UNITED STATES OF AMERICA
BEFORE FEDERAL TRADE COMMISSION

DOCKET NO. 9277

In the Matter of

BRAKE GUARD PRODUCTS, INC.,
a corporation, and
ED F. JONES,
individually and as an
officer and director of
said corporation.

INITIAL DECISION

Lewis F. Parker
Administrative Law Judge

Dated: May 2, 1997

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I. INTRODUCTION

The Commission issued the complaint in this case and two companion cases on September 27, 1995. I issued a default decision in one case (D. 9276) on October 16, 1996 and an initial decision in another (D. 9275) on March 3, 1997.

The complaint in this case charges that Brake Guard Products, Inc. ("BGPI"), and Ed F. Jones, individually and as an officer and director of Brake Guard, have violated the Federal Trade Commission Act by representing, through advertisements and promotional materials for aftermarket automotive products including the Brake Guard Safety System, also known as the Advanced Braking System or Brake Guard ABS ("Brake Guard"), that Brake Guard is an antilock braking system when, in truth and in fact, it is not an antilock braking system.

The complaint also alleges that the following representations were made in respondents' ads and promotional materials and that they were false and unsubstantiated:

(a) Brake Guard prevents or substantially reduces wheel lock-up, skidding, and loss of steering control in emergency stopping situations;

(b) Installation of Brake Guard will qualify a vehicle for an automobile insurance discount in a significant proportion of cases;

(c) Brake Guard complies with a performance standard set forth in Wheel Slip Brake Control System Road Test Code SAE J46;

(d) Brake Guard complies with a standard pertaining to antilock braking systems set forth by the National Highway Traffic Safety Administration;

(e) Brake Guard reduces stopping distances by 20 to 30% or by up to 30%;

(f) Brake Guard provides antilock braking system benefits, including wheel lock-up control benefits, that are at least equivalent to those provided by original equipment manufacturer electronic antilock braking systems; and

(g) Testimonials from consumers appearing in the advertisements and promotional materials for Brake Guard reflect the typical or ordinary experience of members of the public who have used the product.

The complaint also alleges that respondents have falsely represented, without substantiation, that:

(a) In emergency stopping situations, a vehicle equipped with Brake Guard will stop in a shorter distance than a vehicle that is not equipped with the device; and

(b) Installation of Brake Guard will make operation of a vehicle safer than a vehicle that is not equipped with the device.

On May 22, 1996, I entered a partial summary decision, later clarified on May 28, 1996, which found that respondents' trade names and logos, and the advertising and promotional materials attached to the complaint, made the alleged claims ("Partial Summary Decision (Ad Meaning)).

In a second partial summary decision on October 16, 1996, I held that respondents' representations that installation of their braking devices will qualify a vehicle for an automobile insurance discount in a significant proportion of cases is false and unsubstantiated ("Partial Summary Decision (Insurance Discounts)").

Trial in this proceeding was held between October 21, 1996 and February 13, 1997. The record was closed on February 14, 1997 and the parties filed their proposed findings on March 12, 1997. Replies were filed on March 27, 1997. With few exceptions, respondents have not supported their factual claims by detailed references to the record.

This decision is based on the transcript of testimony, the exhibits which I received in evidence, and the proposed findings of fact and conclusions of law filed by the parties. I have adopted several proposed findings verbatim. Others have been adopted in substance. All other findings are rejected either because they are not substantiated by the record or because they are irrelevant.

II.

[1]Abbreviations used in this decision are:

Ans.	Respondents' answer to the complaint.
CPF:	Complaint Counsel's proposed finding.
Cplt	Complaint.
CX:	Commission Exhibit.
F.:	Finding number in this decision.
Tr.:	Transcript of the hearing.
RX:	Respondents' Exhibit.

material indicated that it had over 1200 U.S. dealers and marketed Brake Guard in 34 countries abroad. (Compare CX 234-Z-208 with CX 234-A (BGPI marketing material referring to 1992 events, submitted in deposition held November, 1992).) The wholesale cost to dealers and distributors of Brake Guard ranged from $98 to $240 per system (CX 231-G, H, W; see also CX 234-Z-53, -60). The price to consumers ranged from $283 to $349, installed (CX 231-Z-10, Z-14; CX 234-J, -Z-143). BGPI estimates that it has sold between 400,000 and 500,000 Brake Guard systems (Tr. 2615-16). BGPI's gross receipts for sales of Brake Guard from 1990 to 1994 amounted to $10,412,792 ($279,450 in 1990; $1,426,404 in 1991; $3,383,401 in 1992; $3,003,667 in 1993; and $2,319,870 in 1994) (CX 246-A, -D, -G, -K, -N).

6. BGPI promoted Brake Guard through ads in automotive magazines, and a variety of widely disseminated videos, brochures, posters, and other promotional materials.

7. Print ads for the Brake Guard device appeared in magazines such as Brake and Front End (Tr. 2722), Northwest Motor (CX 169), Specialty Automotive Magazine (CX 172), Import Automotive Parts & Accessories (CX 173), Automotive Executive (CX 174), The New American (CX 179), and Undercar Digest (CX 180), as well as RV West, Automotive News and Trailer Life (Tr. 2722).

8. BGPI also used several different videos to promote its product. (E.g., CX-25 (Cplt Ex. 3, see Ans. ¶ 1); CX 107, CX 109, CX 110, CX 111, CX 146, CX 149, CX 158, CX 159, CX 234-Z-199-202.) Many of the magazine ads instructed the reader to call for a "free video." (E.g., CX 179, 180.) BGPI distributed videotapes extensively to dealers, to assist them in marketing the product to consumers. (E.g., CX 114-A, CX 163-F, CX 226-H, CX 233-A (reflecting BGPI's shipment of videos to dealers); CX 140-A, B, D, F, G, I (reflecting dealer shipment of video to installers); Tr. 2969-70.) One reseller used the videotape to make presentations to car dealerships (CX 234-Z-7 (regarding CX-234-Z-199-202)); another stated that "selling the Brake Guard is easy after the customers are sat down to watch a demo tape of the performance of the Brake Guard" (CX 53-Z-47).

9. BGPI also promoted its product through numerous brochures (CX-21, CX 23, CX 28, CX 112, CX 113, CX 136, CX 160, CX 188, CX 228; Tr. 2744) which were provided to dealers by the hundreds (CX 114-A-B, CX 145, CX 163-A, -B, -F, -G, -I, -J, CX 226-A, -E), and were designed to be given to customers as well as dealers and distributors (Tr. 2759). BGPI provided brochure display stands to dealers (e.g., CX 108, CX 113, CX 163-F), and BGPI marketing

complied with NHTSA and SAE standards (CX 137). Brake Guard also prepared material designed for a direct mail program (CX 224 A-B; Tr. 2751).

11. BGPI also provided dealers with "dealer kits" that contained reprints of positive magazine articles, brochures, posters, testimonial letters from dealers and consumers and, on occasion, training tapes (Tr. 2714-15, 2970). Magazine ads also urged interested persons to call for a free "dealer kit" (e.g., CX 179, 180). CX-53, which contained numerous testimonials and purported test results, was disseminated to distributors and dealers to assist in sales (Tr. 114, 2972).

12. Larry Jones, BGPI's national sales manager from 1990-94, testified that he personally

B) Brake Guard complies with a performance standard set forth in Wheel Slip Brake Control System Road Test Code SAE J46 (Cplt ¶ 7 c, "SAE J46 claim");

C) Brake Guard provides antilock braking system benefits, including wheel lockup control benefits, at least equivalent to those provided by original equipment manufacturer electronic antilock braking systems (Cplt ¶ 7 f, "OEM ABS equivalence claim");

D) Brake Guard will, in an emergency stopping situation, stop a vehicle in a shorter distance than a vehicle that is not equipped with the device (Cplt ¶ 9 a) ("general stopping distance claim"), and Brake Guard reduces stopping distances by 20% to 30% or by up to 30% (Cplt ¶ 7 e) ("specific stopping distance claim");

E) Installation of Brake Guard will qualify a vehicle for an automobile insurance discount in a significant proportion of cases (Cplt ¶ 7 b, "insurance discount claim");

F) Installation of Brake Guard will make operation of a vehicle safer than a vehicle that is not equipped with the device (Cplt ¶ 9 b, "comparative safety claim");

G) Testimonials from consumers appearing in the advertisements and promotional materials reflect the typical or ordinary experience of members of the public who have used the product (Cplt ¶ 7 g, "testimonial typicality claim"); and

H) At the time they made the representations set forth in Complaint paragraphs five, seven, and nine, respondents possessed and relied upon a reasonable basis that substantiated such representations (Cplt ¶ 10).

17. Promotional materials admitted into evidence make some or all of the representations alleged in the complaint. CX 108, CX 130, CX 174, CX 177, CX 227, CX 228, and CX 235 identify the product by the trade name Advanced Braking System ABS; and CX 105, CX 106, CX 113, CX 115-118, CX 123, CX 124, CX 136 and CX 169 identify the product by the trade name Brake Guard Anti Lock Safety System. These exhibits thus make the claim that the product is an antilock brake system. Many ads reinforce this claim by expressly identifying the product as providing "anti lock benefits" (e.g., CX 105, CX 106, CX 112, CX 136, CX 141, CX 160, CX 171, CX 174-177, CX 179, CX 180-182, CX 184, CX 224, CX 228), or as being an "ABS" or "anti-lock" system (CX 117, CX 132). CX 188 also makes this claim, since it identifies Brake Guard as the "anti-lock brake alternative" and states that it has "anti-lock" benefits and "inhibits premature individual wheel lock-up."

18. CX 133 expressly states that the Brake Guard device will stop a vehicle an average of "20% to 30% shorter," and CX 107-F expressly states that Brake Guard has "been found to reduce stopping distance up to 30%." CX 117 states that Brake Guard "delivers 20% to 30% shorter stopping distance." These statements are identical or substantially similar to statements

previously found to have conveyed the specific stopping distance claim, and they also make this claim. Partial Summary Decision (Ad Meaning), at 19.

19. Many ads admitted into evidence make the general stopping distance claim. CX 112, CX 113, CX 125, CX 136, CX 141, and CX 160 state that Brake Guard "stops vehicles straighter and shorter" and that it will provide "smoother, shortened and controlled stopping." This language is identical to that previously found to convey the general stopping distance claim. Partial Summary Decision (Ad Meaning), at 19. In addition, CX 104-106, CX 112, CX 113, CX 125, CX 136, CX 141, CX 160, CX 228 and CX 240 contain the "Safety Scoreboard" indicating that the Brake Guard device "Stops Vehicle in A Shorter Distance." This language is identical to that previously found to convey the general stopping distance claim. Partial Summary Decision (Ad Meaning), at 19. CX 108, CX 124, CX 148 and CX 188 generally promise "shorter stopping distances," or that a vehicle can "stop straighter in a shorter distance," and thus make the claim expressly.

20. CX 104-106, CX 112, CX 113, CX 125, CX 136, CX 141, CX 160 and CX 228 contain text identical to that previously found to convey the insurance discount claim, and thus, they too make this claim. Partial Summary Decision (Ad Meaning), at 15-16.

21. Many of BGPI's ads make the comparative safety claim. CX 104-107, CX 111-13, CX 125, CX 136, CX 141, CX 146, CX 149, CX 160, CX 188, CX 223, CX 228, and CX 240 refer to the product as a "four wheel safety system" or a "safety system" and promise that Brake Guard will improve braking capacity. The ads contain additional language that reinforces the comparative safety claim. CX 104, CX 105, CX 106, CX 112, CX 113, CX 125, CX 136, CX 141, CX 160, CX 228 and CX 240 do so by including a "safety scoreboard" highlighting the "life saving features" of Brake Guard. CX 117, CX 126, CX 142, CX 143, CX 169, CX 181, and CX 242 promise improved braking function, including shorter stopping distances and reduced wheel lockup. CX 171, CX 175, CX 176, CX 179 and CX 180 promise that Brake Guard will stop a vehicle in a "dramatically shorter distance" and CX 107, CX 109, CX 110, CX 111, CX 146 and CX 158 promise that Brake Guard helps prevent accidents before they happen.

slip at one or more road wheels of the vehicle during braking." This is the same language previously found to convey the J46 and NHTSA compliance claims. Partial Summary Decision (Ad Meaning), at 17. CX 104 and CX 105 use substantially similar language to that previously found to convey these claims. CX 141 and CX 228 contain language substantially similar to that previously found to convey the NHTSA compliance claim.

24. The OEM ABS equivalence claim also is made in numerous ads. CX 104-106, CX 112, CX 113, CX 125, CX 136, CX 141, CX 160 and CX 228 contain the "Safety Scoreboard" that was previously found to convey the OEM ABS claim. Partial Summary Decision (Ad Meaning), at 21-22. Other ads (CX 107, CX 111, CX 146, CX 149, CX 132 and CX 184) compare OEM ABS and Brake Guard and imply that because Brake Guard operates continuously, it offers superior benefits. This comparison previously was found to convey the OEM ABS equivalence claim. Id.

D. Substantiation For Respondents' Ad Claims

1. Complaint Counsel's Expert Witnesses

a. John W. Kourik

25. John W. Kourik is a licensed professional engineer in the State of Missouri (Tr. 1083). He obtained a B.S. in Mechanical Engineering from Washington University in 1948 and was employed with Wagner Electric, a manufacturer of brake systems, from 1948 until his retirement in 1988. Positions he held at Wagner included Supervisor, Hydraulics Brake Products; Chief Engineer, Brake products, and Director, Brake Engineering and Aftermarket Services (CX 84-A; Tr. 1073-75).

