393
PUP 2 Bend Inplane COR	ft-lbs	-187.2922	-34.0323	-75.7013	147.0172	24.5567	12.5061	53.6572
PUP 2 Bend Outplane COR	ft-lbs	-51.4042	37.1896	-3.4188	53.6375	8.9592	1.4282	108.9059
PUP 2 Tension COR	lbs	-147.4889	480.2486	147.2758	550.1700	91.8963	75.4874	84.3112
PUP 3 Bend Inplane COR	ft-lbs	-102.7311	-16.6986	-47.3432	81.1944	13.5621	10.0693	-162.5239
PUP 3 Bend Outplane COR	ft-lbs	-20.3442	45.8918	14.6579	22.6098	3.7766	0.8510	4.4133
PUP 3 Tension COR	lbs	2497.9099	2533.1478	2520.3485	16.5579	2.7657	2.3514	-158.3191
PUP 4 Bend Inplane COR	ft-lbs	-45.2272	41.3021	8.2395	74.8957	12.5100	9.9834	-145.2299
PUP 4 Bend Outplane COR	ft-lbs	-40.9974	25.9138	-5.2659	7.7579	1.2958	1.0202	-112.8839
PUP 4 Tension COR	lbs	59.3491	608.2577	307.5641	493.3109	82.3990	68.0939	87.5467
PUP 5 Bend Inplane COR	ft-lbs	-27.4771	-12.9077	-21.0228	5.3245	0.8894	1.0766	92.5082
PUP 5 Bend Outplane COR	ft-lbs	-30.0211	24.6866	-2.4373	4.6038	0.7690	0.3001	-151.5970
PUP 5 Tension COR	lbs	-55.5684	506.4244	196.6823	497.1264	83.0363	70.0296	83.6502
PUP 6 Bend Inplane COR	ft-lbs	1.3060	10.1033	6.7186	3.4286	0.5727	0.5180	-116.7587
PUP 6 Bend Outplane COR	ft-lbs	-11.3737	22.2722	6.7433	12.4949	2.0870	0.0379	-78.6905
PUP 6 Tension COR	lbs	-123.8191	429.6221	118.8467	492.8655	82.3246	69.8266	80.6863
PUP 7 Bend Inplane COR	ft-lbs	36.3547	42.0079	39.3339	0.8545	0.1427	0.2135	-32.4569
PUP 7 Bend Outplane COR	ft-lbs	11.9851	24.5935	16.4864	2.3517	0.3928	0.5096	54.7800
PUP 7 Tension COR	lbs	-108.1079	432.2075	124.2971	482.2269	80.5476	67.6745	78.4494
PUP 8 Bend Inplane COR	ft-lbs	-1.9373	2.8569	0.4670	0.7790	0.1301	0.3738	-114.3049
PUP 8 Bend Outplane COR	ft-lbs	22.6041	29.0990	25.8655	0.8363	0.1397	0.4196	58.3190
PUP 8 Tension COR	lbs	252.4051	758.6594	462.1076	437.3534	73.0523	64.0347	73.8533
Displacement	ft	-2.9934	2.9934	0.0000	5.9869	1.0000	1.0000	0.0000

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hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05

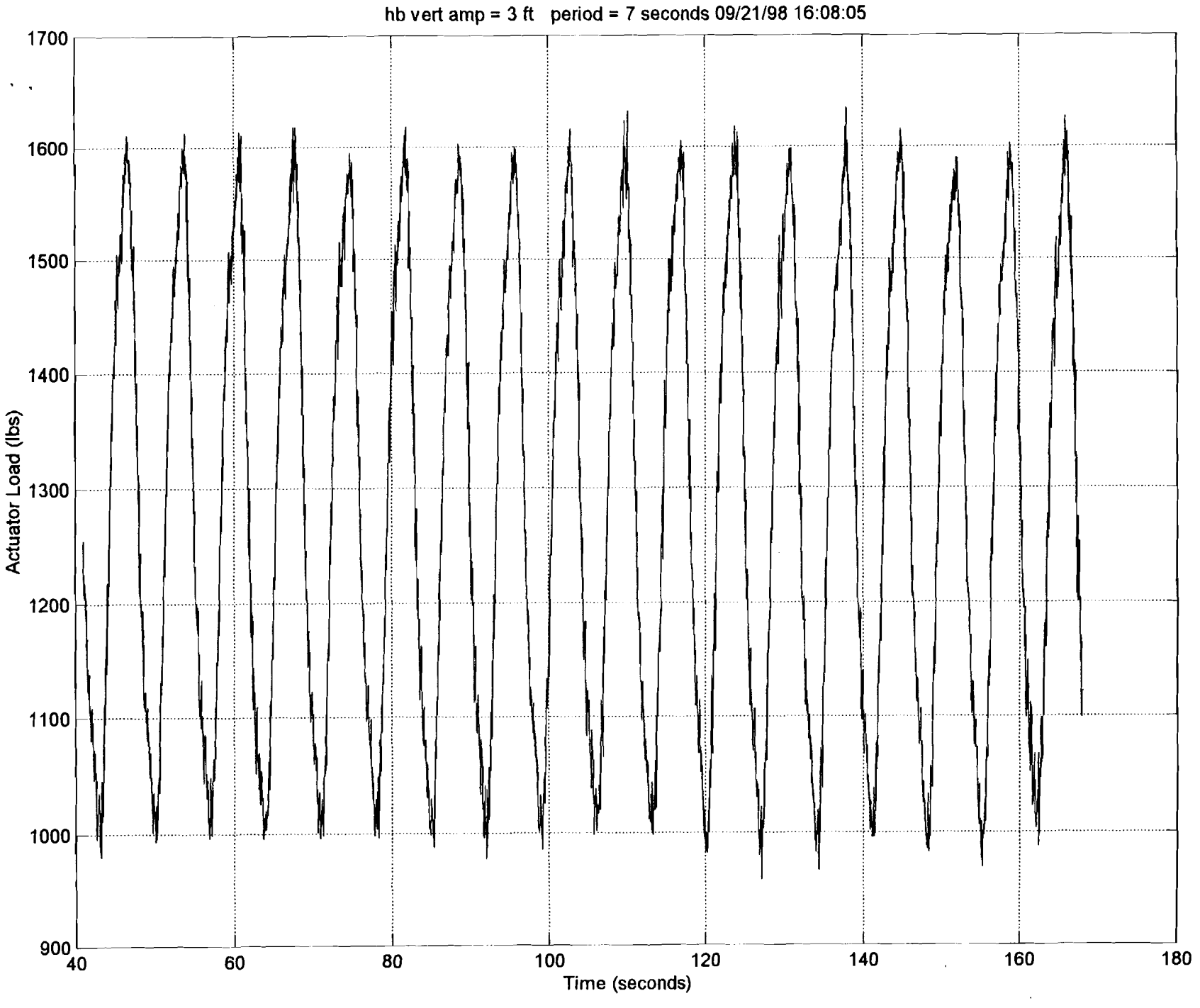
Channel Name	Units	Minimum	Maximum	Mean	Std Dev	Sig Amp	Period
Barge Roll	deg	-0.3580	-0.0932	-0.2316	0.0205	0.0504	0.5227
Barge Pitch	deg	-1.2123	-0.9909	-1.0978	0.0193	0.0489	0.5351
Barge Surge Acc NOG	ft/s^2	-0.2438	0.3459	0.0658	0.0731	0.1597	0.3041
Barge Sway Acc NOG	ft/s^2	-2.5620	-2.0955	-2.3367	0.0463	0.0975	0.3528
Barge Heave Acc NOG	ft/s^2	-0.3674	0.2454	-0.0766	0.0655	0.1513	0.3400

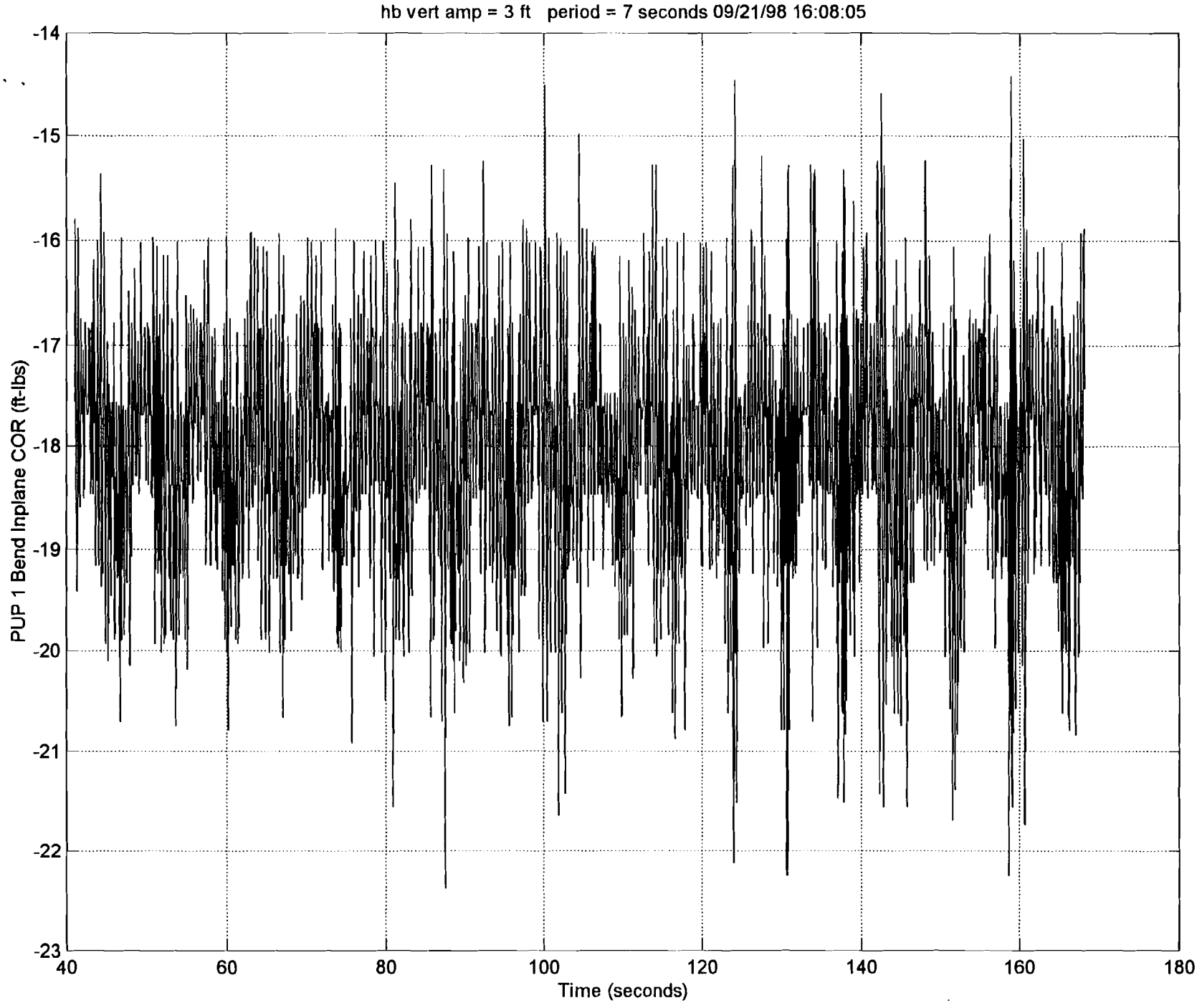
hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05

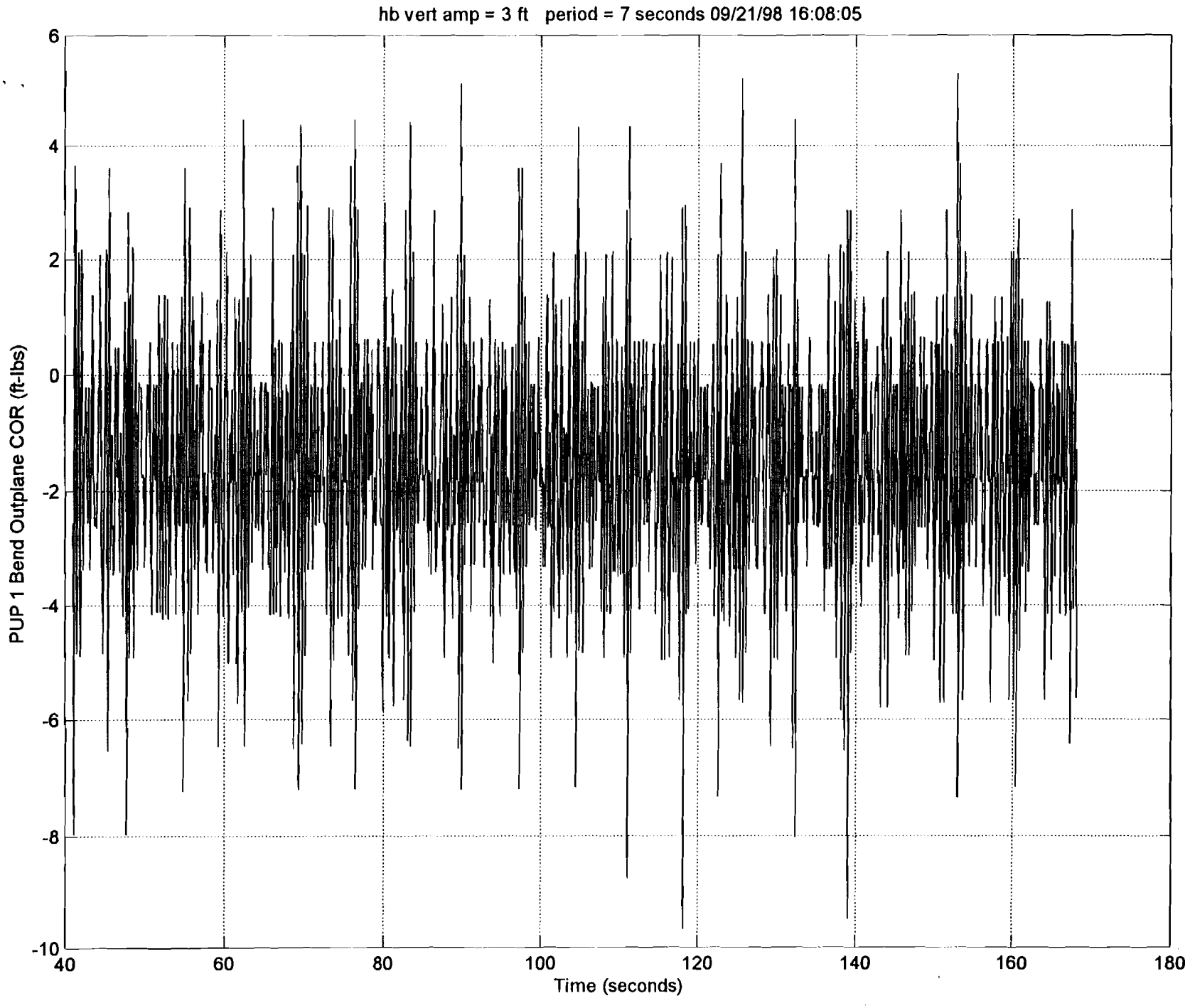
Channel Name	Units	Minimum	Maximum	Mean	Std Dev	Sig Amp	Period
PUP 1 Top Y Acc COR	ft/s^2	-12.2024	12.4156	-0.5252	2.9219	6.5532	0.5199
PUP 1 Top X Acc COR	ft/s^2	-5.3753	12.3361	3.9997	1.8157	4.2606	0.4593
PUP 1 Bot Y Acc COR	ft/s^2	-242.0880	-218.9196	-230.9994	2.7190	5.9838	0.5270
PUP 1 Bot X Acc COR	ft/s^2	-2.5907	16.5063	7.5327	1.8840	4.4570	0.4826
PUP 2 Top Y Acc COR	ft/s^2	-32.4227	21.9723	-5.6437	8.0420	17.1724	0.4020
PUP 2 Top X Acc COR	ft/s^2	17.0741	45.4797	29.0871	3.4532	6.7111	0.6176
PUP 2 Bot Y Acc COR	ft/s^2	-34.7688	28.7717	-1.1377	8.4860	17.9730	0.3887
PUP 2 Bot X Acc COR	ft/s^2	20.3831	45.4731	31.5090	3.4376	6.7804	0.6087
PUP 3 Top Y Acc COR	ft/s^2	-60.1084	-6.6680	-31.7722	5.4599	13.8739	0.4266
PUP 3 Top X Acc COR	ft/s^2	38.7213	59.6370	47.9923	1.9984	4.7827	0.5410
PUP 3 Bot Y Acc COR	ft/s^2	-34.0191	22.7972	-4.5657	5.7237	15.2012	0.4355
PUP 3 Bot X Acc COR	ft/s^2	22.0017	41.7102	31.0419	2.0285	4.8321	0.4967
PUP 4 Top Y Acc COR	ft/s^2	-23.5747	32.1613	4.0096	5.7319	14.8716	0.4207
PUP 4 Top X Acc COR	ft/s^2	23.6644	45.6875	32.6350	1.6009	4.2289	0.4311
PUP 4 Bot Y Acc COR	ft/s^2	-23.7391	32.2941	5.1425	5.7982	14.3132	0.4007
PUP 4 Bot X Acc COR	ft/s^2	21.1351	40.2868	30.2262	1.6779	4.8085	0.4495
PUP 5 Top Y Acc COR	ft/s^2	-22.2797	20.5542	-2.3108	3.7717	9.4349	0.3998
PUP 5 Top X Acc COR	ft/s^2	27.4321	37.0332	32.2959	0.8362	2.0755	0.3986
PUP 5 Bot Y Acc COR	ft/s^2	-22.6587	19.7997	-2.3714	3.4762	8.9168	0.3934
PUP 5 Bot X Acc COR	ft/s^2	28.2440	37.5983	32.8394	0.7236	1.8578	0.3974
PUP 6 Top Y Acc COR	ft/s^2	-11.3176	2.8379	-3.2640	1.3174	3.1351	0.3944
PUP 6 Top X Acc COR	ft/s^2	32.1459	34.3012	33.3628	0.2020	0.4788	0.3803
PUP 6 Bot Y Acc COR	ft/s^2	-14.6079	2.3665	-3.2118	1.0600	2.5331	0.4179
PUP 6 Bot X Acc COR	ft/s^2	29.1195	31.1524	30.4993	0.1406	0.3504	0.6004
PUP 7 Top Y Acc COR	ft/s^2	-6.3141	9.1927	2.2912	1.2676	3.0198	0.3843
PUP 7 Top X Acc COR	ft/s^2	30.6593	33.7104	32.0487	0.2245	0.5466	0.3577
PUP 7 Bot Y Acc COR	ft/s^2	-1.5036	6.4867	1.9141	0.8425	1.9547	0.4179
PUP 7 Bot X Acc COR	ft/s^2	30.7065	31.8867	31.3978	0.1168	0.2557	0.4199
PUP 8 Top Y Acc COR	ft/s^2	-0.0270	3.6547	1.4431	0.4160	0.8521	0.5704
PUP 8 Top X Acc COR	ft/s^2	31.6129	32.7575	32.1544	0.1202	0.2534	0.4986
PUP 8 Bot Y Acc COR	ft/s^2	0.4798	4.2440	1.9791	0.4128	0.8710	0.5603
PUP 8 Bot X Acc COR	ft/s^2	32.5892	33.3465	32.9719	0.0850	0.2191	0.4822

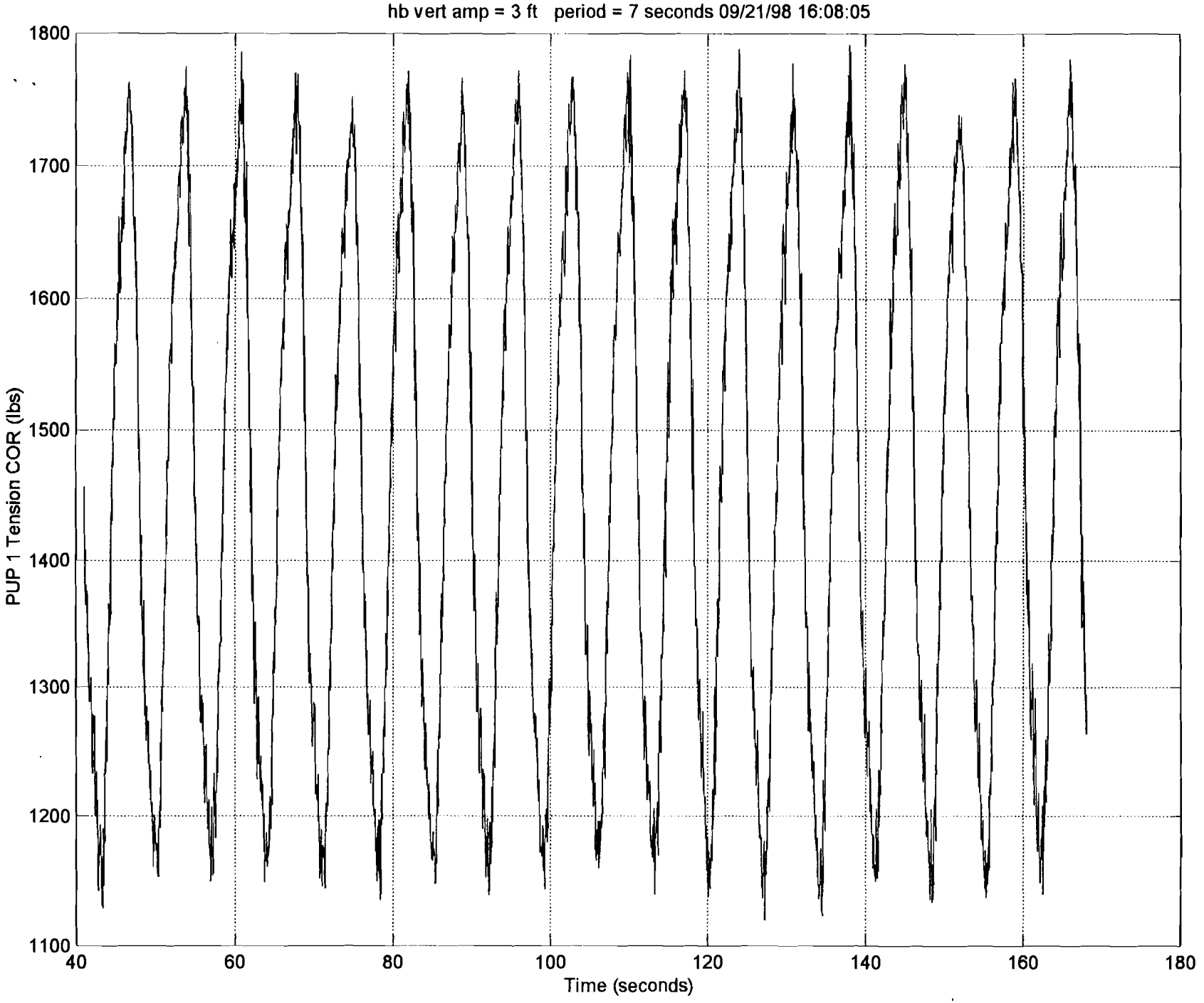
hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05

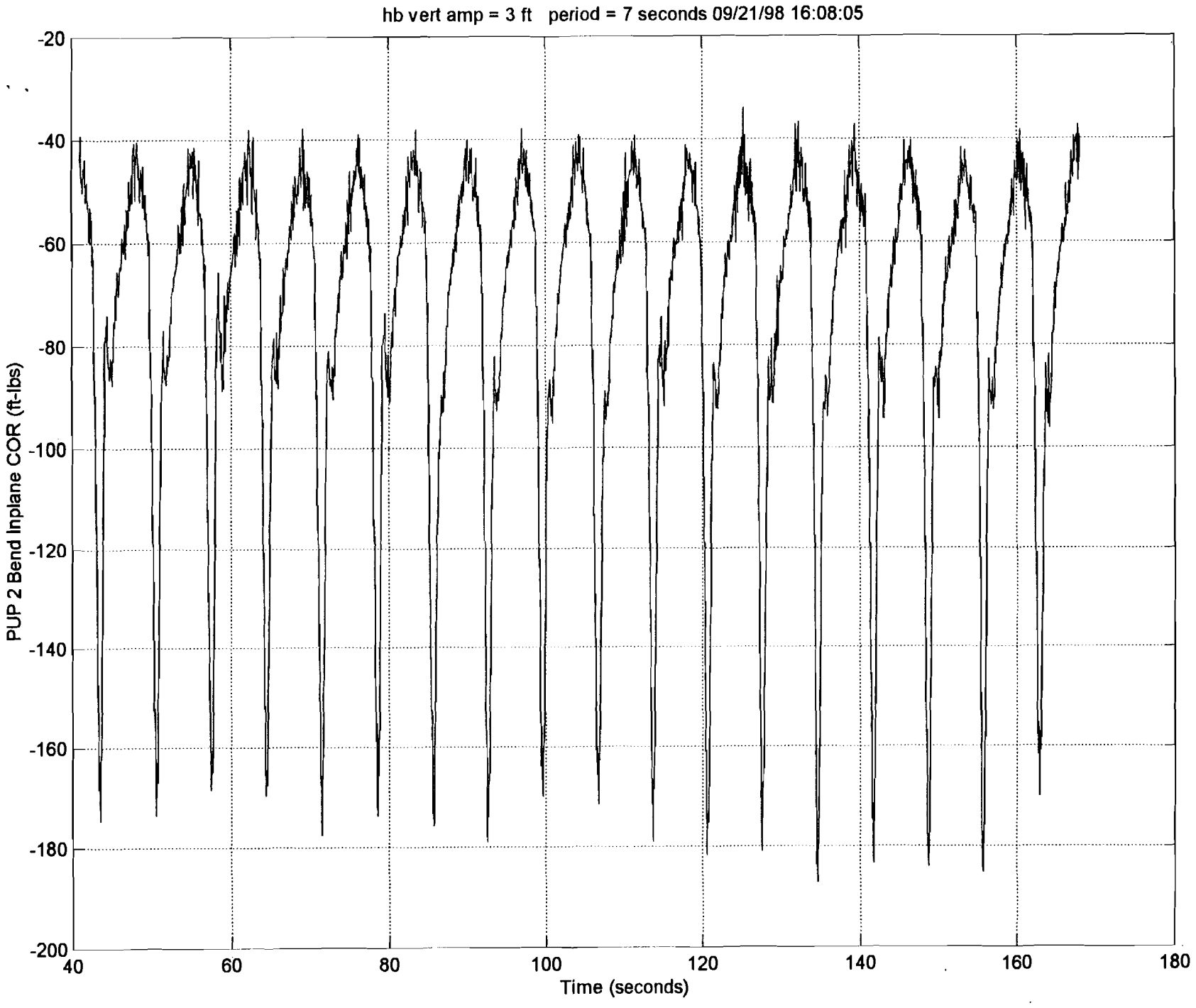
Channel Name	Units	Minimum	Maximum	Mean	Std Dev	Sig Amp	Period
Displacement	ft	-2.9934	2.9934	0.0006	2.1171	2.9934	7.0544
Pup 1 X Acc NOG	ft/s2	12.6345	31.9048	22.3366	2.4633	5.0205	0.7872
Pup 1 Y Acc NOG	ft/s2	-127.6254	-104.2237	-116.6208	2.7888	6.2735	0.5263
Pup 1 X Position	ft	-5.4742	5.0553	0.0009	2.2832	3.5213	6.9824
Pup 1 Y Position	ft	-0.3127	0.2798	0.0000	0.1236	0.2373	5.1109
Pup 2 X Acc NOG	ft/s2	26.2735	52.4662	36.7490	3.0840	6.1994	0.5112
Pup 2 Y Acc NOG	ft/s2	-32.2223	26.7142	-2.0428	8.1292	17.1311	0.3910
Pup 2 X Position	ft	-5.5106	4.9830	0.0001	1.9804	3.8587	7.9833
Pup 2 Y Position	ft	-0.5537	0.6264	-0.0001	0.2166	0.4167	4.6769
Pup 3 X Acc NOG	ft/s2	37.0550	54.8481	45.0541	1.9190	4.9401	0.7713
Pup 3 Y Acc NOG	ft/s2	-43.9661	9.2584	-15.6045	5.4358	14.1172	0.4340
Pup 3 X Position	ft	-3.1393	3.2060	0.0002	1.4304	2.7484	8.8231
Pup 3 Y Position	ft	-0.6833	0.7324	0.0000	0.3002	0.5093	5.6571
Pup 4 X Acc NOG	ft/s2	28.4912	47.4766	36.6708	1.6315	5.2731	0.7729
Pup 4 Y Acc NOG	ft/s2	-24.8788	28.7441	1.9356	5.6663	14.2959	0.4020
Pup 4 X Position	ft	-3.4965	2.6919	-0.0007	1.2712	2.1575	10.5932
Pup 4 Y Position	ft	-0.6695	0.6317	-0.0001	0.2385	0.3941	4.3852
Pup 5 X Acc NOG	ft/s2	32.0794	40.4351	36.1477	0.8126	2.0528	0.5311
Pup 5 Y Acc NOG	ft/s2	-21.3097	20.6850	-1.3927	3.5698	9.0645	0.3934
Pup 5 X Position	ft	-1.8553	1.8812	0.0002	0.8434	1.5740	11.7150
Pup 5 Y Position	ft	-0.9309	0.6357	0.0000	0.2944	0.5318	7.0265
Pup 6 X Acc NOG	ft/s2	34.4411	37.3011	36.0763	0.3254	0.5029	1.1839
Pup 6 Y Acc NOG	ft/s2	-10.8973	3.0175	-1.5238	1.1206	2.6243	0.4058
Pup 6 X Position	ft	-1.5329	1.4755	0.0001	0.7890	1.3558	10.5750
Pup 6 Y Position	ft	-0.4503	0.5547	0.0000	0.2566	0.4203	7.0485
Pup 7 X Acc NOG	ft/s2	34.3548	36.1356	35.2838	0.2668	0.3351	0.8574
Pup 7 Y Acc NOG	ft/s2	-4.5692	7.0623	1.3126	0.9999	2.2933	0.3907
Pup 7 X Position	ft	-1.2201	1.2147	0.0000	0.5311	1.1030	10.5295
Pup 7 Y Position	ft	-0.5442	0.4712	0.0000	0.2776	0.4429	7.0397
Pup 8 X Acc NOG	ft/s2	34.1347	36.0191	34.9619	0.2690	0.3369	1.4937
Pup 8 Y Acc NOG	ft/s2	-0.3999	3.2227	1.0875	0.4077	0.8536	0.5755
Pup 8 X Position	ft	-1.5665	1.3102	-0.0002	0.5251	0.9695	10.6750
Pup 8 Y Position	ft	-0.5046	0.4124	0.0000	0.2483	0.3825	7.0397

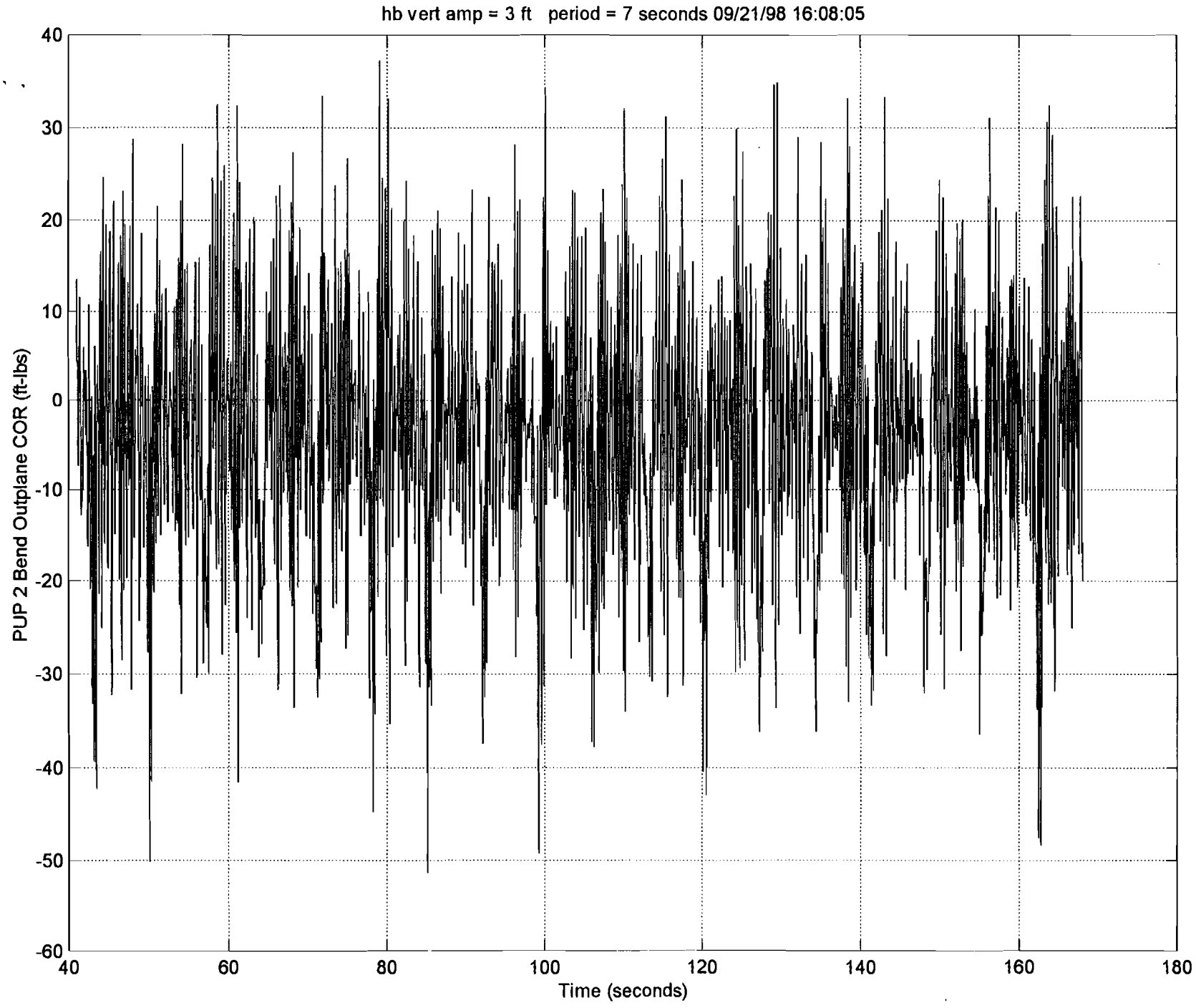

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
Actuator Load (lbs)
1700
1600
1500
1400
1300
1200
1100
1000
900
40
60
80
100
120
140
160
180
Time (seconds)

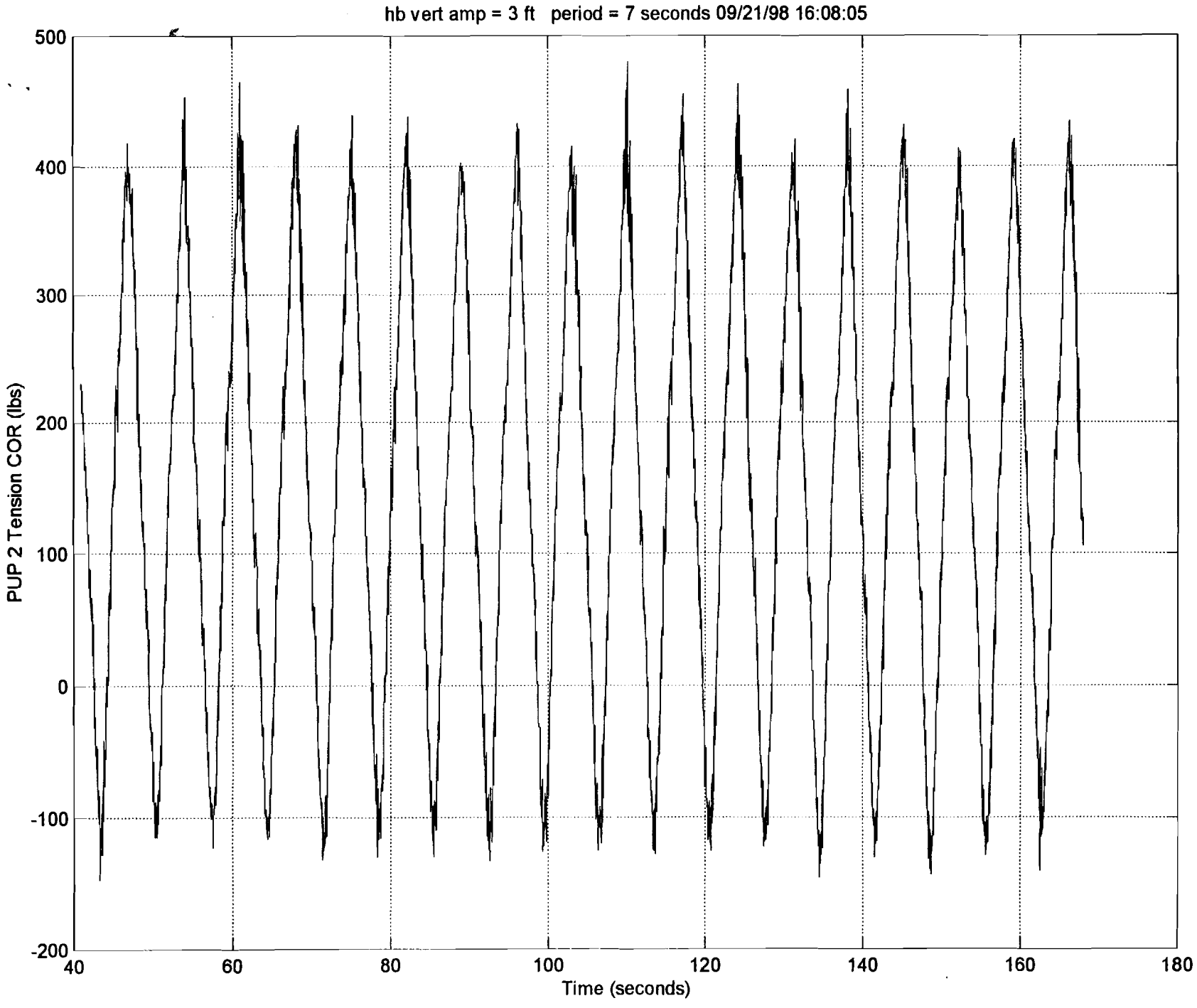

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 1 Bend Inplane COR (ft-lbs)
-14
-15
-16
-17
-18
-19
-20
-21
-22
-23
40
60
80
100
120
140
160
180
Time (seconds)

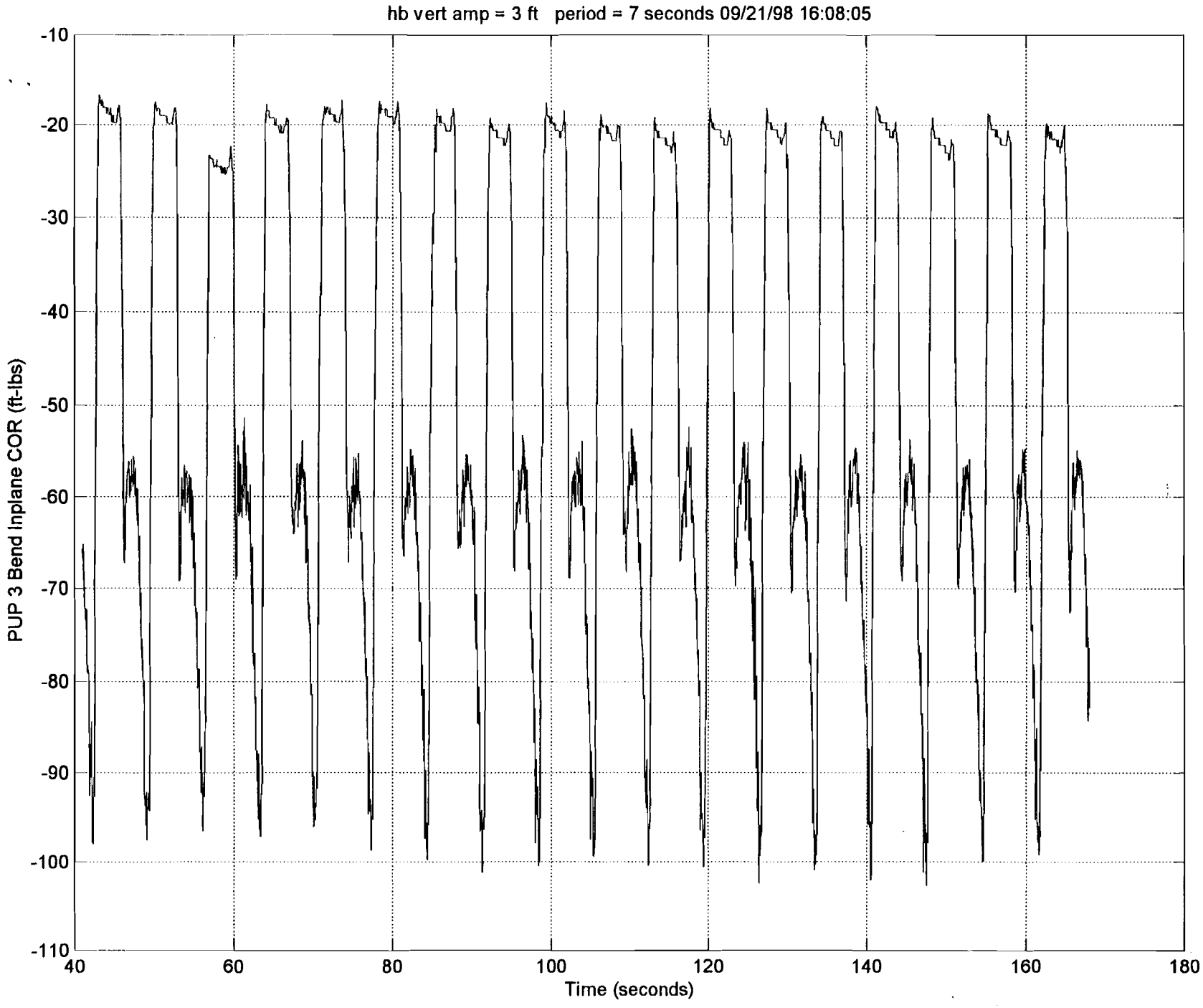

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 1 Bend Outplane COR (ft-lbs)
Time (seconds)
6
4
2
0
-2
-4
-6
-8
-10
40
60
80
100
120
140
160
180

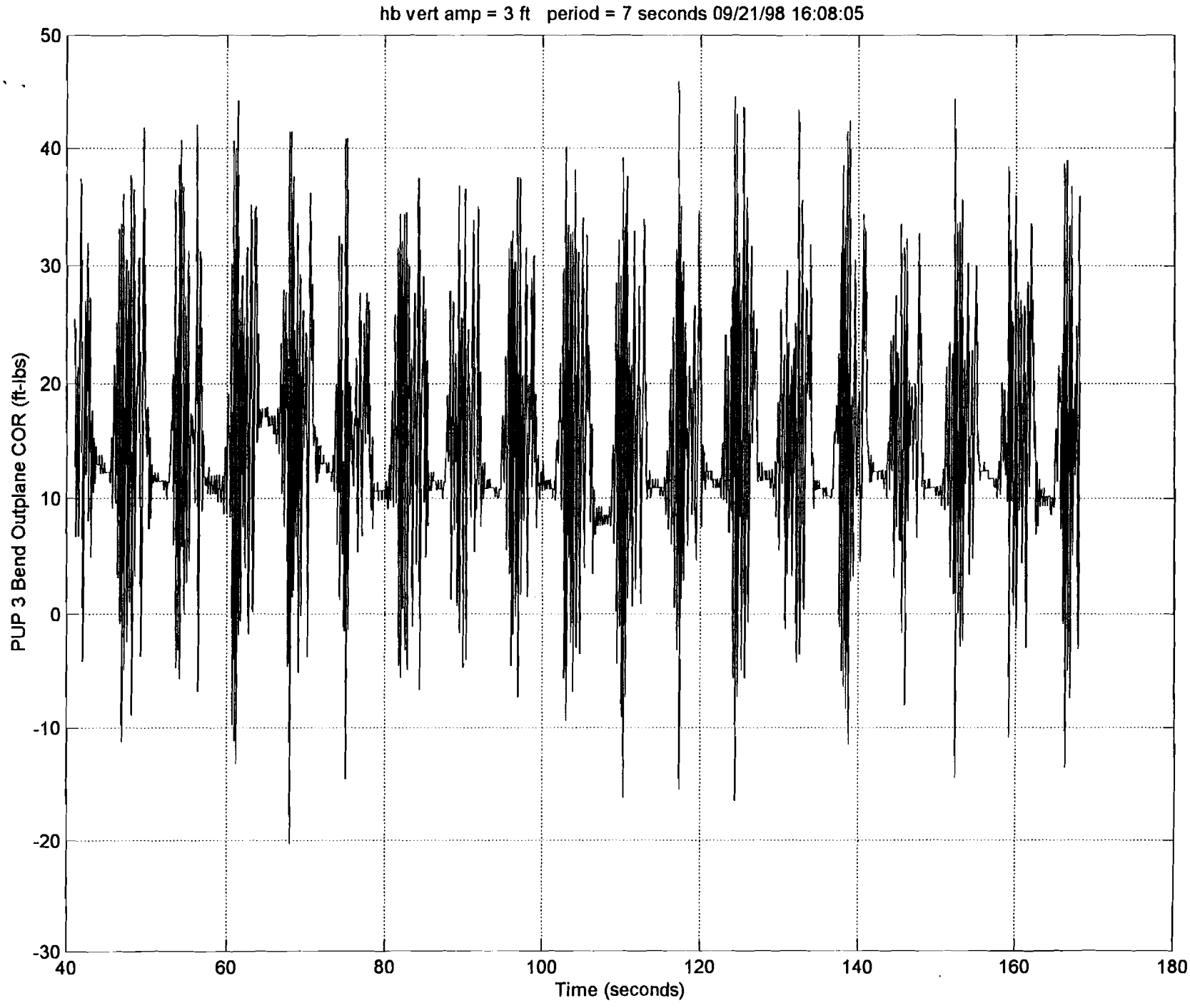

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 1 Tension COR (lbs)
1800
1700
1600
1500
1400
1300
1200
1100
40
60
80
100
120
140
160
180
Time (seconds)

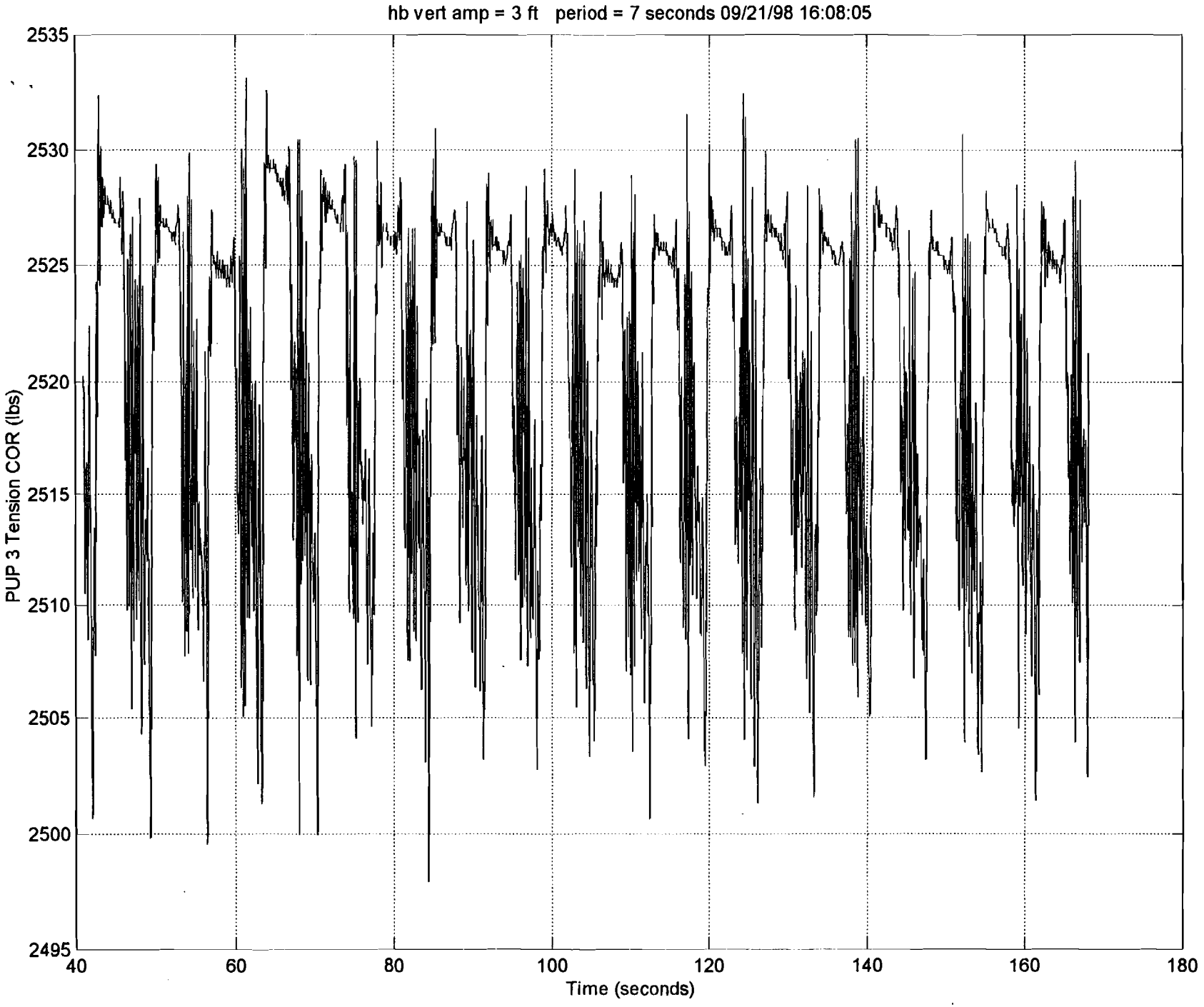

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 2 Bend Inplane COR (ft-lbs)
-20
-40
-60
-80
-100
-120
-140
-160
-180
-200
40
60
80
100
120
140
160
180
Time (seconds)

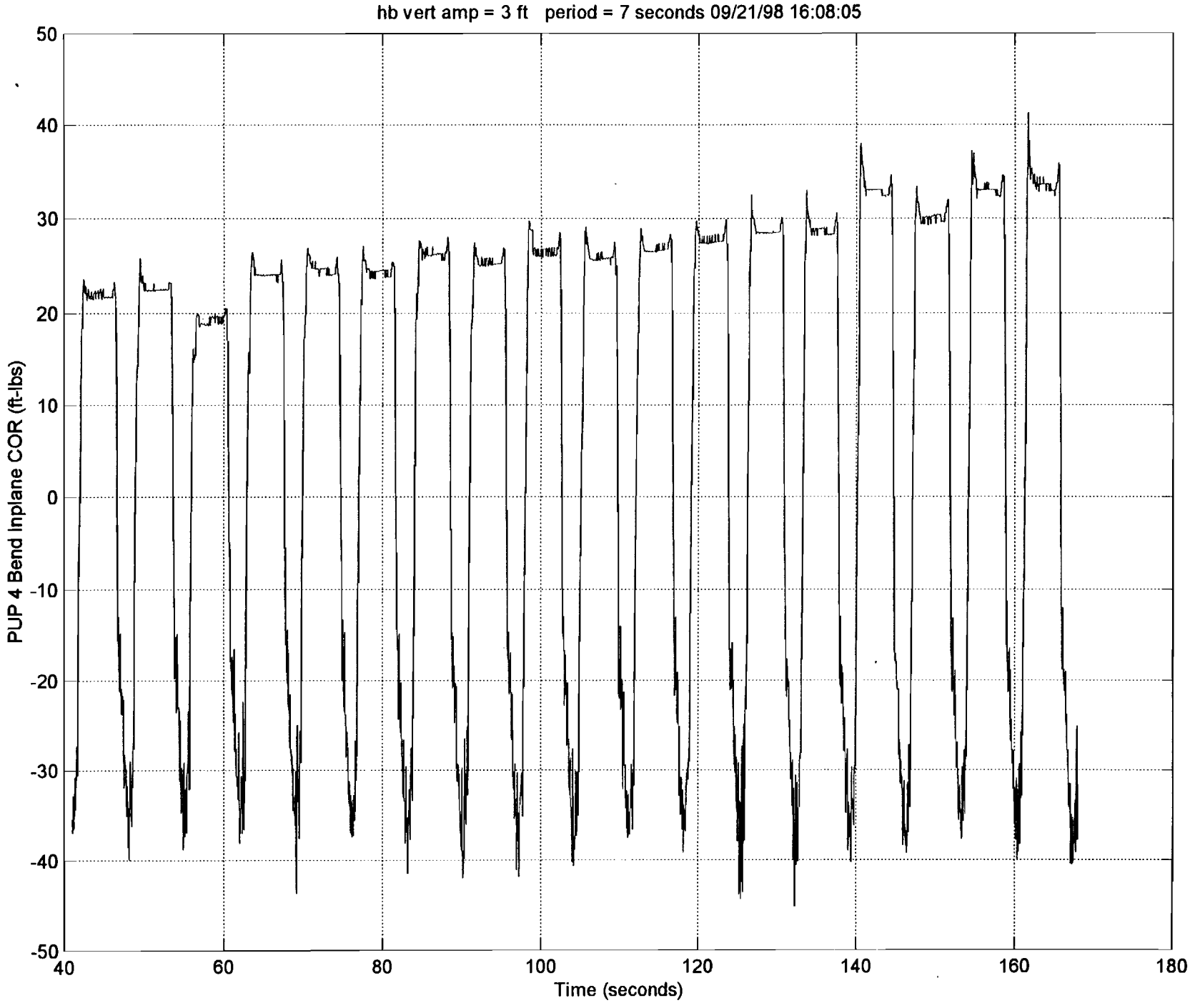

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 2 Bend Outplane COR (ft-lbs)
Time (seconds)
40
30
20
10
0
-10
-20
-30
-40
-50
-60
40
60
80
100
120
140
160
180

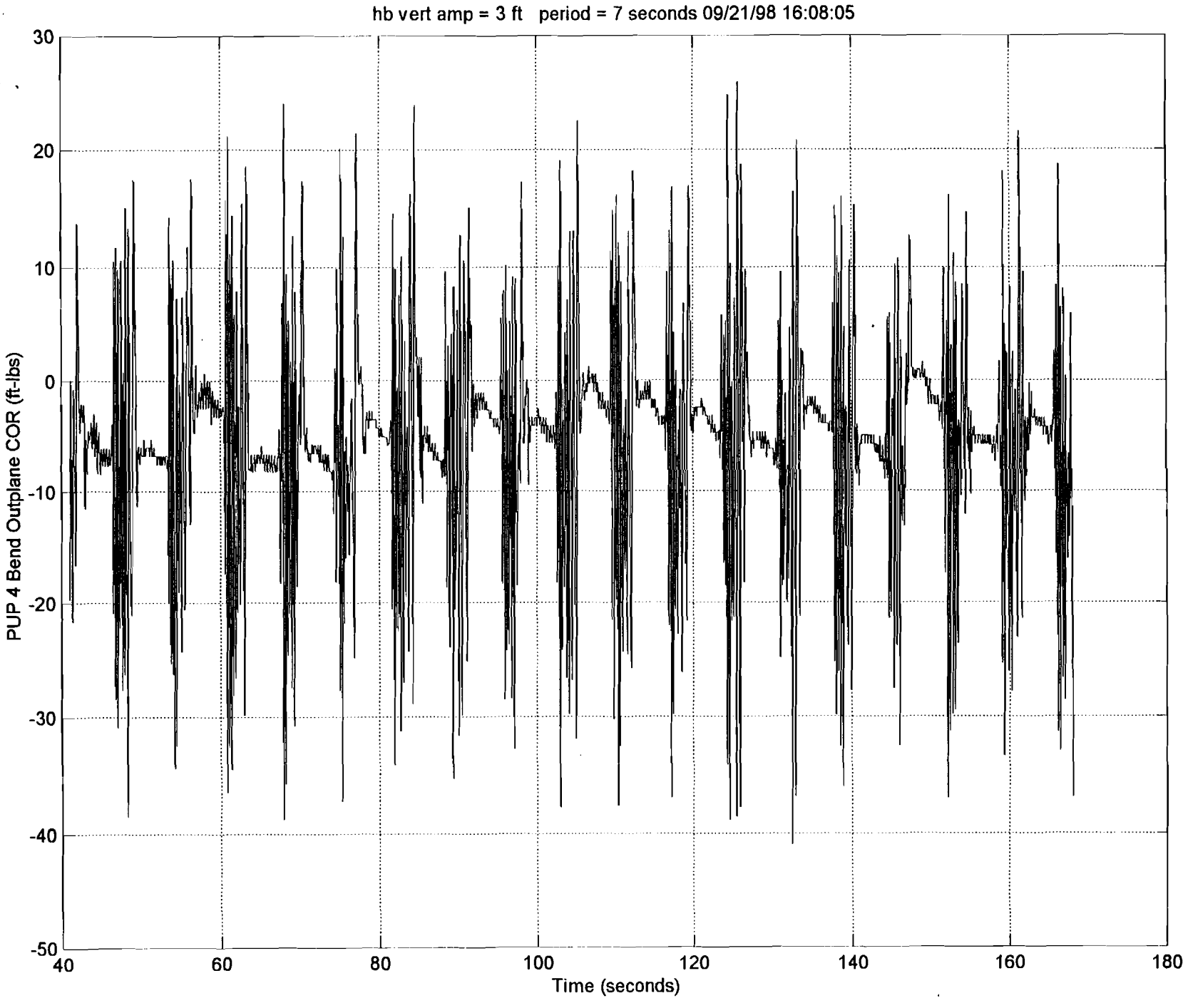

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 2 Tension COR (lbs)
500
400
300
200
100
0
-100
-200
40
60
80
100
120
140
160
180
Time (seconds)

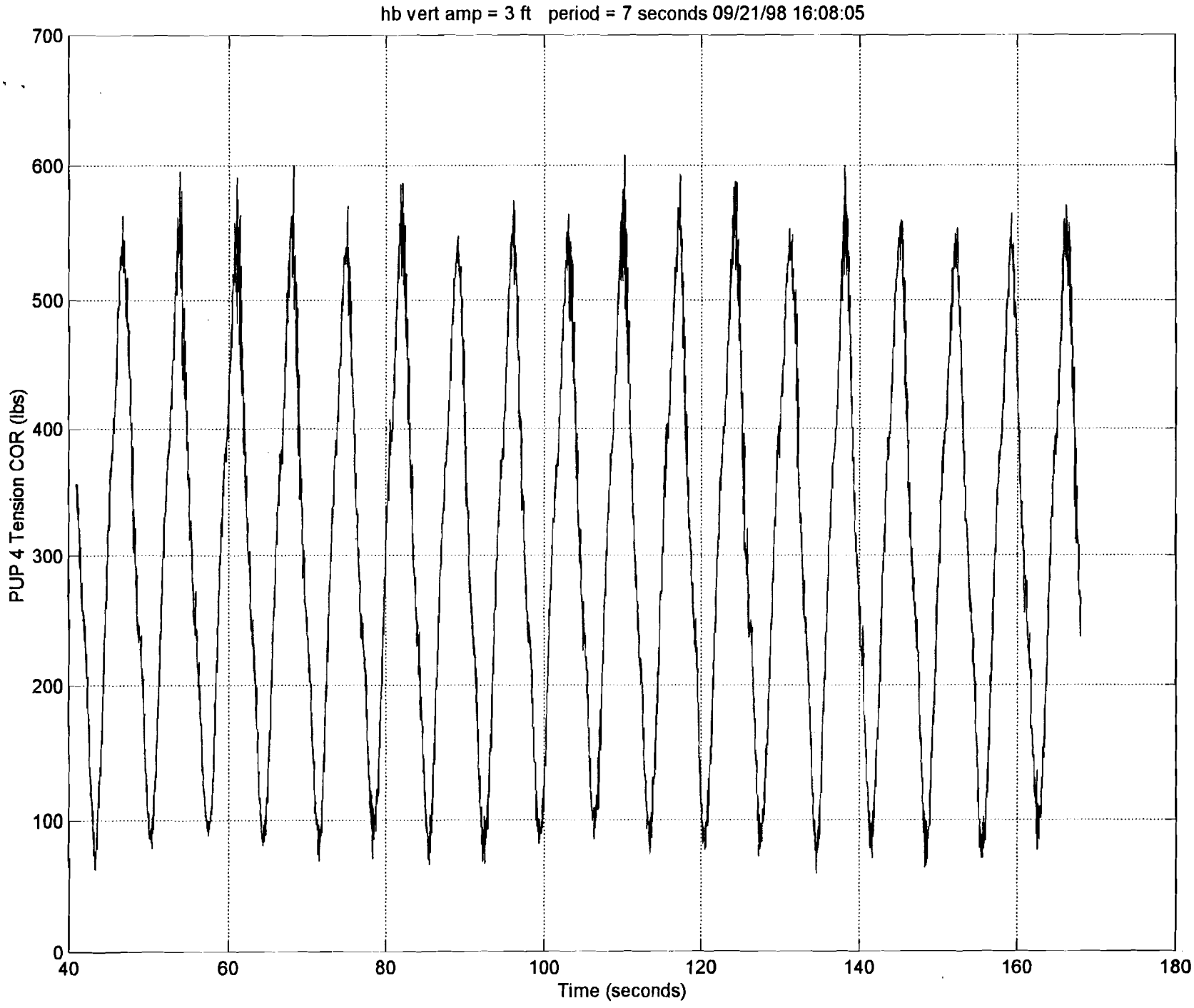

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 3 Bend Inplane COR (ft-lbs)
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
40
60
80
100
120
140
160
180
Time (seconds)

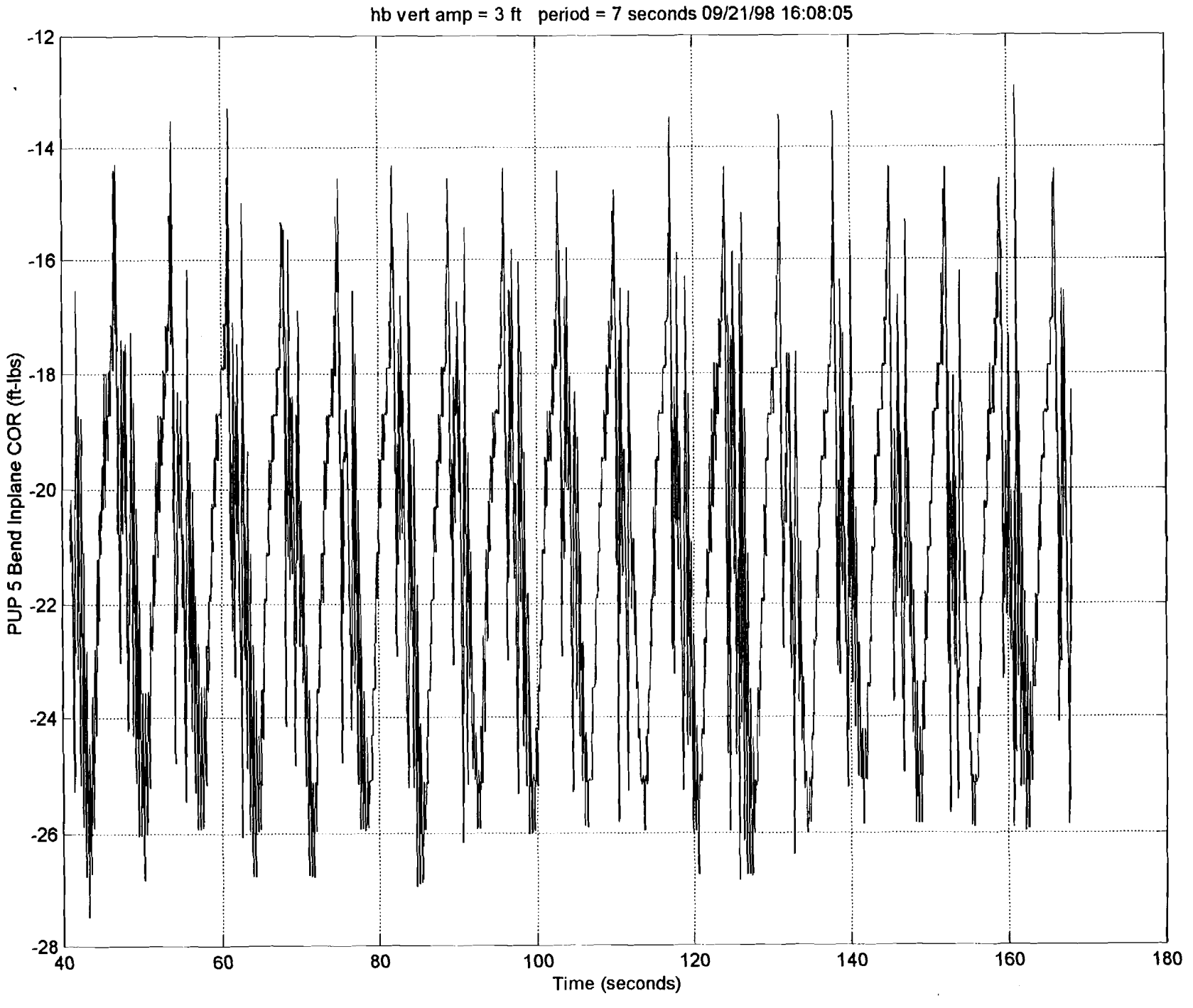

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 3 Bend Outplane COR (ft-lbs)
50
40
30
20
10
0
-10
-20
-30
40
60
80
100
120
140
160
180
Time (seconds)

