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SOAC
STATE-OF-THE-ART CAR ENGINEERING TESTS AT DEPARTMENT OF TRANSPORTATION HIGH SPEED GROUND TEST CENTER

Volume III: Ride Quality Tests

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Editors

SEPTEMBER 1975
REPRINT
FINAL REPORT

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Prepared for

U.S. DEPARTMENT OF TRANSPORTATION
URBAN MASS TRANSPORTATION ADMINISTRATION
Office of Research and Development
Washington DC 20590

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Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
UMTA-MA-06-0025-75-3	PB-244 749 PB-244 746-SET	

4. Title and Subtitle	5. Report Date
SOAC - STATE-OF-THE-ART CAR ENGINEERING TESTS AT DEPARTMENT OF TRANSPORTATION HIGH SPEED GROUND TEST CENTER Volume III: Ride Quality Tests	Reprint, September 1975
	6. Performing Organization Code
7. Author(s) George W. Neat, Raymond Oren, Editors	8. Performing Organization Report No. DOT-TSC-UMTA-74-16.III
9. Performing Organization Name and Address Boeing Vertol Company* Philadelphia PA 19142	10. Work Unit No. (TRAIS) UM604/R6730 11. Contract or Grant No. DOT-TSC-580
12. Sponsoring Agency Name and Address U.S. Department of Transportation Urban Mass Transportation Administration Office of Research and Development Washington DC 20590	13. Type of Report and Period Covered Final Report April to July 1973 14. Sponsoring Agency Code

15. Supplementary Notes

*Under Contract to: U.S. Department of Transportation
Transportation Systems Center
Kendall Square
Cambridge MA 02142

16. Abstract

This six-volume report presents the technical methodology, data samples, and results of tests conducted on the SOAC on the Rail Transit Test Track at the High Speed Ground Test Center in Pueblo, Colorado during the period April to July 1973. The UMTA-sponsored Urban Rail Supporting Technology Program, for which TSC is Systems Manager, emphasizes three major development task areas: facilities, technology and test program. Test program development comprises three sub-areas: vehicle testing, ways and structures testing and track geometry measurement. The objective of the SOAC program is to demonstrate the current state of the art in rail rapid transit vehicle technology, with passenger convenience and operating efficiency as primary goals. The objectives of the Engineering Test program are to provide a set of SOAC engineering data and to further develop the methodology for providing transit vehicle comparisons. These objectives were met with the presentation of the test results in this report and the incorporation of the refinement of the testing methodology into the General Vehicle Test Plan, GSP-064. In this series, Vol. I contains a description of the SOAC test program and vehicle, and a summary of the test results; Vol. II, Performance Test data; Vol. III, Ride Quality Test data; Vol. IV, Noise Test data; Vol. V, Structural, Voltage, and Radio Frequency Interference Test data; and Vol. VI, a description of the Instrumentation System used for performance, ride quality and structural testing.

17. Key Words	18. Distribution Statement
Rail Transit Vehicle Testing	DOCUMENT IS AVAILABLE TO THE PUBLIC THROUGH THE NATIONAL TECHNICAL INFORMATION SERVICE, SPRINGFIELD, VIRGINIA 22161

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified	250	Vol.III: $7.50 Set: $28.00

Form DOT F 1700.7 (8-72) Reproduction of completed page authorized

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PREFACE

This test report, presenting the results of engineering tests on the State-of-the-Art Cars (SOAC), derives from the efforts of two agencies of the U.S. Department of Transportation: the Rail Programs Branch of the Urban Mass Transportation Administration's Office of Research and Development and the Transportation Systems Center.

The report is presented in six volumes. Volume I is a description of the program and a summary of the test results. Volumes II through V are organized to technical disciplines, as follows: Volume II, Performance; this volume, Volume III, Ride Quality; Volume IV, Noise; and Volume V, Structures, Voltage, and Radio Frequency Interference. Volume VI contains a description of the SOAC Instrumentation System used for Performance, Ride Quality, and Structural Testing.

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

Figure		Page

Figure		Page

LIST OF TABLES

Section 1

SUMMARY

1.1 TEST SEQUENCE

Table 1-1 presents the test sequence run numbers.

TABLE 1-1. TEST SEQUENCE RUN NUMBERS

	Run Numbers	
Car Weight (lb)	Single Car (High Density)	Two-Car Train
90,000	132	-
105,000	120 140	139
113,000	147	-
130,000	148	-

1.2 TEST PROCEDURES

Test procedures used for ride quality testing were: SOAC-R-2001-TT, SOAC-R-3001-TT, and SOAC-R-4001-TT.

1.3 OBJECTIVES

The objectives of ride quality testing were to expand and improve the General Vehicle Test Plan (GSP-064) and to provide vehicle ride quality baseline engineering data for the State-of-the-Art car at the Department of Transportation's High Speed Ground Test Center (HSGTC), Pueblo, Colorado. This data will be used for comparison with data recorded at five transit properties in New York, Boston, Cleveland, Chicago, and Philadelphia.

1.4 STATUS

Ride quality data at seven car body locations and five truck locations has been recorded and collected over the six types of track construction on the 9-mile UMTA test track. The processed data is presented in 167 sets, each set containing spectrum analysis and power spectral density curves. The processed data was selected to obtain baseline comparison plots showing the effect of speed, track section, car weight, and train consist on vehicle vibration levels.

Data was collected for both resilient and steel wheels. However, the steel wheel data was taken prior to a car body structural modification and is therefore no longer valid.

It should be noted that wheel flats may have existed on the SOAC during the ride quality tests with resilient wheels. This may have proved erroneous data at the wheel fundamental rotational frequency. Previous ride quality testing indicated that the vehicle was sensitive to wheel flats near 80 mph.

Section 2

TEST DESCRIPTION

2.1 VIBRATION LEVEL READINGS

Ride quality tests were conducted on the SOAC vehicles (single-car and two-car train) for speeds of 20, 35, 45, 55, and 80 mph over the six sections of the DOT test track. Table 1-1 presents a list of the weights and train consist used during the testing.

To delineate the rigid body and flexible modes of vibration of the vehicle during this test series, car body and journal box vertical, lateral, and longitudinal vibration levels were measured using accelerometers. The output of the accelerometers was recorded on magnetic tape, and readings were made at selected locations.

2.2 ACCELEROMETER LOCATIONS

The following rationale was applied to the selection of car body accelerometer locations:

1. Forward, mid and rear car centerline vertical accelerometers were located to obtain the effect of car body vertical flexible modes, and vertical/pitch rigid body modes on car body vibration.

2. Forward, mid and rear car centerline lateral accelerometers were located to obtain the effect of flexible and rigid lateral/yaw modes on car body vibration.

3. It was assumed that there was no longitudinal flexibility of the car, therefore only one longitudinal pickup was necessary to measure the rigid body motion.

4. Vertical mid-car centerline, mid-car righthand and mid-car lefthand accelerometers were used to determine the effect of the rigid body roll modes on vibration.

5. Forward car centerline lateral and forward car ceiling lateral were used to determine the effect of frame racking or car body torsion modes on vibration.

6. The location of journal box accelerometers was selected to determine truck response from track vertical, lateral, and cross level alignments.

Data was monitored on the vehicle by a test engineer using a strip chart recorder to ensure that each accelerometer was functioning properly and to provide a "quick look" of selected pickups.

Instrumentation, calibration, and data reduction were performed by Garrett AiResearch Co.

2.3 BANG TEST

A bang test of the journal box accelerometer brackets was performed to determine their resonant frequencies. A summary of this data is presented in Table 2-1.

TABLE 2-1. BANG TEST DATA

Accelerometer Bracket Location	Resonant Frequency (Hz)
Fwd Axle, RH Journal Box, Front Truck, Vertical	250
Fwd Axle, RH Journal Box, Front Truck, Lateral	250
Aft Axle, RH Journal Box, Front Truck, Lateral	375
Fwd Axle, LH Journal Box, Front Truck, Vertical	400
Aft Axle, LH Journal Box, Front Truck, Vertical	300
Fwd Axle, RH Journal Box, Rear Truck, Lateral	300
Aft Axle, RH Journal Box, Rear Truck, Lateral	300
No. 1 Forward Traction Motor Housing Vertical	250
No. 1 Forward Traction Motor Housing Lateral	350

2.4 SINGLE-CAR COUPLER VIBRATION

During the ride quality testing, a vibration problem was observed in the rear of the high-density car. This problem, attributed to the coupler impacting the structure, was temporarily eliminated by installing wooden shims near the coupler anchor. Data illustrating the effect of the shims is shown in Figure 2-1. The coupler centering mechanism on Cars No. 1 and

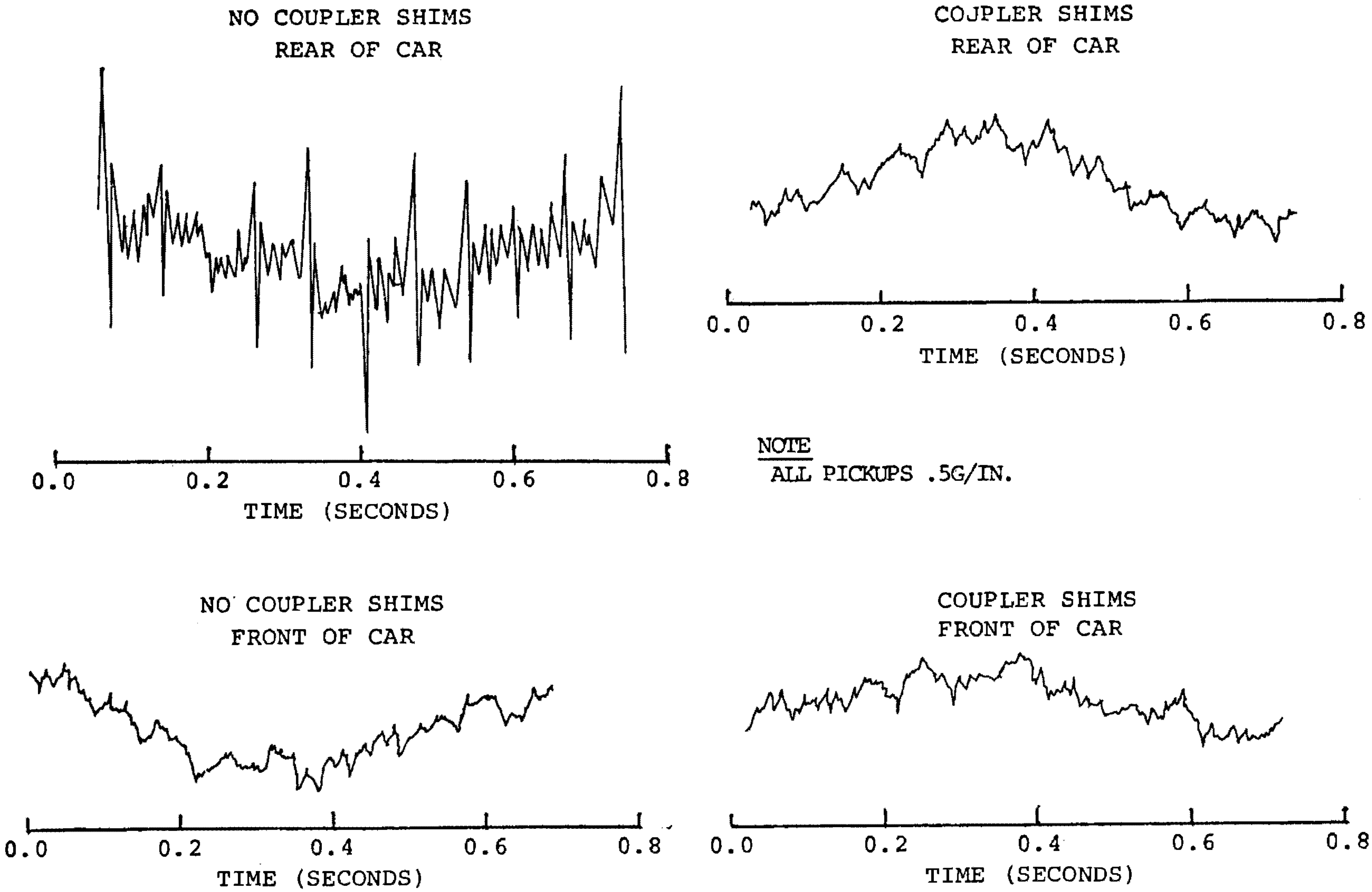


Figure 2—1. Sample Accelerometer Outputs for Car Body Vertical Acceleration (90,000-pound Gross Weight, 80 MPH Speed)

2 was not operative and permitted the couplers to vibrate. This condition will not exist when the coupler centering mechanism is activated.

Section 3

INSTRUMENTATION

Schaevitz LSBC accelerometers were selected to measure vibration levels because they have an effective measurement capability in the desired frequency range of 0.1 to 30 Hz.

Accelerometers used to measure car floor accelerations were rigidly mounted directly to the underside of the floor support structure. The lateral accelerometer at the ceiling was mounted to a stanchion. Truck accelerometers were mounted to brackets rigidly attached to the journal boxes and traction motors.

Car body and journal box locations are shown in Table 3-1.

TABLE 3-1. RIDE QUALITY ACCELEROMETER LOCATIONS

Parameter	Direction	Range	Frequency
CAR BODY			
• Linear Accelerations			
Fwd car floor, truck centerline	Vertical	±.30 G	30 Hz
Fwd car floor, truck centerline	Lateral	±.30 G	30 Hz
Fwd car floor, truck centerline	Longitudinal	±.30 G	30 Hz
Centerline car floor, rear end	Vertical	±.30 G	30 Hz
Centerline car floor, rear end	Lateral	±.30 G	30 Hz
Fwd car floor LH, truck centerline	Vertical	±.30 G	30 Hz
Centerline car floor, mid-car	Vertical	±.30 G	30 Hz
Centerline car floor, mid-car	Lateral	±.30 G	30 Hz
Car floor RH, mid-car	Vertical	±.30 G	30 Hz
Car floor LH, mid-car	Vertical	±.30 G	30 Hz
Centerline car ceiling, mid-car	Lateral	±.30 G	30 Hz

TABLE 3-1. Continued

Parameter	Direction	Range	Frequency
• Angular Accelerations			
Mid-car centerline	Pitch Roll Yaw	±0.4 Rad/Sec	5 Hz
TRUCK			
• Linear Accelerations			
Fwd RH wheel, front	Vertical	±25 G	30 Hz
Fwd RH wheel, front	Lateral	±25 G	30 Hz
Aft RH wheel, front	Vertical	±25 G	30 Hz
Aft RH wheel, front	Lateral	±25 G	30 Hz
Fwd LH wheel, front	Vertical	±25 G	30 Hz
Aft LH wheel, front	Vertical	±25 G	30 Hz
Fwd RH wheel, rear	Lateral	±25 G	30 Hz
Aft RH wheel, rear	Lateral	±25 G	30 Hz
Fwd motor housing at cg	Vertical	±15 G	30 Hz
Fwd motor housing at cg	Lateral	±15 G	30 Hz

Section 4

TEST PROCEDURES

The procedures followed during ride quality testing were as follows:

1. Steady Speed Runs (SOAC-R-4001-TT)

    a. Patch in ride quality instrumentation.

    b. Accelerate to and maintain test point speed.

    c. Prior to entering a test section, start recorders and mark tapes and data sheet with record number.

    d. Provide event mark on tapes at beginning of test section (see attached test section locations).

    e. Provide event mark at end of 20 seconds of record.

    f. Stop recorders.

    g. Proceed to next section or speed and repeat the above steps.

2. Acceleration Run (SOAC-R-2001-TT)

    a. Proceed to start location and stop vehicles, location 120 CW or 150 CCW.

    b. Start recorders and provide record number.

    c. Initiate and maintain full acceleration.

    d. Provide event mark at first motion.

    e. Provide event mark at 40 mph indicated speed.

    f. Stop recorders.

    g. Stop vehicle.

3. Deceleration Run (SOAC-R-3001-TT)

a. Proceed to start location at 60 mph, location 120 CW or 150 CCW.

b. Start recorders and provide record number.

c. Initiate full service braking.

d. Provide event mark at initiation of braking.

e. Provide event mark at complete stop.

f. Stop recorders.

Section 5

PRELIMINARY DATA ANALYSIS

5.1 DATA COLLECTION

The ride quality vibration data was recorded on analog tapes and later digitized to obtain spectrum analysis and power spectral density curves. These data reduction techniques are the most useful means of analyzing a deterministic process. Spectrum analysis and a power spectral density permit identification of vibration contribution from modal characteristics of the car body structure.

Figure A-79 shows spectrum analysis and power spectral density curves. Both curves indicate that peak amplitudes occur at frequencies of 1.5, 7.5, 15, and 30 Hz, and are associated with response from a rigid body suspension mode, the first car body vertical bending mode, a higher order car body flexible mode, and component induced vibration, respectively. The filter bandwidth for the spectral density and spectrum analysis was 0.20 Hz in the 0 to 10 Hz range and 1.0 Hz for frequencies above 10 Hz. A listing and the curves of the processed data are presented in Appendix A (Figures A-1 through A-167).

The ride quality vibration data was further processed to produce the Ride Roughness data shown on the following baseline comparison plots. Ride roughness is a "figure-of-merit" to indicate the roughness of ride experienced by a typical passenger on a moving transit vehicle. The methodology for establishing this parameter is as defined in GSP-064, "General Vehicle Test Plans for Urban Rail Transit Cars." The specific equipment used for the SOAC data reduction is shown in Figure 5-1, with the main components being the GR 1/3 octave band shaper and the graphic level recorder. The actual response of the shaper for horizontal and vertical signal weighting is shown in Figures 5-2 and 5-3, respectively. The effective averaging time for the RMS weighted signal was 1 second. A summary of the baseline comparison plots is presented in Table 5-1 and the plots are shown in Figures 5-4 through 5-48.

All baseline comparison plots were generated with identical scales to emphasize the important vibration trends and the effect of key parameters. These comparison plots show the

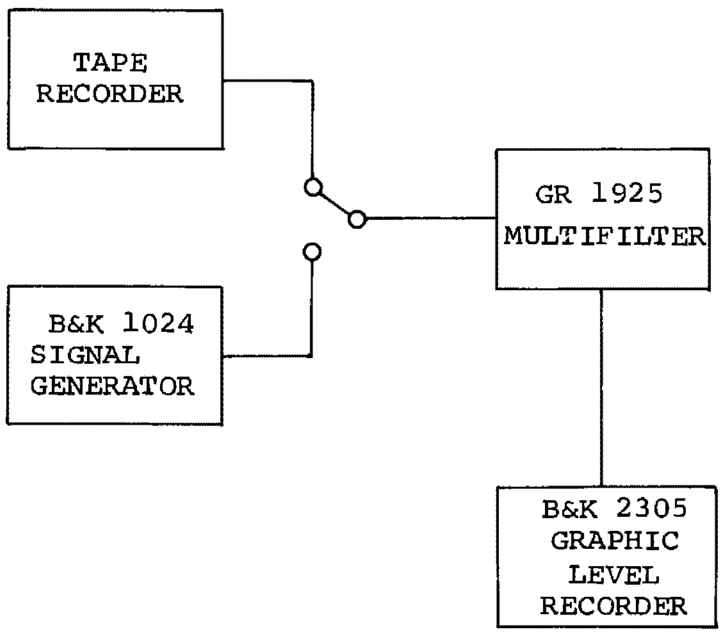


Figure 5–1. Block Diagram for Ride Roughness Data Reduction System

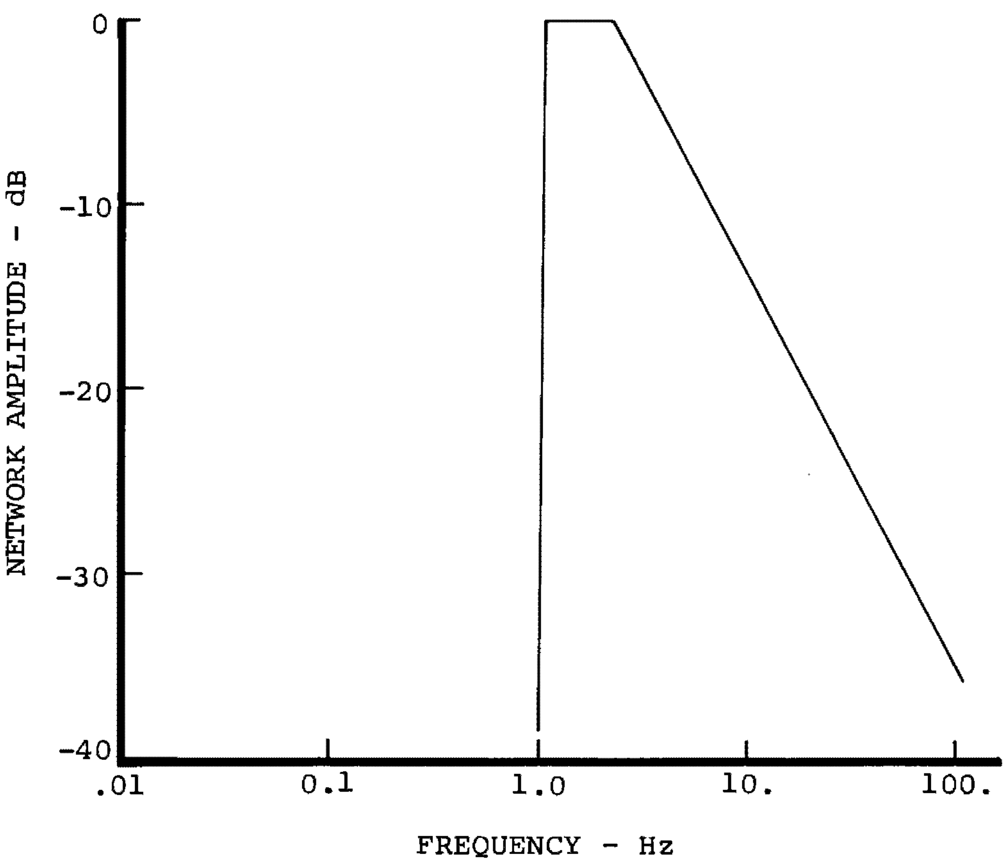


Figure 5–2. Weighting Network Frequency Response for Horizontal Ride Roughness

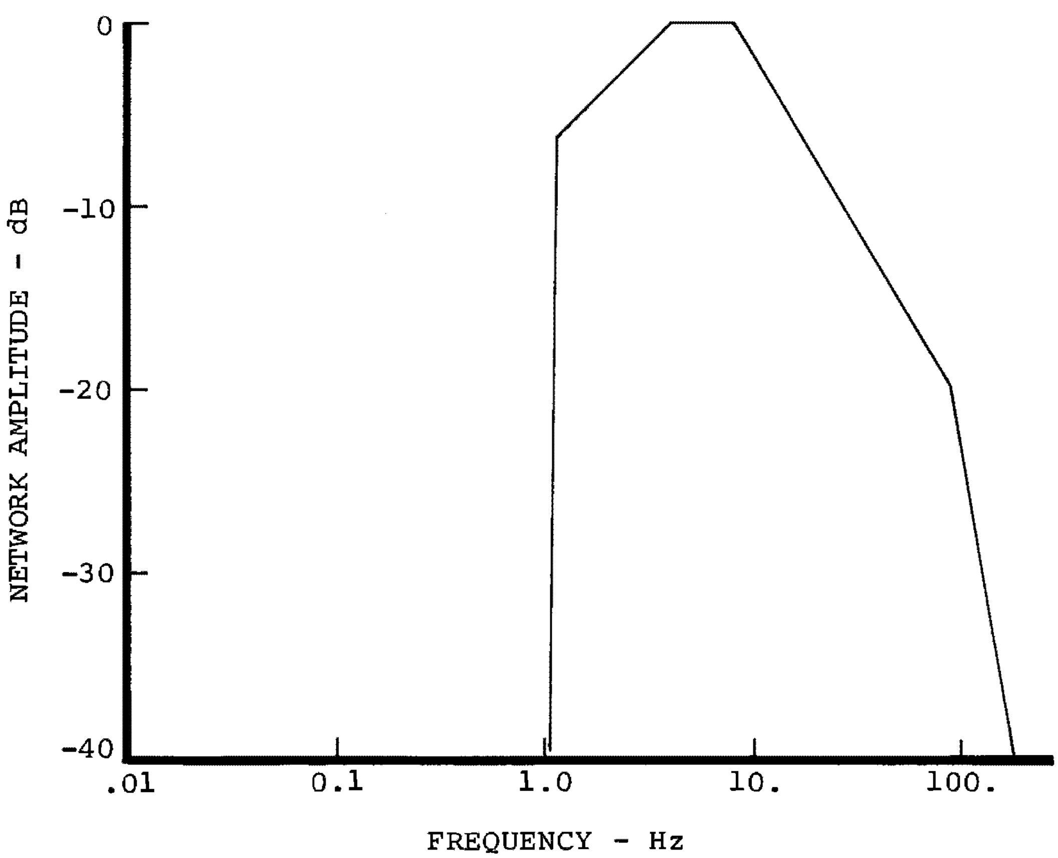


Figure 5–3. Weighting Network Frequency Response for Vertical Ride Roughness

TABLE 5-1. SUMMARY OF BASELINE RIDE QUALITY DATA COMPARISON PLOTS

Figure No.	Describes Effect of	Pickup Location*	Train Consist*	Car Weight (1000 lb)	Track Section	Speed (mph)
5-4	Speed	Aft car C/L lateral	HDC	90	I	20,35,45,55,80
5-5	Speed	Fwd car C/L vertical	HDC	90	I	20,35,45,55,80
5-6	Speed	Mid car C/L vertical	HDC	90	I	20,35,45,55,80
5-7	Speed	Aft car C/L lateral	HDC	105	I	20,35,45,55,80
5-8	Speed	Fwd car C/L vertical	HDC	105	I	20,35,45,55,80
5-9	Speed	Mid car C/L vertical	HDC	105	I	20,35,45,55,80
5-10	Speed	Aft car C/L lateral	Train	105	I	20,35,45,55,80
5-11	Speed	Fwd car C/L vertical	Train	105	I	20,35,45,55,80
5-12	Speed	Mid car C/L vertical	Train	105	I	20,35,45,55,80
5-13	Speed	Fwd axle RH JB front trk lat.	HDC	90	I	35,45,80
5-14	Speed	Fwd axle RH JB front trk vert.	HDC	90	I	35,45,80
5-15	Speed	Fwd axle RH JB front trk lat.	HDC	105	I	35,45,80
5-16	Speed	Fwd axle RH JB front trk vert.	HDC	105	I	35,45,80
5-17	Speed	Fwd axle RH JB front trk lat.	Train	105	I	35,45,80
5-18	Speed	Fwd axle RH JB front trk vert.	Train	105	I	35,45,80
5-19	Track section	Fwd car C/L vertical	HDC	105	I thru VI	35
5-20	Track section	Fwd car C/L vertical	HDC	105	I thru VI	35
5-21	Track section	Fwd car C/L vertical	HDC	105	I thru VI	80
5-22	Track section	Mid car C/L vertical	HDC	105	I thru VI	80
5-23	Gross weight	Aft car C/L lateral	HDC	90,105	I	45
5-24	Gross weight	Fwd car C/L vertical	HDC	90,105	I	45
5-25	Gross weight	Mid car C/L vertical	HDC	90,105	I	45
5-26	Gross weight	Aft car C/L lateral	HDC	90,105,130	I	55
5-27	Gross weight	Fwd car C/L vertical	HDC	90,105,130	I	55
5-28	Gross weight	Mid car C/L vertical	HDC	90,105,130	I	55
5-29	Gross weight	Aft car C/L lateral	HDC	90,105	I	80
5-30	Gross weight	Fwd car C/L vertical	HDC	90,105	I	80
5-31	Gross weight	Mid car C/L vertical	HDC	90,105	I	80

TABLE 5-1 - Continued

Figure No.	Describes Effect of	Pickup Location*	Train Consist*	Car Weight (1000 lb)	Track Section	Speed (mph)
5-32	Gross weight	Fwd axle RH JB front trk lat.	HDC	90,105	I	35
5-33	Gross weight	Fwd axle RH JB front trk vert.	HDC	90,105	I	35
5-34	Gross weight	Fwd axle RH JB front trk lat.	HDC	90,105	I	45
5-35	Gross weight	Fwd axle RH JB front trk vert.	HDC	90,105	I	45
5-36	Gross weight	Fwd axle RH JB front trk lat.	HDC	90,105,130	I	55
5-37	Gross weight	Fwd axle RH JB front trk vert.	HDC	90,105,130	I	55
5-38	Gross weight	Fwd axle RH JB front trk lat.	HDC	90,105	I	80
5-39	Gross weight	Fwd axle RH JB front trk vert.	HDC	90,105	I	80
5-40	Car config.	Aft car C/L lateral	HDC,Train	105	I	20,35,45,55,80
5-41	Car config.	Fwd car C/L vertical	HDC,Train	105	I	20,35,45,55,80
5-42	Car config.	Mid car C/L vertical	HDC,Train	105	I	20,35,45,55,80
5-43	Car config.	Fwd axle RH JB front trk lat.	HDC,Train	105	I	35
5-44	Car config.	Fwd axle RH JB front trk vert.	HDC,Train	105	I	35
5-45	Car config.	Fwd axle RH JB front trk lat.	HDC,Train	105	I	45
5-46	Car config.	Fwd axle RH JB front trk vert.	HDC,Train	105	I	45
5-47	Car config.	Fwd axle RH JB front trk lat.	HDC,Train	105	I	80
5-48	Car config.	Fwd axle RH JB front trk vert.	HDC,Train	105	I	80

*KEY: HDC, High-Density Car; JB, Journal Box; Trk, Truck effect of speed, track section, car weight and train consist on vehicle ride roughness. The baseline processed data of Appendix A can be used to obtain absolute values of acceleration levels.

Ride quality data taken over track Section I at a 105,000-pound car weight for two train consists is compared to the SOAC goal in Figures 5-49 and 5-50.

Instrumentation, calibrations and data reduction were performed by Garrett AiResearch Company.

5.2 EFFECT OF SPEED (Figures 5-4 through 5-18)

The effect of vehicle speed on car body and journal box acceleration levels is shown in Figures 5-4 through 5-18. Data are presented for resilient wheels on track Section I at several speeds and two car weights (90,000 and 105,000 pounds). Two train consists were investigated: a high-density car and a two-car train.

Figure 5-4 shows that the aft car centerline (C/L) lateral ride roughness at a 90,000-pound car weight is not affected by varying speed. Figures 5-5 and 5-6 show the vertical ride roughness at the forward end and mid-car C/L locations, respectively. Both channels exhibit some resonance (peaking) at 45 mph. Examination of the peak-amplitude spectrum charts found in Appendix A reveals that the dominant frequency is at 8 Hz, the first vertical bending mode of the car body. At 45 mph with the 30-inch diameter SOAC wheels, the driving force is also at 8 Hz. The mid-car vertical ride roughness also shows a resonance at 80 mph. Again, from the spectrum plots of Appendix A, the dominant frequency is found to be the second car body bending mode, 15 Hz.

Figure 5-7 shows the effect of speed on aft car C/L lateral ride roughness at a 105,000-pound car weight. The ride roughness levels are similar to the 90,000-pound car. The forward car C/L vertical ride roughness levels shown in Figure 5-8 are similar to the levels of the 90,000-pound car. The mid-car C/L vertical ride roughness (Figure 5-9) shows that the resonance at 80 mph is somewhat damped out for the 105,000-pound car.

Data showing the effect of speed for a two-car train at a 105,000-pound car weight is presented in Figures 5-10 through 5-12. Car body lateral levels at the aft car C/L location are not significantly affected by speed (Figure 5-10). Figure 5-11 shows the effect of speed on forward car C/L vertical levels. Figure 5-12 shows the mid-car C/L vertical levels. As shown, the two-car train has very little effect on the ride roughness levels.

Comparison plots showing the effect of speed on journal box vertical and lateral accelerations are shown in Figures 5-13 through 5-18, as frequency spectrum analysis plots. (Data are presented for speeds of 35, 45 and 80 mph.) Vertical journal box accelerations (Figures 5-14, 5-16 and 5-18) are not affected by speed. In contrast, lateral acceleration levels are significantly higher than vertical levels and reach peak amplitudes at 80 mph for the single high-density car at 90,000- and 105,000-pound car weights (Figures 5-13 and 5-15). For the 105,000-pound train, peak levels occur at 45 mph and are shown in Figure 5-17.

5.3 EFFECT OF TRACK SECTION (Figures 5-19 through 5-22)

The effect of track section on car body ride roughness levels is shown in Figures 5-19 through 5-22. Data are presented for the 105,000-pound high-density car with resilient wheels at speeds of 35 and 80 mph.

Figure 5-19 shows that forward car C/L vertical levels are higher at 35 mph on track Sections I and II (119-pound welded rail, wooden ties; 100-pound welded rail, wooden ties; respectively).

Figure 5-20 indicates that the mid-car C/L vertical levels are also higher on track Sections I and II. This trend is also evident for the forward car C/L vertical levels at 80 mph (Figure 5-21). Figure 5-22 shows the levels at the mid-car C/L location at 80 mph.

5.4 EFFECT OF CAR WEIGHT (Figures 5-23 through 5-39)

The effect of car weight on car body and journal box vertical and lateral acceleration levels is shown in Figures 5-23 through 5-39. Data are presented for the high-density car with resilient wheels on track Section I at 45, 55 and 80 mph speeds.

Figures 5-23 and 5-24 show that the lateral ride roughness at the aft end C/L of the car and the vertical C/L ride roughness at forward end are not significantly affected by gross weight at a 45 mph speed. At 45 mph the vertical contribution at the mid-car C/L (Figure 5-25) is lower at 113,000 and 105,000 pounds than at the empty weight of 90,000 pounds.

Figure 5-26 shows the aft car C/L lateral ride roughness as a function of car weight. At the forward end of the car C/L and at the mid-car C/L, vertical ride roughness levels are lower at the 130,000-pound car weight (Figures 5-27 and 5-28) at 55 mph.

Figure 5-30 shows the effect of car weight on the forward car C/L vertical ride roughness at 80 mph. Figure 5-31 shows that vertical ride roughness at the mid-car C/L is significantly reduced at 105,000 pounds at 80 mph.

The effect of car weight on journal box vertical and lateral acceleration levels is shown in Figures 5-32 through 5-39. Data presented indicate that there is little change in journal box motions with increasing car weights throughout the speed range investigated, except for lateral vibration levels at 45 mph, where the levels are noticeably higher for 105,000 pounds than for 90,000 pounds.

5.5 EFFECT OF TRAIN CONSIST (Figures 5-40 through 5-48)

The effect of train consist on car body and journal box acceleration levels is presented in Figures 5-40 through 5-48. Data are shown for resilient wheels on track Section I at a 105,000-pound car weight. Two train consists were evaluated: a single high-density car and a two-car train.

Figure 5-40 indicates that the aft car C/L lateral ride roughness levels are not affected by train consist. Figures 5-41 and 5-42 show that the vertical vibrations at 45 mph at the forward end C/L and mid-car locations, respectively, are not affected by train consist.

Comparison plots showing the effect of train consist on journal box vertical and lateral accelerations are presented in Figures 5-43 through 5-48. Data are presented for a single high-density car and a two-car train. Vertical journal box accelerations are not affected by train consist at speeds of 35, 45, and 80 mph (Figures 5-44, 5-46, and 5-48, respectively). Lateral acceleration levels are significantly higher than vertical levels.

Figure 5-43 indicates that at 35 mph the lateral journal box acceleration levels are substantially higher for the single car. At 45 mph (Figure 5-45) the levels are higher with the train, and at 80 mph (Figure 5-47) the levels are significantly higher for the single car.

5.6 COMPARISON OF SOAC RIDE QUALITY DATA WITH SOAC GOAL

Figures 5-49 and 5-50 compare SOAC ride quality data to the SOAC goals for both lateral and vertical accelerations. The plots of lateral levels versus frequency for the two train consists (high-density car and two-car train) at the normal car weight of 105,000 pounds show that the results are significantly lower than the design goal.

Data comparing vertical acceleration levels to frequency for the two train consists indicate that the vehicle meets the SOAC goal with respect to response from vertical rigid car body modes (1 to 2 Hz), a higher order car body flexible mode (15 Hz), and component induced vibration (30 Hz) substantially lower than the goal.

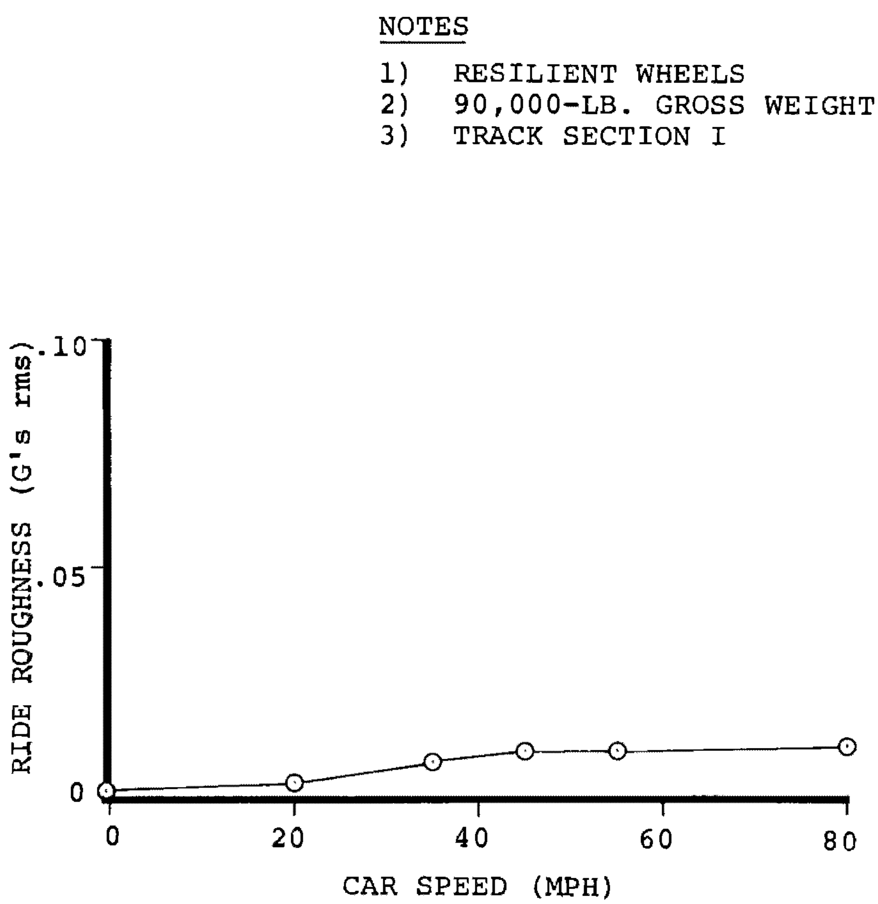


Figure 5—4. Effect of Speed on Aft Car Centerline Lateral Ride Roughness (High-Density Car)

NOTES

1) RESILIENT WHEELS
2) 90,000-LB. GROSS WEIGHT
3) TRACK SECTION I

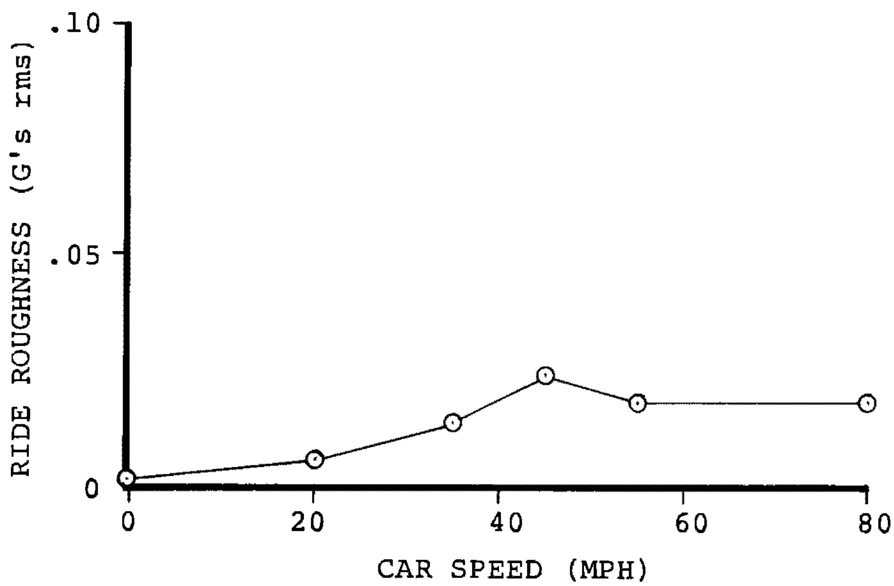


Figure 5–5. Effect of Speed on Forward Car Centerline Vertical Ride Roughness (High-Density Car)

NOTES

1) RESILIENT WHEELS
2) 90,000-LB. GROSS WEIGHT
3) TRACK SECTION I

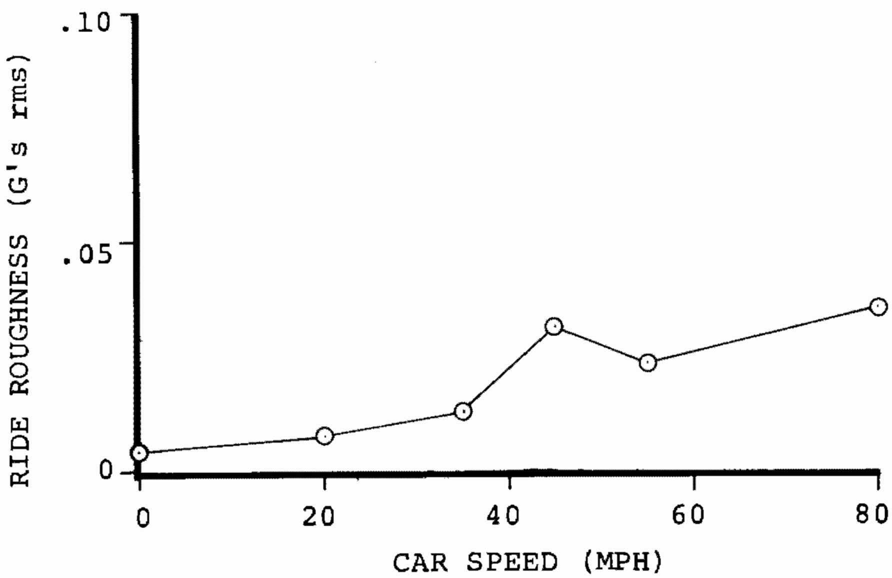


Figure 5–6. Effect of Speed on Mid-Car Centerline Vertical Ride Roughness (High-Density Car)

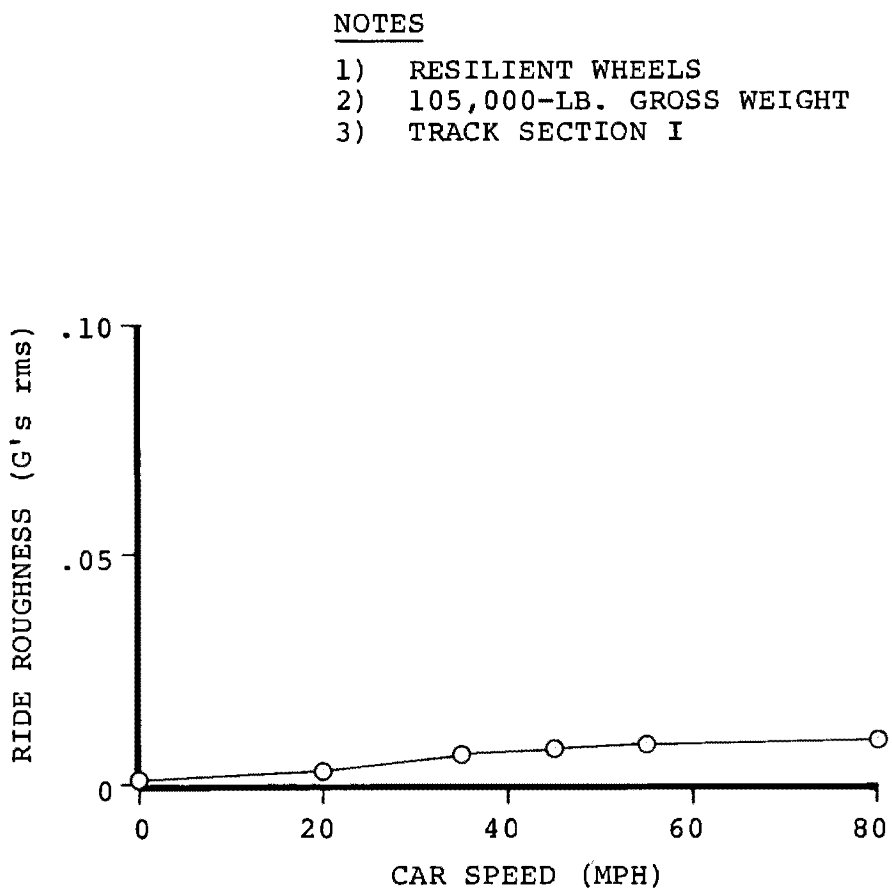


Figure 5–7. Effect of Speed on Aft Car Centerline Lateral Ride Roughness (High-Density Car)

NOTES

1) RESILIENT WHEELS
2) 105,000-LB. GROSS WEIGHT
3) TRACK SECTION I

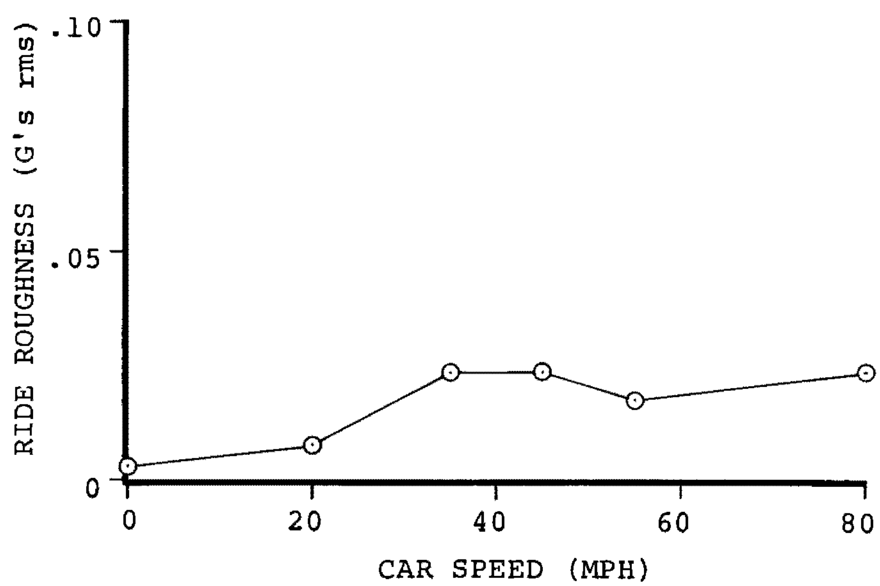


Figure 5–8. Effect of Speed on Forward Car Centerline Vertical Ride Roughness (High-Density Car)

NOTES
1) RESILIENT WHEELS
2) 105,000 LB. GROSS WEIGHT
3) TRACK SECTION I

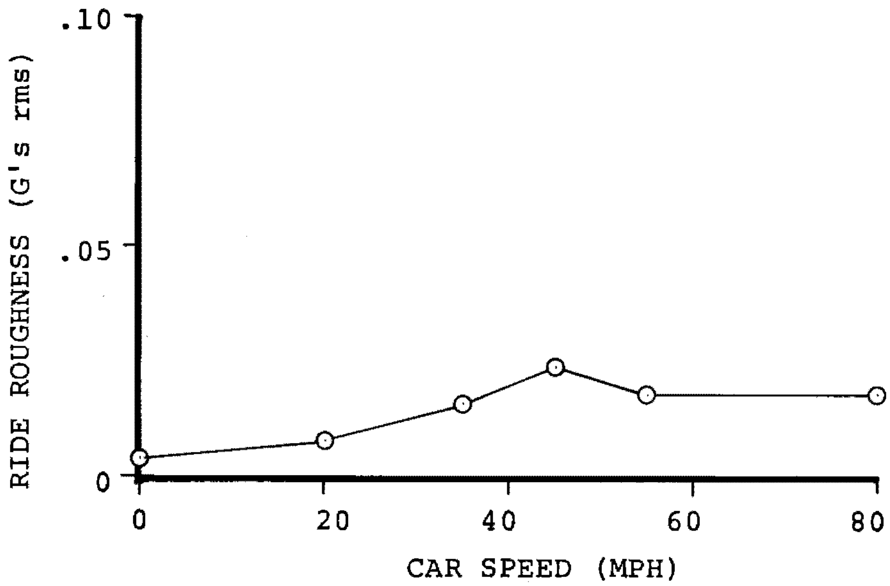


Figure 5–9. Effect of Speed on Mid-Car Centerline Vertical Ride Roughness (High-Density Car)

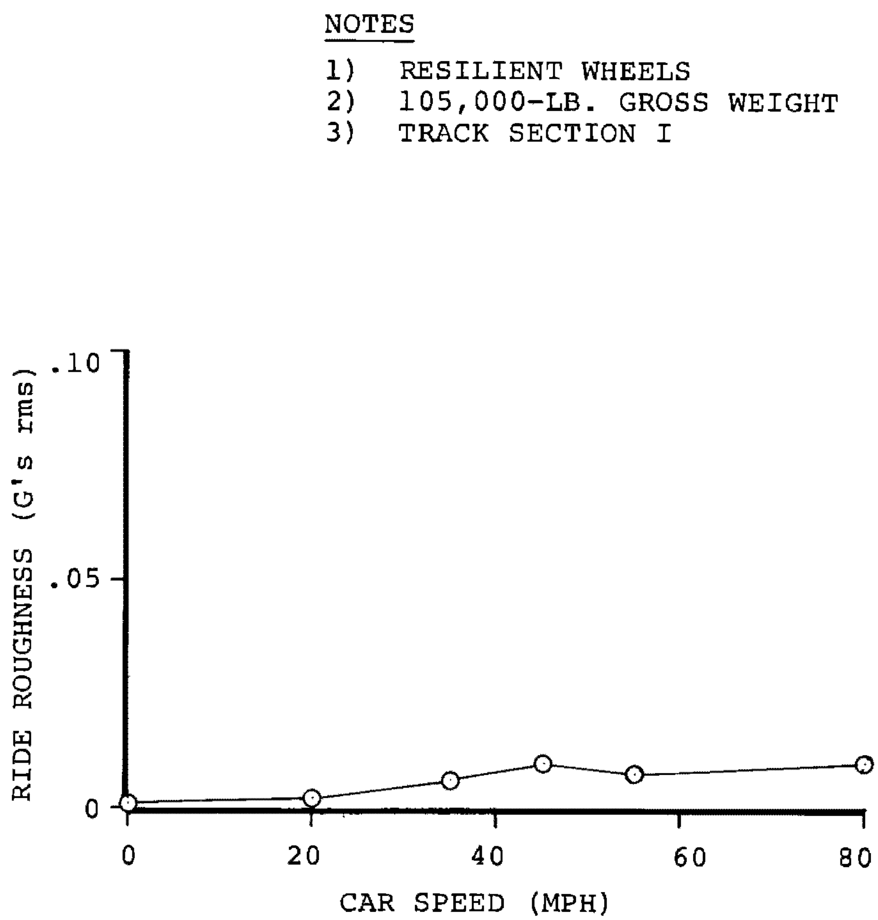


Figure 5—10. Effect of Speed on Aft Car Centerline Lateral Ride Roughness (Two-Car Train)

NOTES

1) RESILIENT WHEELS
2) 105,000-LB. GROSS WEIGHT
3) TRACK SECTION I

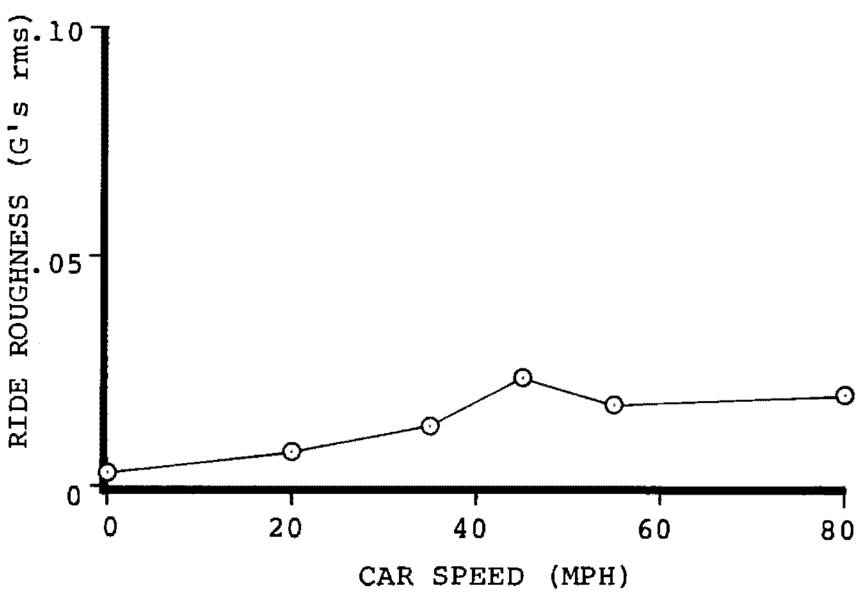


Figure 5—11. Effect of Speed on Forward Car Centerline Vertical Ride Roughness (Two-Car Train)

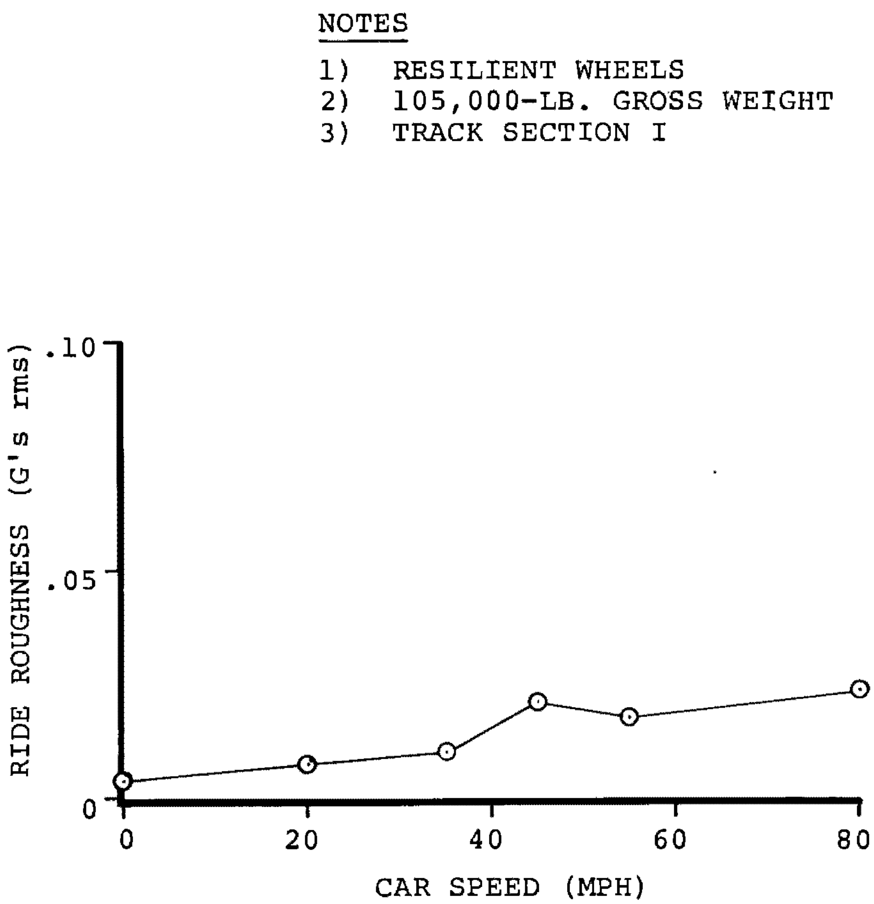


Figure 5–12. Effect of Speed on Mid-Car Centerline Vertical Ride Roughness (Two-Car Train)

NOTES
1) RESILIENT WHEELS
2) 90,000-LB GROSS WEIGHT

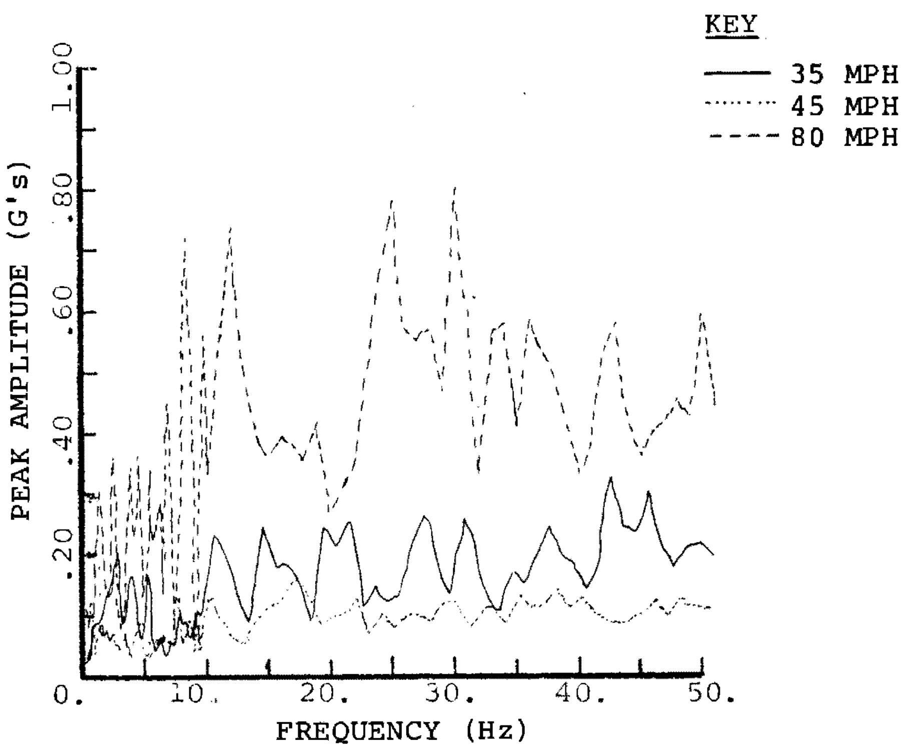


Figure 5–13. Effect of Speed on No. 1 Axle Lateral Acceleration (High-Density Car)

NOTES
1) FRONT TRUCK, FORWARD AXLE
   RH JOURNAL BOX
2) RESILIENT WHEELS
3) 90,000-LB GROSS WEIGHT
4) TRACK SECTION I

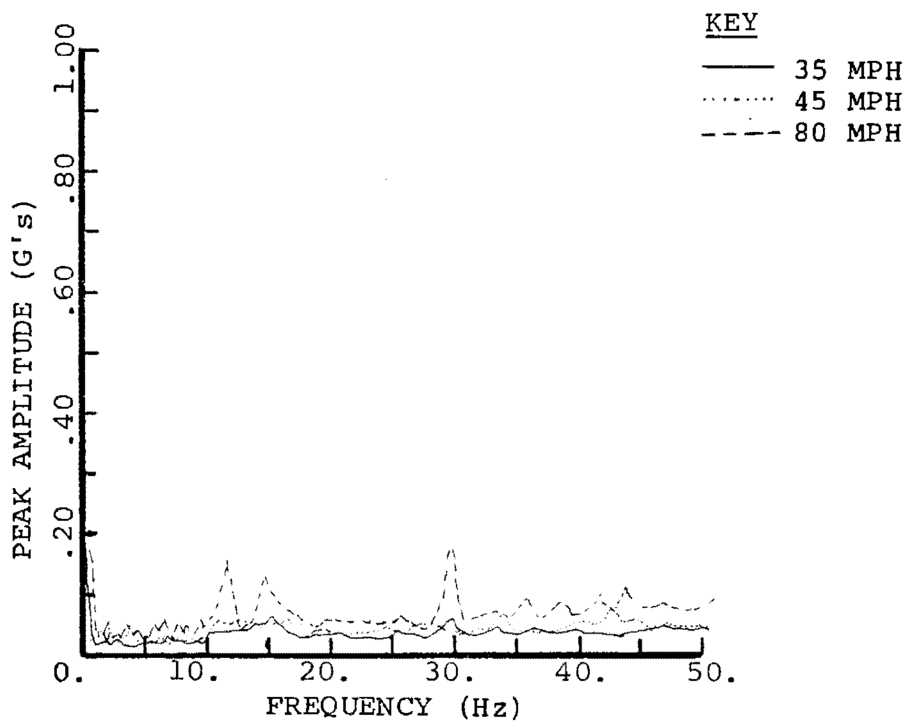


Figure 5–14. Effect of Speed on No. 1 Axle Vertical Acceleration (High-Density Car)

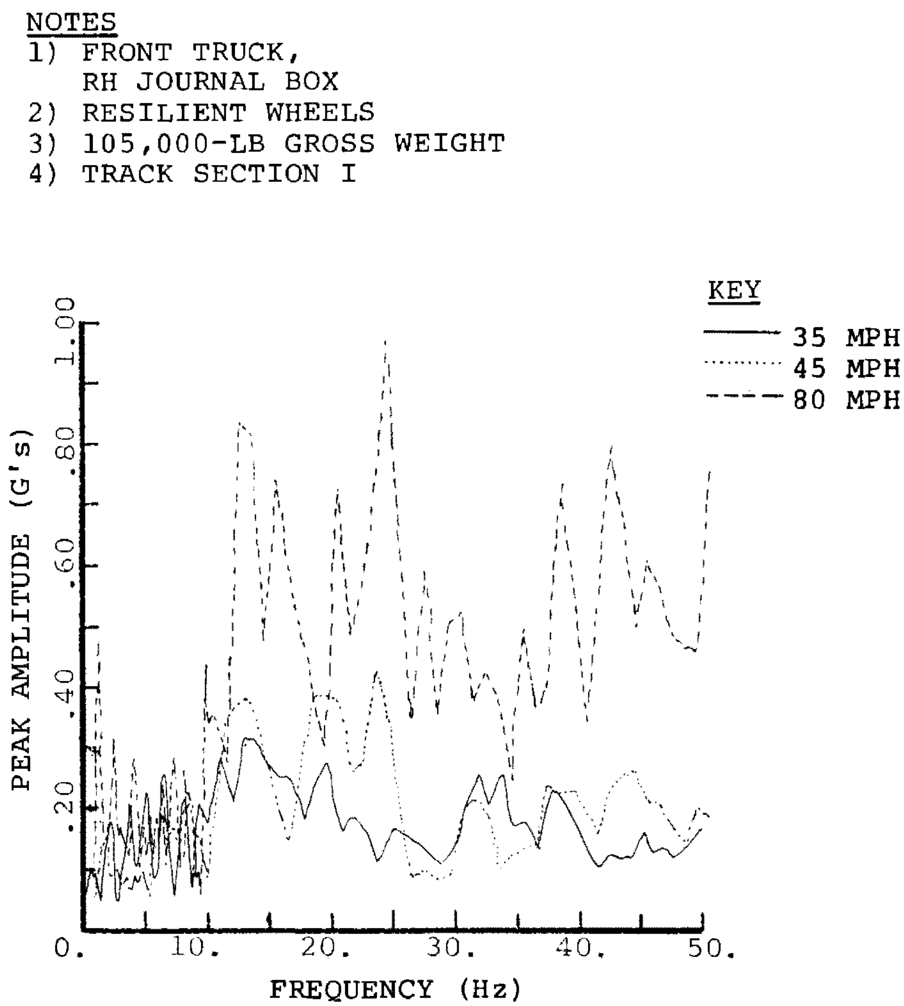


Figure 5–15. Effect of Speed on No. 1 Axle Lateral Acceleration (High-Density Car)

NOTES
1) FRONT TRUCK,
RH JOURNAL BOX
2) RESILIENT WHEELS
3) 105,000-LB GROSS WEIGHT
4) TRACK SECTION I

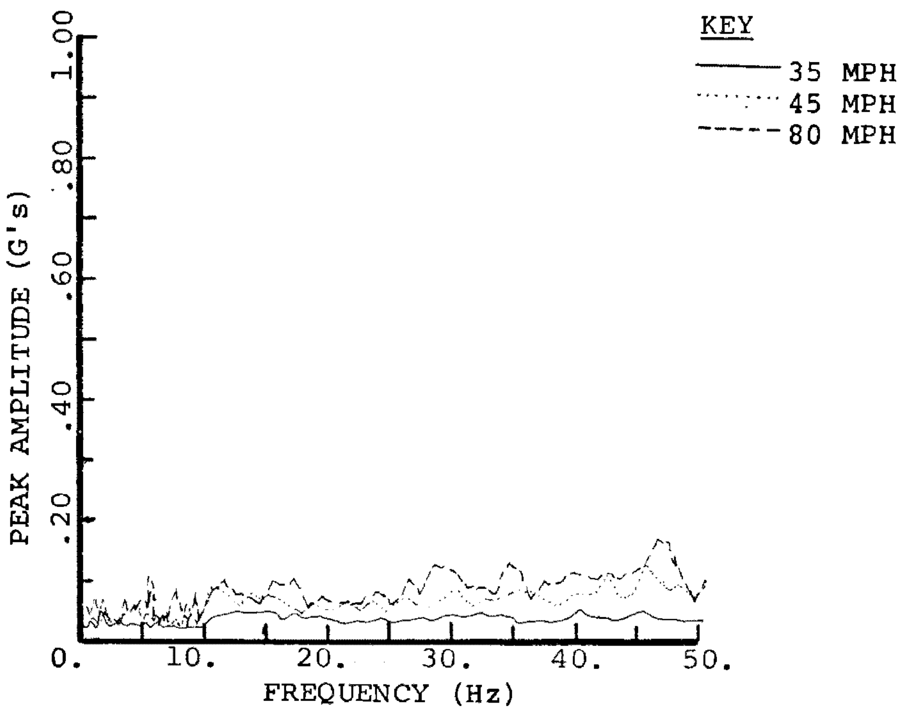


Figure 5–16. Effect of Speed on No. 1 Axle Vertical Acceleration (High-Density Car)

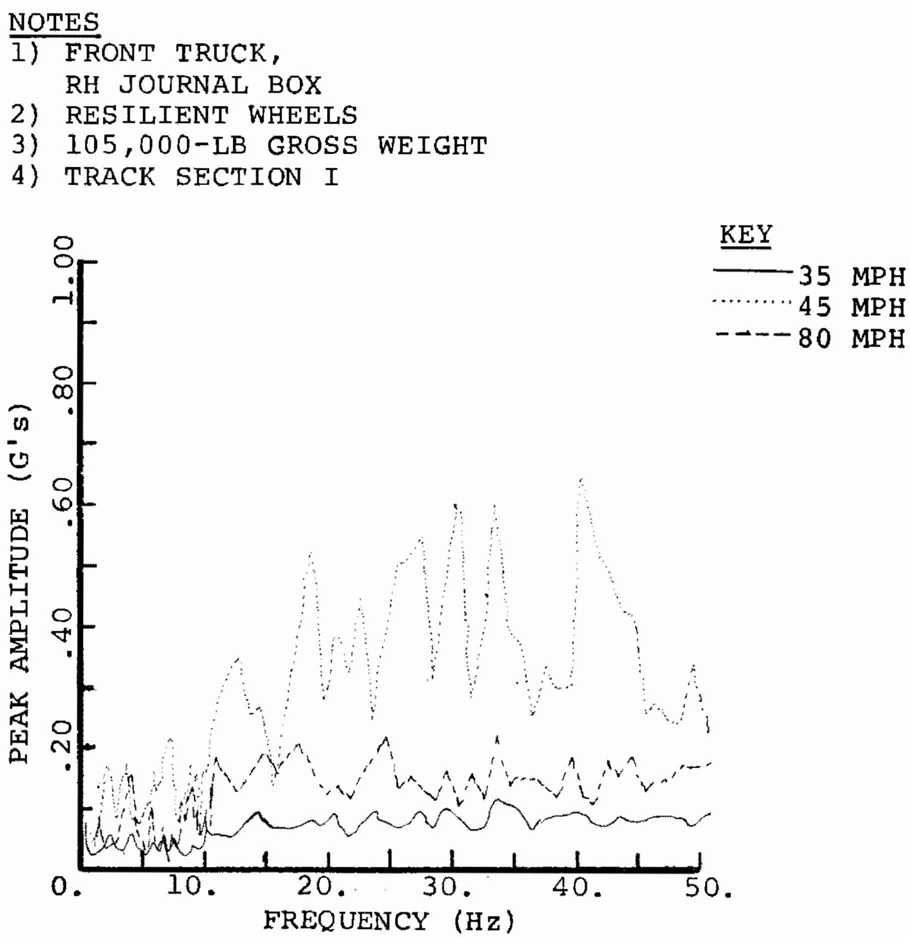


Figure 5–17. Effect of Speed on No. 1 Axle Lateral Acceleration (Two-Car Train)

NOTES
1) FRONT TRUCK,
   RH JOURNAL BOX
2) RESILIENT WHEELS
3) 105,000-LB GROSS WEIGHT
4) TRACK SECTION I

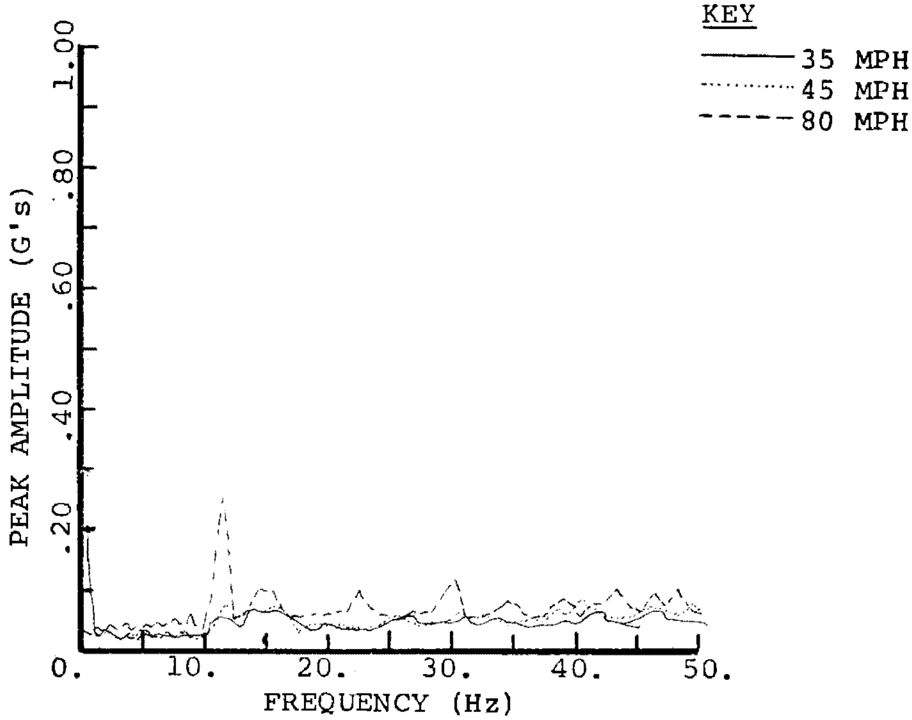


Figure 5–18. Effect of Speed on No. 1 Axle Vertical Acceleration (Two-Car Train)

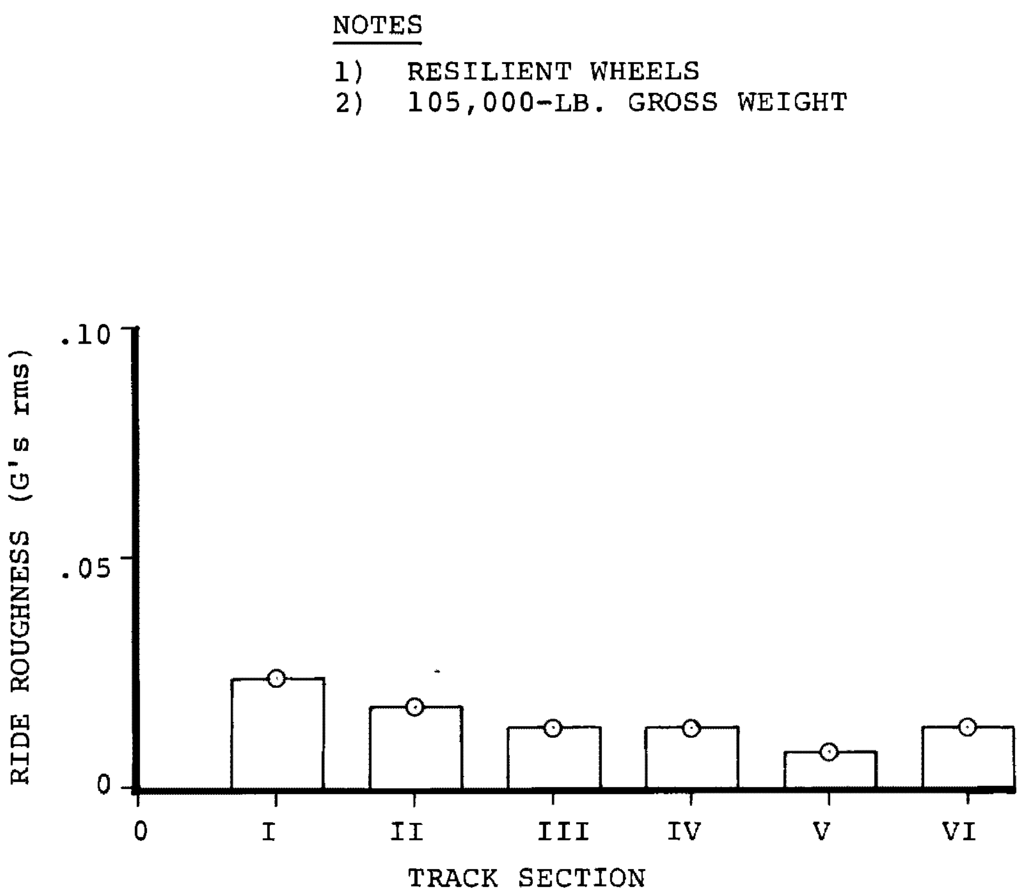


Figure 5–19. Effect of Track Section on Forward Car Centerline Vertical Ride Roughness of High-Density Car at 35 MPH Speed

NOTES

1) RESILIENT WHEELS
2) 105,000-LB. GROSS WEIGHT

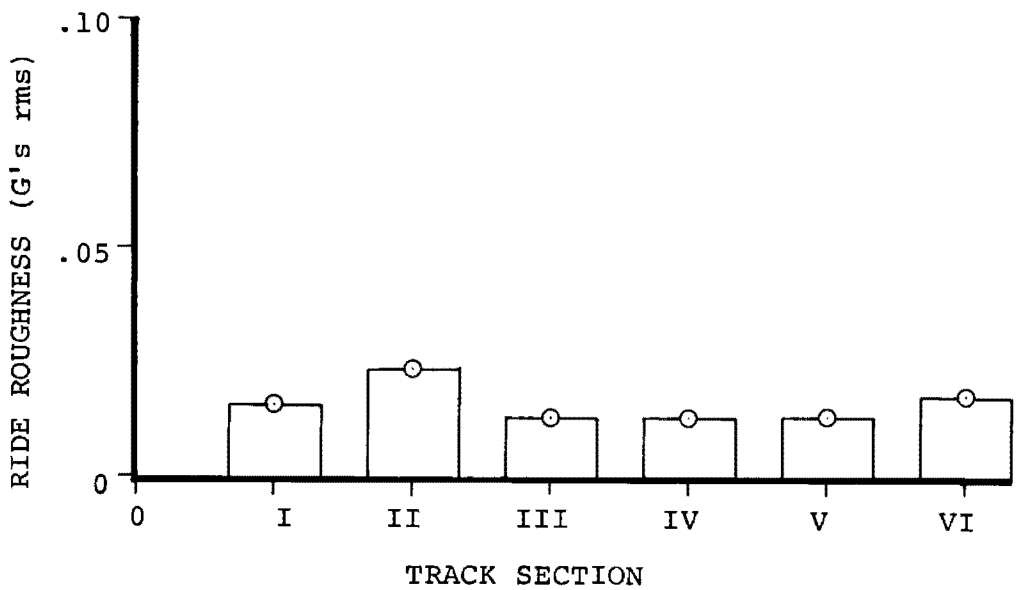


Figure 5–20. Effect of Track Section on Mid-Car Centerline Vertical Ride Roughness of High-Density Car at 35 MPH Speed

NOTES

1) RESILIENT WHEELS
2) 105,000-LB. GROSS WEIGHT

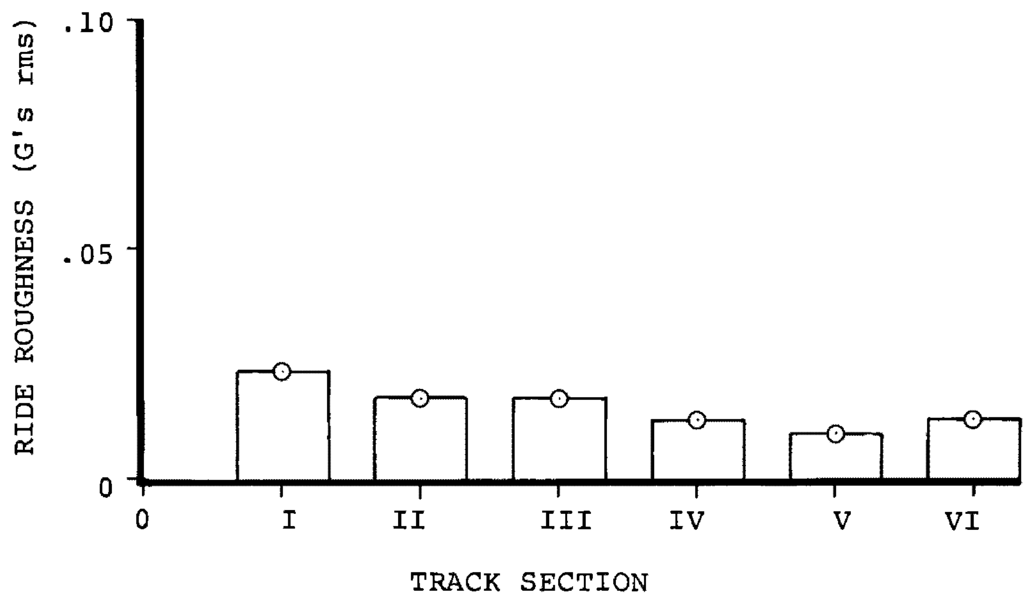


Figure 5–21. Effect of Track Section on Forward Car Centerline Vertical Ride Roughness of High-Density Car at 80 MPH Speed

NOTES

1) RESILIENT WHEELS
2) 105,000-LB. GROSS WEIGHT

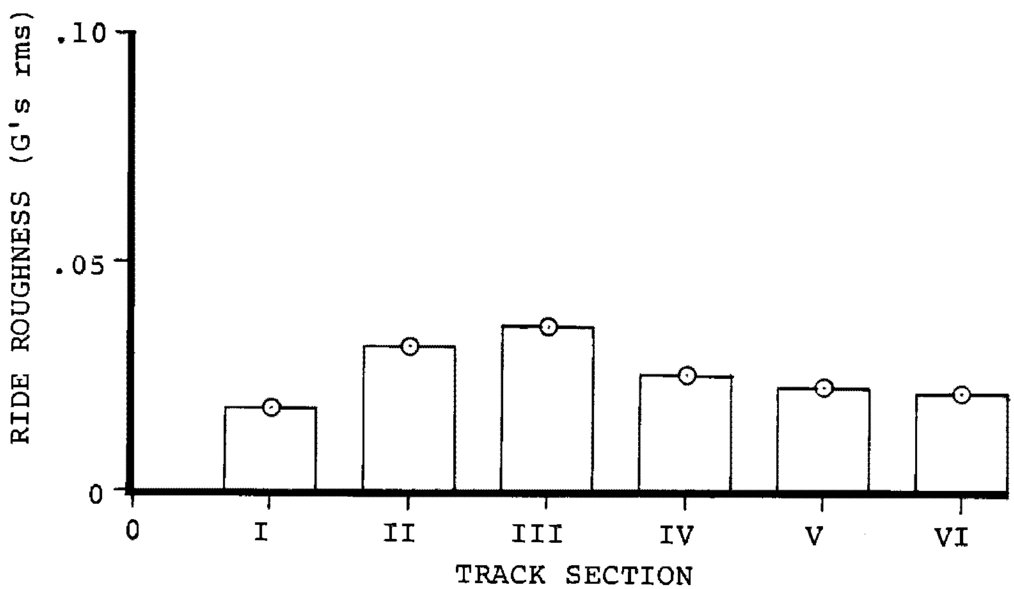


Figure 5–22. Effect of Track Section on Mid-Car Centerline Vertical Ride Roughness of High-Density Car at 80 MPH Speed

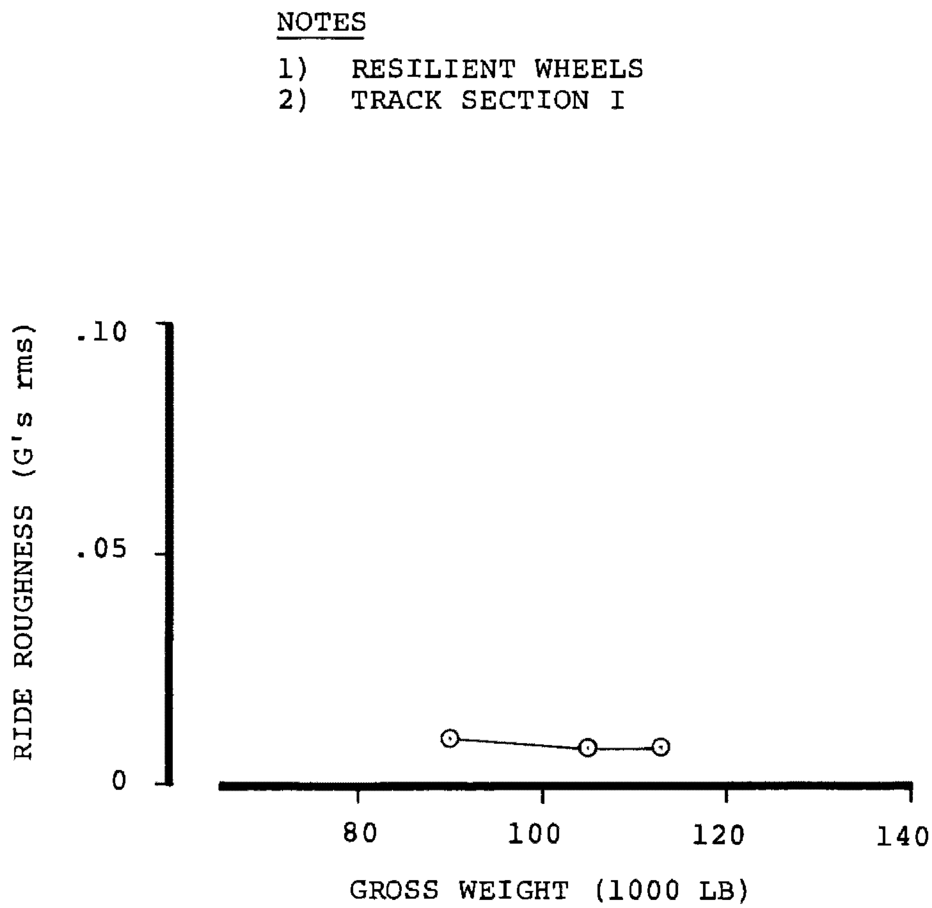


Figure 5–23. Effect of High-Density Car Gross Weight on Aft Car Centerline Lateral Ride Roughness at 45 MPH Speed

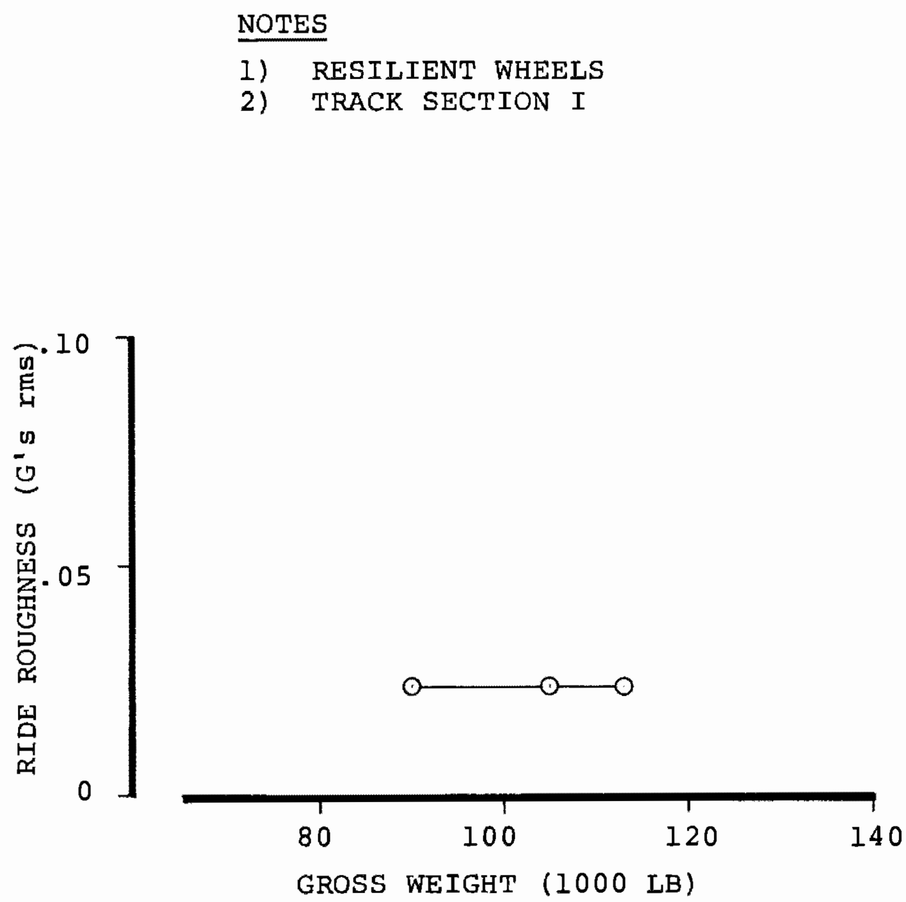


Figure 5-24. Effect of High-Density Car Gross Weight on Forward Car Centerline Vertical Ride Roughness at 45 MPH Speed

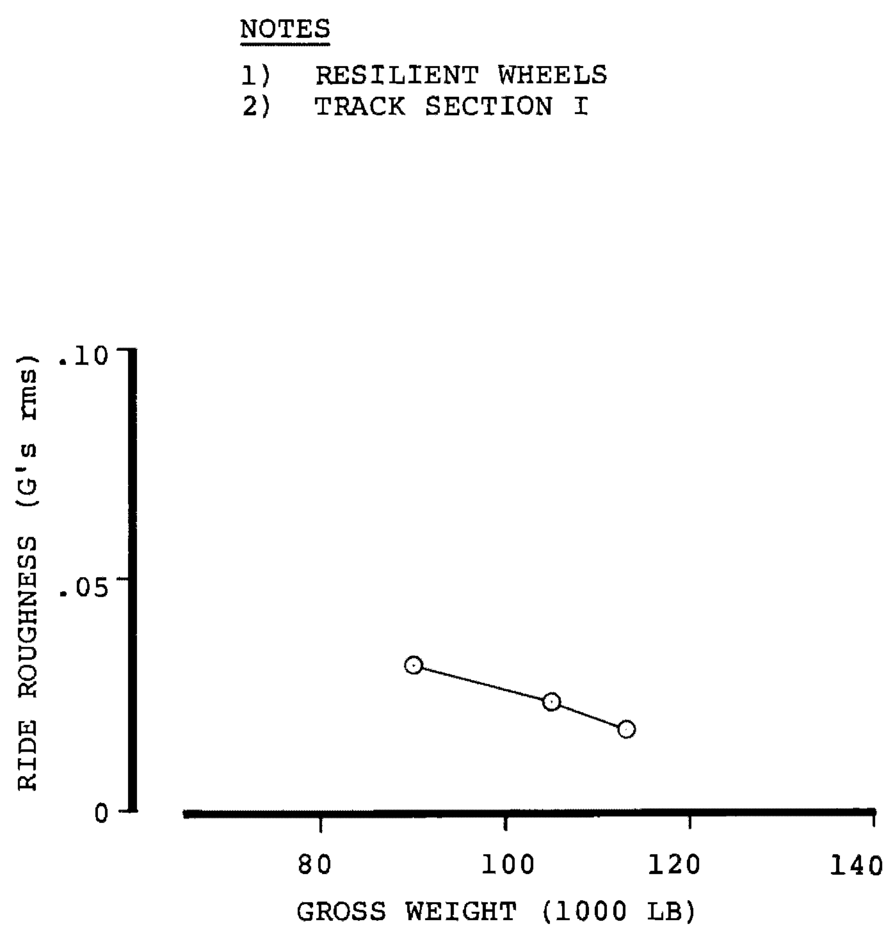


Figure 5–25. Effect of High-Density Car Gross Weight on Mid-Car Centerline Vertical Ride Roughness at 45 MPH Speed

NOTES

1) RESILIENT WHEELS
2) TRACK SECTION I

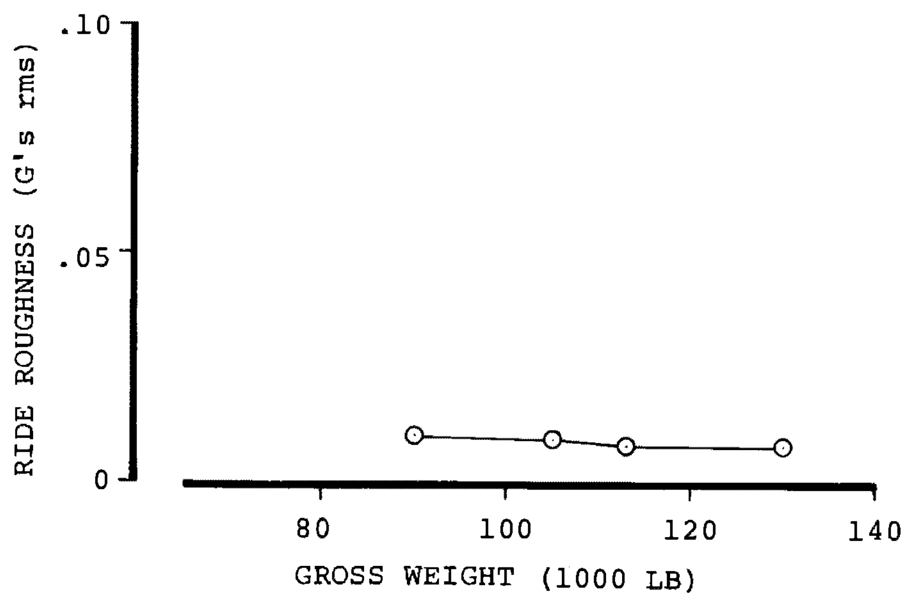


Figure 5–26. Effect of High-Density Car Gross Weight on Aft Car Centerline Lateral Ride Roughness at 55 MPH Speed

NOTES

1) RESILIENT WHEELS
2) TRACK SECTION I

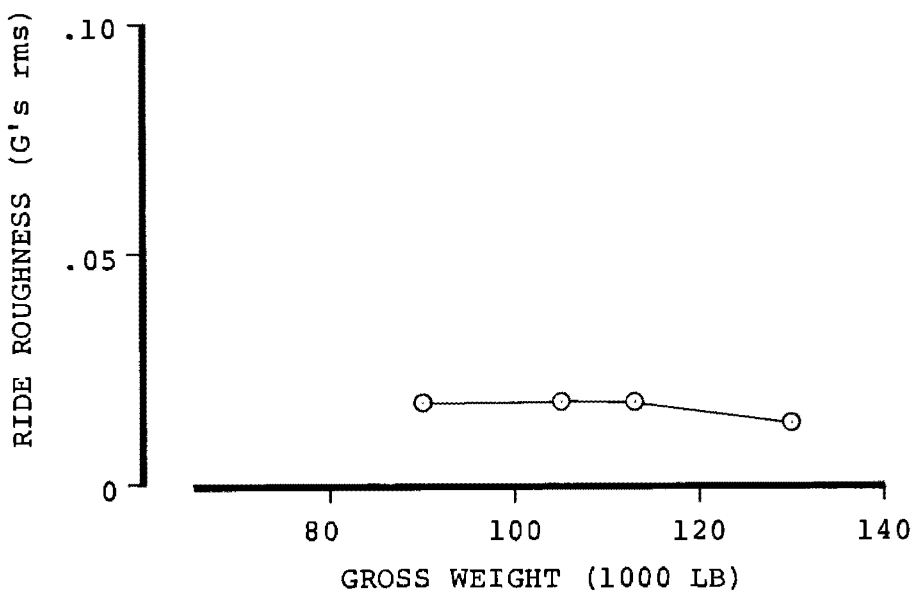


Figure 5–27. Effect of High-Density Car Gross Weight on Forward Car Centerline Vertical Ride Roughness at 55 MPH Speed

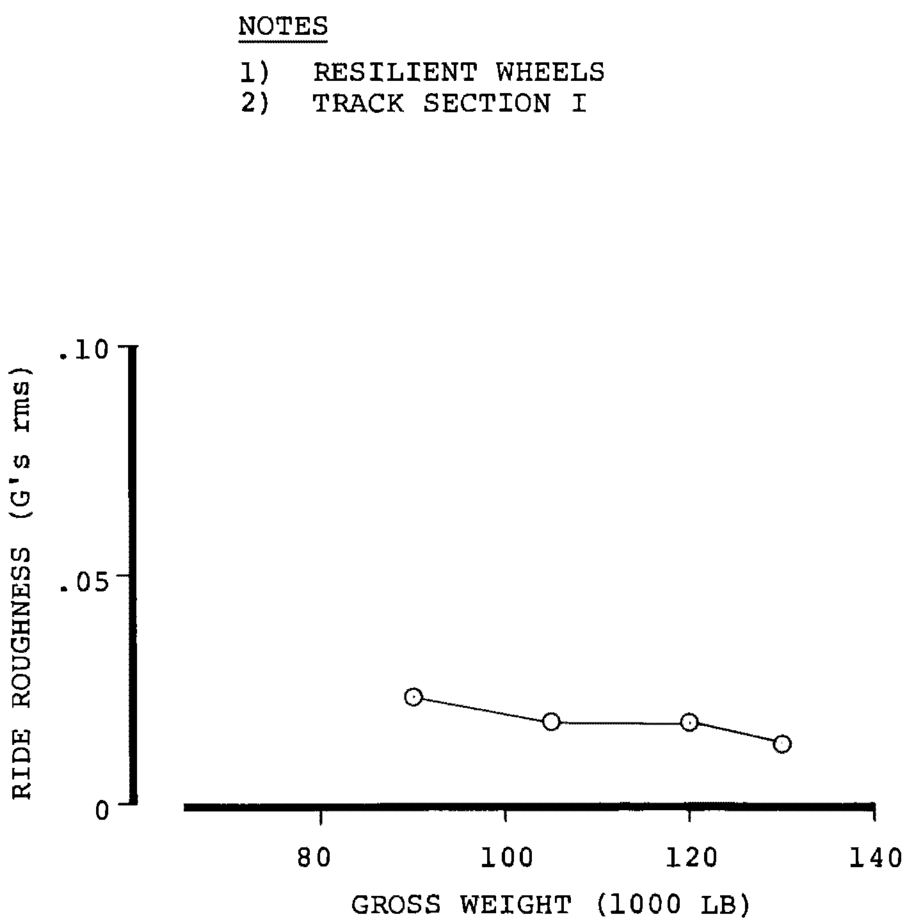


Figure 5–28. Effect of High-Density Car Gross Weight on Mid-Car Centerline Vertical Ride Roughness at 55 MPH Speed

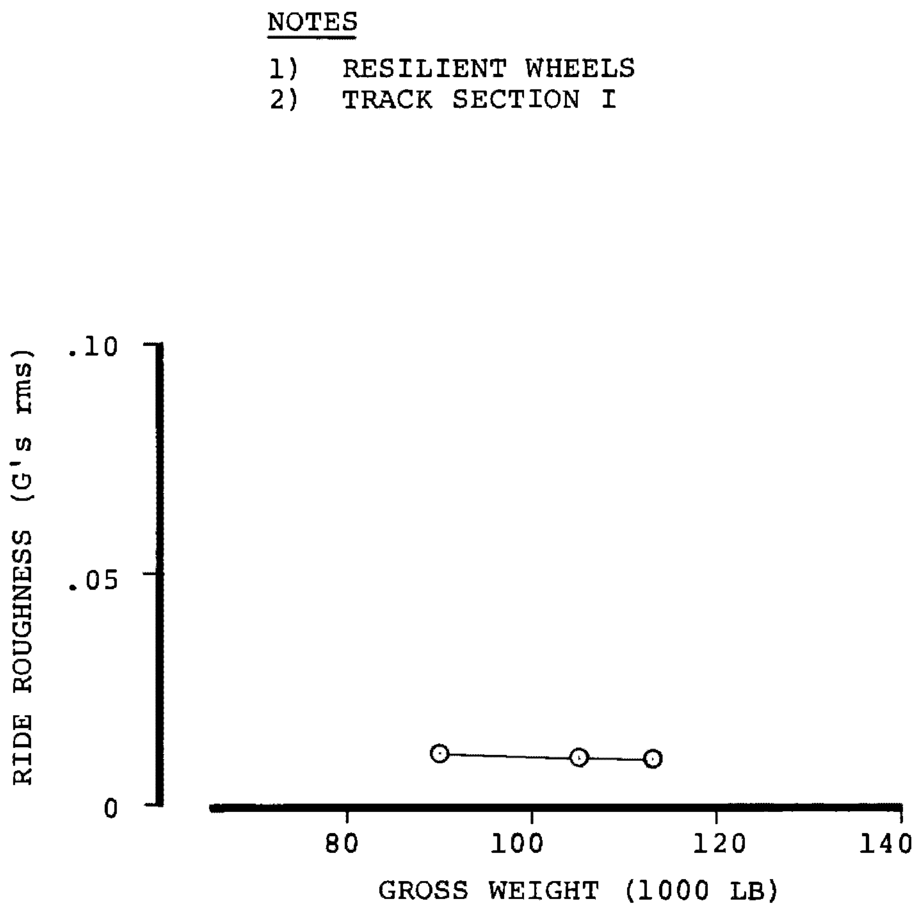


Figure 5–29. Effect of High-Density Car Gross Weight on Aft Car Centerline Lateral Ride Roughness at 80 MPH Speed

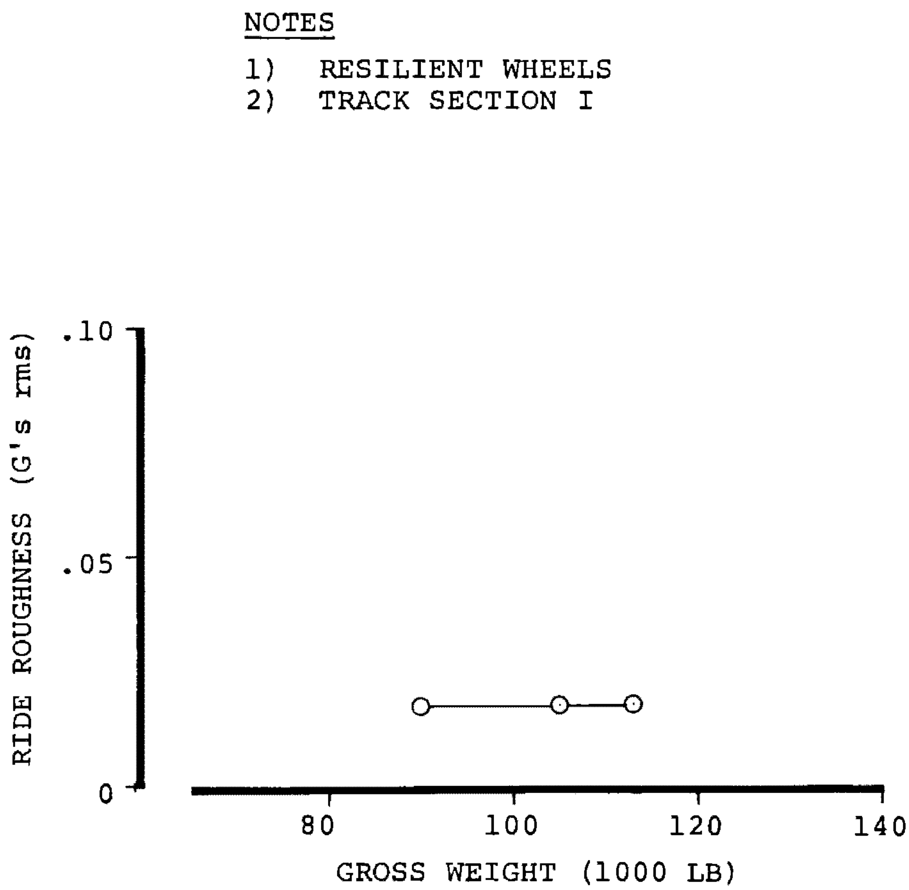


Figure 5—30. Effect of High-Density Car Gross Weight on Forward Car Centerline Vertical Ride Roughness at 80 MPH Speed

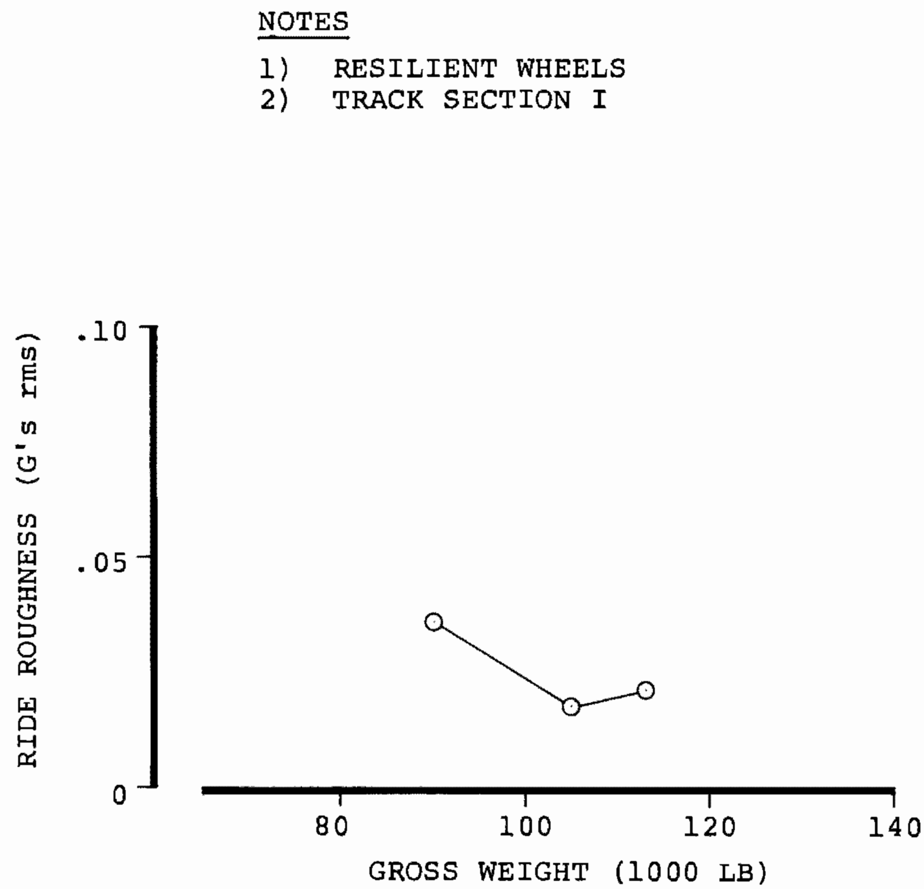


Figure 5–31. Effect of High-Density Car Gross Weight on Mid-Car Centerline Vertical Ride Roughness at 80 MPH Speed

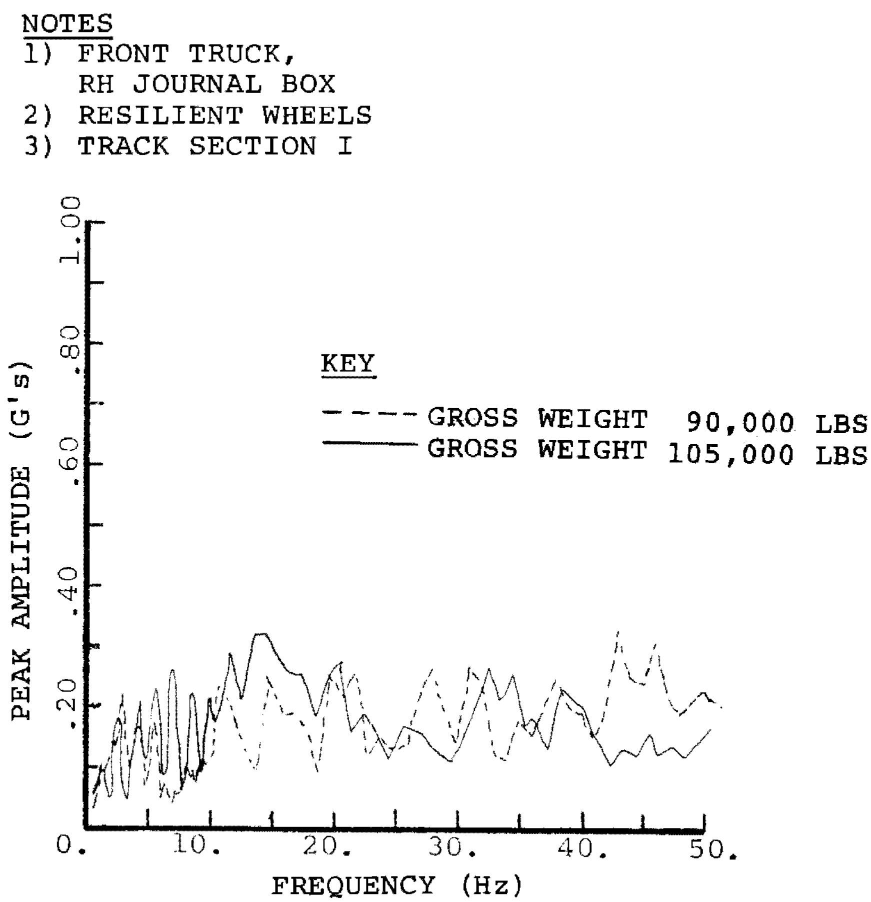


Figure 5—32. Effect of Gross Weight on High-Density Car No. 1 Axle Lateral Acceleration at 35 MPH Speed

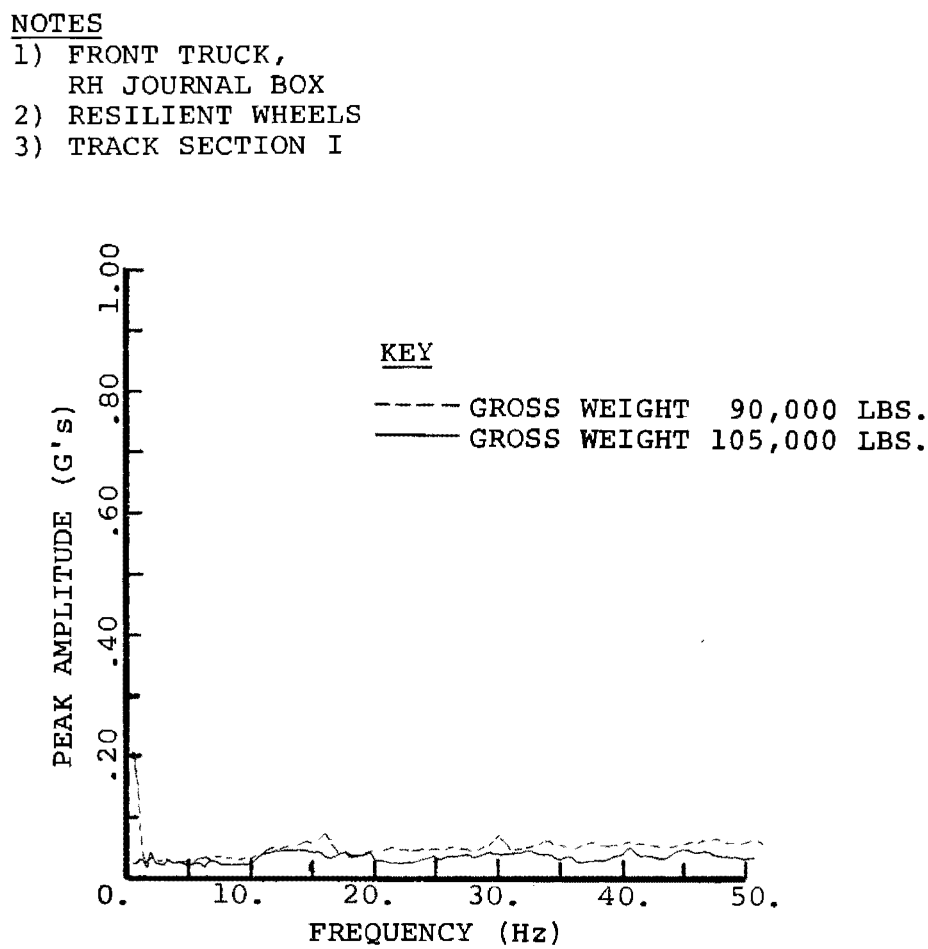


Figure 5—33. Effect of Gross Weight on High-Density Car No. 1 Axle Vertical Acceleration at 35 MPH Speed