26. During his 40 years at Wagner, Mr. Kourik was involved in the design, construction and testing of brake assemblies, including construction of various types of hydraulic valves used in brake systems, and in the construction of air brake antilock systems (Tr. 1076, 1081-82). He was substantially involved in the development of test protocols for Wagner's brakes, supervision of road tests conducted at three facilities on a fleet of forty test vehicles, and the analysis of test results (Tr. 1076-1082, 1089). His experience included testing the effectiveness of antilock systems (Tr. 1082).

27. Mr. Kourik was a long-term member of the Society of Automotive Engineers

91). Mr. Kourik also served as a member of the Brake Task Force of the Truck-Trailer Manufacturers Association (CX 84-A) in an effort to ensure compatibility of antilock systems on trailers with those on the tractors that hauled them. This twenty-year effort required the evaluation of antilock system test data (Tr. 1093).

28. During his career Mr. Kourik has reviewed hundreds of stopping distance tests and hundreds of wheel slip control tests, including wheel slip control tests on passenger cars (Tr. 1118-19). Mr. Kourik is an expert in the design and application of brake systems, their components, actuating systems and control systems, and in the analysis of brake system testing, including stopping distance and wheel slip control testing (Tr. 1094).

b. James G. Hague

29. James G. Hague is a project engineer working with NHTSA's Office of Defects Investigation ("ODI") at the Vehicle Research and Test Center ("VRTC"), which conducts investigatory testing to assist in ODI's vehicle safety investigations (CX 92-A; Tr. 33-37). While in the military, Mr. Hague received training and had several years of experience with aircraft mechanics, including aircraft hydraulic and brake systems, which are similar to automotive hydraulic and brake systems. He continued to be responsible for aircraft maintenance in private employment for six years after leaving the military (Tr. 744-52). In 1979, Mr. Hague enrolled in Ohio State University ("OSU"). His university experience included course work in auto engineering and braking systems and extracurricular activities involving vehicle design and construction. In 1983, he received a B.S. in Mechanical Engineering from OSU (Tr. 752-56).

30. In 1983, Mr. Hague became a contract employee at NHTSA's VRTC in East Liberty, Ohio. VRTC conducts vehicle and vehicle component tests for NHTSA, including testing for ODI. Mr. Hague was a project or test engineer, providing technical expertise and support in the development of test protocols, test designs, the conduct and supervision of testing, and the deduction, analysis and presentation of the data (Tr. 761). His specific assignment included brake testing (Tr. 762). From 1984 through 1989, Mr. Hague held various positions, including service as a test engineer on hydraulic systems, as a test engineer on power industry equipment, and as president of a company that developed and marketed software for use by test engineers (CX 92-A; Tr. 764-68).

31. In 1989, Mr. Hague returned to VRTC as a contract employee. There, he provides technical expertise and support to VRTC in the development of test protocols, the conduct of testing, and the analysis and presentation of test data (Tr. 761, 769). His tests are investigatory, designed to determine whether there is a safety-related defect in an automotive system, and if so, what the consequences are. He is assigned most of the brake investigations that come to VRTC. In this position, he has conducted numerous tests of braking systems, and authored twenty-eight reports regarding the results of his investigations of vehicle systems (Tr. 771-83; CX 92-B, -C).

32. Mr. Hague's position requires expertise in passenger cars and light trucks, and extensive knowledge of testing. Mr. Hague is an expert in passenger car and light truck systems,

particularly brake systems, and in passenger car and light truck testing, particularly brake testing (Tr. 784).

c. John Hinch

33. John Hinch is Lead Engineer in the Office of Defects Investigation of NHTSA. He obtained a B.S. degree from the College of Engineering at the University of Michigan. His course work in that program involved numerous engineering courses. Subsequently, he took masters level classes in general and mechanical engineering (CX-94; Tr. 1868-72).

34. From 1975 to 1978, Mr. Hinch was employed by NHTSA as a mechanical engineer, designing tests to evaluate the traction generating potential of tires, specifying control procedures and test instrumentation, analyzing the test data and preparing the reports (Tr. 1872-81). From 1978 to 1989, he was employed as an engineer at ENSCO, Inc., a research and development company, where he was responsible for testing of automotive systems and the interaction of automobiles with other systems. While at ENSCO, he served as lead engineer designing and constructing a test facility for the Federal Highway Administration. During his career at ENSCO, Mr. Hinch conducted over two hundred full-scale crash tests, calibrating equipment, processing the data after the test, and preparing or conducting final review of the project reports (Tr. 1882-89).

35. In 1989, Mr. Hinch returned to NHTSA as an engineer assisting the Chief of its Crash Avoidance Division. While in this position he designed tests to analyze what vehicle properties are associated with rollover crashes, and analyzed the resulting data (Tr. 1891-93). In 1992, he moved to ODI as a defects engineer, where he investigated alleged safety defects in school bus and heavy truck fleets, critically analyzing test data submitted by the fleet vehicle manufacturers to determine whether their data was competent and reliable, directing the conduct of tests to evaluate the validity of defect complaints, and writing detailed scientific reports to document the conclusions of investigations (Tr. 1894-96).

36. In 1994, Mr. Hinch was promoted to the position of Technical Assistant to the Director of ODI, where he provides support to the director on the technical issues raised in each of the two to three hundred investigations performed by ODI each year, supervises junior engineers in the development of scientifically sound investigation techniques and test protocols, and critically reviews test data submitted by manufacturers. Since 1995, he has been in charge of all testing conducted at VRTC, ensuring that such work is performed in a competent manner; he also gives guidance to testing conducted at other locations (Tr. 1896-99).

37. Mr. Hinch has investigated and tested antilock brakes on school buses, has been involved in component testing on antilock brake systems, and has studied the traction generating potential of ABS-type controllers (Tr. 1902-03).

38. Mr. Hinch has written more than twenty different technical reports and papers, some of which have been published by the SAE (Tr. 1881-82). He has been a member of the SAE and the National Safety Council, another professional society (Tr. 1882).

39. During his career, Mr. Hinch has been involved in the design and analysis of brake testing protocols. He has been responsible for the design of scientifically reliable protocols to test various aspects of automobile performance, including braking performance, and is also responsible for the evaluation of such testing. Mr. Hinch is an expert in vehicle testing, vehicle test procedures and the analysis of data obtained from vehicle testing (Tr. 1900).

2. The Function Of Automotive Brake Systems

40. The function of a motor vehicle's brake system is to slow or stop the vehicle. Hydraulic brake systems utilize an incompressible fluid to create pressure within a closed system of brake lines. When the driver pushes on the brake pedal, the brake lines transmit this pressure through the master cylinder to wheel cylinders or brake caliper pistons, which, in turn, apply force to the brake linings or pads (CX 102-Z-18; Tr. 786-89). This produces a brake torque at the axle which is transmitted to the tire/pavement interface (Tr. 789).

41. When the wheels slow down relative to the ground, slip is caused, generating horizontal tire-road forces. Wheel slip refers to the difference between the angular velocity of the free rolling wheel and the angular velocity of the braked wheel, divided by the angular velocity of the free rolling wheel, expressed as a percentage (CX 103-B; Tr. 789-90, 1119-20). Stated more simply, wheel slip refers to the proportional amount of wheel/tire skidding relative to vehicle forward motion (CX 102-J n.27).

42. The amount of brake force developed at the tire/road interface is a function of the amount of wheel slip (CX 103-C; Tr. 789-90). As brake application is increased, the slip at each wheel increases, thus increasing the braking forces on the vehicle. When slip proceeds beyond 20%, however, brake force starts to fall off subtly. More important, after 20% slippage, the ability of the tire/road contact spot to produce lateral force generation--necessary to make turns--falls precipitously (Tr. 790-91). An example of this is when a driver attempts to turn on clear ice: the vehicle will not turn, because there is severely limited lateral force generation capability (Tr. 791, 1907).

43. At 100% wheel slip, the wheels are locked and no longer rotating (Tr. 791). Wheel lockup occurs whenever the brake force generated at the road/tire interface exceeds the capacity of the pavement and the tire interface to produce that force. The friction or "mu" of a road surface, referring to the ability of a given surface to produce a frictional force, is a factor in wheel lockup. Dry concrete is a high friction surface; ice is a very low friction surface. Vehicle speed is also a factor in lockup. However, wheel lockup can occur at any speed, and on a surface of any level of friction, if the driver applies sufficient force (Tr. 791-94; CX 103-D, -E).

44. Certain risks are associated with wheel lockup. If front wheels lock first, braking force is diminished and the stopping distance is extended. Additionally, when the front wheels lock, there is no lateral force generation capability, and the driver is unable to steer. If rear wheels lock first, the vehicle typically spins out of control (Tr. 796).

3. The Operation Of Antilock Brake Systems

45. Antilock brake systems are designed to maintain maneuverability and controllability

definition reflects the meaning of ABS as it has been generally understood among brake engineers since at least 1990 (Tr. 1123-25).

49. In 1995, NHTSA amended its definition of an antilock brake system to adopt the definition set forth in Finding 48 (CX 102, CX 38-A-B). The new regulation clarifies the definition (Tr. 1122, 157), but does not substantively change it (Tr. 156-58; compare F. 47 with F. 48 (elements of this new definition are consistent with elements required to comply with the prior definition)).

50. SAE expects that antilock brake systems will contain the components set forth in F. 47, and operate in the manner set forth in F. 48. In SAE J2246, SAE identifies the components of an antilock brake system as: (a) sensors to determine the wheel speed and the vehicle speed; (b) control logic to process the sensors' signals and determine the desired regulation of the brake pressure; (c) a means to implement the control logic; and (d) a means to regulate the brake pressure as dictated by the control logic (CX 103-L; Tr. 1126). SAE states that,

> "in a typical application, variable reluctance sensors are used for wheel speed sensing. The vehicle speed is estimated from the wheel speeds, eliminating the need for a separate vehicle speed sensor. The control logic is implemented via microprocessor software in an electronic controller. . . . A wiring harness links the various sensors, the displays, the controller, the vehicle electrical system, and the modulator. The brake pressure regulation is typically done with the modulator employing solenoids that close or open different fluid paths to build or decay the brake pressure at the wheels."

(CX 103-L; Tr. 1126).

51. The factory-installed ABS systems widely advertised to consumers consist of the components set forth in F. 47 and control the degree of rotational wheel slip in the manner set forth in F. 48 (BGPI Admissions 7, 9 and 11 (per Order Ruling on Complaint Counsel's Motion to Deem Admitted Certain Requests for Admission, July 8, 1996 (hereinafter, Admissions Order))).

52. The Brake Guard device is an accumulator (Tr. 873; CX 34-Z-6). It does not consist of wheel sensors, electronic signaling mechanisms, an ABS computer and hydraulic modulators, and it does not work in the way factory-installed ABS systems work (BGPI Admissions 10, 12 (per Admissions Order, supra); RX 191-M (depiction of device)). Accumulators are not ABS, because they do not have the capacity to measure wheel speeds, make error determinations, and issue control signals to adjust the brake torques and braking response to actively and automatically control the degree of rotation of wheel slip of one or more of the wheels during the braking maneuver (Tr. 876). Mr. Brinton, BGPI's expert, admitted that Brake Guard cannot measure the rate of rotation of the wheels and cannot compute the difference between the speed of the braked wheel and the free rolling wheel (Tr. 2575), as is needed to compute wheel slip. The

resilient unit in Brake Guard can absorb some pressures but it cannot actually measure, read or comprehend them (Tr. 2575).

53. Accumulators are a part of some ABS systems, but are not ABS themselves. In ABS systems that include accumulators, if the wheel sensors send signals that tell the computer that the wheel is beginning to slip, the computer sends a control signal to the modulator to close an isolation valve that prevents the driver from pushing further fluid from the master cylinder out to the caliper. In addition, the computer issues control signals to the controller to open a dump valve, which allows the brake fluid to be released from the brake line and to be stored in a low-pressure accumulator. When sufficient fluid has been dumped so that the wheel begins to spin again at about 10% slip, the computer signals to the modulator to increase pressure. A high-pressure electrical pump then restores fluid from the accumulator to the brake line, as needed, to increase wheel slip, until slip again reaches about 30%, at which point the cycle begins again. The accumulator in such an ABS system is simply a storage device that supplies fluid to the pump, which in turn supplies the fluid to the brake lines. This is unlike respondents' accumulators, which are plumbed directly into the brake lines to provide a supply of energy for braking force (Tr. 876-80).

54. The Brake Guard device does not have the components necessary to operate as an ABS system, as that term is defined by NHTSA, understood by experts in the field, used in the industry, and understood by consumers (F. 45-53).

4. Testing Antilock Brake Systems

55. To demonstrate that a product controls the degree or level of rotational wheel slip (and thus prevents or substantially reduces wheel lockup, skidding and loss of control), as called for by the NHTSA and SAE definitions, adequate, competent and reliable scientific testing is needed that compares the performance of a vehicle equipped with the purported ABS system, to the performance of the same vehicle not equipped with the system, under controlled conditions, during a variety of driving maneuvers where controllability during braking is at issue. The driving maneuvers should include stops on a variety of road surfaces, such as changing friction surfaces (e.g., where the road changes from dry to slick, or vice versa), split friction surfaces (where one side of the road is high friction and the other side of the road is low friction), a low friction lane change, or a low friction curve maneuver (Tr. 1127-31, 802-12, 1907-08, 2579). Some testing involving curves or turns is important because the lateral force generation capability of a vehicle--that is, its ability to maintain maneuverability during a stop--is an important aspect of wheel slip control (Tr. 806-09, 1907-09). During the testing, sufficient pedal force should be applied so that lockup would occur, but for the operation of the device (Tr. 803-04, 1909-10, see Tr. 1128).

