

PATENT ASSIGNMENT COVER SHEET

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NATURE OF CONVEYANCE:	ASSIGNMENT	
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DATE SIGNED:	11/12/2020	
Total Attachments: 109		
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PATENT ASSIGNMENT

THIS PATENT ASSIGNMENT (this "Patent Assignment"), dated as of May 3, 2012, is entered into by and between Seagate Technology International, a company incorporated under the laws of the Cayman Islands ("Assignor"), and Seagate Technology LLC, a limited liability company organized and existing under the laws of the State of Delaware and the United States of America, and having offices at 10200 S. De Anza Blvd, Cupertino, CA 95014 USA ("Assignee").

In consideration of the mutual covenants and agreements contained herein, and intending to be legally bound hereby, the parties agree as follows:

1. Assigned Patents. The term "Assigned Patents" means the issued patents, pending patent applications, and abandoned patent applications listed on Attachment 1 attached hereto.

2. Assignment. For good and valuable consideration, the receipt and adequacy of which is hereby acknowledged, Assignor hereby assigns, transfers, sells and delivers to Assignee all of its right, title and interest throughout the world in and to the Assigned Patents, as well as any reexaminations, extensions, substitutions and reissues of any of the Assigned Patents, and all rights, claims and privileges pertaining to any of the Assigned Patents, including, without limitation, rights to the underlying inventions, the right to claim priority from the aforementioned patents and pending applications, the right to prosecute and maintain any of the Assigned Patents and the right to sue and recover damages for past, present and future infringement or other violation or impairment of any of the Assigned Patents.

3. Further Assurances. Assignor shall use commercially reasonable efforts to perform all reasonable acts, at the request and expense of Assignee, that are necessary, proper or advisable under applicable law or otherwise to permit and assist Assignee in evidencing, perfecting, obtaining and maintaining any rights Assignee has in and to any Assigned Patent. Such actions shall include, without limitation, providing Assignee with pertinent documents and information necessary for Assignee or any of its affiliates, designees or agents to prosecute or maintain any registration or application for any Assigned Patent, or pursue or defend any administrative, court or other legal proceeding involving any Assigned Patent. Assignor represents to the Assignee, its successors and assigns, that Assignor has not and shall not execute any writing or do any act whatsoever conflicting with this Patent Assignment.

4. Successors and Assigns. This Patent Assignment will be binding upon, inure to the benefit of, and be enforceable by, the parties and their respective permitted successors and assigns.

5. Severability. Whenever possible, each provision or portion of any provision of this Patent Assignment shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision or portion of any provision of this

Patent Assignment is held to be invalid, illegal or unenforceable in any respect under any applicable law or rule in any jurisdiction, such invalidity, illegality or unenforceability shall not affect any other provision or portion of any provision in such jurisdiction, and this Patent Assignment shall be reformed, construed and enforced in such jurisdiction as if such invalid, illegal or unenforceable provision or portion of any provision had never been contained herein.

6. Governing Law. This Patent Assignment, and all claims or causes of action (whether in contract or tort) that may be based upon, arise out of or relate to this agreement, shall be governed by, and construed in accordance with, the laws of the State of California, regardless of the laws that might otherwise govern under applicable principles of choice or conflicts of law thereof.

IN WITNESS WHEREOF, Assignor has caused this Patent Assignment to be executed as of the date first written above by the duly authorized officer.

ASSIGNOR

Seagate Technology International

Witness Signature:

Melissa Zarns

Witness Name (print):

Melissa Zarns

By:

Kenneth M. Massaroni

Name: Kenneth M. Massaroni

Title: EVP, General Counsel

#CAO

PATENT

REEL: 020400 FRAME: 0059

ATTACHMENT 1

ASSIGNED PATENTS

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1.	06/006,776	006776	4,282,554	enclosed disc drive with improved air flow	19790126	19810804	CF1996020011US0
2.	06/006,861	006861	4,260,208	MANUFACTURING FIXTURE AND SUPPORT FOR MAGNETIC DISC	19790126	19810407	CF1996020041US0
3.	06/149,972	149972	4,331,989	MAGNETIC DISC FILE HAVING DUAL LOCK MECHANISM	19800515	19820525	CF1996020051US0
4.	06/150,042	150042	4,329,722	ENCLOSED DISC DRIVE HAVING COMBINATION FILTER ASSEMBLY	19800515	19820511	CF1996020021US0
5.	06/230,448	230448	4,415,844	DIGITAL MOTOR SPEED CONTROLLER	19810209	19831115	CF1996020061US0
6.	06/253,316	253316	4,369,475	ENCLOSED DISC DRIVE WITH IMPROVED AIR FLOW	19810413	19830118	CF1996020031US0
7.	06/508,806	508806	4,594,627	SAFETY LATCH FOR PICKUP HEADS AND CARRIAGE DISC DRIVE	19830628	19860610	CF1996020071US0
8.	06/619,973	619973	RE32,285	LINEAR ACTUATOR FOR A MEMORY STORAGE APPARATUS	19840613	19861111	CF1996020171US0
9.	06/658,536	658536	4,595,221	DISC TRANSFER DEVICE	19841009	19860617	CF1996020081US0
10.	06/694,704	694704	4,635,151	ROTARY ACTUATOR HAVING PRELOADED SPRING CRASH STOP	19850125	19870106	CF1996020091US0
11.	06/743,037	743037	4,697,098	COMPOSITE GATE GENERATOR CIRCUIT FOR DETECTING VALID SIGNALS	19850610	19870929	CF1996020111US0
12.	06/748,157	748157	4,691,254	DATA PROCESSING SYSTEM INCLUDING ENCODER, DECODER AND WRITE PRECOMPENSATOR USING RUN LENGTH LIMITED CODE	19850624	19870901	CF1996020101US0
13.	06/765,677	765,677	4,703,470	DYNAMIC ABSORBER DEVICE FOR USE WITH DISC DRIVES	19850815	19871027	CF1996020131US0
14.	06/826,689	826689	4,703,377	THERMAL COMPENSATION FOR DISK DRIVE CARRIAGE ASSEMBLY	19860206	19871027	CF1996020121US0

[ATTACHMENT 1 TO PATENT ASSIGNMENT - USA]

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LEGAL_CN # 5872639.2

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samung Reference No.
15.	07/031,306	031,306	4,764,828	DISC AND HUB CENTERING DEVICE FOR USE IN MAGNETIC DISC DRIVES	19870326	19880816	CF1996020141US0
16.	07/068,266	068,266		AN OPTICAL HEAD FOR AN OPTICAL SYSTEM	19901205		FC1990045041US0
17.	07/133,946	133,946	4,843,503	HEAD ARM DAMPING DEVICE FOR DISC DRIVE ACTUATORS	19871217	19890627	CF1996020151US0
18.	07/183,457	183,457	4,881,139	LATCH MECHANISM FOR ROTARY ACTUATOR AND THE LIKE	19880414	19891114	CF1996020161US0
19.	07/379,066	379,066	5,040,087	MAGNETIC HEAD FOR READING INFORMATION ON A DISKETTE	19890713	19910813	FC1988055061US0
20.	07/459,296	459,296	5,018,804	Laser pick-up	19891219	19910528	FC1988105041US0
21.	07/591,092	591,092	5,199,020	AN OPTICAL HEAD USING AN OPTICAL SCANNER	19900901	19930330	FC1989085031US0
22.	07/753,640	753,640	5,295,129	LIGHT SIGNAL DETECTING CIRCUIT	19910830	19940315	FC1990075011US0
23.	07/767,612	767,612	5,245,597	METHOD AND DEVICE FOR CORRECTION TRACK DEVIATION IN OPTICAL DISC DRIVE	19900930	19930914	FC1990055041US0
24.	07/814,629	814,629	5,206,852	HIGH-DESITY RECORDING OPTICAL HEAD	19911230	19930427	FC1991055281US0
25.	07/817,907	817,907		METHOD OF CONTROLLING DIRECT IN MAGNETIC OPTICAL DRIVE AND DEVICETHEREOF	19920108		FC1991095031US0
26.	08/040,008	040,008	5,383,173	OPTICAL PICK-UP UTILIZING A PHASE DIFFRACTION GRATING FOR DIFFRACTING REFLECTED LIGHT IN TWO DIRECTIONS	19930330	19950117	FC1992015011US0
27.	08/066,924	066,924		FOCUSING-ERROR DETECTIVE APPRATUS FOR OPTICAL DISK DRIVE	19930525		FC1990025011US0
28.	08/124,761	124,761	5,374,819	OPTICAL HEAD HAVING A BEAM CUTTING MIRROR WITH A TOTAL ABSORPTION SURFACE	19930922	19941220	FC1992055201US0
29.	08/124,762	124,762	5,363,353	MAGNETO-OPTICAL DISK DRIVE	19930922	19941108	FC1992055151US0
30.	08/126,718	126,718	5,440,433	CIRCUIT AND METHOD FOR ADJUSTING A DATA DETECTING LEVEL OF A DISK DRIVING APPARATUS	19930927	19950808	FC1992055061US0