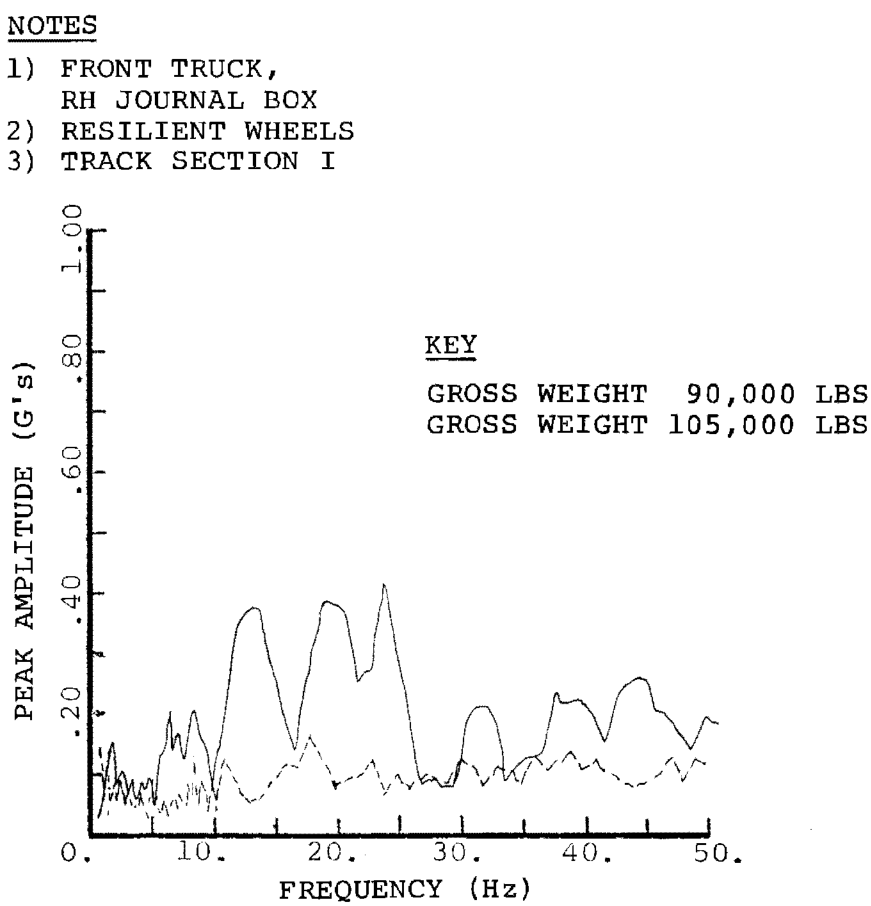


Figure 5–34. Effect of Gross Weight on High-Density Car No. 1 Axle Lateral Acceleration at 45 MPH Speed

NOTES
1) FRONT TRUCK,
   RH JOURNAL BOX
2) RESILIENT WHEELS
3) TRACK SECTION I

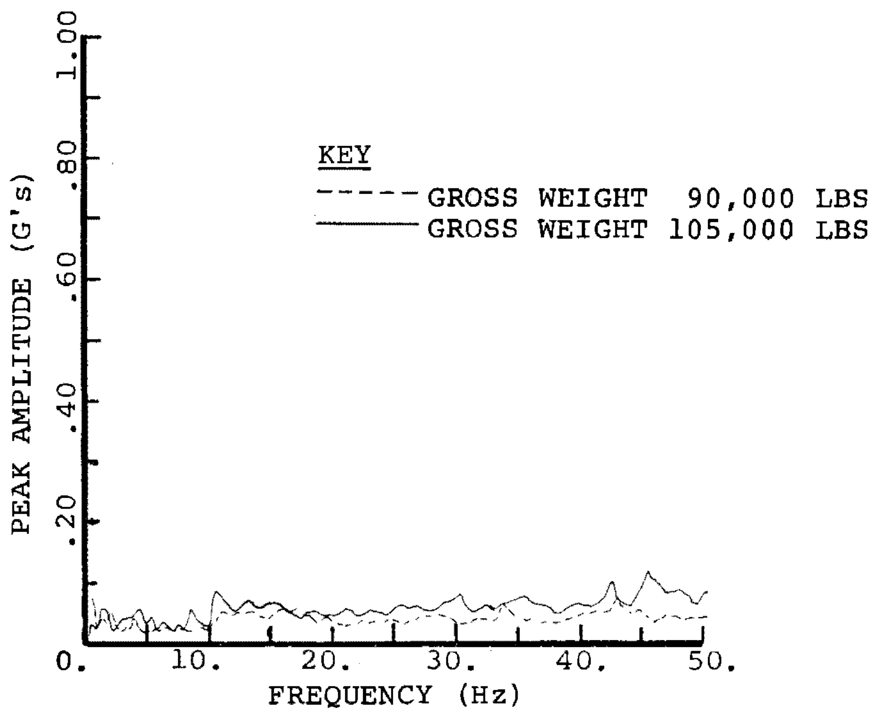


Figure 5–35. Effect of Gross Weight on High-Density Car No. 1 Axle Vertical Acceleration at 45 MPH Speed

NOTES

1) FRONT TRUCK,
   RH JOURNAL BOX
2) RESILIENT WHEELS
3) TRACK SECTION I

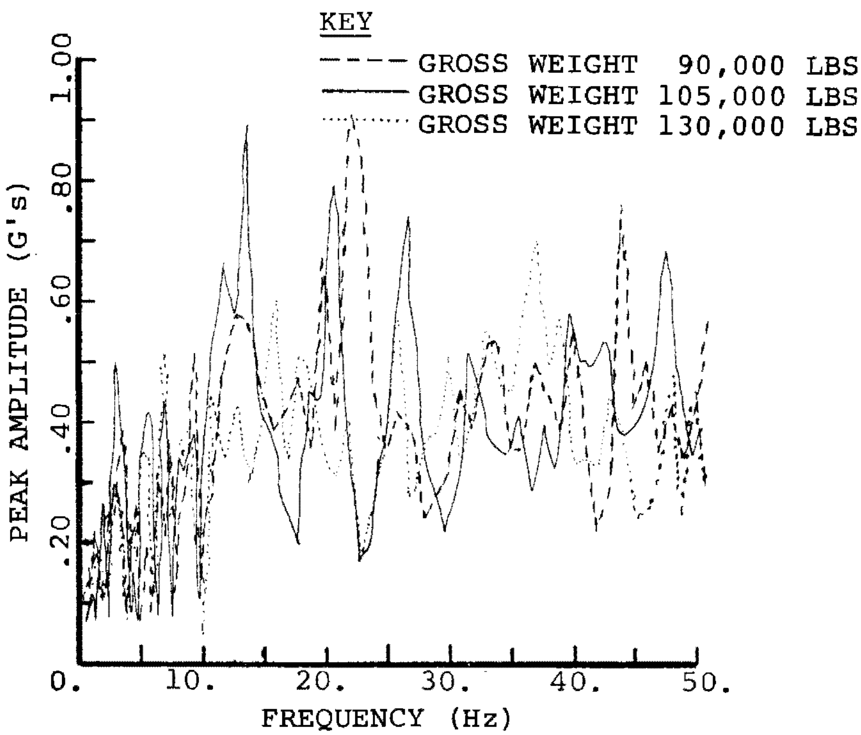


Figure 5–36. Effect of Gross Weight on High-Density Car No. 1 Axle Lateral Acceleration at 55 MPH Speed

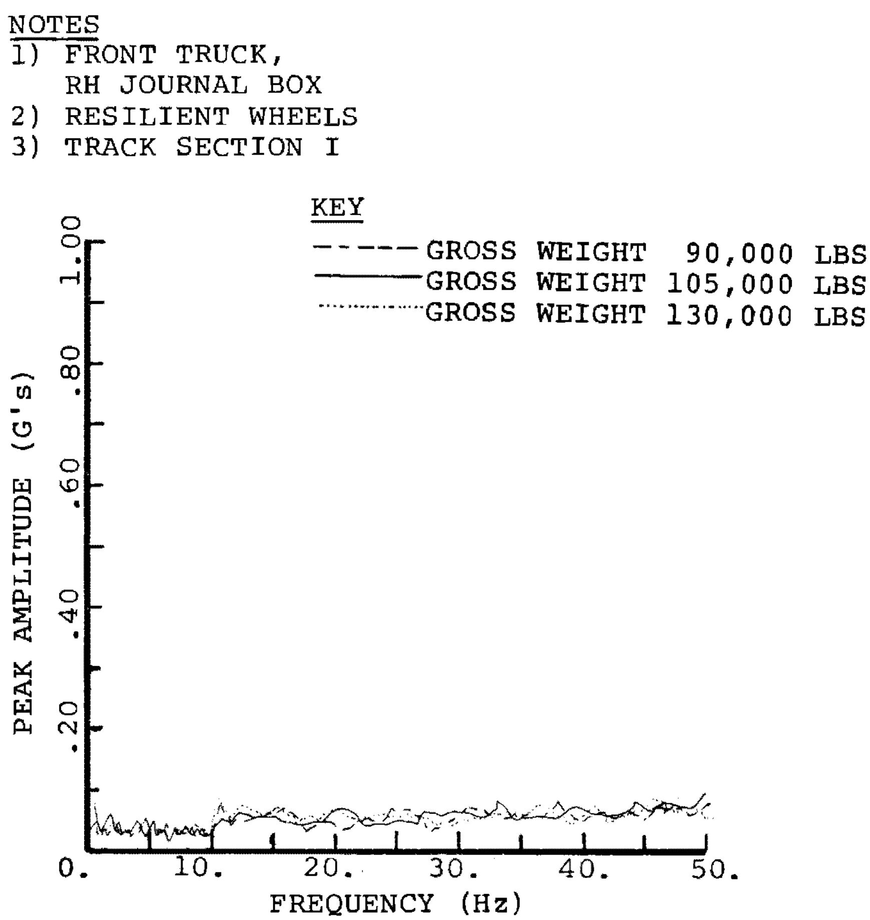


Figure 5–37. Effect of Gross Weight on High-Density Car No. 1 Axle Vertical Acceleration at 55 MPH Speed

NOTES
1) FRONT TRUCK,
   RH JOURNAL BOX
2) RESILIENT WHEELS
3) TRACK SECTION I

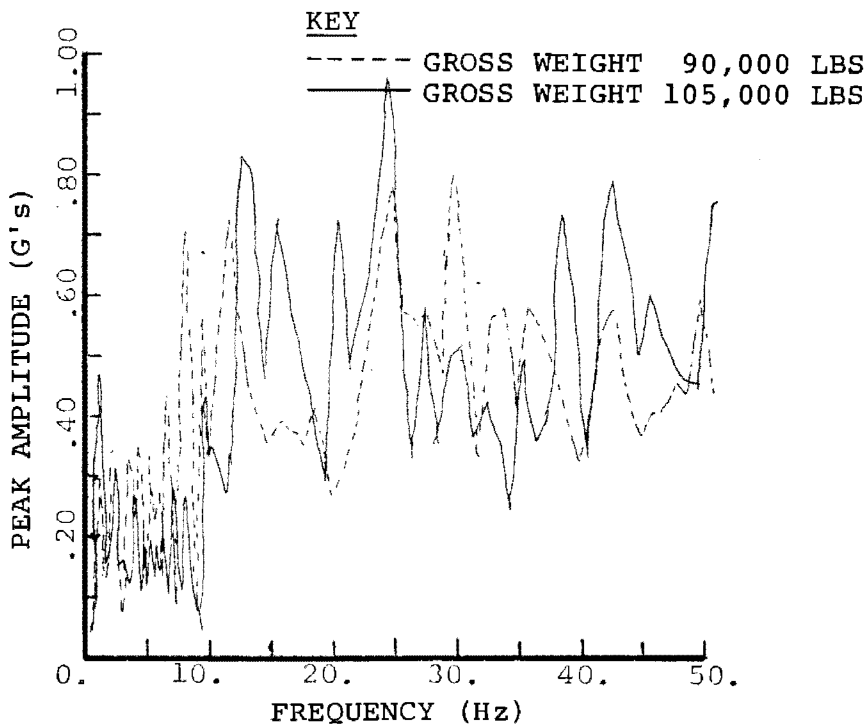


Figure 5–38. Effect of Gross Weight on High-Density Car No. 1 Axle Vertical Acceleration at 80 MPH Speed

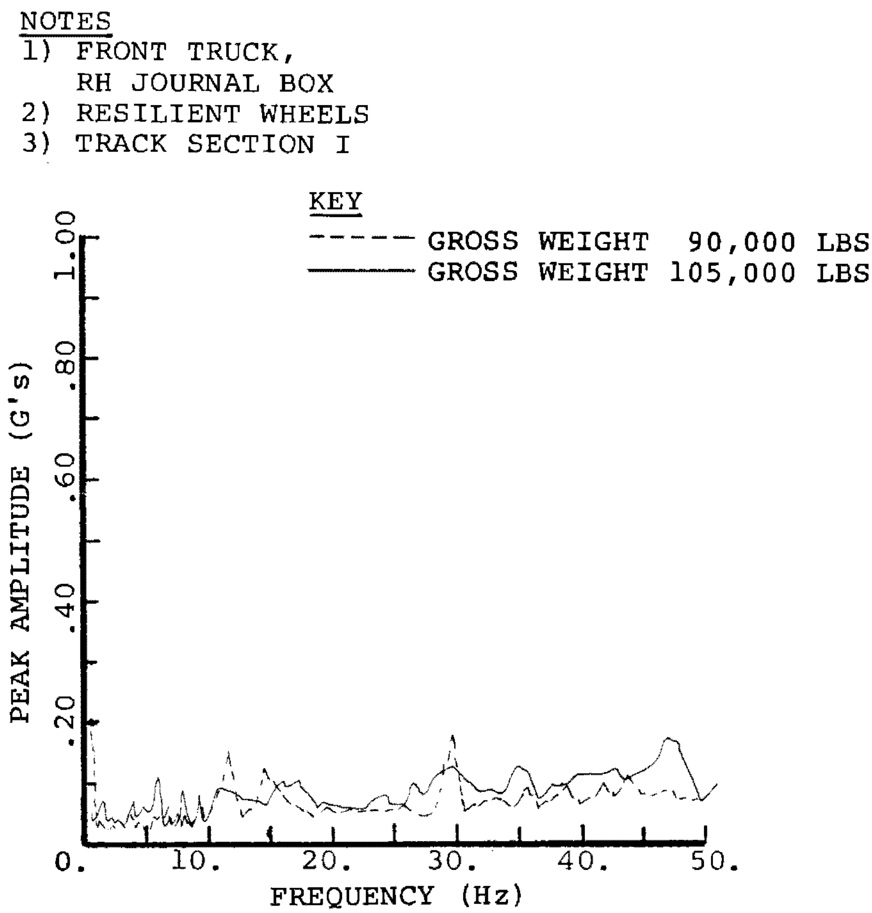


Figure 5–39. Effect of Gross Weight on High-Density Car Axle Vertical Acceleration at 80 MPH Speed

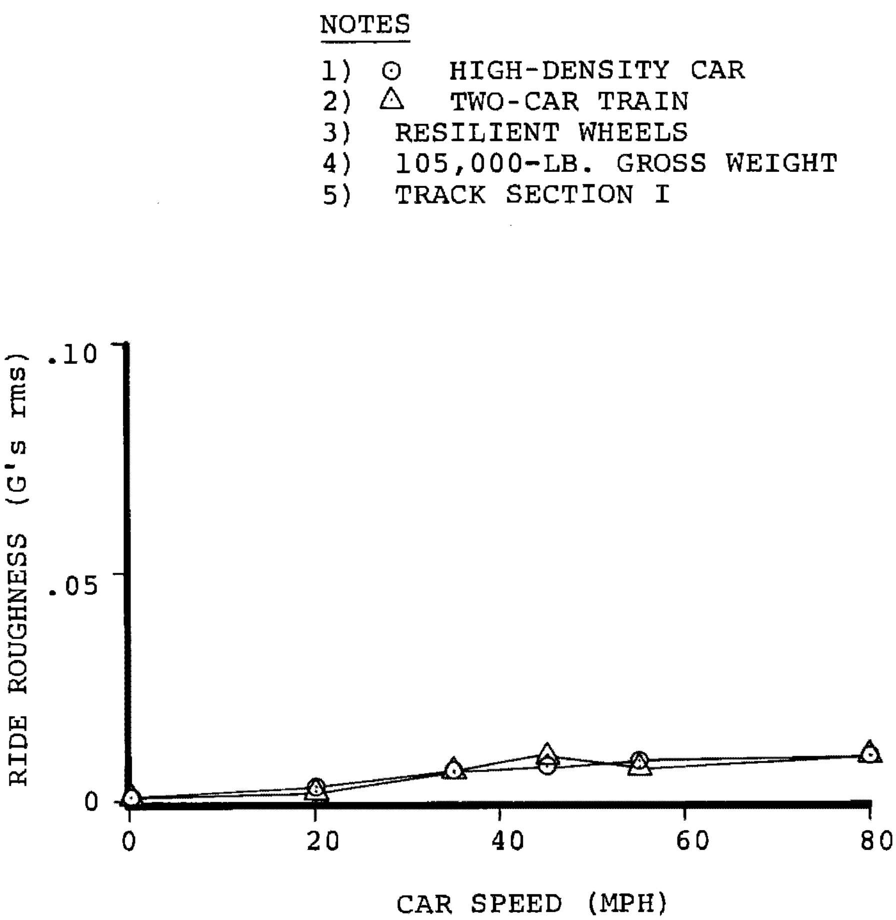


Figure 5—40. Effect of Train Consist on Aft Car Centerline Lateral Ride Roughness

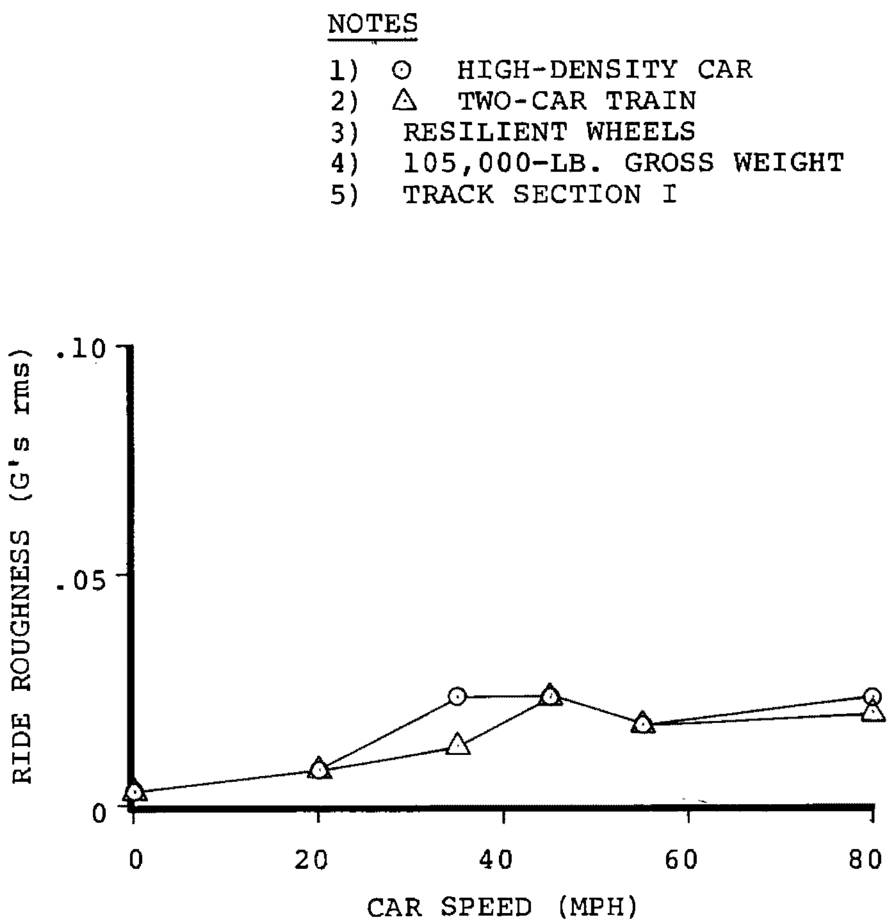


Figure 5—41. Effect of Train Consist on Forward Car Centerline Vertical Ride Roughness

NOTES

1) ⊙ HIGH-DENSITY CAR
2) △ TWO-CAR TRAIN
3) RESILIENT WHEELS
4) 105,000-LB. GROSS WEIGHT
5) TRACK SECTION I

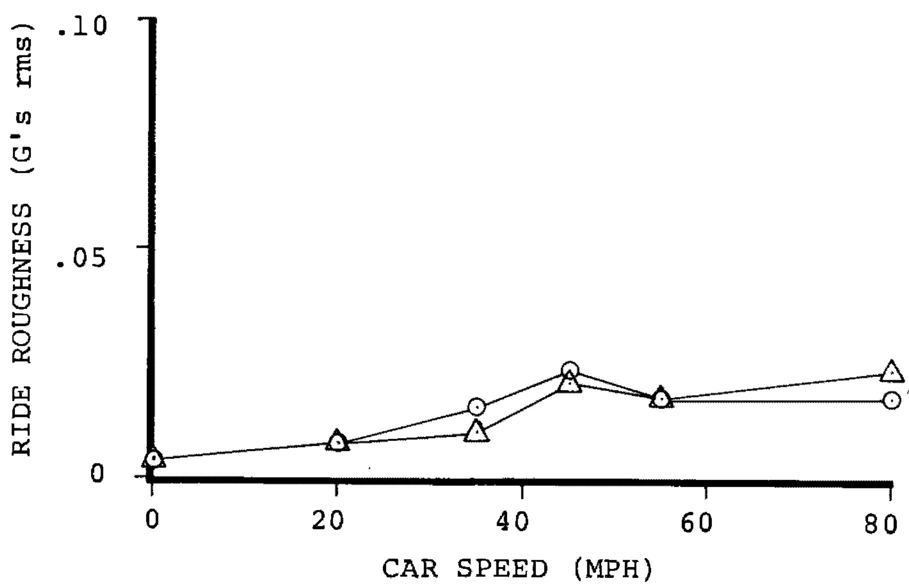


Figure 5–42. Effect of Train Consist on Mid-Car Centerline Vertical Ride Roughness

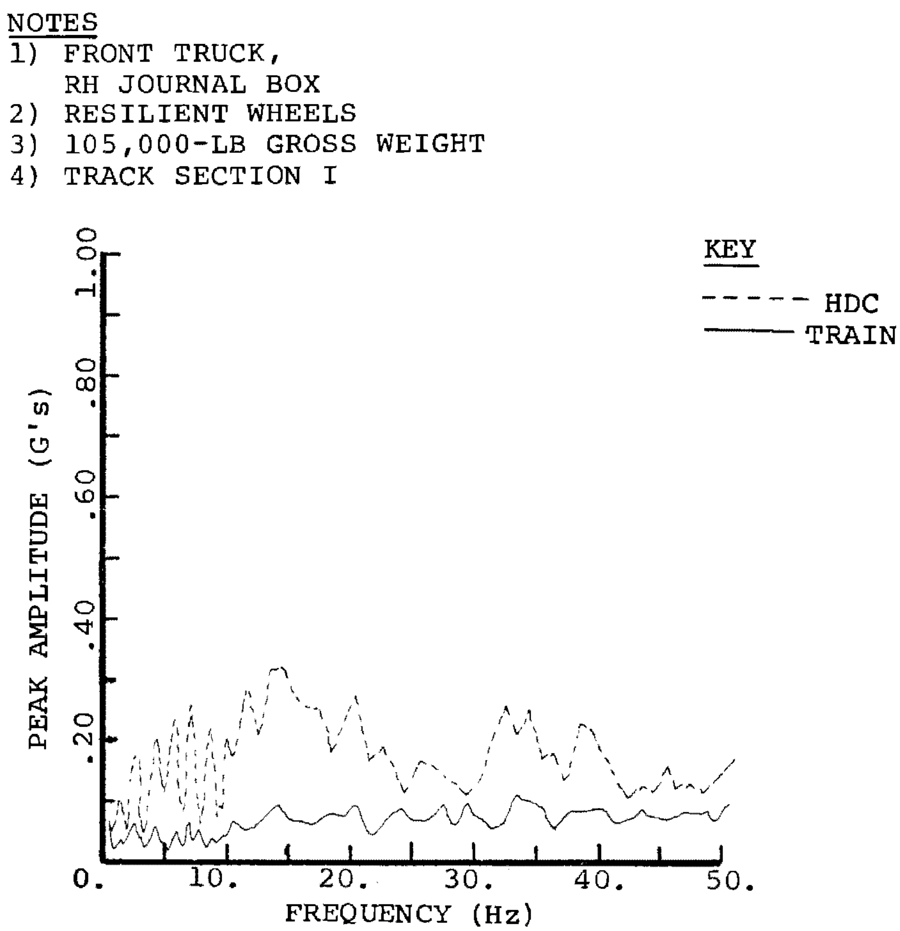


Figure 5–43. Effect of Train Consist on No. 1 Axle Lateral Acceleration at 35 MPH Speed

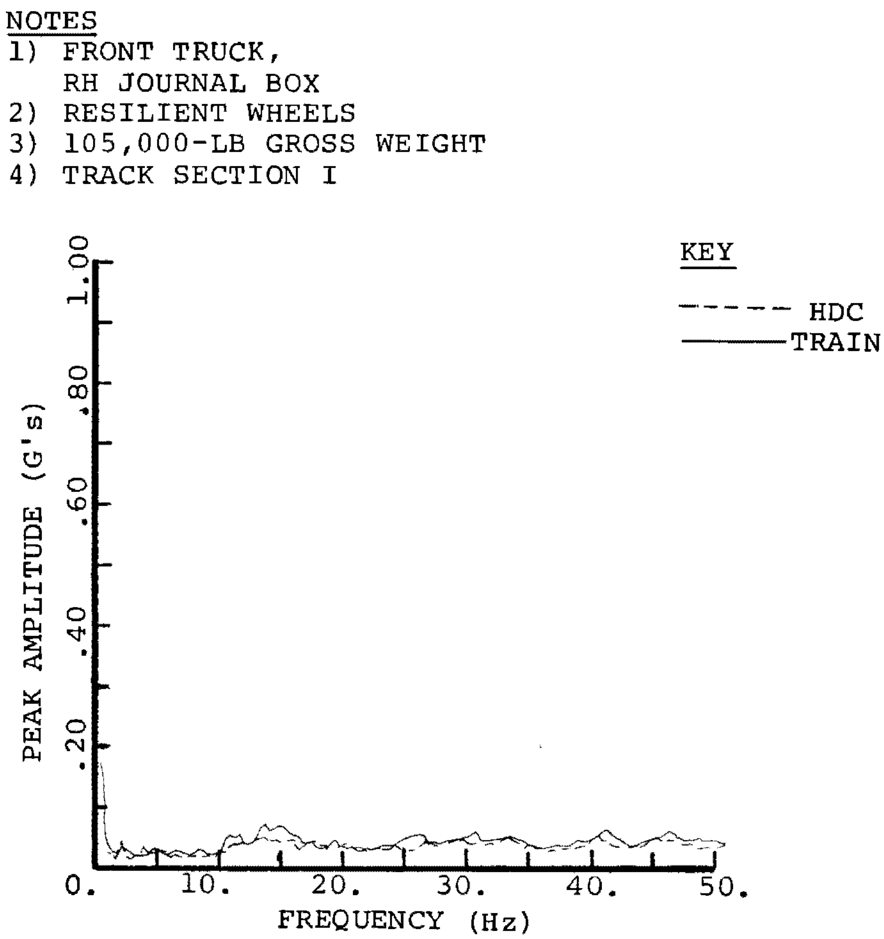


Figure 5–44. Effect of Train Consist on No. 1 Axle Vertical Acceleration at 35 MPH Speed

NOTES
1) FRONT TRUCK,
   RH JOURNAL BOX
2) RESILIENT WHEELS
3) 105,000-LB GROSS WEIGHT
4) TRACK SECTION I

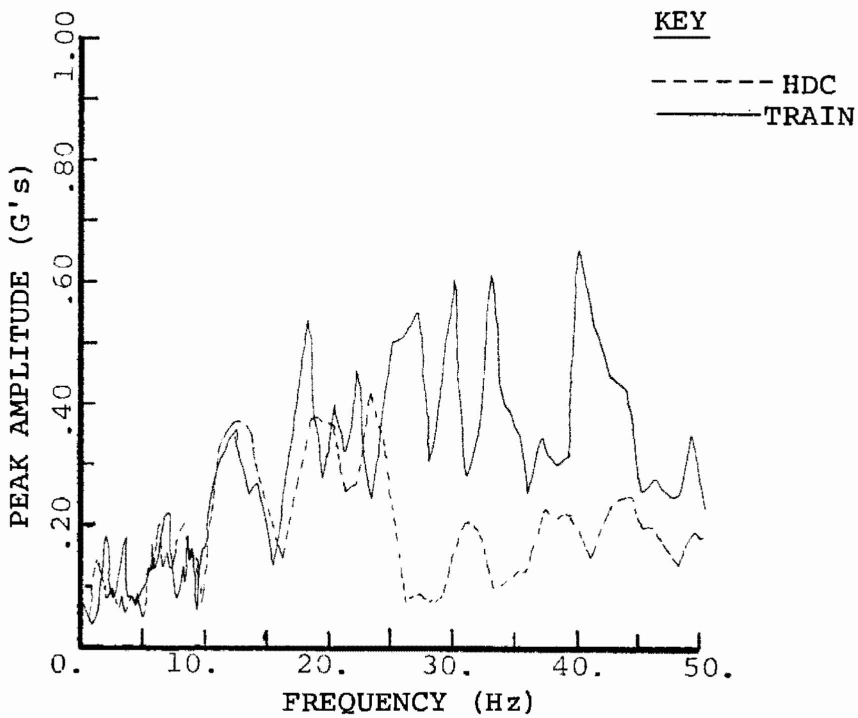


Figure 5—45. Effect of Train Consist on No. 1 Axle Lateral Acceleration at 45 MPH Speed

NOTES
1) FRONT TRUCK,
   RH JOURNAL BOX
2) RESILIENT WHEELS
3) 105,000-LB GROSS WEIGHT
4) TRACK SECTION I

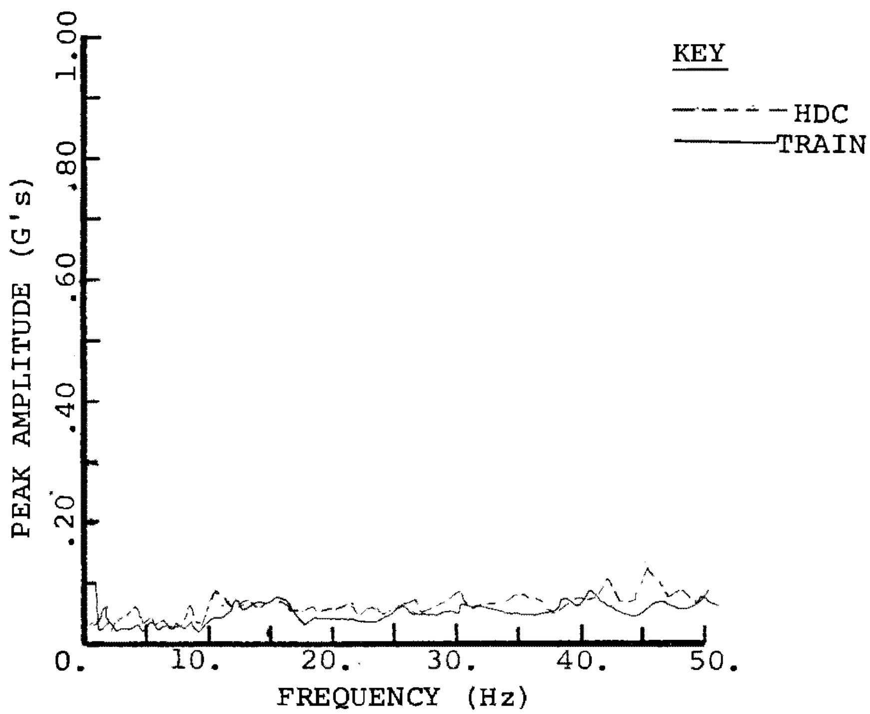


Figure 5–46. Effect of Train Consist on No. 1 Axle Vertical Acceleration at 45 MPH Speed

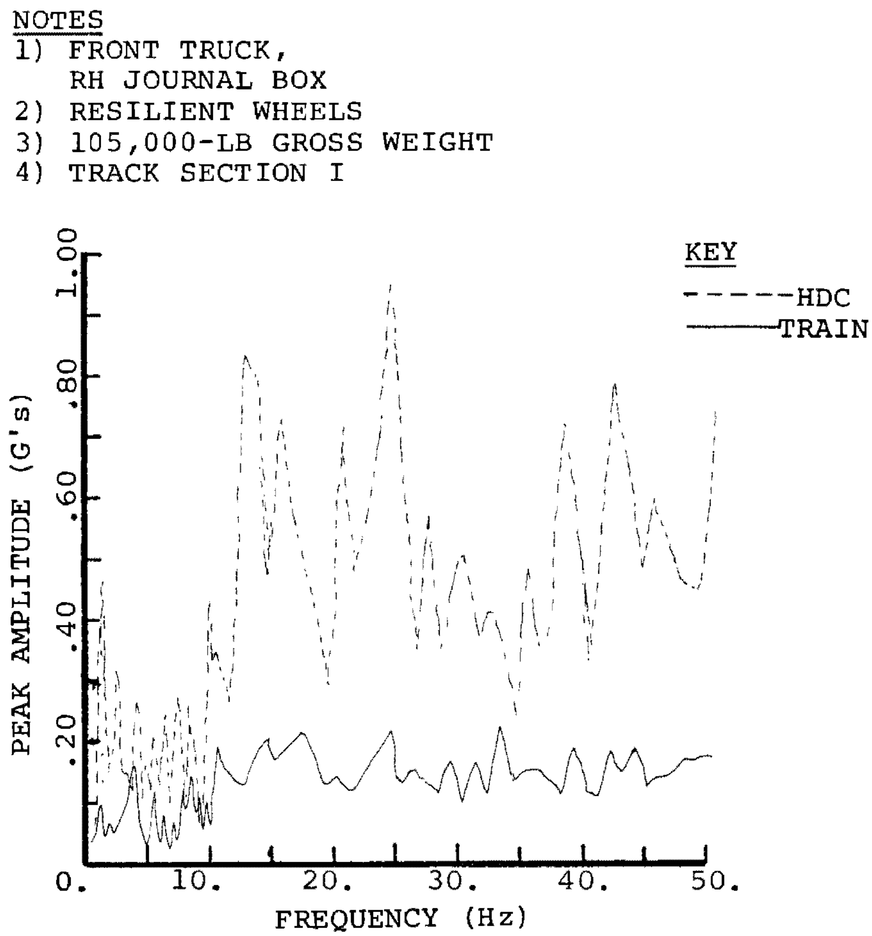


Figure 5—47. Effect of Train Consist on No. 1 Axle Lateral Acceleration at 80 MPH Speed

NOTES
1) FRONT TRUCK,
RH JOURNAL BOX
2) RESILIENT WHEELS
3) 105,000-LB GROSS WEIGHT
4) TRACK SECTION I

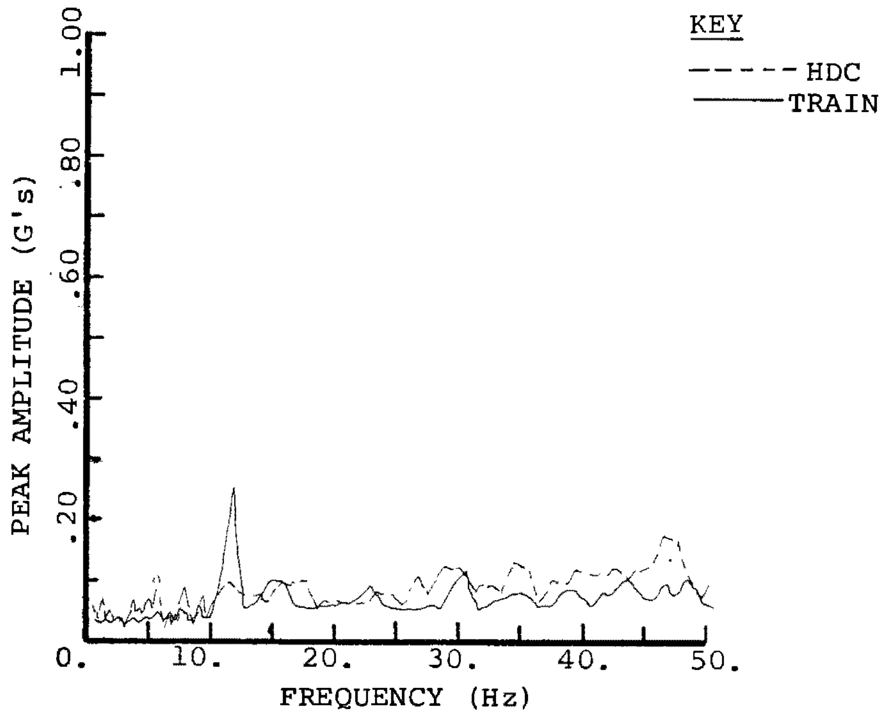


Figure 5–48. Effect of Train Consist on No. 1 Axle Vertical Acceleration at 80 MPH Speed

NOTES
1) RESILIENT WHEELS
2) 105,000-LB GROSS WEIGHT
3) TRACK SECTION I

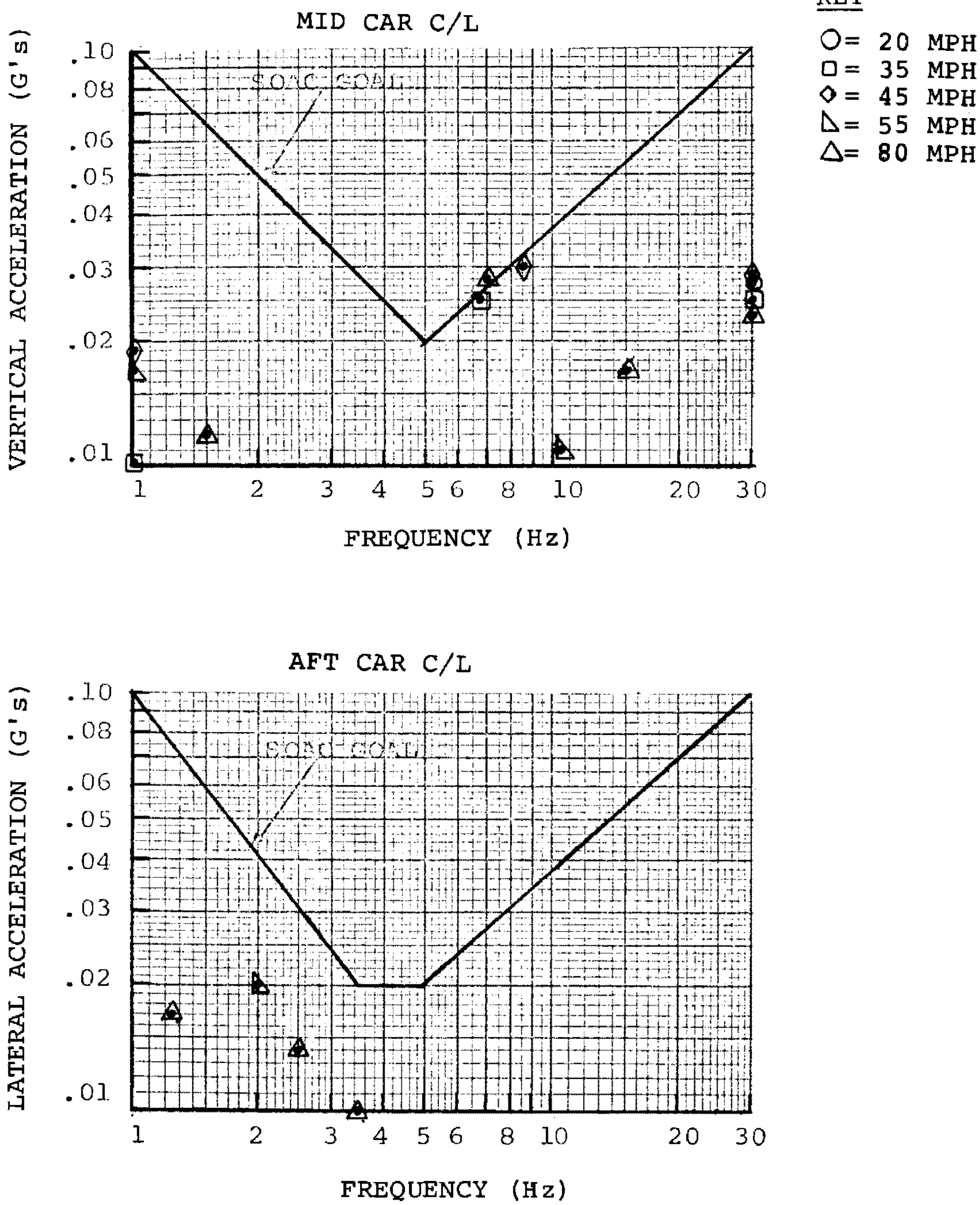


Figure 5-49. *Comparison of High-Density Car Ride Quality Vs. Goals*

NOTES
1) RESILIENT WHEELS
2) 105,000-LB GROSS WEIGHT
3) TRACK SECTION I

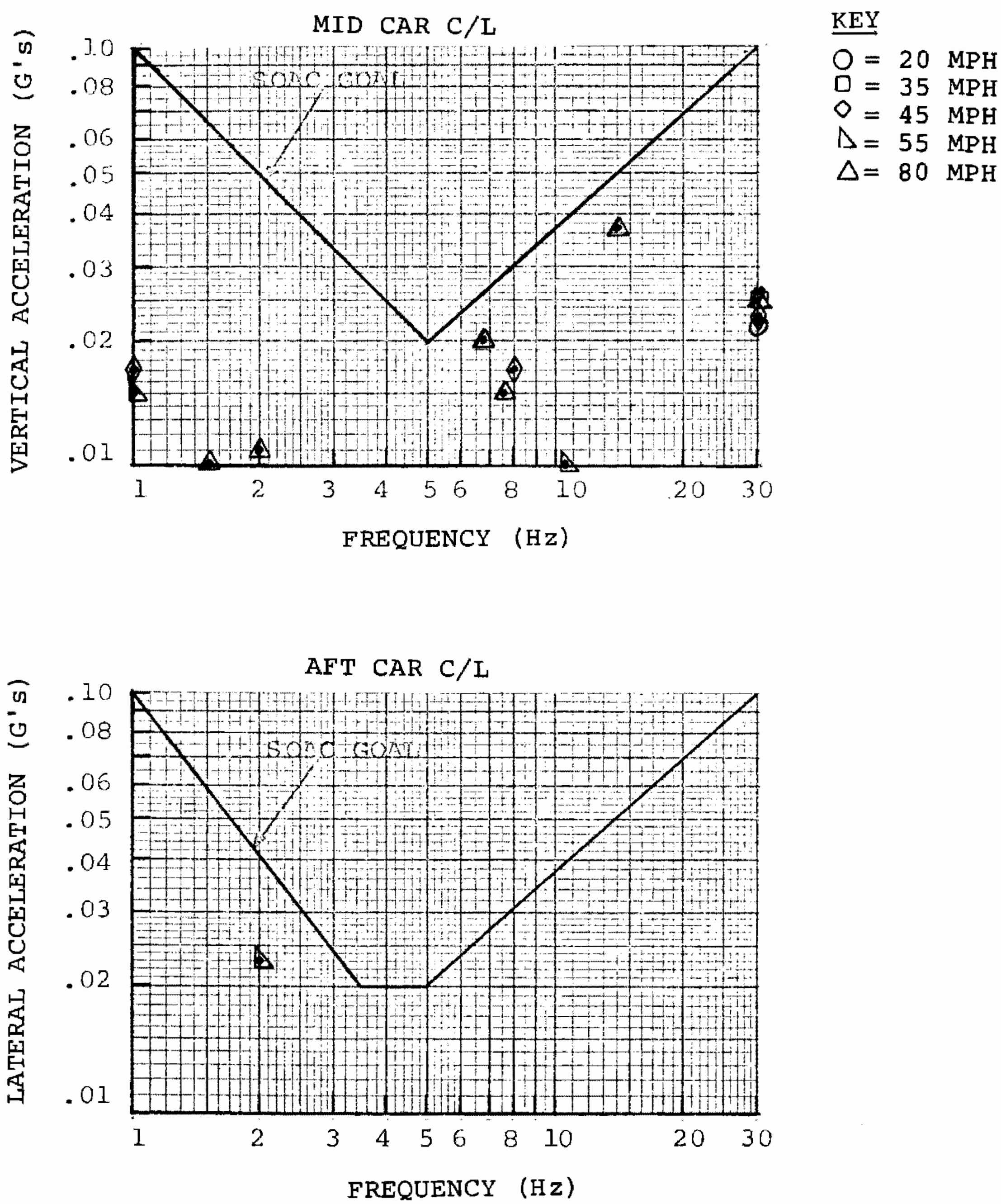


Figure 5-50. *Comparison of Two-Car Train Ride Quality Vs. Goals*

Appendix

RIDE QUALITY POWER SPECTRAL DENSITY AND PEAK AMPLITUDE MACHINE PLOTS

Table A-1 is an index to the power spectral density and peak amplitude machine plots contained in this appendix.

TABLE A-1. INDEX TO RIDE QUALITY TEST POWER SPECTRAL DENSITY AND PEAK AMPLITUDE MACHINE PLOTS

Figure No.	Pickup Location	Train Consist	Car Weight (1000 LB)	Track Section	Speed (MPH)
A-1	Fwd Axle R/H JB Front Trk Lat.	HDC	90	I	20
A-2	Fwd Axle R/H JB Front Trk Vert.	HDC	90	I	20
A-3	Mid Car R/H Vertical	HDC	90	I	20
A-4	Aft Car C/L Lateral	HDC	90	I	20
A-5	Fwd Car C/L Longitudinal	HDC	90	I	20
A-6	Fwd Car C/L Vertical	HDC	90	I	20
A-7	Mid Car C/L Vertical	HDC	90	I	20
A-8	Aft Car C/L Vertical	HDC	90	I	20
A-9	Fwd Axle R/H JB Front Trk Lat.	HDC	90	I	35
A-10	Fwd Axle R/H JB Front Trk Vert.	HDC	90	I	35
A-11	Mid Car R/H Vertical	HDC	90	I	35
A-12	Aft Car C/L Lateral	HDC	90	I	35
A-13	Fwd Car C/L Longitudinal	HDC	90	I	35
A-14	Fwd Car C/L Vertical	HDC	90	I	35
A-15	Mid Car C/L Vertical	HDC	90	I	35
A-16	Aft Car C/L Vertical	HDC	90	I	35
A-17	Fwd Axle R/H JB Front Trk Lat.	HDC	90	I	45
A-18	Fwd Axle R/H JB Front Trk Vert.	HDC	90	I	45
A-19	Mid Car R/H Vertical	HDC	90	I	45
A-20	Aft Car C/L Lateral	HDC	90	I	45
A-21	Fwd Car C/L Longitudinal	HDC	90	I	45
A-22	Fwd Car C/L Vertical	HDC	90	I	45
A-23	Mid Car C/L Vertical	HDC	90	I	45
A-24	Aft Car C/L Vertical	HDC	90	I	45
A-25	Fwd Axle R/H JB Front Trk Lat.	HDC	90	I	55
A-26	Fwd Axle R/H JB Front Trk Vert.	HDC	90	I	55
A-27	Mid Car R/H Vertical	HDC	90	I	55
A-28	Aft Car C/L Lateral	HDC	90	I	55
A-29	Fwd Car C/L Longitudinal	HDC	90	I	55
A-30	Fwd Car C/L Vertical	HDC	90	I	55
A-31	Mid Car C/L Vertical	HDC	90	I	55
A-32	Aft Car C/L Vertical	HDC	90	I	55

TABLE A-1. Continued

Figure No.	Pickup Location	Train Consist	Car Weight (1000 LB)	Track Section	Speed (MPH)
A-33	Fwd Axle R/H JB Front Trk Lat.	HDC	90	I	80
A-34	Fwd Axle R/H JB Front Trk Vert.	HDC	90	I	80
A-35	Mid Car R/H Vertical	HDC	90	I	80
A-36	Aft Car C/L Lateral	HDC	90	I	80
A-37	Fwd Car C/L Longitudinal	HDC	90	I	80
A-38	Fwd Car C/L Vertical	HDC	90	I	80
A-39	Mid Car C/L Vertical	HDC	90	I	80
A-40	Aft Car C/L Vertical	HDC	90	I	80
A-41	Fwd Axle R/H JB Front Trk Lat.	HDC	105	I	20
A-42	Fwd Axle R/H JB Front Trk Vert.	HDC	105	I	20
A-43	Mid Car R/H Vertical	HDC	105	I	20
A-44	Aft Car C/L Lateral	HDC	105	I	20
A-45	Fwd Car C/L Longitudinal	HDC	105	I	20
A-46	Fwd Car C/L Vertical	HDC	105	I	20
A-47	Mid Car C/L Vertical	HDC	105	I	20
A-48	Aft Car C/L Vertical	HDC	105	I	20
A-49	Fwd Axle R/H JB Front Trk Lat.	HDC	105	I	35
A-50	Fwd Axle R/H JB Front Trk Vert.	HDC	105	I	35
A-51	Mid Car R/H Vertical	HDC	105	I	35
A-52	Aft Car C/L Lateral	HDC	105	I	35
A-53	Fwd Car C/L Longitudinal	HDC	105	I	35
A-54	Fwd Car C/L Vertical	HDC	105	I	35
A-55	Mid Car C/L Vertical	HDC	105	I	35
A-56	Aft Car C/L Vertical	HDC	105	I	35
A-57	Fwd Axle R/H JB Front Trk Lat.	HDC	105	I	45
A-58	Fwd Axle R/H JB Front Trk Vert.	HDC	105	I	45
A-59	Mid Car R/H Vertical	HDC	105	I	45
A-60	Aft Car C/L Lateral	HDC	105	I	45
A-61	Fwd Car C/L Longitudinal	HDC	105	I	45
A-62	Fwd Car C/L Vertical	HDC	105	I	45
A-63	Mid Car C/L Vertical	HDC	105	I	45
A-64	Aft Car C/L Vertical	HDC	105	I	45

TABLE A-1. Continued

Figure No.	Pickup Location	Train Consist	Car Weight (1000 LB)	Track Section	Speed (MPH)
A-65	Fwd Axle R/H JB Front Trk Lat.	HDC	105	I	55
A-66	Fwd Axle R/H JB Front Trk Vert.	HDC	105	I	55
A-67	Mid Car R/H Vertical	HDC	105	I	55
A-68	Aft Car C/L Lateral	HDC	105	I	55
A-69	Fwd Car C/L Longitudinal	HDC	105	I	55
A-70	Fwd Car C/L Vertical	HDC	105	I	55
A-71	Mid Car C/L Vertical	HDC	105	I	55
A-72	Aft Car C/L Vertical	HDC	105	I	55
A-73	Fwd Axle R/H JB Front Trk Lat.	HDC	105	I	80
A-74	Fwd Axle R/H JB Front Trk Vert.	HDC	105	I	80
A-75	Mid Car R/H Vertical Trk Vert.	HDC	105	I	80
A-76	Aft Car C/L Lateral	HDC	105	I	80
A-77	Fwd Car C/L Longitudinal	HDC	105	I	80
A-78	Fwd Car C/L Vertical	HDC	105	I	80
A-79	Mid Car C/L Vertical	HDC	105	I	80
A-80	Aft Car C/L Vertical	HDC	105	I	80
A-81	Fwd Car C/L Vertical	HDC	105	I	35
A-82	Mid Car C/L Vertical	HDC	105	I	35
A-83	Aft Car C/L Vertical	HDC	105	I	35
A-84	Fwd Car C/L Vertical	HDC	105	I	80
A-85	Mid Car C/L Vertical	HDC	105	I	80
A-86	Aft Car C/L Vertical	HDC	105	I	80
A-87	Fwd Car C/L Vertical	HDC	105	II	35
A-88	Mid Car C/L Vertical	HDC	105	II	35
A-89	Aft Car C/L Vertical	HDC	105	II	35
A-90	Fwd Car C/L Vertical	HDC	105	II	80
A-91	Mid Car C/L Vertical	HDC	105	II	80
A-92	Aft Car C/L Vertical	HDC	105	II	80

TABLE A-1. Continued

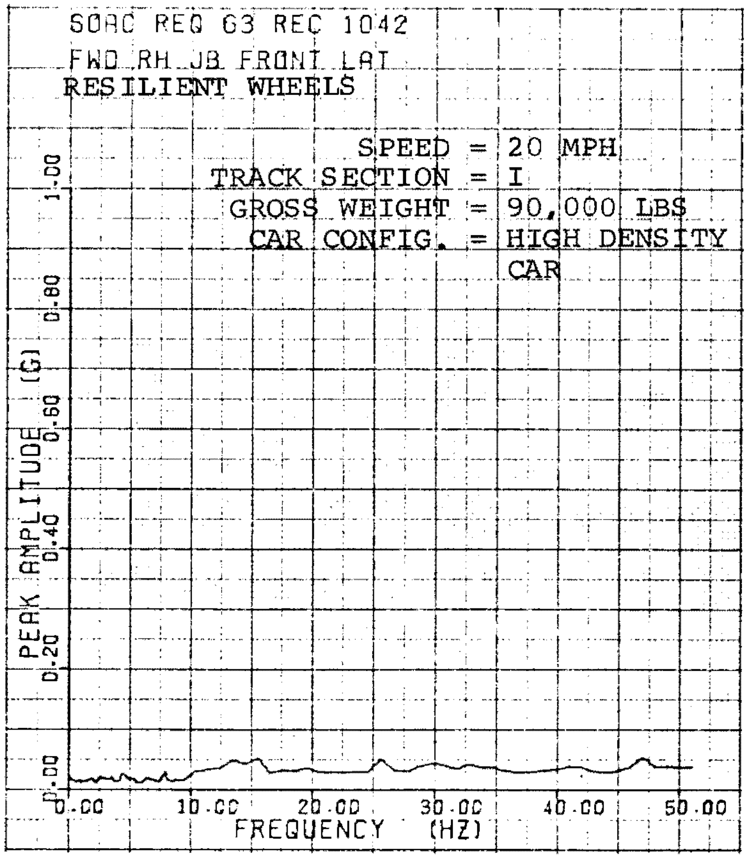
Figure No.	Pickup Location	Train Consist	Car Weight (1000 LB)	Track Section	Speed (MPH)
A-93	Fwd Car C/L Vertical	HDC	105	III	35
A-94	Mid Car C/L Vertical	HDC	105	III	35
A-95	Aft Car C/L Vertical	HDC	105	III	35
A-96	Fwd Car C/L Vertical	HDC	105	III	80
A-97	Mid Car C/L Vertical	HDC	105	III	80
A-98	Aft Car C/L Vertical	HDC	105	III	80
A-99	Fwd Car C/L Vertical	HDC	105	IV	35
A-100	Mid Car C/L Vertical	HDC	105	IV	35
A-101	Aft Car C/L Vertical	HDC	105	IV	35
A-102	Fwd Car C/L Vertical	HDC	105	IV	80
A-103	Mid Car C/L Vertical	HDC	105	IV	80
A-104	Aft Car C/L Vertical	HDC	105	IV	80
A-105	Fwd Car C/L Vertical	HDC	105	V	35
A-106	Mid Car C/L Vertical	HDC	105	V	35
A-107	Aft Car C/L Vertical	HDC	105	V	35
A-108	Fwd Car C/L Vertical	HDC	105	V	80
A-109	Mid Car C/L Vertical	HDC	105	V	80
A-110	Aft Car C/L Vertical	HDC	105	V	80
A-111	Fwd Car C/L Vertical	HDC	105	VI	35
A-112	Mid Car C/L Vertical	HDC	105	VI	35
A-113	Aft Car C/L Vertical	HDC	105	VI	35
A-114	Fwd Car C/L Vertical	HDC	105	VI	80
A-115	Mid Car C/L Vertical	HDC	105	VI	80
A-116	Aft Car C/L Vertical	HDC	105	VI	80
A-117	Fwd Car C/L Vertical	HDC	105	North Gap & Switch	80
A-118	Mid Car C/L Vertical	HDC	105	North Gap & Switch	80
A-119	Aft Car C/L Vertical	HDC	105	North Gap & Switch	80

TABLE A-1. Continued

Figure No.	Pickup Location	Train Consist	Car Weight (1000 LB)	Track Section	Speed (MPH)
A-120	Fwd Axle R/H JB Front Trk Lat.	HDC	130	I	55
A-121	Fwd Axle R/H JB Front Trk Vert.	HDC	130	I	55
A-122	Mid Car R/H Vertical	HDC	130	I	55
A-123	Aft Car C/L Lateral	HDC	130	I	55
A-124	Fwd Car C/L Longitudinal	HDC	130	I	55
A-125	Fwd Car C/L Vertical	HDC	130	I	55
A-126	Mid Car C/L Vertical	HDC	130	I	55
A-127	Aft Car C/L Vertical	HDC	130	I	55
A-128	Fwd Axle R/H JB Front Trk Lat.	Train	105	I	20
A-129	Fwd Axle R/H JB Front Trk Vert.	Train	105	I	20
A-130	Mid Car R/H Vertical	Train	105	I	20
A-131	Aft Car C/L Lateral	Train	105	I	20
A-132	Fwd Car C/L Longitudinal	Train	105	I	20
A-133	Fwd Car C/L Vertical	Train	105	I	20
A-134	Mid Car C/L Vertical	Train	105	I	20
A-135	Aft Car C/L Vertical	Train	105	I	20
A-136	Fwd Axle R/H JB Front Trk Lat.	Train	105	I	35
A-137	Fwd Axle R/H JB Front Trk Vert.	Train	105	I	35
A-138	Mid Car R/H Vertical	Train	105	I	35
A-139	Aft Car C/L Lateral	Train	105	I	35
A-140	Fwd Car C/L Longitudinal	Train	105	I	35
A-141	Fwd Car C/L Vertical	Train	105	I	35
A-142	Mid Car C/L Vertical	Train	105	I	35
A-143	Aft Car C/L Vertical	Train	105	I	35
A-144	Fwd Axle R/H JB Front Trk Lat.	Train	105	I	45
A-145	Fwd Axle R/H JB Front Trk Vert.	Train	105	I	45
A-146	Mid Car R/H Vertical	Train	105	I	45
A-147	Aft Car C/L Lateral	Train	105	I	45
A-148	Fwd Car C/L Longitudinal	Train	105	I	45
A-149	Fwd Car C/L Vertical	Train	105	I	45
A-150	Mid Car C/L Vertical	Train	105	I	45
A-151	Aft Car C/L Vertical	Train	105	I	45

TABLE A-1. Continued

Figure No.	Pickup Location	Train Consist	Car Weight (1000 LB)	Track Section	Speed (MPH)
A-152	Fwd Axle R/H JB Front Trk Lat.	Train	105	I	55
A-153	Fwd Axle R/H JB Front Trk Vert.	Train	105	I	55
A-154	Mid Car R/H Vertical	Train	105	I	55
A-155	Aft Car C/L Lateral	Train	105	I	55
A-156	Fwd Car C/L Longitudinal	Train	105	I	55
A-157	Fwd Car C/L Vertical	Train	105	I	55
A-158	Mid Car C/L Vertical	Train	105	I	55
A-159	Aft Car C/L Vertical	Train	105	I	55
A-160	Fwd Axle R/H JB Front Trk Lat.	Train	105	I	80
A-161	Fwd Axle R/H JB Front Trk Vert.	Train	105	I	80
A-162	Mid Car R/H Vertical	Train	105	I	80
A-163	Aft Car C/L Lateral	Train	105	I	80
A-164	Fwd Car C/L Longitudinal	Train	105	I	80
A-165	Fwd Car C/L Vertical	Train	105	I	80
A-166	Mid Car C/L Vertical	Train	105	I	80
A-167	Aft Car C/L Vertical	Train	105	I	80


SOAC REQ 63 REC 1042
FWD RH JB FRONT LAT
RESILIENT WHEELS
SPEED = 20 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

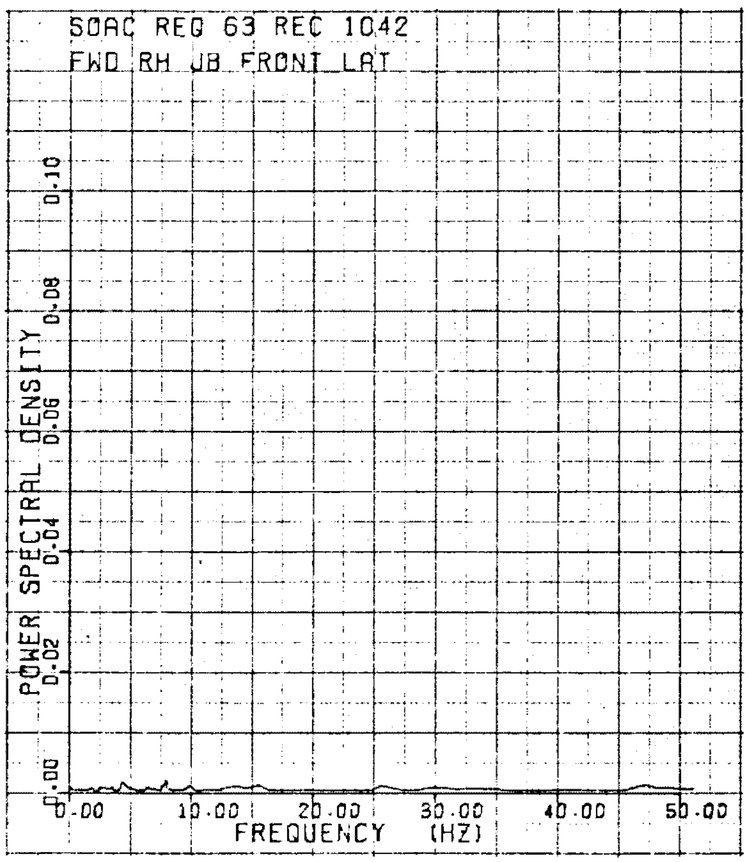
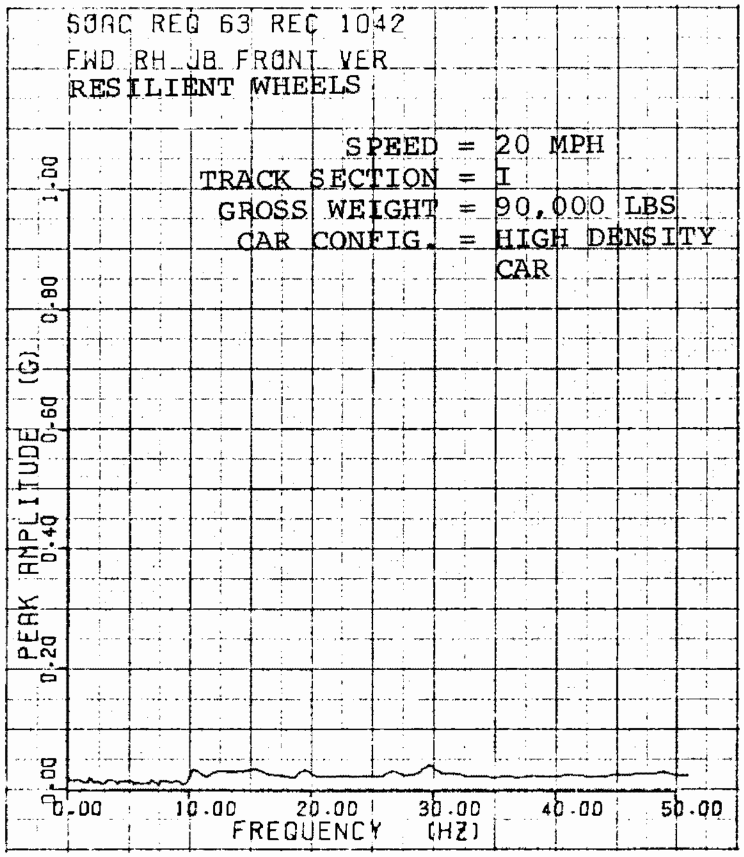

SOAC REQ 63 REC 1042
FWD RH JB FRONT LAT
POWER SPECTRAL DENSITY
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-1


SOAC REQ 63 REC 1042
FWD RH JB FRONT VER
RESILIENT WHEELS
SPEED = 20 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

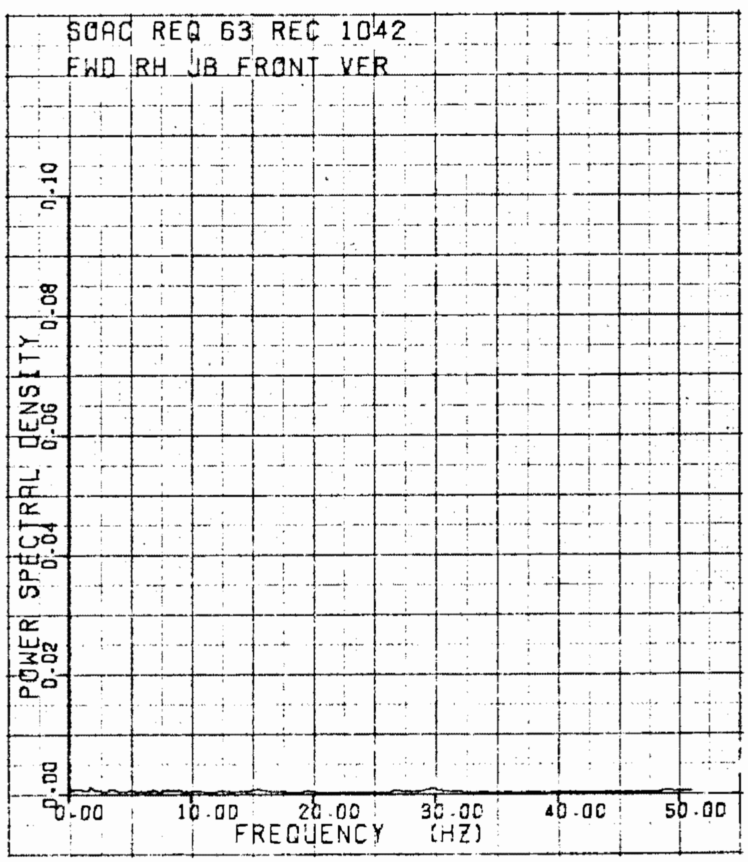
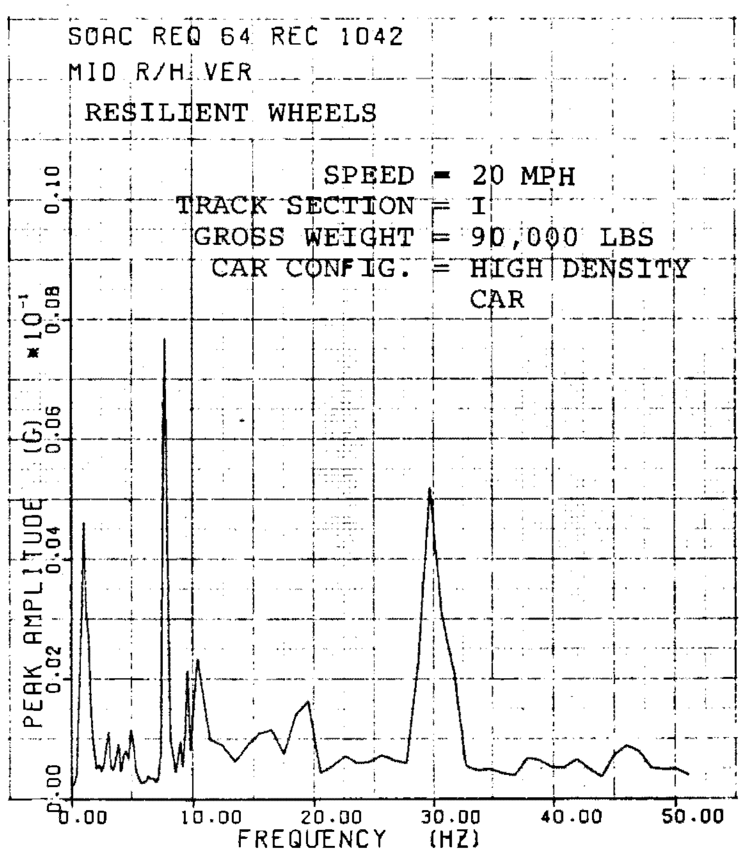

SOAC REQ 63 REC 1042
FWD RH JB FRONT VER
POWER SPECTRAL DENSITY
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-2


SOAC REQ 64 REC 1042
MID R/H VER
RESILIENT WHEELS
SPEED = 20 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

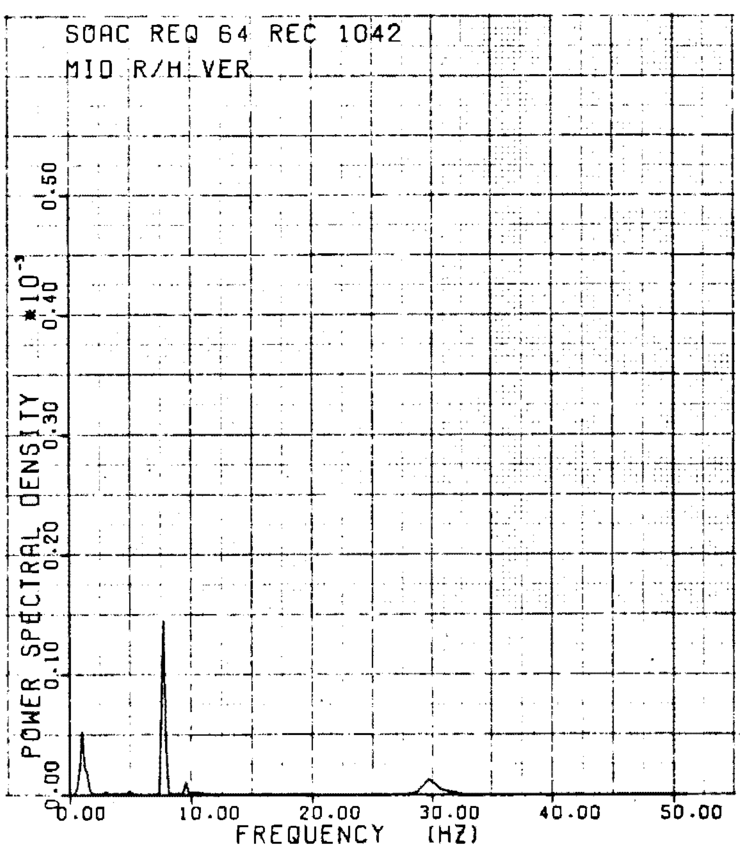
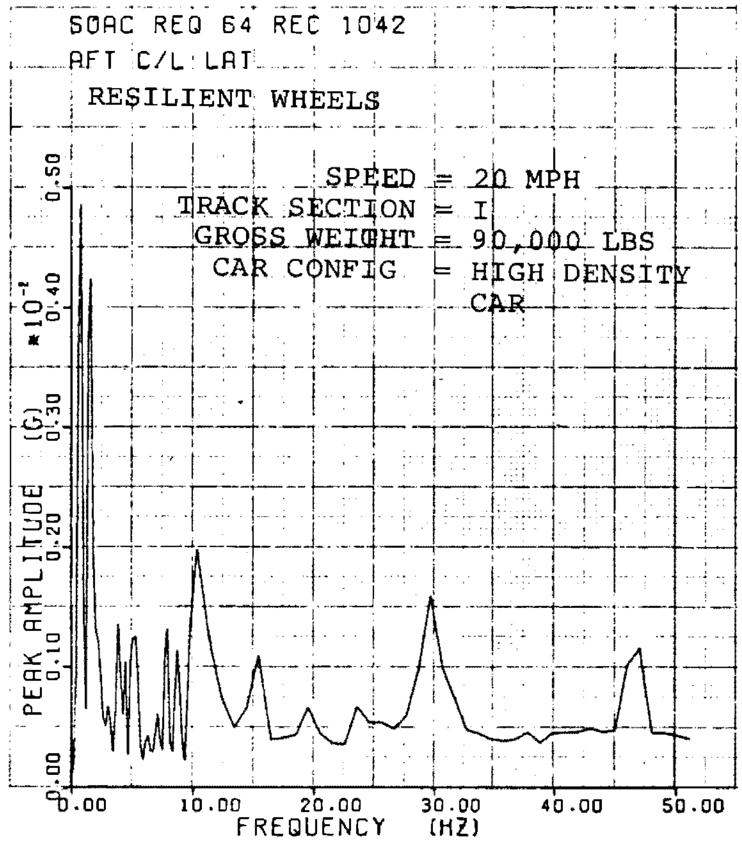

SOAC REQ 64 REC 1042
MID R/H VER
POWER SPECTRAL DENSITY *10⁻³
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-3


SOAC REQ 64 REC 1042
AFT C/L LAT
RESILIENT WHEELS
SPEED = 20 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

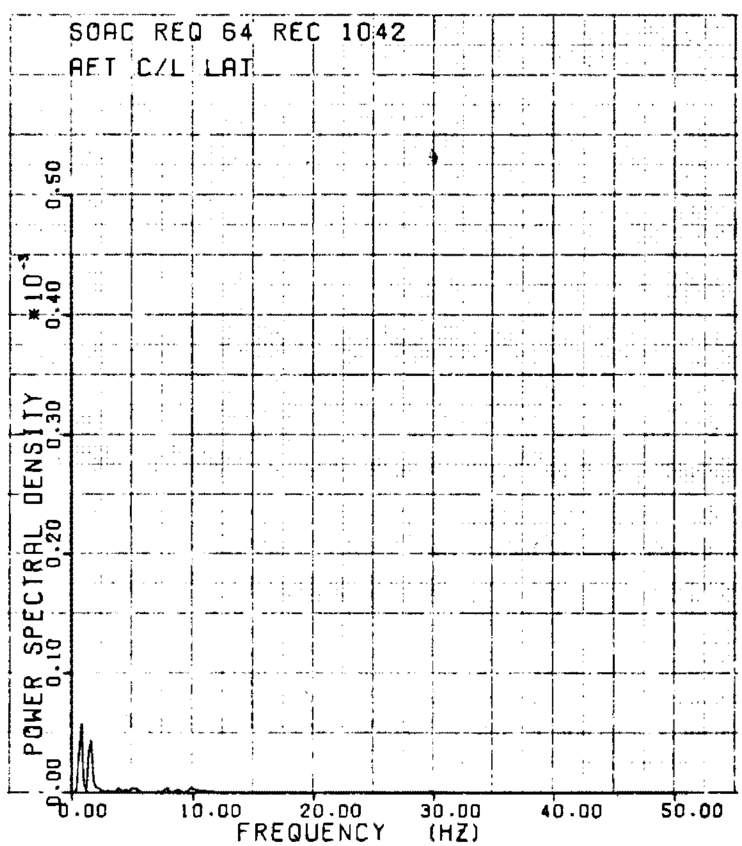
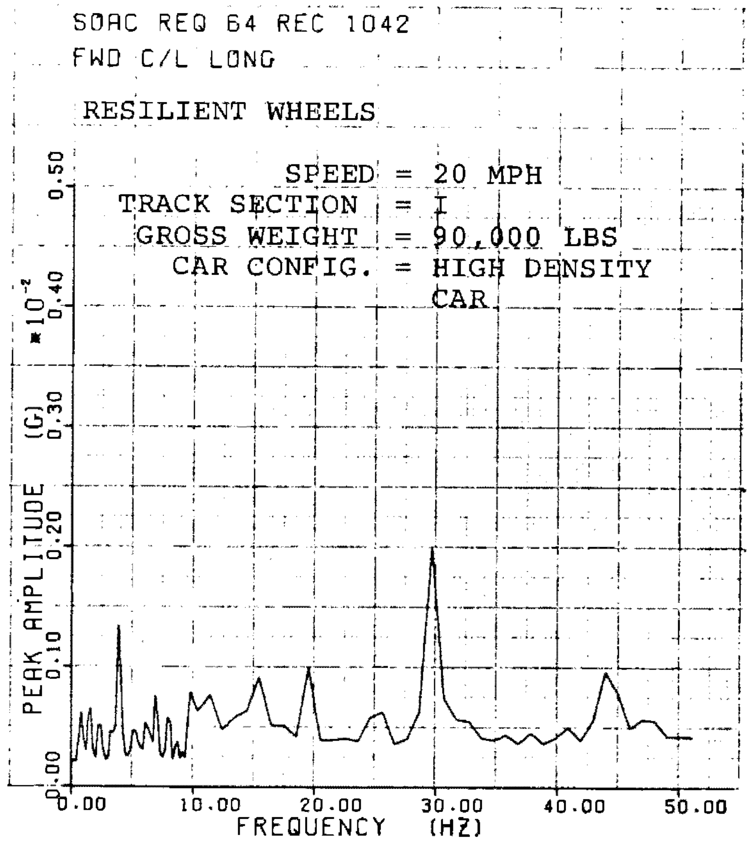
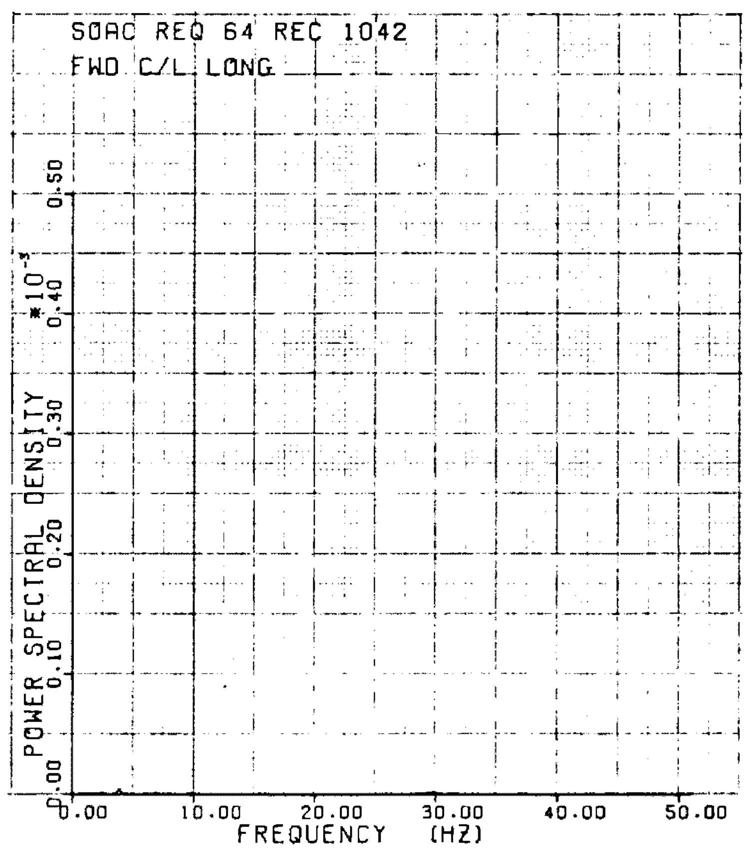

SOAC REQ 64 REC 1042
AFT C/L LAT
POWER SPECTRAL DENSITY *10⁻³
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-4

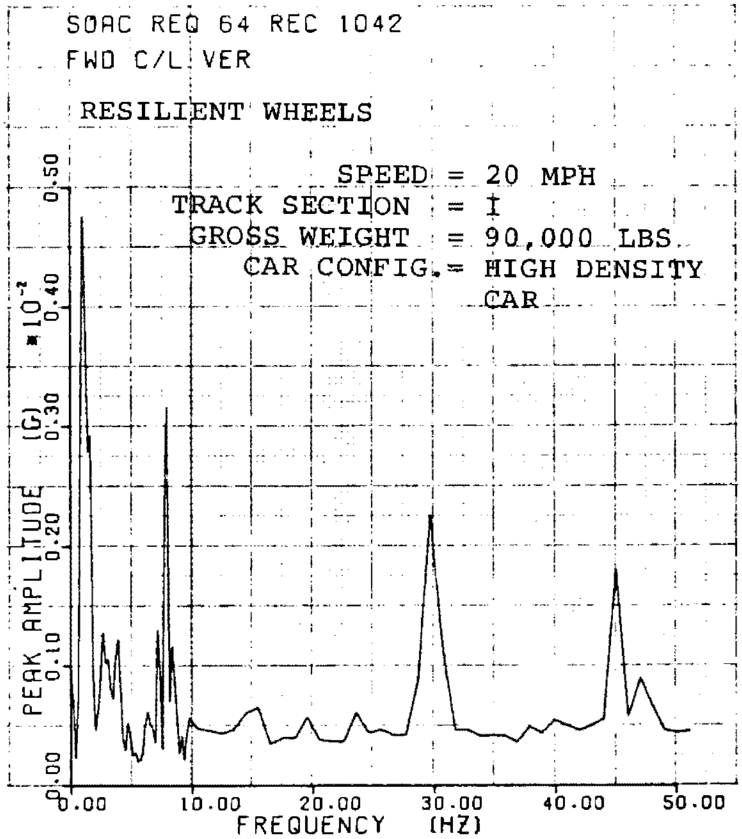


SOAC REQ 64 REC 1042
FWD C/L LONG
RESILIENT WHEELS
SPEED = 20 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 64 REC 1042
FWD C/L LONG
POWER SPECTRAL DENSITY *10⁻³
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-5


SOAC REQ 64 REC 1042
FWD C/L VER
RESILIENT WHEELS
SPEED = 20 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS.
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-2
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

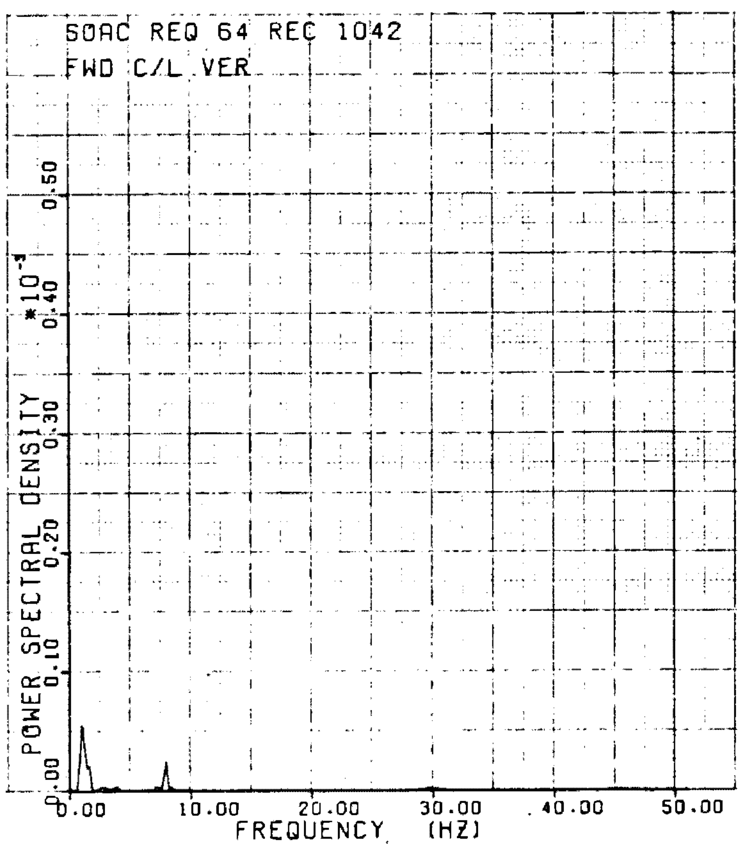
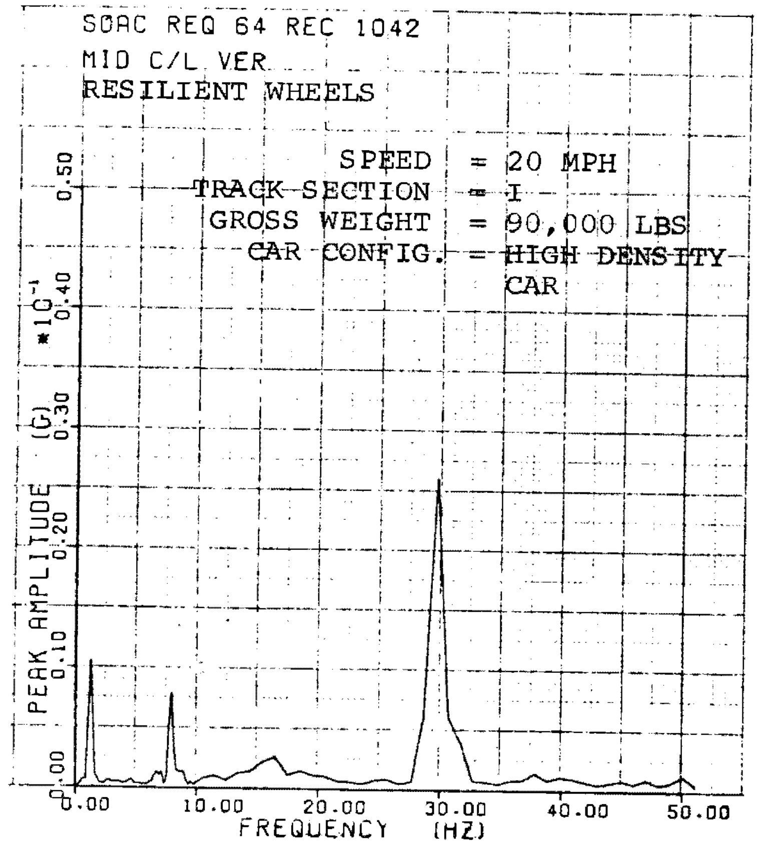

SOAC REQ 64 REC 1042
FWD C/L VER
POWER SPECTRAL DENSITY *10^-3
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-6


SOAC REQ 64 REC 1042
MID C/L VER
RESILIENT WHEELS
SPEED = 20 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

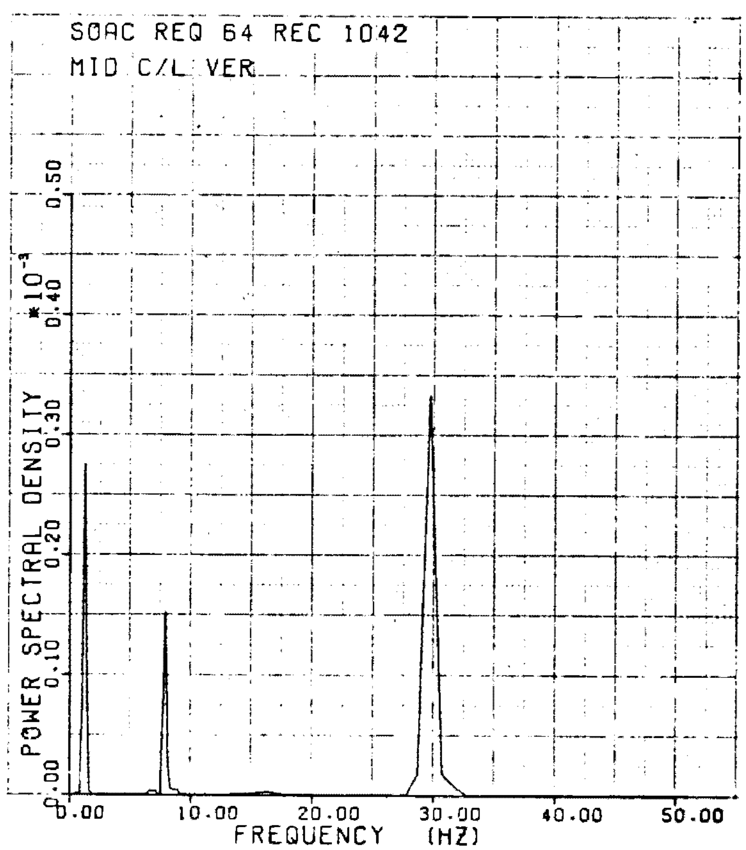
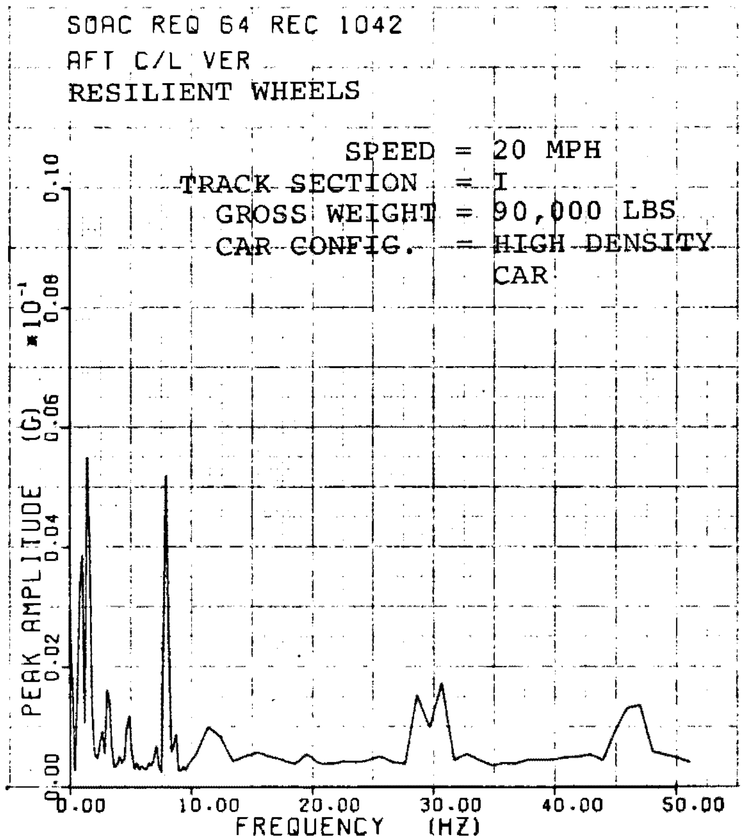

SOAC REQ 64 REC 1042
MID C/L VER
POWER SPECTRAL DENSITY *10⁻³
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-7


SOAC REQ 64 REC 1042
AFT C/L VER
RESILIENT WHEELS
SPEED = 20 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

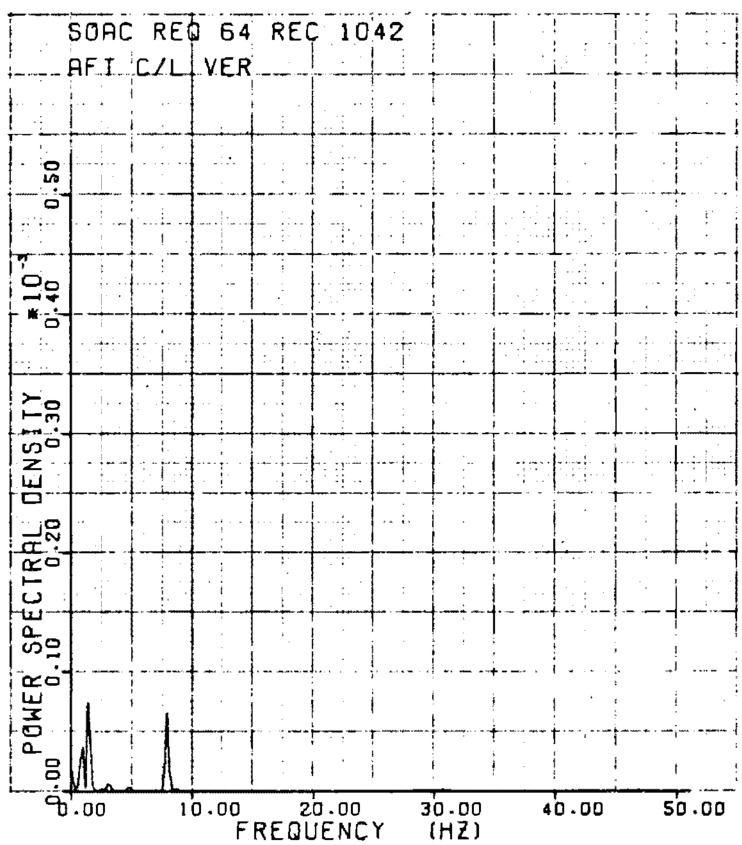
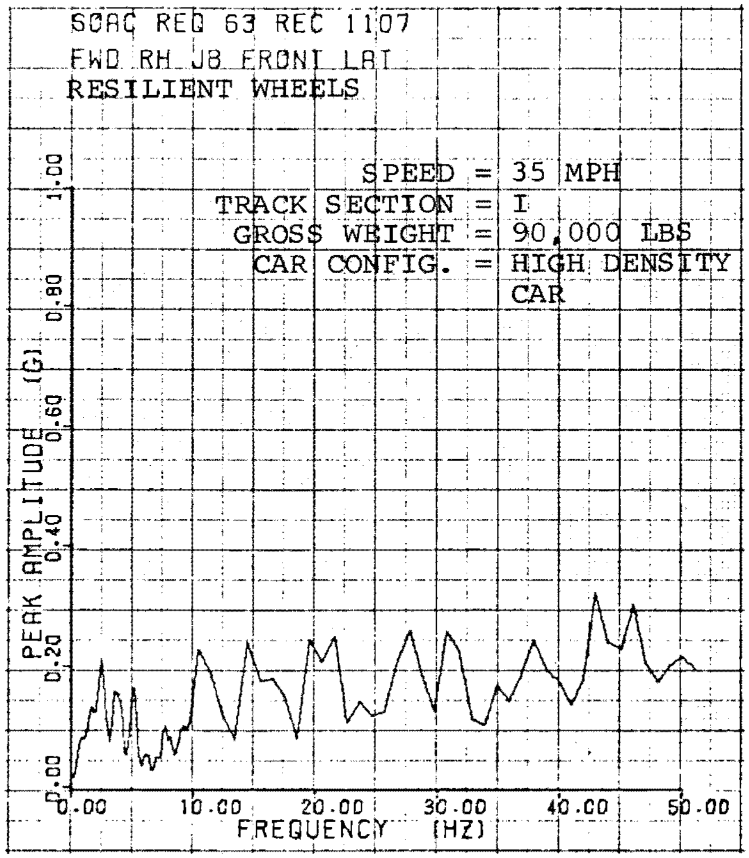
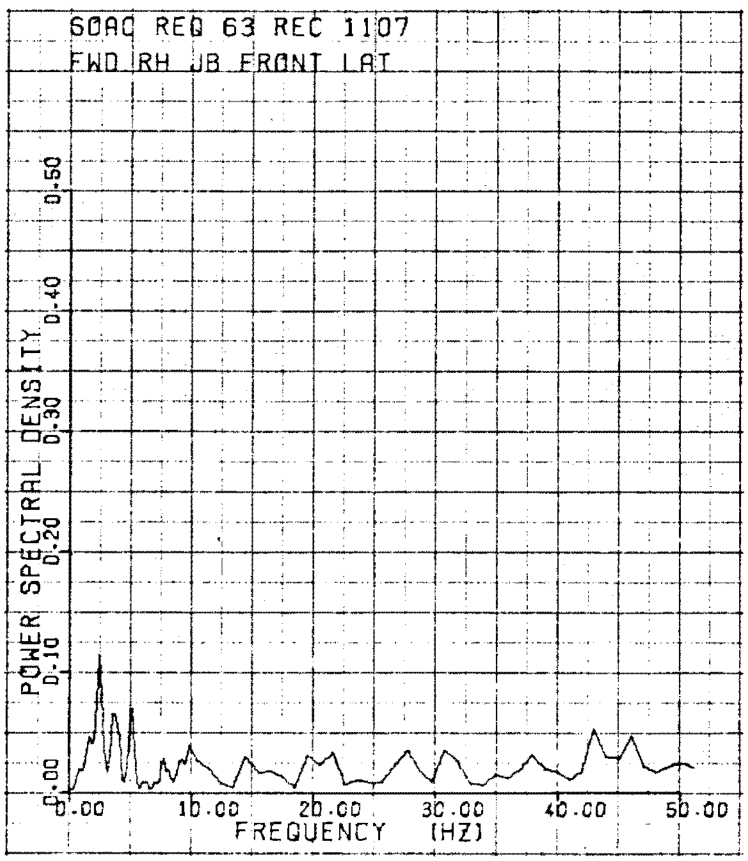

SOAC REQ 64 REC 1042
AFT C/L VER
POWER SPECTRAL DENSITY *10⁻³
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-8

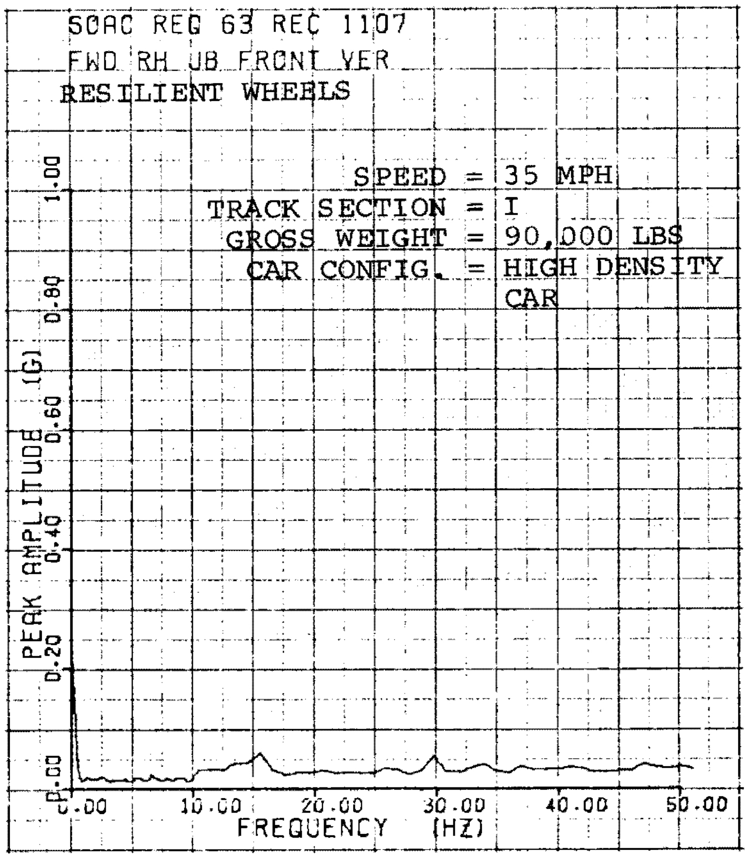


SOAC REQ 63 REC 1107
FWD RH JB FRONT LAT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 63 REC 1107
FWD RH JB FRONT LAT
POWER SPECTRAL DENSITY
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-9


SOAC REQ 63 REC 1107
FWD RH JB FRONT VER
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

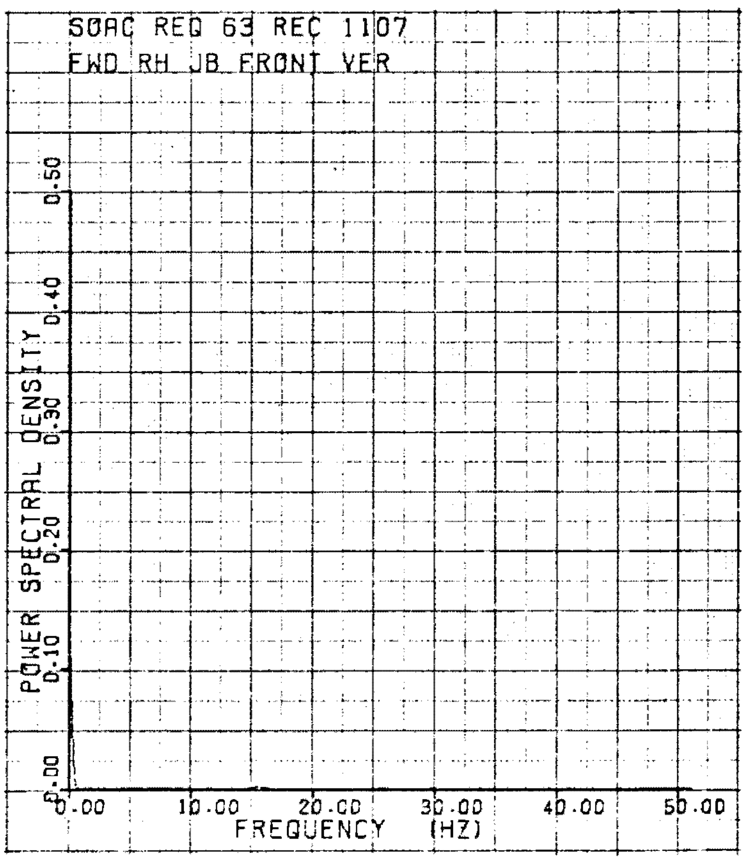
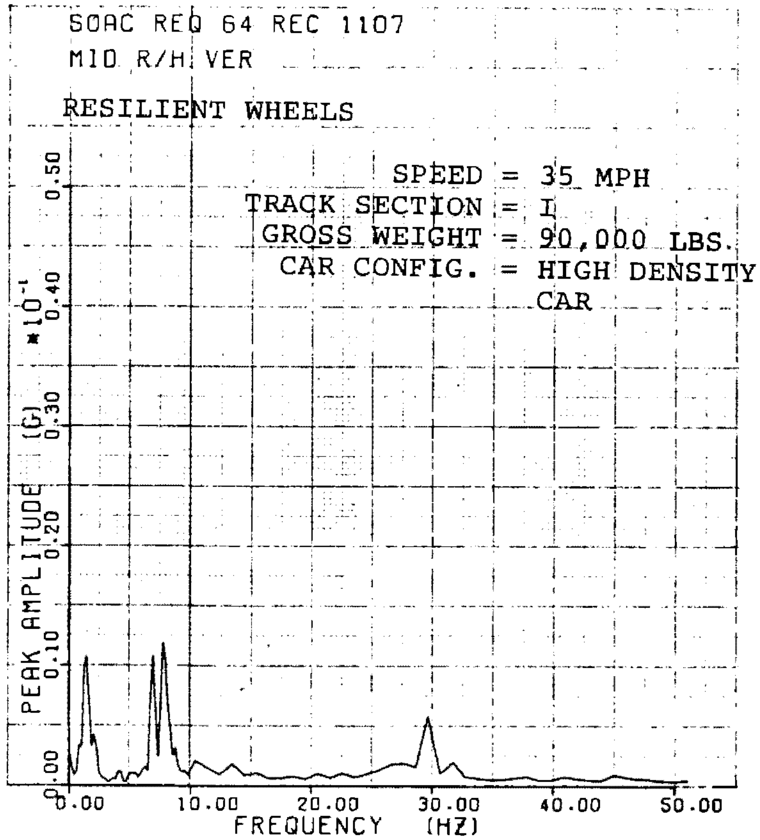

SOAC REQ 63 REC 1107
FWD RH JB FRONT VER
POWER SPECTRAL DENSITY
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-10


SOAC REQ 64 REC 1107
MID R/H VER
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS.
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
FREQUENCY (HZ)

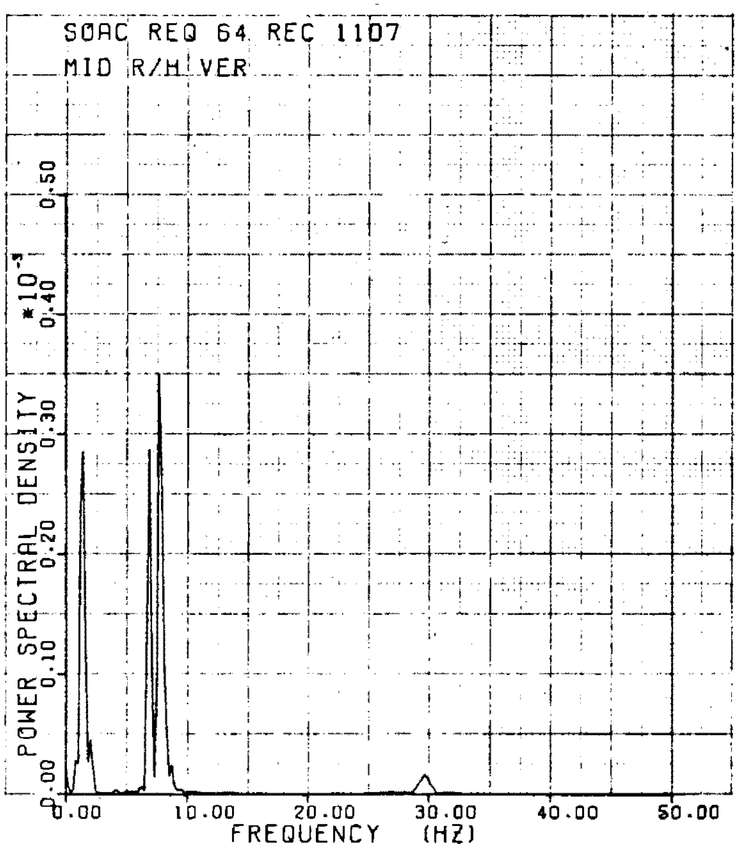
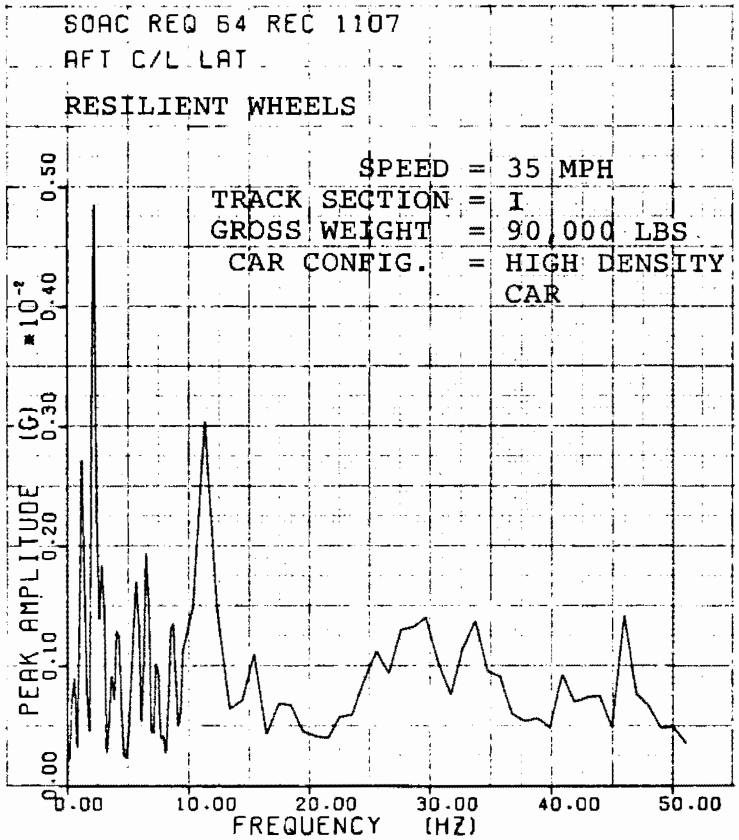

SOAC REQ 64 REC 1107
MID R/H VER
POWER SPECTRAL DENSITY *10⁻³
FREQUENCY (HZ)

Figure A-11


SOAC REQ 64 REC 1107
AFT C/L LAT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-2
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

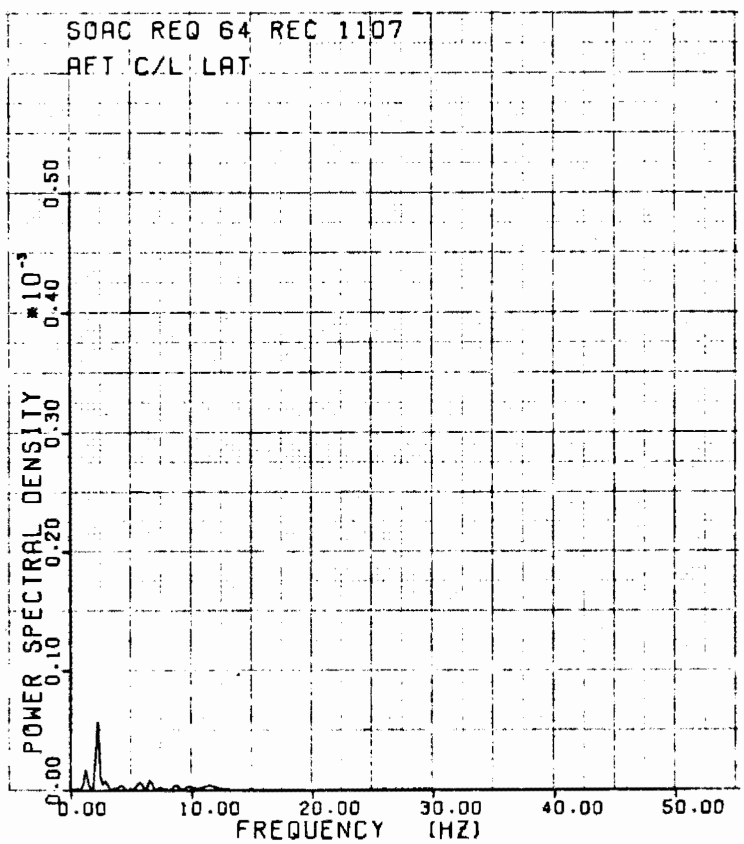
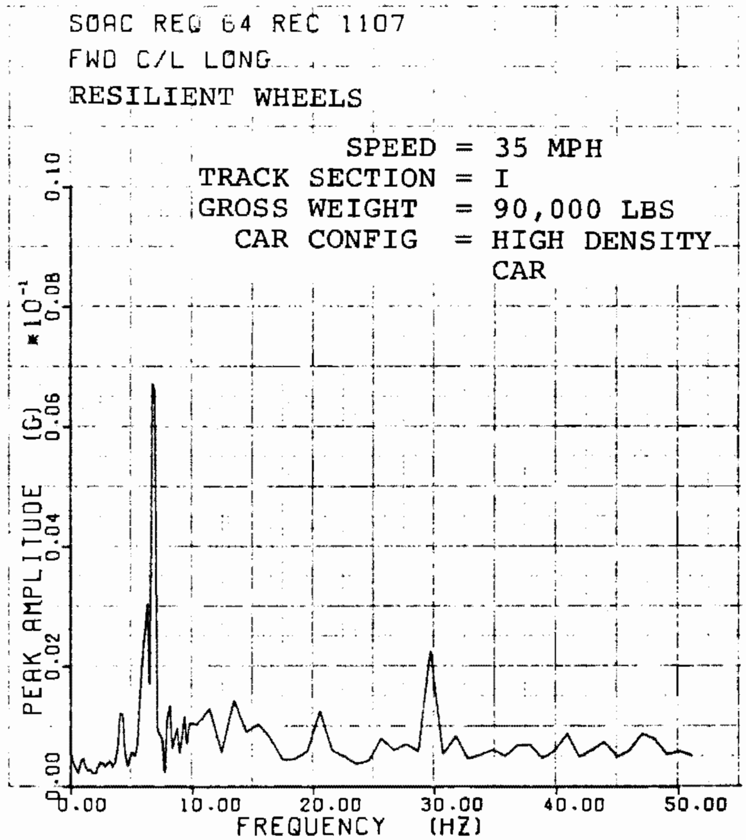

