UNITED STATES OF AMERICA
BEFORE FEDERAL TRADE COMMISSION

DOCKET NO. 9275

In the Matter of

AUTOMOTIVE BREAKTHROUGH SCIENCES, INC., and
ABS TECH SCIENCES, INC.,
corporations, and
RICHARD SCHOPS,
individually and as an
officer and director of
said corporations.

INITIAL DECISION

Lewis F. Parker
Administrative Law Judge

Dated: March 3, 1997

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By: Lewis F. Parker, Administrative Law Judge

Theodore H. Hoppock, Esq., Janet M. Evans, Esq., Sydney M. Knight, Esq., Ann M. Plaza, Esq., Mamie Kresses, Esq.,
Federal Trade Commission, Washington, D.C.,
Counsel Supporting the Complaint.

Richard Schops, pro se, and for
Automotive Breakthrough Sciences, Inc., and
for ABS Tech Sciences, Inc.,
Respondents.

I. INTRODUCTION

The Commission issued the complaint in this case and two companion cases on September 27, 1995.

I issued a default judgment in one companion case (D. 9276) on October 16, 1996.

The complaint in this case charges that Automotive Breakthrough Sciences, Inc. ("ABSI"), ABS Tech Sciences, Inc. ("ABSTSI"), and Richard Schops, individually and as an officer and director of these corporations, have violated the Federal Trade Commission Act by representing, through use of the trade names A•B•S/Trax and A•B•S/Trax² and statements and depictions in advertisements and promotional materials, that A•B•S/Trax is an antilock braking system whereas, in truth and in fact, A•B•S/Trax is not an antilock braking system. The complaint also alleges that the following representations in respondents' advertising and promotional materials are not true and are, therefore, false and misleading:

(a) A•B•S/Trax prevents or substantially reduces wheel lock-up, skidding, and loss of steering control in emergency stopping situations;

(b) Installation of A•B•S/Trax will qualify a vehicle for an automobile insurance discount in a significant proportion of cases;

(c) A•B•S/Trax complies with a performance standard set forth in Wheel Slip Brake Control System Road Test Code SAE J46;

(d) A•B•S/Trax complies with a standard pertaining to antilock braking systems set forth by the National Highway Traffic Safety Administration;

(e) Tests prove that A•B•S/Trax reduces stopping distances by up to 30% when the vehicle's brakes are applied at a speed of 60 mph; and

(f) A•B•S/Trax 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.

The complaint also alleges that respondents have falsely represented that:

(a) In emergency stopping situations, a vehicle equipped with A•B•S/Trax will stop in a shorter distance than a vehicle that is not equipped with the device; and

(b) Installation of A•B•S/Trax will make operation of a vehicle safer than a vehicle that is not equipped with the device.

Finally, the complaint alleges that respondents did not possess and rely upon a reasonable basis that substantiated the alleged representations described above.

On October 10, 1995, respondents filed an answer denying that they had violated the Federal Trade Commission Act as charged.

During the pretrial phase of this case, I issued two summary decisions. The first found that respondents' trade names, the advertising and promotional materials attached to the complaint, and a television ad disseminated by respondents made the alleged claims (Partial Summary Decision, issued May 22, 1996, clarified, May 28, 1996 (hereafter, "Partial Summary Decision (Ad Meaning)")). In the second, I found that respondents' representation 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, Oct. 16, 1996 (hereafter, "Partial Summary Decision (Insurance Discounts)")).

Trial in this proceeding was held between October 21, 1996 and December 4, 1996. The record was closed on December 9, 1996 and complaint counsel filed their proposed findings on January 8, 1997. Respondents did not file

proposed findings which complied with § 3.46 of the Rules of Practice. Instead, they filed an out-of-time post trial brief on January 15, 1997. I have nevertheless considered the arguments made in this brief.

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. FINDINGS OF FACT

A. The Corporate Respondents' Business And Mr. Schops' Connection Therewith

1. Automotive Breakthrough Sciences, Inc. and ABS Tech Sciences, Inc. are New York corporations, with their offices and principal place of business located at P.O. Box 474, Wheatley Heights, New York 11798 (Answer, pp. 2, 5).

2. Richard Schops resides in Melville, New York (Tr. 2301).[1] In 1991, he formed ABSI to sell a brake product that he named "ABS/Trax" (Tr. 2367, 2374). He served as the corporate CEO and operated ABSI on a day-to-day basis; only one other person was actively involved in corporate management (Tr. 2301, 2381, 2383). In addition to selecting the product name, Mr. Schops designed the product and corporate logo, and drafted everything in the ABSI ads--including magazine and television ads, brochures bearing his own name, Question and Answer brochures, product packaging, and an insurance discount certificate (Tr. 2374-78). Mr. Schops is quoted in ABSI's advertising (CX-1, CX-2 (Complaint Exhibits A, B)). Mr. Schops recommended where the ads should be placed, and placed them (Tr. 2378). He designed distributor information and sent it to potential distributors, provided language describing ABSI and ABS/Trax for inclusion in the directory for the major aftermarket equipment trade show (the Special Equipment Manufacturers' Association ("SEMA") show, held annually in Las Vegas, Nevada), and attended SEMA shows on ABSI's behalf to promote ABS/Trax (Tr. 2378-79). In his capacity as ABSI's CEO, Mr. Schops signed agreements with distributors and corresponded with automobile companies and NHTSA (the National Highway Traffic Safety Administration) (Tr. 2379-82; CX-72, CX-79-A-H, CX-30). He also communicated with suppliers and potential purchasers (Tr. 2384-87).

3. In 1992, after a dispute with his partner in ABSI, Mr. Schops formed Dynamics of Trucking and Transportation ("DTT") and started selling ABS/Trax through DTT, which made all the representations for ABS/Trax previously made by ABSI. Mr. Schops formulated and controlled the policies, acts and practices of DTT (Tr. 2387-88).

4. Later in 1992, Mr. Schops started selling ABS/Trax through ABSTSI, which also made all of the representations

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[1]The following abbreviations are used in this decision:

F.: Finding number in this decision.
Tr.: Transcript of the proceeding.
CX: Commission exhibit.
RX: Respondents' exhibit.

for the product previously made by ABSI. Mr. Schops is an officer and director of ABSTSI. He prepared a variety of advertising and promotional materials bearing the ABSTSI name, attended the SEMA show on ABSTSI's behalf, and signed agreements with product distributors (Tr. 2389-96). Individually or in concert with others he formulates, directs and controls the acts and practices of ABSTSI (Answer, p. 2; Tr. 2389-96).

5. At all times relevant to the complaint, the acts and practices of respondents alleged in the complaint have been in or affecting commerce (Answer ¶ 3; F. 9-11, infra).

B. The Claims Made By Respondents For ABS/Trax

6. The ABS/Trax device consists of a metal housing containing a resilient membrane. It is sold in sets of two, so that one may be attached to each of the two hydraulic brake lines of a motor vehicle. The device is a simple hydraulic accumulator, meaning that during heavy brake pedal application, the resilient membrane can expand to accept some brake fluid. When the pedal is released, the brake fluid is returned to the brake lines (Tr. 874; CX-32-M, -Z-24).

7. Respondents have sold various versions of the ABS/Trax device. The original 1991 product was supplied by the Marketex company, which also sold it under the name AccuBrake (Tr. 2422-23; compare CX-1 with CX 35-Z-17). In October 1991, ABSI ceased selling the Marketex product (CX-30-A, -B). In late 1991, respondents started selling a product produced by a Mr. Cardenas (Tr. 2425), which respondents claim to have "upgraded" over time (CX-32-L, -M; Tr. 80). Although the new product was produced by a different manufacturer and had a different shape and size, respondents continued to make all of the same advertising claims for the product (Tr. 2425-26; see CX-32-M). From 1993 through 1995, respondents marketed a version of the product under the name ABS/Trax², again with the same claims (CX-2, CX-62, CX-63-B, CX-64).