[ATTACHMENT 1 TO PATENT ASSIGNMENT - USA]

A-2

LEGAL_CN # 5872639.2

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
31.	08/128,967	128,967	5,428,591	TRACK COMPENSATION APPARATUS OF MAGNETO-OPTICAL DISK APPARATUS	19930930	19950627	FC1992055161US0
32.	08/132,312	132,312	5,394,386	OPTICAL DISK HIGH-SPEED SEARCH CONTROL AND METHOD THEREOF	19931006	19950208	FC1992125011US0
33.	08/135,622	135,622	5,363,359	METHOD AND APPARATUS FOR GENERATING VELOCITY ERROR SIGNALA	19931014	19941108	FC1992115371US0
34.	08/148,941	148,941	5,444,679	MAGNETO-OPTICAL DISK DRIVER AND METHOD THEREOF	19931108	19950822	FC1992115031US0
35.	08/211,414	211,414	6,278,565	DISK READ-OUT CIRCUIT(PCT출원일 1992.11.30)	19940404	20010821	FC1992105011US1
36.	08/211,414	211,414		DISK READ-OUT CIRCUIT(PCT출원일 1992.11.30)	19940404		FC1992105011US0
37.	08/211,526	211,526	5,805,370	HEAD SWITCHING METHOD FOR STAGGERED SERVO AND CIRCUIT THEREOF(PCT출원일 '92.11.30)	19940405	19980908	FC1992105071US0
38.	08/211,530	211,530	5,583,708	CIRCUIT FOR DETECTING UNRECORDED PORTION OF RECORDING MEDIUM(PCT출원일'92.11.30)	19940405	19961210	FC1992105081US0
39.	08/249,274	249,274	5,483,399	SELF-LATCHING RESTRAINT FOR AN ACTUATOR OF A DISK DRIVE	19940525	19960109	FC1993035031US0
40.	08/343,939	343,939	6,243,226	DIGITAL SERVO CONTROL APPARATUS AND METHOD OF DATA STORAGE SYSTEM USING DISK RECORDING MEDIA	19941116	20010605	FC1993035021US0
41.	08/352,803	352,803	5,587,855	A SUPPORTING DEVICE FOR MINIMIZING VIBRATION, NOISE AND EXTERNAL IMPACT OF A HARD DISK DRIVE	19941201	19961224	EC1994110291US0
42.	08/358,905	358,905		GRAY CODE DECODING CIRCUIT OF A HARD DISK DRIVE	19941219		FC1993055081US0
43.	08/364,972	364,972	6,351,341	OUTSIDE IMPACT RESISTANT APPARATUS AND METHOD BY AXIAL CONTROL OFHARD DISK DRIVE	19941228	20020226	FC1993105101US0
44.	08/365,907	365,907		DIGITAL DATA RECORDING/ REPRDODUCING APPARATUS AND METHODTHEREOF	19941229		RX1994040191US0
45.	08/366,253	366,253		Actuator for magnetic bearing	19941229		XB1994090131US0
46.	08/366,585	366,585	5,602,697	APPARATUS FOR FIXING SPINDLE MOTOR IN HARD DISK DRIVE	19941230	19970211	FC1993115201US0

[ATTACHMENT 1 TO PATENT ASSIGNMENT - USA]

A-3

LEGAL_CN # 5872639.2

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
47.	08/386,906	386,906	5,610,776	METHOD OF OPTIMIZING READ CHANNEL OF DISK DRIVING RECORDING APPARATUS BY USING ERROR RATE	19950228	19970311	FC1993115331US0
48.	08/422,526	422,526	5,535,092	AN APPARATUS FOR REDUCING IMPACTS ON A HARD DISK ASSEMBLY	19950427	19960709	FC1993105231US0
49.	08/423,740	423,740	5,583,721	A CONNECTING DEVICE OF A FLEXIBLE CIRCUIT IN A HARD DISK DRIVE	19950418	19961210	FC1993115321US0
50.	08/424,862	424,862	5,825,568	SERVO ADDRESS MARK DETECTION COMPENSATION CIRCUIT	19950418	19981020	FC1993105011US0
51.	08/434,310	434,310	5,583,724	A MAGNETIC LATCHING APPARATUS FOR AN ACTUATOR OF A HARD DISK DRIVE	19950502	19961210	FC1994055091US0
52.	08/447,279	447,279		SERVO CONTROL APPARATUS AND METHOD OF DISK RECORDING SYSTEM	19950522		FC1994035031US0
53.	08/451,632	451,632	5,644,451	MECHANISM FOR LOADING AND UNLOADING OF READ/WRITE HEADS AT AN INNER DIAMETER OF A DISK	19950526	19970701	CA1995050741US0
54.	08/455,025	445,025	5,631,783	MAGNETIC DISC APPARATUS EMPLOYING CONSTANT-DENSITY RECORDING TYPE AND ITS DRIVER AND ACCESS METHOD	19950531	19970520	FC1993075021US0
55.	08/482,400	482,400	5,568,333	ACTUATOR LATCHING DEVICE OF HARD DISK DRIVE	19950607	19961022	FC1993105221US0
56.	08/498,462	498,462	5,585,981	METHOD AND A DEVICE FOR FASTENING A VOICE COIL MOTOR OF HARD DISK DRIVE	19950705	19961217	FC1993115361US0
57.	08/520,436	520,436	5,712,750	ACTUATOR FIXING DEVICE OF HARD DISK DRIVE	19950829	19980127	FC1994055161US0
58.	08/522,155	522,155	5,719,720	A HEAD SUSPENSION MECHANISM AND APPARATUS FOR ITS CONTROL	19950831	19980217	FC1993115301US0
59.	08/527,059	527,059	5,706,573	METHOD OF FABRICATING A HARD DISK DRIVING APPARATUS	19950912	19980113	FC1993115381US0
60.	08/529,246	529,246	5,731,924	TRACK FOLLOWING METHOD BY USING OFF-TRACK AND ON-TRACK OFFSET ADJUSTING METHOD IN MAGNETIC DISK DRIVING DEVICE	19950915	19980324	FC1993105041US0
61.	08/531,738	531,738		THIN FILM MAGNETIC HEAD	19950921		FC1994055231US0

[ATTACHMENT 1 TO PATENT ASSIGNMENT - USA]