SOAC REQ 64 REC 1107
AFT C/L LAT
POWER SPECTRAL DENSITY *10^-3
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-12


SOAC REQ 64 REC 1107
FWD C/L LONG
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-1
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

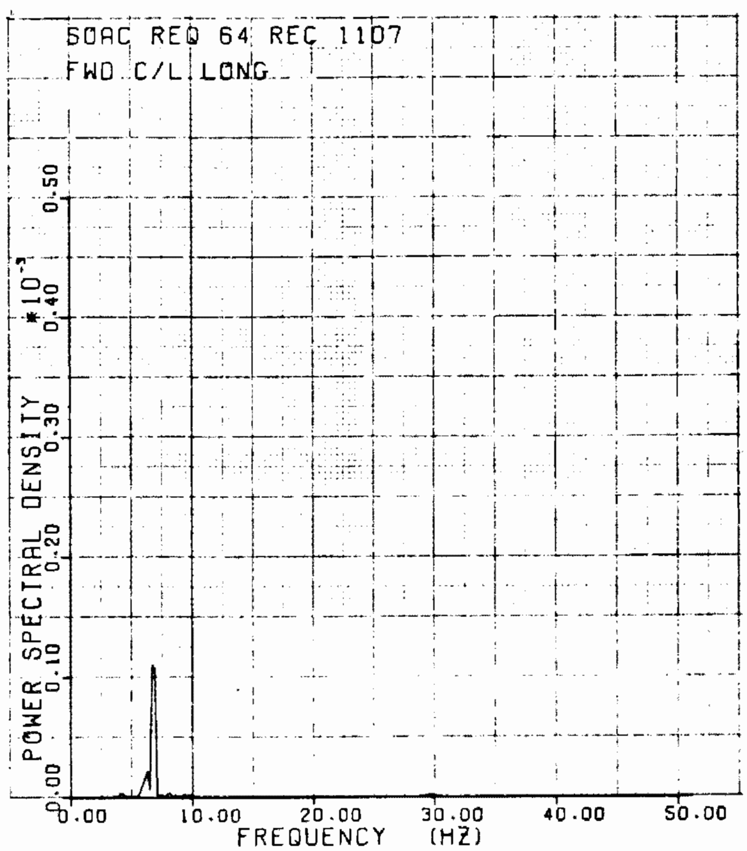
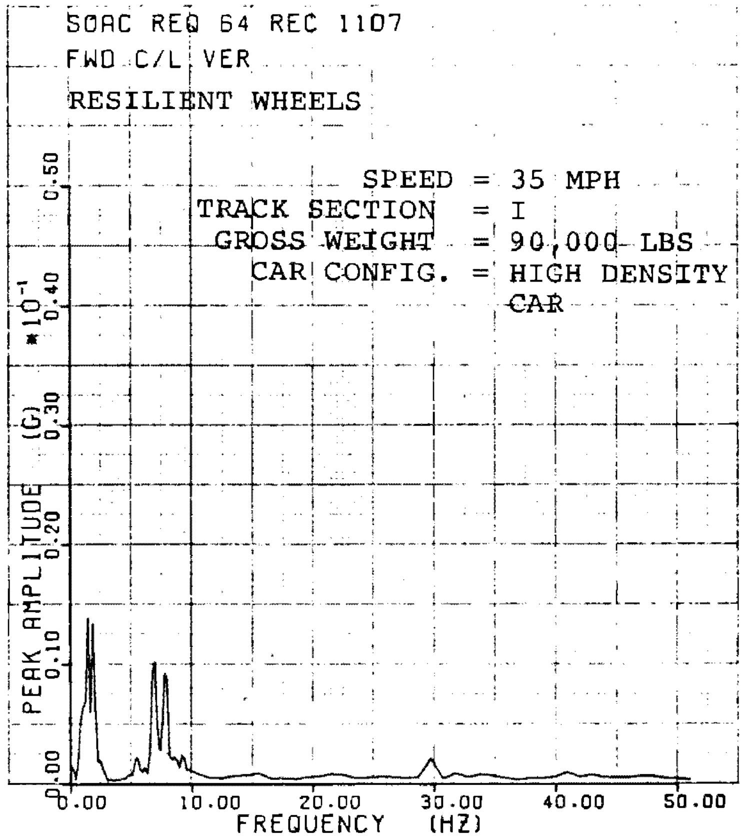

SOAC REQ 64 REC 1107
FWD C/L LONG
POWER SPECTRAL DENSITY *10^-3
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-13


SOAC REQ 64 REC 1107
FWD C/L VER
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

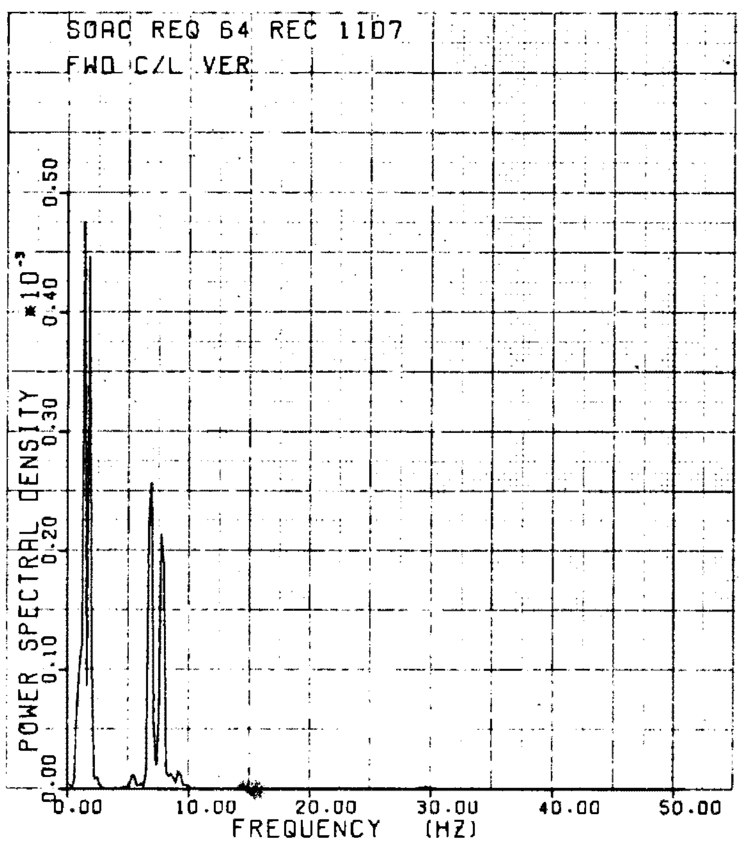
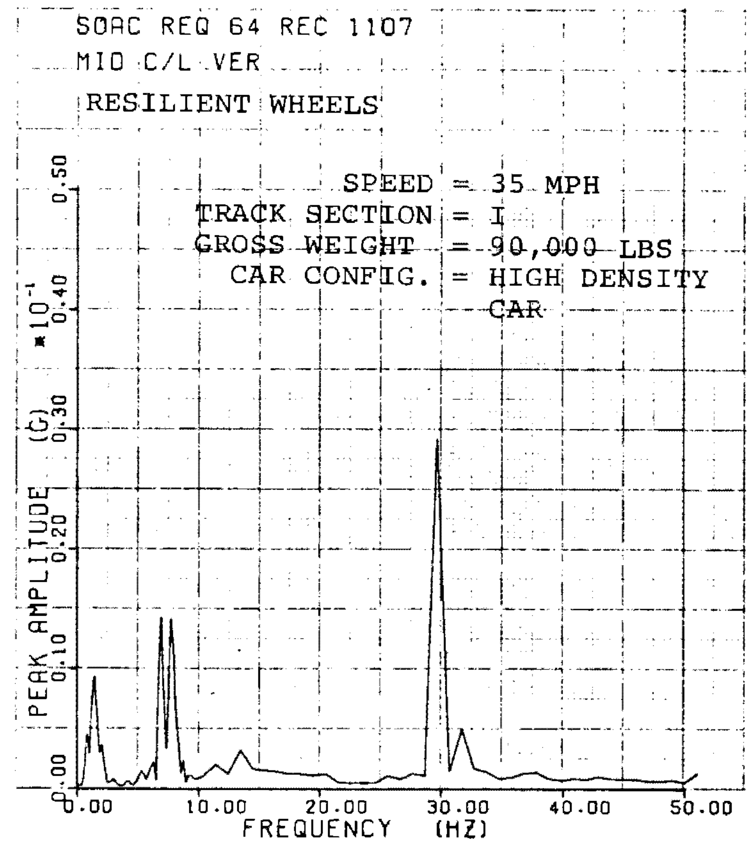
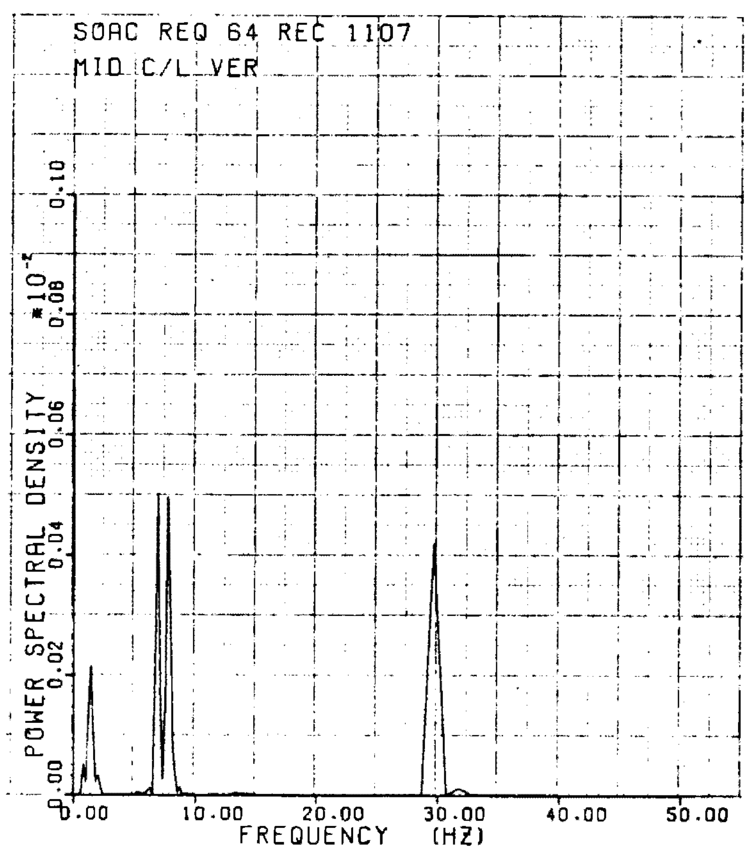

SOAC REQ 64 REC 1107
FWD C/L VER
POWER SPECTRAL DENSITY *10^-3
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-14

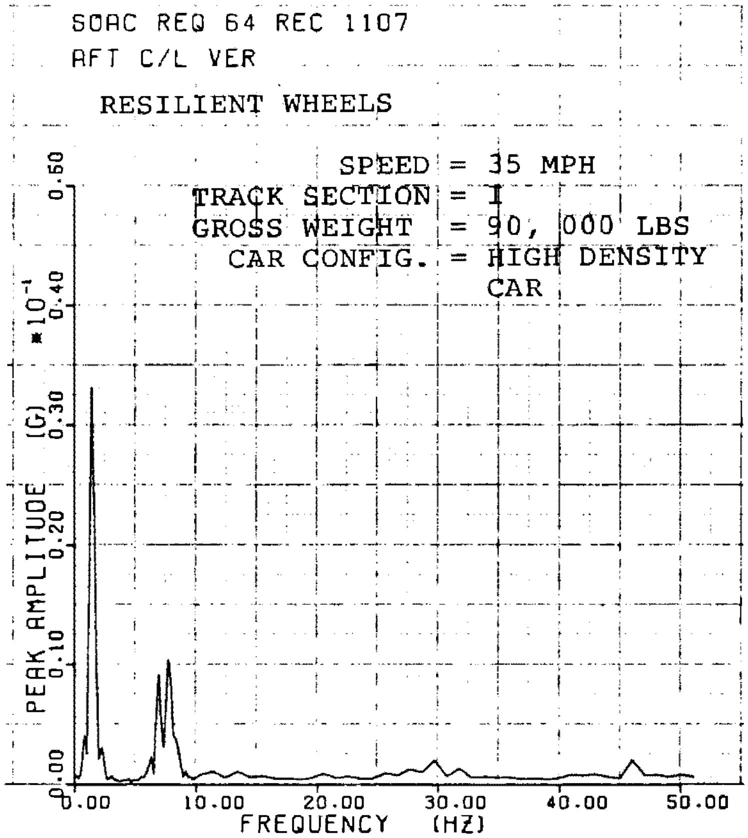


SOAC REQ 64 REC 1107
MID C/L VER
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

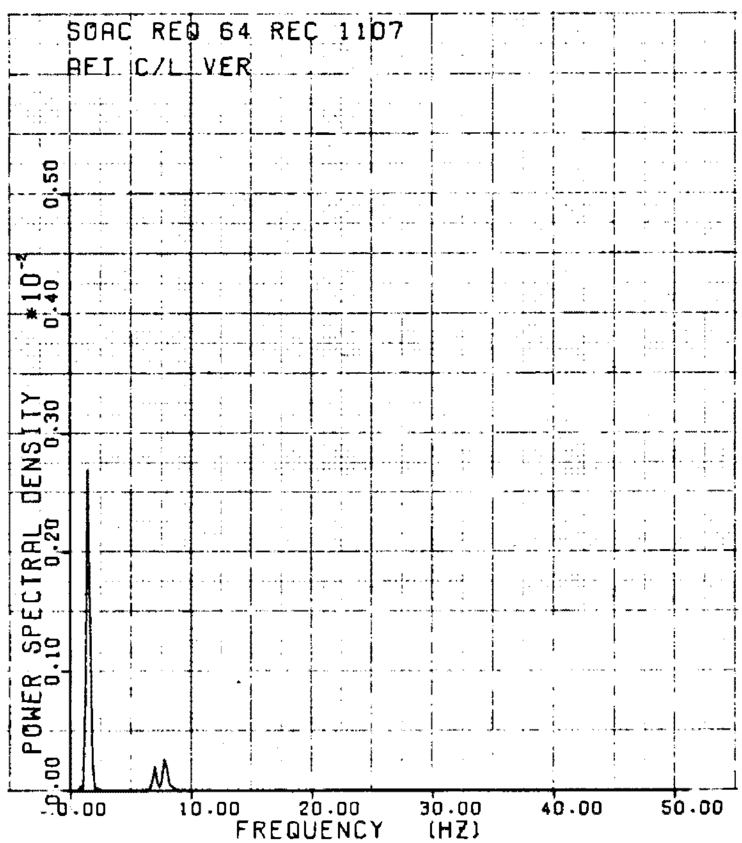


SOAC REQ 64 REC 1107
MID C/L VER
POWER SPECTRAL DENSITY *10^-2
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-15

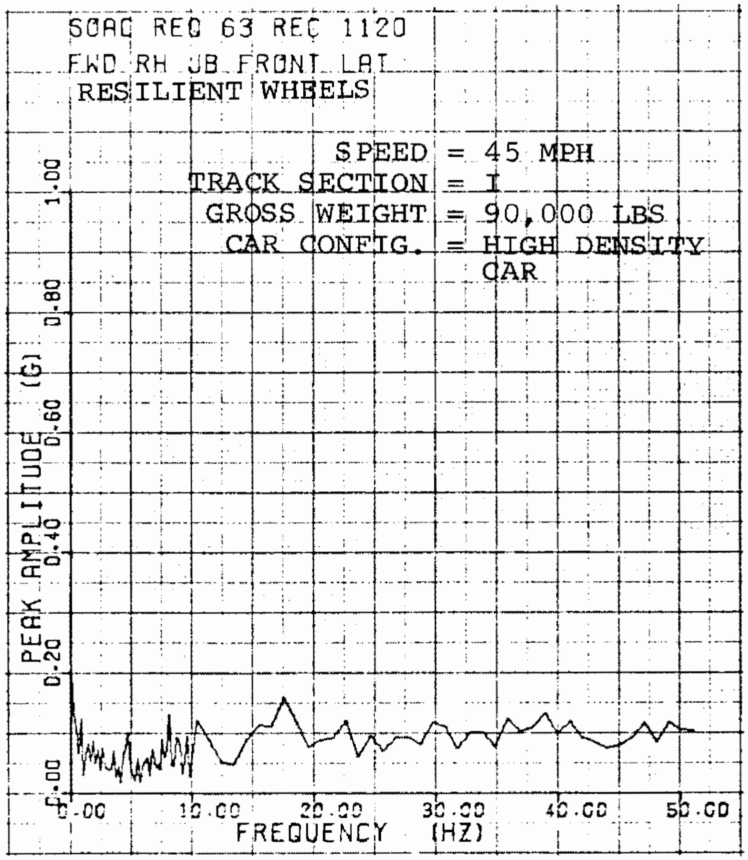


SOAC REQ 64 REC 1107
AFT C/L VER
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 64 REC 1107
AFT C/L VER
POWER SPECTRAL DENSITY *10^-2
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-16


SOAC REQ 63 REC 1120
FWD RH UB FRONT LAT
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

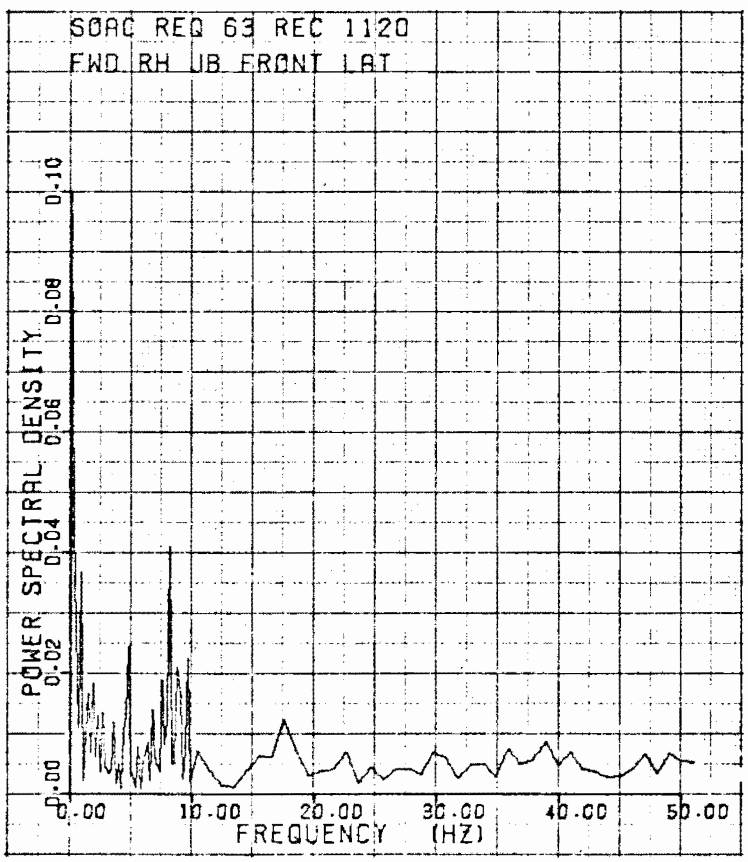
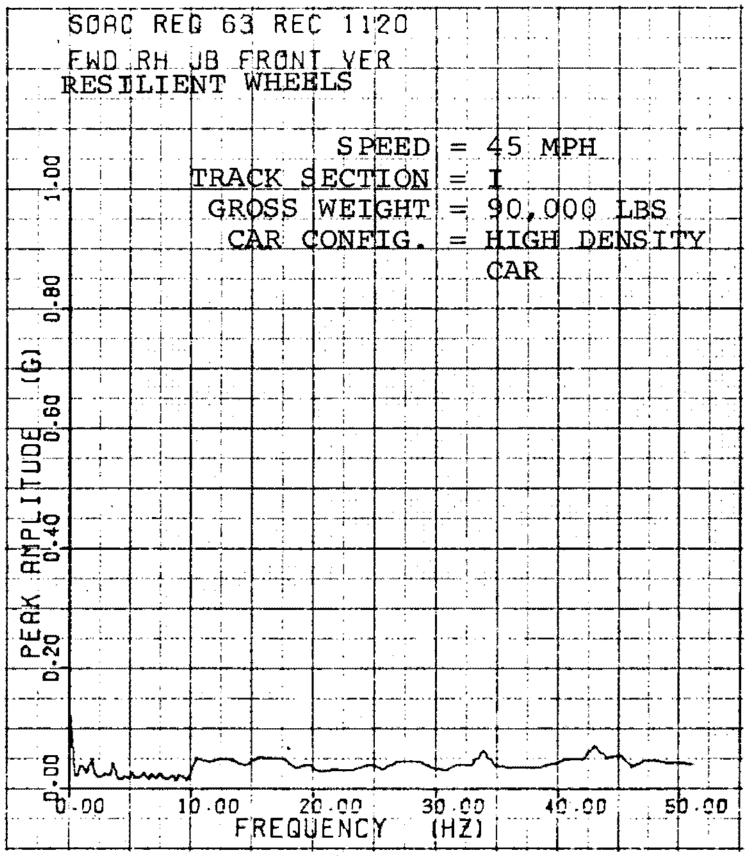

SOAC REQ 63 REC 1120
FWD RH UB FRONT LAT
POWER SPECTRAL DENSITY
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-17


SOAC REQ 63 REC 1120
FWD RH JB FRONT VER
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

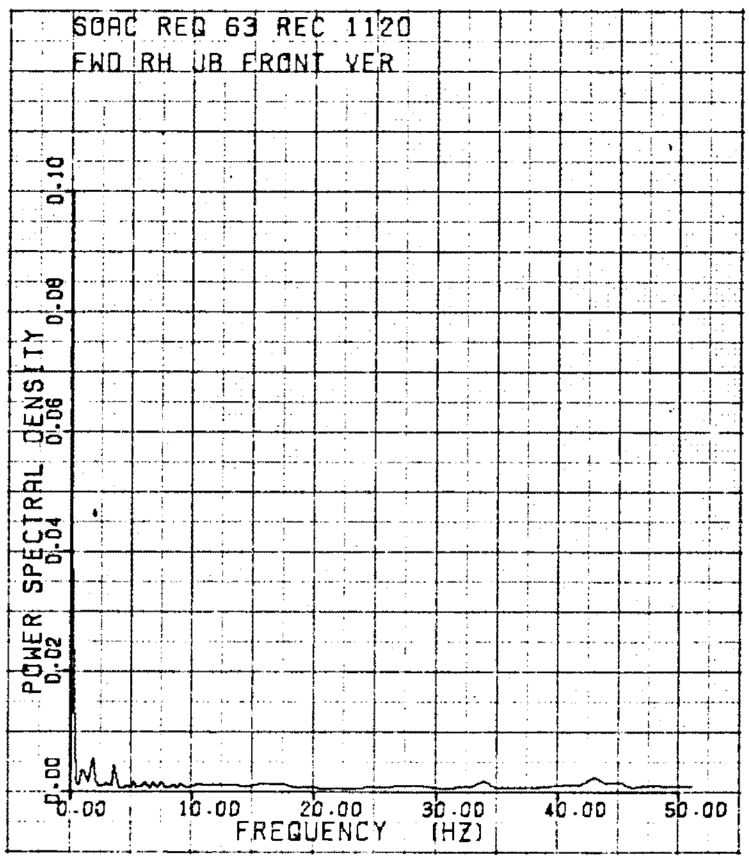
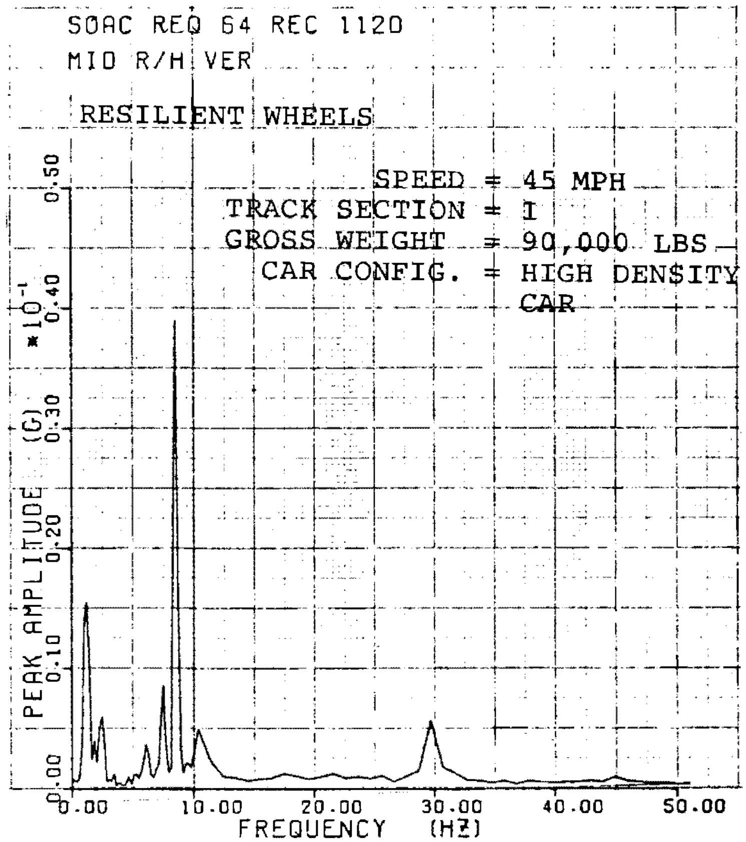
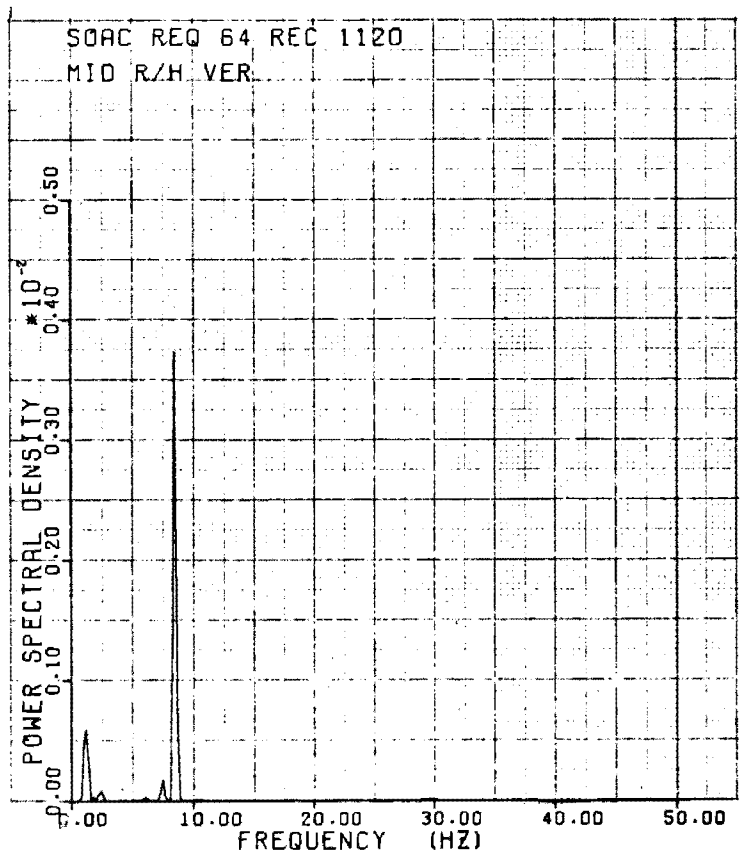

SOAC REQ 63 REC 1120
FWD RH JB FRONT VER
POWER SPECTRAL DENSITY
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-18

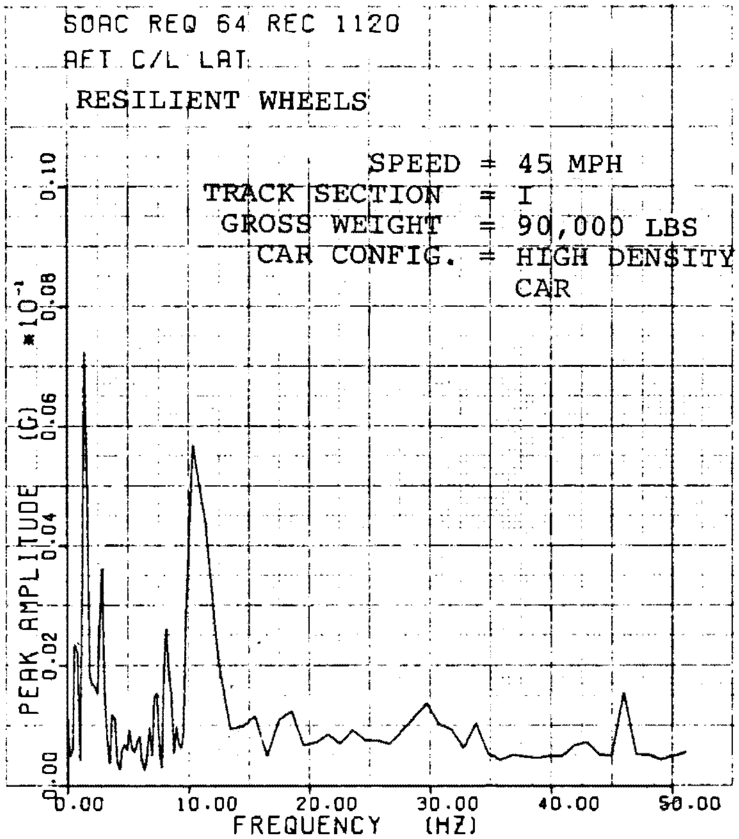


SOAC REQ 64 REC 1120
MID R/H VER
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

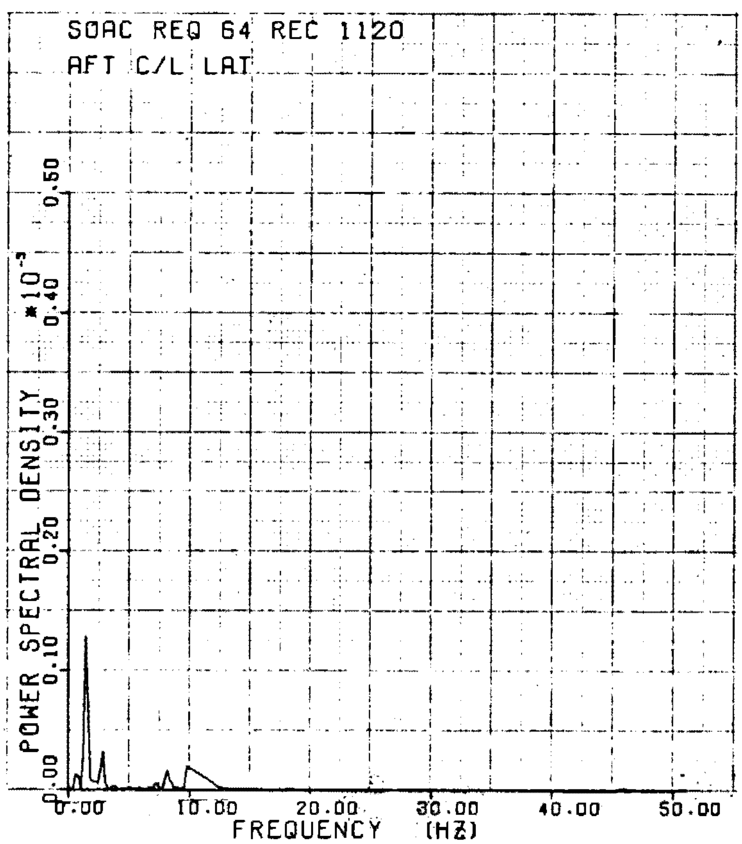


SOAC REQ 64 REC 1120
MID R/H VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-19

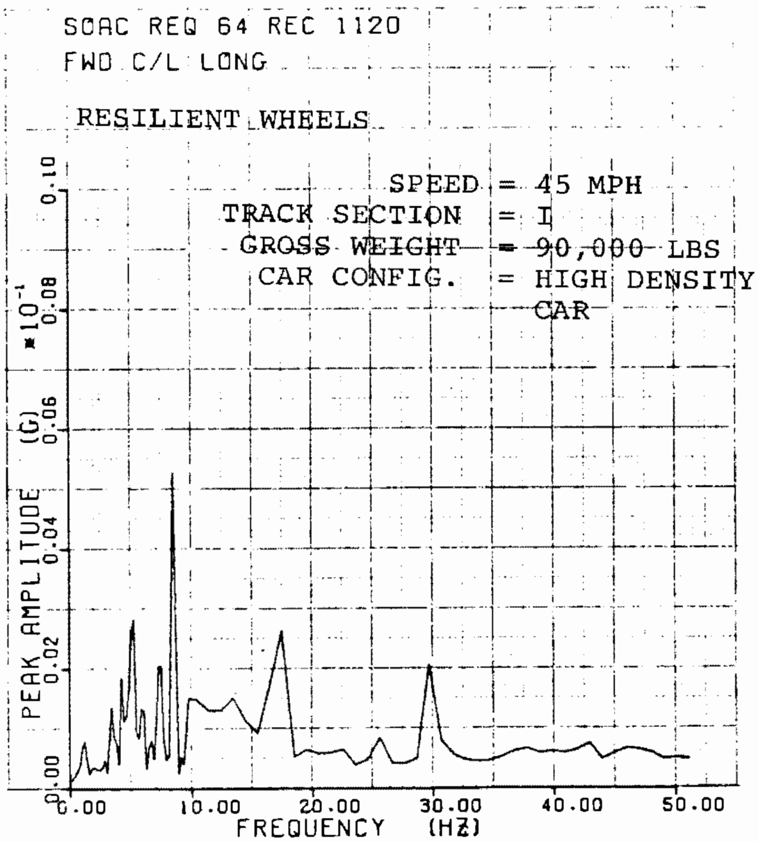


SOAC REQ 64 REC 1120
AFT C/L LAT
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-1
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

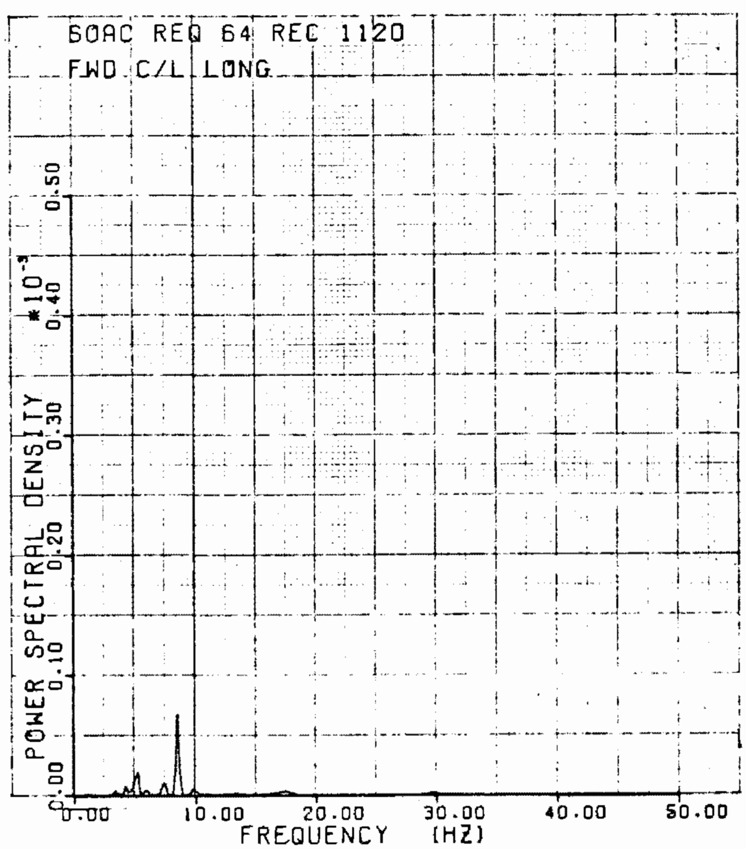


SOAC REQ 64 REC 1120
AFT C/L LAT
POWER SPECTRAL DENSITY *10^-3
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-20

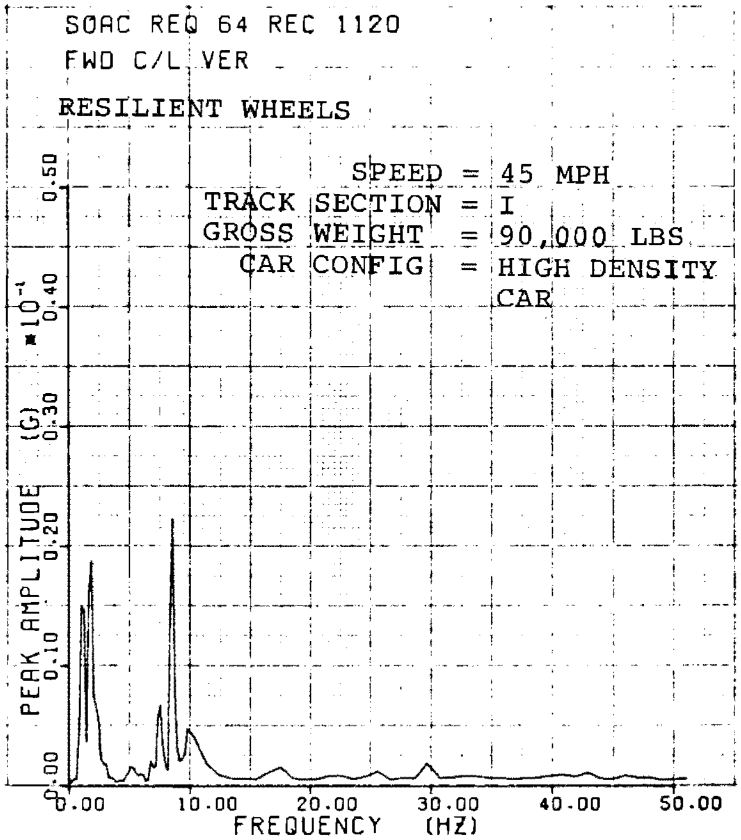


SOAC REQ 64 REC 1120
FWD C/L LONG
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 64 REC 1120
FWD C/L LONG
POWER SPECTRAL DENSITY *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-21


SOAC REQ 64 REC 1120
FWD C/L VER
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

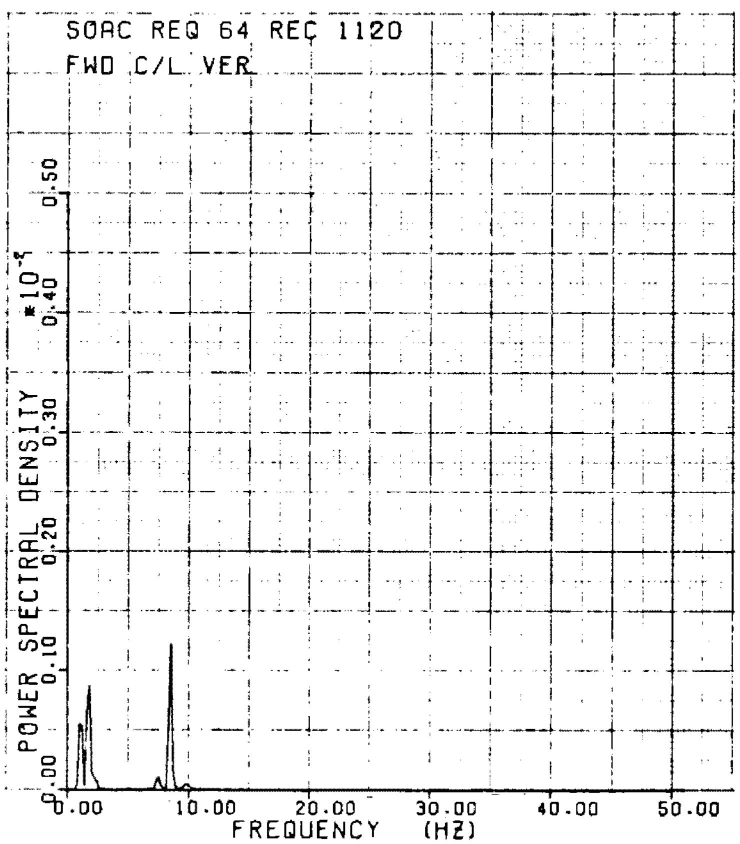
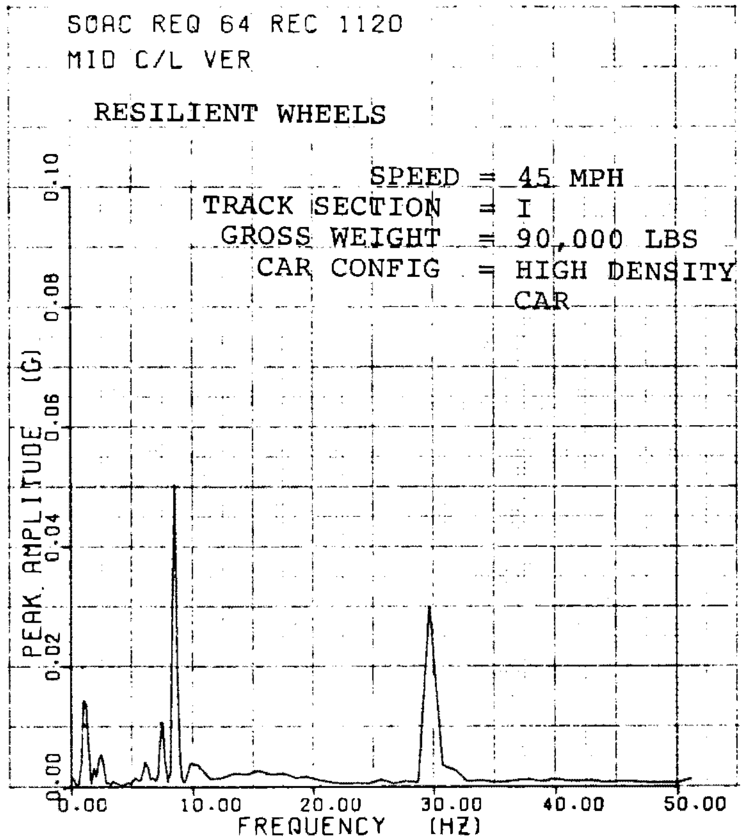
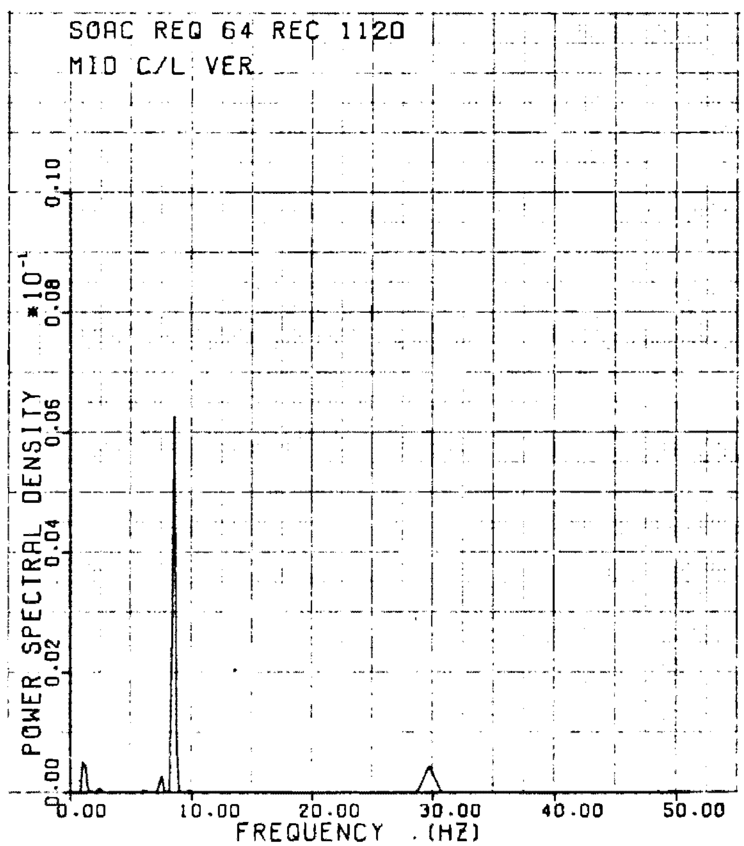

SOAC REQ 64 REC 1120
FWD C/L VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-22

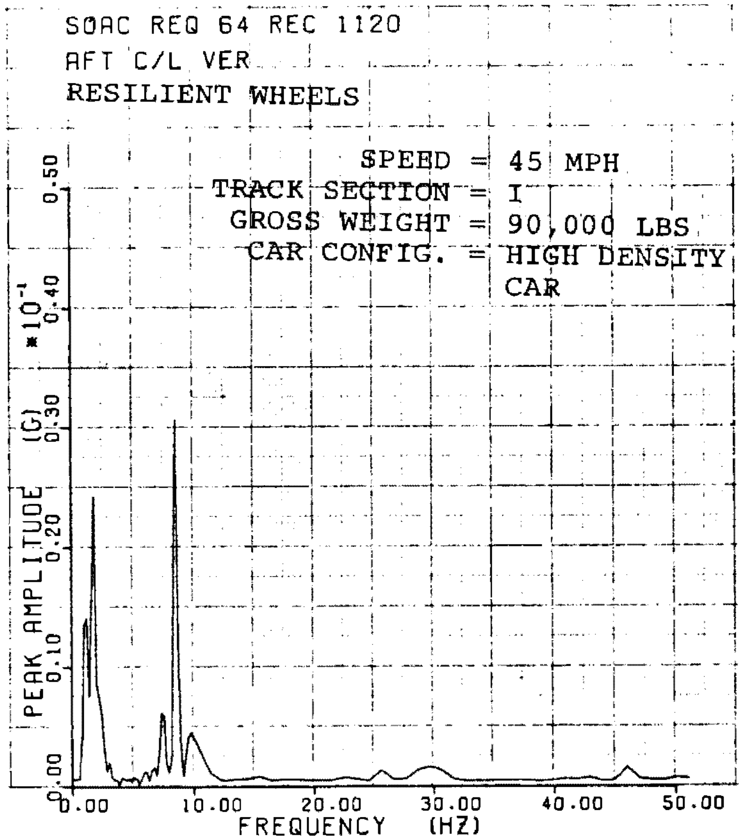


SOAC REQ 64 REC 1120
MID C/L VER
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 64 REC 1120
MID C/L VER
POWER SPECTRAL DENSITY *10^-1
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-23


SOAC REQ 64 REC 1120
AFT C/L VER
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

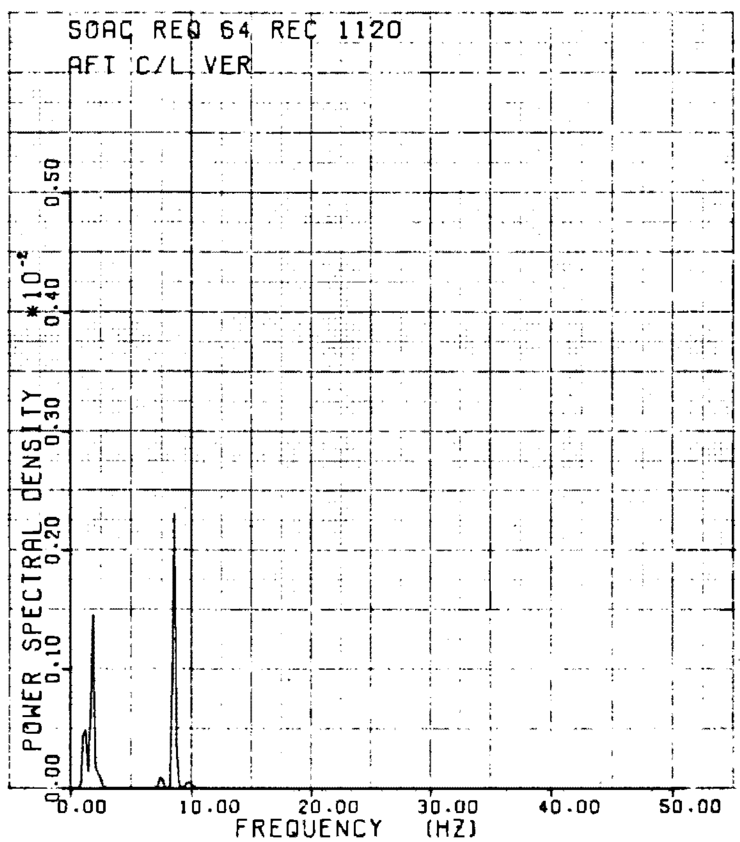
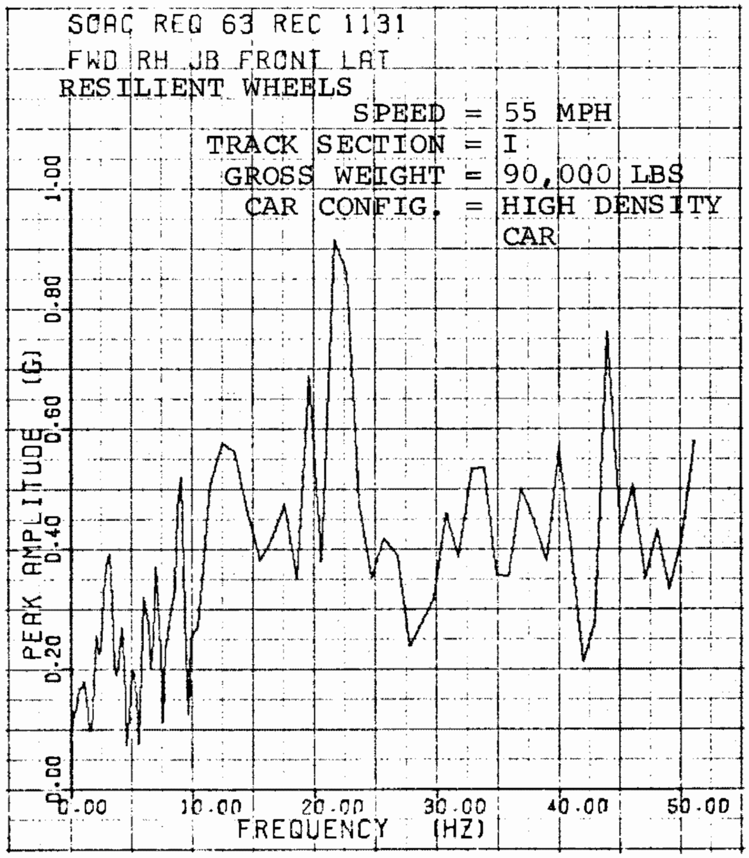

SOAC REQ 64 REC 1120
AFT C/L VER
POWER SPECTRAL DENSITY *10^-2
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-24


SOAC REQ 63 REC 1131
FWD RH JB FRONT LAT
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

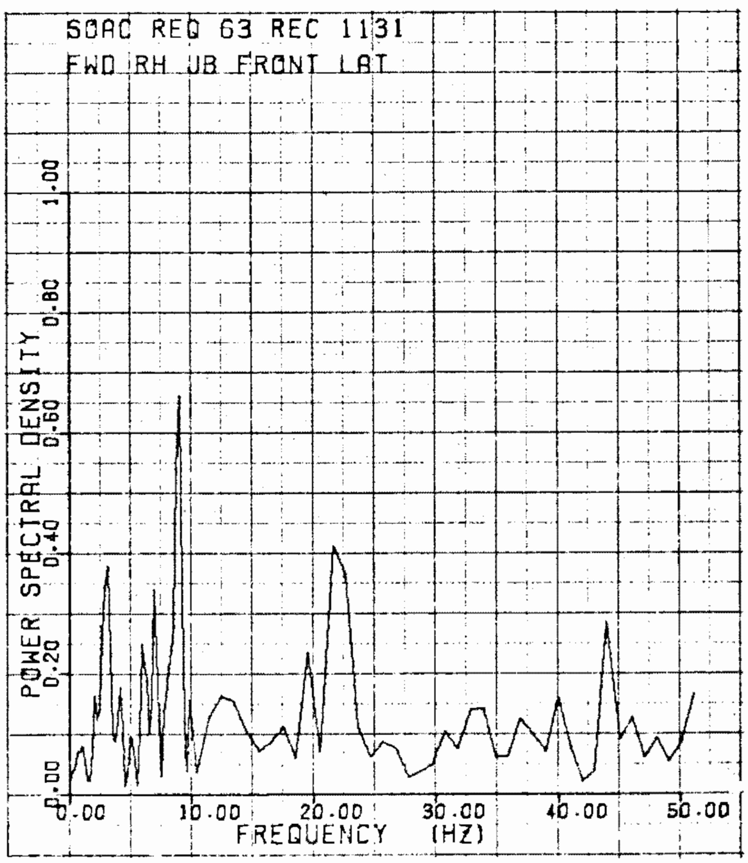
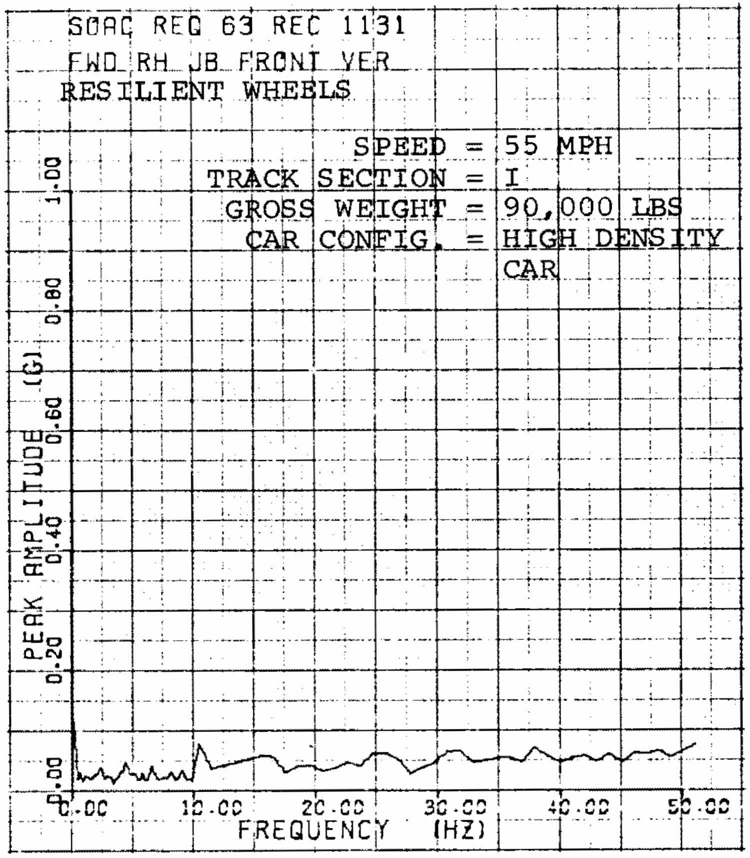

SOAC REQ 63 REC 1131
FWD RH JB FRONT LAT
POWER SPECTRAL DENSITY
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-25


SOAC REQ 63 REC 1131
FWD RH JB FRONT VER
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

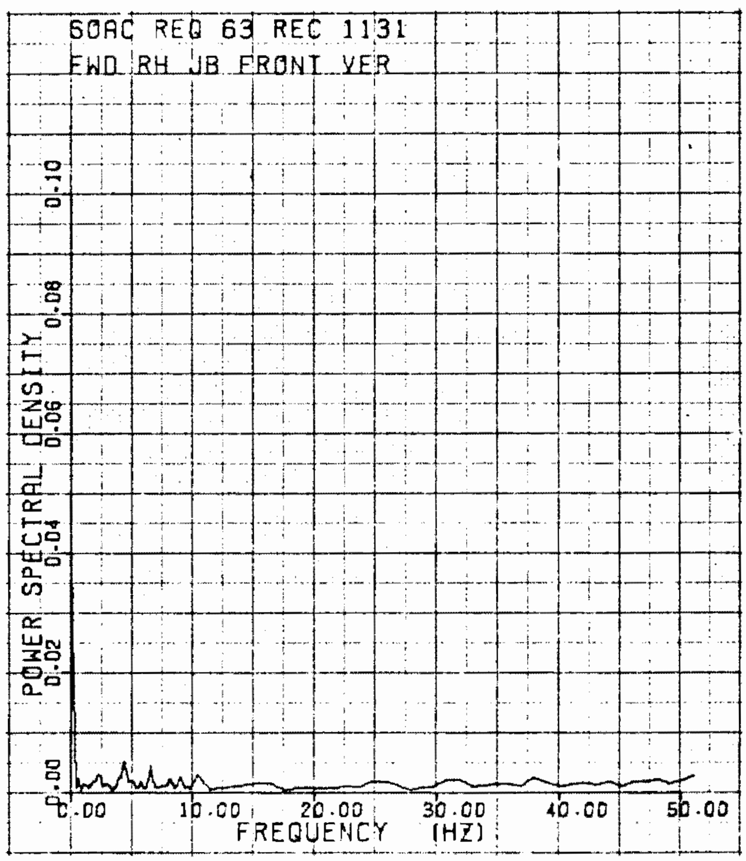
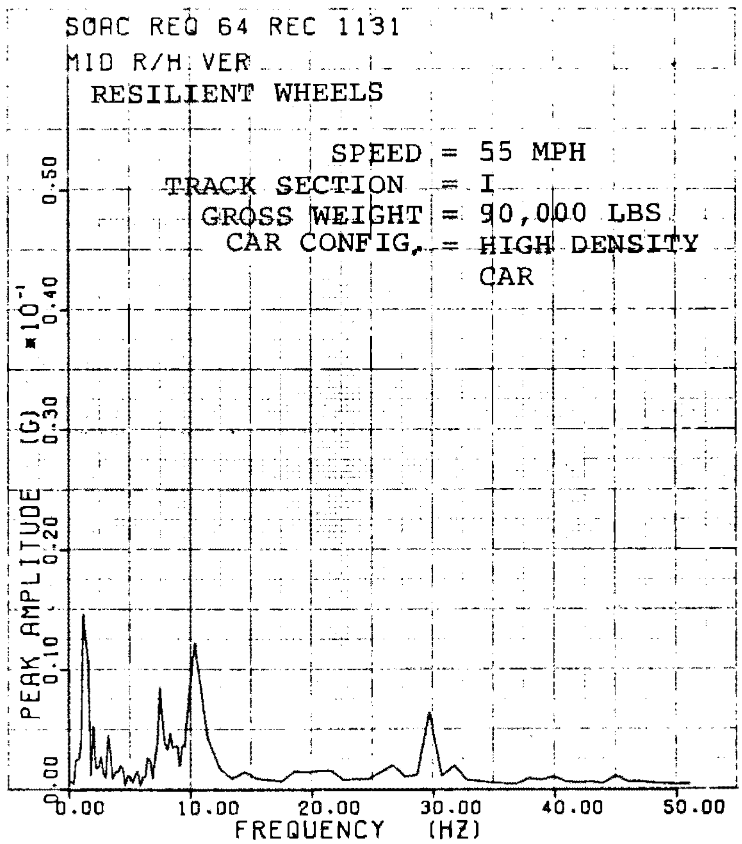

SOAC REQ 63 REC 1131
FWD RH JB FRONT VER
POWER SPECTRAL DENSITY
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-26


SOAC REQ 64 REC 1131
MID R/H VER
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) $*10^{-1}$
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

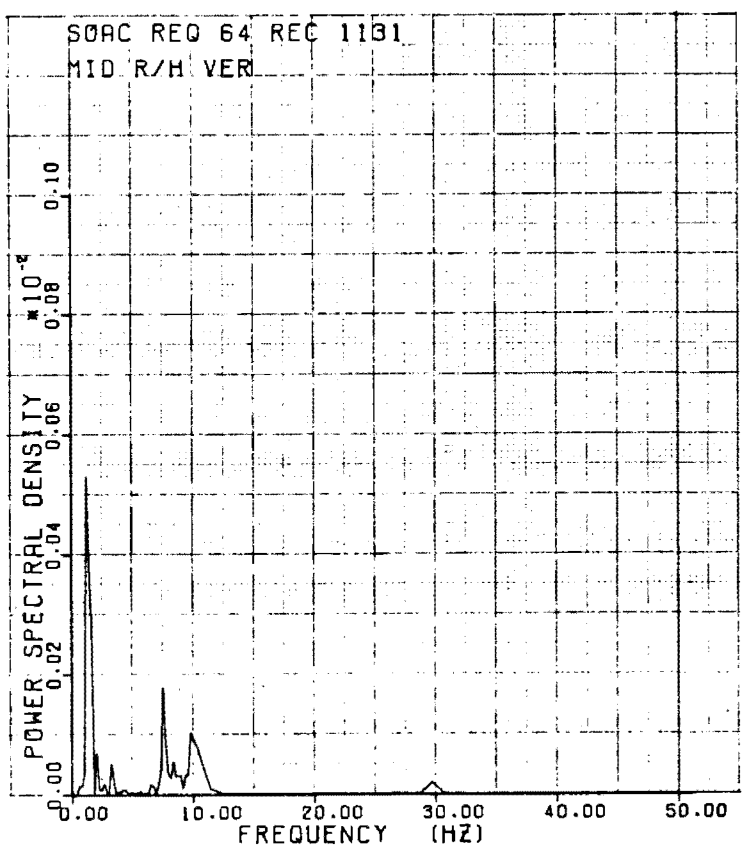
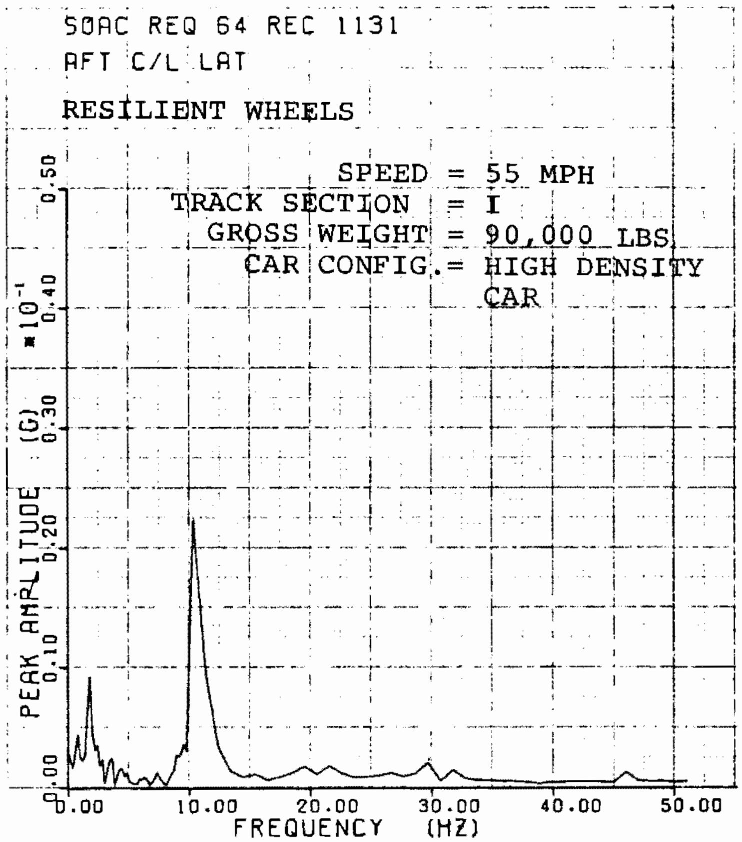

SOAC REQ 64 REC 1131
MID R/H VER
POWER SPECTRAL DENSITY $*10^{-2}$
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-27


SOAC REQ 64 REC 1131
AFT C/L LAT
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

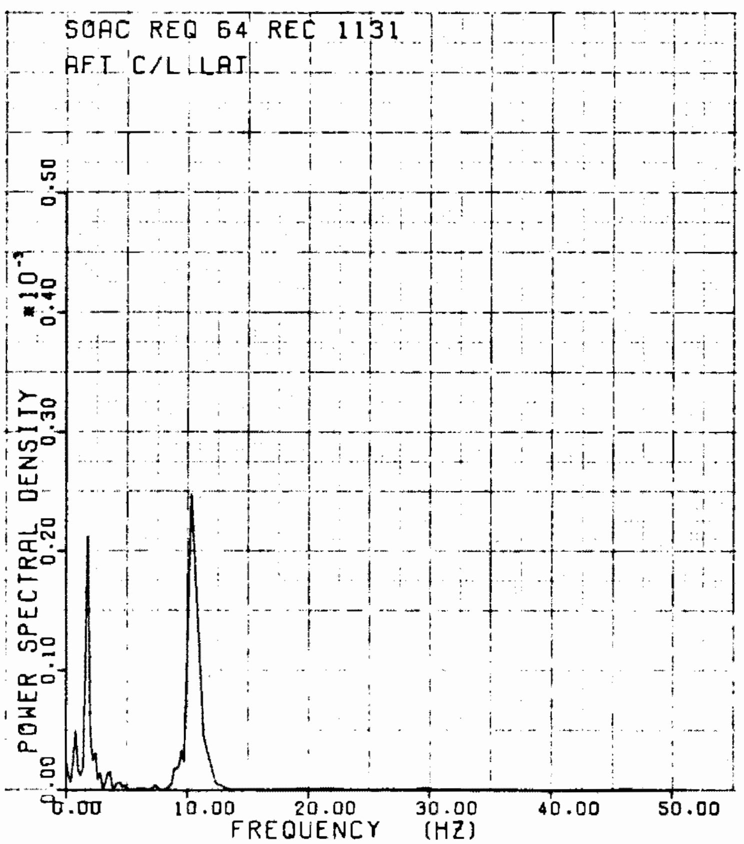
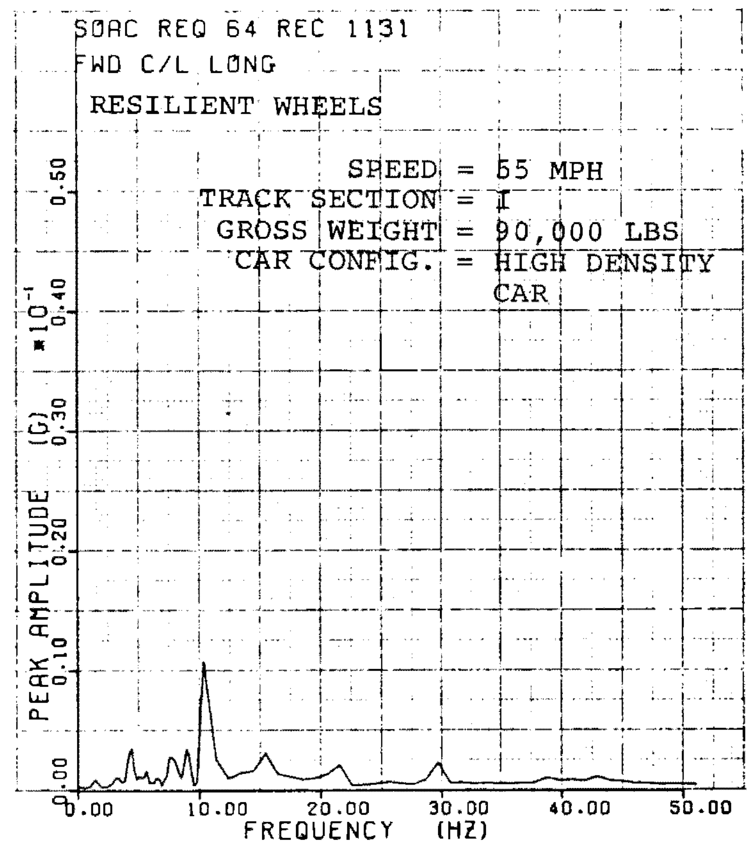

SOAC REQ 64 REC 1131
AFT C/L LAT
POWER SPECTRAL DENSITY *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-28


SOAC REQ 64 REC 1131
FWD C/L LONG
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

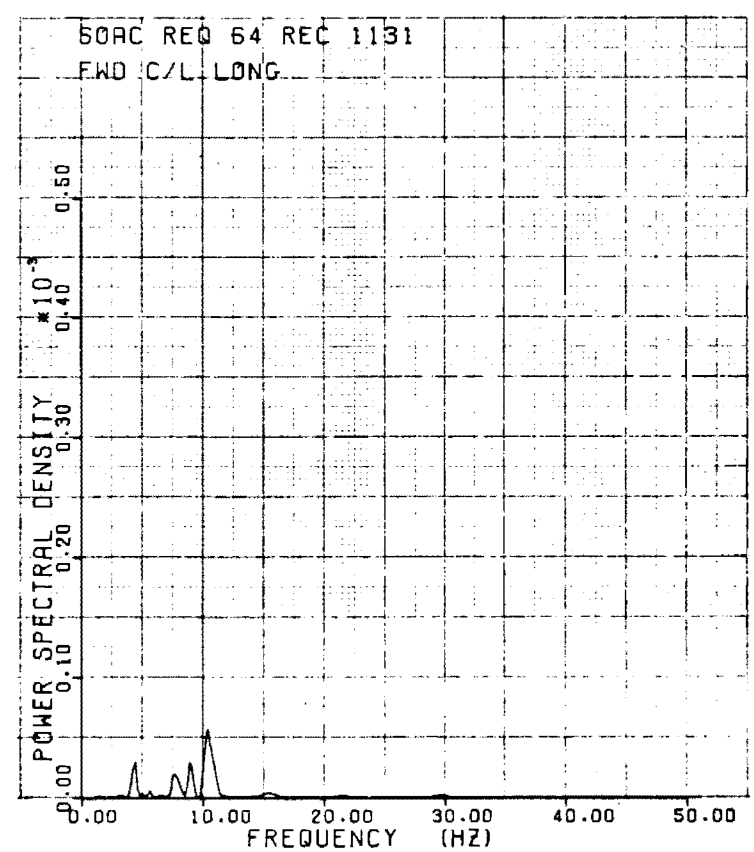
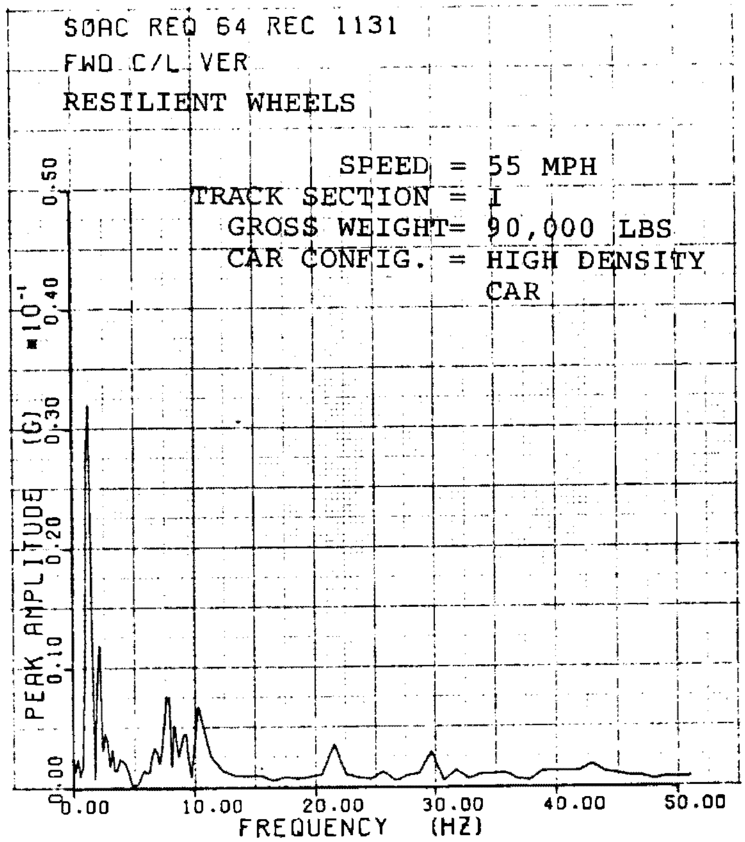

SOAC REQ 64 REC 1131
FWD C/L LONG
POWER SPECTRAL DENSITY *10⁻³
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-29


SOAC REQ 64 REC 1131
FWD C/L VER
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT= 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

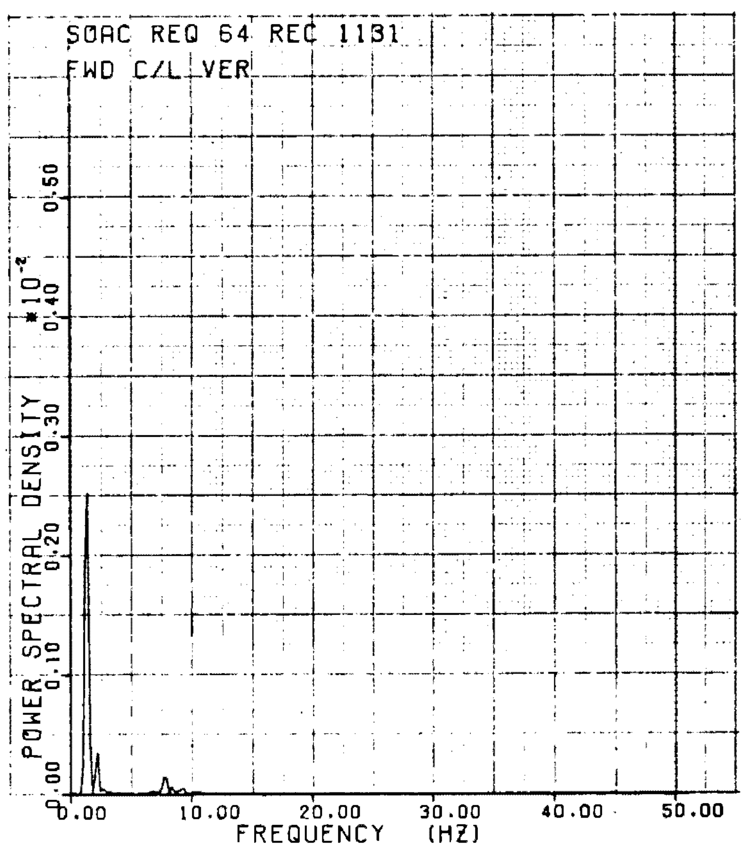
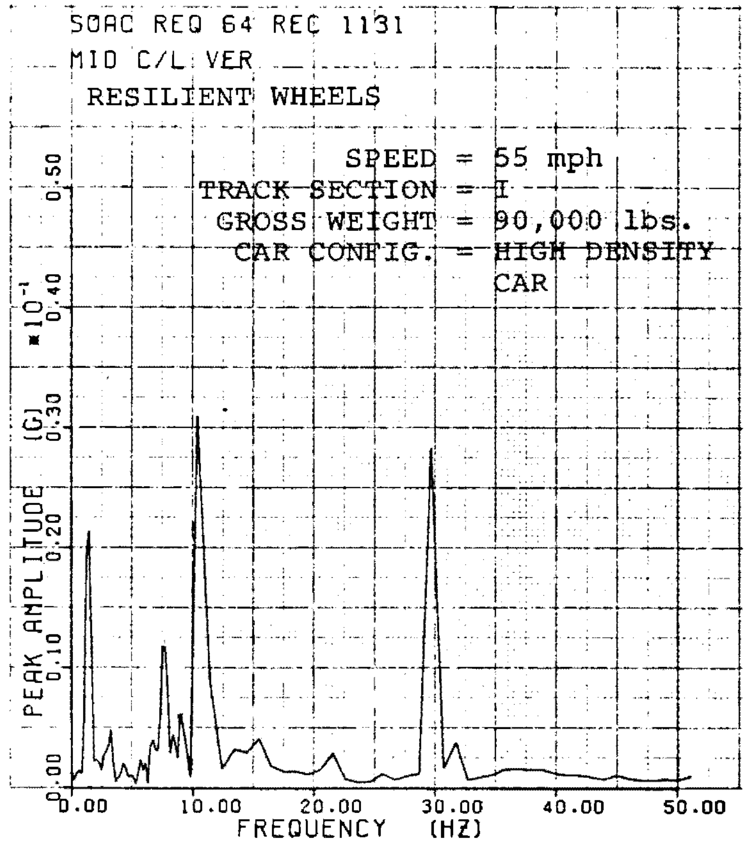

SOAC REQ 64 REC 1131
FWD C/L VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-30


SOAC REQ 64 REC 1131
MID C/L VER
RESILIENT WHEELS
SPEED = 55 mph
TRACK SECTION = I
GROSS WEIGHT = 90,000 lbs.
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

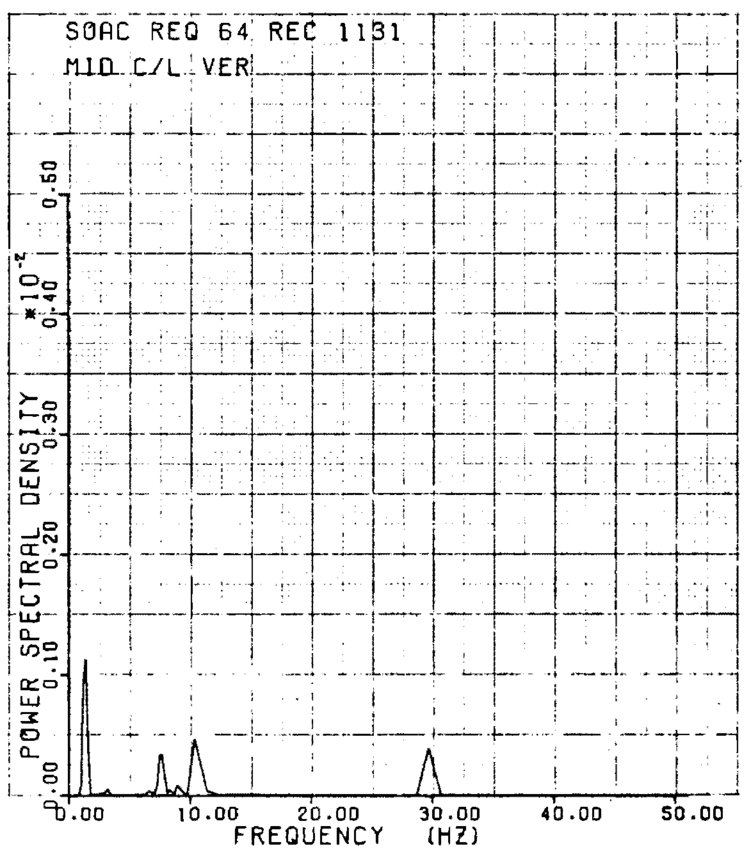
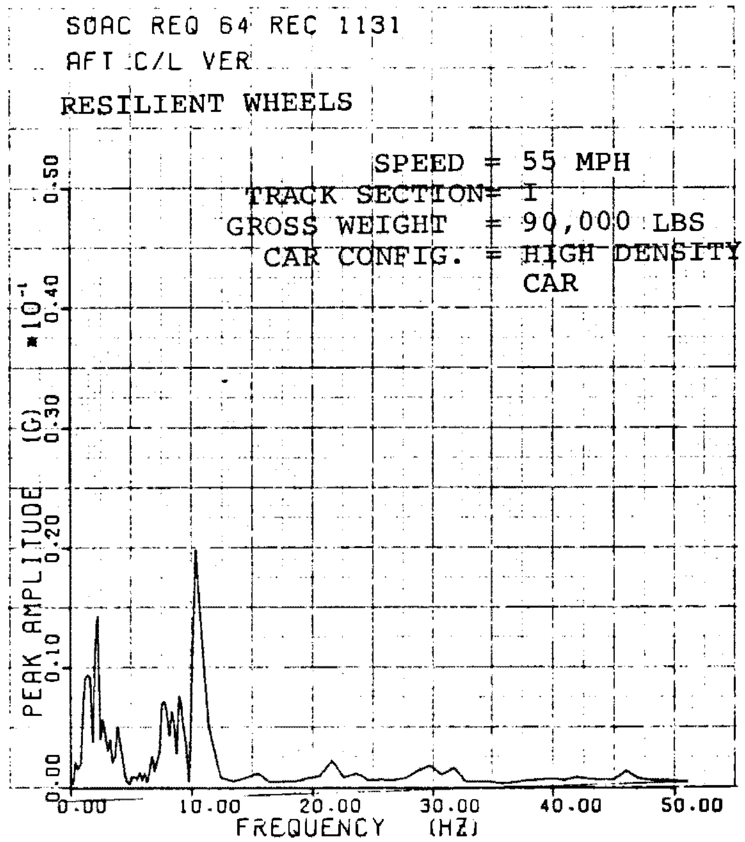

SOAC REQ 64 REC 1131
MID C/L VER
POWER SPECTRAL DENSITY *10^-2
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-31


SOAC REQ 64 REC 1131
AFT C/L VER
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION= I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

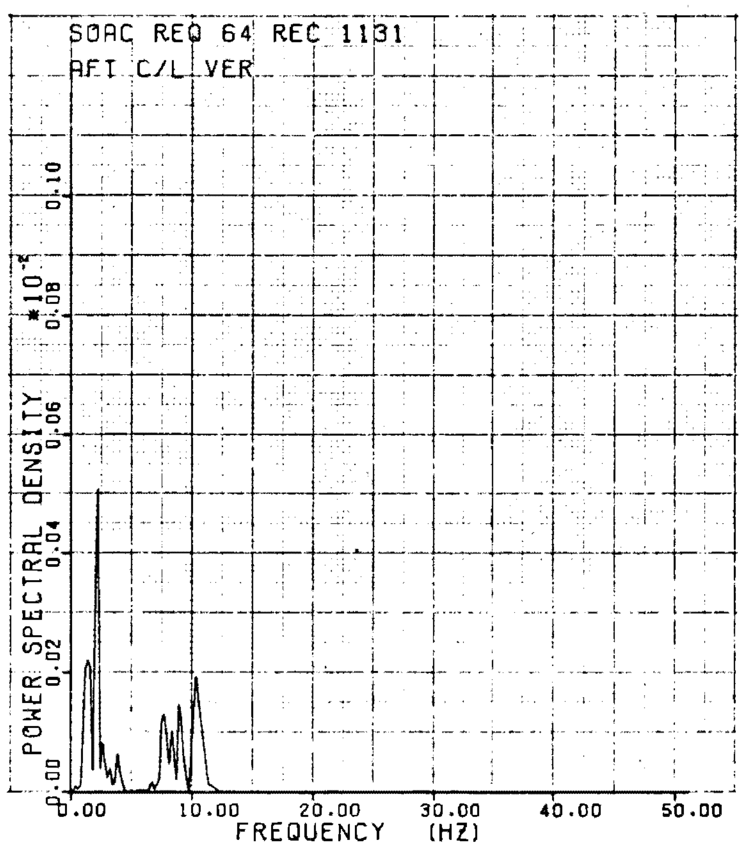
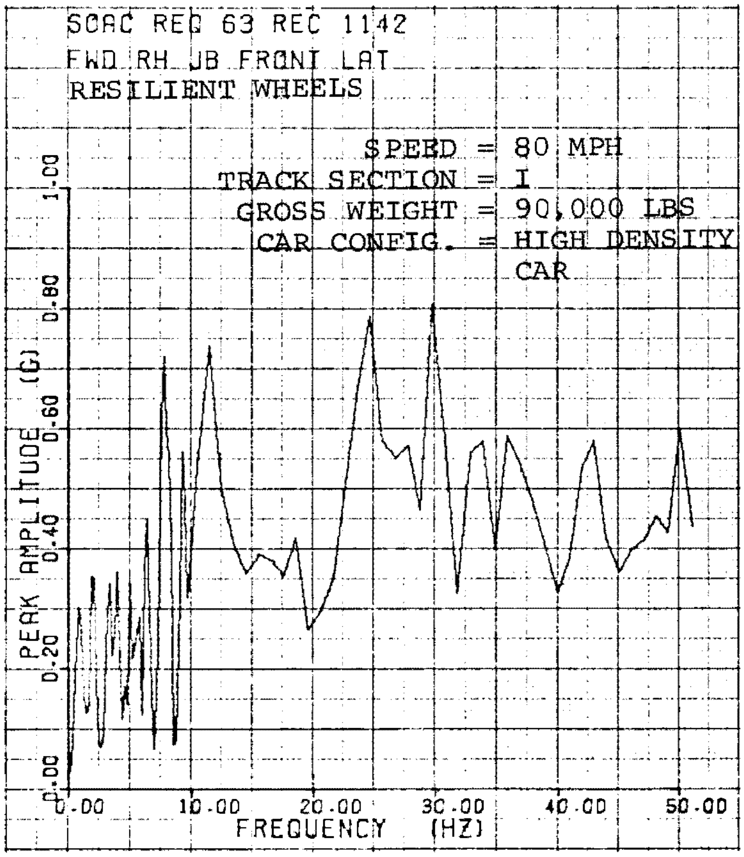

SOAC REQ 64 REC 1131
AFT C/L VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-32


SOAC REQ 63 REC 1142
FWD RH JB FRONT LAT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

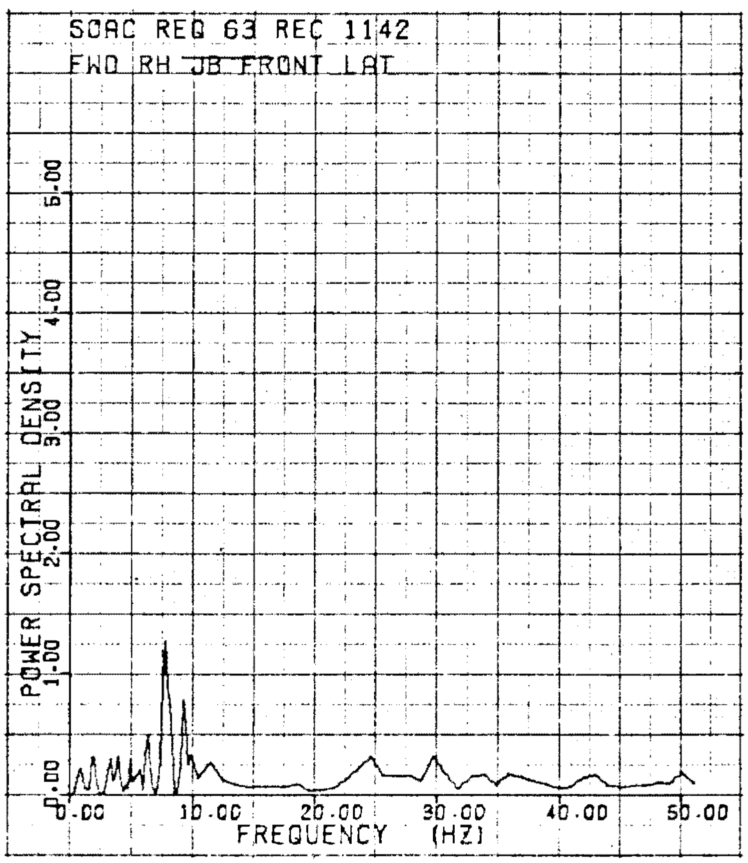
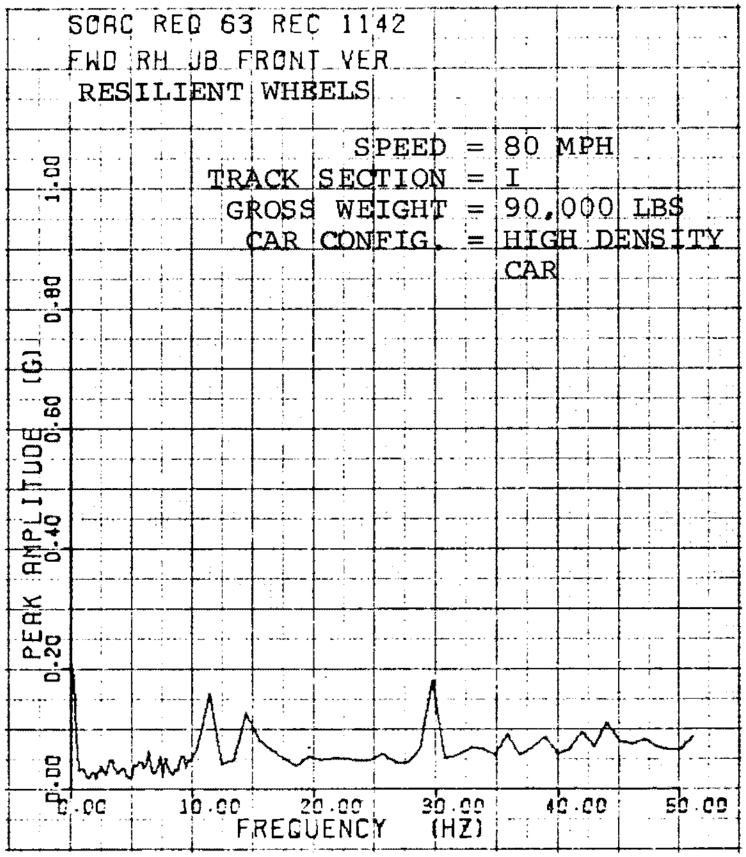

SOAC REQ 63 REC 1142
FWD RH JB FRONT LAT
POWER SPECTRAL DENSITY
0.00
1.00
2.00
3.00
4.00
5.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-33


SOAC REQ 63 REC 1142
FWD RH UB FRONT VER
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

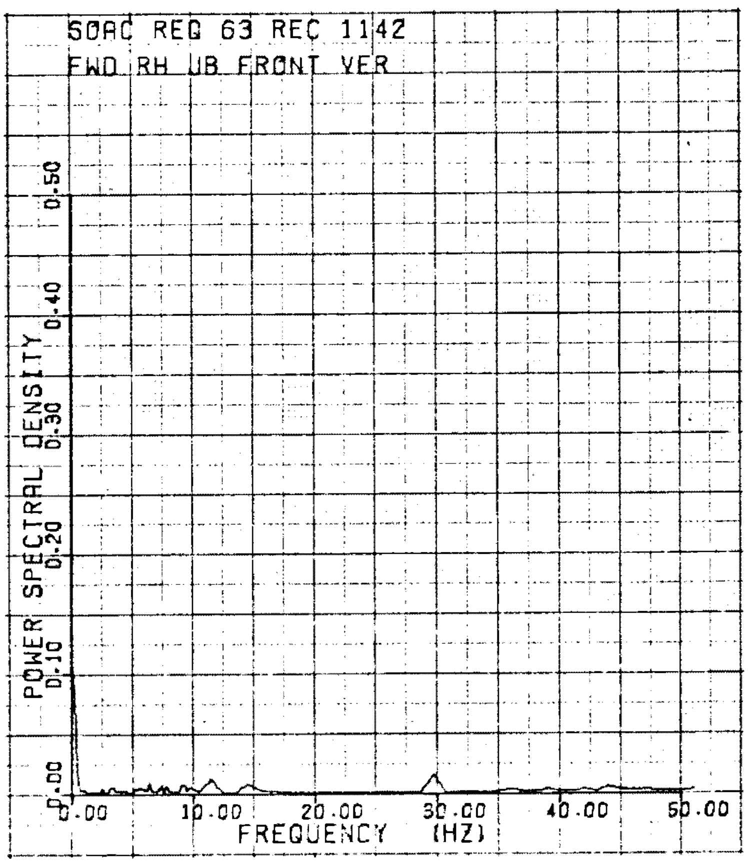
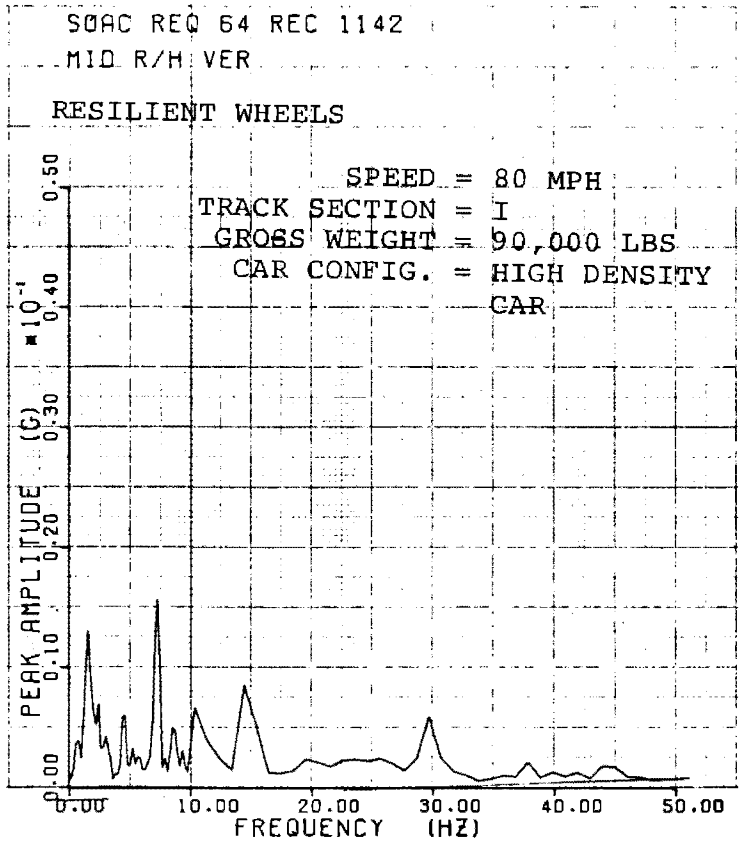

SOAC REQ 63 REC 1142
FWD RH UB FRONT VER
POWER SPECTRAL DENSITY
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-34


SOAC REQ 64 REC 1142
MID R/H VER
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

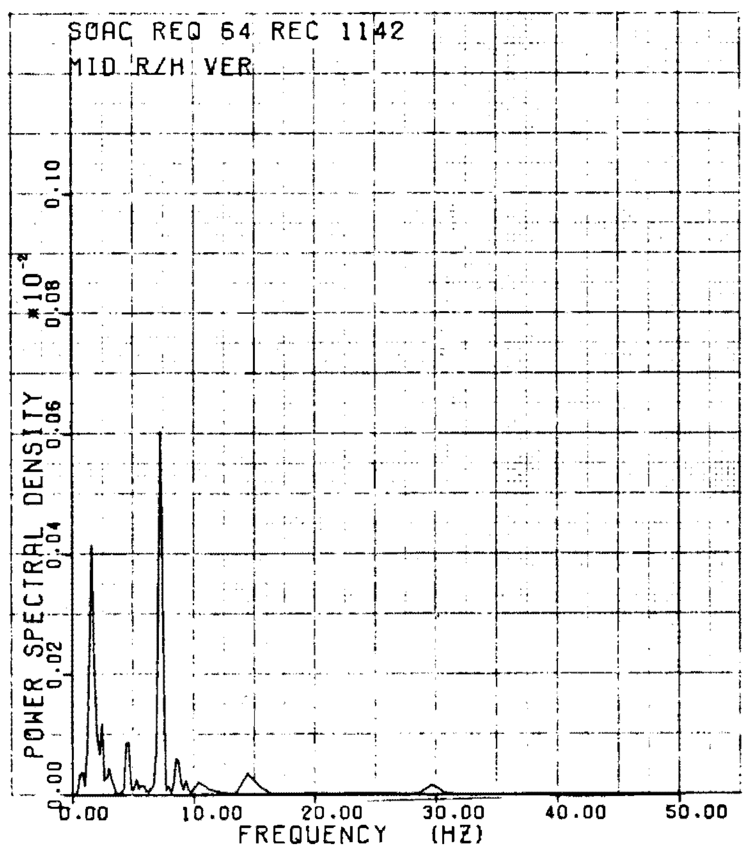
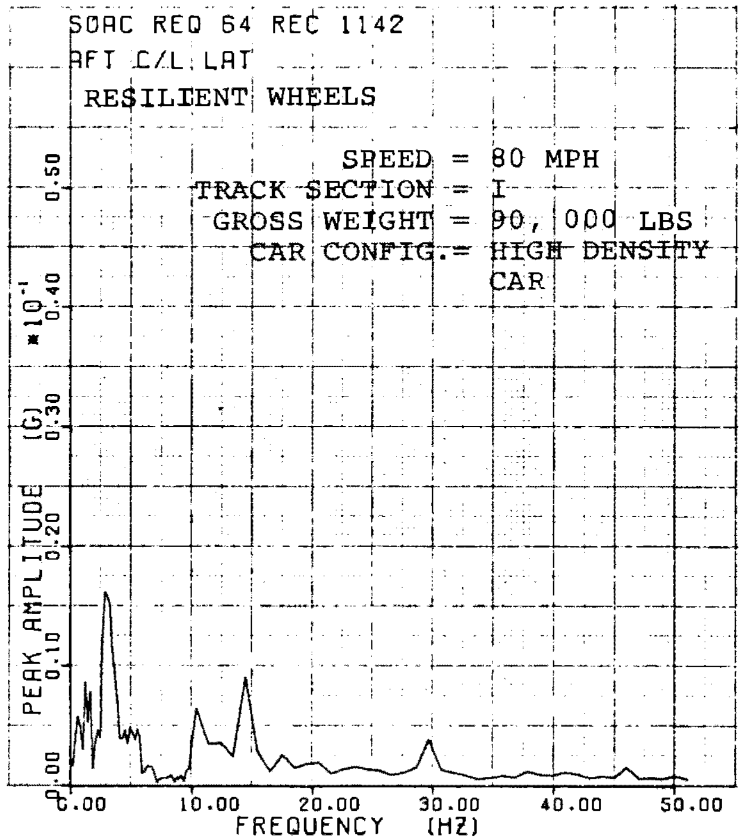

SOAC REQ 64 REC 1142
MID R/H VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-35


SOAC REQ 64 REC 1142
AFT C/L LAT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT = 90, 000 LBS
CAR CONFIG.= HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

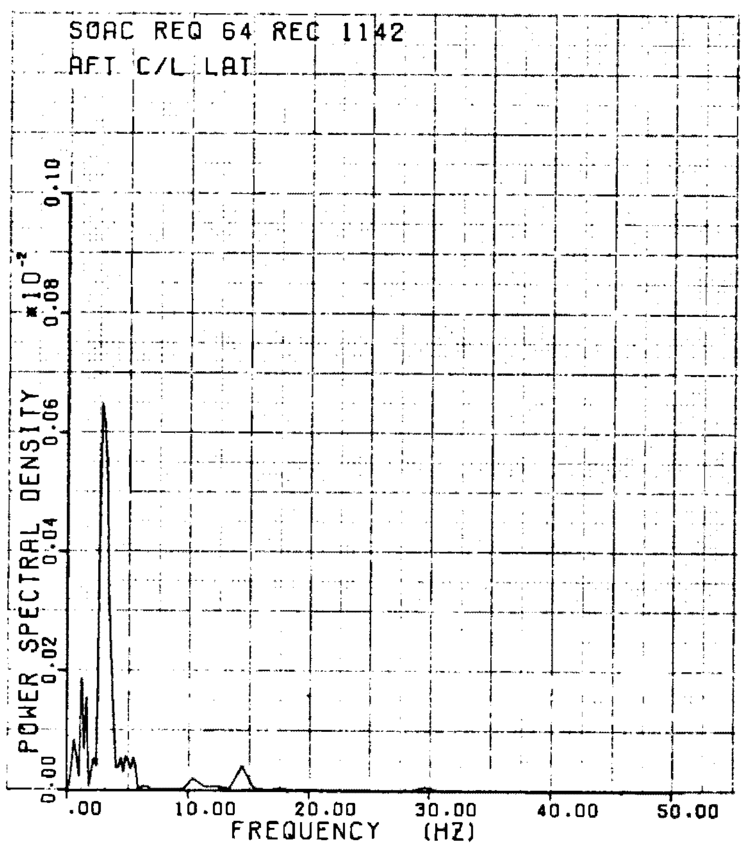
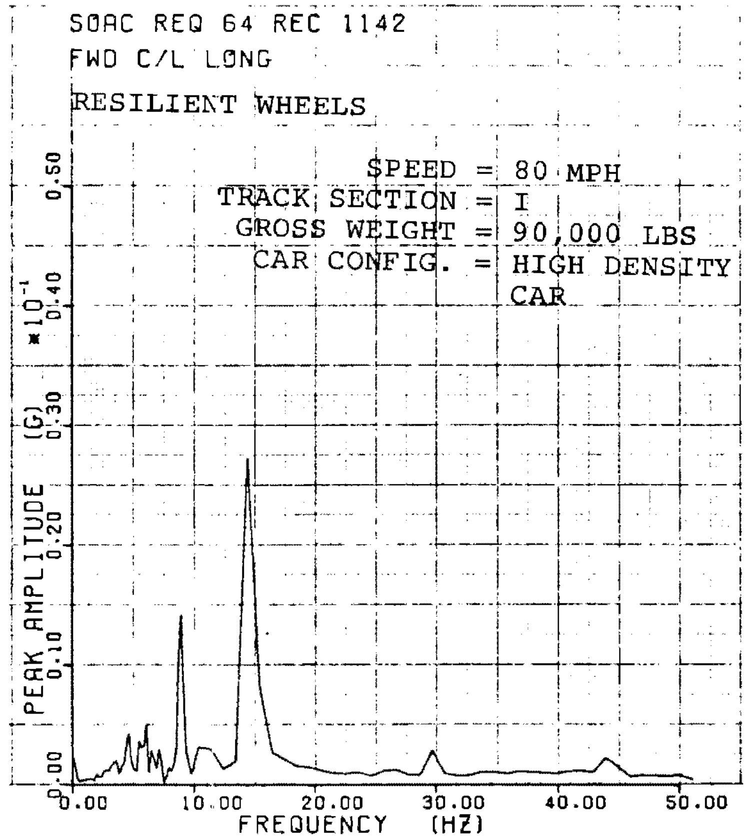
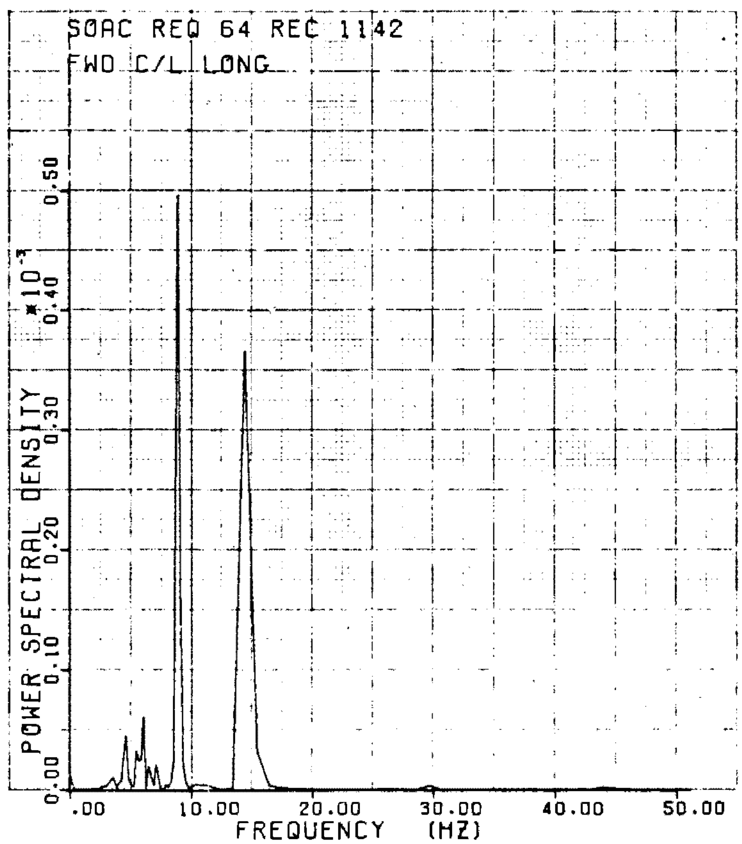

SOAC REQ 64 REC 1142
AFT C/L LAT
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-36

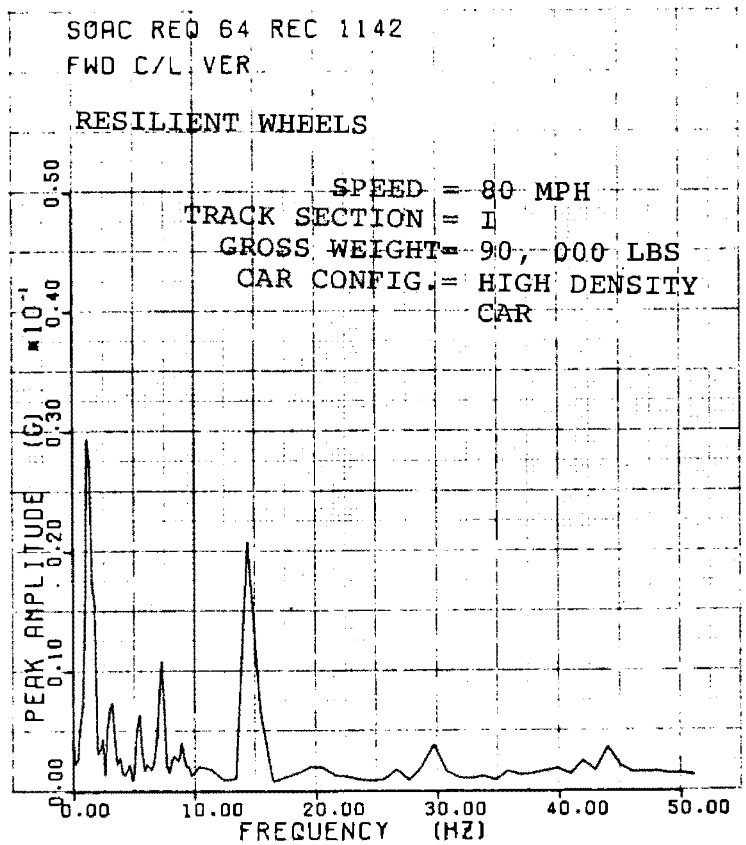


SOAC REQ 64 REC 1142
FWD C/L LONG
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 64 REC 1142
FWD C/L LONG
POWER SPECTRAL DENSITY *10^-3
0.00
0.10
0.20
0.30
0.40
0.50
.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-37


SOAC REQ 64 REC 1142
FWD C/L VER
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT = 90, 000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