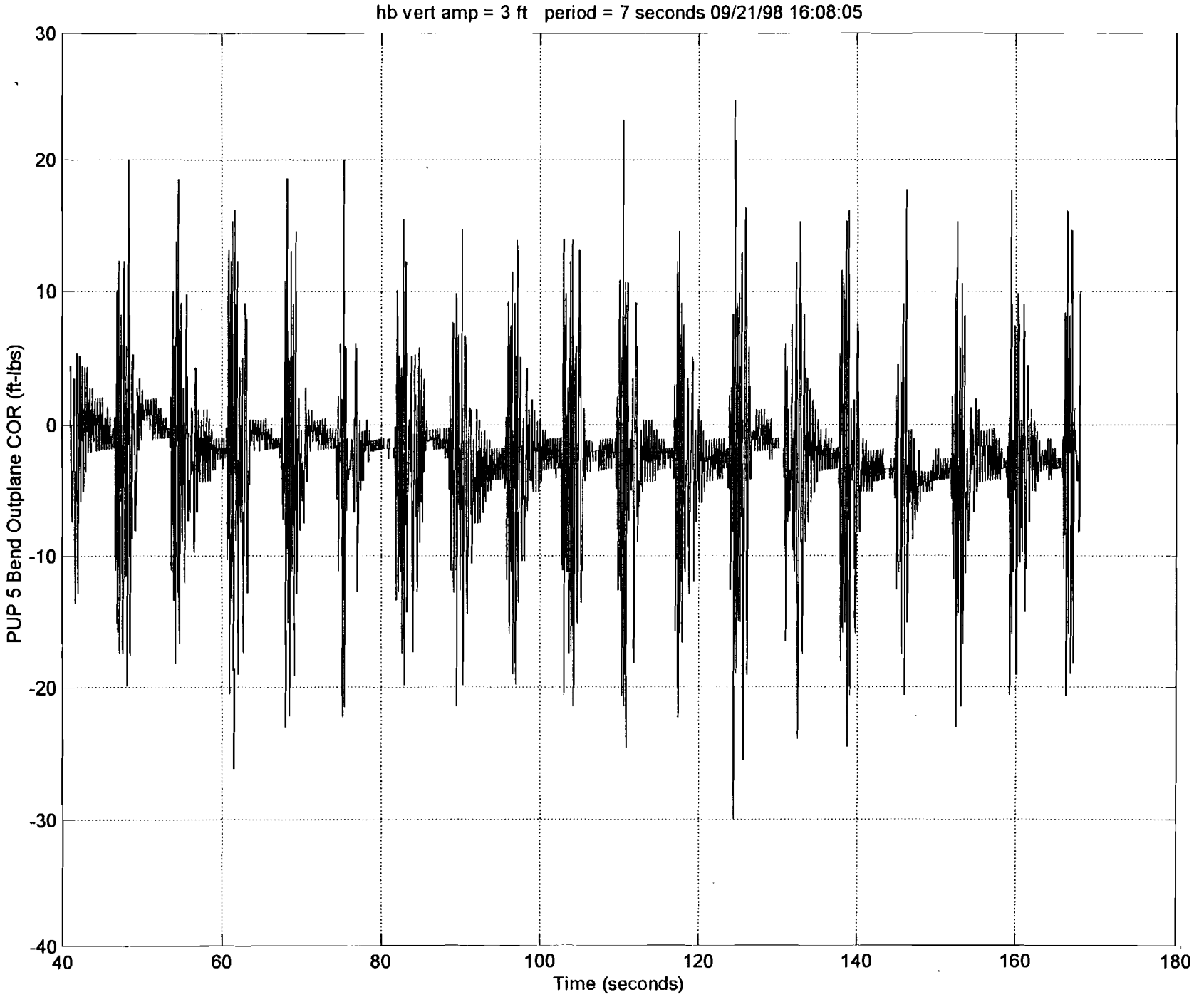

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 3 Tension COR (lbs)
2535
2530
2525
2520
2515
2510
2505
2500
2495
40
60
80
100
120
140
160
180
Time (seconds)

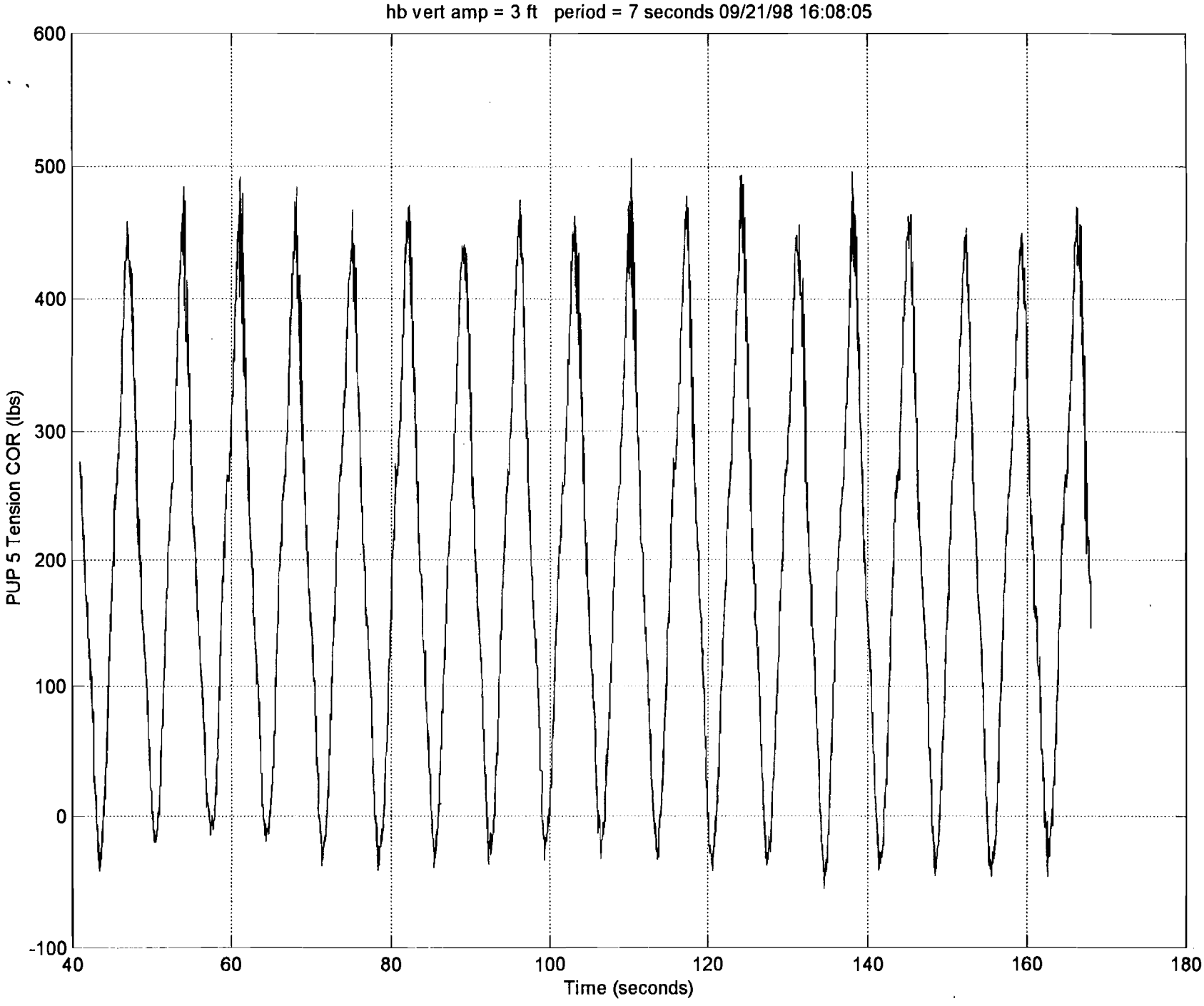

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 4 Bend Inplane COR (ft-lbs)
Time (seconds)
50
40
30
20
10
0
-10
-20
-30
-40
-50
40
60
80
100
120
140
160
180

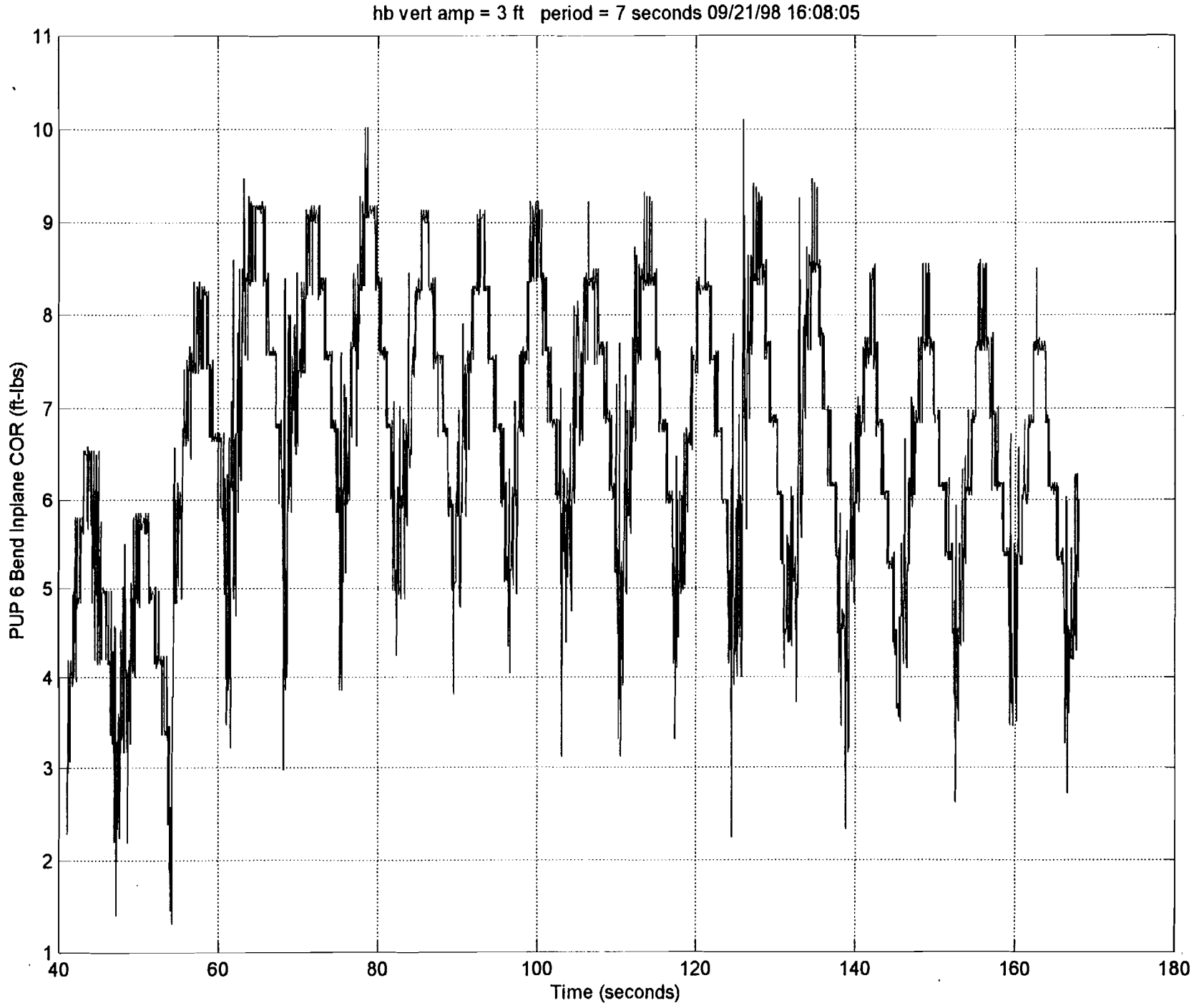

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 4 Bend Outplane COR (ft-lbs)
30
20
10
0
-10
-20
-30
-40
-50
40
60
80
100
120
140
160
180
Time (seconds)

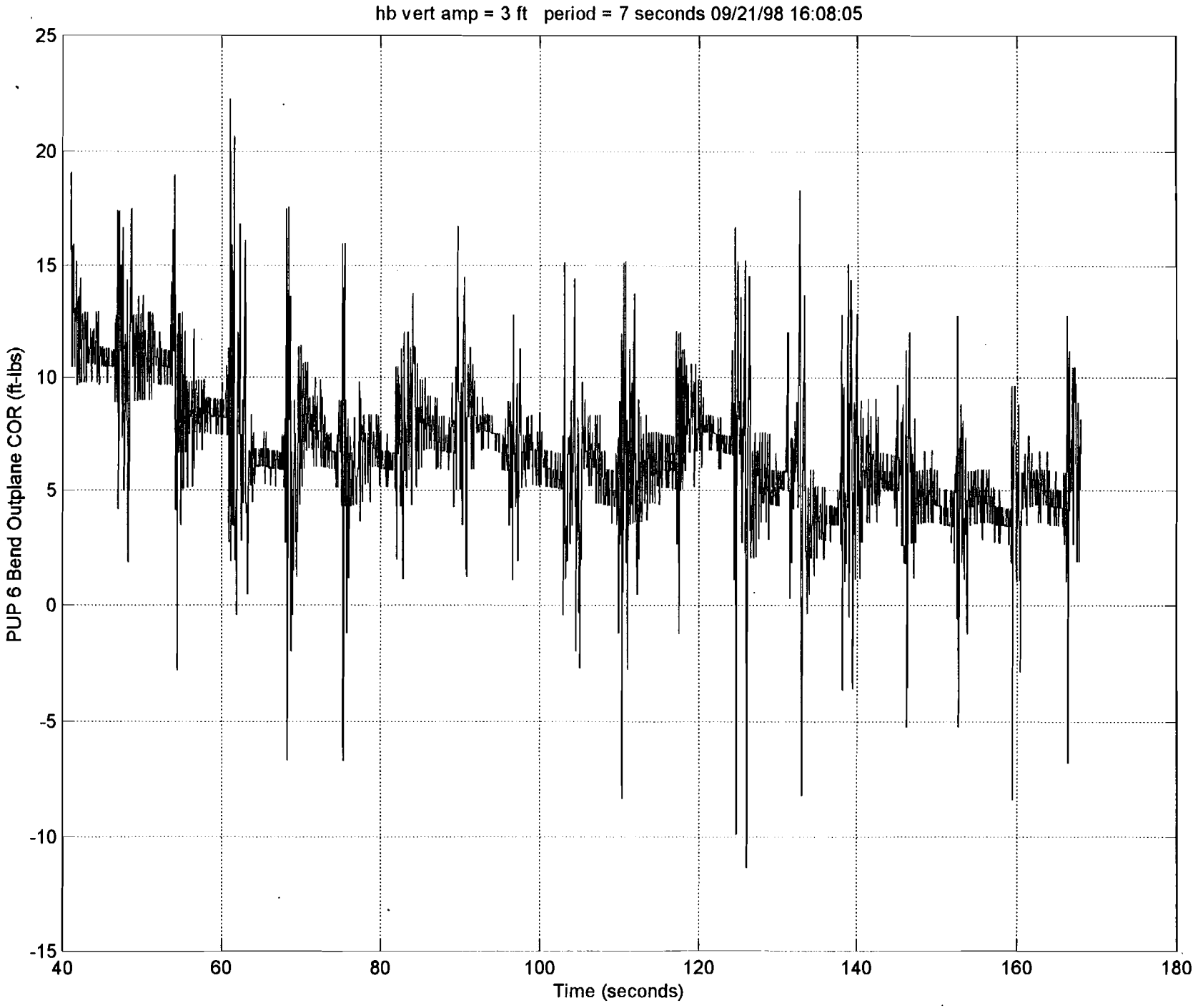

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 4 Tension COR (lbs)
Time (seconds)
0
100
200
300
400
500
600
700
40
60
80
100
120
140
160
180

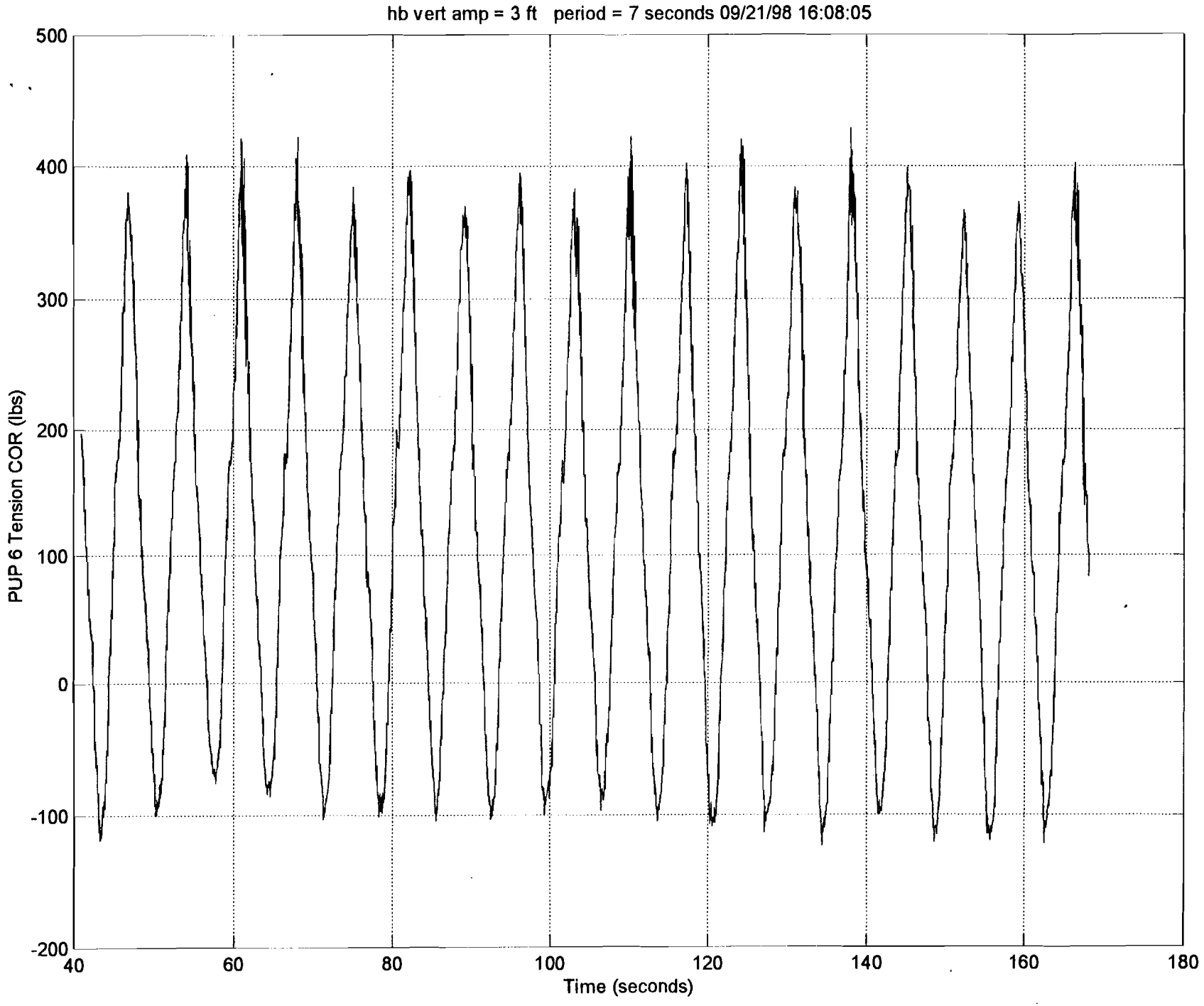

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 5 Bend Inplane COR (ft-lbs)
-12
-14
-16
-18
-20
-22
-24
-26
-28
40
60
80
100
120
140
160
180
Time (seconds)

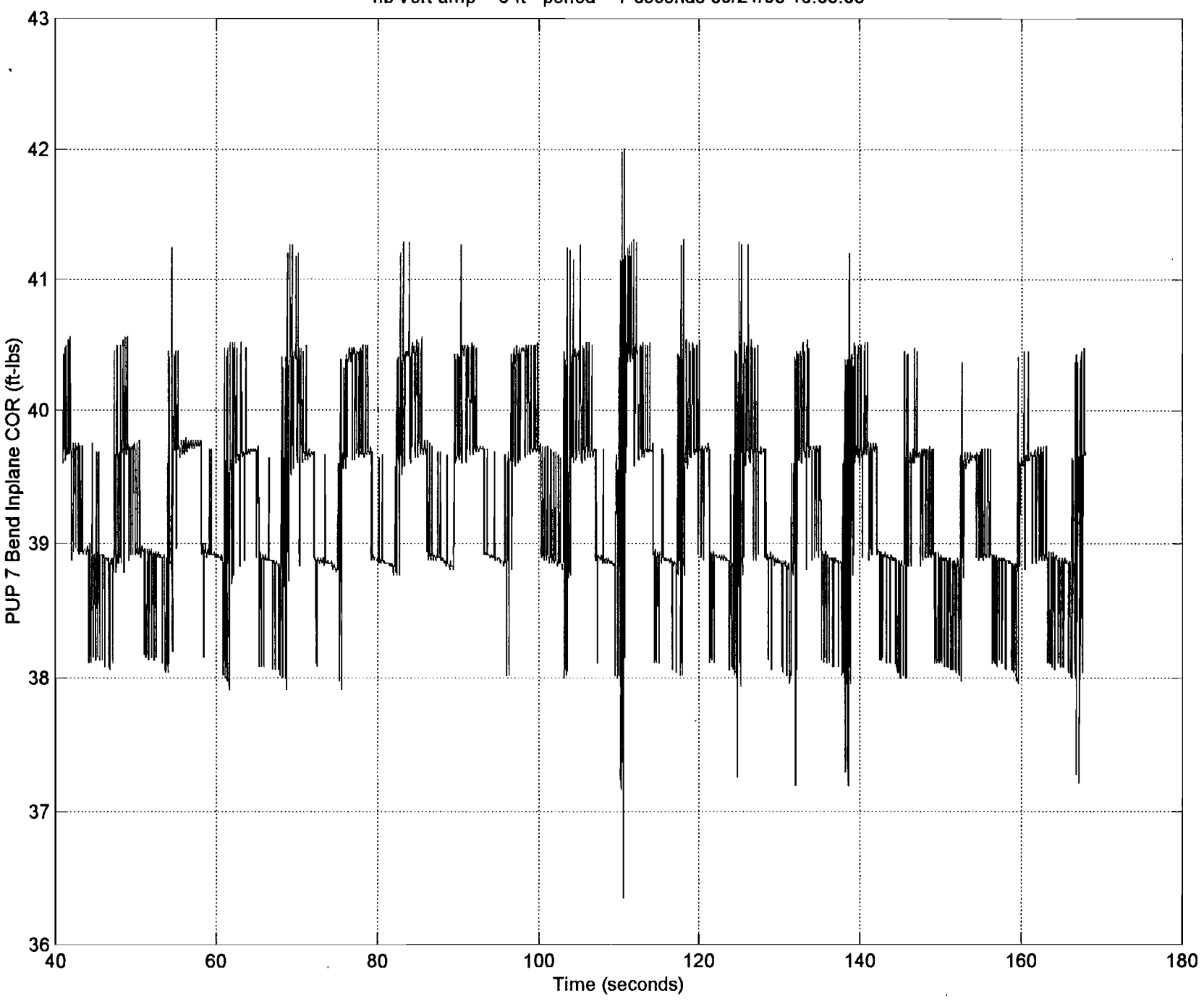

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 5 Bend Outplane COR (ft-lbs)
Time (seconds)
30
20
10
0
-10
-20
-30
-40
40
60
80
100
120
140
160
180

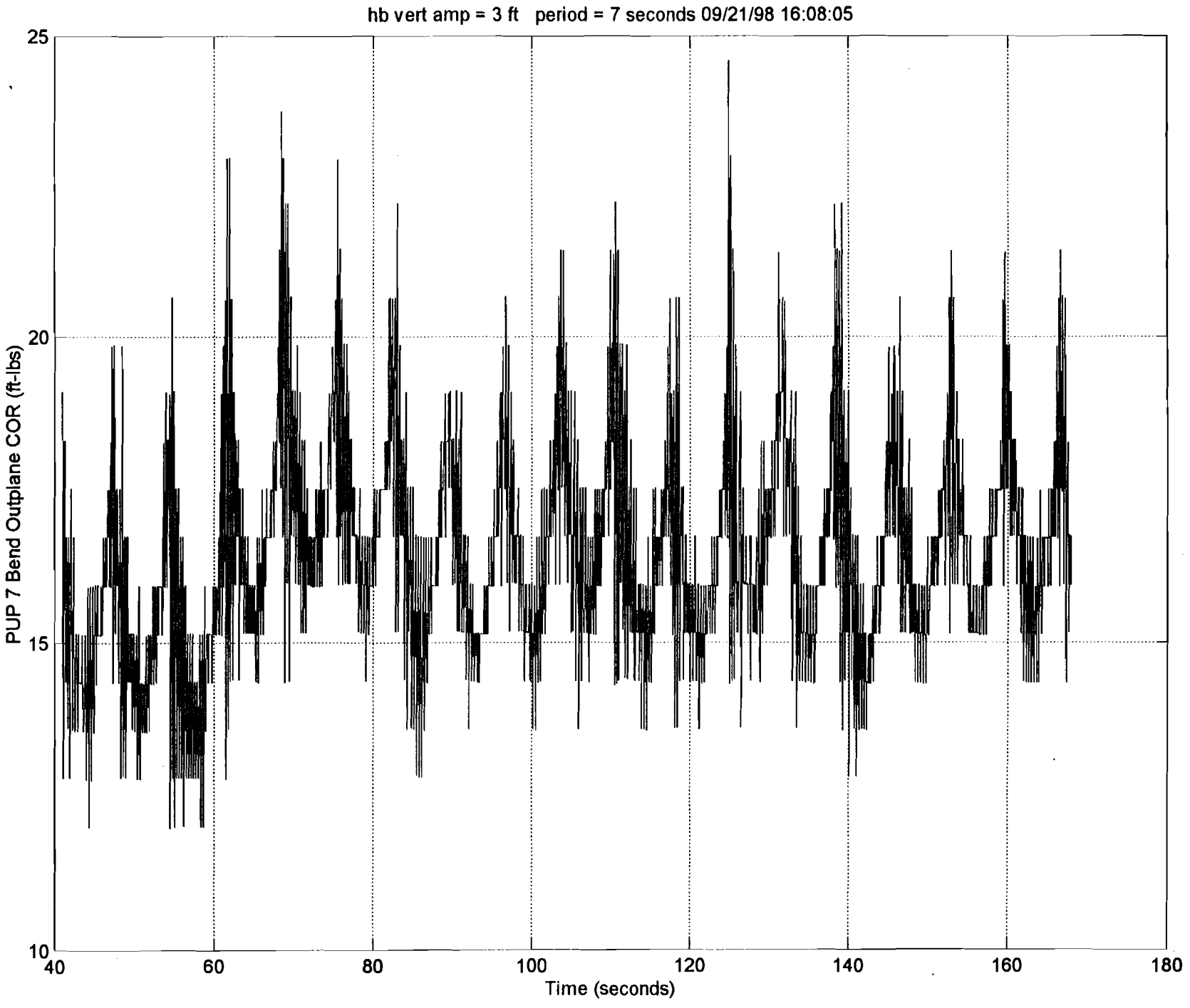

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 5 Tension COR (lbs)
600
500
400
300
200
100
0
-100
40
60
80
100
120
140
160
180
Time (seconds)

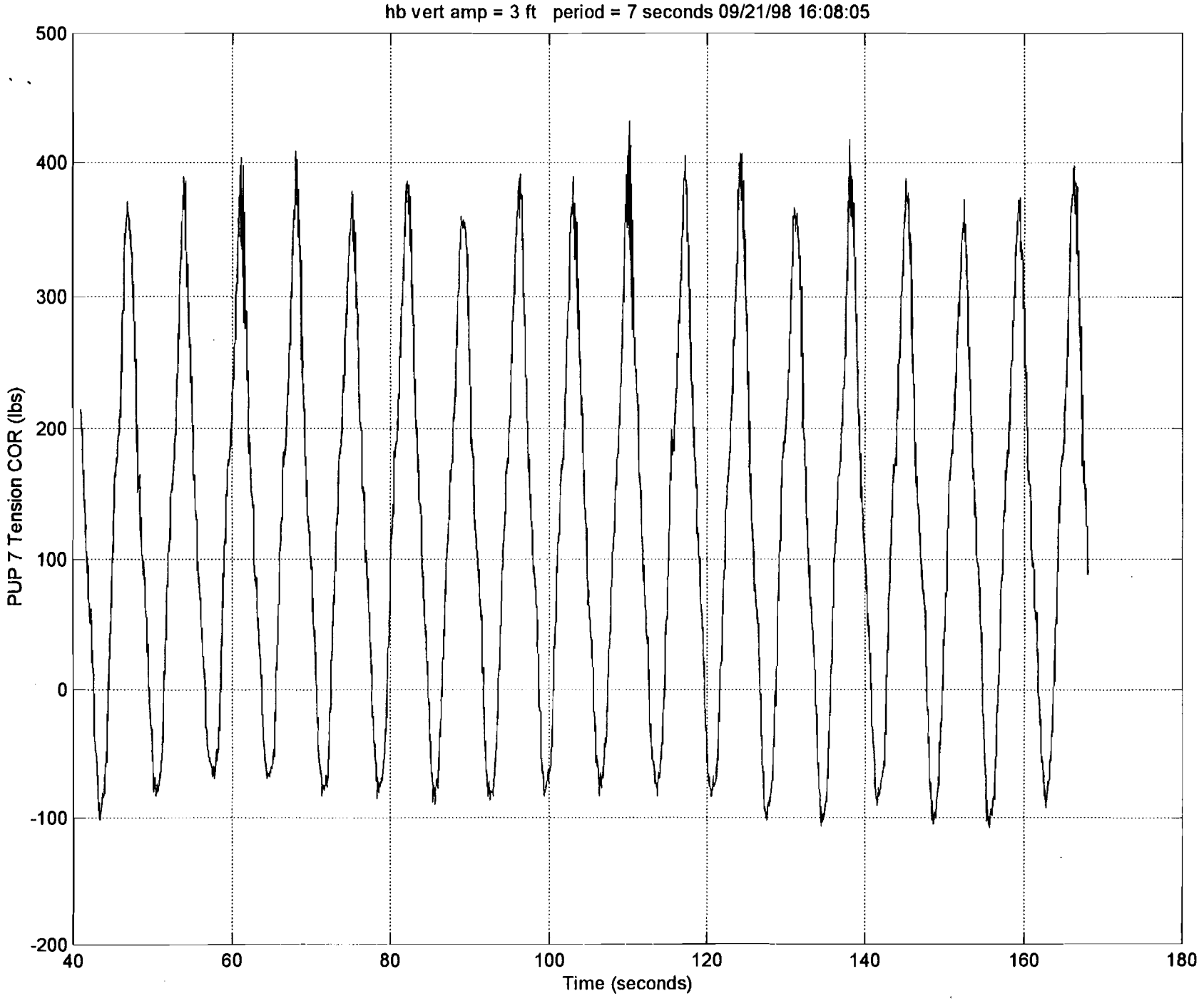

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 6 Bend Inplane COR (ft-lbs)
Time (seconds)
11
10
9
8
7
6
5
4
3
2
1
40
60
80
100
120
140
160
180

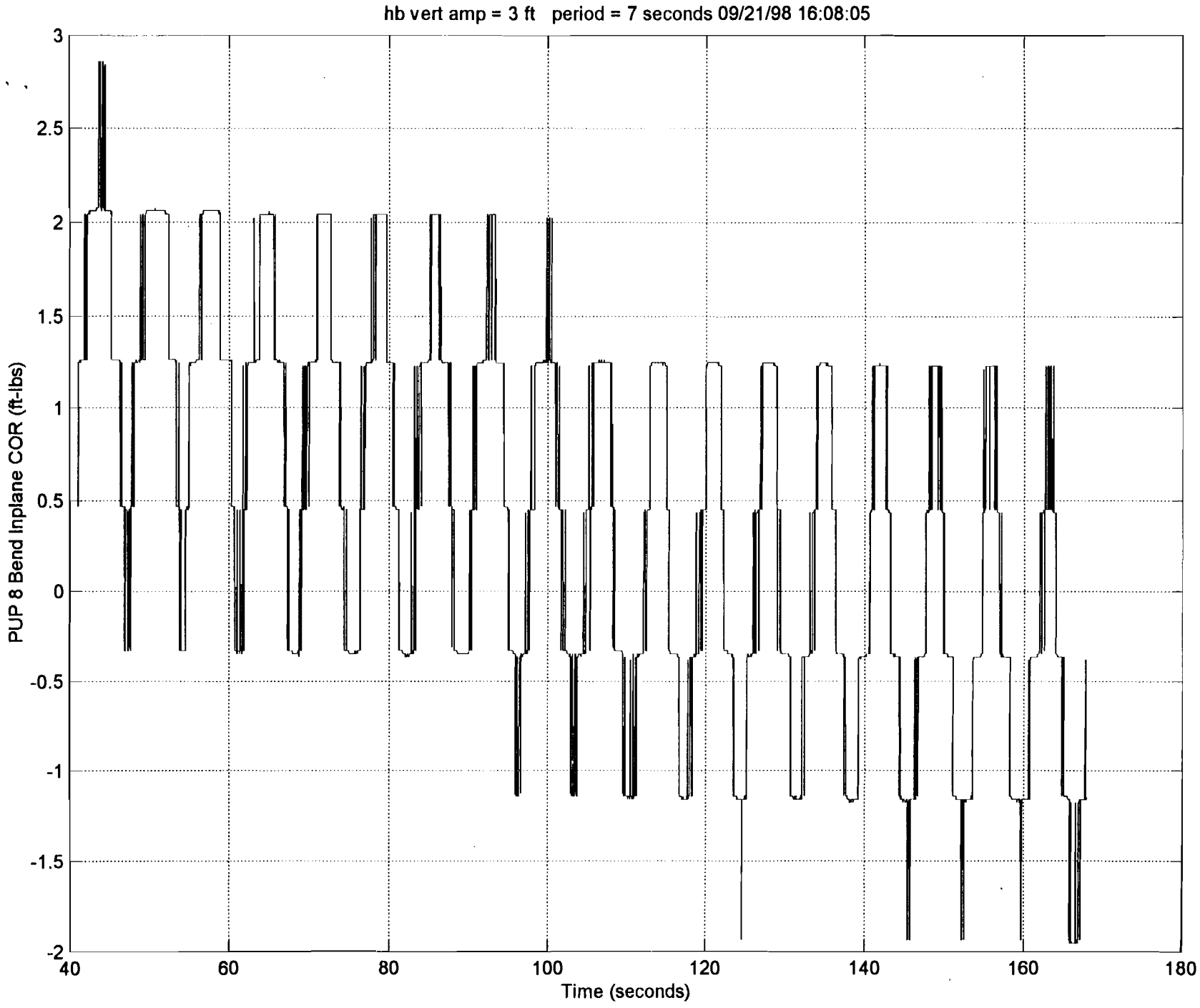

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 6 Bend Outplane COR (ft-lbs)
Time (seconds)
25
20
15
10
5
0
-5
-10
-15
40
60
80
100
120
140
160
180

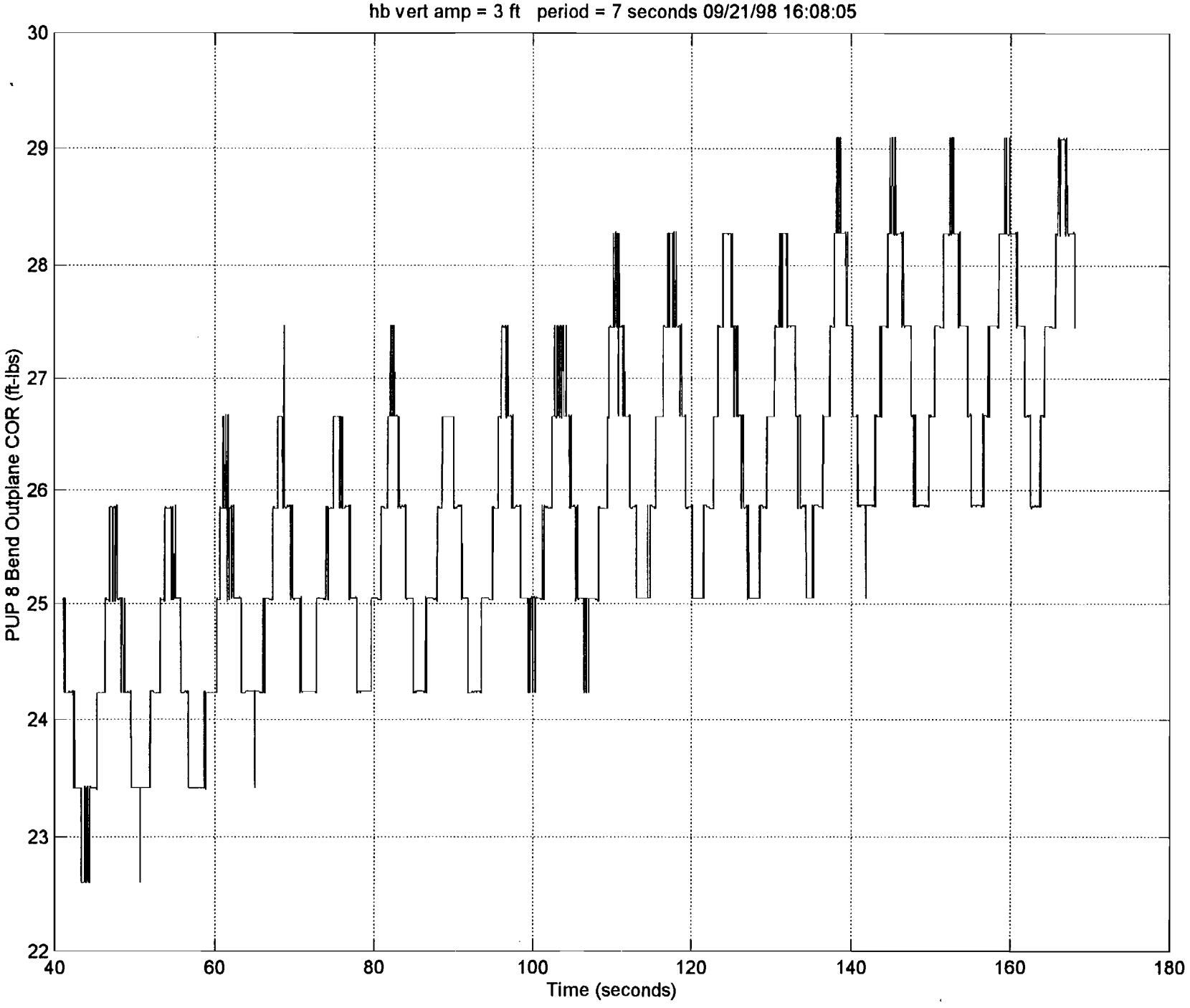

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 6 Tension COR (lbs)
500
400
300
200
100
0
-100
-200
40
60
80
100
120
140
160
180
Time (seconds)

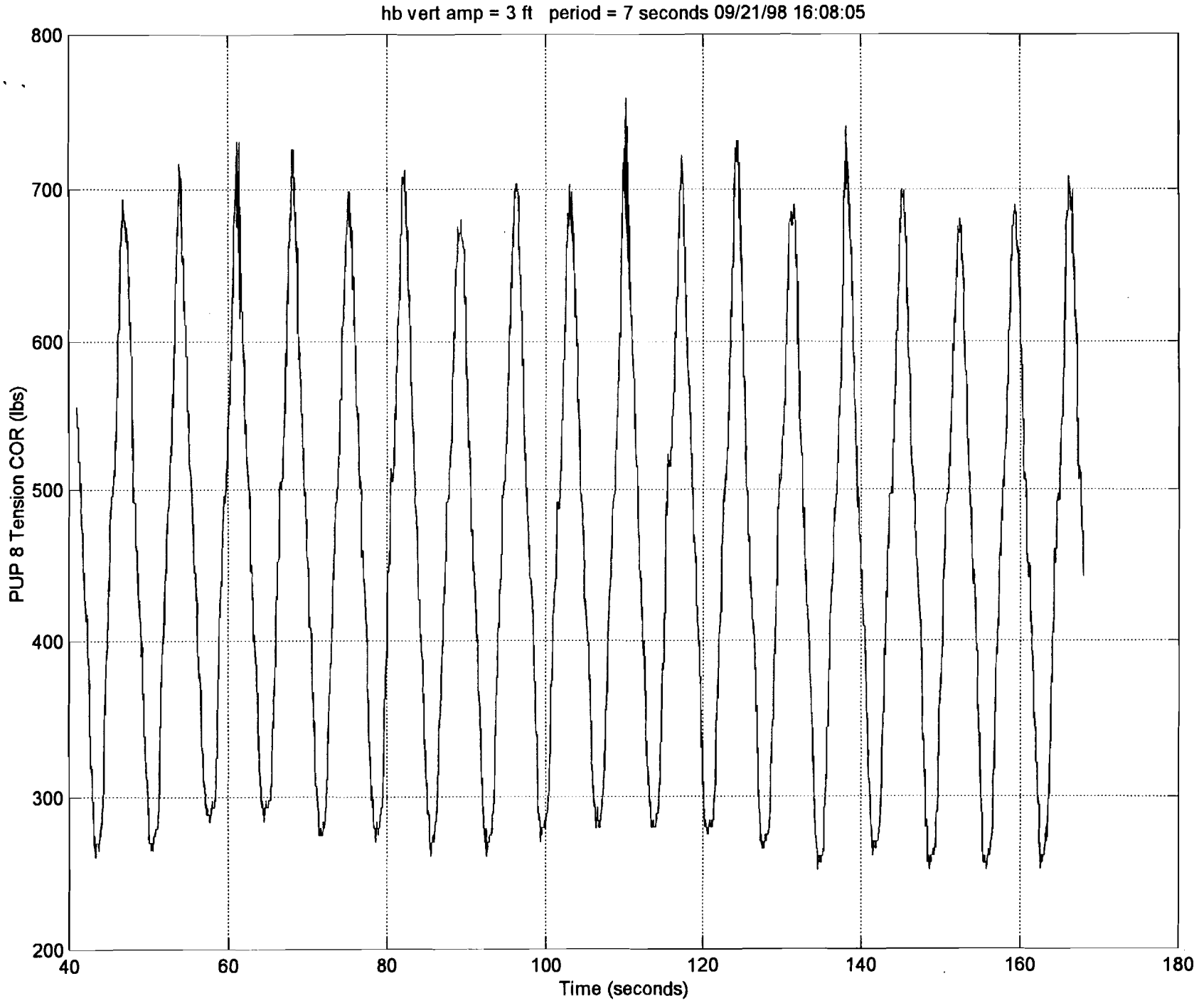

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 7 Bend Inplane COR (ft-lbs)
Time (seconds)
43
42
41
40
39
38
37
36
40
60
80
100
120
140
160
180

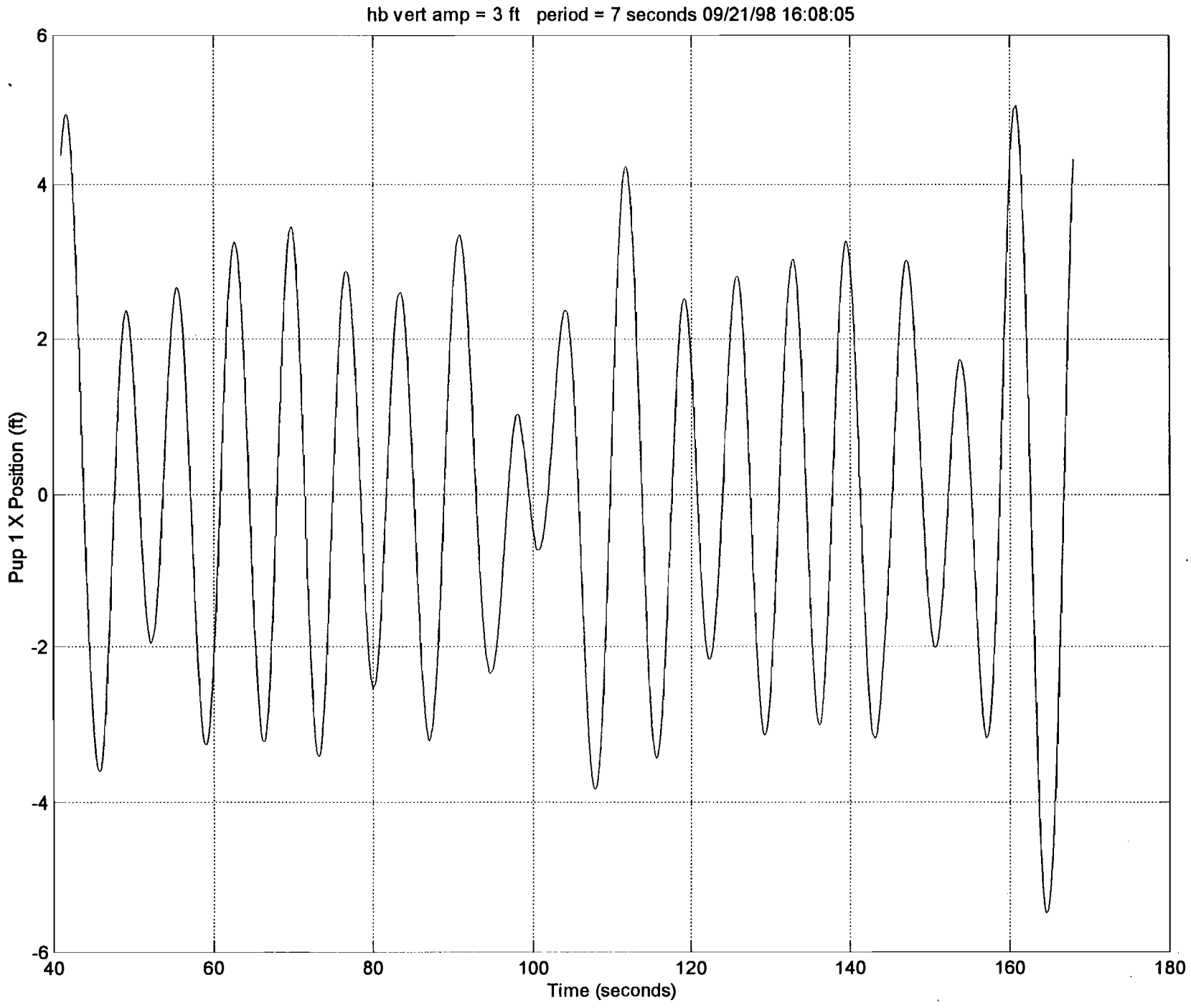

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 7 Bend Outplane COR (ft-lbs)
25
20
15
10
40
60
80
100
120
140
160
180
Time (seconds)

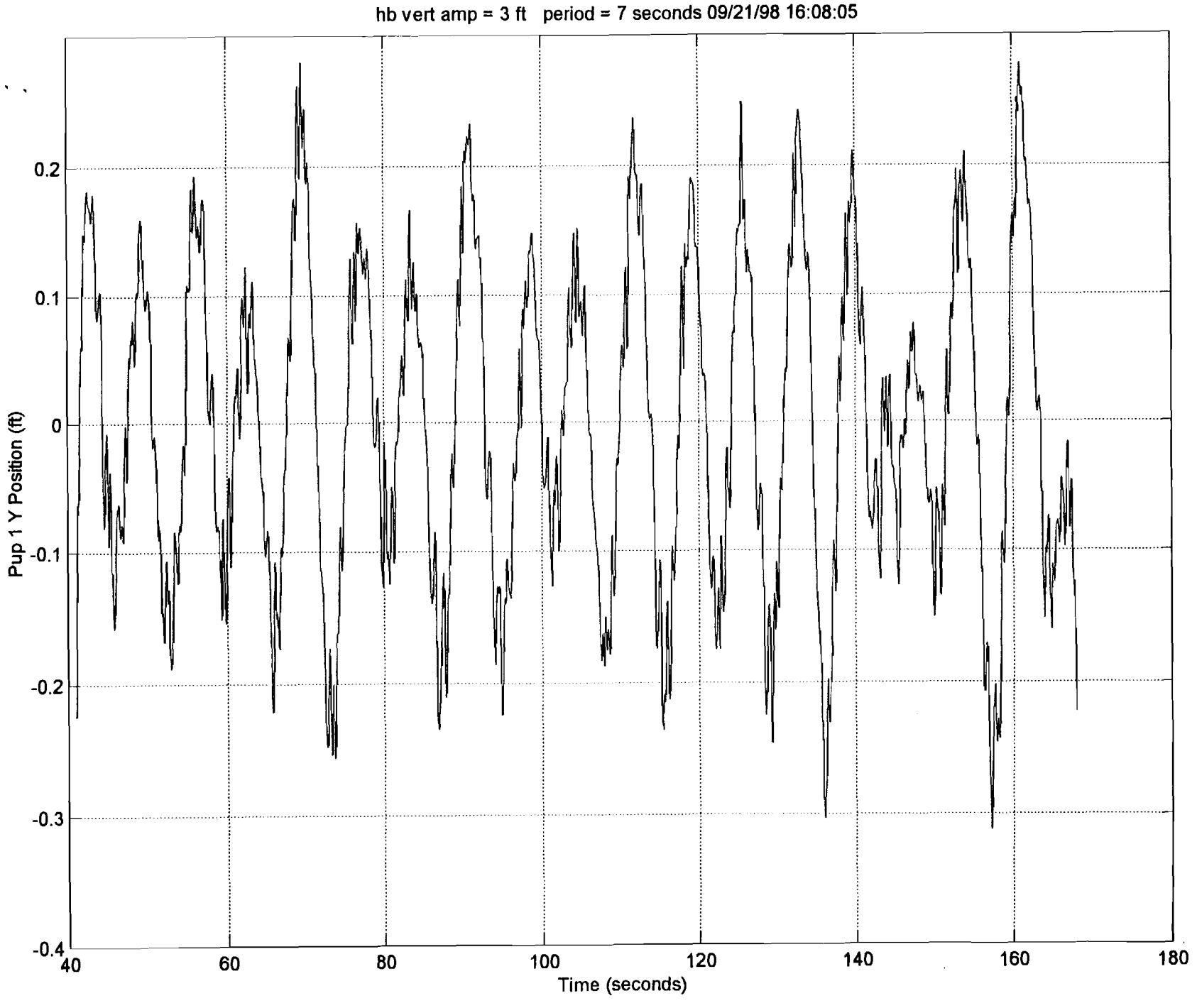

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 7 Tension COR (lbs)
500
400
300
200
100
0
-100
-200
40
60
80
100
120
140
160
180
Time (seconds)

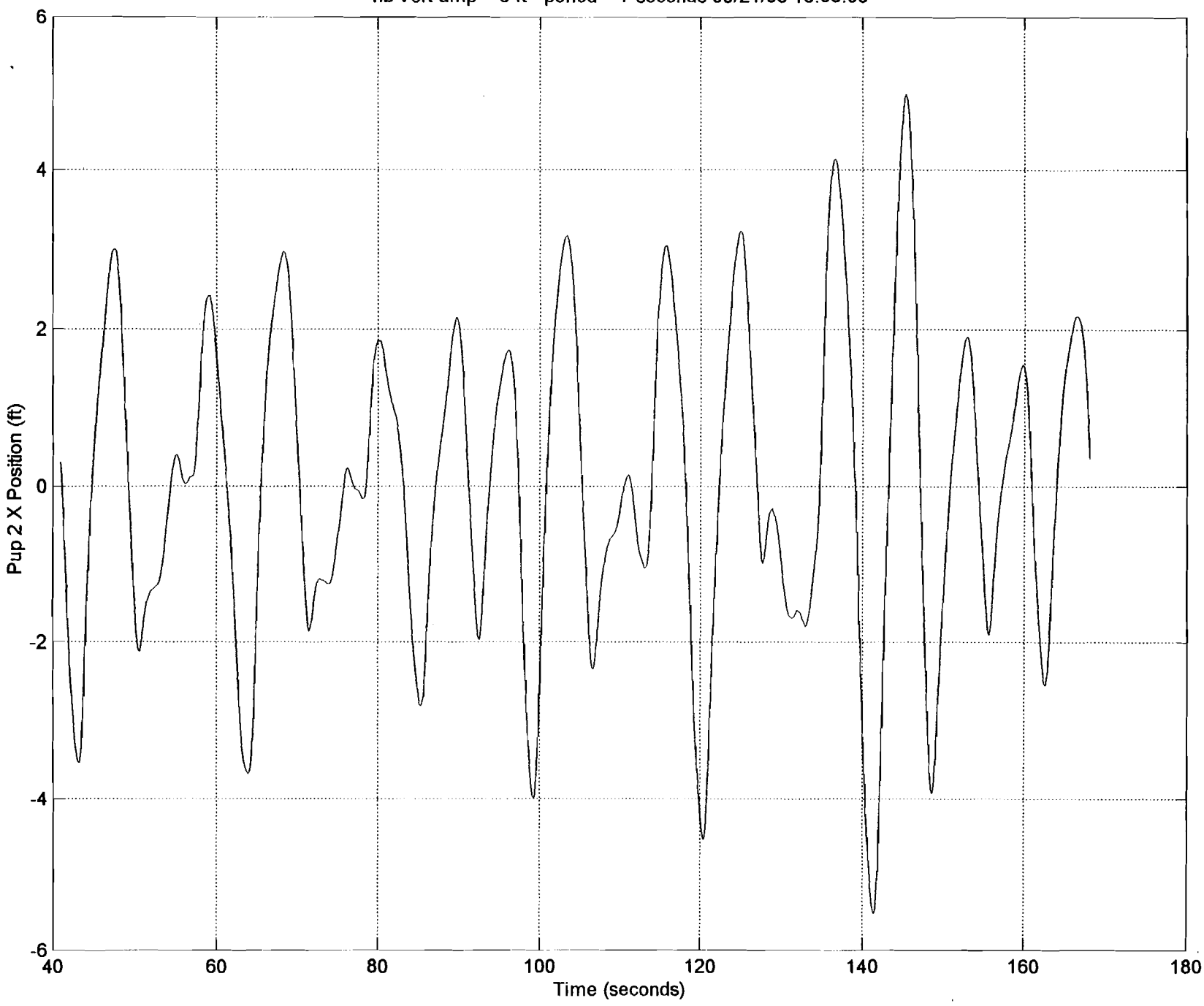

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 8 Bend Inplane COR (ft-lbs)
Time (seconds)
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
40
60
80
100
120
140
160
180

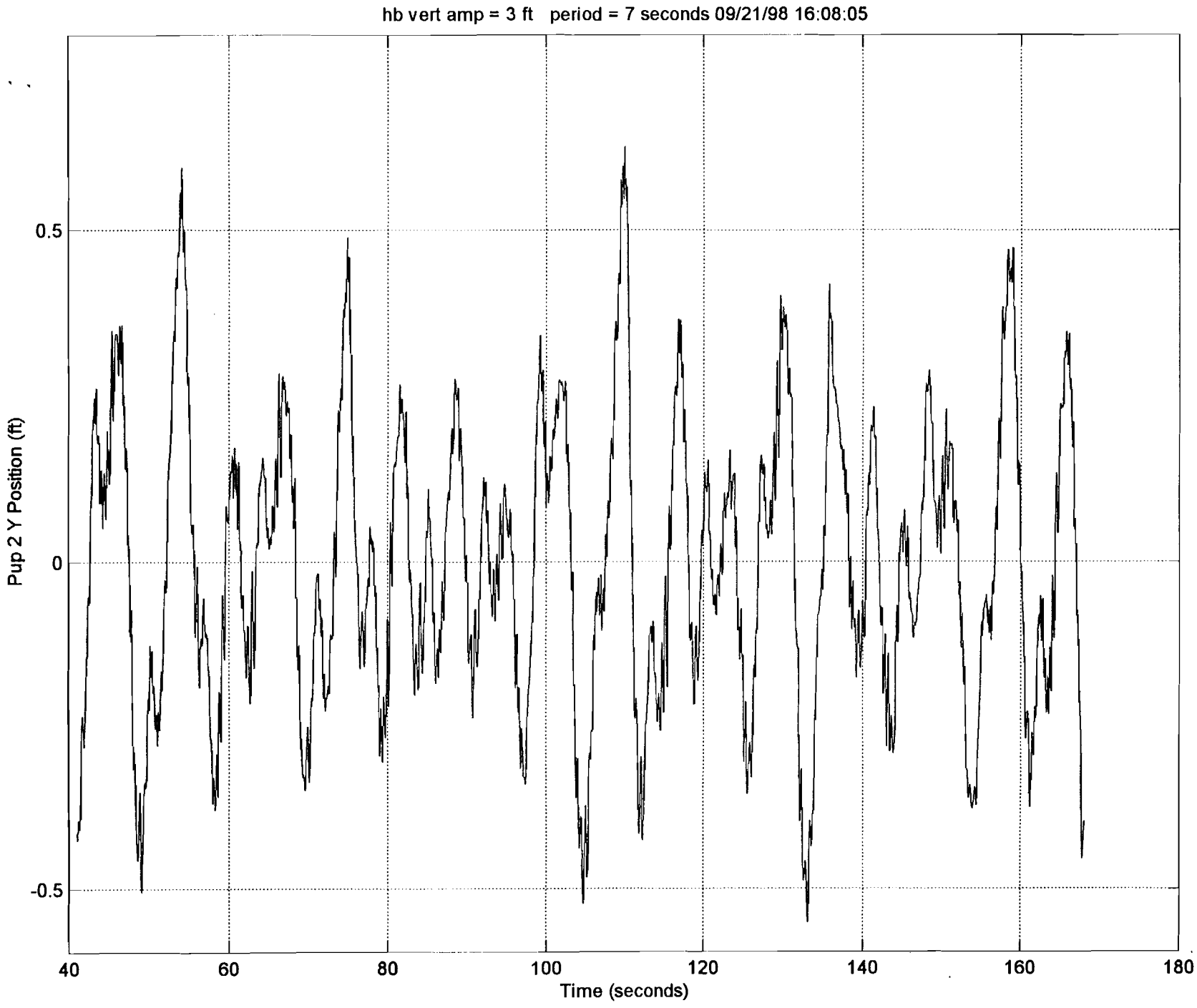

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 8 Bend Outplane COR (ft-lbs)
Time (seconds)
30
29
28
27
26
25
24
23
22
40
60
80
100
120
140
160
180

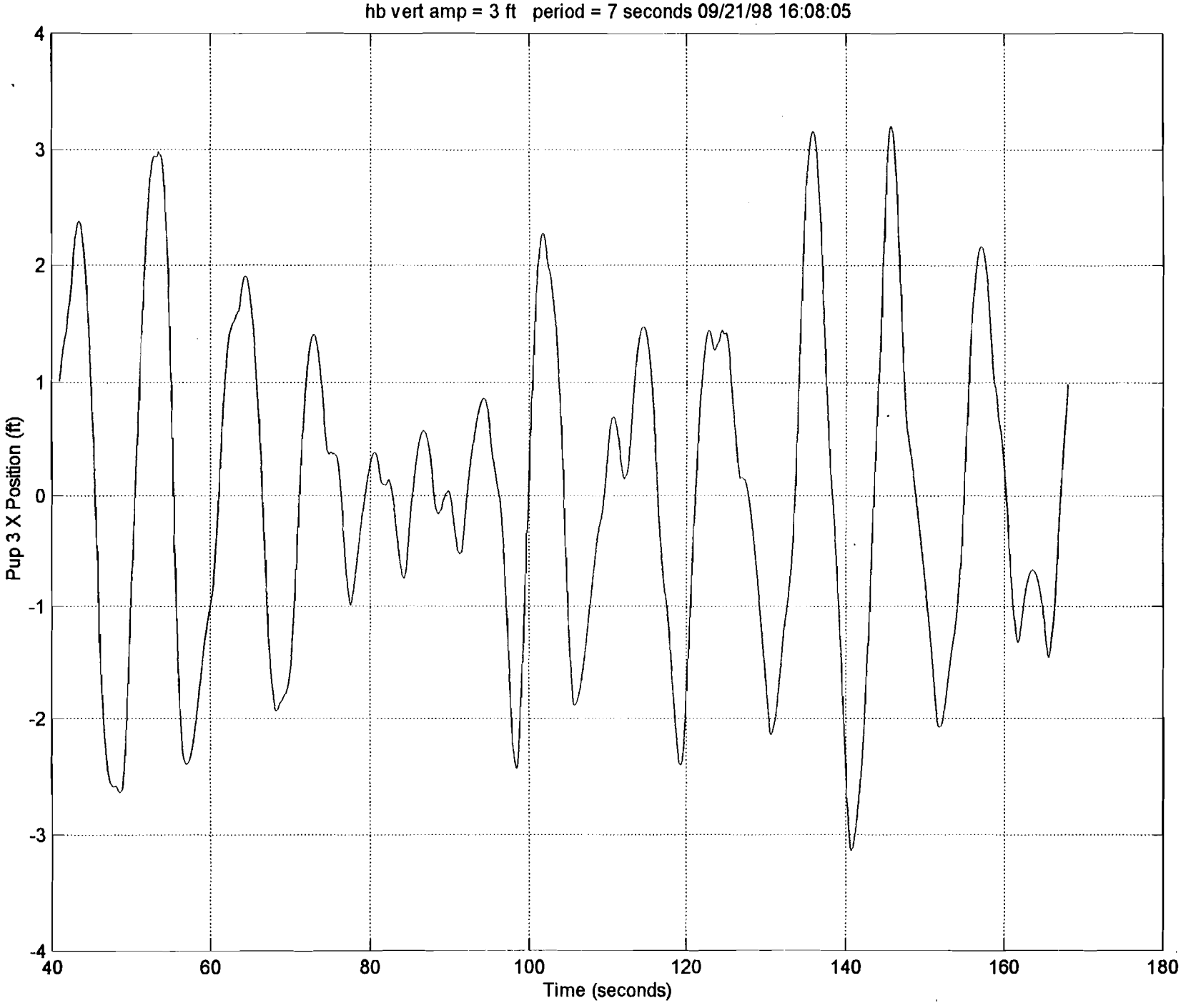

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
PUP 8 Tension COR (lbs)
800
700
600
500
400
300
200
40
60
80
100
120
140
160
180
Time (seconds)

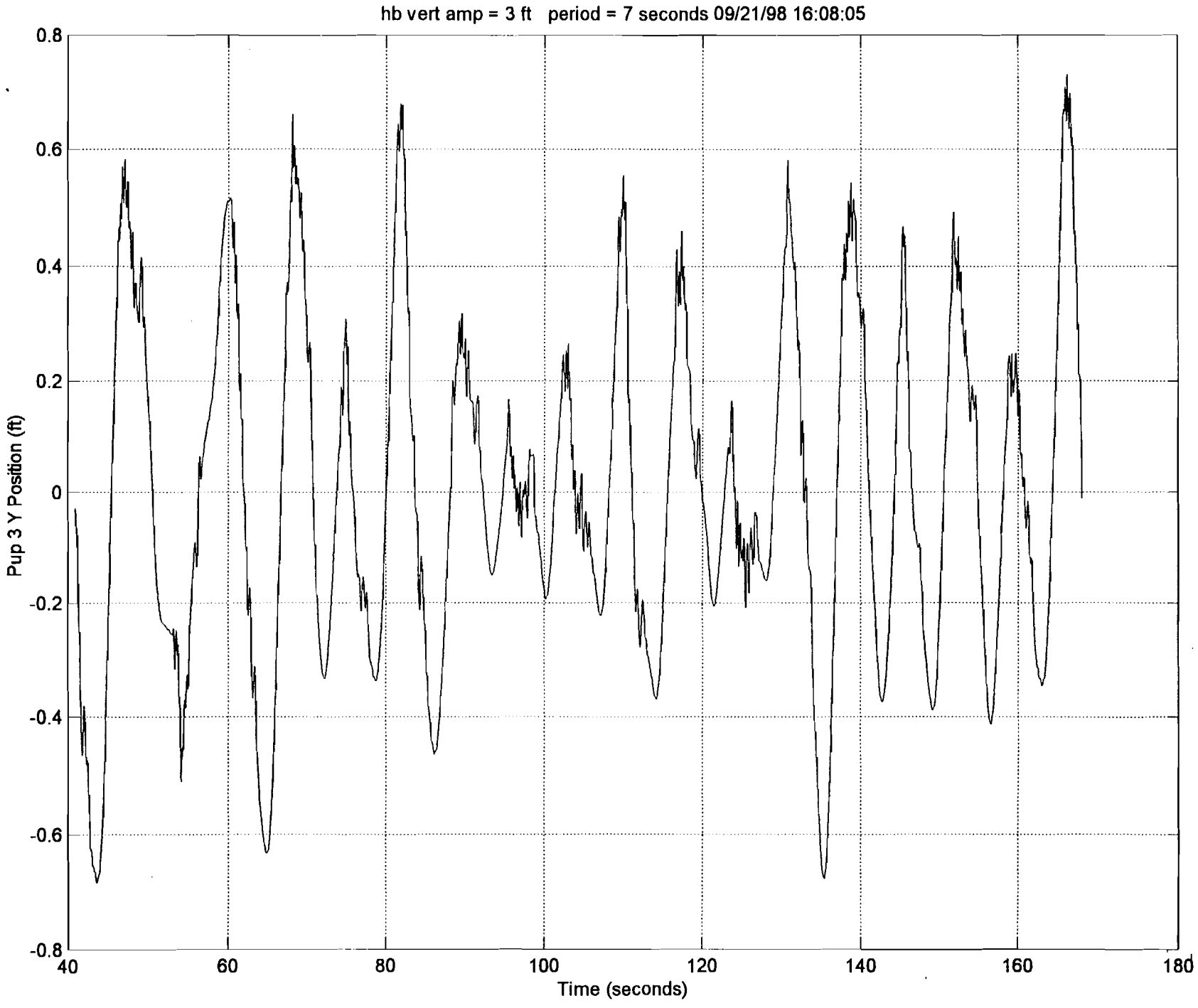

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
Pup 1 X Position (ft)
Time (seconds)
6
4
2
0
-2
-4
-6
40
60
80
100
120
140
160
180