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LEGAL_CN # 5872639.2

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
62.	08/541,552	541,552	5,854,721	BALANCING DEVICE OF ACTUATOR IN HARD DISK DRIVE	19951010	19981229	FC1994055081US0
63.	08/542,418	542,418	6,381,710	ERROR LOGGING METHOD UTILIZING TEMPORARY DEFECT LIST	19951012	20020430	EC1995020081US0
64.	08/545,417	545,417	5,633,765	ADAPTIVE POLE-ZERO CANCELLATION FOR WIDE BANDWIDTH MAGNETORESISTIVE PRE-AMPLIFIER	19951019	19970527	CA1995100371US0
65.	08/545,529	545,529	5,694,272	SIGNAL TRANSMITTING DEVICE IN HARD DISK DRIVE	19951019	19971202	FC1994055211US0
66.	08/554,045	554,045		DEVICE FOR SECURING ACTUATOR OF HARD DISK DRIVE	19951106		FC1994055191US0
67.	08/560,178	560,178	5,773,948	SERVO CONTROL GAIN CORRECTION METHOD OF DISK RECORDING SYSTEM	19951117	19980630	FC1994055151US0
68.	08/568,955	568,955	5,675,463	An Apparatus for Flying Height Detmination of Film Coated Sliders	19951207	19971007	EC1996070051US0
69.	08/570,561	570,561	5,706,265	SPINDLE MOTOR DRIVING CONTROL CIRCUIT OF DISK DRIVE RECORDINGDEVICE	19951211	19980106	EC1994110021US0
70.	08/589,565	589,565	5,838,509	DATA DETECTION LEVEL ADJUSTING CIRCUIT FOR PROCESSING SIGNAL IN DISK DRIVING APPARATUS	19951226	19981117	FC1994065011US0
71.	08/597,312	597,312	5,825,569	CONSTANT-DENSITY MAGNETIC DISC APPARATUS AND MAGNETIC DISCUSSED THEREFOR	19960206	19981020	FC1993115141US0
72.	08/598,790	598,790	5,677,812	Air Bearing Slider With Variable Sub-Ambient Pressure Control	19960126	19971014	EC1996070061US0
73.	08/598,790	08/598,790	5,677,812	AIR BEARING SLIDER WITH VARIABLE SUB-AMBIENT PRESSURE CONTROL	19960126	19971014	WA2004010181US0
74.	08/599,875	599,875	6,317,282	DISK DRIVE RECORDING APPARATUS HAVING ACTUATOR ARM WITH DUAL HEADS AND HEAD SWITCHING CONTROL METHOD	19960212	20011113	EC1994110251US0
75.	08/602,456	602,456	5,694,269	DISK FIXING STRUCTURE OF HARD DISK DRIVE	19960216	19971202	EC1994110391US0
76.	08/605,880	605,880	5,978,180	ACTUATOR FIXING APPARATUS IN HARD DISK DRIVE	19960223	19991102	FC1993115281US0
77.	08/605,975	605,975	5,828,516	A METHOD OF DETECTING A POSITION OF A HEAD OF DISK RECORDING SYSTEM USING A DIGITAL SERVO CONTROL METHOD	19960223	19981027	EC1994090021US0

[ATTACHMENT 1 TO PATENT ASSIGNMENT - USA]

A-5

LEGAL_CN # 5872639.2

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
78.	08/628,333	628,333	5,798,883	Method for controlling servo system of hard disk drive	19960405	19980825	EC1995010051US0
79.	08/634,189	08/634,189	5,862,007	METHOD AND APPARATUS FOR REMOVING BASELINE SHIFTS IN A READ SIGNAL USING FILTERS	19960418	19990119	EC1996070131US0
80.	08/635,170	635,170	6,381,084	Method for preventing overrun of disk controller	19960425	20020430	EC1995010071US0
81.	08/638,376	638,376	6,081,399	DISK DRIVE HAVING DOUBLE HEADS AND METHOD FOR CONTROLLING HEAD SWITCHING	19960426	20000627	EC1995060031US1
82.	08/638,376	638,376		DISK DRIVE HAVING DOUBLE HEADS AND METHOD FOR CONTROLLING HEAD SWITCHING	19960426		EC1995060031US0
83.	08/641,685	765,891	6,008,962	METHOD AND APPARATUS FOR STORING POSITION OFFSET INFORMATION ON A HARD DRIVE ASSEMBLY CYLINDER	19960501	19991228	EC1996070091US0
84.	08/641,686	641,686	5,781,361	M&A for Generating Servo Information	19960501	19980714	EC1996070081US0
85.	08/658,099	658,099	5,737,145	Method of generating Index Pulse with Index Pattern	19960604	19980407	EC1996070201US0
86.	08/658,099	08/658,099	5,737,145	METHOD FOR GENERATING INDEX PULSE WITH INDEX PATTERN.	19960604	19980407	WA2004010211US0
87.	08/659,736	P19970023539		디스크 드라이브의 테이터 스트로크 검출방법	19960608		EC1996070221US0
88.	08/659,737	655,737	5,852,523	Data Sector Pulse generating method	19960606	19981222	EC1996070171US0
89.	08/659,893	659,893	5,621,588	Two Plane Balance for Disk Drive Motor Base Assemblise	19960607	19970415	EC1996070111US0
90.	08/660,125	660,125	5,715,119	Rotating Crash Stop Ass.for Hard Disk Drives	19960607	19980203	EC1996070121US0
91.	08/661,399	08/661,399	5,812,346	HARD DISK DRIVE LATCH WHICH HAS A METAL PLATE ATTACHED TO THE END FACE OF A DAMPING SLEEVE	19960607	19980922	EC1996070101US0
92.	08/661,491	661,491	5,940,242	Method for Determining the Position of Track-zero and Mapping Tracks thereto	19960611	19990817	EC1996070181US0
93.	08/661,491	08/661,491	5,940,242	METHOD FOR DETERMINING A POSITION OF TRACK-ZERO AND MAPPING TRACKS ACCORDING THERETO.	19960611	19990817	WA2004010191US0

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PATENT

REEL: 020400 FRAME: 0065

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
94.	08/661,492	661,492	5,852,522	A Data recording apparatus for fast detection of servo sectors and correction of track addressing a divided gray and parity bit	19960611	19981222	EC1996070161US0
95.	08/676,962	676,962	5,696,648	Sealing Device for Disk Drive	19960708	19981209	EC1996070151US0
96.	08/677,030	677,030	5,854,725	AN ACTUATOR DEVICE OF A HARD DISK DRIVE AND A PROCESSING METHOD THEREFOR	19960708	19981229	FC1994055241US0
97.	08/678,052	678,052	5,663,851	SPINDLE HUB ASSEMBLY OF HARD DISK DRIVE	19960712	19970902	EC1995040171US0
98.	08/681,447	681,447	5,940,239	VELOCITY/POSITION ESTIMATOR OF MAGNETIC HEAD IN MAGNETIC DISK DRIVING APPARATUS	19960723	19990817	EC1995040111US0
99.	08/688,013	688,013	5,619,331	Monitoring the Effect of R/w Element on the Effective Optical Constants of the Al ₂ O ₃ film by using a Relectometer	19960726	19970408	EC1996070271US0
100.	08/692,529	692,529	5,710,632	A Methodology for the determination of the minimum and gap flying height of a thin-film slider	19960806	19980120	EC1996070281US0
101.	08/702,873	702,873	5,835,299	MELTHOD FOR OPTIMIZING SKEW OF HARD DISK DRIVE	19970826	19981110	EC1994120051US0
102.	08/704,859	704,859	6,005,728	SERVO CONTROL METHOD FOR A HIGH CAPACITY HARD DISK DRIVE	19960828	19991221	EC1995050171US0
103.	08/705,941	705,941	5,825,575	CONTROL VOICE COIL MOTOR OF HARD DISK DRIVE FOR DECENTRALIZING ABRASION OF PARKING ZONE OF DISK	19960829	19981020	EC1995060081US0
104.	08/709,412	709,412	6,094,320	SERVO SAMPLING TIMING GENERATOR OF A DISK DRIVING RECORDING APPARATUS AND INTERHEAD POSITION OFFSET COMPENSATING METHOD THEREOF	19990308	20000725	EC1995040461US1
105.	08/710,241	710,241	5,926,336	METHOD AND APPARATUS FOR REWRITING SERVO INFORMATION ON A DISK IN A HARD DRIVE ASSEMBLY	19960913	19990720	CF1996090011US0
106.	08/710,241	08/710,241	5,926,336	METHOD AND APPARATUS FOR REWRITING INFORMATION ON A DISK IN A HARD DISK ASSEMBLY	19960913	19990720	WA2004010201US0
107.	08/712,048	712,048		A HARD DISK DRIVE HAVING AN IMPROVED CONTACT START STOP CHARACTERISTIC AND METHOD OF MANUFACTURE THEREOF	19960910		EC1995060011US0
108.	08/713,872	713,872	5,867,343	Method & Apparatus for Reading and Writing Offset Information On a Disk Assembly Cylinder	19960913	19990202	EC1996080011US0