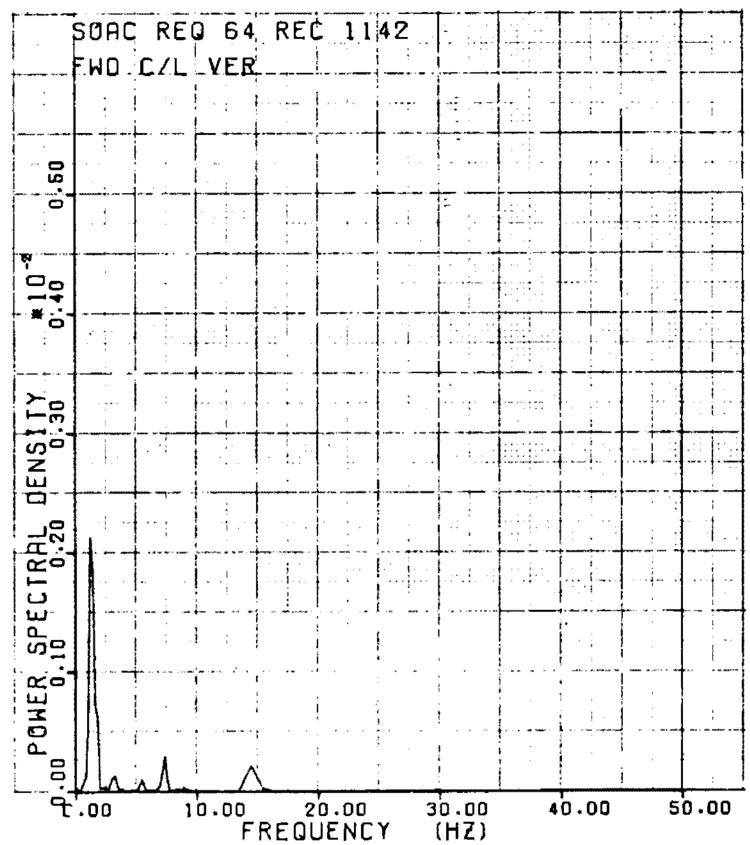
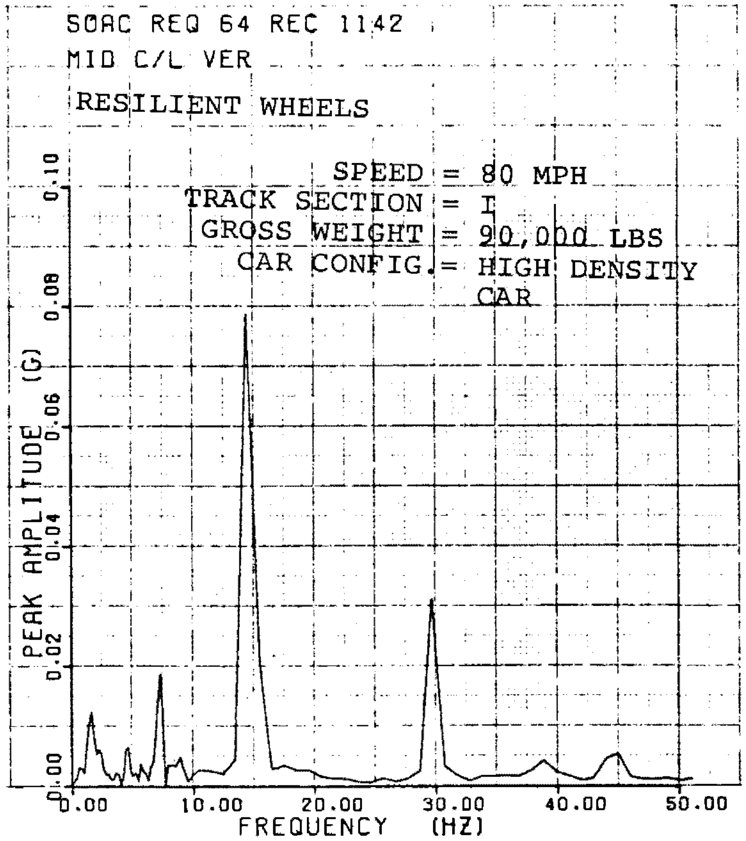
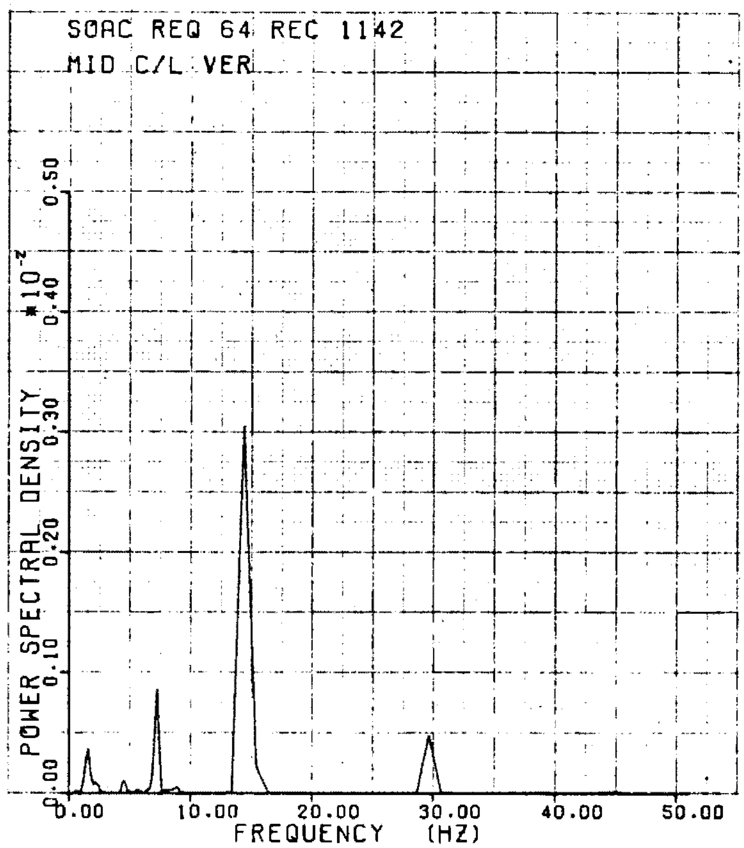

SOAC REQ 64 REC 1142
FWD C/L VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-38

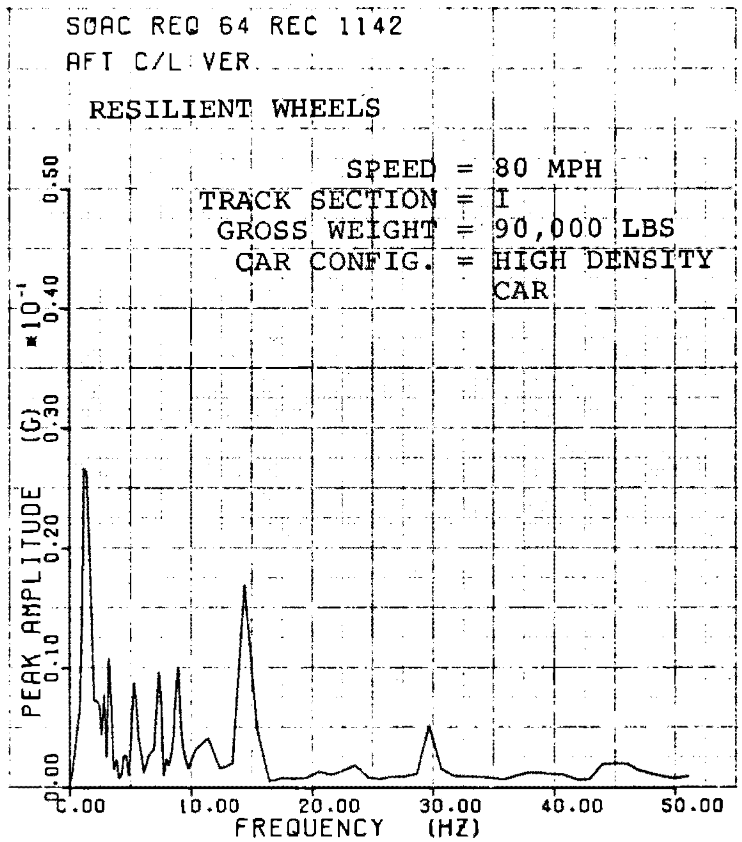


SOAC REQ 64 REC 1142
MID C/L VER
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 64 REC 1142
MID C/L VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-39


SOAC REQ 64 REC 1142
AFT C/L VER
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT = 90,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

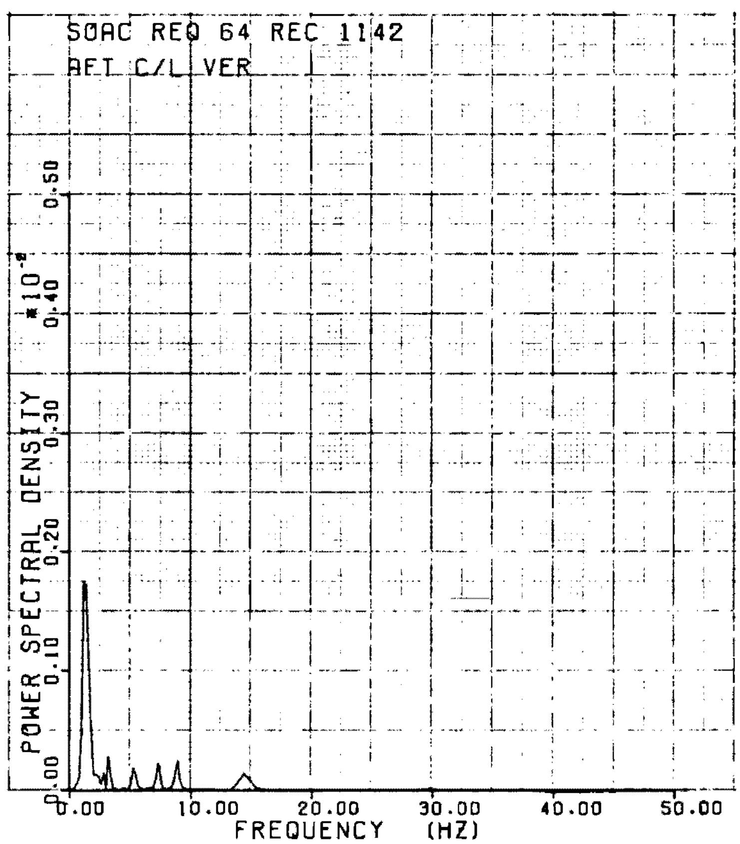
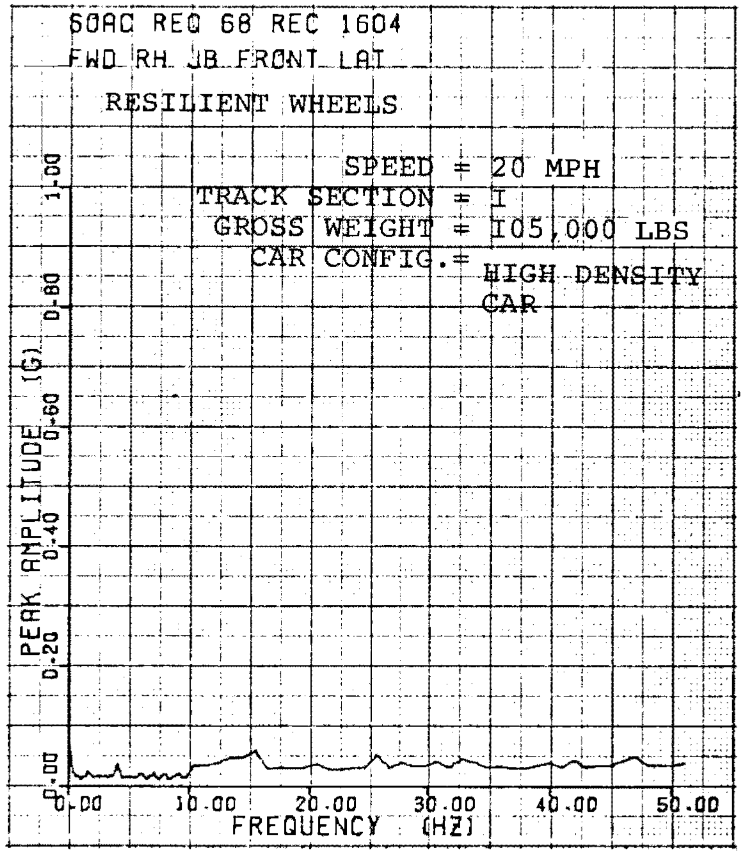

SOAC REQ 64 REC 1142
AFT C/L VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-40


SOAC REQ 68 REC 1604
FWD RH JB FRONT LAT
RESILIENT WHEELS
SPEED = 20 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG.= HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

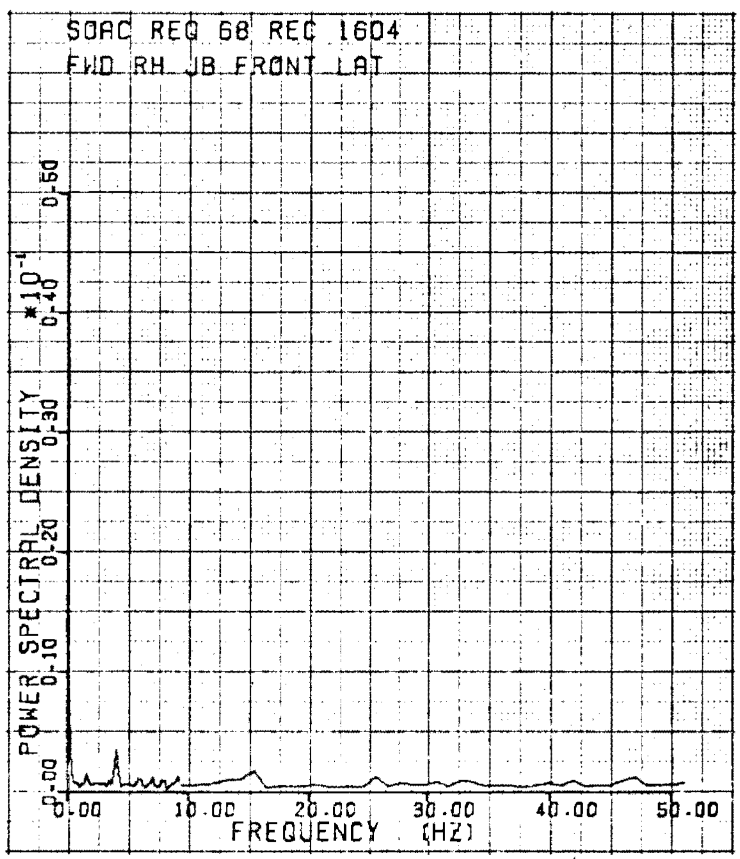
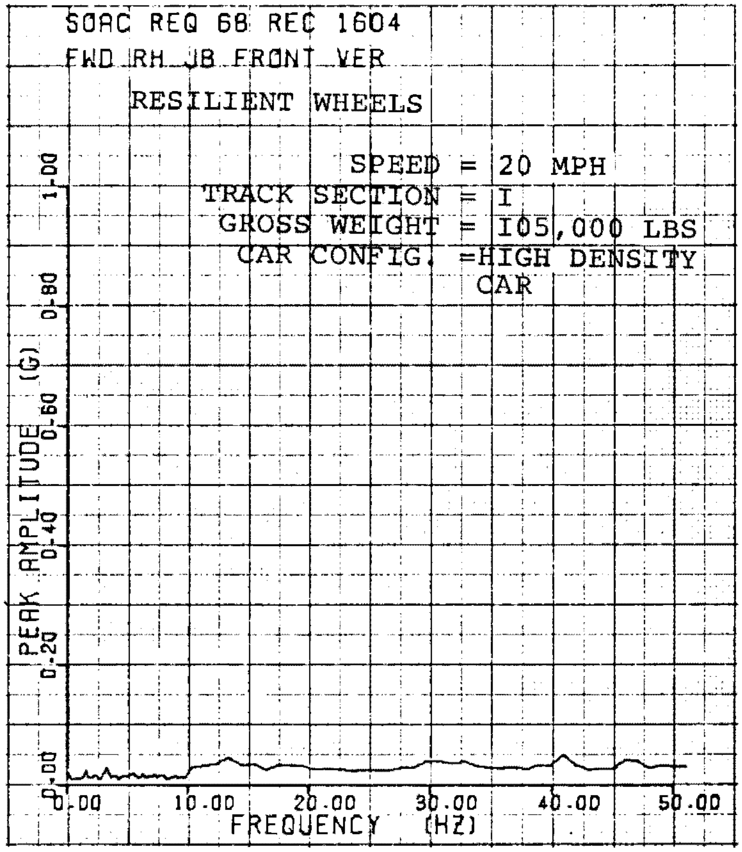
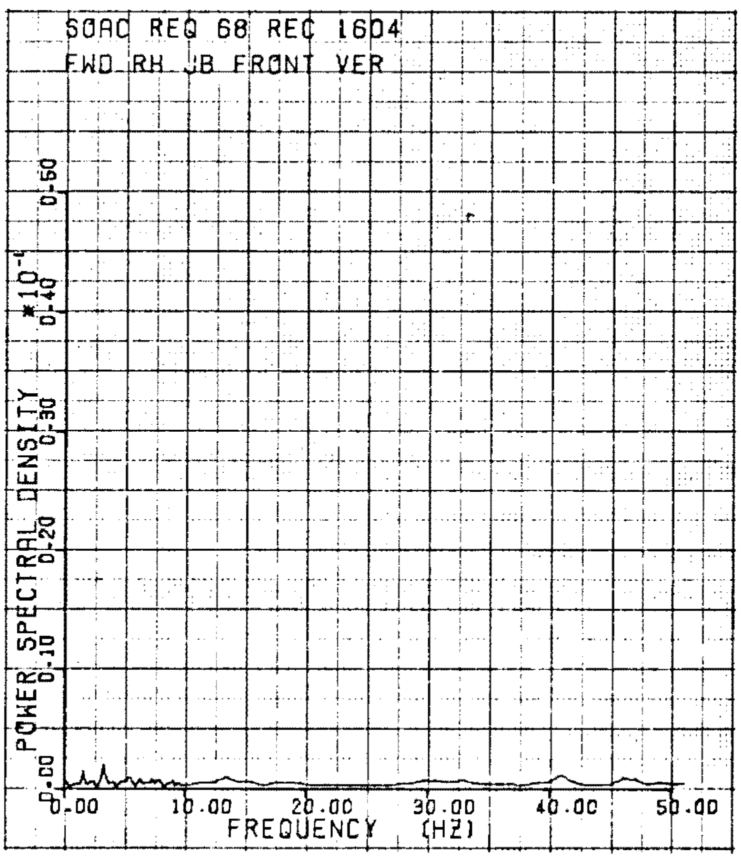

SOAC REQ 68 REC 1604
FWD RH JB FRONT LAT
POWER SPECTRAL DENSITY *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-41

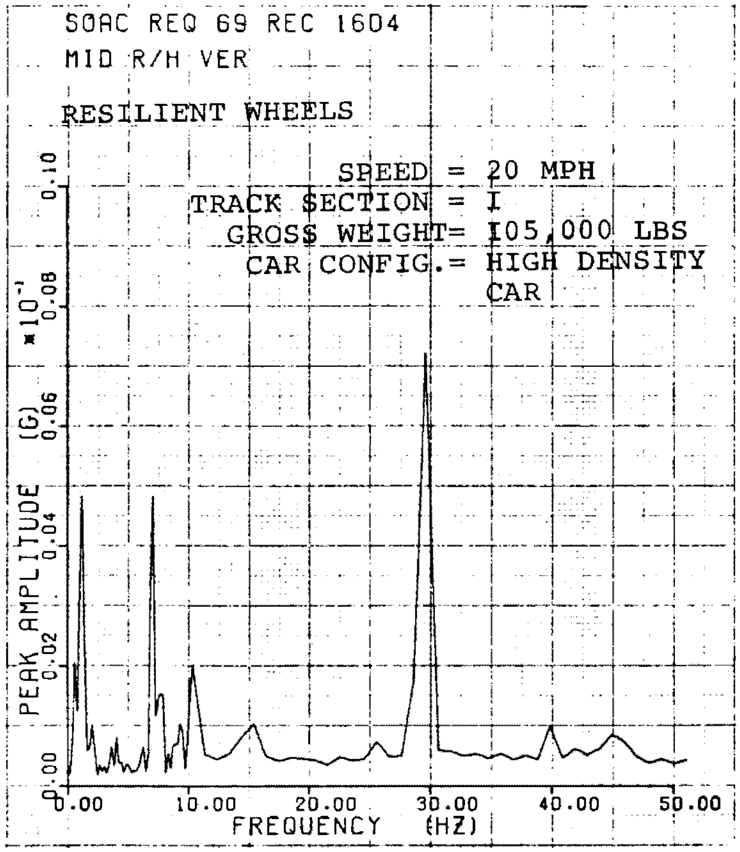


SOAC REQ 68 REC 1604
FWD RH JB FRONT VER
RESILIENT WHEELS
SPEED = 20 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. =HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 68 REC 1604
FWD RH JB FRONT VER
POWER SPECTRAL DENSITY *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-42


SOAC REQ 69 REC 1604
MID R/H VER
RESILIENT WHEELS
SPEED = 20 MPH
TRACK SECTION = I
GROSS WEIGHT= 105,000 LBS
CAR CONFIG.= HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-1
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

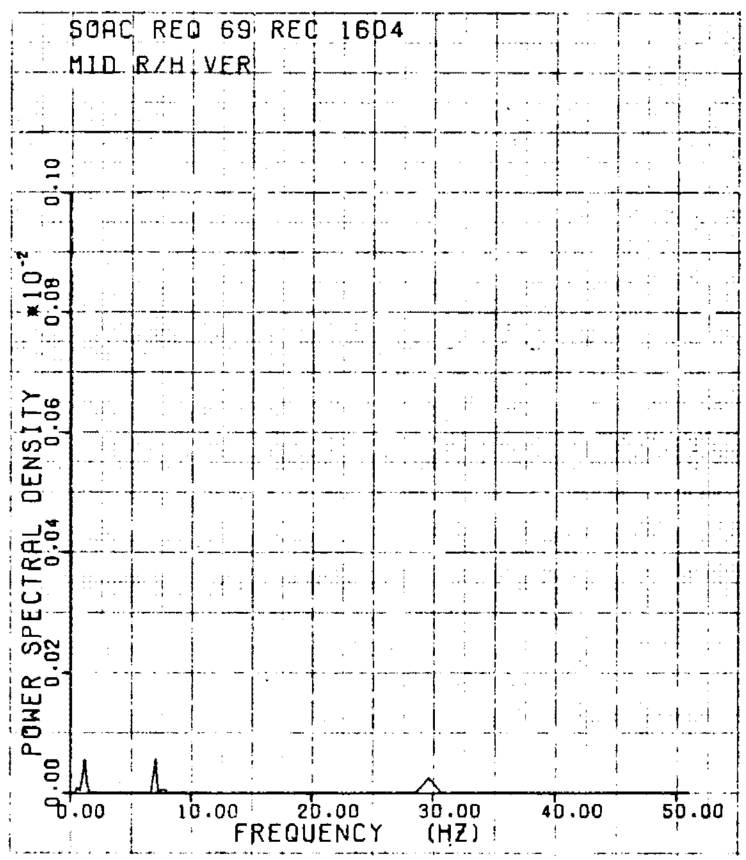
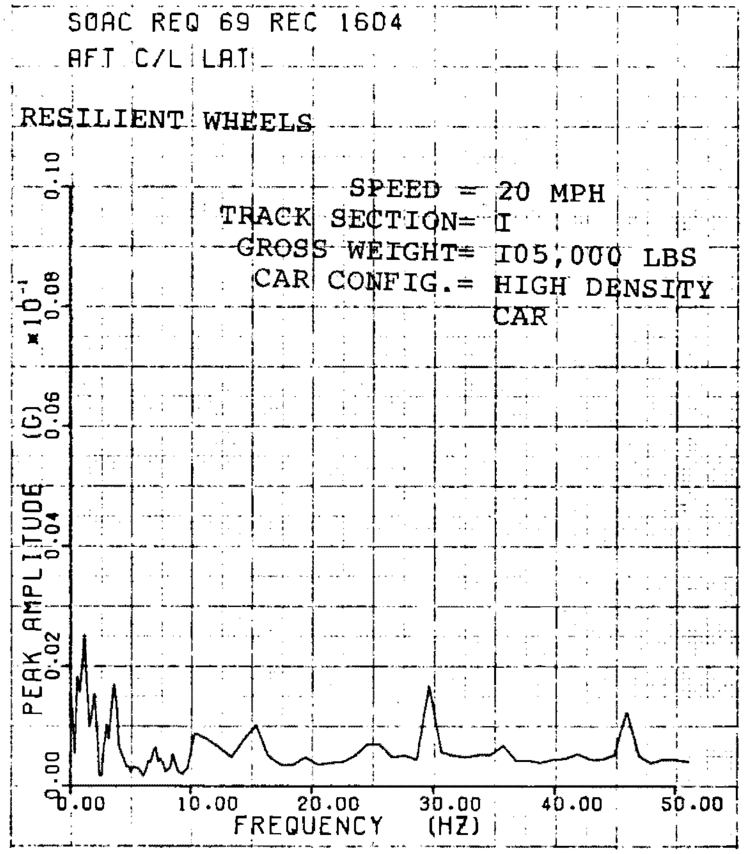

SOAC REQ 69 REC 1604
MID R/H VER
POWER SPECTRAL DENSITY *10^-2
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-43


SOAC REQ 69 REC 1604
AFT C/L LAT
RESILIENT WHEELS
SPEED = 20 MPH
TRACK SECTION= I
GROSS WEIGHT= 105,000 LBS
CAR CONFIG.= HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-1
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

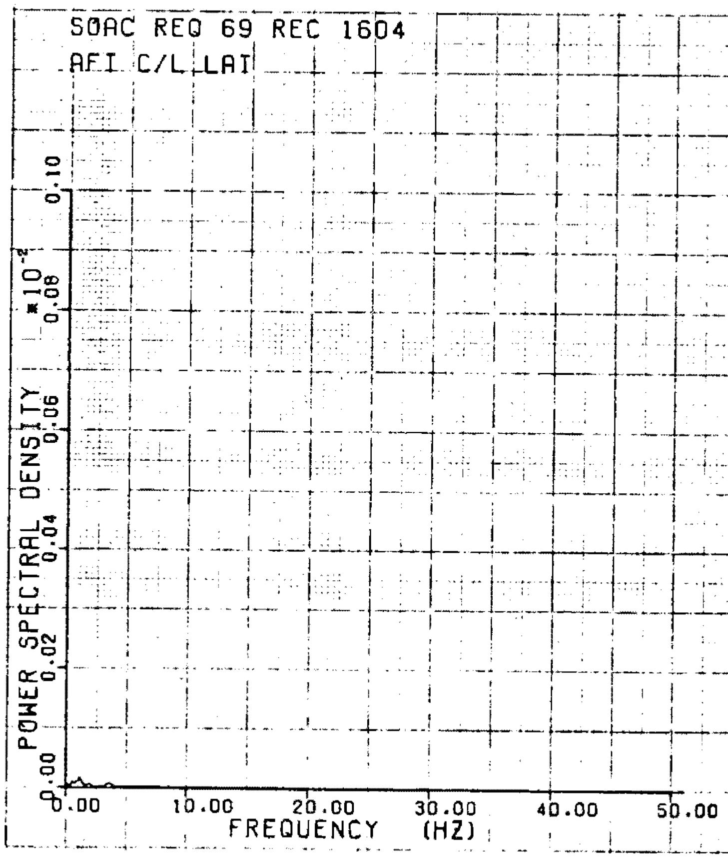
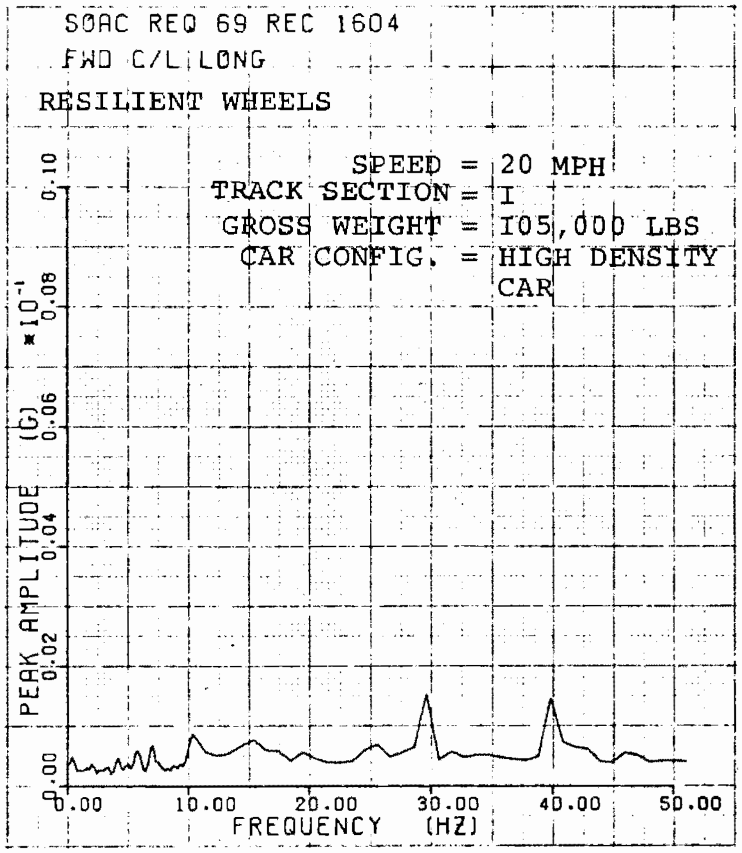

SOAC REQ 69 REC 1604
AFT C/L LAT
POWER SPECTRAL DENSITY *10^-2
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-44


SOAC REQ 69 REC 1604
FWD C/L LONG
RESILIENT WHEELS
SPEED = 20 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

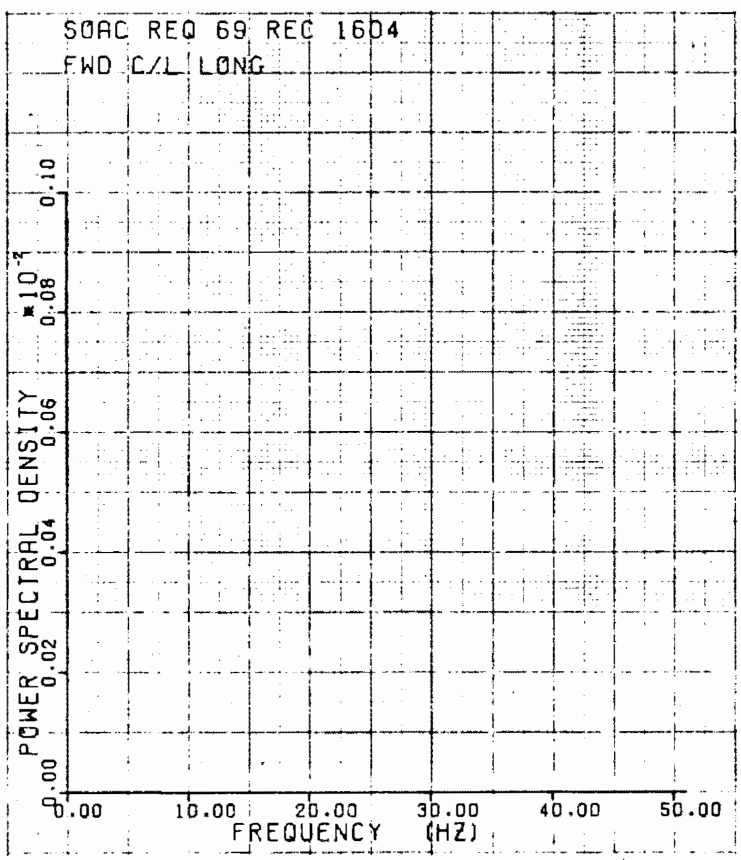
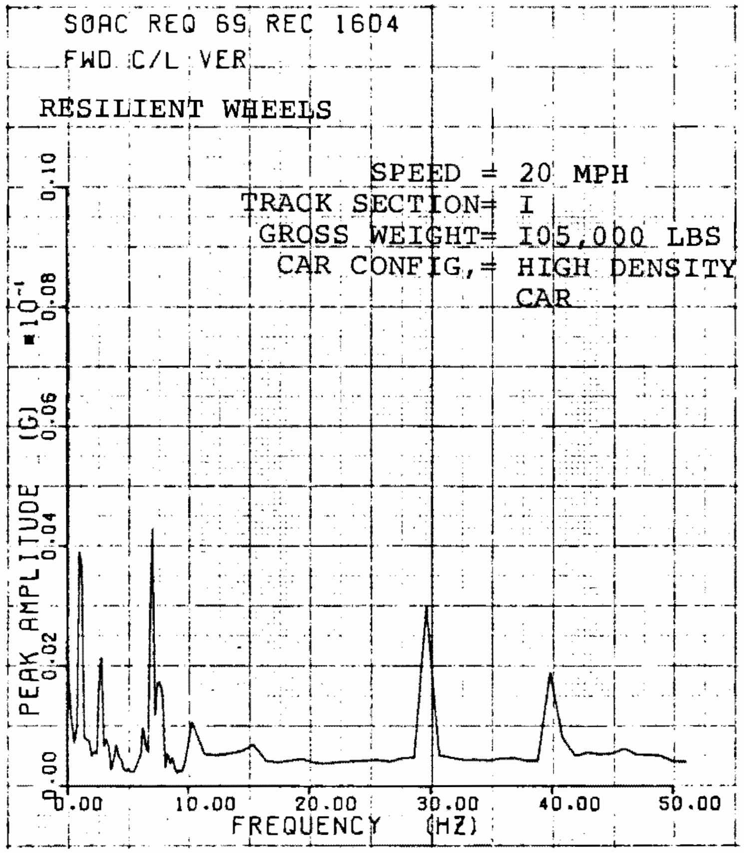

SOAC REQ 69 REC 1604
FWD C/L LONG
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-45


SOAC REQ 69 REC 1604
FWD C/L VER
RESILIENT WHEELS
SPEED = 20 MPH
TRACK SECTION= I
GROSS WEIGHT= 105,000 LBS
CAR CONFIG,= HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-1
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

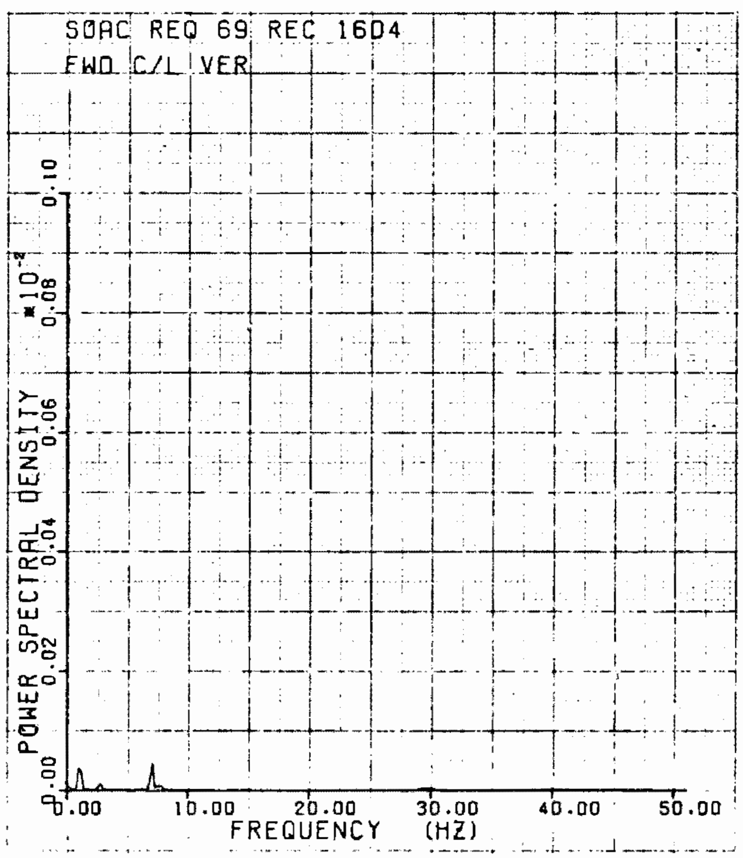
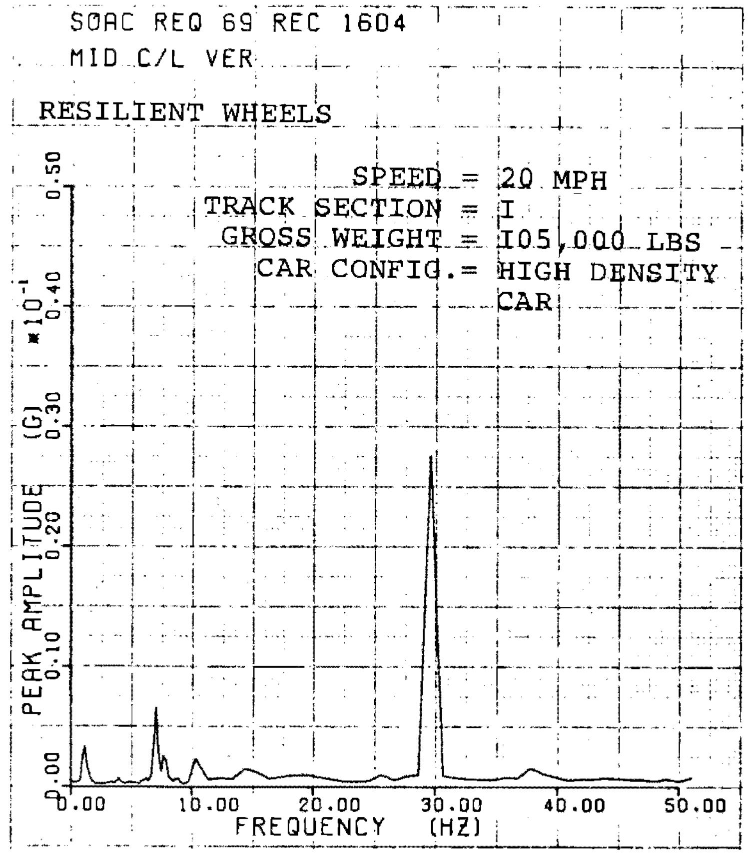
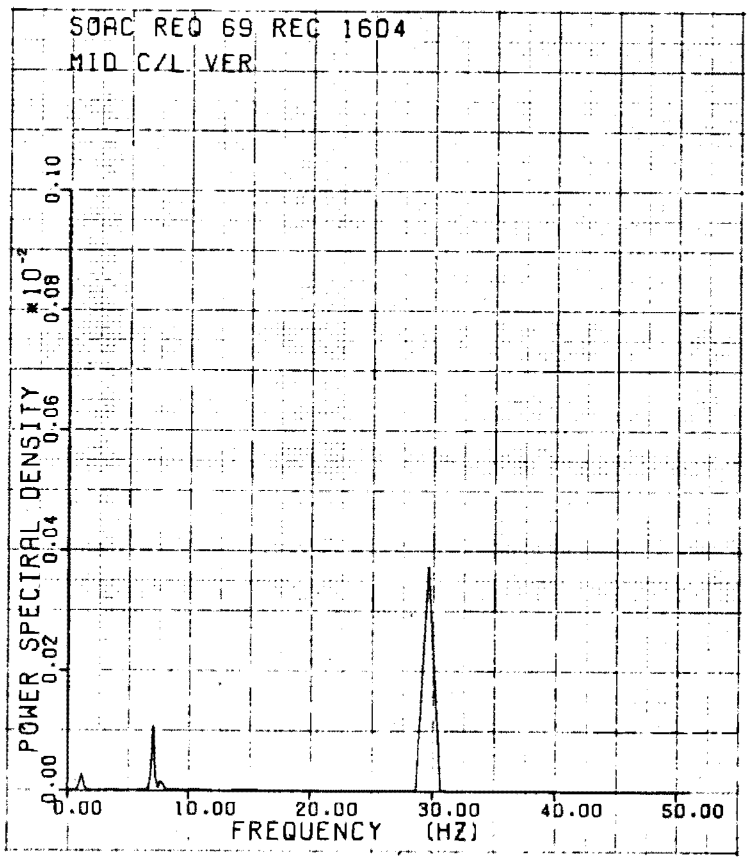

SOAC REQ 69 REC 1604
FWD C/L VER
POWER SPECTRAL DENSITY *10^-2
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-46

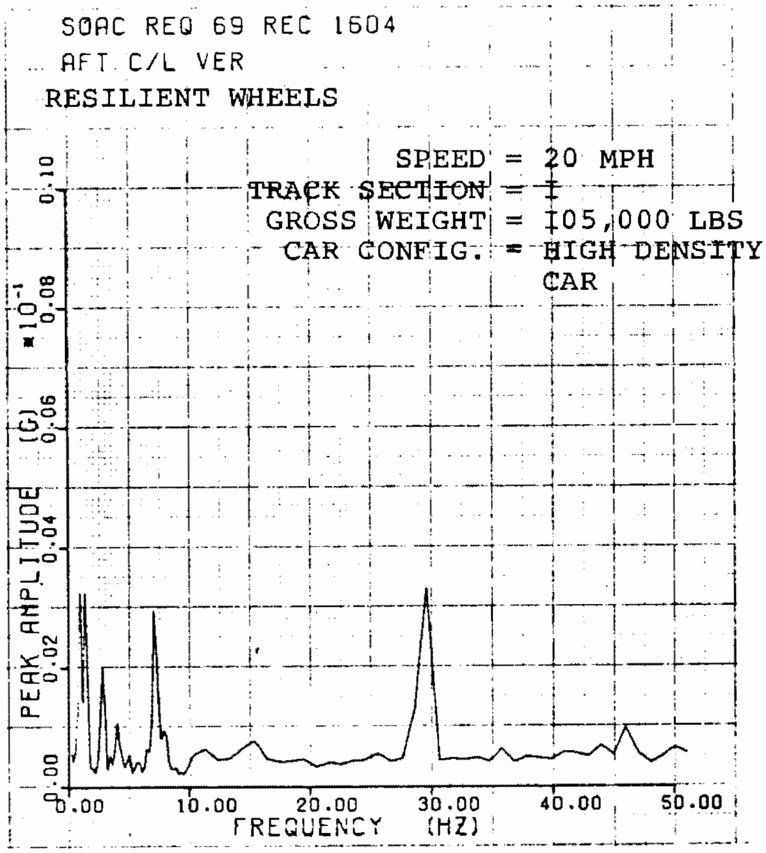


SOAC REQ 69 REC 1604
MID C/L VER
RESILIENT WHEELS
SPEED = 20 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG.= HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 69 REC 1604
MID C/L VER
POWER SPECTRAL DENSITY *10^-2
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-47


SOAC REQ 69 REC 1604
AFT C/L VER
RESILIENT WHEELS
SPEED = 20 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

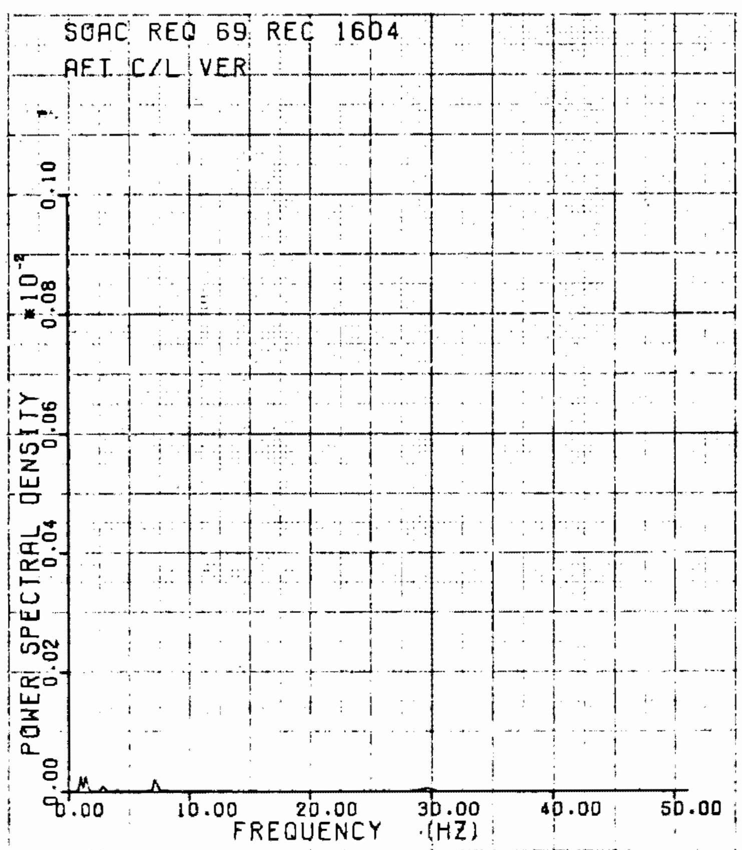
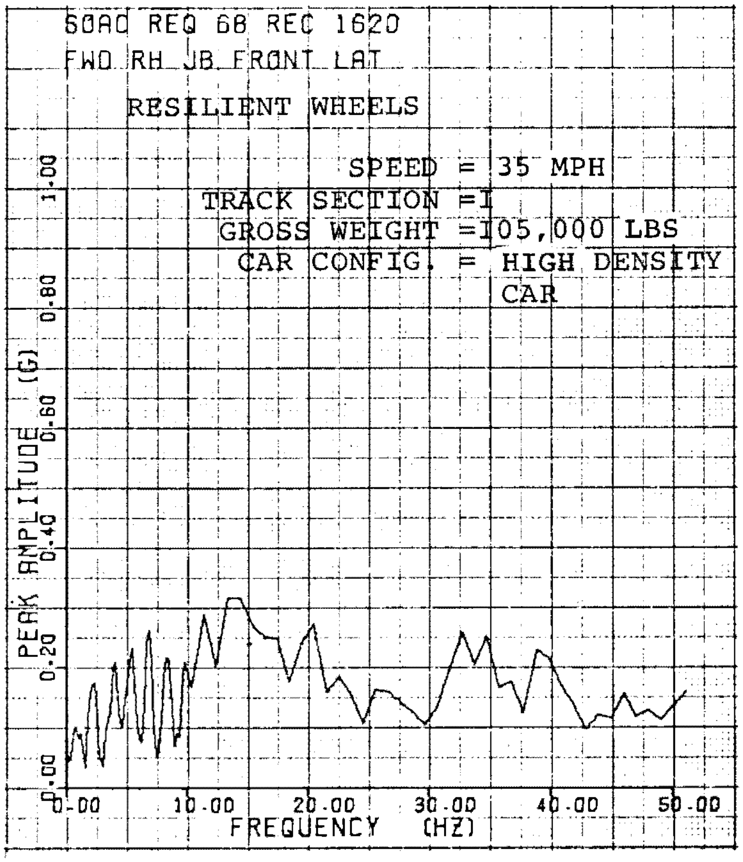

SOAC REQ 69 REC 1604
AFT C/L VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-48


SOAC REQ 68 REC 1620
FWD RH JB FRONT LAT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION =I
GROSS WEIGHT =105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

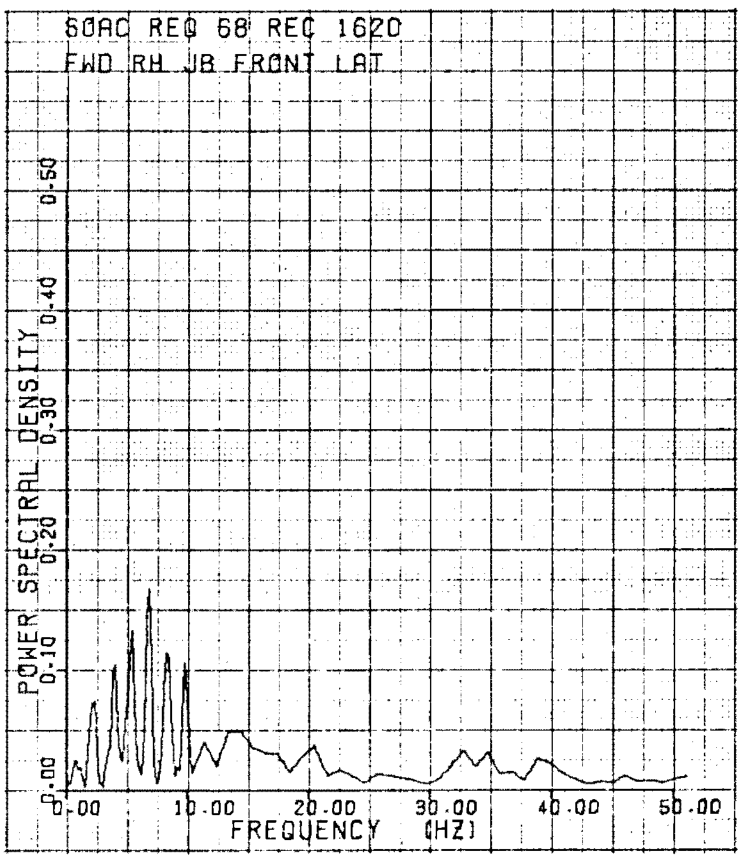
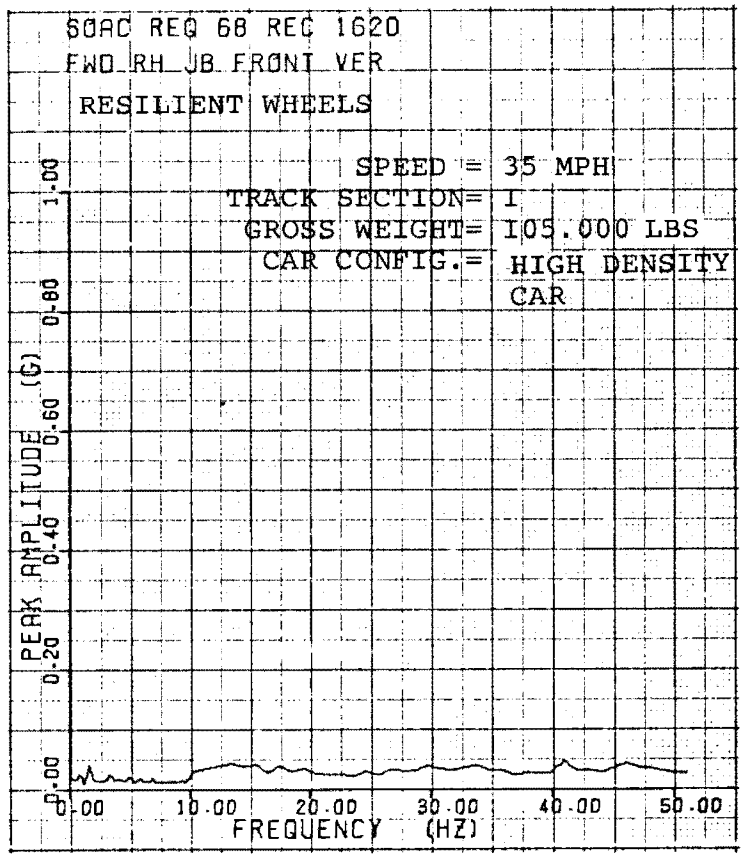

SOAC REQ 68 REC 1620
FWD RH JB FRONT LAT
POWER SPECTRAL DENSITY
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-49


SOAC REQ 68 REC 1620
FWD RH JB FRONT VER
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION= I
GROSS WEIGHT= 105.000 LBS
CAR CONFIG.= HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

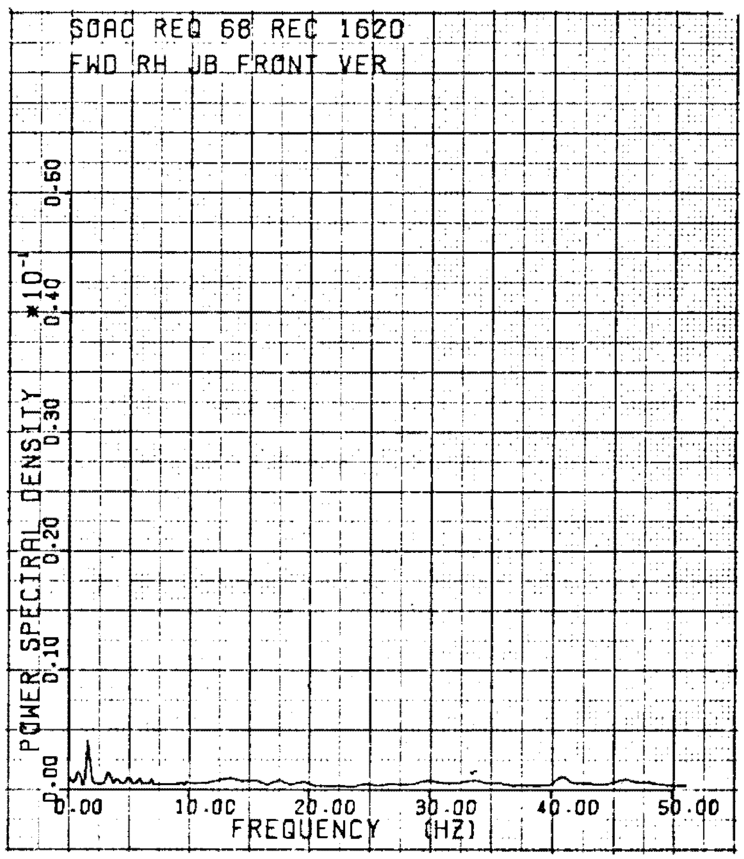
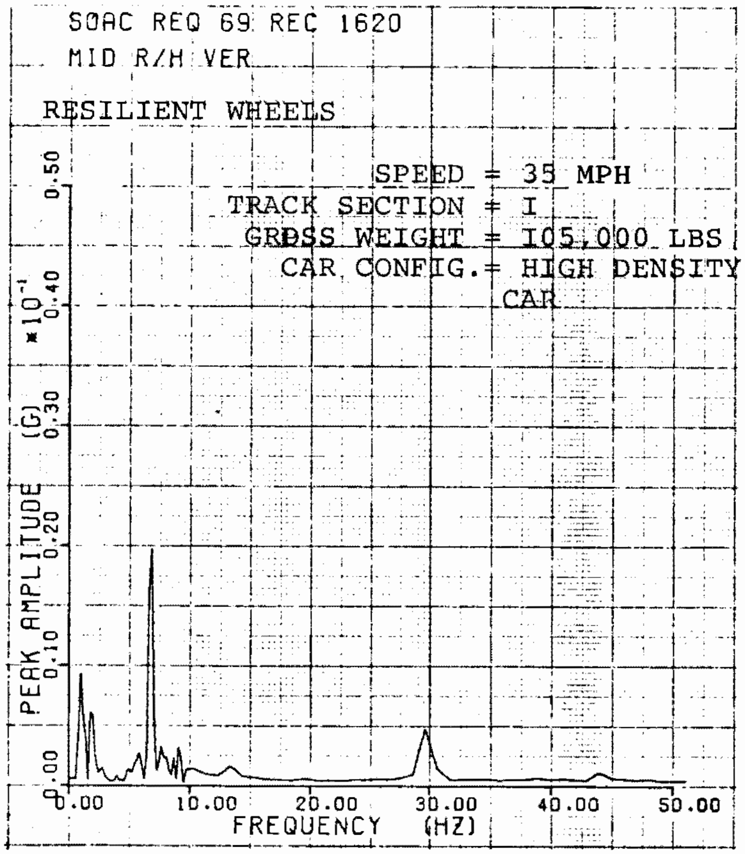
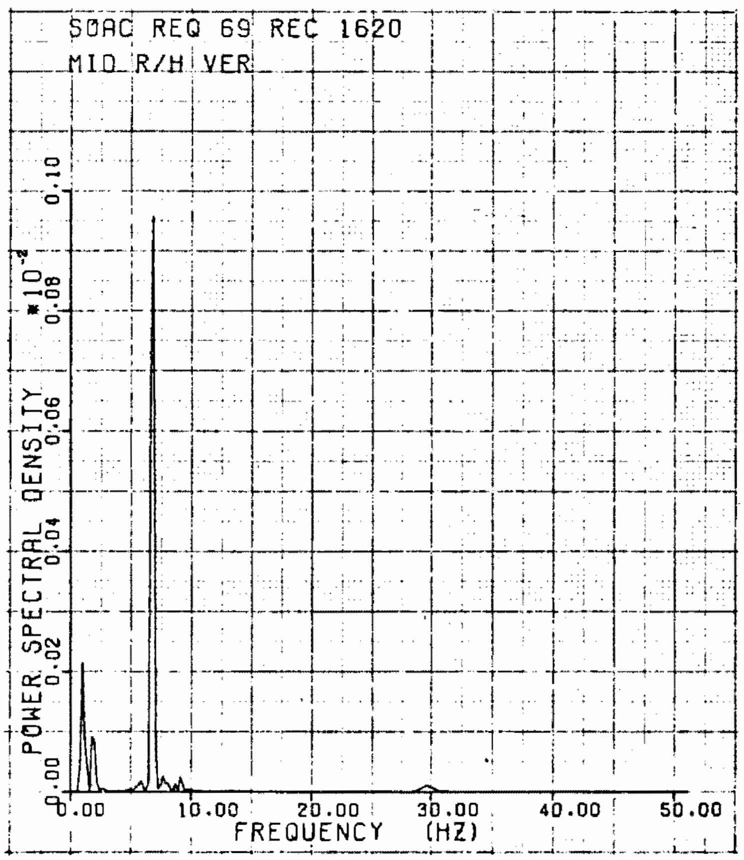

SOAC REQ 68 REC 1620
FWD RH JB FRONT VER
POWER SPECTRAL DENSITY *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-50

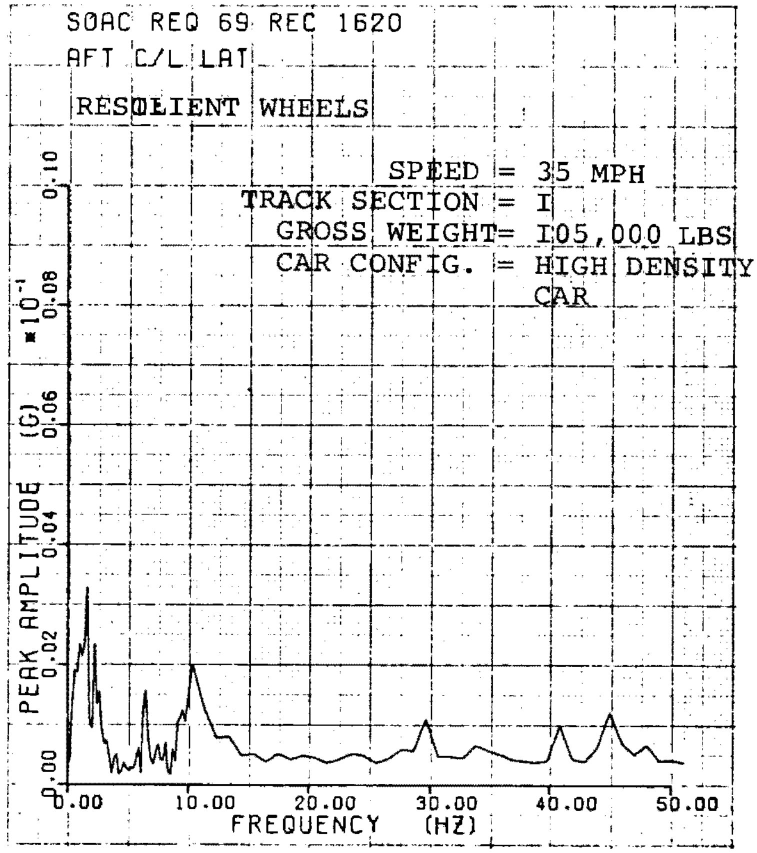


SOAC REQ 69 REC 1620
MID R/H VER
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 69 REC 1620
MID R/H VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-51


SOAC REQ 69 REC 1620
AFT C/L LAT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT= 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

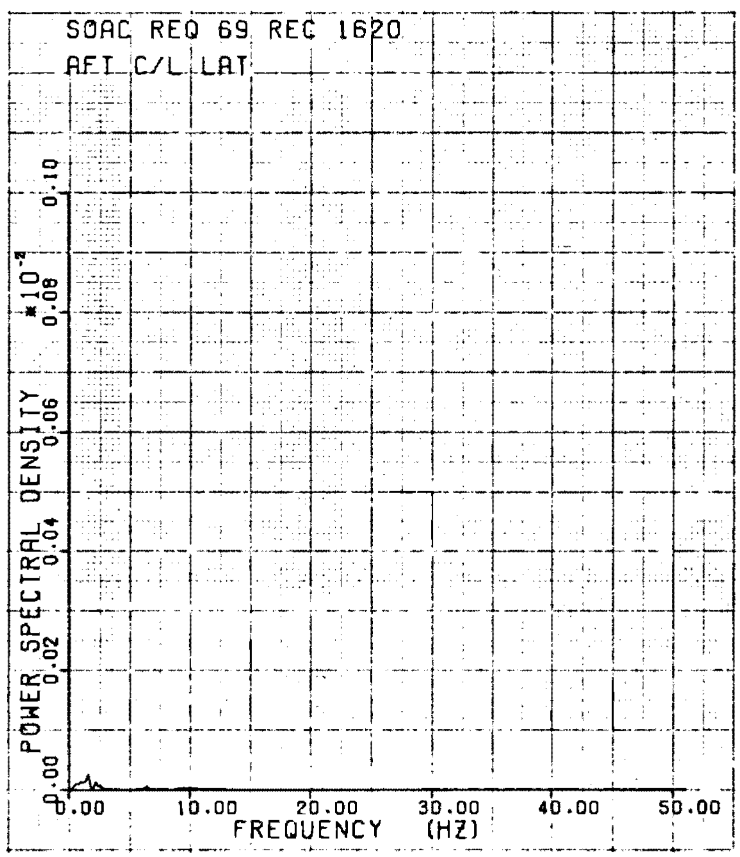
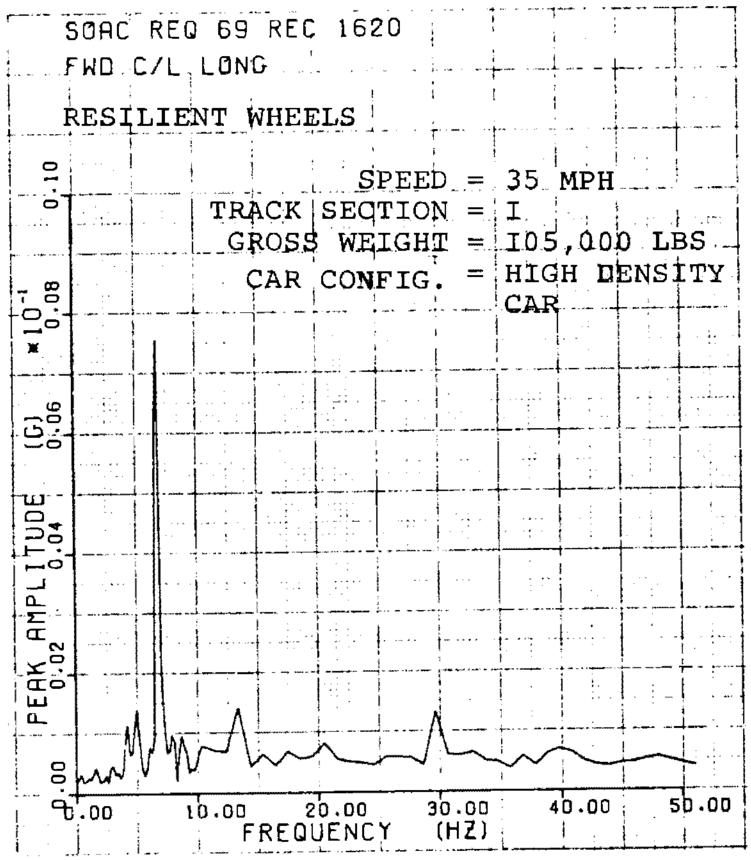

SOAC REQ 69 REC 1620
AFT C/L LAT
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-52


SOAC REQ 69 REC 1620
FWD C/L LONG
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

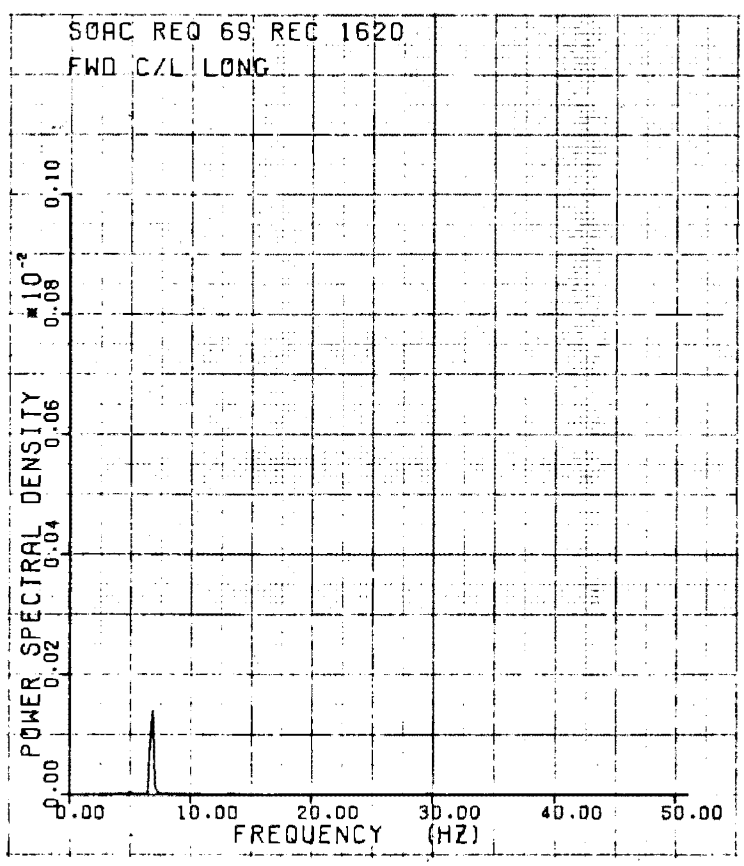
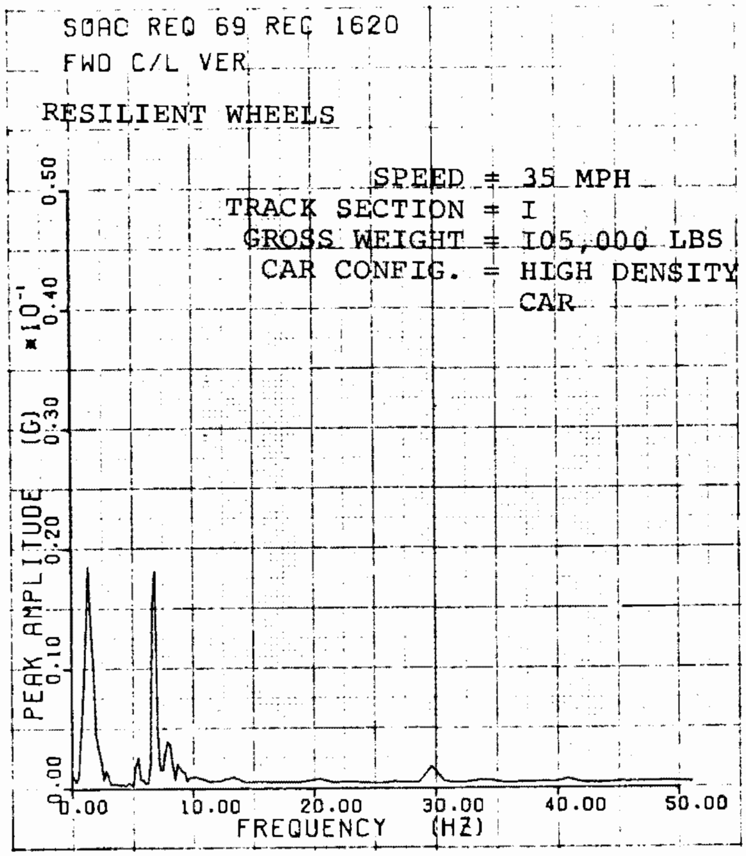

SOAC REQ 69 REC 1620
FWD C/L LONG
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-53


SOAC REQ 69 REC 1620
FWD C/L VER
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

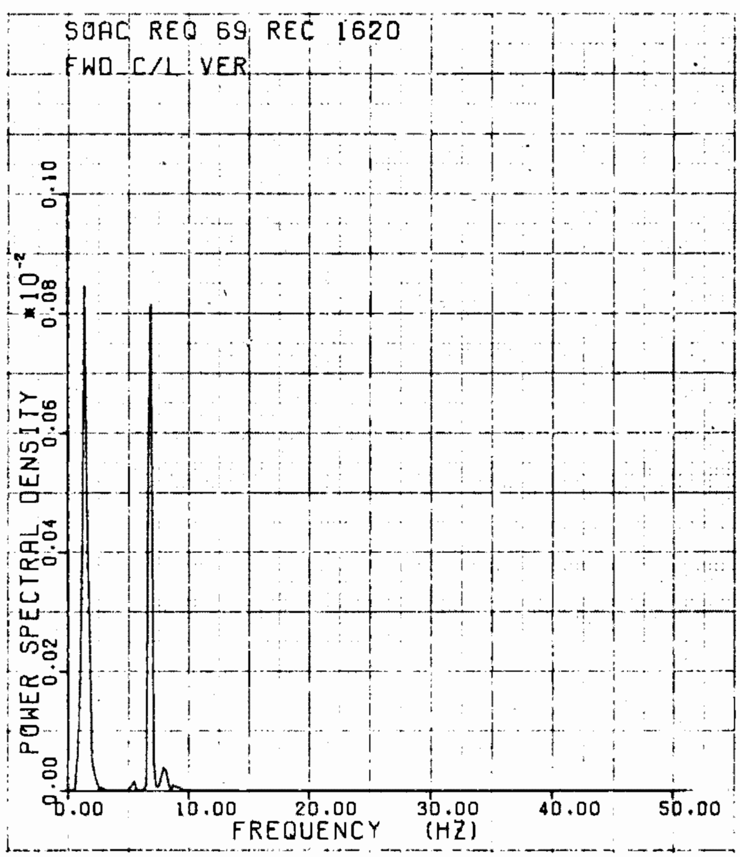
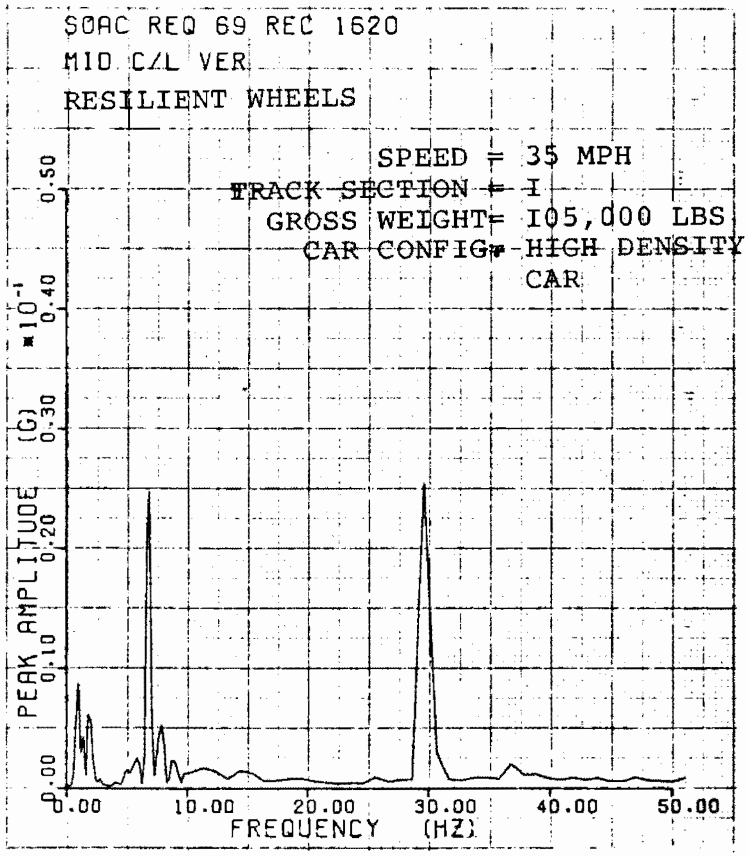

SOAC REQ 69 REC 1620
FWD C/L VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-54


SOAC REQ 69 REC 1620
MID C/L VER
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT= 105,000 LBS
CAR CONFIG= HIGH DENSITY
CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

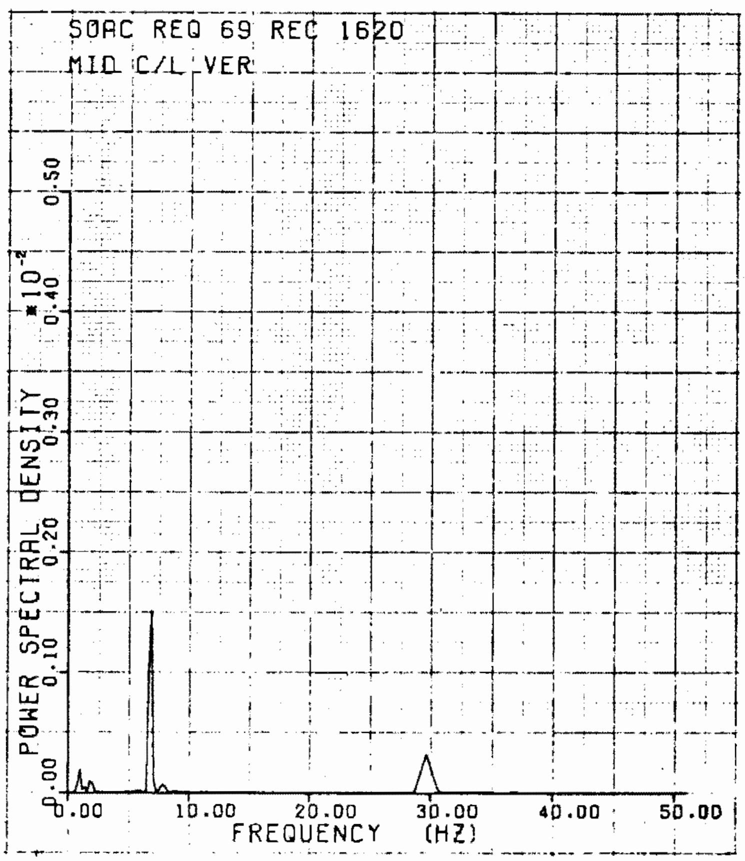
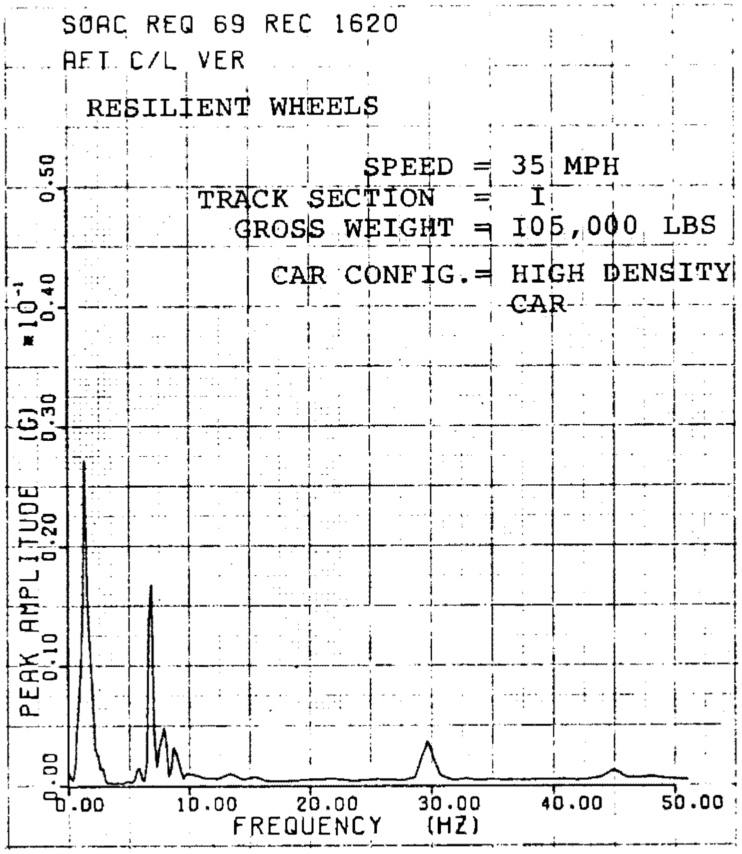
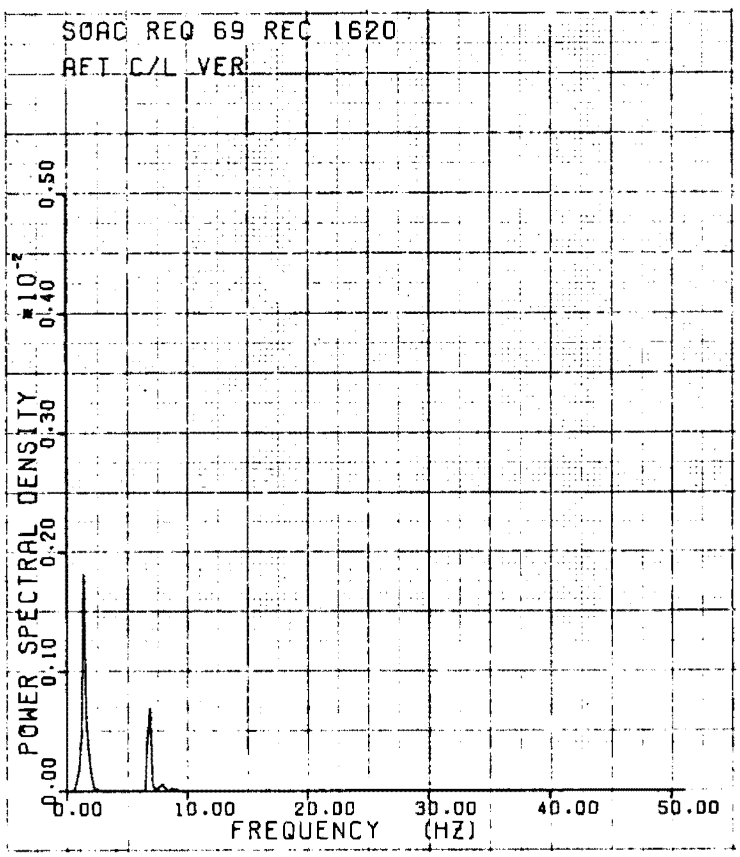

SOAC REQ 69 REC 1620
MID C/L VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-55

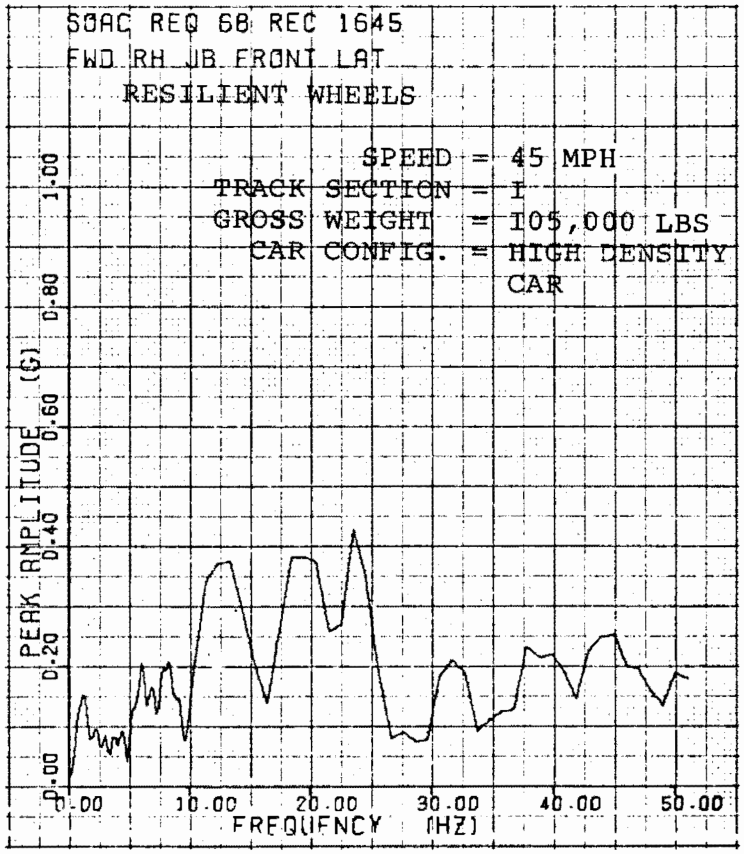


SOAC REQ 69 REC 1620
AFT C/L VER
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG.= HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

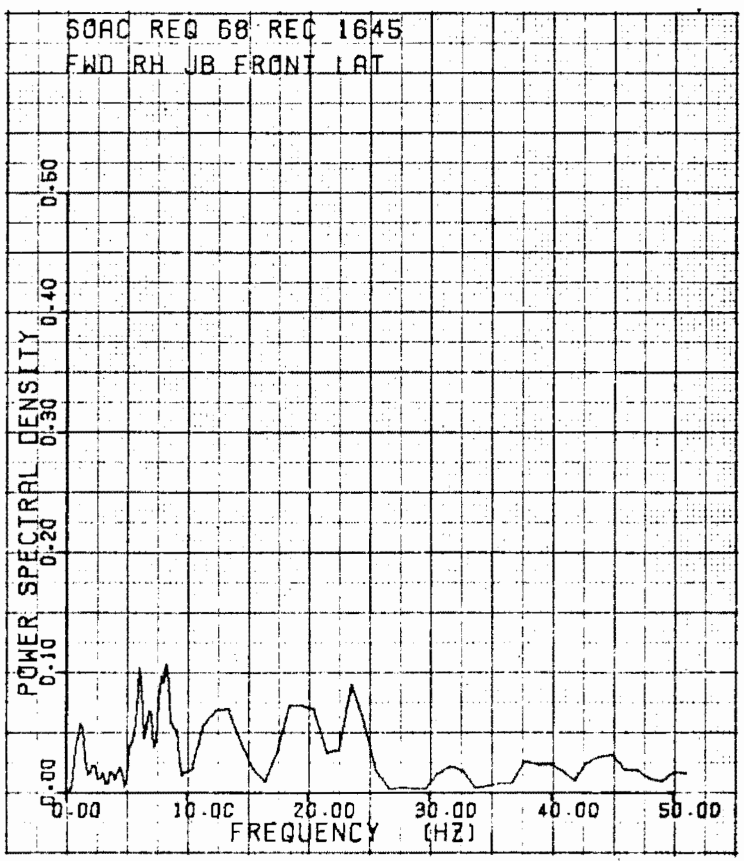


SOAC REQ 69 REC 1620
AFT C/L VER
POWER SPECTRAL DENSITY *10^-2
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-56

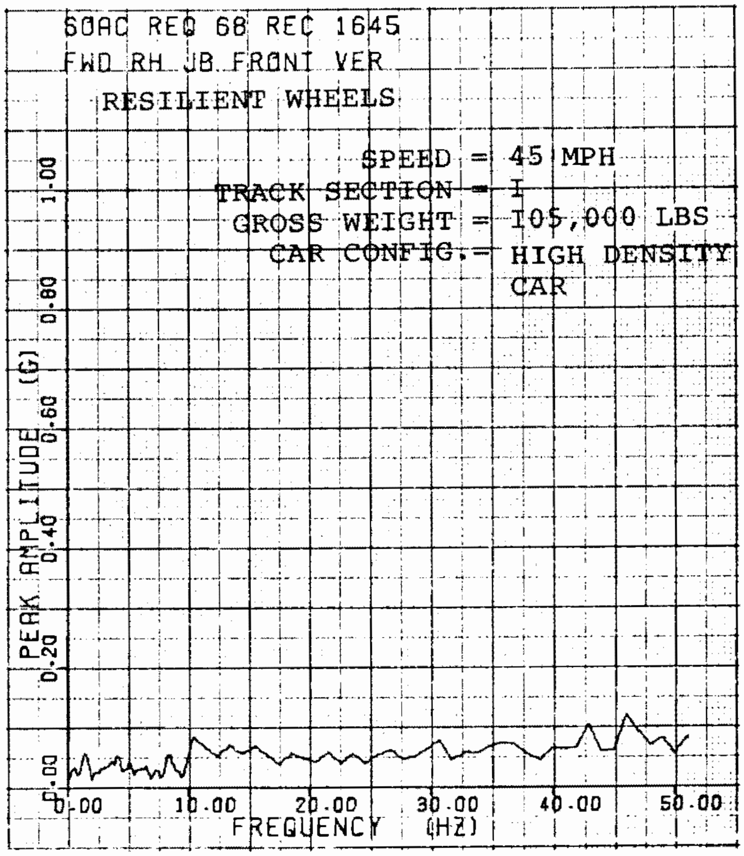


SOAC REQ 68 REC 1645
FWD RH JB FRONT LAT
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 68 REC 1645
FWD RH JB FRONT LAT
POWER SPECTRAL DENSITY
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-57


SOAC REQ 68 REC 1645
FWD RH JB FRONT VER
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG.= HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

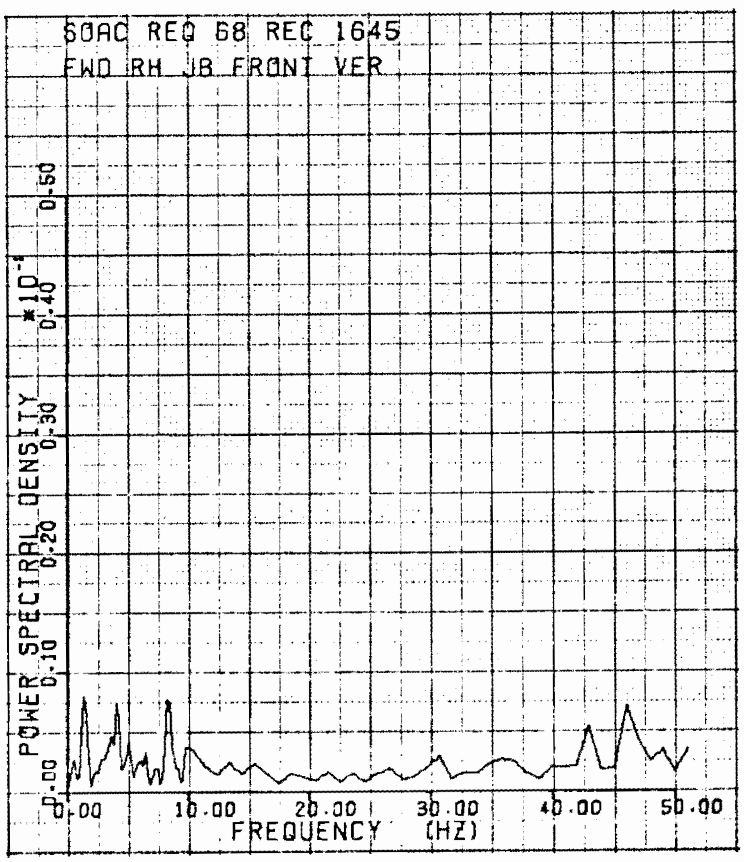
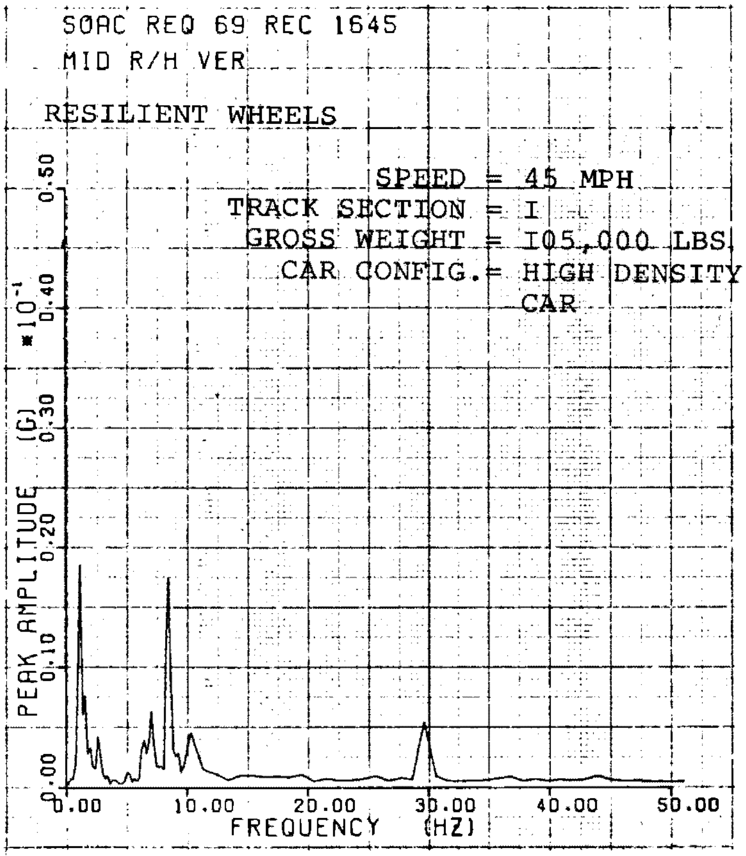
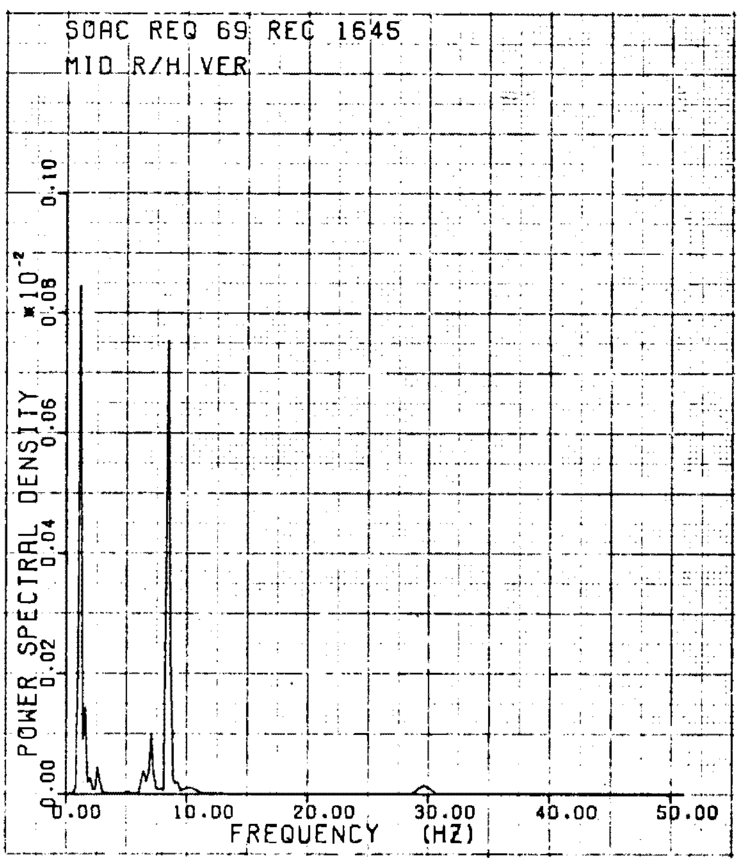

SOAC REQ 68 REC 1645
FWD RH JB FRONT VER
POWER SPECTRAL DENSITY *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-58

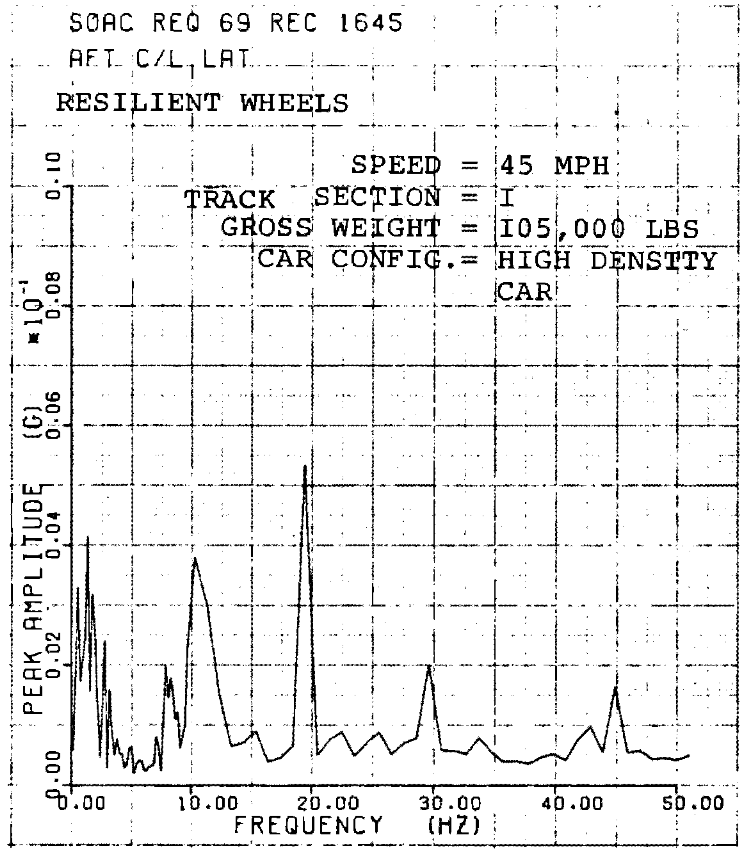


SOAC REQ 69 REC 1645
MID R/H VER
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

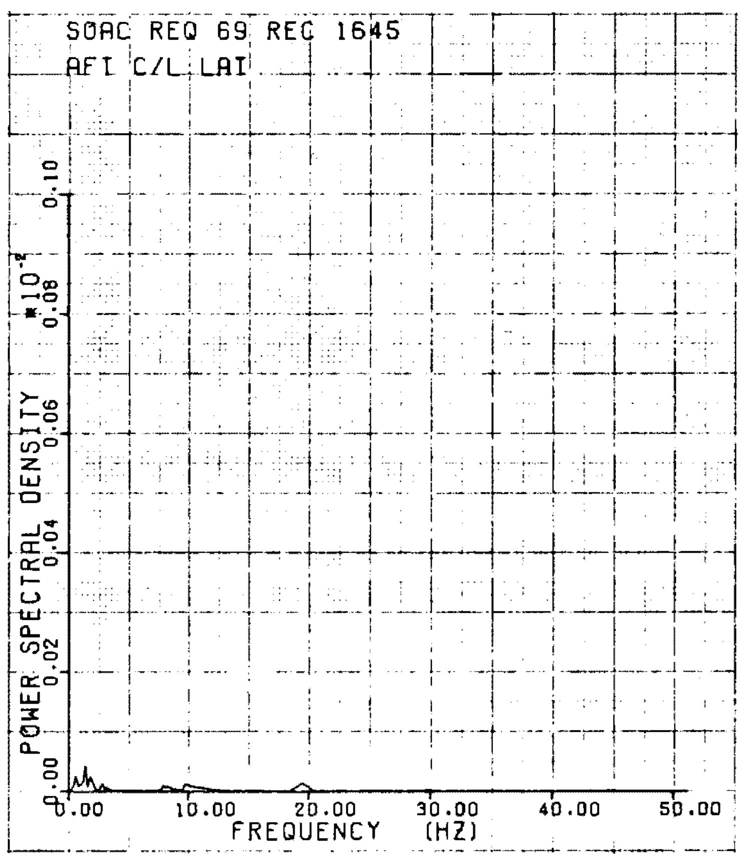


SOAC REQ 69 REC 1645
MID R/H VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-59

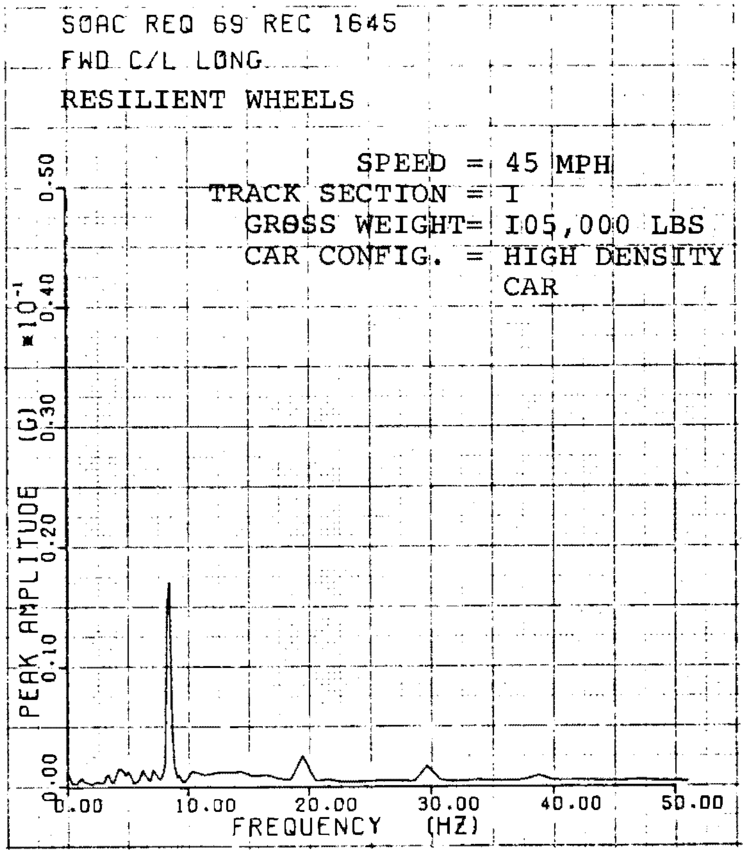


SOAC REQ 69 REC 1645
AFT C/L LAT
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG.= HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 69 REC 1645
AFT C/L LAT
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-60


SOAC REQ 69 REC 1645
FWD C/L LONG
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION = I
GROSS WEIGHT= 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

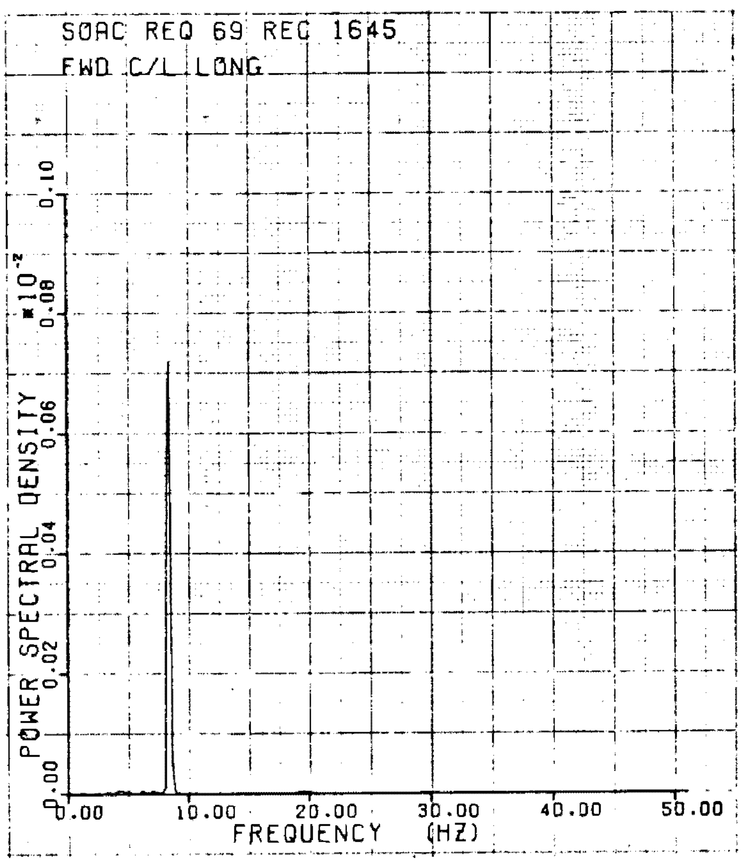
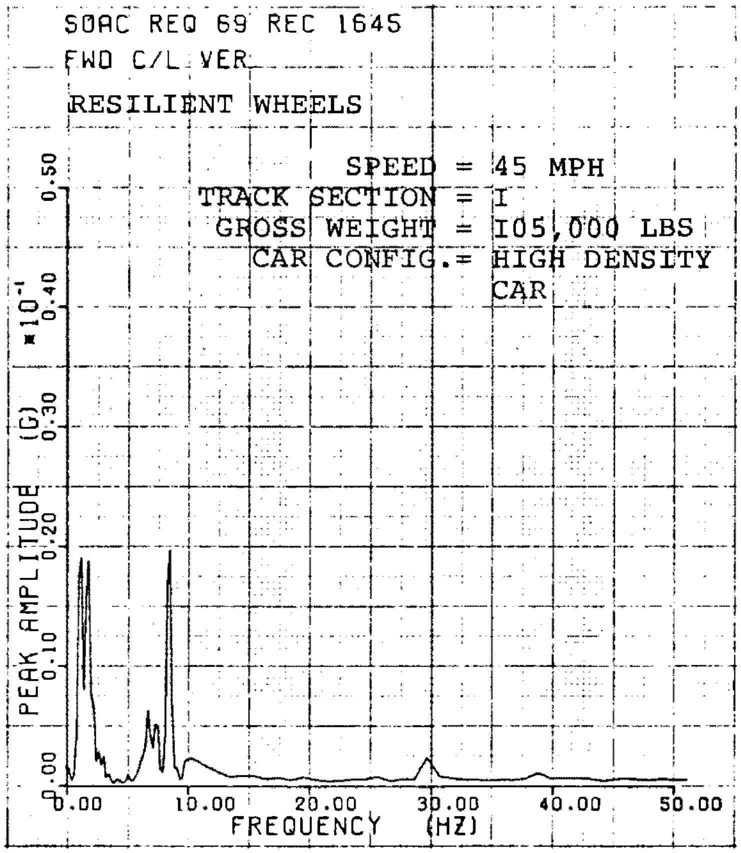
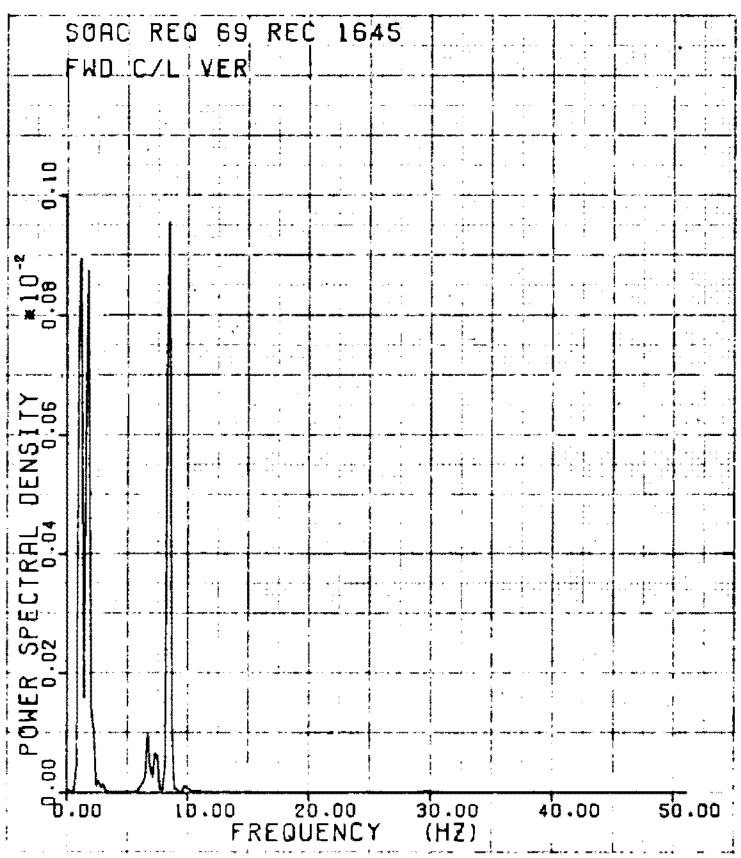

SOAC REQ 69 REC 1645
FWD C/L LONG
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-61

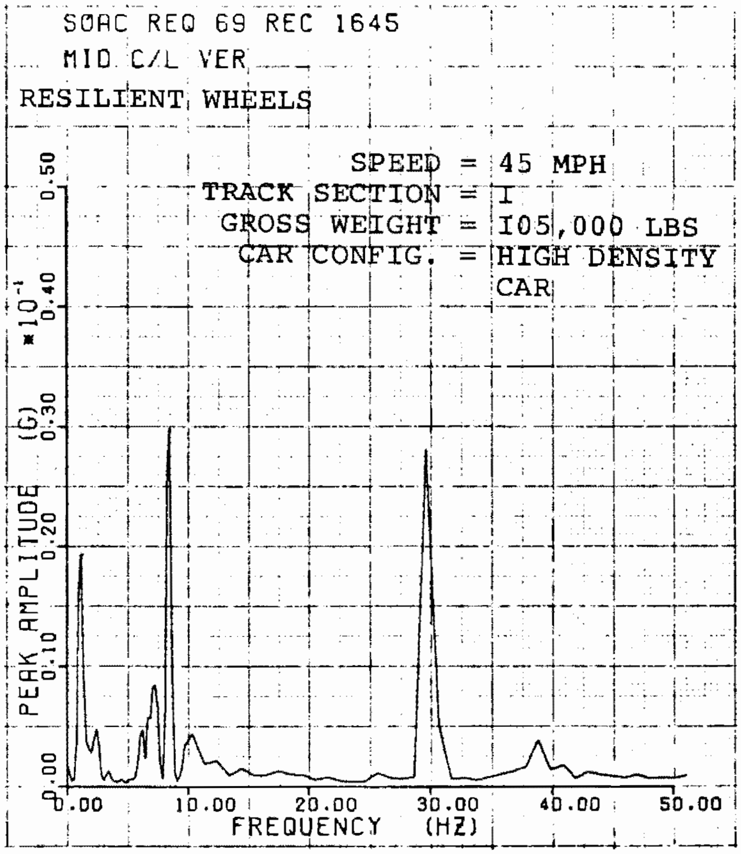


SOAC REQ 69 REC 1645
FWD C/L VER
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG.= HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

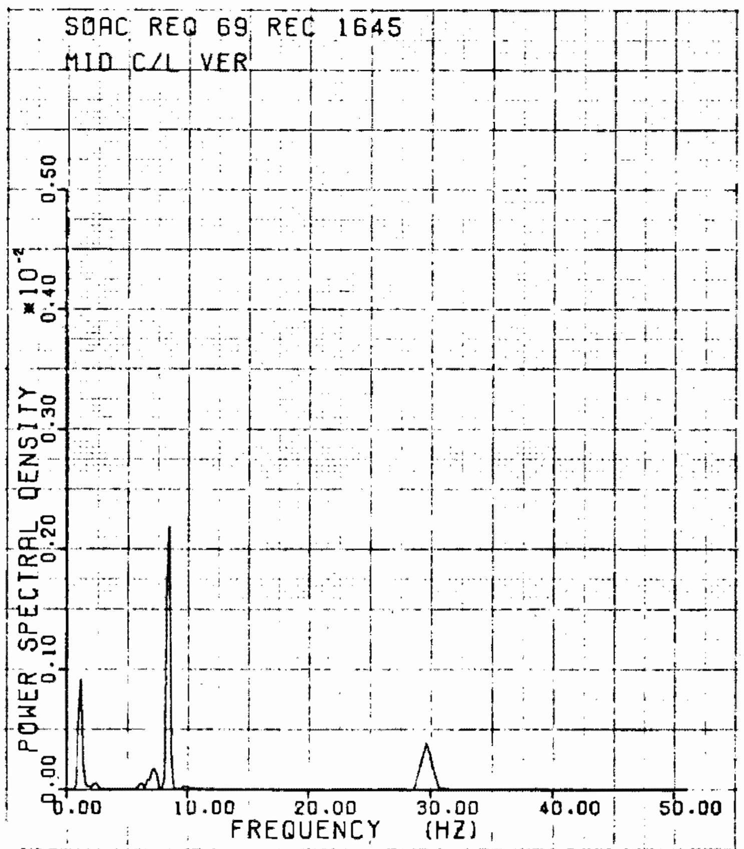


SOAC REQ 69 REC 1645
FWD C/L VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-62

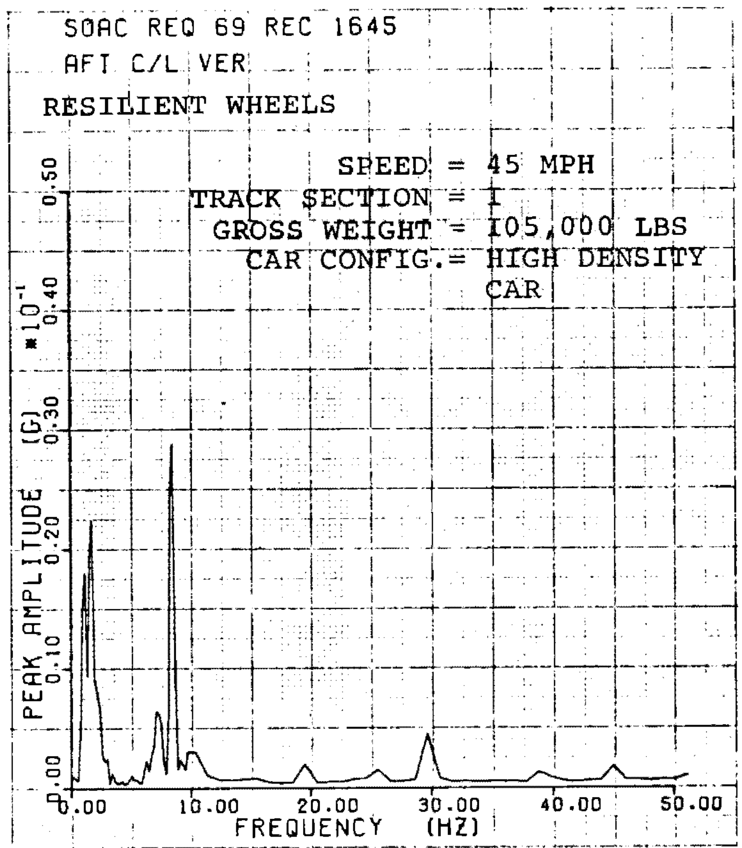


SOAC REQ 69 REC 1645
MID C/L VER
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 69 REC 1645
MID C/L VER
POWER SPECTRAL DENSITY *10^-2
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-63


SOAC REQ 69 REC 1645
AFI C/L VER
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG.= HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