56. Conditions that should be controlled include the condition of the tires and the brakes, the road surface, the velocity at the onset of braking and the brake application (Tr. 804-05, 1129-30). One way to ensure that the tire, brake and road surface conditions are as similar as possible is to run the tests with and without the device on the same vehicle as contemporaneously as possible (Tr. 804-05).

57. Additionally, proper instrumentation to record the parameters of interest is needed, including the velocity of the vehicle at the commencement of the stop, the brake pedal force applied, the line pressures developed in the brake system during the stop (measured, for example, by a brake force transducer), the wheel slip (calculated, for example, from data derived from wheel sensors), and whether the wheel lockup had occurred or was being modulated (Tr. 1129-31, 802-12). A visual display of conditions to ensure that the driver can repeat the pedal force he used in the prior test is also needed (Tr. 810, 1132).

58. Results of an antilock brake test should be adequately documented (Tr. 1287). If a test shows that a braking product shortens stopping distance, that alone does not demonstrate that the product is an antilock brake system, because it does not show that the device eliminates or

Because the kinetic energy of the vehicle is proportional to the square of the velocity, even minor variations in speed can result in significant differences in the distance traveled. Accordingly, the speed that the vehicle is traveling at the point the brakes are applied must be known and carefully controlled. When there are minor variations in speed, the stopping distance may be corrected by following an SAE-approved procedure which requires that the vehicle be equipped with instrumentation, such as a fifth wheel data acquisition system, that captures and records a) the actual speed of the vehicle at the point of braking, and b) the actual distance traveled from the point the brake was applied until the point the vehicle comes to a rest (Tr. 814-19, 1160-66, 1916-18, 2524-29, 2561-64).

61. All other elements of the testing, i.e., the tires, brakes, and road surfaces must be controlled. With regard to brakes, if they are old, they should be checked and replaced if necessary; if they are new, they should be burnished, because burnishing is a good way to standardize brakes (Tr. 1913, 2526). Tests with and without the device should be conducted sufficiently close in time to avoid the possibility of an independent variable causing any apparent difference in results (Tr. 822, 1160-66, 1913-16, 2008, 2525-27).

62. Brake application must also be controlled, because brake pedal apply time and force will affect the stopping distance. Increasing brake pedal force results in a proportionally shorter stopping distance, up to a certain limit. Accordingly, the driver must be provided with a protocol for applying force to the pedal. One appropriate protocol is to tell the driver, under each condition, to use whatever brake pedal force is necessary to bring the vehicle to a stop in the shortest distance possible; such a stop is called a "best efforts" stop. Another type of stop is a "panic stop" where the driver is told to press on the brake pedal as hard as he can and hold it until the vehicle stops. Finally, a driver can be told to conduct a stop at a certain pedal pressure level (such as 100 pounds), in which case he needs instrumentation that measures the brake application force and provides a readout so the driver is aware of the pressure he is applying (Tr. 822, 1160-63, 1910-16, 2008, 2526). A minimum of three stops should be conducted to determine whether the results produced are consistent (Tr. 822).

63. A report regarding stopping distance tests should reflect the recording equipment used, show some evidence that information was taken from recorded data, and demonstrate that appropriate controls were used. It should show what the test protocol was, and what instructions were given to the driver. Comprehensive documentation of results is necessary so that another tester can duplicate the test results (Tr. 1165, 1986-87, 2010, 2530).

64. Reports of consumer experiences do not provide competent and reliable evidence that a device provides comparative stopping distance benefits (Tr. 823-24). Test reports reflecting use of a tape measure to measure stopping distance are not reliable because an onlooker cannot reliably tell at what point the driver first applied the brake, and a driver cannot reliably brake at a predetermined point on the road. Use of a tape measure suggests that: (a) there was no certainty regarding the point at which braking commenced and (b) the tester was not aware of the vehicle's precise speed at entry, and thus was not able to correct for differences in kinetic energy (Tr. 824, 1164-65, 1918, 2530). Even minor errors regarding the point that braking commenced are

significant as a vehicle traveling at 60 miles per hour is moving at 88 feet per second; thus, an error time of as little as a tenth of a second can result in an 8.8 foot error in measured distance (Tr. 1163-64, 1919).

65. Brake engineers can use certain mathematical equations, derived from Newton's laws of physics, to evaluate the accuracy of stopping distance data. The velocity and stopping distance can be used to yield an estimated acceleration/deceleration in feet per second squared, and converted to gravities. This data can then be evaluated in light of the coefficient of friction of the purported test surface. If calculated decelerations are in excess of what can be achieved on the reported road surface, it suggests error in the stopping distance measurement, or the estimated speed, or both (Tr. 1273, 1638-46, 1955-58).

66. Competent and reliable scientific test data, evaluating performance under controlled conditions with proper instrumentation, also is required to demonstrate that a product makes a vehicle safer (Tr. 2531; see Tr. 1287 ("when you get into talking about safety and whether its improved safety or shorter stopping distances, comparative data requires documentation that's without dispute")).

67. A competent and reliable test designed to measure stopping distances and wheel slip control would cost approximately $50,000. (See Tr. 2202, 901.)

6. The Performance Of The Brake Guard Device

a. Evidence Relied Upon By Respondents

68. BGPI relies on a number of test reports to support its claims. They are set forth below, in chronological order. BGPI also relies upon several testimonial letters, discussed after the test data.

1) 1987 Ambulance Testing

69. BGPI relies upon an anonymous, one page report of April, 1987 testing on two ambulances, purporting to show that installation of the Brake Guard device shortened stopping distances by 14% on the first vehicle and 11% on the second (RX 3).

70. RX 3 indicates that the purpose of the testing was to determine average stopping distances. It provides no evidence that the Brake Guard device is an antilock system because the test methodology did not provide for an evaluation of the controllability or maneuverability of the vehicles in situations where wheel slip control is at issue (Tr. 1204-05, 1958-59).

71. RX 3 provides no information about instructions given to the driver on how to apply the brakes; thus, it cannot be determined what kind of stops are being reported, or whether the brake application was controlled (Tr. 1954-55). The road conditions changed during the test (from dry to wet), providing affirmative evidence that the conditions were not properly controlled (Tr. 1953). Finally, there is no evidence that the vehicles were properly instrumented to ensure that velocity was kept constant, that the stopping distances were reliably measured, or that the stopping distances were corrected to accommodate differences between the target speed and the actual speed. Thus, the data contained in RX 3 is not reliable (Tr. 1204-07, 1708, 1954).

72. Mr. Hinch conducted additional calculations on the RX 3 data to confirm his analysis. Application of the formulas discussed above to the data reported in RX 3 reveals that the friction between the tire and the road (that is, the traction coefficient) on the wet "after" surface would be higher than the traction coefficient on the dry "before" surface, a result that is contrary to the laws of physics. Traction coefficients are always higher on dry roads than on wet roads. This information confirms that there was error in the conduct of the test or the reporting of the results (Tr. 1955-58).

2) Gerard Testing

73. BGPI next relies upon RX 232, consisting of a two page letter and one page report from Thomas J. Gerard & Associates, dated September 7, 1990. These documents report on the results of stopping distance tests conducted on a 15-year old pickup truck, and purport to show that during panic stops on dry asphalt from "25 mph ± 2 mph" the stopping distance improved from 46.4 feet without Brake Guard to 38.7 feet with Brake Guard (a 16.5% improvement) (RX 232 (same as RX 190-Z-220)). The report cautions that the results are preliminary, and Mr. Jones admitted that in a subsequent telephone conversation, Mr. Gerard emphasized this point and stated that BGPI should do further testing (RX 232; Tr. 2983).

74. RX 232 contains no data regarding wheel slip control testing, and provides no evidence that the Brake Guard device controls the degree of wheel slip (Tr. 2005-06).

75. RX 232 contains no indication that the tester used appropriate equipment to measure stopping distances. Mr. Jones testified that a tape measure was used for this purpose, thus establishing that the measurements were unreliable. Moreover, there was insufficient control of the vehicle speed. Because distance varies by the square of the speed, the apparently minor variation permitted in entry speed (± 2 mph) could result in a 38% variation in distance traveled, if all other factors were perfectly controlled. Also, there is no indication what instructions were provided to the driver with regard to brake application, or that stopping distances were corrected to account for variations in speed (Tr. 2000-03).

76. Mr. Hinch conducted additional calculations in connection with his review of the Gerard data. These calculations revealed that, given the level of scatter in the data, there was no statistical significance to the apparent differences in the stopping distances without and with Brake Guard, a result due probably to the lack of controls in the test. Thus, the September, 1990 Gerard data does not provide competent and reliable evidence that the Brake Guard device shortens stopping distances (Tr. 2004-06).

3) 1992 Cunningham Testing

77. BGPI relies on March, 1992 testing performed by the Cunningham Engineering firm, offered as RX 188 H-L (typewritten reports) and supplemented as RX 206 A-M (typewritten reports plus handwritten data logs). The original typewritten materials consist of three single page reports of stopping distance tests conducted on a pickup truck, a motor home and a passenger car, plus a summary of these three reports. These documents purport to show that installation of the Brake Guard device shortened stopping distances by 4% on the passenger car, 8% on the pickup truck and 13% on the motor home. The summary report indicates that in each case "skidding stops" were made without the Brake Guard device; that after installation of the device "controlled nonskidding stops" were made; that the distances were measured with a measuring tape; and that "average distances were calculated by summing the selected stopping distances and dividing by the correct number of runs" (RX 188-K). Brake Guard disseminated the typewritten results of the 1992 Cunningham tests in its ads (CX 53-Z-12-14).

78. The 1992 Cunningham reports do not support the wheel slip control claims. The methodology used did not evaluate whether or not the device provided antilock brake system benefits. Moreover, the pickup truck had rear wheel ABS. Had a valid wheel slip control test

is, the "after" stops) were described as "controlled nonskid stops" suggests that two dissimilar stops were being compared to each other and, therefore, that the testing was not properly controlled (Tr. 1938). Thus, the typewritten Cunningham 1992 reports do not provide competent and reliable scientific evidence in support of the wheel slip control or stopping distance claims (Tr. 1951, 1209).

80. Handwritten data logs prepared during the 1992 Cunningham testing reveal that the typewritten reports do not describe various testing errors that render the results unreliable, and that they present the results in a seriously biased manner by consistently omitting unfavorable data generated during the testing:

a). Motor home tests. The data logs indicate that during the before phase of the motor home testing, the driver let up on the brake pedal during one run, thus extending the average before stopping distance. Additionally, one of the longest of the five after stops was not included in the data, thus shortening the average after distance. The data log also shows that the before and after stops were conducted using different braking methods--the before stops were "panic" stops, the after stops (except for the long one excluded from the average) were "best effort" stops (described in the typewritten report as "controlled nonskid stops"). A best effort stop will generally achieve a shorter stopping distance, and BGPI is aware of this (Tr. 2787). Moreover, the test vehicle had one tire that was nearly flat. Thus, the motor home tests were conducted in an unscientific and biased manner. Although he considers all of this data inherently unreliable, Mr. Hinch analyzed it and determined that, because of the large amount of scatter, any apparent difference between the before and after stops was not statistically significant (Tr. 1942-47; compare RX 206-E (same as RX 188-I) with 206-J).

b). The pickup truck tests. The typewritten report of these tests, RX 206-F (same as RX 188-H), does not accurately reflect the information shown on the data log, RX 206-K. The shortest (132 feet) of the before "panic" stops was left out of the average before calculation (reported as 169 feet). Moreover, all of the five runs conducted after Brake Guard was installed on the pickup--some panic stops and some best effort stops--yielded stopping distances that were longer than the before tests (the average of these five stops was 177.1 feet), yet that data is not reflected in the typewritten report. Instead, that report reflects data reported on a second data page, from a second set of five runs, where the method of brake application was not revealed and where the driver for three of the runs was Ed Jones, Jr., the son of BGPI's president and a company employee (Tr. 3000). The original driver did not sign this second data sheet (he had signed the others). Additionally, while the data log, RX 206-K, contains the handwritten note that the driver's last comment was "not much difference," the typewritten summary report, RX 206-C-D, states that the driver's comments were "lots of control" and "dramatic difference." No explanation is provided for why the unfavorable data and comments are left out of the typewritten reports. Analysis of all of the pickup truck data reveals that the stopping distances with and without Brake Guard were almost identical and that there is no

statistically significant difference between them (Tr. 1947-50; compare RX 206-K with RX 206-F).

c). Passenger car tests. The data log for the passenger car tests, RX 206-M, reveals the same pattern. The average of the two before stops, identified as panic stops, was 180 feet. The first and last of the after stops, at distances of 179 (panic stop) and 184.5 feet (method of brake application not indicated), respectively, were not included in the reported average of the after stops. Instead, the typewritten report reflects the average (173 feet) of three shorter stops, where the method of brake application is described as "controlled," a term the author elsewhere used to describe best effort stops (compare the motor home log, RX 206-J, with the motor home report, RX 206-E). If all of the before and after stops are compared, there is no statistically significant difference between the two data sets (Tr.1950; compare RX 206-M with RX 206-G (same as RX 188-J)).