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REEL: 020400 FRAME: 0066

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
109.	08/717,847	717,847	5,880,840	ALUMINA RECESSION DETERMINATION USING A FLYING	19960923	19990309	CF1996090021US0
110.	08/719,374	719,374		HARD DISK DRIVE	19960925		EC1994110091US0
111.	08/727,069	727,069	5,738,533	Electrical connector fastened to a rigid member for improved connector rigidity	19961008	19980414	EF1996100011US0
112.	08/732,130	732,130	5,986,847	M&A FOR PROVIDING READ AND WRITE SKEW OFFSET INFORMATION FOR A MAGNETO-RESISTIVE HEAD	19961018	19991116	CF1996100011US0
113.	08/735,952	735,952	6,049,440	Self written read/write track servo parameter for spindle RRO compensation	19961023	20000411	EC1996070231US0
114.	08/744,873	744,873	5,771,126	Hard disk drive with reduced servo sectors and driving methodtherefor	19961108	19980623	EC1995010031US0
115.	08/744,874	744,874	5,761,000	DATA STORAGE DEVICE	19961108	19980602	EC1995070011US0
116.	08/746,297	746,297	5,883,749	INITIALIZATION METHOD PERFORMED BY SELF TUNING IN HARD DISK DIRVE	19961107	19990316	EC1995050431US1
117.	08/756,336	756,336	5,828,515	AUTOMATIC SERVO CONTROL GAIN COMPENSATION TECHNIQUE FOR HARDDISK DRIVE	19961126	19981027	EC1994110121US0
118.	08/769,440	769,440	5,781,362	DRIVE CONTROL CIRCUIT FOR A VOICE COIL MOTOR	19961219	19980714	EC1995030011US0
119.	08/772,715	772,715		Hard disk drive	19961223		EC1995010021US0
120.	08/772,986	772,986	6,175,456	CIRCUIT FOR CONTROLLING THE WRITE CURRENT OF A MAGNETIC DISKRECORDING APPARTUS AND METHOD FOR OPTIMIZING THE WRITE CURRENT	19961223	20010116	EC1994110131US2
121.	08/772,986	772,986		CIRCUIT FOR CONTROLLING THE WRITE CURRENT OF A MAGNETIC DISKRECORDING APPARTUS AND METHOD FOR OPTIMIZING THE WRITE CURRENT	19961223		EC1994110131US0
122.	08/773,299	773,299		Hard stack assembly for hard disk drive	19961223		EC1995090061US0
123.	08/775,097	775,097	5,930,069	INTELLING HARD DISK DRIVE WITH TRACK PITCH ADJUSTMENT	19961230	19990727	EC1995060111US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
124.	08/777,136	777,136	6,172,836	METHOD OF WRITING THE SERVO PATTERN FOR DETECTING BUST SIGNALS OF A HARD DISK DRIVE AND DRIVE CIRCUIT THEREFOR	19961230	20010109	EC1995050181US0
125.	08/781,982	781,982	5,910,861	TECHNIQUE FOR CONTROLLING THE WIRE CURRENTS OF A MAGNETIC DISKRECORDING APPARATUS	19961227	19990608	EC1995030231US0
126.	08/784,869	784,869	5,804,904	Brushless DC Motor	19970116	19980908	RX1995100331US0
127.	08/785,240	785,240	6,324,127	MAGNETO-OPTICAL RECORDING LAYER HAVING DOUBLE LAYER STRUCTURE AND MAGNETO-OPTICAL DISK ADOPTING THE SAME	19970117	20011127	AH1995090131US0
128.	08/790,415	790,415	5,768,246	DIGITAL DATA RECORDING/ REPRDODUCING APPARATUS AND METHOD THEREOF	19970130	19980616	RX1994040191US1
129.	08/804,001	804,001	5,926,333	METHOD OF AND CIRCUIT FOR GENERATING SECTOR PULSES	19970221	19990720	EC1995100221US0
130.	08/806,328	806,328		disk mounting apparatus of hard disk drive	19970226		EC1995090071US1
131.	08/807,232	807,232	6,038,097	METHOD & APPARATUS FOR PROVIDING POSITIONAL INFORMATION ON A DISK A DISK	19970228	20000314	EC1997040241US0
132.	08/808,080	808,080	6,049,437	Apparatus for providing new servo information on a disk without entirely erasing old servo information	19970228	20000411	EC1997020131US1
133.	08/808,080	08/808,080	6,049,437	Apparatus for providing new servo information on a disk without entirely erasing old servo information	19970228	20000411	EC1997020131US0
134.	08/819,293	08/819,293	5,914,594	METHOD FOR CHARACTERIZING A READ HEAD BASED ON WRITE-INDUCED MGNETIC READ CENTER SHIFTS.	19970318	19990622	WA2004010221US0
135.	08/819,293	1997-819293	5,914,594	Method for characterizing a read head based on write-induced magnetic read center shifts and read sensitivity changes in the read head	19970318	19990622	EC1997030151US0
136.	08/832,029	832,029	5,969,899	Enhanced method and system of unloading magnetic heads	19970402	19991019	EF1997040011US0
137.	08/840,619	840,619	5,999,361	SERVO CONTROL DEVICE AND METHOD using a minimal bias table for displacement control of a plant responsive to bias force	19970430	19991207	EC1995110641US0
138.	08/841,602	841,602	6,115,199	Circuit for preventing the servo from being overwritten owing to missing the detection of a servo address mark in a magnetic disk	19970430	20000905	EC1995110221US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
139.	08/841,603	841,603	6,052,252	ADAPTIVE FEED FORWARD DEVICE FOR REDUCING CURRENT CONTROL ERRORS	19970430	20000418	EC1995110651US0
140.	08/841,667	841,667	6,072,649	CONSTANT DENSITY RECORDING METHOD AND SYSTEM FOR HEADLESS FORMAT IN HARD DISC DRIVER	19970430	20000606	AA1996010021US0
141.	08/854,723	854,723	6,169,413	System for testing hard disk drives	19970512	20010102	EC1997040011US0
142.	08/856,937	856,937	6,088,199	APPARATUS FOR SELF-CLEANING A DISK DRIVE RECORDING HEAD AND METHOD THEREOF	19970515	20000711	EC1997040261US2
143.	08/856,937	856,937	6,088,199	APPARATUS FOR SELF-CLEANING A DISK DRIVE RECORDING HEAD AND METHOD THEREOF	19970515	20000711	EC1997040261US1
144.	08/857,222	857,222	5,822,163	MAGNETIC DISK HAVING SURFACE LUBRICATION LAYERS OF DIFFERENT THICKNESS(amended)	19970515	19981013	EC1997040251US0
145.	08/861,157	861,157	6,671,114	method and apparatus for forming data sector suitable for high density hard disk drive	19970521	20031230	EC1995090021US0
146.	08/864,271	864,271	6,181,504	Method for measuring track pitches of a hard disk drive	19970527	20010130	EC1996010091US1
147.	08/864,271	864,271		Method for measuring track pitches of a hard disk drive	19970527		EC1996010091US0
148.	08/867,687	867,687	6,011,668	servo control system and method for gain calibration in disk drive recording apparatus	19970602	20000104	EC1996020111US0
149.	08/872,765	872,765	6,108,150	Formation of servo information and method for servo control therefor in disk drive data storage system	19970605	20000822	EC1996010021US0
150.	08/872,767	872,767	6,172,839	method of measuring the position error signal of a disk drive	19970605	20010109	EC1996010011US0
151.	08/876,179	876,179		Connector apparatus of hard disk drive	19970613		EC1996020041US0
152.	08/879,856	879,856	6,005,739	Position error signal control	19970620	19991221	EC1995080021US0
153.	08/879,857	879,857	6,259,577	method for organizing servo data to expand data region and counting sector numbers from headerless servo format in a disk drive	19970620	20010710	EC1996020131US0
154.	08/884,486	884,486	6,021,012	AUTOMATIC SERVO ADDRESS MARK DETECTION AND SERVO TIMING COMPENSATION CIRCUIT	19970627	20000201	EC1995110231US0