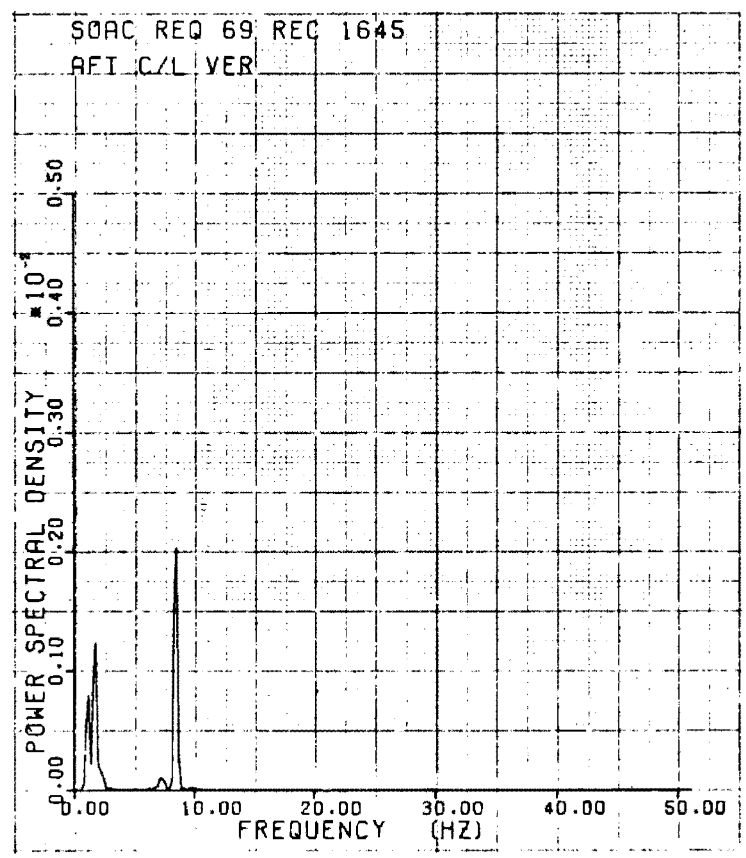
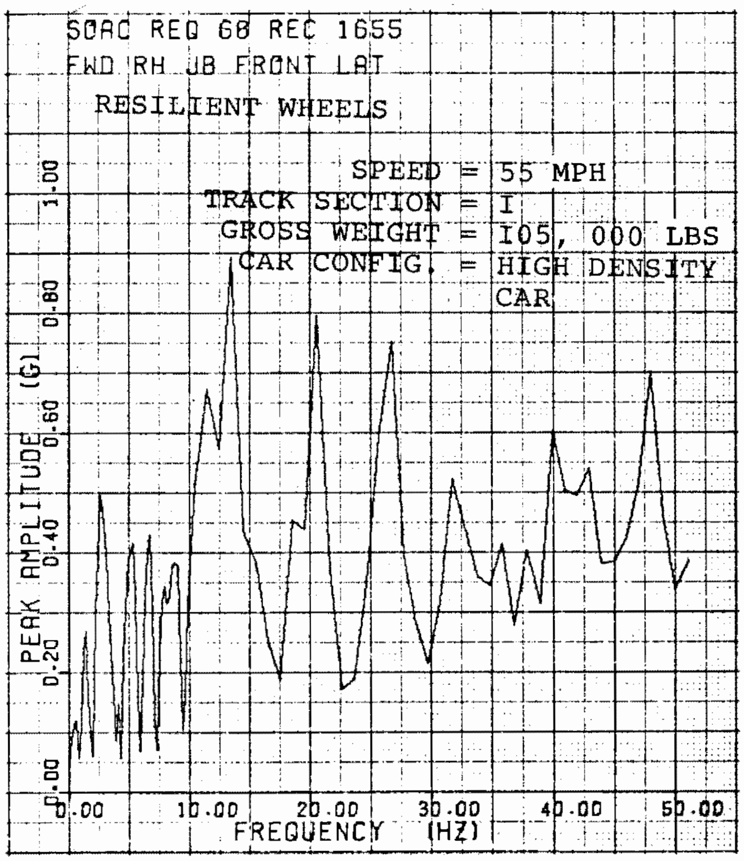
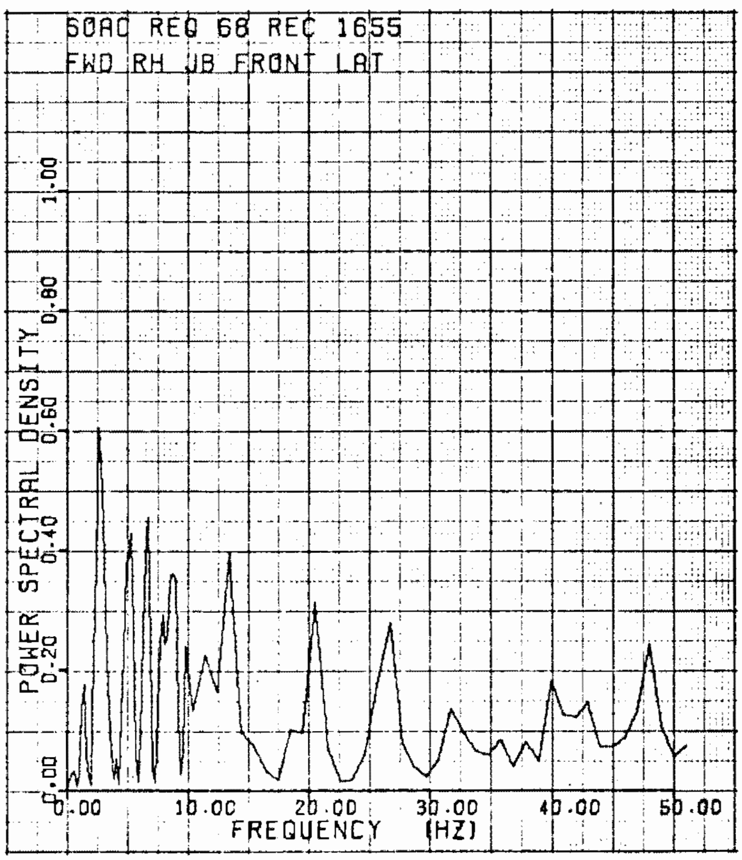

SOAC REQ 69 REC 1645
AFI C/L VER
POWER SPECTRAL DENSITY *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-64

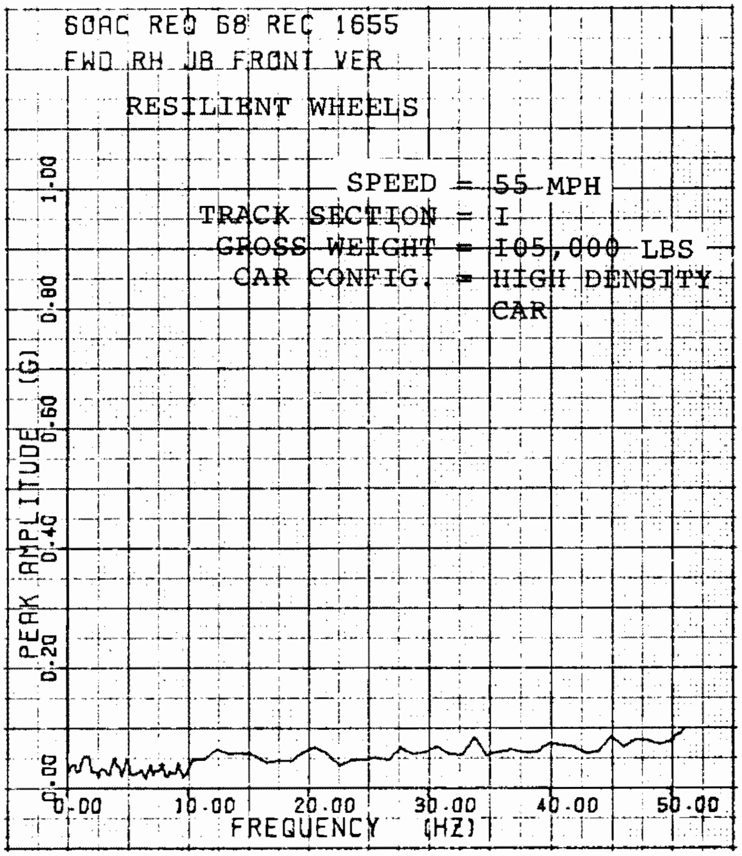


SOAC REQ 68 REC 1655
FWD RH JB FRONT LAT
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = I05, 000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

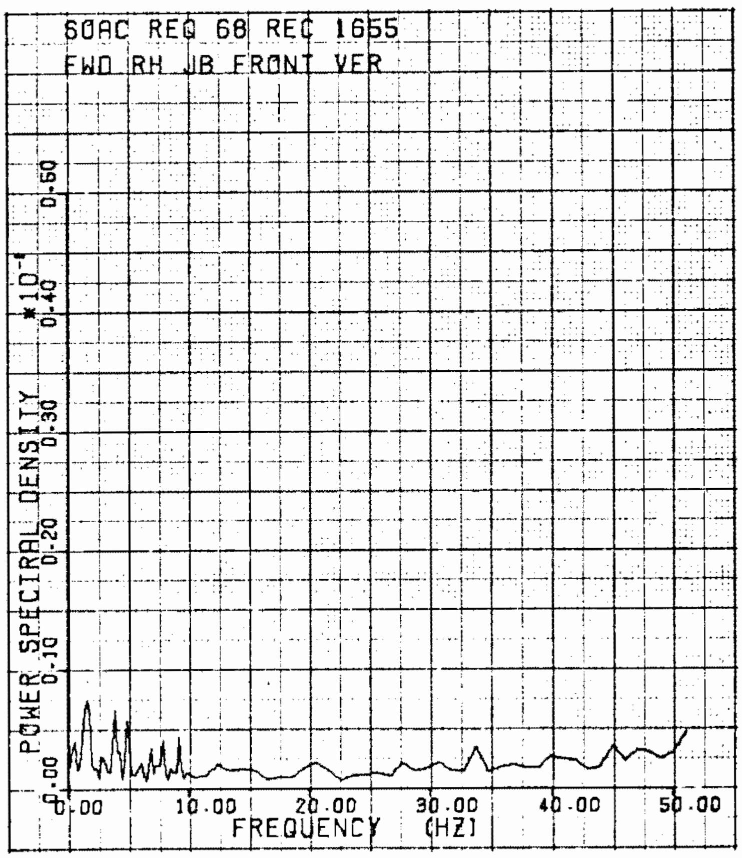


SOAC REQ 68 REC 1655
FWD RH JB FRONT LAT
POWER SPECTRAL DENSITY
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-65

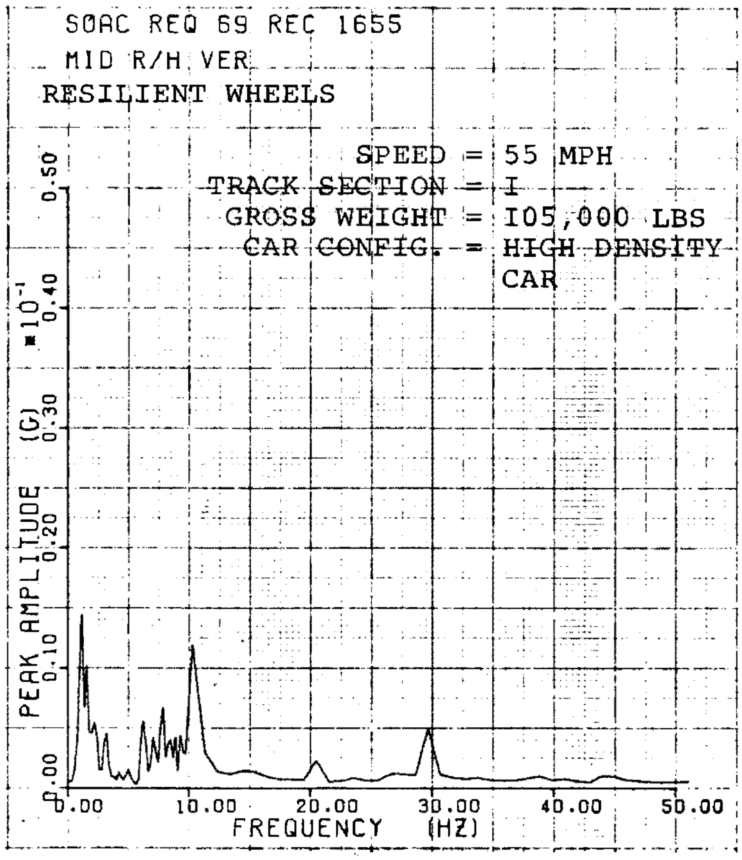


SOAC REQ 68 REC 1655
FWD RH JB FRONT VER
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 68 REC 1655
FWD RH JB FRONT VER
POWER SPECTRAL DENSITY *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-66


SOAC REQ 69 REC 1655
MID R/H VER
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

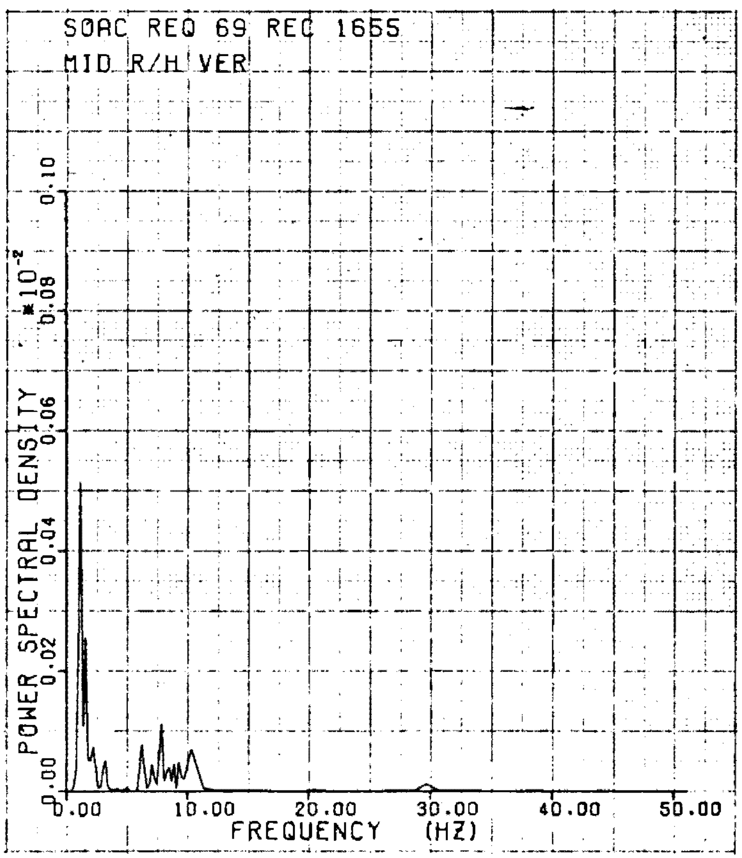
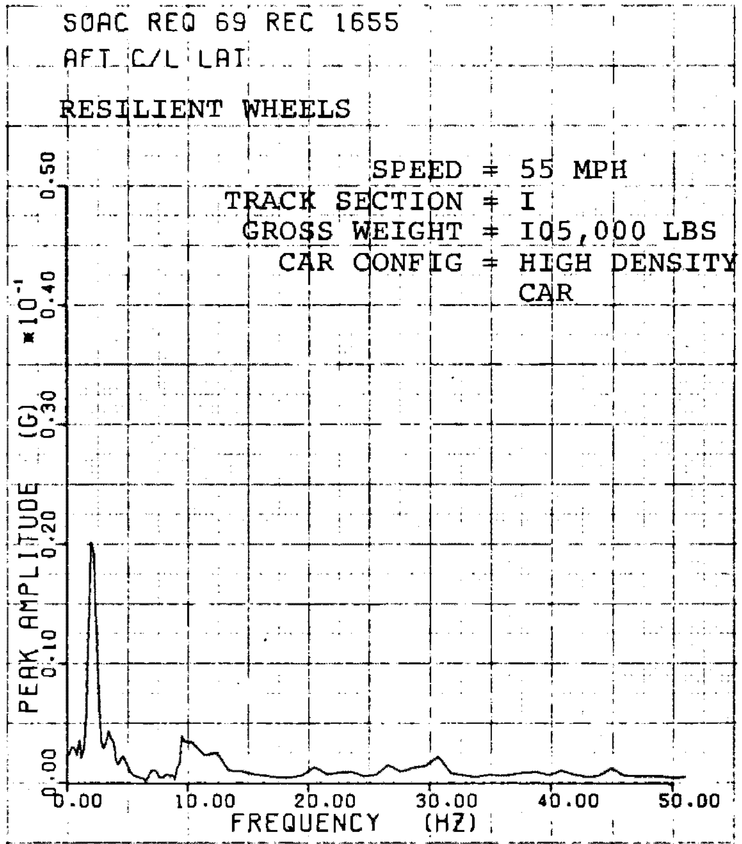

SOAC REQ 69 REC 1655
MID R/H VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-67


SOAC REQ 69 REC 1655
AFT C/L LAT
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

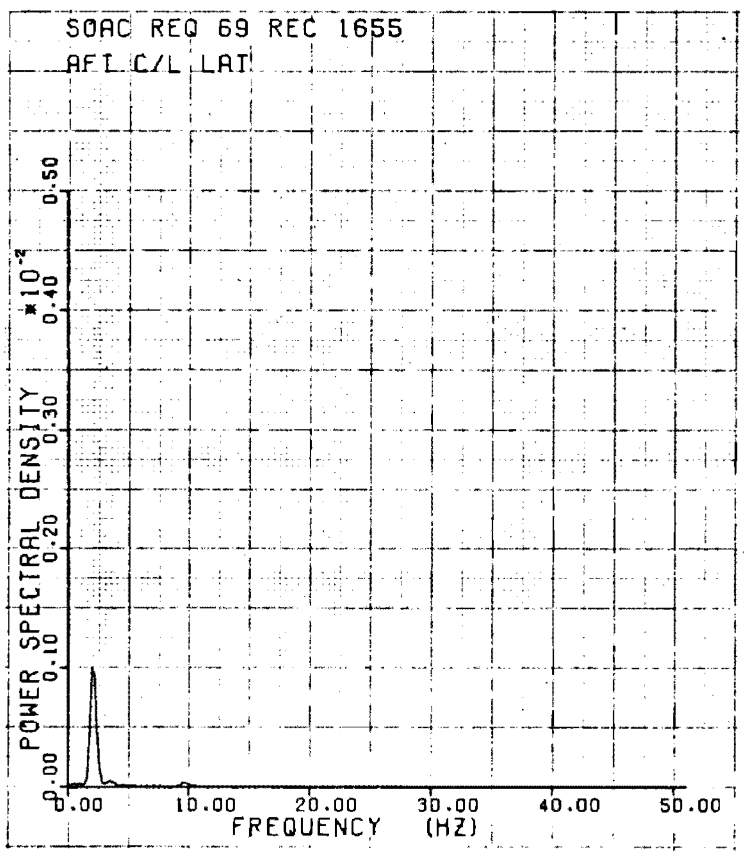
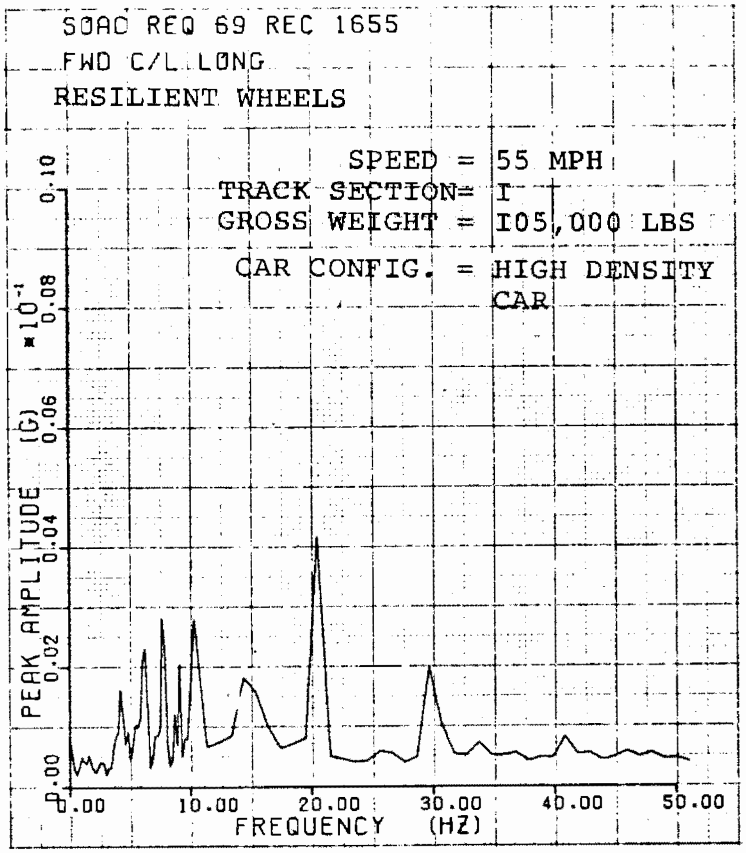
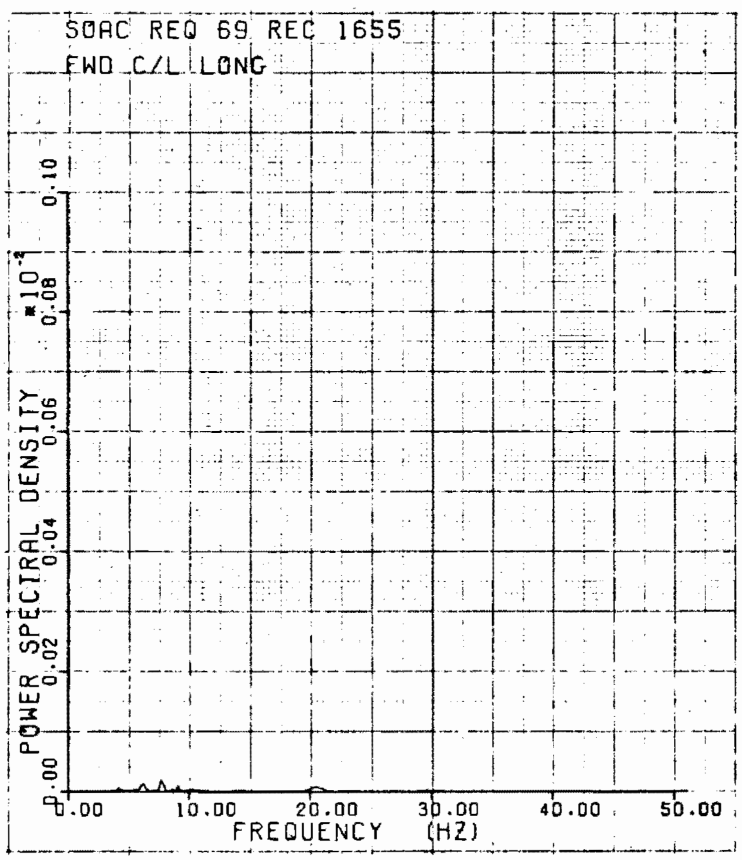

SOAC REQ 69 REC 1655
AFT C/L LAT
POWER SPECTRAL DENSITY *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-68

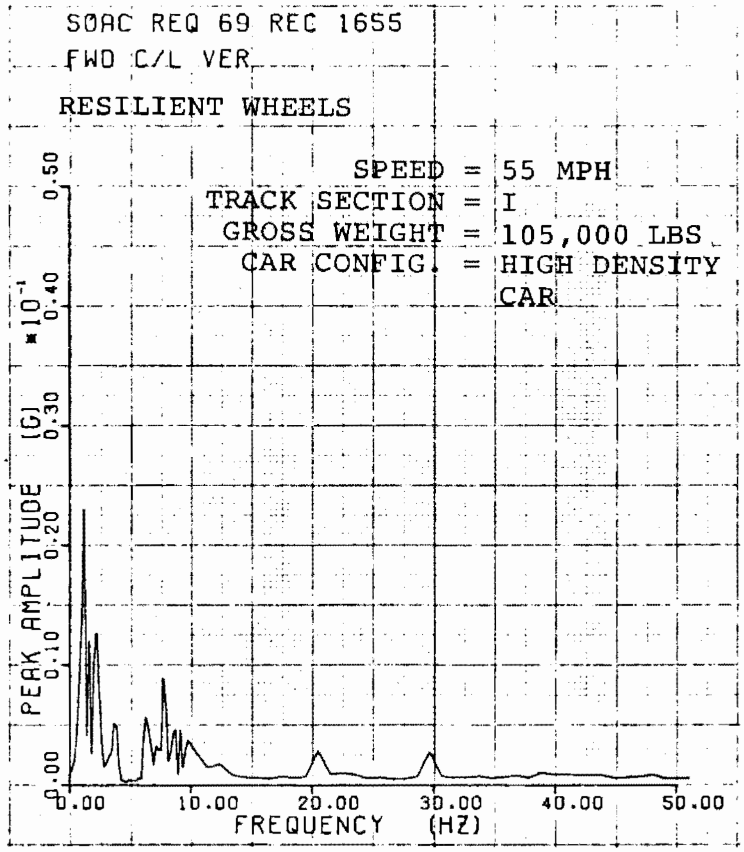


SOAC REQ 69 REC 1655
FWD C/L LONG
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION= I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

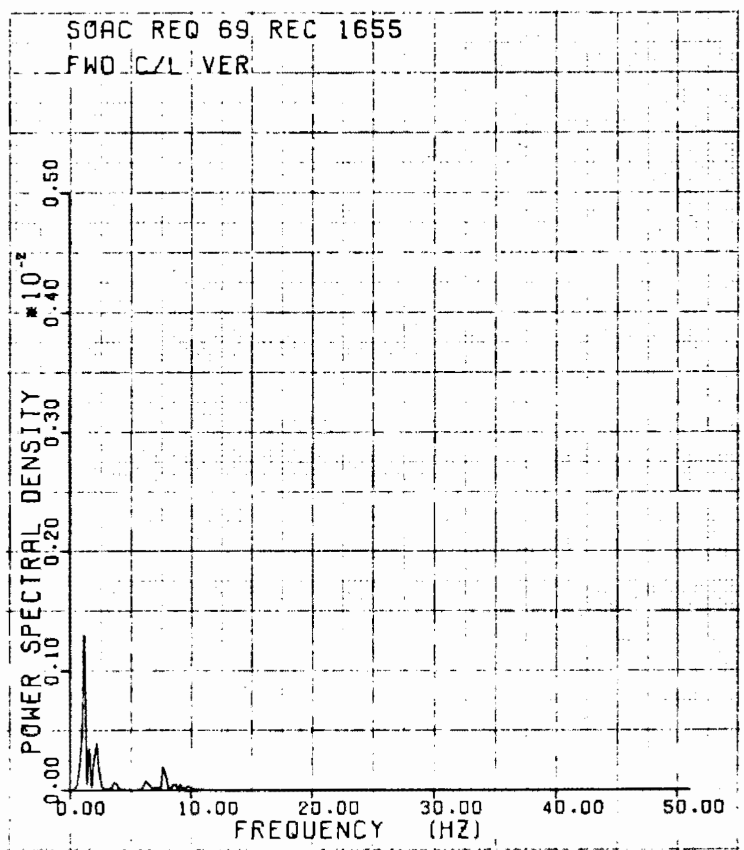


SOAC REQ 69 REC 1655
FWD C/L LONG
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-69

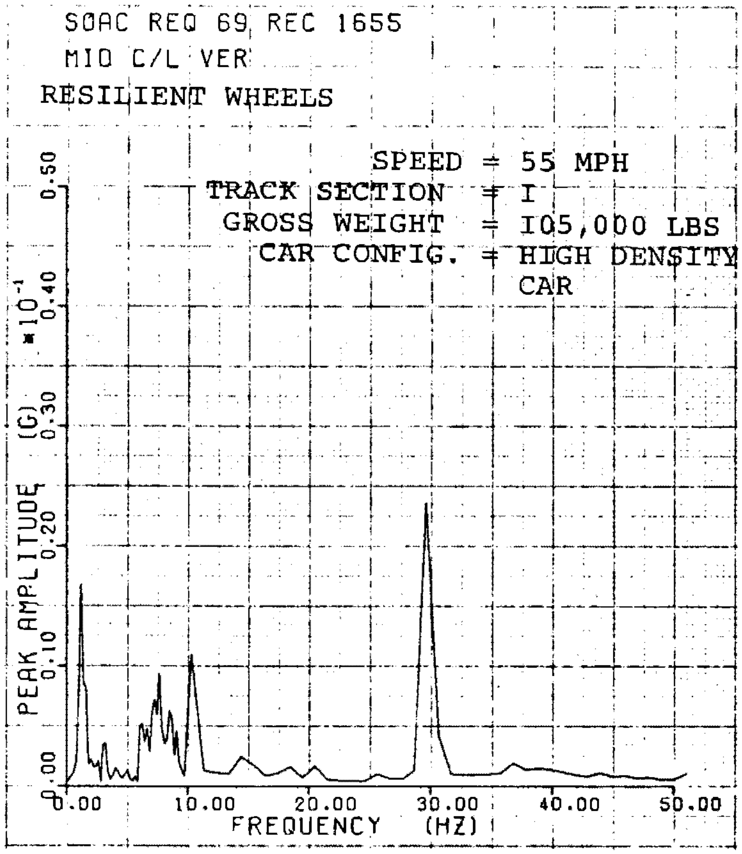


SOAC REQ 69 REC 1655
FWD C/L VER
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE [G] *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 69 REC 1655
FWD C/L VER
POWER SPECTRAL DENSITY *10^-2
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-70


SOAC REQ 69 REC 1655
MID C/L VER
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

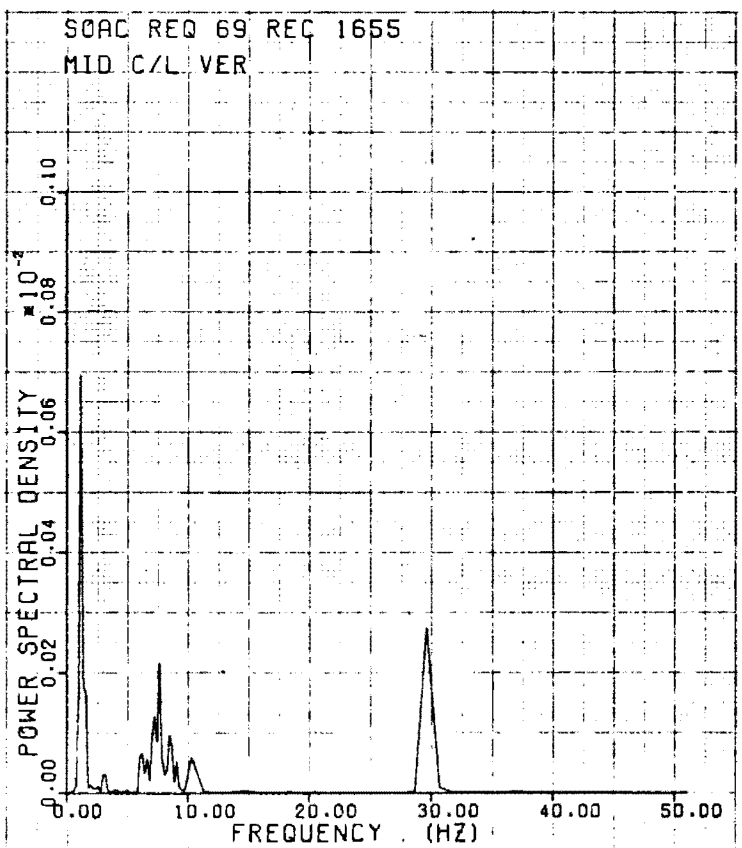
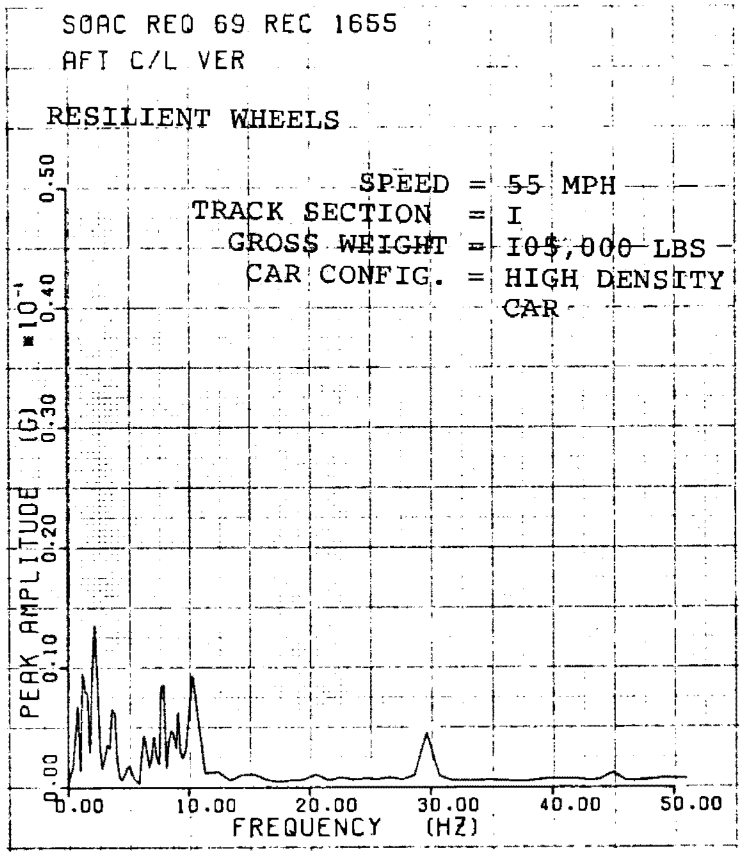
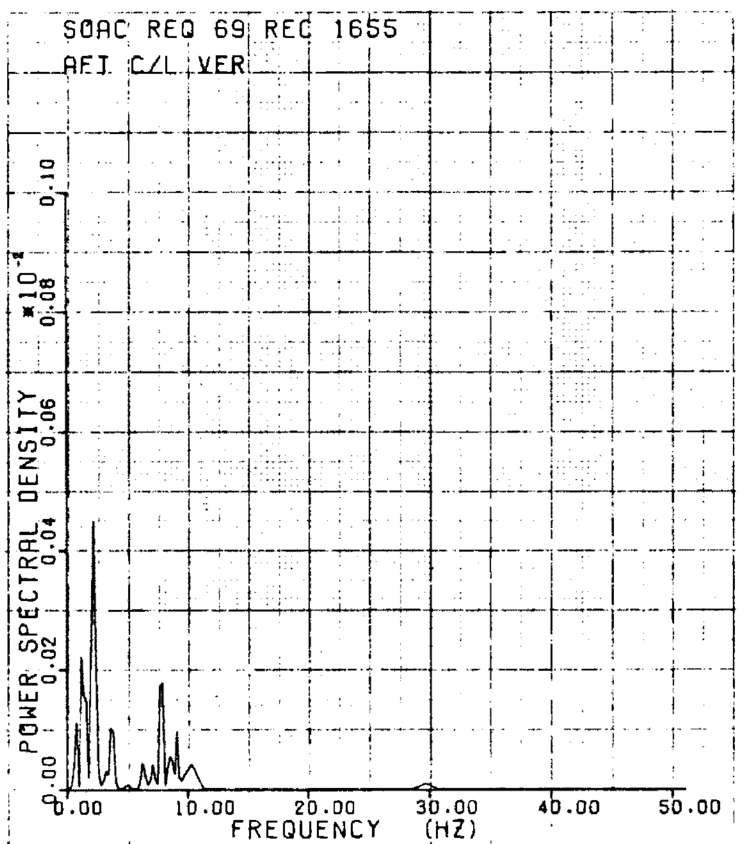

SOAC REQ 69 REC 1655
MID C/L VER
POWER SPECTRAL DENSITY *10^-2
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-71

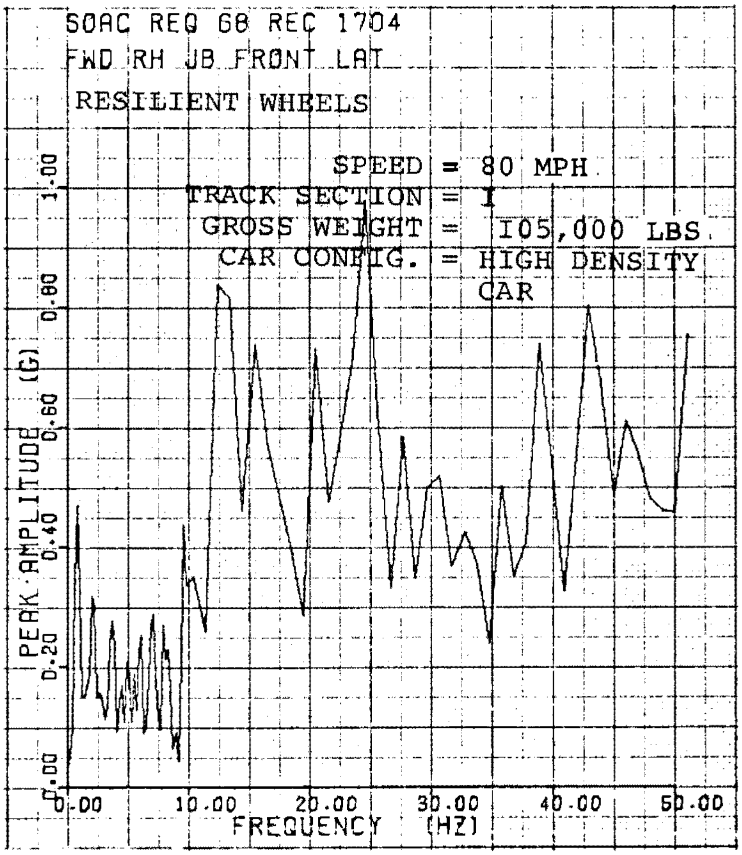


SOAC REQ 69 REC 1655
AFT C/L VER
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) ×10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

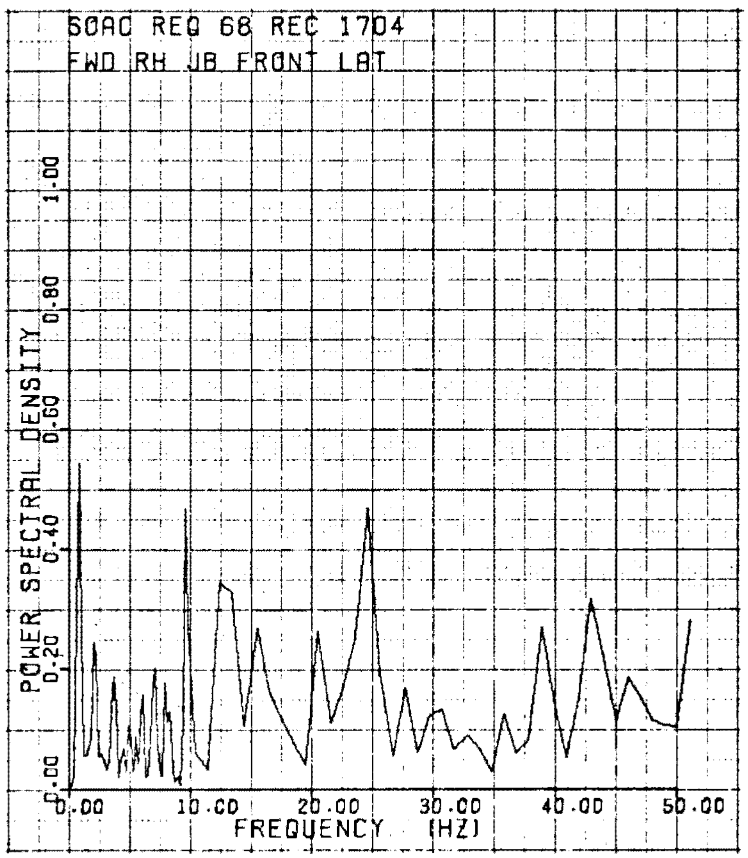


SOAC REQ 69 REC 1655
AFT C/L VER
POWER SPECTRAL DENSITY ×10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-72

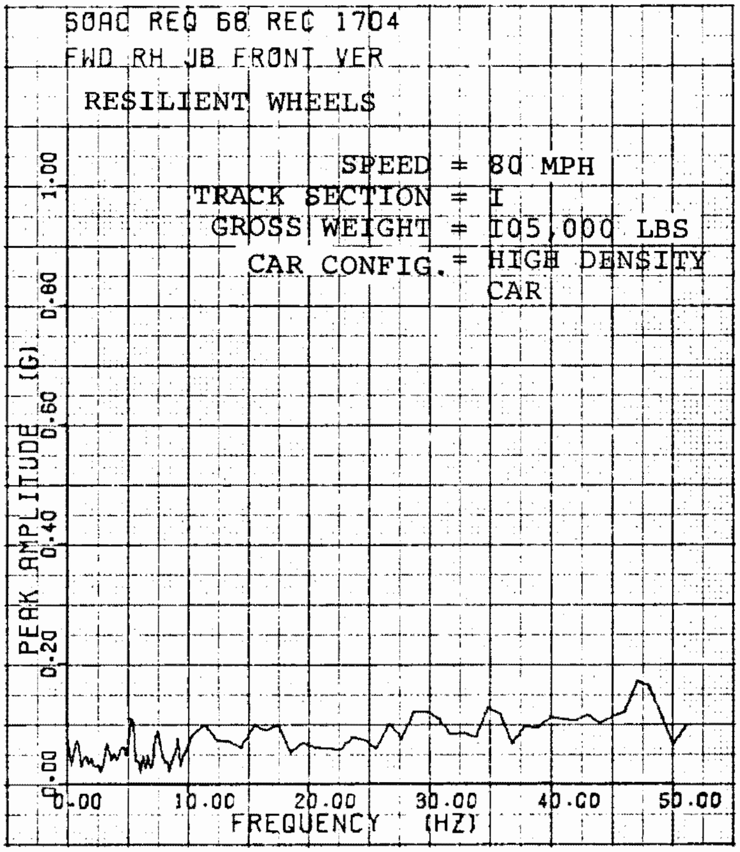


SOAC REQ 68 REC 1704
FWD RH JB FRONT LAT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

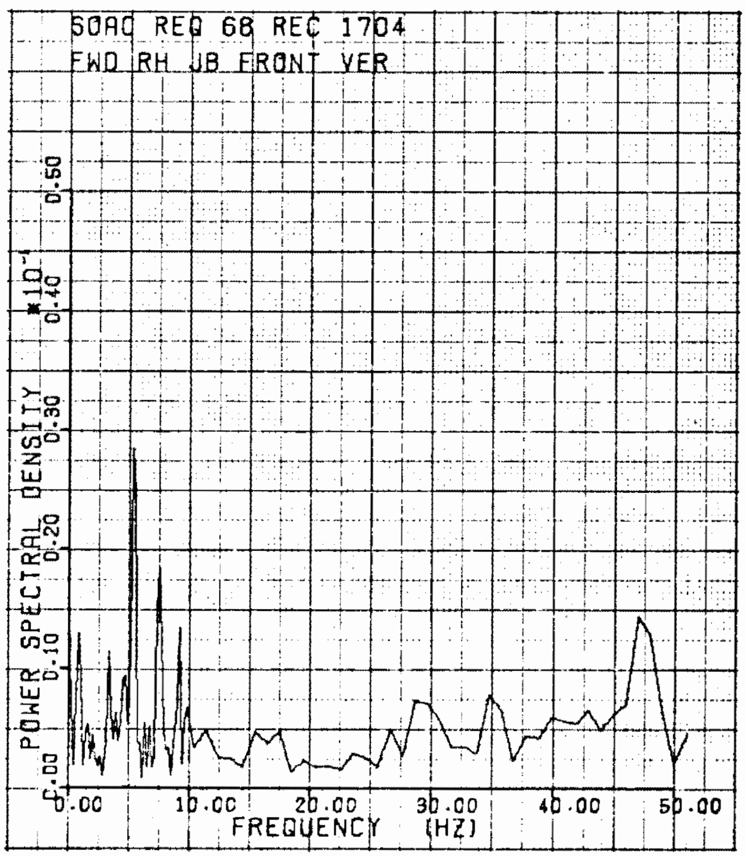


SOAC REQ 68 REC 1704
FWD RH JB FRONT LAT
POWER SPECTRAL DENSITY
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-73

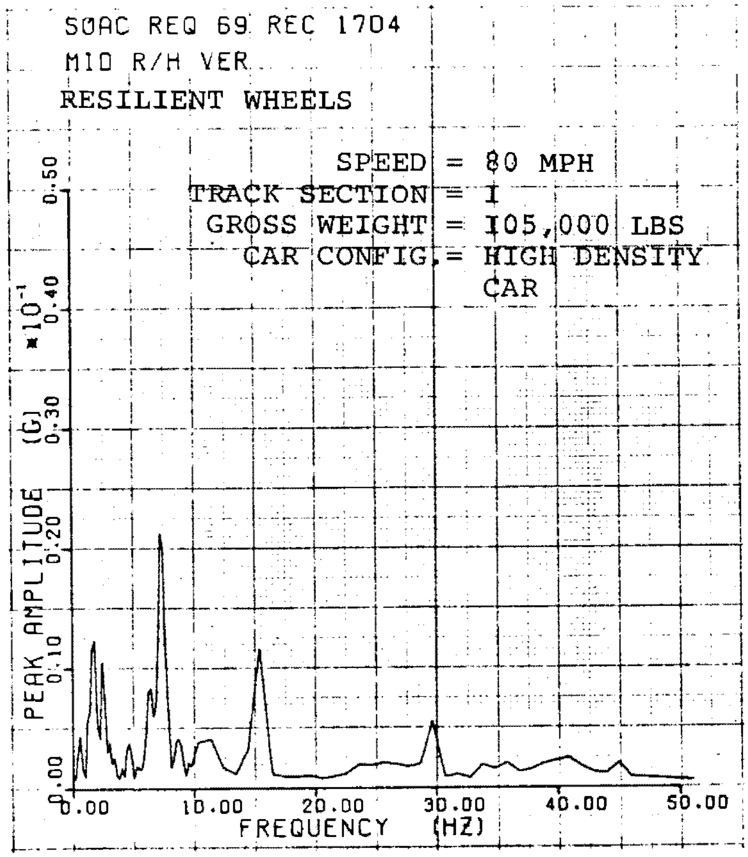


5OAC REQ 68 REC 1704
FWD RH JB FRONT VER
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



5OAC REQ 68 REC 1704
FWD RH JB FRONT VER
POWER SPECTRAL DENSITY *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-74


SOAC REQ 69 REC 1704
MID R/H VER
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

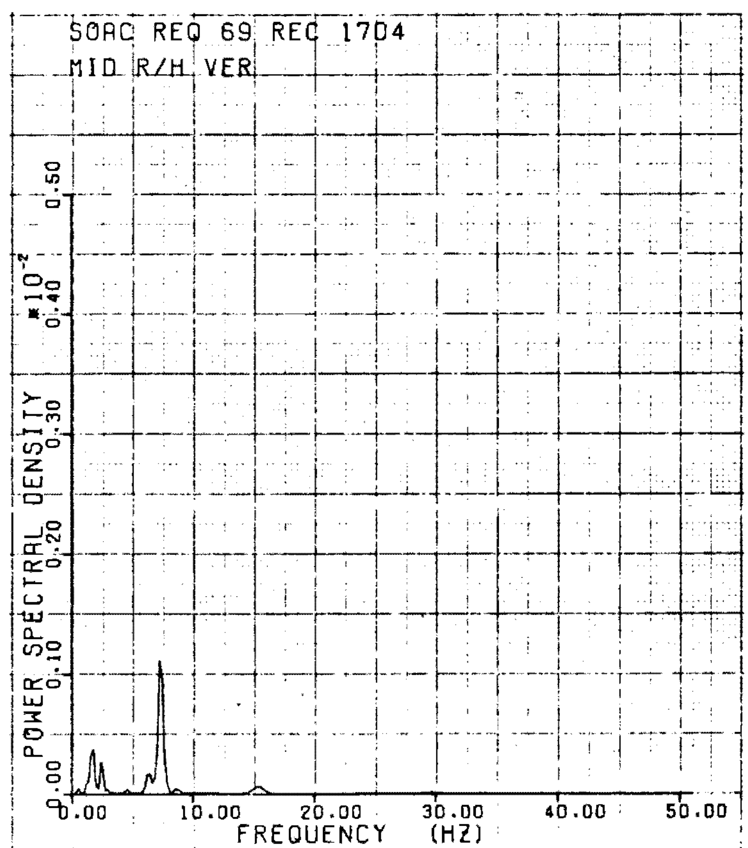
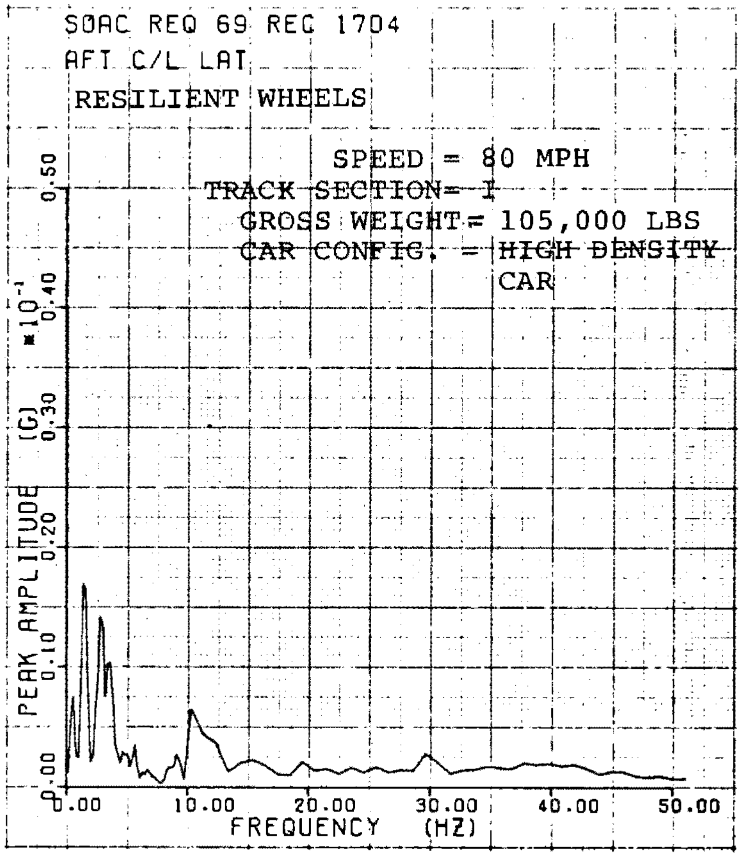

SOAC REQ 69 REC 1704
MID R/H VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-75


SOAC REQ 69 REC 1704
AFT C/L LAT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION= I
GROSS WEIGHT= 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

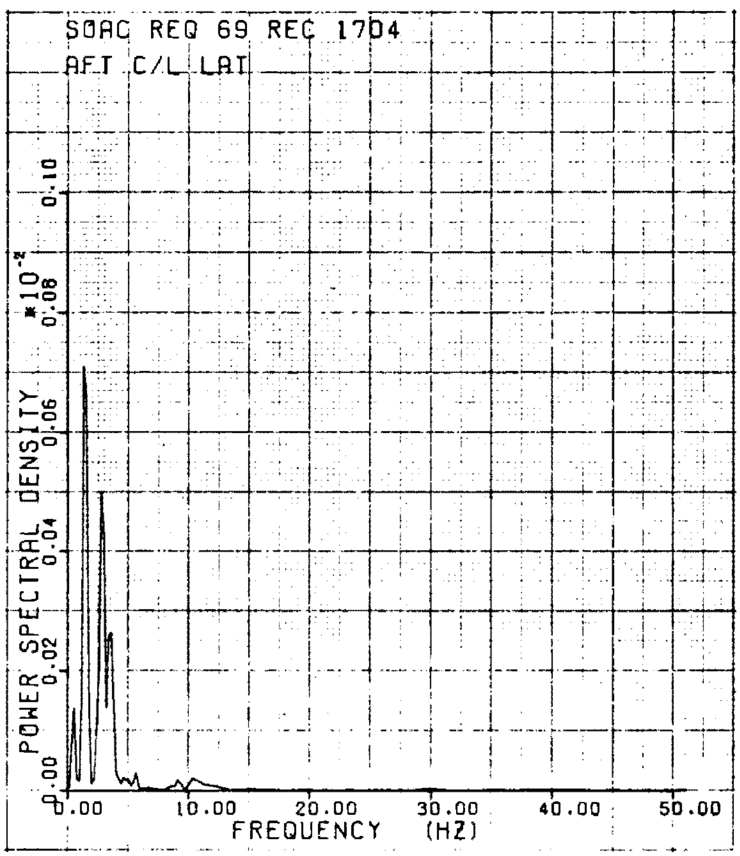
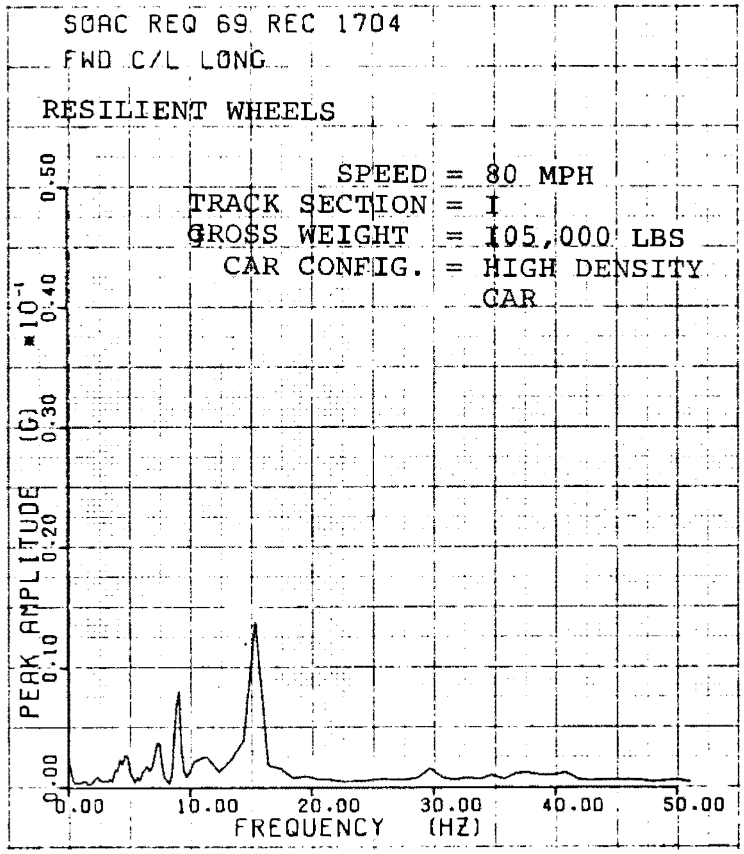

SOAC REQ 69 REC 1704
AFT C/L LAT
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-76


SOAC REQ 69 REC 1704
FWD C/L LONG
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

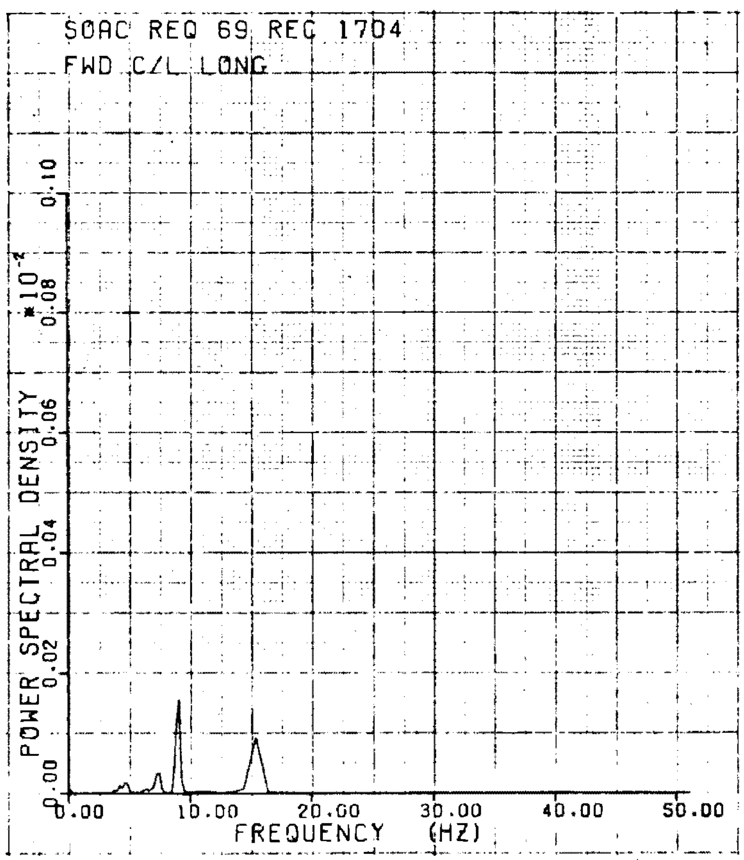
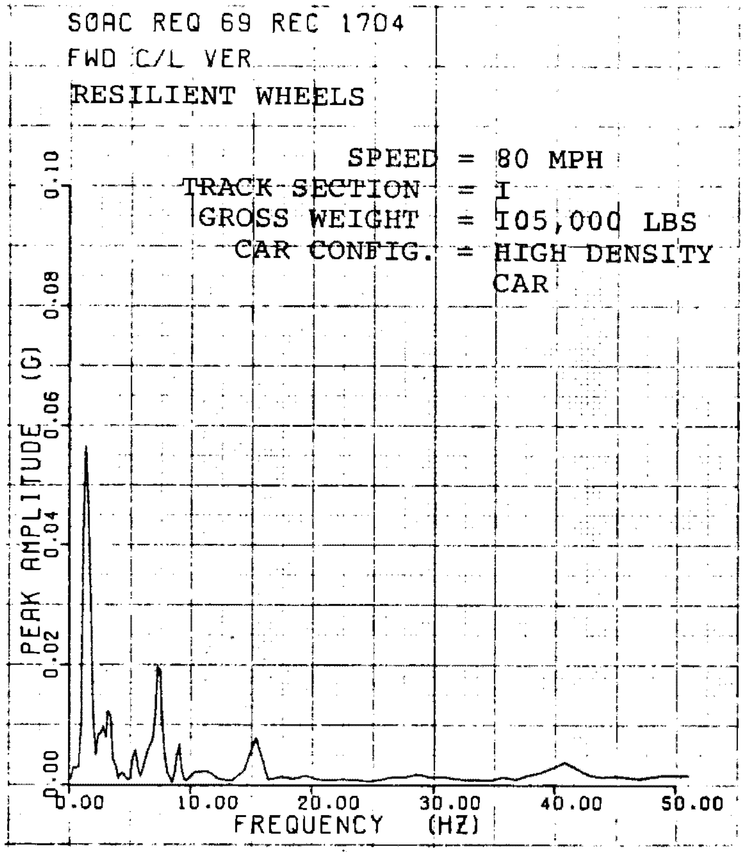
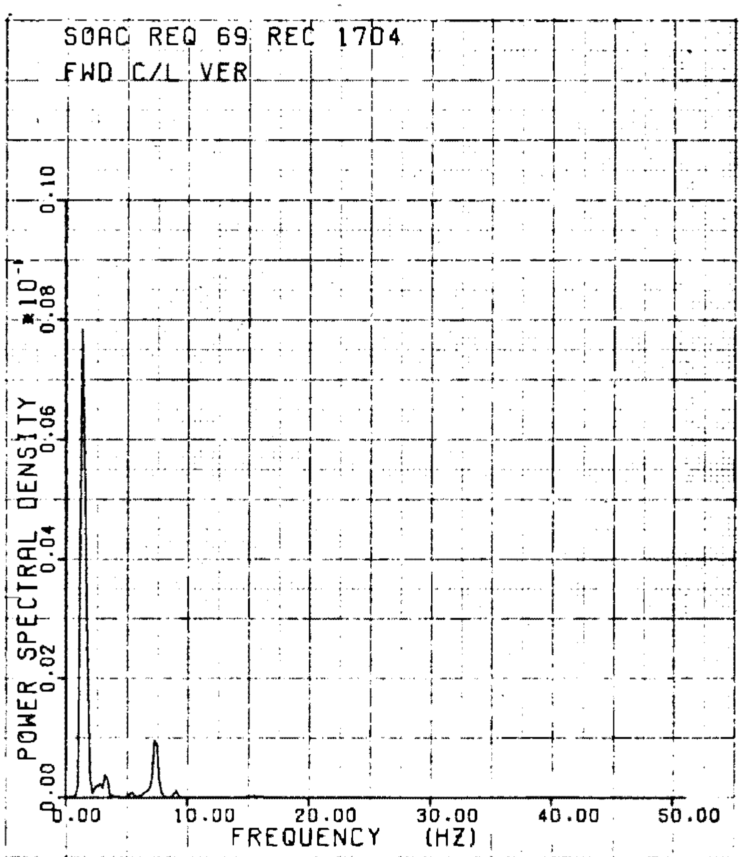

SOAC REQ 69 REC 1704
FWD C/L LONG
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-77

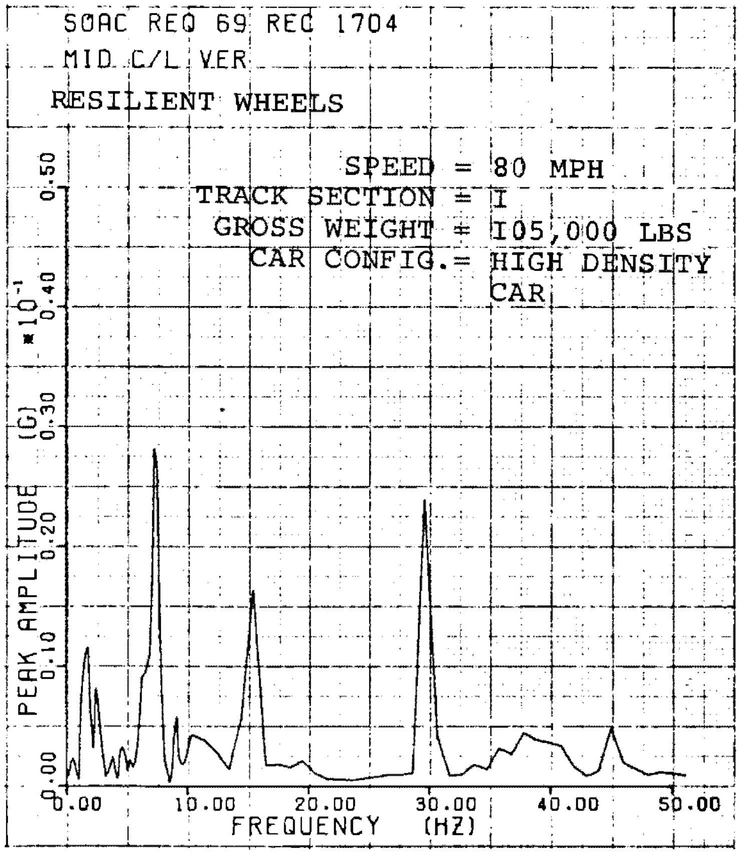


SOAC REQ 69 REC 1704
FWD C/L VER
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 69 REC 1704
FWD C/L VER
POWER SPECTRAL DENSITY *10^-1
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-78


SOAC REQ 69 REC 1704
MID C/L VER
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG.= HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

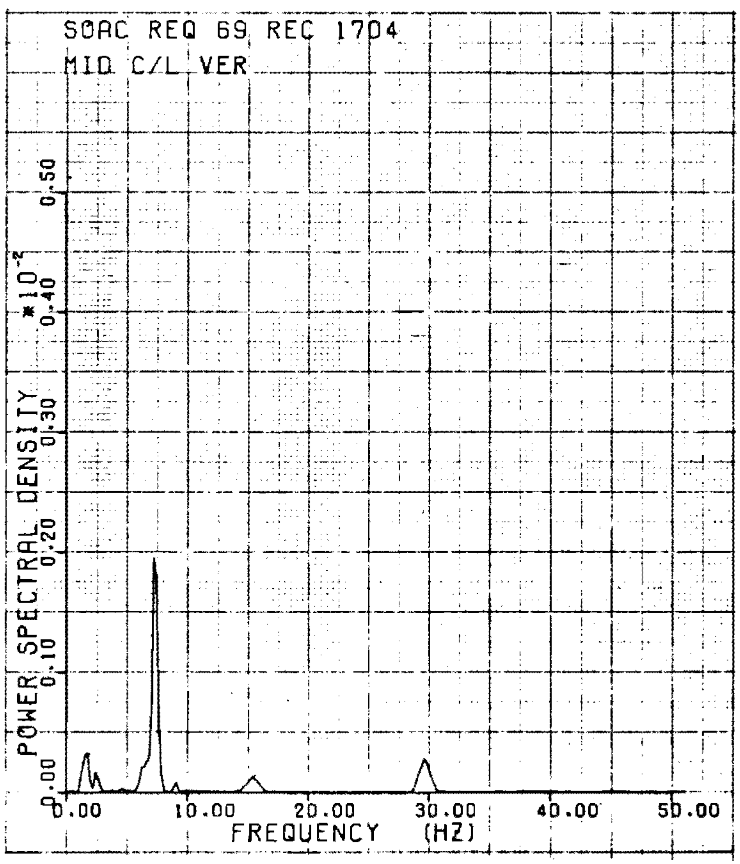
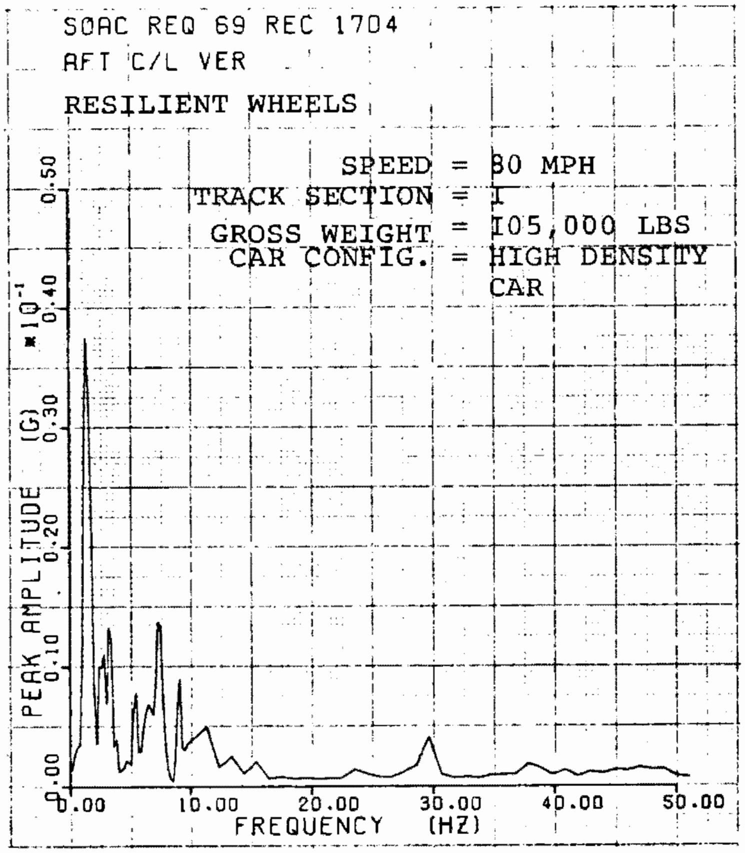
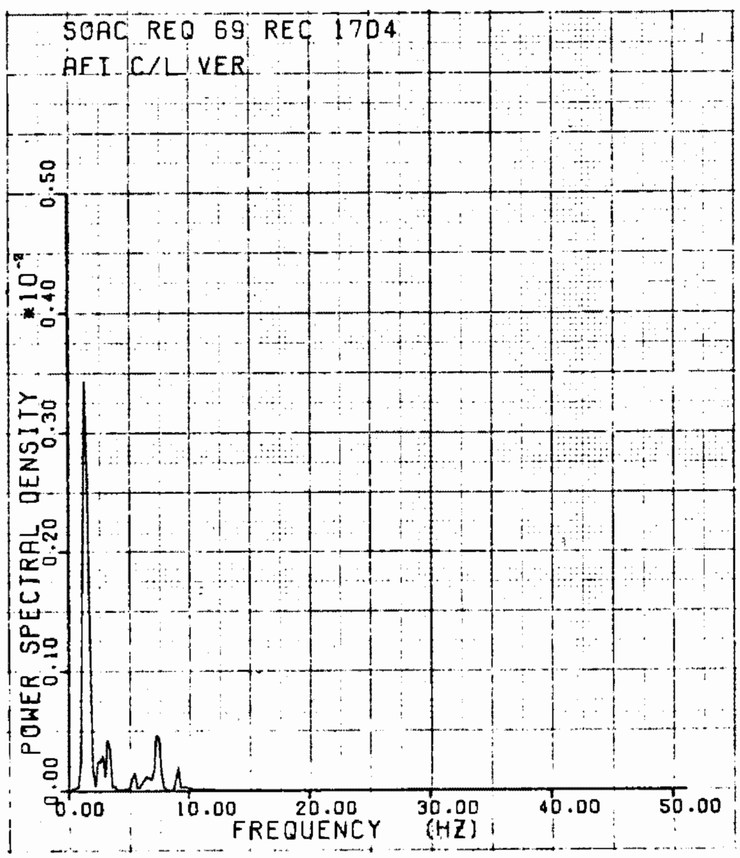

SOAC REQ 69 REC 1704
MID C/L VER
POWER SPECTRAL DENSITY *10^-2
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-79

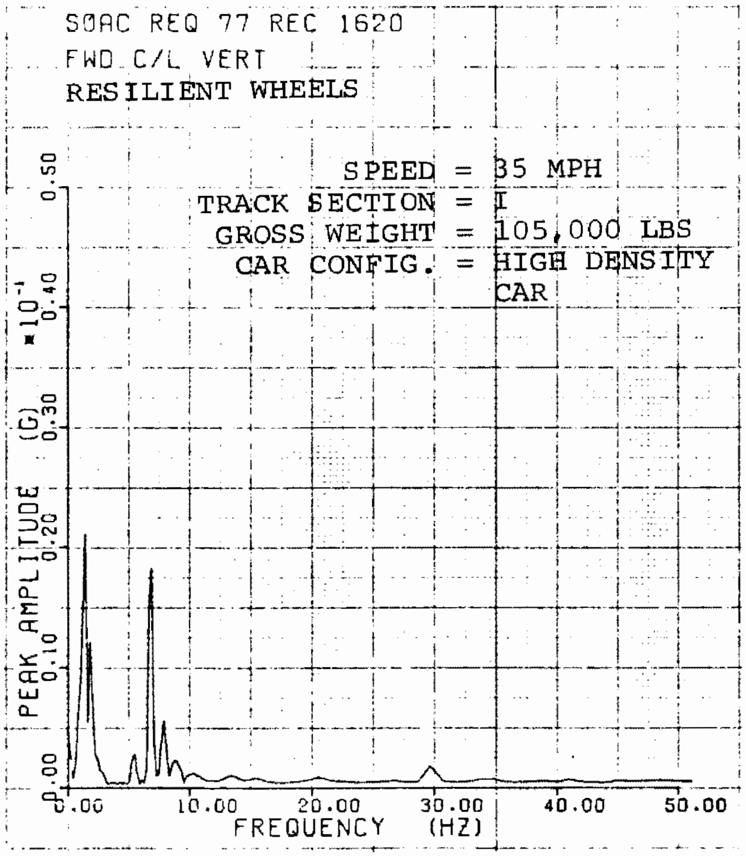


SOAC REQ 69 REC 1704
AFT C/L VER
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 69 REC 1704
AFT C/L VER
POWER SPECTRAL DENSITY *10⁻³
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-80


SOAC REQ 77 REC 1620
FWD C/L VERT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) ×10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

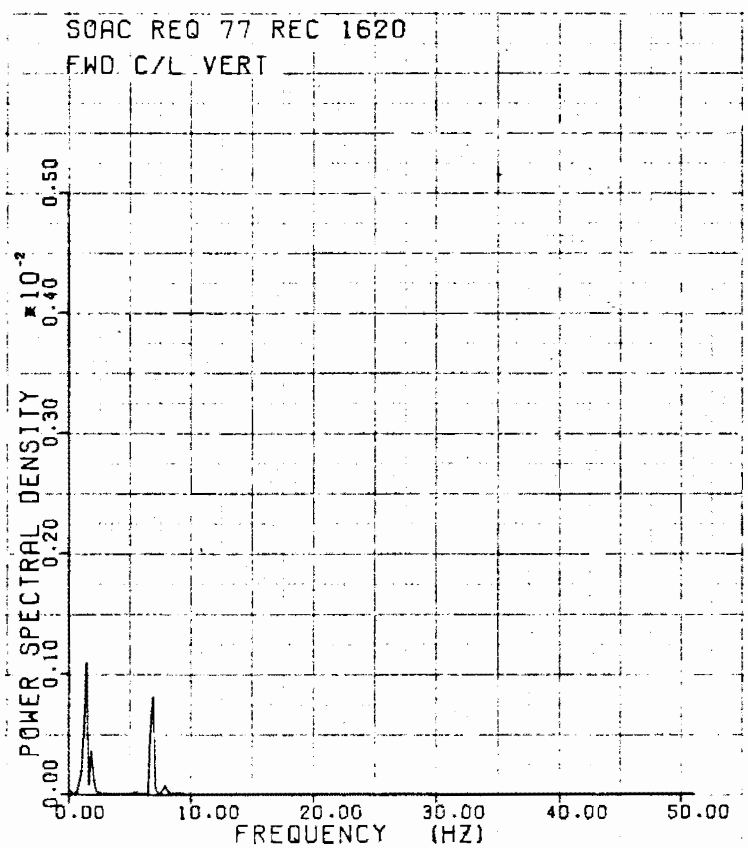
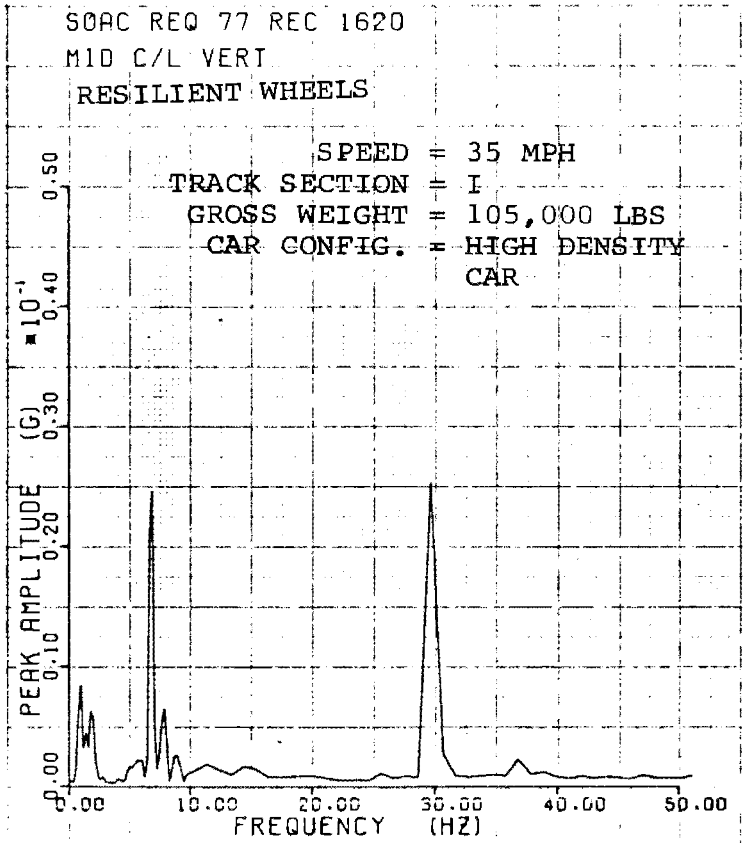

SOAC REQ 77 REC 1620
FWD C/L VERT
POWER SPECTRAL DENSITY ×10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-81


SOAC REQ 77 REC 1620
MID C/L VERT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) ×10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

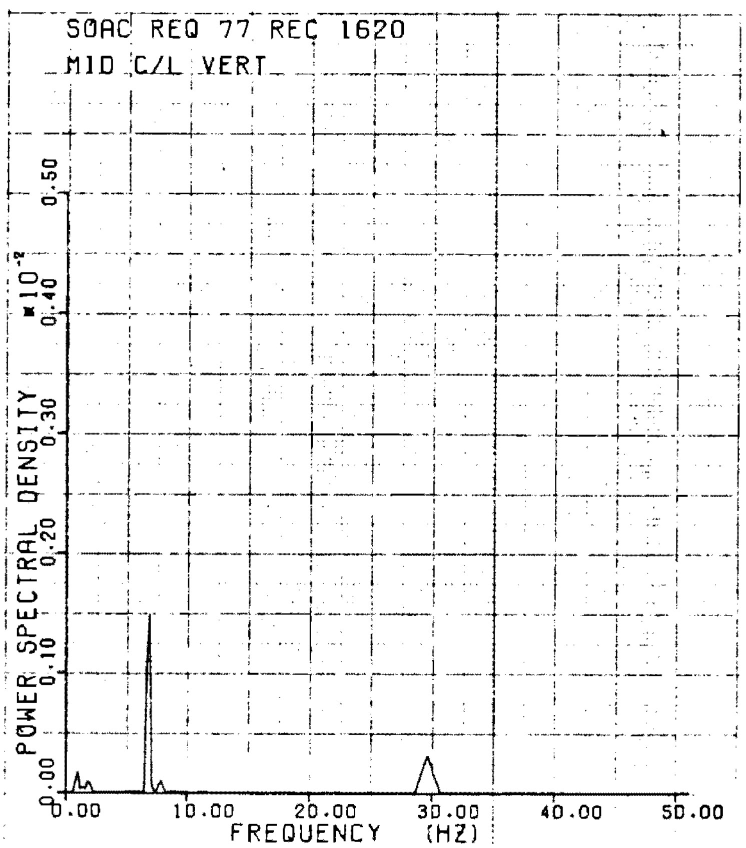
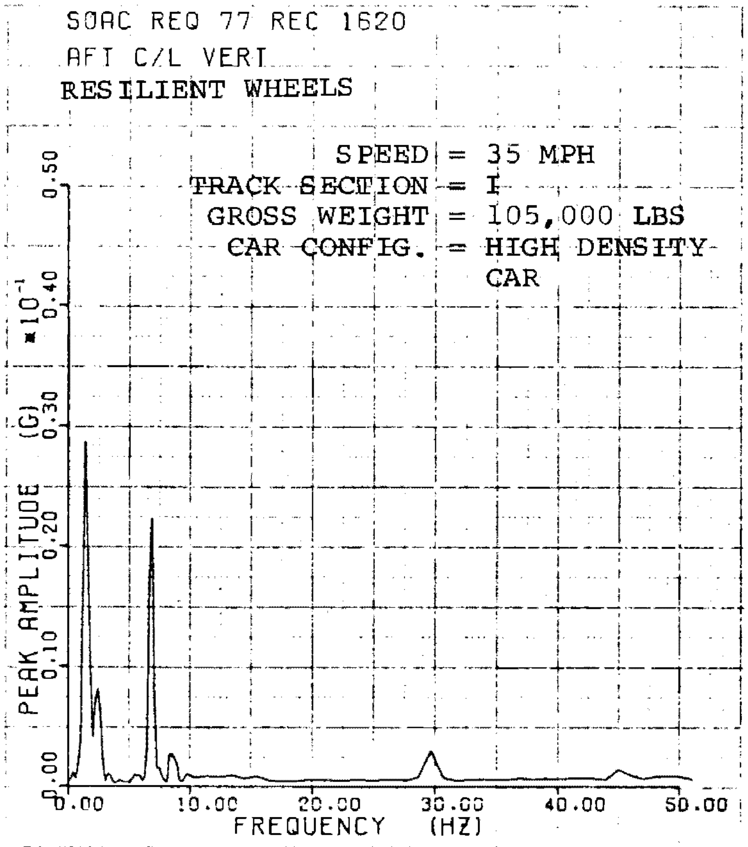

SOAC REQ 77 REC 1620
MID C/L VERT
POWER SPECTRAL DENSITY ×10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-82


SOAC REQ 77 REC 1620
AFT C/L VERT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

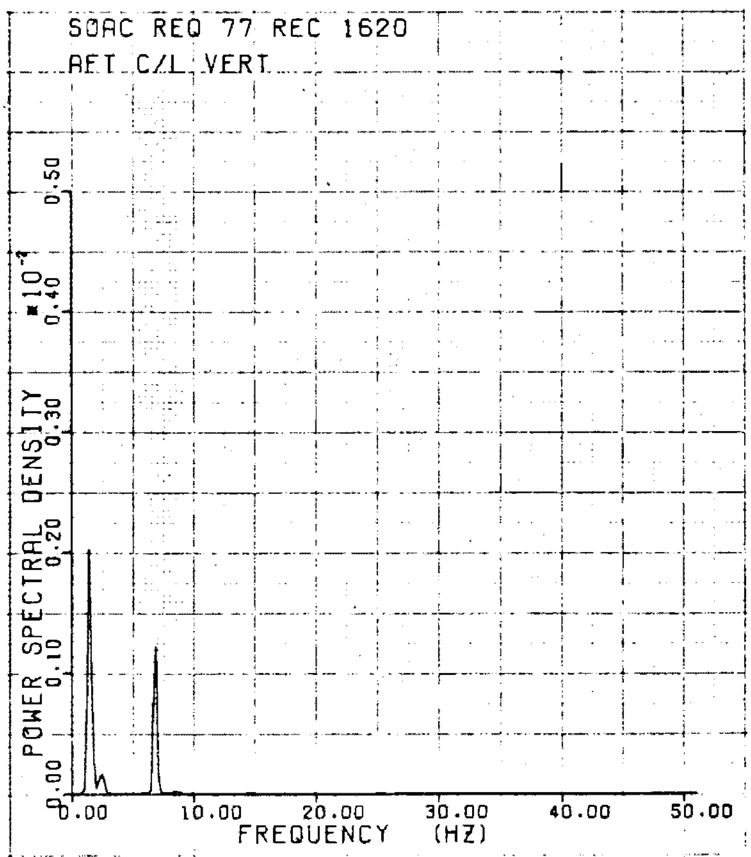
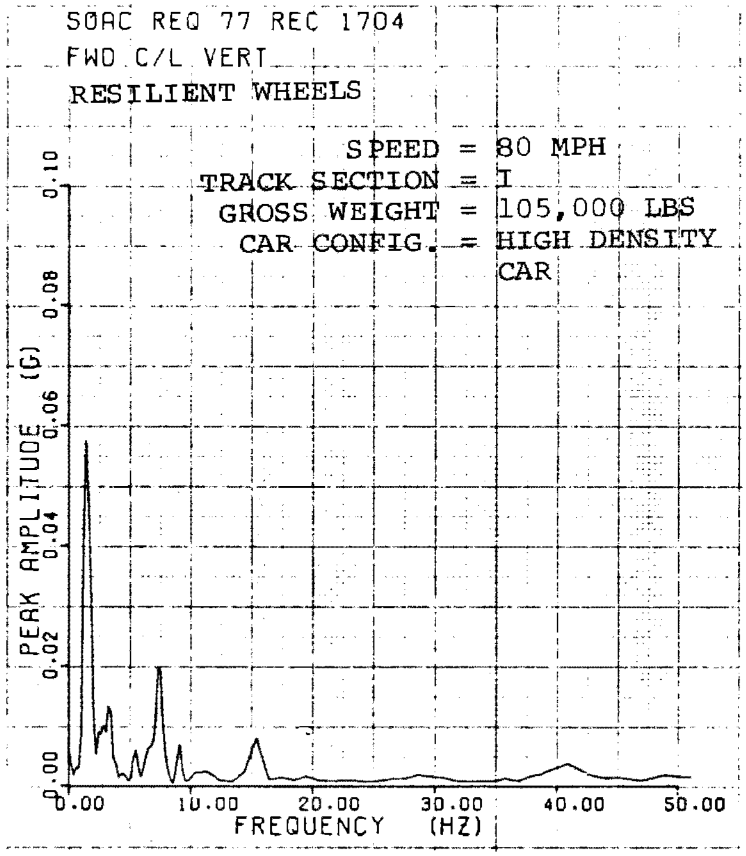

SOAC REQ 77 REC 1620
AFT C/L VERT
POWER SPECTRAL DENSITY *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-83


SOAC REQ 77 REC 1704
FWD C/L VERT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

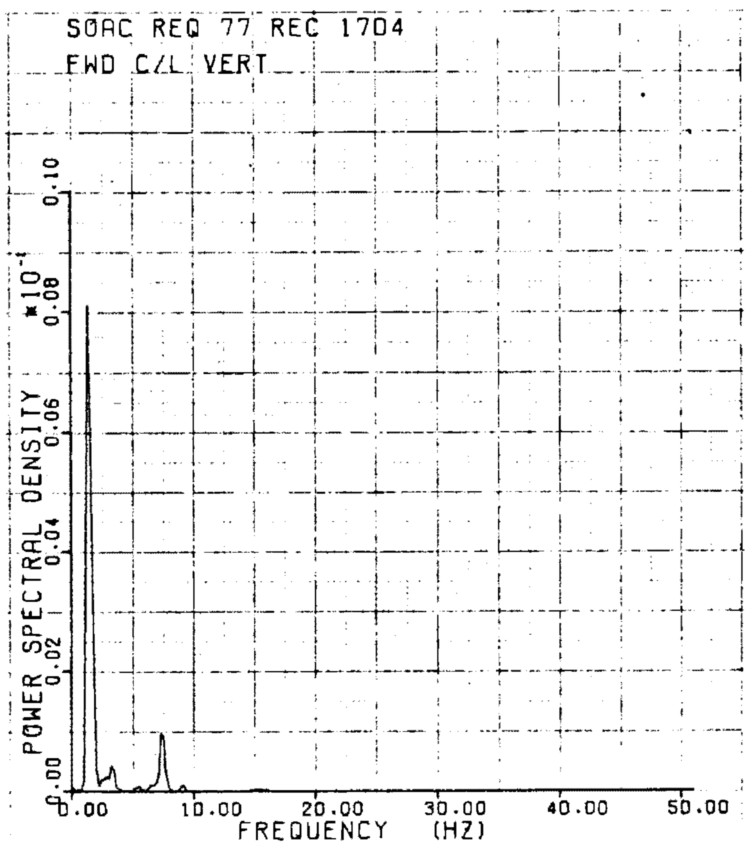
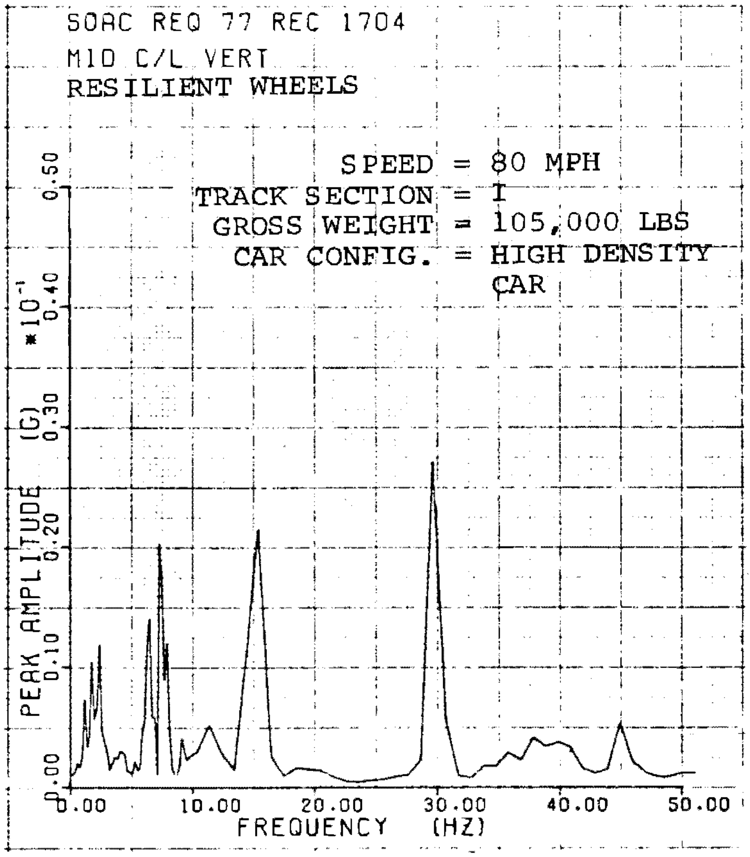

SOAC REQ 77 REC 1704
FWD C/L VERT
POWER SPECTRAL DENSITY *10^-1
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-84


SOAC REQ 77 REC 1704
MID C/L VERT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

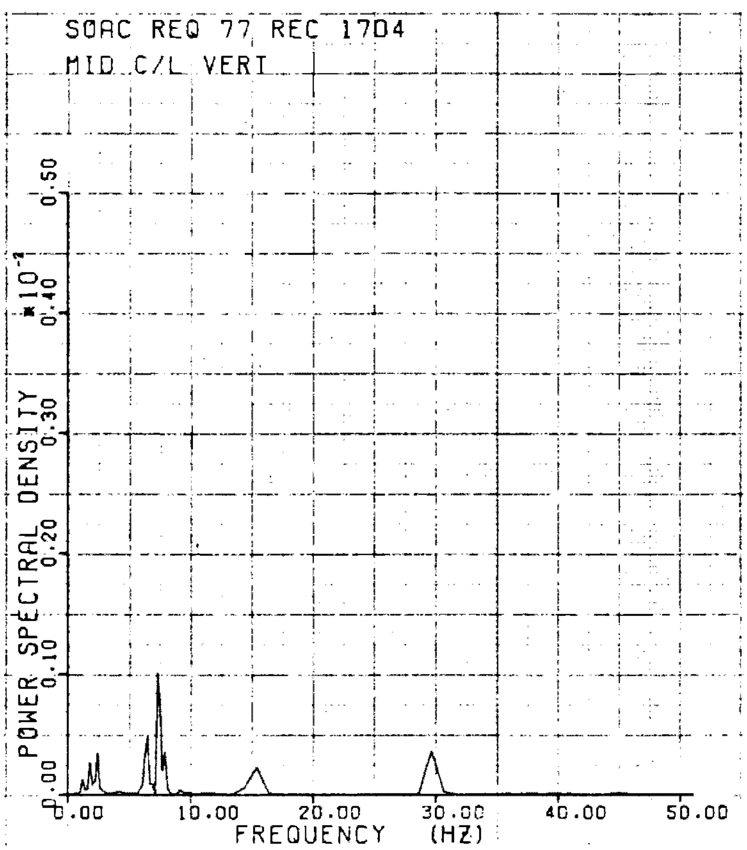
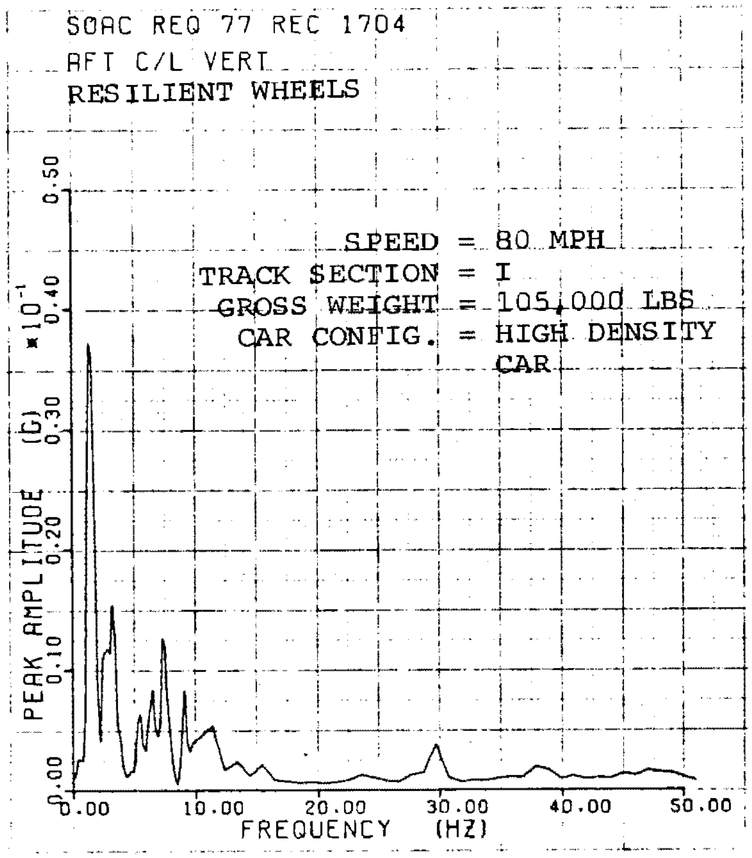
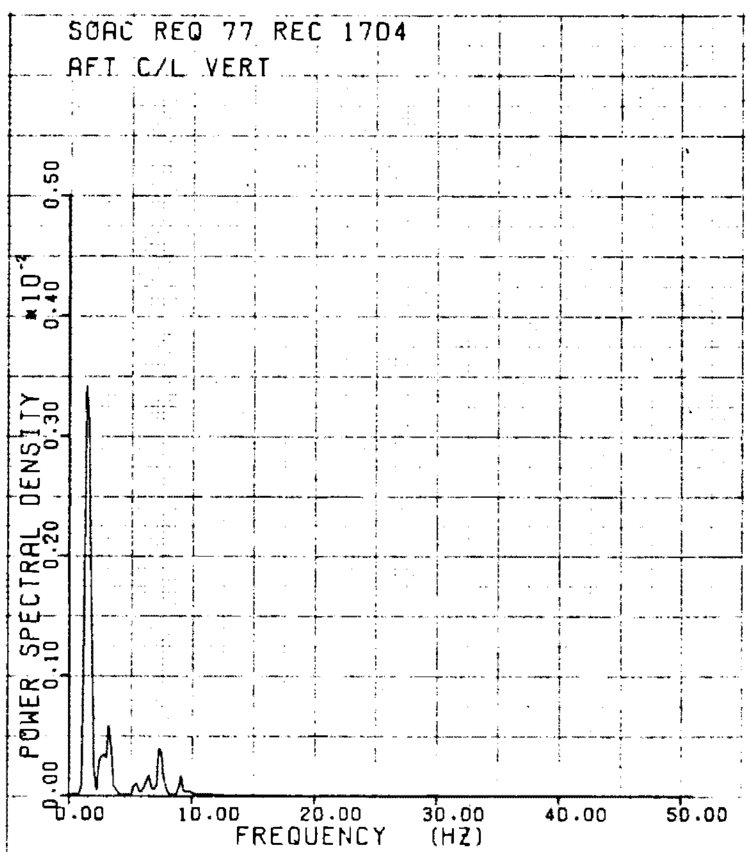

SOAC REQ 77 REC 1704
MID C/L VERT
POWER SPECTRAL DENSITY *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-85

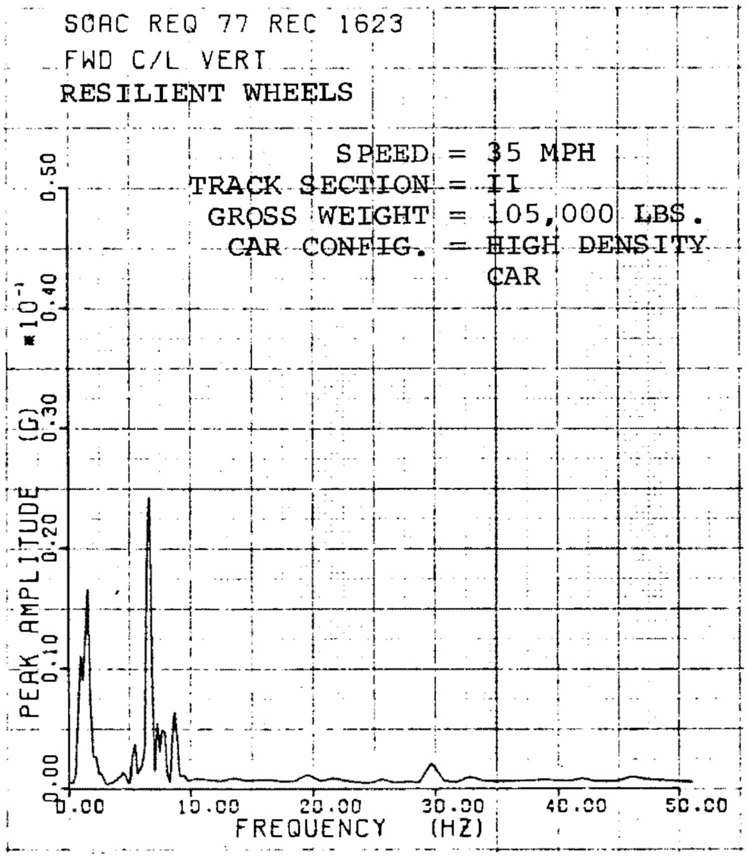


SOAC REQ 77 REC 1704
AFT C/L VERT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 77 REC 1704
AFT C/L VERT
POWER SPECTRAL DENSITY *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-86


SOAC REQ 77 REC 1623
FWD C/L VERT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = II
GROSS WEIGHT = 105,000 LBS.
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

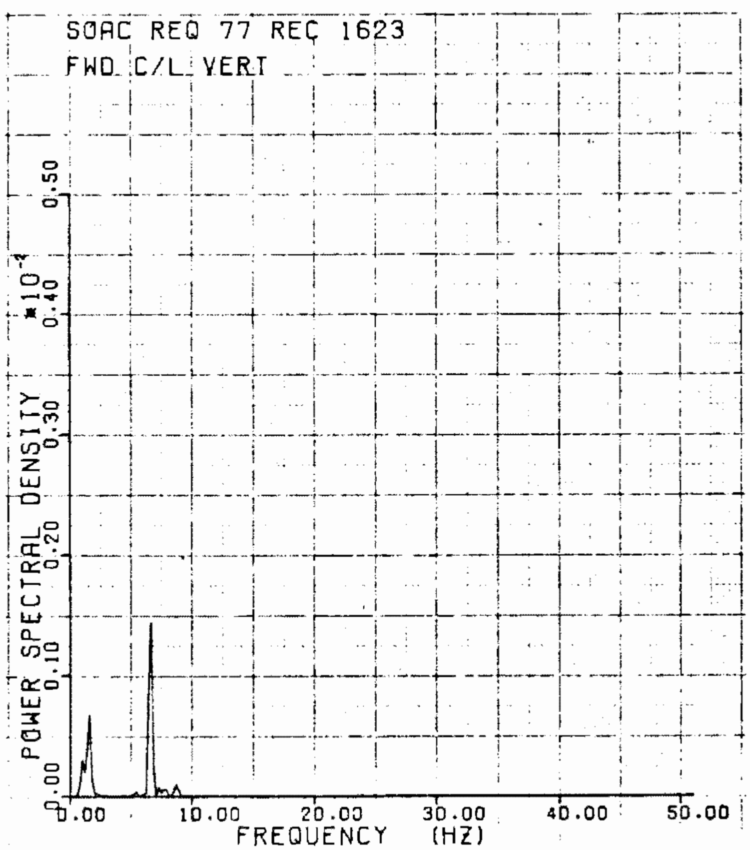
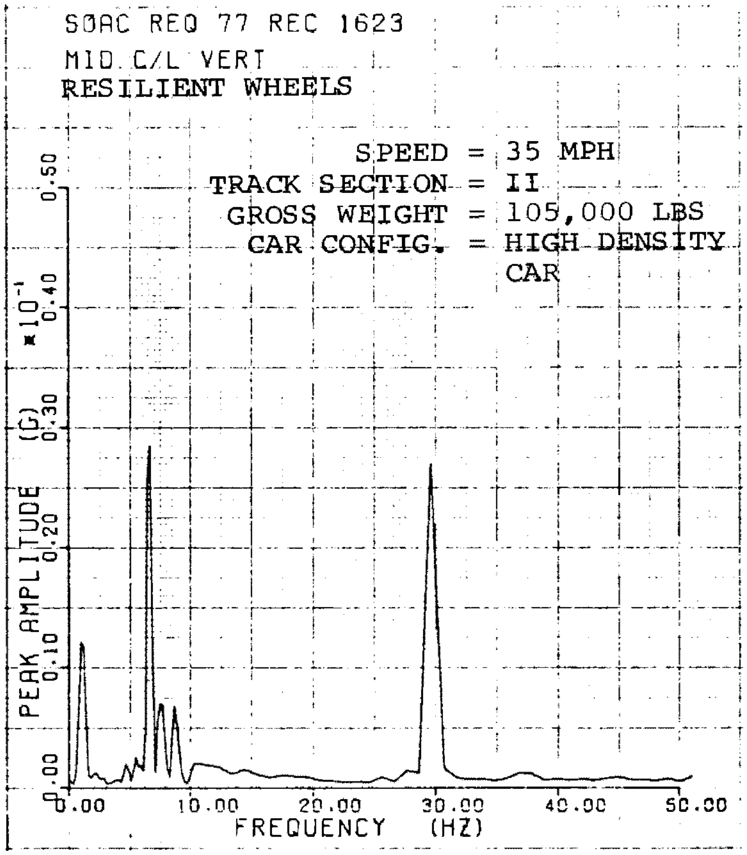

SOAC REQ 77 REC 1623
FWD C/L VERT
POWER SPECTRAL DENSITY *10⁻⁴
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-87


SOAC REQ 77 REC 1623
MID C/L VERT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = II
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) ×10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

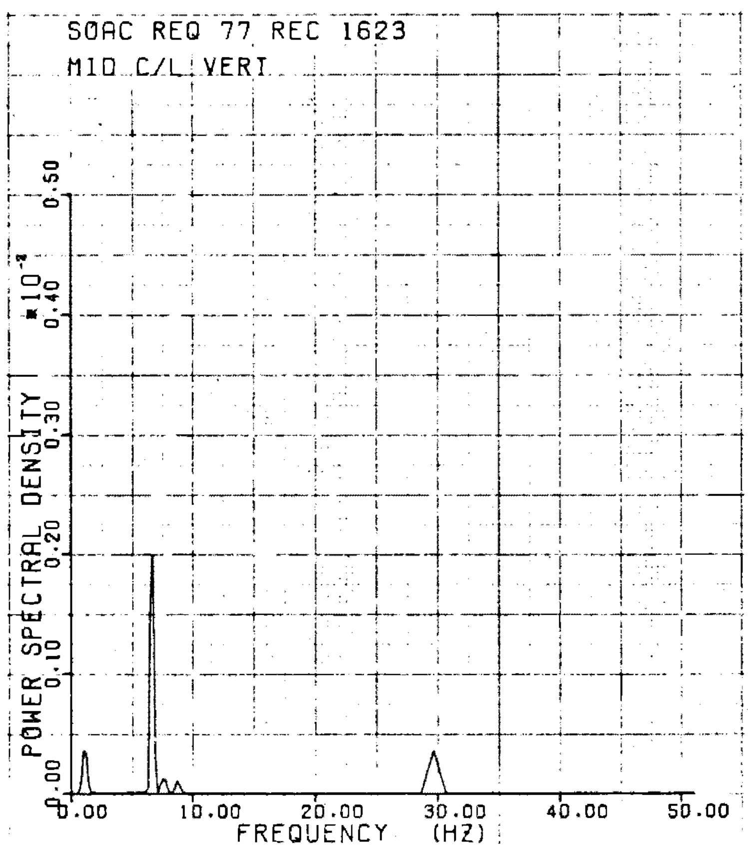
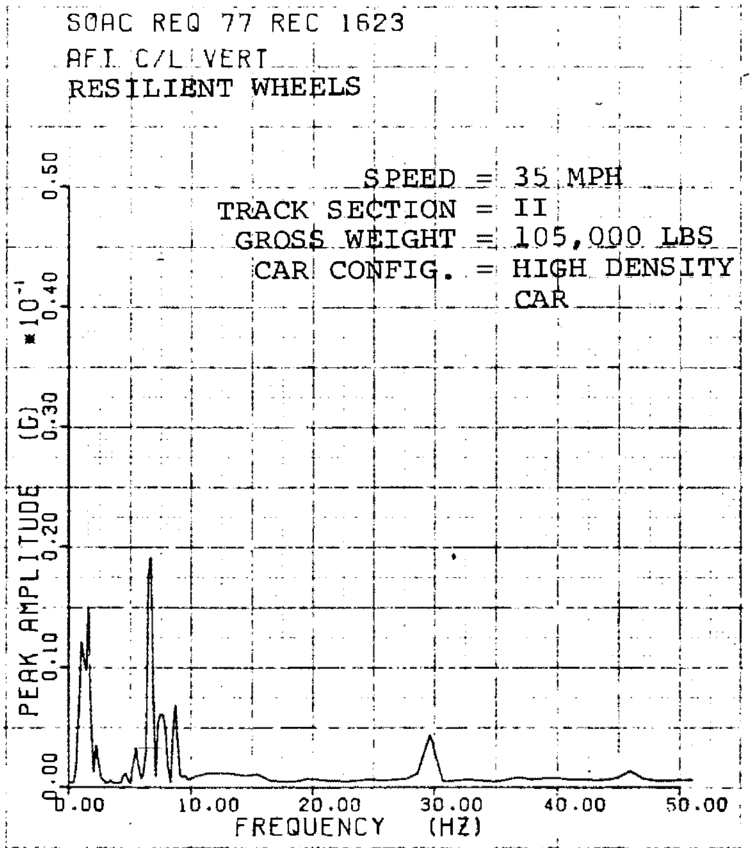
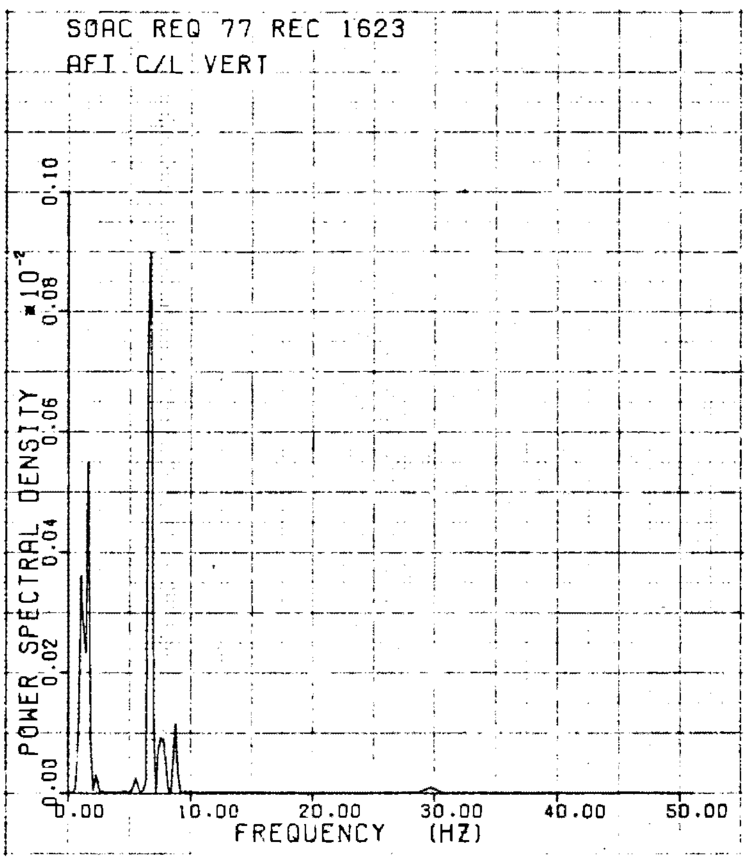

SOAC REQ 77 REC 1623
MID C/L VERT
POWER SPECTRAL DENSITY ×10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-88

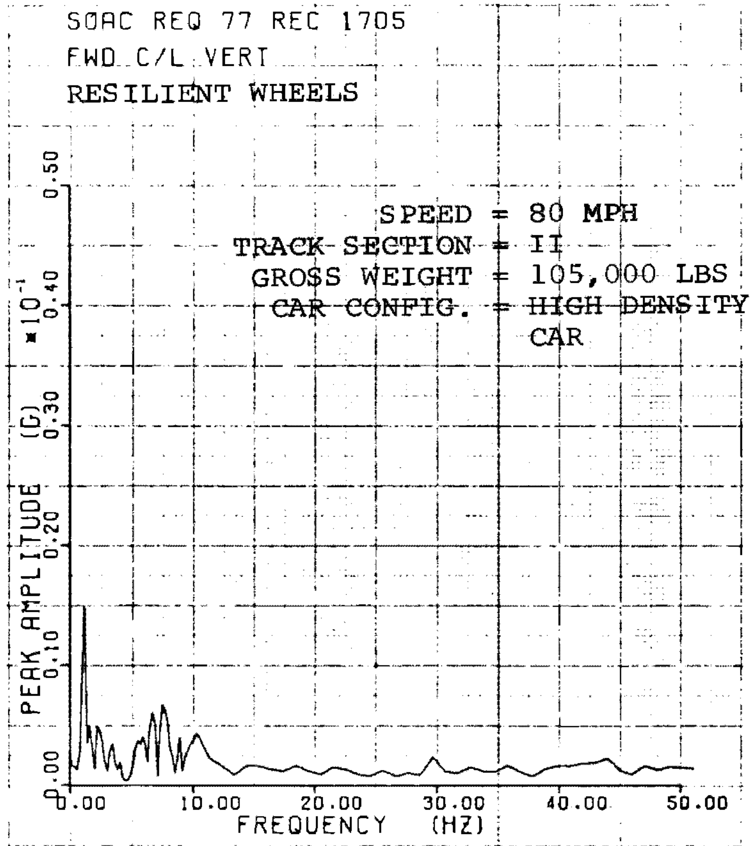


SOAC REQ 77 REC 1623
AFI C/L VERT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = II
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

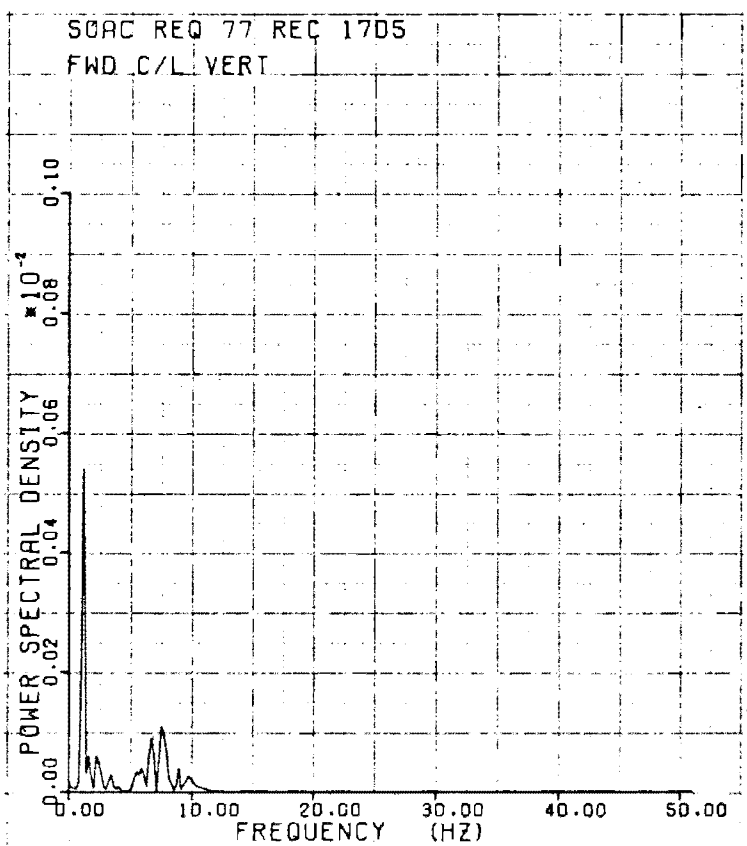


SOAC REQ 77 REC 1623
AFI C/L VERT
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-89