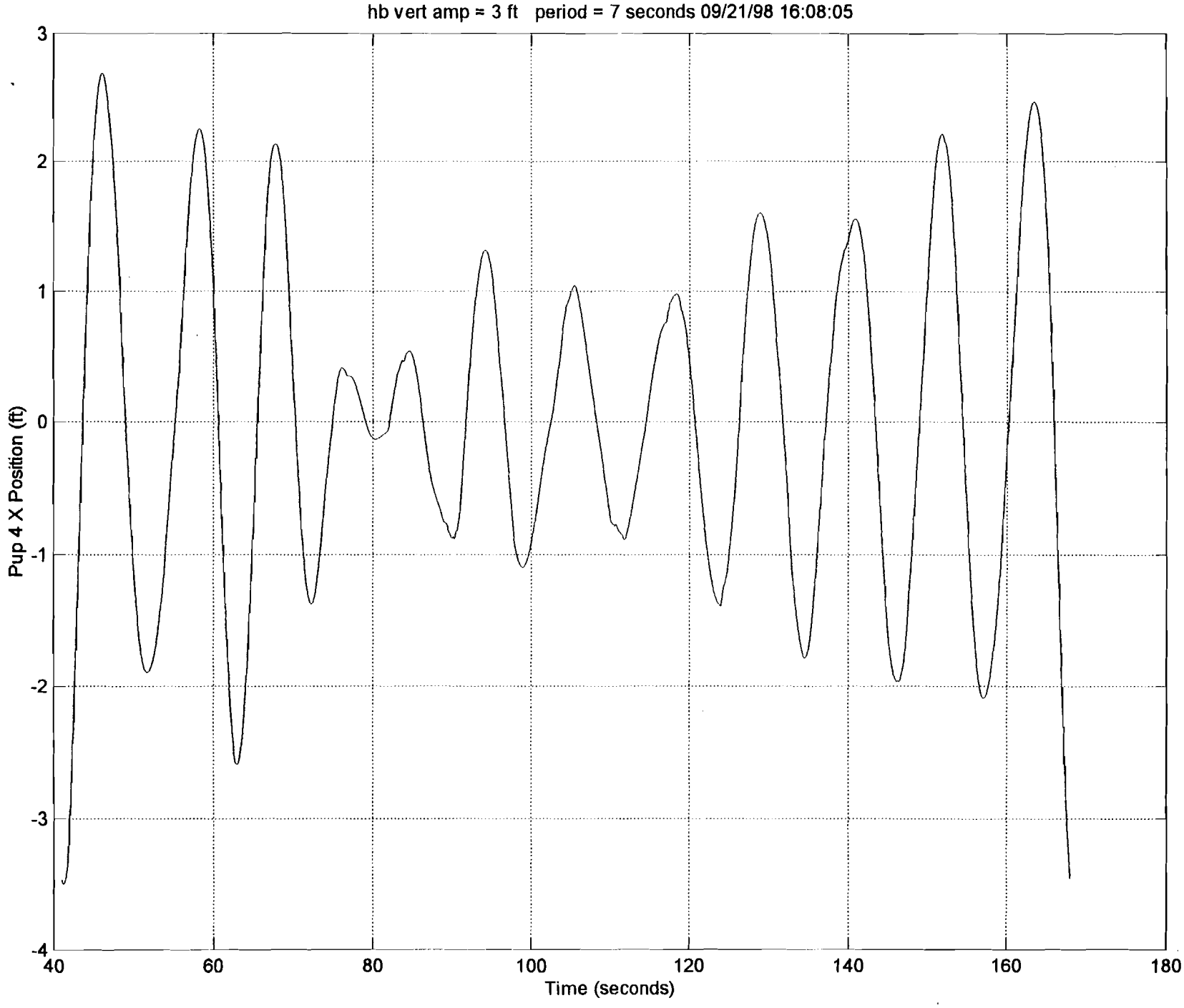

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
Pup 1 Y Position (ft)
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
40
60
80
100
120
140
160
180
Time (seconds)


hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
Pup 2 X Position (ft)
Time (seconds)
6
4
2
0
-2
-4
-6
40
60
80
100
120
140
160
180


hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
Pup 2 Y Position (ft)
0.5
0
-0.5
40
60
80
100
120
140
160
180
Time (seconds)


hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
Pup 3 X Position (ft)
Time (seconds)
4
3
2
1
0
-1
-2
-3
-4
40
60
80
100
120
140
160
180


hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
Pup 3 Y Position (ft)
Time (seconds)
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
40
60
80
100
120
140
160
180


hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
Pup 4 X Position (ft)
Time (seconds)
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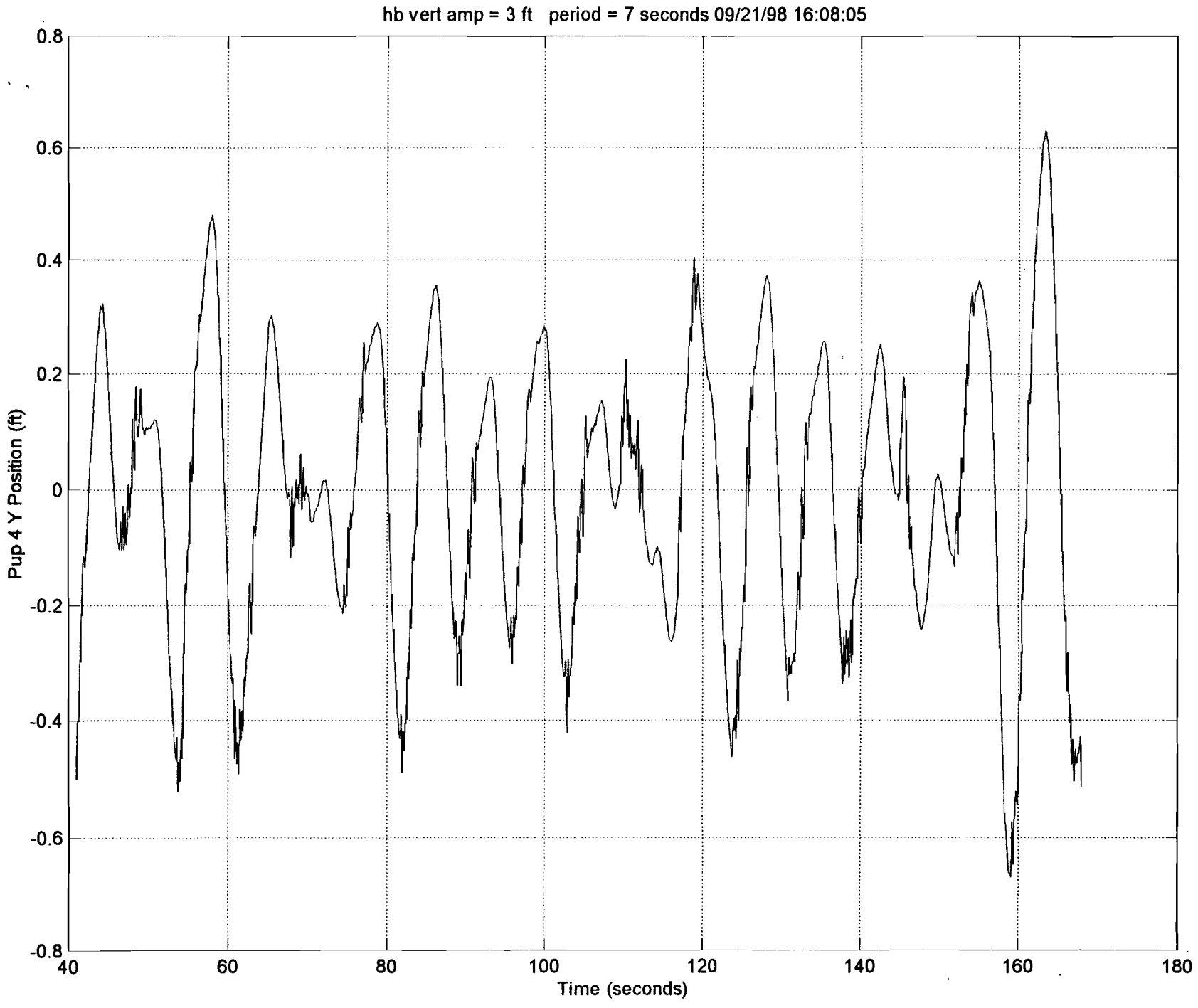
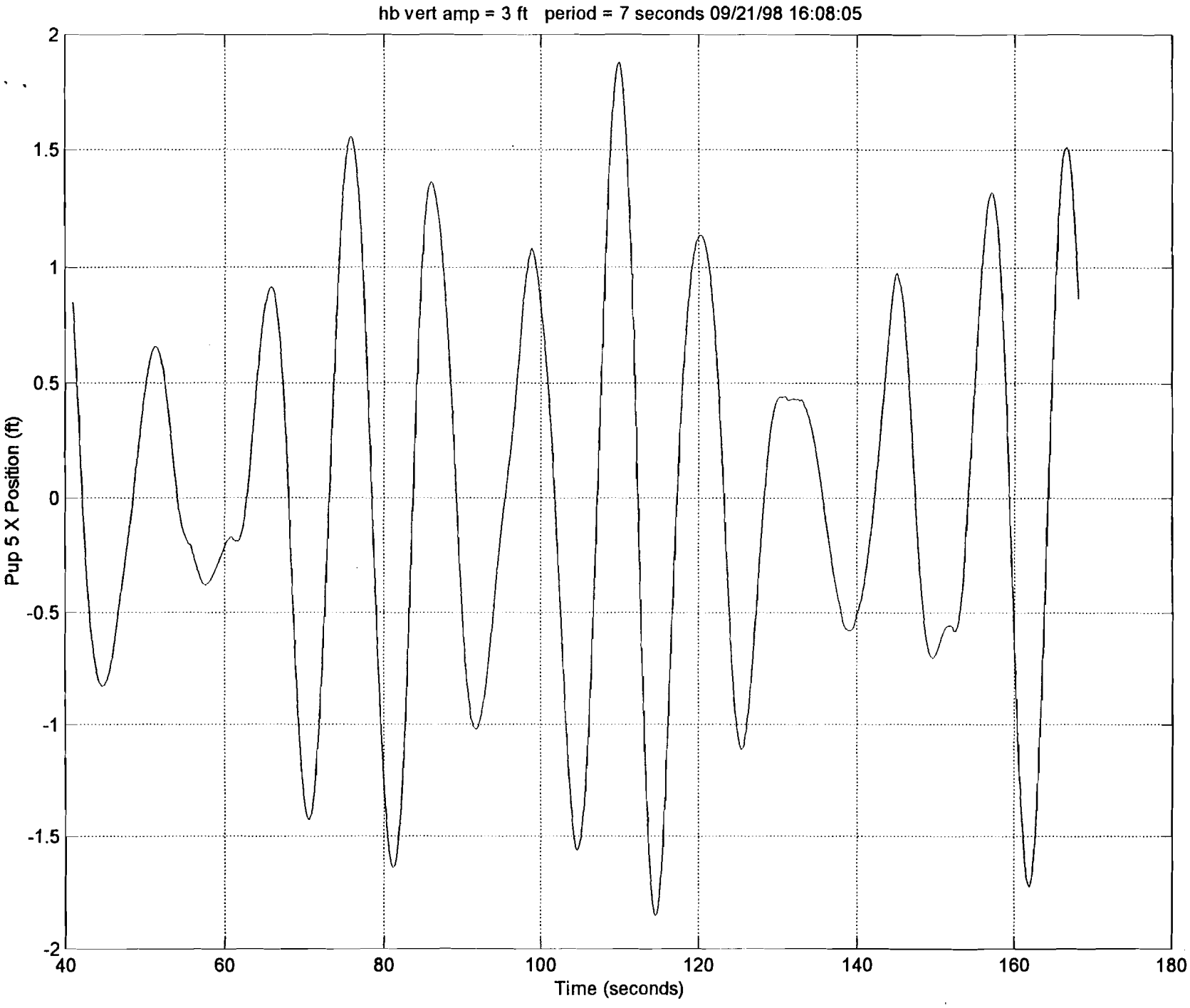
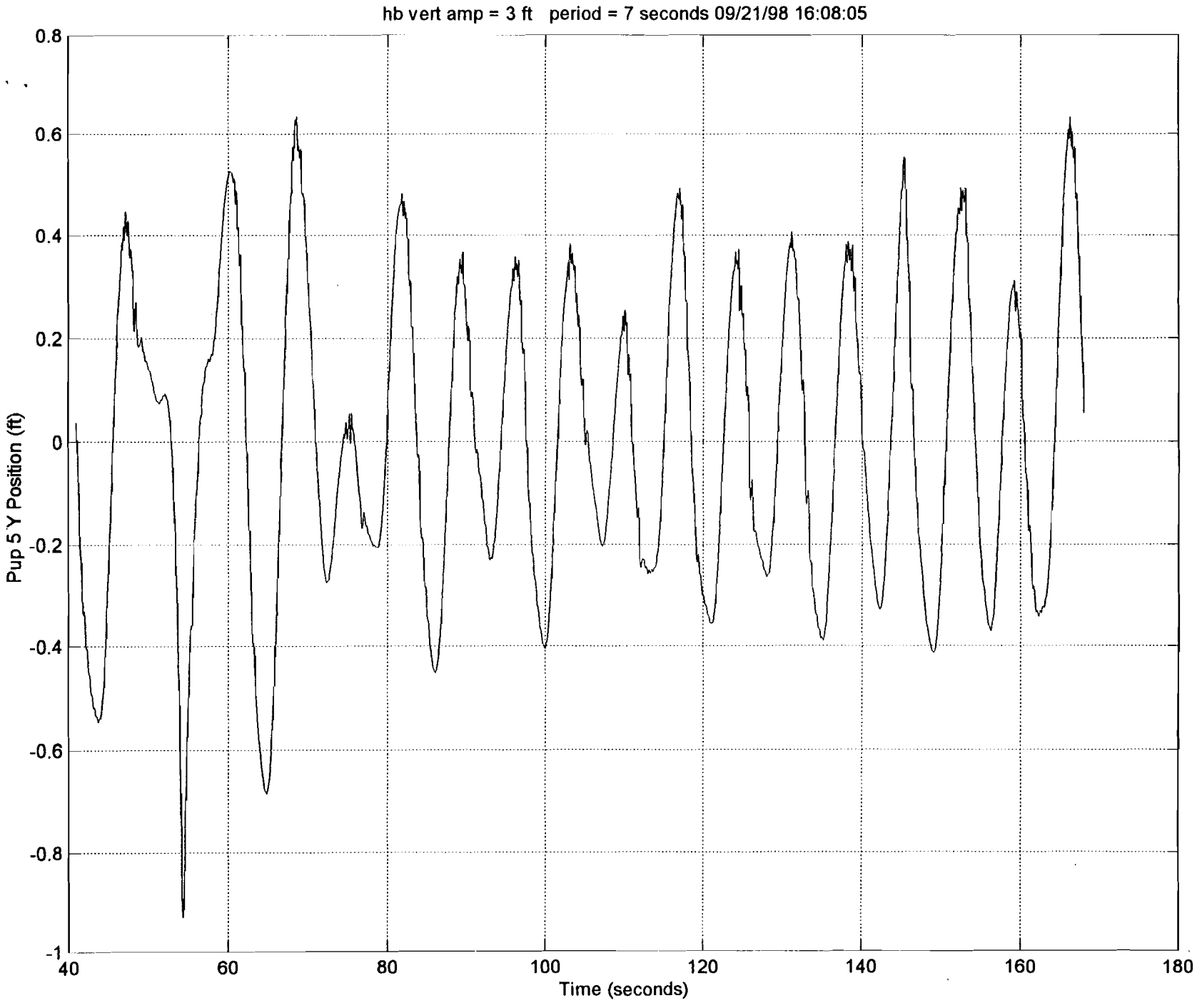
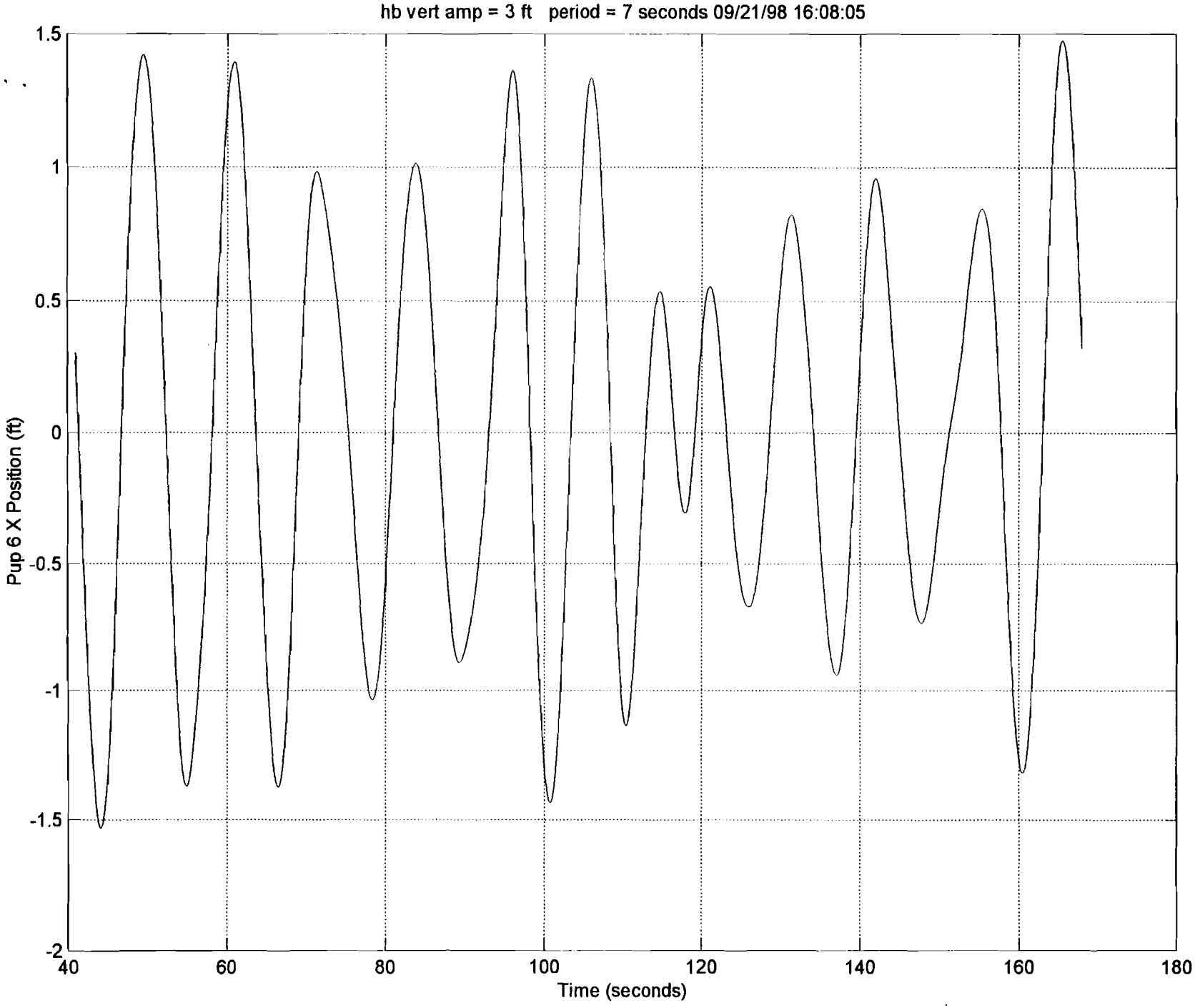
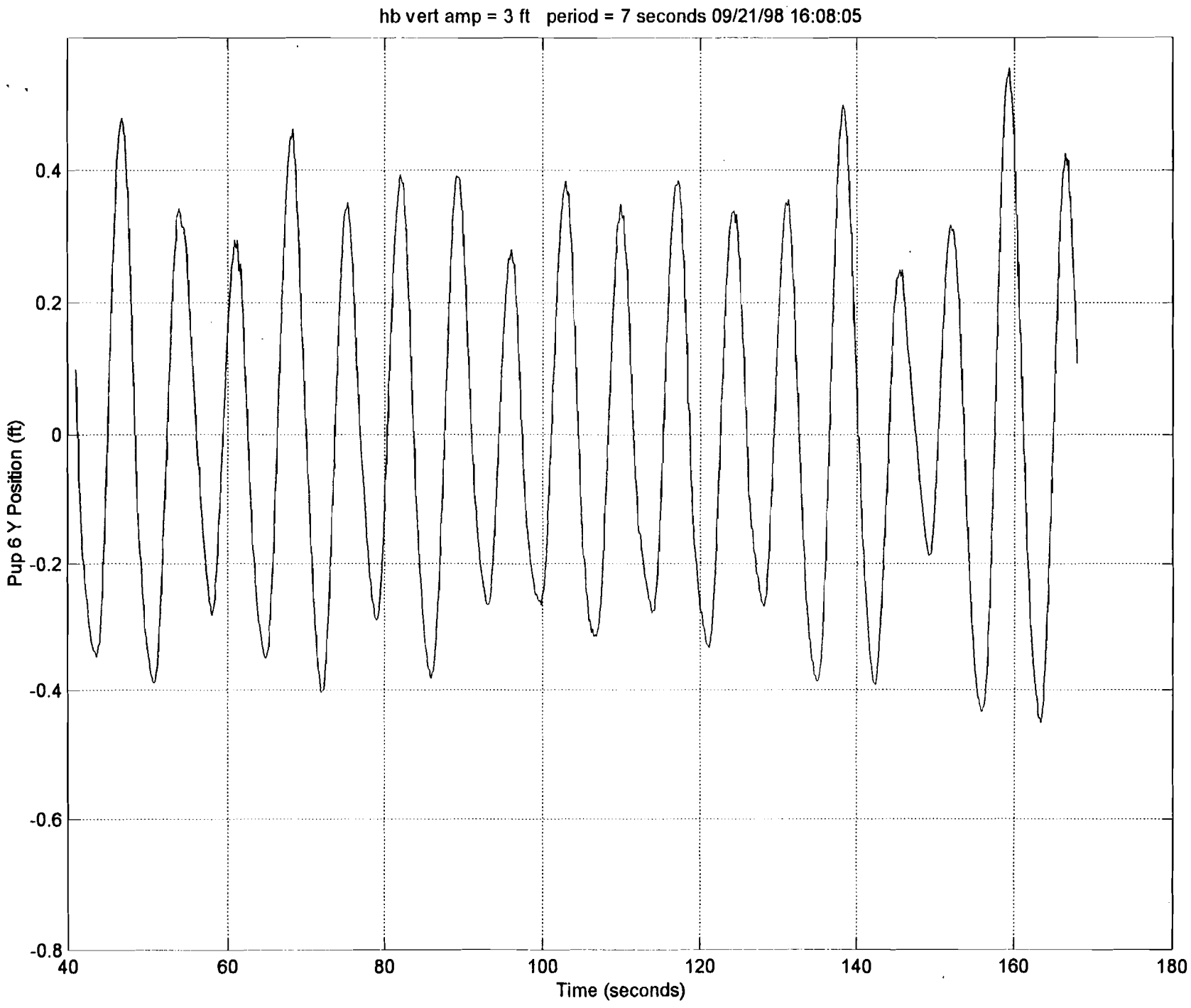
2
1
0
-1
-2
-3
-4
40
60
80
100
120
140
160
180

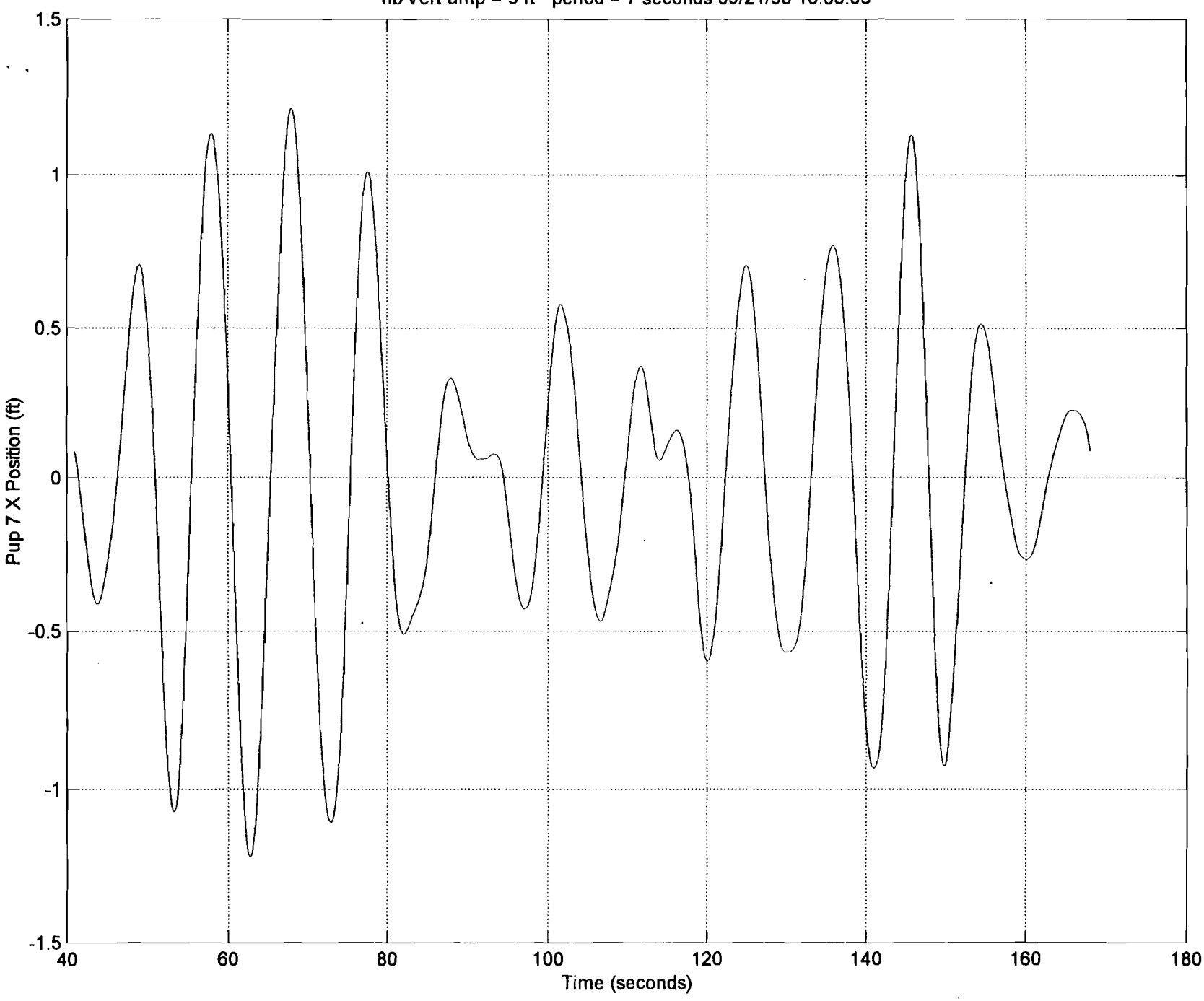

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
Pup 4 Y Position (ft)
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
40
60
80
100
120
140
160
180
Time (seconds)

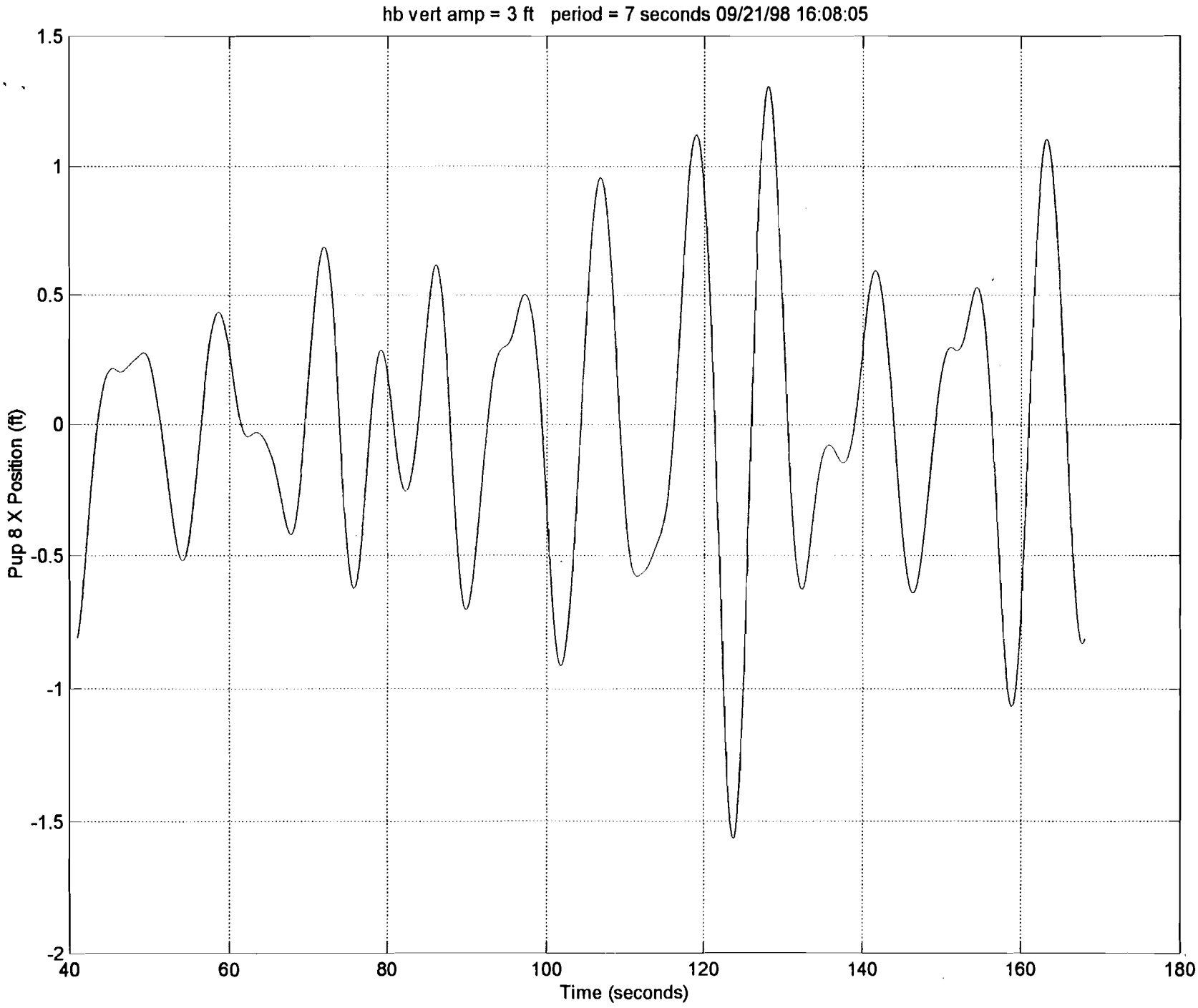

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
Pup 5 X Position (ft)
Time (seconds)
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
40
60
80
100
120
140
160
180

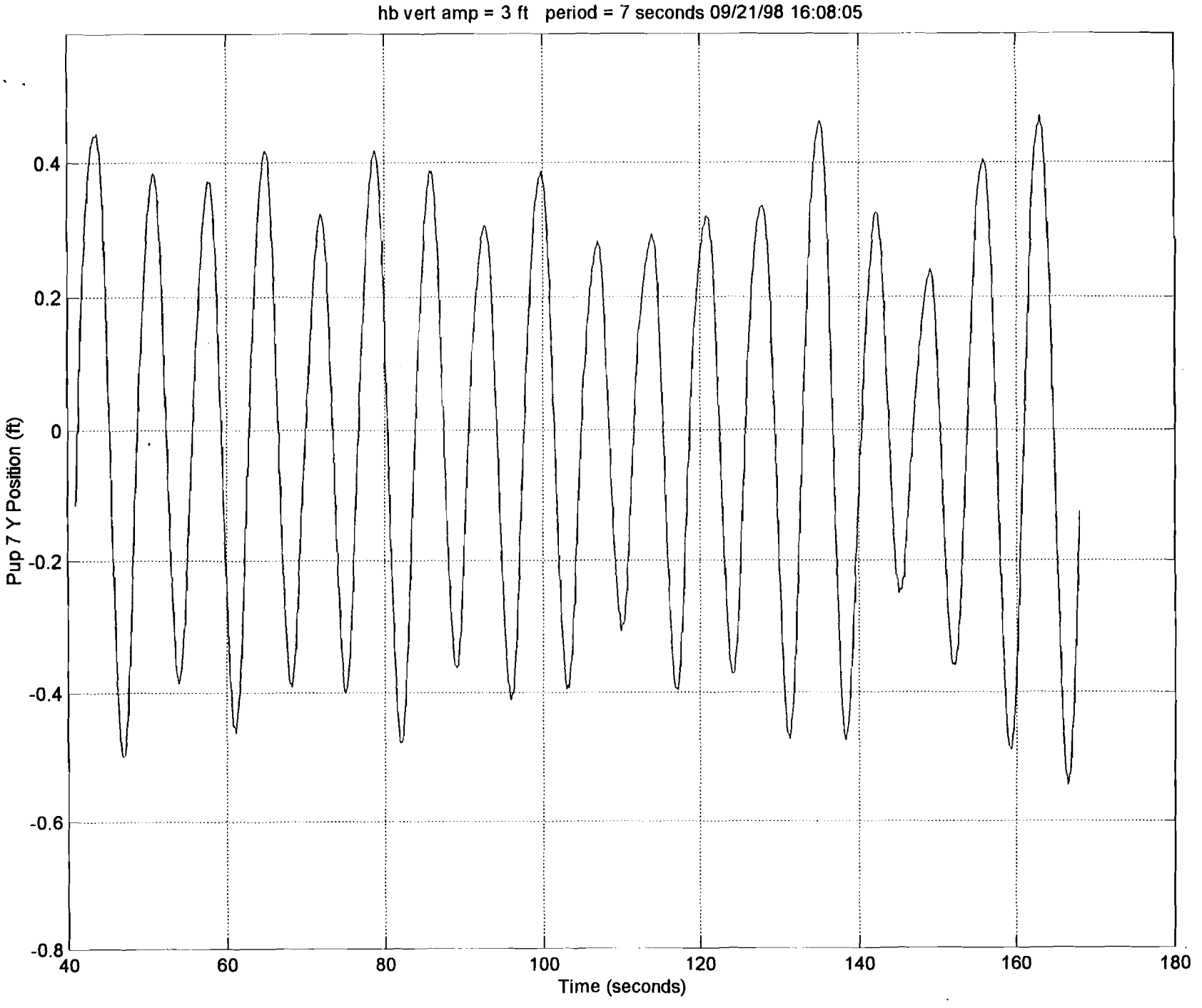

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
Pup 5 Y Position (ft)
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
40
60
80
100
120
140
160
180
Time (seconds)

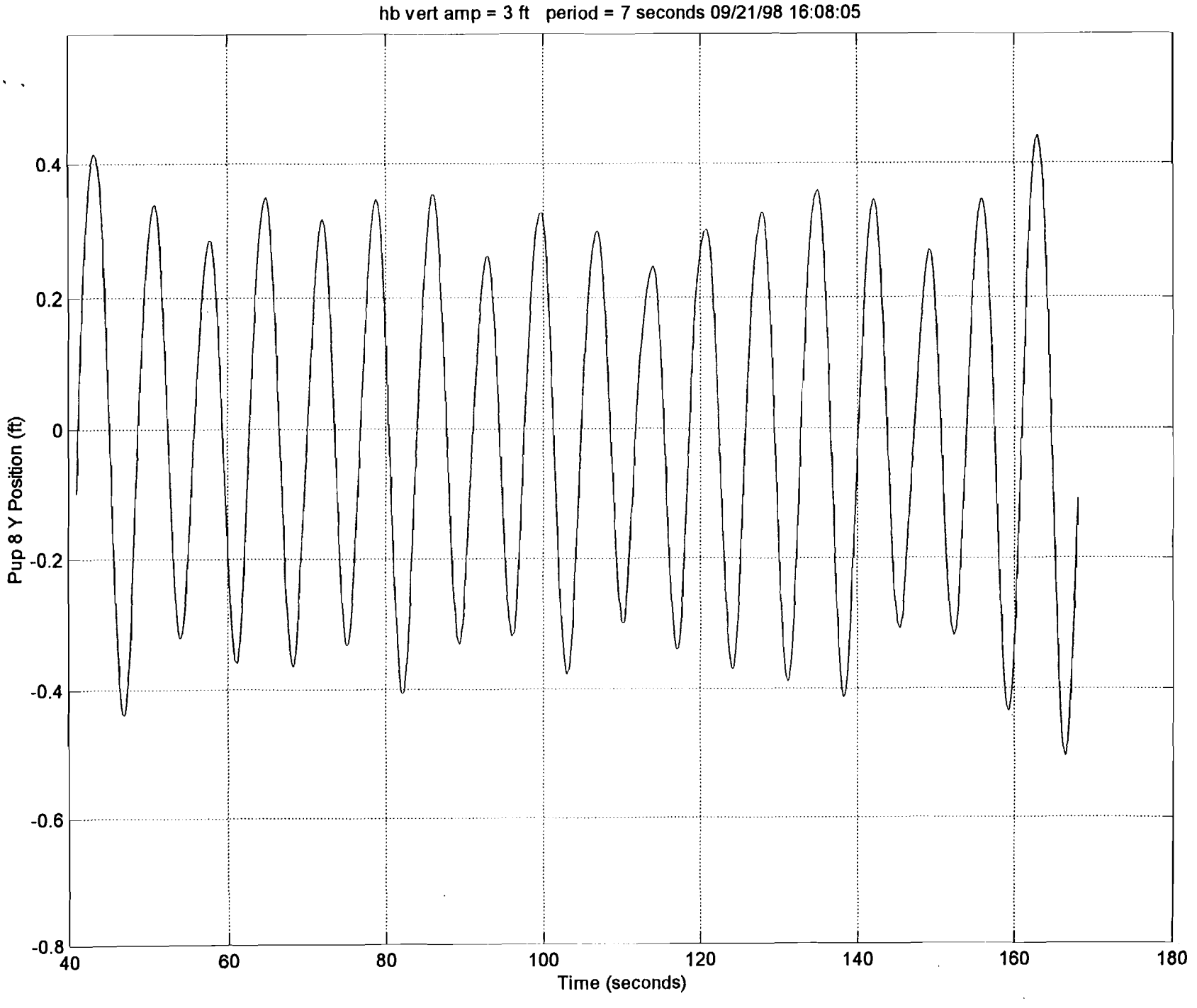

hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
Pup 6 X Position (ft)
Time (seconds)
1.5
1
0.5
0
-0.5
-1
-1.5
-2
40
60
80
100
120
140
160
180


hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
Pup 6 Y Position (ft)
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
40
60
80
100
120
140
160
180
Time (seconds)


hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
Pup 7 X Position (ft)
Time (seconds)
1.5
1
0.5
0
-0.5
-1
-1.5
40
60
80
100
120
140
160
180


hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
Pup 8 X Position (ft)
Time (seconds)
1.5
1
0.5
0
-0.5
-1
-1.5
-2
40
60
80
100
120
140
160
180


hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
Pup 7 Y Position (ft)
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
40
60
80
100
120
140
160
180
Time (seconds)


hb vert amp = 3 ft period = 7 seconds 09/21/98 16:08:05
Pup 8 Y Position (ft)
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
40
60
80
100
120
140
160
180
Time (seconds)

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51

Channel Name	Units	Minimum	Maximum	Mean	Avg P-P	Ratio P-P	RAO	Phase
Actuator Load	lbs	666.5395	1937.5660	1294.2130	1183.4610	199.4288	186.2231	116.3844
Actuator Heave Acc NOG	ft/s^2	-7.2564	6.9979	0.0299	6.1802	1.0414	1.5850	-179.8040
PUP 1 Bend Inplane COR	ft-lbs	-24.5786	-12.6523	-18.0187	3.7887	0.6385	0.3370	-57.5521
PUP 1 Bend Outplane COR	ft-lbs	-12.6589	9.9838	-1.6306	11.6691	1.9664	0.0697	-51.8948
PUP 1 Tension COR	lbs	796.9912	2103.3454	1451.9226	1186.9904	200.0236	185.0513	110.4317
PUP 2 Bend Inplane COR	ft-lbs	-309.8240	32.8779	-78.2110	318.3290	53.6426	20.8213	29.6899
PUP 2 Bend Outplane COR	ft-lbs	-139.1904	55.8375	-13.9559	44.5343	7.5046	8.2825	56.5673
PUP 2 Tension COR	lbs	-345.2924	742.3712	157.7074	1007.0354	169.6988	141.2412	84.8631
PUP 3 Bend Inplane COR	ft-lbs	-154.9476	-12.6414	-52.4002	10.7290	1.8080	7.1862	-176.5310
PUP 3 Bend Outplane COR	ft-lbs	-29.5574	61.6626	15.0748	34.2803	5.7767	0.9495	-5.4543
PUP 3 Tension COR	lbs	2485.1628	2540.9374	2519.2907	17.8463	3.0073	1.4533	-166.9023
PUP 4 Bend Inplane COR	ft-lbs	-69.5590	35.3711	-5.9236	90.6348	15.2732	8.9561	-157.9475
PUP 4 Bend Outplane COR	ft-lbs	-51.1431	32.3135	-7.2028	23.9566	4.0370	0.9973	-112.2750
PUP 4 Tension COR	lbs	-172.9339	861.8268	306.3484	960.9665	161.9356	136.7702	86.7537
PUP 5 Bend Inplane COR	ft-lbs	-46.1043	-2.0505	-18.3690	38.5731	6.5001	2.5249	-176.2179
PUP 5 Bend Outplane COR	ft-lbs	-45.1202	29.2375	-2.5423	20.3026	3.4213	0.8120	-142.3677
PUP 5 Tension COR	lbs	-289.0687	777.3166	199.0020	998.7651	168.3051	140.8000	84.6184
PUP 6 Bend Inplane COR	ft-lbs	-1.2414	14.8945	8.6214	4.6468	0.7830	0.6907	-124.2094
PUP 6 Bend Outplane COR	ft-lbs	-33.2157	39.5846	2.1219	6.9863	1.1773	0.3449	39.4203
PUP 6 Tension COR	lbs	-373.7622	700.9313	111.0698	1000.6821	168.6282	142.9204	83.6217
PUP 7 Bend Inplane COR	ft-lbs	25.6831	35.4558	31.1291	1.7091	0.2880	0.3776	79.7202
PUP 7 Bend Outplane COR	ft-lbs	-5.4368	21.2156	7.8411	7.0550	1.1889	0.2315	150.7954
PUP 7 Tension COR	lbs	-366.9266	694.6613	112.3551	969.8784	163.4374	140.1896	82.9568
PUP 8 Bend Inplane COR	ft-lbs	-16.0794	-6.4910	-11.9411	3.9980	0.6737	0.6760	-106.0394
PUP 8 Bend Outplane COR	ft-lbs	22.3919	36.1855	28.8700	0.8200	0.1382	0.7184	75.1097
PUP 8 Tension COR	lbs	-1.6380	1019.1126	457.7672	952.1890	160.4565	136.7731	80.4816
Displacement	ft	-2.9671	2.9671	0.0000	5.9343	1.0000	1.0000	0.0000

30-Nov-1998 19:47:52

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51

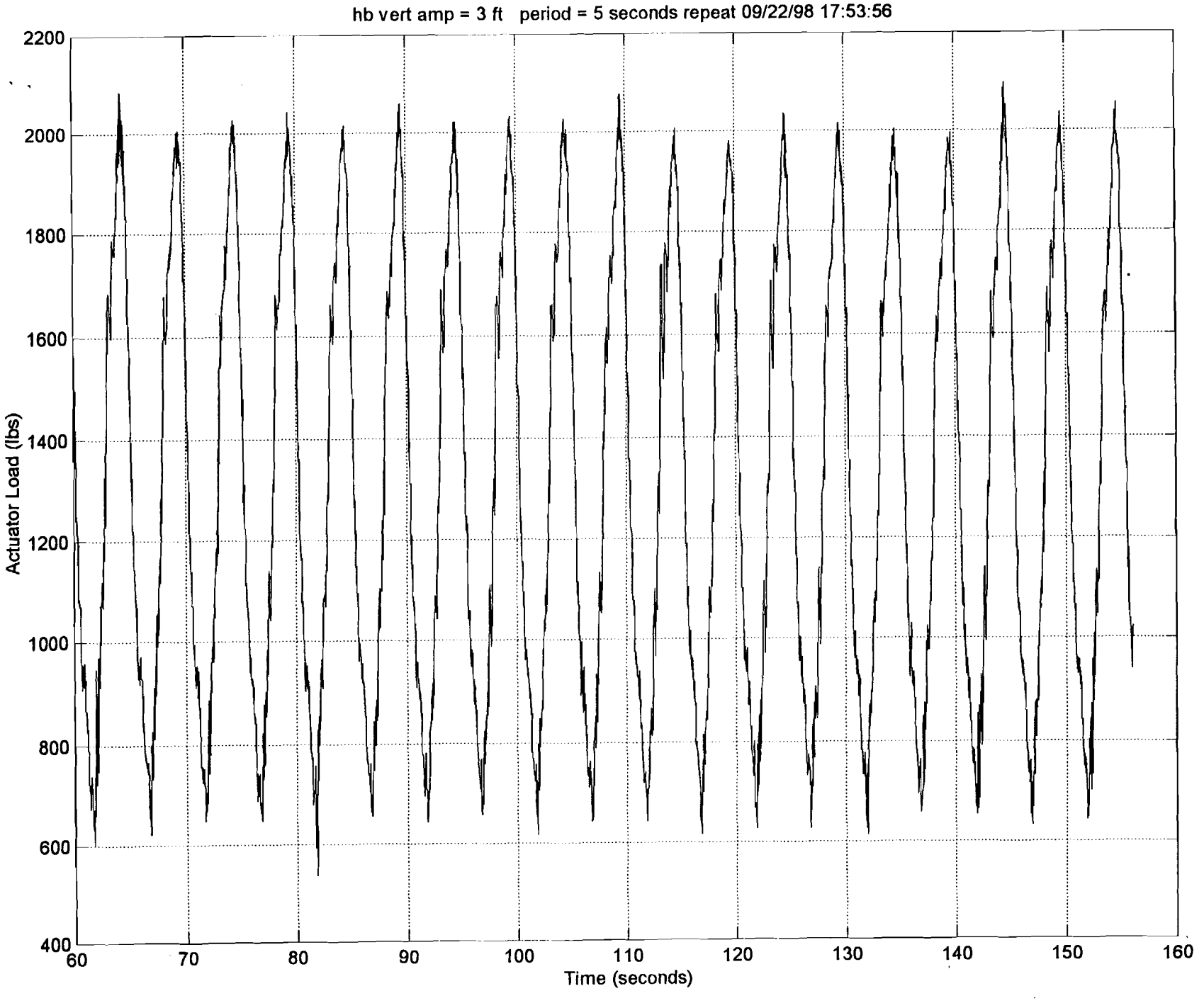
Channel Name	Units	Minimum	Maximum	Mean	Std Dev	Sig Amp	Period
Barge Roll	deg	-0.4022	-0.1079	-0.2186	0.0321	0.0561	0.6814
Barge Pitch	deg	-1.2123	-0.9613	-1.1036	0.0173	0.0445	0.4598
Barge Surge Acc NOG	ft/s^2	-0.3278	0.4299	0.0625	0.0860	0.1920	0.3170
Barge Sway Acc NOG	ft/s^2	-2.5355	-2.0955	-2.3357	0.0488	0.0945	0.3559
Barge Heave Acc NOG	ft/s^2	-0.5030	0.2799	-0.0754	0.0845	0.1795	0.3366

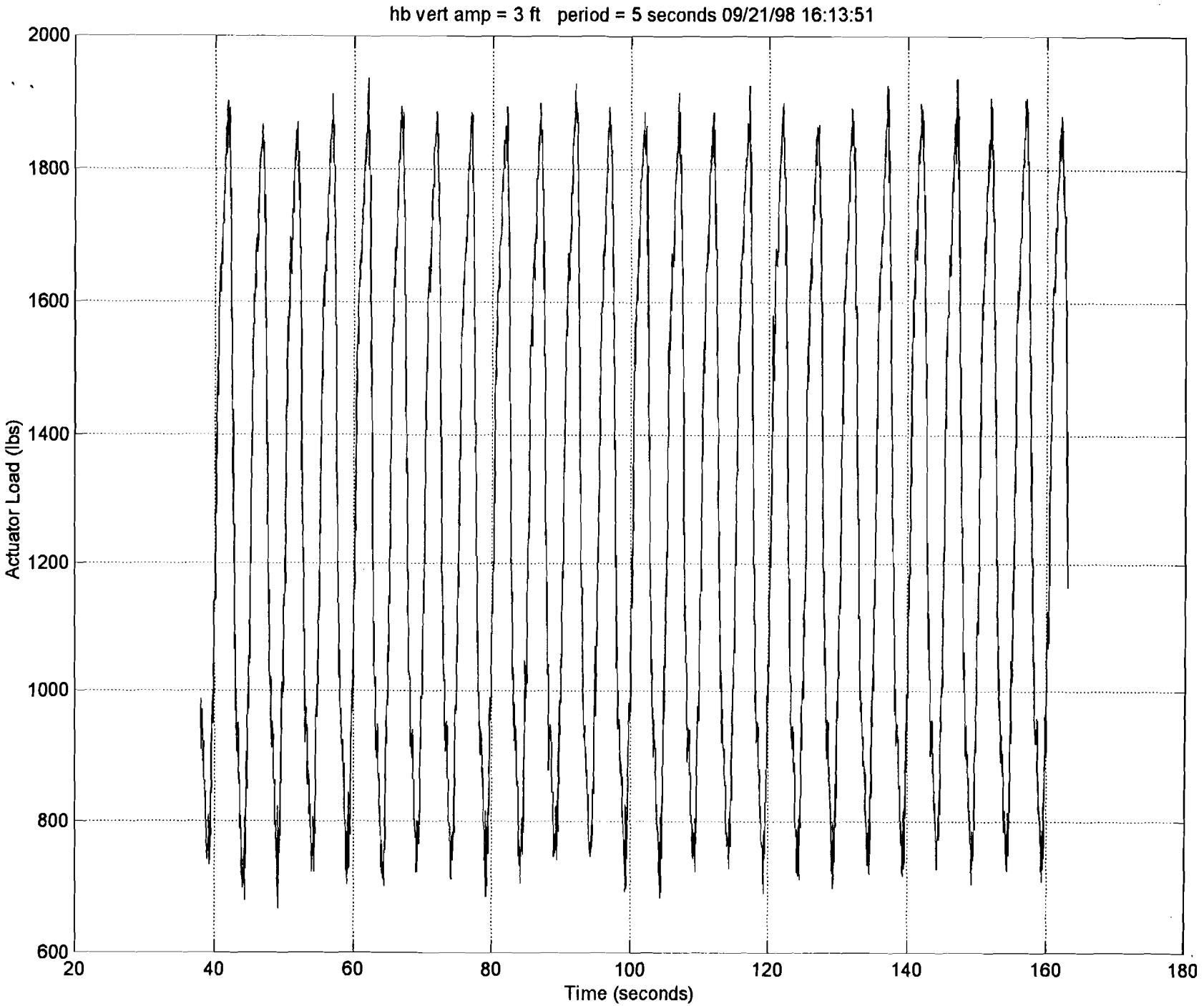
hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51

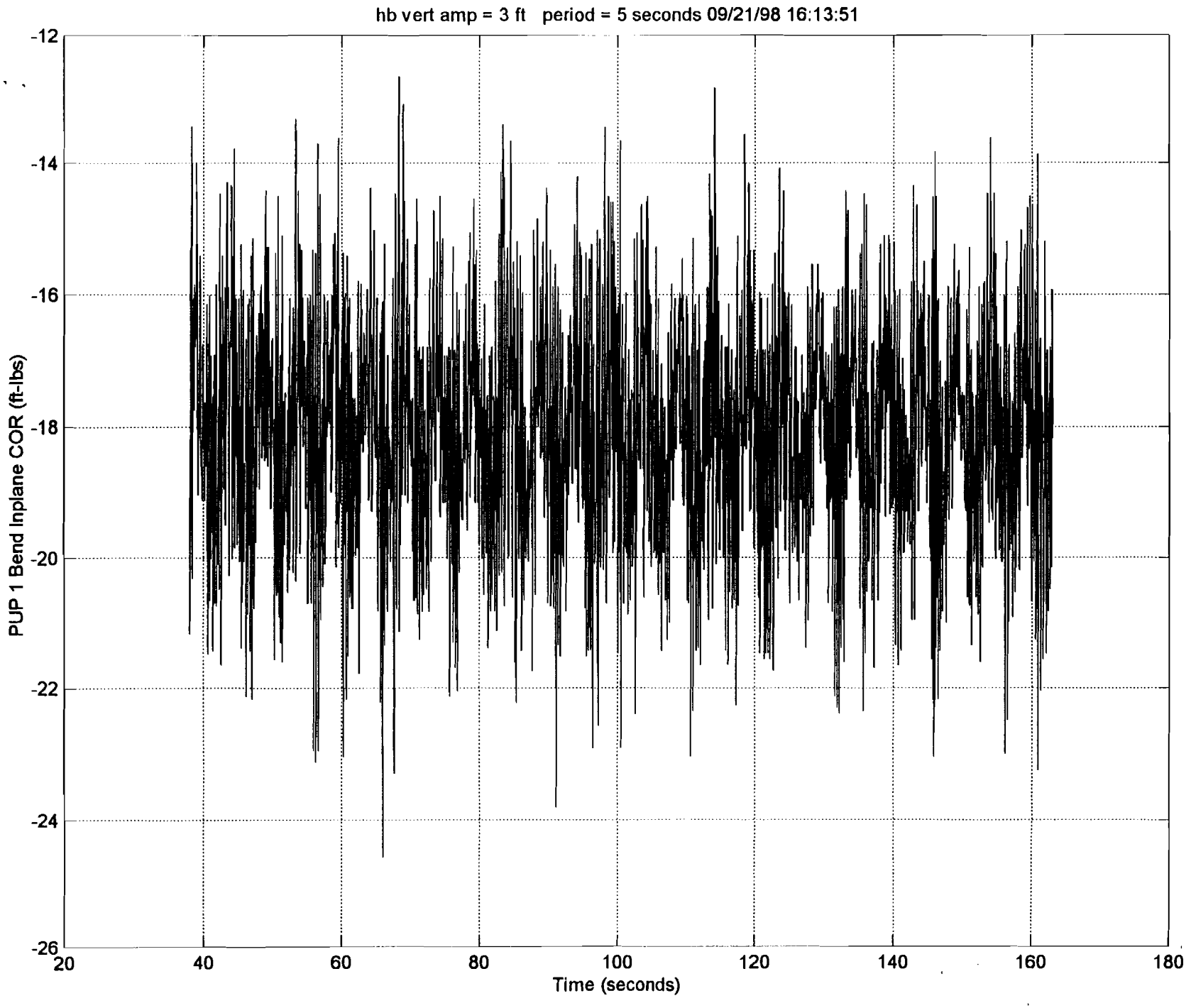
Channel Name	Units	Minimum	Maximum	Mean	Std Dev	Sig Amp	Period
PUP 1 Top Y Acc COR	ft/s^2	-17.1019	13.4872	-0.5588	4.0931	9.2759	0.5262
PUP 1 Top X Acc COR	ft/s^2	-8.1160	17.2235	4.0077	2.8617	6.8520	0.4482
PUP 1 Bot Y Acc COR	ft/s^2	-248.6968	-214.4038	-231.0423	4.2020	9.5643	0.5355
PUP 1 Bot X Acc COR	ft/s^2	-2.6122	18.4478	7.5084	2.7577	6.4696	0.4531
PUP 2 Top Y Acc COR	ft/s^2	-67.7375	62.3386	-5.4852	14.2830	33.1549	0.4330
PUP 2 Top X Acc COR	ft/s^2	4.8793	63.6545	28.9065	6.9330	14.4453	0.5941
PUP 2 Bot Y Acc COR	ft/s^2	-58.5609	57.4158	-1.0219	14.9373	34.4145	0.4300
PUP 2 Bot X Acc COR	ft/s^2	5.7787	63.4994	31.4065	6.9359	15.1381	0.5729
PUP 3 Top Y Acc COR	ft/s^2	-80.9979	13.3660	-31.6029	10.7667	26.5659	0.4369
PUP 3 Top X Acc COR	ft/s^2	25.2604	75.1598	48.0104	4.9158	11.2612	0.4964
PUP 3 Bot Y Acc COR	ft/s^2	-54.3305	44.5893	-4.4561	10.8958	27.5367	0.4392
PUP 3 Bot X Acc COR	ft/s^2	7.0115	56.4865	31.0844	4.9664	12.1077	0.4933
PUP 4 Top Y Acc COR	ft/s^2	-37.1408	49.7353	3.9109	10.0394	25.5829	0.4416
PUP 4 Top X Acc COR	ft/s^2	-0.2076	64.7987	32.6296	3.7058	9.7254	0.4337
PUP 4 Bot Y Acc COR	ft/s^2	-39.7026	50.9531	5.0032	10.2704	26.0590	0.4360
PUP 4 Bot X Acc COR	ft/s^2	-4.0419	57.2866	30.1859	3.9586	10.7072	0.4218
PUP 5 Top Y Acc COR	ft/s^2	-47.3866	34.7087	-2.2111	7.4737	19.5137	0.4497
PUP 5 Top X Acc COR	ft/s^2	12.4154	53.5914	32.3165	3.0848	7.8846	0.3967
PUP 5 Bot Y Acc COR	ft/s^2	-40.8380	36.7969	-2.2642	7.1547	18.2924	0.4508
PUP 5 Bot X Acc COR	ft/s^2	21.3937	52.2597	32.8733	2.6745	6.7299	0.3880
PUP 6 Top Y Acc COR	ft/s^2	-29.3136	23.3955	-3.1679	3.9693	10.0278	0.4272
PUP 6 Top X Acc COR	ft/s^2	29.5267	36.4498	33.3780	0.4669	1.3137	0.4285
PUP 6 Bot Y Acc COR	ft/s^2	-31.1310	25.3430	-3.1229	4.1491	10.0277	0.4478
PUP 6 Bot X Acc COR	ft/s^2	27.9230	33.0459	30.4557	0.3446	0.9781	0.5549
PUP 7 Top Y Acc COR	ft/s^2	-20.1125	21.9935	2.2247	3.4832	8.3886	0.3969
PUP 7 Top X Acc COR	ft/s^2	29.1914	34.6926	32.0335	0.4694	1.2313	0.3717
PUP 7 Bot Y Acc COR	ft/s^2	-13.5737	17.2822	1.8616	1.9750	5.0615	0.4342
PUP 7 Bot X Acc COR	ft/s^2	29.9042	32.7568	31.3934	0.2114	0.5292	0.3896
PUP 8 Top Y Acc COR	ft/s^2	-1.5280	5.1557	1.4000	0.6106	1.3971	0.6564
PUP 8 Top X Acc COR	ft/s^2	30.1335	33.8406	32.1554	0.2977	0.7606	0.4257
PUP 8 Bot Y Acc COR	ft/s^2	-0.1835	5.1284	1.9661	0.5729	1.2208	0.6610
PUP 8 Bot X Acc COR	ft/s^2	31.5276	34.2500	32.9689	0.2210	0.5842	0.4361

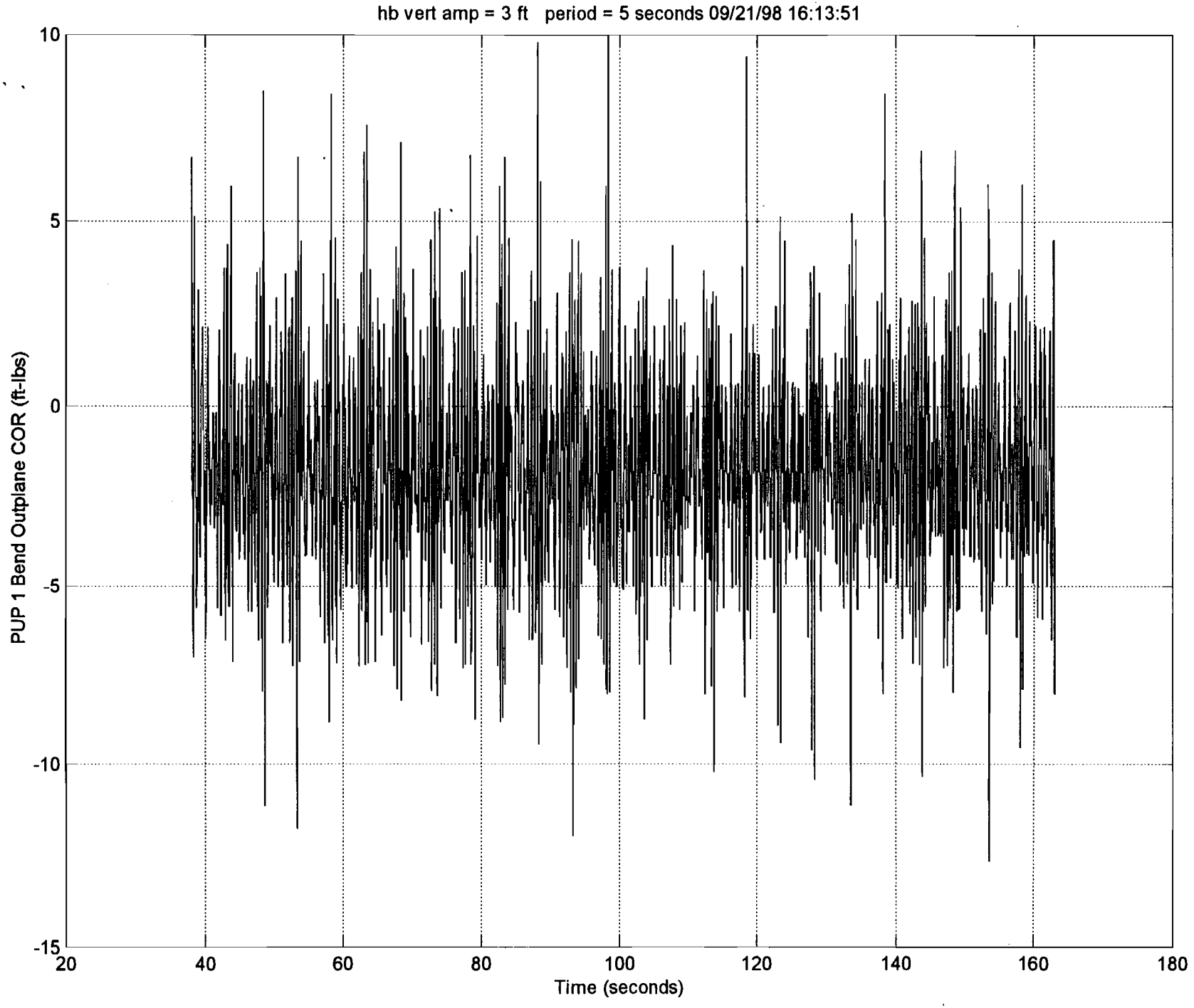
hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51