Thus, the handwritten logs reinforce the conclusion that the March, 1992 Cunningham tests do not support BGPI's claims (Tr. 1950-51). They also support the conclusions that the 1992 Cunningham test reports knowingly misrepresented the results of the tests, and that because of Ed Jones, Jr.'s participation in the testing BGPI was aware of this fact.

4) Turkey Testing

81. BGPI relies on a letter reporting results of purported March, 1993 testing in Turkey (RX 230 (same as RX 190-Z-324-327)). The English language letter reporting the results contains eleven lines of text, and states that in road tests with no specified protocol, on an unidentified vehicle, stopping distances were reduced by 12.7, 14.8 and 18.8 % while braking from 50, 70 and 90 km/h, respectively. It states also that during panic braking "at the beginning" there was no locking and that during braking there was no skidding. The accompanying "test report," apparently in Turkish, consists of a cover page containing 8 lines of text and a second page containing 22 lines of text (RX 230). No one from BGPI attended the testing and BGPI is unaware of the circumstances of the test, the equipment used, or the underlying data used to generate the stated conclusions (Tr. 3007-08).

82. This document does not constitute competent and reliable evidence in support of BGPI's claims. There is no evidence to indicate that the test organization used a methodology that would evaluate wheel slip control, that they controlled the test parameters, or that they used appropriate instrumentation to measure ABS performance. Moreover, although the document states that during braking "at the beginning" there was no lockup, it does not say what happened after the beginning. Because the document is so incomplete, it does not constitute competent and reliable evidence in support of the antilock brake system claims (Tr. 1229-30 (re: RX 190-Z-324, which is the same document as RX 230)).

83. Also, these March, 1993 documents from Turkey do not provide evidence in support of the stopping distance claims. There is no evidence that the vehicle was properly instrumented,

that the parameters were controlled, that the stopping distances were reliably measured, or that they were corrected (Tr. 1228-29).

5) Slovenia Testing

84. BGPI also submitted results of testing conducted in Slovenia in October, 1993 (RX 2). The report is in a foreign language, accompanied by an English translation. It purports to show stopping distance improvements of 17 to 35%, and states that in split mu testing, the car "remained in the driving line with no intention to turn right" (RX 2, 2-A).

85. With regard to wheel slip control, the split mu testing was uncontrolled, i.e., it was conducted only with the Brake Guard device engaged. Therefore, there is no way to tell whether lockup was prevented by the device. There is no report of the pedal force used, and the result reported could have been achieved by using a pedal force too low to cause lockup. Furthermore, there is no indication that the test company controlled parameters needed for proper wheel slip control testing. Thus, this report does not provide competent evidence that the Brake Guard device controls wheel slip (Tr. 1984, 1195-97, 1200).

86. With regard to the stopping distance claims, the report does not provide sufficient evidence that the vehicle was appropriately instrumented to measure stopping distance, or that the stopping distances that were measured were corrected to reflect variations from the target speed (Tr. 1201-03, Tr. 1979).

89. BGPI also relies on a report provided by the Cunningham organization in June, 1994. This report purports to reflect the results of testing on two passenger cars equipped with factory antilock braking systems, where stopping distances were measured with a measuring tape and average distances were calculated by summing the "selected" stopping distances. According to the report, stopping distances were shortened 21% on one vehicle, and 14% on the other vehicle, after the Brake Guard device was installed (RX 206-P). A BGPI employee drove the test vehicles, and other BGPI personnel attended the testing (Tr. 3014, 2772-73).

90. This data does not substantiate BGPI's antilock brake claims, because no methodology was used that would actually evaluate whether or not the Brake Guard device provided wheel slip control (Tr. 1209, 1934).

91. The stopping distance data contained in the 1994 Cunningham report is unreliable since a measuring tape was used to measure stopping distances, a methodology that is inherently unreliable. The vehicles' cruise control was apparently used to control for speed, but cruise controls have poor speed control and should not be relied upon for scientific accuracy. In any event, the cruise control on one of the vehicles broke midway through the testing, and after that point there is no indication of how speed was measured. There also is no evidence that the stopping distances were corrected to accommodate differences in the entry speed (Tr. 1207-11, 1929-33; see RX 206-N to -T (same as RX 188 A-F)).

92. Moreover, calculations pursuant to the formula contained in F. 65 reveal a rate of deceleration much higher than the reported road surface (dry asphalt) would permit, confirming that either the speed or stopping distances are in error (Tr. 1635-41).

93. In any case, no credence can be given to this report, since Cunningham previously prepared, for BGPI, test reports that misrepresented the actual results of the testing. See F. 77-80, supra. In the earlier 1992 test reports, Cunningham stated that it had summed "selected" test results to achieve its conclusions (RX 188-K) when it had left out negative data. In the June, 1994 test report, Cunningham used the same expression to describe the treatment of the data, and no raw data were provided for analysis. Therefore, it cannot be assumed that the data omitted was consistent with that which was reported (Tr. 2141). Thus, this report does not substantiate BGPI's claims.

7) Australia Testing

94. BGPI also relies upon a February, 1995 report of testing conducted in Australia (RX 8) which was designed to verify that two test vehicles (passenger cars) complied with the Australian Design Standard when equipped with the Brake Guard device (RX 8-C). The report reflects the speeds, decelerations, and pedal force achieved during a variety of test runs, and concludes that the Brake Guard device "improved the braking performance" of the tested vehicles. It does not state, however, what criteria (improved deceleration levels, or some other factor) were used to measure the "improved" performance, it contains no stopping distance data, and it reflects no testing under SAE J46-type road conditions (see RX 8).

95. RX 8 does not reflect any test methodology that would show whether or not the device provided wheel slip control, and contains no data regarding wheel slip control testing. Thus, it cannot substantiate BGPI's wheel slip control claims (Tr. 1999, 1219).

96. With regard to the stopping distance claims, the cover letter to RX 8 states that the test organization compared the performance of the vehicle fitted with the Brake Guard device to "that of a standard vehicle which we have previously tested." It is not clear when the prior testing was done, and there is no indication of an attempt to compare or control the test conditions (such as the conditions of the road surface). This is not surprising, because compliance testing is simply designed to show that a vehicle meets some minimum standard, and is not calculated to generate valid comparative results. In any case, stopping distances were not even reported. Thus, the February, 1995 data provided in RX 8 does not substantiate BGPI's stopping distance claims (Tr. 1991-99, 1219-22).

8) Brinton Testing

97. BGPI also relies on test data generated by Robert S. Brinton on January 21, 1997, fifteen months after the complaint was issued in this proceeding, and two days before his deposition. The testing consisted of stopping distance tests conducted on a motor home that was hauling a pickup truck. This combination had a weight of approximately 17,000 pounds and a length of approximately 34 feet. The length and weight of this test vehicle far exceeds the average passenger car, which weighs 2,500 to 4,400 pounds, with a length of less than 14 feet (Tr. 2556-57). Larry Jones, formerly a BGPI employee and now a Brake Guard distributor, drove the test vehicle. Four runs were conducted without the Brake Guard device, followed by four runs with it. The test report consists of one page of data, showing the speed at the onset of braking and the stopping distance for each of the eight runs. No two of the stops were conducted at the same speed, and the report does not provide distances corrected to any particular speed (RX 216; Tr. 2556-57, 2571).

98. Even assuming the data were reliable, they would not support BGPI's stopping distance claims, because each run was at a different speed, and the before and after distances cannot be compared to one another. See F. 60. At trial, BGPI stipulated that a comparison of stops 1 and 5, when corrected for differences in speed, would reveal only a one percent change (Tr. 2570) which was not shown to be statistically significant. BGPI has previously asserted that the heavier the vehicle, the more dramatic the effect of the Brake Guard device (Tr. 2866; CX 188-B). Prior testing by Mr. Brinton showed that when Brake Guard was installed on a pickup truck, it did not shorten its stopping distance (Tr. 2541). Thus, there is no certainty that the results of this test (on a motor home hauling a pickup) could be projected to any other vehicle (whether to a motor home alone or to a passenger vehicle).

99. Moreover, the Brinton data does not constitute competent and reliable evidence. Brake pressure was not controlled between the before and after testing, because Larry Jones applied much higher brake pressure during the runs with the Brake Guard device than he did

during the runs without the Brake Guard device (Tr. 2573; RX 239). Because higher pedal force shortens stopping distance, F. 62, this would have biased the results in favor of Brake Guard. Moreover, the equipment that was used to measure speed and distance (known as a Bowmonk) does so by means of an internal motion sensor, and has an error rate of 2% (Tr. 2558-62; RX 210). By contrast, SAE's recommended practice for the conduct of stopping distance tests sets forth that speed and distance should be actually measured (not estimated) by a fifth wheel type device (which attaches to the back of the vehicle and counts wheel revolutions per minute to measure speed and distance) with an error rate of less than .5 % for speed, 1% for distance (Tr. 2558-64). Mr. Brinton's insistence that the Bowmonk is reliable is questionable because he is a distributor of this equipment (Tr. 2552).

100. The data also does not support the antilock brake claims. Mr. Brinton's testing did not evaluate the performance of Brake Guard under SAE J46-type conditions, or measure wheel lockup frequency (Tr. 2566, 2573). Moreover, Mr. Brinton conceded that the Brake Guard device does not control the degree of wheel slip or prevent lockup (Tr. 2574).

9) Testimonial Letters

101. BGPI also relies upon information recounted in testimonial letters that it has solicited from dealers and consumers (Tr. 2711). Although BGPI states that it has sold more than 400,000 systems, a total of only 81 testimonials were admitted into evidence, representing very few of its customers. In any event, consumer satisfaction (or lack thereof) does not provide competent and reliable evidence of stopping distance, wheel slip control and safety claims (F. 58, 64, 66).

102. The complaint against BGPI specifically cites two testimonials that were reprinted on the BGPI promotional circular known as the "Hot Sheet," under the heading "Here's What Brake Guard Customers Are Saying." The first of the reprinted letters, from Alan Smith of Tulsa Enterprises, claims better stopping distances or reduced wheel lockup after installing Brake Guard on three vehicles (BGPI Cplt ¶ 4 (g), Cplt Ex. G p.2). Tulsa Enterprises, however, was a dealer/distributor of the Brake Guard device (Tr. 2970), not an unbiased consumer. This relationship was not disclosed on the Hot Sheet.

103. The second of the reprinted letters is from Mr. Bob DeSaussare. When reprinted in the Hot Sheet, it read as follows:

> Dear Sir:
> * * * * My GMC Motor Home braking has improved both as to feel and ability to stop from any speed far beyond my expectations. Since the installation in mid 1991 I have convinced many of my fellow R.V.ers, mostly GMCs but some others 20' to 36', to install your units and all have found under actual tests that our panic stops require one-third less feet (i.e. 200' instead of 300'). * * *

Cplt Ex. G, p.2 (emphasis added). The original testimonial from Bob DeSaussare, however, stated as follows:

> Dear Sir:
> * * * * My GMC Motor Home braking has improved both as to feel and ability to stop from any speed far beyond my expectations. Since the installation in mid 1991 I have convinced many of my fellow R.V.ers, mostly GMCs but some others 20' to 36', to install your units and all agree that their braking has been dramatically improved. We have found under actual test that our panic stops require one-third less feet (i.e. 200' instead of 300').
> * * *
>
> P.S. Apparently it works fine on my 1983 sedan altho I feel no difference except the wheels do not lock up.

CX 243 (emphasis added). The testimonial reprinted in the Hot Sheet states that many consumers conducted "actual tests" (plural) and achieved a one-third stopping distance reduction, whereas DeSaussare's actual letter reported only a single test, on DeSaussare's own vehicle. Moreover, the Hot Sheet omitted the DeSaussare post-script, which suggested no stopping distance improvement in his passenger car.

104. Thus, the two testimonials reprinted in the Hot Sheet, which were cited in the Complaint, did not accurately represent typical consumer experience with the Brake Guard device.

b. Other Tests Of The Brake Guard Device

105. Several organizations have conducted testing on the Brake Guard device and obtained results contrary to BGPI's claims. Only the NHTSA testing was competent and reliable, and put BGPI on notice that its claims were false. The remaining test data, however, were known to BGPI and put BGPI on notice that its claims were, at best, unsubstantiated and possibly false.

1) NHTSA Investigation and Testing

106. In 1991, NHTSA's VRTC became aware of aftermarket devices advertised as antilock brake systems which would shorten stopping distances. To evaluate the performance of these devices, VRTC conducted tests on an aftermarket braking device supplied by an entity, Marketex, that is not a party to this proceeding. Subsequently, ODI opened a new defects investigation to assess the safety performance of devices sold by BGPI and two other entities (CX-32-K). As part of ODI's investigation, VRTC conducted carefully controlled road testing designed to evaluate the capacity of respondents' devices to prevent wheel lock-up, skidding and loss of control under a variety of road conditions where, in real life, a vehicle without antilock brakes will experience wheel lock-up, resulting in loss of vehicular control (CX-32-Z-21; CX-34). These tests demonstrated that respondents' devices did not prevent lock-up in those

circumstances, that the test vehicle performed no better with the devices turned on than it did when they were turned off, and that the performance of the devices marketed by BGPI and the other entities under investigation was extremely similar. (See generally, CX-34.) By contrast, the nearly identical vehicle equipped with factory-installed ABS and subjected to the same road tests did not experience lockup, and did maintain control. Id. In addition, NHTSA conducted two further stopping distance tests on the Brake Guard device. Each of these tests demonstrated that it did not shorten stopping distances (CX 35, 36). NHTSA concluded that further allocation of resources to its investigation was unlikely to lead to an order to recall the devices and closed the defect investigation. However, because the testing and investigation indicated that the devices did not perform as claimed in advertising, the matter was referred to the Federal Trade Commission (CX-32-G).