8. ABS/Trax systems were sold to consumers at a price of $459 to $499, and respondents' gross revenue from ABS/Trax sales was approximately $150,000 (CX-99-L (Response to Interrogatories 4a and 4c)). From January 1992 to

January 1996, ABSTSI sold 7422 ABS/Trax systems, with revenues of $1,055,000 (Tr. 2441; CX-60-B, -E).

9. Complaint Exhibit A (CX-1) was disseminated in Automobile Magazine in October and November 1991, and in Motor Trend in December 1991. A print ad also appeared in the November 1991 issue of Auto Week (Respondents' Admission 1; CX-99-L (Response to Interrogatory 3)). CX-5, a television ad, ran twice on WNBC-TV, New York, New York, and 30 times on Long Island, New York cable television in October 1991 (CX-99-L (Response to Interrogatory 3); Respondents' Admissions 56-59).

10. In 1991, ABSI sponsored a booth at the SEMA show. SEMA is an association of automotive aftermarket manufacturers, distributors and outlets, and it holds the world's largest automotive aftermarket show, attended by manufacturers, distributors and dealers, every November in Las Vegas, Nevada (Tr. 108-09, 166-67). At this show, ABSI displayed banners and t-shirts and distributed thousands of brochures that repeated the claims made in the magazine ads (Tr. 2399). It also sent hundreds of letters to potential distributors describing the ABS/Trax device as an antilock brake system and repeating most of the claims made in the magazine ads (Tr. 2399).

11. In 1992, 1993 and 1994, respondents attended the SEMA shows to promote ABS/Trax; these SEMA promotions resulted in contracts with various groups to sell the product (Tr. 2400-02). Respondents also provided promotional materials, such as magazine ads, brochures and press releases (CX-2, CX-62, CX-63, CX-64, CX-66, CX-67, CX-68, CX-69), to persons interested in selling the product, including one major retailer (Montgomery Ward) that entered into an agreement to sell it (Tr. 2401-03). The last ad admitted into the record is dated April 1995 (CX-64).

12. ABSI's cost to advertise ABS/Trax in print and television media in 1991 was between $65,500 and $80,600 (CX-99-L). Mr. Schops estimated a total 1991 advertising cost of $100,000 (Tr. 2336). From 1992-1996, ABSTSI spent $17,885 on advertising and media, and $30,472 on SEMA and trade shows, for a total of $48,357 (CX-60-E, -F; Tr. 2401).

13. In my Partial Summary Decision (Ad Meaning), I found that respondents' trade names, the advertising and promotional materials attached to the complaint, and a television ad, CX-5, made the following claims:

A) ABS/Trax is an antilock brake system (Complaint ¶ 5) that complies with a standard pertaining to antilock braking systems set forth by the National Highway Traffic Safety Administration (Complaint ¶ 7d, "NHTSA compliance claim") and prevents or substantially reduces wheel lockup, skidding and loss of steering control in emergency stopping situations (Complaint ¶ 7a, "braking control benefits claim");

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

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

D) ABS/Trax will, in an emergency stopping situation, stop a vehicle in a shorter distance than a vehicle that is not equipped with the device (Complaint ¶ 9a), and tests prove that ABS/Trax reduces stopping distances by up to 30% when the vehicle's brakes are applied at a speed of 60 mph (Complaint ¶ 7e) ("general and specific stopping distance claims"); Partial Summary Decision (Ad Meaning), at 17;

E) Installation of ABS/Trax will qualify a vehicle for an automobile insurance discount in a significant proportion of cases (Complaint ¶ 7b, "insurance discount claim");

F) Installation of ABS/Trax will make operation of a vehicle safer than a vehicle that is not equipped

with the device (Complaint ¶ 9b, "comparative safety claim"); and

G) 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 (Complaint ¶ 10).

14. Additional promotional materials admitted into evidence also make some or all of the advertising claims alleged in the complaint. CX-14-B, CX-15-B, CX-30-D, CX-31-D, CX-62, CX-63, CX-64, CX-65, CX-70, CX-76, and CX-77 each identify the product by the trade name ABS/Trax, and thus, make the claim that the product is an antilock brake system. Additionally, many of these ads reinforce this claim by expressly identifying the product as providing "ABS braking safety" (CX-14-B), or as being an "anti-lock" or "ABS" system (e.g., CX-15-B, CX-76-A, CX-30-D, CX-31-D, CX-62, CX-63-A (transmitting CX-63-B, containing this claim)).

15. CX-65 contains copy elements identical to CX-1, elements that I have found convey the braking control benefits, general and specific stopping distance, insurance discount, OEM ABS equivalence, and comparative safety claims. Compare CX-65 with CX-1.

16. CX-76 and CX-77 are "Question and Answer" sheets that expressly state that the ABS/Trax device provides "shorter stopping distances," and that "ABS/Trax has been found to reduce stopping distance up to 30% when aggressively decelerating from 60 to 0 mph." This language is substantially similar to that which I previously found conveyed the specific and general stopping distance claims. Additionally, these sheets contain language substantially similar to that which I previously found conveyed the insurance discount claim:

Insurance companies save money when people have fewer accidents. That’s why they support safety products like A.B.S. by publishing their own literature describing its benefits and by awarding A.B.S. discounts to policyholders. Installing

> A.B.S. Trax qualifies you for your carrier's A.B.S. discount. . . . While discounts vary, they can often total as much as 10% annually.

(CX-76, CX-77; see Partial Summary Decision (Ad Meaning), at 13). Thus, these ads, too, convey the insurance discount claim. Id. Additionally, by describing the product as a "safety" product, the Question and Answer sheets also expressly make the comparative safety claim.

17. CX-14-B also identifies the product as providing "retrofit ABS braking safety . . . to stop cars, trucks and motorcycles, shorter, straighter, safer," thus making in an express fashion both the general stopping distance and comparative safety claims. CX-31-D expressly states that the product provides "safety . . . benefits." CX-62 states that "ABS/Trax² shortens stopping distances," thus expressly making the general stopping distance claim. Additionally, it expressly conveys the comparative safety claim when it states that "ABS/Trax² . . . produc[es] enhanced response and a non-delayed, safer stop" and makes the assertion that "[s]erious safety on the road is what ABS/Trax² makes available to all drivers." CX-63 states that "ABS/Trax shortens stopping distances," thus expressly making the general stopping distance claim. CX-64 expressly states that ABS/Trax² "stops cars shorter."

18. Finally, CX-70 is the ABS/Trax product package which, on the outside, expressly makes the braking control benefits and general shorter stopping distance claims when it states that the product "prevents wheels from over-reacting or locking (anti-lock). Tires retain traction to the road surface so the driver can control-steer the car to a shorter, straighter, surer stop." In addition, the packaging contains the language previously found to convey the NHTSA ABS compliance and SAE J46 claims (Partial Summary Decision (Ad Meaning), at 16-17).

19. Respondents intended to make many of the above claims. Mr. Schops knew that the abbreviation "ABS" stood for antilock brake system, and that from 1990 to 1996, auto manufacturers had used "ABS" to refer to antilock brake systems in new car ads widely disseminated to the public (Tr. 2403-04; Respondents' Admissions 67-68). He intended

to claim that the ABS/Trax would substantially reduce lockup, skidding and loss of control; and that it complied with the NHTSA ABS definition and with SAE J46 (Tr. 2403-06). He also intended to make the specific stopping distance claim (Tr. 2415).

C. Substantiation For Respondents' Ad Claims

1. Complaint Counsel's Expert Witnesses

20. Complaint counsel called three expert witnesses who testified about respondents' devices and their comparison with OEM antilock brakes.

a. John W. Kourik

21. 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).

22. 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, the supervision of road tests conducted at three facilities on a fleet of forty test vehicles, and the analysis of test results (Tr. 1076-82, 1089). His experience included testing the effectiveness of antilock systems (Tr. 1082).