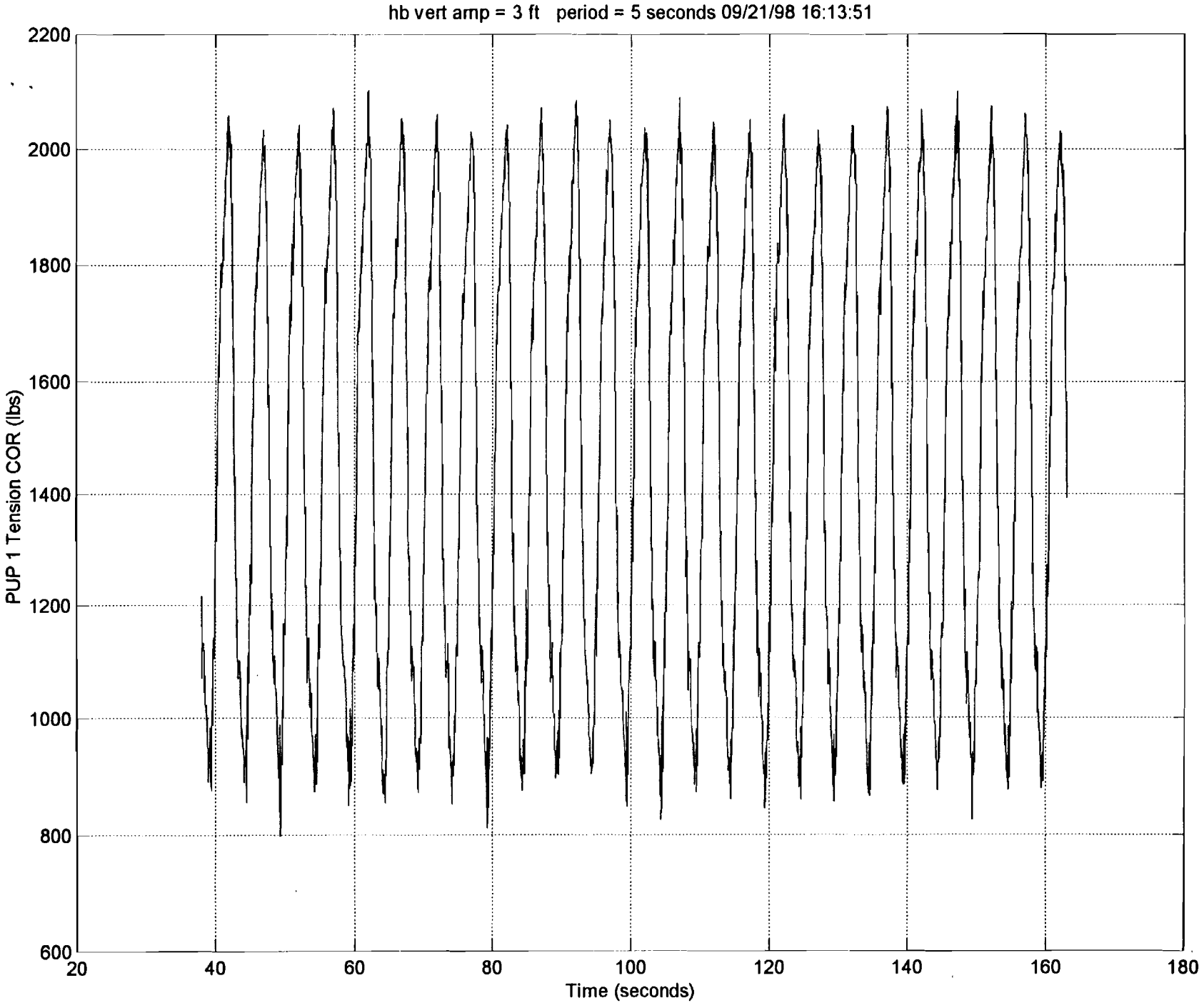
Channel Name	Units	Minimum	Maximum	Mean	Std Dev	Sig Amp	Period
Displacement	ft	-2.9671	2.9671	0.0006	2.0985	2.9671	5.0000
Pup 1 X Acc NOG	ft/s2	10.4169	35.7003	22.3325	3.2986	6.7730	0.5809
Pup 1 Y Acc NOG	ft/s2	-133.5601	-101.4650	-116.6588	4.0693	9.2014	0.5198
Pup 1 X Position	ft	-6.8923	7.6258	-0.0011	2.9781	5.3588	9.6083
Pup 1 Y Position	ft	-0.4611	0.4893	-0.0001	0.1988	0.2837	4.4375
Pup 2 X Acc NOG	ft/s2	13.9979	69.7912	36.6271	6.6224	13.3117	0.5519
Pup 2 Y Acc NOG	ft/s2	-58.7894	59.0176	-1.9067	13.9327	32.0642	0.4336
Pup 2 X Position	ft	-10.5754	10.7315	0.0009	4.4021	8.4285	8.7635
Pup 2 Y Position	ft	-0.8634	1.1053	-0.0001	0.4168	0.7330	5.2207
Pup 3 X Acc NOG	ft/s2	22.1451	74.2872	45.2098	4.7595	12.0865	0.7903
Pup 3 Y Acc NOG	ft/s2	-61.9433	29.8323	-15.4771	10.4369	26.3005	0.4369
Pup 3 X Position	ft	-9.0226	9.9651	-0.0013	3.8084	6.5323	9.5938
Pup 3 Y Position	ft	-1.5773	1.1469	0.0001	0.4757	0.8585	8.2036
Pup 4 X Acc NOG	ft/s2	7.2087	63.7375	36.6707	3.6346	10.4606	0.5899
Pup 4 Y Acc NOG	ft/s2	-40.3670	46.9515	1.8188	9.7765	24.8573	0.4455
Pup 4 X Position	ft	-4.7457	5.3025	0.0002	1.7075	3.6062	7.7517
Pup 4 Y Position	ft	-0.8554	0.9448	0.0001	0.3061	0.5856	5.9950
Pup 5 X Acc NOG	ft/s2	22.6251	54.8178	36.2350	2.8196	7.1040	0.4740
Pup 5 Y Acc NOG	ft/s2	-42.3288	36.0721	-1.2912	6.9472	18.4087	0.4587
Pup 5 X Position	ft	-4.8578	5.3746	0.0000	1.9362	4.0502	9.9396
Pup 5 Y Position	ft	-1.2159	0.7480	0.0000	0.3088	0.5907	5.7964
Pup 6 X Acc NOG	ft/s2	33.6818	38.4766	36.0641	0.4824	1.2465	0.8512
Pup 6 Y Acc NOG	ft/s2	-26.7722	23.4236	-1.4315	3.6596	8.9475	0.4376
Pup 6 X Position	ft	-1.7411	1.3834	0.0001	0.7708	1.3389	10.7864
Pup 6 Y Position	ft	-0.6064	0.6762	0.0000	0.2588	0.4584	5.7155
Pup 7 X Acc NOG	ft/s2	33.6110	36.7796	35.2793	0.3136	0.6586	0.6611
Pup 7 Y Acc NOG	ft/s2	-16.2819	16.6417	1.2531	2.5147	6.4673	0.4284
Pup 7 X Position	ft	-1.1568	1.1755	0.0000	0.4988	0.8909	8.7442
Pup 7 Y Position	ft	-0.7793	0.6656	0.0000	0.2630	0.4676	5.4659
Pup 8 X Acc NOG	ft/s2	33.3984	36.7253	34.9588	0.3263	0.8090	0.6827
Pup 8 Y Acc NOG	ft/s2	-1.3765	4.3006	1.0594	0.5809	1.2855	0.6599
Pup 8 X Position	ft	-0.9660	0.9007	0.0001	0.4603	0.7657	11.3000
Pup 8 Y Position	ft	-0.4767	0.4379	0.0000	0.2414	0.3985	11.3000

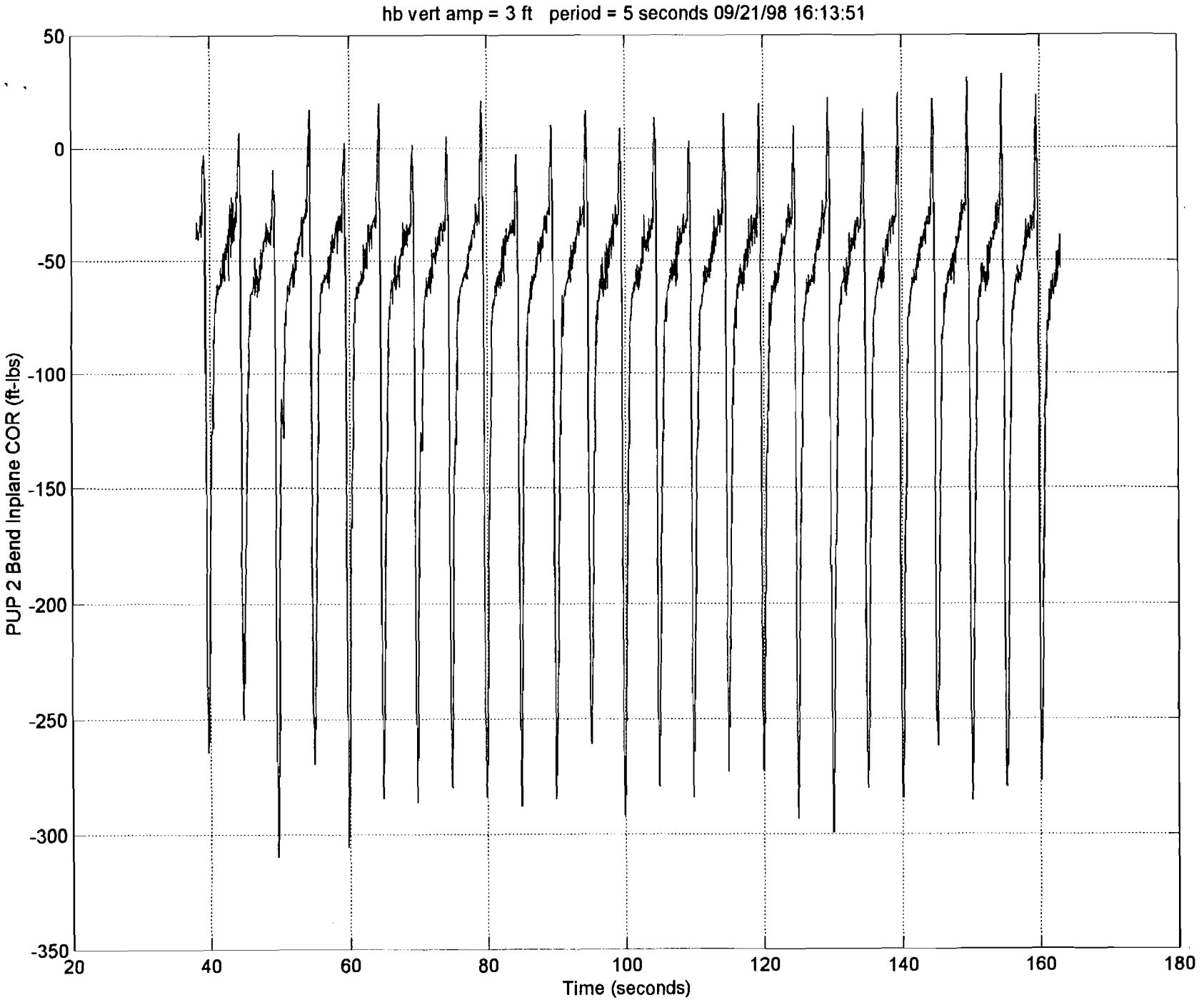

hb vert amp = 3 ft period = 5 seconds repeat 09/22/98 17:53:56
Actuator Load (lbs)
Time (seconds)
2200
2000
1800
1600
1400
1200
1000
800
600
400
60
70
80
90
100
110
120
130
140
150
160

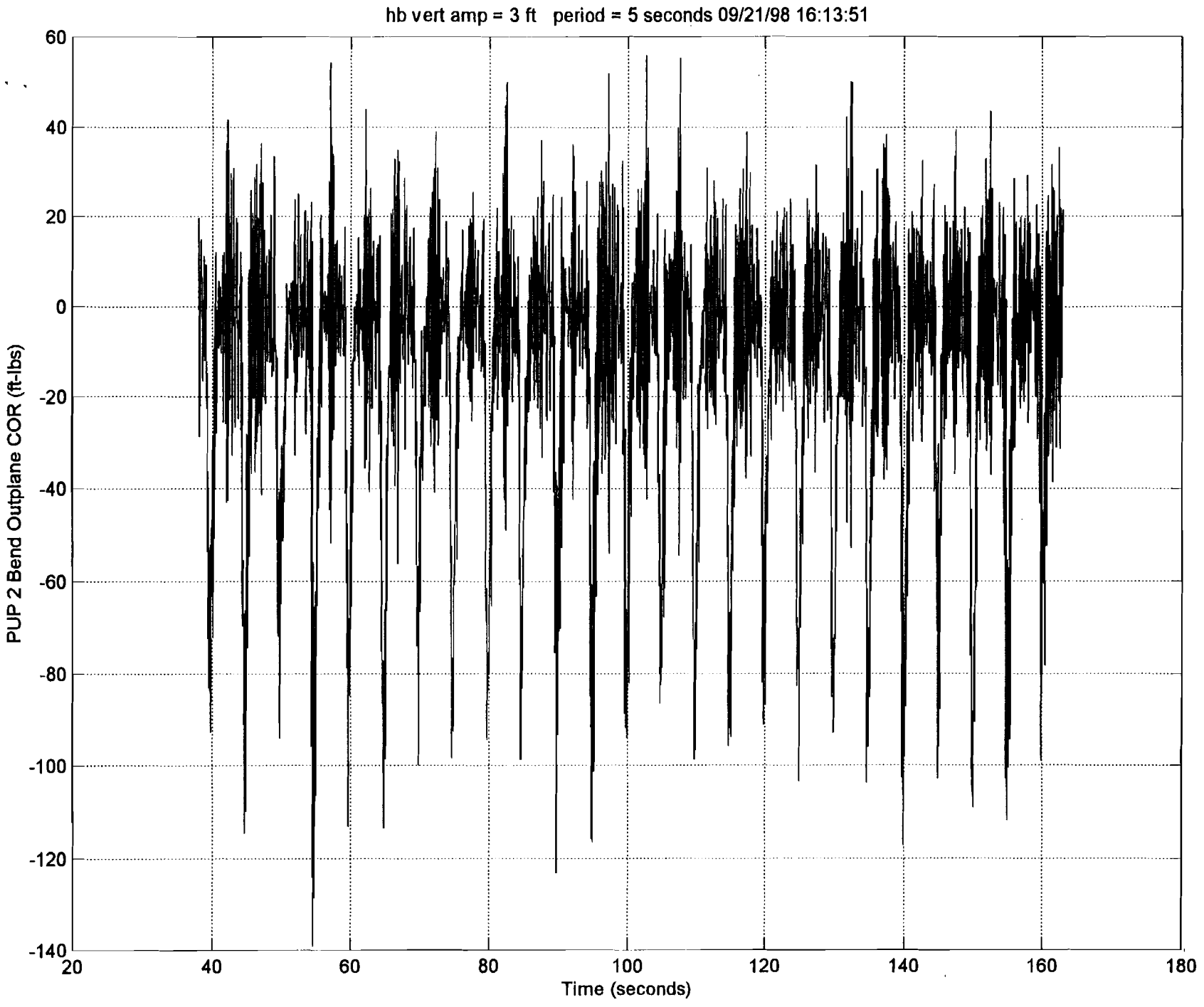

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
Actuator Load (lbs)
2000
1800
1600
1400
1200
1000
800
600
20
40
60
80
100
120
140
160
180
Time (seconds)

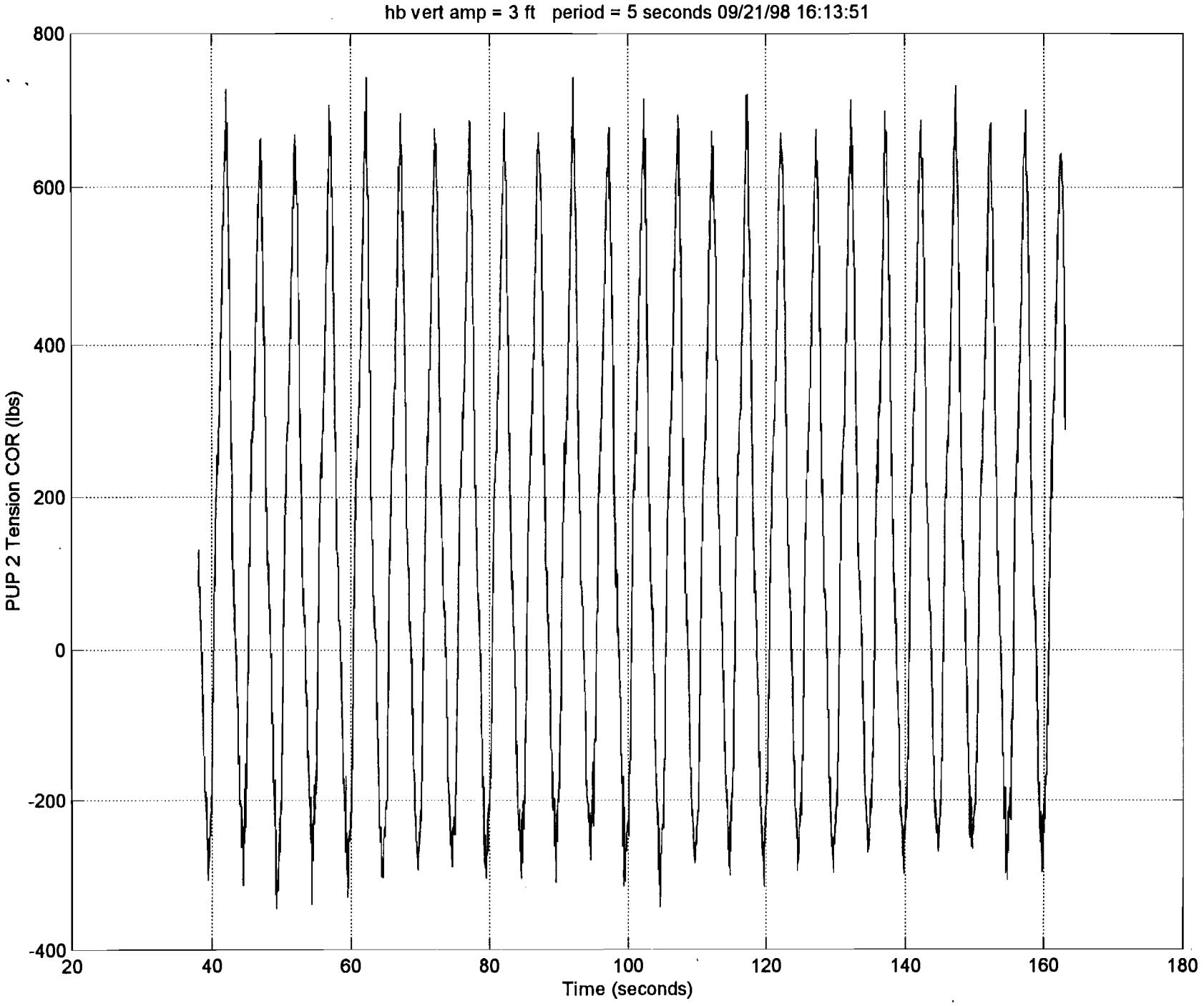

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
PUP 1 Bend Inplane COR (ft-lbs)
-12
-14
-16
-18
-20
-22
-24
-26
20
40
60
80
100
120
140
160
180
Time (seconds)

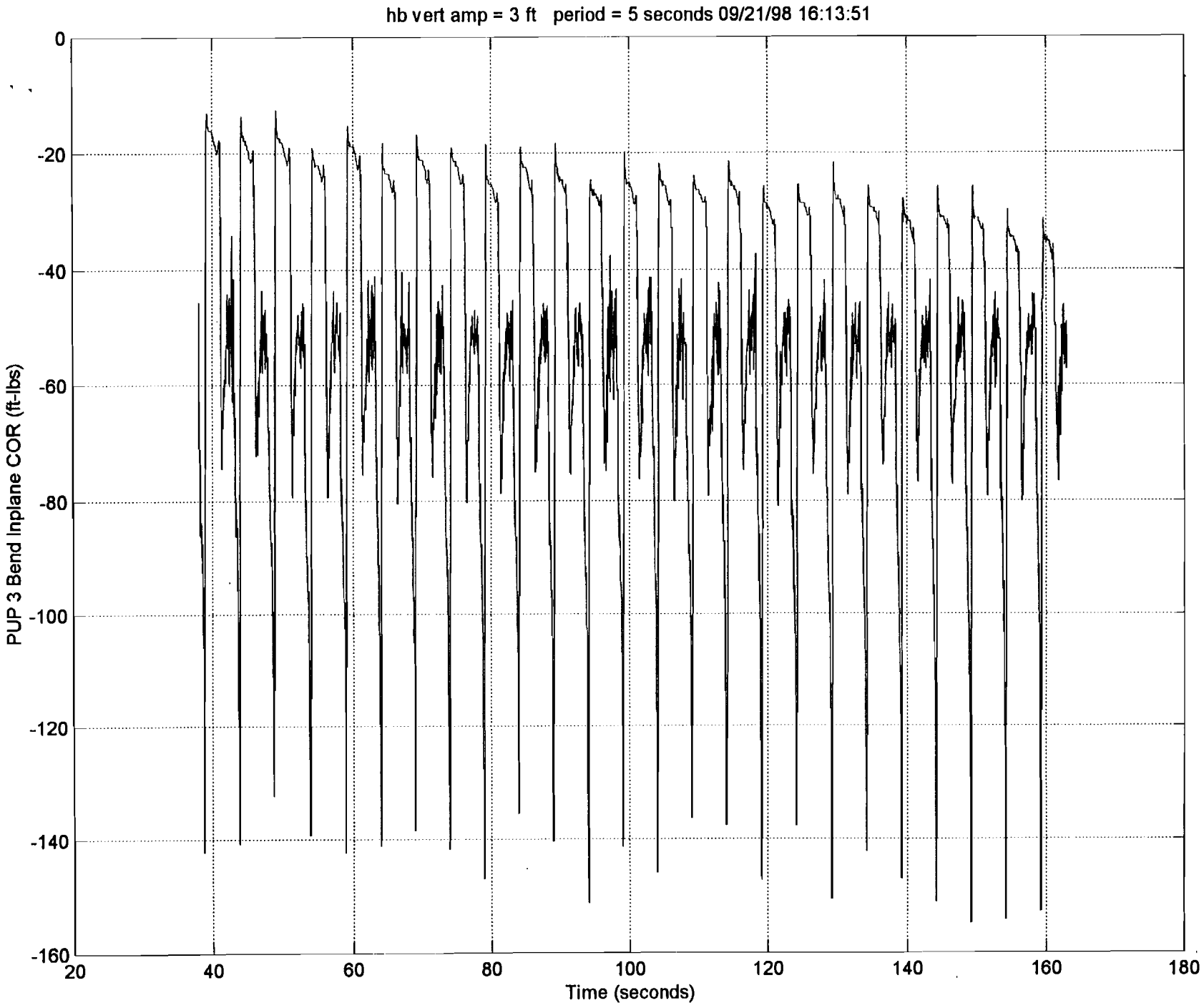

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
PUP 1 Bend Outplane COR (ft-lbs)
Time (seconds)
10
5
0
-5
-10
-15
20
40
60
80
100
120
140
160
180

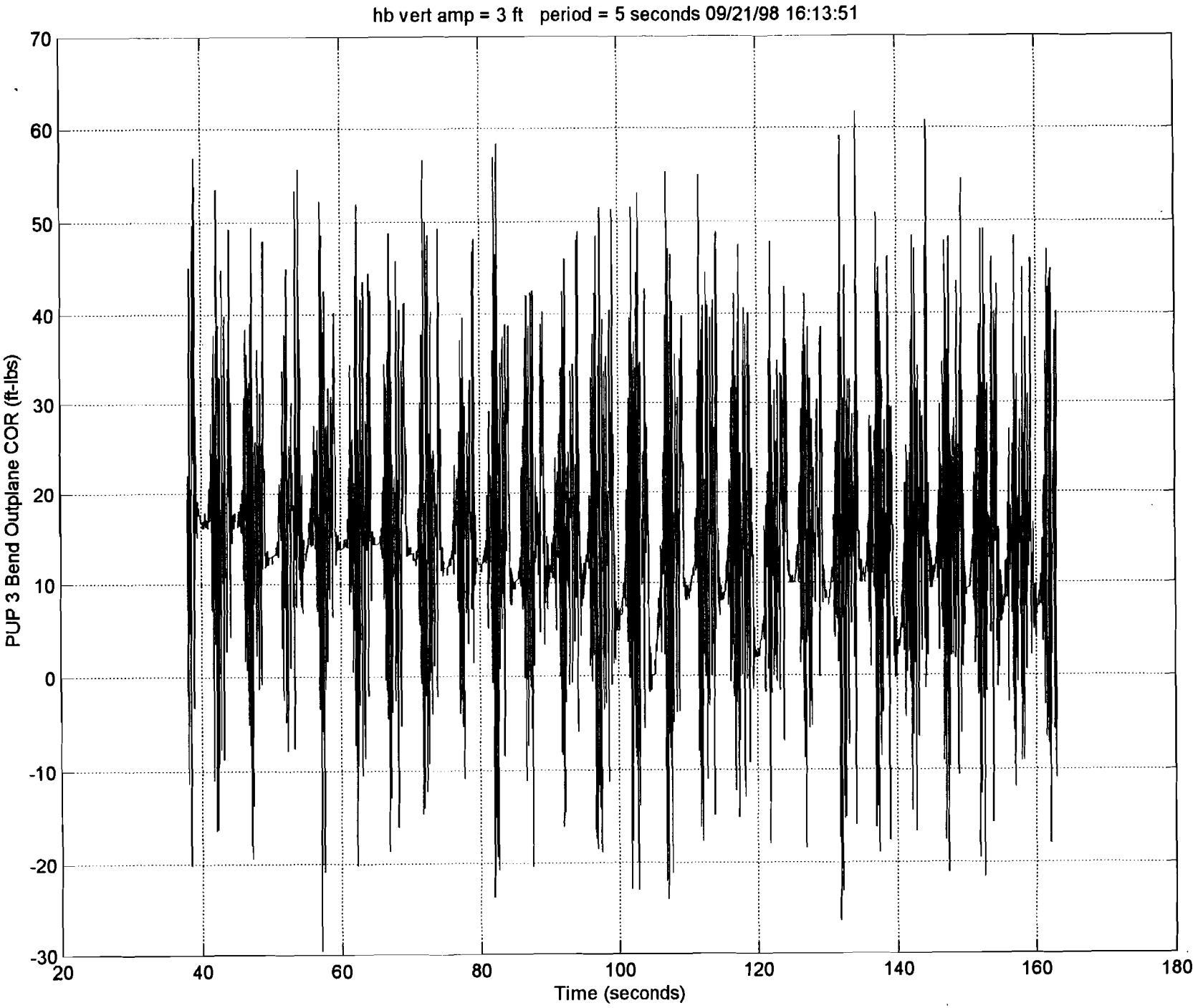

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
PUP 1 Tension COR (lbs)
2200
2000
1800
1600
1400
1200
1000
800
600
20
40
60
80
100
120
140
160
180
Time (seconds)

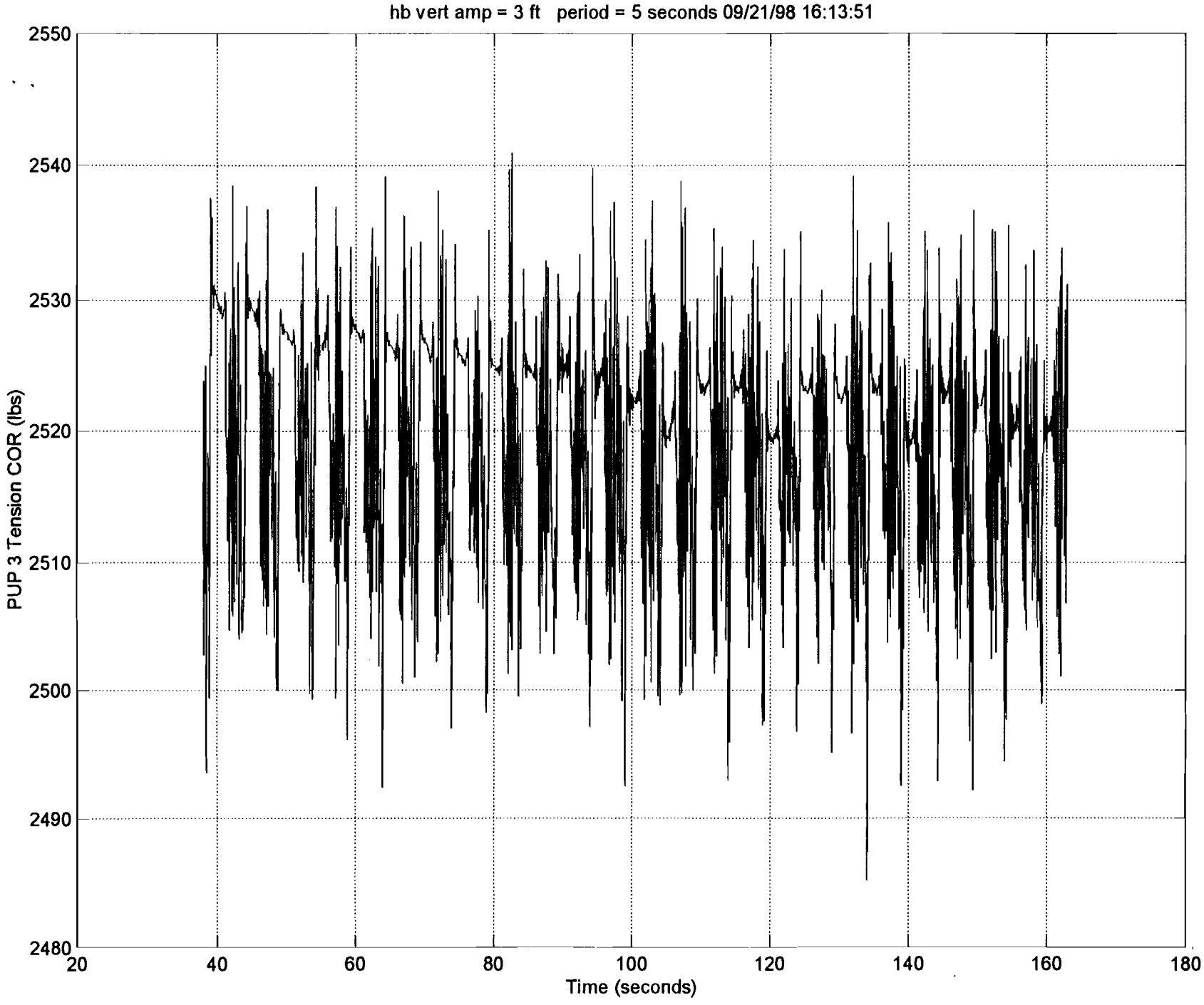

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
PUP 2 Bend Inplane COR (ft-lbs)
50
0
-50
-100
-150
-200
-250
-300
-350
20
40
60
80
100
120
140
160
180
Time (seconds)

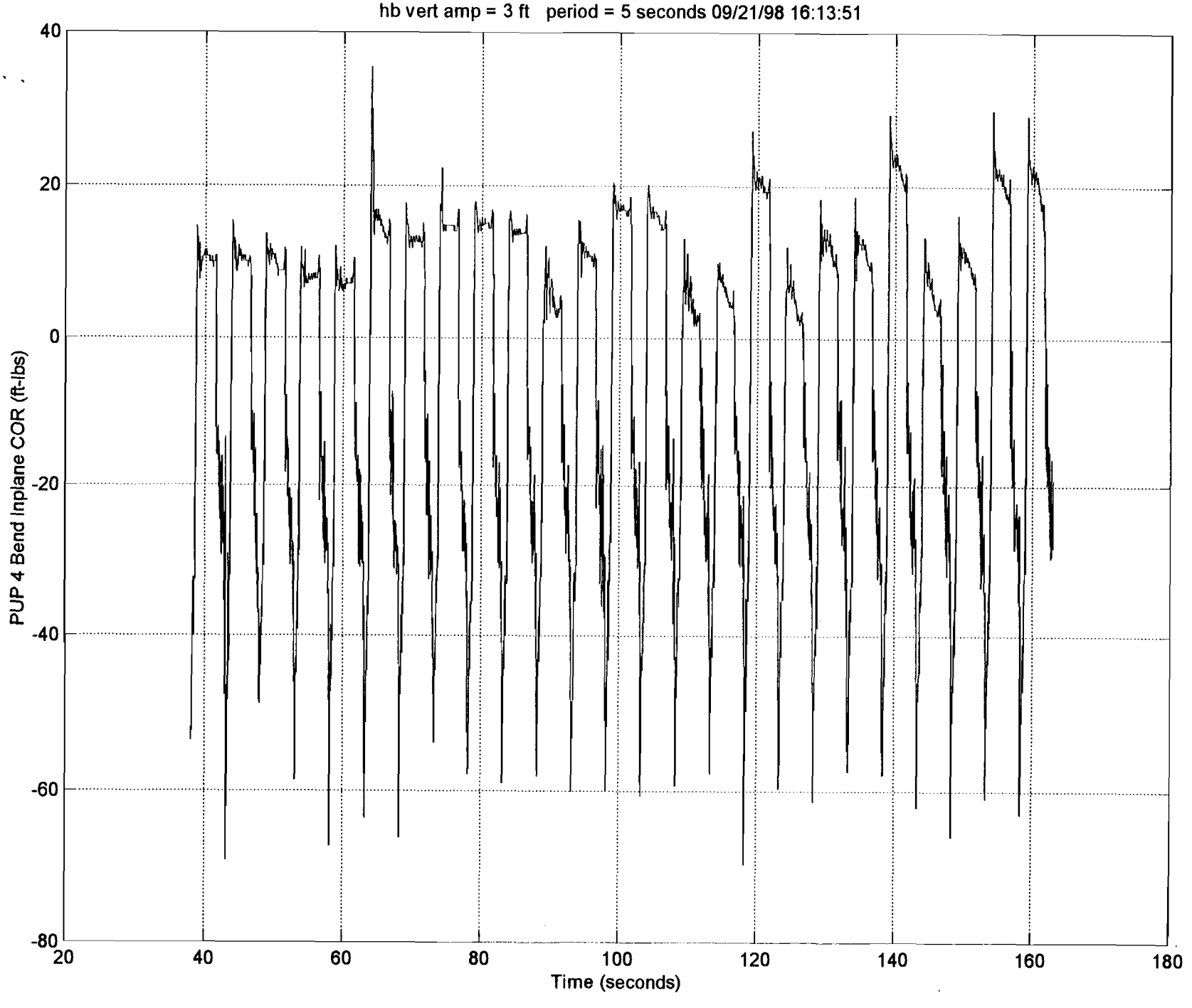

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
PUP 2 Bend Outplane COR (ft-lbs)
60
40
20
0
-20
-40
-60
-80
-100
-120
-140
20
40
60
80
100
120
140
160
180
Time (seconds)

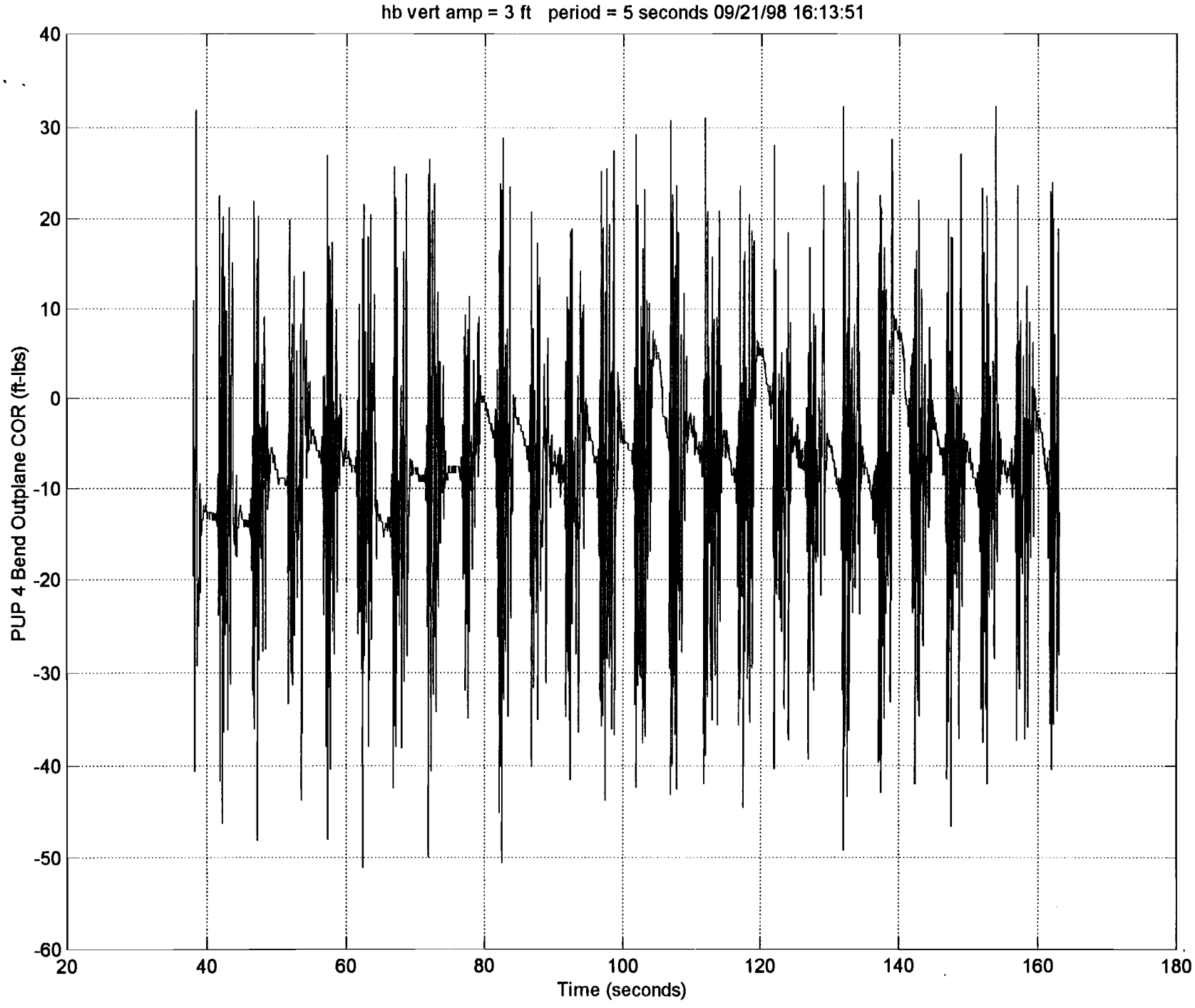

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
PUP 2 Tension COR (lbs)
800
600
400
200
0
-200
-400
20
40
60
80
100
120
140
160
180
Time (seconds)

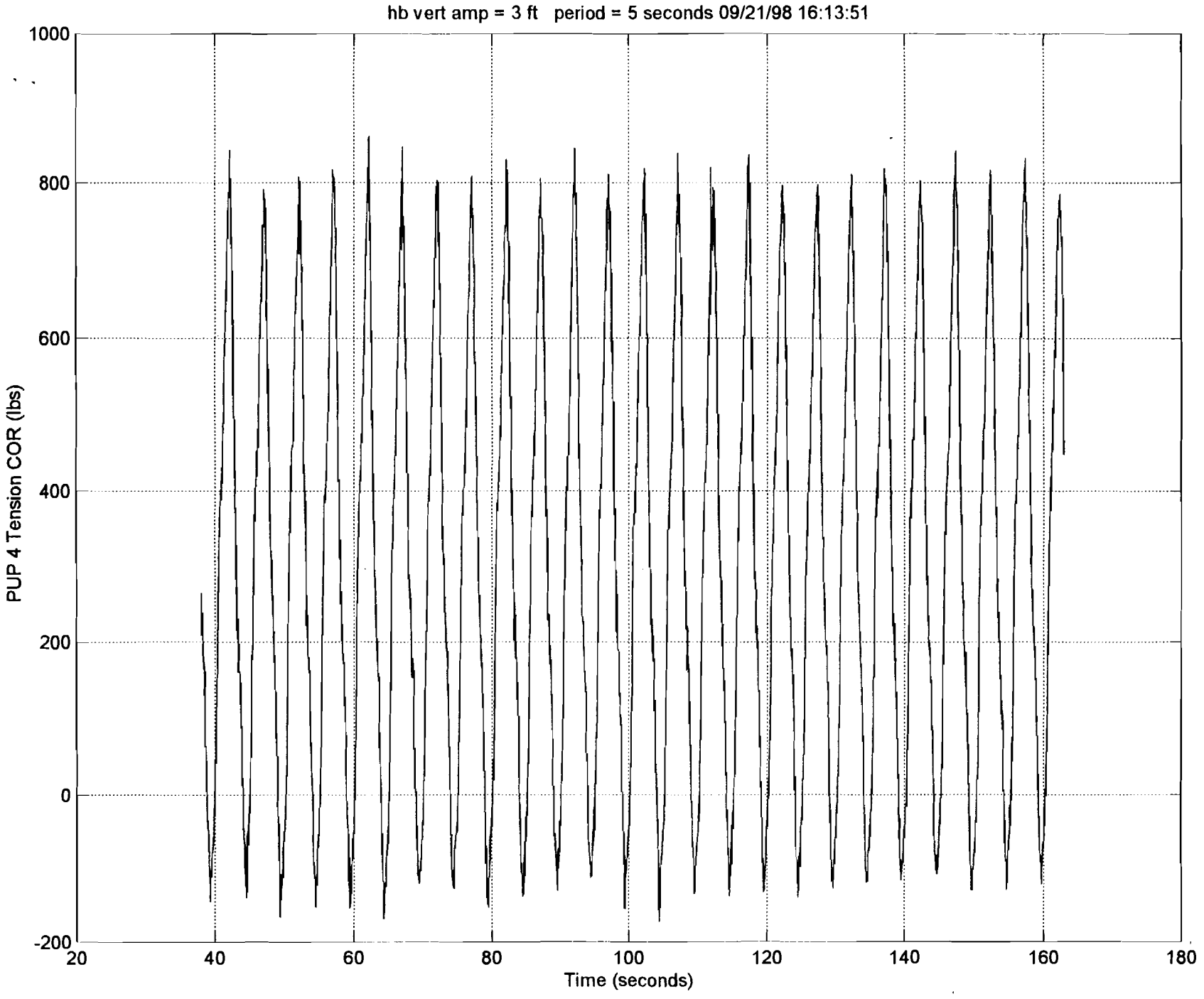

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
PUP 3 Bend Inplane COR (ft-lbs)
0
-20
-40
-60
-80
-100
-120
-140
-160
20
40
60
80
100
120
140
160
180
Time (seconds)

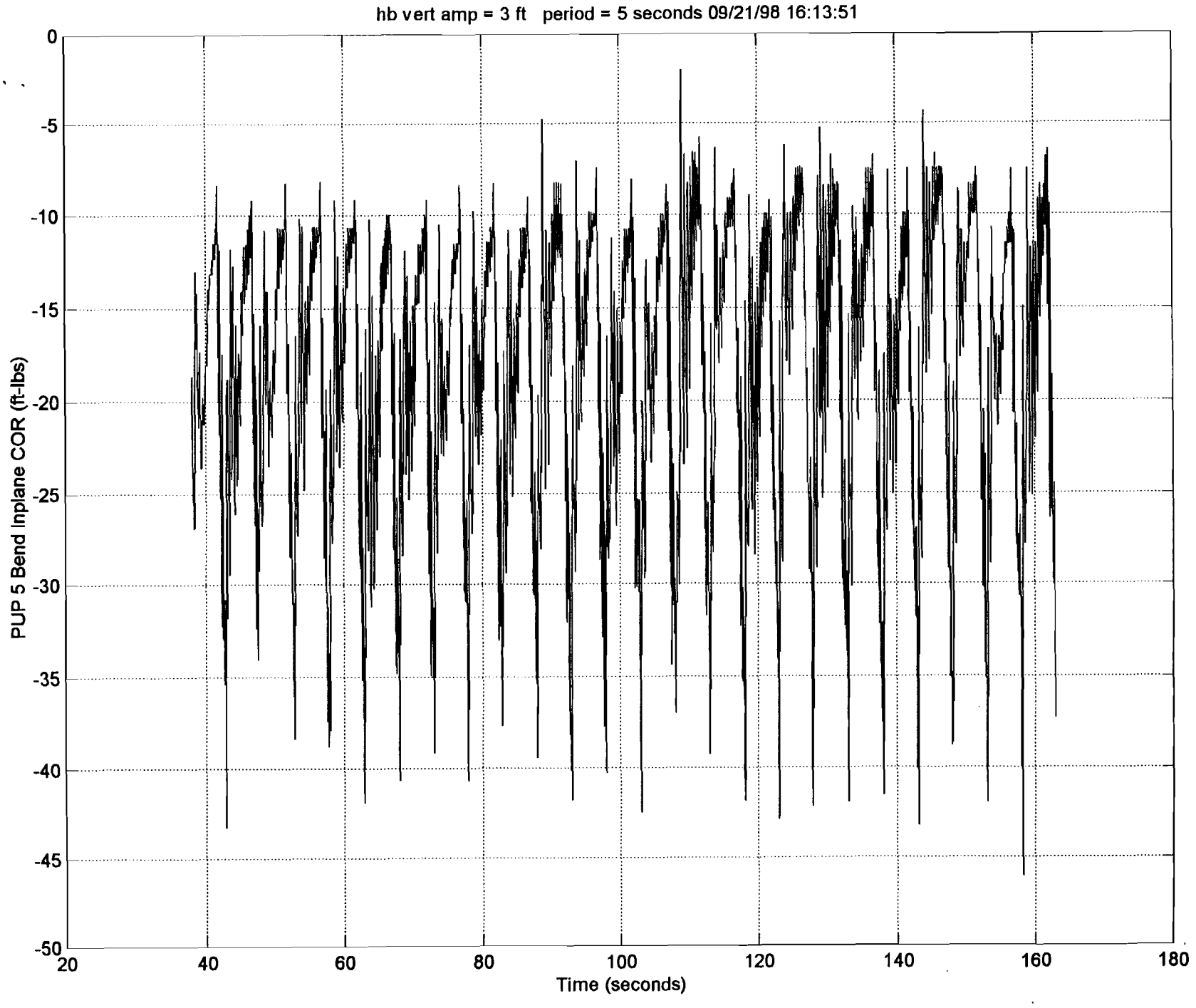

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
PUP 3 Bend Outplane COR (ft-lbs)
Time (seconds)
70
60
50
40
30
20
10
0
-10
-20
-30
20
40
60
80
100
120
140
160
180

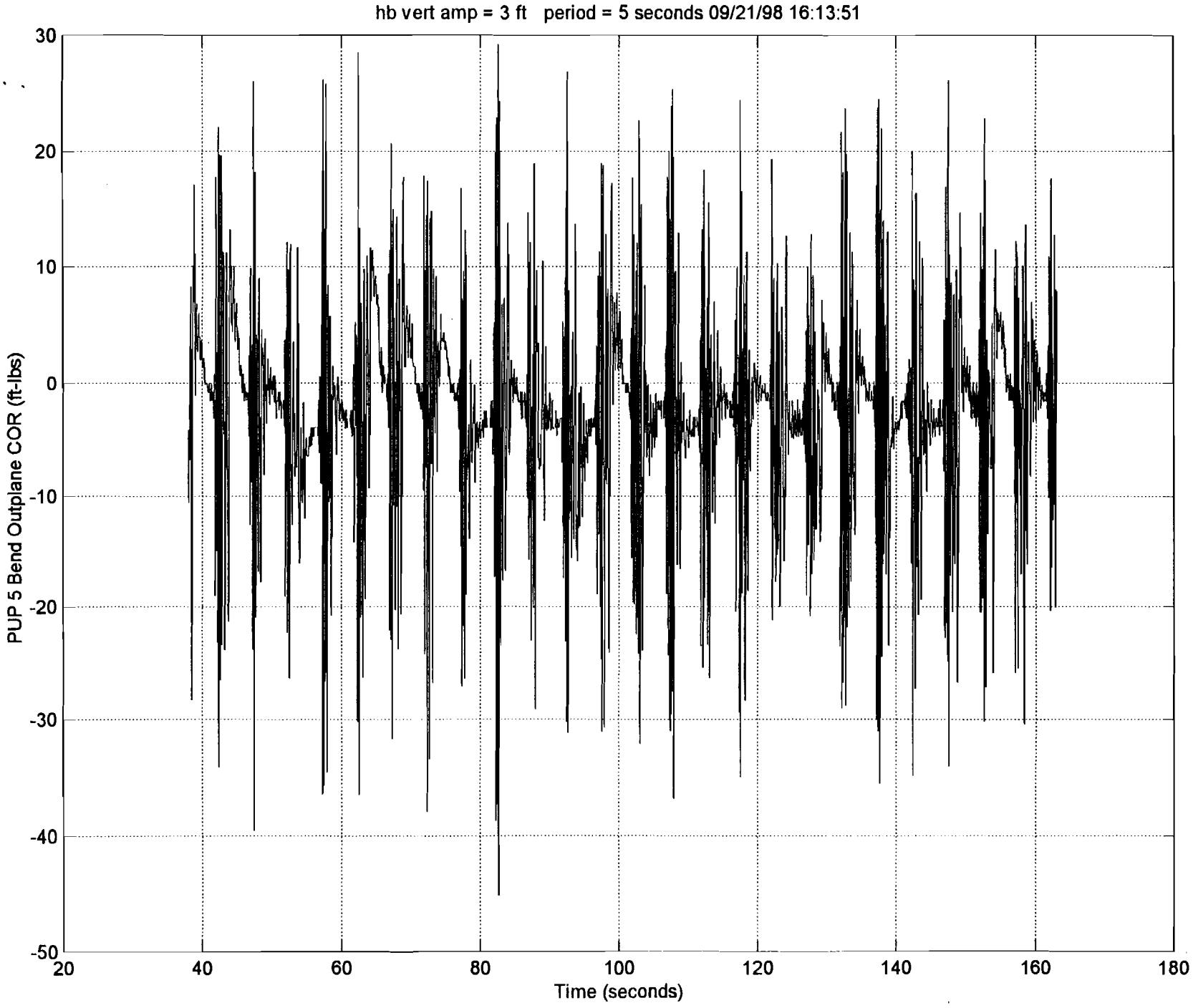

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
PUP 3 Tension COR (lbs)
2550
2540
2530
2520
2510
2500
2490
2480
20
40
60
80
100
120
140
160
180
Time (seconds)

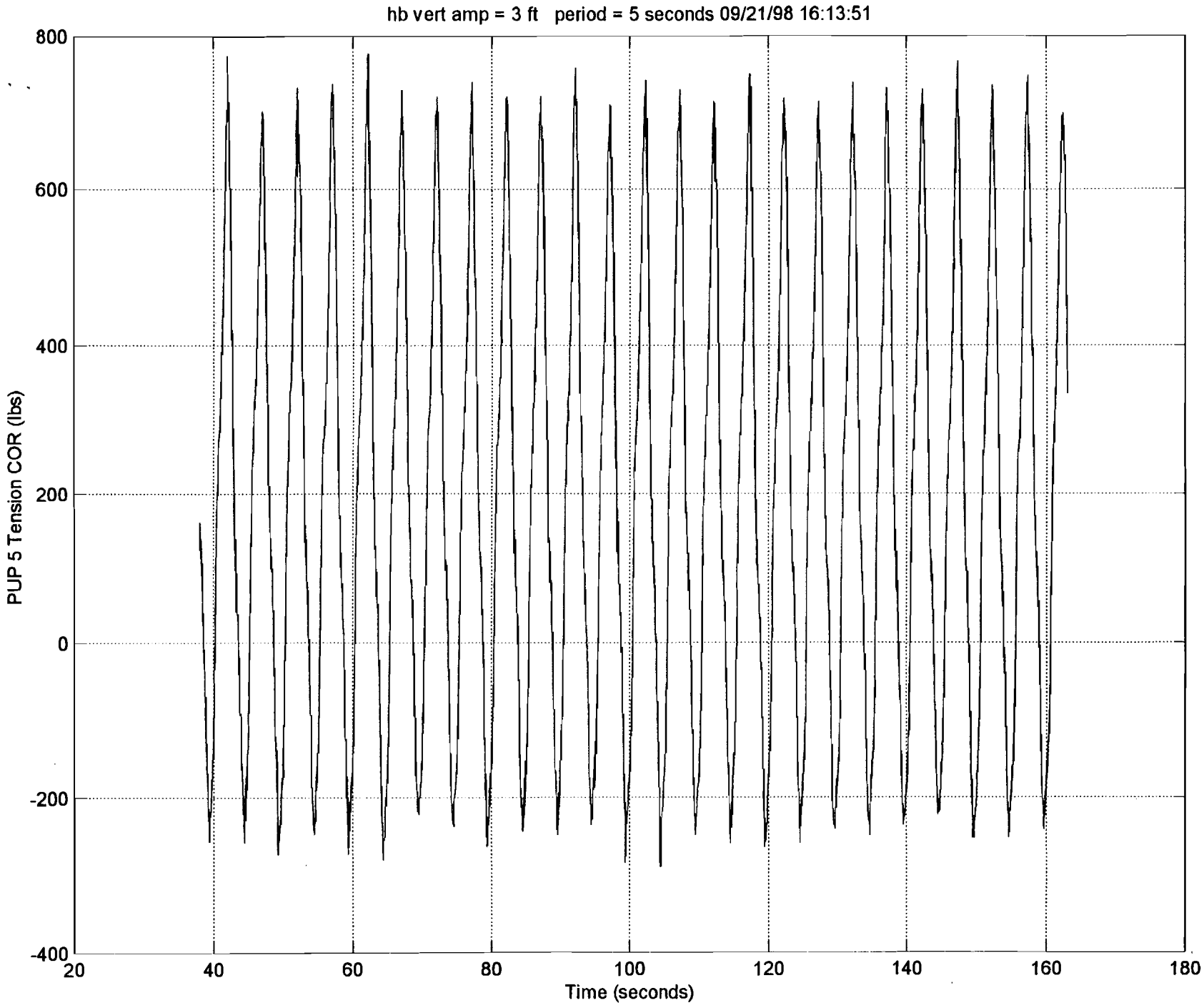

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
PUP 4 Bend Inplane COR (ft-lbs)
Time (seconds)
40
20
0
-20
-40
-60
-80
20
40
60
80
100
120
140
160
180

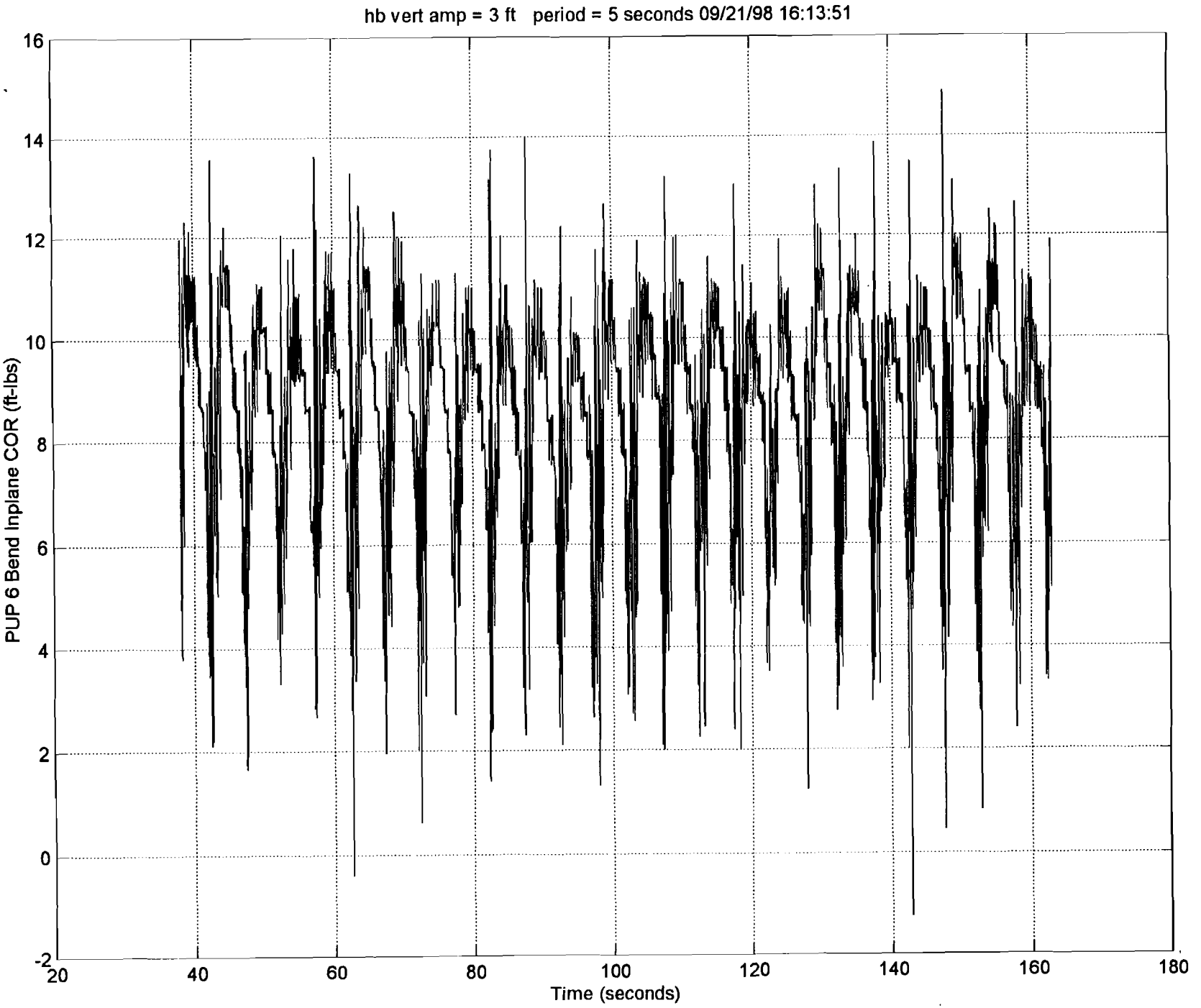

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
PUP 4 Bend Outplane COR (ft-lbs)
Time (seconds)
40
30
20
10
0
-10
-20
-30
-40
-50
-60
20
40
60
80
100
120
140
160
180

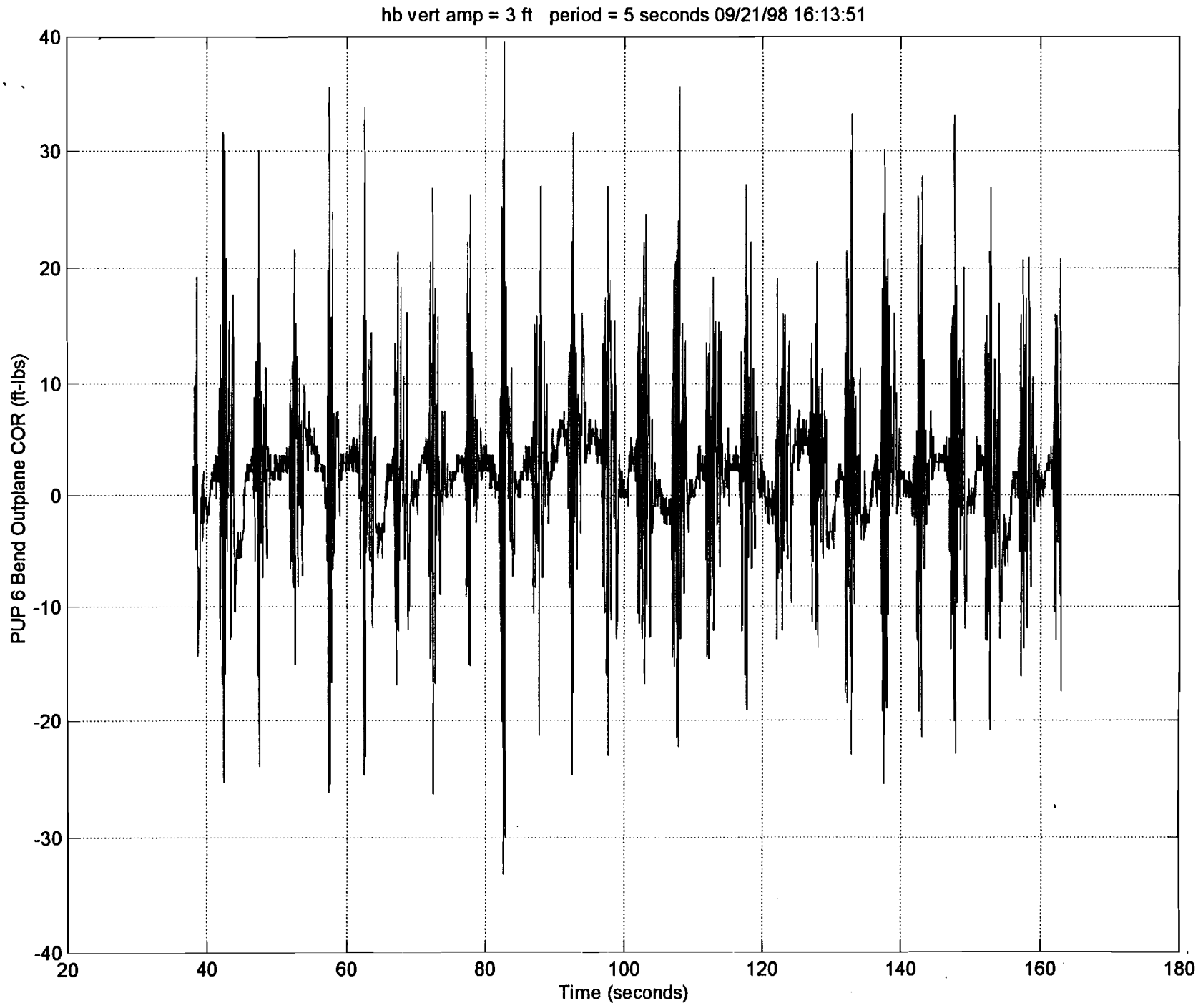

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
PUP 4 Tension COR (lbs)
1000
800
600
400
200
0
-200
20
40
60
80
100
120
140
160
180
Time (seconds)

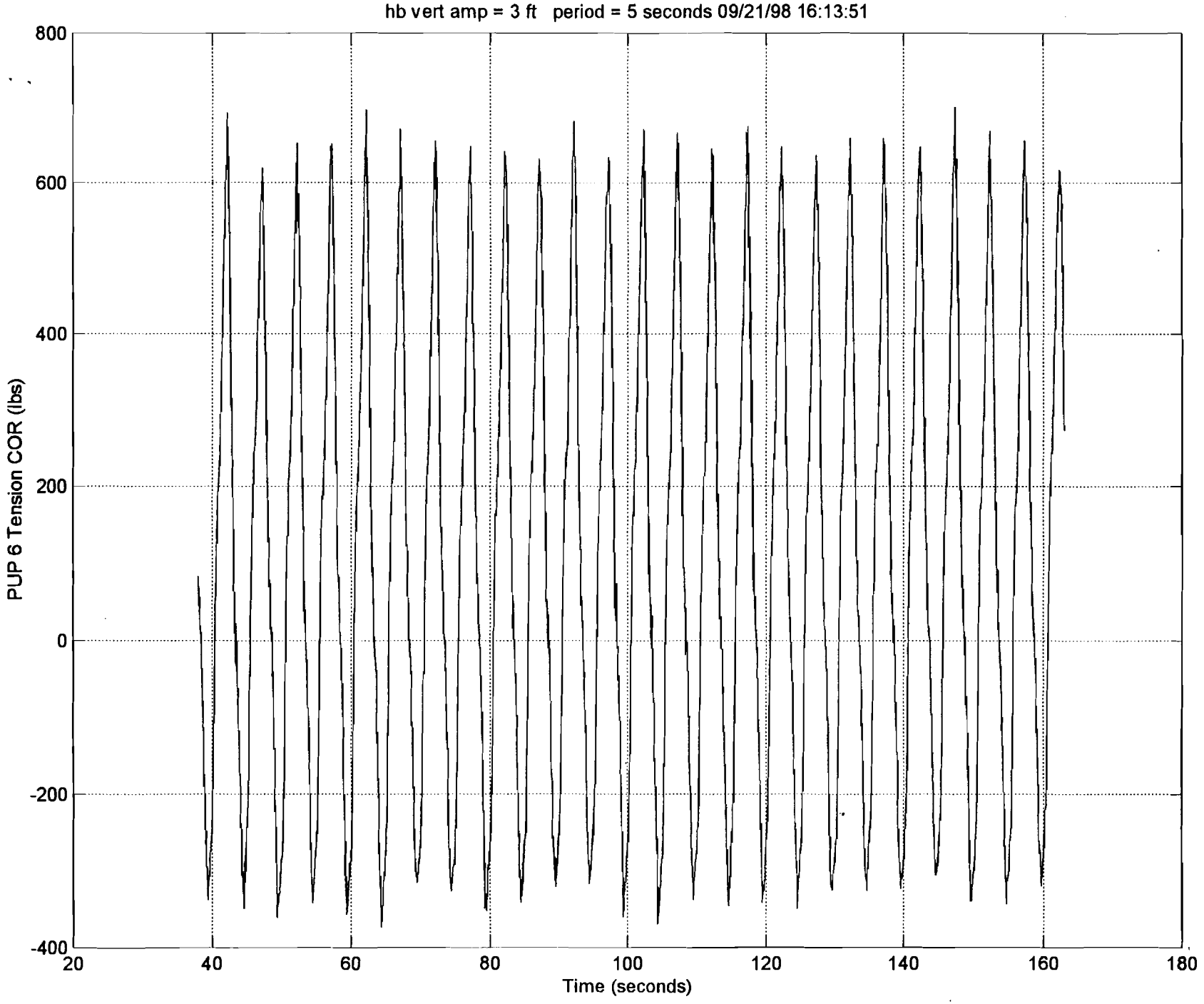

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
PUP 5 Bend Inplane COR (ft-lbs)
0
-5
-10
-15
-20
-25
-30
-35
-40
-45
-50
20
40
60
80
100
120
140
160
180
Time (seconds)