2) 1991 Report of Stopping Distance Tests on Device from Marketex

107. In 1991, VRTC contacted Marketex, a company that had advertised Brake Guard, and asked for the device. The device that was provided to VRTC was labeled “Brake Guard,” but was accompanied by literature that said its name had been changed to "AccuBrake" (Tr. 47; CX 35-F, -Z-6). CX 35, discussed below, reports the results of testing on the device identified, for purposes of convenience, as “AccuBrake.” In 1991, after learning that CX 35 contained negative results, BGPI informed VRTC through its attorney that the AccuBrake device was not a genuine Brake Guard device, but an inferior counterfeit (Tr. 46-48). At trial, however, BGPI asserted that the AccuBrake device performed in the same manner as the Brake Guard device and that the CX 35 results applied to Brake Guard (Tr. 1388-89). Subsequent testing demonstrated that the AccuBrake and Brake Guard devices are substantially similar and offer substantially similar stopping distance performance (F. 116).

108. CX 35 reports the results of straight line stopping distance tests, as well as stopping distance tests during a lane change and on a 500-foot radius curve, on a variety of surfaces (CX 35-L; Tr. 1172). The test vehicle was properly instrumented for stopping distance tests, including a fifth wheel performance monitor to provide distance and velocity measurements, and a lockup box designed to permit visual indication of individual wheel lockup (CX 35-H; Tr. 1171-72). Stopping distances were corrected to account for any difference between the target speed and the actual speed (Tr. 1173; CX 35-K). Tests with and without the device were conducted on the same vehicle, a Toyota pickup truck. An adequate number of runs were made, and the parameters of the test were carefully controlled (Tr. 1173-74, 1177; CX 35-S). CX 35 was performed in a competent manner and the results are reliable (Tr. 1177).

109. The AccuBrake device did not reduce stopping distances; indeed, stopping distances were somewhat longer, on average, when it was installed (CX 35-Z-3). In 69 different tests conducted when the vehicle contained no cargo, the average stopping distance without the device was 152 feet, whereas the average stopping distance of the same number of runs with the device installed was 165 feet (CX 35-Z-2; CX 35-S, -T). An additional series of tests was conducted with the vehicle loaded with cargo. Two drivers conducted these tests, with each driver conducting a complete set of tests with and without the device (i.e., each made 66 runs with the

device, 66 without). The first driver's average stopping distance without the device was 172 feet, whereas his average with the device was 181 feet. The second driver's average stopping distance without the device was 161 feet, and his average with the device was 162 feet (CX 35-Z-2; CX 35-Z-19-21). The results of CX 35 provide competent and reliable evidence that the device tested does not shorten stopping distances (Tr. 1177; CX 35-Z-3).

110. The device tested failed to prevent lockup in 26 of 30 panic stop tests (CX 35-S ("full dump" tests), -U). Thus, it did not perform as an antilock device (CX 35-U; Tr. 1132, 813). Indeed, in some instances rear wheel lockup occurred with the device engaged, where it had not occurred with the device disengaged (CX 35-U).

3) 1991 Report of Stopping Distance Tests on the Brake Guard Device

111. After being informed by BGPI's attorney that the AccuBrake tests were not applicable to the Brake Guard device, the NHTSA investigator asked him to supply some for testing on the same vehicle as the CX 35 testing, a pickup truck. BGPI's attorney responded by sending a set of devices that he identified as "genuine Brake Guard products" (CX 32-E, K; Tr. 47-48).

112. CX 36 reports on the results of these follow-up stopping distance tests conducted on the Brake Guard device. These tests used the same test vehicle, instrumentation and protocol as the CX 35 testing (CX 36-I (including photo of test vehicle with fifth wheel attached to rear, and referring to CX 35 instrumentation, which included a fifth wheel), CX 35-H; Tr. 1171). The instrumentation was appropriate, the test parameters were carefully controlled, and the stopping distances were corrected (Tr. 895-97, 1167).

113. Stopping distance tests were conducted under ten different configurations, including five sets where the vehicle contained no cargo, and five sets where the vehicle was loaded to its maximum weight. Within each loading category, tests included 3 sets of best efforts stops at various speeds and on various surfaces, and 2 sets of "spike" (panic) stops at two speeds on two surfaces. A sufficient number of runs were made under each condition (during the best efforts stops, six runs were made for each of the dry concrete stops, and three runs on the wet asphalt stops; during the spike or panic stops, three runs were made on each condition) to ensure reliable results (Tr. 896).

114. Stopping distances increased after installation of the Brake Guard device in 9 of the 10 configurations. In the last configuration, stopping distance decreased by about 1%. On average, stopping distances increased when the Brake Guard device was installed by 6.2 % in the lightly loaded configurations, and by 1.3% in the maximum load configurations (CX 36-S, -T; Tr. 897). Thus, the Brake Guard device did not shorten stopping distances (CX 36-V).

115. During each of the panic stop tests, for all configurations, both without and with the Brake Guard device, all four wheels locked. Thus, the Brake Guard device did not prevent wheel lockup in these tests. Indeed, during one configuration of testing (maximum load 50 mph panic

stops) the consequences of lockup were exacerbated after installing Brake Guard. During these tests, when the Brake Guard device was disengaged, the front wheels locked first, permitting the vehicle to stop within the designated lane. When the Brake Guard device was installed, the vehicle's rear wheels locked first, causing the vehicle to swerve and leave the designated lane (CX 36-T, -V).

116. The testing reported in CX 36 was competent and reliable (Tr. 1166-70, 900). It demonstrates that the Brake Guard device does not shorten stopping distances, and that it does not shorten stopping distances by up to 20% or by 20 to 30% (Tr. 1170). This testing also demonstrated that the internal design of the AccuBrake and Brake Guard devices was essentially identical, and that the Brake Guard device's performance was not significantly different from that of the AccuBrake device (CX 36-V).

4) 1993 Report of Wheel Slip Control Testing

117. CX 34 reports the results of another set of VRTC tests performed in 1992 and 1993

fact that the tests demonstrated that the two vehicles performed in the same manner when the after-market devices and factory-installed ABS were disengaged supports the conclusion that the differing rear brakes did not substantively affect the results. (See F. 126-129.)

122. The test protocol included test maneuvers set forth in SAE J46, including the lane change test, a changing friction surface test, and a split friction surface test (Tr. 827). The test was based upon SAE J46, because it is a test procedure that is widely recognized throughout the automotive testing industry as appropriate for evaluating whether or not a device controls wheel slip (Tr. 829-30; see CX 39). In addition, the vehicles were tested on a five hundred-foot radius curve surface which evaluated the ability of a vehicle to come to a stop on a wet curve, without leaving the road and without hitting a barrier in front of it (Tr. 855).

123. The same driver was used for all tests. The surfaces where the tests were conducted were used exclusively for vehicle tests and regularly checked for friction levels. On the surfaces that are used wet, the facility uses a water truck to keep it uniformly wet. Application of brakes was controlled by instructing the driver to apply the same level of pedal force (112 pounds) during each driving maneuver, an appropriate level of pedal force (Tr. 833-41, 845; CX 34-H).

in the test by cones in the road) approximately 90 feet ahead, applies the brakes with 112 lbs. of pedal force, and attempts to switch to an adjacent lane and stop before hitting a second vehicle somewhat further ahead (CX 34-L, -M; Tr. 846-48). This test procedure is one of the primary procedures within SAE J46 and is conducted so frequently that there is a permanently marked course for it at the VRTC test facility (Tr. 847). The aftermarket test vehicle failed to negotiate successfully the course regardless of whether the BG I or BG II was engaged or disengaged. In every attempt, when the brakes were applied all four wheels locked and the driver lost control of the vehicle, hitting the cones in the first lane and traveling uncontrolled until gradually coming to rest off the road (CX 34-S -U; Tr. 851-53, 1140). The results of the tests on the OEM vehicle when the factory-installed ABS was disengaged were the same (CX 34-S, -U, -Z-14; Tr. 850-53, 1139-40). By contrast, when the factory ABS was engaged on the OEM vehicle, the road wheels were observed to slow down and spin back up, avoiding lock up, so that the driver was able, on every attempt, to avoid the obstacle in lane 1 by steering into lane 2, and bringing the vehicle to a controlled stop well short of the obstacle in lane 2 (CX 34-S, Z-14; Tr. 853, 1139).

127. The second test, the low friction surface curve test, simulates a situation on a wet two lane curve, where the driver proceeding at 35 mph encounters a vehicle stopped ahead of him, but cannot change lanes because of obstacles in the second lane. He must apply 112 lbs. of pedal force and attempt to stop before striking the vehicle ahead of him, without leaving the road (CX 34-N). Although not a part of SAE J46, this procedure is utilized so frequently that a course for conducting the test is permanently marked at the VRTC test facility (Tr. 854). On each occasion when equipped with the BG I or BG II devices, whether the devices were engaged or disengaged, the test vehicle experienced four wheel lockup, and the driver lost control of the vehicle which proceeded along in a straight line, leaving the curved road (Tr. 857-58; CX 34-U-W, -Z-19; Tr. 1140-41). Had there been obstacles off the road, such as trees, the vehicle would have struck them (Tr. 857). Similarly, when the OEM vehicle's ABS was disengaged, it experienced four wheel lockup, leaving the road (Tr. 856; CX 34-U-W, Z-19). When the factory-installed ABS was engaged, however, lockup was avoided and the driver was able to steer safely around the course, coming to a stop prior to colliding with the obstacle placed in the road (Tr. 856-57, 1141; CX 34-V-W, -Z-19).

128. The third test, the changing-friction surface test, requires a vehicle to brake while experiencing a large change in surface friction, simulating the experience of a driver traveling on a wet highway at 40 mph who hits the brakes with 112 lbs. of pedal force and then encounters a patch of ice (CX 34-O, -P). This test procedure is described in SAE J46 and there is a preexisting test surface for such tests at the VRTC facility (Tr. 860). CX 34, the report of the VRTC testing, contains graphs depicting the history of wheel slip during the changing friction surface test, based upon data obtained from the instrumentation installed in the vehicles (Tr. 863). The graphs show that whether the BG I or II was engaged or disengaged, as the front and rear axles proceeded onto the very low friction surface, the wheels proceeded almost immediately to 100% wheel slip, where they remained throughout the remainder of the maneuver (CX 34-W, CX 34-Z-27-29; Tr. 865-66). When the factory-installed ABS was disengaged, the OEM vehicle's performance mimicked that of the aftermarket test vehicle (CX 34-Z-34). When its ABS was engaged, the graphs show that as the wheels transitioned onto the very low friction patch, the wheels

commenced toward lockup. As the OEM ABS system detected the lockup, however, it adjusted the level of braking downward, and allowed the wheels to spin again. A controlled, optimal level of braking was established at each wheel, and slippage was held to between 10 and 20% throughout the remainder of the maneuver. On graphs appended to the test report, short duration spikes at approximately one-half second intervals show the ABS system continually assessing wheel speed and adjusting braking action as appropriate (Tr. 864; CX 34-X; CX 34-Z-2; Tr. 1142-43).

129. The fourth test was a split-friction surface test, also recommended in SAE J46 and also conducted on a track permanently dedicated for such testing at VRTC. In this test, a twelve-foot lane is marked so that the wheels on one side of a vehicle will be on a surface similar to a wet highway, and the other side's wheels will be on a surface similar to an ice-covered highway. The driver was instructed to approach the course at 40 mph, apply 112 lbs. of brake pedal force, and try to steer a straight path. In such a test, if wheel slippage is not controlled, the subsequent loss of steering control generally will cause the vehicle to spin toward the higher friction surface (CX 34-Q, -R). VRTC believes, however, that the pedal force applied in this test was not fully adequate, because even when the OEM vehicle's ABS was disengaged, spin out did not always occur. Spin was kept to 10° or less when the OEM ABS was engaged. When the BG I device was disengaged, the test vehicle spun from 20° to 150°. When this same device was engaged, spin was kept to 10°

132. The testing on the aftermarket vehicle reported in CX 34 demonstrates that the Brake Guard device does not prevent or substantially reduce wheel lockup, skidding, and loss of control. In that testing, there was no indication that the device had any capacity to control the degree of wheel slip (Tr. 881, 1151).

133. The testing reported in CX 34 demonstrates that respondents' device provides no wheel lockup control benefits (Tr. 881). By contrast, the factory-installed system tested in CX 34 demonstrated effective wheel lockup control (CX 34-Z-7; Tr. 104).

5) 1993 Report of Stopping Distance Testing

134. After the conclusion of the Wheel Slip controls tests on the aftermarket vehicle, while it was still equipped with the BG II device, VRTC conducted stopping distance tests on that vehicle. Qualitative comparison testing was performed on the OEM vehicle (Tr. 885-86).

135. Conditions of the testing were controlled. A controlled calibrated surface was employed for testing. The vehicles had only recently been equipped with new tires and brakes and both vehicles had undergone a similar brake burnish and the same test experiences. The protocol was for the driver to conduct five stops with the device engaged, then five stops with the device disengaged, then to switch to the second vehicle and repeat the procedure. This procedure was followed over a few days until each vehicle had accumulated a total of 70 stops (35 engaged, 35 disengaged). This procedure ensured that tire, brake and road conditions remained controlled (Tr. 885-89, 892; CX 33-L, M; Tr. 1162).