23. Mr. Kourik was a long-term member of the Society of Automotive Engineers ("SAE"), an internationally based association of professionals who work on developing standards and recommended practices for the automotive and aircraft industries. Mr. Kourik was involved in the collection and analysis of test data as part of his involvement in SAE committees that developed a brake rating test procedure and a test protocol to evaluate brake linings, each of which was adopted by the SAE (Tr. 1087-88). In addition, Mr. Kourik was the first chairman of the Wheel Slip Brake Control Systems Subcommittee, which developed a SAE-approved test protocol, SAE-J46, designed to distinguish

antilock systems from non-antilock systems and to enable an antilock manufacturer to fine-tune a system during the development process (Tr. 1090-91). 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).

24. 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

25. 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).

26. 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; Tr. 764-68).

27. 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).

28. 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

29. John Hinch is Lead Engineer in the Office of Defects Investigation of NHTSA. He obtained a B.S. degree in Atmospheric and Oceanic Sciences 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).

30. 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).

31. 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 defect 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).

32. 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 such as the Aberdeen Proving Grounds, where seat-belt buckle testing is conducted (Tr. 1896-99).

33. 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).

34. 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 is a member of the SAE and the National Safety Council, another professional society (Tr. 1882).

35. 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 test 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

36. The function of a motor vehicle's brake system is to slow or stop the vehicle. Hydraulic brake systems use 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).

37. 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). 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).

38. 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).

39. 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 in unable to steer. If rear wheels lock first, the vehicle typically spins out of control (Tr. 796).

3. The Operation of Antilock Brake Systems

40. Antilock brake systems are designed to maintain maneuverability and controllability during braking, under all operating conditions, by controlling wheel slip (CX-103-C, -D, CX-102-Z-22). NHTSA defines an antilock system as "a portion of a service brake system that automatically controls the degree of rotational wheel slip at one or more road wheels of the vehicle during braking" (CX-37-A; Tr. 1120).

41. The SAE publication "Antilock Brake System Review--SAE J2246" ("SAE J2246"), similarly defines an antilock brake system as "[a] device which automatically controls the level of slip in the direction of rotation of the wheel on one or more wheels during braking" (CX-103-A). SAE publications are regarded as authoritative by experts in the braking field (Tr. 1125, 1909). Although the document where this definition appears does not include information about aftermarket devices, it is pertinent because it sets forth the fundamentals of ABS and the development of ABS systems (CX-103-A, -B, -C).

42. In order to control the "degree" or "level" of wheel slip as set forth in the NHTSA and SAE definitions, an ABS system must have components to detect what the rotational wheel slip is, even before it needs to be controlled. Thus, it needs sensors at the road wheels or the drive train that measure the rate of rotation of the road wheels. It also needs a computational device that can measure any change in the rotation of the wheel over time and compute the wheel slip, so as to evaluate whether lockup

is approaching. If so, the system must be able to send signals to an actuator or control device to reduce the line pressure at the wheel, reducing brake force so the wheel can continue rolling at a more appropriate speed (Tr. 800-01, 1120-21, 1750-55). These components are necessary because the only way to control a system is to know whether the system is generating error (i.e., to know what level of slip exists, and whether it is excessive) and to be able to affect the processes to correct the system back to the desired point (i.e., to be able to return slip to the required level) (Tr. 802). A system that can sense the rotation of a wheel at a given point in time, but cannot sense the vehicle's speed and does not know the wheel's immediate past history of wheel rotation, cannot function as an antilock system, because it will not be able to calculate changes in wheel slip, and thus control the degree to which wheel slip is allowed (Tr. 1121-22).

43. Brake engineers generally understand ABS to mean a portion of a service brake system that automatically controls the degree of rotational wheel slip during braking by: (1) sensing the rate of angular rotation of the wheels; (2) transmitting signals regarding the rate of wheel angular rotation to one or more devices which interpret those signals and generate responsive controlling output signals; and (3) transmitting those controlling signals to one or more devices which adjust brake actuating forces in response to those signals (CX-102-G, -I). This definition reflects the meaning of ABS as it has been generally understood among brake engineers since at least 1990 (Tr. 1123-25).

44. In 1995, NHTSA amended its definition of an antilock brake system to adopt the definition set forth in F. 43 (CX-102). The new regulation clarifies the definition (Tr. 1122, 157) but does not substantively change it (Tr. 156-58); compare F. 42 with F. 43 (elements of this new definition are consistent with elements required to comply with the prior definition).

45. 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).

46. 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 electric 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).

47. Factory-installed ABS systems widely advertised to consumers by auto manufacturers consist of wheel sensors, electronic signaling mechanisms, ABS computers, and hydraulic modulators (Respondents' Admission 71). These systems control the degree of rotational wheel slip during braking by: (a) sensing the rate of angular rotation of the wheels; (b) transmitting signals regarding the rate of wheel angular rotation to one or more controlling devices which interpret those signals and generate responsive controlling output signals; and (c) transmitting those controlling signals to one or more modulators which adjust brake actuating forces in response to those signals (Respondents' Admission 69).

48. The ABS/Trax device does not sense the rate of rotation of the wheels and does not know what the degree of wheel slip is (Tr. 2434). The ABS/Trax and ABS/Trax^2 devices advertised by respondents do not control the degree of rotational wheel slip during braking by: (a) sensing the rate of angular rotation of the wheels; (b) transmitting signals regarding the rate of angular rotation to one or more controlling devices which interpret those signals and generate responsive controlling output signals; and (c) transmitting those controlling signals to one or more modulators which adjust brake actuating forces in response to those signals (Respondents' Admission 70).

49. The ABS/Trax device is an accumulator. Accumulators are 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 the isolation valve, which prevents the driver from pushing further fluid from the master cylinder out to the caliper. Then, 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). Accumulators are not themselves ABS, because accumulators alone 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). Thus, the ABS/Trax device does not have the components needed to operate as an ABS system.

4. Testing Antilock Brake Systems

50. 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 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). 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). 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).

51. Conditions that should be controlled include the condition of the tires and 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).

52. 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).

53. Results of an antilock brake test should be adequately documented (Tr. 1287) (requiring "documentation that's without dispute"). If a test shows that a braking device shortens stopping distance, that alone does not demonstrate that it is an antilock brake system, because it does not show that the device eliminates or controls wheel lockup (Tr. 1132, 812). However, if a stopping distance test shows that a vehicle experiences lockup, it does demonstrate that wheel slip has not been controlled (Tr. 1132, 813). Anecdotal consumer reports that a device

reduced lockup or prevented accidents do not provide competent and reliable evidence that a device is an antilock brake system, because consumers do not have the expertise required to evaluate an antilock system, and because they cannot tell whether or not specific wheels experienced lockup (Tr. 813, 1132, 1912).

54. The SAE has published a test procedure for evaluating antilock systems that is widely recognized throughout the automotive testing industry (Tr. 829). SAE J46, originally adopted in July 1973 and re-approved without change in 1993, sets forth a test code for evaluating whether or not a product controls wheel slip (CX-39, CX-40; Tr. 1133-34). The objectives of the test procedure are to separate antilock systems from non-antilock systems and to enable antilock manufacturers to evaluate alternatives in systems under development (Tr. 1091). SAE J46 identifies appropriate instrumentation, test facilities, and vehicle preparation, and sets forth four series of recommended road test maneuvers, including: (a) constant friction surface tests at various speeds; (b) split friction surface tests, (c) changing friction (high to low friction) tests; and (d) lane change tests (CX-40-A, -D; Tr. 1134-35). SAE does not set forth a required pedal force, but assumes that sufficient force would be applied to cause lock-up, but for the operation of the device (Tr. 1136). SAE J46 does not set forth exact parameters of testing, but was designed to permit each test facility to select road conditions and test conditions that were appropriate to it, considering that road surfaces varied among test facilities, and to develop comparative data (Tr. 1135).

5. Testing Comparative Stopping Distance

55. Scientifically sound evidence that one braking system provides shorter stopping distance than another system (that is, a comparative stopping distance test) requires competent and reliable testing that compares the performance of a vehicle with the device engaged to the performance of the same vehicle with the device disengaged. Braking a vehicle is an energy conversion process in which the vehicle’s kinetic energy is changed into heat energy. 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 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 that captures and records the actual speed of the vehicle at the point of braking, and the actual distance traveled from the point the brake was applied until the point the vehicle comes to rest (Tr. 814-19, 1160-66, 1916-18).