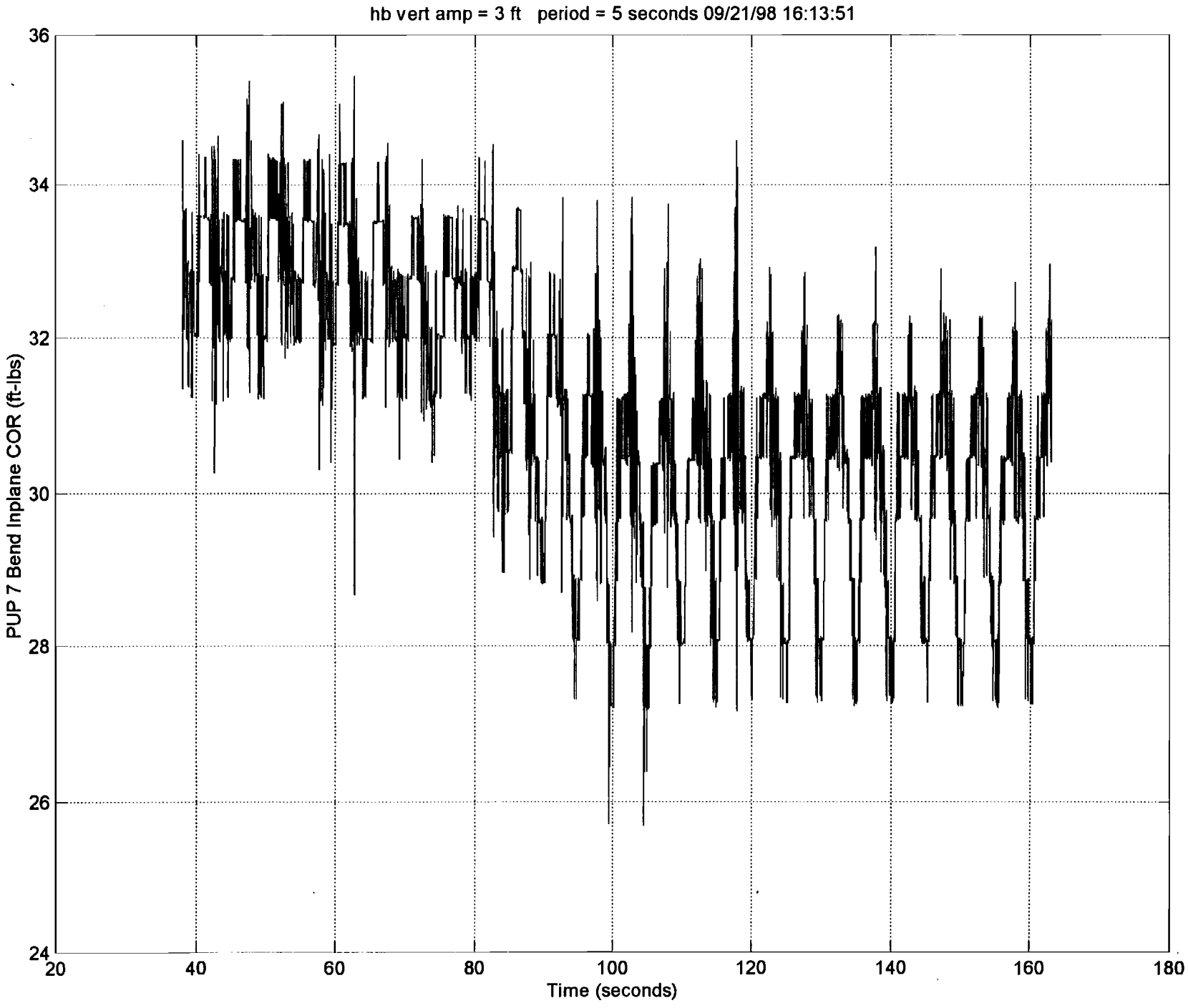

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
PUP 5 Bend Outplane COR (ft-lbs)
30
20
10
0
-10
-20
-30
-40
-50
20
40
60
80
100
120
140
160
180
Time (seconds)

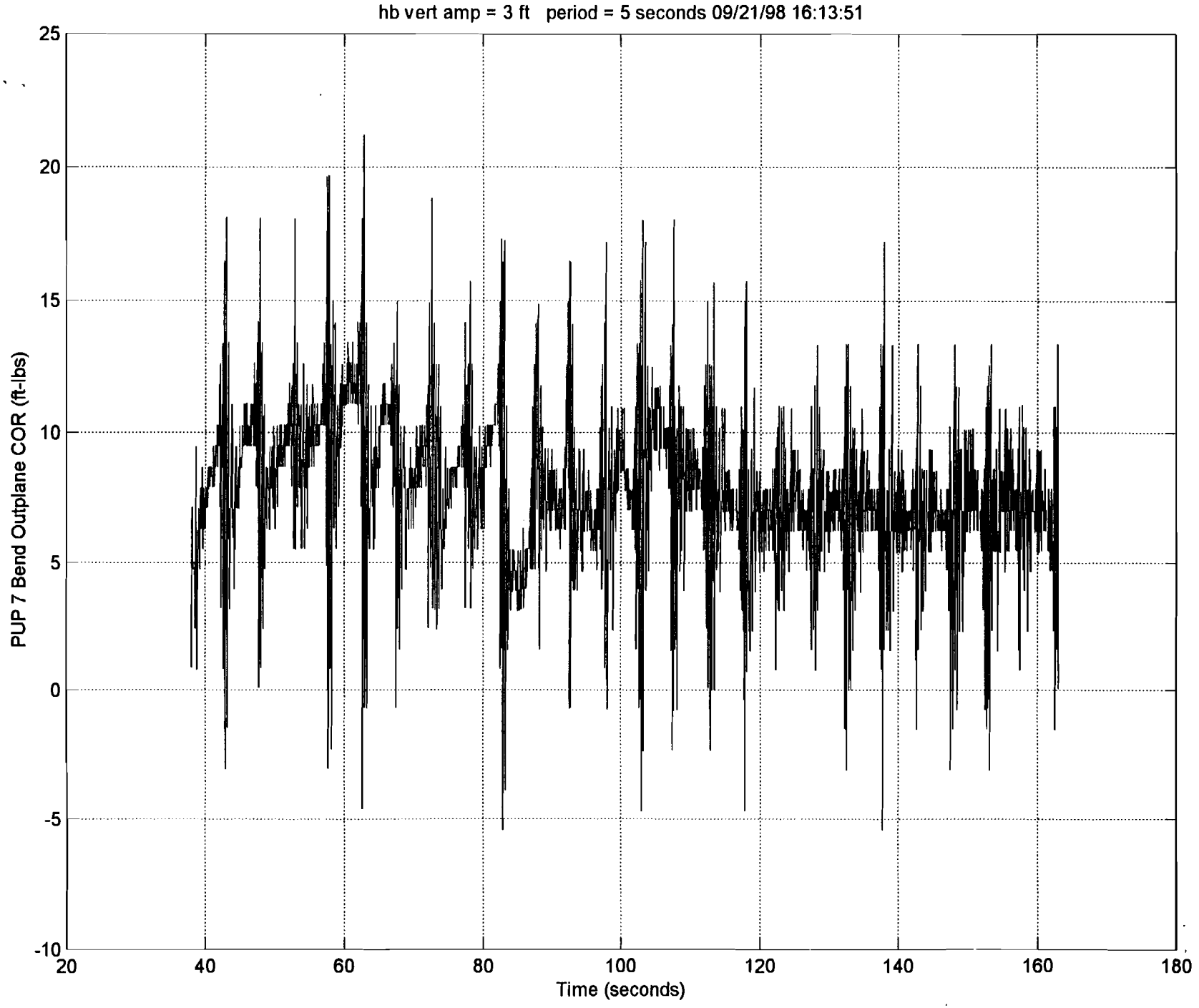

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
PUP 5 Tension COR (lbs)
800
600
400
200
0
-200
-400
20
40
60
80
100
120
140
160
180
Time (seconds)

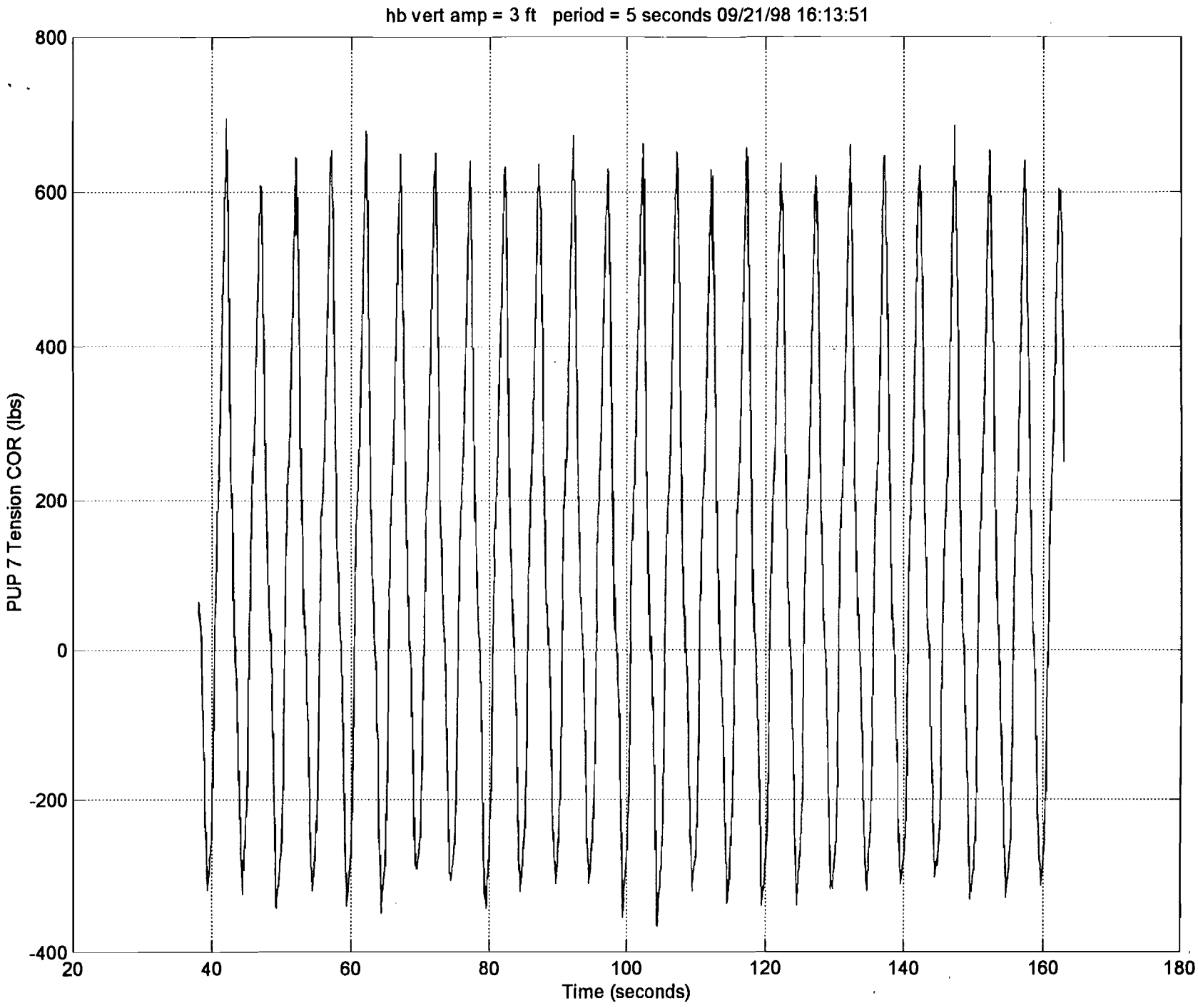

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
PUP 6 Bend Inplane COR (ft-lbs)
Time (seconds)
16
14
12
10
8
6
4
2
0
-2
20
40
60
80
100
120
140
160
180

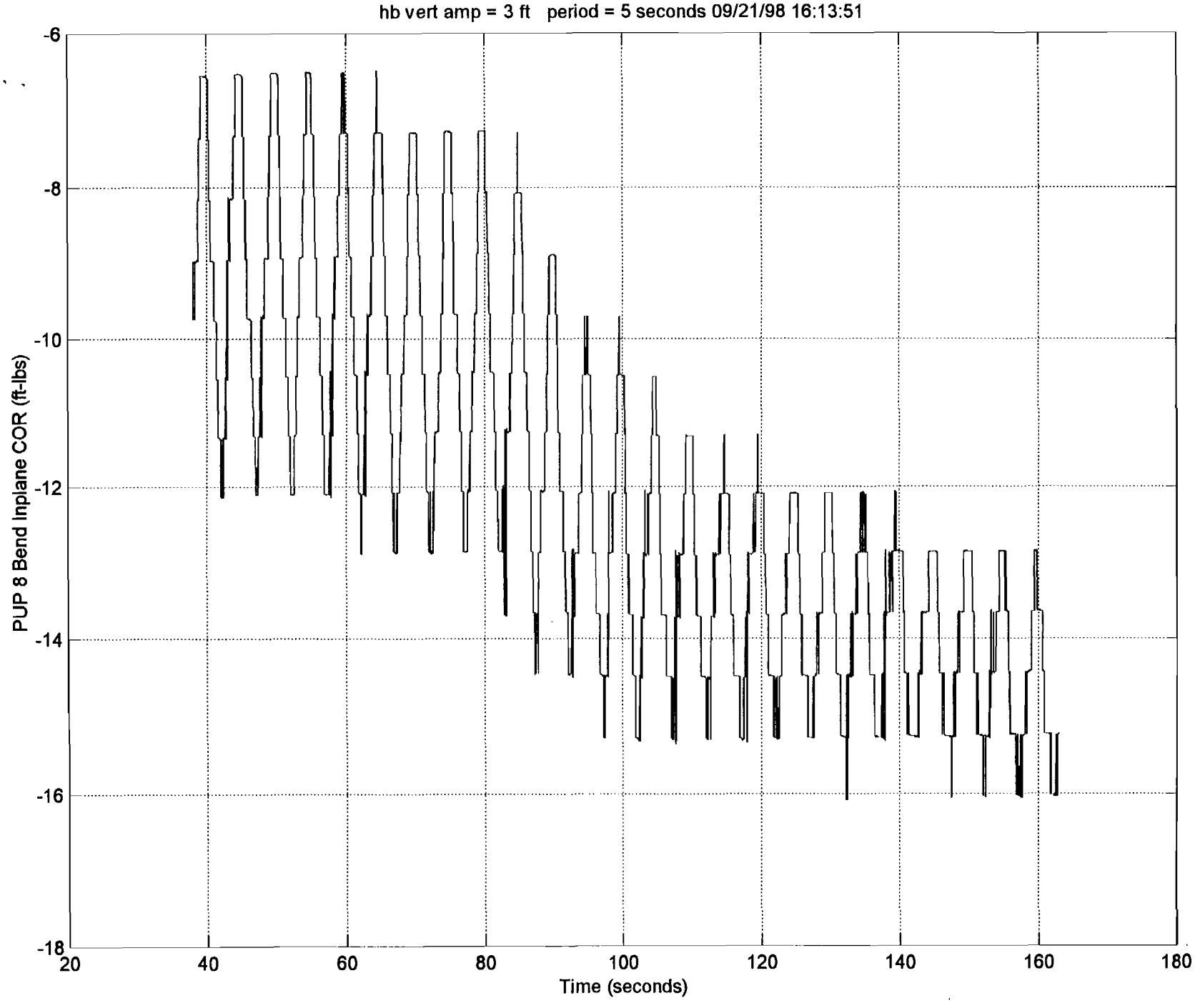

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
PUP 6 Bend Outplane COR (ft-lbs)
Time (seconds)
40
30
20
10
0
-10
-20
-30
-40
20
40
60
80
100
120
140
160
180

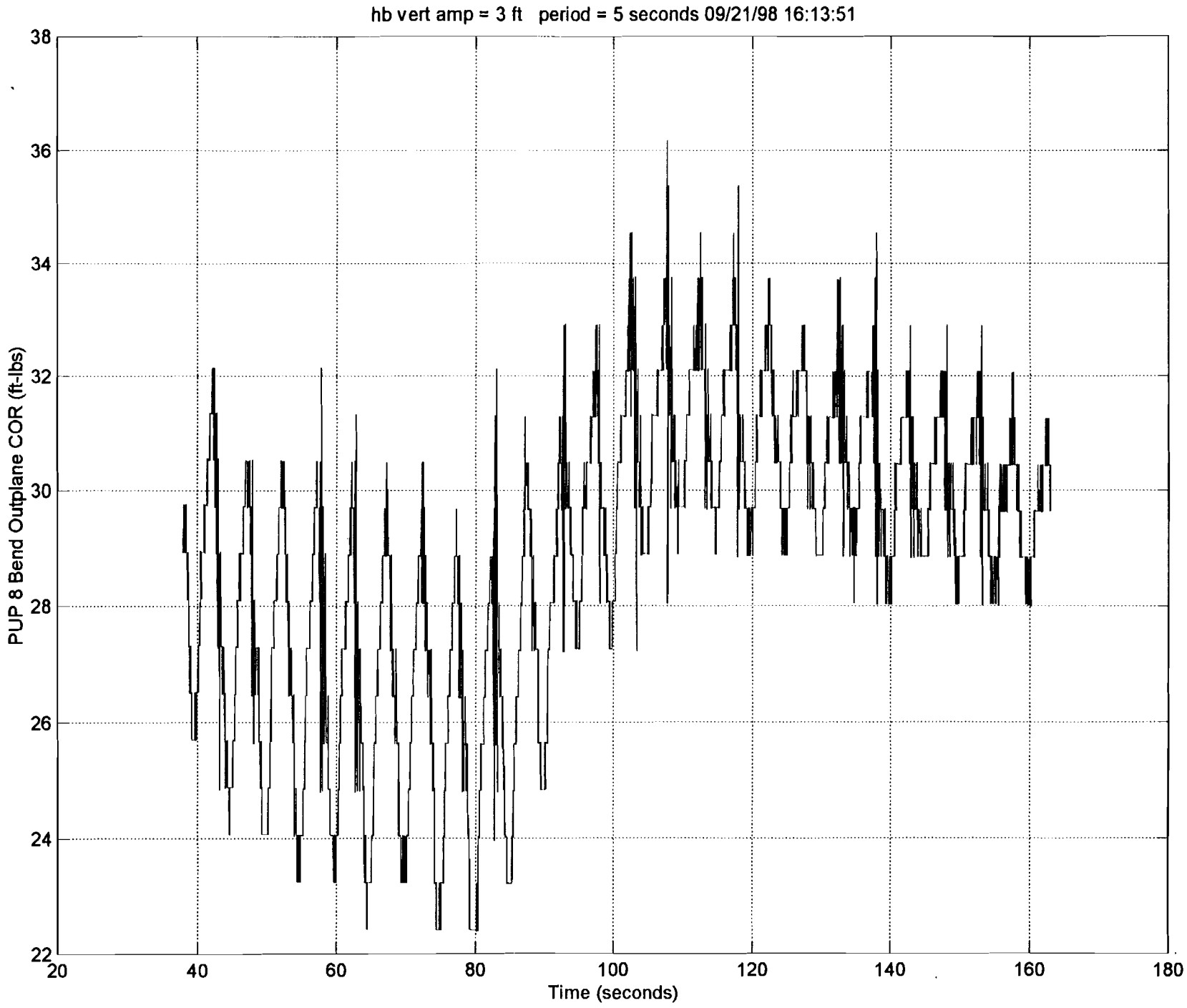

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
PUP 6 Tension COR (lbs)
800
600
400
200
0
-200
-400
20
40
60
80
100
120
140
160
180
Time (seconds)

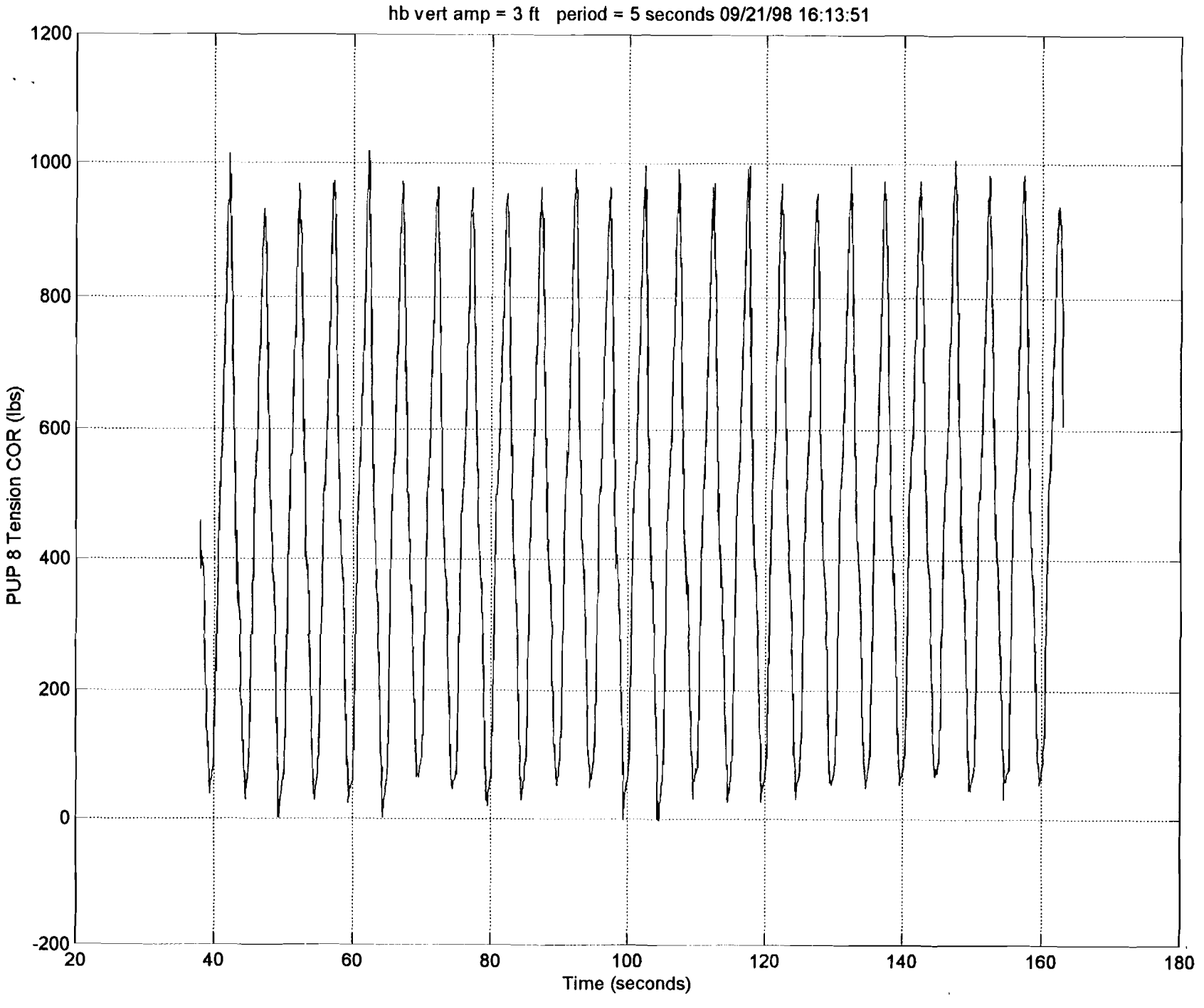

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
PUP 7 Bend Inplane COR (ft-lbs)
Time (seconds)
36
34
32
30
28
26
24
20
40
60
80
100
120
140
160
180

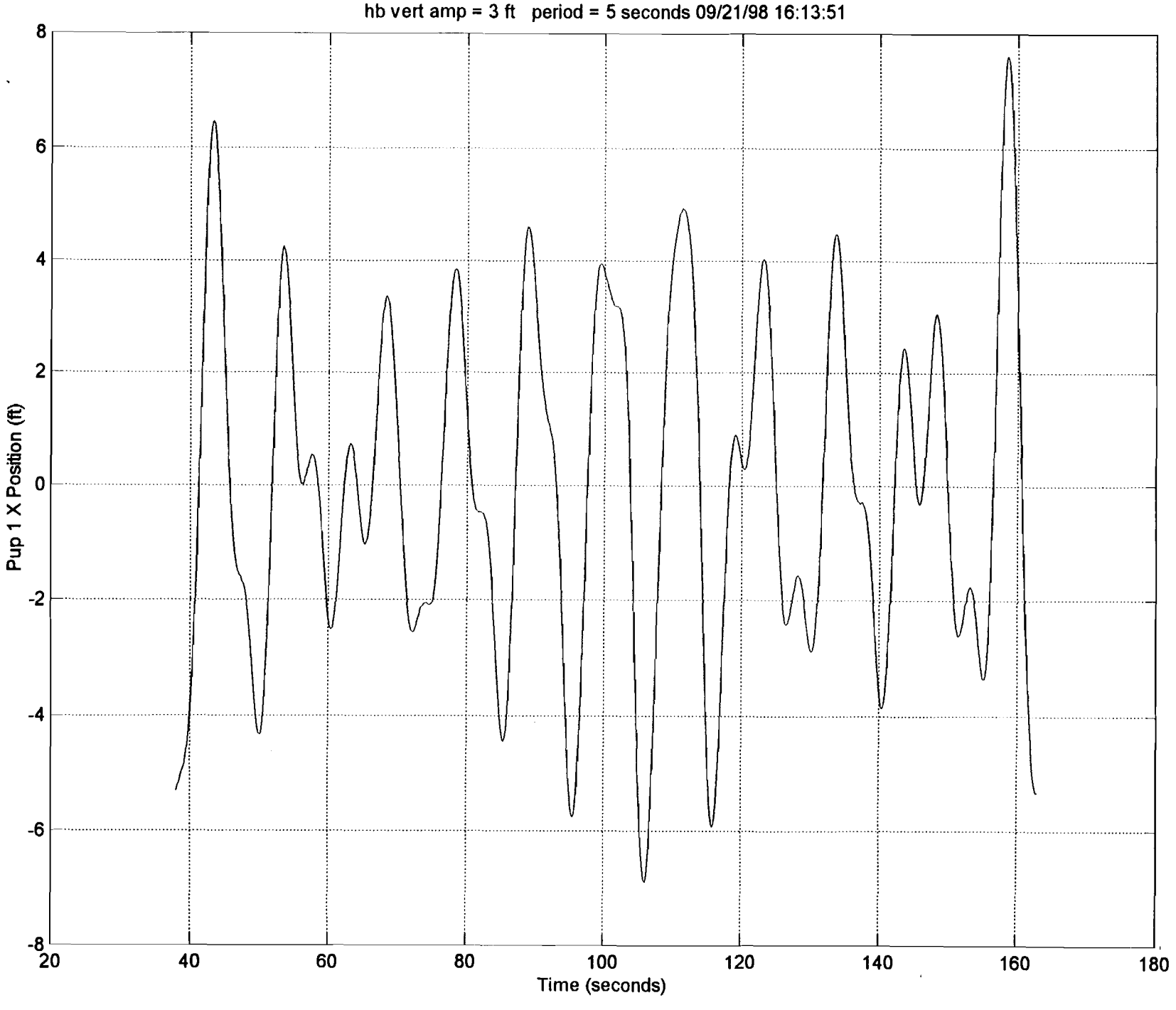

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
PUP 7 Bend Outplane COR (ft-lbs)
Time (seconds)
25
20
15
10
5
0
-5
-10
20
40
60
80
100
120
140
160
180

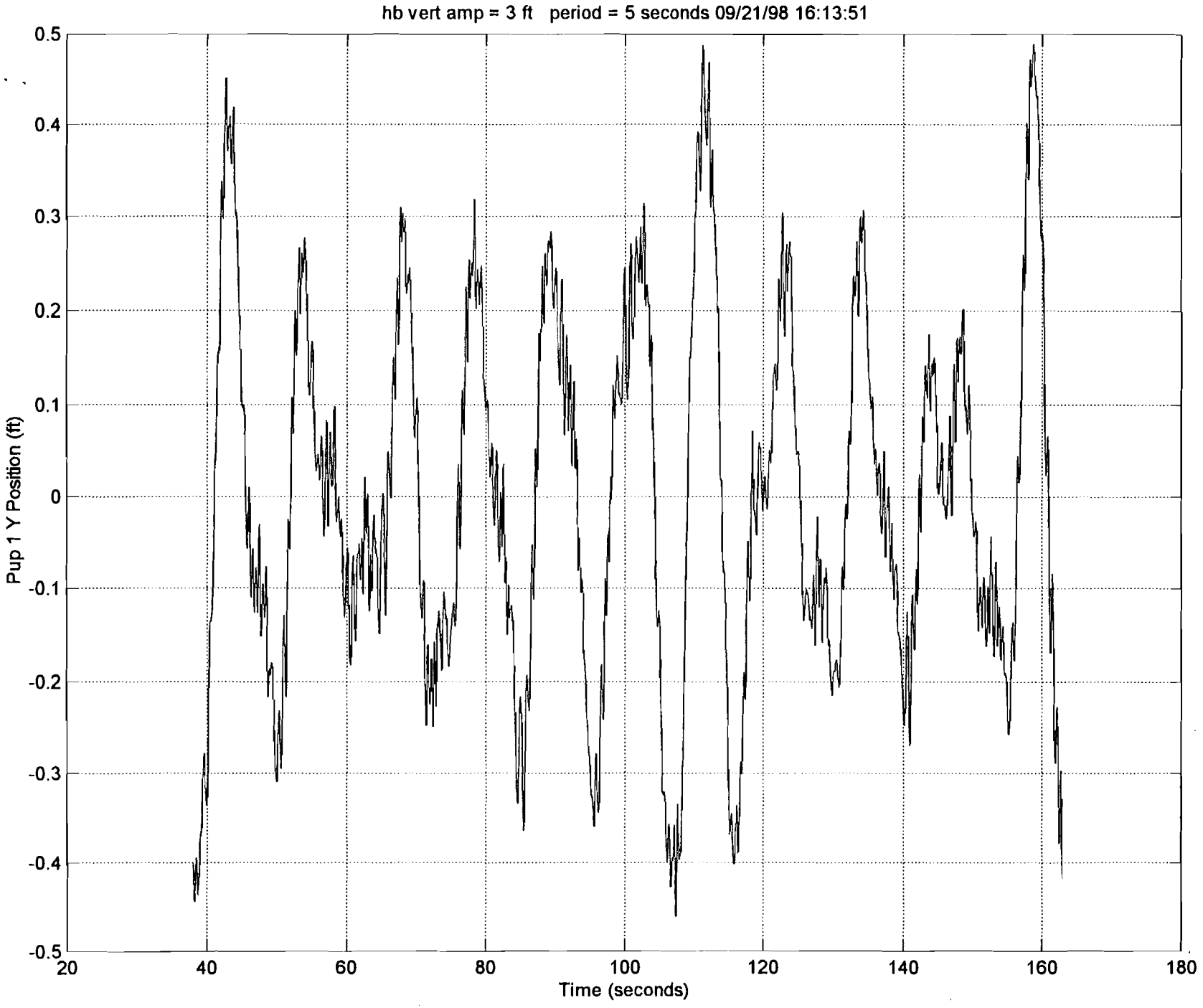

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
800
600
400
200
0
-200
-400
PUP 7 Tension COR (lbs)
20
40
60
80
100
120
140
160
180
Time (seconds)

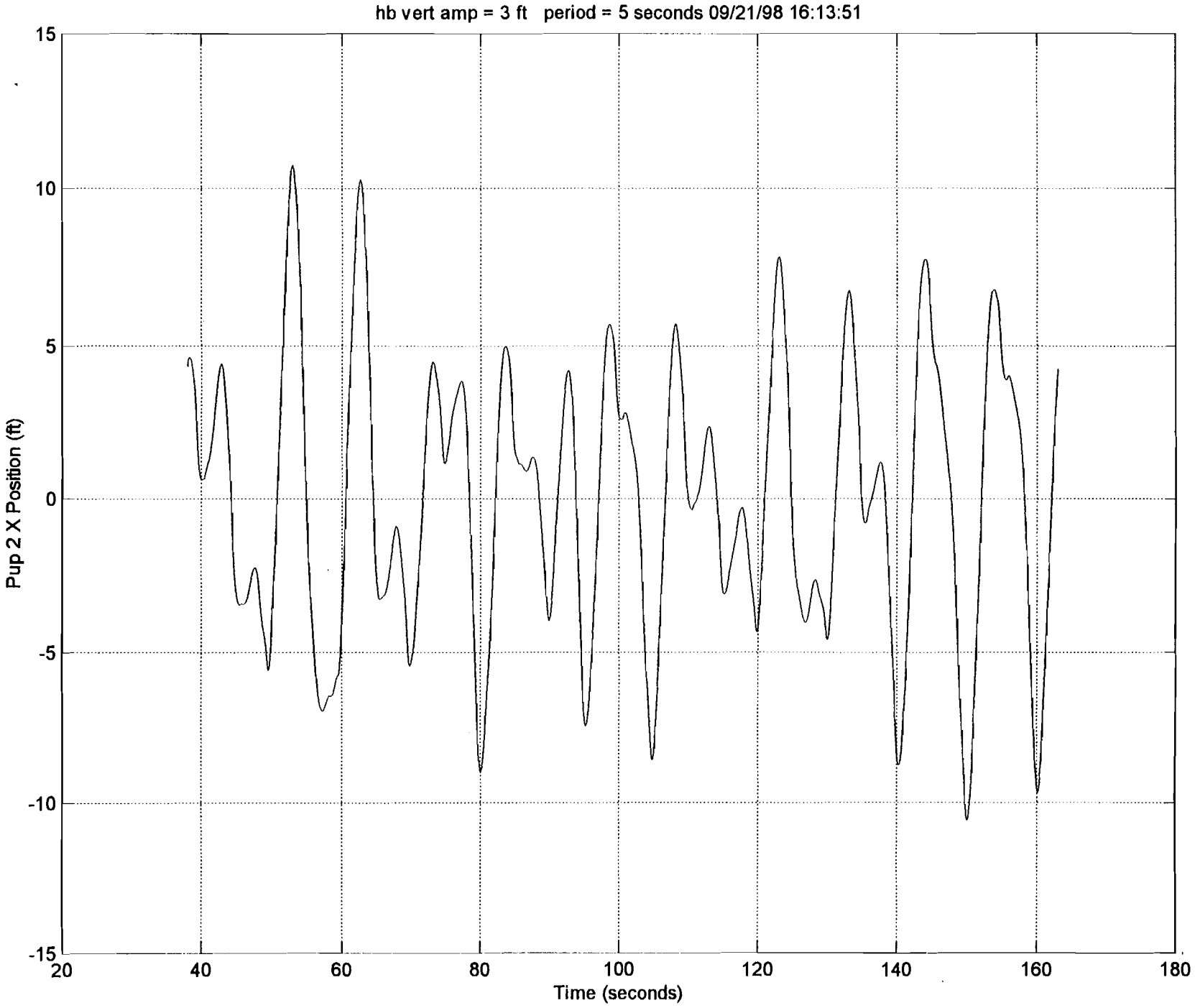

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
PUP 8 Bend Inplane COR (ft-lbs)
-6
-8
-10
-12
-14
-16
-18
20
40
60
80
100
120
140
160
180
Time (seconds)

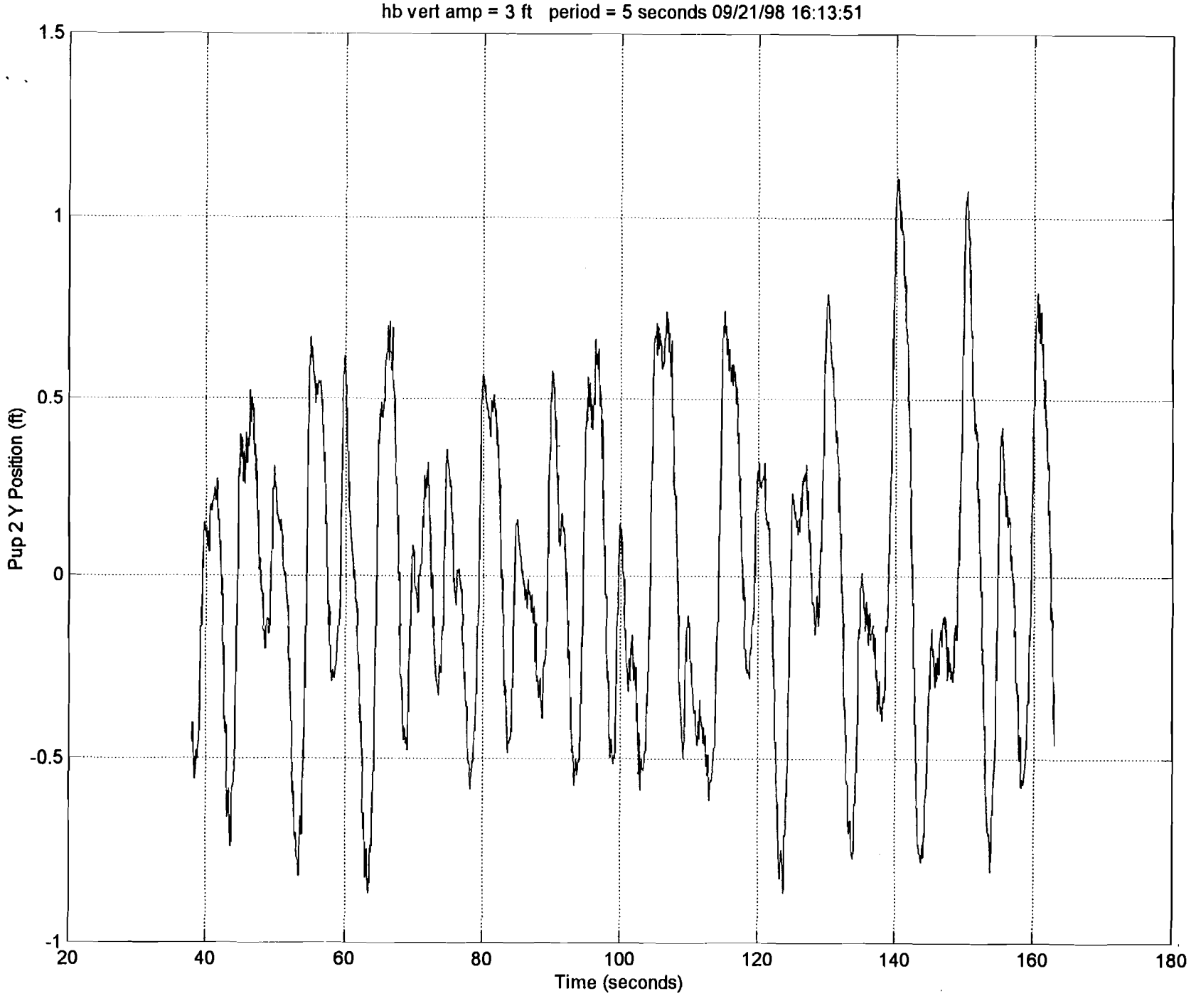

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
PUP 8 Bend Outplane COR (ft-lbs)
Time (seconds)
38
36
34
32
30
28
26
24
22
20
40
60
80
100
120
140
160
180

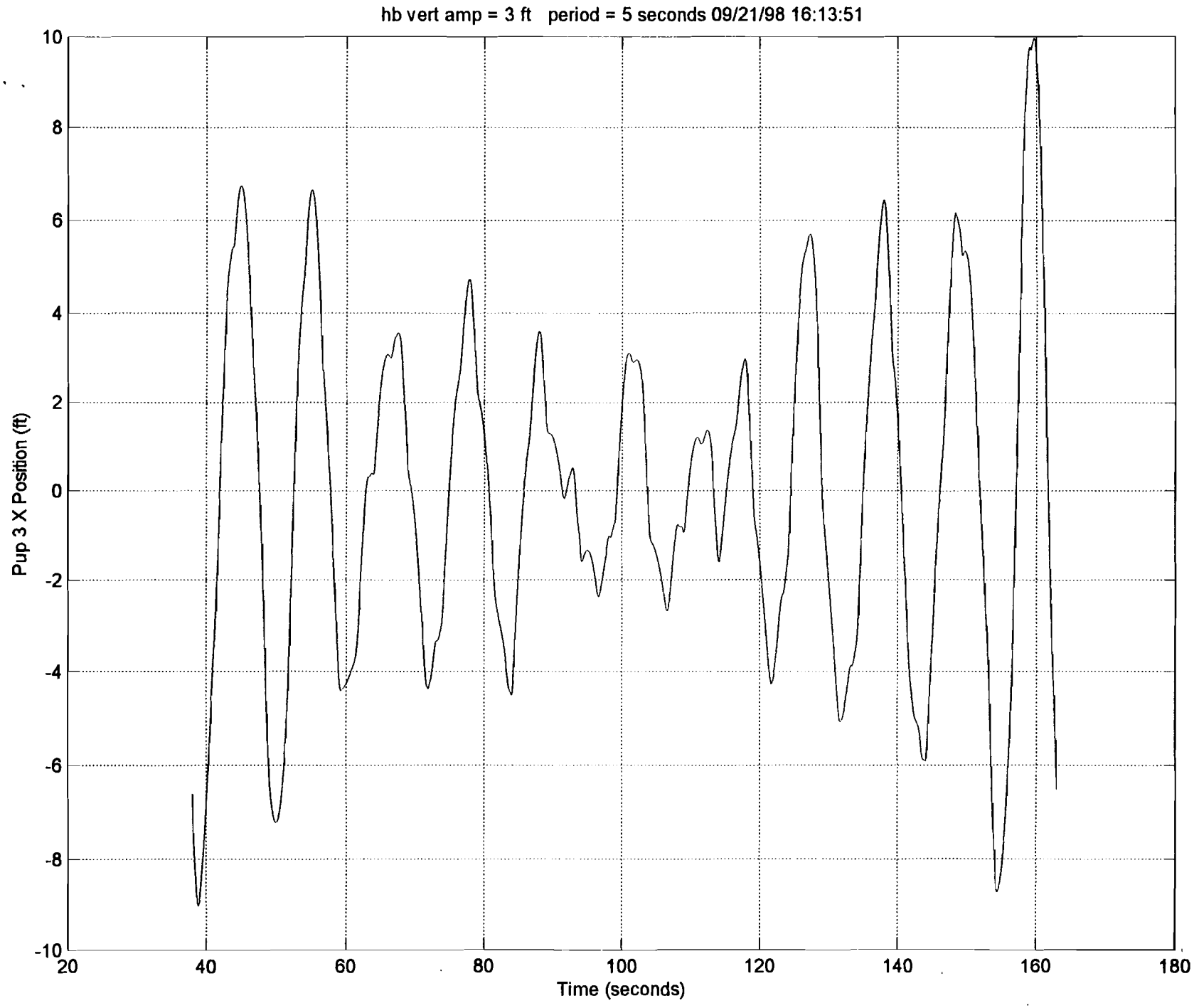

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
PUP 8 Tension COR (lbs)
1200
1000
800
600
400
200
0
-200
20
40
60
80
100
120
140
160
180
Time (seconds)

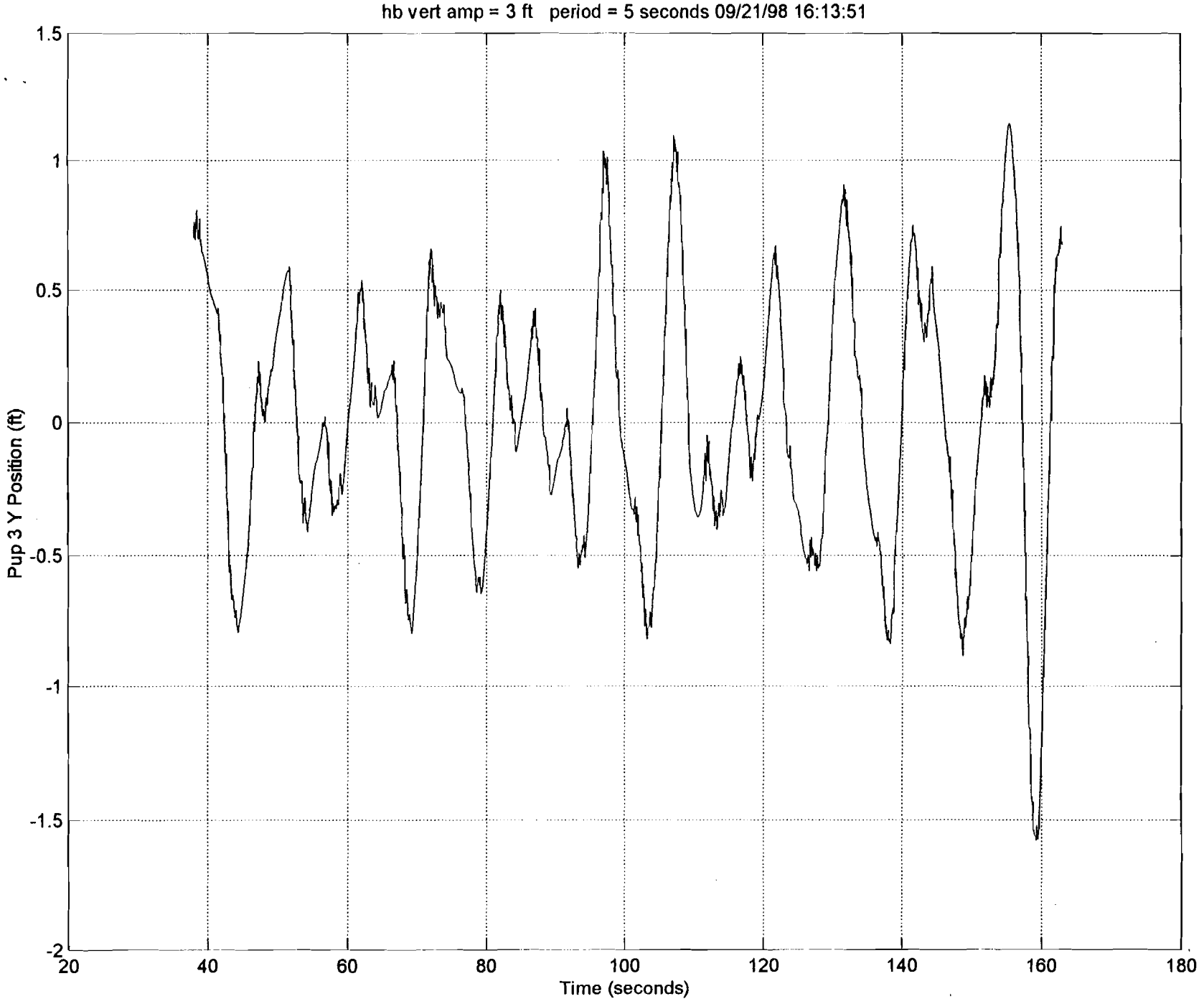

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
Pup 1 X Position (ft)
Time (seconds)
8
6
4
2
0
-2
-4
-6
-8
20
40
60
80
100
120
140
160
180

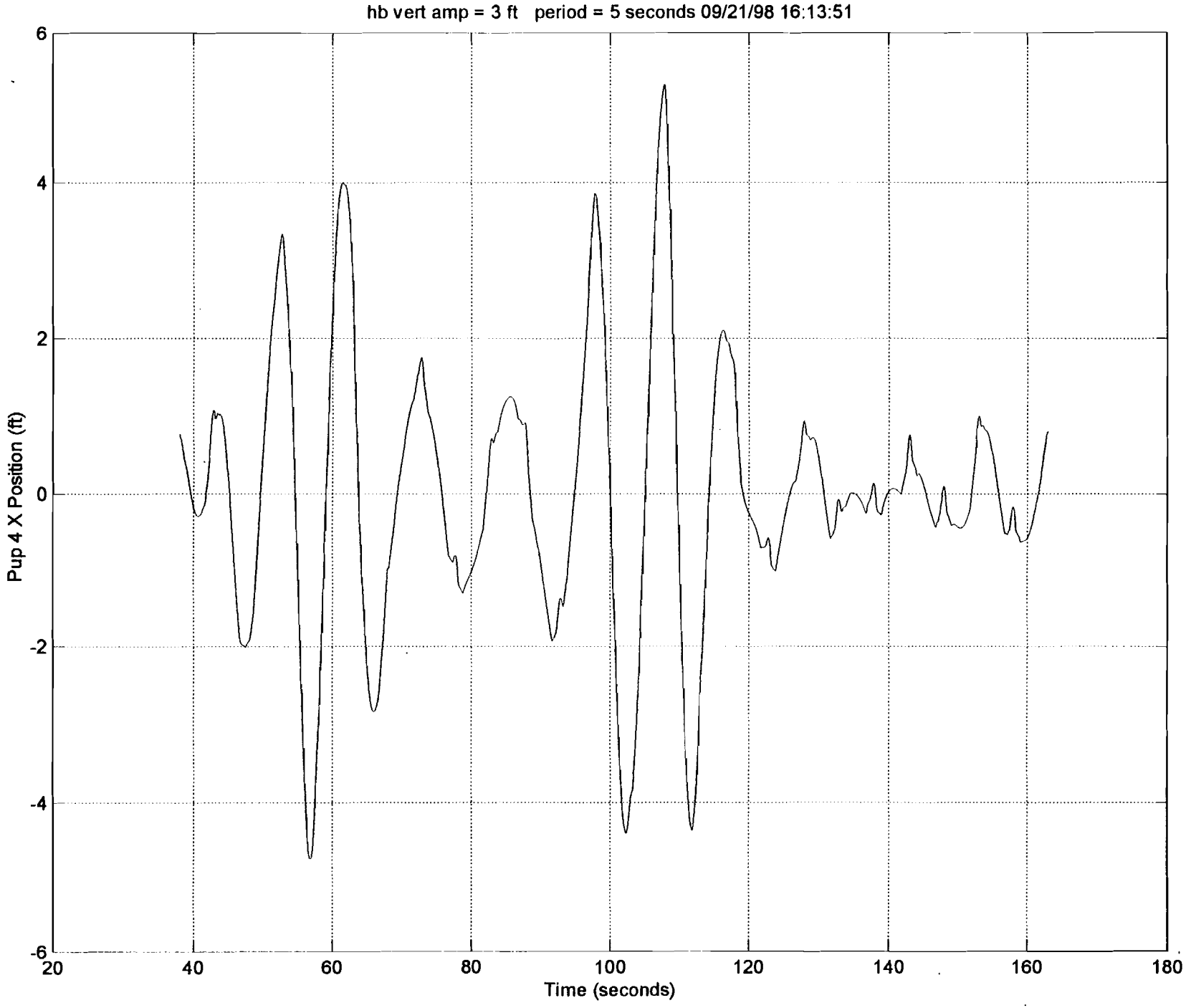

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
Pup 1 Y Position (ft)
Time (seconds)
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
20
40
60
80
100
120
140
160
180

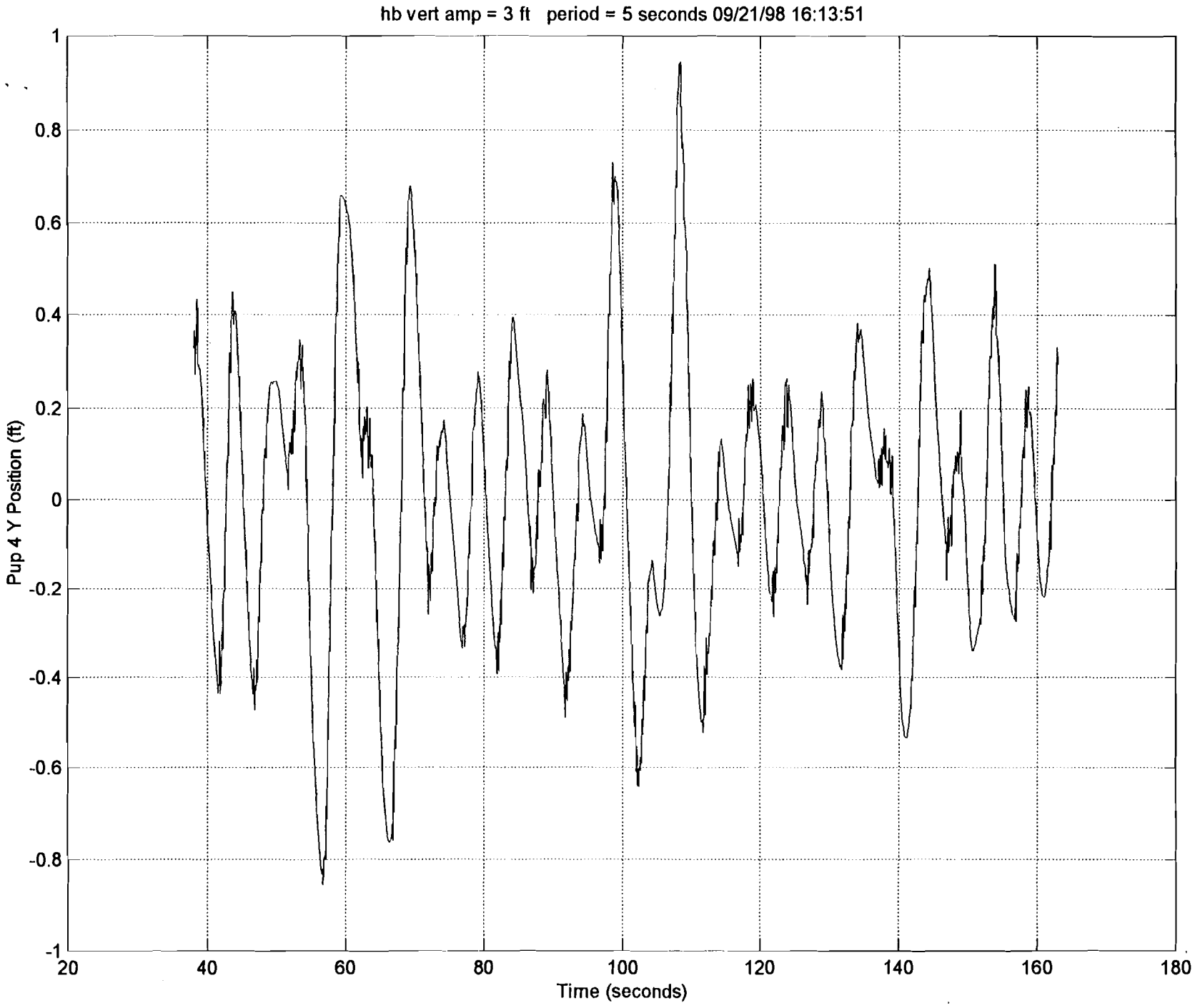

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
Pup 2 X Position (ft)
Time (seconds)
15
10
5
0
-5
-10
-15
20
40
60
80
100
120
140
160
180

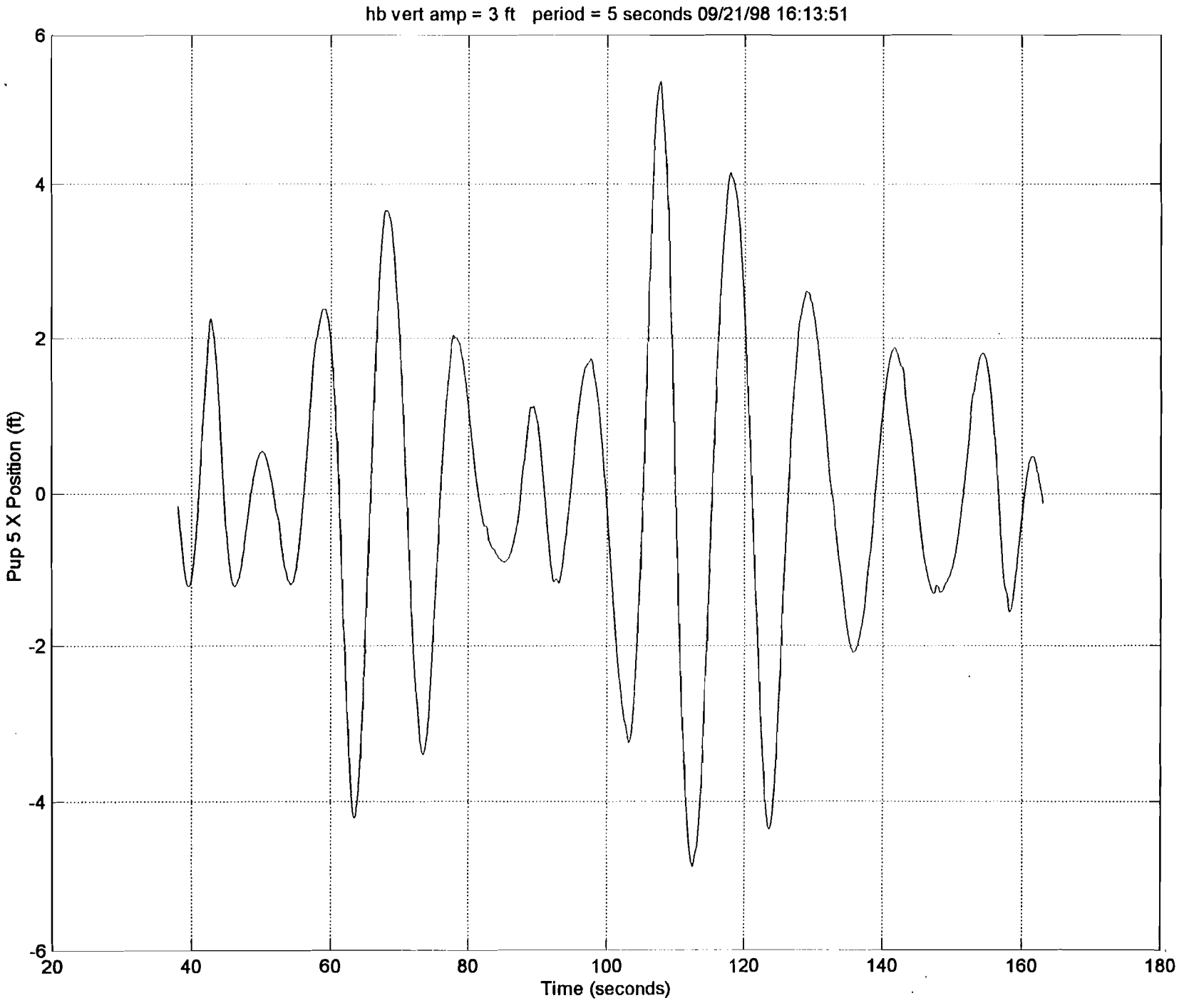

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
Pup 2 Y Position (ft)
Time (seconds)
1.5
1
0.5
0
-0.5
-1
20
40
60
80
100
120
140
160
180

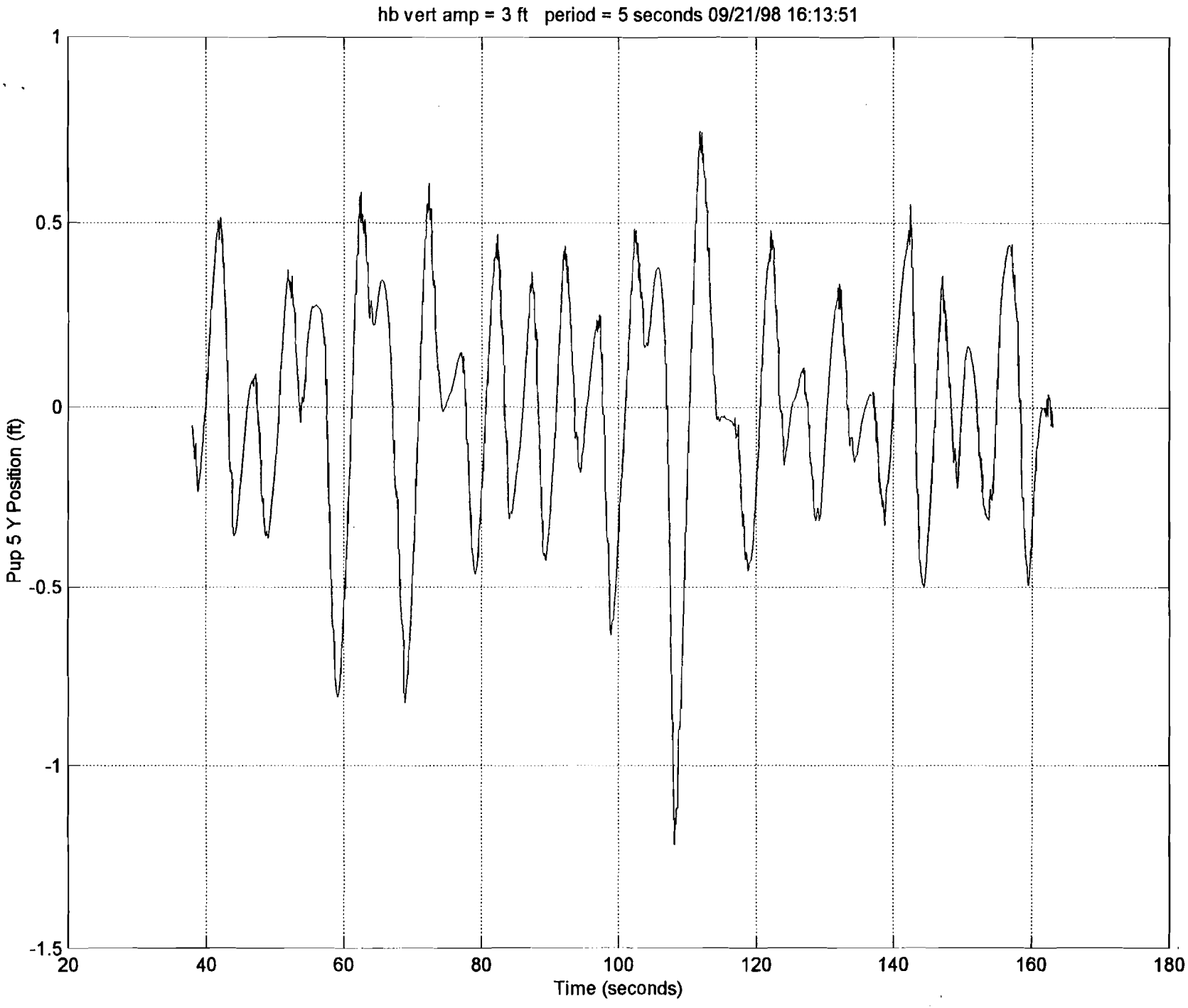

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
Pup 3 X Position (ft)
Time (seconds)
10
8
6
4
2
0
-2
-4
-6
-8
-10
20
40
60
80
100
120
140
160
180