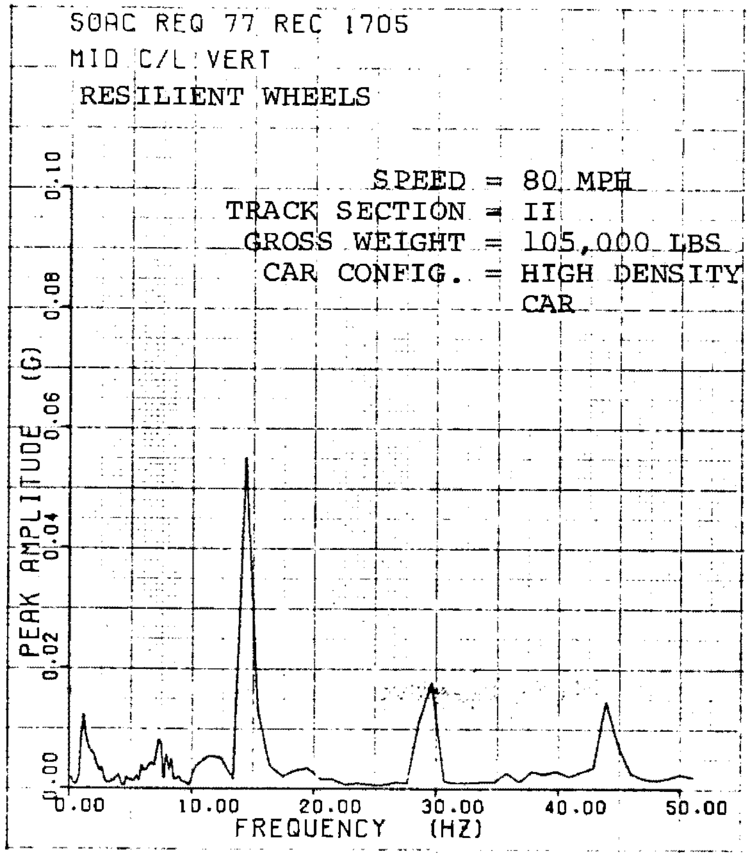


SOAC REQ 77 REC 1705
FWD C/L VERT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = II
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 77 REC 1705
FWD C/L VERT
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-90


SOAC REQ 77 REC 1705
MID C/L VERT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = II
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

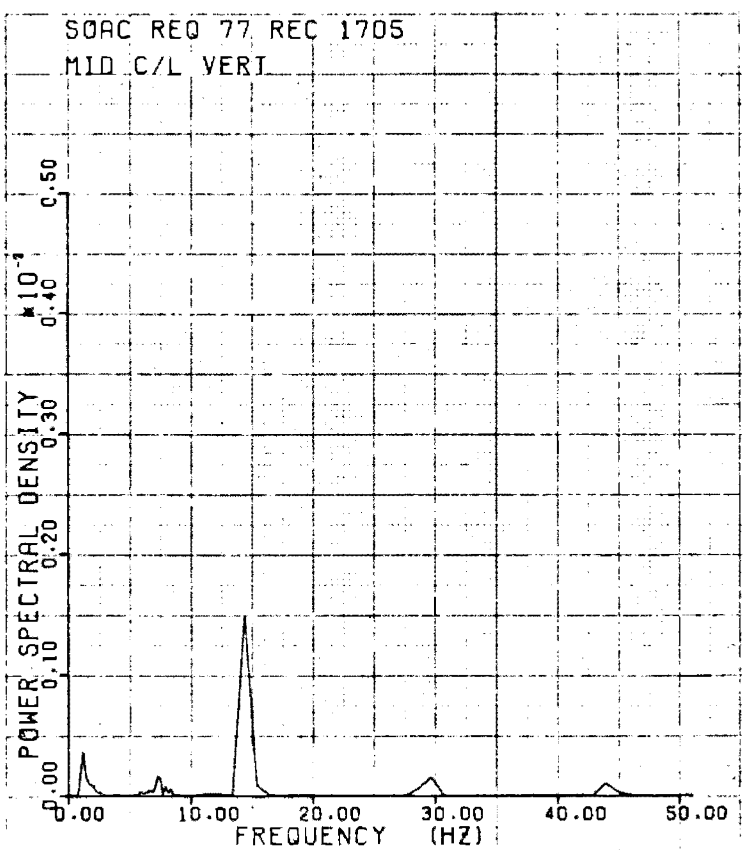
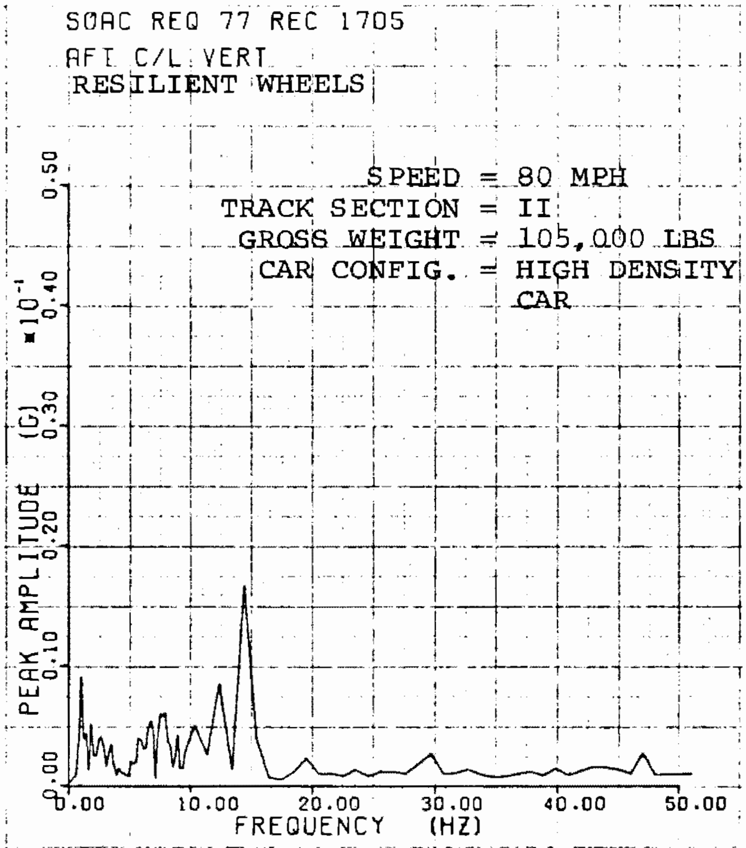

SOAC REQ 77 REC 1705
MID C/L VERT
POWER SPECTRAL DENSITY *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-91


SOAC REQ 77 REC 1705
AFT C/L VERT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = II
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

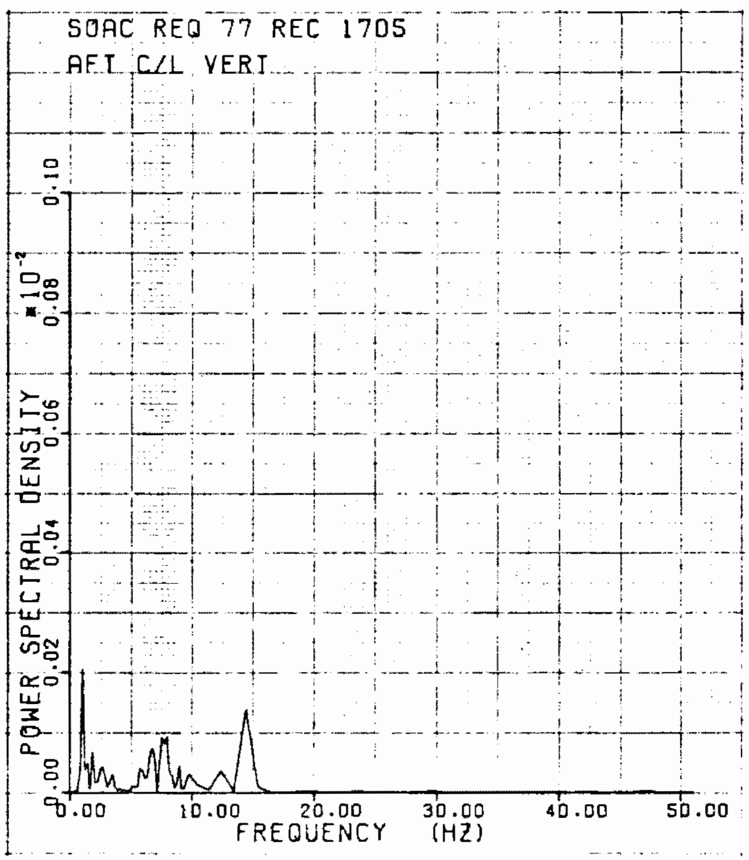
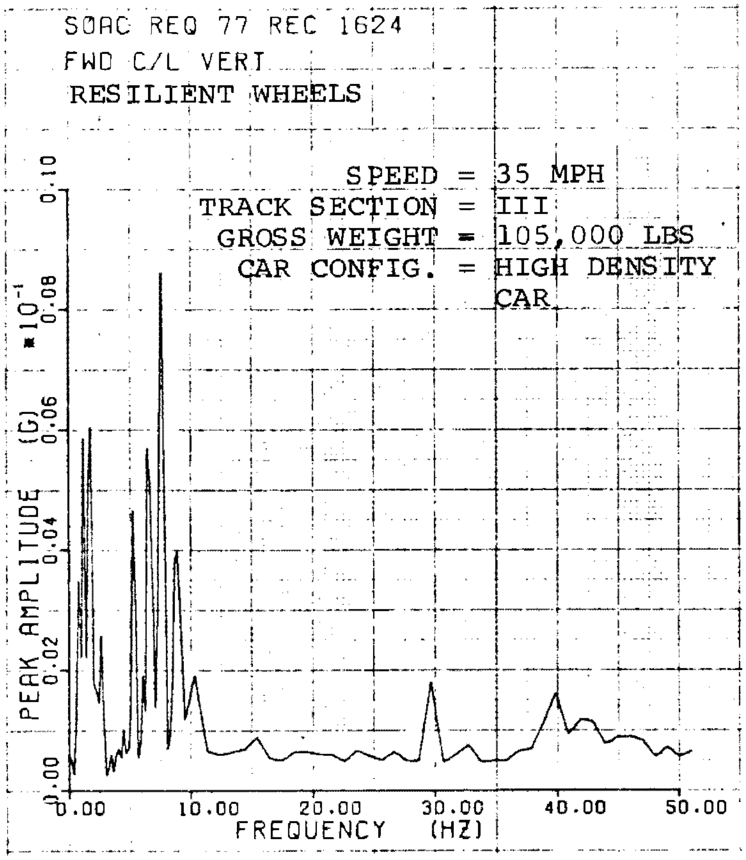

SOAC REQ 77 REC 1705
AFT C/L VERT
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-92


SOAC REQ 77 REC 1624
FWD C/L VERT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = III
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

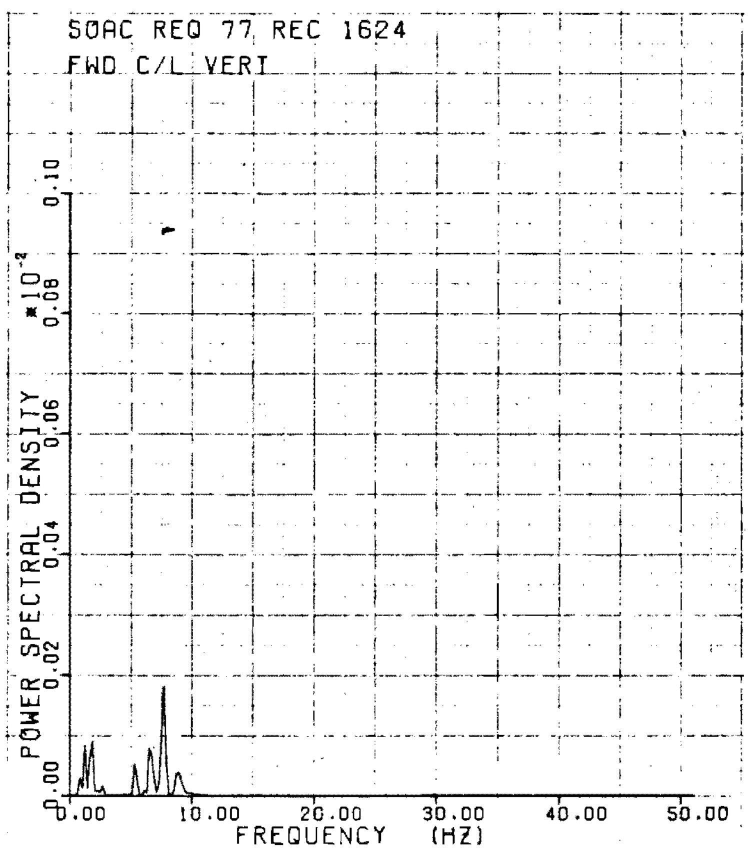
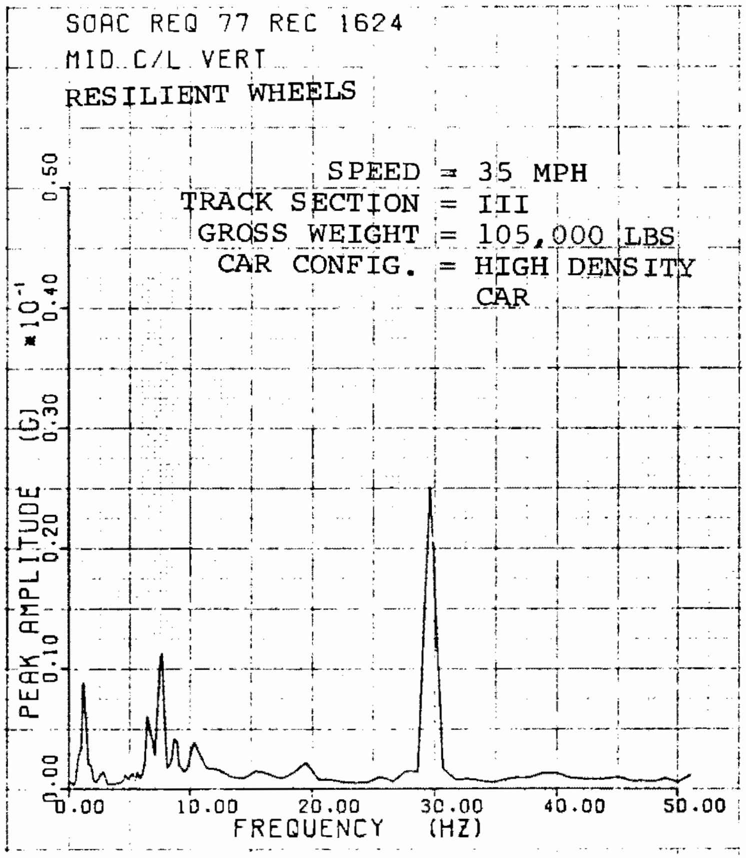

SOAC REQ 77 REC 1624
FWD C/L VERT
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-93


SOAC REQ 77 REC 1624
MID C/L VERT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = III
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

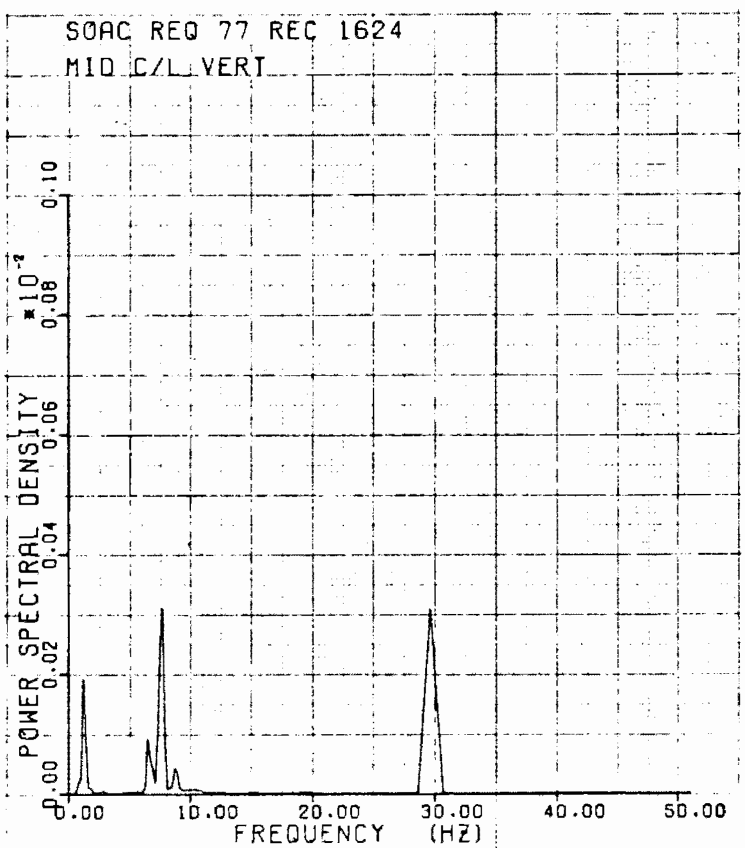
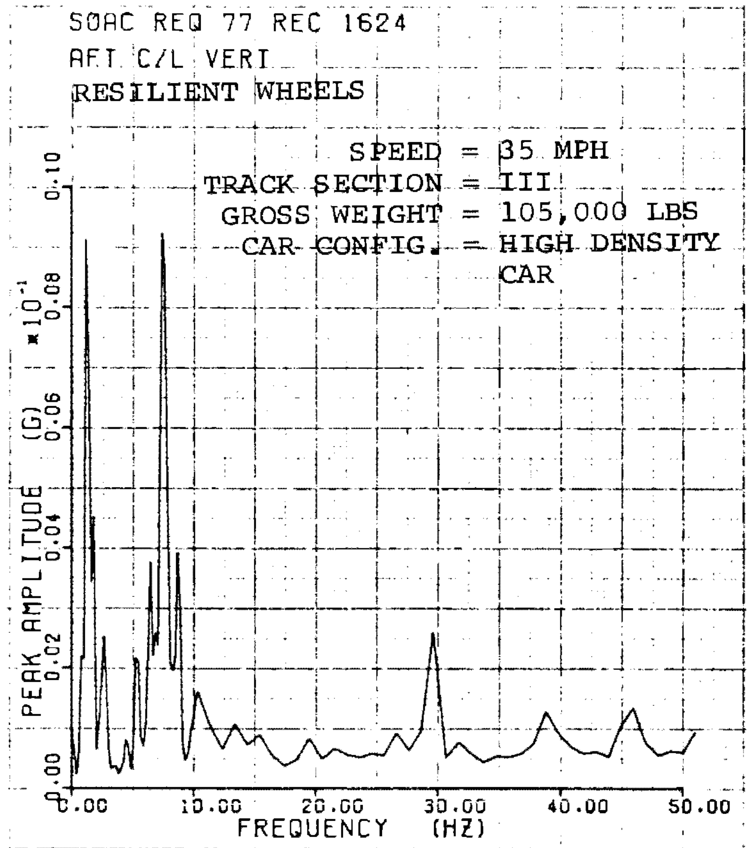

SOAC REQ 77 REC 1624
MID C/L VERT
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-94


SOAC REQ 77 REC 1624
AFT C/L VERT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = III
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) ×10⁻¹
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

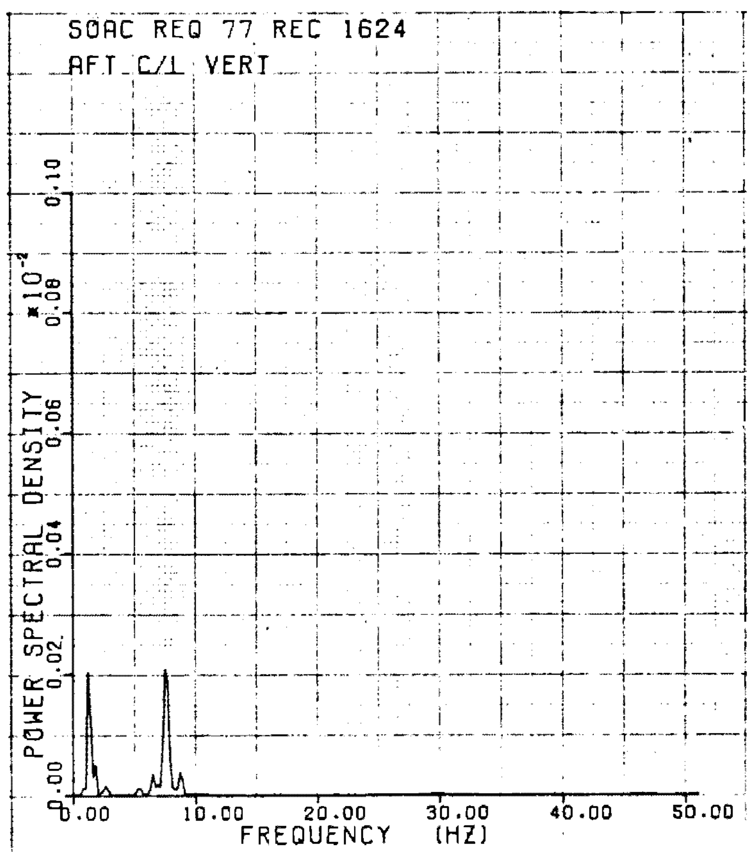
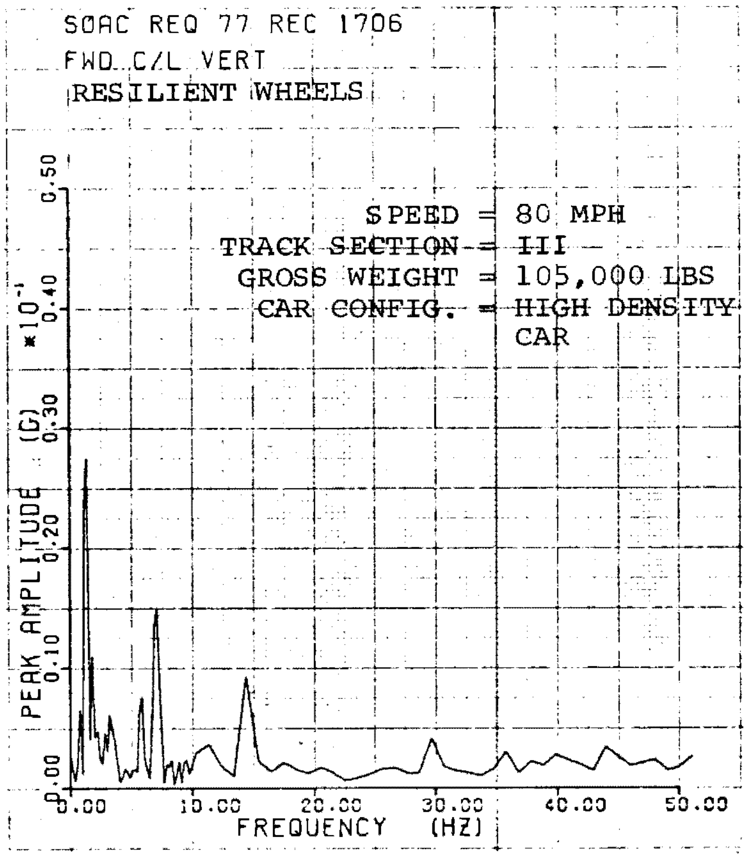
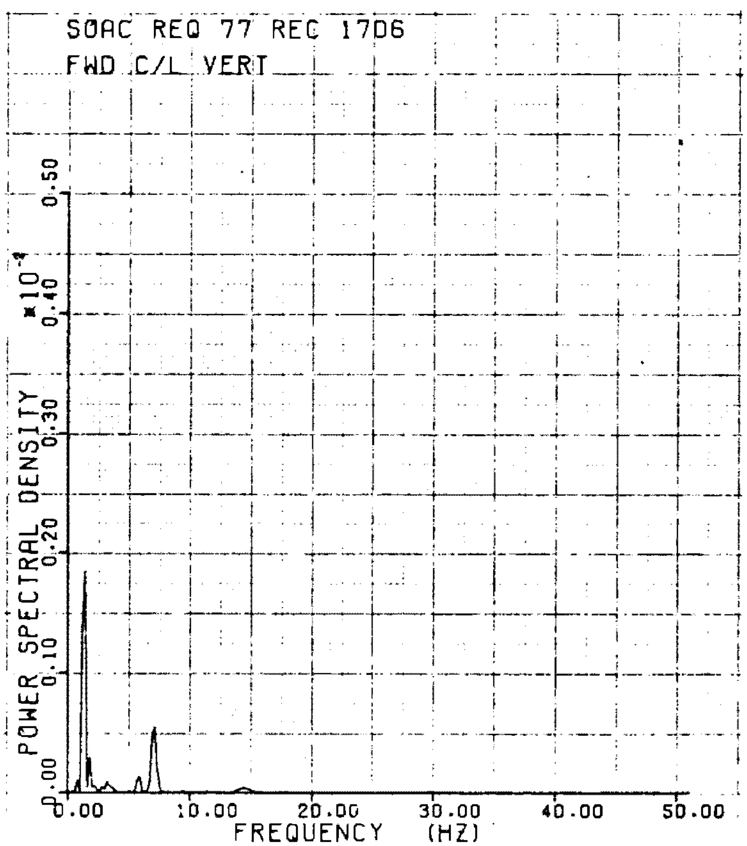

SOAC REQ 77 REC 1624
AFT C/L VERT
POWER SPECTRAL DENSITY ×10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-95

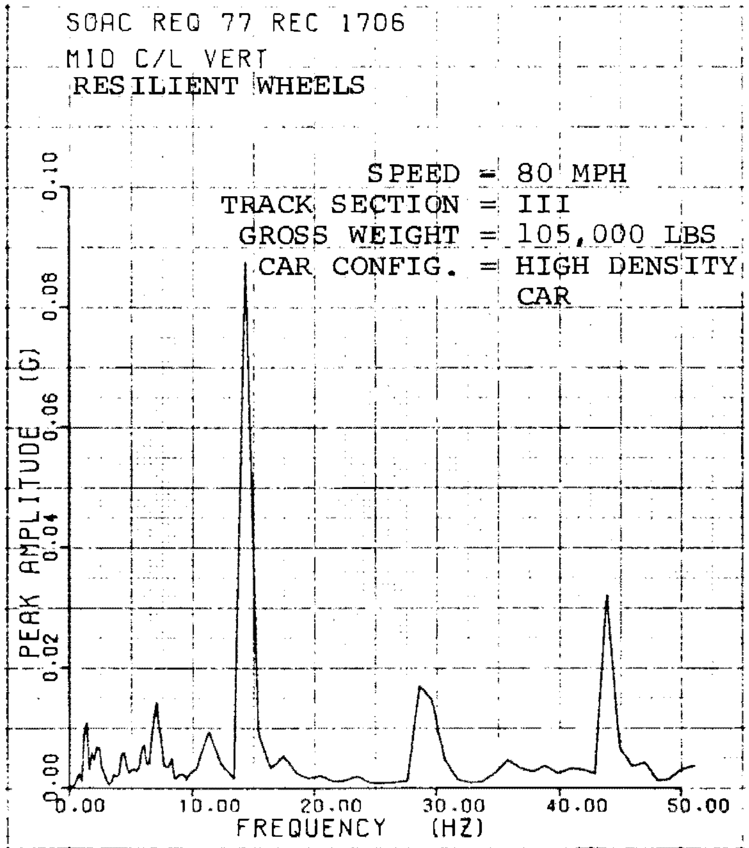


SOAC REQ 77 REC 1706
FWD C/L VERT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = III
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) ×10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 77 REC 1706
FWD C/L VERT
POWER SPECTRAL DENSITY ×10⁻⁴
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-96


SOAC REQ 77 REC 1706
MID C/L VERT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = III
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

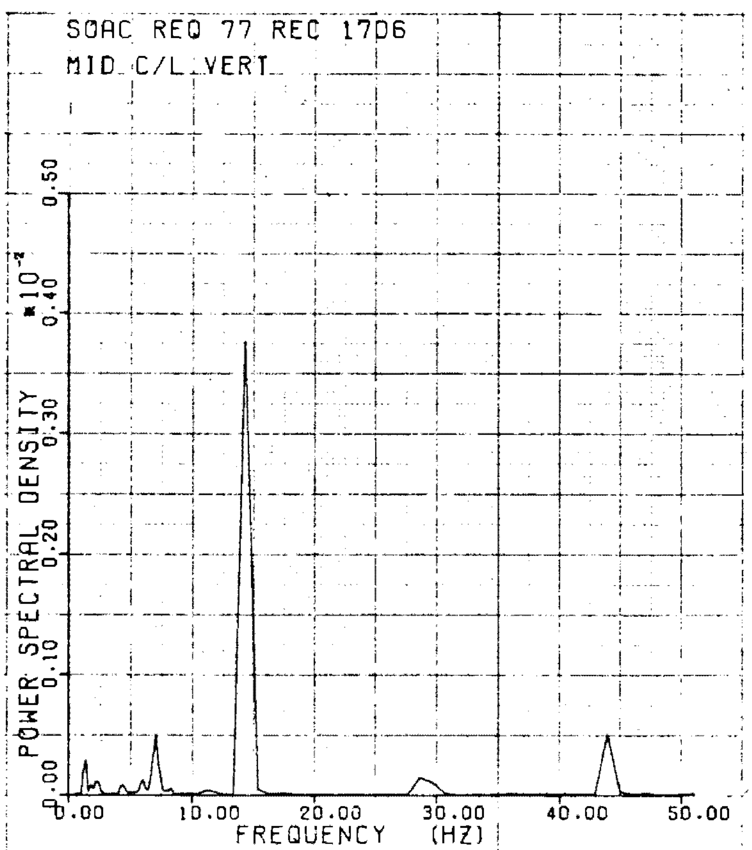
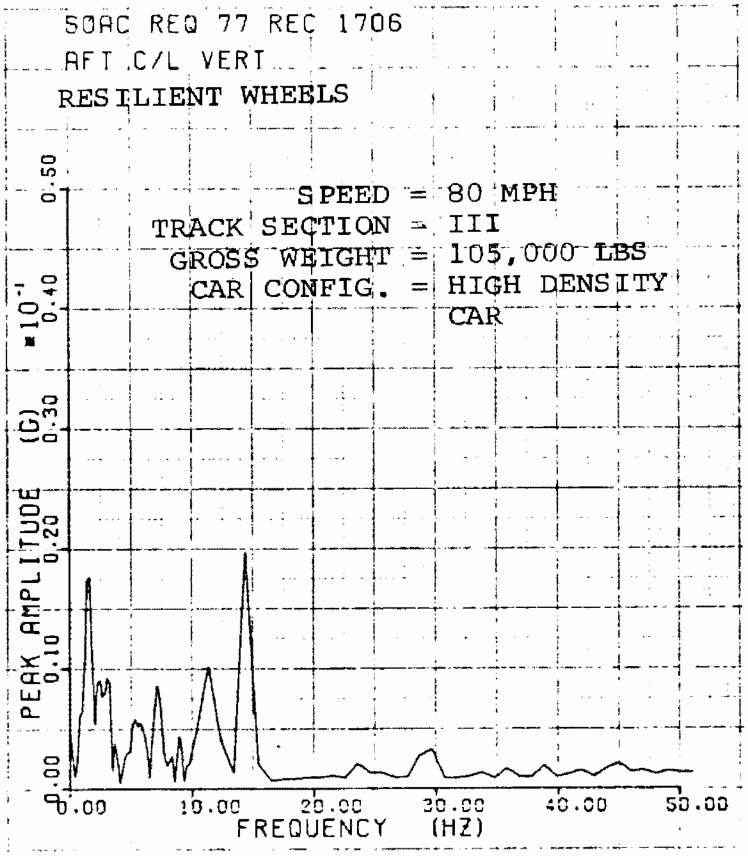

SOAC REQ 77 REC 1706
MID C/L VERT
POWER SPECTRAL DENSITY *10^-2
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-97


SOAC REQ 77 REC 1706
AFT C/L VERT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = III
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

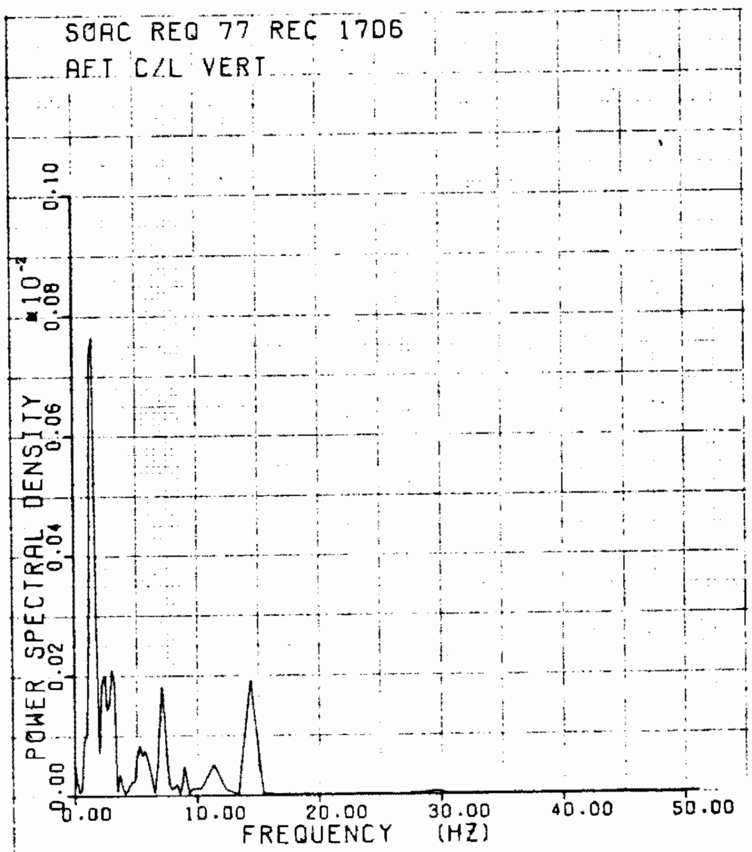
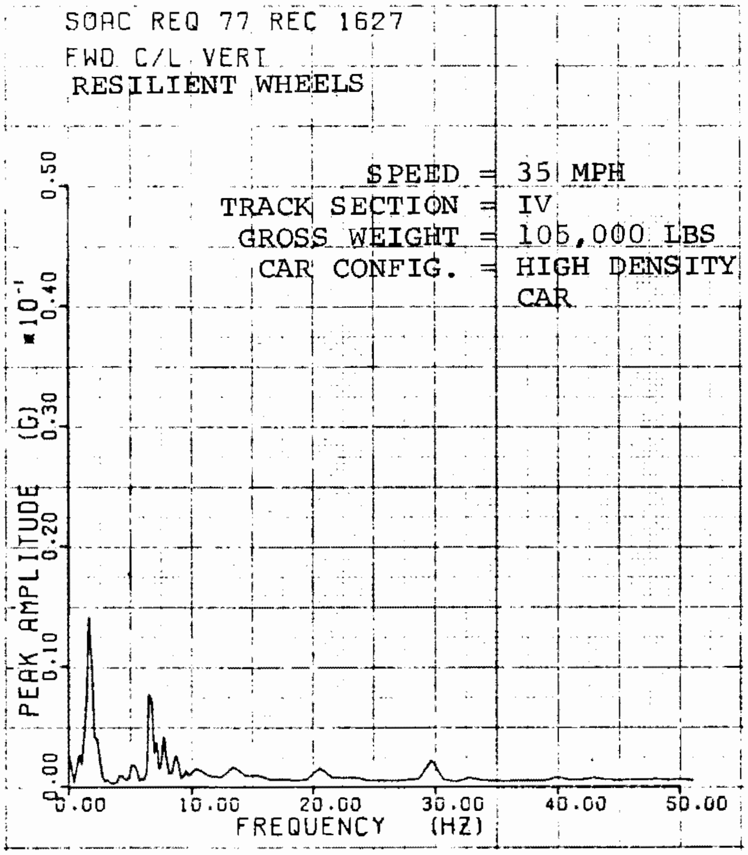

SOAC REQ 77 REC 1706
AFT C/L VERT
POWER SPECTRAL DENSITY *10^-2
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-98


SOAC REQ 77 REC 1627
FWD C/L VERT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = IV
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) ×10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

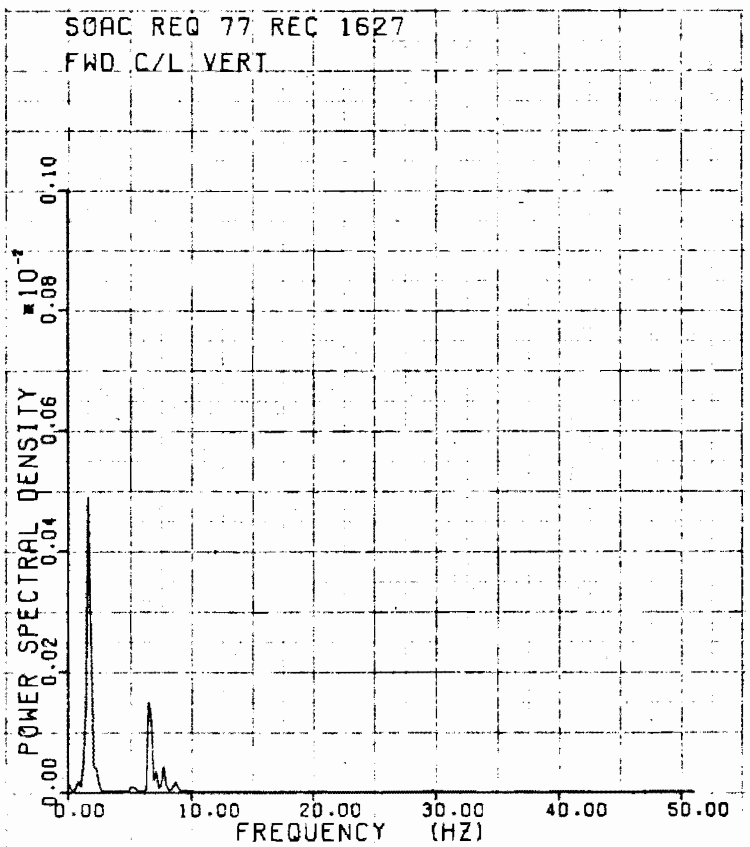
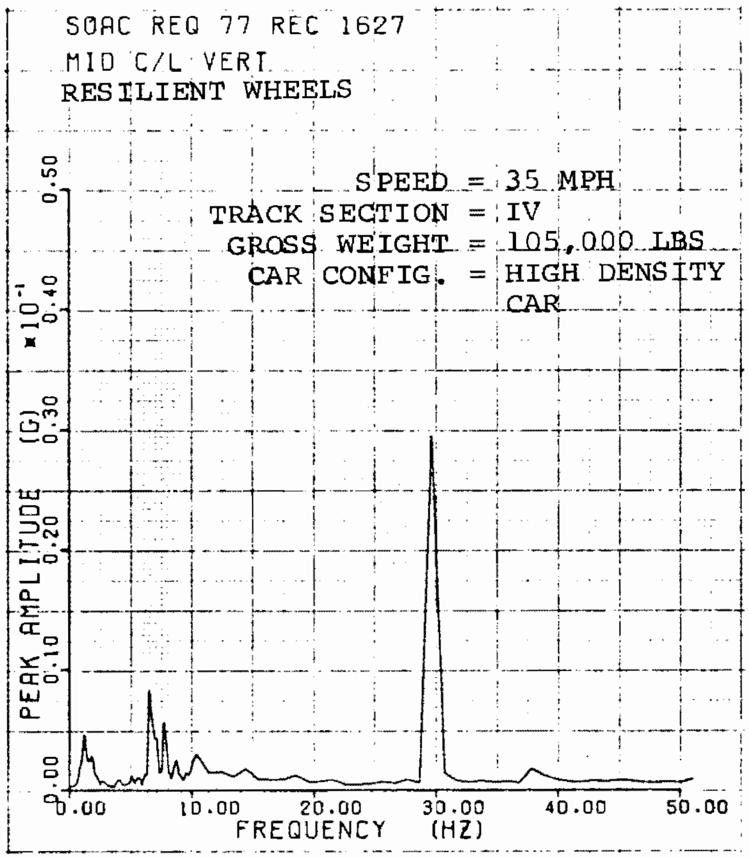

SOAC REQ 77 REC 1627
FWD C/L VERT
POWER SPECTRAL DENSITY ×10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-99


SOAC REQ 77 REC 1627
MID C/L VERT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = IV
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) ×10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

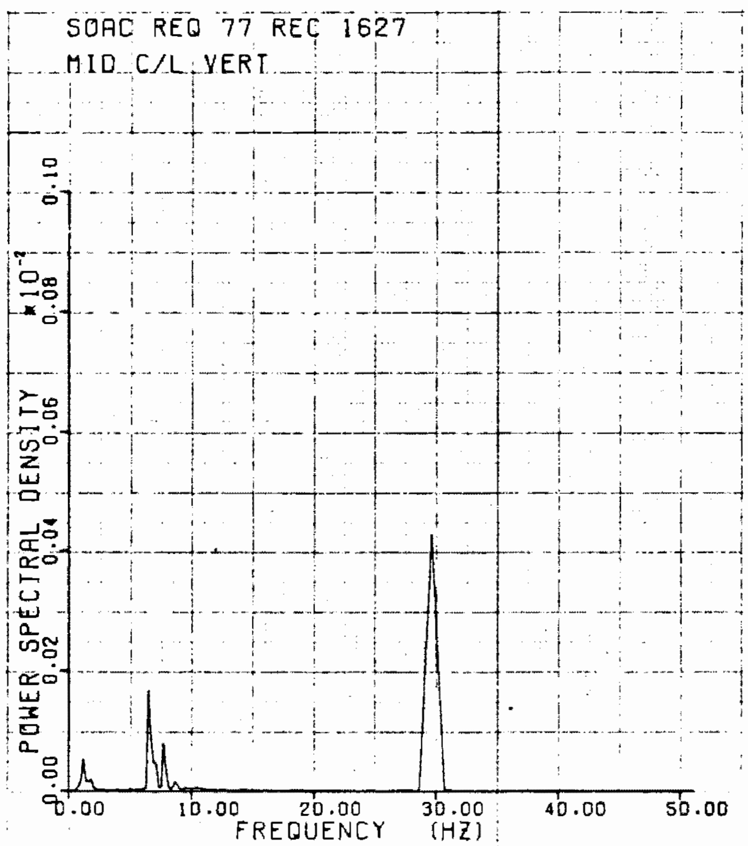
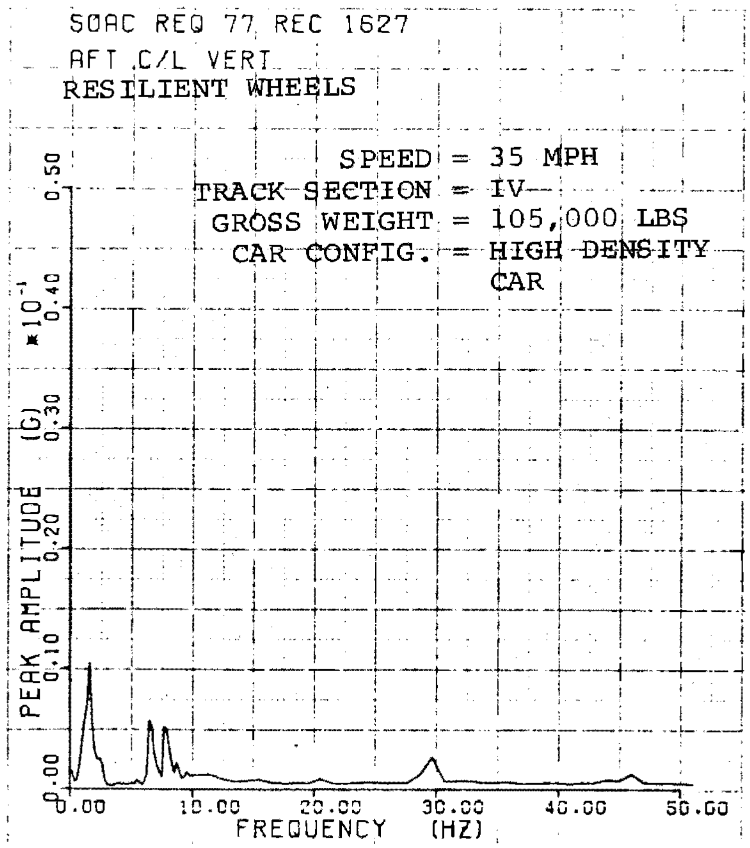
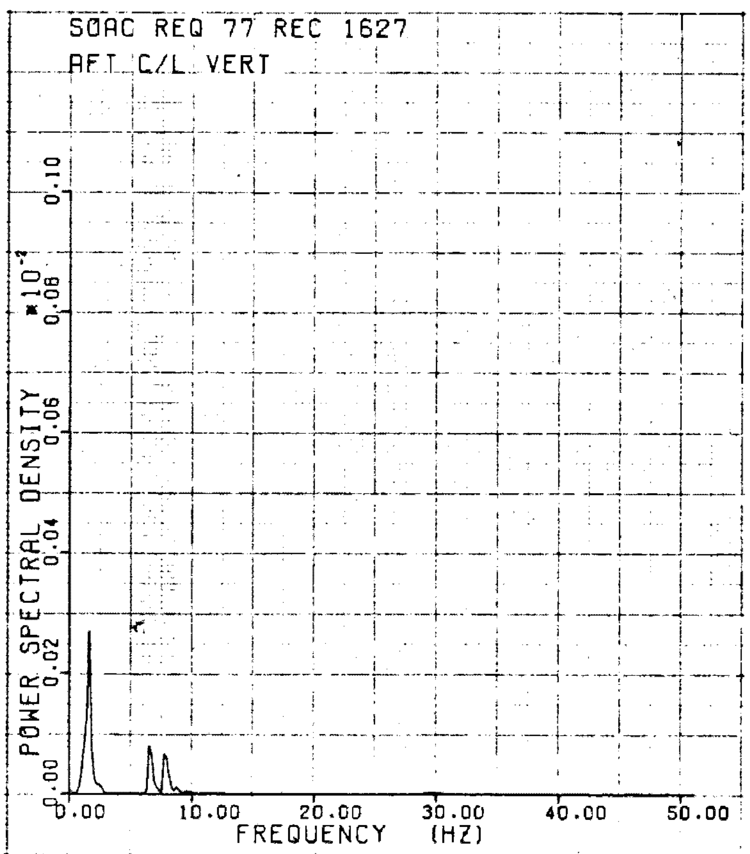

SOAC REQ 77 REC 1627
MID C/L VERT
POWER SPECTRAL DENSITY ×10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-100

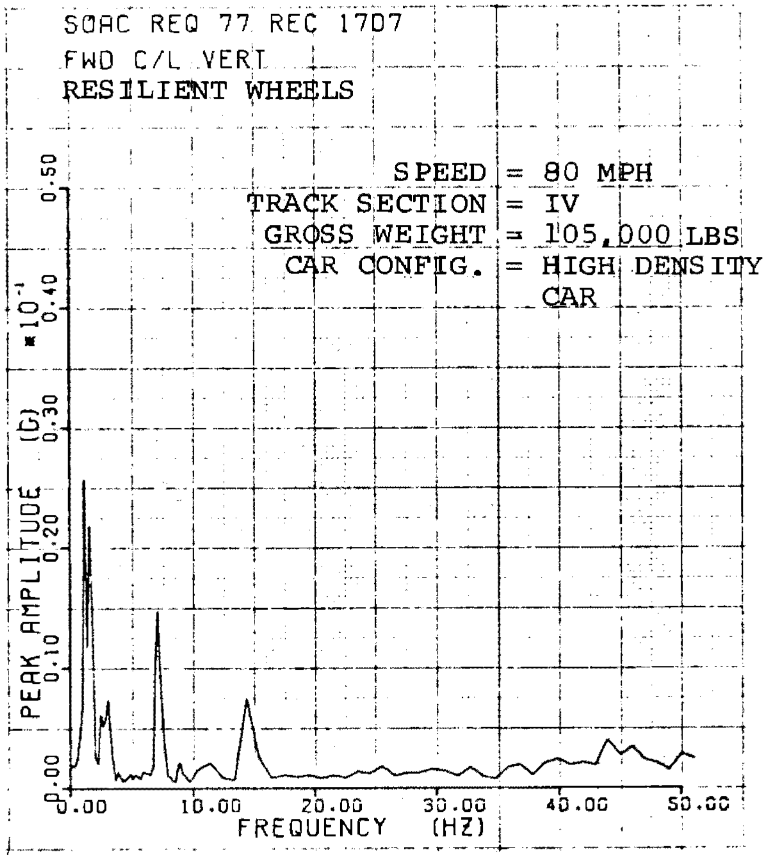


SOAC REQ 77 REC 1627
AFT C/L VERT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = IV
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 77 REC 1627
AFT C/L VERT
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-101


SOAC REQ 77 REC 1707
FWD C/L VERT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = IV
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

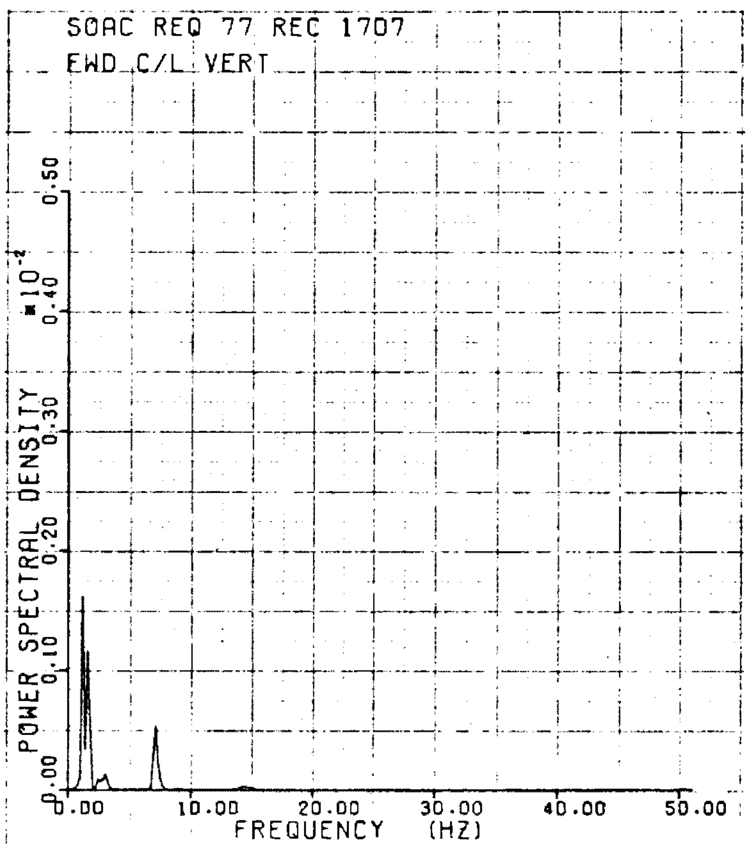
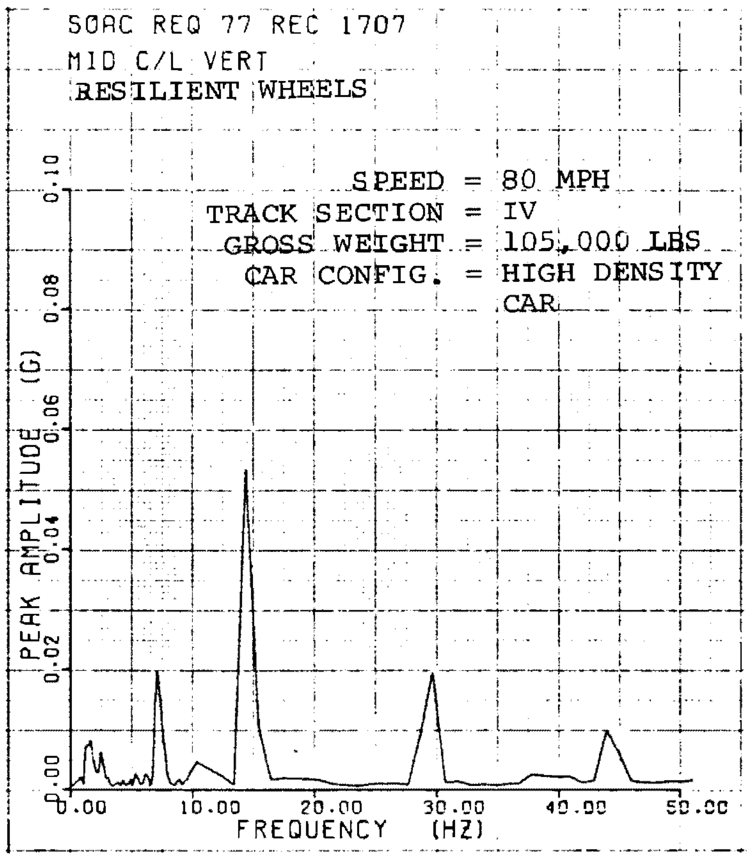

SOAC REQ 77 REC 1707
FWD C/L VERT
POWER SPECTRAL DENSITY *10^-2
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-102


SOAC REQ 77 REC 1707
MID C/L VERT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = IV
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

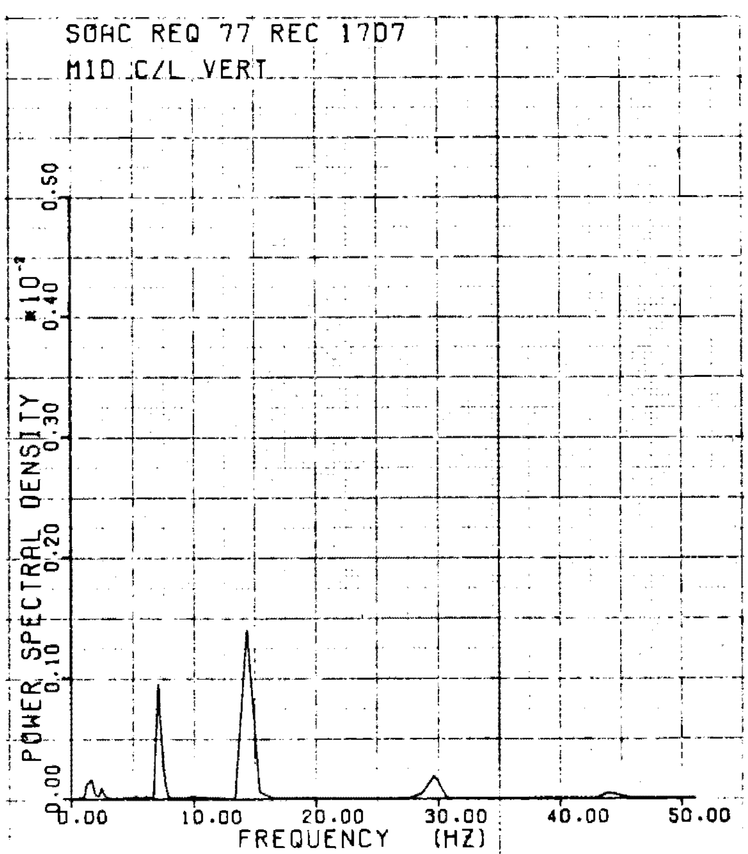
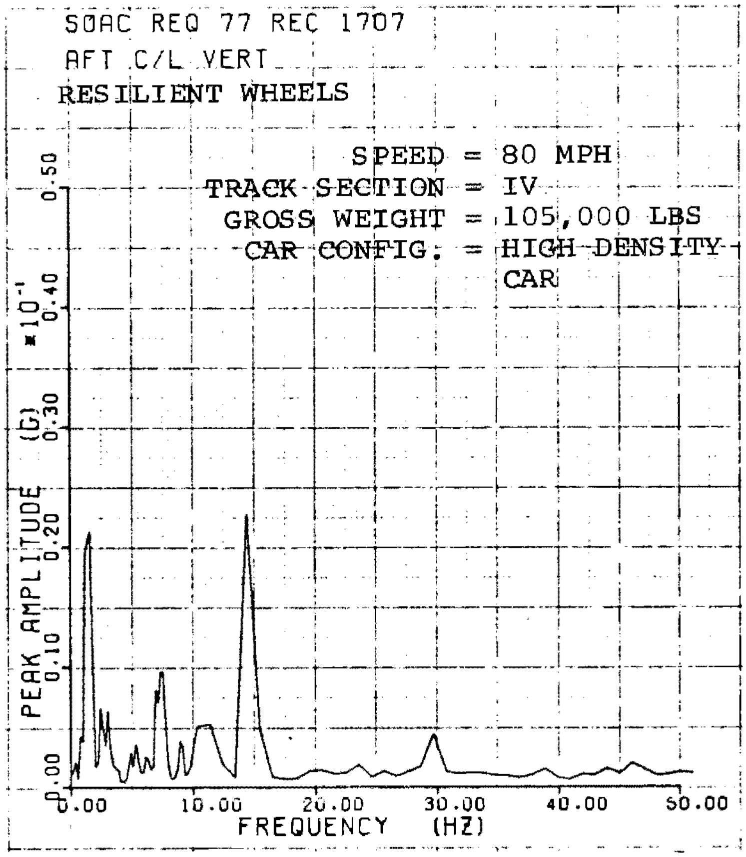

SOAC REQ 77 REC 1707
MID C/L VERT
POWER SPECTRAL DENSITY *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-103


SOAC REQ 77 REC 1707
AFT C/L VERT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = IV
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

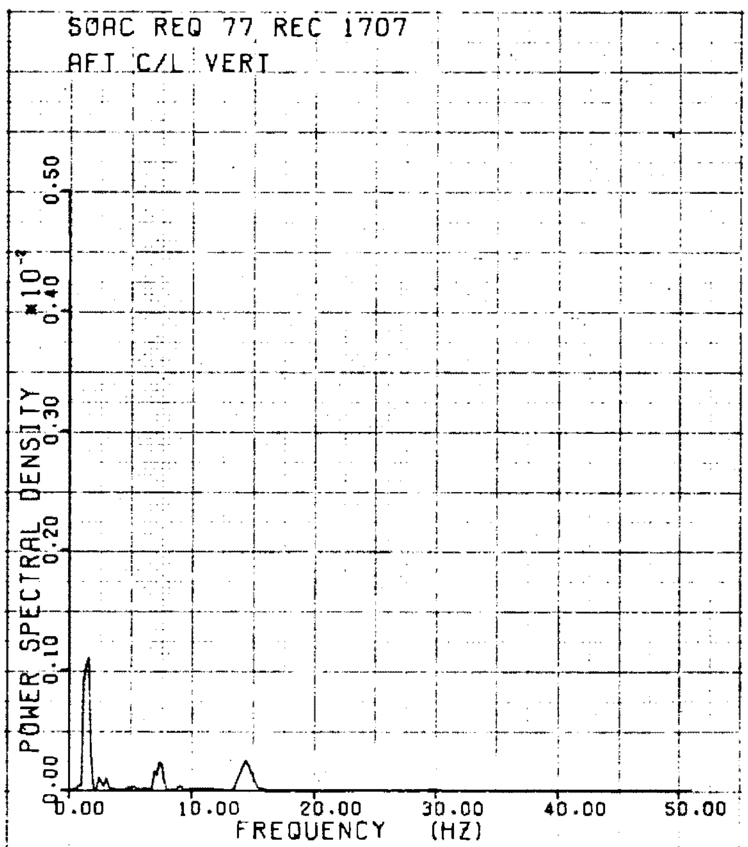
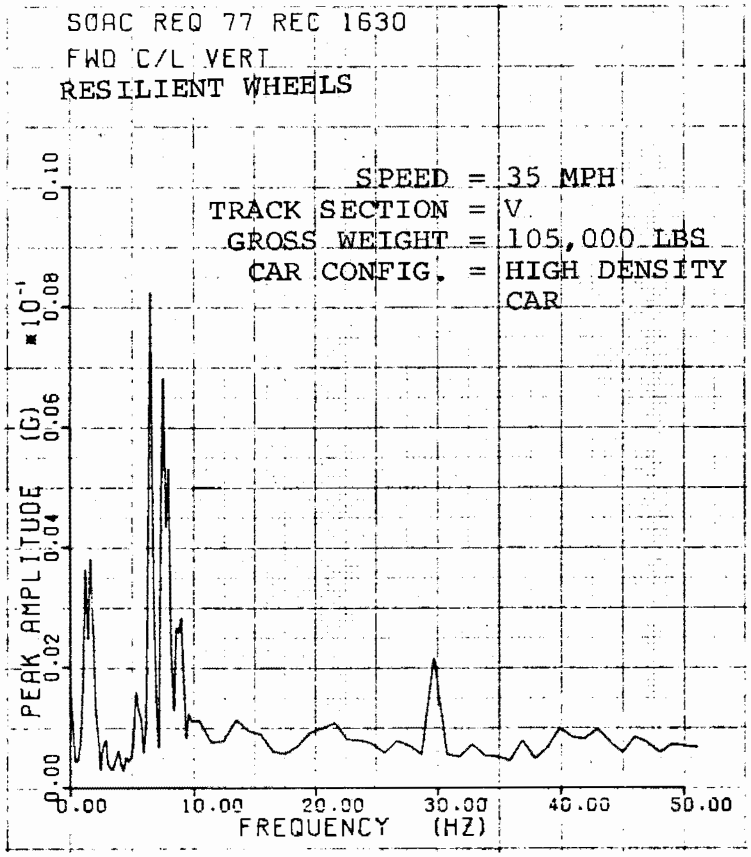

SOAC REQ 77 REC 1707
AFT C/L VERT
POWER SPECTRAL DENSITY *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-104


SOAC REQ 77 REC 1630
FWD C/L VERT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = V
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

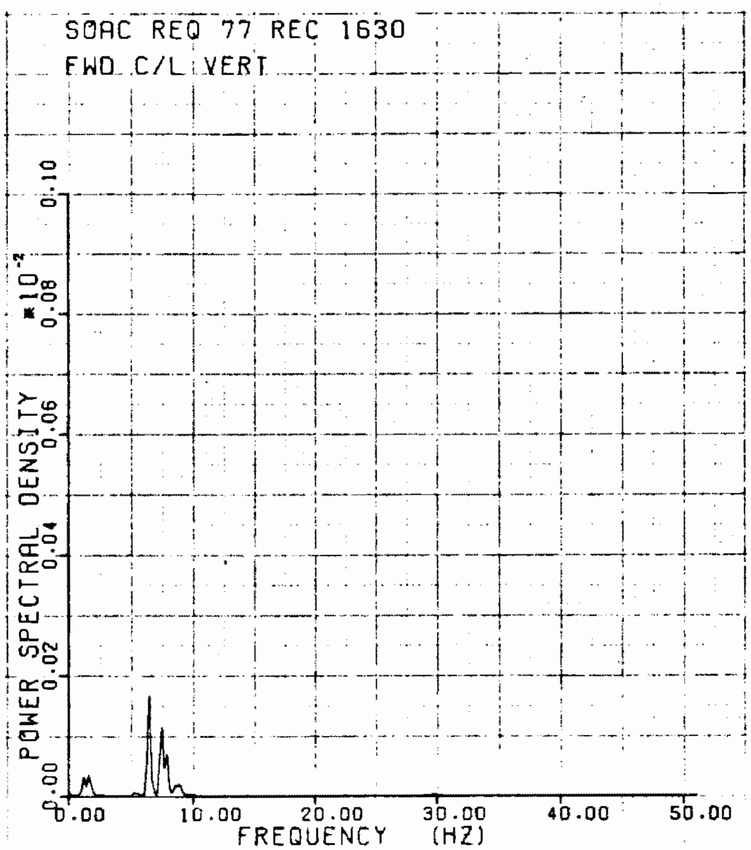
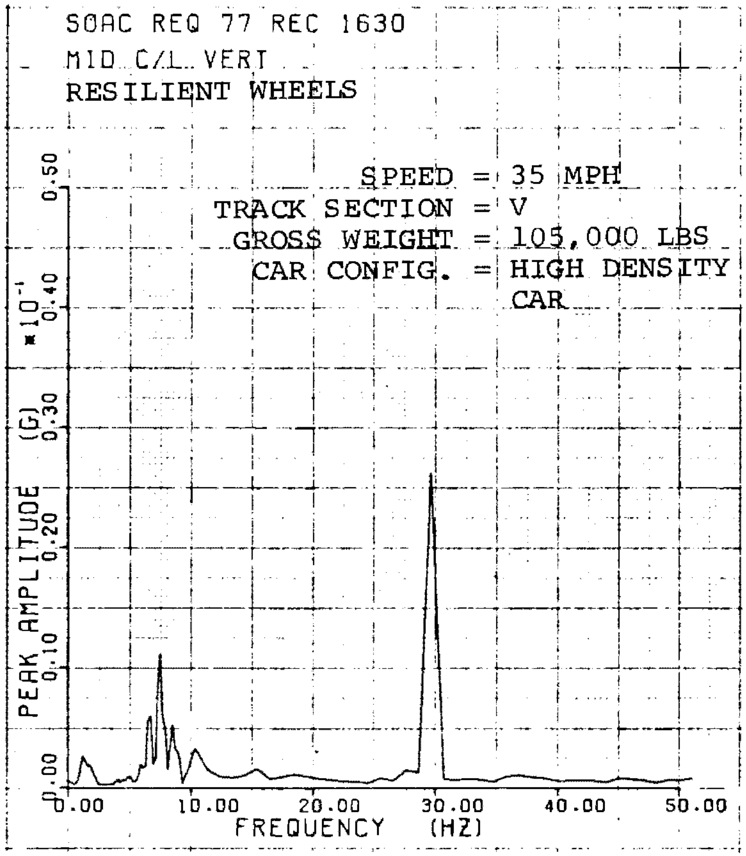

SOAC REQ 77 REC 1630
FWD C/L VERT
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-105


SOAC REQ 77 REC 1630
MID C/L VERT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = V
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

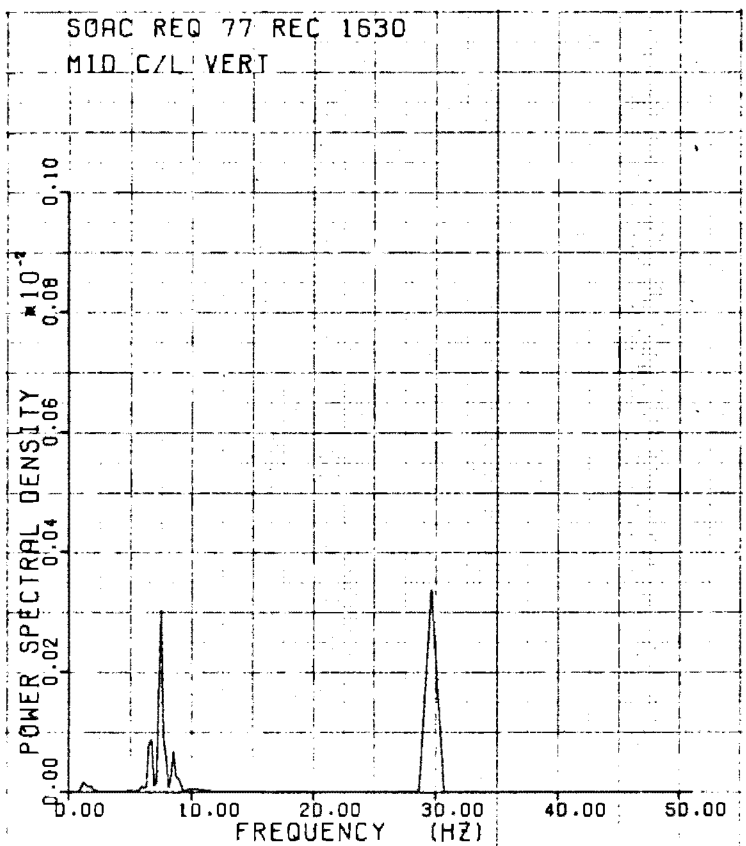
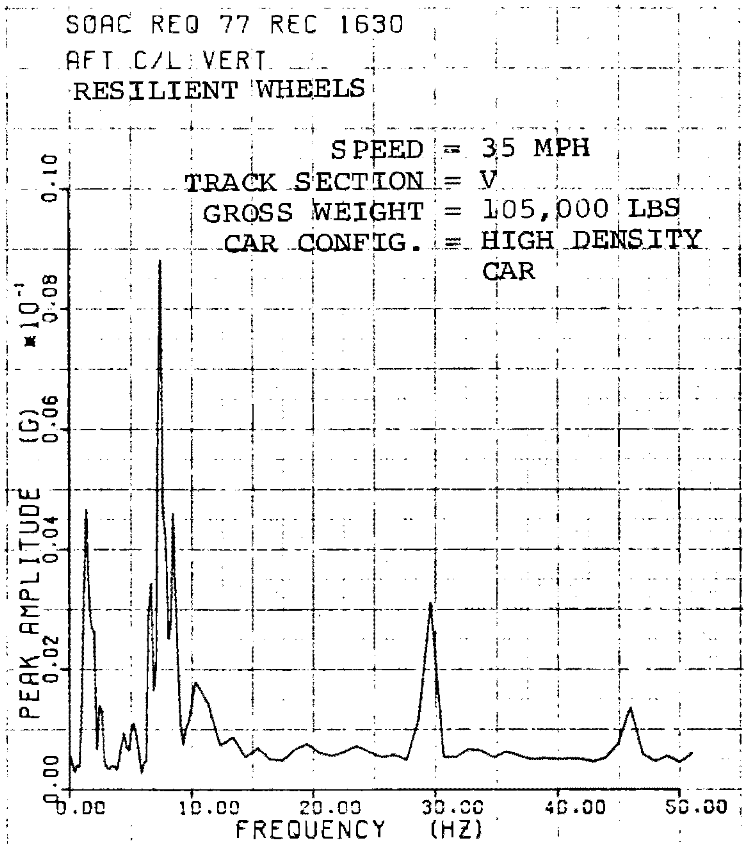

SOAC REQ 77 REC 1630
MID C/L VERT
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-106


SOAC REQ 77 REC 1630
AFT C/L VERT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = V
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) ×10⁻¹
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

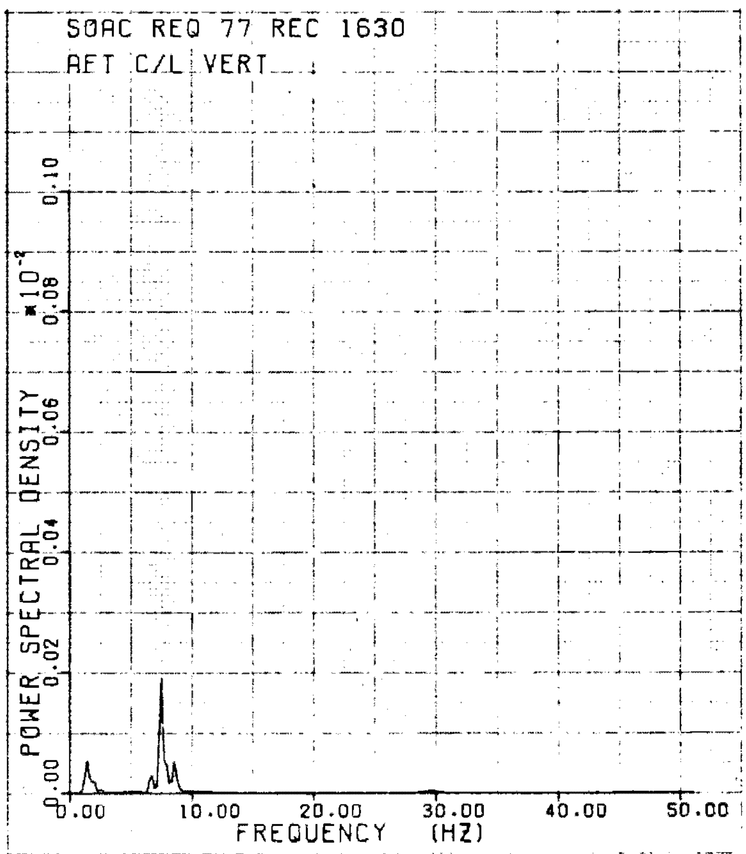
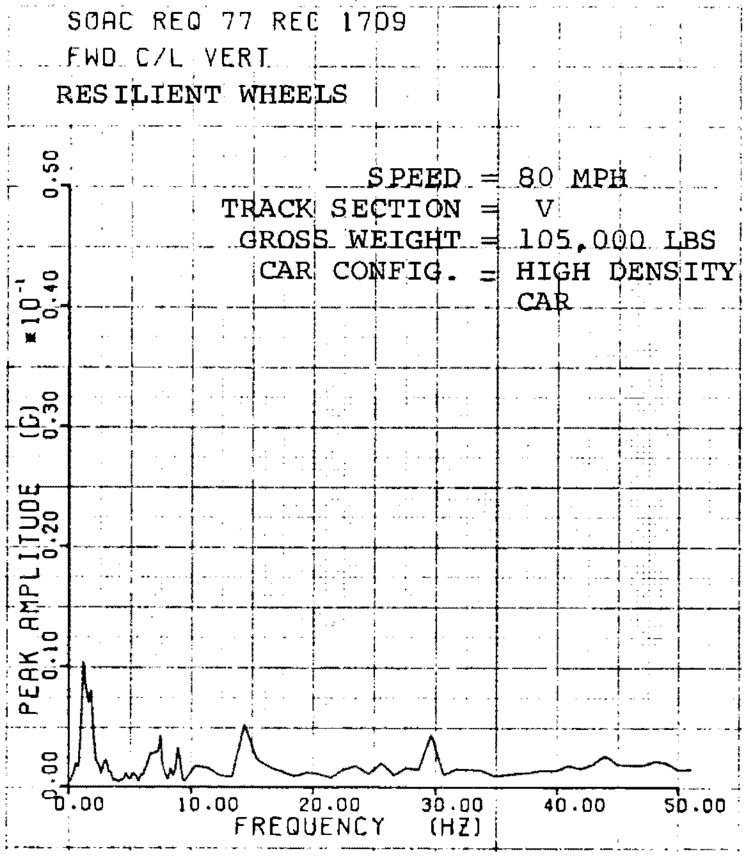

SOAC REQ 77 REC 1630
AFT C/L VERT
POWER SPECTRAL DENSITY ×10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-107


SOAC REQ 77 REC 1709
FWD C/L VERT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = V
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) $\times 10^{-1}$
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

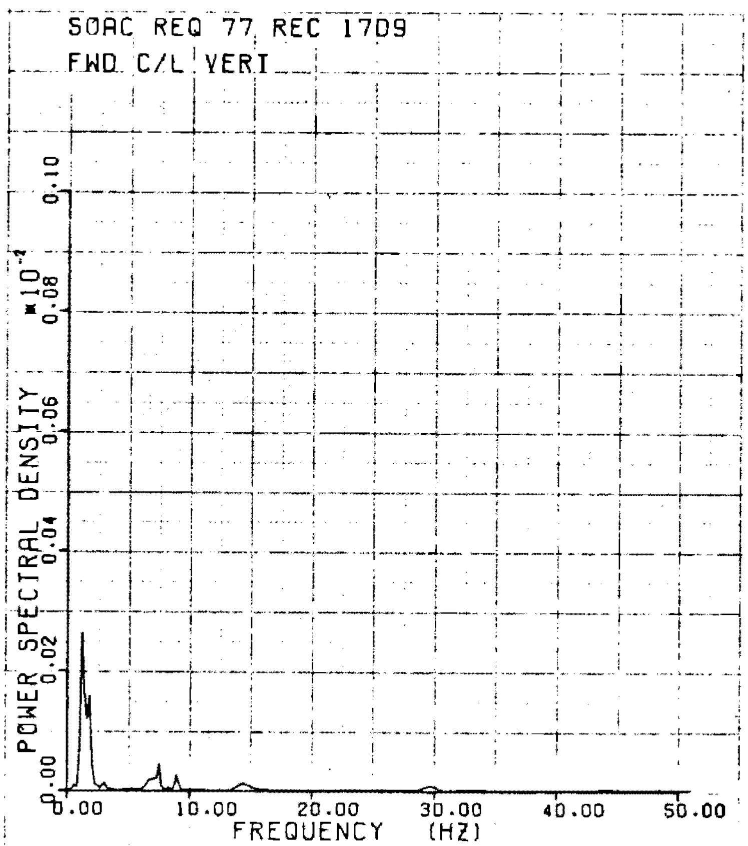
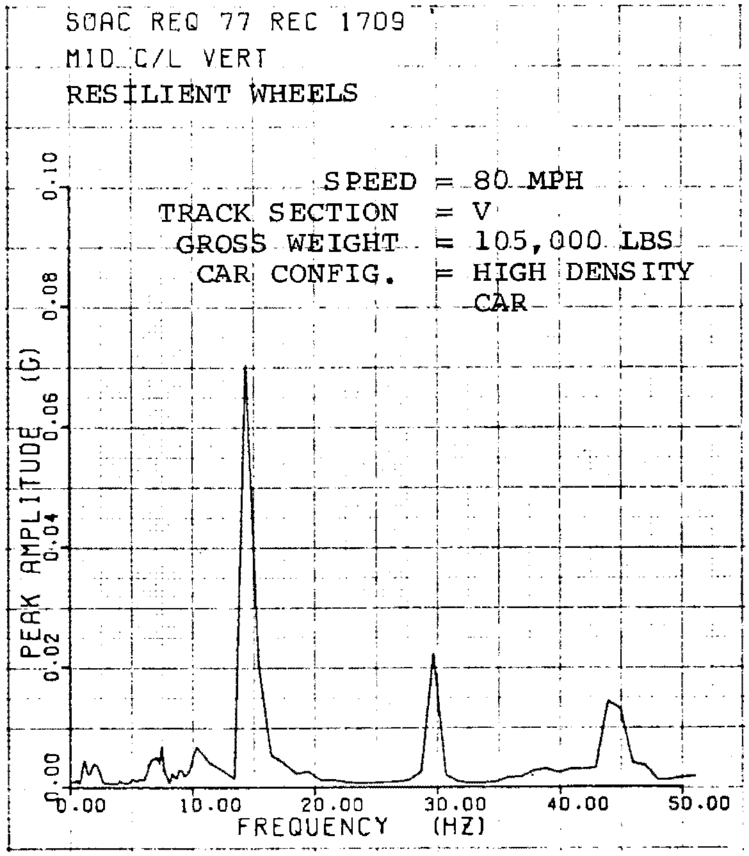

SOAC REQ 77 REC 1709
FWD C/L VERT
POWER SPECTRAL DENSITY $\times 10^{-2}$
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-108


SOAC REQ 77 REC 1709
MID C/L VERT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = V
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

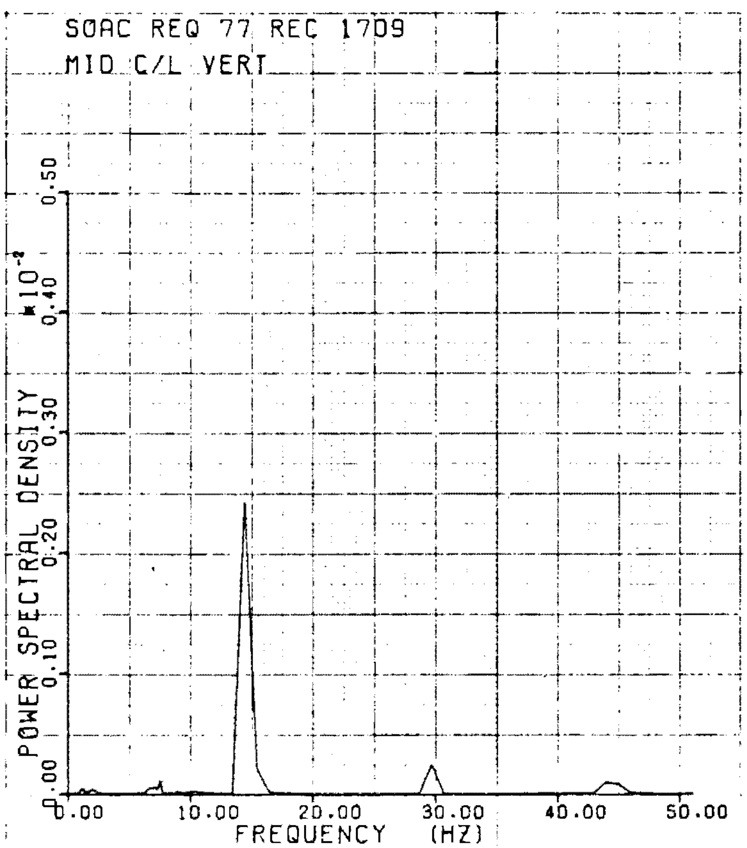
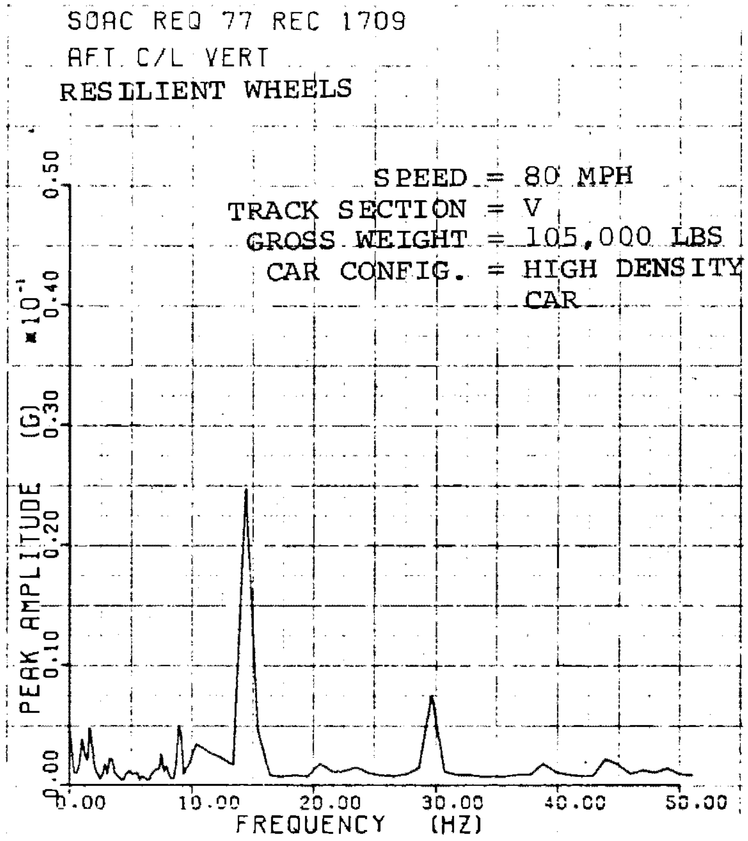

SOAC REQ 77 REC 1709
MID C/L VERT
POWER SPECTRAL DENSITY *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-109


SOAC REQ 77 REC 1709
AFT C/L VERT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = V
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) ×10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

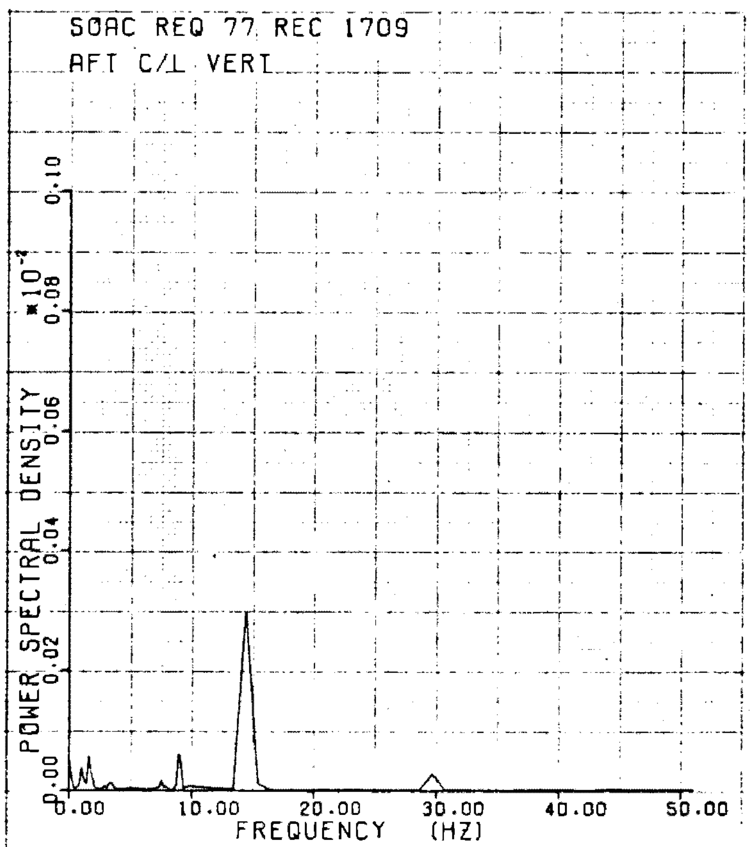
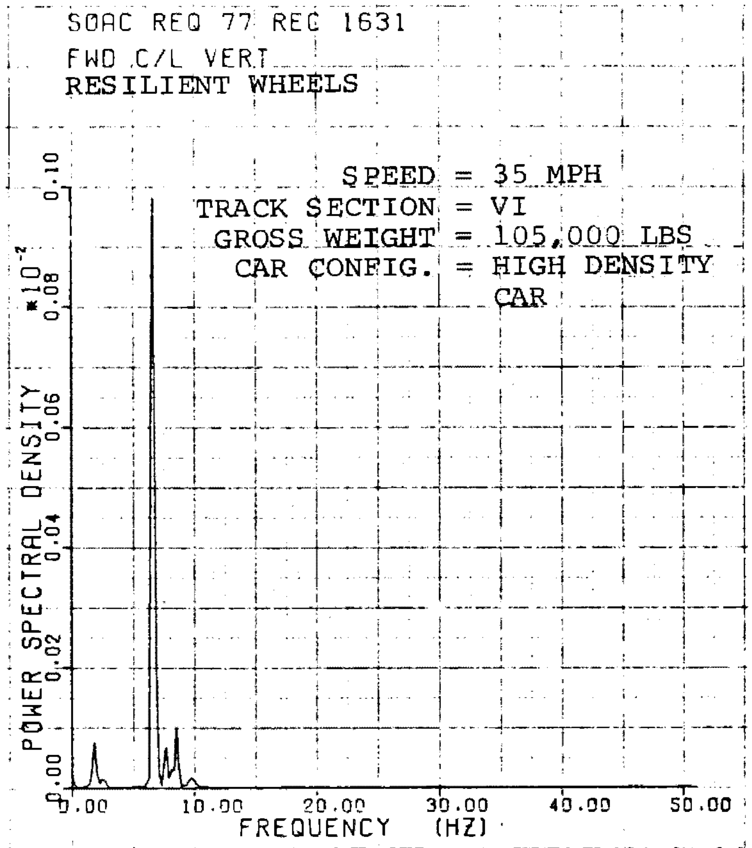

SOAC REQ 77 REC 1709
AFT C/L VERT
POWER SPECTRAL DENSITY ×10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-110


SOAC REQ 77 REC 1631
FWD C/L VERT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = VI
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

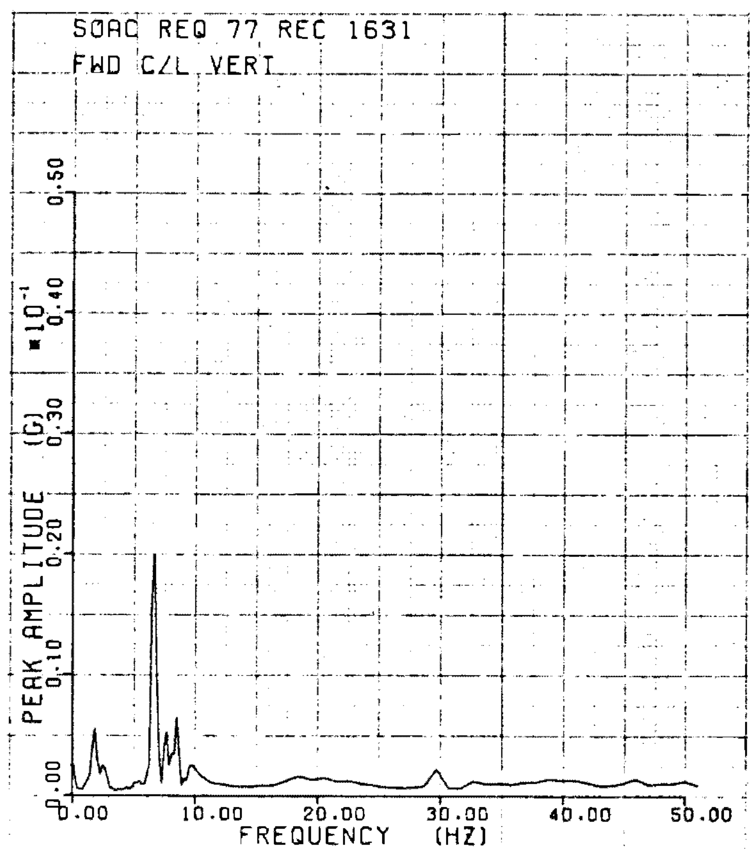
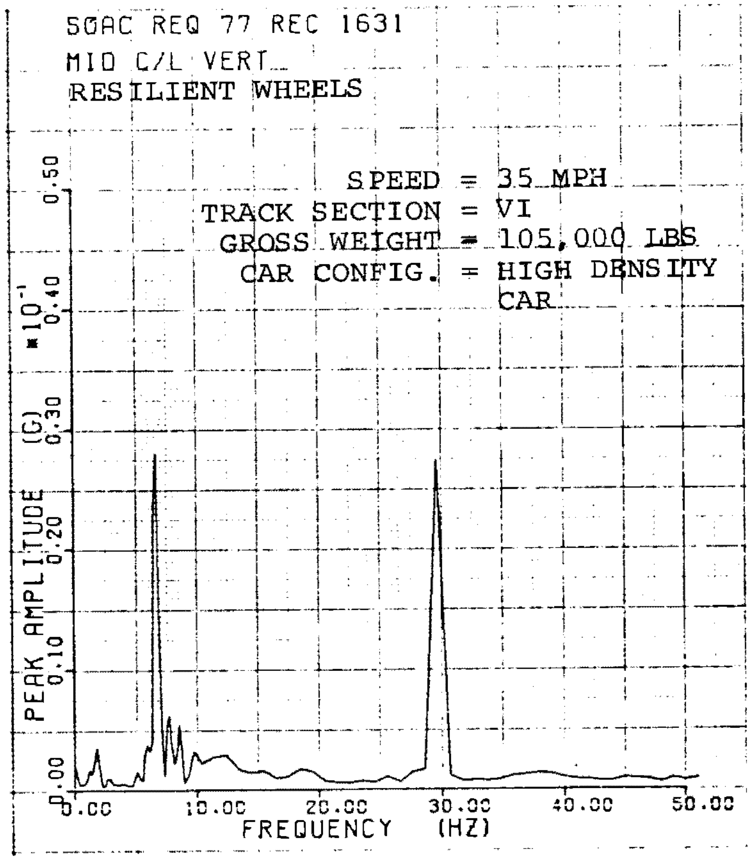
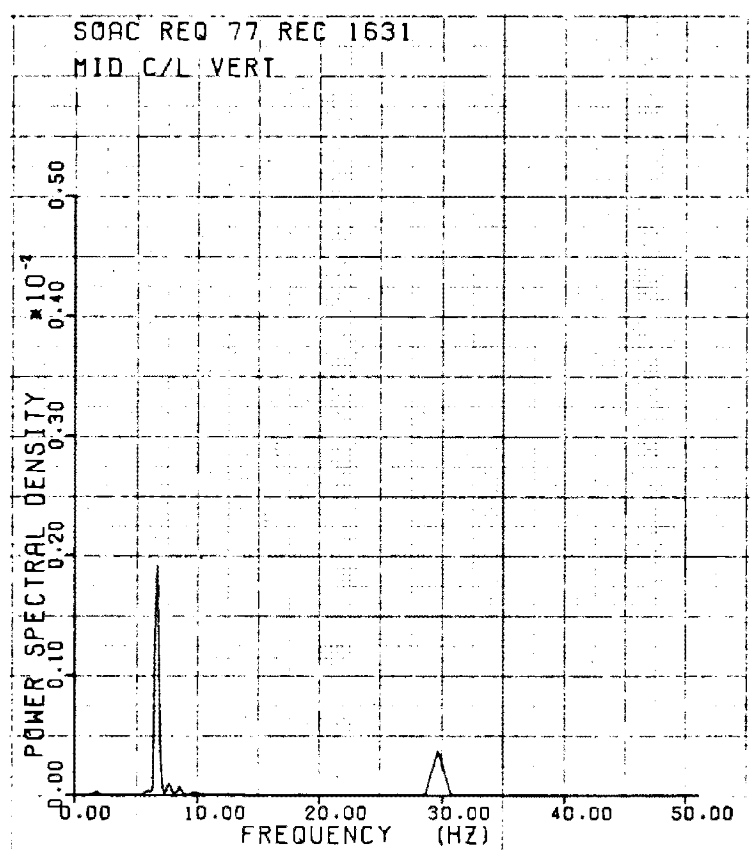

SOAC REQ 77 REC 1631
FWD C/L VERT
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-111

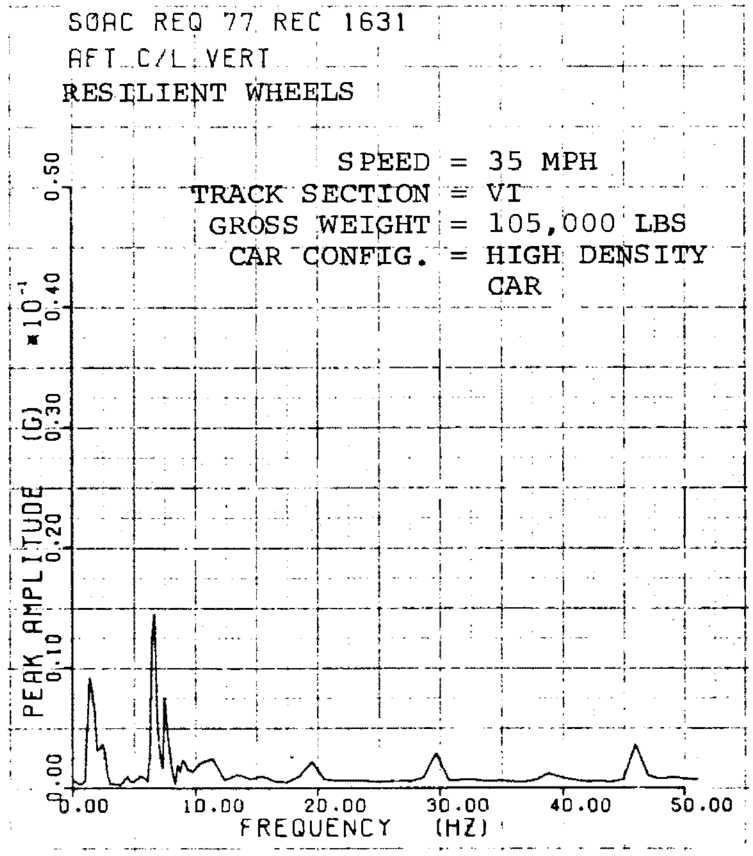


SOAC REQ 77 REC 1631
MID C/L VERT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = VI
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 77 REC 1631
MID C/L VERT
POWER SPECTRAL DENSITY *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-112


SOAC REQ 77 REC 1631
AFT C/L VERT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = VI
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) ×10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

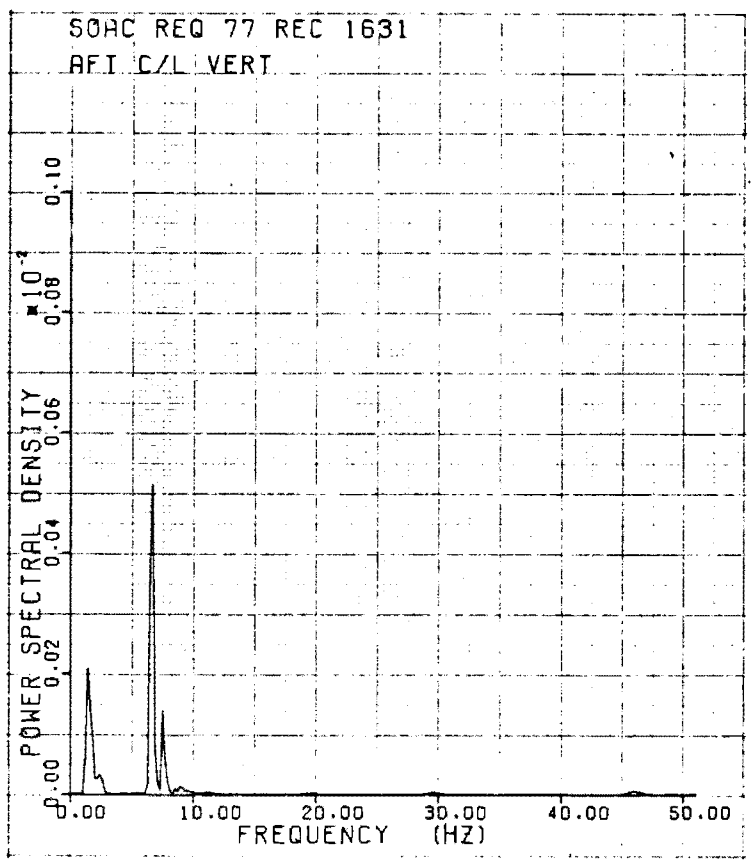
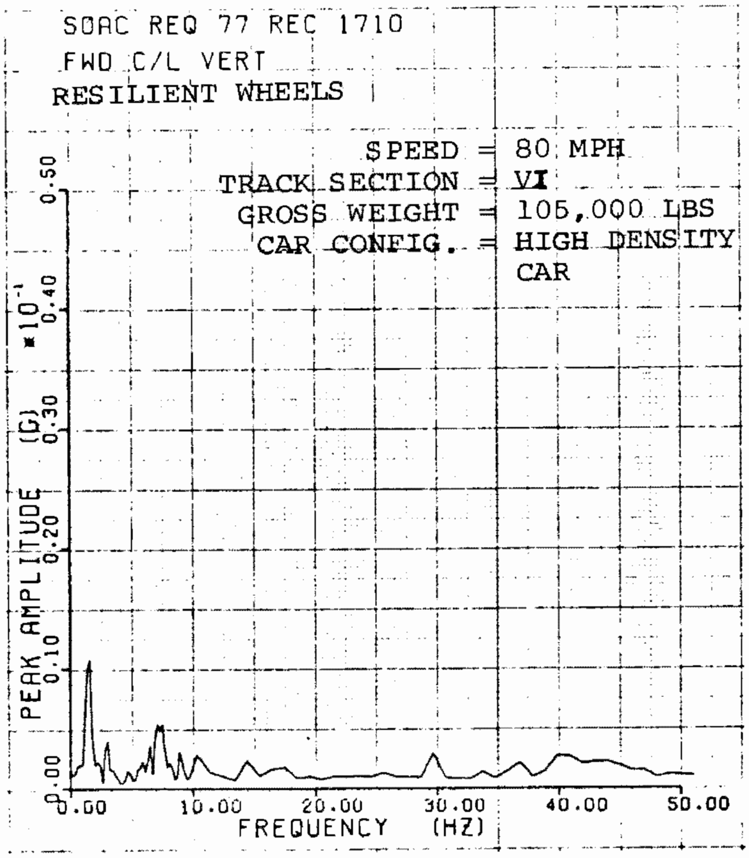

SOAC REQ 77 REC 1631
AFT C/L VERT
POWER SPECTRAL DENSITY ×10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-113


SOAC REQ 77 REC 1710
FWD C/L VERT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = VI
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

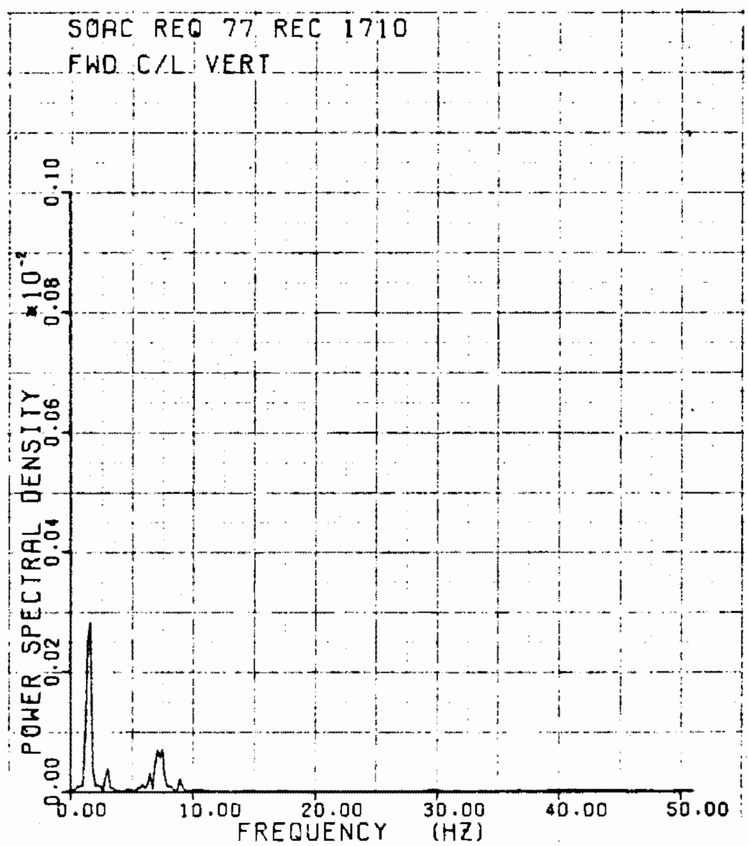
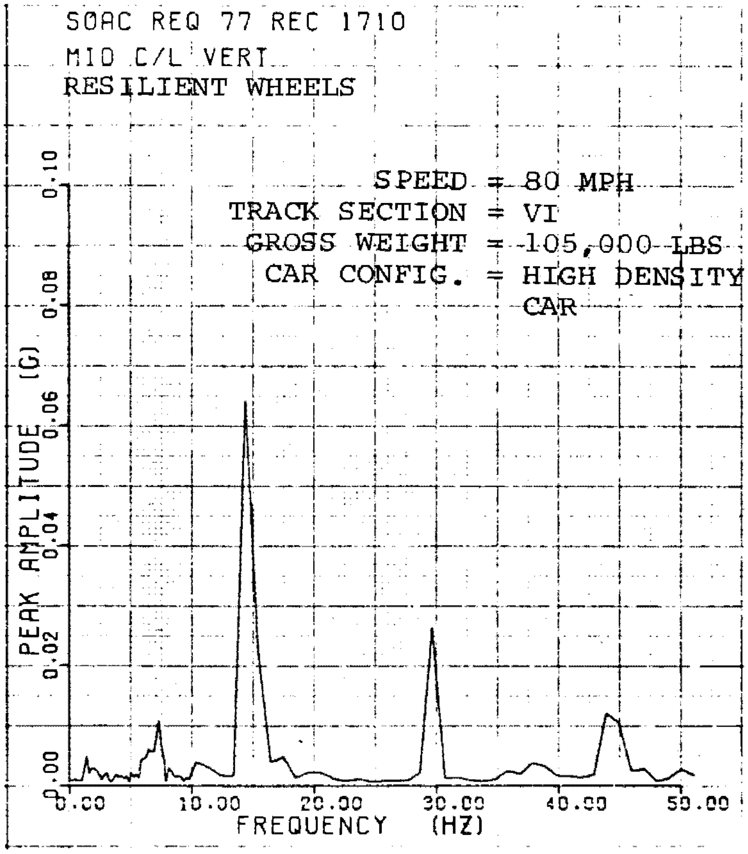

SOAC REQ 77 REC 1710
FWD C/L VERT
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-114


SOAC REQ 77 REC 1710
MID C/L VERT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = VI
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

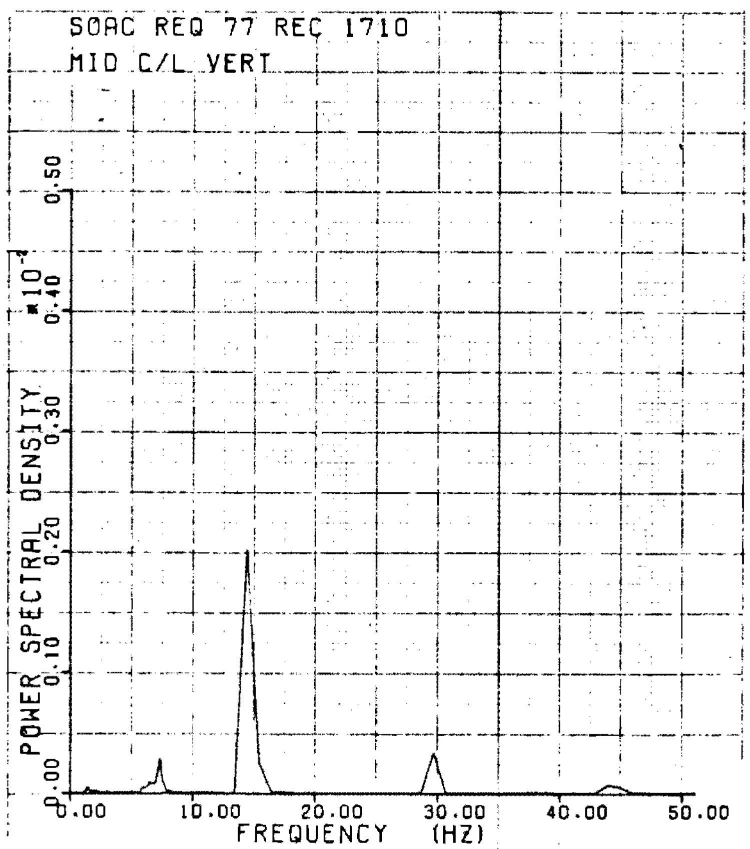
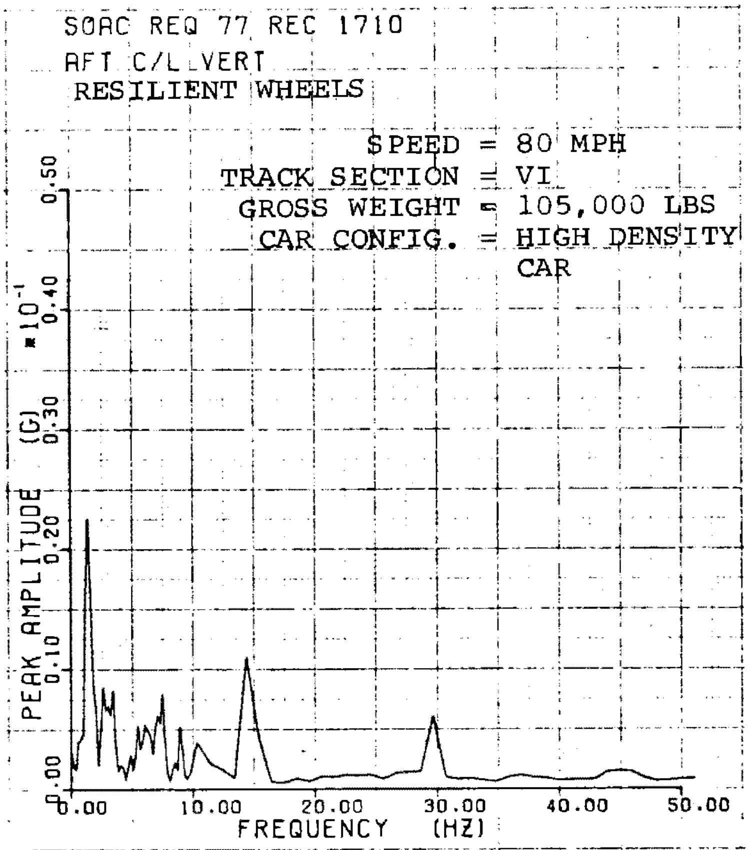
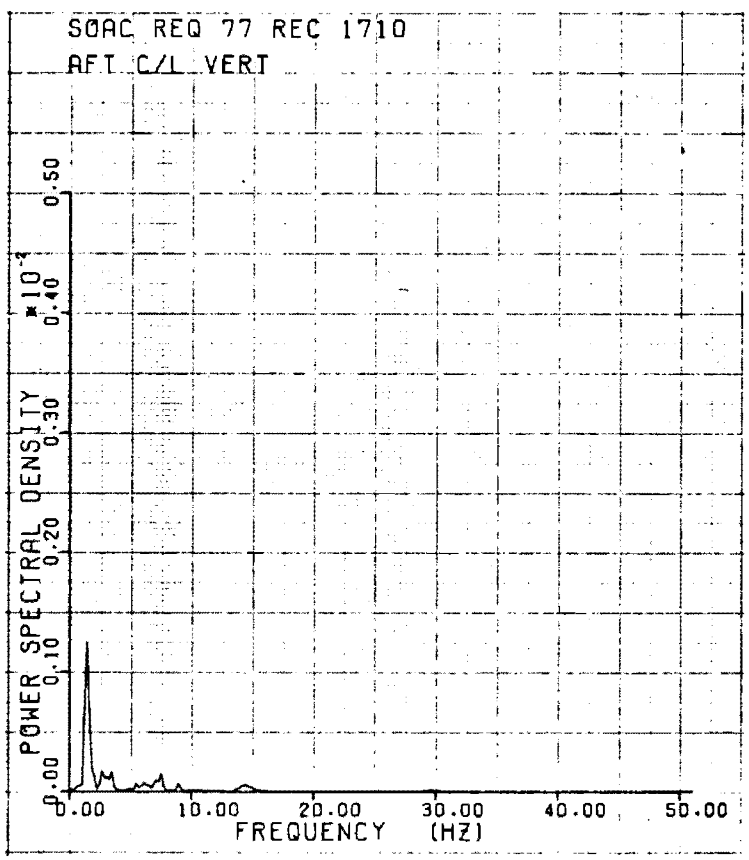