56. All other elements of the testing, i.e., the tires, brakes, and the road surface must be controlled. 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. The driver must be provided with a protocol for applying force to the pedal, so as to control the applied force, because differences in pedal apply time can affect stopping distance. 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 (Tr. 822, 1160-66, 1913-16, 2008). A minimum of three stops should be conducted to determine whether the results produced are consistent (Tr. 822).

57. 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 (Tr. 1165). It should show what the test protocol was, and what instructions were given to the driver (Tr. 1986-87, 2010).

58. 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 they suggest that: (a) 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; and (b) there was no certainty regarding the point at which braking commenced. 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 (Tr. 824, 1164-65, 1918). 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 even a tenth of a second can result in an 8.8 foot error in measured distance (Tr. 1163-64, 1919).

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

6. The Performance of ABS/Trax

a. Evidence Relied Upon By Respondents

(1) Mr. Schop' Opinion Evidence

60. In support of the various ABS and ABS performance claims, respondents rely upon Mr. Schops' opinions regarding the performance of the ABS/Trax device and of factory-installed ABS; however, only competent and reliable testing, not opinion evidence, can establish that a device shortens stopping distances or provides wheel slip control (F. 50, 58). Moreover, Mr. Schops' opinions are not reliable and probative because he lacks the expertise to evaluate the performance of ABS systems or the ABS/Trax device. At trial, Mr. Schops did not offer himself as an expert witness, and his background and training do not demonstrate that he has the requisite expertise. Mr. Schops is a high school graduate who, from 1960 to 1970, was employed by various advertising agencies and media, selling advertising and advertising time (Tr. 2365-66). From 1970 to 1991 he started and operated several different businesses and served as a marketing consultant (Tr. 2367). He has no engineering degree, is not a member of the SAE, and has never attended classes on ABS systems given by any of the ABS manufacturers (Tr. 2367).

61. Mr. Schops' experiences driving vehicles equipped with aftermarket devices (Tr. 2373), and which he admits are anecdotal (Tr. 2416), are not reliable or probative because consumers do not have the expertise needed to evaluate an

antilock system or to tell whether or not specific wheels experienced lockup (Tr. 1132, 813).

(2) AccuBrake Testing

62. In support of their claims, respondents also rely upon reports of certain tests. In October 1991, when respondents first disseminated their claims, ABSI had not conducted any tests to determine whether or not the ABS/Trax device controlled wheel slip (Tr. 2415). Instead, they relied on information provided by their supplier, Marketex, with regard to the performance of the AccuBrake system, the first ABS/Trax device sold by ABSI. The AccuBrake information is the only written test report Mr. Schops recalls seeing, and on which he relied in writing ads. It was an anonymous, one page report of stopping distance tests which demonstrated that when the AccuBrake system was installed on a vehicle, that vehicle continued to experience lockup (CX-30-F; Tr. 2415-16). This test supports the conclusion that the ABS/Trax is not an antilock brake system, and does not constitute substantiation for respondents' claims (see Tr. 1132; Tr. 813).

63. The AccuBrake test report indicates that the device tested shortened stopping distances from 119 feet to 106.6 feet, or by 11%. However, the report shows that the tester dismissed the shortest of the test runs without the device; if this run is included, the "before" stopping distance drops to 115 feet, and the stopping distance improvement drops to 7.3% (CX-30-F; see Tr. 2418). Finally, the test report does not state how the stopping distances, each of which is reported as a whole number, were measured (CX-30-F). Mr. Schops testified that the stopping distances may have been measured with a tape measure (Tr. 2419). Stopping distance measurements conducted with a tape measure are not reliable (F. 58).

(3) Thailand Testing

64. Respondents also rely upon a videotape of testing conducted in Thailand, the date of which is not indicated (Tr. 2339). Mr. Schops testified that this test was conducted on "a mechanical ABS system that we had" (Tr. 2371). The entire tape is narrated in a foreign language,

and the graphics are also foreign. There is no English translation. The tape shows a series of stopping distance runs at a racetrack facility. A vehicle would pass a point at which a person held a checkered flag; thereafter the vehicle would come to a stop, and stopping distances were measured with measuring tapes (Tr. 2024-31, 1242, 2438). The tape did not show that the vehicle was properly instrumented to record the speed at which braking commenced, that reliable means were utilized to measure the stopping distances, that sufficient runs were made to provide reliable data, or that stopping distances were corrected to accommodate differences between the actual speed and the target speed. Thus, it does not provide reliable evidence regarding stopping distances (Tr. 1242, 2024-31).

65. The Thailand test video tape shows that, with or without the device installed, the vehicle's wheels locked up almost immediately upon brake application (Tr. 2031). Thus, the tape does not provide competent and reliable scientific evidence that the ABS/Trax device controls the degree of wheel slip (Tr. 2032). A written report of the Thai testing also did not indicate that any appropriate evaluation of the device's antilock brake system capacity was made, nor did it provide any reliable stopping distance data (Tr. 1242-47, 2023-24).

(4) Australia Testing

66. Respondents also rely on tests conducted by an Australian test entity in December 1993 (Tr. 2351-53, 2434-37). Mr. Schops testified that he was not certain on what version of his product the test was conducted (Tr. 2372). The report states that, "the ABS/Trax-fitted vehicle gained higher deceleration rates in all testing and, as such, shorter stopping distances" (Tr. 2352). In fact, the test organization tested only for deceleration levels, and did not directly measure stopping distances. It is not possible to reliably compute stopping distances from deceleration levels, because deceleration is not constant (Tr. 2019-20). Therefore, the report does not provide competent and reliable evidence that the ABS/Trax device will shorten stopping distances (Tr. 2021).

67. The report of the Australian testing also states that when the ABS/Trax device was installed, the vehicle continued to experience lockup, "but less often" (Tr. 2352-53). That test, however, nowhere states that the device tested controlled the degree of wheel slip (Tr. 2436). The report does not show that split mu or lane change testing was conducted, or that the testers used instrumentation such as wheel sensors to compare the degree of wheel slip with and without the device. The report does not show specific occasions where wheel lockup occurred without the device engaged, so that one could evaluate what percentage of the time the ABS/Trax device prevented wheel lockup. The report does indicate that during the testing, the wheels locked up with the device installed, and that driver control was required for unlocking (Tr. 2434-37). Thus, the report demonstrates that the device tested was not an antilock brake system (Tr. 1252); and it does not provide competent and reliable evidence that the ABS/Trax device controls the degree of wheel slip (Tr. 2021). In any event, Mr. Schops did not rely on this test when making advertising claims (Tr. 2438).

b. NHTSA Investigation and Testing

68. In 1991, NHTSA's Ohio-based VRTC became aware of aftermarket devices advertised as antilock brake systems which would also shorten stopping distances. To evaluate the performance of these devices, VRTC conducted tests on an AccuBrake device. Subsequently, ODI opened a new defects investigation to assess the safety performance of devices sold by ABSI and two other companies (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 lockup, skidding and loss of control under a variety of road conditions where, in real life, a vehicle without antilock brakes will experience wheel lockup, resulting in loss of vehicular control (CX-32-Z-21, CX-34). These tests demonstrated that none of respondents' devices prevented lockup 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 various devices was extremely similar. See generally, CX-34. By contrast, the identical vehicle equipped with factory-installed ABS and

subjected to the same road tests maintained control. Id. 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).

(1) 1991 Testing

69. CX-35 is a report of tests that VRTC performed in 1991 on the AccuBrake device originally marketed by ABSI in 1991 (Tr. 2384, 2422-23). These included 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, and included 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 (tests with and without device conducted in series so as to assure consistent conditions)). CX-35 was performed in a competent manner and the results are reliable (Tr. 1177).

