

**UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK**

ANTHONY CIMINO, and BASECAMP INC.,

Plaintiffs,

v.

HEADWAY TECHNOLOGIES, INC.,
HUTCHINSON TECHNOLOGY INC.,
MAGNECOMP PRECISION TECHNOLOGY
PUBLIC CO. LTD., NAT PERIPHERAL
(DONG GUAN) CO., LTD., NAT
PERIPHERAL (H.K.) CO., LTD., NHK
SPRING CO. LTD., NHK INTERNATIONAL
CORPORATION, NHK SPRING (THAILAND)
CO., LTD., NHK SPRING PRECISION
(GUANGZHOU) CO., LTD., SAE
MAGNETICS (H.K.) LTD., AND TDK
CORPORATION,

Defendants.

Case No.

CLASS ACTION COMPLAINT

Plaintiffs, Anthony Cimino and BaseCamp Inc., on behalf of themselves and all others similarly situated (the “Classes” as defined below), upon personal knowledge as to the facts pertaining to itself and upon information and belief as to all other matters, based on the investigation of counsel, bring this class action against Defendants Headway Technologies, Inc., Hutchinson Technology Inc., Magnecomp Precision Technology Public Co. Ltd., NAT Peripheral (Dong Guan) Co., Ltd., NAT Peripheral (H.K.) Co., Ltd., NHK Spring Co. Ltd., NHK International Corporation, NHK Spring (Thailand) Co., Ltd., NHK Spring Precision (Guangzhou) Co., Ltd., SAE Magnetics (H.K.) Ltd., and TDK Corporation. Plaintiffs seek damages, injunctive relief and other relief pursuant to federal antitrust laws, state antitrust, unfair competition, consumer protection laws, and the laws of unjust enrichment, demands a trial by jury, and allege as follows:

I. NATURE OF THE ACTION

1. This lawsuit arises out of a global conspiracy among Defendants and their co-conspirators to fix prices of and allocate market shares for hard disk drive (“HDD”) suspension assemblies. HDD suspension assemblies are “critical to the operation and performance of electronic devices, and their impact on American consumers and business is direct and substantial.”¹

2. HDD suspension assemblies are a component of HDDs. HDDs use recording heads, attached to sliders, to read from and write onto rapidly spinning disks to store information electronically. HDD suspension assemblies hold the recording heads close to the disks and provide the electrical connection from the recording heads to the HDD’s circuitry. HDDs containing HDD suspension assemblies are sold both as stand-alone devices and incorporated into a variety of electronic products such as computers, gaming systems, printers, and copy machines.

3. Plaintiffs seek to represent all persons and entities who, during the period from and including May 2008 through such time as the anticompetitive effects of the Defendants’ conduct ceased (the “Class Period”), indirectly purchased a product not for resale, which included as a component part one or more HDD suspension assemblies that were manufactured or sold by the Defendants, any current or former subsidiary of the Defendants, or any co-conspirator of the Defendants.

4. At all relevant times, Defendants manufactured and sold HDD suspension assemblies throughout and into the United States. As of 2016, Defendants TDK Corporation (“TDK”) and NHK Spring Co., Ltd. (“NHK”), along with their subsidiaries and affiliates, were

¹ Exhibit 1, Japanese Manufacturer Agrees to Plead Guilty to Fixing Prices for Suspension Assemblies Used in Hard Disk Drives, United States Department of Justice (Jul. 29, 2019), <https://www.justice.gov/opa/pr/japanese-manufacturer-agrees-plead-guilty-fixing-prices-suspension-assemblies-used-hard-disk> (“DOJ Release”).

the leading manufacturers of HDD suspension assemblies, with a combined worldwide market share of approximately 90%.

5. From approximately May 2008 through at least April 2016, Defendants and their co-conspirators contracted, combined, or conspired to fix, raise, maintain, and/or stabilize prices of and allocate market shares for HDD suspension assemblies in the United States.²

6. Since at least 2016, United States and foreign governments have investigated potential price-fixing of HDD suspension assemblies.

7. In July 2016, the Japanese Fair Trade Commission (“JFTC”) raided both Defendants TDK and NHK (or certain of their subsidiaries) based on suspicion that the two companies fixed prices for HDD suspension components. Ultimately, on February 9, 2018, the JFTC issued a cease and desist order to both Defendants TDK and NHK and found that they substantially restrained competition in the HDD suspension assemblies market by agreeing to maintain sales prices.

8. Concurrently with the JFTC investigation, the United States Department of Justice (“DOJ”) opened an investigation regarding HDD suspension assemblies. Pursuant to that investigation, on July 26, 2016, Defendant Hutchinson Technology, Inc. received a letter from the DOJ requesting documents relating to the investigation.

9. Subsequently, in April 2018, Brazilian antitrust authorities launched an investigation into allegations that Defendant TDK and four other companies colluded from 2003 to May 2016 to fix prices of HDD suspension assemblies. The international cartel allegedly shared data and allocated customers to maintain artificially high prices on HDD suspension assemblies used in hard disks.

² Exhibit 2, Information, *United States of America v. NHK Spring Co., Ltd.*, 2:19-cr-20503 (E.D. Mich. Jul. 29, 2019), ECF No. 1 (“NHK Information”).

10. In 2019, Defendant NHK admitted guilt. On July 29, 2019, the DOJ announced that Defendant NHK agreed to plead guilty and pay a \$28.5 million fine for its role in a conspiracy to suppress and eliminate competition by fixing prices of HDD suspension assemblies sold in the United States and elsewhere.³

11. The Defendants and their co-conspirators participated in a combination and conspiracy to suppress and eliminate competition for HDD suspension assemblies by agreeing to rig bids for, and to fix, stabilize, and maintain the prices of HDD suspension assemblies sold in the United States and elsewhere. The combination and conspiracy engaged in by the Defendants and their co-conspirators was in unreasonable restraint of interstate and foreign trade and commerce in violation of the Sherman Antitrust Act, 15 U.S.C. § 1, and state antitrust, unfair competition, consumer protection laws, and the common law of unjust enrichment.

12. As a direct and proximate result of the anticompetitive and unlawful conduct alleged herein, Plaintiffs and the Classes (as defined below) paid more during the Class Period for HDD suspension assemblies than they otherwise would have paid in a competitive market, and have thereby suffered antitrust injury to their business or property.

II. JURISDICTION AND VENUE

13. Plaintiffs bring this action under Section 16 of the Clayton Act (15 U.S.C. § 26) to secure equitable and injunctive relief against Defendants for violating Section 1 of the Sherman Antitrust Act (15 U.S.C. § 1). Plaintiffs also assert claims for actual and exemplary damages pursuant to state antitrust, unfair competition, consumer protection and unjust enrichment laws, and seeks to obtain restitution, recover damages and secure other relief against the Defendants for violations of those state laws. Plaintiffs and the Classes also seek attorneys' fees, costs, and other

³ See Exhibit 1, DOJ Release; Exhibit 2, NHK Information at 2-3.

expenses under federal and state law.

14. This Court has jurisdiction over the subject matter of this action pursuant to Section 16 of the Clayton Act (15 U.S.C. § 26), Section 1 of the Sherman Antitrust Act (15 U.S.C. § 1), and Title 28, United States Code, Sections 1331 and 1337. This Court has subject matter jurisdiction over the state law claims pursuant to 28 U.S.C. §§ 1332(d) and 1367, in that this is a class action in which the matter or controversy exceeds the sum of \$5,000,000, exclusive of interests and costs, and in which some members of the proposed Classes are citizens of a state different from some Defendants.

15. Venue is proper in this District pursuant to Section 12 of the Clayton Act (15 U.S.C. § 22), and 28 U.S.C. §§ 1391 (b), (c), and (d), because a substantial part of the events giving rise to Plaintiffs' claims occurred in this District, a substantial portion of the affected interstate trade and commerce discussed below has been carried out in this District, and one or more of the Defendants reside, are licensed to do business in, are doing business in, had agents in, or are found or transact business in this District.

16. This Court has *in personam* jurisdiction over Defendants because each, either directly or through the ownership and/or control of its subsidiaries, inter alia: (a) transacted business in the United States, including in this District; (b) directly or indirectly sold or marketed substantial quantities of HDD suspension assemblies throughout the United States as a whole, including in this District; (c) had substantial aggregate contacts with the United States, including in this District; or (d) engaged in an illegal price-fixing conspiracy that was directed at, and had a direct, substantial, reasonably foreseeable and intended effect of causing injury to, the business or property of persons and entities residing in, located in, or doing business throughout the United States, including in this District. Defendants also have purposefully availed themselves of the laws

of the United States.

17. Defendants engaged in conduct both inside and outside of the United States that caused direct, substantial, and reasonably foreseeable and intended anticompetitive effects upon interstate commerce within the United States.

18. The activities of Defendants and their co-conspirators were within the flow of, and were intended to and did have a substantial effect on interstate commerce of the United States. Defendants' products are sold in the flow of interstate commerce.

19. HDD suspension assemblies manufactured abroad by Defendants and sold for use in products in the United States are goods brought into the United States for sale, and therefore constitute import commerce. To the extent any HDD suspension assemblies are purchased in the United States, and such HDD suspension assemblies do not constitute import commerce, Defendants' activities with respect thereto, as more fully alleged herein during the Class Period, had, and continue to have, a direct, substantial and reasonably foreseeable effect on United States commerce. The anticompetitive conduct, and its effect on United States commerce described herein, proximately caused antitrust injury in the United States.

20. By reason of the unlawful activities hereinafter alleged, Defendants' unlawful activities substantially affected commerce throughout the United States, causing injury to Plaintiffs and members of the Classes. Defendants, directly and through their agents, engaged in activities affecting all states; Defendants conspired to fix, raise, maintain and/or stabilize prices of HDD suspension assemblies throughout the United States, and to allocate the market and customers in the United States for HDD suspension assemblies, which unreasonably restrained trade and adversely affected the market for HDD suspension assemblies.

21. Defendants' conspiracy and wrongdoing described herein adversely affected

persons in the United States who purchased a product in the United States not for resale which included an HDD suspension assembly.

III. THE PARTIES

22. Plaintiff Anthony Cimino is a resident of New York. During the Class Period, Mr. Cimino purchased at least one HDD suspension assembly indirectly from at least one Defendant and was injured in his business or property as a result of Defendants' unlawful conduct alleged herein.

23. Plaintiff BaseCamp Inc. is a Washington D.C. company with its principal place of business at 1929 18th Street NW, Washington D.C. 20009. BaseCamp Inc. provides graphic design, printing and shipping services. During the Class Period, BaseCamp Inc. purchased at least one HDD suspension assembly indirectly from at least one Defendant and was injured in its business or property as a result of Defendants' unlawful conduct alleged herein.

A. TDK DEFENDANTS

24. Defendant TDK Corporation is a Japanese corporation with its principal place of business in Tokyo, Japan. TDK Corporation—directly and/or through its affiliates, which it wholly owned and/or controlled—manufactured, marketed and/or sold HDD suspension assemblies that were sold and purchased throughout the United States, including in this District, during the Class Period.

25. Defendant Magnecomp Precision Technology Public Co. Ltd. is a Thai corporation with its principal place of business in Ayutthaya, Thailand. It is an affiliate of and wholly controlled by TDK Corporation. Magnecomp Precision Technology Public Co. Ltd.—directly and/or through its affiliates—manufactured, marketed and/or sold HDD suspension assemblies that were sold and purchased throughout the United States, including in this District, during the Class Period.

26. Defendant SAE Magnetics (H.K.) Ltd. is a Chinese corporation with its principal place of business in Hong Kong, China. It is an affiliate of and wholly controlled by TDK Corporation. SAE Magnetics—directly and/or through its affiliates—manufactured, marketed and/or sold HDD suspension assemblies that were sold and purchased throughout the United States, including in this District, during the Class Period.

27. Defendant Hutchinson Technology Inc. is a Minnesota corporation with its principal place of business in Hutchinson, Minnesota. TDK Corporation acquired Hutchinson Technology Inc. on October 6, 2016.⁴ It is an affiliate of and wholly controlled by TDK Corporation. Hutchinson Technology Inc.—directly and/or through its affiliates—manufactured, marketed and/or sold HDD suspension assemblies that were sold and purchased throughout the United States, including in this District, during the Class Period.

28. Defendant Headway Technologies, Inc. is a Delaware corporation with its principal place of business in Milpitas, California. It is an affiliate of and wholly controlled by TDK Corporation. Headway Technologies—directly and/or through its affiliates—manufactured, marketed and/or sold HDD suspension assemblies that were sold and purchased throughout the United States, including in this District, during the Class Period.

B. NHK DEFENDANTS

29. Defendant NHK Spring Co., Ltd. is a Japanese corporation with its principal place of business in Yokohama, Japan. NHK Spring Co., Ltd.—directly and/or through its affiliates, which it wholly owned and/or controlled—manufactured, marketed and/or sold HDD suspension assemblies that were sold and purchased throughout the United States, including in this District, during the Class Period.

⁴ Exhibit 3, TDK Corporation Announces Completion of Hutchinson Acquisition, TDK Global (Oct. 6, 2016).

30. Defendant NHK International Corporation is a Michigan corporation with its principal place of business in Novi, Michigan. It is an affiliate of and wholly controlled by NHK Spring Co., Ltd. NHK International Corporation—directly and/or through its subsidiaries, which it wholly owned and/or controlled—manufactured, marketed and/or sold HDD suspension assemblies that were sold and purchased throughout the United States, including in this District, during the Class Period.

31. Defendant NHK Spring (Thailand) Co., Ltd. is a Thai corporation with its principal place of business in Samutprakarn, Thailand. It is an affiliate of and wholly controlled by NHK Spring Co., Ltd. NHK Spring (Thailand) Co., Ltd.—directly and/or through its subsidiaries, which it wholly owned and/or controlled—manufactured, marketed and/or sold HDD suspension assemblies that were sold and purchased throughout the United States, including in this District, during the Class Period.

32. Defendant NHK Spring Precision (Guangzhou) Co., Ltd. is a Chinese corporation with its principal place of business in Guangzhou, China. It is an affiliate of and wholly controlled by NHK Spring Co., Ltd. NHK Spring Precision (Guangzhou) Co., Ltd.—directly and/or through its subsidiaries, which it wholly owned and/or controlled—manufactured, marketed and/or sold HDD suspension assemblies that were sold and purchased throughout the United States, including in this District, during the Class Period.

33. Defendant NAT Peripheral (Dong Guan) Co., Ltd. is a Chinese corporation with its principal place of business in Guangdong, China. It is an affiliate of and wholly controlled by NHK Spring Co., Ltd. NAT Peripheral (Dong Guan) Co., Ltd.—directly and/or through its subsidiaries, which it wholly owned and/or controlled—manufactured, marketed and/or sold HDD suspension assemblies that were sold and purchased throughout the United States, including in this District,

during the Class Period.

34. Defendant NAT Peripheral (H.K.) Co., Ltd. is a Chinese corporation with its principal place of business in Hong Kong, China. It is an affiliate of and wholly controlled by NHK Spring Co., Ltd. NAT Peripheral (H.K.) Co., Ltd.—directly and/or through its subsidiaries, which it wholly owned and/or controlled—manufactured, marketed and/or sold HDD suspension assemblies that were sold and purchased throughout the United States, including in this District, during the Class Period.

IV. AGENTS AND CO-CONSPIRATORS

35. The acts alleged against the Defendants in this Complaint were authorized, ordered, or done by their officers, agents, employees, or representatives, while actively engaged in the management and operation of Defendants' business or affairs.

36. Various persons and/or firms not named as Defendants herein may have participated as co-conspirators in the violations alleged herein and may have performed acts and made statements in furtherance thereof. Plaintiffs reserve the right to name some or all of these persons as defendants at a later date.

37. Whenever this Complaint reference is made to any act, deed, or transaction of any corporation, the allegation means that the corporation engaged in the act, deed, or transaction by or through its officers, directors, agents, employees, or representatives while they were actively engaged in the management, direction, control, or transaction of the corporation's business or affairs.

38. Each Defendant or co-conspirator acted as the principal, agent, or joint venture of, or for, other Defendants and co-conspirators with respect to the acts, violations, and common course of conduct alleged by Plaintiffs. Each Defendant and co-conspirator that is a subsidiary of a foreign parent acted as the United States agent for HDD suspension assemblies made by its parent

company.

V. INTERSTATE TRADE AND COMMERCE

39. The conduct of Defendants and their co-conspirators has taken place in, and affected the continuous flow of interstate trade and commerce of the United States in that, *inter alia*:

- a. During the Class Period, Defendants and their co-conspirators sold and distributed HDD suspension assemblies throughout the United States;
- b. Defendants and their co-conspirators have each used instrumentalities of interstate commerce to manufacture, sell, distribute, and/or market HDD suspension assemblies throughout the United States;
- c. Defendants and their co-conspirators manufactured, sold, and shipped substantial quantities of HDD suspension assemblies in a continuous and uninterrupted flow of interstate commerce to customers; and
- d. The conspiracy alleged herein affected billions of dollars of commerce. During the Class Period, Defendants collectively controlled approximately 90% of the global HDD suspension parts market. Defendants and their co-conspirators have inflicted antitrust injury by artificially raising prices paid by Plaintiffs and other entities who are themselves engaged in commerce.