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REEL: 020400 FRAME: 0069

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
155.	08/885,735	885,735	6,069,759	method for laying out an adaptive zone of a hard disk drive	19970630	20000530	EC1996010121US0
156.	08/885,739	885,739	6,023,390	DISTURBANCE COMPENSATION IN ACTUATOR	19970630	20000208	EC1996020121US0
157.	08/885,993	885,993		HEAD SUSPENSION ASSEMBLY FOR HARD DRIVE	19970630		EC1995111061US0
158.	08/890,482	890,482	5,862,020	METHOD OF FABRICATING A HARD DISK DRIVING APPARATUS	19970709	19990119	FC1993115381US1
159.	08/900,357	900,357	5,941,998	Disk Drive Incorporating Read-Verify After Write method	19970725	19990824	EC1997030181US0
160.	08/900,357	08/900,357	5,941,998	DISK DRIVE INCORPORATING READ-VARIFY AFTER WRITE METHOD	19970725	19990824	WA2004010251US0
161.	08/902,354	902,354	6,013,990	HARD DISK DRIVE FOR SUPPLYING STABLE POWER VOLTAGE AND METHOD OF CONTROLLING SAME	19970729	20000111	EC1996020141US0
162.	08/903,837	903,837	5,954,837	METHOD FOR OPTIMIZING VITERBI DETECTOR THRESHOLD VALUES	19970731	19990921	EC1996050231US0
163.	08/907,345	907,345	5,896,547	METHOD OF EXECUTING INITIALIZATION CALIBRATION ROUTINE OF HARD DISK DRIVE	19970806	19990420	EC1996040251US0
164.	08/915,342	915342	5,917,679	Pseudo contact type negative pressure air bearing slider	19970822	19990629	CF1997080021US0
165.	08/915,342	08/915,342	5,917,679	PSEUDO CONTACT TYPE NEGATIVE PRESSURE AIR BEARING SLIDER.	19970822	19990629	WA2004010241US0
166.	08/916,338	916,338	5,872,685	FLYING-TYPE NEGATIVE PRESSURE AIR BEARING SLIDER	19970822	19990216	CF1997080031US0
167.	08/919,153	919,153	6,038,096	Adaptive Sector Seeking Method for Reducing disk drive power consumption	19970828	20000314	CF1997080011US0
168.	08/922,303	922,303	6,122,731	METHOD FOR CORRECTING PROGRAM OF HARD DISK DRIVE	19970902	20000919	EC1996050431US0
169.	08/922,308	922,308	6,043,951	OFF-TRACK OPTIMIZING METHOD FOR RAISING TRACK DENSITY OF MAGNETORESISTIVE HEAD	19970902	20000328	EC1996050171US0
170.	08/922,312	922,312	6,013,995	ADAPTIVE FEEDFORWARD CONTROL METHOD FOR REDUCING NOISE DURING TRACK SEEK OPERATION	19970902	20000111	EC1996050381US0
171.	08/924,246	924,246	5,963,387	METHOD FOR FORMING AND PROCESSING DATA ADDRESS MARK FOR HARD DISK DRIVE	19970905	19991005	EC1996050041US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
172.	08/924,246	971,081		METHOD FOR FORMING AND PROCESSING DATA ADDRESS MARK FOR HARD DISK DRIVE	20011005		EC1996050041US1
173.	08/931,124	931,124	6,124,707	TESTER FOR PERIPHERAL STORAGE DEVICE	19970916	20000926	EC1996090181US0
174.	08/931,125	931,125	6,832,291	Memory system for improving data input/output performance and method of caching	19970916	20041214	EC1996040121US2
175.	08/931,125	931,125		Memory system for improving data input/output performance and method of caching	19970916		EC1996040121US0
176.	08/931,128	931,128	5,859,409	OVEN FOR TESTING PERIPHERAL STORAGE DEVICES	19970916	19990112	EC1996090191US0
177.	08/933,338	933,338	6,118,614	Method for optimizing write current during servo writing a magnetic disk recording device	19970918	20000912	EC1996050561US1
178.	08/933,338	933,338		Method for optimizing write current during servo writing a magnetic disk recording device	19970918		EC1996050561US0
179.	08/933,339	933,339	6,084,732	method of selecting zone lay-out of a hard disk drive on the basis of head recording medium performance	19970918	20000704	EC1996050571US0
180.	08/933,756	933,756	5,875,965	AIR CIRCULATION SYSTEM FOR REDUDANT ARRAYS OF INEXPENSIVE DISKS AND METHOD OF CONTROLLING AIR CIRCULATION	19970923	19990302	EC1996040231US0
181.	08/933,852	933,852	5,987,542	SERIAL INTERFACE CIRCUIT	19970919	19991116	EC1996050491US0
182.	08/934,516	934,516	5,969,494	METHO OF ESTIMATING GAIN OF SERVO CONTROL SYSTEM	19970922	19991019	EC1996040081US0
183.	08/935,201	935,201	6,070,249	Split parity spare disk achieving method in raid subsystem	19970922	20000530	EC1996040041US0
184.	08/937,457	937,457	6,069,760	METHOD OF ELIMINATING WIGGLE NOISE FOR A DISK DRIVING/RECORDING APPARTUS	19970925	20000530	EC1996050701US0
185.	08/941,731	941,731	6,075,663	Serial interface read-back drive circuit	19971001	20000613	EC1996050501US0
186.	08/944,873	944,873	6,028,745	HEAD RESTRAINT DEVICE FOR DISK DRIVE	19971006	20000222	CF1997101281US0
187.	08/944,873	08/944,873	6,028,745	HEAD RESTRAINT DEVICE FOR DISK DRIVE	19971006	20000222	CF1997101281US1

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
188.	08/951,023	951,023	6,078,447	STAGGERED SERVO WRITING METHOD IN A HARD DISK DRIVE EMPLOYING STAGGERED SERVO WRITING MANNER	19971015	20000620	EC1996050511US0
189.	08/951,153	951,153	6,141,780	FABRICATION PROCESS ACCEPTANCE TESTER AND FABRICATION PROCESS USING THE SAME	19971015	20001031	EC1996080231US0
190.	08/958,194	958,194	5,995,340	Magnetic head for vector recording/play	19971027	19991130	RX1996050351US0
191.	08/959,928	959,928	6,104,324	Coding/decoding method for reproducing data in high density and reproducing data, and apparatus therefor	19971029	20000815	RX1996051051US0
192.	08/960,505	960,505	6,058,335	AUTOMATION SYSTEM FOR MANUFACTURING HARD DISK DRIVE AND METHOD OPERATING THE SAME	19971029	20000502	EC1996080041US0
193.	08/963,518	963,518	6,034,836	CIRCUIT FOR ELIMINATING EXTERNAL INTERFERENCE SIGNAL AND METHOD FOR COMPENSATING FOR THE TRACK SHIFT	19971103	20000307	EC1996050111US0
194.	08/966,540	966,540	6,158,112	DISK ASSEMBLY METHOD AND DEVICE FOR ADJUSTING THE DISK BALANCE OF THE HEAD DISK DRIVE	19971110	20001212	EC1996090011US0
195.	08/990,983	990,983	6,072,828	Timing recovery apparatus and method using equalizer and apparatus for judging last data	19971215	20000606	RX1996080021US0
196.	08/993,575	993,575	6,072,652	DEVICE AND METHOD FOR DETECTING STICKTION ERROR IN HARD DISK DRIVE	19971218	20000606	EC1996050031US0
197.	08/997,977	997,977	6,094,317	METHOD FOR CONTROLLING DATA READING/WRITING ON RANDOM DATA SECTION CONTRAINING DEFECTIVE SECTOR	19971224	20000725	EC1996100131US0
198.	08/998,225	998,225	6,160,674	STABLE DATA WRITING METHOD BY TRACING HEAD SPEED IN HARD	19971224	20001212	EC1996070321US0
199.	09/001,471	001,471	6,101,619	METHOD FOR IMPROVING ACCESS PERFORMANCE ON TRACK WITH RE-ALLOCATION SECTOR	19971231	20000808	EC1996080191US0
200.	09/001,691	001,691	6,069,758	TECHNIQUE FOR REDUCING READ CHANNEL OPTIMIZATION TIME	19971231	20000530	EC1996090141US0
201.	09/002,249	002,249	6,118,607	METHOD FOR ELIMINATING WIGGLE NOISE IN A DISK DRIVE STORAGE DEVICE WITH THIN FILM HEADS	19971231	20000912	EC1996100031US0
202.	09/002,351	002,351	6,088,180	HEAD SWITCHING METHOD FOR STAGGERED SERVO AND CIRCUIT THEREOF(PCT출원일 '92.11.30)	19980102	20000711	FC1992105071US1