70. The AccuBrake device did not reduce stopping distances; indeed, stopping distances were somewhat longer, on average, when the device was installed (CX-35-Z-3). The results of 69 different tests conducted when the vehicle contained no cargo provided an average stopping distance without the device of 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 were 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 (CX-35-Z-2, Z-19-21). The results of CX-35 provide competent and reliable evidence that the AccuBrake device does not shorten stopping distances (Tr. 1177; CX-35-Z-3).

71. The report also provides results of 60 mph stopping distance tests (CX-35-T, -W). In the first series of these tests, the AccuBrake device extended the stopping distance by 36 feet (from 173 to 209 feet), or by 20%. In the second series of 60 mph tests, the device extended the stopping distance by 3 feet (from 217 to 220), or by 1.3%. In the third series, the device shortened the stopping distance from 202 to 194 feet, or by 4.1% (CX-35-T, -W). These tests provide competent and reliable evidence that the AccuBrake device tested does not shorten stopping distances by up to 30% when the brakes are applied at 60 mph. (See Tr. 1177).

72. In VRTC's 1991 stopping distance tests, the AccuBrake device tested failed to prevent lockup in 26 of 30 panic stop tests (CX-35-S (reference to "full dump" tests), -U). Thus, it did not perform as an antilock device (CX-35-U; Tr. 1132, 813). Indeed, in some instances, rear lockup occurred with the device engaged, where it had not occurred with the device disengaged (CX-35-U).

(2) 1992-93 Testing

73. CX-34 reports the results of VRTC tests performed in 1992 and 1993 on two versions of the ABS/Trax device: one purchased in July 1992, and a second that Mr. Schops provided in October 1992 and which he described as "upgraded through 23 additional 'patentable' changes" (CX-32-L). One of these was the Cardenas version of the ABS/Trax device (Tr. 2427).

74. Four different road braking tests were conducted to determine if the two ABS/Trax devices and three other aftermarket "ABS" devices could control the degree of road-wheel slippage when subjected to panic braking on medium to very low friction surfaces (CX-34-K; Tr. 826-27, 1137). The performance of the test vehicle with each device engaged was compared to that of the same vehicle with the device

disengaged (Tr. 1138). In addition, the same tests were performed on a nearly identical vehicle with factory-installed antilock brakes, tested with the ABS on and off, to demonstrate the performance of the factory-installed ABS and make the results more understandable to the consumer (CX-34-F; Tr. 883, 1138).

75. The aftermarket device tests were conducted on a low mileage (three to five thousand miles) 1992 vehicle without factory-installed antilock brakes ("aftermarket vehicle"). Prior to the beginning of testing, new tires, front brake pads and rear brake shoes were installed on the vehicle, and the brakes were burnished to control their condition (Tr. 833-36). The devices tested were the appropriate size for the test vehicle, and installed so they could be engaged and disengaged (CX-32-I, -L; Tr. 831-32, 80). The factory-installed ABS tests were conducted on a new 1992 vehicle ("OEM vehicle"), with just a few hundred miles on the odometer, again equipped with new tires and brakes, which were appropriately burnished prior to the testing. A switch was installed so that the ABS could be turned on and off (Tr. 832-36). The only difference between the two vehicles was that the aftermarket vehicle had rear drum brakes, whereas the OEM vehicle had rear disc brakes. There is no reason to believe that the rear brakes on the two vehicles would have in any manner affected the test results (Tr. 833, 871).

76. 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 the testing being done (Tr. 829-30). 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).

77. The same driver was used for all tests. The surfaces where the tests were conducted were monitored, 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). The test parameters were appropriately controlled (Tr. 1148).

78. After the ABS/Trax I device was installed on the aftermarket vehicle pursuant to the manufacturer's instructions, the vehicle was run through the test procedures six times with the device off and then six times with the device on. Tests with and without the device were conducted within minutes of each other. This procedure was calculated to ensure that the various parameters of the tests with and without the device were controlled (Tr. 841-42). Immediately after completing the tests of the ABS/Trax I device, the tests were run on the ABS/Trax II device (Tr. 834). Since the results of testing on the ABS/Trax I device had been so consistent, all subsequent tests were conducted with only three runs for each permutation. This number of test runs was appropriate (Tr. 841, 1147). Comparison tests on the OEM vehicle with the factory-installed ABS engaged and disengaged were conducted five days before the ABS/Trax I tests, and immediately after the ABS/Trax II tests (Tr. 842). The five-day interval between the testing of the ABS/Trax I device and the factory-installed device is unlikely to have affected the results of the testing, given the other controls used and the fact that the weather was mild during the time of the testing (Tr. 843).

79. The aftermarket device test vehicle was instrumented to provide the test driver with a visual readout of vehicle speed, applied pedal force (obtained from the brake force transducer), deceleration, stopping distance, and elapsed time of maneuver. Additionally, an onboard computer data acquisition system was used to record the time history of vehicle speed, pedal force, vehicle acceleration, brake line pressure at four wheels, and wheel speed at four wheels (CX-34-I, -J; Tr. 833-36). The baseline tests on the OEM vehicle were conducted using this same equipment. This test also served as the comparison test for the ABS/Trax I device. For the comparison tests to the ABS/Trax II testing, the OEM vehicle was instrumented

with the same visual readout (vehicle speed, applied pedal force, deceleration, stopping distances and elapsed time of maneuver) but the only data automatically recorded was the time history of pedal force and a marker for the time of braking, when the comparison test to the ABS/Trax II testing was run (CX-34-J). The instrumentation was appropriate for this test (Tr. 1147-48).

80. The low-friction surface lane change test simulates a situation where a driver traveling at 35 mph on a wet, two lane highway encounters a stopped vehicle (denoted 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). When equipped with the ABS/Trax I device, the test vehicle failed to negotiate successfully the course regardless of whether the device 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, -T; Tr. 851-53, 1140). The results of the ABS/Trax II testing were virtually the same, as were the results of the tests on the OEM vehicle when the factory-installed ABS was disengaged (CX-34-S, -U, -Z-13; 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 lockup, 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; Tr. 853, 1139).

81. 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 used 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 ABS/Trax II devices, whether they were engaged or disengaged, the test vehicle experienced four wheel lockup, and the driver lost control of the vehicle which proceeded in a straight line, leaving the curved road (Tr. 857-58, 1140-41; CX-34-U, -V, -W, -Z-18). 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, -V). 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).

82. 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 test 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 ABS/Trax 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 rest of the maneuver (CX-34-W, -Z-23-26; Tr. 865-66). When the factory-installed ABS was disengaged, the OEM vehicle's performance mimicked that of the aftermarket test vehicle (CX-34-X). 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, 1142-43; CX-34-X, -Z-2).

83. The fourth test was a split-friction surface test, also recommended in SAE J46 and also conducted on a track permanently dedicated to 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). During this testing, when the ABS/Trax I and II devices were engaged, all four wheels locked, resulting in the vehicle yawing (spinning) anywhere from 20 to 310 degrees out of control. When the OEM vehicle's ABS was disengaged, that vehicle, too, experienced loss of control, yawing between 90 and 190 degrees. When the OEM vehicle's ABS was engaged, however, the vehicle experienced no yaw; instead, it proceeded straight through the course, under control (CX-34-Z-3; Tr. 868-70).

84. VRTC disassembled and inspected the ABS/Trax I and II devices and concluded that they were simple small-volume hydraulic accumulators, that is, hydraulic energy storage devices. Other devices tested by VRTC, which were subject to the same road tests as the ABS/Trax devices and performed in the same manner, varied in the volume, hardness, and weight of the rubber insert. One of these other devices also had a screw which permitted the volume and stiffness of the insert to be adjusted. There is no reason to believe that redesigning the devices would have any effect on the outcome of the tests (CX-34-Z-5, -Z-6; Tr. 872-73).