136. The vehicles were instrumented appropriately for stopping distance testing, including fifth wheel performance monitors to measure vehicle speed and distance, and performance monitors to provide the test driver with a visual readout of conditions (Tr. 886-88, 892, 1161). Stopping distances were corrected to accommodate differences between target speed and actual speed (CX 33-L).

137. With regard to pedal application, the driver was instructed to conduct best effort stops (CX 33-L). This was a reliable procedure (Tr. 892).

138. CX 33 reports the results of this testing, and includes analysis of the standard deviation of the data. The data establish that the Brake Guard device did not shorten the stopping distance of the vehicle; whether engaged or disengaged, the minimum stopping distance of the vehicle remained the same (170 feet). Moreover, the average and maximum stopping distances of the vehicle were longer when the Brake Guard device was engaged. The installation of the Brake Guard device increased the standard deviation of the test sample, meaning that the driver was less able to keep the stopping distances consistent when it was installed (CX 33-N; Tr. 891).

139. Testing on the OEM vehicle was designed to see what effect each device (aftermarket device or OEM ABS) had on the vehicle being tested, and to provide a protocol, the results of which could easily be understood by a non-technical person. It was not to provide a

head-to-head comparison of the stopping distances of the two vehicles. This aspect of the testing showed that engaging the OEM ABS shortened the vehicle's minimum, maximum and average stopping distances by 13% (CX 33-N, M; Tr. 902).

140. The results of this testing were consistent with the results of CX 36 (Tr. 893-94).

6) Southwest Research Testing

141. In 1992, BGPI hoped to obtain test results that demonstrated (a) that a vehicle equipped with Brake Guard complied with the Department of Transportation's Federal Motor Vehicle Safety Standards (F.M.V.S.S.), which contain minimum stopping distance standards (see CX 56-O), and (b) that the Brake Guard device provided shorter stopping distances. Toward this end, it hired an independent test company, Southwest Research Institute (SWRI), to conduct testing of the Brake Guard device (Tr. 2775). SWRI prepared a proposal outlining the test procedure, which among other things provided for repeated burnishing of the brakes during testing, and which BGPI approved (CX 55; Tr. 2167, 2775). The test report (CX 56) is dated September, 1992.

142. The test protocol called for testing on three vehicles, including a pre-inspection for vehicle safety and brake condition; installation of instrumentation and a data recorder; burnishing brakes between each major series of test stops; measuring stopping distances without and then with Brake Guard device installed from 30 and 60 mph under both lightly loaded and fully loaded conditions (e.g., without and with cargo); and removal of Brake Guard and repeat testing to verify test reproducibility (referred to as step 5 reverification tests) (CX 55; CX 56-K, L). The testing was conducted on a four door passenger car, a single unit truck, and a 15-passenger van (CX 56-I).

143. The vehicle instrumentation included a data acquisition system, fifth wheels (to permit accurate measurement of speed at the point of brake application and of stopping distances), brake pedal pressure transducers (to permit control of the brake application force) and decelerometers (to permit the driver to determine what amount of deceleration could be permitted before wheel lockup would occur). Lockup was determined by external observation and was taped with a video camera (Tr. 2170-80; CX 56-I-J). Burnishing was consistent with F.M.V.S.S. requirements (Tr. 2178-79). Stopping distances were corrected pursuant to an SAE formula (Tr. 2184-86; CX 56-P). The test protocol provided for best efforts stops. For each vehicle, stops were conducted in both the lightly loaded condition, known as "LVWR," and when loaded to its gross vehicle weight rating, known as "GVWR" (CX 56-O).

144. In these tests, stopping distances were observed to decrease as the number of severe stops accumulated, and the reverification stops (that is, the stops after Brake Guard was removed) were always shorter than any of the stops that came previously (CX 56-P; Tr. 2188). For vehicle 1, the average of the lowest 3 stops (hereinafter "low 3" average) during step 5 (these are the reverification stops, at LVWR) are each lower than the same average for the step 2 stops (with Brake Guard, at LVWR). Similarly, for vehicles 2 and 3, the averages for the step 5 stops

(reverification stops at GVWR) are all lower than the step 4 stops (with Brake Guard at GVWR) (CX 56-Q). SWRI observed that this was normal during stopping distance testing and is not considered to be related to the presence or absence of the Brake Guard device (CX 56-P). F.M.V.S.S. stopping distance requirements anticipate that stops after the brakes are burnished will be shorter than stops before burnish. (See CX 46-P (chart; compare, e.g., pre- and post-burnish requirements for cars, trucks and vans).)

145. SWRI compared various sets of stops. It determined that if one compared only the stops before Brake Guard installation to the stops after Brake Guard installation, at the same vehicle weight, stops with Brake Guard were shorter in 10 of 12 comparisons. By contrast, if stops with Brake Guard were compared to reverification stops at the same vehicle weight, that is, the stops after removal of Brake Guard, the Brake Guard stops were longer in 5 out of 6 cases (i.e., the same frequency) (CX 56-R).

146. Considering this data, SWRI determined that it could not state that the differences in stopping distances were due to the Brake Guard device, or simply to the position of each stop in the test sequence (CX 56-R; Tr. 2188-89). Moreover, stopping differences ranged from 10.9 percent longer to 15.6 percent shorter with the Brake Guard device. Even assuming the Brake Guard device did cause the observed shortening of stops, the net improvement was less than 3% over all, which SWRI concluded was not meaningful. SWRI did not conduct a statistical analysis of this data (CX 56-H, -R; Tr. 2193); thus, it is not established that the 3% difference was statistically significant.

147. The SWRI testing showed that with Brake Guard, wheel lockup occurred 27.6% of the time, whereas without Brake Guard, it occurred 7.7% of the time (CX 56-R). The Brake Guard device neither prevented nor decreased lockup incidence, but instead increased it (CX 56-R; Tr. 2194). SWRI concluded that the increased incidence of wheel lockup with Brake Guard installed demonstrated a real difference in braking controllability in the car and the truck (CX 4-R).

7) Canadian Testing

148. BGPI was also aware of, and had seen, the adverse results of 1992 testing by Transport Canada (Canada's equivalent to the U.S. Department of Transportation) on the Brake Guard device. (See CX 54-B; Tr. 2778-81.) Transport Canada was concerned with advertising claims by BGPI, and sought to evaluate whether the device shortened stopping distances or reduced wheel lockup frequency. Accordingly, it equipped a pickup truck with the Brake Guard device so that it could be engaged and disengaged, instrumented the vehicle with a performance computer, and conducted two types of stopping distance tests--panic stops and best effort stops (CX 54-G). The pickup truck was equipped with OEM ABS on the rear axle only (CX 54-F).

149. Graphs plotting the slopes of the results of the stopping distance versus speed data consistently demonstrated that the stopping distances with Brake Guard operating were longer than the stopping distances without Brake Guard (CX 54-M-Q). In particular, a comparison of 9

cases where the speed of the vehicles was quite similar (± .1 mph) showed that braking distance was increased by 7.3% with the Brake Guard device installed (CX 54-Q, R, -Z-5) and Transport Canada concluded that the Brake Guard device did not shorten stopping distances (CX 54-R).

150. Transport Canada also observed that during the braking tests, whether the Brake Guard device was engaged or disengaged, the front wheels (which were not equipped with OEM ABS) locked up every time the brakes were rapidly applied. Transport Canada concluded that the Brake Guard device did not prevent wheel lockup and could not be considered an antilock device (CX 54-Q, R).

151. No expert testimony was available with regard to this test, and its reliability is not established. BGPI ignored the results of this test, although it did not offer any testimony to critique the test protocol or conclusions (Tr. 2778-80).

8) Korea Testing

152. BGPI also was aware of a 1991 report of testing conducted in Korea, which it relied on and marked as an exhibit, but ultimately did not introduce into evidence (RX-4; Tr. 2984). This testing indicated that during wet asphalt testing, at 50, 60, 70 and 80 km/h, whether the Brake Guard device was turned on or off, complete four-wheel lockup occurred (Tr. 2986-88). This same testing indicated that installing the Brake Guard device did not shorten stopping distances (Tr. 2990-91).

III. CONCLUSIONS OF LAW

A. Respondents Made The Alleged Claims

Through the use of their trade names and logos, and their ads and promotions, respondents made the claims alleged in the complaint (F. 16-24).

Each of the ads described in the findings make the challenged claims expressly (see, e.g., F. 18), or convey their meaning so clearly that I can confidently find that they make one or more of the claims alleged in the complaint (see, e.g., F. 24). See Kraft, Inc., 114 F.T.C. 40, 121 (1991), aff'd, 970 F.2d 311 (7th Cir. 1992), cert. denied, 507 U.S. 909 (1993).

B. The Level Of Substantiation Required To Support Respondents' Claims

An ad is likely to mislead if the message it conveys is false, or if claims which are made are unsubstantiated, and advertisers must possess a reasonable basis for substantiation of claims which are made. Respondents' ads do not, with two exceptions,[2] reveal the level of support which they had for their claims. Thus, one must consider, for these claims, the six "Pfizer factors" which determine the type and amount of substantiation respondents should have possessed when they were made. Thompson Medical Co., 104 F.T.C. at 648, 820-21.

These factors include the type of claim, the product involved, the consequences of a false claim, the benefits of a truthful claim, the cost of developing substantiation for the claim, and the amount of substantiation which experts in the field believe is reasonable. Thompson Medical, 104 F.T.C. at 821; Pfizer, Inc., 81 F.T.C. 23, 64 (1972).

Where, as here, a product and its ads involve health or safety, the Commission requires a relatively high level of substantiation for such claims--usually scientific tests. Thompson Medical, 104 F.T.C. at 822.

The benefits of a truthful claim are obvious and the costs of reliable testing to support ad claims are not excessive (F. 67). Requiring such testing would not, therefore, deter the development or advertising of a new brake device.

The consequences of false claims are significant, for respondents' devices sell for $283 to $349 per system (F. 5), and there is a possibility of significant injury to consumers who rely on the Brake Guard device to shorten stopping distance or avoid brake lockup.

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[2]As to these claims which stated that tests proved the wheel lockup prevention and stopping distance claims (CPF 57), respondents must, as a matter of law, possess adequate tests to substantiate them. Thompson Medical Co., 104 F.T.C. 648, 821 (1984), aff'd, 791 F.2d 189 (D.C. Cir. 1986), cert. denied, 479 U.S. 1086 (1984).

Finally, experts in the field agree that claims of the sort made by Brake Guard require competent and reliable scientific testing (F. 55, 60, 66).

Consideration of the facts of this case under the Pfizer decision leads to the conclusion that the proper level of substantiation for claims that the Brake Guard device is an antilock brake system and complies with the NHTSA ABS definition, for the braking benefits and stopping distance claims, and for the comparative safety claims, is competent and reliable scientific testing. See Thompson Medical, 104 F.T.C. at 826; Firestone Tire & Rubber Co., 81 F.T.C. 398, 463 (1972), aff'd, 481 F.2d 246 (6th Cir.), cert. denied, 414 U.S. 1112 (1973).

C. Respondents' Claims Are False And Unsubstantiated

1. ABS and Related Claims

The Brake Guard systems advertised and promoted by respondents are not antilock brake systems since they do not have the components needed to control the level or degree of rotational wheel slip (compare F. 51 with F. 52-54). Competent and reliable wheel slip testing conducted by VRTC on the Brake Guard device confirms this conclusion (F. 131) as do stopping distance tests showing lockup during hard stops (F. 115). Respondents have submitted no competent and reliable evidence that supports their claim that the Brake Guard device controls wheel slip (F. 68-100). In fact, their own expert testified that the Brake Guard device does not control the degree of wheel slip (Tr. 2574). Thus, the claims that it is an antilock brake system and complies with the NHTSA ABS definition (Cplt ¶ ¶ 5 and 7 d) are false and unsubstantiated.

The results of the testing set forth in CX 34 demonstrate that respondents' device does not prevent or substantially reduce wheel lockup, skidding, or loss of steering control (F. 132). This conclusion is confirmed by the results of CX 36, which showed that wheel lockup was not prevented by the Brake Guard device (F. 115). Respondents have submitted no competent and reliable evidence to support this claim (F. 68-101). Their own expert witness testified that the Brake Guard device does not prevent wheel lockup (Tr. 2574). Thus, the claim that the Brake Guard device prevents or substantially reduces wheel lockup, skidding and loss of steering control in emergency stopping situations (Cplt ¶ 7 a) is false and unsubstantiated.

CX 34 provides substantial evidence that factory-installed antilock brake systems do provide meaningful wheel lockup control (F. 133). Since respondents' devices do not provide antilock brake system benefits, including wheel lockup control benefits, that are at least equivalent to those provided by OEM ABS, the claim that the Brake Guard device does provide those benefits (Cplt ¶ 7 f), is false and unsubstantiated.