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PATENT

REEL: 020400 FRAME: 0060

	Official Application No.	Impro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
203.	09/010,820	010,820	6,104,555	method and device for duplicating an initial program of a hard disk drive	19980122	20000815	EC1996100101US0
204.	09/012,488	012,488	6,212,027	STABLE UNLATCH CONTROL OF MAGNETIC STORAGE DEVICES SUCH AS HARD DISK DRIVE	19980123	20010403	EC1996070011US0
205.	09/012,970	012,970	6,031,697	MAGNETIC DISK FOR SELF-CLEANING A DISK DRIVE	19980126	20000229	CF1998010011US0
206.	09/014,654	014,654	6,084,741	method of preventing head collision when detection of servo synchronizing signal fails	19980128	20000704	EC1996050391US0
207.	09/016,351	016,351	6,023,392	HARD DISK DRIVE COVER	19980130	20000208	EC1996050251US0
208.	09/018,304	018,304		HEAD POSITION DETECTING METHOD OF HARD DISK DRIVE	19980203		EC1996050401US0
209.	09/018,304	018,304		HEAD POSITION DETECTING METHOD OF HARD DISK DRIVE	20001113		EC1996050401US1
210.	09/024,151	024,151	6,349,604	Parallel type six-axes force-moment measuring apparatus	19980217	20020226	RX1996090141US0
211.	09/025,502	025,502	6,055,129	FLYING NEGATIVE PRESSURE AIR BEARING SLIDER WITH DIVIDED NEGATIVE PRESSURE POCKETS	19980218	20000425	CF1998020021US0
212.	09/025,503	025,503	6,212,032	PSEUDO CONTACT NEGATIVE PRESSURE AIR BEARING SLIDER WITH DIVIDED NEGATIVE PRESSURE POCKETS	19980218	20010403	CF1998020011US0
213.	09/035,755	035,755	6,396,654	EMBEDDED SERVO WRITING METHOD AND APPARATUS FOR HARD DISK DRIVE	20010116	20020528	EC1996050131US1
214.	09/035,755	035,755		EMBEDDED SERVO WRITING METHOD AND APPARATUS FOR HARD DISK DRIVE	19980306		EC1996050131US0
215.	09/039,207	039,207		METHOD AND APPARATUS FOR PROVIDING SERVO LOOP GAIN CALIBRATION	19980313		CF1998030071US0
216.	09/039,679	039,679	6,158,017	METHOD FOR STORING TARTITY AND REBUILDING THE DATA CONTENTS OF FAILED DISK IN AN EXTENRNAL STORAGE SUBSYSTEM AND APPARATUS THEREFOR	19980316	20001205	EC1997060011US0
217.	09/047,450	047,450	6,307,717	METHOD AND DEVICE FOR FIXING COIL OF ACTUATOR IN HARD DISK DRIVE	20000503	20011023	EC1996040161US1
218.	09/047,450	047,450		METHOD AND DEVICE FOR FIXING COIL OF ACTUATOR IN HARD DISK DRIVE	19980325		EC1996040161US0

[ATTACHMENT 1 TO PATENT ASSIGNMENT - USA]

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LEGAL_CN # 5872639.2

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
219.	09/049,494	049,494	6,094,316	M&A FOR PROVIDING THERMAL ASPERITY COMPENSATION IN A FIXED DELAY TREE SEARCH DETECTOR	19980327	20000725	CF1998030081US0
220.	09/053,077	053,077	6,094,318	METHOD FOR CONTROLLING DATA WRITE OPERATION ACCORDING TO FLYING HEIGHT OF TRANSDUCER HEAD	19980401	20000725	EC1996110031US0
221.	09/060,782	060,782	6,151,180	METHOD AND APPARATUS DEFECTS ON A DISK A HDD	19980415	20001121	CF1998040281US0
222.	09/060,996	060,996	6,134,086	ACTUATOR CRASH STOPPER FOR A HARD DISK DRIVE	19980416	20001017	EC1996110411US0
223.	09/062,665	062,665	6,181,519	TRI-PAD AIR BEARING HEAD SLIDER HAVING LEADING EDGE AND TRAILING EDGE OF AIR BEARING SIDE PADS TAPERED TO MINIMIZE TAKEOFF AND LAND	19980420	20010130	EC1996080171US0
224.	09/063,064	063,064	6,091,583	PLANAR SILICON HEAD WITH STRUCTURE PROTECTED FROM OVERCURRENT/OVERVOLTAGE AND METHOD FOR FABRICATING SAME	19980421	20000718	EC1996050551US0
225.	09/069,993	069,993		TRANSPARENT RECORD ACCESS MANAGER FOR A DISK DRIVE(09/069,993)	19980430		CF1998040271US0
226.	09/075,322	075,322	6,226,157	SEPARABLE ARM ACTUATOR FOR HARD DISK DRIVE	20000302	20010501	EC1996080181US1
227.	09/075,322	075,322		SEPARABLE ARM ACTUATOR FOR HARD DISK DRIVE	19980511		EC1996080181US0
228.	09/084,588	084,588	6,108,156	METHOD FOR RECORDING PORT NUMBER OF SERVO TRACK WRITER	19980527	20000822	EC1996110201US0
229.	09/088,843	088,843	6,118,616	DIGITAL SERVO CONTROL APPARATUS AND METHOD OF DATA STORAGE SYSTEM USING DISK RECORDING MEDIA	19980602	20000912	FC1993035021US1
230.	09/089,455	089,455	6,195,221	PRELIMINARY SEARCH METHOD FOR MINIMIZING DROP DOWN PHENOMENON OF HARD DISK DRIVE	19980603	20010227	EC1996110171US0
231.	09/089,737	089,737	6,204,660	METHOD FOR VARYING CAPACITY OF HARD DISK DRIVE DURING MANUFACTURING PROCESS	19980603	20010320	EC1996110211US0
232.	09/093,936	093,936	5,979,249	ACTUATOR RESONANCE TESTER FOR DISK DRIVE	19980609	19991109	CF1998060011US0

[ATTACHMENT 1 TO PATENT ASSIGNMENT - USA]

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	Official Application No.	Impro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
233.	09/104,112	104,112	5,999,374	DAMPER FOR THE VOICE COIL MOTOR OF A HARD DISK DRIVE	19980625	19991207	EC1997030111US0
234.	09/105,180	105,180	6,134,610	BUFFER ROOM LOGIC IN DATA STORAGE DEVICE AND METHOD FOR CONTROLLING THE SAME	19980626	20001017	EC1996110281US0
235.	09/110,963	110,963		ADAPTIVE SECTOR SEEKING METHOD FOR REDUCING DISK DRIVE POWER CONSUMPTION (원출원번호 09/110,963)	19980707		CF1998070011US0
236.	09/114,613	114,613		DISK SPACER WITH OPTIMIZED INNER DIAMETER TO MINIMIZE SPINDLE IMBALANCE OF A HDD	19980713		CF1998070041US0
237.	09/116,484	116,484	6,222,696	HEAD UNLATCH CONTROLLING METHOD IN MAGNETIC DISK DRIVE	19980716	20010524	EC1997030041US0
238.	09/118,592	118,592	6,229,668	AN ACOUSTIC PLUG FOR A HDD	19980717	20010508	CF1998070031US0
239.	09/118,593	118,593	6,178,062 B1	A BALANCE TUBE FOR A SPINDLE MOTOR ASSEMBLY OF A HARD DISK DRIVE	19980717	20010123	CF1998070021US0
240.	09/122,648	122,648	6,239,931	TECHNIQUE FOR REASSIGNING DATA SECTOR BY DETECTING SOFT DEFECT	19980630	20010529	EC1997050211US0
241.	09/122,651	122,651	6,163,439	HEAD LOADING DEVICE AND METHOD IN A HARD DISK DRIVER	19980727	20001219	EC1996110151US0
242.	09/122,652	122,652	6,229,660	METHOD FOR READING INFORMATION RECORDING FIELD IN INFORMATION RECORDING DISK OF HARD DISK DRIVE	19980727	20010508	EC1997030061US0
243.	09/132,198	132,198	6,262,859	M&A FOR PROVIDING SERVO INFORMATION ON A DISK IN A HARD DRIVE ASSEMBLY	19980811	20010717	CF1998080031US0
244.	09/132,377	132,377		A CONNECTOR ASSEMBLY FOR THE RECORDING HEADS OF A HARD DISK DRIVE	19980811		CF1998080011US0
245.	09/134,277	134,277	6,429,994	METHOD AND APPARATUS FOR PROVIDING SERVO GAIN LINEARIZATION FOR A MAGNETO-RESISTIVE HEAD	19980814	20020806	CF1998080021US0
246.	09/146,943	146,943	6,520,809	POWER PINS HARD DISK DRIVE	19980903	20030218	EC1997040071US0
247.	09/146,944	146,944	6,172,855	ACTUATOR LATCHING DEVICE IN HARD DISK DRIVE	19980903	20010109	EC1997050441US0