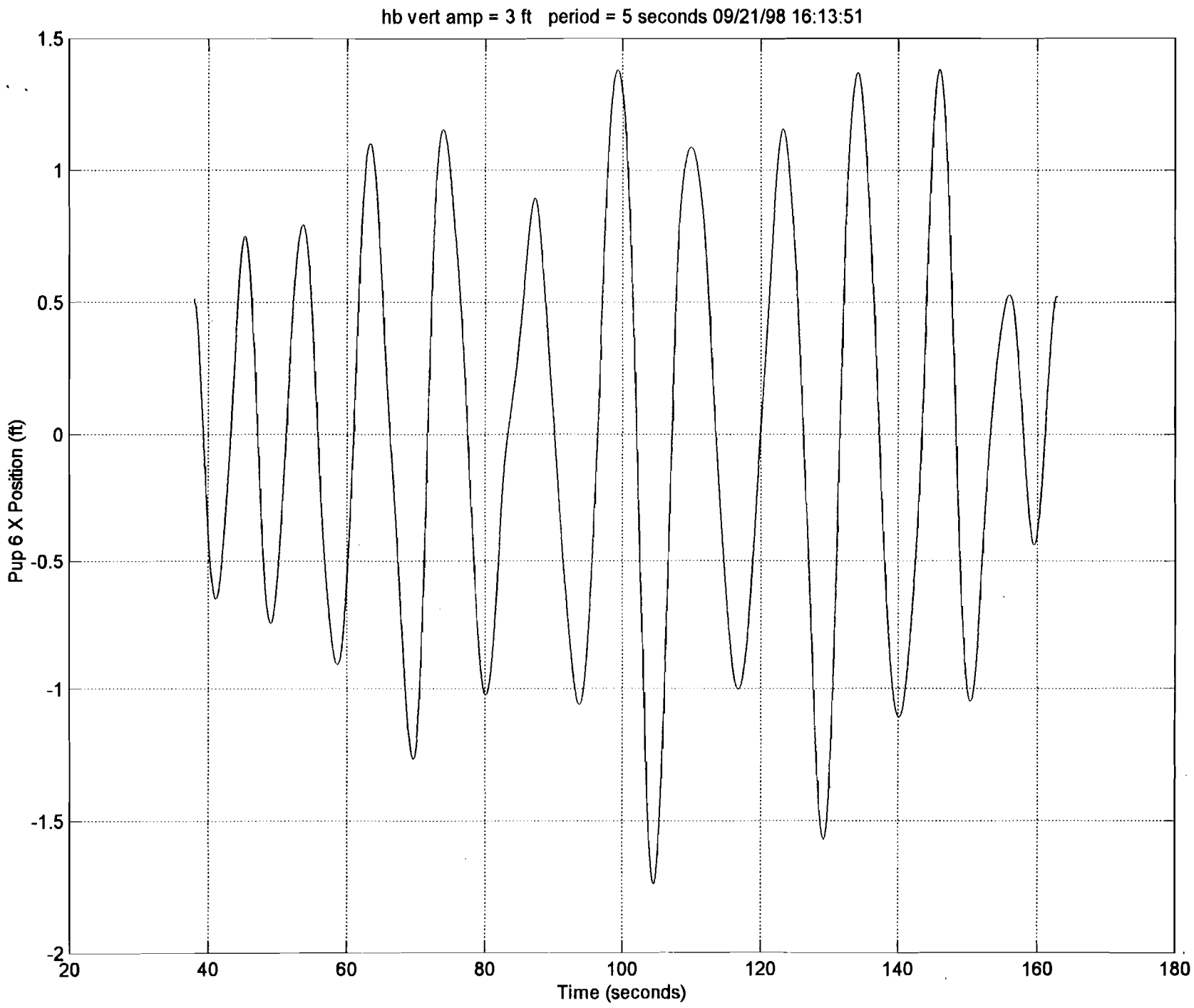

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
Pup 3 Y Position (ft)
Time (seconds)
1.5
1
0.5
0
-0.5
-1
-1.5
-2
20
40
60
80
100
120
140
160
180

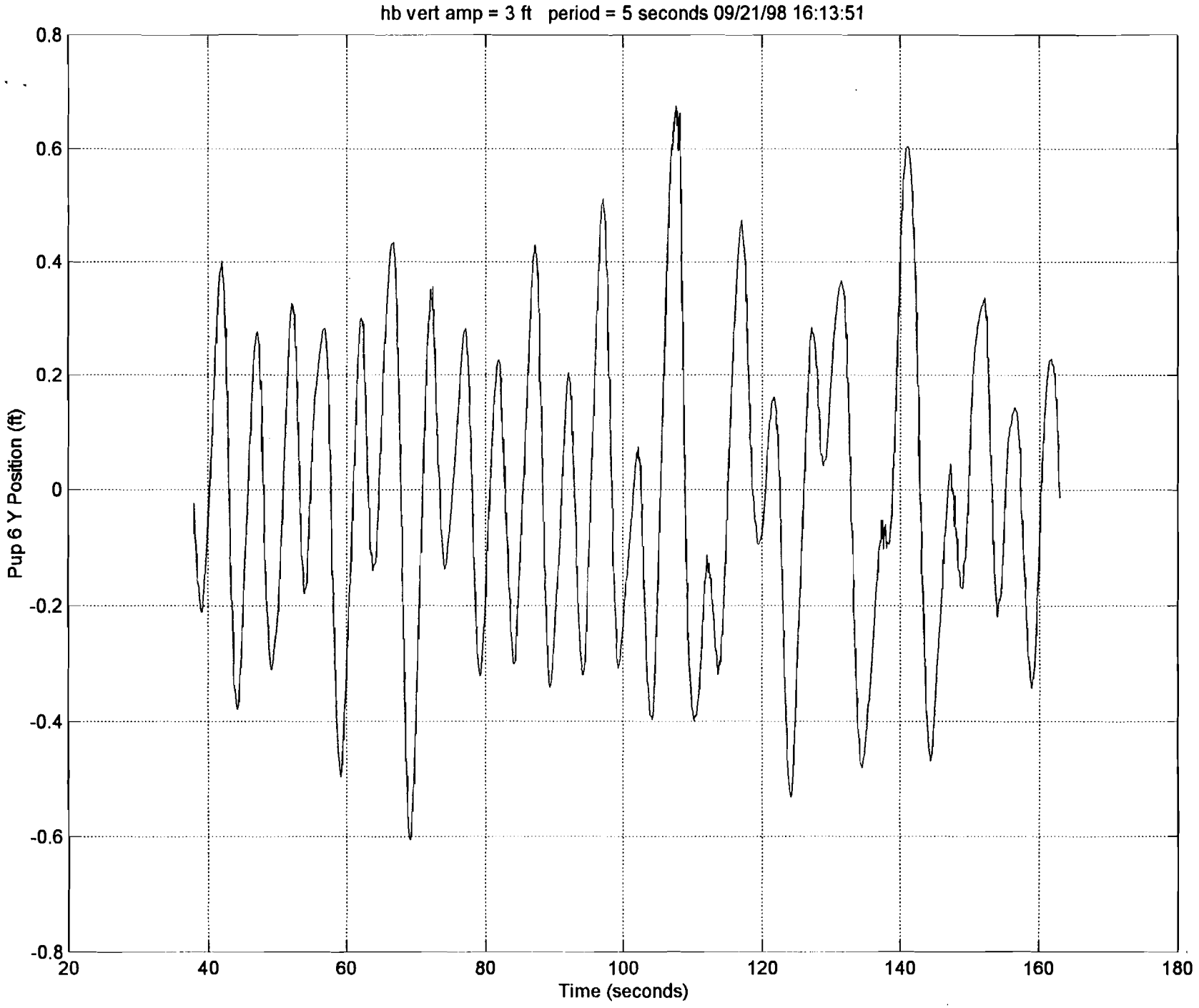

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
Pup 4 X Position (ft)
Time (seconds)
6
4
2
0
-2
-4
-6
20
40
60
80
100
120
140
160
180

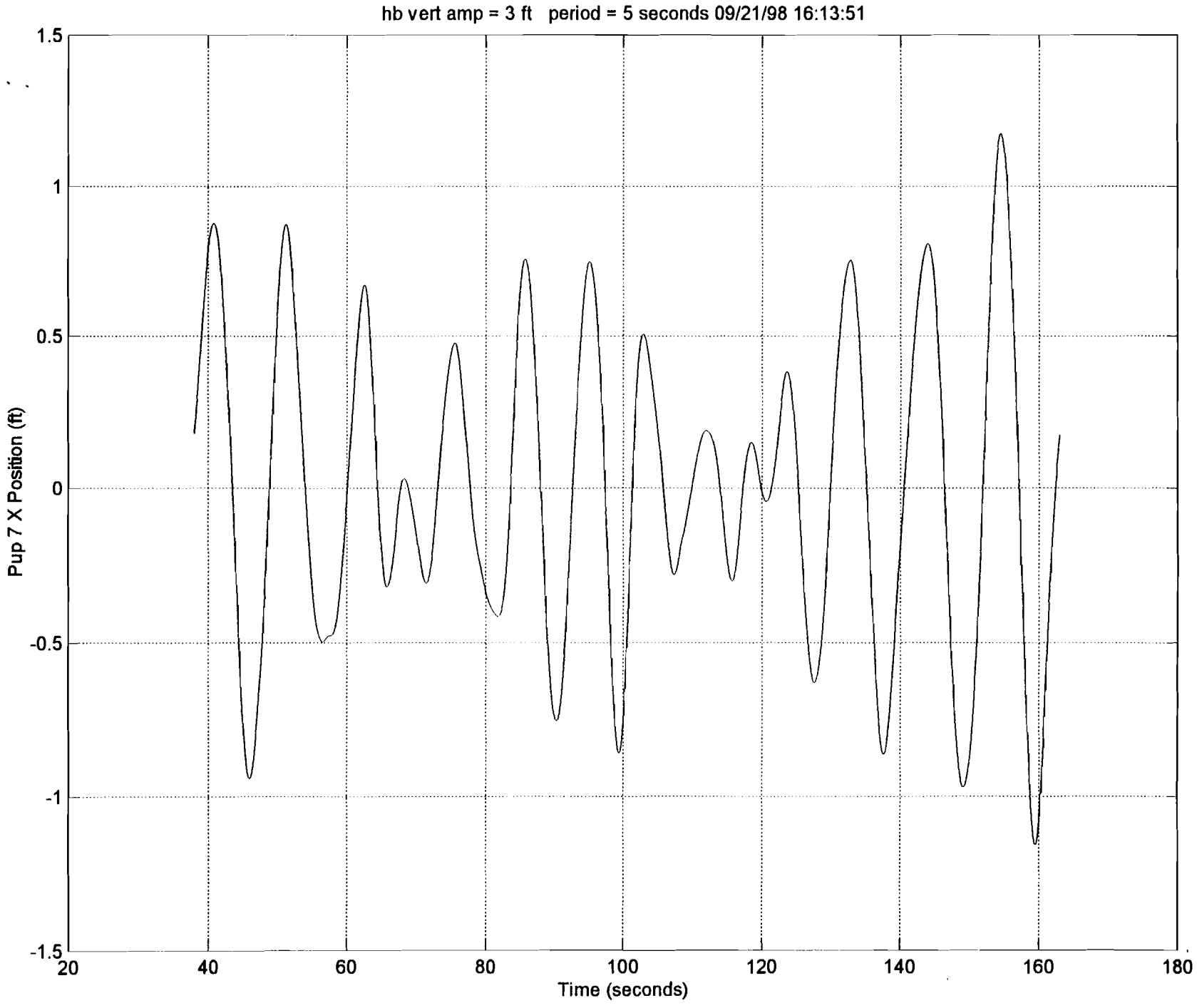

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
Pup 4 Y Position (ft)
Time (seconds)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
20
40
60
80
100
120
140
160
180

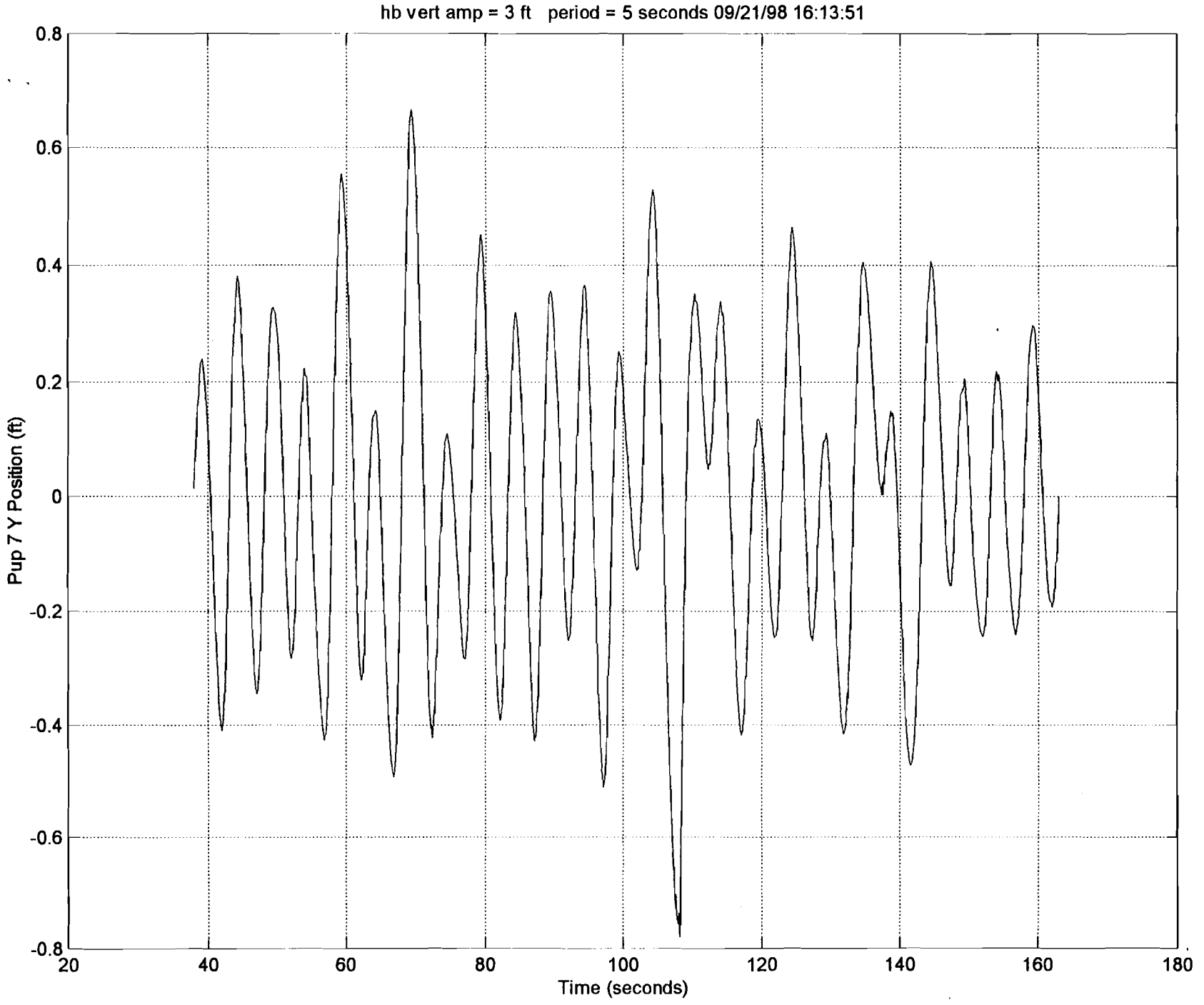

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
Pup 5 X Position (ft)
Time (seconds)
6
4
2
0
-2
-4
-6
20
40
60
80
100
120
140
160
180

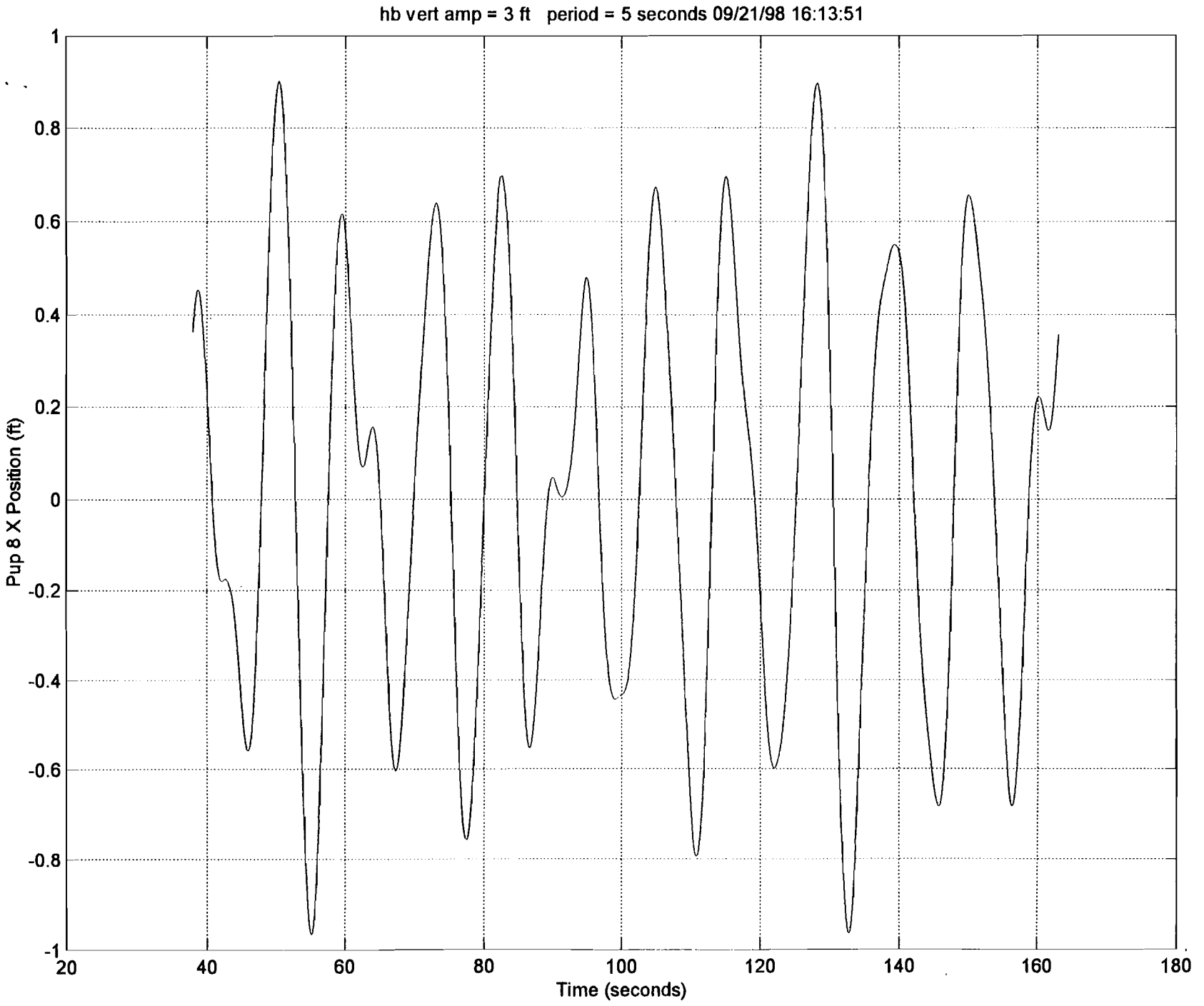

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
Pup 5 Y Position (ft)
Time (seconds)
1
0.5
0
-0.5
-1
-1.5
20
40
60
80
100
120
140
160
180

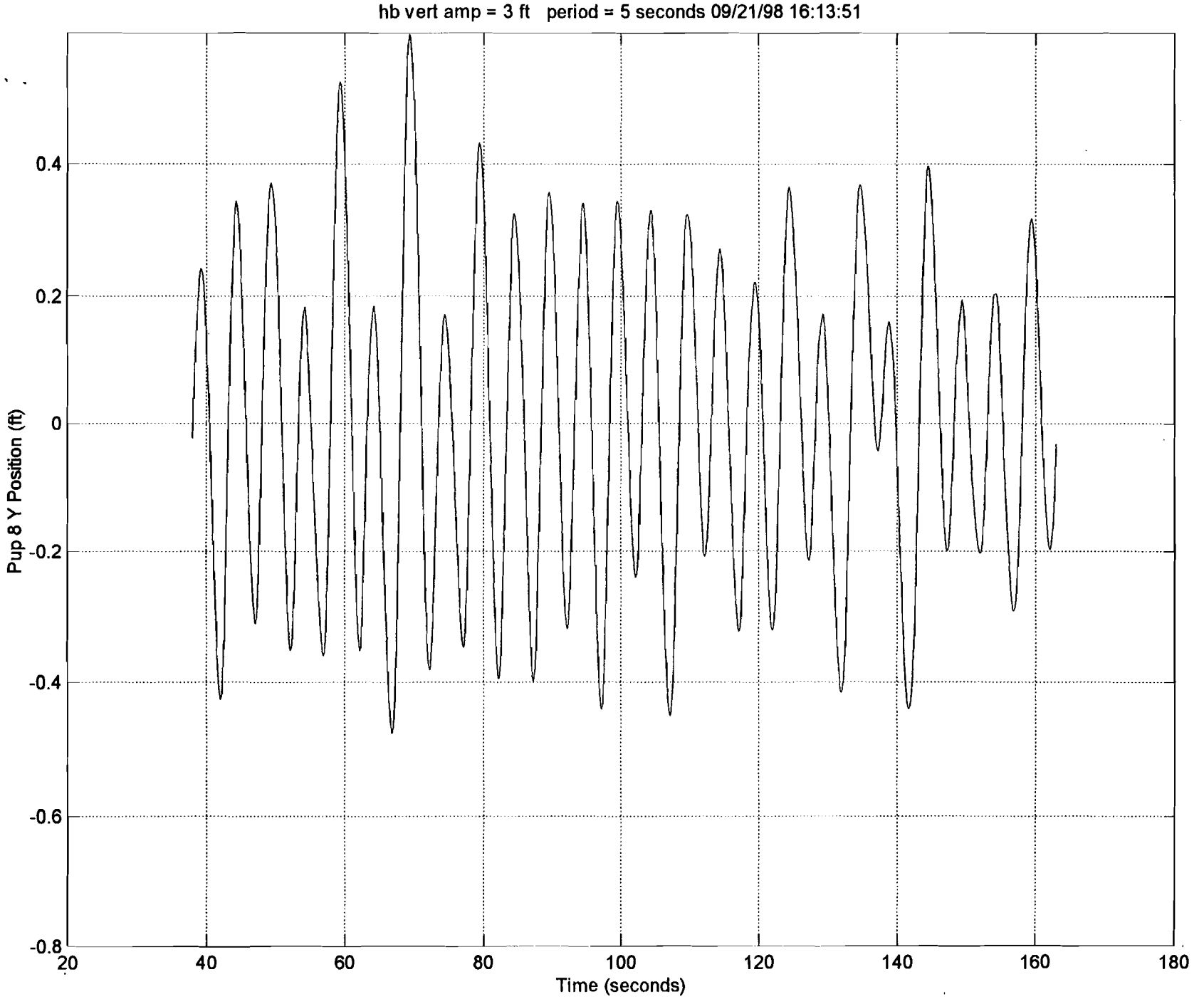

hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
Pup 6 X Position (ft)
Time (seconds)
1.5
1
0.5
0
-0.5
-1
-1.5
-2
20
40
60
80
100
120
140
160
180


hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
Pup 6 Y Position (ft)
Time (seconds)
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
20
40
60
80
100
120
140
160
180


hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
Pup 7 X Position (ft)
Time (seconds)
1.5
1
0.5
0
-0.5
-1
-1.5
20
40
60
80
100
120
140
160
180


hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
Pup 7 Y Position (ft)
Time (seconds)
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
20
40
60
80
100
120
140
160
180


hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
Pup 8 X Position (ft)
Time (seconds)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
20
40
60
80
100
120
140
160
180


hb vert amp = 3 ft period = 5 seconds 09/21/98 16:13:51
Pup 8 Y Position (ft)
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
20
40
60
80
100
120
140
160
180
Time (seconds)

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26

Channel Name	Units	Minimum	Maximum	Mean	Avg P-P	Ratio P-P	RAO	Phase
Actuator Load	lbs	32.3530	2842.4095	1341.0383	2626.9650	481.3564	365.6537	121.9305
Actuator Heave Acc NOG	ft/s^2	-15.5299	15.7034	0.0355	29.6386	5.4309	4.2273	179.0745
PUP 1 Bend Inplane COR	ft-lbs	-25.4395	-5.3341	-17.2240	8.9125	1.6331	1.0035	-49.1465
PUP 1 Bend Outplane COR	ft-lbs	-16.0806	9.3310	-1.9656	12.1382	2.2242	0.0233	-90.5889
PUP 1 Tension COR	lbs	193.0669	2997.8503	1498.9695	2620.8427	480.2345	362.6961	112.2661
PUP 2 Bend Inplane COR	ft-lbs	-208.2514	100.5554	-61.8850	143.2459	26.2479	14.1891	-35.9335
PUP 2 Bend Outplane COR	ft-lbs	-264.4782	181.1840	-27.1563	67.1092	12.2969	15.6553	23.3735
PUP 2 Tension COR	lbs	-591.5490	1467.9292	215.9216	1924.1252	352.5703	240.1209	78.1563
PUP 3 Bend Inplane COR	ft-lbs	-236.5318	11.3275	-56.5718	48.8819	8.9570	5.5654	81.4005
PUP 3 Bend Outplane COR	ft-lbs	-61.3308	123.5728	31.4165	111.4909	20.4292	8.6896	-155.6109
PUP 3 Tension COR	lbs	2470.9262	2572.2682	2526.8040	61.7514	11.3151	3.7070	-169.5013
PUP 4 Bend Inplane COR	ft-lbs	-86.2854	103.1190	11.2080	149.2574	27.3494	13.8580	-153.5943
PUP 4 Bend Outplane COR	ft-lbs	-99.8427	77.2747	-8.4419	115.9350	21.2435	1.8286	-43.0788
PUP 4 Tension COR	lbs	-392.6750	1563.9272	357.8560	1834.1610	336.0856	239.4184	77.4476
PUP 5 Bend Inplane COR	ft-lbs	-69.5988	29.0390	-19.5745	83.9789	15.3880	2.4333	128.6241
PUP 5 Bend Outplane COR	ft-lbs	-111.4522	150.5948	2.8763	104.4062	19.1310	3.8538	-155.6415
PUP 5 Tension COR	lbs	-527.0304	1495.3009	241.8901	1883.0380	345.0416	247.7886	76.2998
PUP 6 Bend Inplane COR	ft-lbs	-23.4093	24.0287	5.5619	18.7463	3.4350	1.5814	-149.6829
PUP 6 Bend Outplane COR	ft-lbs	-69.6065	68.7010	-1.5238	79.8347	14.6286	2.2580	7.6132
PUP 6 Tension COR	lbs	-623.8016	1419.3092	154.7465	1923.5469	352.4644	253.1287	75.8233
PUP 7 Bend Inplane COR	ft-lbs	18.3646	52.7031	27.2622	6.7273	1.2327	0.5641	102.5781
PUP 7 Bend Outplane COR	ft-lbs	-36.9027	116.6175	21.0065	53.3268	9.7714	7.1613	-157.6819
PUP 7 Tension COR	lbs	-625.9825	1400.6097	148.8422	1905.3809	349.1357	249.3499	75.4794
PUP 8 Bend Inplane COR	ft-lbs	-24.6139	-10.7355	-16.2913	4.4790	0.8207	0.5247	-89.7457
PUP 8 Bend Outplane COR	ft-lbs	-31.1054	41.8114	16.7926	28.6029	5.2411	1.3128	11.7076
PUP 8 Tension COR	lbs	-246.2760	1721.6589	502.9796	1844.2047	337.9260	246.1810	74.4644
Displacement	ft	-2.7293	2.7293	0.0000	5.4574	1.0000	1.0000	0.0000

30-Nov-1998 19:53:53

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26

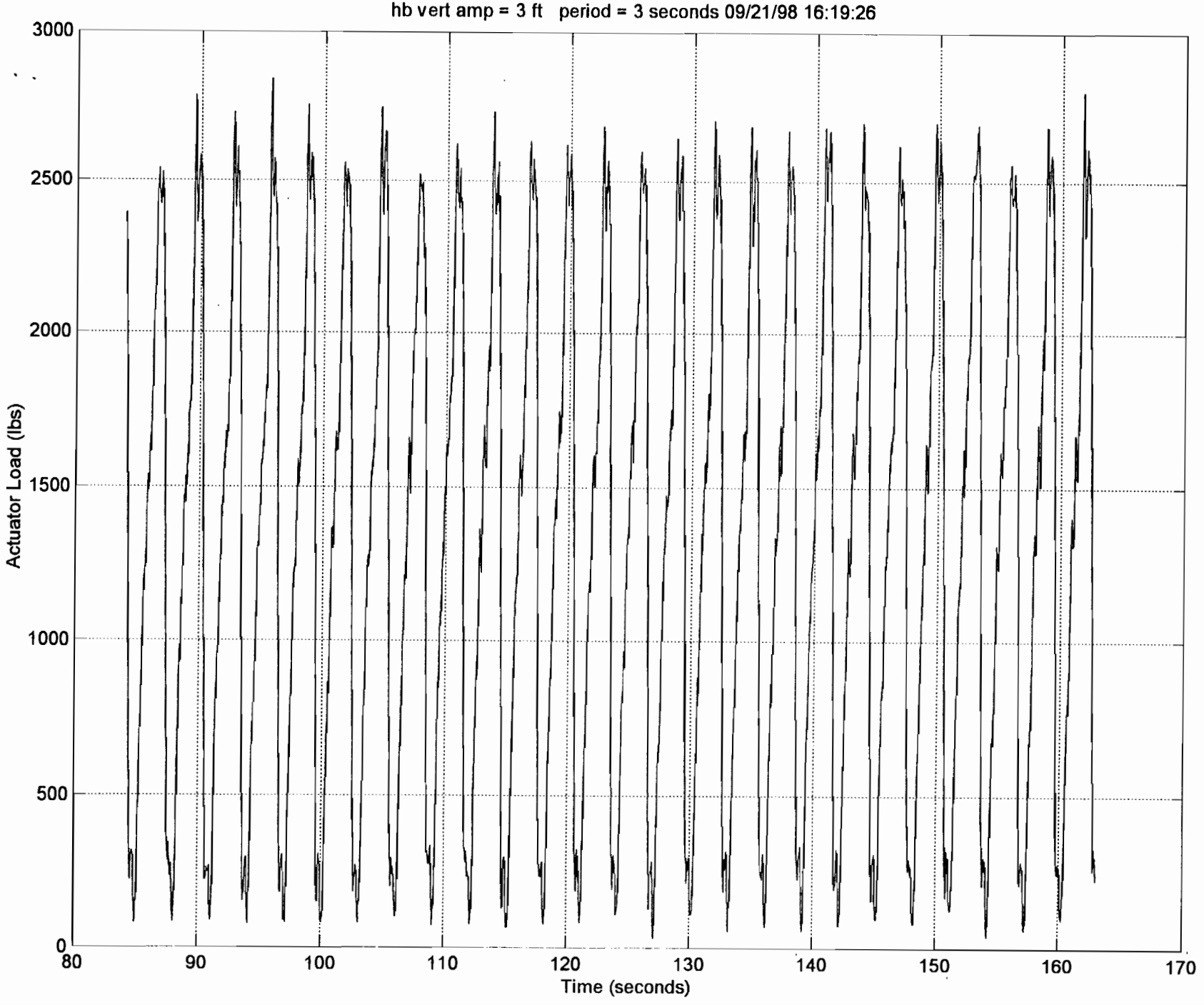
Channel Name	Units	Minimum	Maximum	Mean	Std Dev	Sig Amp	Period
Barge Roll	deg	-0.3433	-0.1226	-0.2373	0.0260	0.0495	0.7229
Barge Pitch	deg	-1.2714	-0.9613	-1.1026	0.0436	0.0824	1.4209
Barge Surge Acc NOG	ft/s^2	-0.5553	0.7160	0.0595	0.1524	0.3392	0.3178
Barge Sway Acc NOG	ft/s^2	-2.5190	-2.0708	-2.3270	0.0462	0.0888	0.3582
Barge Heave Acc NOG	ft/s^2	-0.8095	0.5853	-0.0741	0.1684	0.3709	0.4725

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26

Channel Name	Units	Minimum	Maximum	Mean	Std Dev	Sig Amp	Period
PUP 1 Top Y Acc COR	ft/s^2	-23.7623	20.7571	-0.5672	5.2840	13.0945	0.4976
PUP 1 Top X Acc COR	ft/s^2	-13.7993	20.4388	4.1350	4.1422	9.9494	0.4552
PUP 1 Bot Y Acc COR	ft/s^2	-251.1916	-208.1245	-231.0151	5.3575	13.0573	0.4893
PUP 1 Bot X Acc COR	ft/s^2	-8.6006	23.6500	7.6558	4.2223	9.6531	0.4589
PUP 2 Top Y Acc COR	ft/s^2	-111.2675	112.1420	-4.1490	32.5448	85.0834	0.4459
PUP 2 Top X Acc COR	ft/s^2	-13.4069	106.5578	29.2329	14.2547	29.8406	0.5878
PUP 2 Bot Y Acc COR	ft/s^2	-113.4503	113.8648	0.3581	35.1320	94.7518	0.4427
PUP 2 Bot X Acc COR	ft/s^2	-12.1491	109.9256	31.6478	14.1182	28.6544	0.5809
PUP 3 Top Y Acc COR	ft/s^2	-112.7864	87.0984	-30.4445	26.7223	71.4564	0.4527
PUP 3 Top X Acc COR	ft/s^2	9.1759	106.6753	47.7493	13.4310	34.0607	0.5043
PUP 3 Bot Y Acc COR	ft/s^2	-108.8523	109.7465	-3.5123	26.7416	71.9370	0.4529
PUP 3 Bot X Acc COR	ft/s^2	-18.4542	110.8737	30.9428	14.4678	38.4516	0.5162
PUP 4 Top Y Acc COR	ft/s^2	-101.2130	107.0162	2.8848	23.8704	64.9587	0.4427
PUP 4 Top X Acc COR	ft/s^2	-6.7780	110.5745	32.6763	11.4722	29.9647	0.4424
PUP 4 Bot Y Acc COR	ft/s^2	-101.1114	113.4055	4.0719	24.2803	70.6680	0.4701
PUP 4 Bot X Acc COR	ft/s^2	-22.1177	98.6027	29.0436	11.0426	32.5990	0.4862
PUP 5 Top Y Acc COR	ft/s^2	-101.7713	99.9912	-1.4835	20.1458	59.9605	0.4866
PUP 5 Top X Acc COR	ft/s^2	-3.1349	82.4859	32.2254	9.5079	24.9864	0.4284
PUP 5 Bot Y Acc COR	ft/s^2	-100.3929	86.4041	-1.4773	19.5523	57.6495	0.4825
PUP 5 Bot X Acc COR	ft/s^2	-2.4597	64.1016	32.5714	7.6724	18.9863	0.4336
PUP 6 Top Y Acc COR	ft/s^2	-71.9827	72.8978	-2.3160	14.3734	42.0404	0.4549
PUP 6 Top X Acc COR	ft/s^2	13.0080	50.5711	33.4243	2.4834	6.8074	0.4395
PUP 6 Bot Y Acc COR	ft/s^2	-79.6530	69.4310	-2.3009	14.6002	44.0341	0.4809
PUP 6 Bot X Acc COR	ft/s^2	7.7003	43.0626	30.4722	1.7432	5.2773	0.4024
PUP 7 Top Y Acc COR	ft/s^2	-50.0866	52.9116	1.5943	10.9446	31.7515	0.4840
PUP 7 Top X Acc COR	ft/s^2	23.4644	42.0674	32.0264	1.6384	4.1725	0.3681
PUP 7 Bot Y Acc COR	ft/s^2	-45.9205	41.4302	1.2421	8.2780	22.7143	0.5171
PUP 7 Bot X Acc COR	ft/s^2	28.0162	35.0400	31.3765	0.6615	1.7885	0.3903
PUP 8 Top Y Acc COR	ft/s^2	-10.6298	16.2130	0.8800	2.7521	8.1084	0.6716
PUP 8 Top X Acc COR	ft/s^2	27.7043	36.9292	32.2204	0.7389	2.0993	0.4819
PUP 8 Bot Y Acc COR	ft/s^2	-8.5959	13.9853	1.4788	2.3717	6.7137	0.7016
PUP 8 Bot X Acc COR	ft/s^2	29.2883	35.8064	32.9894	0.5198	1.4350	0.4180

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26

Channel Name	Units	Minimum	Maximum	Mean	Std Dev	Sig Amp	Period
Displacement	ft	-2.7293	2.7293	0.0008	1.9304	2.7292	3.0390
Pup 1 X Acc NOG	ft/s2	4.4067	41.8553	22.4830	4.8224	9.7387	0.5400
Pup 1 Y Acc NOG	ft/s2	-135.6777	-96.1513	-116.6487	5.1335	12.5792	0.5008
Pup 1 X Position	ft	-8.1299	9.0552	0.0028	4.6284	7.4102	11.4167
Pup 1 Y Position	ft	-0.4853	0.4707	0.0000	0.2033	0.2918	4.0875
Pup 2 X Acc NOG	ft/s2	-4.9054	116.0468	36.9518	13.8597	28.2628	0.6015
Pup 2 Y Acc NOG	ft/s2	-111.1060	114.1281	-0.5508	32.3546	86.7034	0.4384
Pup 2 X Position	ft	-13.5197	12.8277	-0.0001	4.9936	8.2830	5.8042
Pup 2 Y Position	ft	-2.8413	4.1099	-0.0005	1.4583	2.9870	9.6464
Pup 3 X Acc NOG	ft/s2	7.2247	120.2402	45.4129	13.8607	36.0556	0.5687
Pup 3 Y Acc NOG	ft/s2	-108.2824	94.8467	-14.4650	25.0814	67.9513	0.4717
Pup 3 X Position	ft	-16.8519	16.0154	0.0042	8.6504	14.7643	9.7393
Pup 3 Y Position	ft	-4.1911	2.5909	-0.0005	1.2053	2.3464	6.9650
Pup 4 X Acc NOG	ft/s2	-9.9663	112.9689	36.5021	10.9089	31.7968	0.5629
Pup 4 Y Acc NOG	ft/s2	-103.4704	102.0274	0.8773	22.5291	63.1766	0.4707
Pup 4 X Position	ft	-14.6664	12.5764	-0.0021	6.2742	11.9741	9.9607
Pup 4 Y Position	ft	-2.5269	2.7095	-0.0003	0.9604	1.8187	4.5938
Pup 5 X Acc NOG	ft/s2	1.5983	87.3507	36.8034	8.8154	21.0736	0.5106
Pup 5 Y Acc NOG	ft/s2	-93.6711	92.1176	-0.5593	18.9943	55.2581	0.4765
Pup 5 X Position	ft	-20.3504	17.9045	-0.0007	7.9036	15.3375	9.7071
Pup 5 Y Position	ft	-2.3068	1.5604	0.0000	0.6925	1.3490	4.9967
Pup 6 X Acc NOG	ft/s2	20.0732	48.5544	36.1417	2.0704	5.6845	0.5224
Pup 6 Y Acc NOG	ft/s2	-73.5088	66.8741	-0.5973	13.4047	39.9225	0.4667
Pup 6 X Position	ft	-4.8314	4.7343	-0.0001	2.3218	4.5882	11.5250
Pup 6 Y Position	ft	-1.2838	1.1731	-0.0002	0.4532	0.8906	3.9855
Pup 7 X Acc NOG	ft/s2	31.6442	39.0860	35.2653	0.7319	1.9060	0.4583
Pup 7 Y Acc NOG	ft/s2	-47.3579	44.7482	0.6282	8.9853	25.1702	0.4986
Pup 7 X Position	ft	-1.4293	1.4249	0.0000	0.7672	1.3724	10.5679
Pup 7 Y Position	ft	-1.1144	1.3357	0.0000	0.4558	0.7542	3.2848
Pup 8 X Acc NOG	ft/s2	30.6883	38.6080	35.0051	0.6264	1.7872	0.5824
Pup 8 Y Acc NOG	ft/s2	-10.0188	13.6985	0.5558	2.4015	6.8865	0.6893
Pup 8 X Position	ft	-0.9785	1.0734	0.0002	0.4859	0.8790	10.0393
Pup 8 Y Position	ft	-0.9215	1.1904	0.0000	0.4179	0.7865	4.1559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Actuator Load (lbs)
Time (seconds)
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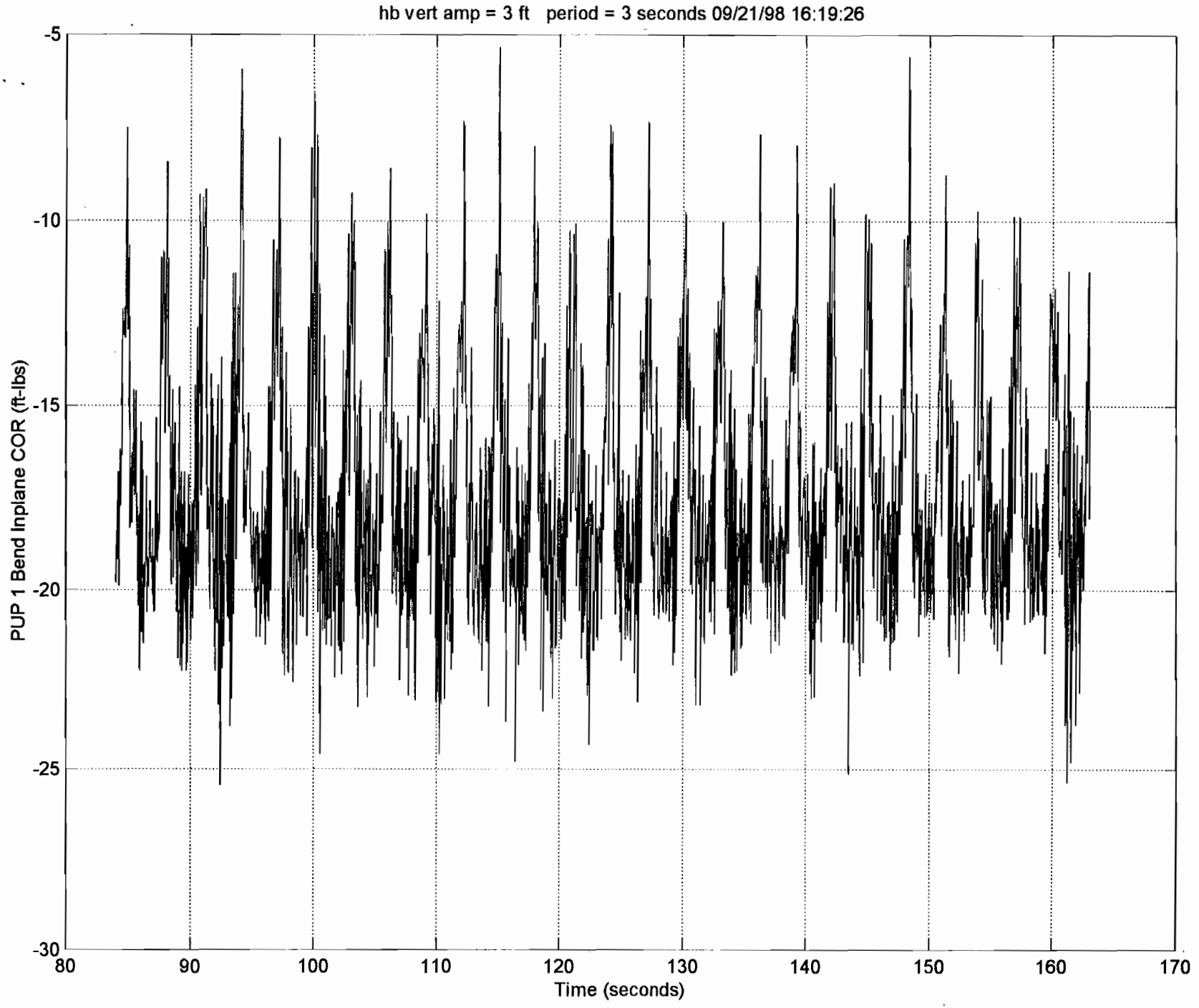
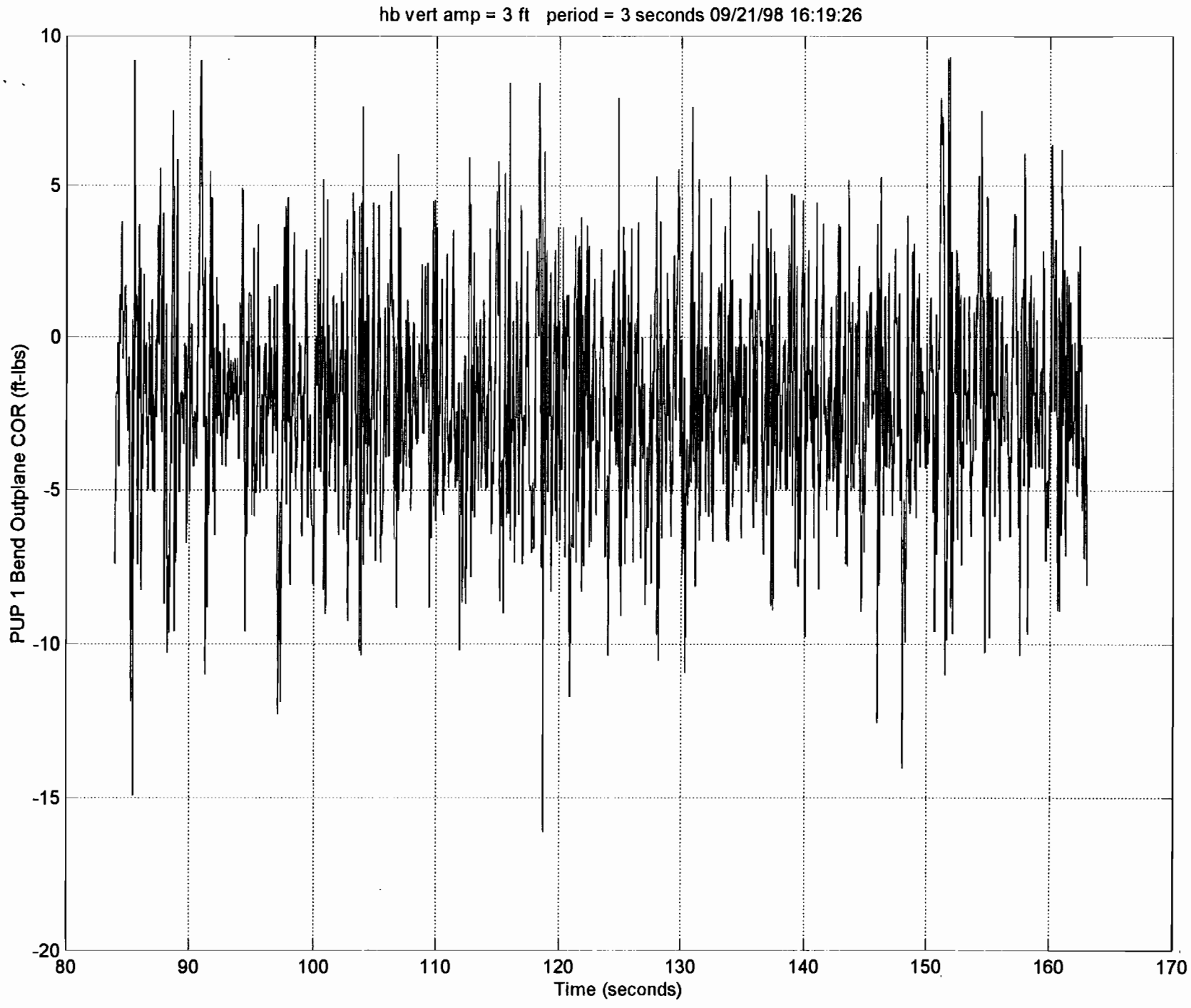
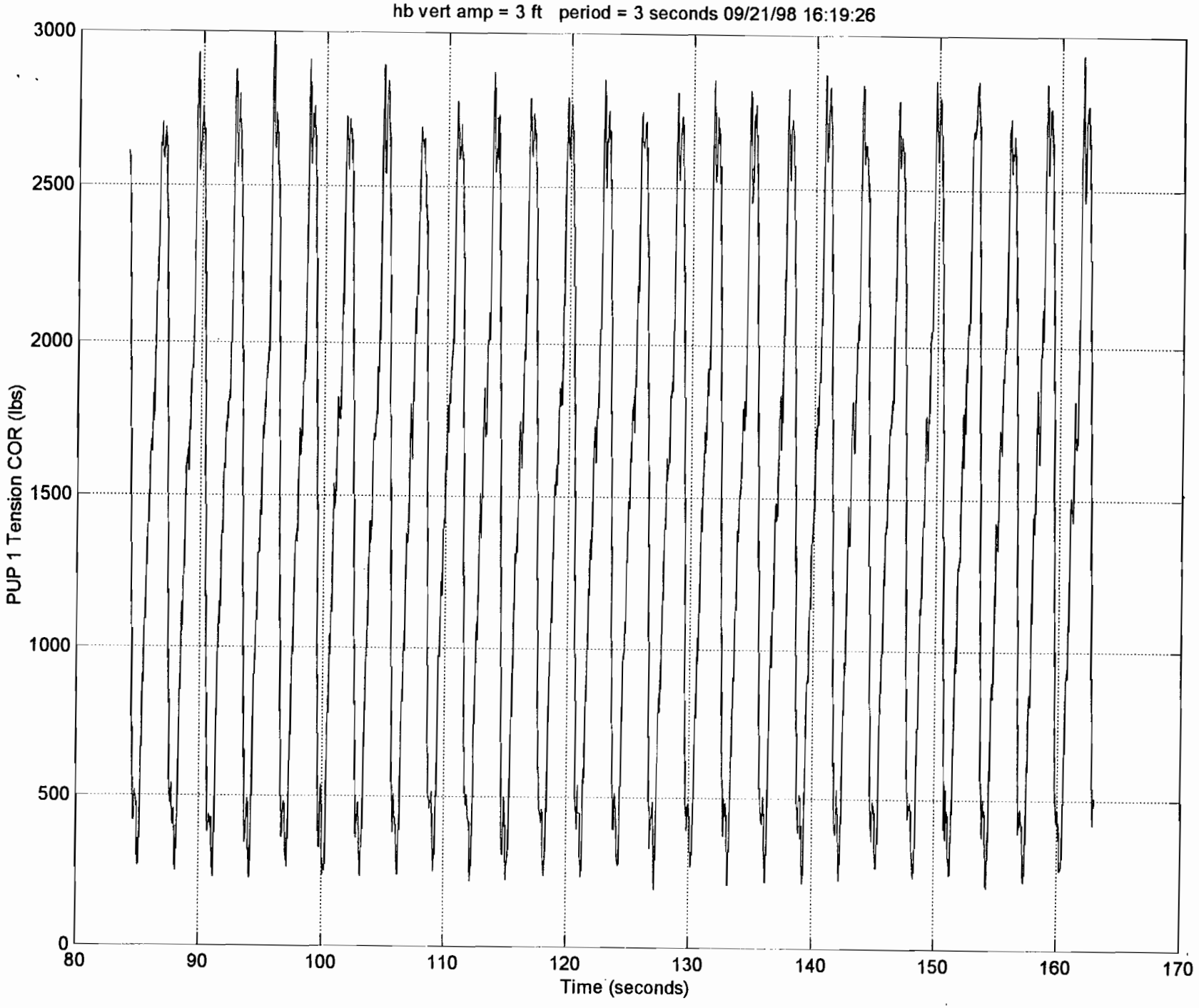
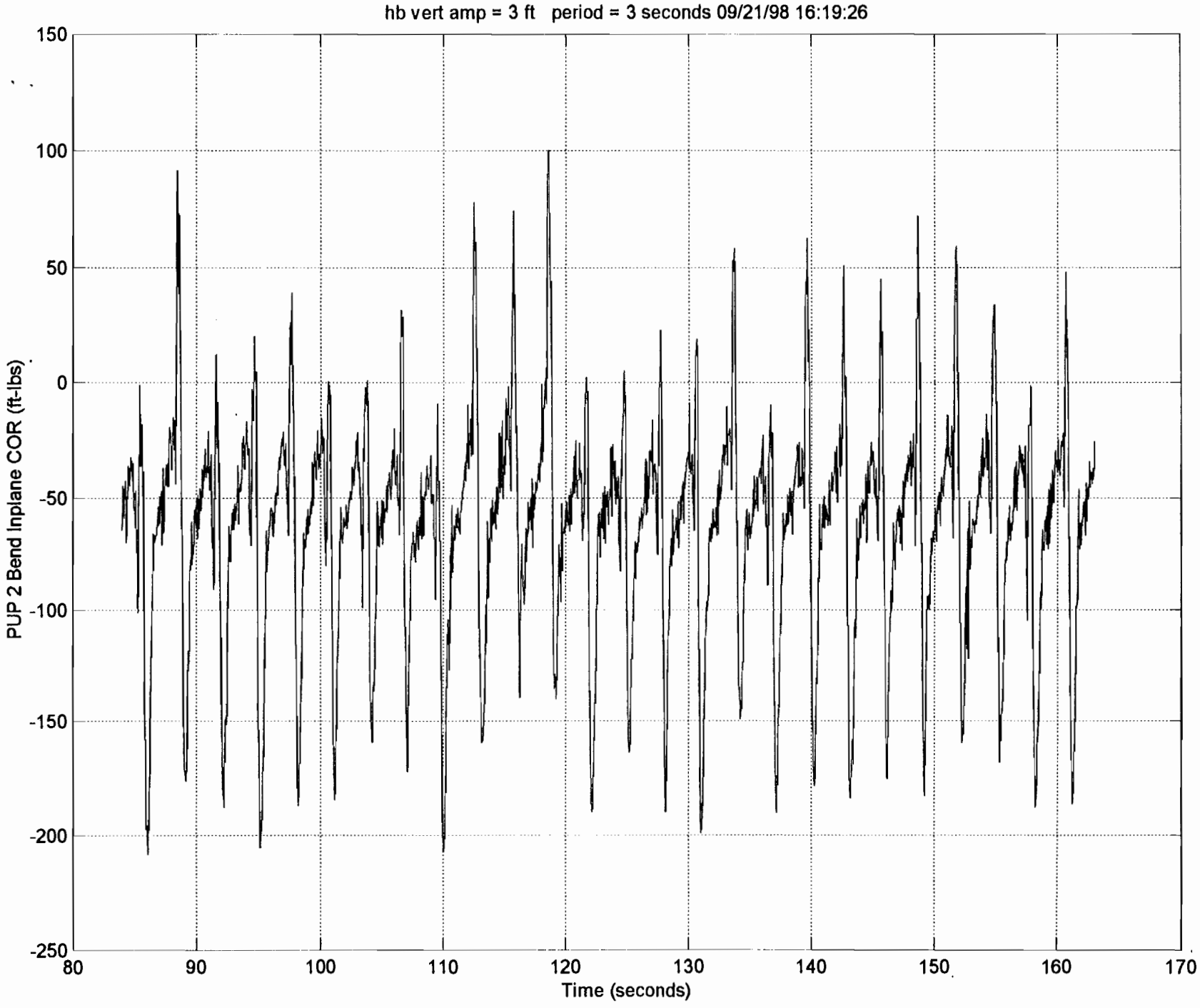
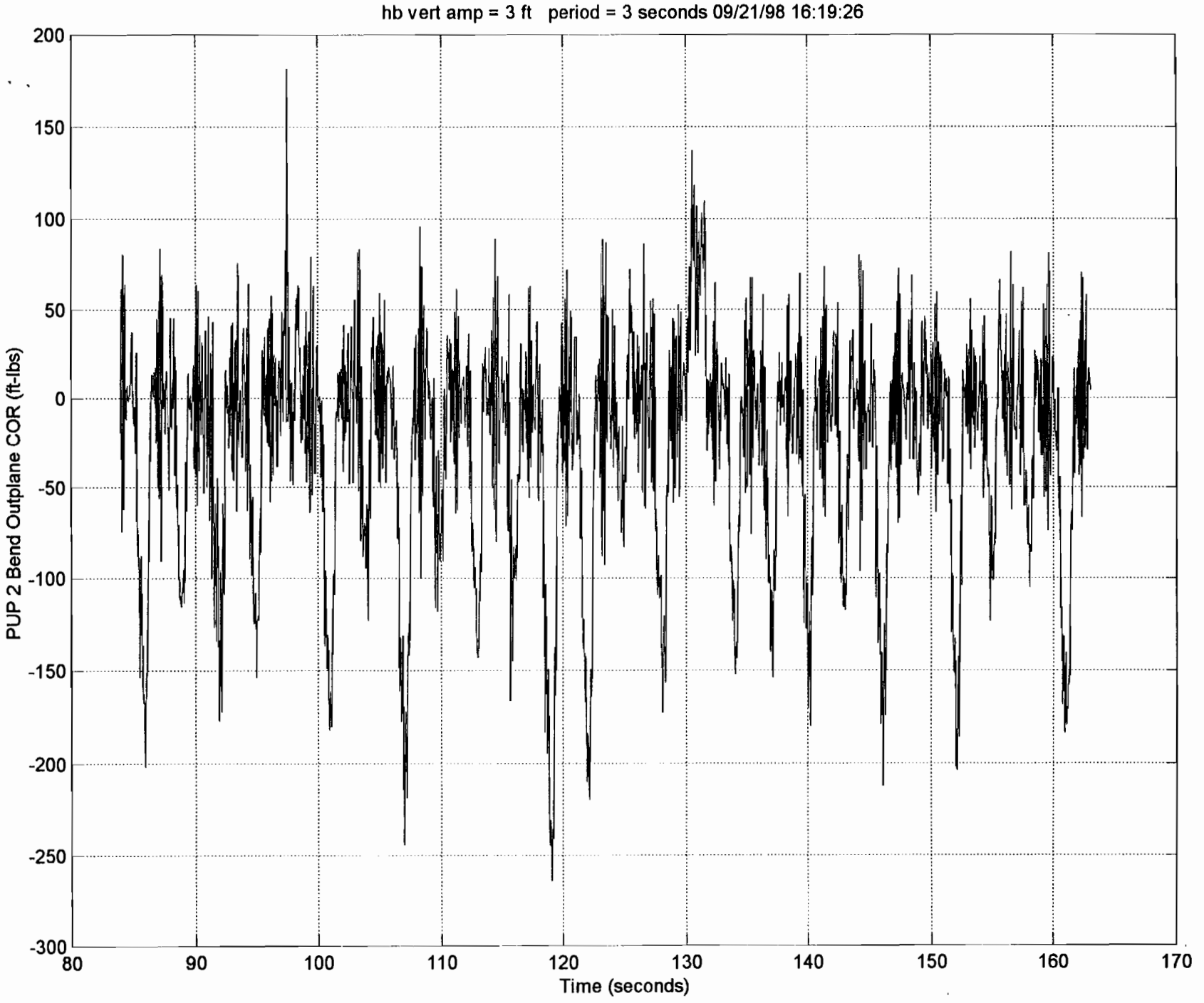
2500
2000
1500
1000
500
0
80
90
100
110
120
130
140
150
160
170

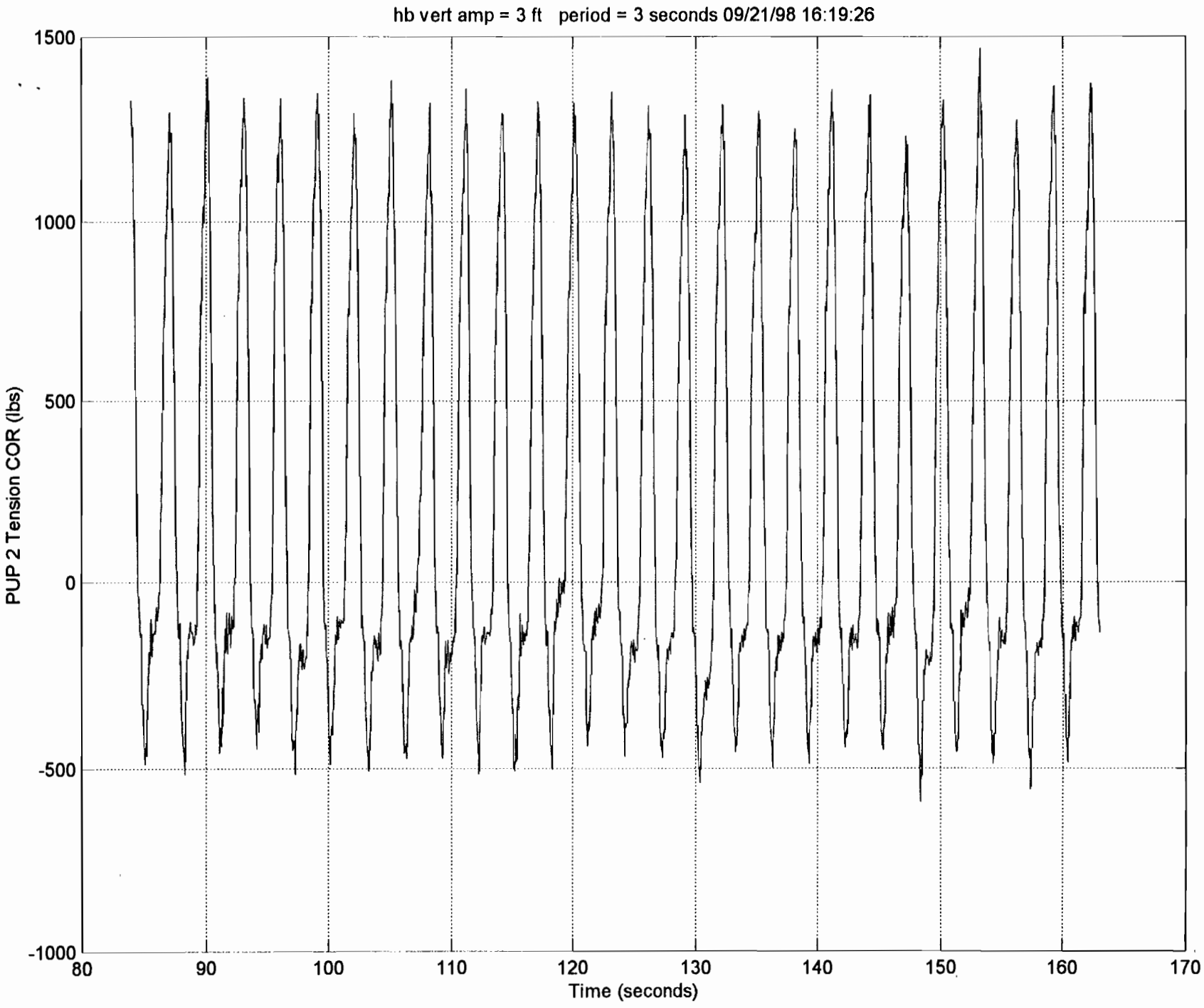

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
PUP 1 Bend Inplane COR (ft-lbs)
-5
-10
-15
-20
-25
-30
80
90
100
110
120
130
140
150
160
170
Time (seconds)

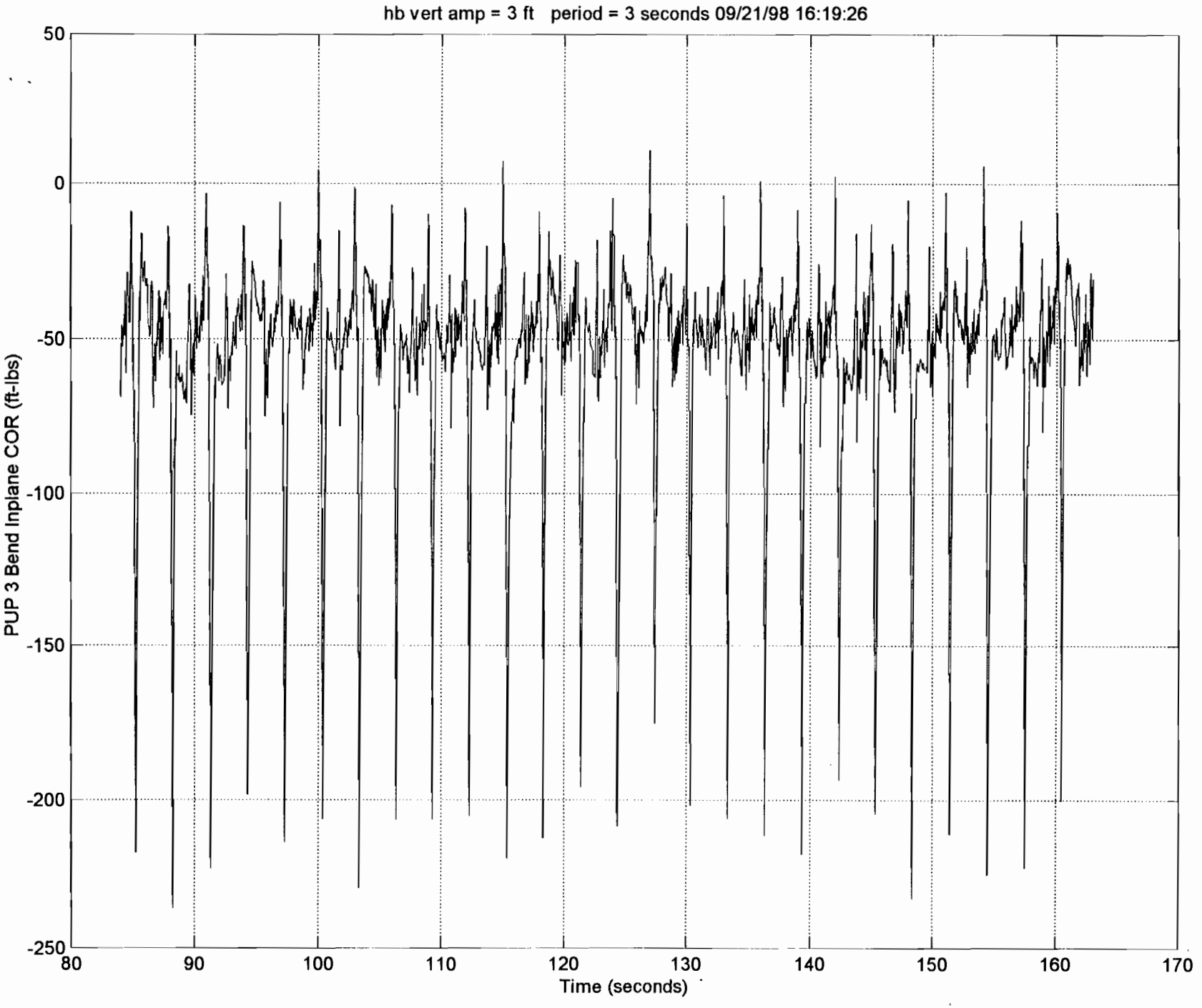

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
PUP 1 Bend Outplane COR (ft-lbs)
Time (seconds)
10
5
0
-5
-10
-15
-20
80
90
100
110
120
130
140
150
160
170