SAE J46 does not contain any performance standards or goals to be met in order to pass (Tr. 1136-37, 2582). Thus, a claim that a product complies with a performance standard set forth in SAE J46 is false (Tr. 1136-37). Moreover, as of 1992 (at least three years after it first started disseminating the SAE J46 claim, see CX 104 and CX 105, each of which bears a 1990 copyright) BGPI admitted that it had never conducted any testing pursuant to SAE J46 on the Brake Guard

device, CX 32-U, and BGPI performed no such testing after that date (F. 68-100). When tested by NHTSA pursuant to a protocol consistent with SAE J46, respondents' device did not perform as antilock brakes (CX 34). Accordingly, the claim that the Brake Guard device complies with a performance standard set forth in Wheel Slip Brake Control System Road Test Code SAE J46 (Cplt ¶ 7 c) is false and unsubstantiated.

2. Insurance Discount Claim

Respondents' claim that installation of the Brake Guard device will qualify a vehicle for an automobile insurance discount in a significant proportion of cases, (Cplt ¶ 7 b), is false and unsubstantiated. Partial Summary Decision (Insurance Discounts), Oct. 13, 1996.

3. Stopping Distance Claims

The complaint alleges that respondents' specific improved stopping distance claims (20% to 30%, or up to 30%) are both false and unsubstantiated, and that their general improved stopping distance claims are unsubstantiated (Cplt ¶ 7 e, 9 a). The evidence establishes that both the general and specific stopping distance representations are false, as well as unsubstantiated. Competent and reliable testing performed by VRTC on two separate occasions on the Brake Guard device, and on a substantially similar device (the AccuBrake), consistently demonstrated that no stopping distance enhancement results from installation of the Brake Guard device. Indeed, this evidence shows that the Brake Guard (like the AccuBrake) increases the average stopping distance of a vehicle (F. 109, 114, 138).

The tests introduced by respondents to substantiate these claims are not competent and reliable (F. 68-100), and statistical analysis of respondent's data is consistent with the conclusion that the Brake Guard device provides no stopping distance enhancement (F. 76, 80). SWRI was unable to reach the conclusion that its stopping distance data supported this claim (F. 146). It further concluded that, if a stopping distance enhancement occurred, it was insignificant. Thus, SWRI's data could not substantiate any improved stopping distance claim. Guides for Use of Environmental Marketing Claims, 16 C.F.R. § 260.6 and Example 2 (deceptive to claim environmental benefit where benefit is in fact not significant or meaningful); P. Lorrillard Co. v. FTC, 186 F.2d 52, 57 (4th Cir. 1950) (advertising claiming that cigarette was lowest in nicotine, tar and resins challenged in part because the difference was, in fact, insignificant); see Enforcement Policy Statement on Food Advertising, 59 Fed. Reg 28388 (June 1, 1994)(cautioning against claims that deceptively imply a significant difference). The conclusion that Brake Guard provides no stopping distance improvement is consistent with the conclusions of other testing, although that testing has not been shown to be reliable (i.e., that of Transport Canada, F. 149, and that conducted in Korea, F. 152). Accordingly, respondents' specific and general stopping distance improvement claims (Cplt ¶¶ 7 e, 9 a) are both false and unsubstantiated.

4. Testimonial Typicality Claim

The testimonials included in respondents' advertising conveyed the impression that reduced stopping distances and reduced wheel lockup were typically experienced by consumers. (See F. 101-102.) Competent and reliable testing conducted by VRTC demonstrates that these

installing an antilock brake system like Brake Guard would make the vehicle safer. (E.g., CX 104-106, CX 112, CX 113, CX 125, CX 136, CX 223, CX 228.) The SAE J46 and NHTSA ABS claims served to reinforce the impression that the device was an antilock brake system, and thus drove home this "safety" message.

Finally, claims regarding cost are presumed material. Deception Statement, 103 F.T.C. at 182. The insurance discount availability claim made by respondents pertained to the overall cost of using the Brake Guard device, and hence it was material. In sum, all of the claims alleged in the complaint are material.

E. Analysis Of Respondents' Defenses

Although their arguments do not adequately cite the record or authorities upon which they rely, Rules of Practice, § 3.46(a), I will deal with respondents' defenses.

1. This Proceeding Is In The Public Interest

Respondents have had few complaints about the Brake Guard device, but this is not surprising since consumers cannot evaluate its effectiveness (F. 58, 64). Furthermore, the public interest is served by prohibiting respondents from advertising and selling an expensive device which does not operate as claimed. See Automotive Breakthrough Sciences, Inc., D. 9275 at 46 (Initial Decision, March 3, 1997).

2. Respondents Made The Alleged Claims

I reject respondents' argument that they did not make the alleged claims, for my Partial Summary Decision (Ad Meaning) analyzed in detail respondents' ads and promotional material before finding that the claims alleged in the complaint were made.

3. Respondents' Claims Are False And Unsubstantiated

Respondents point to extensive testing they have conducted which supports the claims they have made, but complaint counsel have established beyond any doubt that all of the testing submitted by respondents, including those done in foreign countries, were flawed and do not substantiate the claims (F. 69-100). The Brake Guard device is patented but this does not mean that it operates as claimed. See Thompson Medical Co., 104 F.T.C. 648, 750 (Initial Decision), aff'd as modified, 104 F.T.C. 786, 788 (1984), aff'd, 791 F.2d 189 (D.C. Cir. 1986), cert. denied, 479 U.S. 1086 (1987).

4. NHTSA Testing Is Competent And Reliable

Respondents criticize NHTSA's testing of the Brake Guard device, but cite no record evidence supporting this argument. In contrast, complaint counsel have cited detailed documentary evidence and testimony which justify the conclusion that NHTSA's stopping

[3]See BST Enters., Inc., D. 9276 (Default Judgment and Initial Decision, Oct. 16, 1996); Automotive Breakthrough Sciences, Inc., D. 9275 (Initial Decision, Mar. 3, 1997).

the Korea test, which indicated on its face that in stopping distance tests on a wet surface, the Brake Guard device did not shorten stopping distances or prevent wheel lockup (F. 152), and NHTSA's 1991 report of its initial tests of the Brake Guard device, which concluded that it did not shorten stopping distances (F. 114).

In 1992, respondents sought additional test evidence. They selected a local engineering firm, Cunningham Engineers, and sent Ed Jones, Jr., a BGPI employee and the BGPI president's son, to attend the tests. In initial testing, with "panic stops" before and after the installation of Brake Guard, no stopping distance improvement occurred. Faced with this result, BGPI apparently attempted to manipulate the test. Some of the subsequent Brake Guard test runs utilized "best effort" stops, which respondents knew would produce shorter stops than "panic stops." Even then, all of the Brake Guard stops in the test came out longer than the non-Brake Guard stops. At that point, Ed Jones, Jr. got in the vehicle and did the driving himself, ensuring a set of data to show shorter stopping distances after installing Brake Guard (F. 77-80). Thereafter, although Ed Jones Sr. admitted that these tests failed to reach "any real conclusion that means anything," (Tr. 3005-06), the test results were disseminated by BGPI as advertising (CX 53-Z-12-14).

Later in 1992, respondents attempted to secure more reputable substantiation in support of their claims by hiring SWRI. Although SWRI's results failed to show any stopping distance improvement attributable to the Brake Guard device, respondents disseminated advertising stating that the SWRI results proved that it met the stopping distance requirements of FMVSS 105 (CX 235), and even disseminated as advertising the specific pages of the SWRI test where it made this conclusion (CX 53-Z-26-28).

Thus, I conclude that faced with substantial credible evidence that its product did not reduce wheel lockup frequency, and indeed may increase it, and that in carefully controlled testing a reputable entity had been unable to demonstrate reduced stopping instances, respondents chose to ignore these facts. In 1993, respondents continued to disseminate ads proclaiming shorter stopping distances and reduction in wheel lockup from installation of the Brake Guard device. (See, e.g., CX 240.)

When Transport Canada's results turned out adversely, respondents took a similar approach: They dismissed them because a BGPI employee had been rude to the Canadian test company (Tr. 2778). On another occasion, the company stated that the Canadian test was flawed because the vehicle tested had a faulty master cylinder (Tr. 2815). No evidence of this "flaw" was introduced into the record.

Respondents have offered no credible reason for dismissing the results of NHTSA's 1993 wheel slip and stopping distance tests. Indeed, their own expert acknowledged that the 1993 NHTSA wheel slip test report (CX 34) is competent and reliable (Tr. 2577) and neither their expert nor any other witness offered any criticism of the 1993 NHTSA stopping distance test report (CX 33). Nevertheless, respondents continued, long after the 1993 publication of these

reports, and after they were clearly aware of the results of NHTSA's investigation,[4] to disseminate ads making claims disproved by those tests (CX 188).

Thus, I conclude that respondents' violations were knowing and deliberate and that they continued to make them in the face of convincing evidence that the claims were false, see Thompson Medical, 104 F.T.C. at 834; Kraft, Inc., 114 F.T.C. at 140; FTC v. Figgie Int'l, Inc., 994 F.2d 595, 604 (9th Cir. 1993), cert. denied, 510 U.S. 1110 (1994); furthermore, I conclude that respondents are likely to repeat the violations, and that the proposed fencing-in relief is warranted. See Litton Indus., Inc., 97 F.T.C. 1, 79 (1981), aff'd as modified, 676 F.2d 364 (9th Cir. 1982).

3. The Stopping Distance Claims Should Be Barred

The complaint in this proceeding alleged that respondents' general stopping distance claims were unsubstantiated, but did not allege falsity. The notice order required that respondents have competent and reliable scientific evidence before making any future general stopping distance claims. However, substantial evidence adduced at trial supports the conclusion that the claims are false as well as unsubstantiated. Two competent and reliable stopping distance tests conducted by NHTSA on the Brake Guard device, and a competent and reliable test on a substantially similar device, establish that it will not provide shorter stopping distances (F. 114, 109, 138). The NHTSA results are consistent with other adverse data known to BGPI (F. 145, 149, 152), and even the testing offered by respondents' expert witness failed to support respondents' claims (F. 98). None of the evidence respondents presented to support their stopping distance claims meets the most basic standards of competent and reliable substantiation. Thus, a bar on stopping distance improvement claims for this or any substantially similar device is the most appropriate means of protecting consumers from future deception. See Stouffer, 1994 FTC LEXIS 196.

[4]Respondents were aware of the results of NHTSA's investigation as late as July 21, 1994. On that date, a distributor/dealer faxed BGPI a copy of NHTSA's report (CX 32), which contained the results reported in CX 33 and CX 34. See RX 205.

4. Reseller And Consumer Notification Is Appropriate

The proposed reseller and consumer notification provisions are identical to those ordered against the two other sets of respondents in Dockets 9275 and 9276. These provisions are designed to alert distributors and end purchasers that they should not expect the device to provide the ABS benefits and stopping distance enhancements promised by respondents' advertising. These notifications will help eliminate further deception by inducing distributors to stop using the deceptive sales materials already in their possession and will mitigate continuing injury to purchasers who were deceived by respondents' past advertising. Removatron, 111 F.T.C. 206, 311 (1988) (notification of device operators); Figgie Int'l, Inc., 107 F.T.C. 313, 395 (1986), aff'd, 817 F.2d 102 (4th Cir. 1987) (respondent ordered to notify past purchasers of safety concerns); Southwest Sunsites, Inc., 105 F.T.C. 7, 176-78 (1985), aff'd, 785 F.2d 1431 (9th Cir.), cert. denied, 479 U.S. 828 (1986) (notification of agents/brokers and consumers); AMREP Corp., 102 F.T.C. 1362, 1678-80 (1983), aff'd, 768 F.2d 1171 (10th Cir. 1985), cert. denied, 475 U.S. 1034 (1986) (notification of buyers under contract).

5. Trade Name Excision Is Warranted

As has previously been found, respondents' trade names and product logos that employ the "ABS" acronym falsely convey to reasonable consumers that their products are antilock braking systems. Partial Summary Decision (Ad Meaning), at 6. Indeed, this claim is inherent in the trade names "Brake Guard ABS" and "Advanced Braking System ABS." The "ABS" acronym has become widely used to refer to the genuine antilock systems that are commonly installed on new cars. The association with the acronym "ABS" is sufficiently established that consumers are likely to assume mistakenly that the Brake Guard device is equivalent to and provides the same benefits advertised for genuine ABS. In such circumstances, it is appropriate to order that the "ABS" term be excised.

Trade name excision is appropriate when it conveys a deceptive claim, and when a less severe remedy, such as affirmative disclosures, could not correct the misimpression. Thompson Medical, 104 F.T.C. at 837-38. Here, any qualifying phrase that could be appended to respondents' trade name would lead to a "confusing contradiction in terms." Continental Wax, 330 F.2d 475, 480 (2d Cir. 1964).

Given the strong association of the acronym "ABS" with antilock brakes and their performance attributes, adding a qualifying phrase contradicting that assertion would simply confuse consumers, for respondents intended the term "ABS" to convey "antilock brake system," (Tr. 2926) and it can have only that meaning. Trademark registration of respondents' trade names and logos does not protect them from this remedy, because the entire point of excision is to address deception arising from a registered name or mark. Additionally, the proposed excision provision will render this order consistent with the order issued against competitors BST and ABSI.

G. Summary

1. The Federal Trade Commission has jurisdiction over respondents and over their acts and practices that are the subject of this proceeding under Section 5 of the Federal Trade Commission Act.

2. The acts and practices of respondents described above constitute unfair or deceptive acts and practices in or affecting commerce in violation of Section 5(a) of the Federal Trade Commission Act.