VI. FACTUAL ALLEGATIONS

A. The HDD Suspension Assembly Industry

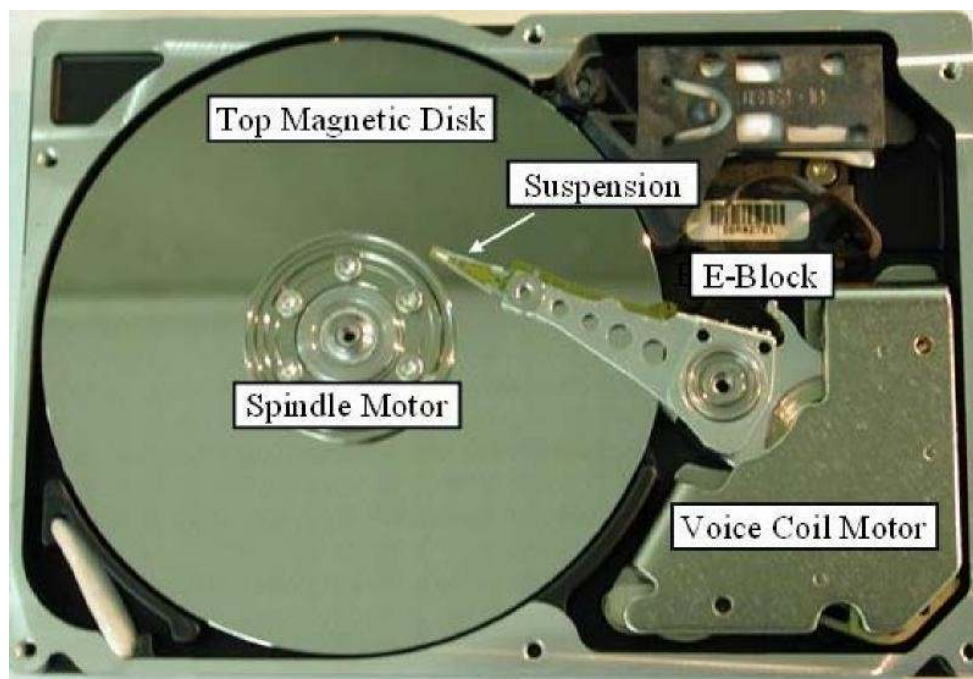
40. HDD suspension assemblies are a critical component of HDDs.⁵

⁵ Exhibit 4, Hutchinson Shares Extend Slide on Continued FTC Antitrust Review, THE STREET (Jan. 5, 2016), <https://www.thestreet.com/story/13412469/1/hutchinson-shares-keep-falling-on-extended-ftc-antitrust-review.html> (“Hutchison FTC Review, THE STREET”).

41. HDDs use magnetism to write, retrieve and store vast amounts of information electronically.⁶ HDDs are installed in a variety of electronic products including computers, copy machines, and gaming systems.

42. HDDs are comprised of, among other things, spinning magnetic disks and magnetic heads that fly over the disks, reading and writing the information contained on the disks (*see* Figure 1).⁷ HDD suspension assemblies hold the magnetic heads in position over the disks.⁸ Thus, HDD suspension assemblies are essential to the functioning of HDDs.

(Figure 1)⁹



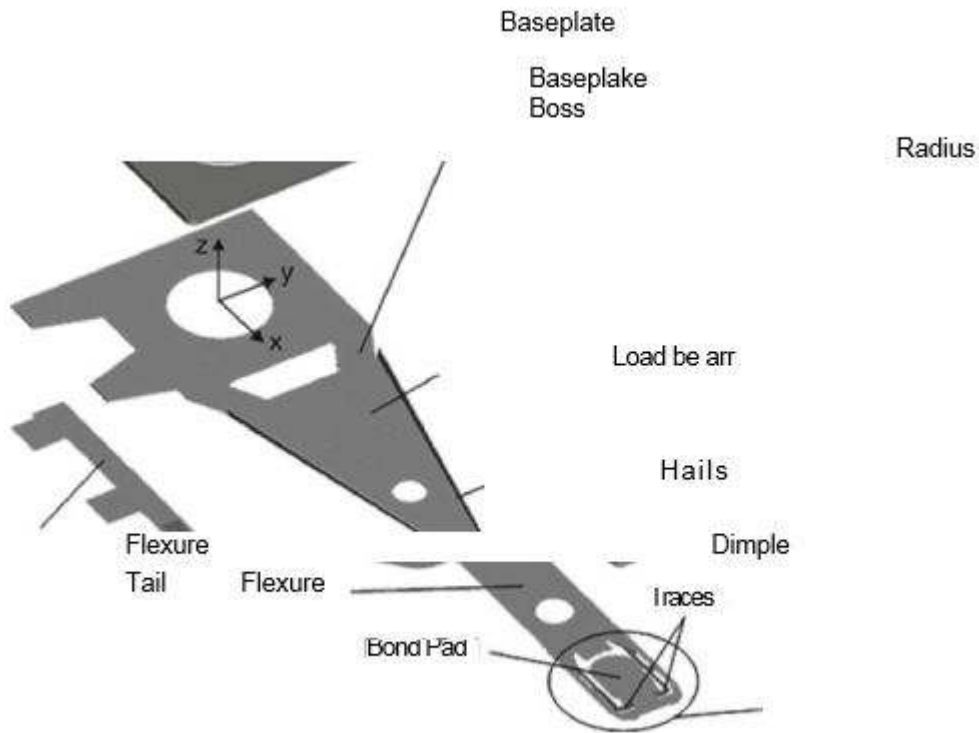
⁶ Exhibit 5, Hard Drives, EXPLAINTHATSTUFF, <https://www.explainthatstuff.com/harddrive.html> (last visited August 6, 2019).

⁷ *Id.*; *see also* Exhibit 6, Hard Disk Drives, TEXAS A&M UNIVERSITY, <https://microtribodynamics.engr.tamu.edu/hard-disk-drives/> (last visited Aug. 6, 2019).

⁸ *See* Exhibit 5, Hard Drives, EXPLAINTHATSTUFF

⁹ *See* Exhibit 6, Hard Disk Drives, TEXAS A&M UNIVERSITY

(Figure 2: HDD Suspension Assembly)



43. Defendants manufacture and sell HDD suspension assemblies in the United States and elsewhere to companies that install HDD suspension assemblies into HDDs. Consumers then purchase HDDs as either stand-alone products, or as part of larger systems, such as computers.

44. In 2018, global unit shipments of HDDs were nearly 400 million.¹⁰ One study predicts HDD shipments will increase in the coming years.¹¹

B. Defendant NHK Agreed to Plead to Guilty and Pay a Criminal Fine for Conspiring to Fix Prices and Allocate Market Shares for HDD Suspension Assemblies.

45. On July 29, 2019, Defendant NHK agreed to plead guilty and pay a \$28.5 million fine for its role in the global conspiracy alleged herein. According to the criminal Information, from May 2008 to April 2016, NHK engaged in a conspiracy consisting of a continuing agreement,

¹⁰ Exhibit 7, Worldwide Unit Shipments of Hard Disk Drives (HDD) from 1976 to 2022 (in millions), STATISTA, <https://www.statista.com/statistics/398951/global-shipment-figures-for-hard-disk-drives/> (last visited Aug. 6, 2019).

¹¹ *Id.*

understanding, and concert of action among Defendant NHK and its co-conspirators to refrain from competing on prices for, fix the prices of, and allocate their respective market shares for HDD suspension assemblies to be sold in the United States and elsewhere.¹²

46. According to the Information, Defendant NHK and its co-conspirators effectuated their conspiracy by, among other things:

- a. engaging in discussions and attending meetings during which they reached agreements to refrain from competing on prices for, fix the prices of, and allocate their respective market shares for HDD suspension assemblies;
- b. exchanging HDD suspension assemblies pricing information;
- c. relying on their agreements not to compete and using the exchange pricing information to inform their negotiations with U.S. and foreign customers;
- d. selling HDD suspension assemblies in, or for delivery to, the United States and elsewhere at collusive and noncompetitive prices;
- e. accepting payment for HDD suspension assemblies sold in, or for delivery to the United States and elsewhere at collusive and noncompetitive prices.

C. Additional Government Investigations

47. In July 2016, the JFTC raided both Defendants TDK and NHK based on suspicion that the two companies and/or their subsidiaries fixed prices for HDD suspension components. Ultimately, on February 9, 2018, the JFTC issued a cease and desist order to both Defendants TDK and NHK and found that they substantially restrained competition in the HDD suspension assemblies market by agreeing to maintain sales prices.

48. Concurrently with the JFTC investigation, the DOJ opened an investigation

¹² See Exhibit 2, NHK Information

regarding HDD suspension assemblies. On July 26, 2016, Defendant Hutchinson Technology Inc. received a letter from the DOJ requesting documents relating to the investigation and expressed its intent to cooperate. At the time Hutchinson received the DOJ's letter, TDK Corporation's pending acquisition of Hutchinson Technology Inc. was under review by the U.S. Federal Trade Commission.

49. Subsequently, in April 2018, Brazilian antitrust authorities launched an investigation into allegations that Defendant TDK and four other companies colluded from 2003 to May 2016 to fix prices of HDD suspension assemblies. The international cartel allegedly shared data and allocated customers to maintain artificially high prices on HDD suspension assemblies used in hard disks.

D. The Characteristics of the HDD Suspension Assembly Market Render the Conspiracy More Plausible.

50. Like other electronic product markets that have been the subject of antitrust investigations (e.g. cathode ray tubes, lithium ion batteries, and capacitors), the HDD suspension assemblies market has characteristics that make it susceptible to collusion, including high barriers to entry and high market concentration. Together, these characteristics increase the probability and feasibility of anticompetitive conduct in the HDD suspension assemblies market.

1. The HDD Suspension Assemblies Market Has High Barriers to Entry.

51. A collusive arrangement that raises product prices above competitive levels would, under basic economic principles, attract new entrants to the market seeking to benefit from the supracompetitive pricing. Where, however, there are significant barriers to entry, new entrants are much less likely to enter the market. Thus, barriers to entry help facilitate the formation and maintenance of cartels.

52. This is particularly true here where manufacturing HDD suspension assemblies

requires the ability to produce precision assemblies in sufficient volume. As Defendant Hutchinson Technology Inc. conceded, “We believe that the number of entities that have the technical capability and capacity for producing precision suspension assemblies or components in large volumes will remain small.”¹³

53. Moreover, increased demand for other types of data storage technology, such as those that utilize flash memory, limit opportunities for new entrants to the HDD suspension assembly market, which caters to hard disk drives.¹⁴

2. The HDD Suspension Assemblies Market Is Highly Concentrated.

54. Upon information and belief, there were numerous suppliers of HDD suspension assemblies in the 1980s and the market was quite competitive. A process of market consolidation began in the 1990s, however, and by 2002 the market had already become concentrated. Over the past 18 years, this trend has been further aggravated by two factors: (a) further consolidation among HDD suspension assemblies manufacturers, and (b) the vertical integration of companies like TDK that formerly depended on independent component suppliers in their manufacturing of HDDs.

55. In recent years, market consolidation has continued to the point where globally, there are now only two major suppliers of HDD suspension assemblies: TDK and NHK (and their subsidiaries). For example, TDK acquired a formerly independent HDD suspension assemblies manufacturer in 2007 and had fully integrated that acquisition by 2009.

56. Hutchinson Technology, at one time the largest manufacturer of HDD suspension assemblies, was acquired by Defendant TDK in 2016. Prior to the acquisition, Hutchinson had gone through its own process of consolidation and was a principal supplier of HDD suspension

¹³ See Exhibit 4, Hutchinson FTC Review, THE STREET.

¹⁴ *Id.*

assemblies to Western Digital Corporation (headquartered in San Jose, CA); Seagate Technology, LLC (Cupertino, CA); and SAE Magnetics, Ltd/TDK Corporation (Tokyo, Japan). That business is now contained within the TDK family.

VII. CLASS ACTION ALLEGATIONS

57. Plaintiffs bring this action on behalf of itself and as a class action under Rule 23(a) and (b)(2) of the Federal Rules of Civil Procedure, seeking equitable and injunctive relief on behalf of the following class (the “Nationwide Class”):

All persons and entities who, during the Class Period, indirectly purchased a product not for resale which included as a component part one or more HDD suspension assemblies that were manufactured or sold by the Defendants, any current or former subsidiary of the Defendants, or any co-conspirator of the Defendants.

58. Plaintiffs also bring this action on behalf of themselves and as a class action under Rule 23(a) and (b)(3) of the Federal Rules of Civil Procedure seeking damages pursuant to state antitrust, unfair competition, and consumer protection laws as well as common law unjust enrichment on behalf of the following class (the “Damages Class”):

All persons and entities who, during the Class Period, in the Indirect Purchaser States¹⁵ purchased a product not for resale which included as a component part one or more HDD suspension assemblies that were manufactured or sold by the Defendants, any current or former subsidiary of the Defendants, or any co-conspirator of the Defendants.

59. The Nationwide Class and the Damages Class are referred to herein as the “Classes.” Excluded from the Classes are the Defendants, their parent companies, subsidiaries and affiliates, any co-conspirators, federal governmental entities and instrumentalities of the federal government, states and their subdivisions, agencies and instrumentalities, and persons who purchased HDD suspension assemblies directly or for resale.

¹⁵ The Indirect Purchaser States are the states listed in the Second and Third Claims for Relief.

60. While Plaintiffs do not know the exact number of the members of the Classes, Plaintiffs believe there are (at least) thousands of members in each Class.

61. Common questions of law and fact exist as to all members of the Classes. This is particularly true given the nature of the Defendants' conspiracy, which was generally applicable to all the members of both Classes, thereby making appropriate relief with respect to the Classes as a whole. Such questions of law and fact common to the Classes include, but are not limited to:

- a. Whether the Defendants and their co-conspirators engaged in a combination and conspiracy among themselves to fix, raise, maintain or stabilize the prices of HDD suspension assemblies sold in the United States;
- b. The identity of the participants of the alleged conspiracy;
- c. The duration of the alleged conspiracy and the acts carried out by Defendants and their co-conspirators in furtherance of the conspiracy;
- d. Whether the alleged conspiracy violated the Sherman Act, as alleged in the First Claim for Relief;
- e. Whether the alleged conspiracy violated state antitrust, unfair competition, and/or consumer protection laws, as alleged in the Second and Third Claims for Relief;
- f. Whether the Defendants unjustly enriched themselves to the detriment of the Plaintiffs and the members of the Classes, thereby entitling Plaintiffs and the members of the Classes to disgorgement of all benefits derived by Defendants, as alleged in the Fourth Claim for Relief;
- g. Whether the conduct of the Defendants and their co-conspirators, as alleged in this Complaint, caused injury to the business or property of Plaintiffs and the

members of the Classes;

- h. The effect of the alleged conspiracy on the prices of HDD suspension assemblies sold in the United States during the Class Period;
- i. Whether Plaintiffs and the members of the Classes had any reason to know or suspect the conspiracy, or any means to discover the conspiracy;
- j. Whether the Defendants and their co-conspirators fraudulently concealed the conspiracy's existence from Plaintiffs and the members of the Classes;
- k. The appropriate injunctive and related equitable relief for the Nationwide Class; and
- l. The appropriate class-wide measure of damages for the Damages Class.

62. Plaintiffs' claims are typical of the claims of the members of the Classes, and Plaintiffs will fairly and adequately protect the interests of the Classes. Plaintiffs and all members of the Classes are similarly affected by the Defendants' wrongful conduct in that they paid artificially inflated prices for HDD suspension assemblies purchased indirectly from the Defendants and/or their co-conspirators.

63. Plaintiffs' claims arise out of the same common course of conduct giving rise to the claims of the other members of the Classes. Plaintiffs' interests are coincident with, and not antagonistic to, those of the other members of the Classes. Plaintiffs are represented by counsel who are competent and experienced in the prosecution of antitrust and class action litigation.

64. The questions of law and fact common to the members of the Classes predominate over any questions affecting only individual members, including legal and factual issues relating to liability and damages.

65. Class action treatment is a superior method for the fair and efficient adjudication of

the controversy, in that, among other things, such treatment will permit a large number of similarly situated persons to prosecute their common claims in a single forum simultaneously, efficiently and without the unnecessary duplication of evidence, effort and expense that numerous individual actions would engender. The benefits of proceeding through the class mechanism, including providing injured persons or entities with a method for obtaining redress for claims that might not be practicable to pursue individually, substantially outweigh any difficulties that may arise in the management of this class action.

66. The prosecution of separate actions by individual members of the Classes would create a risk of inconsistent or varying adjudications, establishing incompatible standards of conduct for the Defendants.

VIII. PLAINTIFFS AND THE CLASSES SUFFERED ANTITRUST INJURY.

67. Defendants' price-fixing conspiracy had the following effects, among others:

- a. Price competition has been restrained or eliminated with respect to HDD suspension assemblies;
- b. The prices of HDD suspension assemblies have been fixed, raised, maintained, or stabilized at artificially inflated levels;
- c. Indirect purchasers of HDD suspension assemblies have been deprived of free and open competition; and
- d. Indirect purchasers of HDD suspension assemblies paid artificially inflated prices for HDD suspension assemblies.

68. During the Class Period, Plaintiffs and the members of the Classes paid supra-competitive prices for HDD suspension assemblies. HDD manufacturers and other purchasers of HDD suspension assemblies passed on inflated prices to Plaintiffs and the members of the Classes. Those overcharges have unjustly enriched Defendants.

69. The markets for HDDs and HDD suspension assemblies are inextricably linked and intertwined because the market for HDD suspension assemblies exists to serve the HDD market. Without the HDDs, the HDD suspension assemblies have little to no value because they have no independent utility.