85. The test reported in CX-34 was competent and reliable (Tr. 1149), and demonstrates that the ABS/Trax devices do not control the degree of rotational slip at one or more road wheels, as set forth in the NHTSA definition of ABS (CX-37-A; Tr. 880-81, 1150), nor do the devices control

the level of rotational slip in the direction of rotation of the wheel on one or more wheels during braking, as set forth in the SAE J2246 definition (CX-103; Tr. 880-81, 1151). Thus, respondents' devices are not ABS as braking engineers define that term (CX-102-G, -I) since they do not sense the rate of angular rotation of the wheels, do not transmit signals regarding the rate of wheel angular rotation to one or more controlling devices, and do not transmit controlling signals to modulators that adjust brake actuating forces in response to those signals (Tr. 880-81, 1151).

86. The tests of the aftermarket vehicle reported in CX-34 demonstrate that the ABS/Trax devices do not prevent or substantially reduce wheel lockup, skidding, and loss of control. In those tests there was no indication that the devices had any capacity to control the degree of wheel slip (Tr. 881, 1151).

87. The tests reported in CX-34 demonstrate that respondents' devices provide 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). By definition, genuine antilock braking systems provide wheel lockup control benefits (Tr. 1152; Respondents' Admission 69). 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 (Tr. 881).

88. SAE J46 does not contain any performance standards or goals to be met in order to pass. Thus, a claim that a product complies with a performance standard set forth in SAE J46 is untruthful (Tr. 1136-37). Moreover, the testing that Mr. Schops relied on when preparing the ABS/Trax advertising, that is, the AccuBrake study, did not reflect any split mu or changing surface testing, as set forth in SAE J46 (CX-30-F; Tr. 2421-22). When tested pursuant to a protocol consistent with SAE J46, respondents' device did not perform as antilock brakes (CX-34).

III. CONCLUSIONS OF LAW

A. Respondents Made The Alleged Claims

Through the use of their trade names, advertising and promotional materials attached to the complaint, and a television ad, respondents made the claims alleged in the complaint (F. 13-18).

Each of the ads described in the findings make the challenged claims expressly, 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 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).

Respondents intended to make many of these claims (F. 19), and it is appropriate to consider their intent when deciding whether a claim has been conveyed. Thompson Medical Co., 104 F.T.C. 648, 791, aff'd, 791 F.2d 189 (D.C. Cir. 1986), cert. denied, 479 U.S. 1086 (1987).

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. Thompson Medical, 104 F.T.C. at 813, 818-19. Respondents' ads do not, with one exception, [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. 648, 821 (1984), aff'd, 791 F.2d 189 (D.C. Cir. 1986), cert. denied, 479 U.S. 1086 (1987).

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

[2]Some ads stated that the specific stopping distance claims were proven by tests and respondents should have had appropriate scientific evidence in support of them. Removatron Int'l Corp., 111 F.T.C. 206, 302, aff'd, 884 F.2d 1489 (1st Cir. 1989).

the field believe is reasonable. Thompson Medical, 104 F.T.C. at 821; Pfizer, Inc., 81 F.T.C. 23, 64 (1972).

Respondents' braking device involves automobile safety, and the experts called by complaint counsel agree that scientific tests should be conducted to verify claims made for it (F. 50-54; antilock claims) (F. 55-58; stopping distance claims).

The benefits of a truthful claim are evident and the cost of substantiation would not be prohibitive (F. 59).

The consequences of a false claim are significant, for each consumer who relied on respondents' claims paid approximately $450 for a device which does not operate as advertised (F. 8).

Consideration of the Pfizer factors compels the conclusion that the proper level of substantiation for the claims that respondents' braking device is an antilock braking system and complies with the NHTSA ABS definition, and for the braking distance and stopping distance claims, is competent and reliable scientific testing. 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

The ABS/Trax devices advertised and promoted by respondents are not, in fact, antilock brake systems. As specified by the original and clarified NHTSA definitions, as defined by SAE, as understood by engineers in the brake field since 1990, and as advertised to consumers, an antilock brake system is one that controls the level or degree of rotational wheel slip (F. 40, 41, 44, 45, 47). Respondents' device does not have the components necessary to accomplish this feat. (Compare F. 42, 43, 45 with F. 6, 48-49). Competent and reliable testing conducted by VRTC on three versions of the ABS/Trax device demonstrates that it does not control wheel slip (F. 72, 87). Respondents have submitted no competent and reliable evidence that supports their claims (F. 62-67). Thus, the claims that the ABS/Trax device is an antilock brake system and complies with the

NHTSA ABS definition (Complaint ¶¶ 5 and 7d) are false and unsubstantiated.

The results of the testing described in CX-34 demonstrate that respondents' device does not prevent or substantially reduce wheel lockup, skidding, or loss of steering control (F. 86). Respondents have submitted no competent and reliable evidence to support this claim (F. 60-67). To the contrary, the results of testing relied upon by respondents demonstrated that wheel lockup commonly resulted during stopping distance tests. Id. Accordingly, the claim that the ABS/Trax device prevents or substantially reduces wheel lockup, skidding and loss of steering control in emergency stopping situations (Complaint ¶ 7a) is false and unsubstantiated.

The results of the testing set forth in CX-34 demonstrate that respondents' device does not provide any meaningful wheel lockup control (F. 86). The testing further provides substantial evidence that factory-installed antilock brake systems do provide meaningful wheel lockup control (Id.; F. 87). Respondents have submitted no competent and reliable evidence to support the equivalence of their device with factory-installed ABS (see F. 60-67). Accordingly, the claim that ABS/Trax provides ABS benefits, including wheel lockup control benefits, at least equivalent to those provided by original equipment manufacturer electronic ABS systems (Complaint ¶ 7f), is false and unsubstantiated.

SAE J46 does not contain any performance standards or goals to be met. It is simply a test protocol, and any claim that a product complies with a performance standard set forth in SAE J46 is false (F. 54). Moreover, respondents did not possess and rely on any testing conducted pursuant to SAE J46 at the time they made the claim (F. 62-67). When later 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 ABS/Trax device complies with a performance standard set forth in Wheel Slip Brake Control System Road Test Code SAE J46 (Complaint ¶ 7c) is false and unsubstantiated.

Respondents' claim that installation of the ABS/Trax will qualify a vehicle for an automobile insurance discount in a significant proportion of cases (Complaint ¶ 7b) is false and unsubstantiated (Partial Summary Decision, Oct. 13, 1996).

Respondents' representation that tests prove that the ABS/Trax device reduces stopping distances by up to 30% when the vehicle's brakes are applied at a speed of 60 mph (Complaint ¶ 7e) is false. At the time this claim was made, the testing relied upon by respondents showed, at best, an 11% stopping distance improvement. In any event, respondents have not shown that this testing is competent and reliable (F. 63). Nor have respondents submitted any other competent and reliable evidence in support of this claim (F. 60-67). By contrast, competent and reliable testing performed by VRTC provides substantial evidence that such a stopping distance enhancement will not occur (F. 70).

Respondents' claim that the ABS/Trax device will improve stopping distances in an emergency situation is unsubstantiated (Complaint ¶ 9a). Respondents possess no competent and reliable evidence in support of this claim (F. 60-67). By contrast, testing performed by VRTC found no stopping distance improvement from the device (F. 70).

Respondents introduced no evidence that their device will make a vehicle safer (F. 60-67; Tr. 1255). By contrast, competent and reliable testing performed by VRTC found that the device did not shorten stopping distances, and did not control wheel slip (F. 70, 80-83). Accordingly, respondents' claim that the ABS/Trax device will make a vehicle safer than a vehicle not equipped with the device (Complaint ¶ 9b) is unsubstantiated.

D. Respondents' Deceptive Claims Are Material

Advertising misrepresentations are deceptive under Section 5 of the FTC Act only if they are "material" (FTC Policy Statement on Deception ("Deception Statement"), 103 F.T.C. 174, 182 (1984)). A material misrepresentation is one that is likely to affect a consumer's choice of or conduct regarding a product, i.e., reasonable consumers would consider the information in the claims important. Id.