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[ATTACHMENT 1 TO PATENT ASSIGNMENT - USA]

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
248.	09/148,206	148,206	6,259,576	HARD DISK DRIVE WITH SELF-SERVOWRITING CAPABILITY	19961126	20010710	EC1995050471US0
249.	09/167,780	167,780		Shock Absorber/Limiter to constrain head movement within a hard disk drive	19981007		CF1998110141US0
250.	09/167,861	167,861	6,950,282	Device for reducing damage due head slap within a hard disk drive	19981007	20050927	CF1998110191US0
251.	09/167,884	167,884	6,441,988	METHOD AND APPARATUS FOR RECORDING ACOUSTIC NOISE IN A HARD DISK DRIVE	19981007	20020827	CF1998110131US0
252.	09/168,528	168,528		A Shock Isolator for a HDD	19981008		CF1998110181US0
253.	09/169,876	169,876		INTEGRATED PASSIVE MAGNETIC LATCH HOUSING	19981012		CF1998110171US0
254.	09/211,841	211,841	6,549,372	Device for limiting head movement within a hard disk drive	19981215	20030415	CF1998110161US0
255.	09/215,524	215,524	6,377,417	METHOD FOR CONTROLLING REPEATABLE RUNOUT COMPENSATION ALGORITHM	19981218	20020423	EC1997050091US0
256.	09/222,705	222,705	6,292,913	METHOD OF DETECTING DEFECTS IN A MAGNETIC DISK MEMORY DEVICE	19981229	20010918	EC1997040081US0
257.	09/223,323	223,323	6,154,350	SOFT ADJACENT LAYER-BIASED MAGNETORESISTIVE HEAD AND METHOD	19981230	20001128	CF1997100031US0
258.	09/223,569	223,569	6,337,780	SERVO BURST SIGNAL RECORDING METHOD AND DISK RECORDING MEDIUM	20010507	20020108	CF1997100261US2
259.	09/223,569	223,569		SERVO BURST SIGNAL RECORDING METHOD AND DISK RECORDING MEDIUM	19981230		CF1997100261US0
260.	09/223,569	223,569		SERVO BURST SIGNAL RECORDING METHOD AND DISK RECORDING MEDIUM	20010403		CF1997100261US1
261.	09/223,720	223,720	6,715,032	HARD DISK ONTO WHICH TABLE INFORMATION DEPENDING ON MODEL IS WRITTEN, AND HARD DISK DRIVE ADOPTING SUCH A DISK	19981231	20040330	CF1997100321US0
262.	09/223,722	223,722	6,441,987	METHOD OF PARKING HARD DISK DRIVE HEAD	19981231	20020827	CF1997100331US0
263.	09/225,447	225,447	6,132,567	Fabrication method of amorphous light rare earth-transition metal and metalloid alloy films	19990106	20001017	RX1997090181US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
264.	09/229,987	229,987	6,414,811	METHOD FOR OPTIMIZING THE READ BIAS CURRENT OF A MAGNETO RESISTIVE HEAD	19990114	20020702	CF1997100301US0
265.	09/232,138	232,138	6,809,895	HARD DISK DRIVE HAVING A PLURALITY OF HARD DISK ASSEMBLIES	19990115	20041026	CF1997100281US0
266.	09/232,139	232,139	6,169,645	MAGNETO-RESISTIVE HEAD IN HARD DISK DRIVE	19990115	20010102	EC1997050451US0
267.	09/232,183	232,183	6,208,490	NON-DEFLECTION MAGNETO-RESISTIVE HEAD	19990115	20010327	CF1997100211US0
268.	09/249,305	249,305	6,433,948	PROCESS MANAGEMENT METHOD USING SERVO TRACK WRITER	19990212	20020813	EC1997050531US1
269.	09/249,305	249,305		PROCESS MANAGEMENT METHOD USING SERVO TRACK WRITER	19990212		EC1997050531US0
270.	09/249,483	249,483	6,370,645	METHOD OF CONSTRUCTING UPLOADABLE/DOWNLOADABLE FIRMWARE OF HARD DISK DRIVE	19990212	20020409	EC1997050551US0
271.	09/252,720	252,720	6,025,712	Method for characterizing a read head based on write-induced magnetic read center shifts and read sensitivity changes in the read head	19990219	20000215	EC1997030151US1
272.	09/253,061	253,061	6,275,346	TECHNIQUE OF OPTIMIZING READ/WRITE CHANNEL PARAMETERS	19990219	20010814	EC1997040121US0
273.	09/253,762	253,762	6,414,815	APPARATUS AND METHOD FOR CONTROLLING ON-TRACK OPERATION OF AN ACTUATOR IN A HARD DISK DRIVE	19990222	20020702	CF1997100341US0
274.	09/255,782	255,782	6,366,423	HARD DISK HAVING SERVO PATTERN OF DIFFERENT PHASE AND TRACKING METHOD THEREOF	19990223	20020402	CF1997100291US0
275.	09/256,349	256,349	6,253,445	A PLANAR THIN FILM HEAD AND METHOD FOR FORMING A GAP OF A PLANAR THIN FILM MAGNETIC HEAD	19990224	20010703	EC1997050641US0
276.	09/261,391	261,391	6,297,925	METHOD FOR ELIMINATING WIGGLE OF MAGNETIC HEAD IN HARD DISK DRIVE	19990303	20011002	CF1997100151US0
277.	09/262,808	262,808	6,201,656	TECHNIQUE FOR OPTIMIZING MR-BIAS CURRENT	19990304	20010313	EC1997050101US0
278.	09/263,806	263,806	6,205,004	DEVICE FOR FIXING ACTUATOR AND COVER IN HARD DISK DRIVE	19990308	20010320	EC1997050321US0

[ATTACHMENT I TO PATENT ASSIGNMENT - USA]

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
279.	09/271,170	271,170	6,128,154	SERVO CONTROL METHOD FOR A HIGH CAPACITY HARD DISK DRIVE	19990318	2001003	EC1995050171US1
280.	09/288,236	288,236	6,320,338	METHOD AND SYSTEM FOR ESTIMATING MOTOR TORQUE CONSTANT	19990408	20011120	CF1997100351US0
281.	09/288,726	288,726		A Shock limiting spacing ring to constrain head movement for a hard disk drive	19990409		CF1999010011US0
282.	09/289,727	289,727	6,256,165	COVERING DEVICE OF HARD DISK DRIVE	19990412	20010703	CF1998030011US0
283.	09/296,972	09/296,972	6,417,994	SWAGE PLATE WITH PROTRUDED WALLS TO INCREASE RETENTION TORQUE IN HARD DISK APPLICATIONS	19990422	20020709	CF1999020021US0
284.	09/299,695	299,695	6,704,161	A Shock Protection Skin Bumper for a Hard Disk Drive	19990426	20040309	CF1999080021US0
285.	09/329,255	329,255	6,140,791	M&A for controlling the acceleration trajectory of positioning a high-velocity transducer&for reducing the harmonic content thereof	19990610	20001031	CF1998110211US0
286.	09/353,249	353,249	6,326,553	Novel scheme to avoid electrostatic discharge damage to MR/GMR head Gimbal/Stack assembly in hard disk applications	19990714	20011204	CF1998100011US0
287.	09/358,391	358,391	6,215,219	Bearing system and spindle motor assembly adopting the same	19990720	20010410	RX1998050361US0
288.	09/372,757	372,757	6,252,746	ACTUATOR OF HARD DISK DRIVE	19990811	20010626	CF1998030061US0
289.	09/397,135	397,135	6,427,317	DEVICE AND METHOD FOR ASSEMBLING BASE AND MAIN BOARD ASSEMBLY	19990916	20020806	CF1998040071US0
290.	09/397,871	397,871	6,532,136	HARD DISK DRIVE APPARATUS	19990917	20030311	CF1998040091US1
291.	09/397,871	397,871	6,532,136	HARD DISK DRIVE APPARATUS	19990917	20030311	CF1998040091US0
292.	09/415,147	415,147	6,687,079	APPARATUS AND METHOD FOR PROVIDING SERVO GAIN LINEARIZATION FOR A MAGNETO-RESISTIVE HEAD	19991008	20040203	CF1999030021US0
293.	09/417,060	417,060	6,259,265	UNIFIED TEST SYSTEM AND TEST METHOD USING THE SAME	19991013	20010710	CF1998050011US0
294.	09/427,852	427,852		A shock and Vibration absorber skin for a hard disk drive	19991026		CF1999080031US0