70. HDD suspension assemblies are identifiable, discrete physical products that remain essentially unchanged when incorporated into an HDD. As a result, HDD suspension assemblies follow a traceable physical chain of distribution from the Defendants to Plaintiffs and the members of the Classes, and costs attributable to HDD suspension assemblies can be traced through the chain of distribution to Plaintiffs and the members of the Classes.

71. Just as HDD suspension assemblies can be physically traced through the supply chain, so can their prices be traced to show that changes in the prices paid by direct purchasers of HDD suspension assemblies affect prices paid by indirect purchasers for HDDs containing HDD suspension assemblies.

72. While even a monopolist would increase its prices when the cost of its inputs increased, the economic necessity of passing through cost changes increases with the degree of competition a firm faces.

73. The economic and legal literature has recognized that unlawful overcharges in a component normally result in higher prices for products containing that price-fixed component. Two antitrust scholars—Professors Robert G. Harris (Professor Emeritus and former Chair of the Business and Public Policy Group at the Haas School of Business at the University of California at Berkeley) and the late Lawrence A. Sullivan (Professor of Law Emeritus at Southwestern Law School and author of the Handbook of the Law of Antitrust)—have observed that “in a multiple-level chain of distribution, passing on monopoly overcharges is not the exception: it is the rule.”

74. Professor Jeffrey K. MacKie-Mason is the Arthur W. Burks Professor for Information and Computer Science and Professor of Economics and Public Policy at the University of Michigan. As an expert, Professor MacKie-Mason has presented evidence in a number of indirect purchaser cases involving Microsoft Corporation. Professor MacKie-Mason said the following, which was quoted in a judicial decision granting class certification in those Microsoft Corporation cases:

As is well known in economic theory and practice, at least some of the overcharge will be passed on by distributors to end consumers. When the distribution markets are highly competitive, as they are here, all or nearly the entire overcharge will be passed on through to ultimate consumers . . . Both of Microsoft's experts also agree upon the economic phenomenon of cost pass through, and how it works in competitive markets. This general phenomenon of cost pass through is well established in antitrust laws and economics as well.¹⁶

75. The purpose of the conspiratorial conduct of Defendants and their co- conspirators was to raise, fix, rig or stabilize the price of HDD suspension assemblies and, as a direct and foreseeable result, the price of products containing HDD suspension assemblies. Regression analysis can be used to determine the impact of a price increase on one cost in a product (or service) that is an assemblage of costs. Thus, it is possible to isolate and identify only the impact of an increase in the price of HDD suspension assemblies on prices for products containing HDD suspension assemblies even though such products contain a number of other components whose prices may be changing over time.

76. The precise amount of the overcharge impacting the prices of products containing HDD suspension assemblies can be measured and quantified. Commonly used and well-accepted economic models can be used to measure both the extent and the amount of the supra-competitive charge passed through the chain of distribution. Thus, the economic harm to Plaintiffs and class

¹⁶ Order re: Class Certification at 13-14, Coordination Proceedings Special Title (Rule 1550(b)) Microsoft I-V Cases, No. J.C.C.P. No. 4106, (Cal. Sup. Ct. Aug. 29, 2000).

members can be quantified.

77. By reason of the violations of the antitrust law alleged herein, Plaintiffs and the members of the Classes have sustained injury to their businesses or property, having paid higher prices for HDD suspension assemblies than they would have paid in the absence of the Defendants' illegal contract, combination, or conspiracy, and, as a result, have suffered damages in an amount presently undetermined. This is an antitrust injury of the type that the antitrust laws were meant to punish and prevent.

IX. PLAINTIFFS' CLAIMS ARE NOT BARRED BY THE STATUTE OF LIMITATIONS.

A. Defendants Have Engaged in a Continuing Violation.

78. Plaintiffs repeat and re-allege the allegations set forth above.

79. Plaintiffs and members of the Classes had no knowledge of the combination or conspiracy alleged herein, or of facts sufficient to place them on inquiry notice of the claims set forth herein.

80. Plaintiffs and members of the Classes are consumers who purchased HDDs containing HDD assemblies for their own use and not for resale. No information in the public domain was available to Plaintiffs and members of the Classes prior to July 26, 2016. Moreover, Plaintiffs and members of the Classes had no direct contact or interaction with the Defendants and had no means from which they could have discovered that the Defendants were engaged in the conspiracy combination and conspiracy alleged herein before July 26, 2016.

81. This Complaint alleges a continuing course of conduct (including conduct within the applicable limitations periods), and Defendants' unlawful conduct has inflicted continuing and accumulating harm within the applicable statutes of limitations.

82. Each time Defendants engaged in an unlawful act complained of here, Defendants

undertook an overt act that has inflicted harm on Plaintiffs and other members of the Classes.

83. Because Defendants have engaged in a continuing course of conduct, Plaintiffs' claims are timely.

B. Fraudulent Concealment Told the Statute of Limitations

84. Application of the doctrine of fraudulent concealment tolled the statute of limitations on the claims asserted herein by Plaintiffs and the Classes. Plaintiffs and members of the Classes did not discover and could not discover through the exercise of reasonable diligence, the existence of the conspiracy alleged herein until July 26, 2016, the date that the JFTC's raid on Defendants TDK and NHK became public.

85. Before that time, Plaintiffs and members of the Classes were unaware of Defendants' unlawful conduct and did not know before then that they were paying supra-competitive prices for HDD suspension assemblies throughout the United States during the Class Period. No information, actual or constructive, was ever made available to Plaintiffs and members of the Classes that even hinted to Plaintiffs that they were being injured by Defendants' unlawful conduct.

86. By its very nature, the Defendants' and their co-conspirators' anticompetitive conspiracy was inherently self-concealing. HDD suspension assemblies are not exempt from antitrust regulation and, thus, Plaintiffs and members of the Classes reasonably considered the HDD suspension assemblies industry to be a competitive industry. Accordingly, a reasonable person under the circumstances would not have been alerted to begin to investigate the legitimacy of Defendants' HDD suspension assemblies prices before July 26, 2016, the date of the JFTC raid.

87. Because the alleged conspiracy was self-concealing and affirmatively concealed by Defendants and their co-conspirators, Plaintiffs and members of the Classes had no knowledge of the alleged conspiracy, or of any facts or information that would have caused a reasonably diligent

person to investigate whether a conspiracy existed, until July 26, 2016.

88. For these reasons, the statute of limitations applicable to Plaintiffs and the Classes' claims was tolled and did not begin to run until July 26, 2016.

X. VIOLATIONS ALLEGED

FIRST CLAIM FOR RELIEF

Violation of Section 1 of the Sherman Act (on behalf of Plaintiffs and the Nationwide Class)

89. Plaintiffs incorporate by reference the allegations in the preceding paragraphs.

90. Defendants and unnamed co-conspirators entered into and engaged in a contract, combination, or conspiracy in unreasonable restraint of trade in violation of Section 1 of the Sherman Act (15 U.S.C. § 1).

91. The acts done by the Defendants as part of, and in furtherance of, their and their co-conspirators' contract, combination, or conspiracy were authorized, ordered, or done by their officers, agents, employees, or representatives while actively engaged in the management of their affairs.

92. During the Class Period, Defendants and their co-conspirators entered into a continuing agreement, understanding and conspiracy in restraint of trade to artificially fix, raise, stabilize, and control prices for HDD suspension assemblies, thereby creating anticompetitive effects.

93. The anticompetitive acts were intentionally directed at the United States market for HDD suspension assemblies and had a substantial and foreseeable effect on interstate commerce by raising and fixing prices for HDD suspension assemblies throughout the United States.

94. The conspiratorial acts and combinations have caused unreasonable restraints in the markets for HDD suspension assemblies.

95. As a result of Defendants' unlawful conduct, Plaintiffs and other similarly situated

indirect purchasers in the Nationwide Class who purchased HDD suspension assemblies have been harmed by being forced to pay inflated, supra-competitive prices for HDD suspension assemblies.

96. In formulating and carrying out the alleged agreement, understanding and conspiracy, Defendants and their co-conspirators did those things that they combined and conspired to do, including but not limited to the acts, practices and course of conduct set forth herein.

97. Defendants conspiracy had the following effects, among others:

- a. Price competition in the market for HDD suspension assemblies has been restrained, suppressed, and/or eliminated in the United States;
- b. Prices for HDD suspension assemblies sold by Defendants and their co-conspirators have been fixed, raised, maintained, and stabilized at artificially high, non-competitive levels throughout the United States; and
- c. Plaintiffs and members of the Nationwide Class who purchased HDD suspension assemblies indirectly from Defendants and their co-conspirators have been deprived of the benefits of free and open competition.

98. Plaintiffs and members of the Nationwide Class have been injured and will continue to be injured in their business and property by paying more for HDD suspension assemblies purchased indirectly from Defendants and their co-conspirators than they would have paid and will pay in the absence of the conspiracy.

99. The alleged contract, combination, or conspiracy is a per se violation of the federal antitrust laws.

100. Plaintiffs and members of the Nationwide Class are entitled to an injunction against Defendants, preventing and restraining the violations alleged herein.

SECOND CLAIM FOR RELIEF
Violation of State Antitrust Statutes
(on behalf of Plaintiffs and the Damages Class)

101. Plaintiffs incorporate by reference the allegations in the preceding paragraphs.

102. During the Class Period, Defendants and their co-conspirators engaged in a continuing contract, combination or conspiracy with respect to the sale of HDD suspension assemblies in unreasonable restraint of trade and commerce and in violation of the various state antitrust and other statutes set forth below.

103. The contract, combination, or conspiracy consisted of an agreement among Defendants and their co-conspirators to fix, raise, inflate, stabilize, and/or maintain at artificially supra-competitive levels the prices for HDD suspension assemblies and to allocate customers for these products in the United States.

104. In formulating and effectuating this conspiracy, the Defendants and their co-conspirators performed acts in furtherance of the combination and conspiracy, including:

- a. participating in meetings and conversations among themselves in the United States and elsewhere during which they agreed to price HDD suspension assemblies at certain levels, and otherwise to fix, increase, inflate, maintain, or stabilize effective prices paid by Plaintiffs and members of the Damages Class with respect to HDD suspension assemblies sold in the United States;
- b. allocating customers and markets for HDD suspension assemblies in the United States in furtherance of their agreements; and participating in meetings and conversations among themselves in the United States and elsewhere to implement, adhere to, and police the unlawful agreements they reached.

105. Defendants and their co-conspirators engaged in the actions described above for the purpose of carrying out their unlawful agreements to fix, maintain, increase, or stabilize prices and

to allocate customers with respect to HDD suspension assemblies.

106. Defendants' anticompetitive acts described above were knowing and willful and constitute violations or flagrant violations of the following state antitrust statutes.

107. Defendants have entered into an unlawful agreement in restraint of trade in violation of the Arizona Revised Statutes, §§ 44-1401, *et seq.*

- a. Defendants' combinations or conspiracies had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout Arizona; (2) HDD suspension assemblies prices were raised, fixed, maintained and stabilized at artificially high levels throughout Arizona; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- b. During the Class Period, Defendants' illegal conduct substantially affected Arizona commerce.
- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property and are threatened with further injury.
- d. By reason of the foregoing, Defendants entered into agreements in restraint of trade in violation of Ariz. Rev. Stat. §§ 44-1401, *et seq.* Accordingly, Plaintiffs and members of the Damages Class seek all forms of relief available under Ariz. Rev. Stat. §§ 44-1401, *et seq.*

108. Defendants have entered into an unlawful agreement in restraint of trade in

violation of the California Business and Professions Code, §§ 16700, *et seq.*

- a. During the Class Period, Defendants and their co-conspirators entered into and engaged in a continuing unlawful trust in restraint of the trade and commerce described above in violation of Section 16720, California Business and Professions Code. Defendants, each of them, have acted in violation of Section 16720 to fix, raise, stabilize, and maintain prices of, and allocate markets for, HDD suspension assemblies at supra-competitive levels.
- b. The aforesaid violations of Section 16720, California Business and Professions Code, consisted, without limitation, of a continuing unlawful trust and concert of action among the Defendants and their co-conspirators, the substantial terms of which were to fix, raise, maintain, and stabilize the prices of, and to allocate markets for, HDD suspension assemblies.
- c. For the purpose of forming and effectuating the unlawful trust, the Defendants and their co-conspirators have done those things which they combined and conspired to do, including but not limited to the acts, practices and course of conduct set forth above and the following: (1) Fixing, raising, stabilizing, and pegging the price of HDD suspension assemblies; and (2) Allocating among themselves the production of HDD suspension assemblies.
- d. The combination and conspiracy alleged herein has had, *inter alia*, the following effects: (1) Price competition in the sale of HDD suspension assemblies has been restrained, suppressed, and/or eliminated in the State of California; (2) Prices for HDD suspension assemblies sold by Defendants and their co-conspirators have been fixed, raised, stabilized, and pegged at artificially high,

non-competitive levels in the State of California and throughout the United States; and (3) Those who purchased HDD suspension assemblies directly or indirectly from Defendants and their co-conspirators have been deprived of the benefit of free and open competition.

- e. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property in that they paid more for HDD suspension assemblies than they otherwise would have paid in the absence of Defendants' unlawful conduct. As a result of Defendants' violation of Section 16720 of the California Business and Professions Code, Plaintiffs and members of the Damages Class seek treble damages and their cost of suit, including a reasonable attorney's fee, pursuant to Section 16750(a) of the California Business and Professions Code.

109. Defendants have entered into an unlawful agreement in restraint of trade in violation of the District of Columbia Code Annotated §§ 28-4501, *et seq.*

- a. Defendants' combinations or conspiracies had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout the District of Columbia; (2) HDD suspension assemblies prices were raised, fixed, maintained and stabilized at artificially high levels throughout the District of Columbia; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- b. During the Class Period, Defendants' illegal conduct substantially affected

District of Columbia commerce.

- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property and are threatened with further injury.
- d. By reason of the foregoing, Defendants have entered into agreements in restraint of trade in violation of District of Columbia Code Ann. §§ 28-4501, *et seq.* Accordingly, Plaintiffs and members of the Damages Class seek all forms of relief available under District of Columbia Code Ann. §§ 28-4501, *et seq.*

110. The Defendants have entered into an unlawful agreement in restraint of trade in violation of the Iowa Code §§ 553.1, *et seq.*

- a. Defendants' combinations or conspiracies had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout Iowa; (2) HDD suspension assemblies prices were raised, fixed, maintained and stabilized at artificially high levels throughout Iowa; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- b. During the Class Period, Defendants' illegal conduct substantially affected Iowa commerce.
- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property and are threatened with further injury.

- d. By reason of the foregoing, Defendants have entered into agreements in restraint of trade in violation of Iowa Code §§ 553.1, *et seq.* Accordingly, Plaintiffs and members of the Damages Class seek all forms of relief available under Iowa Code §§ 553.1, *et seq.*

111. Defendants have entered into an unlawful agreement in restraint of trade in violation of the Kansas Statutes Annotated, §§ 50-101, *et seq.*

- a. Defendants' combinations or conspiracies had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout Kansas; (2) HDD suspension assemblies prices were raised, fixed, maintained and stabilized at artificially high levels throughout Kansas; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- b. During the Class Period, Defendants' illegal conduct substantially affected Kansas commerce.
- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property and are threatened with further injury.
- d. By reason of the foregoing, Defendants have entered into agreements in restraint of trade in violation of Kansas Stat. Ann. §§ 50-101, *et seq.* Accordingly, Plaintiffs and members of the Damages Class seek all forms of relief available under Kansas Stat. Ann. §§ 50-101, *et seq.*

112. Defendants have entered into an unlawful agreement in restraint of trade in violation of the Maine Revised Statutes, Maine Rev. Stat. Ann. 10, §§ 1101, *et seq.*

- a. Defendants' combinations or conspiracies had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout Maine; (2) HDD suspension assemblies prices were raised, fixed, maintained and stabilized at artificially high levels throughout Maine; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- b. During the Class Period, Defendants' illegal conduct substantially affected Maine commerce.
- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property and are threatened with further injury.
- d. By reason of the foregoing, Defendants have entered into agreements in restraint of trade in violation of Maine Rev. Stat. Ann. 10, §§ 1101, *et seq.* Accordingly, Plaintiffs and members of the Damages Class seek all relief available under Maine Rev. Stat. Ann. 10, §§ 1101, *et seq.*

113. Defendants have entered into an unlawful agreement in restraint of trade in violation of the Michigan Compiled Laws Annotated §§ 445.771, *et seq.*

- a. Defendants' combinations or conspiracies had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and

eliminated throughout Michigan; (2) HDD suspension assemblies prices were raised, fixed, maintained and stabilized at artificially high levels throughout Michigan; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.

- b. During the Class Period, Defendants' illegal conduct substantially affected Michigan commerce.
- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property and are threatened with further injury.
- d. By reason of the foregoing, Defendants have entered into agreements in restraint of trade in violation of Michigan Comp. Laws Ann. §§ 445.771, *et seq.* Accordingly, Plaintiffs and members of the Damages Class seek all relief available under Michigan Comp. Laws Ann. §§ 445.771, *et seq.*

114. Defendants have entered into an unlawful agreement in restraint of trade in violation of the Minnesota Annotated Statutes §§ 325D.49, *et seq.*

- a. Defendants' combinations or conspiracies had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout Minnesota; (2) HDD suspension assemblies prices were raised, fixed, maintained and stabilized at artificially high levels throughout Minnesota; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages

Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.