Materiality is presumed for express claims. Id. Many of the claims alleged in the complaint were made expressly. This includes the claim that the product is an antilock brake system (Partial Summary Decision (Ad Meaning), at 4); the insurance discount availability claim (Id. at 13); the NHTSA ABS standard and SAE J46 compliance claims (Id. at 16-17; claims virtually express); the general and specific stopping distance claims (Id. at 17); and the comparative safety claim (Id. at 23).

Materiality is presumed for claims that respondents intended to make, i.e., the claims that the ABS/Trax device was an antilock brake system, that it would substantially reduce lockup, skidding and loss of control, and that it complied with the NHTSA ABS definition and with SAE J46 (F. 19).

The Commission also presumes claims to be material if they pertain to the "central characteristics of a product . . . such as those relating to its purpose . . . [or] efficacy," or to safety (Thompson Medical Co. , 104 F.T.C. at 816-17; Deception Statement, 103 F.T.C. at 182). The majority of the challenged claims made for the product directly involved its purpose, efficacy, safety and cost. The central theme of respondents' advertising was that the ABS/Trax device was an antilock brake system that provided certain braking and stopping distance improvements, and that installing an antilock brake system like ABS/Trax would make the vehicle safer (e.g., CX-1, CX-2, CX-3, CX-4). 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 ABS/Trax device and hence it was material.

E. Mr. Schops Is Individually Liable For Respondents' Ad Claims

An individual can be held liable for a corporation's violations of Section 5 if he formulates, controls or directs corporate policy. See Benrus Watch Co. v. FTC , 352 F.2d 313, 324-25 (8th Cir. 1965), cert. denied , 384 U.S. 939 (1966); Standard Distribs. v. FTC , 211 F.2d 7, 13-15 (2d Cir. 1954); Griffin Sys., Inc. , D. 9249, 1994 FTC LEXIS 76, at *22-28 (Apr. 29, 1994); see also Standard Educators, Inc. v. FTC, 475 F.2d 401, 403 (D.C. Cir.), cert. denied , 414 U.S. 828 (1973).

Mr. Schops is individually liable for the illegal conduct described in this decision because he incorporated ABSI to market the ABS/Trax device, prepared and placed the deceptive and misleading ads, and sent materials repeating the advertising claims to hundreds of potential distributors. He also represented ABSI in attending trade shows, as a signatory to distribution agreements, and in correspondence with suppliers and purchasers (F. 2).

Mr. Schops is also individually liable for the activities of DTT (F. 3) and ABSTSI (F. 4)

F. Respondents' Defenses

Respondents' post hearing brief asserts several defenses, none of which are supported by the record in this case.

1. This Proceeding Is In The Public Interest

Respondents argue that this proceeding is not in the public interest because there were few consumer complaints regarding the ABS/Trax device and because the few ads which were disseminated did not result in extensive sales.

The ads in question were disseminated over an extensive period of time (October 1991 through 1995) in three nationally distributed periodicals and on TV (in 1991). In addition, ABSI sponsored a booth at the SEMA show in 1991 and attended SEMA shows in 1992, 1993, and 1994 at which it attempted to sell the ABS/Trax device (F. 9, 10, 11). Total advertising costs during this period were significant (F. 12). Some ads were directed to the trade, not to consumers, but this does not absolve respondents from responsibility. See Litton Ind., Inc. , 97 F.T.C. 1, 13-15 (1981), aff'd as modified , 676 F.2d 364 (9th Cir. 1982).

Respondents' device sold for $459 to $499, and some 7000 units were sold from January 1992 to January 1996 (F. 8). These figures include foreign sales, over which the Commission has jurisdiction because they were initiated in the United States (Tr. 2401). Branch v. FTC , 141 F.2d 31, 35 (7th Cir. 1944).

There were few customer complaints but this is not due to consumer satisfaction but to the difficulty a layman would have in evaluating the efficacy of the ABS/Trax device (F. 58). I therefore find that this proceeding is in the public interest.

2. ABS Criteria Are Objective and Well Known

I reject respondents' argument that there are no criteria for determining whether an aftermarket device is an antilock braking system, for government and industry have established such criteria and they are well known (F. 40-46, 50-54).

3. Accumulators Are Not ABS

There is no evidence in this record that accumulators are ABS (F. 49).

4. NHTSA's Tests Were Competent and Reliable

Respondents assert, without any record evidence, that NHTSA's tests of the ABS/Trax device were flawed. The record amply supports complaint counsel's argument that NHTSA's tests were competent and reliable.

5. There Was No Foreign "Approval" of Respondents' Ads

Respondents argue that they have not violated Section 5 of the FTC Act because foreign testing of their device constituted official approval of that device. However, the tests cited by respondents did not "approve" their device; in fact both tests show that it did not control wheel lockup (F. 64-67).

G. The Appropriate Order

1. Introduction

Complaint counsel urge me to adopt, as an appropriate remedy, the notice order attached to the complaint and, in addition, the reseller and consumer notification provision in the order I entered after I found that respondents in a companion case, BST Enterprises, Inc., D. 9276, had defaulted.

After considering the matters discussed below, I agree that a broad fencing-in order is appropriate in this

proceeding. See FTC v. Colgate-Palmolive Co. , 380 U.S. 374, 395 (1965).

2. The Violations Were Serious

Respondents made false claims over a four year time period (F. 9-11) for a device involving automobile safety where claimed performance could not be evaluated by consumers. See Stouffer Foods Corp. , D. 9250, FTC LEXIS 196 at 39-40 (Sept. 26, 1994); Thompson Medical , 104 F.T.C. at 834.

3. The Violations Were Deliberate

In the face of substantial, contrary evidence, of which they were aware (F. 62-63), respondents disseminated false ads claiming that their braking device was an antilock brake system and had the attributes of factory-installed ABS. The willingness to make claims in the face of contrary, convincing evidence warrants the relief sought by complaint counsel. See Thompson Medical , 104 F.T.C. at 834-35.

4. The Violations Are Transferable

In view of Mr. Schops' conduct in promoting and selling the products involved in this proceeding through false and misleading ads for which no reasonable basis existed, it is apparent that, unless he is ordered not to do so, he will use the same tactic in promoting other products which he might manufacture or distribute in the future. See Litton Indus. Inc. , 97 F.T.C. 1 (1981), aff'd as modified , 676 F.2d 364, 370, 372 (9th Cir. 1982).

5. Reseller And Consumer Notification Is Appropriate

The reseller and consumer notification provisions will alert respondents' customers that they should not rely on the benefits promised in ads for the ABS/Trax device. Removatron Int'l Corp. , 111 F.T.C. 206, 311 (1988), aff'd, 884 F.2d 1489 (1st Cir. 1989); Southwest Sunsites, Inc. , 105 F.T.C. 7, 176-78, aff'd, 785 F.2d 1431 (9th Cir.), cert. denied , 479 U.S. 828 (1986); 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).

6. Trade Name Excision Is Warranted

In my partial summary decision (Ad Meaning) at 27, I found that respondents' product logos that employ the "ABS" acronym falsely convey to reasonable consumers that their products are antilock braking systems.

In such a situation the only practical remedy is to order excision of the ABS in connection with the promotion of respondents' device, see Thompson Medical, 104 F.T.C. at 837-38, for any qualifying phrase would create more confusion that it could cure. Continental Wax Corp. v. FTC, 330 F.2d 475, 480 (2nd Cir. 1964); Resort Car Rental Sys. Inc., 83 F.T.C. 234, 298 (1973), aff'd, 518 F.2d 962 (9th Cir.), cert. denied, 423 U.S. 827 (1975).

H. 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 FTC Act.

2. The acts and practices of respondents as described in my findings of fact constitute unfair or deceptive acts and practices in or affecting commerce in violation of Section 5(a) of the FTC Act.

3. The following order is appropriate under applicable legal precedent 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 A•B•S/Trax or A•B•S/Trax² for resale to the public, including but not limited to franchisees, wholesalers, distributors, retailers, installers, and jobbers.

I.