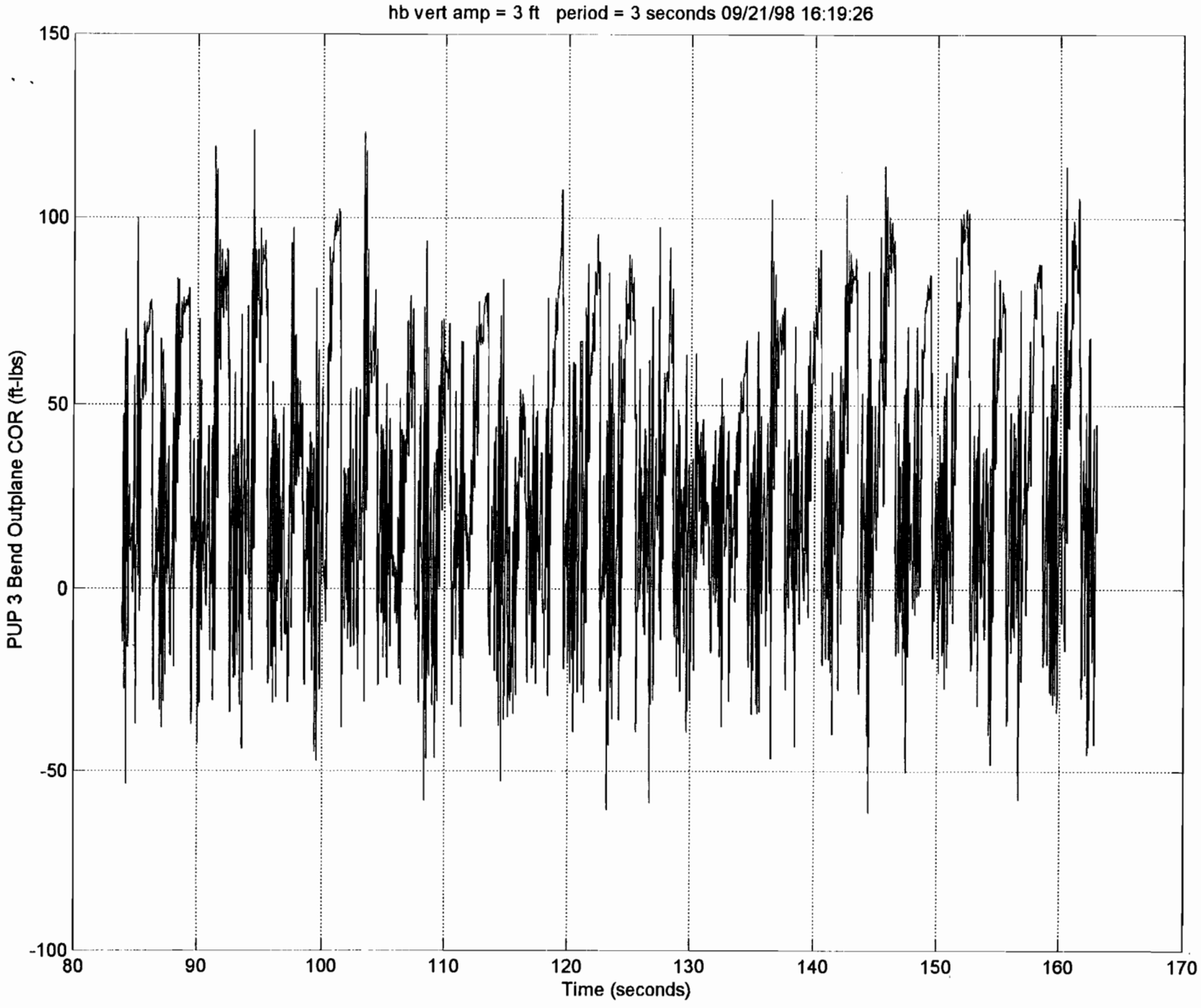

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
PUP 1 Tension COR (lbs)
Time (seconds)
0
500
1000
1500
2000
2500
3000
80
90
100
110
120
130
140
150
160
170


hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
PUP 2 Bend Inplane COR (ft-lbs)
Time (seconds)
150
100
50
0
-50
-100
-150
-200
-250
80
90
100
110
120
130
140
150
160
170


hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
PUP 2 Bend Outplane COR (ft-lbs)
Time (seconds)
200
150
100
50
0
-50
-100
-150
-200
-250
-300
80
90
100
110
120
130
140
150
160
170


hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
PUP 2 Tension COR (lbs)
1500
1000
500
0
-500
-1000
80
90
100
110
120
130
140
150
160
170
Time (seconds)


hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
PUP 3 Bend Inplane COR (ft-lbs)
50
0
-50
-100
-150
-200
-250
80
90
100
110
120
130
140
150
160
170
Time (seconds)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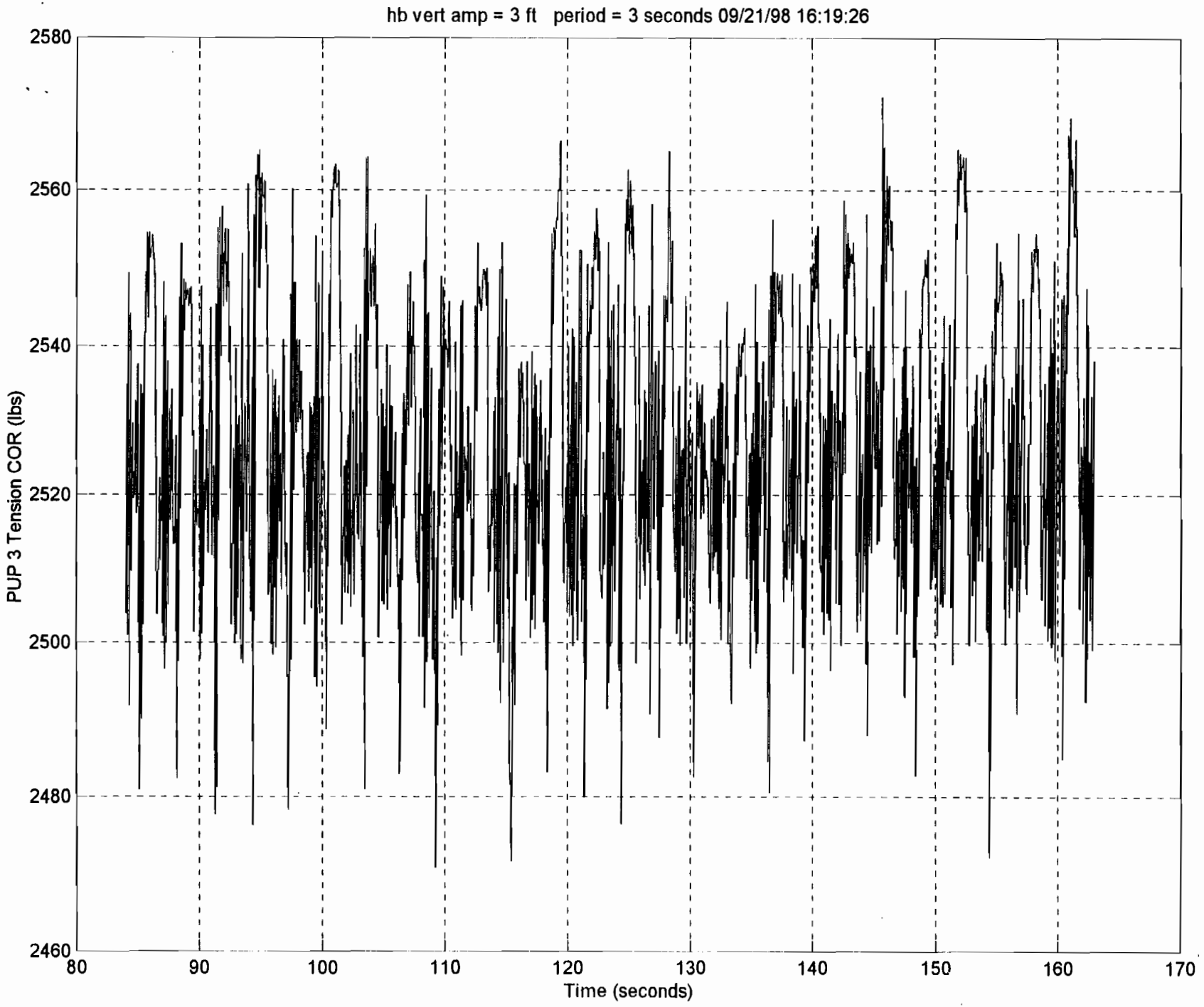
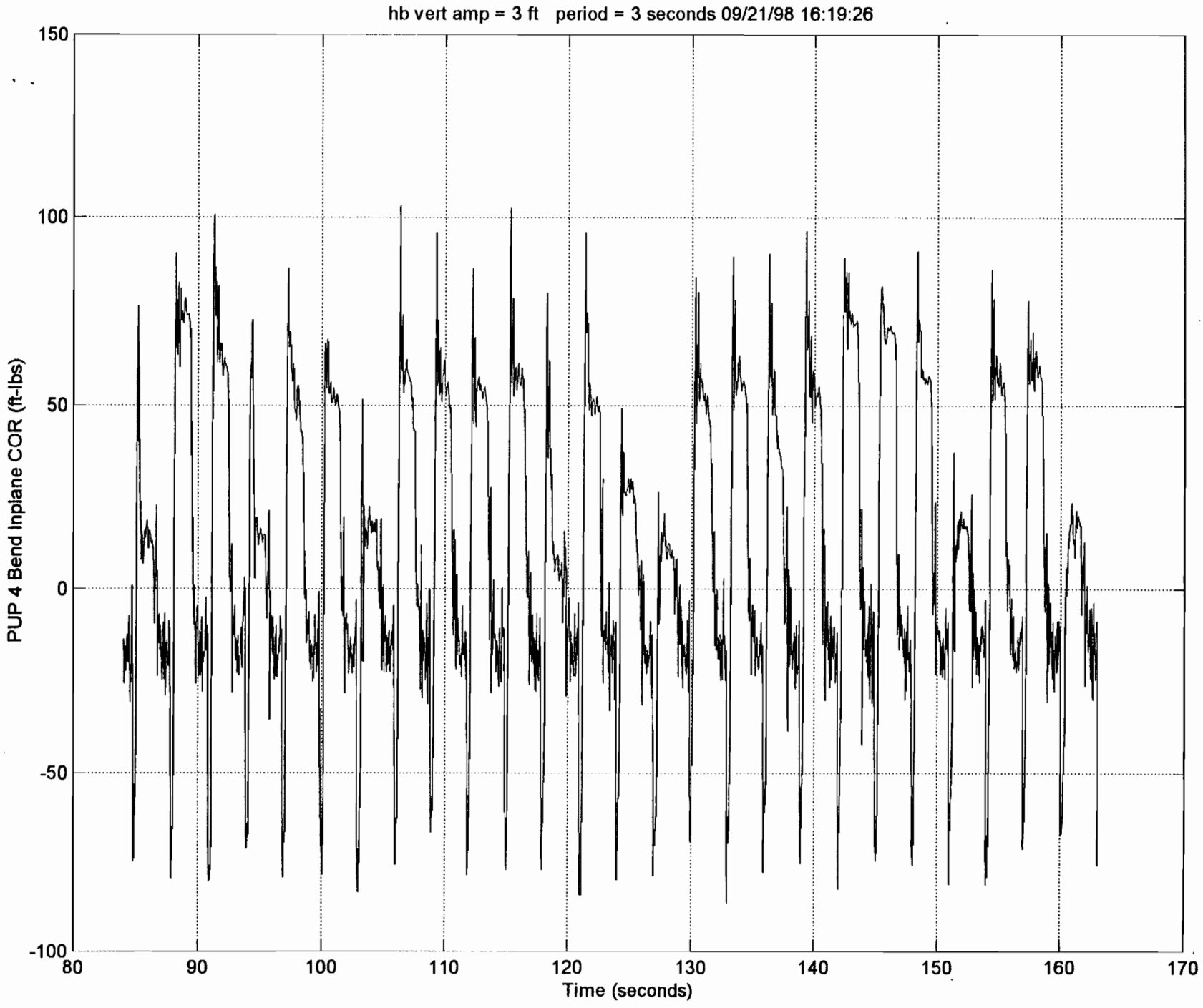
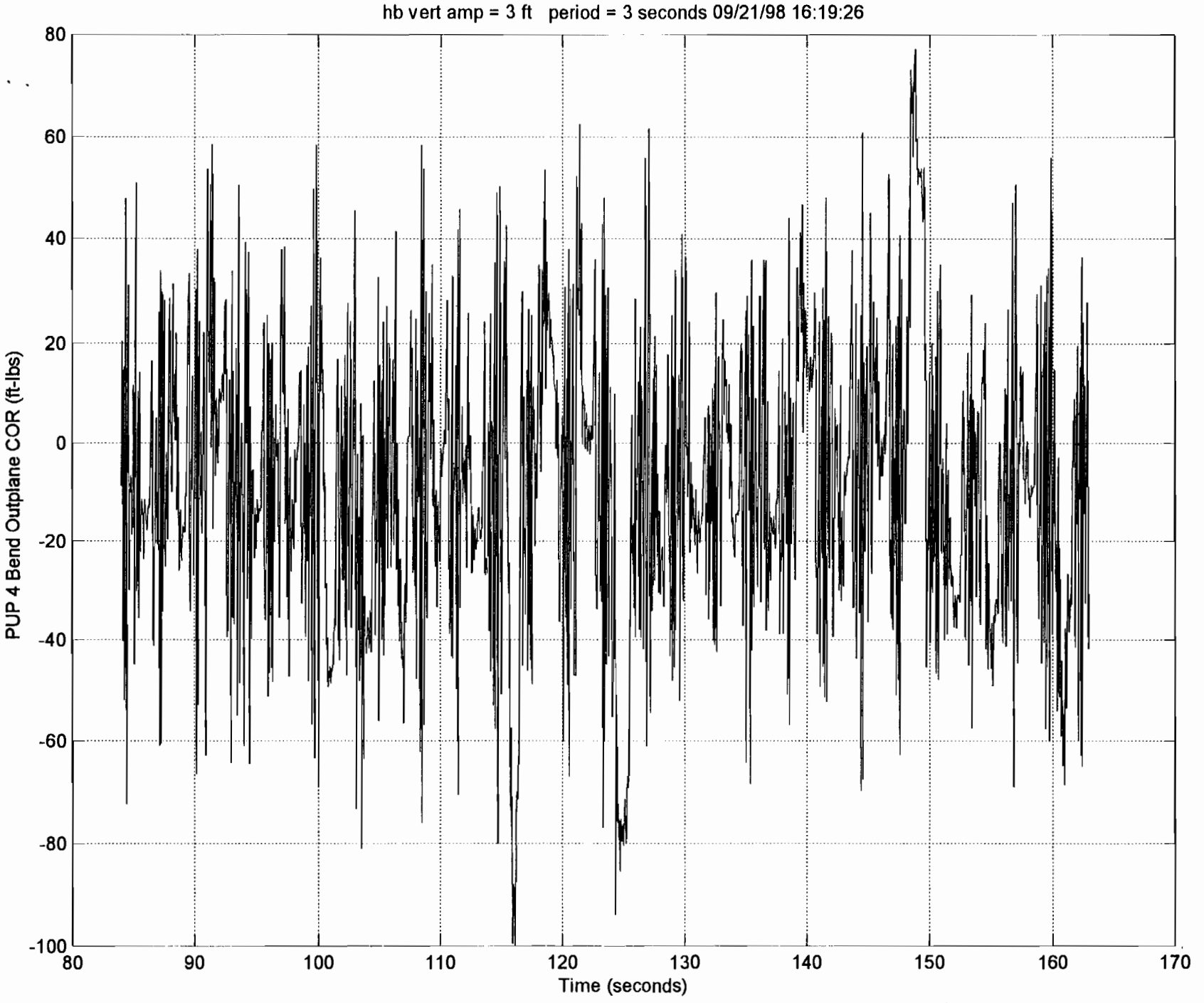
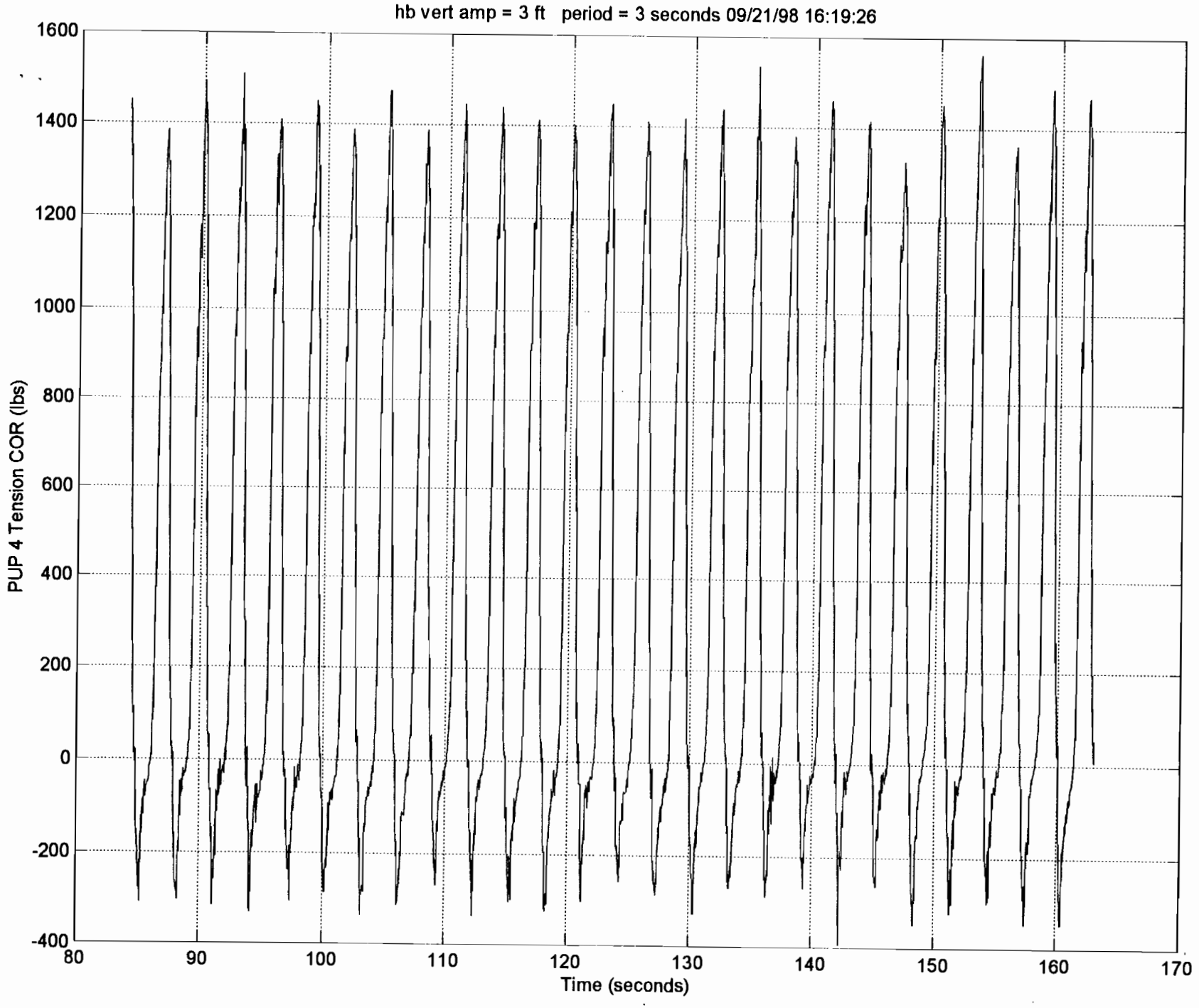
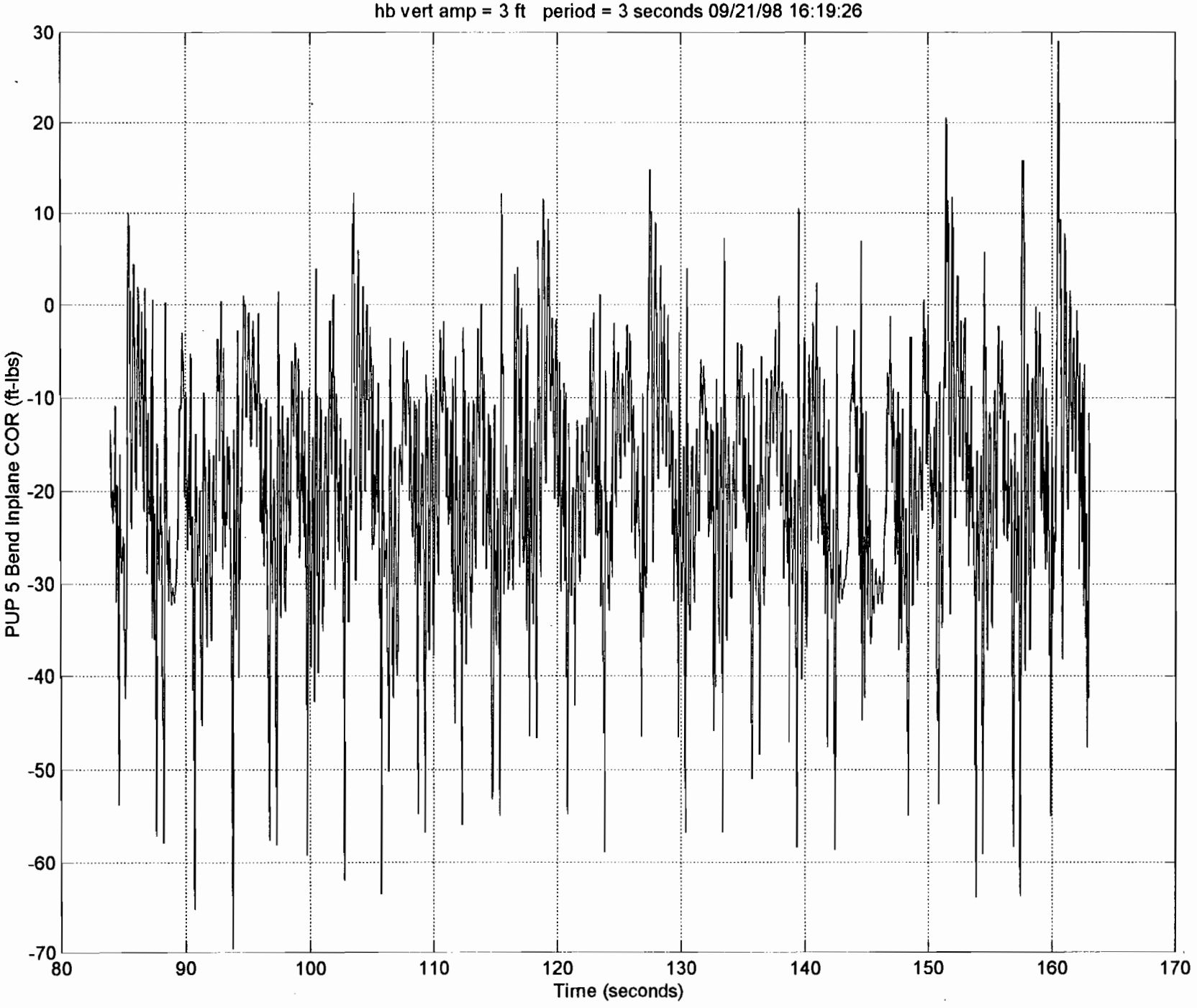
PUP 3 Bend Outplane COR (ft-lbs)
150
100
50
0
-50
-100
80
90
100
110
120
130
140
150
160
170
Time (seconds)

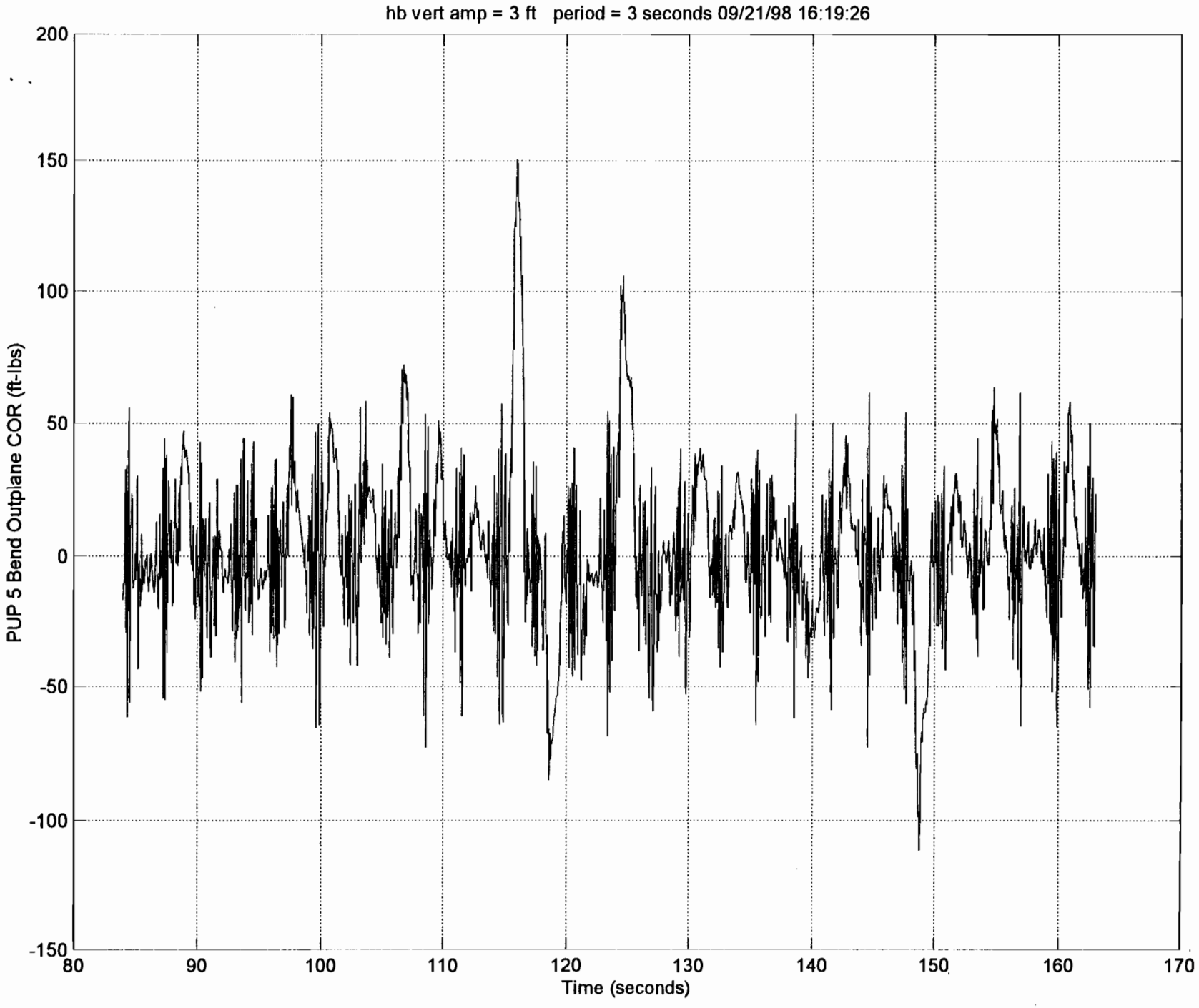

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
PUP 3 Tension COR (lbs)
2580
2560
2540
2520
2500
2480
2460
80
90
100
110
120
130
140
150
160
170
Time (seconds)

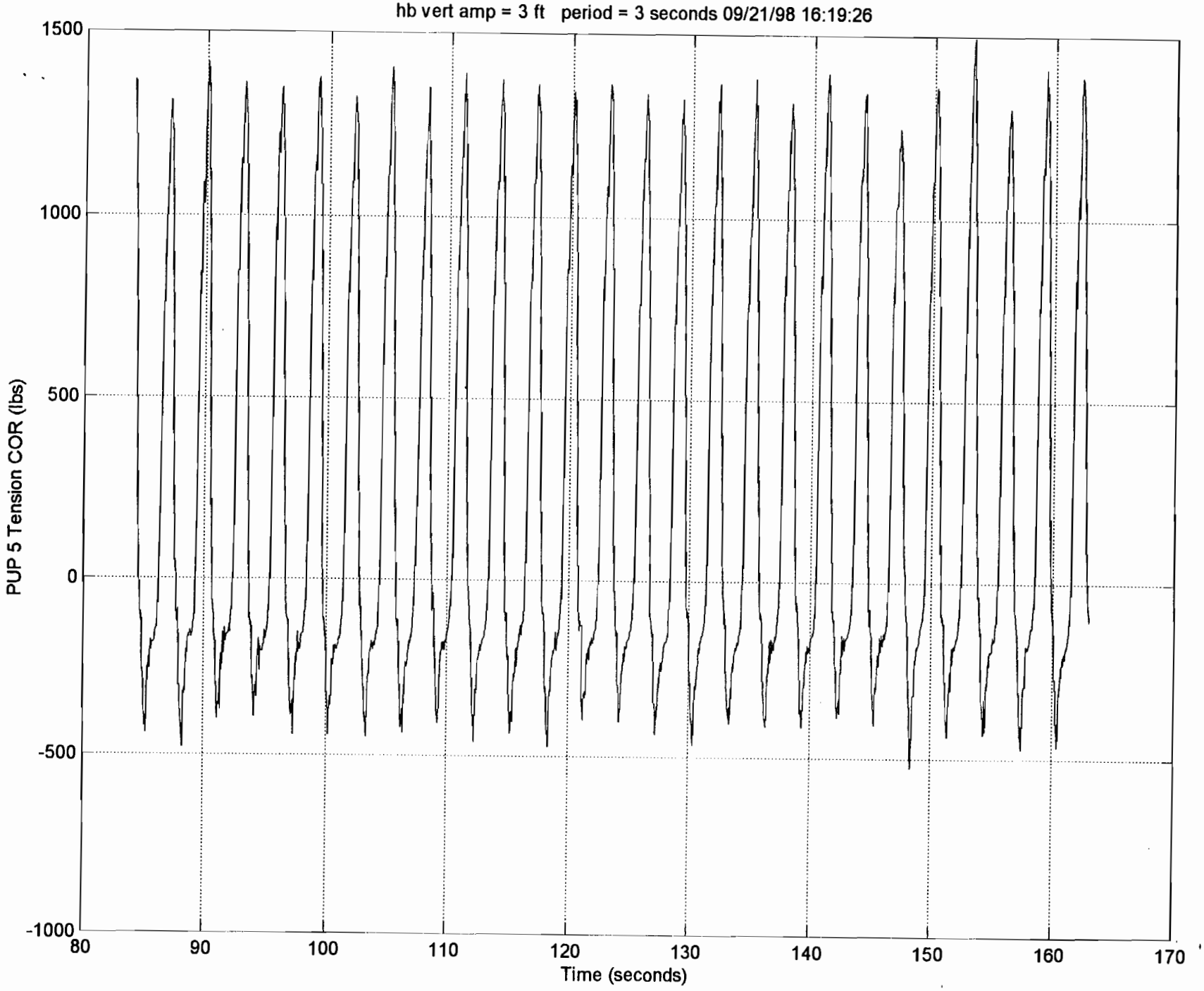

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
PUP 4 Bend Inplane COR (ft-lbs)
150
100
50
0
-50
-100
80
90
100
110
120
130
140
150
160
170
Time (seconds)

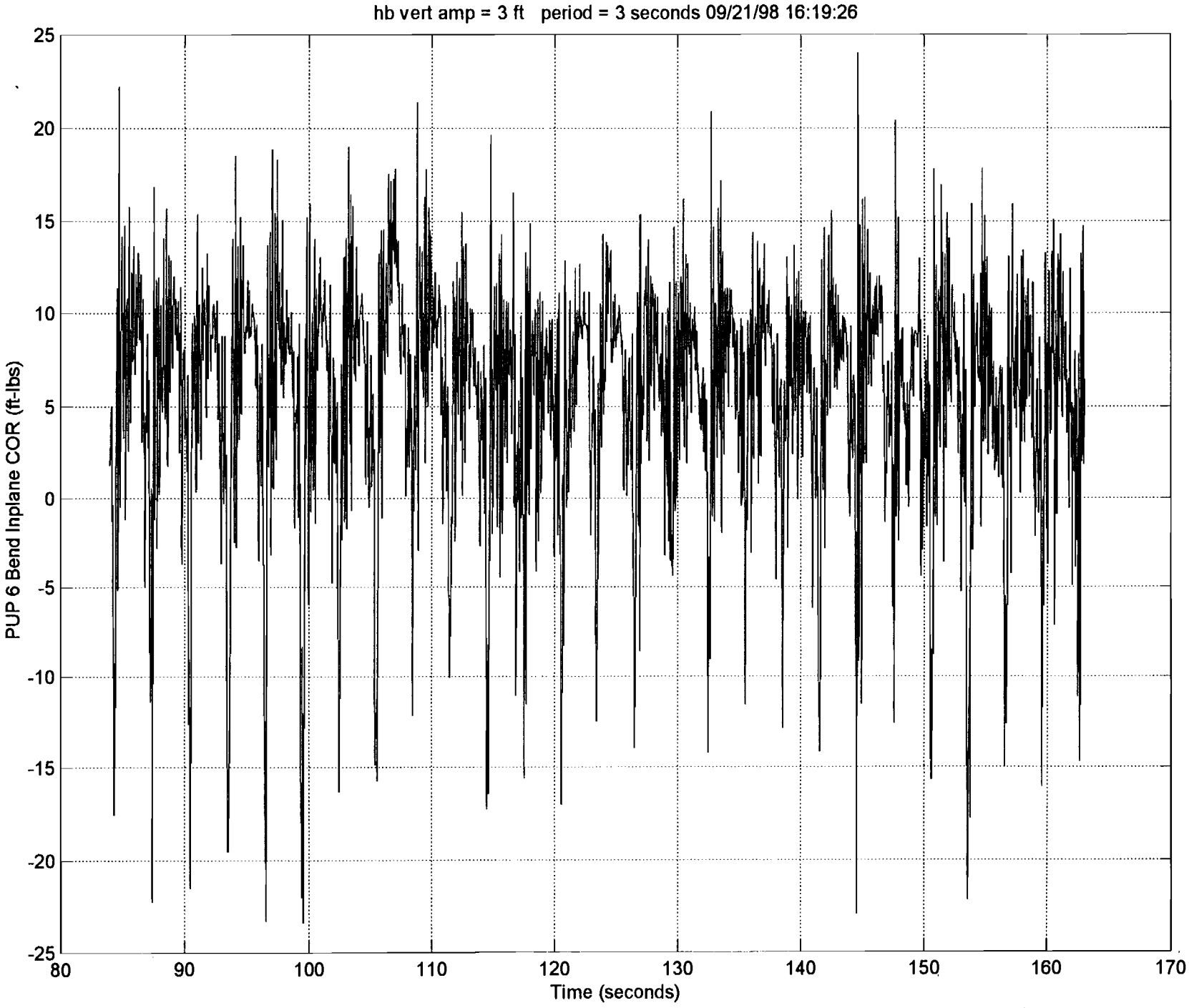

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
PUP 4 Bend Outplane COR (ft-lbs)
Time (seconds)
80
60
40
20
0
-20
-40
-60
-80
-100
80
90
100
110
120
130
140
150
160
170

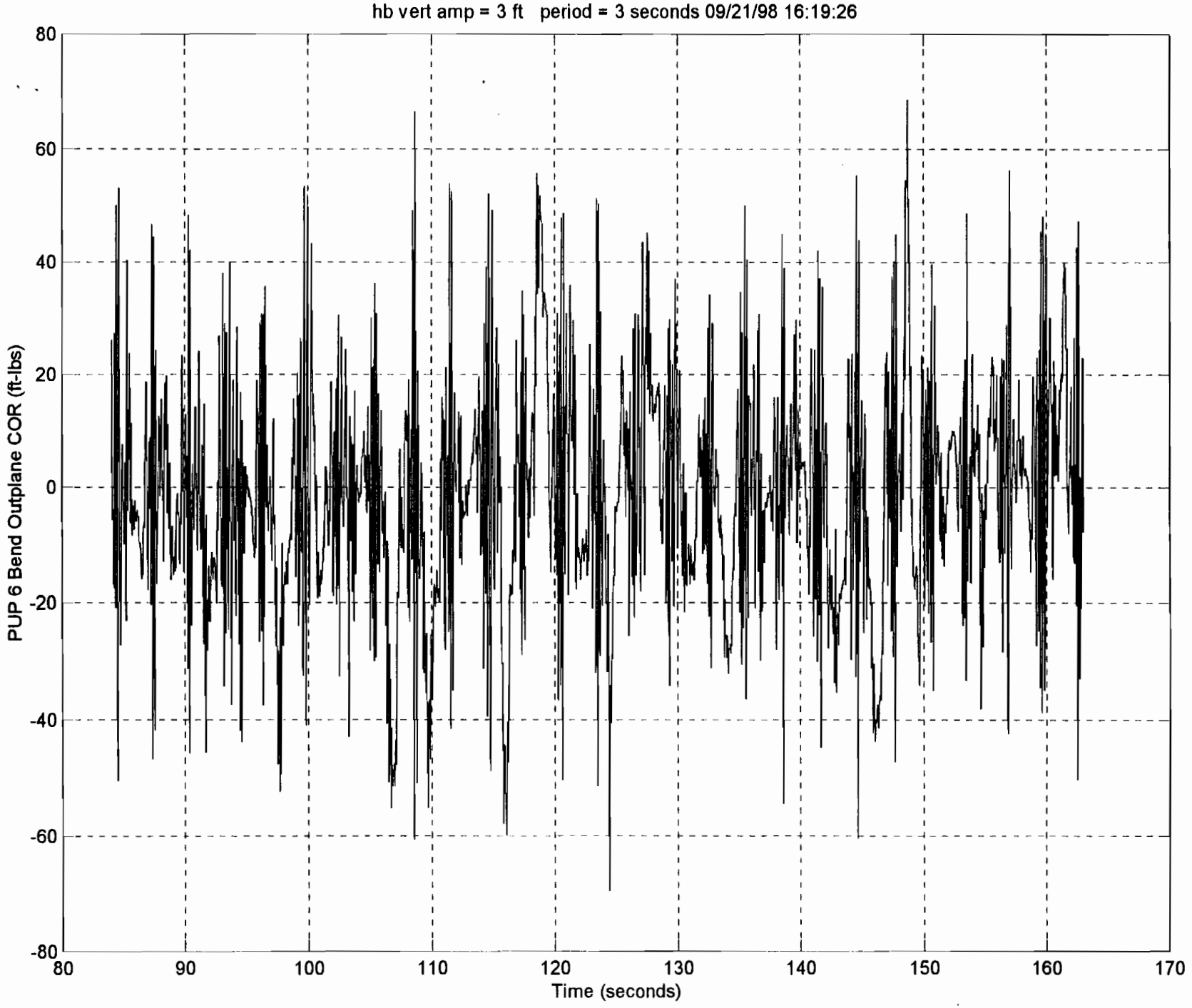

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
PUP 4 Tension COR (lbs)
1600
1400
1200
1000
800
600
400
200
0
-200
-400
80
90
100
110
120
130
140
150
160
170
Time (seconds)

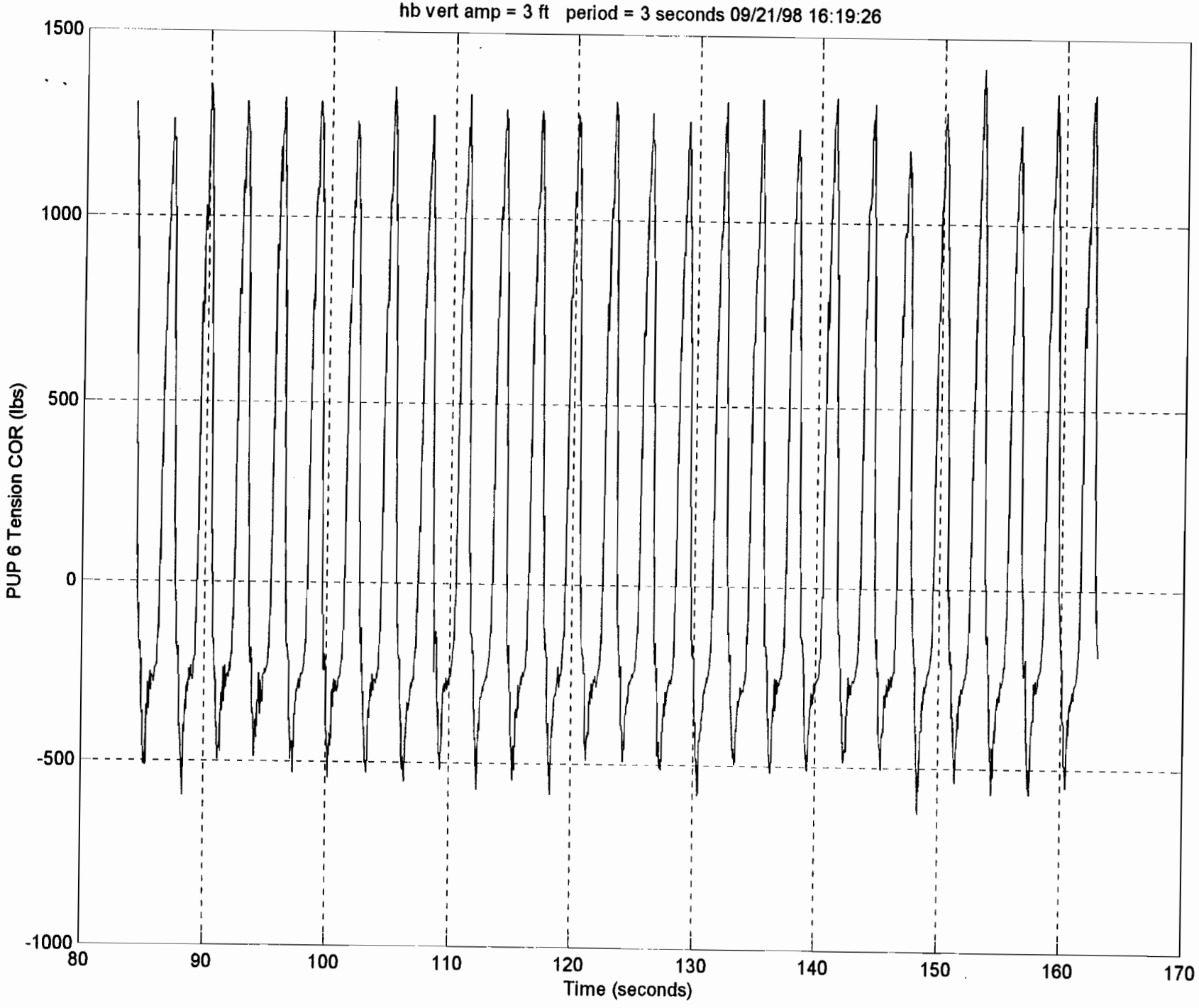

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
PUP 5 Bend Inplane COR (ft-lbs)
Time (seconds)
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
80
90
100
110
120
130
140
150
160
170

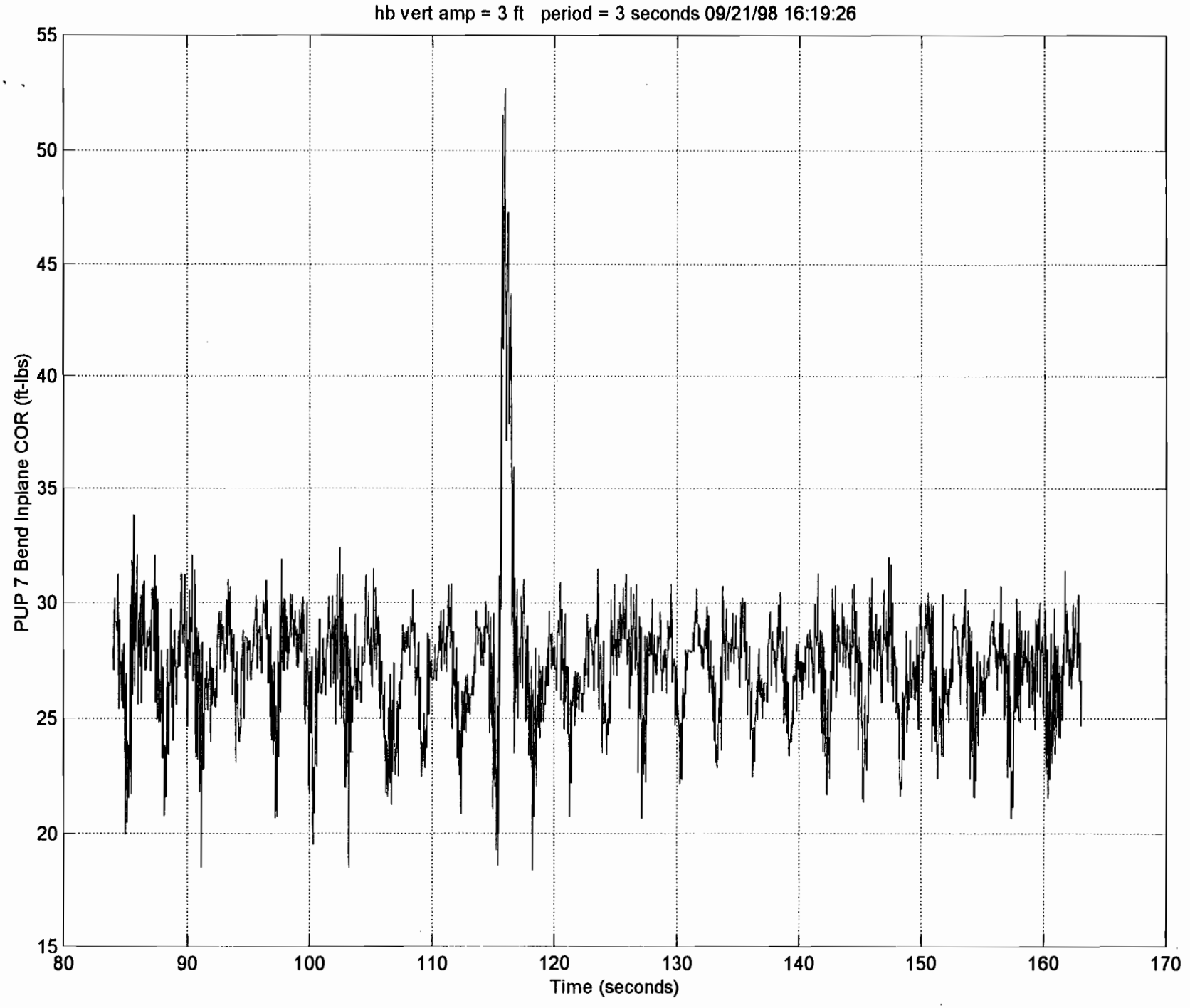

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
PUP 5 Bend Outplane COR (ft-lbs)
Time (seconds)
200
150
100
50
0
-50
-100
-150
80
90
100
110
120
130
140
150
160
170

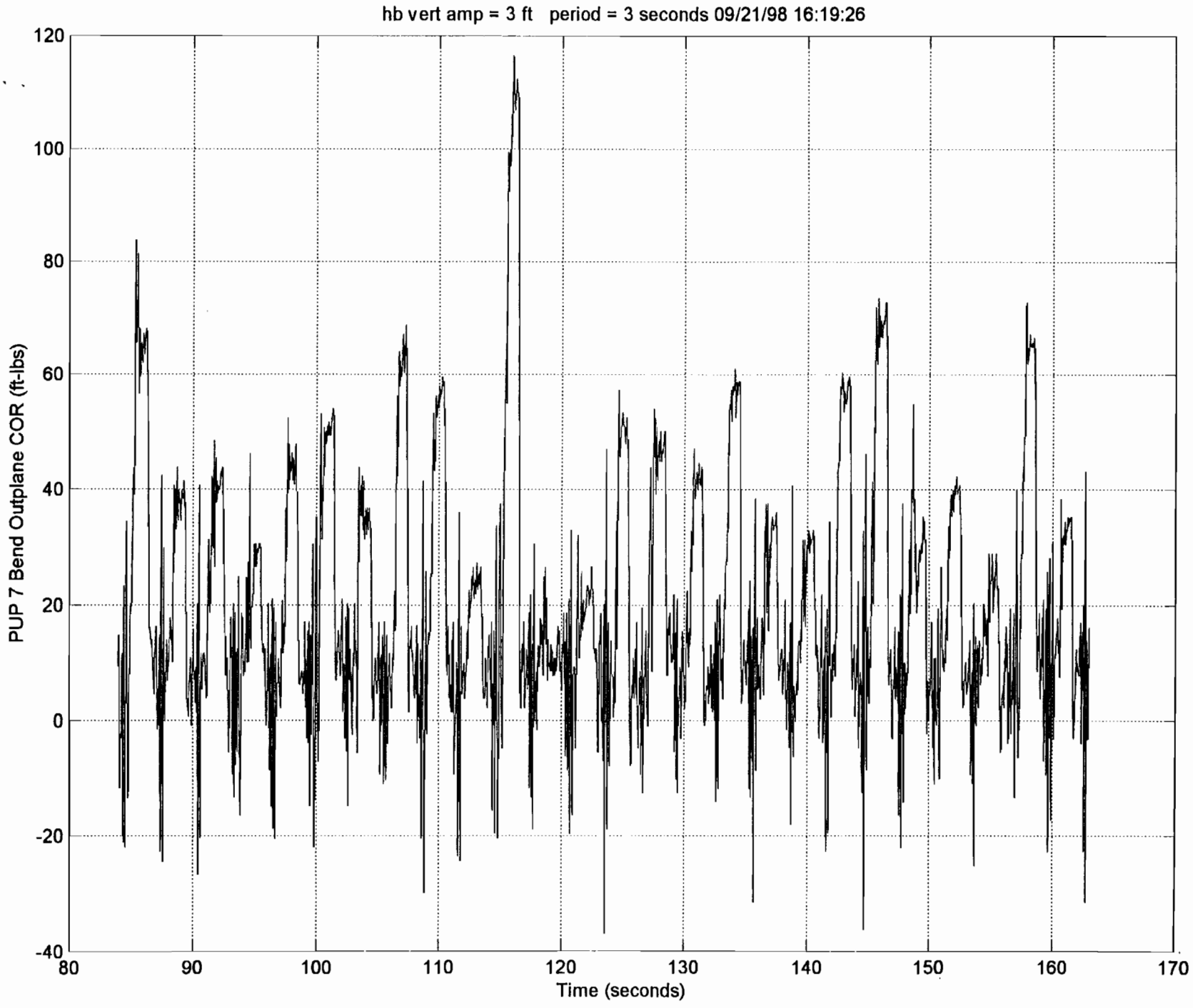

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
PUP 5 Tension COR (lbs)
1500
1000
500
0
-500
-1000
80
90
100
110
120
130
140
150
160
170
Time (seconds)

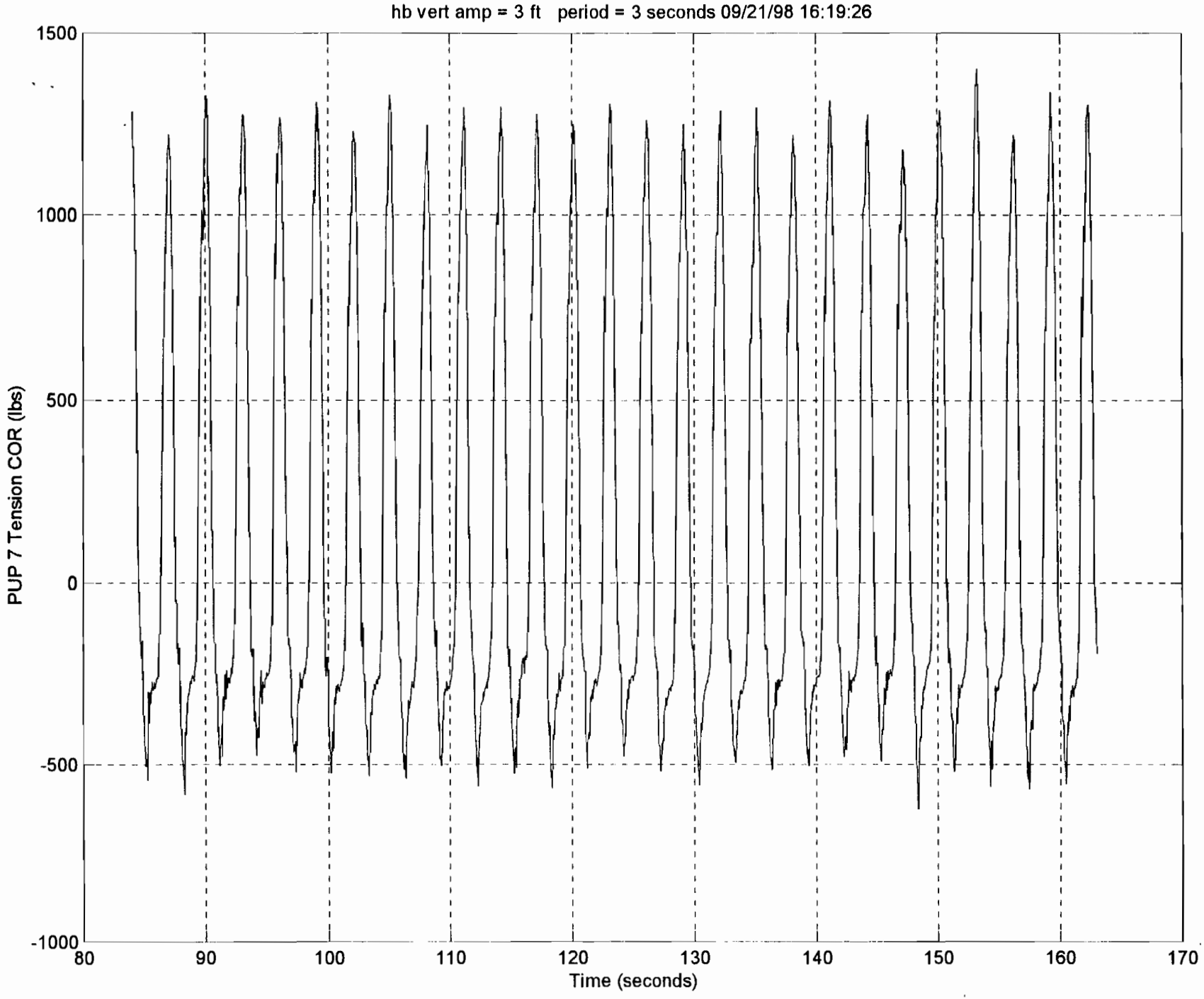

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
PUP 6 Bend Inplane COR (ft-lbs)
Time (seconds)
25
20
15
10
5
0
-5
-10
-15
-20
-25
80
90
100
110
120
130
140
150
160
170

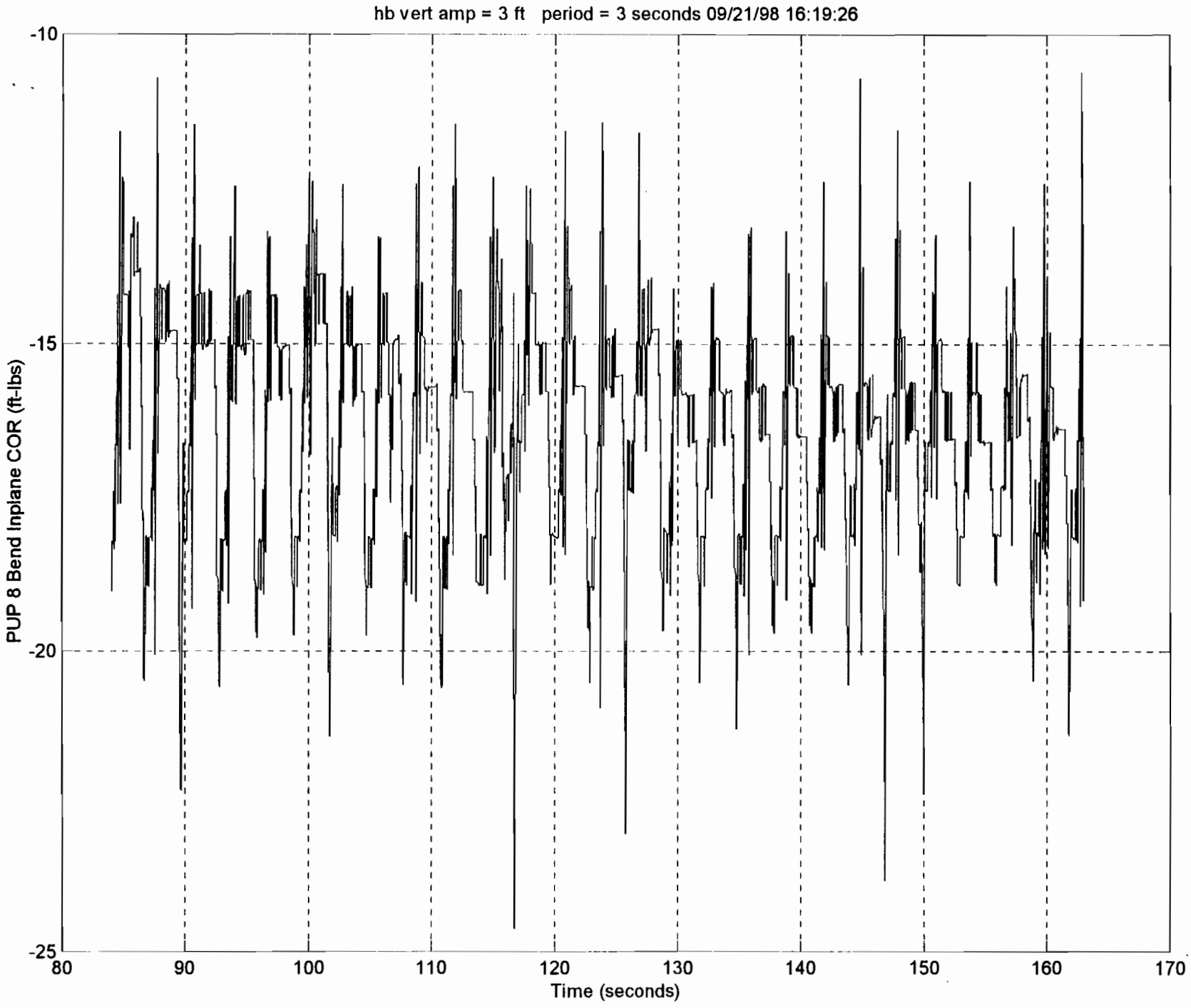

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
PUP 6 Bend Outplane COR (ft-lbs)
80
60
40
20
0
-20
-40
-60
-80
80
90
100
110
120
130
140
150
160
170
Time (seconds)

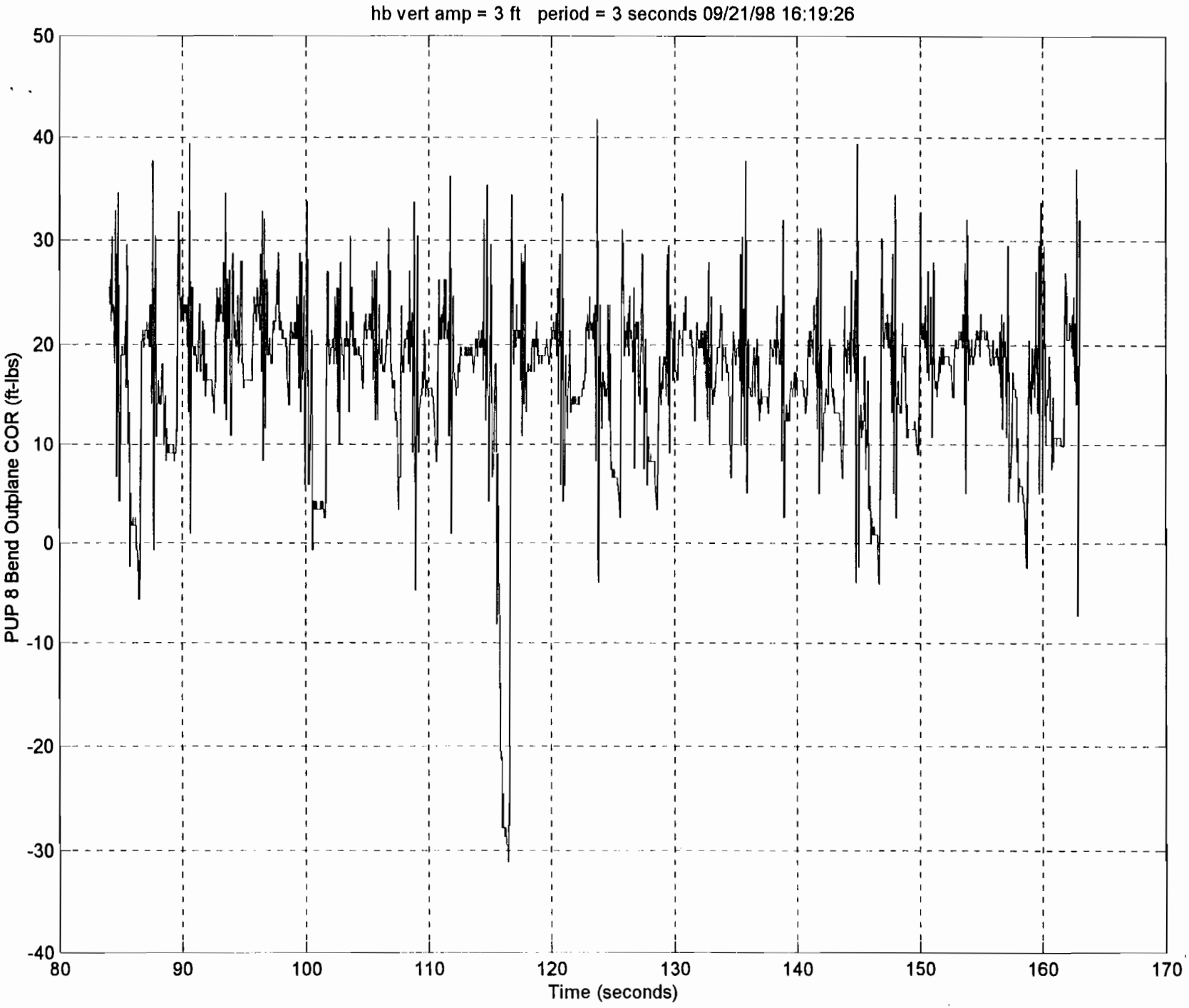

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
PUP 6 Tension COR (lbs)
1500
1000
500
0
-500
-1000
80
90
100
110
120
130
140
150
160
170
Time (seconds)

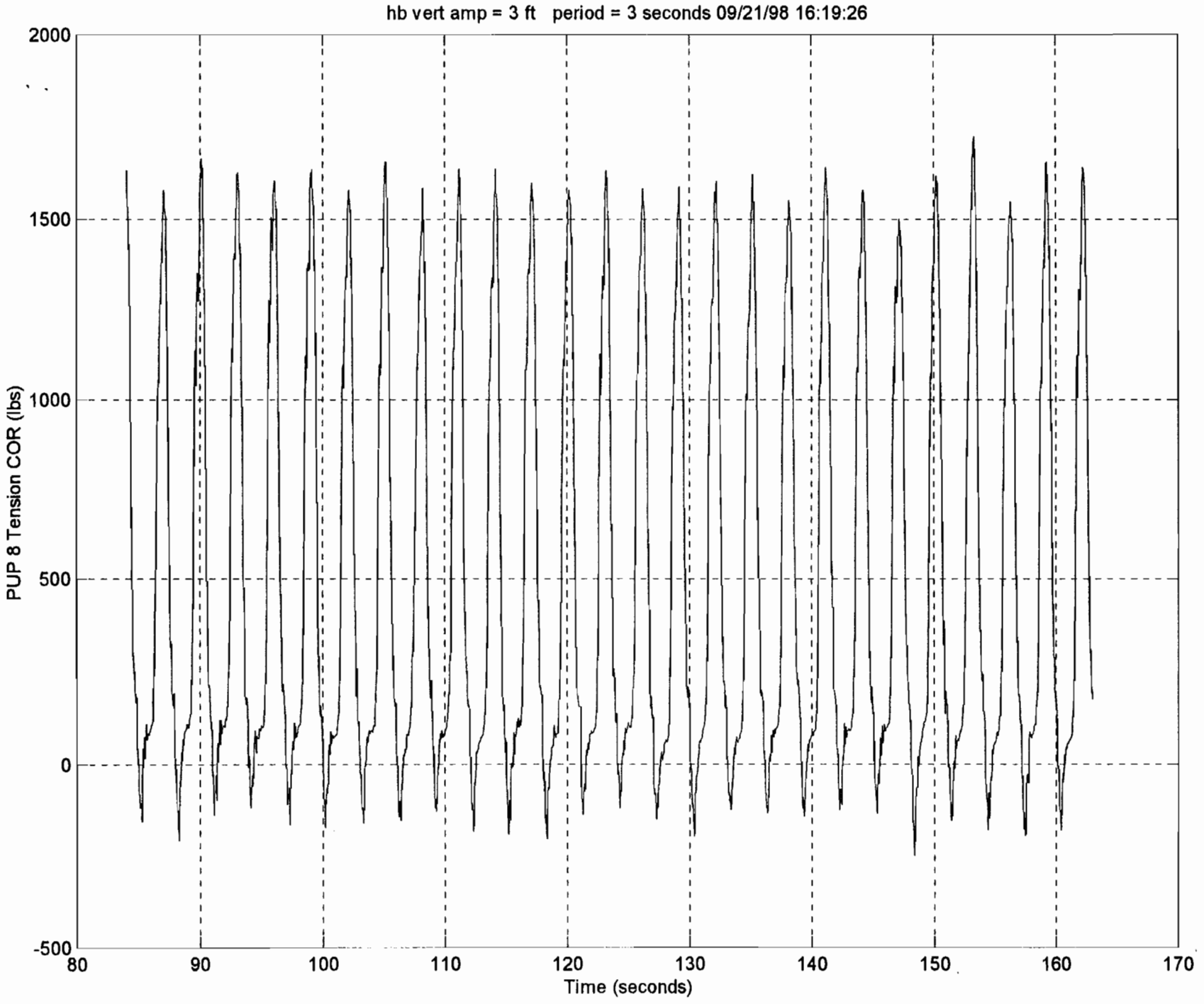

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
PUP 7 Bend Inplane COR (ft-lbs)
Time (seconds)
55
50
45
40
35
30
25
20
15
80
90
100
110
120
130
140
150
160
170