- b. During the Class Period, Defendants' illegal conduct substantially affected Minnesota commerce.
- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property and are threatened with further injury.
- d. By reason of the foregoing, Defendants have entered into agreements in restraint of trade in violation of Minnesota Stat. §§ 325D.49, *et seq.* Accordingly, Plaintiffs and members of the Damages Class seek all relief available under Minnesota Stat. §§ 325D.49, *et seq.*

115. Defendants have entered into an unlawful agreement in restraint of trade in violation of the Mississippi Code Annotated §§ 75-21-1, *et seq.*

- a. Defendants' combinations or conspiracies had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout Mississippi; (2) HDD suspension assemblies prices were raised, fixed, maintained and stabilized at artificially high levels throughout Mississippi; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- b. During the Class Period, Defendants' illegal conduct substantially affected Mississippi commerce.

- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property and are threatened with further injury.
- d. By reason of the foregoing, Defendants have entered into agreements in restraint of trade in violation of Mississippi Code Ann. §§ 75-21-1, *et seq.* Accordingly, Plaintiffs and members of the Damages Class seek all relief available under Mississippi Code Ann. §§ 75-21-1, *et seq.*

116. Defendants have entered into an unlawful agreement in restraint of trade in violation of the Nebraska Revised Statutes §§ 59-801, *et seq.*

- a. Defendants' combinations or conspiracies had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout Nebraska; (2) HDD suspension assemblies prices were raised, fixed, maintained and stabilized at artificially high levels throughout Nebraska; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- b. During the Class Period, Defendants' illegal conduct substantially affected Nebraska commerce.
- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property and are threatened with further injury.
- d. By reason of the foregoing, Defendants have entered into agreements in

restraint of trade in violation of Nebraska Revised Statutes §§ 59-801, *et seq.*

Accordingly, Plaintiffs and members of the Damages Class seek all relief available under Nebraska Revised Statutes §§ 59-801, *et seq.*

117. Defendants have entered into an unlawful agreement in restraint of trade in violation of the Nevada Revised Statutes Annotated §§ 598A.010, *et seq.*

- a. Defendants' combinations or conspiracies had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout Nevada; (2) HDD suspension assemblies prices were raised, fixed, maintained and stabilized at artificially high levels throughout Nevada; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- b. During the Class Period, Defendants' illegal conduct substantially affected Nevada commerce.
- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property and are threatened with further injury.
- d. By reason of the foregoing, Defendants have entered into agreements in restraint of trade in violation of Nevada Rev. Stat. Ann. §§ 598A.010, *et seq.* Accordingly, Plaintiffs and members of the Damages Class seek all relief available under Nevada Rev. Stat. Ann. §§ 598A.010, *et seq.*

118. Defendants have entered into an unlawful agreement in restraint of trade in

violation of the New Hampshire Revised Statutes §§ 356:1, *et seq.*

- a. Defendants' combinations or conspiracies had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout New Hampshire; (2) HDD suspension assemblies prices were raised, fixed, maintained and stabilized at artificially high levels throughout New Hampshire; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- b. During the Class Period, Defendants' illegal conduct substantially affected New Hampshire commerce.
- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property and are threatened with further injury.
- d. By reason of the foregoing, Defendants have entered into agreements in restraint of trade in violation of New Hampshire Revised Statutes §§ 356:1, *et seq.* Accordingly, Plaintiffs and members of the Damages Class seek all relief available under New Hampshire Revised Statutes §§ 356:1, *et seq.*

119. Defendants have entered into an unlawful agreement in restraint of trade in violation of the New Mexico Statutes Annotated §§ 57-1-1, *et seq.*

- a. Defendants' combinations or conspiracies had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout New Mexico; (2) HDD suspension assemblies prices

were raised, fixed, maintained and stabilized at artificially high levels throughout New Mexico; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.

- b. During the Class Period, Defendants' illegal conduct substantially affected New Mexico commerce.
- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property and are threatened with further injury.
- d. By reason of the foregoing, Defendants have entered into agreements in restraint of trade in violation of New Mexico Stat. Ann. §§ 57-1-1, *et seq.* Accordingly, Plaintiffs and members of the Damages Class seek all relief available under New Mexico Stat. Ann. §§ 57-1-1, *et seq.*

120. Defendants have entered into an unlawful agreement in restraint of trade in violation of the New York General Business Laws §§ 340, *et seq.*

- a. Defendants' combinations or conspiracies had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout New York; (2) HDD suspension assemblies prices were raised, fixed, maintained and stabilized at artificially high levels throughout New York; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension

assemblies when they purchased HDDs containing HDD suspension assemblies.

- b. During the Class Period, Defendants' illegal conduct substantially affected New York commerce.
- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property and are threatened with further injury.
- d. By reason of the foregoing, Defendants have entered into agreements in restraint of trade in violation of the New York Donnelly Act, §§ 340, *et seq.* The conduct set forth above is a per se violation of the Act. Accordingly, Plaintiffs and members of the Damages Class seek all relief available under New York Gen. Bus. Law §§ 340, *et seq.*

121. Defendants have entered into an unlawful agreement in restraint of trade in violation of the North Carolina General Statutes §§ 75-1, *et seq.*

- a. Defendants' combinations or conspiracies had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout North Carolina; (2) HDD suspension assemblies prices were raised, fixed, maintained and stabilized at artificially high levels throughout North Carolina; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- b. During the Class Period, Defendants' illegal conduct substantially affected

North Carolina commerce.

- c. As a direct and proximate result of the Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property and are threatened with further injury.
- d. By reason of the foregoing, Defendants have entered into agreements in restraint of trade in violation of North Carolina Gen. Stat. §§ 75-1, *et seq.* Accordingly, Plaintiffs and members of the Damages Class seek all relief available under North Carolina Gen. Stat. §§ 75-1, *et. seq.*

122. Defendants have entered into an unlawful agreement in restraint of trade in violation of the North Dakota Century Code §§ 51-08.1-01, *et seq.*

- a. Defendants' combinations or conspiracies had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout North Dakota; (2) HDD suspension assemblies prices were raised, fixed, maintained and stabilized at artificially high levels throughout North Dakota; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- b. During the Class Period, Defendants' illegal conduct had a substantial effect on North Dakota commerce.
- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property and are threatened with further injury.

- d. By reason of the foregoing, Defendants have entered into agreements in restraint of trade in violation of North Dakota Cent. Code §§ 51-08.1-01, *et seq.* Accordingly, Plaintiffs and members of the Damages Class seek all relief available under North Dakota Cent. Code §§ 51-08.1-01, *et seq.*

123. Defendants have entered into an unlawful agreement in restraint of trade in violation of the Oregon Revised Statutes §§ 646.705, *et seq.*

- a. Defendants' combinations or conspiracies had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout Oregon; (2) HDD suspension assemblies prices were raised, fixed, maintained and stabilized at artificially high levels throughout Oregon; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- b. During the Class Period, Defendants' illegal conduct had a substantial effect on Oregon commerce.
- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property and are threatened with further injury.
- d. By reason of the foregoing, Defendants have entered into agreements in restraint of trade in violation of Oregon Revised Statutes §§ 646.705, *et seq.* Accordingly, Plaintiffs and members of the Damages Class seek all relief available under Oregon Revised Statutes §§ 646.705, *et seq.*

124. Defendants have entered into an unlawful agreement in restraint of trade in violation of the South Dakota Codified Laws §§ 37-1-3.1, *et seq.*

- a. Defendants' combinations or conspiracies had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout South Dakota; (2) HDD suspension assemblies prices were raised, fixed, maintained and stabilized at artificially high levels throughout South Dakota; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- b. During the Class Period, Defendants' illegal conduct had a substantial effect on South Dakota commerce.
- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property and are threatened with further injury.
- d. By reason of the foregoing, Defendants have entered into agreements in restraint of trade in violation of South Dakota Codified Laws Ann. §§ 37-1, *et seq.* Accordingly, Plaintiffs and members of the Damages Class seek all relief available under South Dakota Codified Laws Ann. §§ 37-1, *et seq.*

125. Defendants have entered into an unlawful agreement in restraint of trade in violation of the Tennessee Code Annotated §§ 47-25-101, *et seq.*

- a. Defendants' combinations or conspiracies had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and

eliminated throughout Tennessee; (2) HDD suspension assemblies prices were raised, fixed, maintained and stabilized at artificially high levels throughout Tennessee; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.

- b. During the Class Period, Defendants' illegal conduct had a substantial effect on Tennessee commerce.
- c. As a direct and proximate result of the Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property and are threatened with further injury.
- d. By reason of the foregoing, Defendants have entered into agreements in restraint of trade in violation of Tennessee Code Ann. §§ 47-25-101, *et seq.* Accordingly, Plaintiffs and members of the Damages Class seek all relief available under Tennessee Code Ann. §§ 47-25-101, *et seq.*

126. Defendants have entered into an unlawful agreement in restraint of trade in violation of the Utah Code Annotated §§ 76-10-3101, *et seq.*

- a. Defendants' combinations or conspiracies had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout Utah; (2) HDD suspension assemblies prices were raised, fixed, maintained and stabilized at artificially high levels throughout Utah; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class

paid supra-competitive, artificially inflated prices for HDD suspension assemblies.

- b. During the Class Period, Defendants' illegal conduct had a substantial effect on Utah commerce.
- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property and are threatened with further injury.
- d. By reason of the foregoing, Defendants have entered into agreements in restraint of trade in violation of Utah Code Annotated §§ 76-10-3101, *et seq.* Accordingly, Plaintiffs and members of the Damages Class seek all relief available under Utah Code Annotated §§ 76-10-3101, *et seq.*

127. Defendants have entered into an unlawful agreement in restraint of trade in violation of the Vermont Stat. Ann. 9 §§ 2453, *et seq.*

- a. Defendants' combinations or conspiracies had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout Vermont; (2) HDD suspension assemblies prices were raised, fixed, maintained and stabilized at artificially high levels throughout Vermont; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- b. During the Class Period, Defendants' illegal conduct had a substantial effect on Vermont commerce.

- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property and are threatened with further injury.
- d. By reason of the foregoing, Defendants have entered into agreements in restraint of trade in violation of Vermont Stat. Ann. 9 §§ 2453, *et seq.* Accordingly, Plaintiffs and members of the Damages Class seek all relief available under Vermont Stat. Ann. 9 §§ 2453, *et seq.*

128. Defendants have entered into an unlawful agreement in restraint of trade in violation of the West Virginia Code §§ 47-18-1, *et seq.*

- a. Defendants' combinations or conspiracies had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout West Virginia; (2) HDD suspension assemblies prices were raised, fixed, maintained and stabilized at artificially high levels throughout West Virginia; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- b. During the Class Period, Defendants' illegal conduct had a substantial effect on West Virginia commerce.
- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property and are threatened with further injury.
- d. By reason of the foregoing, Defendants have entered into agreements in

restraint of trade in violation of West Virginia Code §§ 47-18-1, *et seq.*

Accordingly, Plaintiffs and members of the Damages Class seek all relief available under West Virginia Code §§ 47-18-1, *et seq.*

129. Defendants have entered into an unlawful agreement in restraint of trade in violation of the Wisconsin Statutes §§ 133.01, *et seq.*

- a. Defendants' combinations or conspiracies had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout Wisconsin; (2) HDD suspension assemblies prices were raised, fixed, maintained and stabilized at artificially high levels throughout Wisconsin; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- b. During the Class Period, Defendants' illegal conduct had a substantial effect on Wisconsin commerce.
- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property and are threatened with further injury.
- d. By reason of the foregoing, Defendants have entered into agreements in restraint of trade in violation of Wisconsin Stat. §§ 133.01, *et seq.* Accordingly, Plaintiffs and members of the Damages Class seek all relief available under Wisconsin Stat. §§ 133.01, *et seq.*

130. Plaintiffs and members of the Damages Class in each of the above states have been

injured in their business and property by reason of Defendants' unlawful combination, contract, conspiracy and agreement. Plaintiffs and members of the Damages Class have paid more for HDD suspension assemblies than they otherwise would have paid in the absence of Defendants' unlawful conduct. This injury is of the type the antitrust laws of the above states were designed to prevent and flows from that which makes Defendants' conduct unlawful.

131. In addition, Defendants have profited significantly from the aforesaid conspiracy. Defendants' profits derived from their anticompetitive conduct come at the expense and detriment of the Plaintiffs and the members of the Damages Class.

132. Accordingly, Plaintiffs and the members of the Damages Class in each of the above jurisdictions seek damages (including statutory damages where applicable), to be trebled or otherwise increased as permitted by a particular jurisdiction's antitrust law, and costs of suit, including reasonable attorneys' fees, to the extent permitted by the above state laws.

THIRD CLAIM FOR RELIEF
Violation of State Consumer Protection Statutes
(on behalf of Plaintiffs and the Damages Class)

133. Plaintiffs incorporate by reference the allegations in the preceding paragraphs.

134. Defendants engaged in unfair competition or unfair, unconscionable, deceptive or fraudulent acts or practices in violation of the state consumer protection and unfair competition statutes listed below.

135. Defendants have knowingly entered into an unlawful agreement in restraint of trade in violation of the Arkansas Code Annotated, § 4-88-101, *et seq.*

- a. Defendants knowingly agreed to, and did in fact, act in restraint of trade or commerce by affecting, fixing, controlling, and/or maintaining at non-competitive and artificially inflated levels, the prices at which HDD suspension assemblies were sold, distributed, or obtained in Arkansas and took efforts to

conceal their agreements from Plaintiffs and members of the Damages Class.

- b. The aforementioned conduct on the part of the Defendants constituted “unconscionable” and “deceptive” acts or practices in violation of Arkansas Code Annotated, § 4-88-107(a)(10).
- c. Defendants’ unlawful conduct had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout Arkansas; (2) HDD suspension assemblies prices were raised, fixed, maintained, and stabilized at artificially high levels throughout Arkansas; (3) Plaintiffs and the members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and the members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- d. During the Class Period, Defendants’ illegal conduct substantially affected Arkansas commerce and consumers.
- e. As a direct and proximate result of the unlawful conduct of Defendants, Plaintiffs and the members of the Damages Class have been injured in their business and property and are threatened with further injury.
- f. Defendants have engaged in unfair competition or unfair or deceptive acts or practices in violation of Arkansas Code Annotated, § 4-88-107(a)(10) and, accordingly, Plaintiffs and the members of the Damages Class seek all relief available under that statute.

136. Defendants have engaged in unfair competition or unfair, unconscionable, deceptive or fraudulent acts or practices in violation of California Business and Professions Code

§ 17200, *et seq.*:

- a. During the Class Period, Defendants marketed, sold, or distributed HDD suspension assemblies in California, and committed and continue to commit acts of unfair competition, as defined by Sections 17200, *et seq.* of the California Business and Professions Code, by engaging in the acts and practices specified above.
- b. This claim is instituted pursuant to Sections 17203 and 17204 of the California Business and Professions Code, to obtain restitution from these Defendants for acts, as alleged herein, that violated Section 17200 of the California Business and Professions Code, commonly known as the Unfair Competition Law.
- c. Defendants' conduct as alleged herein violates Section 17200. The acts, omissions, misrepresentations, practices and non-disclosures of Defendants, as alleged herein, constituted a common, continuous, and continuing course of conduct of unfair competition by means of unfair, unlawful, and/or fraudulent business acts or practices within the meaning of California Business and Professions Code, Section 17200, *et seq.*, including, but not limited to, the following: (1) the violations of Section 1 of the Sherman Act, as set forth above; (2) the violations of Section 16720, *et seq.*, of the California Business and Professions Code, set forth above;
- d. Defendants' acts, omissions, misrepresentations, practices, and non-disclosures, as described above, whether or not in violation of Section 16720, *et seq.*, of the California Business and Professions Code, and whether or not concerted or independent acts, are otherwise unfair, unconscionable, unlawful

or fraudulent;

- e. Defendants' acts or practices are unfair to consumers of HDD suspension assemblies (or products containing them) in the State of California within the meaning of Section 17200, California Business and Professions Code;
- f. Defendants' acts and practices are fraudulent or deceptive within the meaning of Section 17200 of the California Business and Professions Code;
- g. Plaintiffs and members of the Damages Class are entitled to full restitution and/or disgorgement of all revenues, earnings, profits, compensation, and benefits that may have been obtained by Defendants as a result of such business acts or practices;
- h. The illegal conduct alleged herein is continuing and there is no indication that Defendants will not continue such activity into the future;
- i. The unlawful and unfair business practices of Defendants, each of them, have caused and continue to cause Plaintiffs and the members of the Damages Class to pay supra-competitive and artificially-inflated prices for HDD suspension assemblies (or products containing them). Plaintiffs and the members of the Damages Class suffered injury in fact and lost money or property as a result of such unfair competition.
- j. The conduct of Defendants as alleged in this Complaint violates Section 17200 of the California Business and Professions Code.
- k. As alleged in this Complaint, Defendants and their co-conspirators have been unjustly enriched as a result of their wrongful conduct and by Defendants' unfair competition. Plaintiffs and the members of the Damages Class are

accordingly entitled to equitable relief including restitution and/or disgorgement of all revenues, earnings, profits, compensation, and benefits that may have been obtained by Defendants as a result of such business practices, pursuant to the California Business and Professions Code, Sections 17203 and 17204.