SOAC REQ 77 REC 1710
MID C/L VERT
POWER SPECTRAL DENSITY *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-115

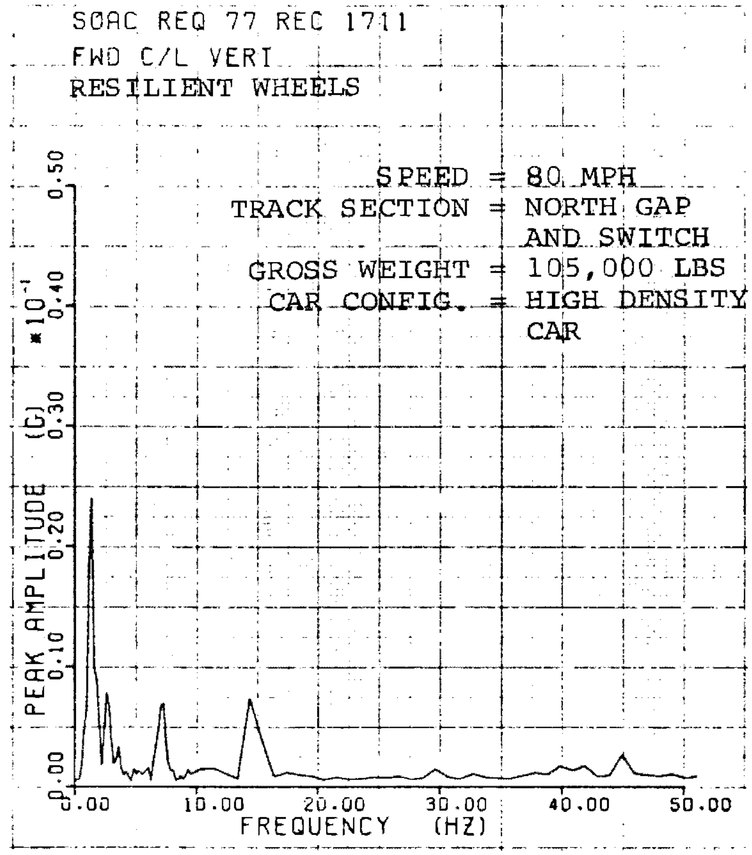


SOAC REQ 77 REC 1710
AFT C/L VERT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = VI
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 77 REC 1710
AFT C/L VERT
POWER SPECTRAL DENSITY *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-116


SOAC REQ 77 REC 1711
FWD C/L VERT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = NORTH GAP
AND SWITCH
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY
CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

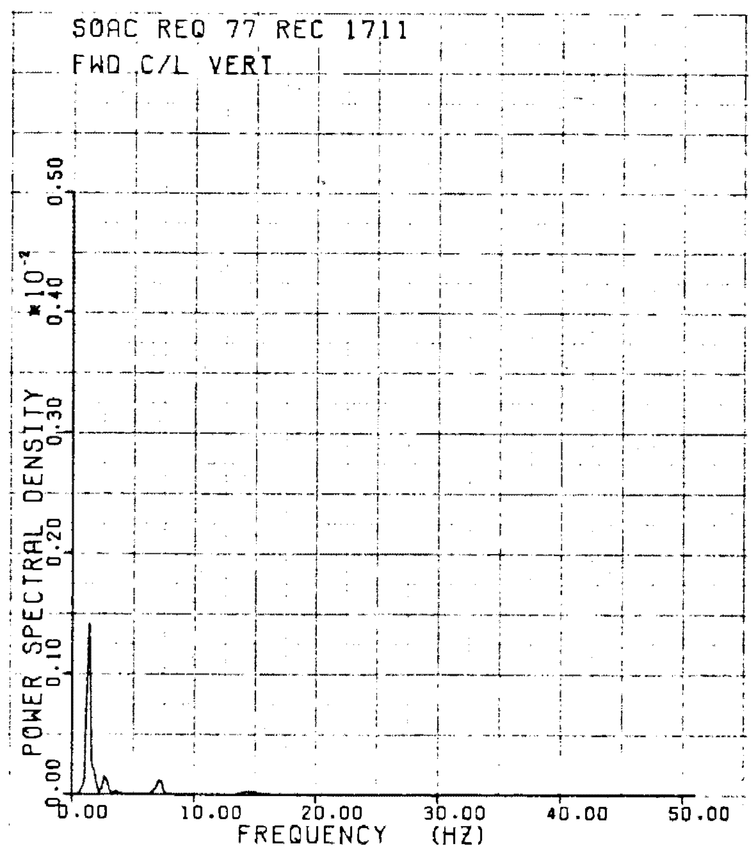
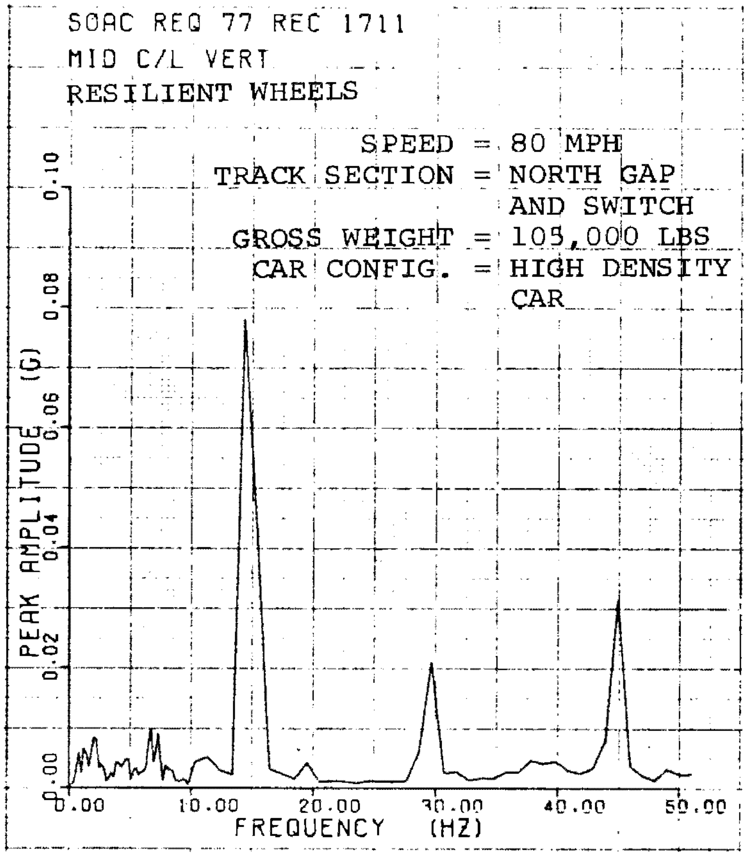

SOAC REQ 77 REC 1711
FWD C/L VERT
POWER SPECTRAL DENSITY *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-117


SOAC REQ 77 REC 1711
MID C/L VERT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = NORTH GAP AND SWITCH
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

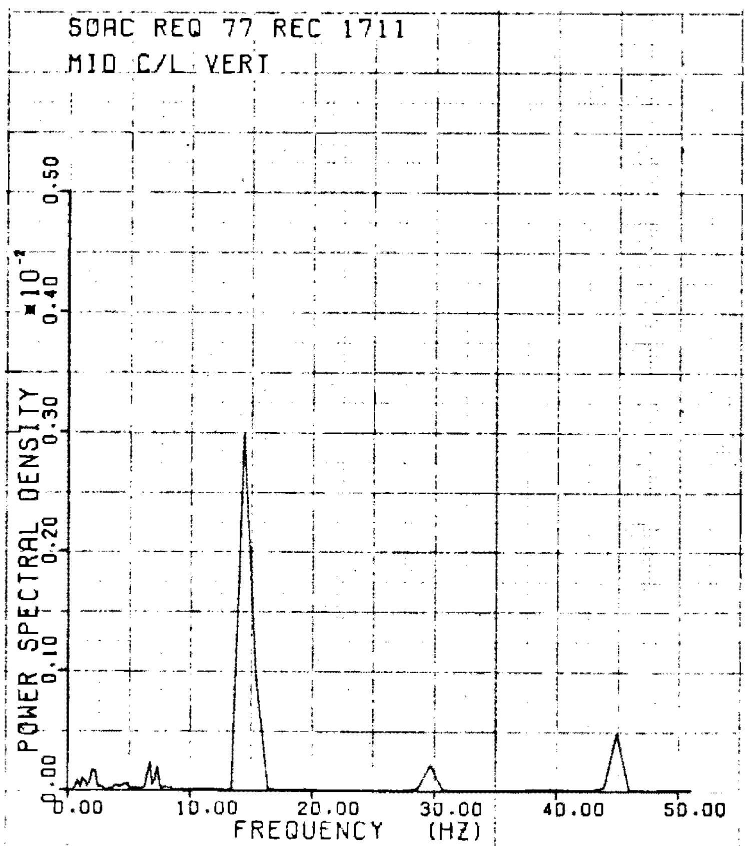
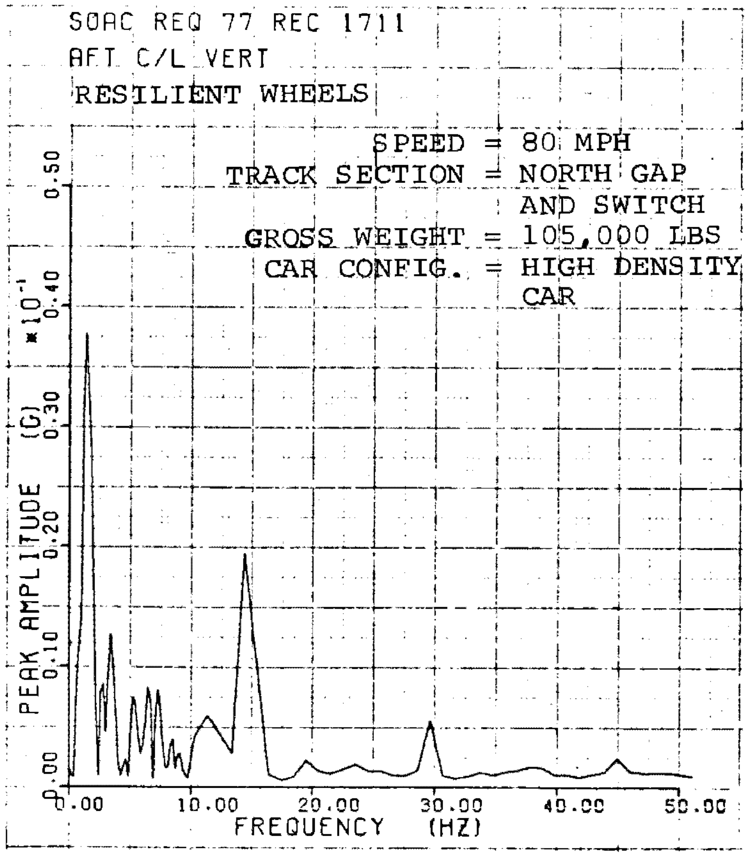

SOAC REQ 77 REC 1711
MID C/L VERT
POWER SPECTRAL DENSITY ×10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-118


SOAC REQ 77 REC 1711
AFT C/L VERT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = NORTH GAP AND SWITCH
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

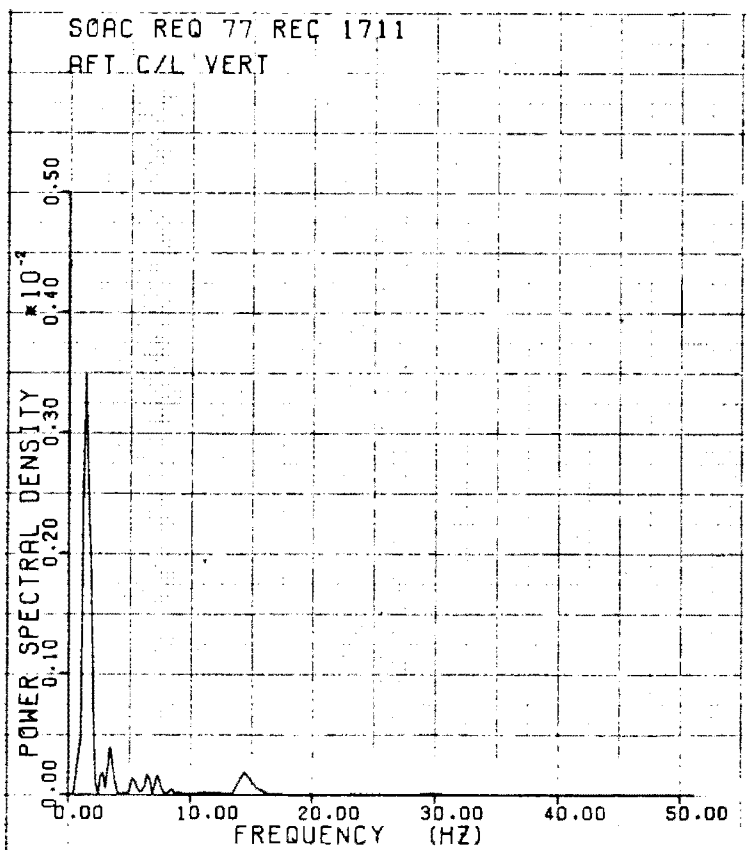
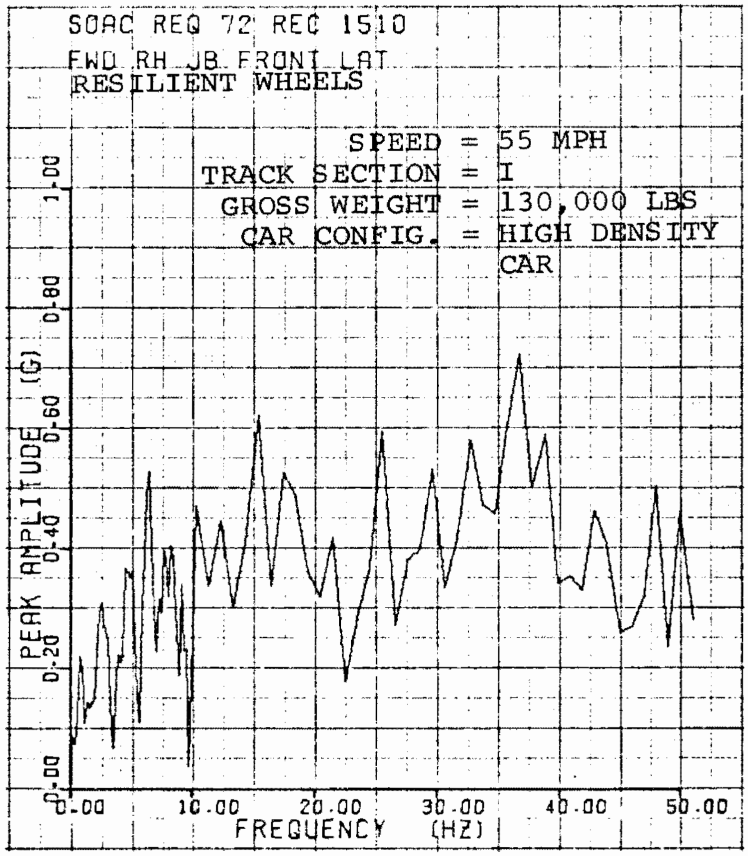

SOAC REQ 77 REC 1711
AFT C/L VERT
POWER SPECTRAL DENSITY *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-119


SOAC REQ 72 REC 1510
FWD RH JB FRONT LAT
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 130,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

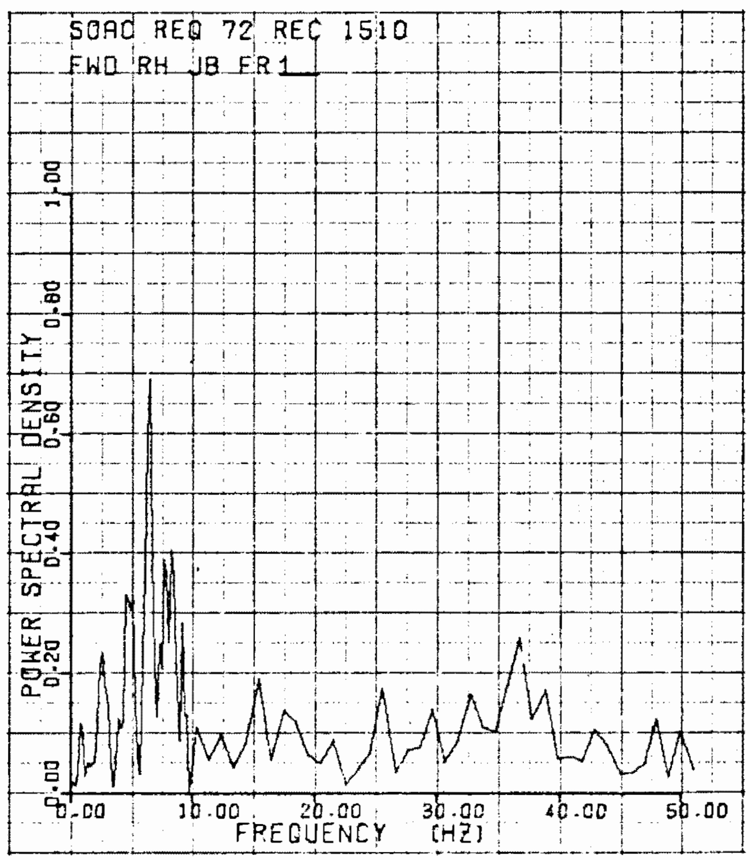
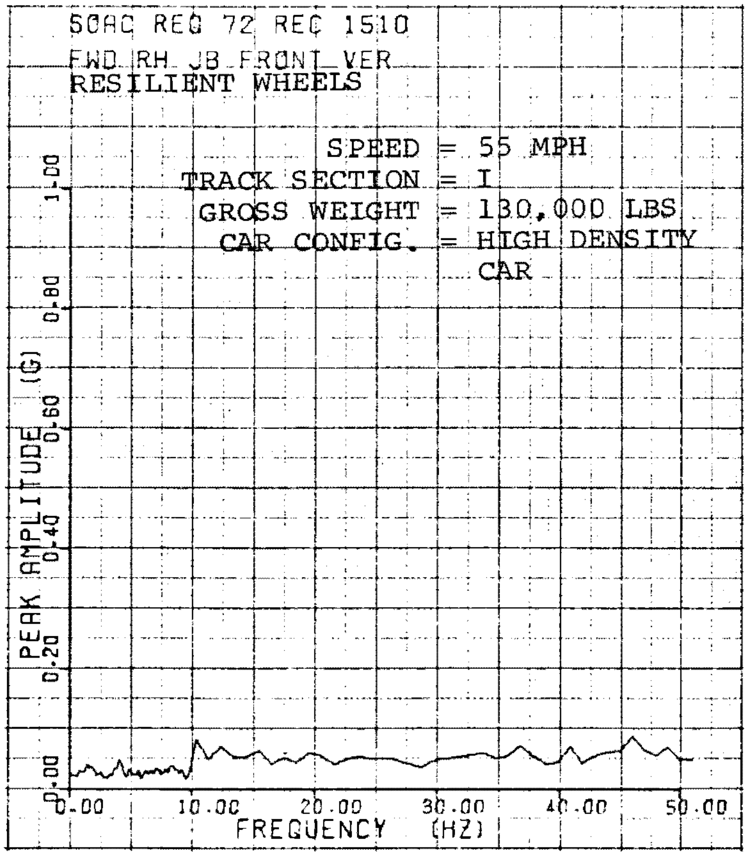

SOAC REQ 72 REC 1510
FWD RH JB FR1
POWER SPECTRAL DENSITY
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-120


SOAC REQ 72 REC 1510
FWD RH JB FRONT VER
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 130,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

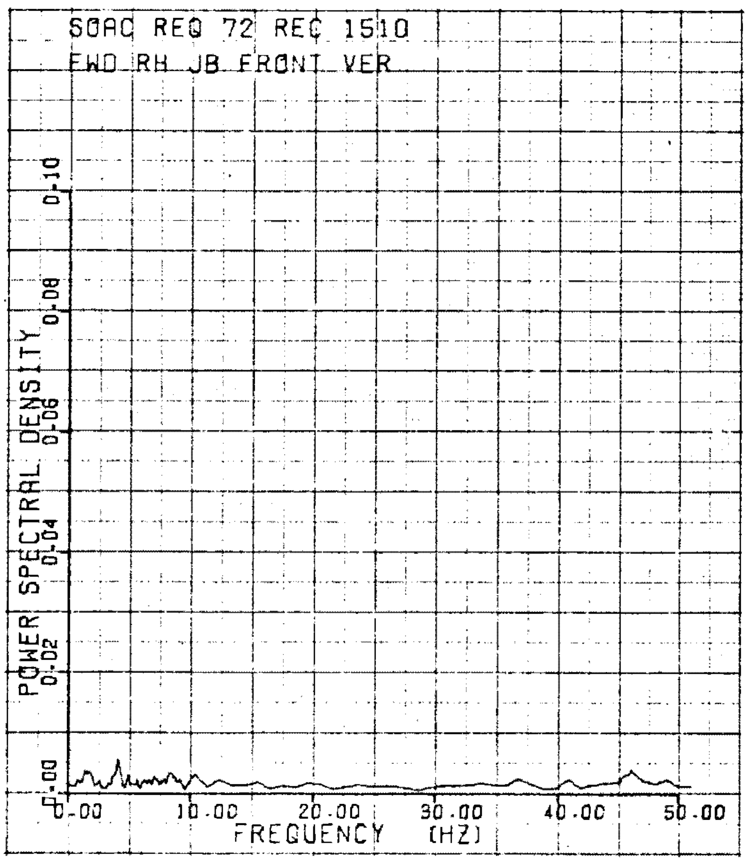
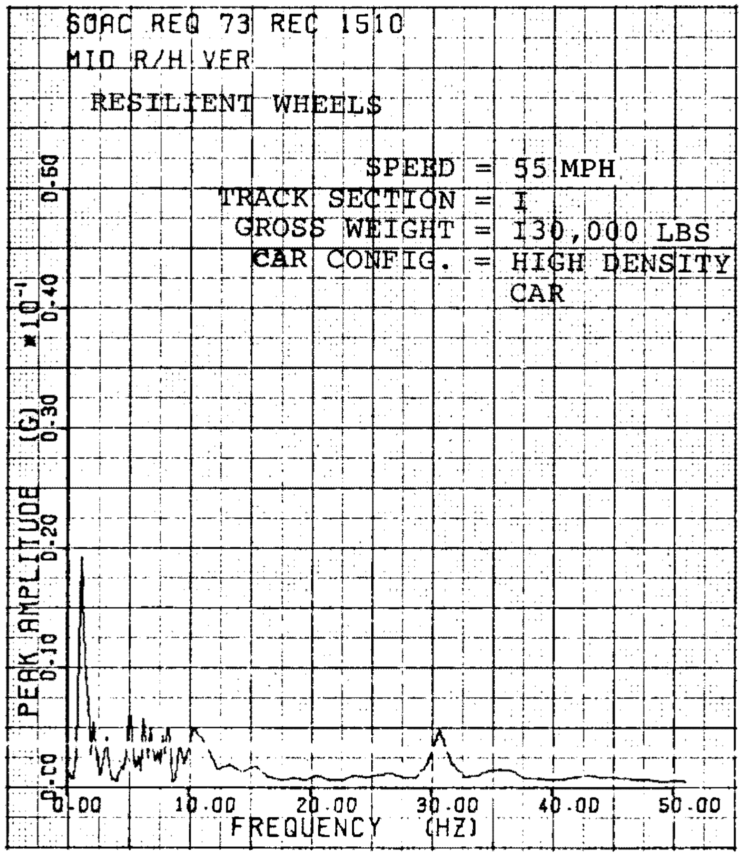

SOAC REQ 72 REC 1510
FWD RH JB FRONT VER
POWER SPECTRAL DENSITY
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-121


SOAC REQ 73 REC 1510
MID R/H VER
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 130,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

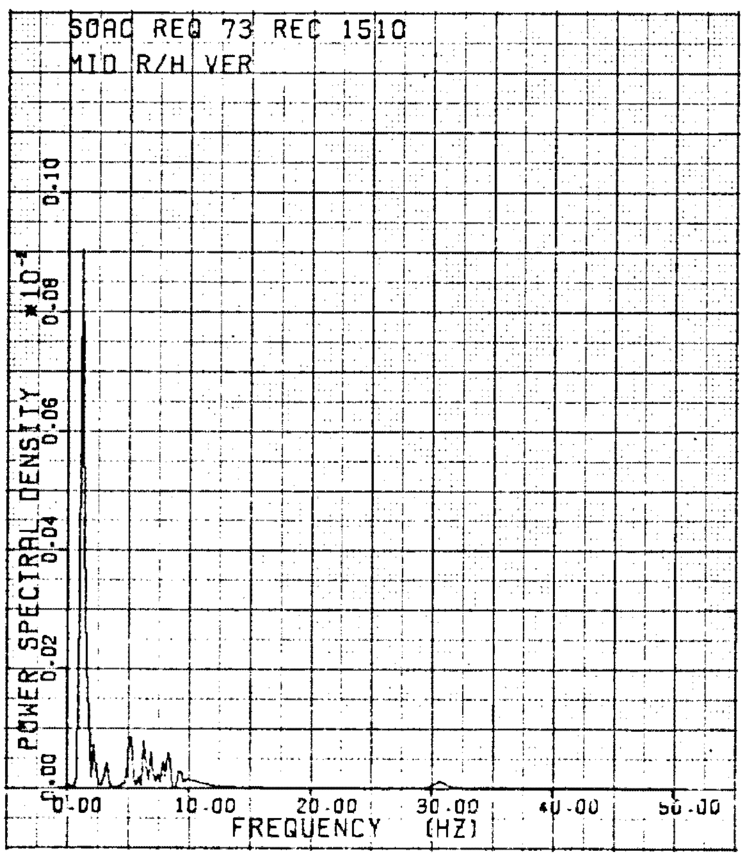
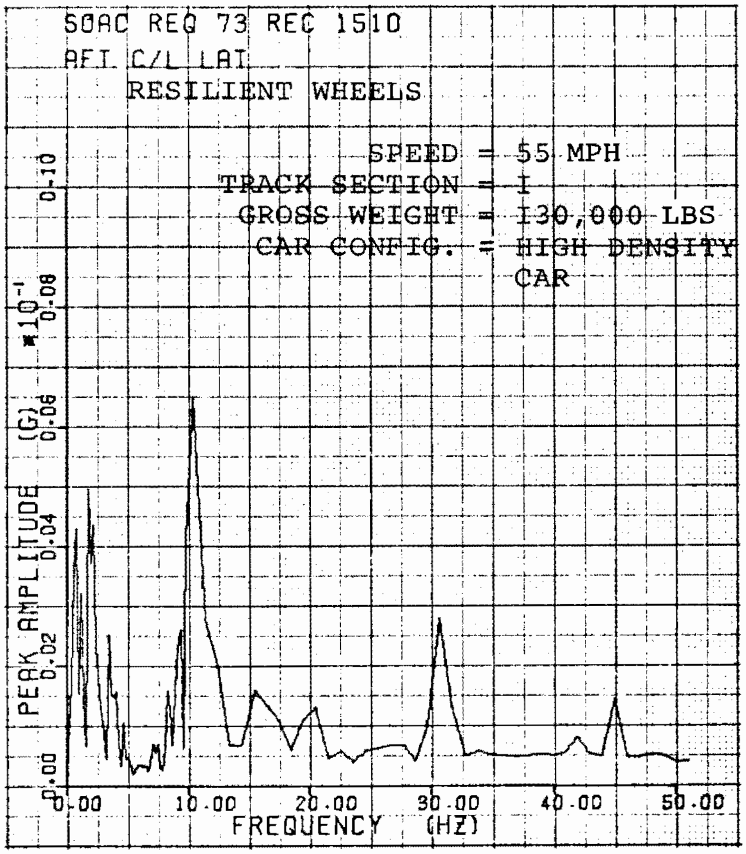

SOAC REQ 73 REC 1510
MID R/H VER
POWER SPECTRAL DENSITY *10^-1
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-122


SOAC REQ 73 REC 1510
AFT C/L LAT
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 130,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-1
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

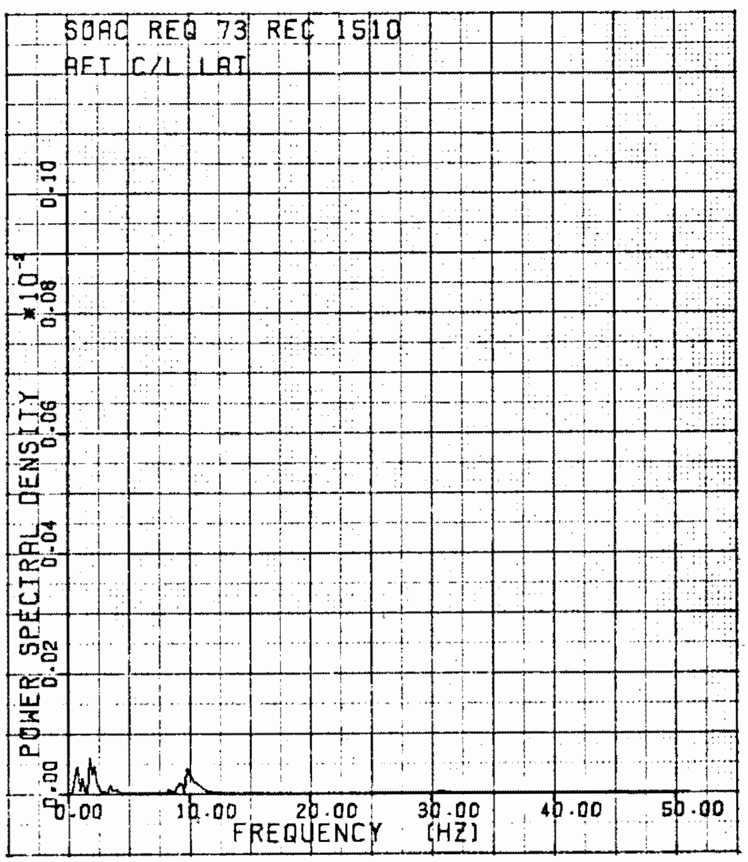
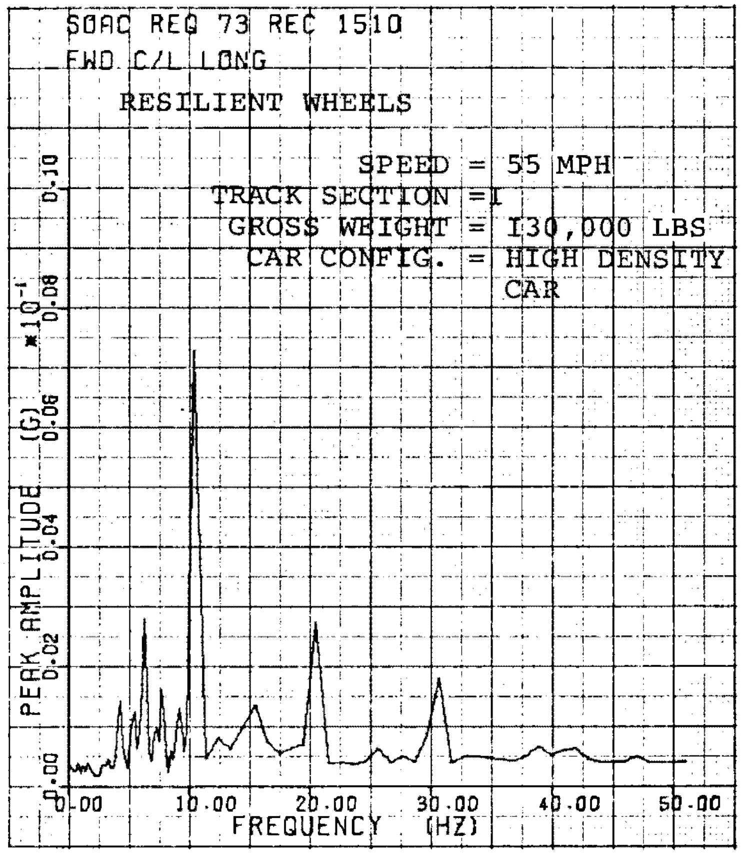

SOAC REQ 73 REC 1510
AFT C/L LAT
POWER SPECTRAL DENSITY *10^-2
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-123


SOAC REQ 73 REC 1510
FWD C/L LONG
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 130,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

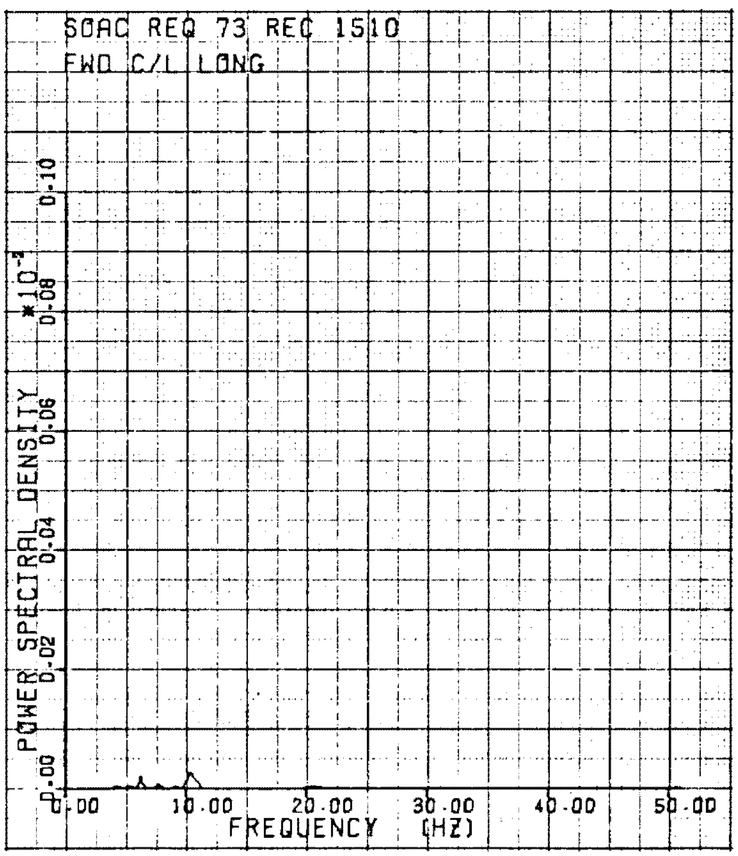
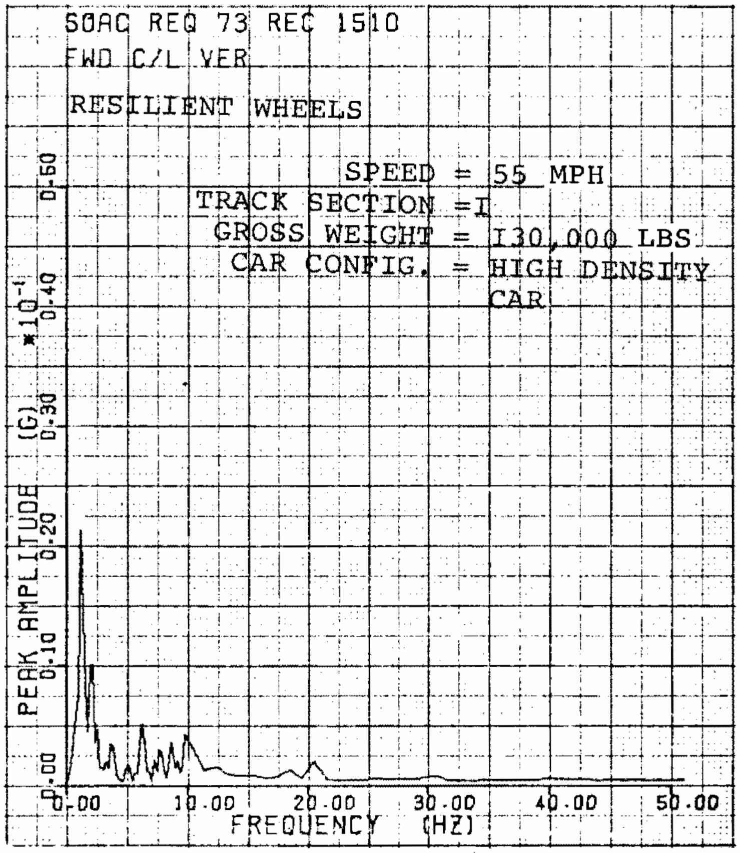
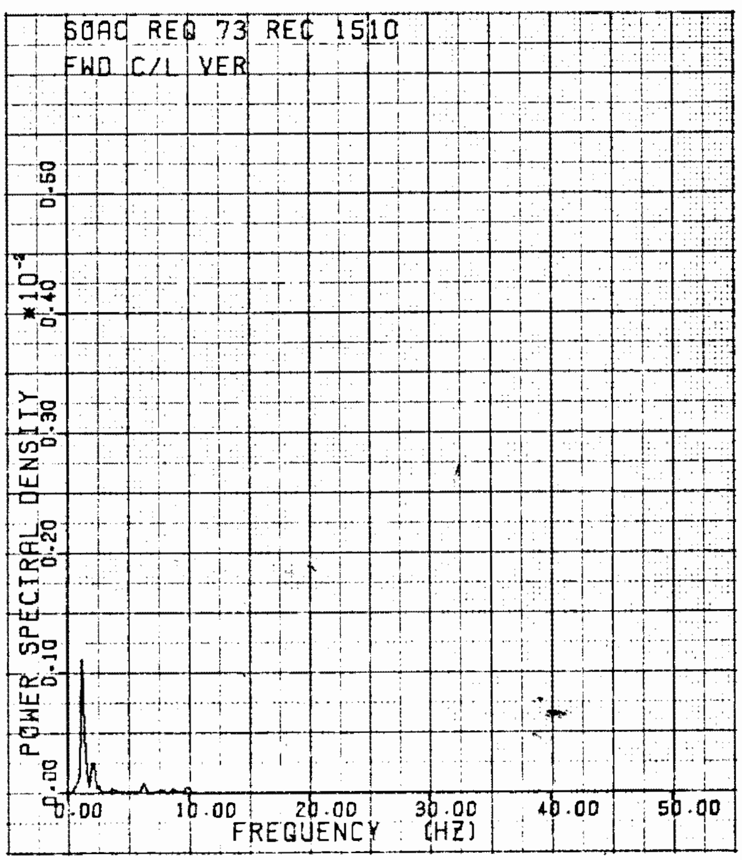

SOAC REQ 73 REC 1510
FWD C/L LONG
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-124

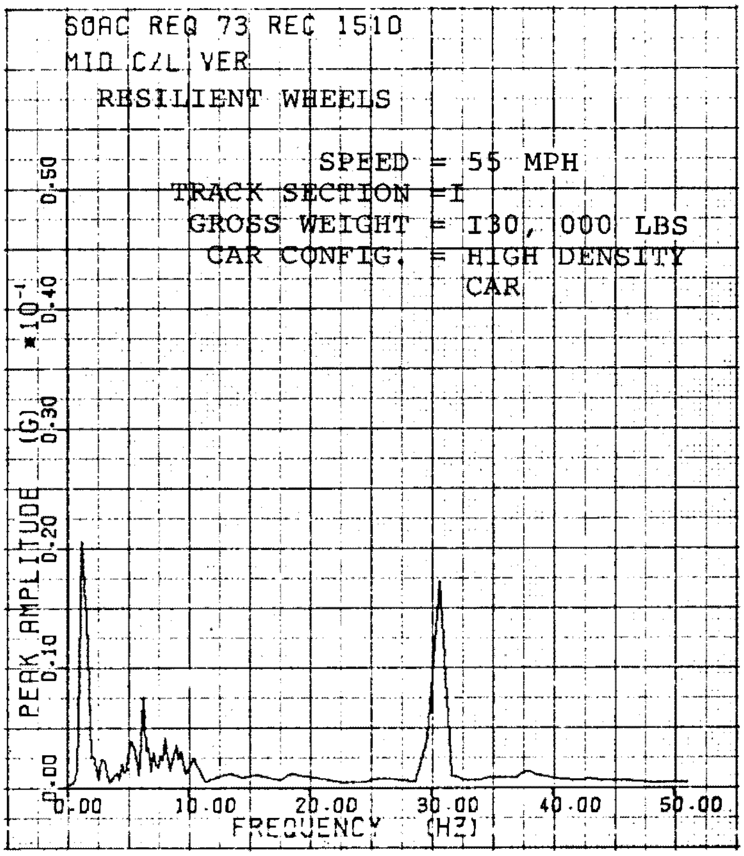


SOAC REQ 73 REC 1510
FWD C/L VER
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 130,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 73 REC 1510
FWD C/L VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-125


SOAC REQ 73 REC 1510
MID C/L VER
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION =I
GROSS WEIGHT = 130, 000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

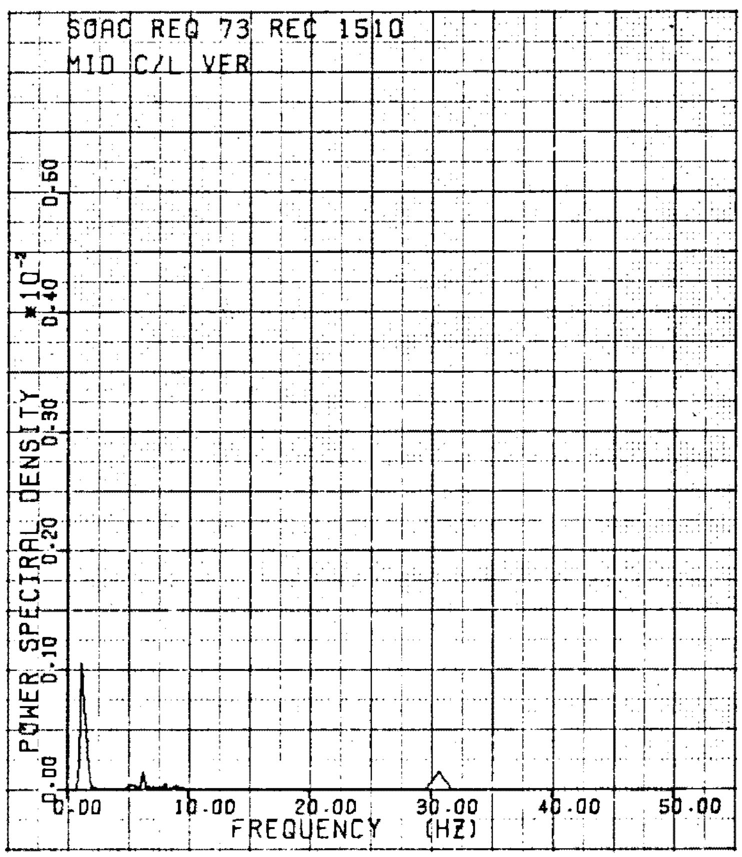
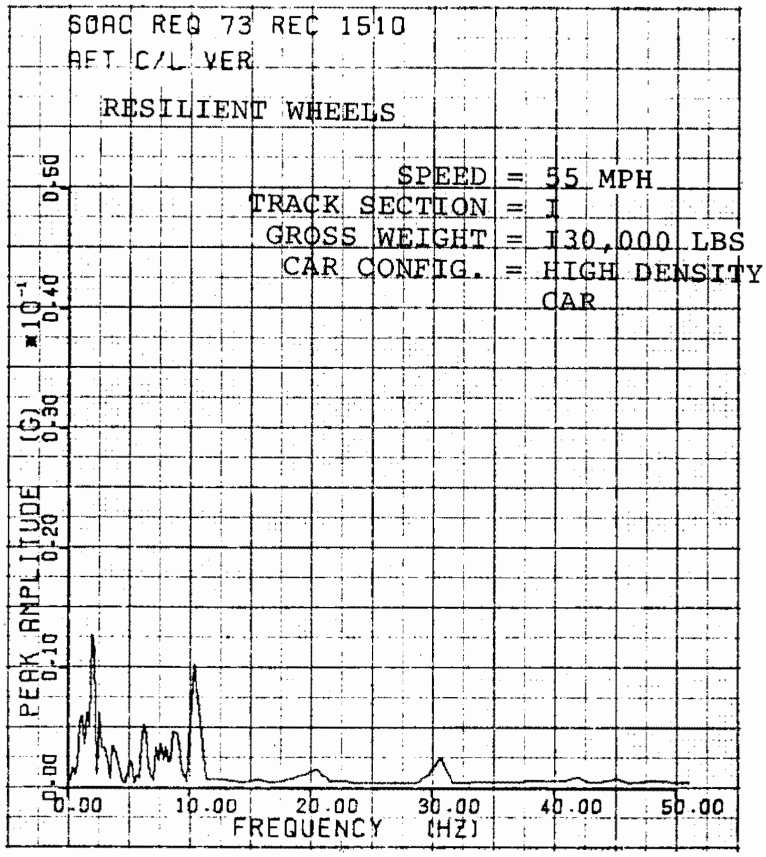

SOAC REQ 73 REC 1510
MID C/L VER
POWER SPECIRAL DENSITY *10^-2
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-126


SOAC REQ 73 REC 1510
AFT C/L VER
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 130,000 LBS
CAR CONFIG. = HIGH DENSITY CAR
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

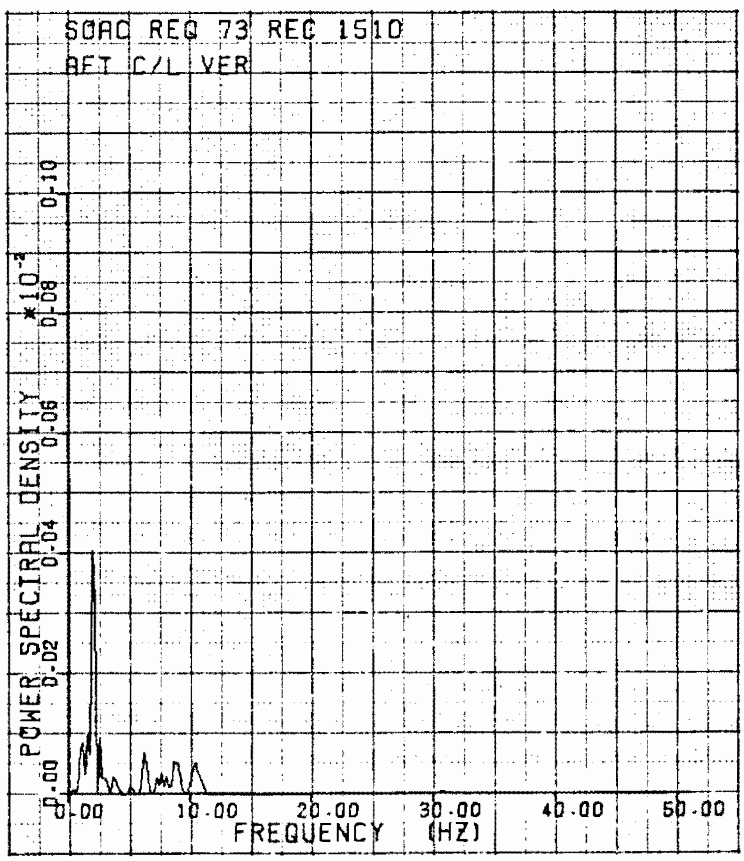
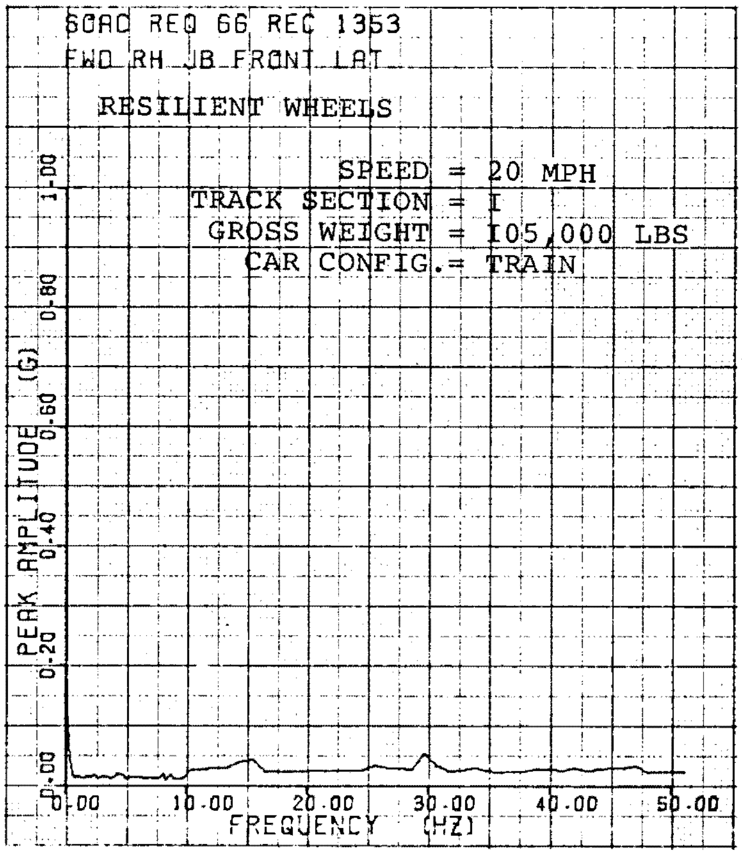
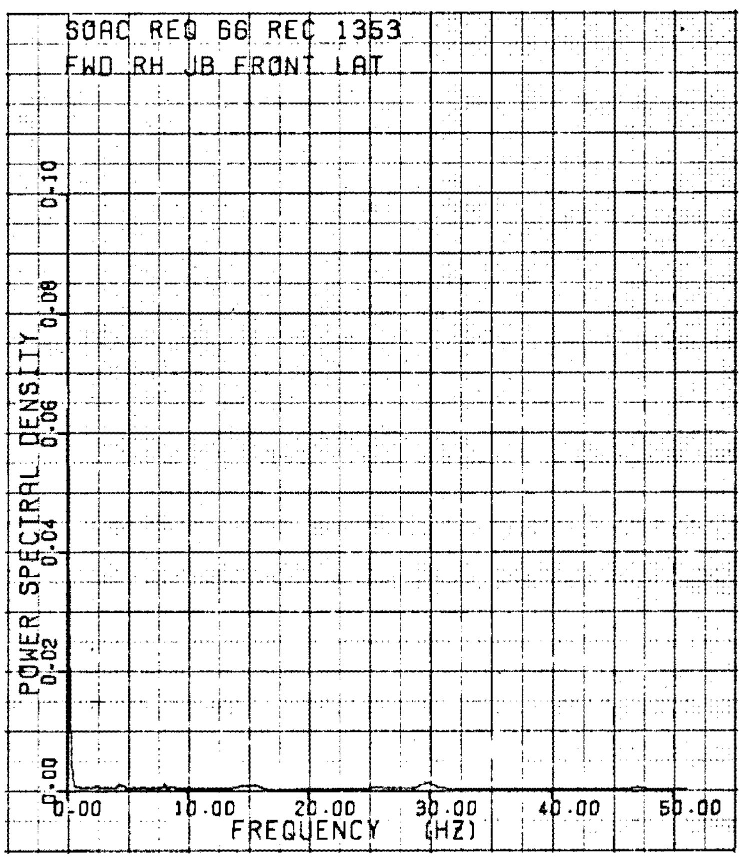

SOAC REQ 73 REC 1510
AFT C/L VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-127

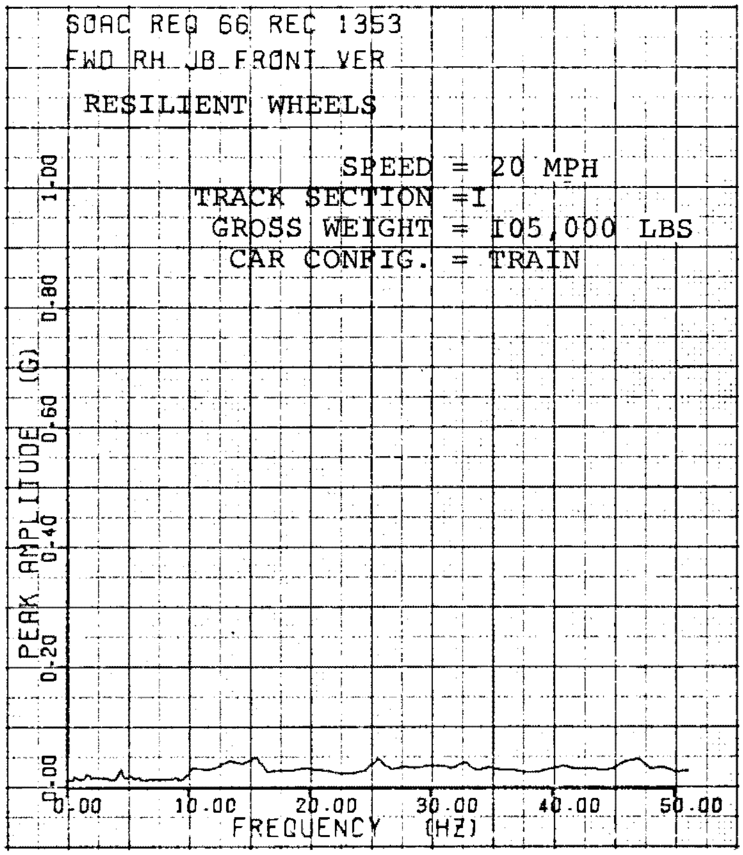


SOAC REQ 66 REC 1353
FWD RH JB FRONT LAT
RESILIENT WHEELS
SPEED = 20 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG.= TRAIN
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 66 REC 1353
FWD RH JB FRONT LAT
POWER SPECTRAL DENSITY
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-128


SOAC REQ 66 REC 1353
FWD RH JB FRONT VER
RESILIENT WHEELS
SPEED = 20 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = TRAIN
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

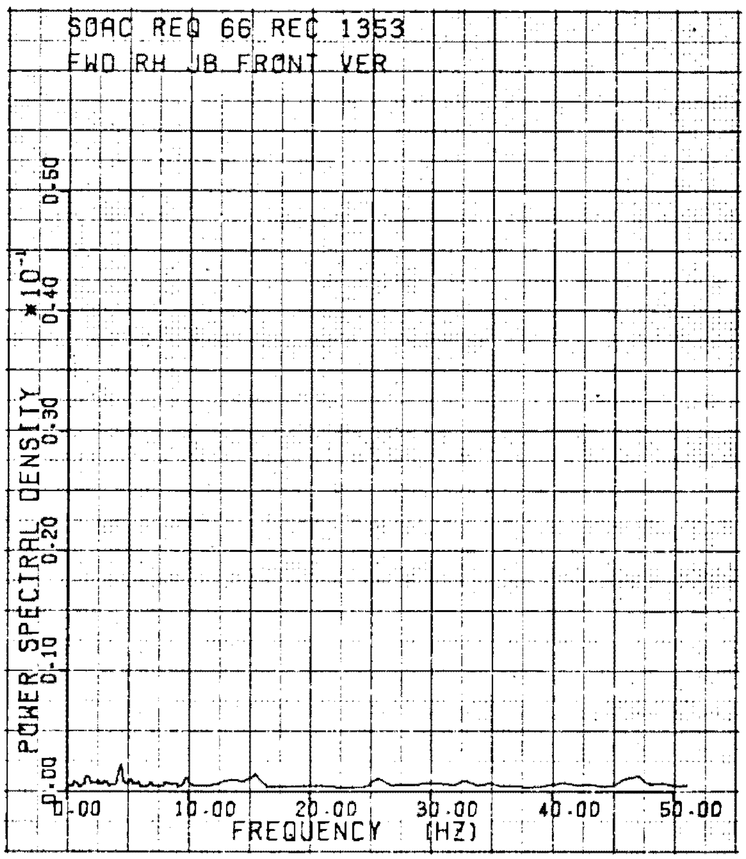
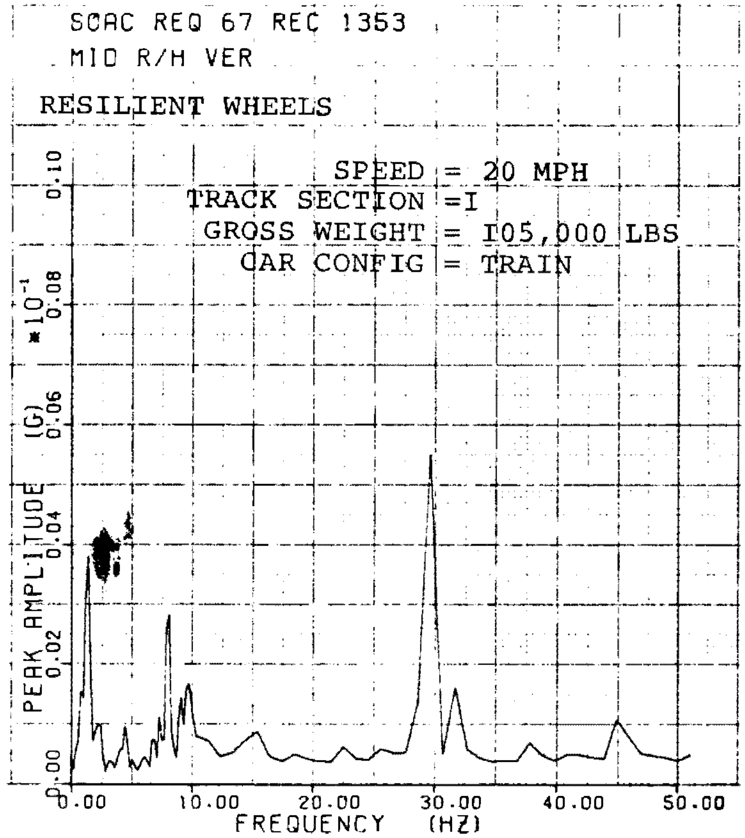

SOAC REQ 66 REC 1353
FWD RH JB FRONT VER
POWER SPECTRAL DENSITY *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-129


SOAC REQ 67 REC 1353
MID R/H VER
RESILIENT WHEELS
SPEED = 20 MPH
TRACK SECTION =I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG = TRAIN
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

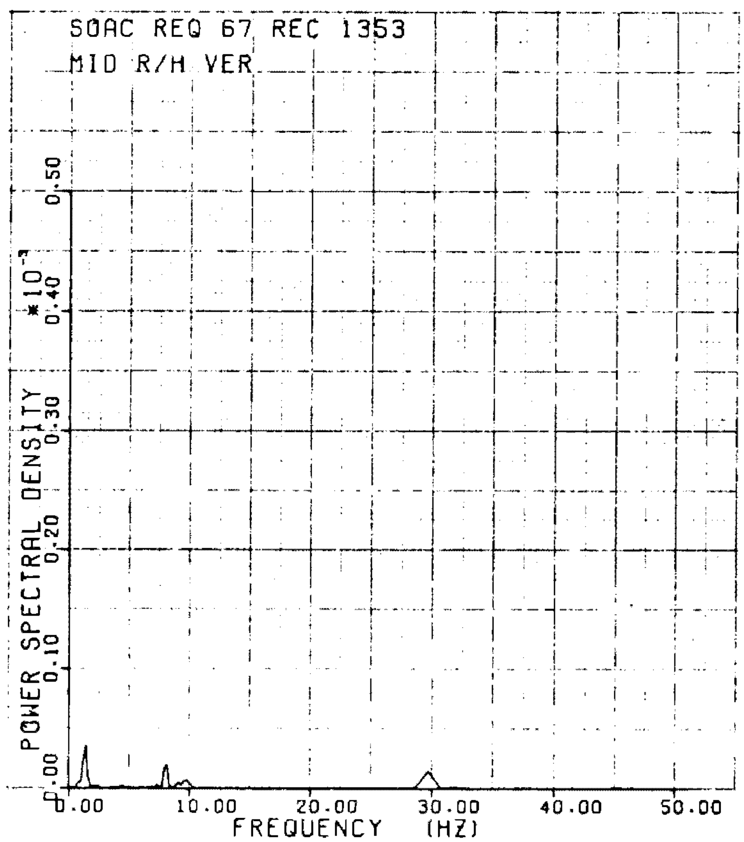
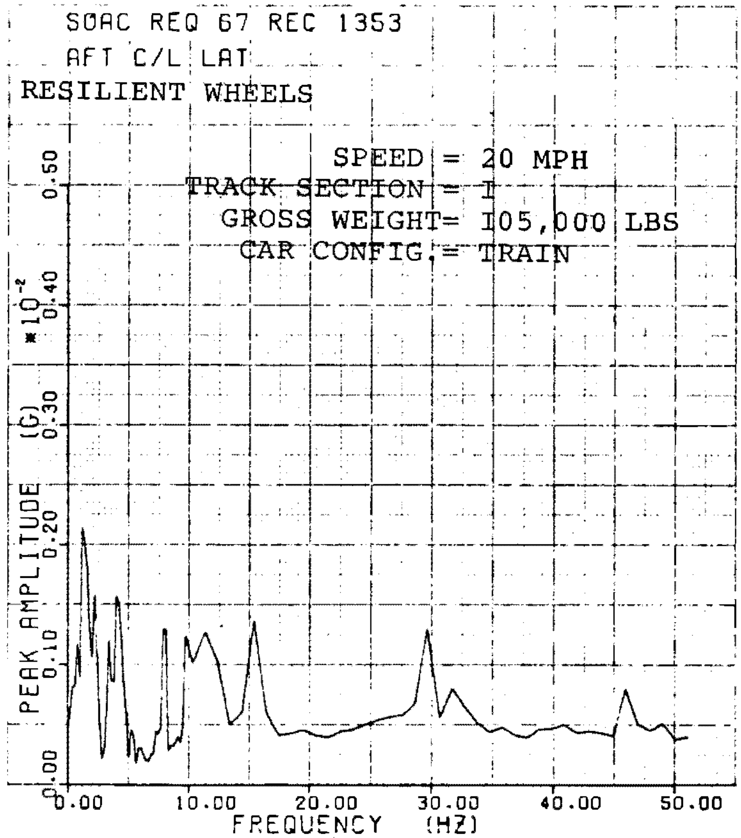

SOAC REQ 67 REC 1353
MID R/H VER
POWER SPECTRAL DENSITY *10⁻³
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-130


SOAC REQ 67 REC 1353
AFT C/L LAT
RESILIENT WHEELS
SPEED = 20 MPH
TRACK SECTION = I
GROSS WEIGHT= 105,000 LBS
CAR CONFIG.= TRAIN
PEAK AMPLITUDE (G) *10^-2
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

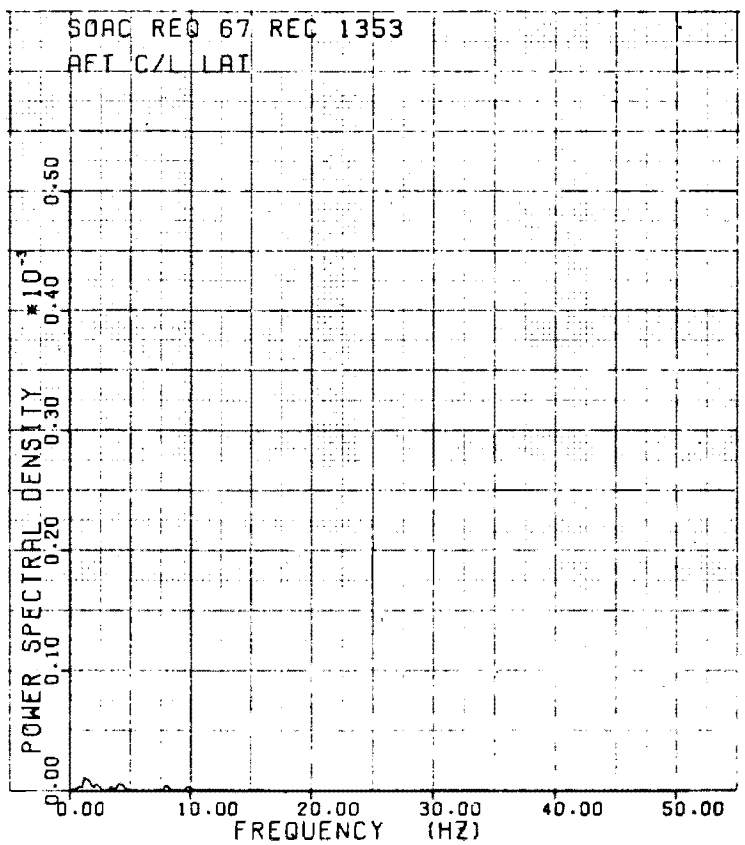
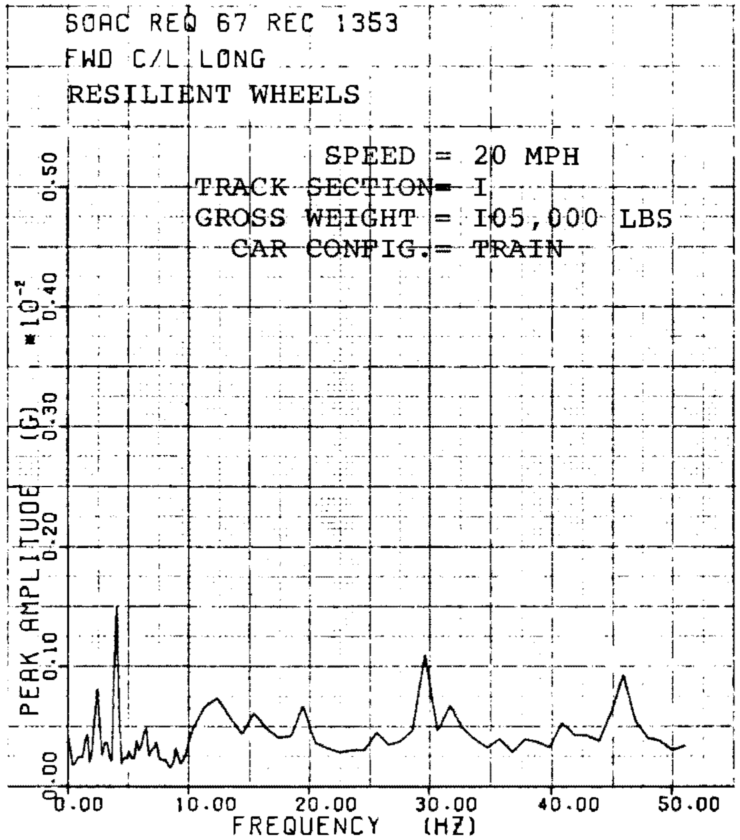
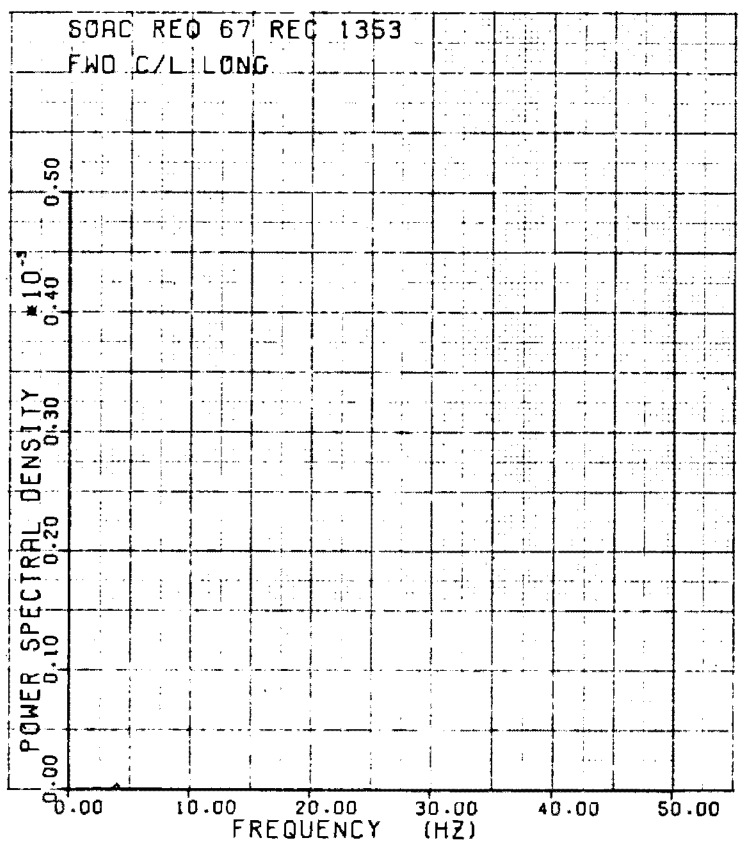

SOAC REQ 67 REC 1353
AFT C/L LAT
POWER SPECTRAL DENSITY *10^-3
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-131

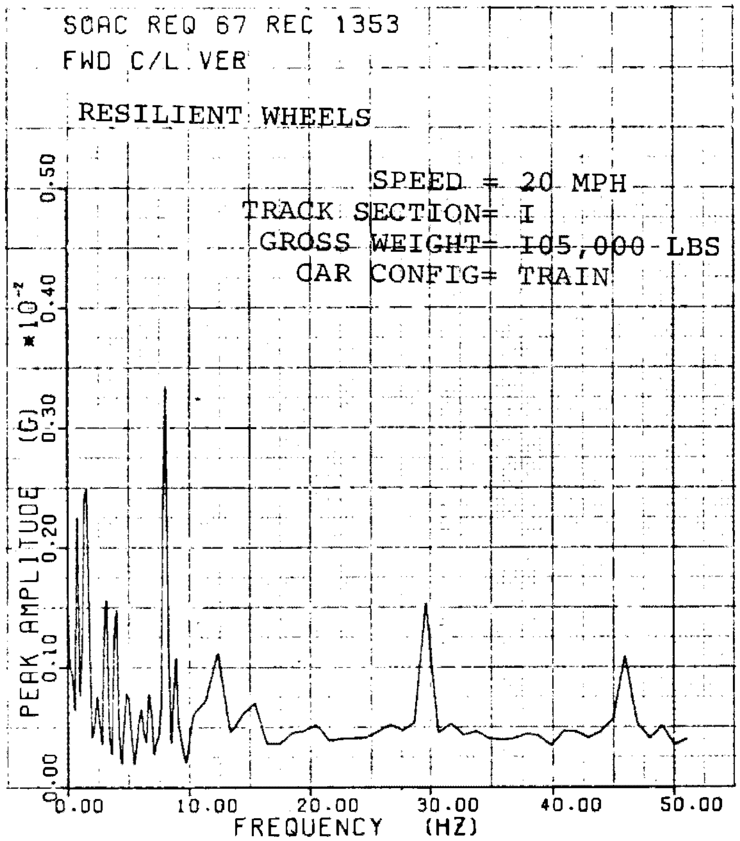


SOAC REQ 67 REC 1353
FWD C/L LONG
RESILIENT WHEELS
SPEED = 20 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = TRAIN
PEAK AMPLITUDE (G) *10^-2
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 67 REC 1353
FWD C/L LONG
POWER SPECTRAL DENSITY *10^-3
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-132


SOAC REQ 67 REC 1353
FWD C/L VER
RESILIENT WHEELS
SPEED = 20 MPH
TRACK SECTION= I
GROSS WEIGHT= 105,000 LBS
CAR CONFIG= TRAIN
PEAK AMPLITUDE (G) *10^-2
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

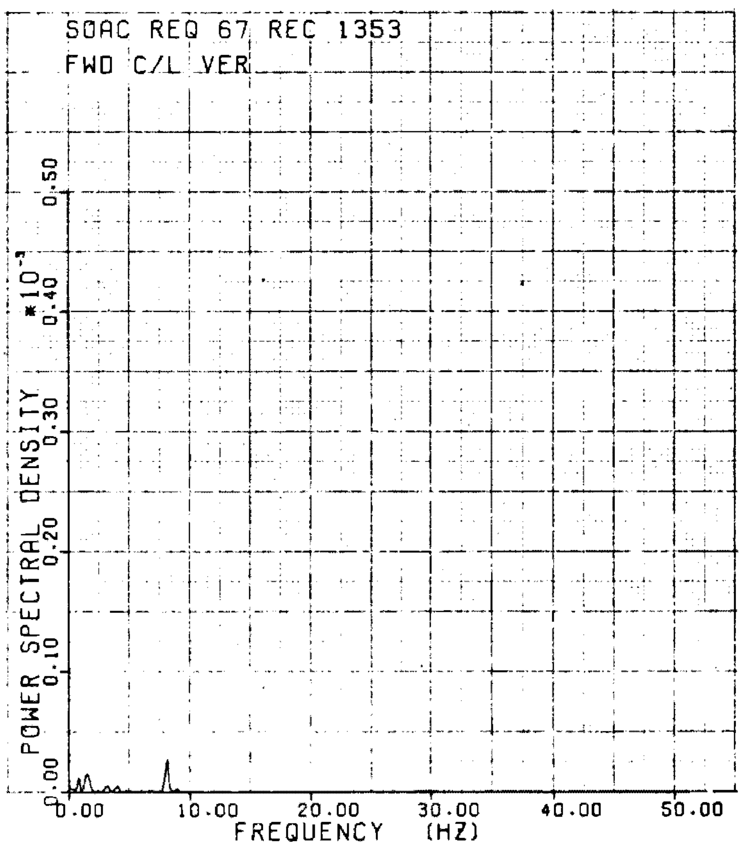
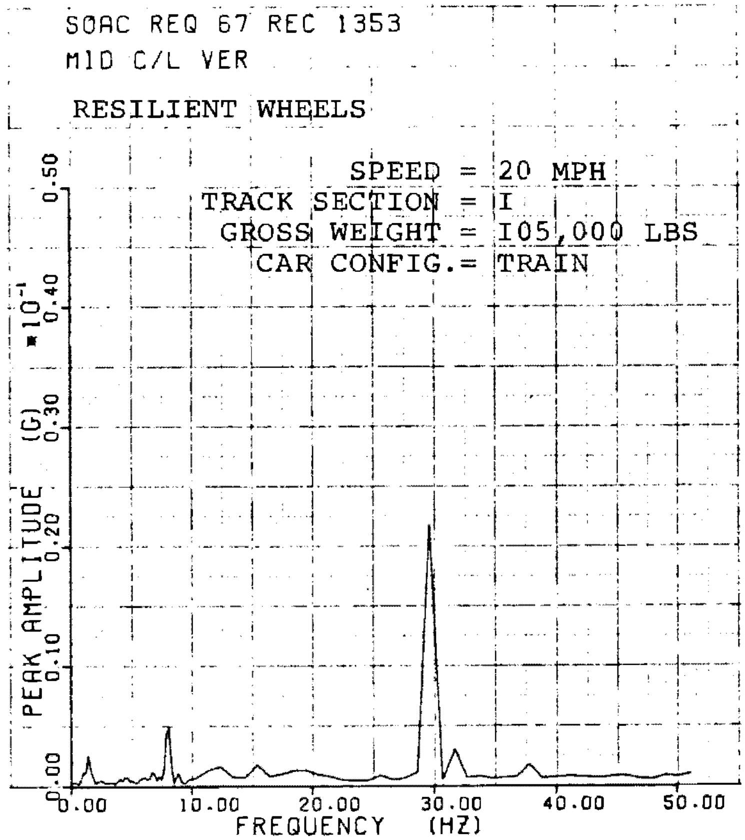

SOAC REQ 67 REC 1353
FWD C/L VER
POWER SPECTRAL DENSITY *10^-3
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-133


SOAC REQ 67 REC 1353
MID C/L VER
RESILIENT WHEELS
SPEED = 20 MPH
TRACK SECTION = I
GROSS WEIGHT = I05,000 LBS
CAR CONFIG.= TRAIN
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

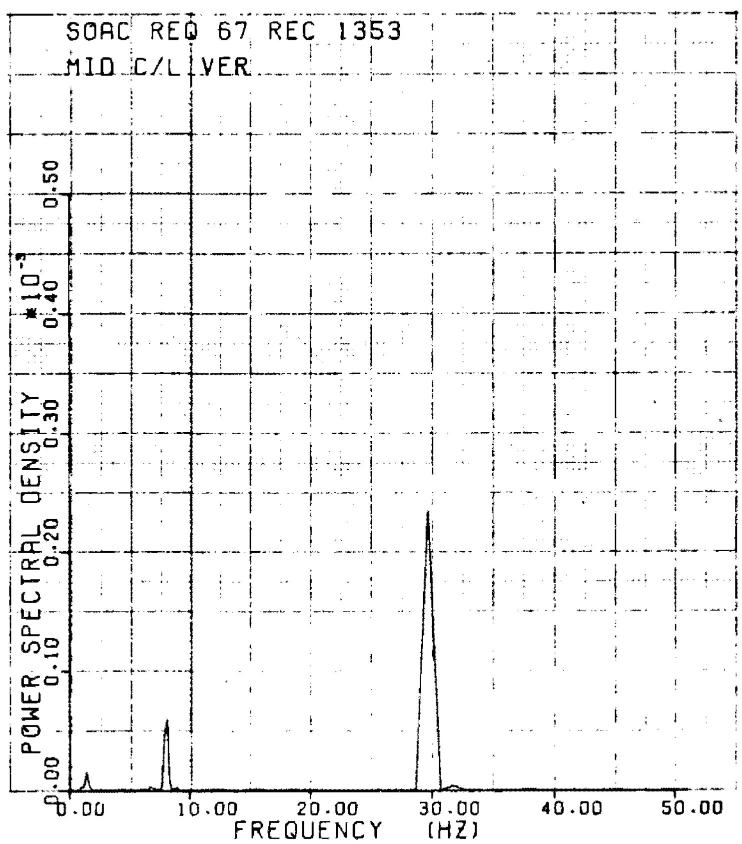
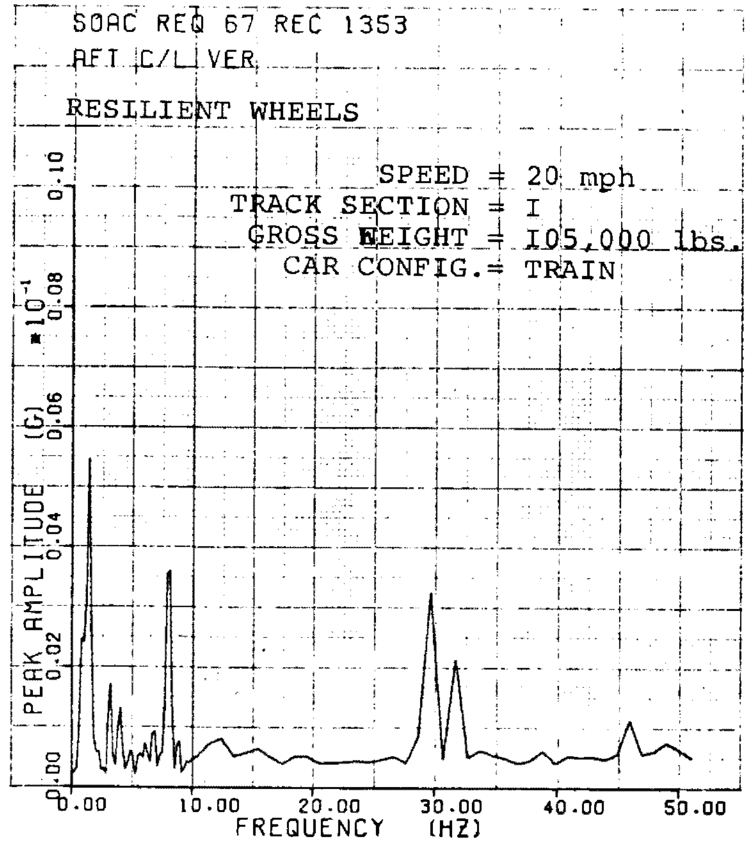

SOAC REQ 67 REC 1353
MID C/L VER
POWER SPECTRAL DENSITY *10⁻³
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-134


SOAC REQ 67 REC 1353
AFT C/L VER
RESILIENT WHEELS
SPEED = 20 mph
TRACK SECTION = I
GROSS WEIGHT = 105,000 lbs.
CAR CONFIG.= TRAIN
PEAK AMPLITUDE (G) *10^-1
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

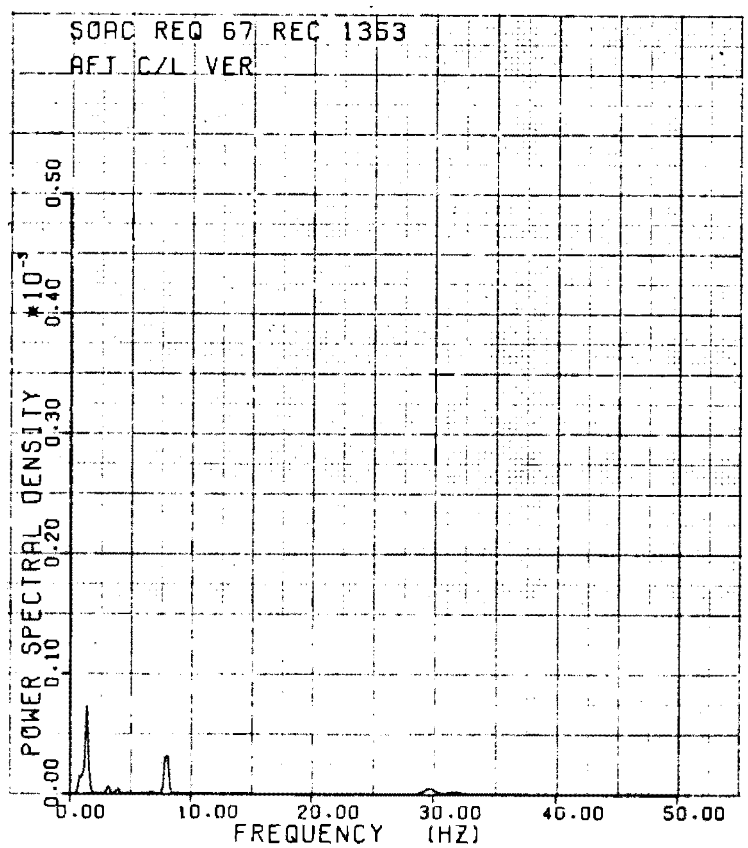
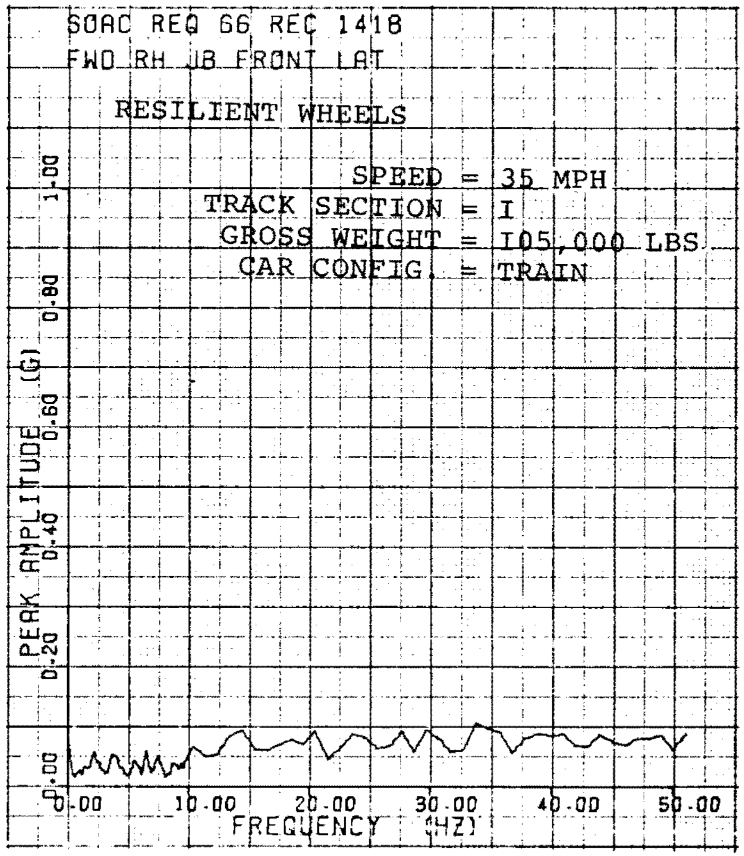

SOAC REQ 67 REC 1353
AFT C/L VER
POWER SPECTRAL DENSITY *10^-3
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-135


SOAC REQ 66 REC 1418
FWD RH JB FRONT LAT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = TRAIN
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

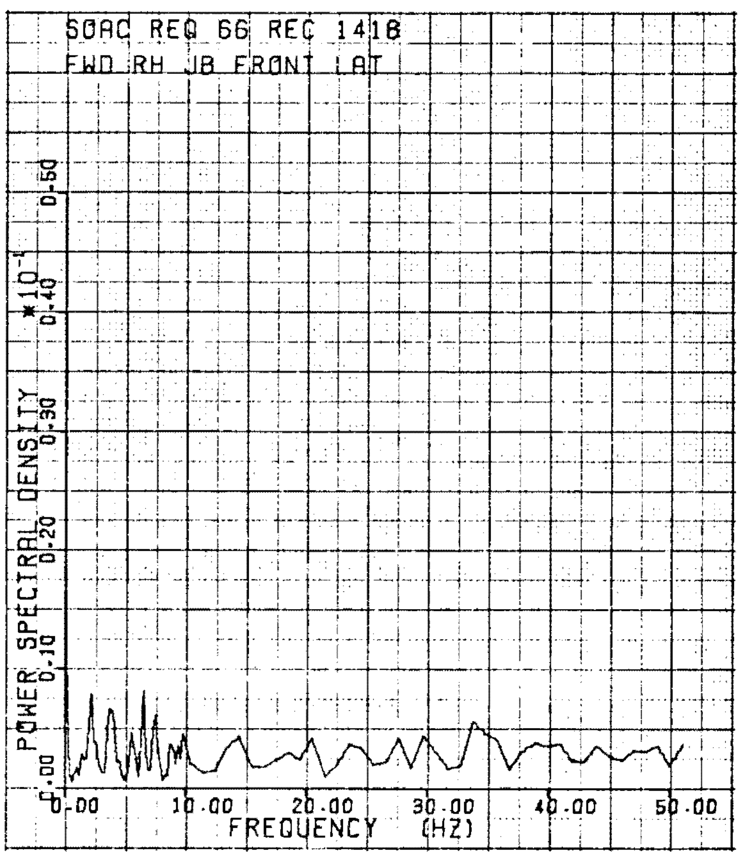
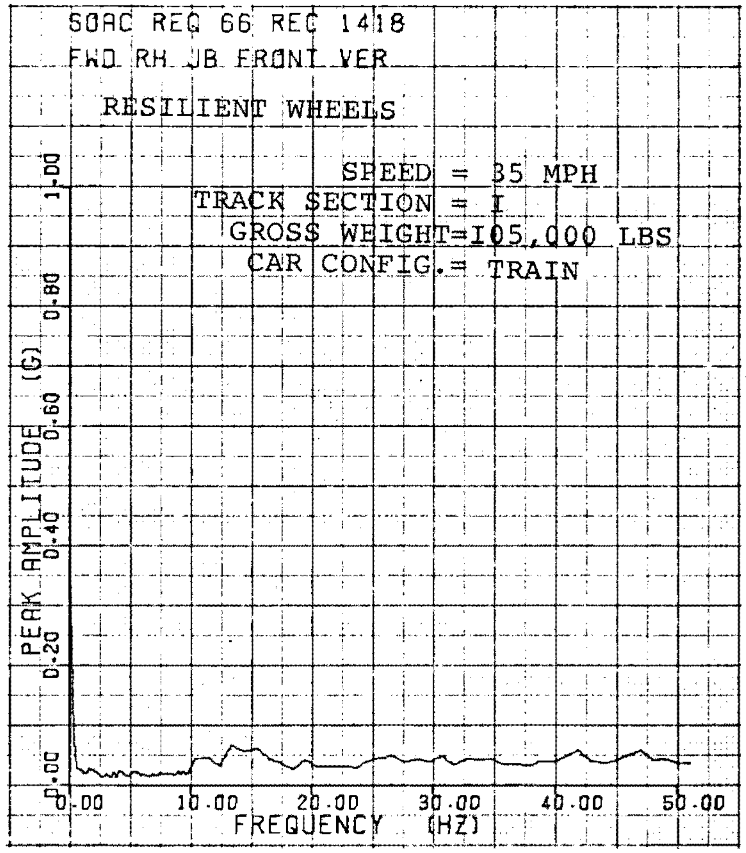

SOAC REQ 66 REC 1418
FWD RH JB FRONT LAT
POWER SPECTRAL DENSITY *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-136


SOAC REQ 66 REC 1418
FWD RH JB FRONT VER
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT=105,000 LBS
CAR CONFIG.= TRAIN
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

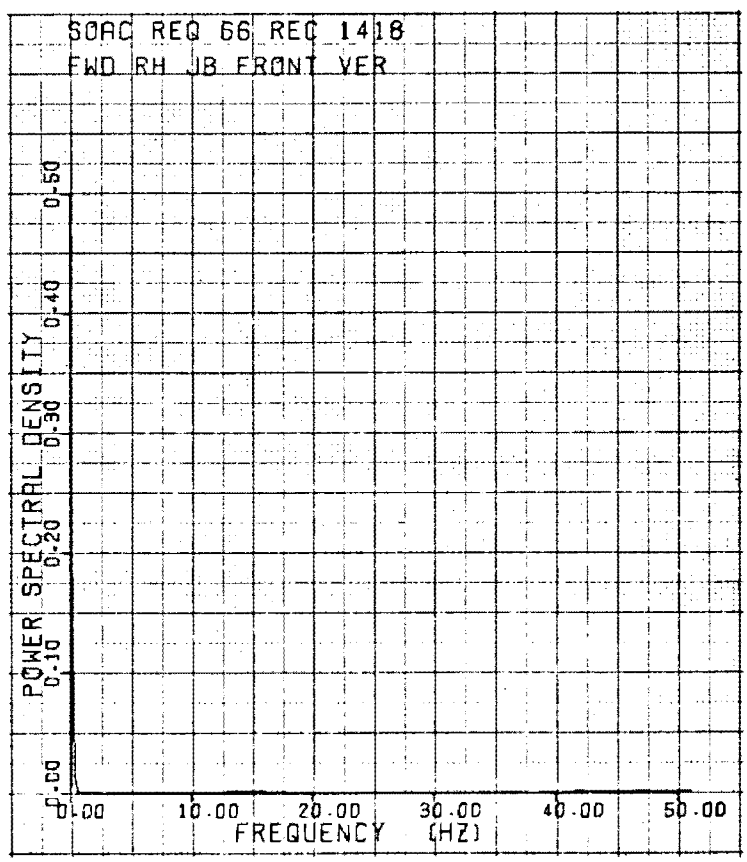
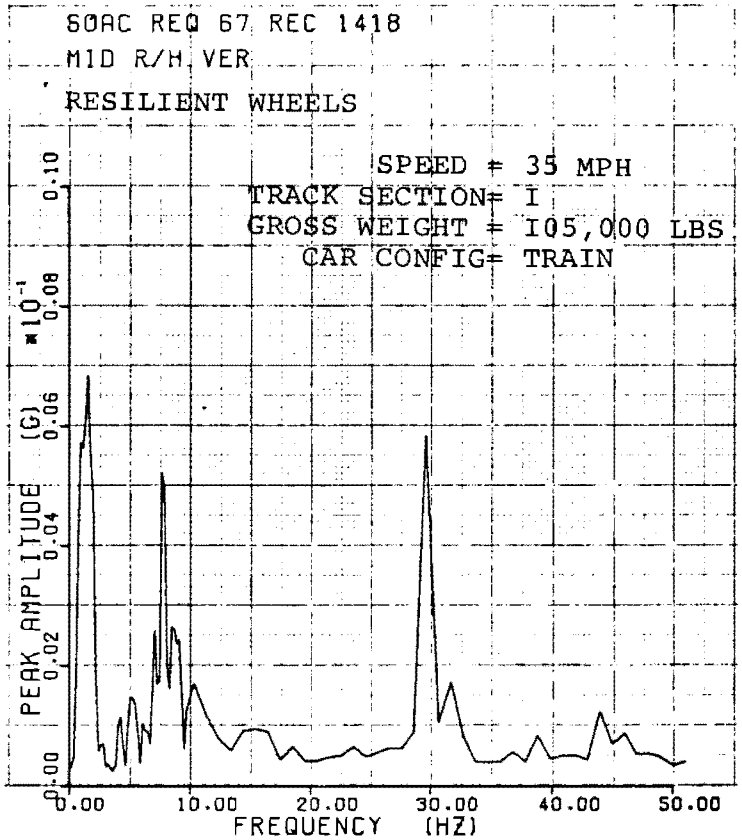

SOAC REQ 66 REC 1418
FWD RH JB FRONT VER
POWER SPECTRAL DENSITY
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-137


SOAC REQ 67 REC 1418
MID R/H VER
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION= I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG= TRAIN
PEAK AMPLITUDE (G) *10^-1
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

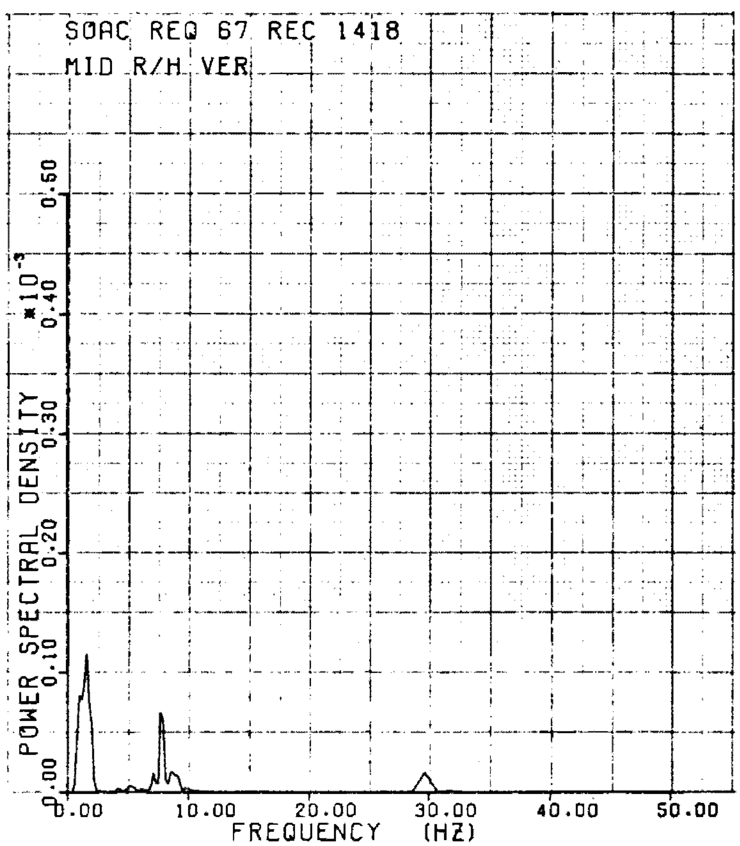
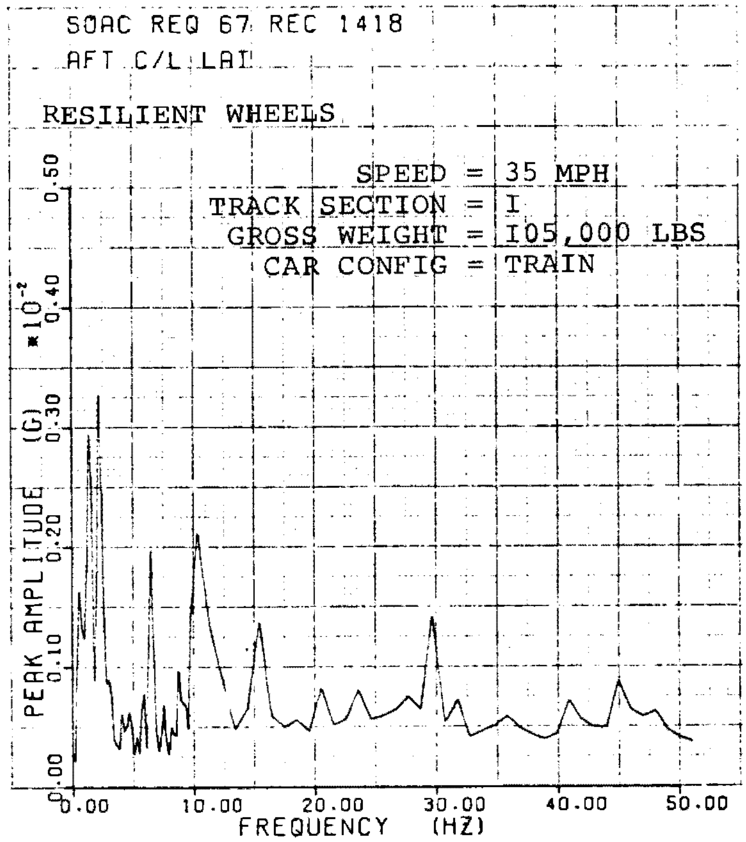
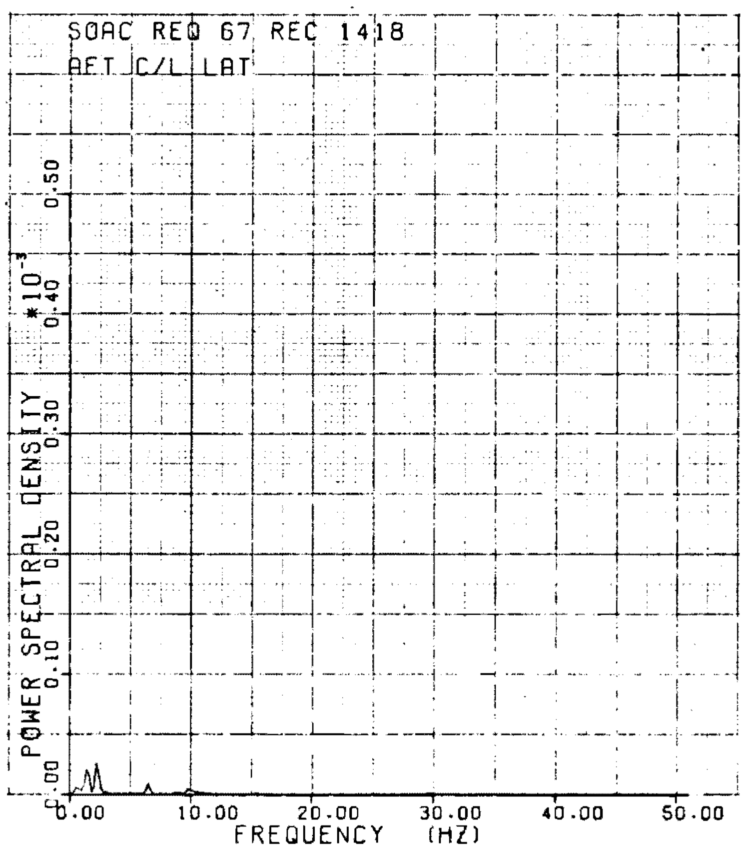

SOAC REQ 67 REC 1418
MID R/H VER
POWER SPECTRAL DENSITY *10^-3
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-138

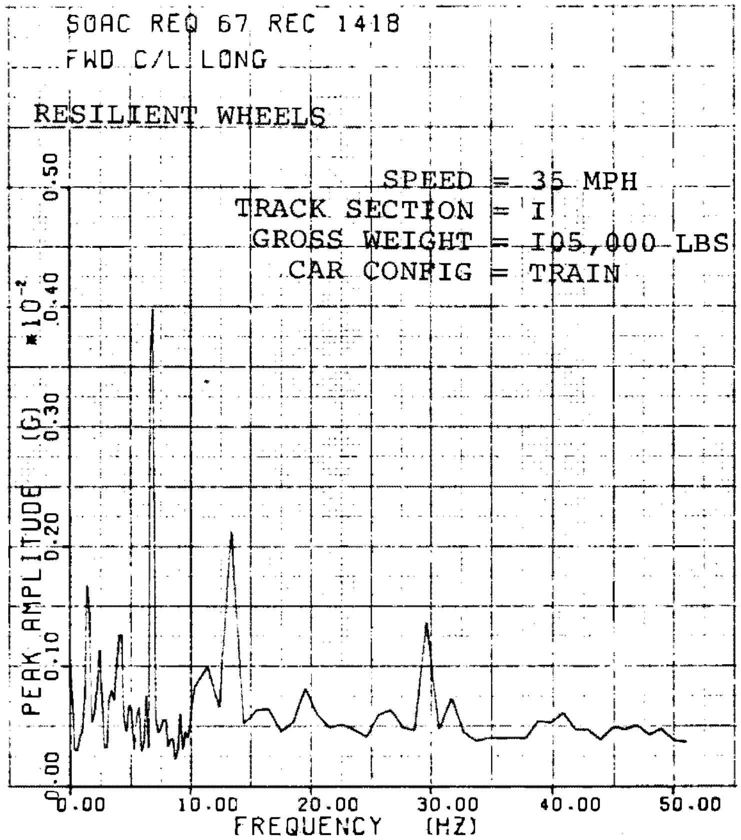


SOAC REQ 67 REC 1418
AFT C/L LAT
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG = TRAIN
PEAK AMPLITUDE (G) *10^-2
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

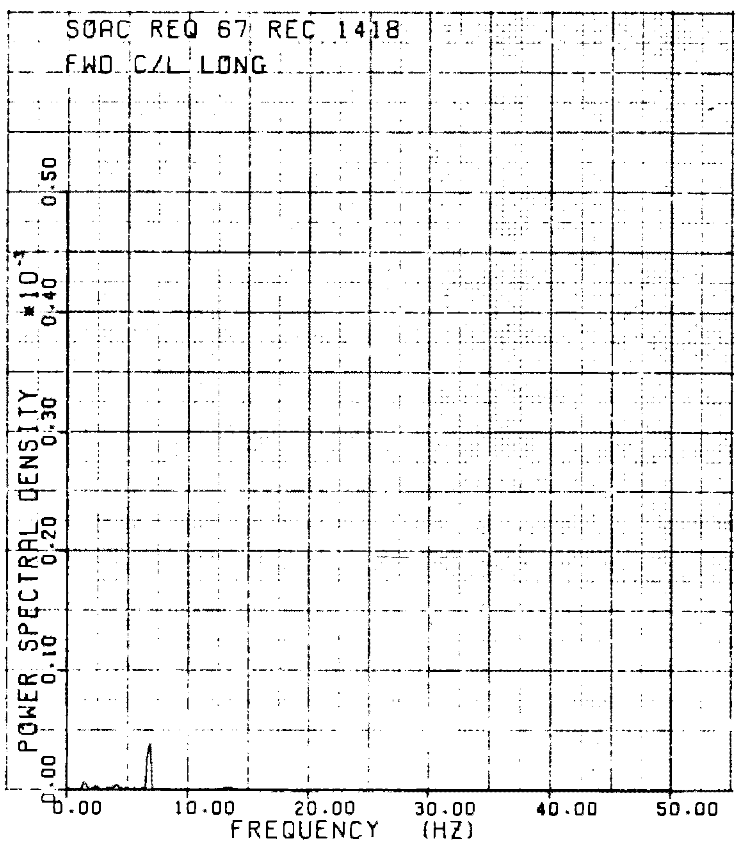


SOAC REQ 67 REC 1418
AFT C/L LAT
POWER SPECTRAL DENSITY *10^-3
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-139

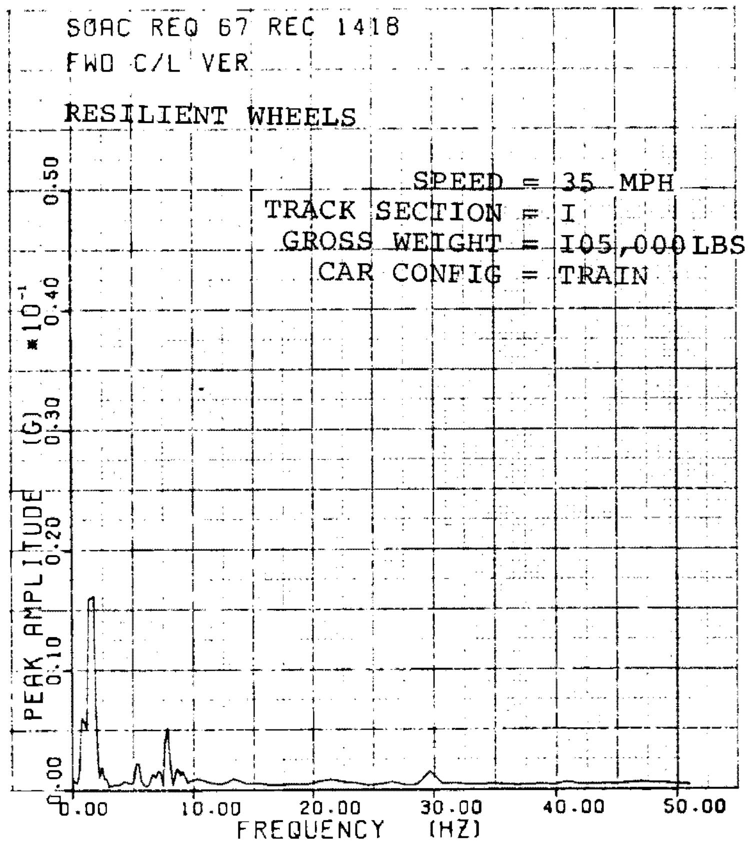


SOAC REQ 67 REC 1418
FWD C/L LONG
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG = TRAIN
PEAK AMPLITUDE (G) *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

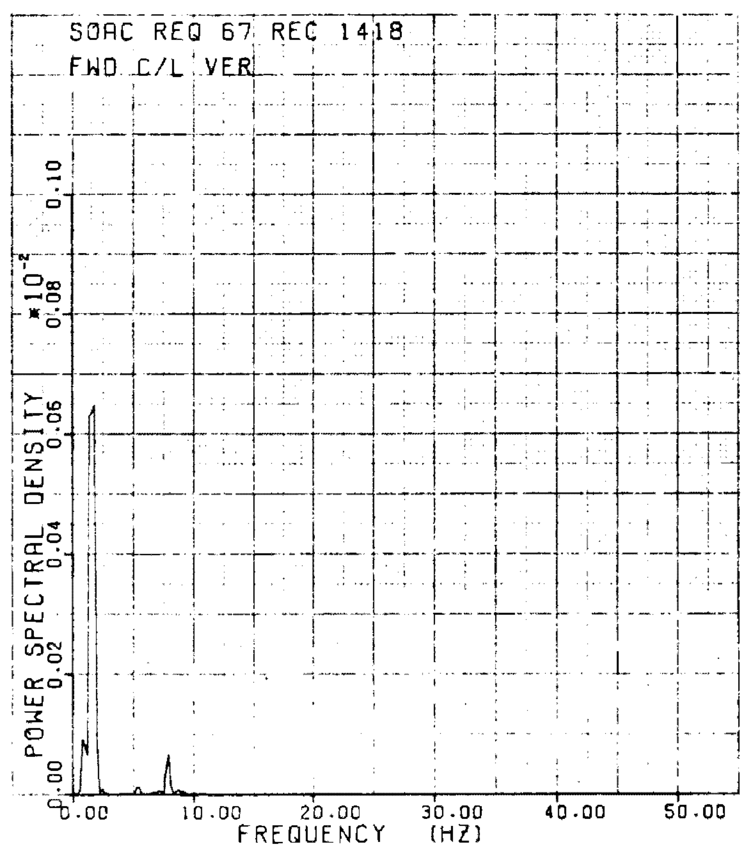


SOAC REQ 67 REC 1418
FWD C/L LONG
POWER SPECTRAL DENSITY *10⁻³
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-140

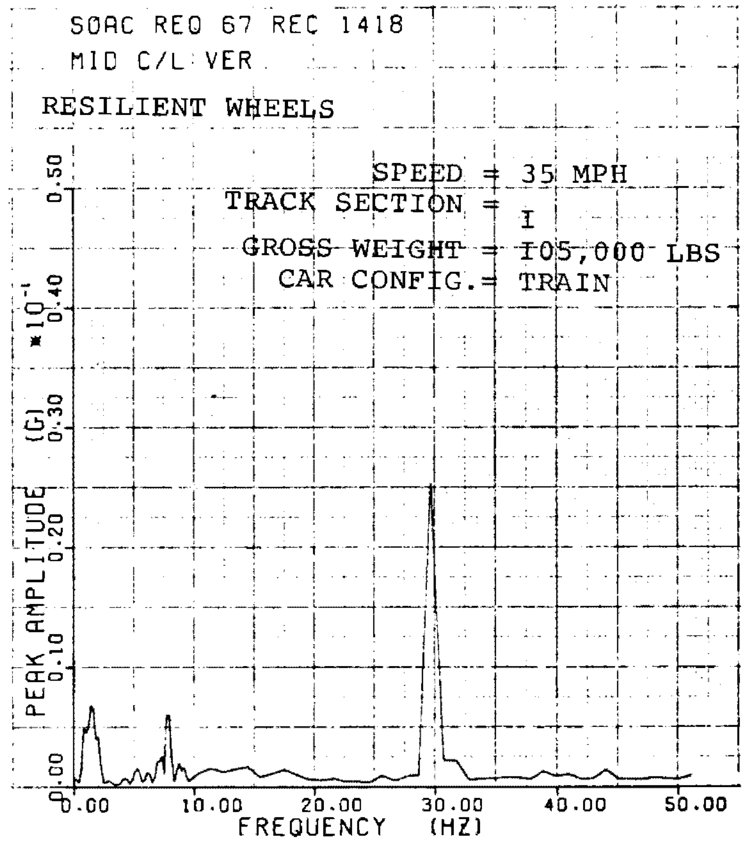


SOAC REQ 67 REC 1418
FWD C/L VER
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG = TRAIN
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 67 REC 1418
FWD C/L VER
POWER SPECTRAL DENSITY *10^-2
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-141