IT IS ORDERED that respondents, Automotive Breakthrough Sciences, Inc. and ABS Tech Sciences, Inc., corporations, their successors and assigns, and their officers, and Richard Schops, individually and as an officer and director of said corporations, 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 A•B•S/Trax, A•B•S/Trax² 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, Automotive Breakthrough Sciences, Inc. and ABS Tech Sciences, Inc., corporations, their successors and assigns, and their officers, and Richard Schops, individually and as an officer and director of said corporations, 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 A•B•S/Trax, A•B•S/Trax² 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. Has been proven in tests to reduce stopping distances by at least 30% when the vehicle's brakes are applied at a speed of 60 mph; or

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.

III.

IT IS FURTHER ORDERED that respondents Automotive Breakthrough Sciences, Inc. and ABS Tech Sciences, Inc., corporations, their successors and assigns, and their officers, and Richard Schops, individually and as an officer and director of said corporations, 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, 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:

A. In emergency stopping situations, a vehicle equipped with the system, accessory, or device will stop in a shorter distance than a vehicle that is not equipped with the system, accessory, or device; or

B. 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 Automotive Breakthrough Sciences, Inc. and ABS Tech Sciences, Inc., corporations, their successors and assigns, and their officers, and Richard Schops, individually and as an officer and director of said corporations, 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 product in or affecting commerce, as "commerce" is defined in the Federal Trade Commission Act, do forthwith cease and desist from misrepresenting, in any manner, directly or by implication:

A. The contents, validity, results, conclusions, or interpretations of any test or study;

B. The compliance of any such product with any standard, definition, regulation, or any other provision of any governmental entity or unit, or of any other organization; or

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

V.

IT IS FURTHER ORDERED that respondents Automotive Breakthrough Sciences, Inc. and ABS Tech Sciences, Inc., corporations, their successors and assigns, and their officers, and Richard Schops, individually and as an officer and director of said corporations, 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 Automotive Breakthrough Sciences, Inc. and ABS Tech Sciences, Inc., corporations, their successors and assigns, and Richard Schops 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 A•B•S/Trax or A•B•S/Trax² 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, respondents 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 A•B•S/Trax or A•B•S/Trax² 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 A•B•S/TRAX or A•B•S/TRAX² BRAKING 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 A•B•S/Trax or A•B•S/Trax², 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 of said purchaser for resale if it continues to use such advertisement or promotional material.

E. Terminate within ten (10) days the use of any purchaser for resale about whom respondents receive any information that such purchaser for resale has continued to use any advertisement or promotional material that contains any representation prohibited by this Order after receipt of the notice required by subparagraph A of this Part.

VII.

IT IS FURTHER ORDERED that respondents Automotive Breakthrough Sciences, Inc. and ABS Tech Sciences, Inc., corporations, and Richard Schops shall for five (5) years after the last correspondence to which they pertain, maintain and upon request make available to the Federal Trade Commission or its staff for inspection and copying:

A. The list compiled pursuant to subparagraph A of Part VI of this Order;

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

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 respondents Automotive Breakthrough Sciences, Inc. and ABS Tech Sciences, Inc., their 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 respondents' 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 respondents' 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 respondents Automotive Breakthrough Sciences, Inc., and ABS Tech Sciences, Inc., their successors and assigns, shall notify the Commission at least thirty (30) days prior to any proposed change in the

corporations 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 Richard Schops 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 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: March 3, 1997

APPENDIX A

[Automotive Breakthrough Sciences, Inc. or ABS Tech Sciences, Inc. letterhead]

Dear A•B•S/Trax Reseller:

Our records indicate that you are or have been a distributor or retailer of the A•B•S/Trax or A•B•S/Trax² (hereinafter "A•B•S/Trax"), a brake product. This letter is to advise you that the Federal Trade Commission ("FTC") recently obtained an Order against Automotive Breakthrough Sciences, Inc., and ABS Tech Sciences, Inc. regarding certain claims made for the A•B•S/Trax device. Under that Order, we are required to notify our distributors, wholesalers and others who have A•B•S/Trax to stop using or distributing advertisements or promotional materials containing these claims. We are also asking for your assistance in compiling a list of A•B•S/Trax 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 A•B•S/Trax device in Automotive Breakthrough Sciences, Inc., and ABS Tech Sciences, Inc.'s advertisements, logos and promotional material are **FALSE** and **MISLEADING**:

(a) A•B•S/Trax is an antilock braking system.

(b) A•B•S/Trax prevents or substantially reduces wheel lock-up, skidding, or loss of steering control in emergency stopping situations;

(c) A•B•S/Trax will qualify a vehicle for an automobile insurance discount in a significant proportion of cases;

(d) A•B•S/Trax complies with a performance standard set forth in Wheel Slip Brake Control System Road Test Code SAE J46;

(e) A•B•S/Trax complies with a standard pertaining to antilock braking systems set forth by the National Highway Traffic Safety Administration;

(f) A•B•S/Trax has been proven in tests to reduce stopping distances by up to 30% when the vehicle's brakes are applied at a speed of 60 mph; and

(g) A•B•S/Trax 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.

The FTC Order requires Automotive Breakthrough Sciences, Inc., and ABS Tech Sciences, Inc. to cease and desist from making these false claims for the A•B•S/Trax device.

In addition, the FTC Order requires Automotive Breakthrough Sciences, Inc., and ABS Tech Sciences, Inc. to cease and desist from making claims that A•B•S/Trax will shorten stopping distances in emergency stopping situations or make a vehicle safer, unless at the time of making such representation it possesses 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 businesses, including other resellers, to whom you have sold an A•B•S/Trax or A•B•S/Trax² since January 1, 1990. We need this information in order to provide the notification required by the FTC Order. If you do not provide this information, we are required to provide your name and address to the FTC.

Please stop using the A•B•S/Trax or A•B•S/Trax² promotional materials currently in your possession. These materials may contain claims that the FTC has determined to be false or unsubstantiated. You also should avoid making any of the representations as described in this letter. Under the FTC Order, we must stop doing business with you if you continue to use the prohibited materials or make the prohibited representations.

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,

Richard Schops
President
Automotive Breakthrough Sciences, Inc.

APPENDIX B

[Automotive Breakthrough Sciences, Inc. or ABS Tech Sciences, Inc. letterhead]

Dear A•B•S/Trax Customer:

Our records indicate that you previously purchased an A•B•S/Trax or A•B•S/Trax² (hereinafter "A•B•S/Trax") for your vehicle. This letter is to advise you that the Federal Trade Commission ("FTC") recently obtained an Order against Automotive Breakthrough Sciences, Inc., and ABS Tech Sciences, Inc. regarding certain claims made for the A•B•S/Trax 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 A•B•S/Trax device in Automotive Breakthrough Sciences, Inc., and ABS Tech Sciences, Inc.'s advertisements, logos and promotional material are **FALSE** and **MISLEADING**:

(a) A•B•S/Trax is an antilock braking system.

(b) A•B•S/Trax prevents or substantially reduces wheel lock-up, skidding, or loss of steering control in emergency stopping situations;

(c) A•B•S/Trax will qualify a vehicle for an automobile insurance discount in a significant proportion of cases;

(d) A•B•S/Trax complies with a performance standard set forth in Wheel Slip Brake Control System Road Test Code SAE J46;

(e) A•B•S/Trax complies with a standard pertaining to antilock braking systems set forth by the National Highway Traffic Safety Administration;

(f) A•B•S/Trax has been proven in tests to reduce stopping distances by up to 30% when the vehicle's brakes are applied at a speed of 60 mph; and

(g) A•B•S/Trax 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.

The FTC Order requires Automotive Breakthrough Sciences, INC., and ABS Tech Sciences, Inc. to cease and desist from making these false claims for the A•B•S/Trax device.

In addition, the FTC Order requires Automotive Breakthrough Sciences, Inc., and ABS Tech Sciences, Inc. to cease and desist from making claims that A•B•S/Trax will shorten stopping distances in emergency situations or make a vehicle safer, unless at the time of making such representation it possesses 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,

Richard Schops
President
Automotive Breakthrough Sciences, Inc.