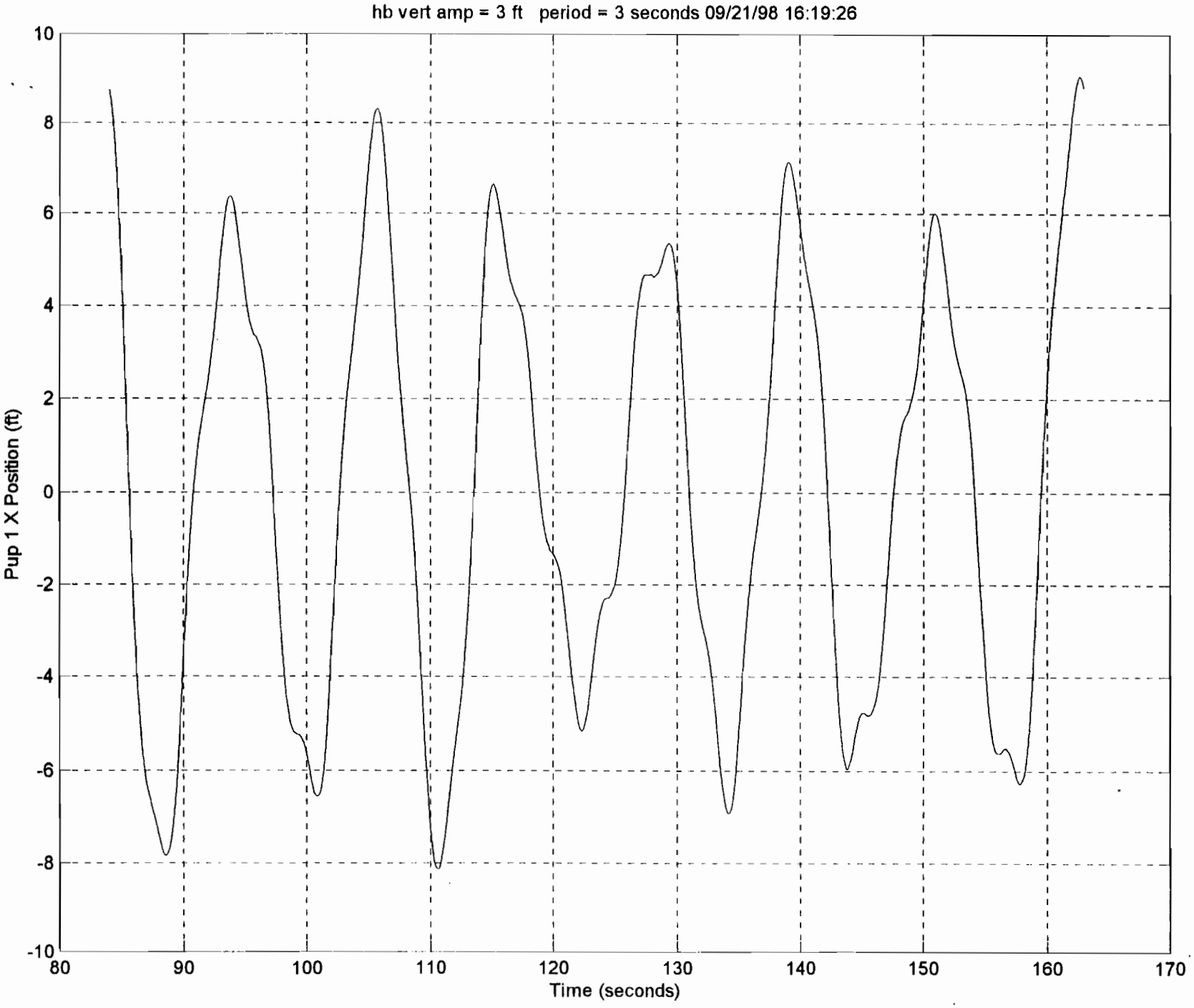

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
PUP 7 Bend Outplane COR (ft-lbs)
120
100
80
60
40
20
0
-20
-40
80
90
100
110
120
130
140
150
160
170
Time (seconds)

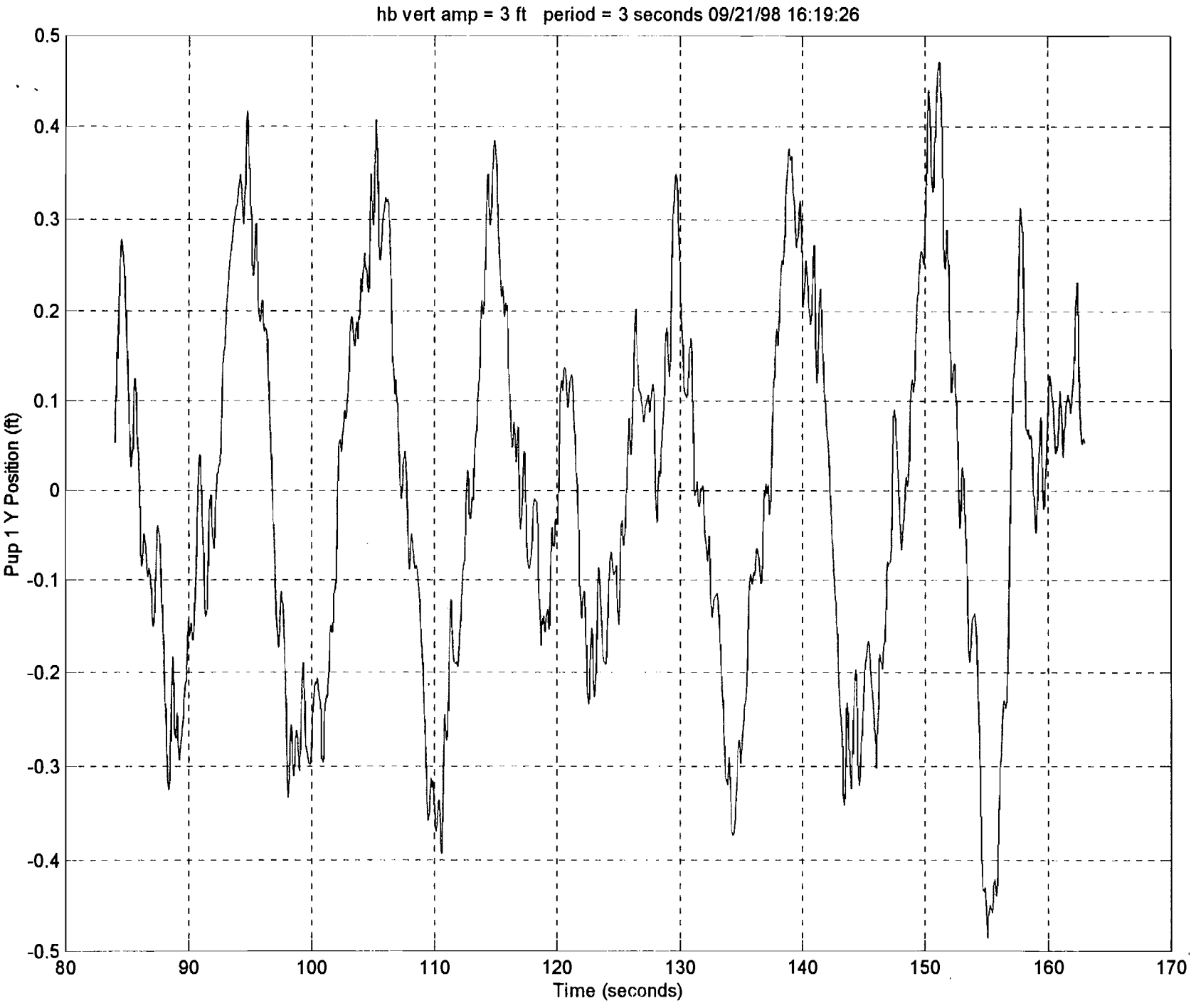

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
PUP 7 Tension COR (lbs)
1500
1000
500
0
-500
-1000
80
90
100
110
120
130
140
150
160
170
Time (seconds)

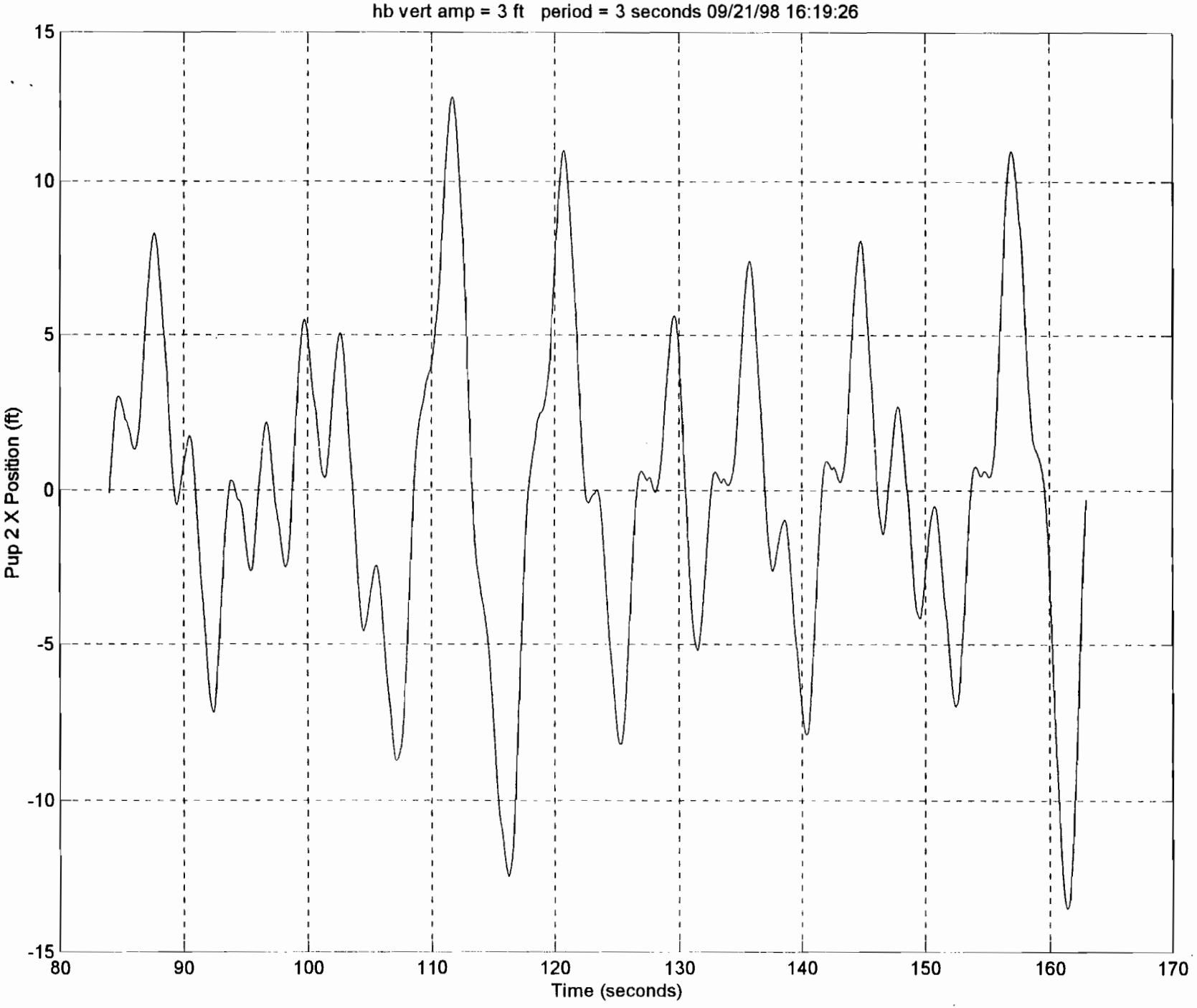

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
-10
-15
-20
-25
PUP 8 Bend Inplane COR (ft-lbs)
80
90
100
110
120
130
140
150
160
170
Time (seconds)

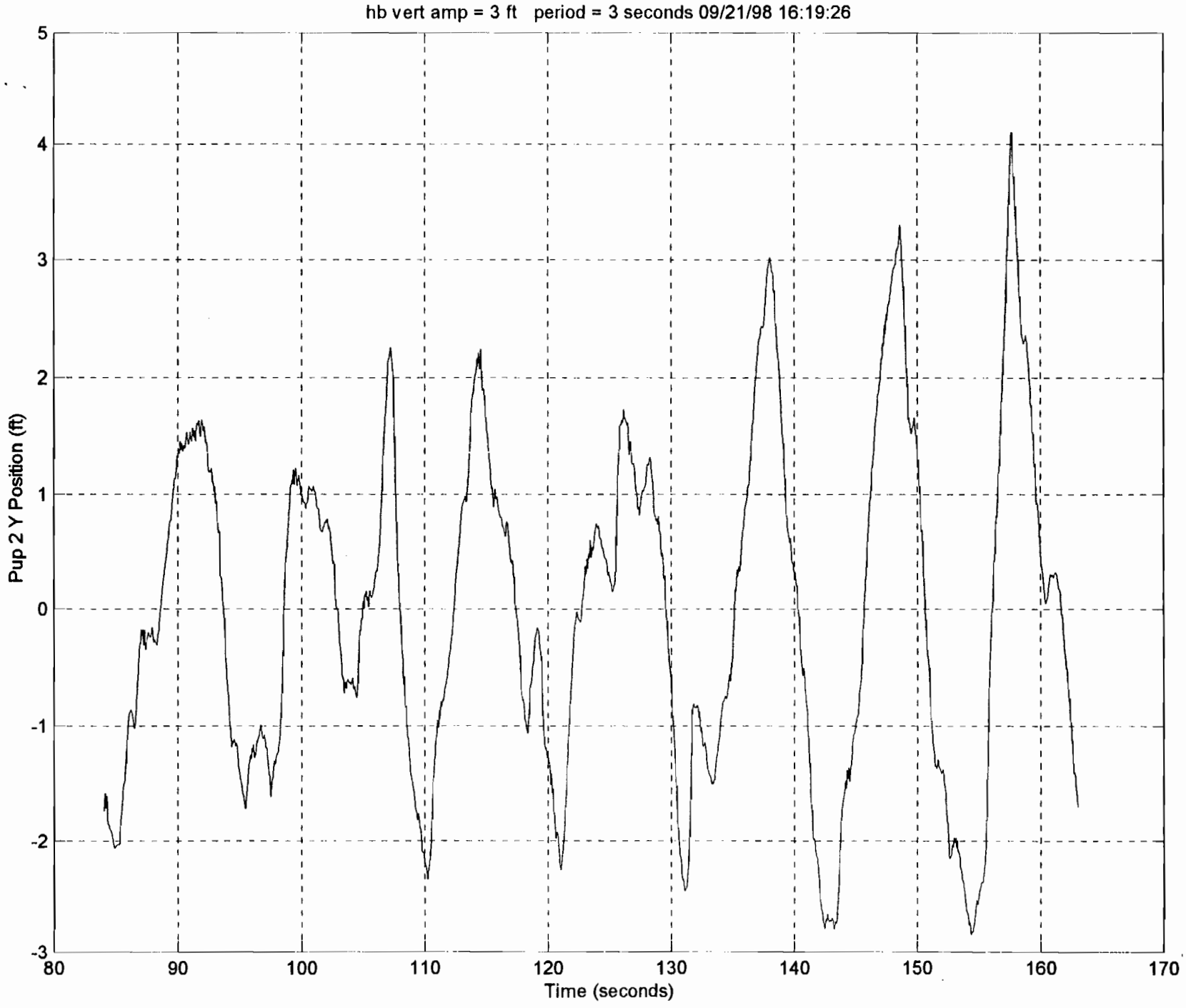

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
PUP 8 Bend Outplane COR (ft-lbs)
Time (seconds)
50
40
30
20
10
0
-10
-20
-30
-40
80
90
100
110
120
130
140
150
160
170

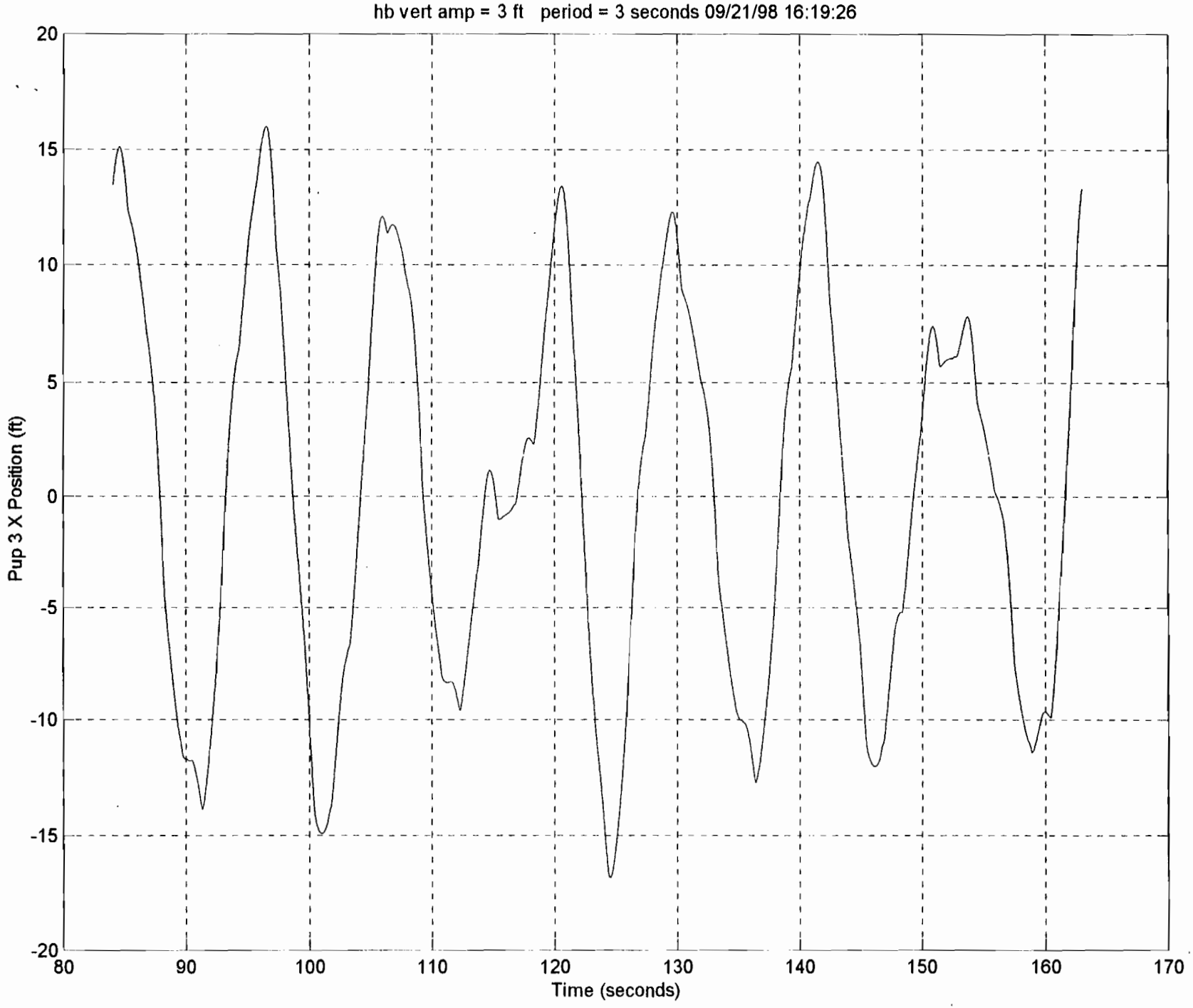

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
PUP 8 Tension COR (lbs)
2000
1500
1000
500
0
-500
80
90
100
110
120
130
140
150
160
170
Time (seconds)

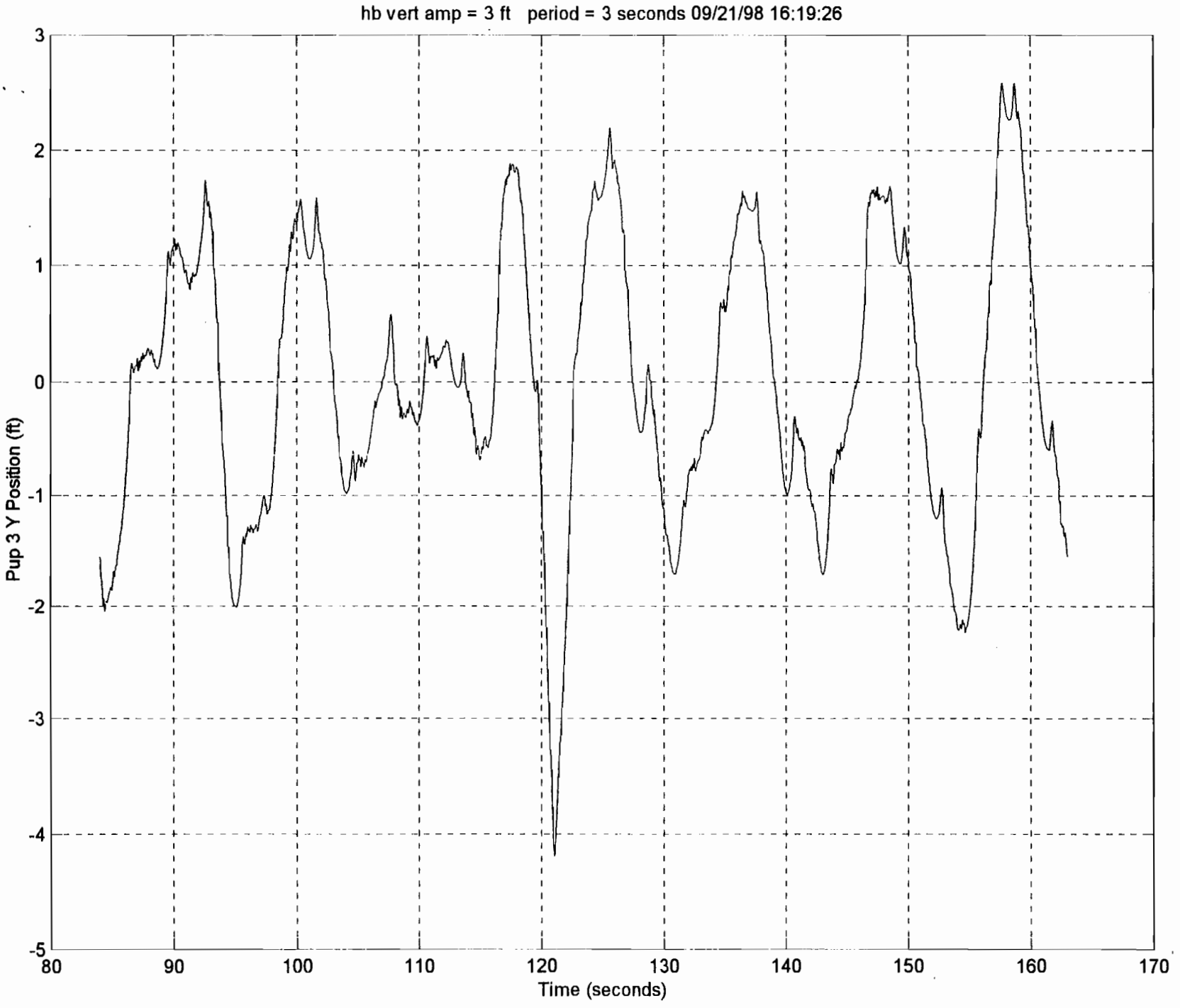

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
Pup 1 X Position (ft)
Time (seconds)
10
8
6
4
2
0
-2
-4
-6
-8
-10
80
90
100
110
120
130
140
150
160
170

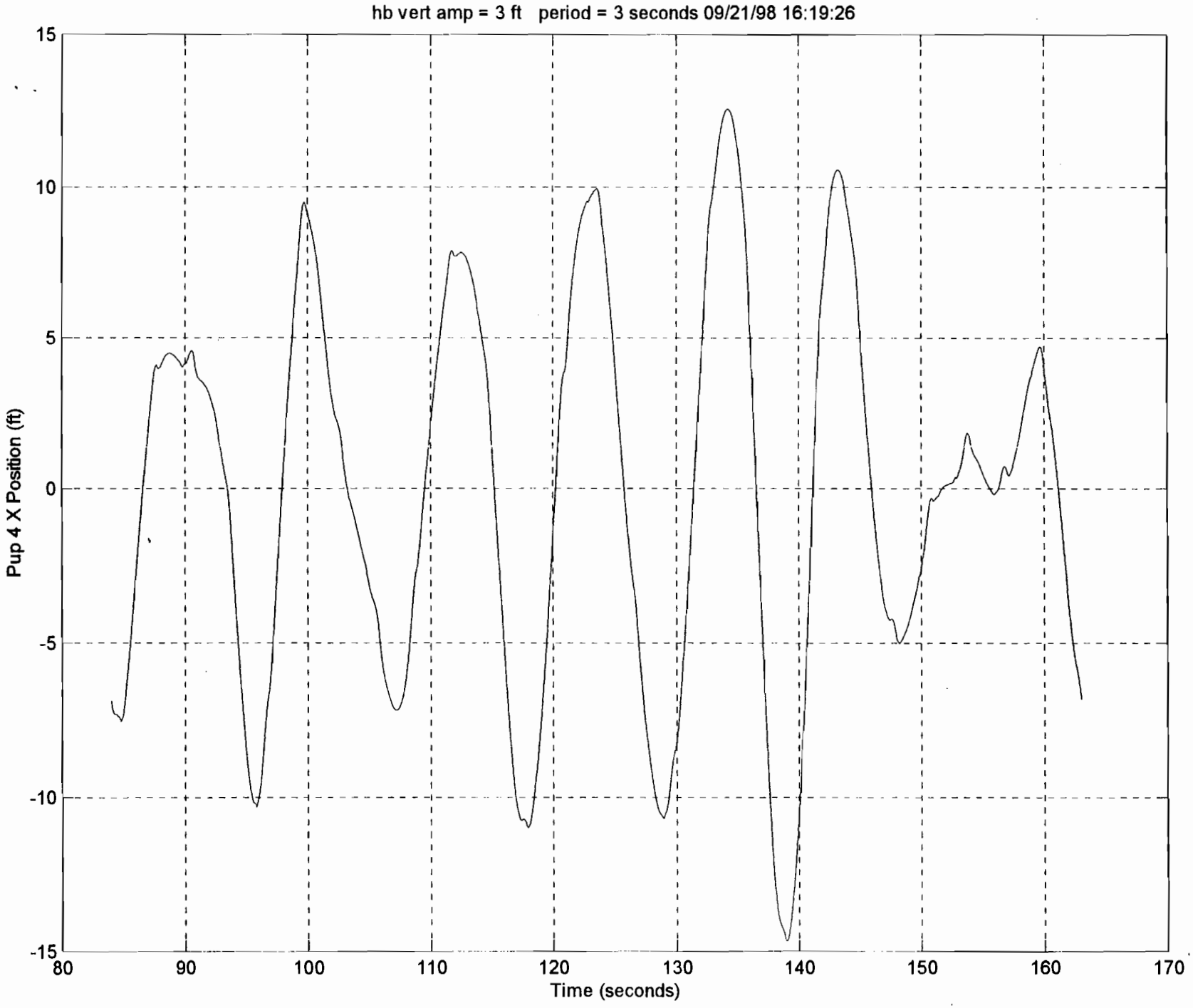

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
Pup 1 Y Position (ft)
Time (seconds)
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
80
90
100
110
120
130
140
150
160
170

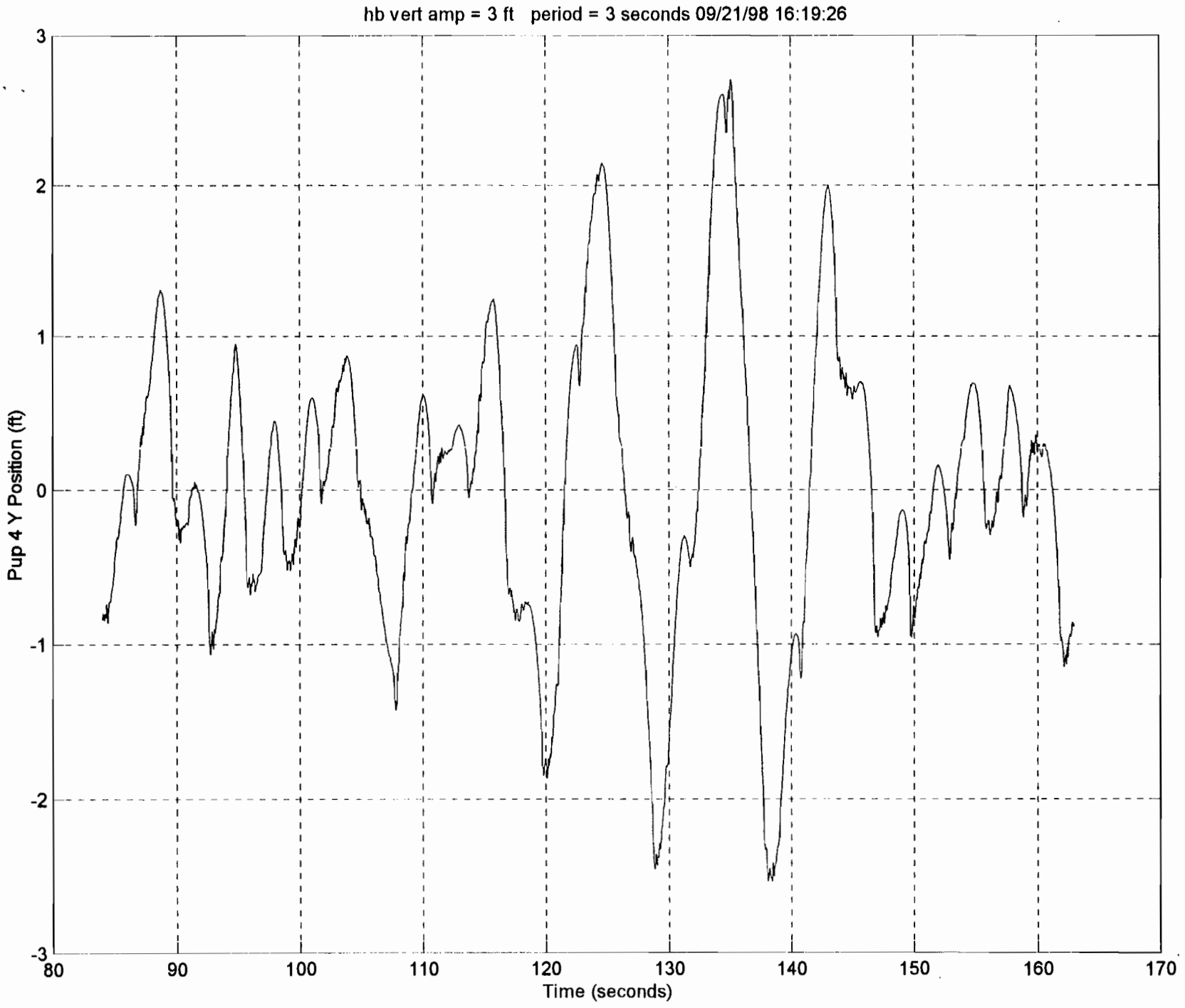

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
Pup 2 X Position (ft)
Time (seconds)
15
10
5
0
-5
-10
-15
80
90
100
110
120
130
140
150
160
170

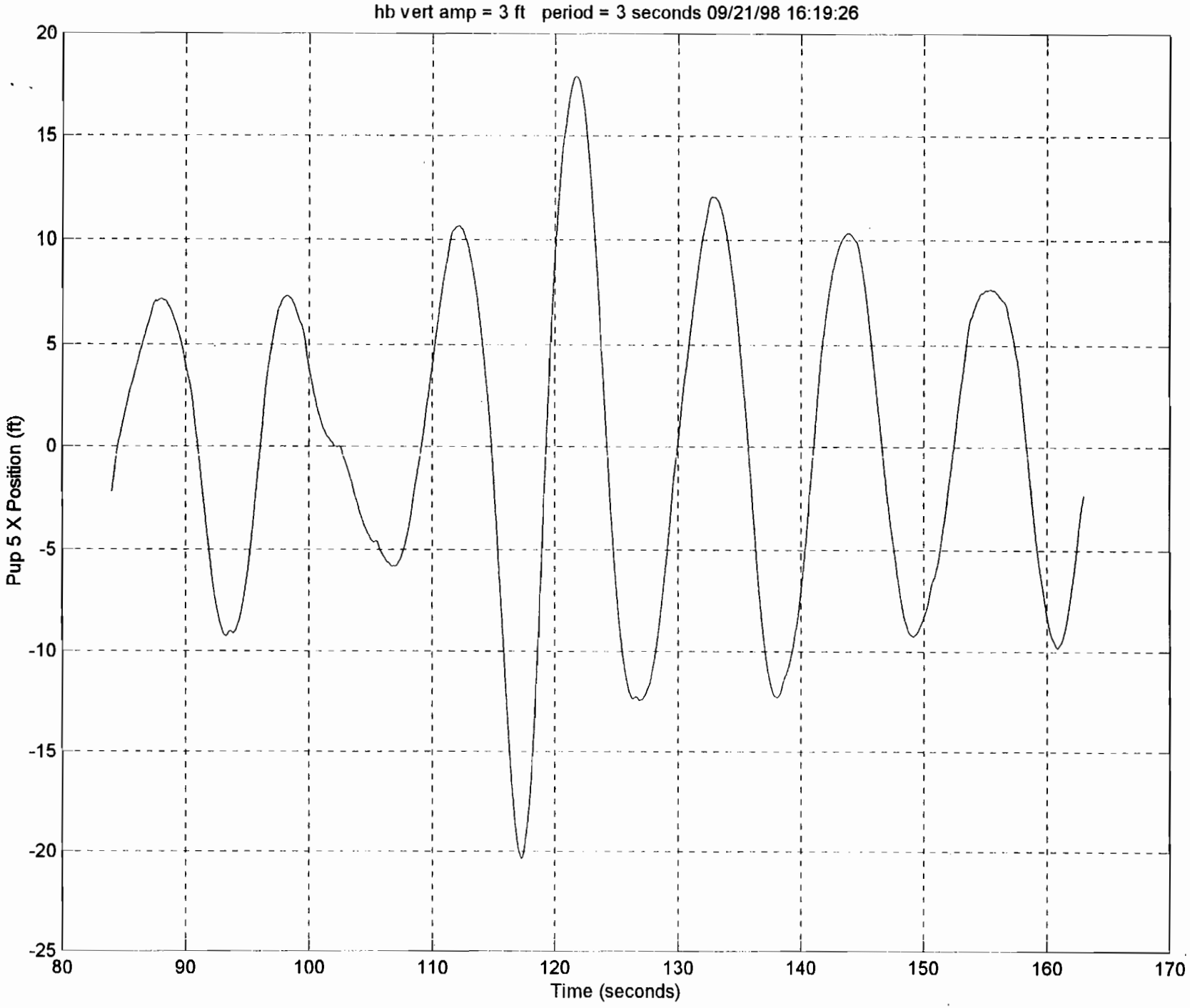

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
Pup 2 Y Position (ft)
Time (seconds)
5
4
3
2
1
0
-1
-2
-3
80
90
100
110
120
130
140
150
160
170

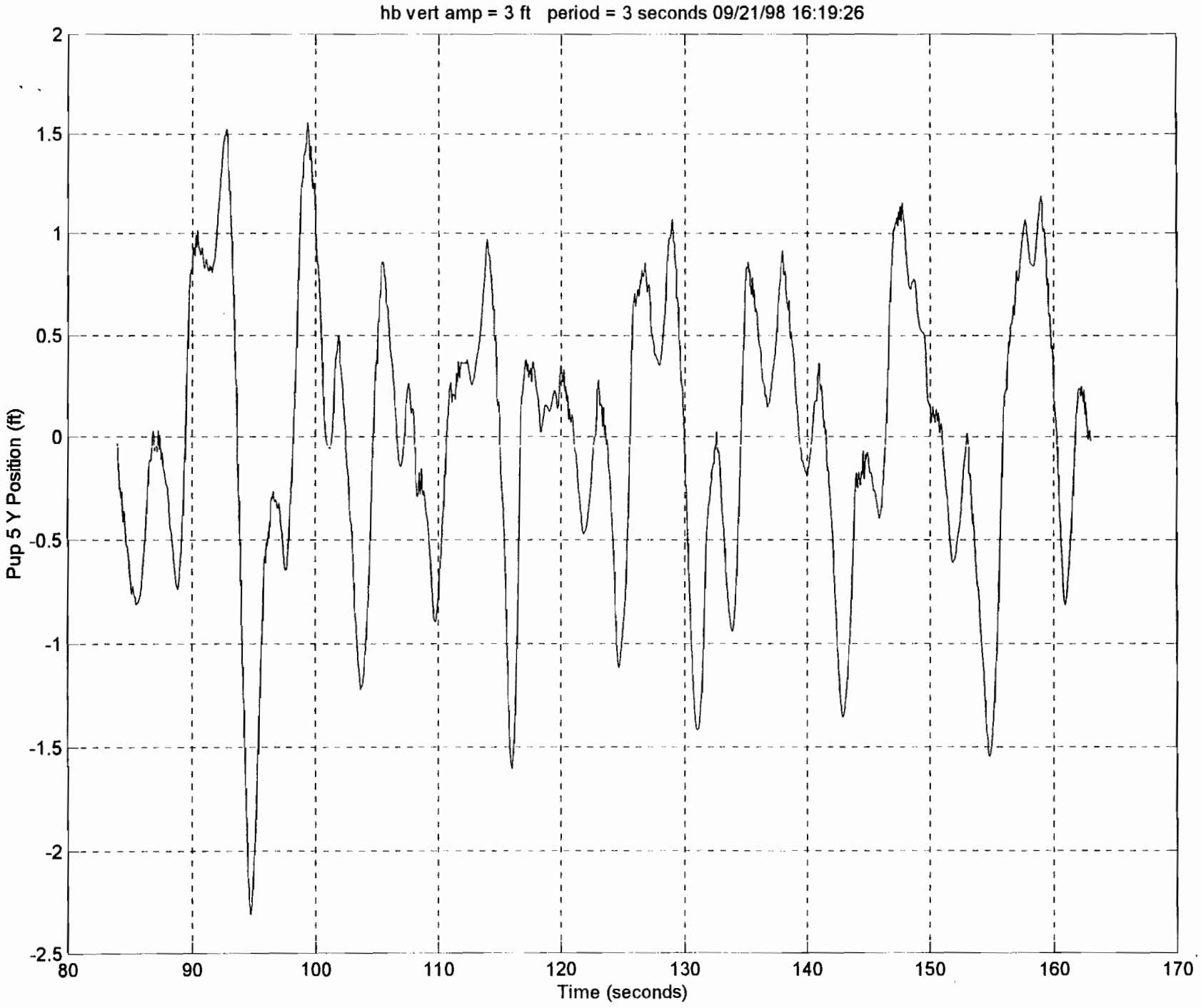

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
Pup 3 X Position (ft)
Time (seconds)
20
15
10
5
0
-5
-10
-15
-20
80
90
100
110
120
130
140
150
160
170

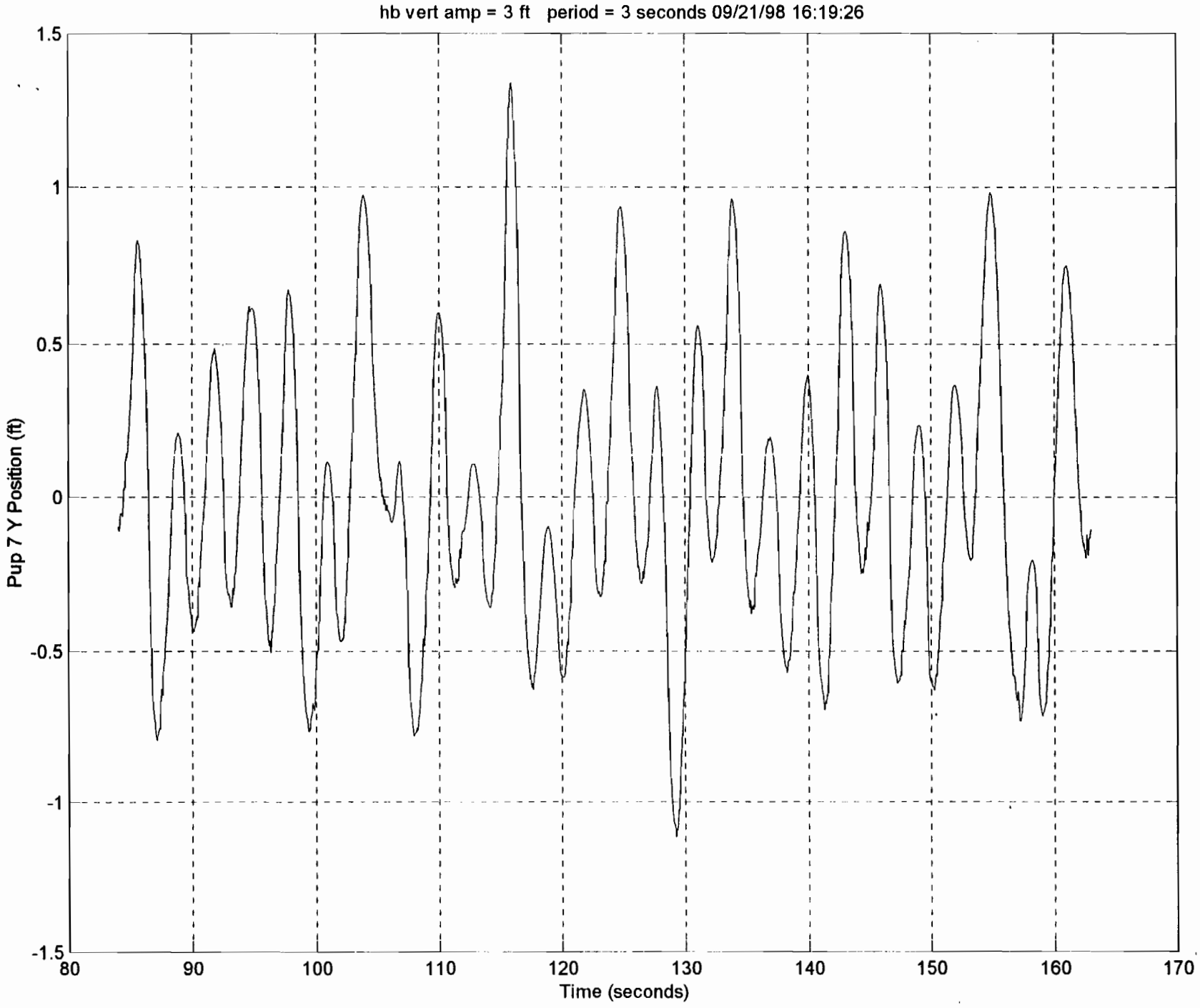

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
Pup 3 Y Position (ft)
Time (seconds)
3
2
1
0
-1
-2
-3
-4
-5
80
90
100
110
120
130
140
150
160
170

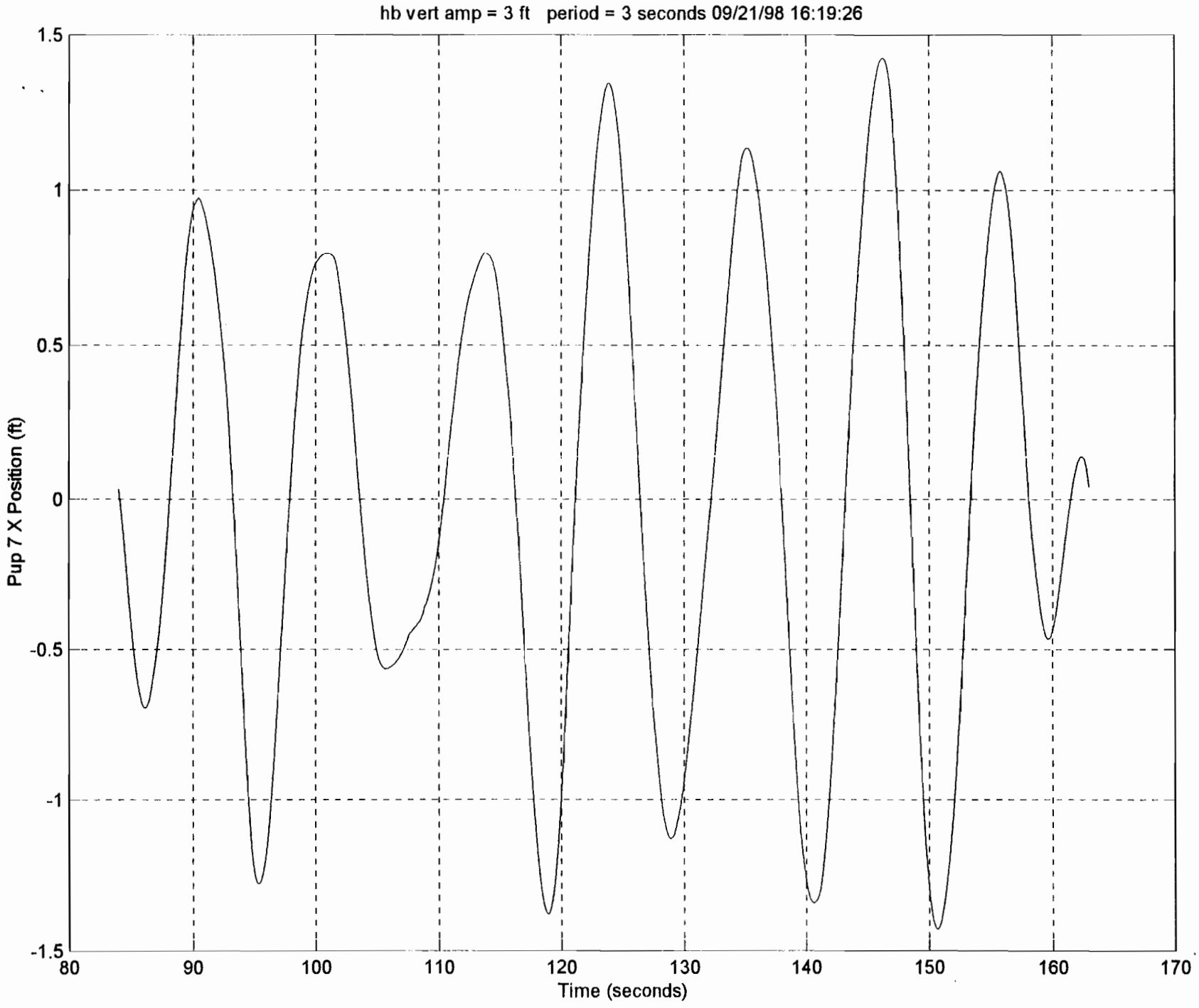

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
Pup 4 X Position (ft)
Time (seconds)
15
10
5
0
-5
-10
-15
80
90
100
110
120
130
140
150
160
170

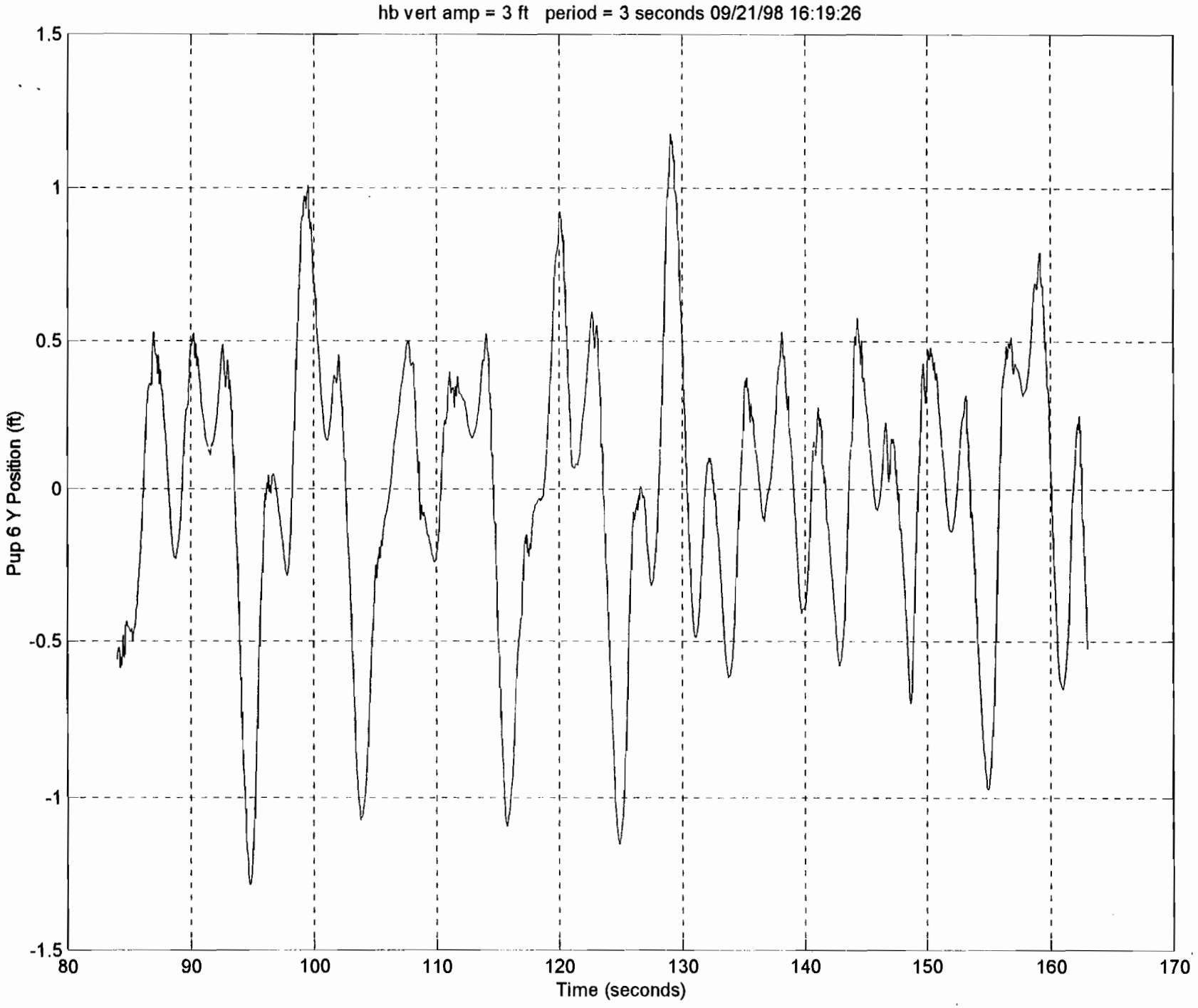

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
Pup 4 Y Position (ft)
Time (seconds)
3
2
1
0
-1
-2
-3
80
90
100
110
120
130
140
150
160
170

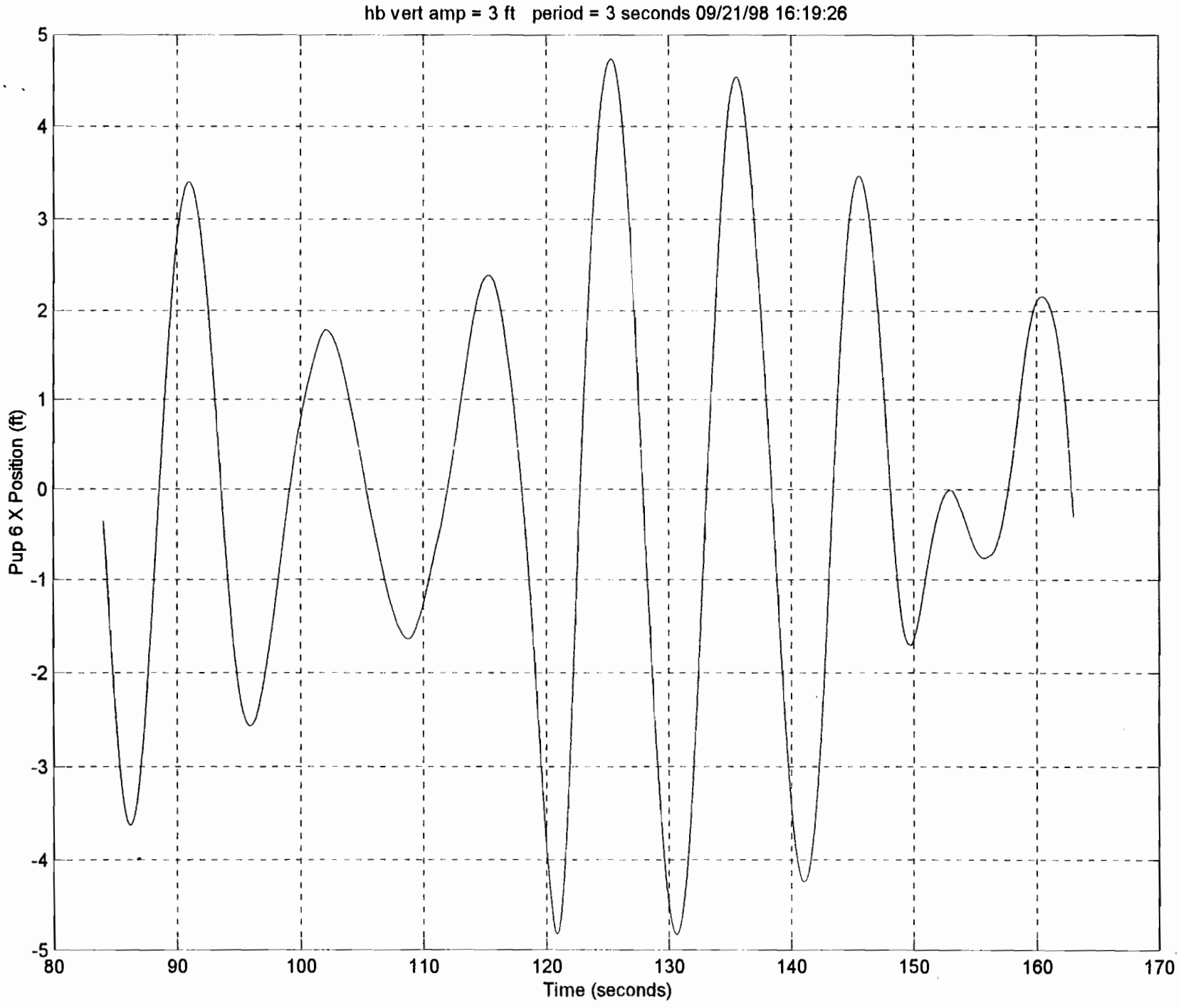

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
Pup 5 X Position (ft)
Time (seconds)
20
15
10
5
0
-5
-10
-15
-20
-25
80
90
100
110
120
130
140
150
160
170

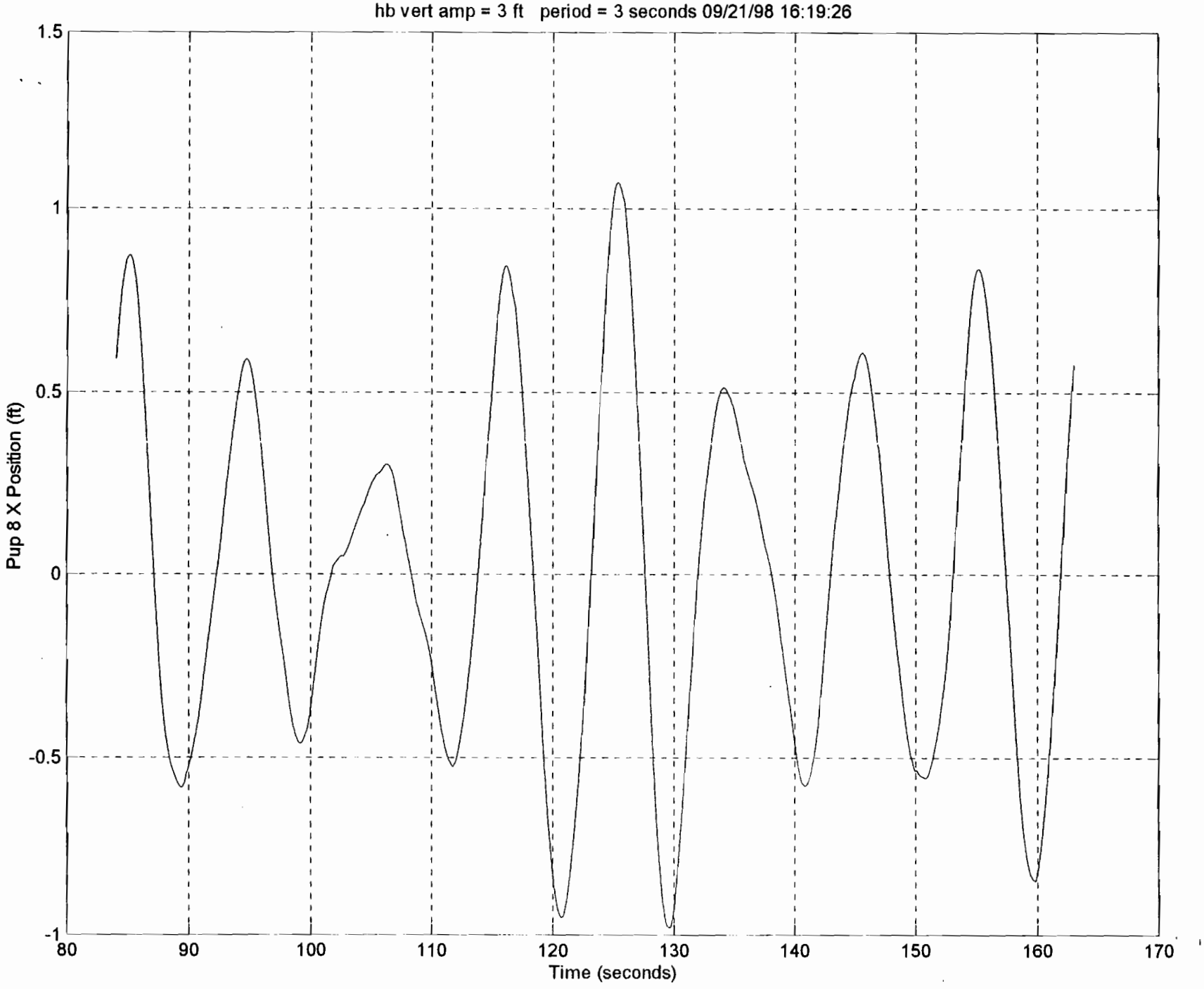

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
Pup 5 Y Position (ft)
Time (seconds)
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-2.5
80
90
100
110
120
130
140
150
160
170

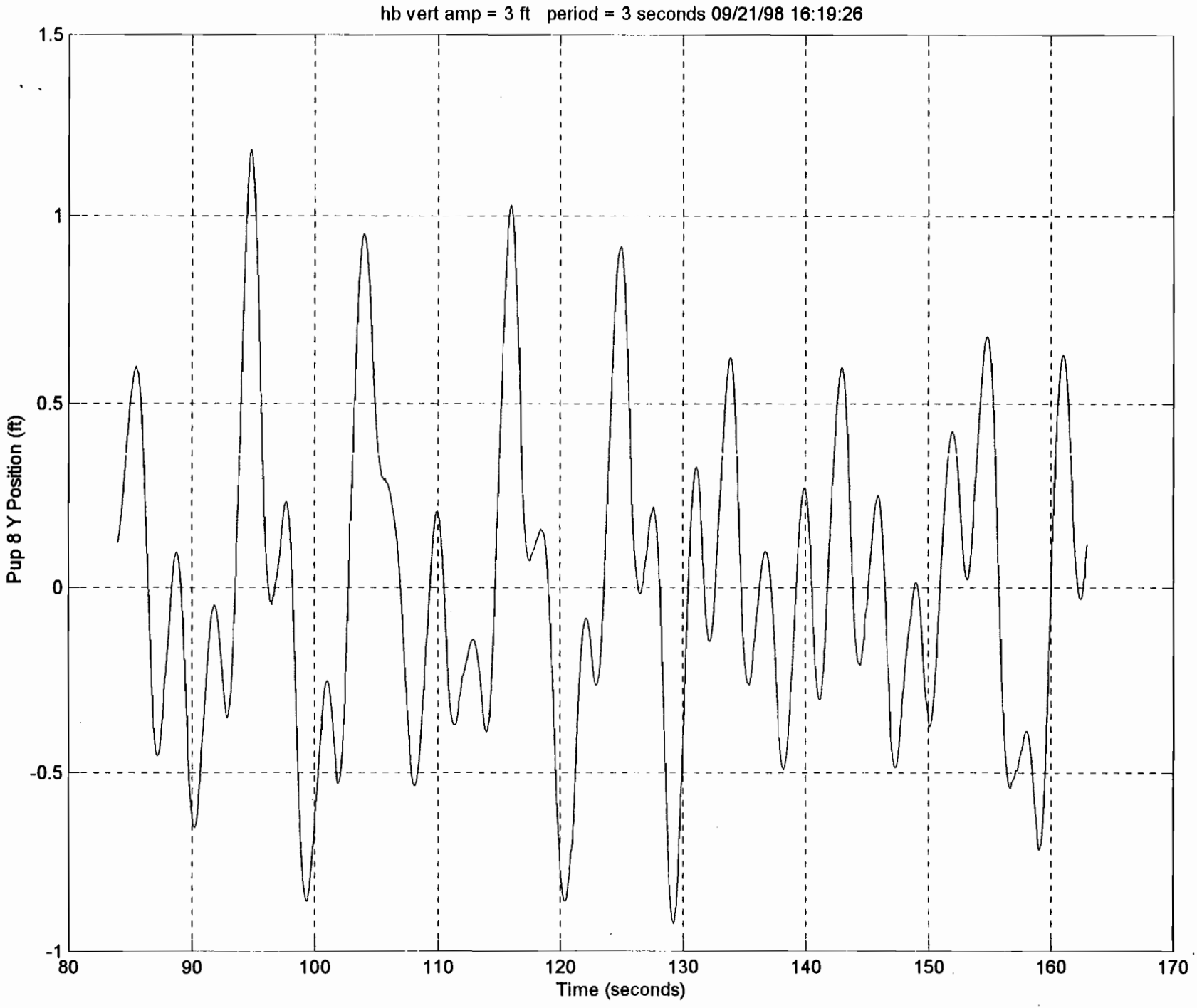

hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
Pup 7 Y Position (ft)
Time (seconds)
1.5
1
0.5
0
-0.5
-1
-1.5
80
90
100
110
120
130
140
150
160
170


hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
Pup 7 X Position (ft)
Time (seconds)
1.5
1
0.5
0
-0.5
-1
-1.5
80
90
100
110
120
130
140
150
160
170


hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
Pup 6 Y Position (ft)
Time (seconds)
1.5
1
0.5
0
-0.5
-1
-1.5
80
90
100
110
120
130
140
150
160
170


hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
Pup 6 X Position (ft)
Time (seconds)
5
4
3
2
1
0
-1
-2
-3
-4
-5
80
90
100
110
120
130
140
150
160
170


hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
Pup 8 X Position (ft)
Time (seconds)
1.5
1
0.5
0
-0.5
-1
80
90
100
110
120
130
140
150
160
170


hb vert amp = 3 ft period = 3 seconds 09/21/98 16:19:26
Pup 8 Y Position (ft)
Time (seconds)
1.5
1
0.5
0
-0.5
-1
80
90
100
110
120
130
140
150
160
170