137. Defendants have engaged in unfair competition or unfair, unconscionable, or deceptive acts or practices in violation of District of Columbia Code § 28-3901, *et seq.*

- a. Defendants agreed to, and did in fact, act in restraint of trade or commerce by affecting, fixing, controlling and/or maintaining, at artificial and/or non-competitive levels, the prices at which HDD suspension assemblies were sold, distributed or obtained in the District of Columbia.
- b. The foregoing conduct constitutes an “unlawful trade practice,” within the meaning of D.C. Code § 28-3904. Plaintiffs and Class members were not aware of Defendants’ price-fixing conspiracy and were therefore unaware that they were being unfairly and illegally overcharged. There was a gross disparity of bargaining power between the parties with respect to the price charged by Defendants for HDD suspension assemblies. Defendants had the sole power to set that price and Plaintiffs had no power to negotiate a lower price. Moreover, Plaintiffs lacked any meaningful choice in purchasing HDD suspension assemblies because they were unaware of the unlawful overcharge and there was no alternative source of supply through which Plaintiffs could avoid the overcharges. Defendants’ conduct with regard to sales of HDD suspension assemblies, including their illegal conspiracy to secretly fix the price of HDD

suspension assemblies at supra-competitive levels and overcharge consumers, was substantively unconscionable because it was one-sided and unfairly benefited Defendants at the expense of Plaintiffs and the public. Defendants took grossly unfair advantage of Plaintiffs. The suppression of competition that has resulted from Defendants' conspiracy has ultimately resulted in unconscionably higher prices for consumers so that there was a gross disparity between the price paid and the value received for HDD suspension assemblies.

- c. Defendants' unlawful conduct had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout the District of Columbia; (2) HDD suspension assemblies prices were raised, fixed, maintained, and stabilized at artificially high levels throughout the District of Columbia; (3) Plaintiffs and the Damages Class were deprived of free and open competition; and (4) Plaintiffs and the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- d. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured and are threatened with further injury. Defendants have engaged in unfair competition or unfair or deceptive acts or practices in violation of District of Columbia Code § 28-3901, *et seq.*, and, accordingly, Plaintiffs and members of the Damages Class seek all relief available under that statute.

138. Defendants have engaged in unfair competition or unfair, unconscionable, or deceptive acts or practices in violation of the Florida Deceptive and Unfair Trade Practices Act,

Fla. Stat. §§ 501.201, *et seq.*

- a. Defendants' unlawful conduct had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout Florida; (2) HDD suspension assemblies prices were raised, fixed, maintained, and stabilized at artificially high levels throughout Florida; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- b. During the Class Period, Defendants' illegal conduct substantially affected Florida commerce and consumers.
- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured and are threatened with further injury.
- d. Defendants have engaged in unfair competition or unfair or deceptive acts or practices in violation of Florida Stat. § 501.201, *et seq.*, and, accordingly, Plaintiffs and members of the Damages Class seek all relief available under that statute.

139. Defendants have engaged in unfair competition or unfair, unconscionable, or deceptive acts or practices in violation of the Hawaii Revised Statutes Annotated §§ 480-1, *et seq.*

- a. Defendants' unlawful conduct had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout Hawaii; (2) HDD suspension assemblies prices were raised, fixed, maintained, and stabilized at artificially high levels throughout Hawaii; (3)

Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.

- b. During the Class Period, Defendants' illegal conduct substantially affected Hawaii commerce and consumers.
- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured and are threatened with further injury.
- d. Defendants have engaged in unfair competition or unfair or deceptive acts or practices in violation of Hawaii Rev. Stat. § 480, *et seq.*, and, accordingly, Plaintiffs and members of the Damages Class seek all relief available under that statute.

140. Defendants have engaged in unfair competition or unfair, unconscionable, or deceptive acts or practices in violation of Mass. G.L. c. 93A, §2.

- a. Defendants were engaged in trade or commerce as defined by G.L. c. 93A.
- b. Defendants agreed to, and did in fact, act in restraint of trade or commerce in a market which includes Massachusetts, by affecting, fixing, controlling and/or maintaining at artificial and non-competitive levels, the prices at which HDD suspension assemblies were sold, distributed, or obtained in Massachusetts and took efforts to conceal their agreements from Plaintiffs and members of the Damages Class.
- c. Defendants' unlawful conduct had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated

throughout Massachusetts; (2) HDD suspension assemblies prices were raised, fixed, maintained, and stabilized at artificially high levels throughout Massachusetts; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.

- d. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class were injured and are threatened with further injury.
- e. Certain of the Defendants have or will be served with a demand letter in accordance with G.L. c. 93A, § 9, or, upon information and belief, such service of a demand letter was unnecessary due to the defendant not maintaining a place of business within the Commonwealth of Massachusetts or not keeping assets within the Commonwealth.
- f. By reason of the foregoing, Defendants engaged in unfair competition and unfair or deceptive acts or practices, in violation of G.L. c. 93A, §2. Defendants' and their co-conspirators' violations of Chapter 93A were knowing or willful, entitling Plaintiffs and members of the Damages Class to multiple damages.

141. Defendants have engaged in unfair competition or unfair, unconscionable, or deceptive acts or practices in violation of the Missouri Merchandising Practices Act, Mo. Rev. Stat. § 407.010, et. seq.

- a. Plaintiffs and the Damages Class purchased HDD suspension assemblies for personal, family, or household purposes.

- b. Defendants engaged in the conduct described herein in connection with the sale of HDD suspension assemblies in trade or commerce in a market that includes Missouri.
- c. Defendants and their co-conspirators agreed to, and did in fact
- d. affect, fix, control, and/or maintain, at artificial and non-competitive levels, the prices at which HDD suspension assemblies were sold, distributed, or obtained in Missouri, which conduct constituted unfair practices in that it was unlawful under federal and state law, violated public policy, was unethical, oppressive and unscrupulous, and caused substantial injury to Plaintiffs and members of the Damages Class.
- e. Defendants concealed, suppressed, and omitted to disclose material facts to Plaintiffs and members of the Damages Class concerning Defendants' unlawful activities and artificially inflated prices for HDD suspension assemblies. The concealed, suppressed, and omitted facts would have been important to Plaintiffs and members of the Damages Class as they related to the cost of HDD suspension assemblies they purchased.
- f. Defendants misrepresented the real cause of price increases and/or the absence of price reductions in HDD suspension assemblies by making public statements that were not in accord with the facts.
- g. Defendants' statements and conduct concerning the price of HDD suspension assemblies were deceptive as they had the tendency or capacity to mislead Plaintiffs and members of the Damages Class to believe that they were purchasing HDD suspension assemblies at prices established by a free and fair

market.

- h. Defendants' unlawful conduct had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout Missouri; (2) HDD suspension assemblies prices were raised, fixed, maintained, and stabilized at artificially high levels throughout Missouri; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- i. The foregoing acts and practices constituted unlawful practices in violation of the Missouri Merchandising Practices Act.
- j. As a direct and proximate result of the above-described unlawful practices, Plaintiffs and members of the Damages Class suffered ascertainable loss of money or property.
- k. Accordingly, Plaintiffs and members of the Damages Class seek all relief available under Missouri's Merchandising Practices Act, specifically Mo. Rev. Stat. § 407.020, which prohibits "the act, use or employment by any person of any deception, fraud, false pretense, false promise, misrepresentation, unfair practice or the concealment, suppression, or omission of any material fact in connection with the sale or advertisement of any merchandise in trade or commerce..." as further interpreted by the Missouri Code of State Regulations, 15 CSR 60-7.010, *et seq.*, 15 CSR 60-8.010, *et seq.*, and 15 CSR 60-9.010, *et seq.*, and Mo. Rev. Stat. § 407.025, which provides for the relief sought in this count.

142. Defendants have engaged in unfair competition or unfair, unconscionable, or deceptive acts or practices in violation of the Montana Consumer Protection Act of 1973, Mont. Code, §§ 30-14-101, *et seq.*

- a. Defendants' unlawful conduct had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout Montana; (2) HDD suspension assemblies prices were raised, fixed, maintained, and stabilized at artificially high levels throughout Montana; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- b. During the Class Period, Defendants' illegal conduct substantially affected Montana commerce and consumers.
- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured and are threatened with further injury.
- d. Defendants have engaged in unfair competition or unfair or deceptive acts or practices in violation of Mont. Code, §§ 30-14-101, *et seq.*, and, accordingly, Plaintiffs and members of the Damages Class seek all relief available under that statute.

143. Defendants have engaged in unfair competition or unfair, unconscionable, or deceptive acts or practices in violation of the New Mexico Stat. § 57-12-1, *et seq.*

- a. Defendants and their co-conspirators agreed to, and did in fact, act in restraint of trade or commerce by affecting, fixing, controlling and/or maintaining at

non-competitive and artificially inflated levels, the prices at which HDD suspension assemblies were sold, distributed or obtained in New Mexico and took efforts to conceal their agreements from Plaintiffs and members of the Damages Class.

- b. The aforementioned conduct on the part of Defendants constituted “unconscionable trade practices,” in violation of N.M.S.A. Stat. § 57-12-3, in that such conduct, inter alia, resulted in a gross disparity between the value received by Plaintiffs and the members of the Damages Class and the prices paid by them for HDD suspension assemblies as set forth in N.M.S.A., § 57-12-2E. Plaintiffs were not aware of Defendants’ price-fixing conspiracy and were therefore unaware that they were being unfairly and illegally overcharged. There was a gross disparity of bargaining power between the parties with respect to the price charged by Defendants for HDD suspension assemblies. Defendants had the sole power to set that price and Plaintiffs had no power to negotiate a lower price. Moreover, Plaintiffs lacked any meaningful choice in purchasing HDD suspension assemblies because they were unaware of the unlawful overcharge and there was no alternative source of supply through which Plaintiffs could avoid the overcharges. Defendants’ conduct with regard to sales of HDD suspension assemblies, including their illegal conspiracy to secretly fix the price of HDD suspension assemblies at supra-competitive levels and overcharge consumers, was substantively unconscionable because it was one-sided and unfairly benefited Defendants at the expense of Plaintiffs and the public. Defendants took grossly unfair advantage of Plaintiffs. The suppression

of competition that has resulted from Defendants' conspiracy has ultimately resulted in unconscionably higher prices for consumers so that there was a gross disparity between the price paid and the value received for HDD suspension assemblies.

- c. Defendants' unlawful conduct had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout New Mexico; (2) HDD suspension assemblies prices were raised, fixed, maintained, and stabilized at artificially high levels throughout New Mexico; (3) Plaintiffs and the members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and the members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- d. During the Class Period, Defendants' illegal conduct substantially affected New Mexico commerce and consumers.
- e. As a direct and proximate result of the unlawful conduct of Defendants, Plaintiffs and the members of the Damages Class have been injured and are threatened with further injury.
- f. Defendants have engaged in unfair competition or unfair or deceptive acts or practices in violation of New Mexico Stat. § 57-12-1, *et seq.*, and, accordingly, Plaintiffs and the members of the Damages Class seek all relief available under that statute.

144. Defendants have engaged in unfair competition or unfair, unconscionable, or deceptive acts or practices in violation of N.Y. Gen. Bus. Law § 349, *et seq.*

- a. Defendants agreed to, and did in fact, act in restraint of trade or commerce by affecting, fixing, controlling and/or maintaining, at artificial and non-competitive levels, the prices at which HDD suspension assemblies were sold, distributed or obtained in New York and took efforts to conceal their agreements from Plaintiffs and members of the Damages Class.
- b. Defendants and their co-conspirators made public statements about the prices of HDD suspension assemblies and products containing HDD suspension assemblies that Defendants knew would be seen by New York consumers; such statements either omitted material information that rendered the statements that they made materially misleading or affirmatively misrepresented the real cause of price increases for HDD suspension assemblies and products containing HDD suspension assemblies; and Defendants alone possessed material information that was relevant to consumers, but failed to provide the information.
- c. Because of Defendants' unlawful trade practices in the State of New York, New York consumer class members who indirectly purchased HDD suspension assemblies were misled to believe that they were paying a fair price for HDD suspension assemblies or the price increases for HDD suspension assemblies were for valid business reasons; and similarly situated consumers were potentially affected by Defendants' conspiracy.
- d. Defendants knew that their unlawful trade practices with respect to pricing HDD suspension assemblies would have an impact on New York consumers and not just the Defendants' direct customers.

- e. Defendants knew that their unlawful trade practices with respect to pricing HDD suspension assemblies would have a broad impact, causing consumer class members who indirectly purchased HDD suspension assemblies to be injured by paying more for HDD suspension assemblies than they would have paid in the absence of Defendants' unlawful trade acts and practices.
- f. The conduct of the Defendants described herein constitutes consumer-oriented deceptive acts or practices within the meaning of N.Y. Gen. Bus. Law § 349, which resulted in consumer injury and broad adverse impact on the public at large, and harmed the public interest of New York State in an honest marketplace in which economic activity is conducted in a competitive manner.
- g. Defendants' unlawful conduct had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout New York; (2) HDD suspension assemblies prices were raised, fixed, maintained, and stabilized at artificially high levels throughout New York; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- h. During the Class Period, Defendants' marketed, sold, or distributed HDD suspension assemblies in New York, and Defendants' illegal conduct substantially affected New York commerce and consumers.
- i. During the Class Period, each of the Defendants named herein, directly, or indirectly and through affiliates they dominated and controlled, manufactured,

sold and/or distributed HDD suspension assemblies in New York.

- j. Plaintiffs and members of the Damages Class seek all relief available pursuant to N.Y. Gen. Bus. Law § 349 (h).

145. Defendants have engaged in unfair competition or unfair, unconscionable, or deceptive acts or practices in violation of North Carolina Gen. Stat. § 75-1.1, *et seq.*

- a. Defendants agreed to, and did in fact, act in restraint of trade or commerce by affecting, fixing, controlling and/or maintaining, at artificial and non-competitive levels, the prices at which HDD suspension assemblies were sold, distributed or obtained in North Carolina and took efforts to conceal their agreements from Plaintiffs and members of the Damages Class.
- b. Defendants' price-fixing conspiracy could not have succeeded absent deceptive conduct by Defendants to cover up their illegal acts. Secrecy was integral to the formation, implementation and maintenance of Defendants' price-fixing conspiracy. Defendants committed inherently deceptive and self-concealing actions, of which Plaintiffs could not possibly have been aware. Defendants and their co-conspirators publicly provided pre-textual and false justifications regarding their price increases. Defendants' public statements concerning the price of HDD suspension assemblies created the illusion of competitive pricing controlled by market forces rather than supra-competitive pricing driven by Defendants' illegal conspiracy. Moreover, Defendants deceptively concealed their unlawful activities by mutually agreeing not to divulge the existence of the conspiracy to outsiders, conducting meetings and conversations in secret, confining the plan to a small group of higher-level officials at each company

and avoiding the creation of documents which would reveal the antitrust violations.

- c. The conduct of the Defendants described herein constitutes consumer-oriented deceptive acts or practices within the meaning of North Carolina law, which resulted in consumer injury and broad adverse impact on the public at large, and harmed the public interest of North Carolina consumers in an honest marketplace in which economic activity is conducted in a competitive manner.
- d. Defendants' unlawful conduct had the following effects: (1) HDD suspension assemblies price competition was restrained,
- e. suppressed, and eliminated throughout North Carolina; (2) HDD suspension assemblies prices were raised, fixed, maintained, and stabilized at artificially high levels throughout North Carolina; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- f. During the Class Period, Defendants' marketed, sold, or distributed HDD suspension assemblies in North Carolina, and Defendants' illegal conduct substantially affected North Carolina commerce and consumers.
- g. During the Class Period, each of the Defendants named herein, directly, or indirectly and through affiliates they dominated and controlled, manufactured, sold and/or distributed HDD suspension assemblies in North Carolina.
- h. Plaintiffs and members of the Damages Class seek actual damages for their injuries caused by these violations in an amount to be determined at trial and

are threatened with further injury. Defendants have engaged in unfair competition or unfair or deceptive acts or practices in violation of North Carolina Gen. Stat. § 75-1.1, *et seq.*, and, accordingly, Plaintiffs and members of the Damages Class seek all relief available under that statute.

146. Defendants have engaged in unfair competition or unfair, unconscionable, or deceptive acts or practices in violation of the Rhode Island Unfair Trade Practice and Consumer Protection Act, R.I. Gen. Laws §§ 6-13.1-1, *et seq.*

- a. Members of this Damages Class purchased HDD suspension assemblies for personal, family, or household purposes.
- b. Defendants agreed to, and did in fact, act in restraint of trade or commerce in a market that includes Rhode Island, by affecting, fixing, controlling, and/or maintaining, at artificial and non-competitive levels, the prices at which HDD suspension assemblies were sold, distributed, or obtained in Rhode Island.
- c. Defendants deliberately failed to disclose material facts to Plaintiffs and members of the Damages Class concerning Defendants' unlawful activities and artificially inflated prices for HDD suspension assemblies. Defendants owed a duty to disclose such facts, and considering the relative lack of sophistication of the average, non-business consumer, Defendants breached that duty by their silence. Defendants misrepresented to all consumers during the Class Period that Defendants' HDD suspension assemblies prices were competitive and fair.
- d. Defendants' unlawful conduct had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout Rhode Island; (2) HDD suspension assemblies prices were raised,

fixed, maintained, and stabilized at artificially high levels throughout Rhode Island; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.