3. The following order is necessary and appropriate under applicable legal principles and the facts of this case.

ORDER

DEFINITIONS

For the purposes of this Order:

1. "Competent and reliable scientific evidence" shall mean tests, analyses, research, studies, or other evidence based upon the expertise of professionals in the relevant area, that has been conducted and evaluated in an objective manner by persons qualified to do so, using procedures generally accepted in the profession to yield accurate and reliable results; and

2. "Purchasers for resale" shall mean all purchasers of the Brake Guard Safety System, Advanced Braking System, or Brake Guard ABS for resale to the public, including but not limited to franchisees, wholesalers, distributors, retailers, installers, and jobbers.

I.

IT IS ORDERED that respondents, Brake Guard Products Inc., a corporation, its successors and assigns, and its officers, and Ed F. Jones, individually and as an officer and director of said corporation, and respondents' agents, representatives, and employees, directly or through any partnership, corporation, subsidiary, division, or other device, in connection with the manufacturing, labeling, advertising, promotion, offering for sale, sale, or distribution of the Brake Guard Safety System, Advanced Braking System, or Brake Guard ABS or any substantially similar product in or affecting commerce, as "commerce" is defined in the Federal Trade

Commission Act, do forthwith cease and desist from employing the initials or term ABS in conjunction with or as part of the name for such product or the product logo.

II.

IT IS FURTHER ORDERED that respondents, Brake Guard Products, Inc., a corporation, its successors and assigns, and its officers, and Ed F. Jones, individually and as an officer and director of said corporation, and respondents' agents, representatives, and employees, directly or through any partnership, corporation, subsidiary, division, or other device, in connection with the manufacturing, labeling, advertising, promotion, offering for sale, sale, or distribution of the Brake Guard Safety System, Advanced Braking System, or Brake Guard ABS or any substantially similar product in or affecting commerce, as "commerce" is defined in the Federal Trade Commission Act, do forthwith cease and desist from representing, in any manner, directly or by implication, that such product:

A. Is an antilock braking system;

B. Prevents or substantially reduces wheel lock-up, skidding, or loss of steering control in emergency stopping situations;

C. Will qualify a vehicle for an automobile insurance discount in a significant proportion of cases;

D. Complies with a performance standard set forth in Wheel Slip Brake Control System Road Test Code SAE J46;

E. Complies with a standard pertaining to antilock braking systems set forth by the National Highway Traffic Safety Administration;

F. Reduces stopping distances by 20 to 30% or by up to 30%;

G. Provides antilock braking system benefits, including wheel lock-up control benefits, that are at least equivalent to those provided by original equipment manufacturer electronic antilock braking systems; or

H. Will stop a vehicle in a shorter distance than a vehicle that is not equipped with the product, in emergency stopping situations.

III.

distribution of any braking system, accessory, or device, in or affecting commerce, as "commerce" is defined in the Federal Trade Commission Act, do forthwith cease and desist from representing, in any manner, directly or by implication, that installation of the system, accessory, or device will make operation of a vehicle safer than a vehicle that is not equipped with the system, accessory or device, unless, at the time of making such representation, respondents possess and rely upon competent and reliable scientific evidence that substantiates the representation.

IV.

IT IS FURTHER ORDERED that respondents Brake Guard Products, Inc., a corporation, its successors and assigns, and its officers, and Ed F. Jones, individually and as an officer and director of said corporation, and respondents' agents, representatives, and employees, directly or through any partnership, corporation, subsidiary, division, or other device, in

B. The availability of insurance benefits or discounts arising from the use of such product; or

C. That any endorsement (as "endorsement" is defined in 16 C.F.R. § 255.0(b)) of the

V.

IT IS FURTHER ORDERED that respondents Brake Guard Products, Inc., a corporation, its successors and assigns, and its officers, and Ed F. Jones, individually and as an officer and director of said corporation, and respondents' agents, representatives, and employees, directly or through any partnership, corporation, subsidiary, division, or other device, in connection with the manufacturing, labeling, advertising, promotion, offering for sale, sale, or distribution of any braking system, accessory, or device, or any other system, accessory, or device designed to be used in, on, or in conjunction with any motor vehicle, in or affecting commerce, as "commerce" is defined in the Federal Trade Commission Act, do forthwith cease and desist from making any representation, directly or by implication, regarding the absolute or comparative attributes, efficacy, performance, safety, or benefits of such system, accessory, or device, unless such representation is true and, at the time of making such representation, respondents possess and rely upon competent and reliable evidence, which when appropriate must be competent and reliable scientific evidence, that substantiates the representation.

VI.

IT IS FURTHER ORDERED that respondents Brake Guard Products, Inc., a corporation, its successors and assigns, and Ed F. Jones shall:

A. Within forty-five (45) days after the date of service of this Order, compile a current mailing list containing the names and last known addresses of all purchasers of the Brake Guard Safety System, Advanced Braking System, or Brake Guard ABS since January 1, 1990. Respondents shall compile the list by:

1. Searching their own files for the names and addresses of such purchasers; and

2. Using their best efforts to identify any other such purchasers, including but not limited to sending by first class certified mail, return receipt requested, within five (5) days after the date of service of this Order, to all of the purchasers for resale with which respondents have done business since January 1, 1990, an exact copy of the notice attached hereto as Appendix A. The mailing shall not include any other documents. In the event that any such purchaser for resale fails to provide any names or addresses of purchasers in its possession, respondent shall provide the names and addresses of all such purchasers for resale to the Federal Trade Commission within forty-five (45) days after the date of service of this Order.

3. In addition, respondents shall retain a National Change of Address System ("NCOA") licensee to update this list by processing the list through the NCOA database.

B. Within sixty (60) days after the date of service of this Order, send by first class mail, postage prepaid, to the last address known to respondents of each purchaser of the Brake Guard Safety System, Advanced Braking System, or Brake Guard ABS identified on the mailing list compiled pursuant to subparagraph A of this Part, an exact copy of the notice attached hereto as Appendix B. The mailing shall not include any other documents. The envelope enclosing the notice shall have printed thereon in a prominent fashion the phrases "FORWARDING AND RETURN POSTAGE GUARANTEED" and "IMPORTANT NOTICE--U.S. GOVERNMENT ORDER ABOUT BRAKE GUARD or ADVANCED BRAKING SYSTEM DEVICE."

C. Send the mailing described in subparagraph B of this Part to any person or organization not on the mailing list prescribed in subparagraph A of this Part about whom respondents later receive information indicating that the person or organization is likely to have been a purchaser of the Brake Guard Safety System, Advanced Braking System, or Brake Guard ABS, and to any purchaser whose notification letter is returned by the U.S. Postal Service as undeliverable and for whom respondents thereafter obtain a corrected address. The mailing required by this subpart shall be made within ten (10) days of respondents' receipt of a corrected address or information identifying each such purchaser.

D. In the event respondents receive any information that, subsequent to its receipt of Appendix A, any purchaser for resale is using or disseminating any advertisement or promotional material that contains any representation prohibited by this Order, immediately notify the purchaser for resale that respondents will terminate the use

B. Copies of notification letters sent to purchasers pursuant to subparagraphs B and C of Part VI of this Order; and

C. Copies of notification letters sent to purchasers for resale pursuant to subparagraphs A and D of Part VI of this Order, and all other communications with purchasers for resale relating to the notices required by Part VI of this Order.

VIII.

IT IS FURTHER ORDERED that for five (5) years after the last date of dissemination of any representation covered by this Order, respondents, or their successors or assigns, shall maintain and upon request make available to the Federal Trade Commission or its staff for inspection and copying:

A. All materials that were relied upon in disseminating such representation; and

B. All tests, reports, studies, surveys, demonstrations, or other evidence in their possession or control that contradict, qualify, or call into question such representation, or the basis relied upon for such representation, including complaints from consumers, and complaints or inquiries from governmental organizations.

IX.

IT IS FURTHER ORDERED that respondent Brake Guard Products, Inc., its successors and assigns, shall:

A. Within thirty (30) days after the date of service of this Order, provide a copy of this Order to each of respondent's current principals, officers, directors, and managers, and to all personnel, agents, and representatives having sales, advertising, or policy responsibility with respect to the subject matter of this Order; and

B. For a period of ten (10) years from the date of service of this Order, provide a copy of this Order to each of respondent's future principals, officers, directors, and managers, and to all personnel, agents, and representatives having sales, advertising, or policy responsibility with respect to the subject matter of this Order, within three (3) days after the person assumes his or her position.

X.

IT IS FURTHER ORDERED that respondent Brake Guard Products, Inc., its successors and assigns, shall notify the Commission at least thirty (30) days prior to any proposed change in the corporation such as a dissolution, assignment, or sale resulting in the emergence of

a successor corporation, the creation or dissolution of subsidiaries, or any other change in the corporation which may affect compliance obligations under this Order.

XI.

IT IS FURTHER ORDERED that respondent Ed F. Jones shall, for a period of ten (10) years from the date of entry of this Order, notify the Commission within thirty (30) days of the discontinuance of his present business or employment and of his affiliation with any new business or employment. Each notice of affiliation with any new business or employment shall include the respondent's new business address and telephone number, current home address, and a statement describing the nature of the business or employment and his duties and responsibilities.

XII.

IT IS FURTHER ORDERED that this Order will terminate twenty years from the date of its issuance, or twenty years from the most recent date that the United States or the Federal Trade Commission files a complaint (with or without an accompanying consent decree) in federal court alleging any violation of the order, whichever comes later; **provided, however**, that the filing of such a complaint will not affect the duration of:

A. Any paragraph in this Order that terminates in less than twenty years;

B. This Order's application to any respondent that is not named as a defendant in such complaint; and

C. This Order if such complaint is filed after the Order has terminated pursuant to this paragraph.

Provided further, that if such complaint is dismissed or a federal court rules that the respondent did not violate any provision of the Order, and the dismissal or ruling is either not appealed or upheld on appeal, then the Order will terminate according to this paragraph as though the complaint was never filed, except that the Order will not terminate between the date such complaint is filed and the later of the deadline for appealing such dismissal or ruling and the date such dismissal or ruling is upheld on appeal.

XIII.

IT IS FURTHER ORDERED that respondents shall, within sixty (60) days after service of this Order upon them, and at such other times as the Commission may require, file with the Commission a report, in writing, setting forth in detail the manner and form in which they have complied with this Order.

Lewis F. Parker
Administrative Law Judge

Dated: May 2, 1997

APPENDIX A

[Brake Guard Products, Inc. letterhead]

Dear Brake Guard Reseller:

Our records indicate that you are or have been a distributor or retailer of the Brake Guard Safety System, Advanced Braking System, or Brake Guard ABS (hereinafter "Brake Guard"), a brake product. This letter is to advise you that the Federal Trade Commission ("FTC") recently obtained an Order against Brake Guard Products, Inc. regarding certain claims made for the Brake Guard device. Under that Order, we are required to notify our distributors, wholesalers and others who have sold the Brake Guard to stop using or distributing advertisements or promotional materials containing these claims. We are also asking for your assistance in compiling a list of Brake Guard purchasers, so that we may contact them directly. Please read this letter in its entirety and comply with all parts.

The FTC's Decision and Order

The Federal Trade Commission has determined that the following claims made for the Brake Guard device in Brake Guard Products, Inc.'s advertisements, logos and promotional material are **FALSE** and **MISLEADING**:

(a) The Brake Guard is an antilock braking system;

(b) The Brake Guard prevents or substantially reduces wheel lock-up, skidding, or loss of steering control in emergency stopping situations;

(c) The Brake Guard will qualify a vehicle for an automobile insurance discount in a significant proportion of cases;

(d) The Brake Guard complies with a performance standard set forth in Wheel Slip Brake Control System Road Test Code SAE J46;

(e) The Brake Guard complies with a standard pertaining to antilock braking systems set forth by the National Highway Traffic Safety Administration;

(f) The Brake Guard reduces stopping distances by 20 to 30% or by up to 30%;

(g) The Brake Guard provides antilock braking system benefits, including wheel lock-up control benefits, that are at least equivalent to those provided by original equipment manufacturer electronic antilock braking systems; and

(h) The Brake Guard will stop a vehicle in a shorter distance than a vehicle that is not equipped with the product, in emergency stopping situations.

The FTC Order requires Brake Guard Products, Inc. to cease and desist from making these false claims for the Brake Guard device.

In addition, the FTC Order requires Brake Guard Products, Inc. to cease and desist from making claims that the Brake Guard will make a vehicle safer, unless at the time of making such representation it possess competent and reliable scientific evidence substantiating the representation.

We need your assistance in complying with this Order.

Please immediately send us the names and last known addresses of all persons or

APPENDIX B

[Brake Guard Products, Inc. letterhead]

Dear Brake Guard customer:

Our records indicate that you previously purchased a Brake Guard Safety System, Advanced Braking System, or Brake Guard ABS (hereinafter "Brake Guard"), a brake product. This letter is to advise you that the Federal Trade Commission ("FTC") recently obtained an Order against Brake Guard Products, Inc. regarding certain claims made for the Brake Guard device. Please read this letter in its entirety.

The FTC's Decision and Order

The Federal Trade Commission has determined that the following claims made for the Brake Guard device in Brake Guard Products, Inc.'s advertisement -0.20is Ñhat9 (A[B eissiissii 73Û.202½68

In addition, the FTC Order requires Brake Guard Products, Inc. to cease and desist from making claims that the Brake Guard will make a vehicle safer, unless at the time of making such representation it possess competent and reliable scientific evidence substantiating the representation.

If you have any questions, you may call Deborah Kelly of the Federal Trade Commission at (202) 326-3004. Thank you for your cooperation.

Very truly yours,

Ed F. Jones
President
Brake Guard Products, Inc.