SOAC REQ 67 REC 1418
MID C/L VER
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG.= TRAIN
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

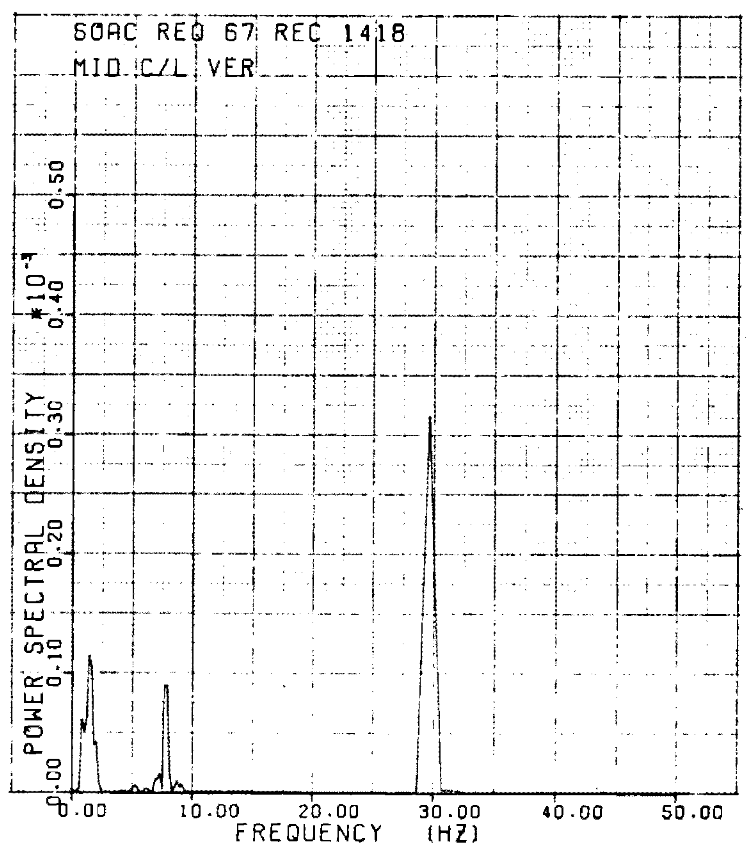
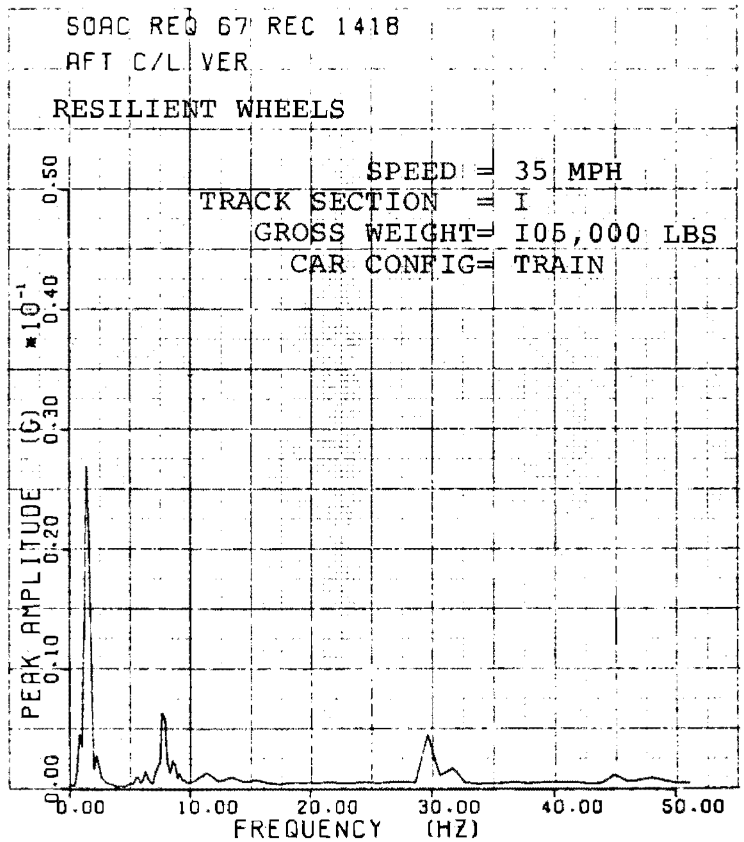
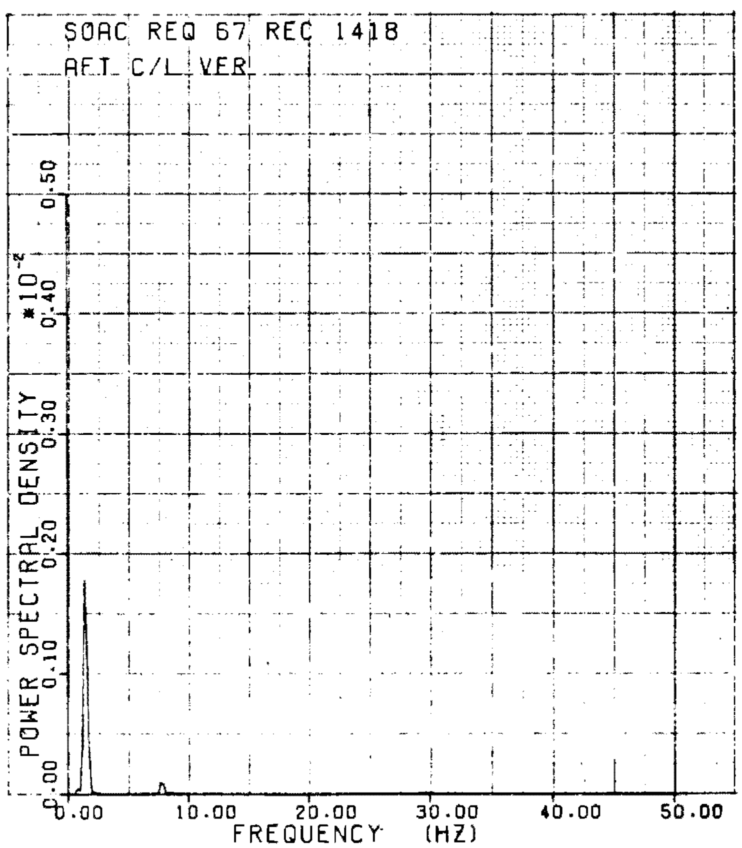

SOAC REQ 67 REC 1418
MID C/L VER
POWER SPECTRAL DENSITY *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-142

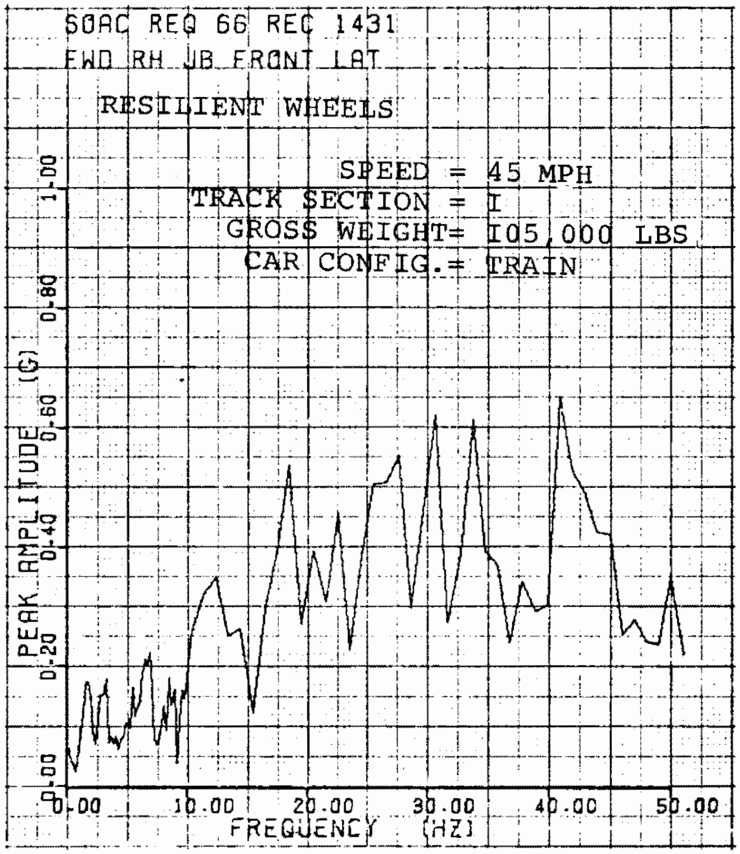


SOAC REQ 67 REC 1418
AFT C/L VER
RESILIENT WHEELS
SPEED = 35 MPH
TRACK SECTION = I
GROSS WEIGHT= 105,000 LBS
CAR CONFIG= TRAIN
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 67 REC 1418
AFT C/L VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-143


SOAC REQ 66 REC 1431
FWD RH JB FRONT LAT
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION = I
GROSS WEIGHT= 105,000 LBS
CAR CONFIG.= TRAIN
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

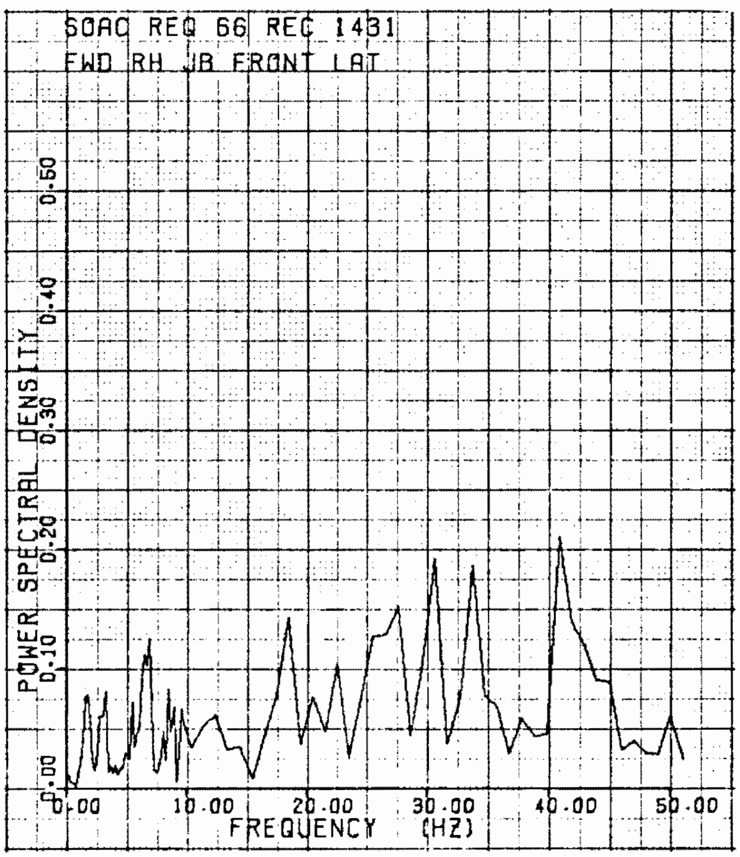
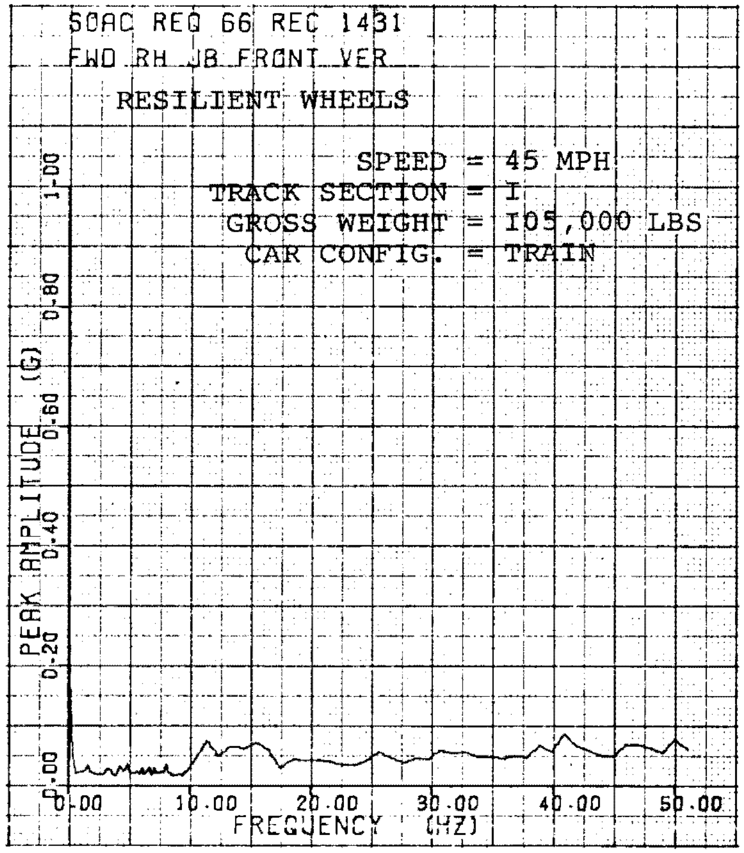
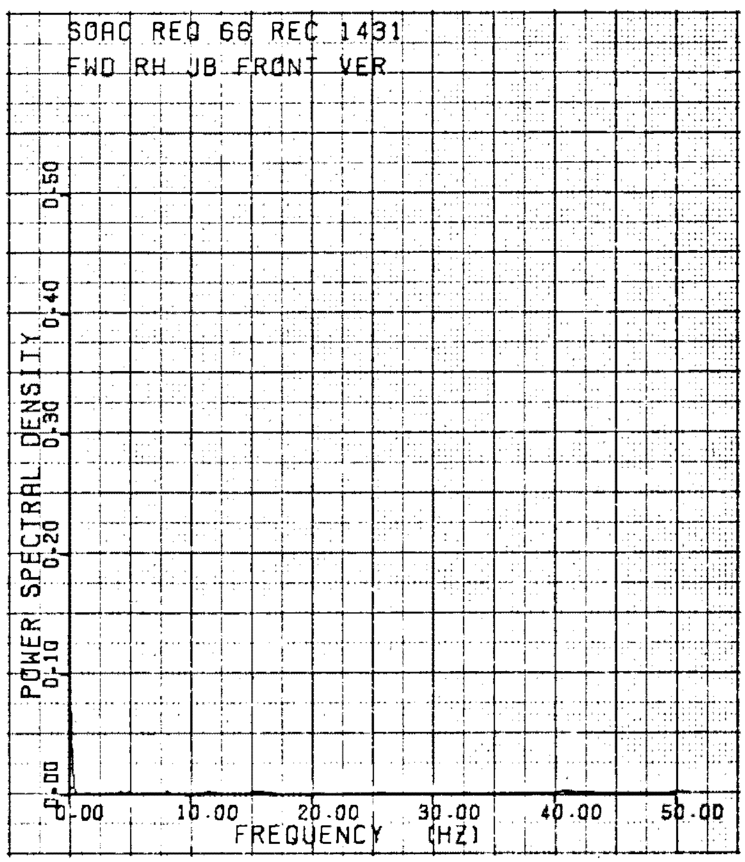

SOAC REQ 66 REC 1431
FWD RH JB FRONT LAT
POWER SPECTRAL DENSITY
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-144

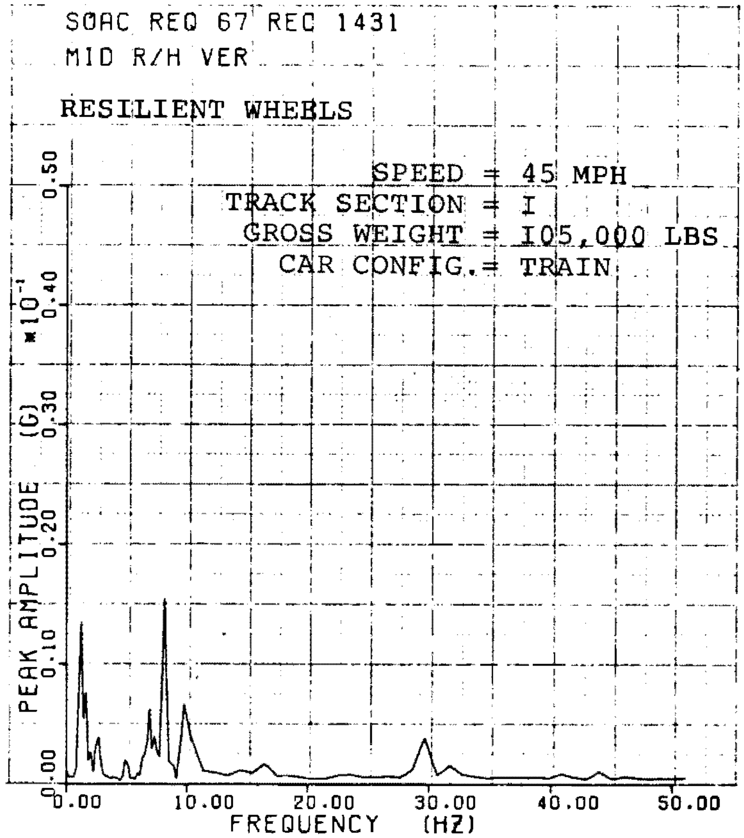


SOAC REQ 66 REC 1431
FWD RH JB FRONT VER
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = TRAIN
PEAK AMPLITUDE (G)
1.00
0.80
0.60
0.40
0.20
0.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 66 REC 1431
FWD RH JB FRONT VER
POWER SPECTRAL DENSITY
0.50
0.40
0.30
0.20
0.10
0.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-145


SOAC REQ 67 REC 1431
MID R/H VER
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG.= TRAIN
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

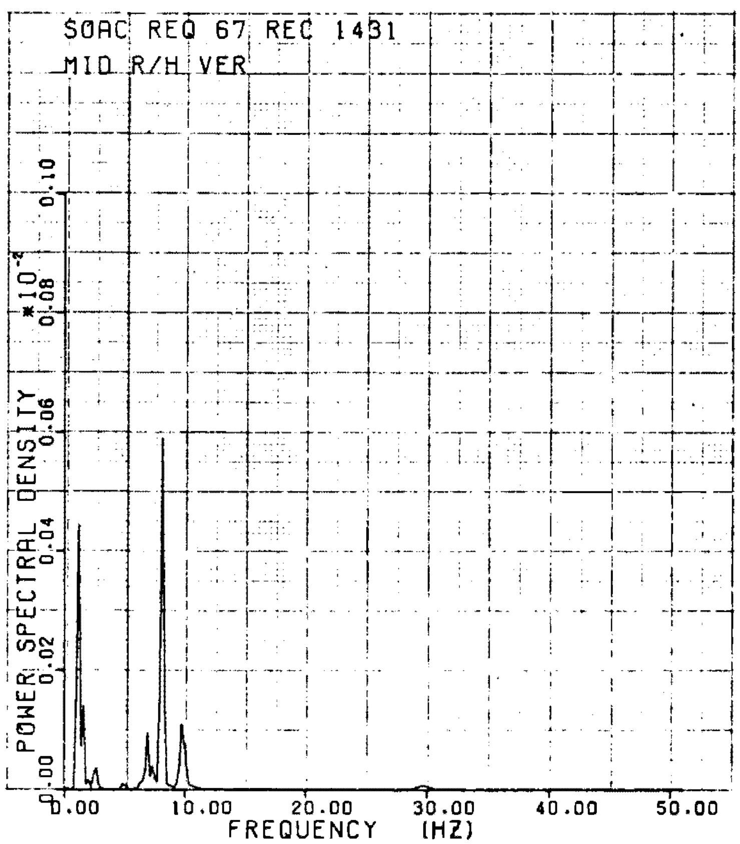
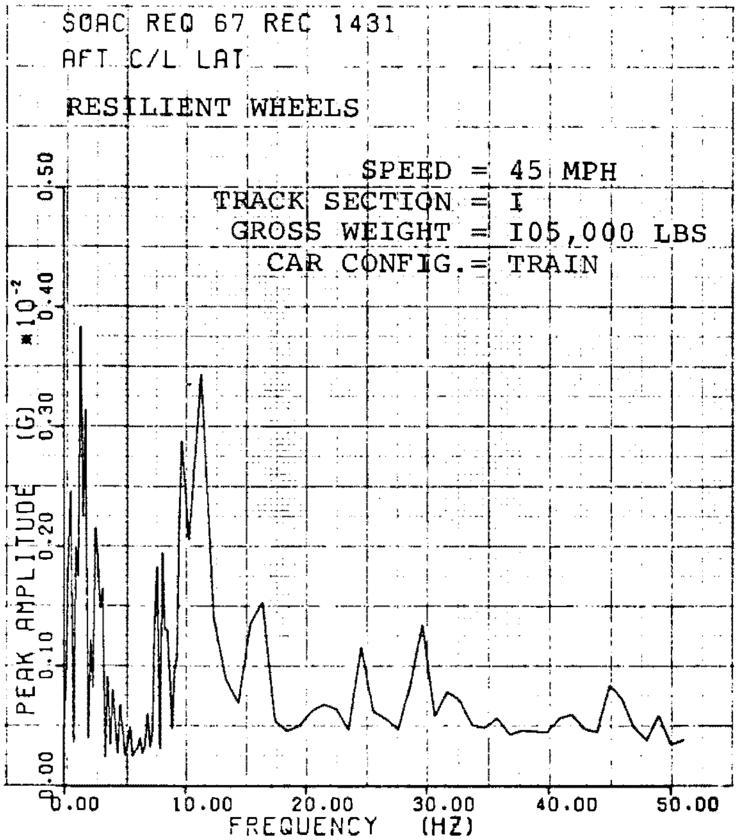
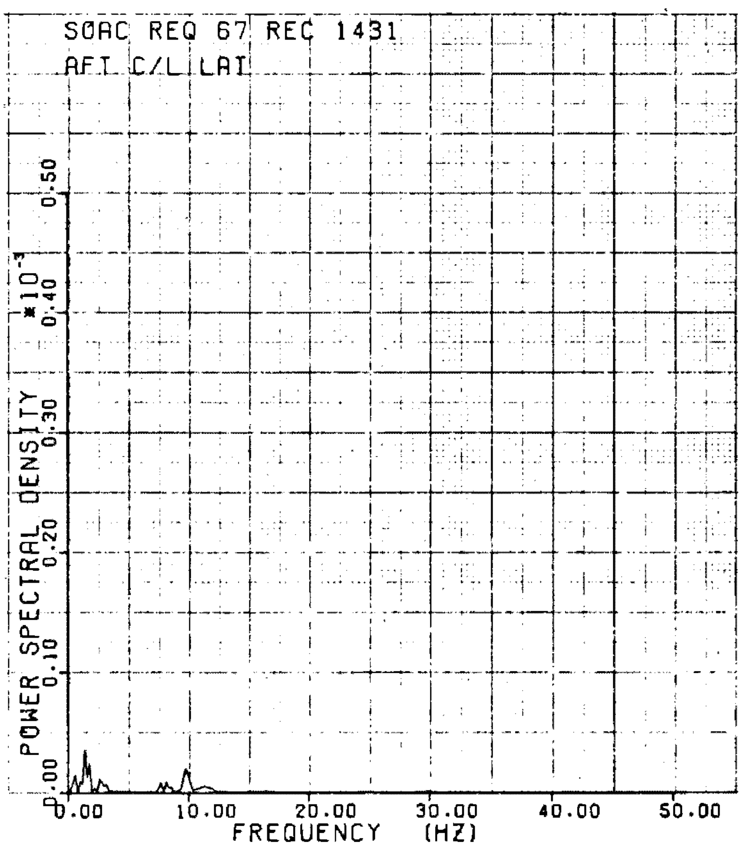

SOAC REQ 67 REC 1431
MID R/H VER
POWER SPECTRAL DENSITY *10^-2
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-146

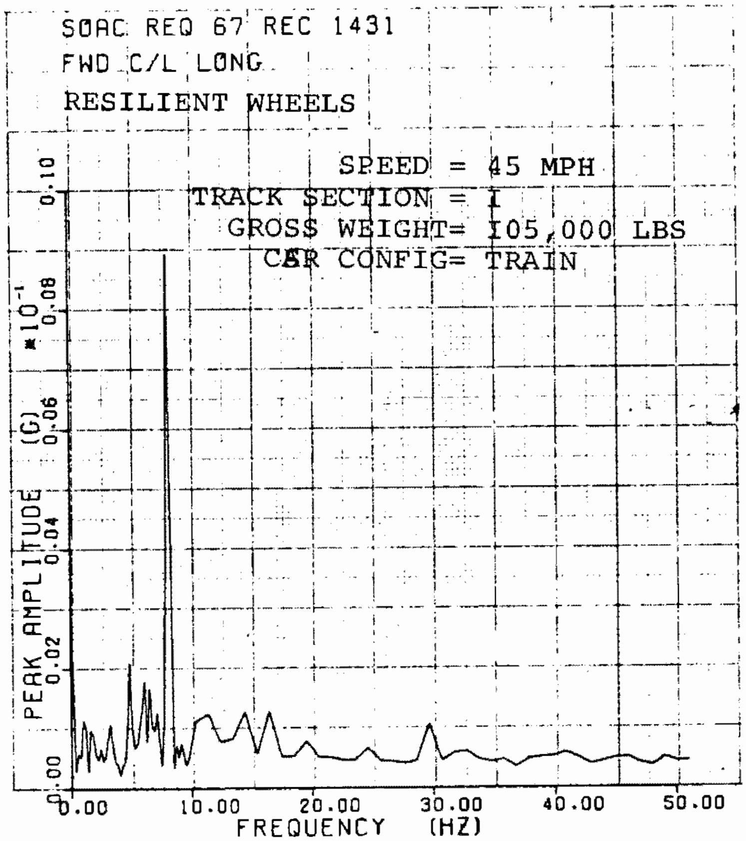


SOAC REQ 67 REC 1431
AFT C/L LAT
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG.= TRAIN
PEAK AMPLITUDE (G) *10^-2
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 67 REC 1431
AFT C/L LAT
POWER SPECTRAL DENSITY *10^-3
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-147


SOAC REQ 67 REC 1431
FWD C/L LONG
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION = I
GROSS WEIGHT= 105,000 LBS
CAR CONFIG= TRAIN
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

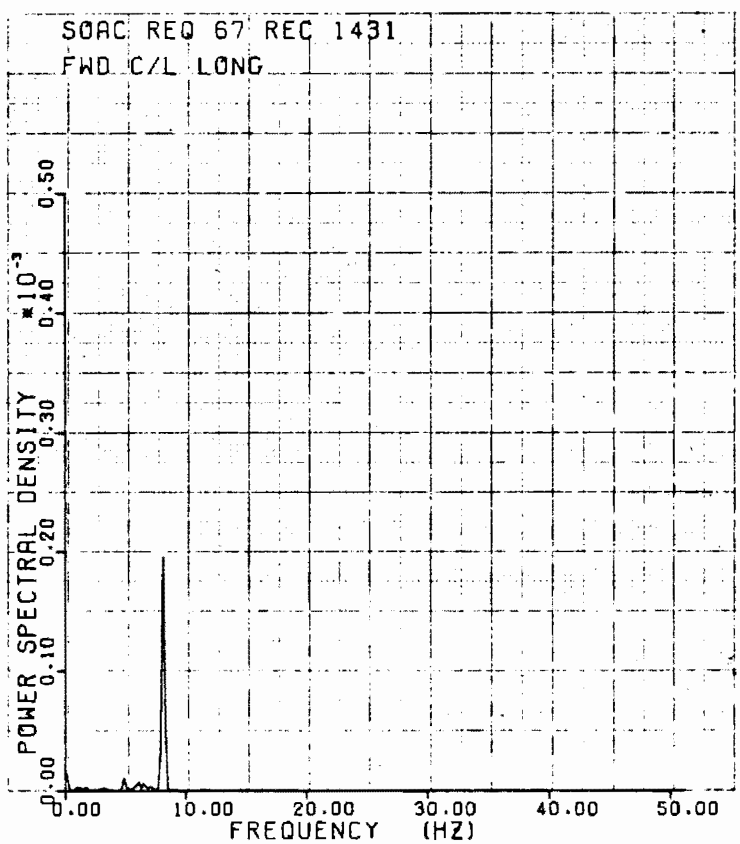
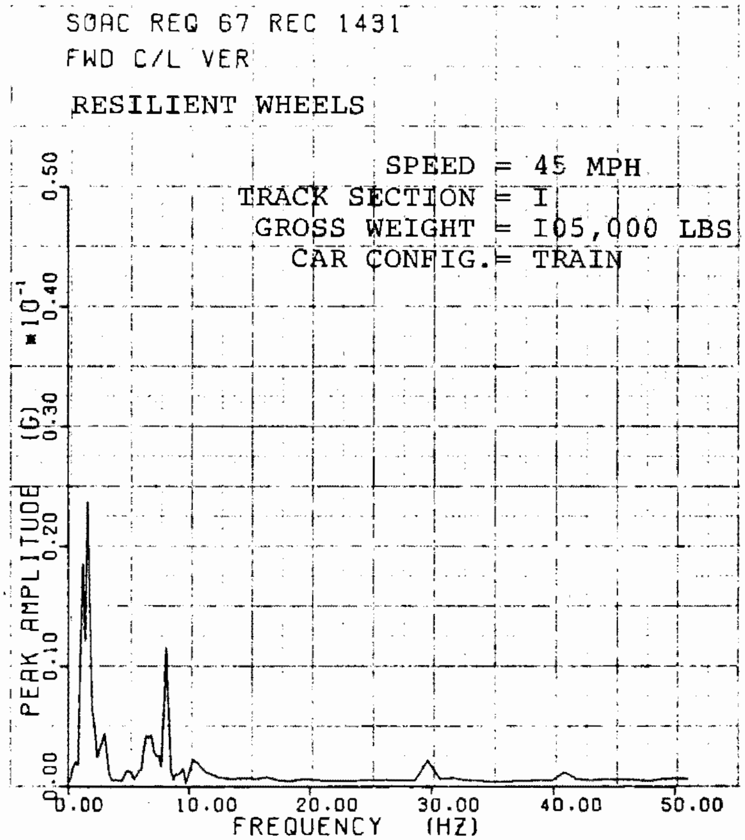

SOAC REQ 67 REC 1431
FWD C/L LONG
POWER SPECTRAL DENSITY *10⁻³
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-148


SOAC REQ 67 REC 1431
FWD C/L VER
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG.= TRAIN
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

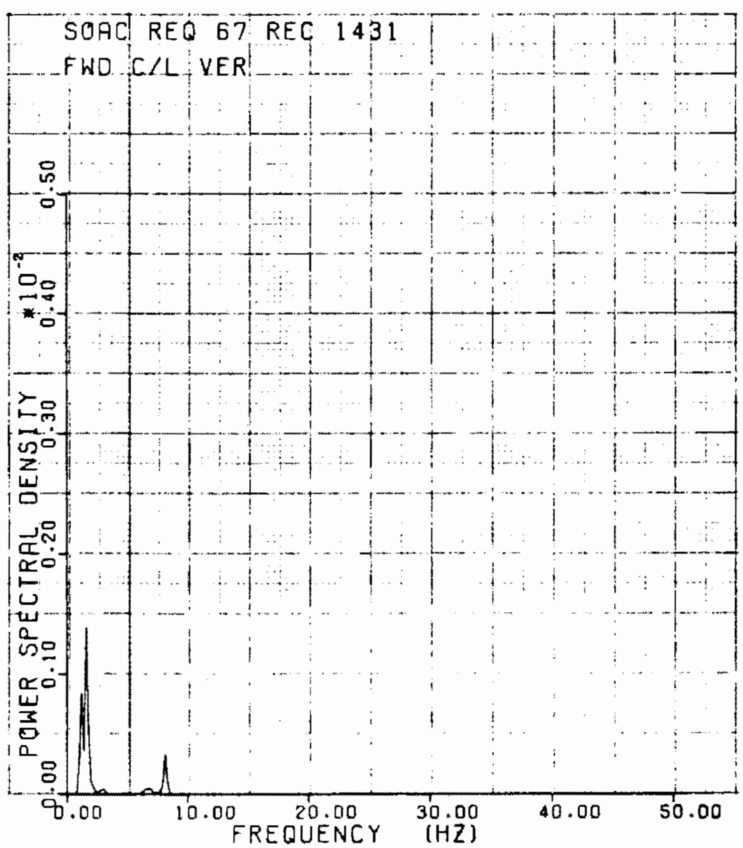
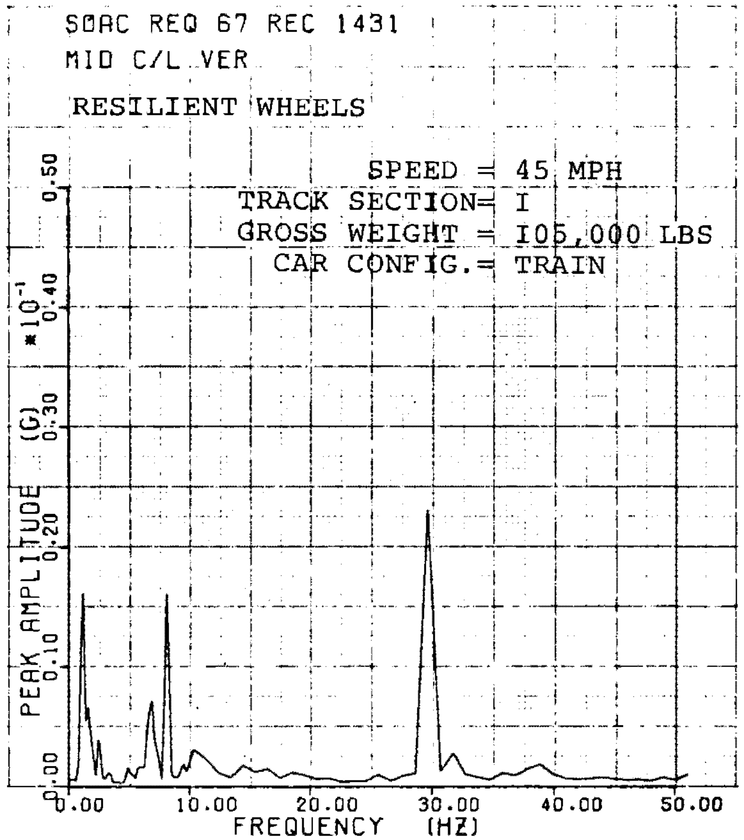
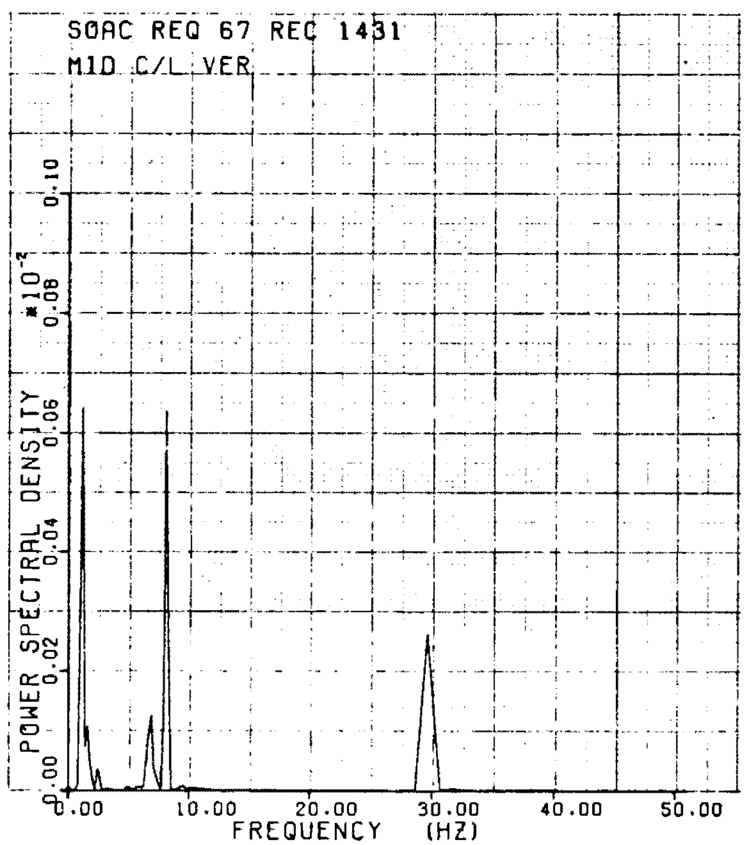

SOAC REQ 67 REC 1431
FWD C/L VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-149

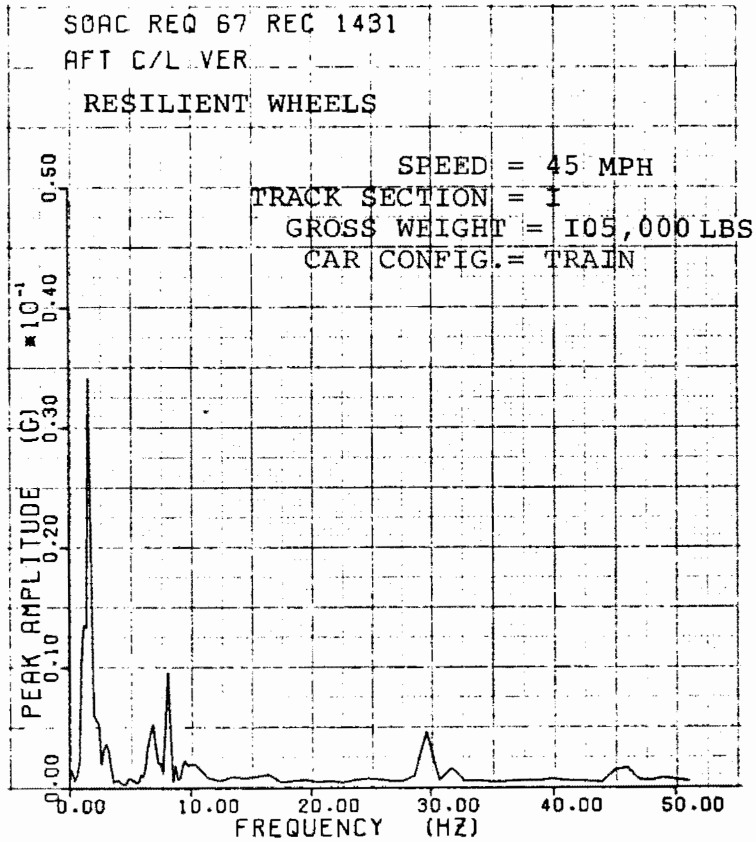


SOAC REQ 67 REC 1431
MID C/L VER
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION= I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG.= TRAIN
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

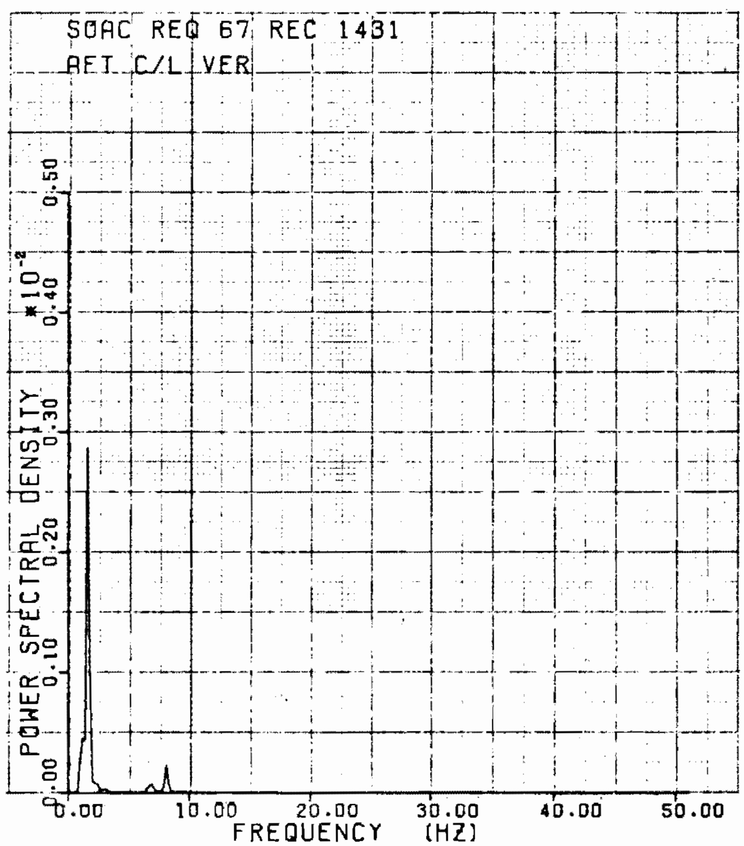


SOAC REQ 67 REC 1431
MID C/L VER
POWER SPECTRAL DENSITY *10^-2
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-150

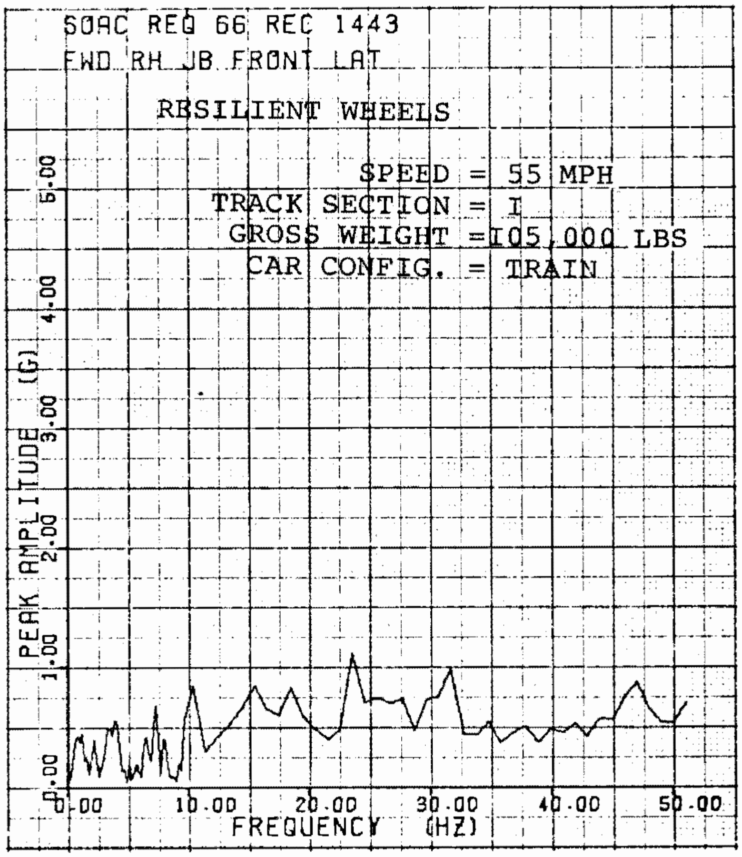


SOAC REQ 67 REC 1431
AFT C/L VER
RESILIENT WHEELS
SPEED = 45 MPH
TRACK SECTION = I
GROSS WEIGHT = I05,000 LBS
CAR CONFIG.= TRAIN
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 67 REC 1431
AFT C/L VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-151


SOAC REQ 66 REC 1443
FWD RH JB FRONT LAT
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = TRAIN
PEAK AMPLITUDE (G)
0.00
1.00
2.00
3.00
4.00
5.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

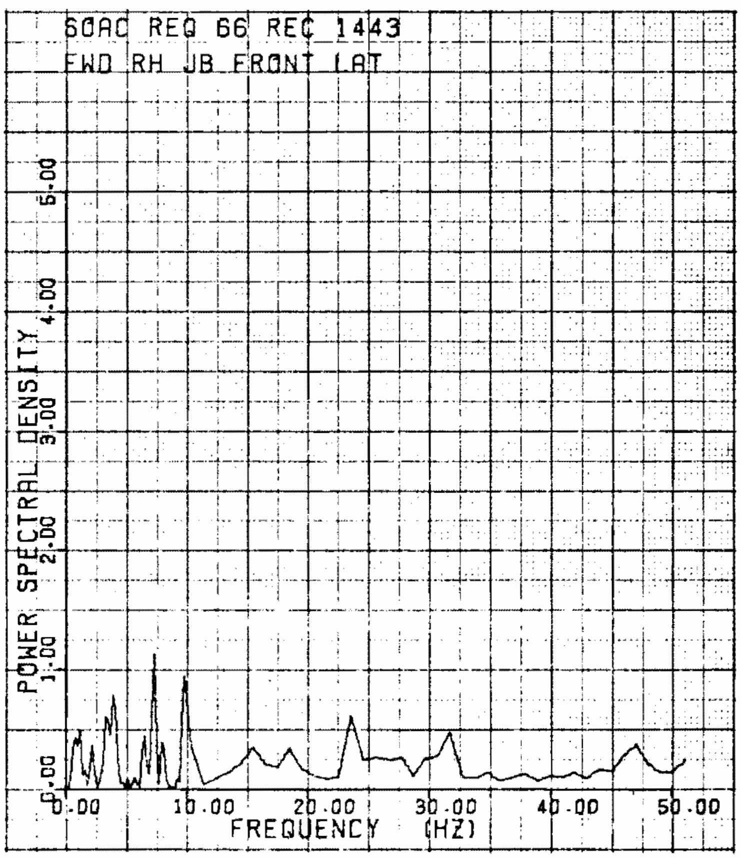
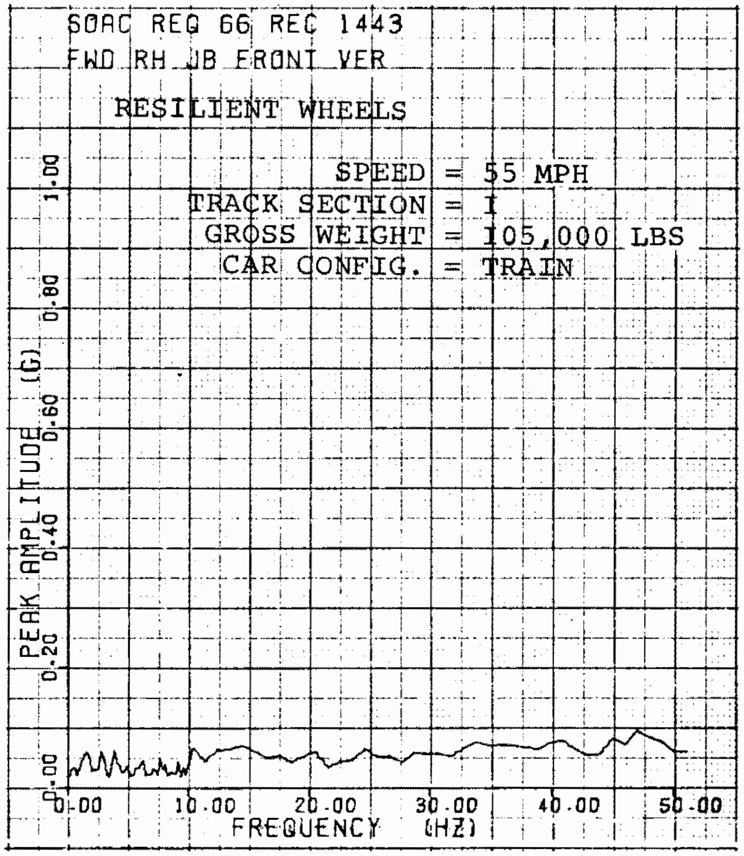

SOAC REQ 66 REC 1443
FWD RH JB FRONT LAT
POWER SPECTRAL DENSITY
0.00
1.00
2.00
3.00
4.00
5.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-152


SOAC REQ 66 REC 1443
FWD RH JB FRONT VER
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = TRAIN
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

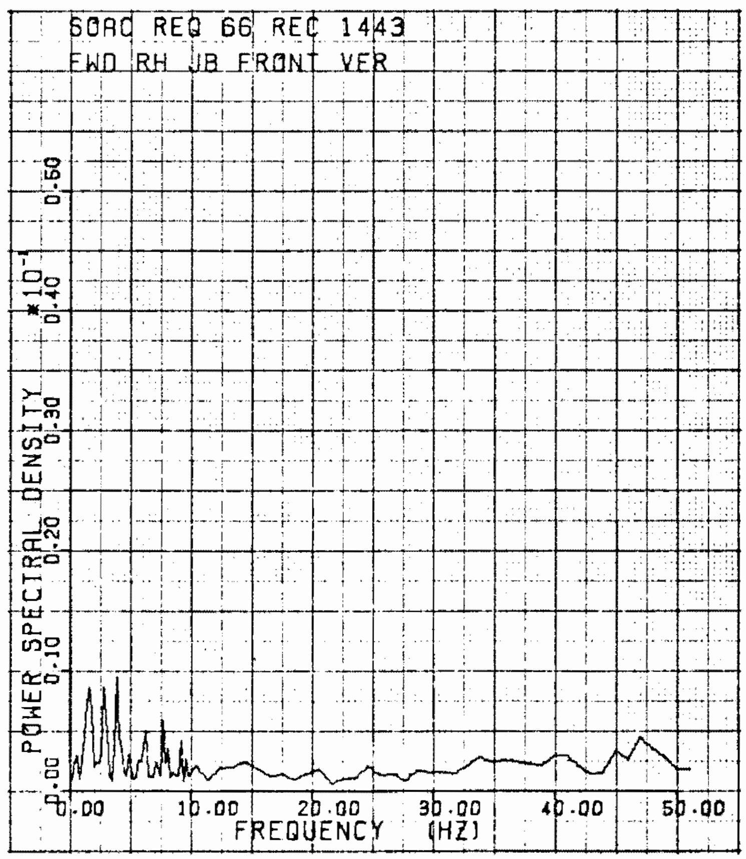
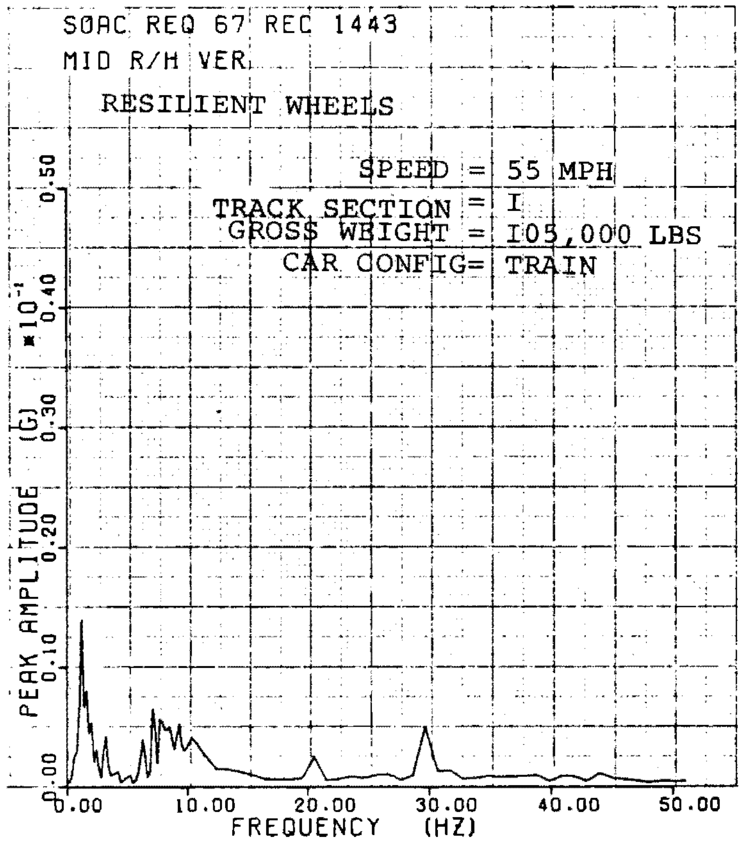

SOAC REQ 66 REC 1443
FWD RH JB FRONT VER
POWER SPECTRAL DENSITY *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-153


SOAC REQ 67 REC 1443
MID R/H VER
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG= TRAIN
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

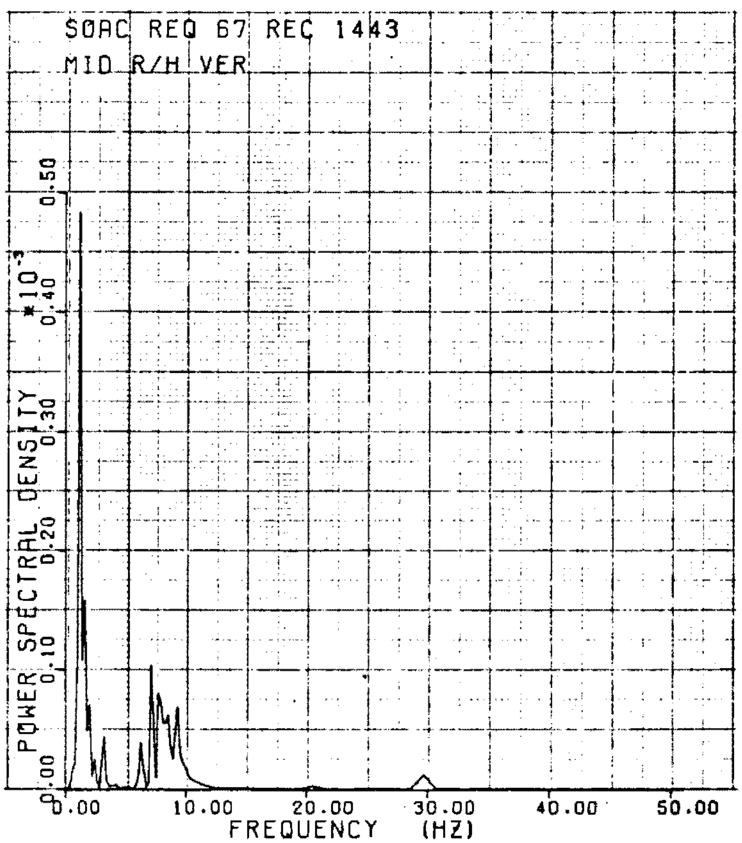
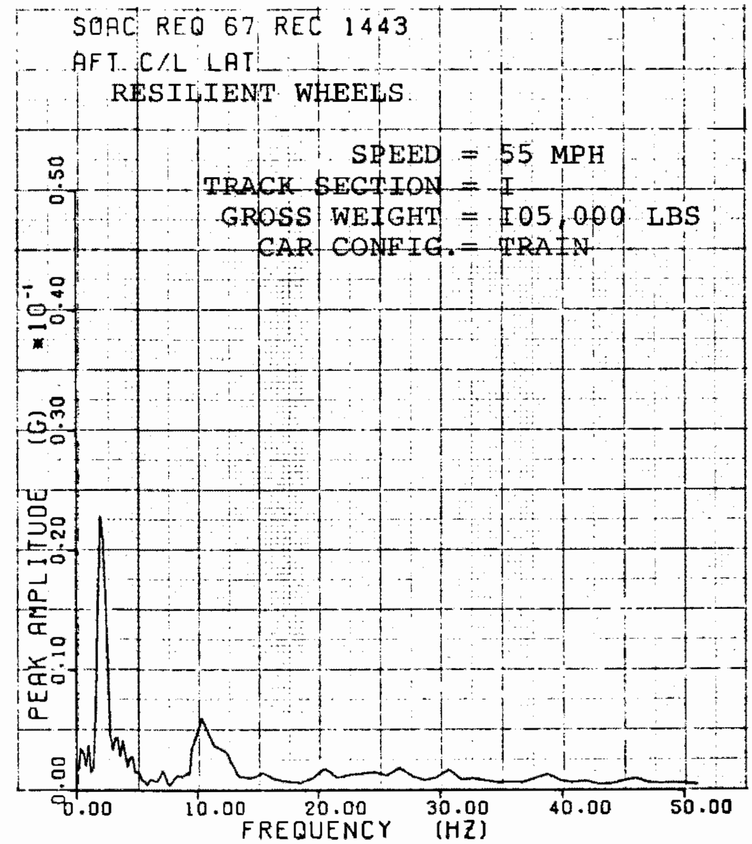

SOAC REQ 67 REC 1443
MID R/H VER
POWER SPECTRAL DENSITY *10^-3
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-154


SOAC REQ 67 REC 1443
AFT C/L LAT
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG.= TRAIN
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

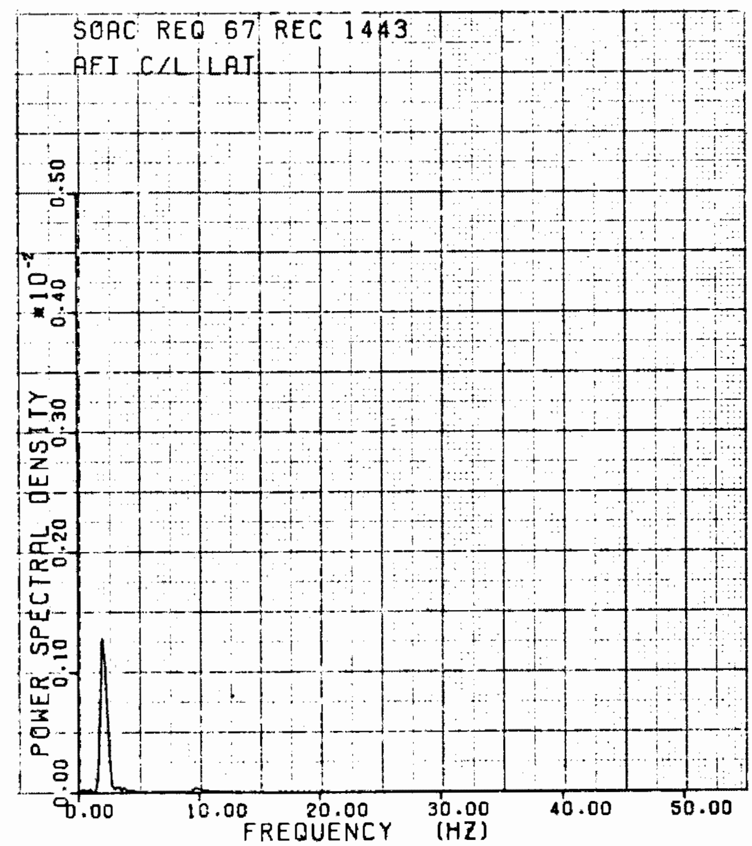
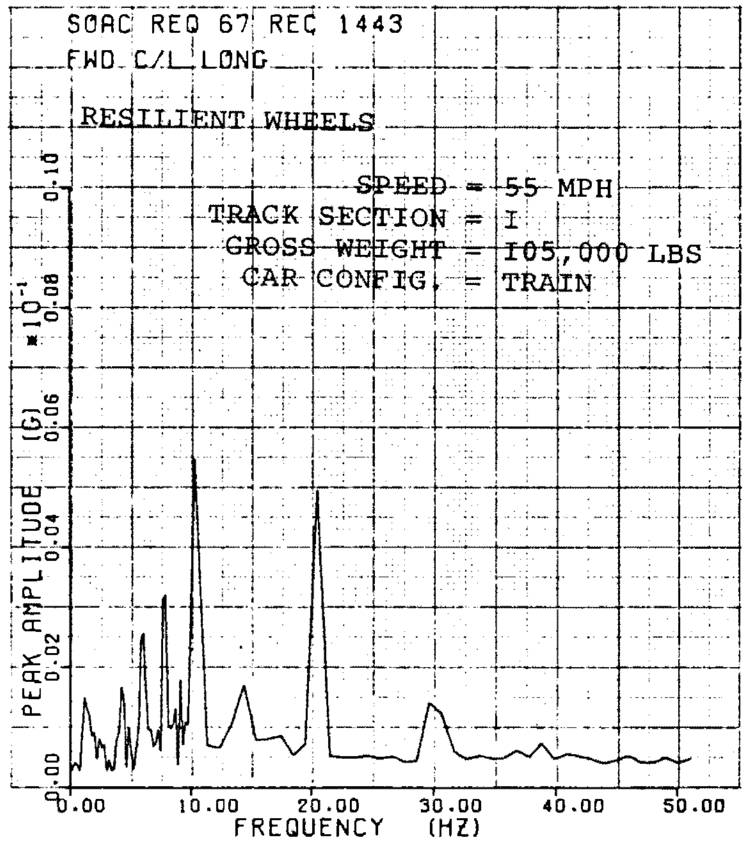
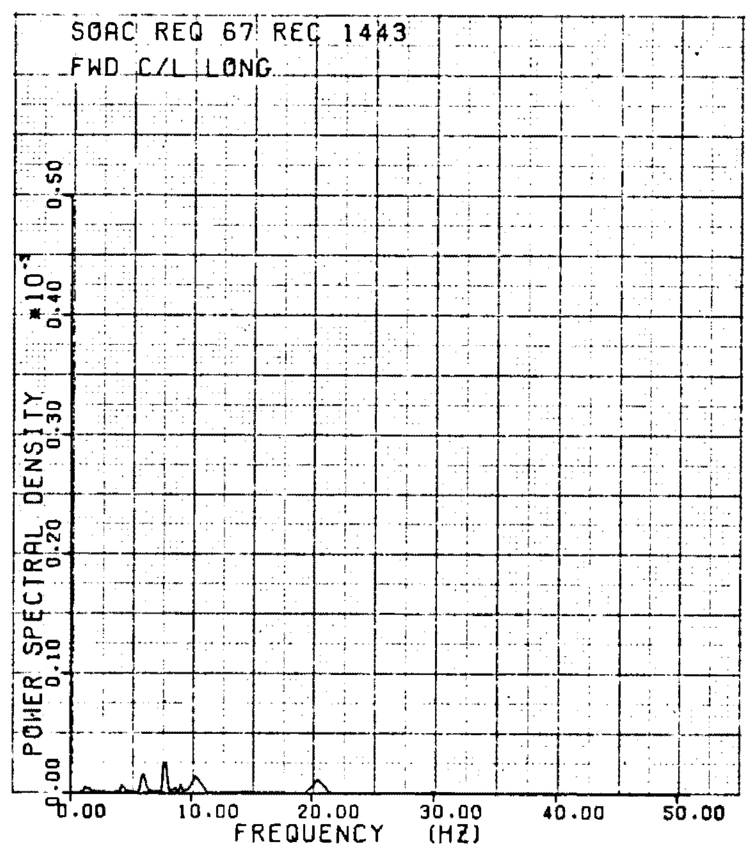

SOAC REQ 67 REC 1443
AFT C/L LAT
POWER SPECTRAL DENSITY *10^-2
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-155

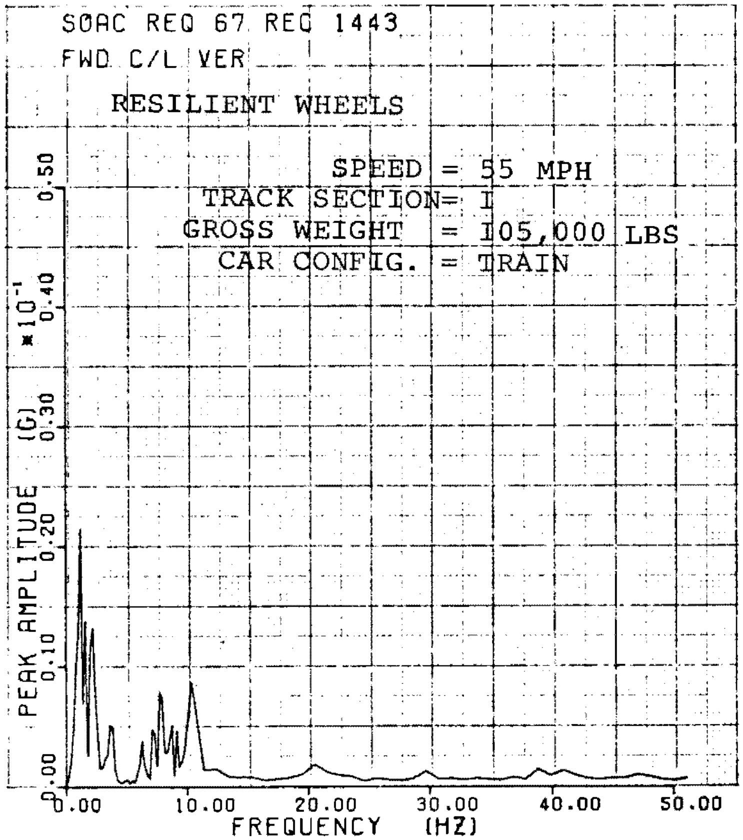


SOAC REQ 67 REC 1443
FWD C/L LONG
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = TRAIN
PEAK AMPLITUDE (G) *10^-1
0.00
0.02
0.04
0.06
0.08
0.10
0.00 10.00 20.00 30.00 40.00 50.00
FREQUENCY (HZ)



SOAC REQ 67 REC 1443
FWD C/L LONG
POWER SPECTRAL DENSITY *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00 10.00 20.00 30.00 40.00 50.00
FREQUENCY (HZ)

Figure A-156


SOAC REQ 67 REC 1443
FWD C/L VER
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION= I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = TRAIN
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

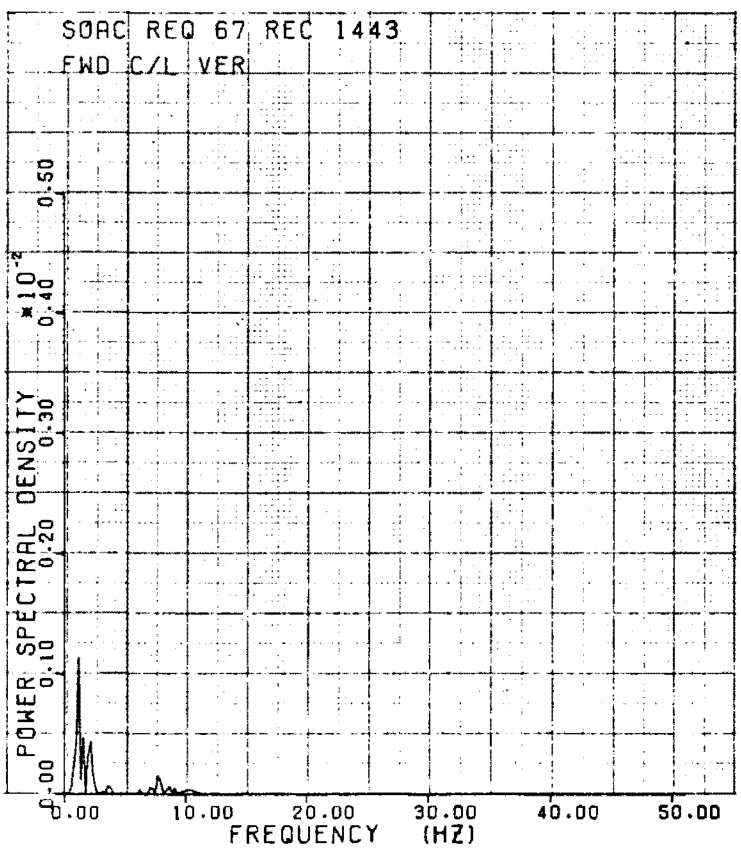
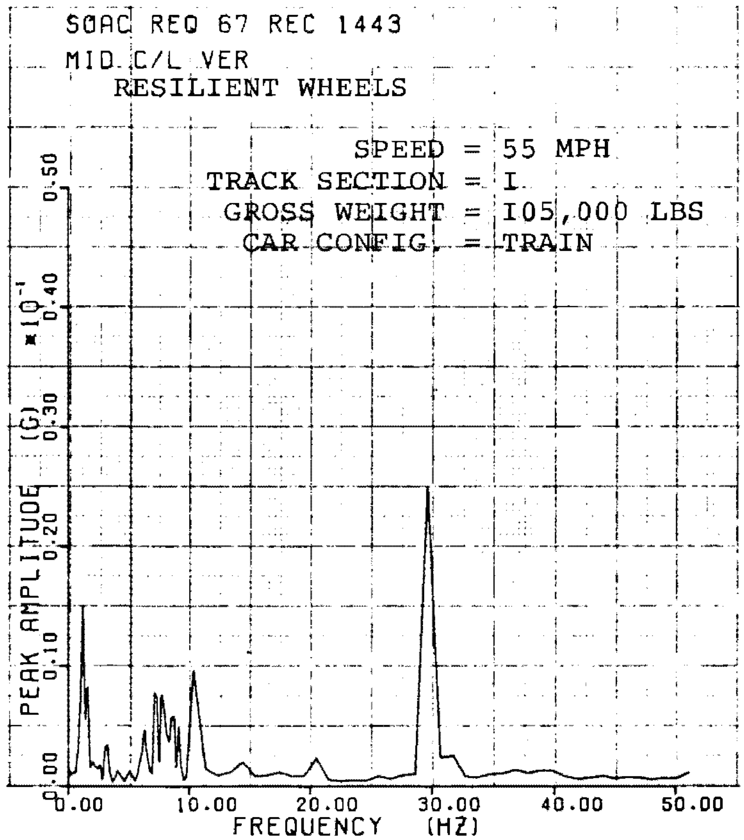
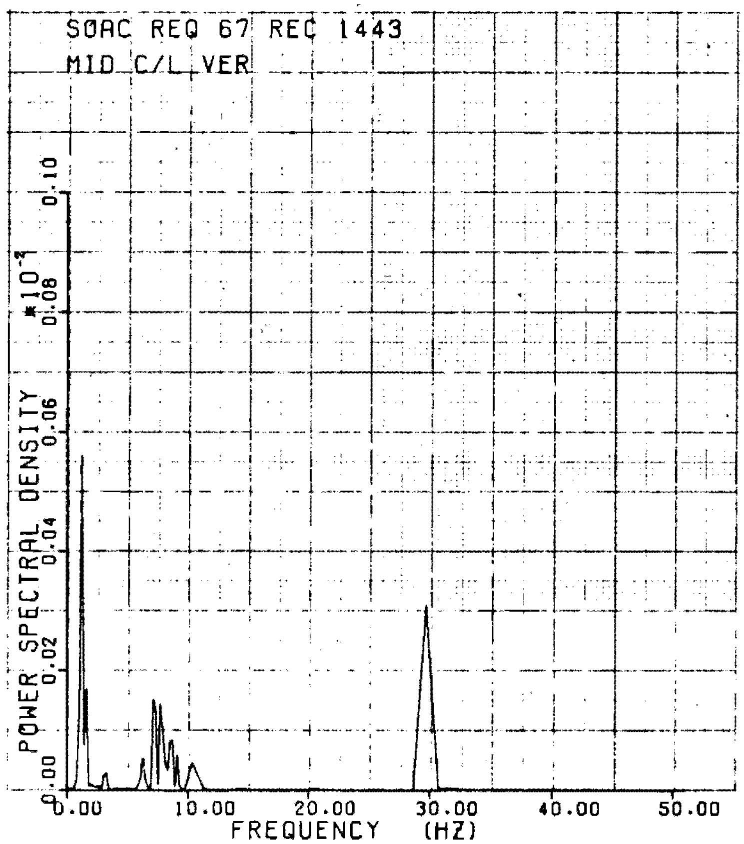

SOAC REQ 67 REC 1443
FWD C/L VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-157

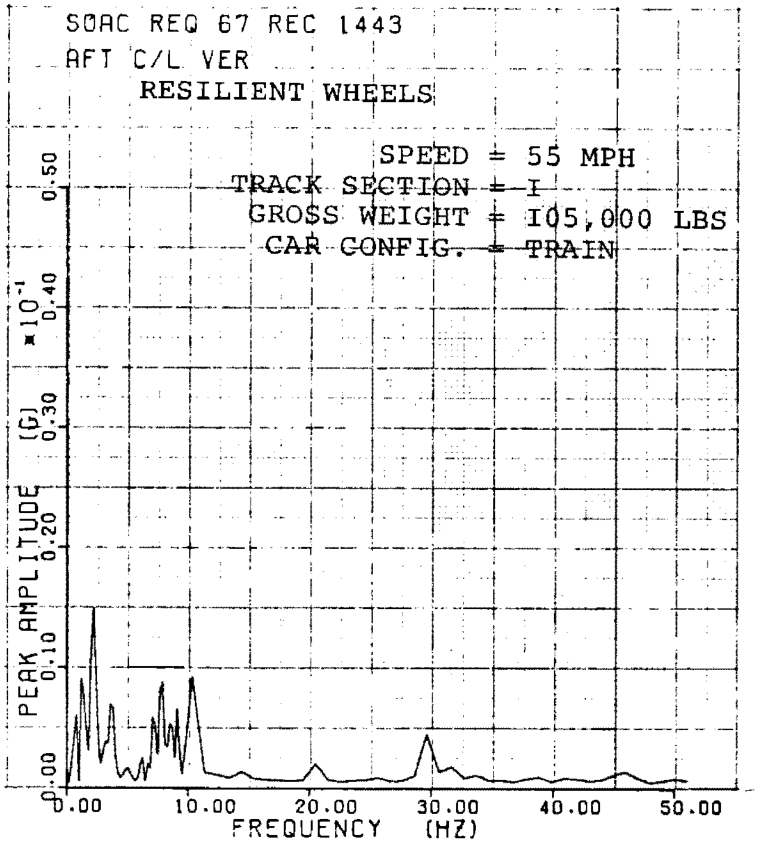


SOAC REQ 67 REC 1443
MID C/L VER
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = TRAIN
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 67 REC 1443
MID C/L VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-158


SOAC REQ 67 REC 1443
AFT C/L VER
RESILIENT WHEELS
SPEED = 55 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = TRAIN
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

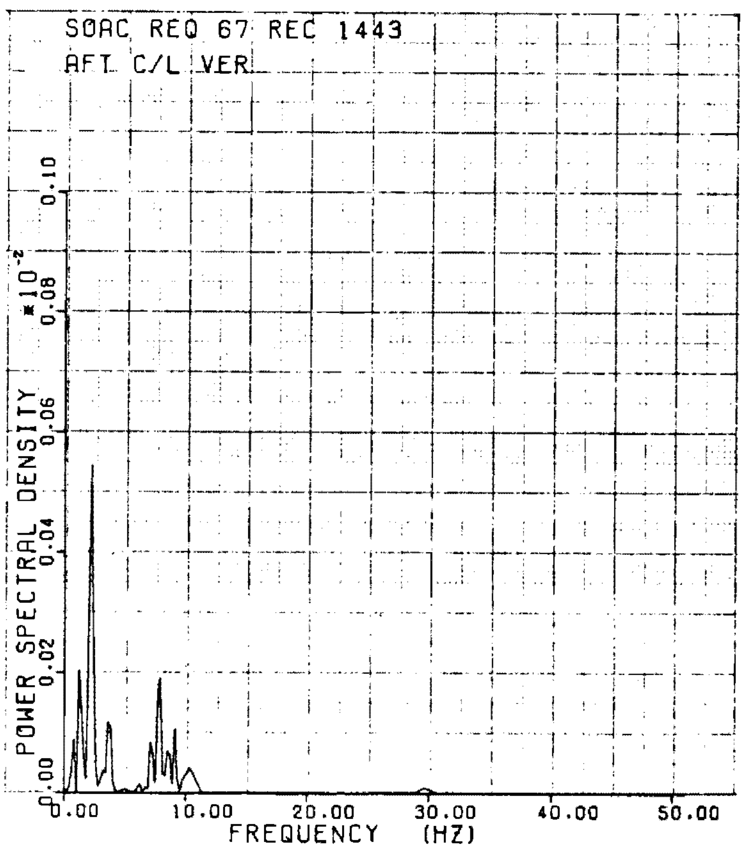
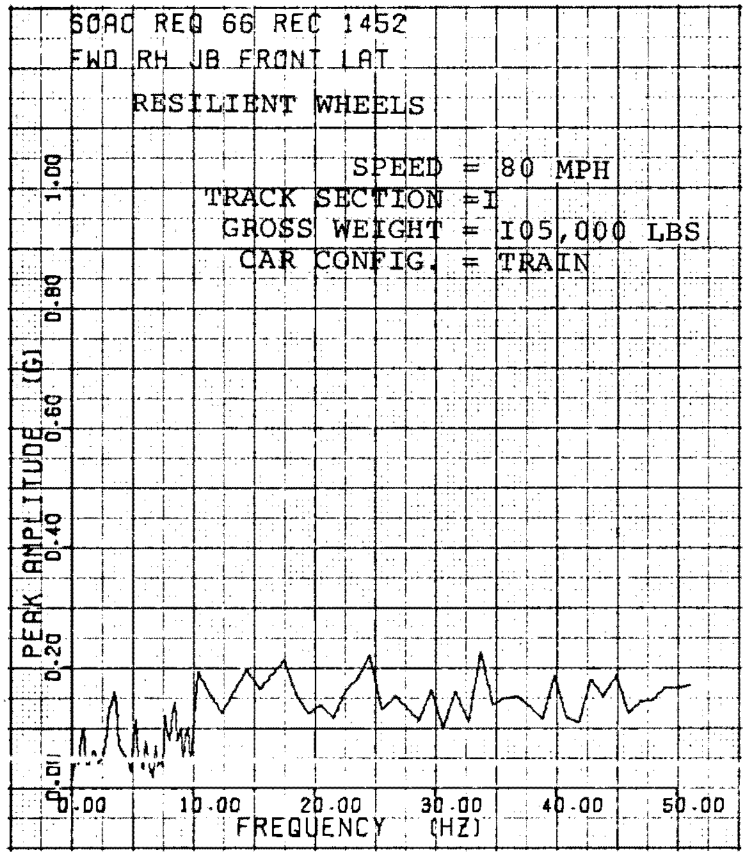
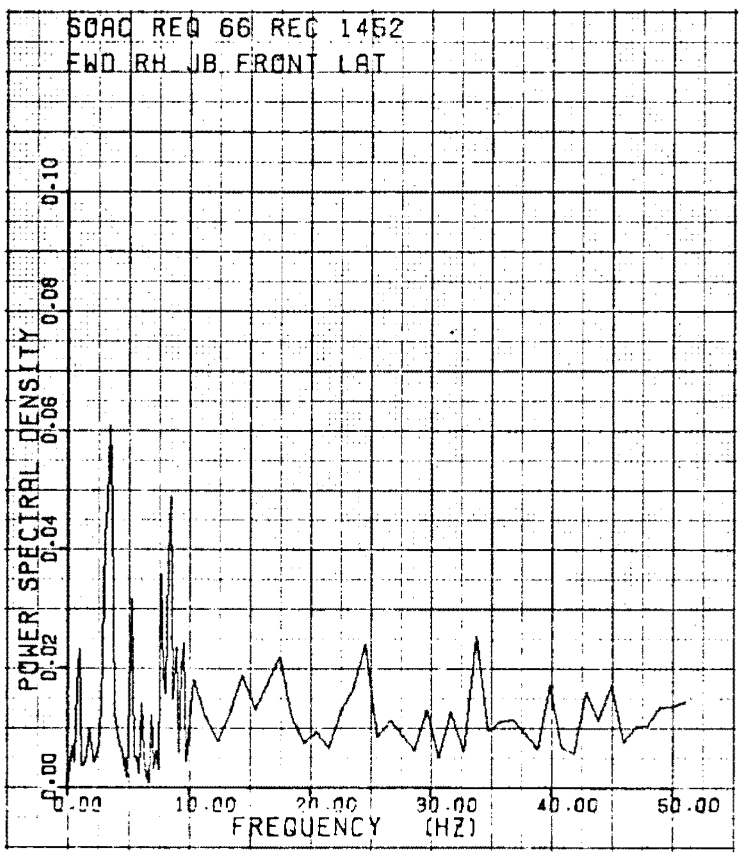

SOAC REQ 67 REC 1443
AFT C/L VER
POWER SPECTRAL DENSITY *10^-2
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-159

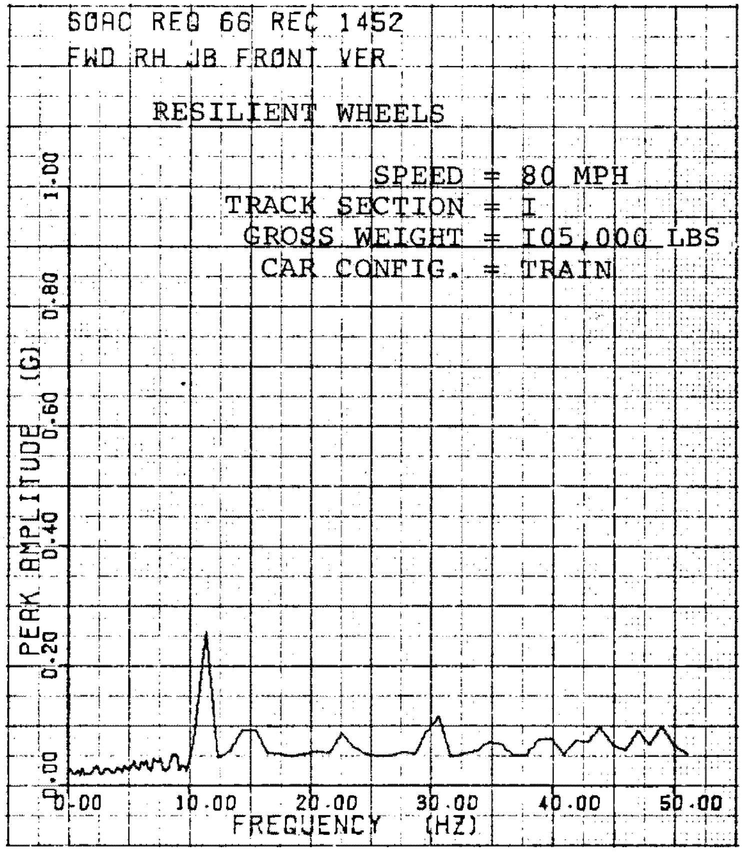


SOAC REQ 66 REC 1452
FWD RH JB FRONT LAT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION =I
GROSS WEIGHT = I05,000 LBS
CAR CONFIG. = TRAIN
PEAK AMPLITUDE (G)
1.00
0.80
0.60
0.40
0.20
0.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 66 REC 1452
FWD RH JB FRONT LAT
POWER SPECTRAL DENSITY
0.10
0.08
0.06
0.04
0.02
0.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-160


SOAC REQ 66 REC 1452
FWD RH JB FRONT VER
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = TRAIN
PEAK AMPLITUDE (G)
0.00
0.20
0.40
0.60
0.80
1.00
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

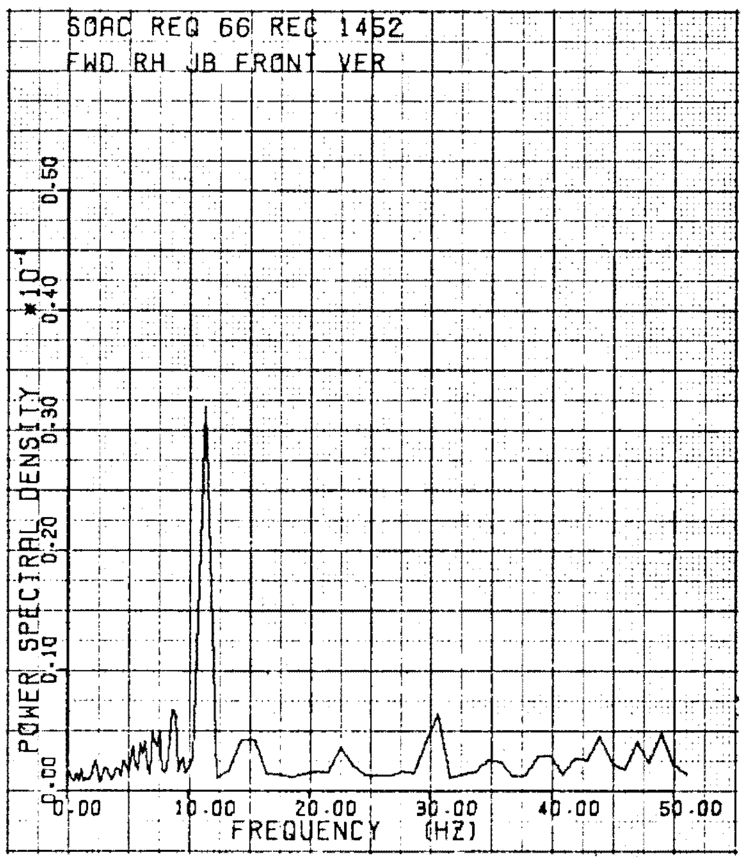
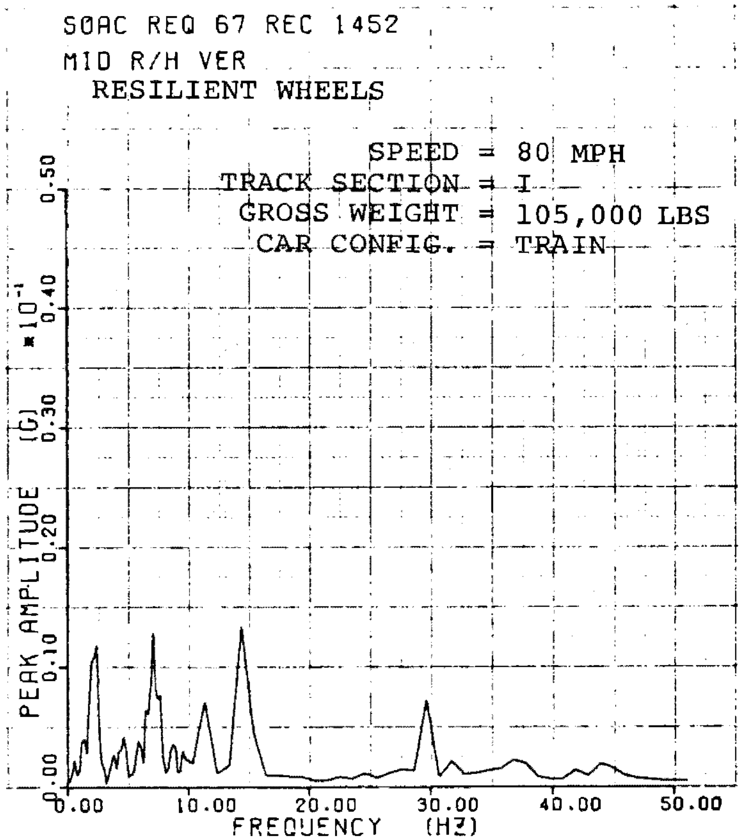

SOAC REQ 66 REC 1452
FWD RH JB FRONT VER
POWER SPECTRAL DENSITY *10^{-1}
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-161


SOAC REQ 67 REC 1452
MID R/H VER
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = TRAIN
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

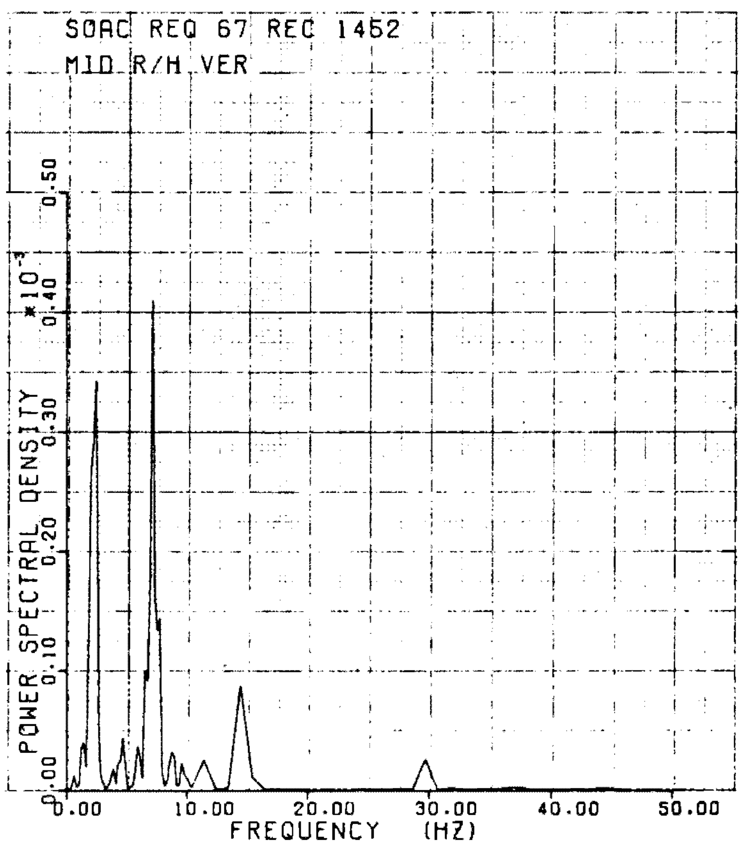
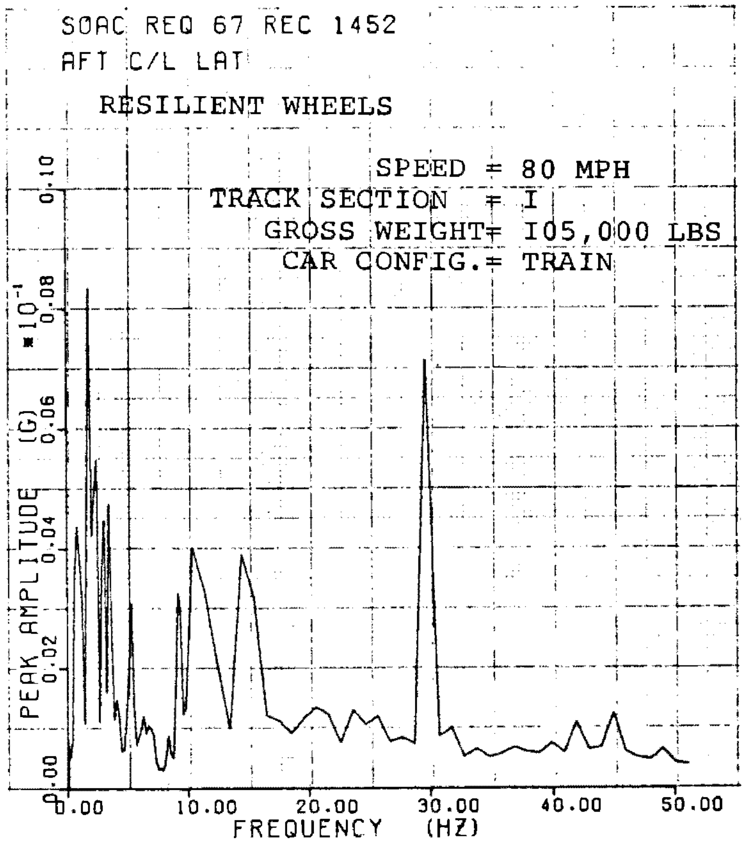

SOAC REQ 67 REC 1452
MID R/H VER
POWER SPECTRAL DENSITY *10⁻³
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-162


SOAC REQ 67 REC 1452
AFT C/L LAT
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT= 105,000 LBS
CAR CONFIG.= TRAIN
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.02
0.04
0.06
0.08
0.10
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

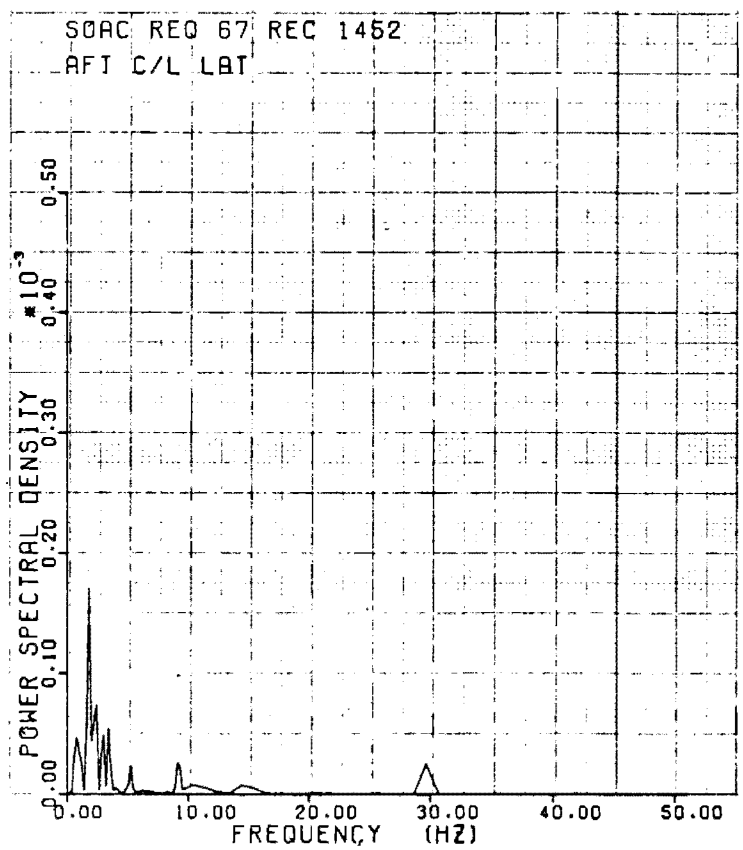
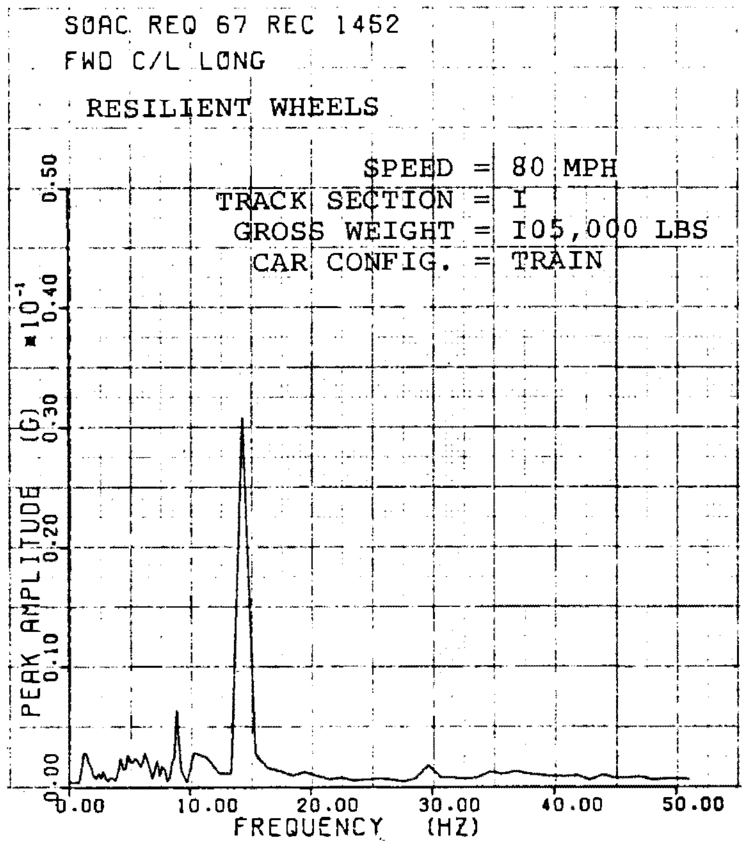

SOAC REQ 67 REC 1452
AFT C/L LAT
POWER SPECTRAL DENSITY *10⁻³
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-163


SOAC REQ 67 REC 1452
FWD C/L LONG
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = TRAIN
PEAK AMPLITUDE (G) x10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

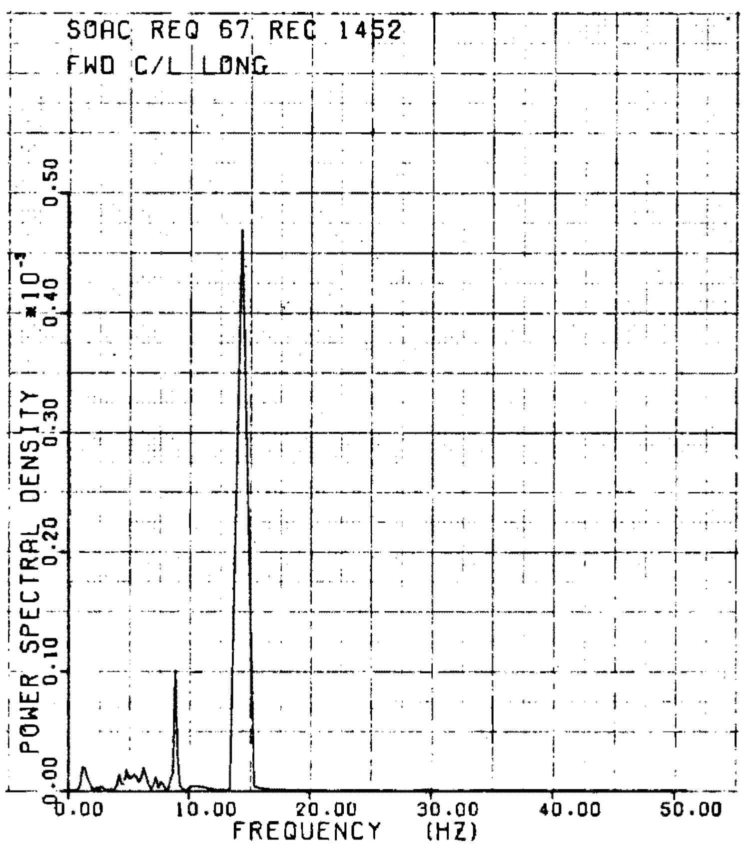
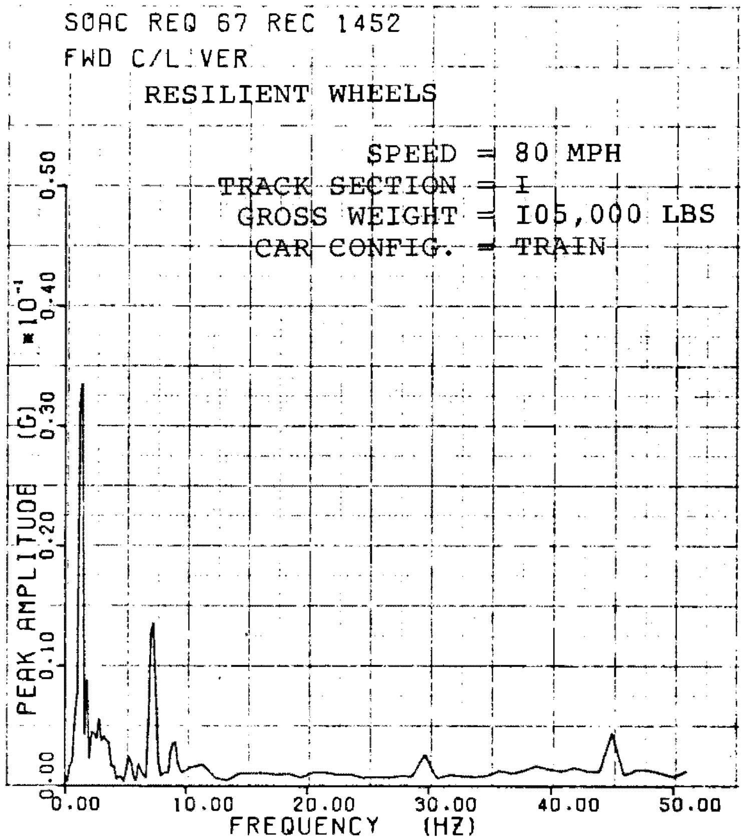

SOAC REQ 67 REC 1452
FWD C/L LONG
POWER SPECTRAL DENSITY x10^-3
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-164


SOAC REQ 67 REC 1452
FWD C/L VER
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 LBS
CAR CONFIG. = TRAIN
PEAK AMPLITUDE (G) *10⁻¹
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

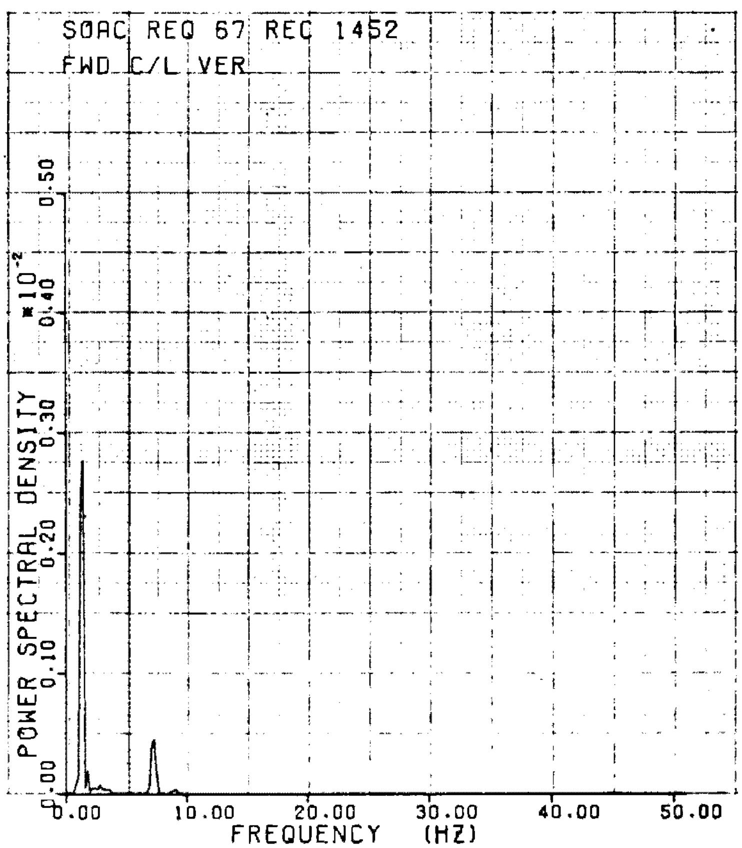
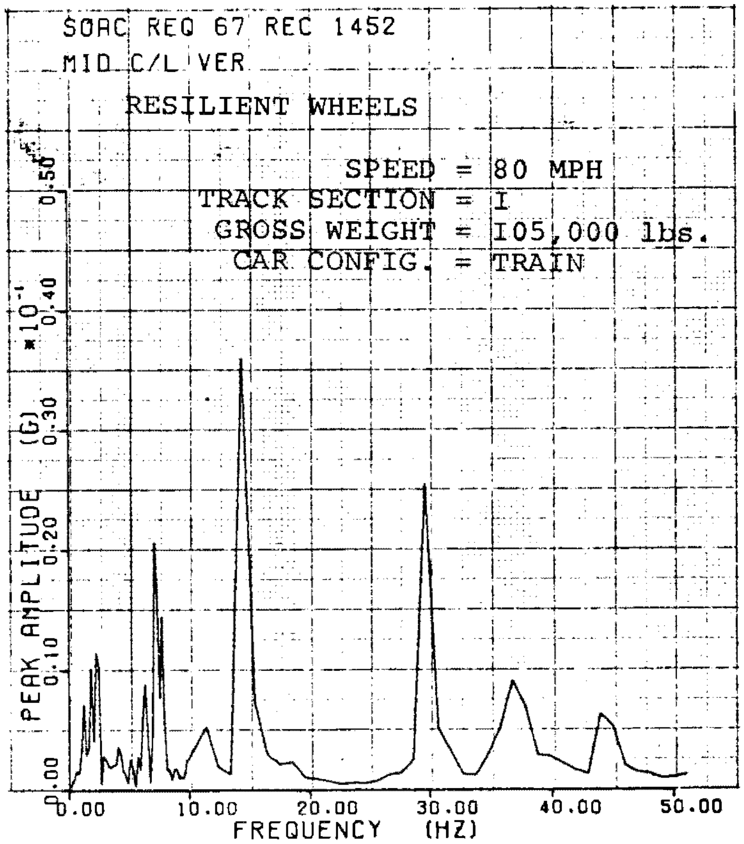
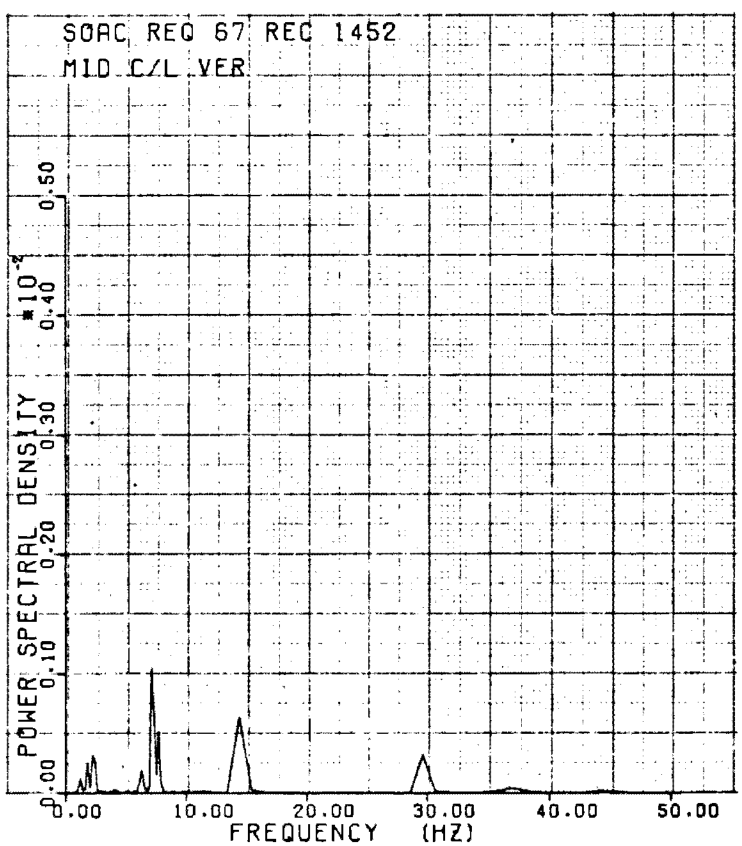

SOAC REQ 67 REC 1452
FWD C/L VER
POWER SPECTRAL DENSITY *10⁻²
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-165



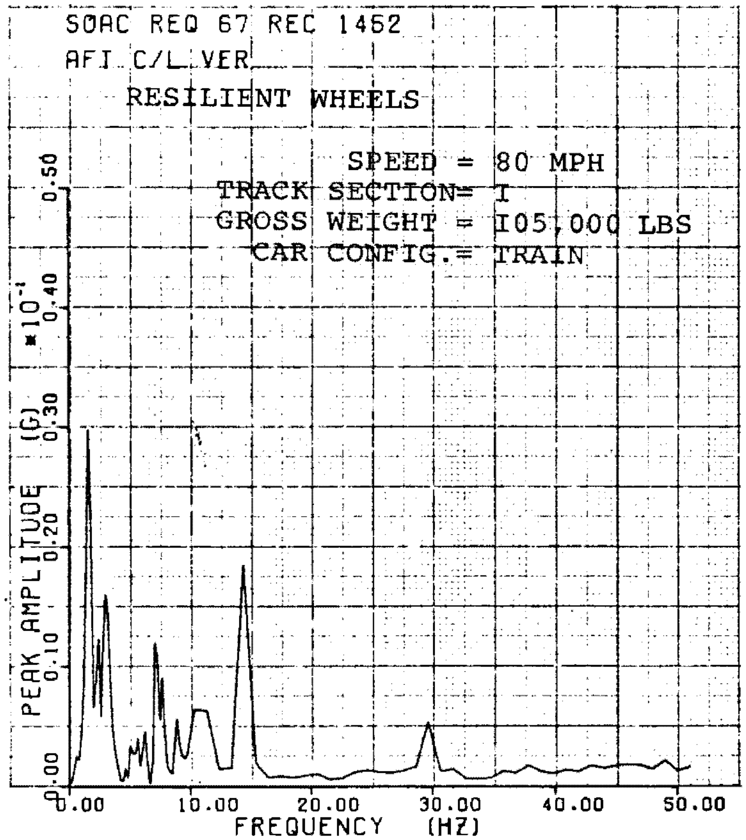
SOAC REQ 67 REC 1452
MID C/L VER
RESILIENT WHEELS
SPEED = 80 MPH
TRACK SECTION = I
GROSS WEIGHT = 105,000 lbs.
CAR CONFIG. = TRAIN
PEAK AMPLITUDE (G) *10^-1
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)



SOAC REQ 67 REC 1452
MID C/L VER
POWER SPECTRAL DENSITY *10^-2
0.00
0.10
0.20
0.30
0.40
0.50
0.00
10.00
20.00
30.00
40.00
50.00
FREQUENCY (HZ)

Figure A-166

BASELINE DATA



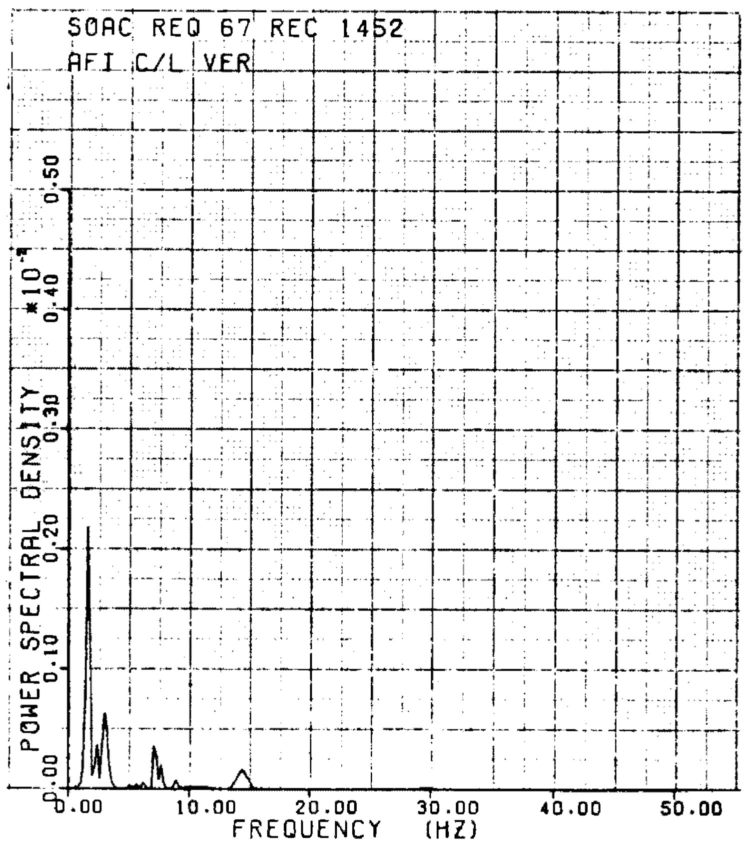


Figure A-167