- e. As a direct and proximate result of the Defendants' violations of law, Plaintiffs and members of the Damages Class suffered an ascertainable loss of money or property as a result of Defendants' use or employment of unconscionable and deceptive commercial practices as set forth above. That loss was caused by Defendants' willful and deceptive conduct, as described herein.
- f. Defendants' deception, including their affirmative misrepresentations and omissions concerning the price of HDD suspension assemblies, likely misled all consumers acting reasonably under the circumstances to believe that they were purchasing HDD suspension assemblies at prices set by a free and fair market. Defendants' affirmative misrepresentations and omissions constitute information important to Plaintiffs and members of the Damages Class as they related to the cost of HDD suspension assemblies they purchased.
- g. Defendants have engaged in unfair competition or unfair or deceptive acts or practices in violation of Rhode Island Gen. Laws. § 6-13.1-1, *et seq.*, and, accordingly, Plaintiffs and members of the Damages Class seek all relief available under that statute.

147. Defendants have engaged in unfair competition or unfair, unconscionable, or deceptive acts or practices in violation of South Carolina Unfair Trade Practices Act, S.C. Code

Ann. §§ 39-5-10, *et seq.*

- a. Defendants' combinations or conspiracies had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout South Carolina; (2) HDD suspension assemblies prices were raised, fixed, maintained, and stabilized at artificially high levels throughout South Carolina; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- b. During the Class Period, Defendants' illegal conduct had a substantial effect on South Carolina commerce.
- c. As a direct and proximate result of Defendants' unlawful conduct, Plaintiffs and members of the Damages Class have been injured in their business and property and are threatened with further injury.
- d. Defendants have engaged in unfair competition or unfair or deceptive acts or practices in violation of S.C. Code Ann. §§ 39-5-10, *et seq.*, and, accordingly, Plaintiffs and the members of the Damages Class seek all relief available under that statute.

148. Defendants have engaged in unfair competition or unfair, unconscionable, or deceptive acts or practices in violation of 9 Vermont § 2451, *et seq.*:

- a. Defendants and their co-conspirators agreed to, and did in fact, act in restraint of trade or commerce in a market that includes Vermont by affecting, fixing, controlling, and/or maintaining, at artificial and non-competitive levels, the

prices at which HDD suspension assemblies were sold, distributed, or obtained in Vermont.

- b. Defendants deliberately failed to disclose material facts to Plaintiffs and members of the Damages Class concerning their unlawful activities and artificially inflated prices for HDD suspension assemblies. Defendants owed a duty to disclose such facts, and considering the relative lack of sophistication of the average, non-business purchaser, Defendants breached that duty by their silence. Defendants misrepresented to all purchasers during the Class Period that their HDD suspension assemblies prices were competitive and fair.
- c. Defendants' unlawful conduct had the following effects: (1) HDD suspension assemblies price competition was restrained, suppressed, and eliminated throughout Vermont; (2) HDD suspension assemblies prices were raised, fixed, maintained, and stabilized at artificially high levels throughout Vermont; (3) Plaintiffs and members of the Damages Class were deprived of free and open competition; and (4) Plaintiffs and members of the Damages Class paid supra-competitive, artificially inflated prices for HDD suspension assemblies.
- d. As a direct and proximate result of Defendants' violations of law, Plaintiffs and members of the Damages Class suffered an ascertainable loss of money or property as a result of Defendants' use or employment of unconscionable and deceptive commercial practices as set forth above. That loss was caused by the Defendants' willful and deceptive conduct, as described herein.
- e. Defendants' deception, including their omissions concerning the price of HDD suspension assemblies, likely misled all purchasers acting reasonably under the

circumstances to believe that they were purchasing HDD suspension assemblies at prices born by a free and fair market. Defendants' misleading conduct and unconscionable activities constitutes unfair competition or unfair or deceptive acts or practices in violation of 9 Vermont § 2451, *et seq.*, and, accordingly, Plaintiffs and members of the Damages Class seek all relief available under that statute.

FOURTH CLAIM FOR RELIEF
Unjust Enrichment
(on behalf of Plaintiffs and the Damages Class)

149. Plaintiffs incorporate by reference the allegations in the preceding paragraphs.

150. Plaintiffs bring this claim under the laws of all states listed in the Second and Third Claims, *supra*.

151. As a result of their unlawful conduct described above, Defendants have and will continue to be unjustly enriched. Defendants have been unjustly enriched by the receipt of, at a minimum, unlawfully inflated prices and unlawful profits on sales of HDD suspension assemblies.

152. Defendants have benefited from their unlawful acts and it would be inequitable for Defendants to be permitted to retain any of the ill-gotten gains resulting from the overpayments made by Plaintiffs or the members of the Damages Class for HDD suspension assemblies.

153. Plaintiffs and the members of the Damages Class are entitled to the amount of Defendants' ill-gotten gains resulting from their unlawful, unjust, and inequitable conduct. Plaintiffs and the members of the Damages Class are entitled to the establishment of a constructive trust consisting of all ill-gotten gains from which Plaintiffs and the members of the Damages Class may make claims on a pro rata basis.

154. Pursuit of any remedies against the firms from which Plaintiffs and the members of the Damages Class purchased HDDs containing HDD suspension assemblies subject to

Defendants' conspiracy would have been futile.

PRAYER FOR RELIEF

Accordingly, Plaintiffs respectfully request that:

155. The Court determine that this action may be maintained as a class action under Rule 23(a), (b)(2) and (b)(3) of the Federal Rules of Civil Procedure, and direct that reasonable notice of this action, as provided by Rule 23(c)(2) of the Federal Rules of Civil Procedure, be given to each and every member of the Classes;

156. That the unlawful conduct, contract, conspiracy, or combination alleged herein be adjudged and decreed:

- a. An unreasonable restraint of trade or commerce in violation of Section 1 of the Sherman Act;
- b. A *per se* violation of Section 1 of the Sherman Act;
- c. An unlawful combination, trust, agreement, understanding and/or concert of action in violation of the state antitrust and unfair competition and consumer protection laws as set forth herein; and
- d. Acts of unjust enrichment by Defendants as set forth herein.

157. Plaintiffs and the members of the Damages Class recover damages, to the maximum extent allowed under such laws, and that a joint and several judgment in favor of Plaintiffs and the members of the Damages Class be entered against Defendants in an amount to be trebled to the extent such laws permit;

158. Plaintiffs and the members of the Damages Class recover damages, to the maximum extent allowed by such laws, in the form of restitution and/or disgorgement of profits unlawfully gained from them;

159. Defendants, their affiliates, successors, transferees, assignees and other officers,

directors, partners, agents and employees thereof, and all other persons acting or claiming to act on their behalf or in concert with them, be permanently enjoined and restrained from in any manner continuing, maintaining or renewing the conduct, contract, conspiracy, or combination alleged herein, or from entering into any other contract, conspiracy, or combination having a similar purpose or effect, and from adopting or following any practice, plan, program, or device having a similar purpose or effect;

160. Plaintiffs and the members of the Classes be awarded pre- and post-judgment interest as provided by law, and that such interest be awarded at the highest legal rate from and after the date of service of this Complaint;

161. Plaintiffs and the members of the Classes recover their costs of suit, including reasonable attorneys' fees, as provided by law; and

162. Plaintiffs and members of the Classes have such other and further relief as the case may require and the Court may deem just and proper.

DEMAND FOR JURY TRIAL

Plaintiffs demand a trial by jury of all issues so triable.

DATED: New York, New York on August 8, 2019.

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Attorneys for Plaintiffs

EXHIBIT 1

JUSTICE NEWS

Department of Justice

Office of Public Affairs

FOR IMMEDIATE RELEASE

Monday, July 29, 2019

Japanese Manufacturer Agrees to Plead Guilty to Fixing Prices for Suspension Assemblies Used in Hard Disk Drives

Company Agrees to Pay \$28.5 Million Criminal Antitrust Fine

NHK Spring Co. Ltd. (NHK Spring), a Japanese manufacturer of suspension assemblies used in hard disk drives, has agreed to plead guilty for its role in a global conspiracy to fix prices, the Department of Justice announced today.

According to a one-count felony charge filed today in the U.S. District Court for the Eastern District of Michigan in Detroit, NHK Spring reached agreements with co-conspirators to refrain from price competition and allocate their respective market shares for suspension assemblies used in hard disk drives. Pursuant to their agreements not to compete, NHK Spring and its co-conspirators exchanged pricing information including anticipated pricing quotes, which they used to inform their negotiations with U.S. and foreign customers that purchased suspension assemblies and produced hard disk drives for sale in, or delivery to, the U.S. and elsewhere. NHK Spring participated in the conspiracy from at least as early as May 2008 and continuing until at least April 2016. Subject to court approval, the company has agreed to plead guilty, to pay a \$28.5 million criminal fine, and to cooperate in the ongoing investigation.

"Today's charge affirms the Antitrust Division's commitment to eradicate price fixing by companies, foreign or domestic," said Assistant Attorney General Makan Delrahim of the Antitrust Division. "While these parts are physically small, they are critical to the operation and performance of electronic devices, and their impact on American consumers and businesses is direct and substantial."

"The FBI will aggressively investigate price-fixing schemes to ensure American businesses and consumers are not negatively impacted," said Assistant Director of the FBI's Criminal Investigative Division Robert Johnson. "Our international corruption squads will pursue these cases at home or abroad in order to uncover this type of illegal activity. No one should underestimate the broad reach of the FBI."

"Activities related to illegal price-fixing and market allocation do not promote an environment conducive to open competition. When this occurs, the consumer is not guaranteed the best products at the lowest prices," said Special Agent in Charge Scott Pierce, U.S. Postal Service Office of Inspector General. "The U.S. Postal Service spends hundreds of millions of dollars every year on supplies and services related to information technology, including computers and associated hardware. Along with the Department of Justice and our federal law enforcement partners, the USPS Office of Inspector General will aggressively investigate those who would engage in this type of harmful conduct."

Suspension assemblies are components of hard disk drives, which are used to store information electronically and are incorporated into computers or sold as stand-alone electronic storage devices. Hard

disk drives use magnetic recording heads to read from and write onto rapidly spinning disks. Suspension assemblies hold the recording heads in close proximity to the disks and provide the electrical connection from the recording heads to the hard disk drives' circuitry.

The charge against NHK Spring resulted from an ongoing investigation being conducted by the Antitrust Division's Washington Criminal II Office, the International Corruption Unit of the FBI, and the United States Postal Service Office of Inspector General. Anyone with information in connection with this investigation is urged to call the Washington Criminal II Section at 202-598-4000, or visit <https://www.justice.gov/atr/contact/newcase.html>.

Attachment(s):

[Download Information](#)

Topic(s):

Antitrust

Component(s):

[Antitrust Division](#)

[Federal Bureau of Investigation \(FBI\)](#)

Press Release Number:

19-818

Updated July 29, 2019

EXHIBIT 2

ORIGINAL

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN

UNITED STATES OF AMERICA

v.

D-1: NHK SPRING CO., LTD.,

Defendant.

Case:2:19-cr-20503

Judge: Goldsmith, Mark A.

MJ: Grand, David R.

Filed: 07-29-2019 At 12:23 PM

INFO USA V NHK SPRING CO., LTD (LG)

violation: 15 U.S.C. § 1
Sherman Act Conspiracy

Maximum Fine: Greater of \$100 million,
twice the gross gain, or twice the gross loss
(15 U.S.C. § 1; 18 U.S.C. § 3571(c) and (d))

Maximum Period of Probation: Five years

INFORMATION

THE UNITED STATES CHARGES:

COUNT ONE

(15 U.S.C. § 1: Sherman Act Conspiracy)

Defendant and Co-Conspirators

1. NHK Spring Co., Ltd. ("Defendant") is a corporation organized and existing under the laws of Japan, with its principal place of business in Yokohama, Japan. During the period covered by this Information, Defendant was a producer of hard disk drive suspension assemblies ("HDD suspension assemblies") and was engaged in the sale of HDD suspension assemblies in the United States and elsewhere.

2. Another corporation and various individuals, not made defendants in this Information, participated as co-conspirators in the offense charged in this Information and performed acts and made statements in furtherance of it.

3. Whenever in this Information reference is made to any act, deed, or transaction of any corporation, the allegation means that the corporation engaged in the act, deed, or transaction by or through its officers, directors, agents, employees, or other representative while they were actively engaged in the management, direction, control, or transaction of that corporation's business.

Background

4. HDD suspension assemblies are components of hard disk drives, which are used to store information electronically and may be incorporated into computers or sold as stand-alone electronic storage devices. Hard disk drives use magnetic recording heads to read from and write onto rapidly spinning disks. HDD suspension assemblies hold the recording heads in close proximity to the disks and provide the electrical connection from the recording heads to the hard disk drives' circuitry.

5. During the period covered by this Information, Defendant and its co-conspirators manufactured HDD suspension assemblies outside the United States and sold them in, or for delivery to, the United States. During the period covered by this Information, Defendant and its co-conspirators also sold foreign-manufactured HDD suspension assemblies outside the United States for incorporation into products—namely, hard disk drives—that were sold in, or for delivery to, the United States.

Description of the Offense: Conspiracy to Restrain Trade

6. From at least as early as May 2008 and continuing until at least April 2016 (the "Relevant Period"), the exact dates being unknown to the United States, in the Eastern District of Michigan and elsewhere, Defendant and its co-conspirators knowingly entered into and engaged

in a conspiracy to suppress and eliminate competition by fixing prices for HDD suspension assemblies sold in the United States and elsewhere. The combination and conspiracy engaged in by Defendant and its co-conspirators was a per se unlawful, and thus unreasonable, restraint of trade and commerce among the states and with foreign nations in violation of Section 1 of the Sherman Antitrust Act, 15 U.S.C. § 1.

7. The charged combination and conspiracy consisted of a continuing agreement, understanding, and concert of action among Defendant and its co-conspirators, the substantial terms of which were to refrain from competing on prices for, fix the prices of, and allocate their respective market shares for, HDD suspension assemblies to be sold in the United States and elsewhere.

Means and Methods of the Conspiracy

8. For the purpose of forming and carrying out the charged combination and conspiracy, Defendant and its co-conspirators did those things that they combined and conspired to do, including, among other things:

- (a) engaging in discussions and attending meetings during which they reached agreements to refrain from competing on prices for, fix the prices of, and allocate their respective market shares for, HDD suspension assemblies to be sold in the United States and elsewhere;
- (b) exchanging HDD suspension assemblies pricing information, including anticipated pricing quotes, in the United States and elsewhere;
- (c) relying on their agreements not to compete and using the exchanged pricing information to inform their negotiations with U.S. and foreign customers that

purchased HDD suspension assemblies and produced hard disk drives for sale in, or delivery to, the United States and elsewhere;

(d) selling HDD suspension assemblies in, or for delivery to, the United States and elsewhere at collusive and noncompetitive prices; and

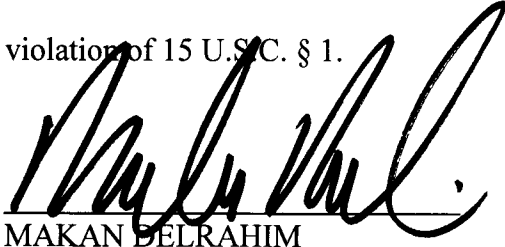
(e) accepting payment for HDD suspension assemblies sold in, or for delivery to, the United States and elsewhere at collusive and noncompetitive prices.

Trade and Commerce

9. During the Relevant Period, the business activities of Defendant and its co-conspirators that are the subject of this Information and the charged conspiracy occurred within the flow of, and substantially affected, interstate and import trade and commerce. During the Relevant Period, Defendant's and its co-conspirators' manufacture and sale of HDD suspension assemblies occurred in a continuous and uninterrupted flow of interstate and import trade and commerce.

10. During the Relevant Period, Defendant and its co-conspirators manufactured HDD suspension assemblies outside the United States and sold them in, or for delivery to, the United States. Defendant and its co-conspirators also sold foreign-manufactured HDD suspension assemblies outside the United States for incorporation into products—namely, hard disk drives—that were sold in, or for delivery to, the United States. During the Relevant Period, HDD suspension assemblies and certain hard disk drives incorporating affected HDD suspension assemblies traveled in, and substantially affected, interstate and import trade and commerce. During the Relevant Period, the conspiracy involved and had a direct, substantial, and reasonably foreseeable effect on interstate and import trade and commerce, including in HDD suspension

assemblies and certain hard disk drives incorporating affected HDD suspension assemblies, all in violation of 15 U.S.C. § 1.



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Antitrust Division
U.S. Department of Justice



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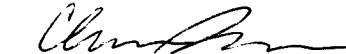
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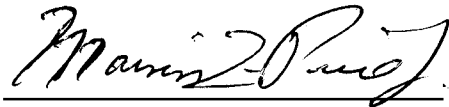
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MARVIN N. PRICE, JR.
Director of Criminal Enforcement
Antitrust Division
U.S. Department of Justice

Date: July 1, 2019

ORIGINALUnited States District Court
Eastern District of Michigan**Criminal Case Cover Sheet**

Case: 2:19-cr-20503

Judge: Goldsmith, Mark A.

MJ: Grand, David R.

Filed: 07-29-2019 At 12:23 PM

INFO USA V NHK SPRING CO., LTD (LG)

NOTE: It is the responsibility of the Assistant U.S. Attorney signing this form to complete the following information.

Companion Case Information	Companion Case Number:
This may be a companion case based upon LCrR 57.10 (b)(4) ¹ :	Judge Assigned:
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	AUSA's Initials: CSB

Case Title: USA v. NHK Spring Co., Ltd.County where offense occurred : OaklandCheck One: ☒ Felony ☐ Misdemeanor ☐ Petty

☒ Indictment/ ☒ Information --- no prior complaint.
☐ Indictment/ ☐ Information --- based upon prior complaint [Case number: _____]
☐ Indictment/ ☐ Information --- based upon LCrR 57.10 (d) [Complete Superseding section below].

Superseding Case Information

Superseding to Case No: _____ Judge: _____


- ☐ Corrects errors; no additional charges or defendants.
☐ Involves, for plea purposes, different charges or adds counts.
☐ Embraces same subject matter but adds the additional defendants or charges below:

Defendant nameChargesPrior Complaint (if applicable)

Please take notice that the below listed Assistant United States Attorney is the attorney of record for the above captioned case.

July 29, 2019

Date


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 Assistant United States Attorney
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 Fax: 202-598-2428
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 Attorney Bar #: CA 242130

¹ Companion cases are matters in which it appears that (1) substantially similar evidence will be offered at trial, or (2) the same or related parties are present, and the cases arise out of the same transaction or occurrence. Cases may be companion cases even though one of them may have already been terminated.

EXHIBIT 3



News Center | Press Releases

TDK Corporation Announces Completion of Hutchinson Technology Acquisition

Oct. 6, 2016

TDK Corporation ("TDK", TSE: 6762, Representative Director and President: Shigenao Ishiguro) today announced that TDK had completed its acquisition of Hutchinson Technology Incorporated ("HTI"), a global supplier of critical precision component technologies. Under the terms of the merger agreement, each outstanding share of common stock of HTI was canceled and converted into the right to receive \$4.00 per share, without interest. HTI's common stock (NASDAQ: HTCH) has ceased trading on the NASDAQ Global Select Market. Nixon Peabody LLP acted as legal advisor to TDK on the transaction and Janes Capital Partners acted as TDK's financial advisor. HTI was represented on the transaction by its legal advisor, Faegre Baker Daniels LLP, and its financial advisor, BofA Merrill Lynch.

About TDK Corporation

TDK Corporation is a leading electronics company based in Tokyo, Japan. It was established in 1935 to commercialize ferrite, a key material in electronic and magnetic products. TDK's portfolio includes electronic components, modules and systems* marketed under the product brands TDK and EPCOS, power supplies, magnetic application products as well as energy devices, flash memory application devices, and others. TDK focuses on demanding markets in the areas of information and communication technology and consumer, automotive and industrial electronics. The company has a network of design and manufacturing locations and sales offices in Asia, Europe, and in North and South America. In fiscal 2016, TDK posted total sales of USD 10.2 billion and employed about 92,000 people worldwide.

- * The product portfolio includes ceramic, aluminum electrolytic and film capacitors, ferrites, inductors, high-frequency components such as surface acoustic wave (SAW) filter products and modules, piezo and protection components, and sensors.

Contact for media

Contact	Department	Phone	Mail
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EXHIBIT 4

Hutchinson Shares Extend Slide on Continued FTC Antitrust Review

Only two producers of critical hard disk drive components will remain if TDK acquires Hutchinson.

By **William McConnell**

Updated: Jan 5, 2016 9:32 AM EST



After recovering somewhat during the last half of December, shares of **Hutchinson Technology** HTCH continued their downward slide first triggered Dec. 16 when the company announced that its agreement to be acquired by Japan's **TDK Corp.** (**TTDKY**) faces an extended antitrust review by the Federal Trade Commission.

Hutchinson, which makes suspension assemblies for hard disk drives, announced its [\\$124 million deal with TDK on Nov. 2](#). The offer includes \$3.62 in cash upfront plus up to another 38 cents per share depending on the outstanding borrowings on Hutchinson's revolving line of credit when the deal closes. The total compensation possible to Hutchinson shareholders is \$4 per share.

Hutchinson shares were trading at \$3.68 just prior to announcement of the FTC's investigation and dropped to \$3.54 over the next five days. The shares then rebounded to \$3.60 by the end of the month. Monday, however, the shares slid again, closing at \$3.55. The price was unchanged early Tuesday. The stock price is still well above the \$1.75 it traded at when the merger was announced at the beginning of November.

Suspension assemblies are critical components of disk drives that hold the read/write heads in position above the spinning magnetic disks. Hutchinson's principal competitors are **Nihon Hatsujo Kabusikigaisha**, known as NHK; TDK's subsidiary Magnecomp Precision Technology; NAT Peripheral Co. Ltd., which is a joint venture of NHK and TDK. So essentially the merger would leave only NHK and TDK as the globe's two primary producers.

It remains uncertain if the FTC will approve the acquisition of Hutchinson, but if it does the agency will very likely require the NHK and TDK joint venture to be unwound.

When the FTC's extended investigation was announced, the company said it was "cooperating with the FTC staff since the announcement of the merger agreement and are continuing to work cooperatively with the FTC staff."

When the deal was announced, TDK said it expected to complete the deal during the first quarter of 2016. Since announcement of the FTC review, known as a second request for information, it has revised its closing prediction to either late in the first quarter or sometime during the second quarter.

Hutchinson has scheduled a special shareholder meeting to vote on the deal for Jan. 28.

Despite the FTC review, Hutchinson has maintained that competitive pressures in the suspension assembly market, as well as in hard drives generally, makes consolidation necessary. In its latest 10-K filing, Hutchinson officials said, "We believe that consolidation in the disk drive industry . . . has resulted in shifts in certain

industry supply chain alignments that have negatively impacted our competitive position since 2008. We believe that the number of entities that have the technical capability and capacity for producing precision suspension assemblies or components in large volumes will remain small."

Technological change, particularly the development of alternatives to hard disk drives, is also negatively affecting the suspension assembly market. "We believe disk drives will remain the primary data storage technology for the foreseeable future," the company said in its annual report.

However, other types of data storage technology, such as solid state storage or flash (semiconductor) memory, have become competitive with certain disk drive applications, and therefore negatively affect the demand for our products. As an example, emerging applications requiring digital storage, particularly consumer electronics products that require lower storage capacity, are using flash memory, which has and may continue to limit growth opportunities for disk drive-based data storage."


To remain in the market, producers will have to be competitive in price, reliability of volume supply, time to market, product performance, quality, and customer service, the company said. "Disk drive manufacturers seek low cost designs and as the disk drive industry has matured and consolidated. "Cost competitiveness, and thus suspension assembly pricing, has become an increasingly important factor to our customers."

Mergers and Acquisitions

Markets

Regulation

EXHIBIT 5

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Hard drives

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by [Chris Woodford](#). Last updated:
June 1, 2019.

Most people are amazed when they discover they can store hundreds of CDs worth of music on an iPod [digital music player](#) no bigger than a pack of



Memory cards. The original iPod was not much more than a **hard drive**: an incredibly efficient [computer memory](#) device that uses simple [magnetism](#) to store vast amounts of information. Hard drives were invented over 50 years ago and have been used in [personal computers](#) since the mid-1980s (though [flash memory](#) has

replaced them in many machines over recent years). The microprocessor in your computer is the bit that does all the "thinking" and calculating—but it's the hard drive that gives your computer its prodigious memory and lets you store [digital photos](#), music files, and text documents. How does it work? Let's take a closer look!

Photo: A 30GB (gigabyte) hard drive from an old laptop computer.

How to store information with magnetism

The science of [magnetism](#) is complex. But if you've ever fooled around with a magnet and some nails, you'll know that the technology—the science in action—is quite simple. [Iron](#) nails start off unmagnetized but, if you rub a magnet back and forth over them, you can make them magnetic so they stick to one another. Magnetism has some simple, practical uses. For example, junkyards use electromagnets (huge magnets that can be switched on and off with [electricity](#)) to pick up and move around piles of metal scrap.

Photo: Magnets—the technology behind hard drives really is this simple!

Magnetism has another very important use. Suppose you need to leave a message for a friend and all you have is a magnet and an unmagnetized iron nail. Suppose the message is a very simple one: either you will see your friend later that day or not. You could arrange with your friend that you will drop a nail through their letterbox. If the nail is magnetized, it means you will see them later; if the nail is unmagnetized, you won't. Your friend gets in from school and finds a nail on the doormat. They take it to the kitchen table and try to pick up a paperclip. If the clip attaches to the magnet, it must be magnetized—and it must mean you plan to see them later. It's a pretty weird way to leave a message for someone, but it illustrates something very important: magnetism can be used to store information.



If your computer has a 20 gigabyte (GB) hard drive, or you have a 20 GB iPod or MP3 player, it's a bit like a box containing 160 thousand million microscopically small iron nails, each of which can store one tiny piece of information called a **bit**. A bit is a binary digit—either a number zero or a number one. In computers, numbers are stored not as decimal (base-10) but as patterns of binary digits instead. For example, the decimal number 382 is stored as the binary number 101111110. Letters and other characters can also be stored as binary numbers. Thus, computers store a capital letter A as the decimal number 65 or the binary number 1000001. Suppose you want to store the number 1000001 in your computer in that big box of iron nails. You need to find a row of seven unused nails. You magnetize the first one (to store a 1), leave the next five demagnetized (to store five zeros), and magnetize the last one (to store a 1).

How a hard drive works

In your computer's hard drive, there aren't really any iron nails. There's just a large shiny, circular "plate" of magnetic material called a **platter**, divided into billions of tiny areas. Each one of those areas can be independently magnetized (to store a 1) or demagnetized (to store a 0). Magnetism is used in computer storage because it goes on storing information even when the power is switched off. If you magnetize a nail, it stays magnetized until you demagnetize it. In much the same way, the computerized information (or data) stored in your PC hard drive or iPod stays there even when you switch the power off.

What are the parts in a hard drive?

A hard drive has only a few basic parts. There are one or more shiny silver platters where information is stored magnetically, there's an arm mechanism that moves a tiny magnet called a **read-write head** back and forth over the platters to record or store information, and there's an **electronic** circuit to control everything and act as a link between the hard drive and the rest of your computer.

After a hard-drive crash last year, I was left with an old drive that no longer worked. I took a peek inside, and here's what I found...





1. Actuator that moves the read-write arm. In older hard drives, the actuators were [stepper motors](#). In most modern hard drives, **voice coils** are used instead. As their name suggests, these are simple electromagnets, working rather like the moving coils that make sounds in [loudspeakers](#). They position the read-write arm more quickly, precisely, and reliably than stepper motors and are less sensitive to problems such as temperature variations.
2. Read-write arm swings read-write head back and forth across platter.
3. Central spindle allows platter to rotate at high speed.
4. Magnetic platter stores information in binary form.
5. Plug connections link hard drive to circuit board in personal computer.
6. Read-write head is a tiny magnet on the end of the read-write arm.
7. Circuit board on underside controls the flow of data to and from the platter.
8. Flexible connector carries data from circuit board to read-write head and platter.
9. Small spindle allows read-write arm to swing across platter.



Photo: Little and large: Here's the 30GB laptop hard-drive (shown in the other photos on this page) next to a 20GB PCMCIA hard drive from an iPod. The two drives look strikingly similar and work exactly the same way (both are made by Toshiba), but the iPod drive is even more of a miracle of miniaturization! The green-blue circuit board you can see in the first photo includes the disk controller, a circuit that allows the computer to operate the drive's mechanisms and read/write data to and from it.

The platters are the most important parts of a hard drive. As the name suggests, they are disks made from a hard material such as [glass](#), [ceramic](#), or [aluminum](#), which is coated with a thin layer of metal that can be magnetized or demagnetized. A small hard drive typically has only one platter, but each side of it has a magnetic coating. Bigger drives have a series of platters stacked on a central spindle, with a small gap in between them. The platters rotate at up to 10,000 revolutions per minute (rpm) so the read-write heads can access any part of them.

There are two read-write heads for each platter, one to read the top surface and one to read the bottom, so a hard drive that has five platters (say) would need ten separate read-write heads. The read-write heads are mounted on an electrically controlled arm that moves from the center of the drive to the outer edge and back again. To reduce wear and tear, they don't actually touch the platter: there's a layer of fluid or air between the head and the platter surface.

Reading and writing data

The most important thing about memory is not being able to store information but being able to *find it* later. Imagine storing a magnetized iron nail in a pile of 1.6 million million identical nails and you'll have some idea how much trouble your computer would get into if it didn't use a very methodical way of filing its information.

When your computer stores data on its hard drive, it doesn't just throw magnetized nails into a box, all jumbled up together. The data is stored in a very orderly pattern on each platter. Bits of data are arranged in concentric, circular paths called **tracks**. Each track is broken up into smaller areas called **sectors**. Part of the hard drive stores a map of sectors that have already been used up and others that are still free. (In Windows, this map is called the **File Allocation Table** or **FAT**.) When the computer wants to store new information, it takes a look at the map to find some free sectors. Then it instructs the read-write head to move across the platter to exactly the right location and store the data there. To read information, the same process runs in reverse.

How does an electronic computer manipulate all the mechanical nitty gritty in a hard drive? There is an interface (a connecting piece of equipment) between them called a **controller**. This is a small circuit that operates the actuators, selects specific tracks for reading and writing, and converts parallel streams of data going from the computer into serial streams of data being written to the disk (and vice versa). Controllers are either built into the disk drive's own circuit board or part of the computer's main board (motherboard).

With so much information stored in such a tiny amount of space, a hard drive is a remarkable piece of engineering. That brings benefits (such as being able to store 500 CDs on your iPod)—but drawbacks too. One of them is that hard drives can go wrong if they get dirt or dust inside them. A tiny piece of dust can make the read-write head bounce up and down, crashing into the platter and damaging its magnetic material. This is known as a **disk crash** (or **head crash**) and it can (though it doesn't always) cause the loss of all the information on a hard drive. A disk crash

usually occurs out of the blue, without any warning. That's why you should always keep backup copies of your important documents and files, either on another hard drive, on a [compact disc \(CD\)](#) or [DVD](#), or on a flash memory stick.



Photo: The read-write head on a hard-drive. 1) The actuator arm swings the head back and forth so it's in the right position on the drive. 2) Only the tiny extreme end part of the hard drive actually reads from and writes to the platter. Bear in mind that half of what you're seeing in the second photo is a reflection in the shiny hard drive surface!

Who invented the hard drive?

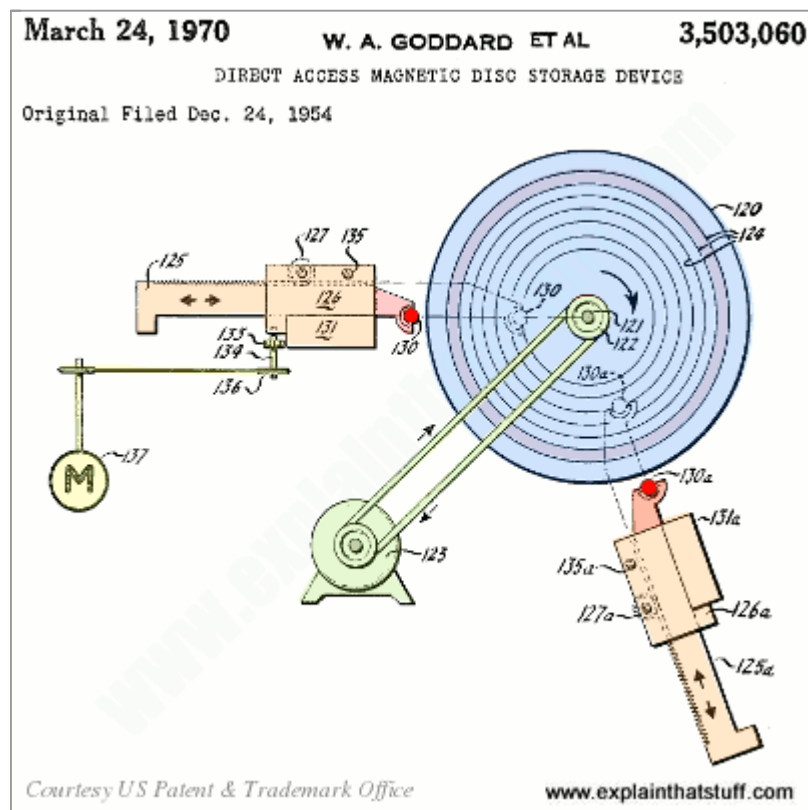
Like many innovations in 20th-century computing, hard drives were invented at IBM as a way to give computers a rapidly accessible "random-access" memory. The trouble with other [computer memory](#) devices, like punched cards and reels of magnetic tape, is that they can only be accessed serially (in order, from beginning to end), so if the bit of data you want to retrieve is somewhere in the middle of your tape, you have to read or scan through the entire thing, fairly slowly, to find the thing you want. Everything is much faster with a hard drive, which can move its read-write

head very quickly from one part of the disk to another; any part of the disk can be accessed as easily as any other part. The first hard drive was developed by IBM's [Reynold B. Johnson](#) and announced on September 4, 1956 as the [IBM 350 Disk Storage Unit](#).

IBM engineers also pioneered floppy disks, which were removable magnetic disks packed in robust plastic cases (originally 20cm or 8in in diameter and wrapped in flexible plastic sleeves; later 133mm or 5.25in in diameter and packed in tough plastic cases). Developed by IBM's Warren Dalziel in 1967 and first sold in 1971, they became hugely popular in microcomputers (the forerunners of PCs) in the late 1970s and early 1980s, but are now obsolete. With a storage capacity of only 1.44MB, they've been completely superseded by USB flash "drives" that offer hundreds or thousands of times more memory in a tiny plastic stick a fraction the size.

Artwork: The original hard drive. IBM engineers developed this groundbreaking magnetic memory (which, in IBM-speak, was called the DASD, pronounced "das-dee"), through a process of continuous improvement from the early 1950s onward and were awarded their final patent on the design in 1970. You can see that the basic read-write mechanism is exactly the same as in today's drives: there are multiple platters (light blue) made up of individual sectors (dark blue) that can be written to or read from by multiple read-write heads (red) mounted on the ends of sliding actuators (orange). The platters are spun by a pulley and motor (green), while the actuators are driven by gears and a motor (yellow).

The main difference between this drive and a modern one is the amazing amount of intricate machinery this one contained (which you can read all about in the original patent). From [US Patent 3,503,060: Direct access magnetic disc storage device](#) by William Goddard and John Lynott, IBM Corporation, March 24, 1970, courtesy of US Patent and Trademark Office, with colors added for clarity.



Hard drives and SSDs compared

Hard drives are tried and tested, high-capacity, and cheap, but they have plenty of drawbacks too. One issue is the amount of time it takes for the read-write head to get itself to the right part of the disk to access the information you want. The heft of a hard drive and its relatively heavy power consumption are also problems, especially in mobile devices such as tablets and smartphones. Reliability is another issue. As you'll have gathered from what you've just read, a hard drive is a wonderful bit of precision engineering with plenty of intricate moving parts. It could easily work for 20 years with no problems at all. Then again, if you've ever suffered a hard-drive head crash (a serious mechanical breakdown caused by something like dirt on one of your hard-drive platters or a sudden mechanical shock), and lost everything you've ever stored on your computer, that's no reassurance: you'll know a hard drive will instantly fall out of love with you if you treat it with less care than it deserves.

All these problems—weight, power consumption, access times, and reliability—can be solved by using solid-state drives (SSDs), which typically use [flash memory](#) chips instead of spinning magnetic platters. Computer makers have been moving away from hard drives, and toward SSDs, for at least the last decade, largely driven by the trend away from desktop computers and toward mobile devices. Apple iPods are a good example of how times have changed. The original "Classic" iPods, launched in 2001, are little more than hard drives, sound cards, and batteries (you can see what an iPod hard drive looks like in the photos above); the hard drive, in particular, was an obvious excuse for failure if you took them jogging or tossed them around in your bag. With the iPod Touch, which launched in 2007, Apple switched decisively to SSD technology, making music players thinner and lighter in your pocket, less prone to mechanical failure, and giving far better battery life. You're more likely to wear out the buttons or crack the screen on a modern iPod or iPhone than do any damage to the memory chips inside.

Here's a very quick comparison between traditional hard-disk drives (HDDs) and SSDs on a few key measurements:

	HDD	SSD
Access time (ms)	10	0.1
Read speed (MB/s)	50 - 100	200 - 500

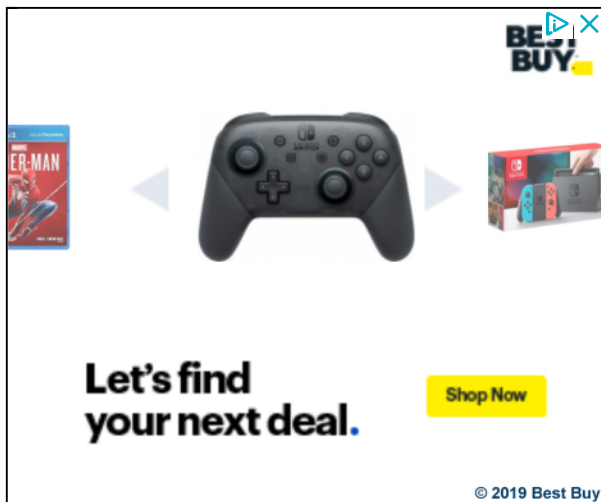
Weight (g)	500	50
Power consumption (W)	6	2 - 3

No contest? SSDs win hands down? Not so fast! If you're looking to buy as much storage as you can for as little cash, and you're less fussy about things like power consumption and speed, traditional hard drives are still the best value for money. As of 2019, SSDs are still typically several times more expensive per gigabyte than traditional hard drives. Don't expect old-style hard drives to disappear until that price difference closes substantially!

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A Best Buy advertisement featuring a central image of a black Nintendo Switch Pro Controller. To its left is a box for the video game 'Spider-Man' and to its right is a box for the Nintendo Switch console. The text 'Let's find your next deal.' is prominently displayed at the bottom left, with a yellow 'Shop Now' button to its right. The Best Buy logo is in the top right corner, and the copyright notice '© 2019 Best Buy' is at the bottom right.

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- [Computer memory \(general, RAM, ROM, etc\)](#)
- [Flash memory](#)
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Articles

- [SSD vs. HDD: What's the Difference?](#) by Joel Santo Domingo. PC Mag, January 24, 2019. A good quick comparison between old-style hard drives and modern SSDs.
- [A Radical Proposal: Replace Hard Disks With DRAM](#) by John Ousterhout. IEEE Spectrum. October 26, 2015. Flash drives are replacing hard drives, but maybe DRAM (which is 1000 times faster) is a better bet, despite its expense.
- [Hard drive destruction 'crucial'](#): BBC News, January 12, 2009. Why you need to take special precautions when you get rid of an old computer. This BBC News article recommends removing the hard drive and smashing the disks!
- [Testing the limits of hard-disk recovery](#) by Darren Waters. BBC News, May 22, 2007. Looks at what you can do to cure a hard drive crash.
- [E.R. for Hard Drives](#) by Eric Taub. The New York Times. July 14, 2005. Every hard drive is going to fail eventually, so be prepared for that by taking regular, methodical backups.
- [The Floppy Disk](#): IBM's history archive website explains how floppy disks were invented and why they had such a huge impact.

Photo: A hard drive actuator: it's a voice coil (or sometimes a [stepper motor](#)) that sits in the corner and swings the read-write head back and forth across the platters.



Books

- [Upgrading and Repairing PCs](#) by Scott Mueller. Que Publishing, 2015. Chapter 8 "Magnetic Storage" is a really good, clear introduction that builds on what you've learned in my article.
- [Hard Disk Drive: Mechatronics and Control](#) by Abdullah Al Mamun, Guoxiao Guo, Chao Bi. CRC Press, 2007. A detailed reference covering the design and manufacture of hard drives.
- [Hard Drive Bible](#) by Martin Bodo. Corporate Systems Center, 1996. A slightly dated but still very useful reference.



Patents

If you enjoy technical detail, these are worth a look:

- [US Patent 3,503,060: Direct access magnetic disc storage device](#) by William Goddard and John Lynott, IBM Corporation, March 24, 1970. This is IBM's original, pioneering "DASD" disk storage device, developed continuously between the 1950s and the late 1960s (when it was finally patented). Remember that this predates the modern electronic age: it's a striking piece of intricate machinery with all kinds of motors, gears, and other bits and pieces!
- [US Patent 3,668,658: Magnetic record disk cover](#) by Ralph Flores, Herbert E Thompson, IBM Corporation, June 6, 1972. One of IBM's original floppy disk patents, which describes the structure and manufacture in some detail (though the word "floppy" isn't used anywhere in this document).
- [US Patent 4,210,959: Controller for magnetic disc, recorder, or the like](#) by Stephen G. Wozniak, Apple Computer, Inc., July 1, 1980. This early Apple patent neatly explains the workings of a typical disc controller.
- [US Patent 4,774,700: Information recording and reproducing apparatus with detection and management of defective sectors](#) by Isao Satoh, Yoshihisa Fukushima Electric Industrial Co., Ltd., September 27, 1988. A more modern hard drive that can work around bad sectors.

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EXHIBIT 6

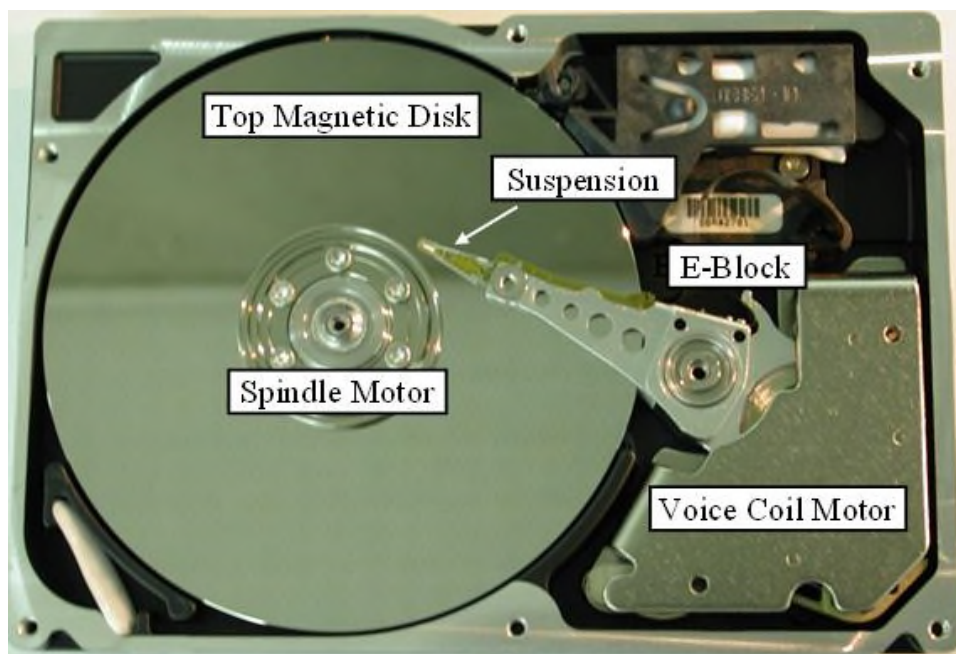
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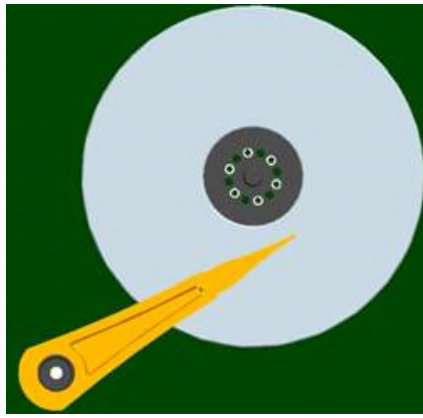
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Hard Disk Drives

How does a hard disk drive (HDD) work? A very basic explanation is that a recording head applies a magnetic field to a disk changing the bits of information on the disk as it rotates. The head can then read the information as it "flies" over these bits. Some of the components of a HDD are labeled below.



The spindle motor typically rotates the disk at 7200 RPM, and the suspension move across the disk to write on or read certain areas of the disk. The animation below shows how the suspension moves.



Click on the image to see [animation](#).

Tribology comes into play as a result of the interaction between the recording head and the disk. In order for HDD capacity to keep increasing, the distance between the head and disk (flying height) needs to be lower than 5 nm. At this distance [adhesion](#) plays a large role, and the head has a greater chance of contacting the disk, a very undesirable but inevitable occurrence in the presence of shock loading. In order for the head to maintain a certain distance above the disk, it is shaped in such a way that there is a pressure build beneath it, much like an airplane wing. Shown below is an illustration of a head-disk interface (HDI) and animation of the head response to [roughness](#).

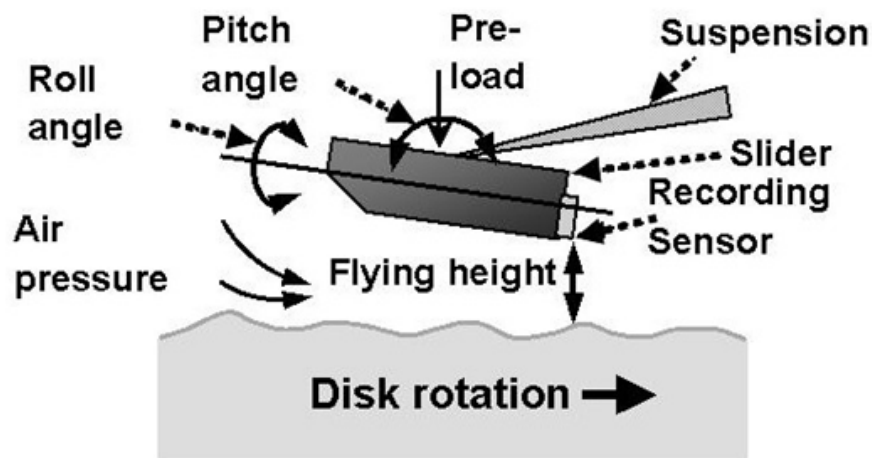


Illustration of the various components and dynamics at the HDI



Click on the image to see an [animation](#) of the head-disk interaction. The gold portion is the recording sensor. Note that the roughness and pitch movement of the slider are exaggerated.

The flying height of a HDD is becoming smaller in order to achieve higher data densities. Currently, the maximum density is about 100 Gbit/in², or about 3000 songs in one square inch, and the goal is to reach 1 Tbit/in², or about 30,000 songs in one square inch.

There are many sizes of HDD's in production. The smallest HDD, a microdrive, has a 1" disk and is commonly used in digital cameras, MP3 players, and is gaining acceptance in cellular phones. To see a video showing the components and assembly of a microdrive [click here](#).

[Back to Real-life Examples](#)

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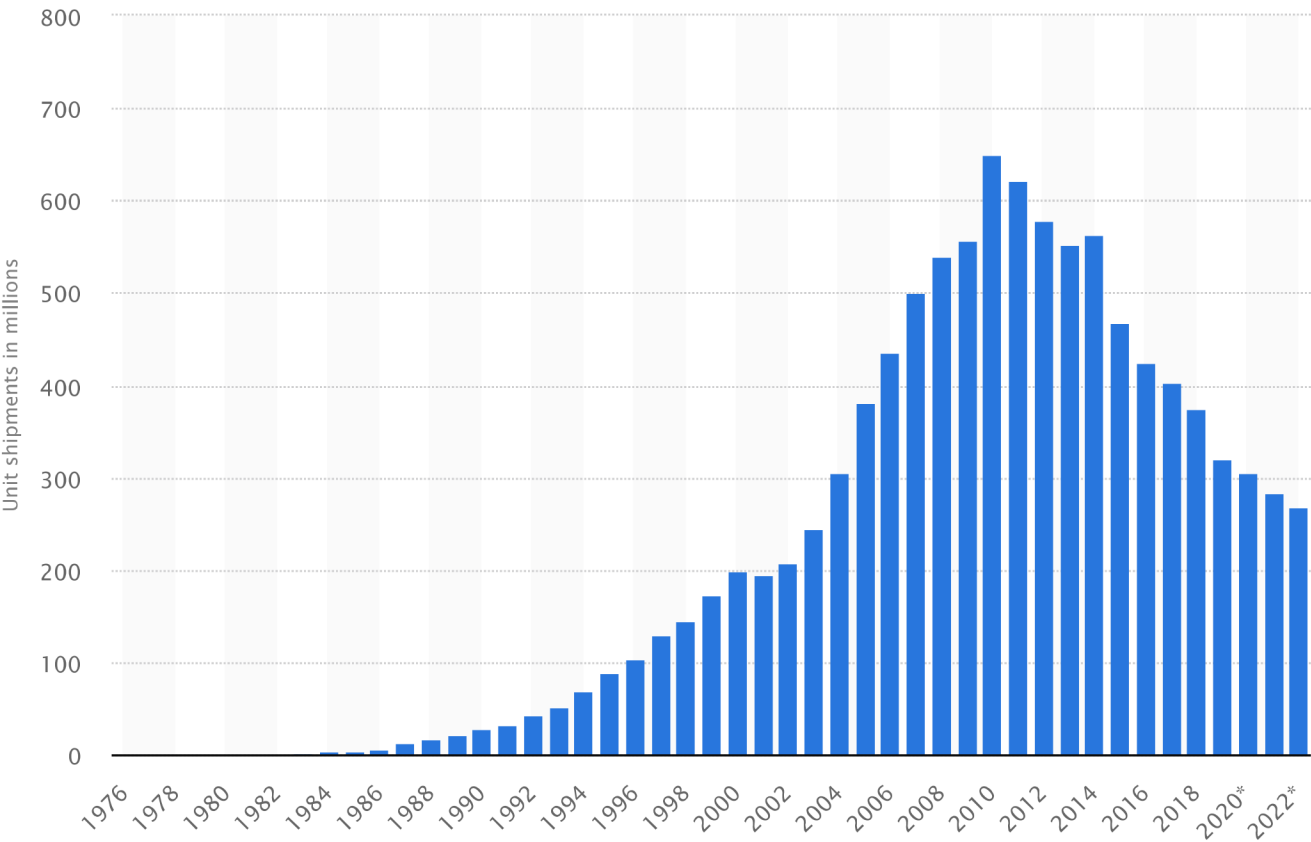
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EXHIBIT 7

Technology & Telecommunications › Hardware › Global hard disk drive (HDD) shipments ...

Worldwide unit shipments of hard disk drives (HDD) from1976 to 2022 (in millions)



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About this statistic

Show source

DESCRIPTION	SOURCE	MORE INFORMATION
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by Arne Holst,
last edited Feb 22, 2019

This statistic shows global shipment figures for hard disk drives (HDD) from 1976 to 2018, with a forecast through to 2022. In 2018, global unit shipments of hard disk drives fell to 375.56 million units. High-capacity enterprise HDD shipments are expected to grow, although at a slower rate than previously forecast. Consumer drives and external hard disk drive shipments are both expected to decline.

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February 2019

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Survey time period

1976 to 2018

Supplementary notes

* Forecast.

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