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[ATTACHMENT 1 TO PATENT ASSIGNMENT - USA]

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
295.	09/428,606	428,606	6,417,986	An Impact Guard For Limiting Hard Disk Movement	19991027	20020709	CF1999080011US0
296.	09/430,453	430,453		An Actuator arm for limiting disk movement within a Hard Disk Drive	19991029		CF1999030031US0
297.	09/430,463	430,463	6,744,597	DYNAMIC ABSORBER ACTUATOR ARM IN A DISK DRIVE	19991029	20040601	CF1999020011US0
298.	09/430,467	430,467		AN AUXILIARY MASS DAMPER FOR ACTUATOR ARM IN A HARD DISK DRIVESISA R&D CENTER	19991029		CF1999020031US0
299.	09/431,391	431,391		A Shock absorber assembly that includes a hard disk drive gasket	19991101		CF1999040011US0
300.	09/441,518	441,518	6,473,263	COVER STRUCTURE OF HARD DISK DRIVE	19991117	20021029	CF1998040101US1
301.	09/441,518	441,518		COVER STRUCTURE OF HARD DISK DRIVE	19991117		CF1998040101US0
302.	09/489,014	489,014	6,411,468	A Pseudo Contact Negative Pressure Air Bearing slider with dual negative pressure pockets & side transducer	20000121	20020625	CF1999080051US0
303.	09/489,015	489,015	6,477,012	A Flying Negative Pressure Air Bearing slider with dual negative pressure pockets & side transducer	20000121	20021105	CF1999080061US0
304.	09/514,164	514,164	6,624,957	CIRCUIT FOR CONTROLLING THE WRITE CURRENT OF A MAGNETIC DISKRECORDING APPARTUS AND METHOD FOR OPTIMIZING THE WRITE CURRENT	20000228	20030923	EC1994110131US1
305.	09/540,246	540,246	6,549,376	Gimbal suspension with vibration damper(Damper,gimble,Head suspension)	20000331	20030415	CF1999080091US0
306.	09/540,247	540,247	6,545,846	Mechanism for Minute Movement of a Magnetic Head	20000331	20030408	CF1999080041US0
307.	09/552,112	552,112	6,501,613	A GENERALIZED FOUJER SEEK METHOD FOR DESIGNING A HARD DISK DRIVE SERVO MECHNISM	20000419	20021231	EF1999120011US0
308.	09/585,914	585,914	6,501,614	Acoustic insulator for controlling noise generated in a storage device	20000602	20021231	CF1999080101US0
309.	09/589,153	589,153	6,297,926	SERVO SAMPLING TIMING GENERATOR OF A DISK DRIVING RECORDING APPARATUS AND INTERHEAD POSITION OFFSET COMPENSATING METHOD THEREOF	20000608	20011002	EC1995040461US2
310.	09/593,181	593,181	6,493,180	Acoustic noise barrier for a hard disk drive	20000613	20021210	CF1999080111US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
311.	09/609,630	609,630	6,549,364	AN OPTIMIZED DESIGN OF GENERALIZED FOURIER TRAJECTORY FOR A HARD DISK DRIVE SERVO MECHANISM	20000703	20030415	EF1999120021US0
312.	09/617,139	617,139	6,651,311	DISK ASSEMBLY METHOD AND DEVICE FOR ADJUSTING THE DISK BALANCE OF THE HEAD DISK DRIVE	20000714	20031125	EC1996090011US1
313.	09/632,465	09/632,465	6,443,013	ROTARY TEST FIXTURE	20000804	20020903	EF2000050021US0
314.	09/686,435	686,435		HARD DISK DRIVE BASE INCORPORATING A SHOCK DAMPING STRUCTURE	20001010		EF1999100011US0
315.	09/691,482	691,482		VIBRATION ISOLATOR	20001017		EF1999110041US0
316.	09/704,307	704,307	6,529,349	HARD DISK DRIVE BASE INCORPORATING A SHOCK DAMPING STRUCTURE	20001101	20030304	EF1999110021US0
317.	09/704,308	704,308		STEPPED ACTUATOR ARMS OF A DISK DRIVE FOR HIGH SHOCK PERFORMANCE	20001101		EF1999110031US0
318.	09/709,320	709,320	6,665,138	HEAD POSITION DETECTING METHOD OF HARD DISK DRIVE	20001113	20031216	EC1996050401US2
319.	09/713,963	713,963	6,724,575	M & A for providing flex cable conductor with elliptical cross-section	20001115	20040420	EF2000050031US0
320.	09/714,900	714,900		M & A FOR SPINDLE SPEED FEEDBACK CONTROL WITH FEEDFORWARD COMPENSATION FOR DRAG DUE HEAD-DISK INTERFACE	20001115		CF1999030011US0
321.	09/717,456	717,456	6,446,517	Controlled particle deposition in drives and on media for thermal asperity studies (Apparatus to study environmental reliability of disk drives)	20001120	20020910	CF1999080071US0
322.	09/729,736	729,736		하드 디스크 드라이브 및 하드 디스크 드라이브 액츄에이터의 레이아웃 방법	20001204		EF2000050101US0
323.	09/732,410	732,410	6,445,520	METHOD FOR DETECTING MECHANICAL DAMAGE IN PARKING ZONE	20001206	20020903	EF2000050041US0
324.	09/751,707	09/751,707	6,778,352	DISK DRIVE SHOCK ABSORPTION MECHANISM	20001228	20040817	EF2000050061US0
325.	09/765,891	09/765,891		METHOD AND APPARATUS FOR ON A HARD DRIVE ASSEMBLY CYLINDER	20010118		WA2003110011US0

[ATTACHMENT 1 TO PATENT ASSIGNMENT - USA]

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PATENT

REEL: 09400 FRAME: 0070

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
326.	09/765,891	09/765,891	RE40955	METHOD AND APPARATUS FOR ON A HARD DRIVE ASSEMBLY CYLINDER	20010116	20091110	WA2003110011US1
327.	09/768,231	768,231	6,590,728	Hard disk drive having extended data region	19981009	20030708	EC1994110371US1
328.	09/785,240	785,240	6,324,127	MAGNETO-OPTICAL RECORDING LAYER HAVING DOUBLE LAYER STRUCTURE AND MAGNETO-OPTICAL DISK ADOPTING THE SAME	19990825	20011127	AH1995090131US1
329.	09/797,781	09/797,781	6,590,738	PARTICLE REMOVAL DEVICE IN DISK DRIVE	20010301	20030708	EF2000100011US0
330.	09/814,206	814,206		WRITING HEAD FOR PERPENDICULAR MAGNETIC RECORDING	20010320		EF2000040031US0
331.	09/844,897	844,897	6,489,762	A NOVEL METHOD TO DETECT JUNCTION INDUCED SIGNAL INSTABILITY FROM GMR/MR HEADS	20010426	20021203	EF2000060031US0
332.	09/847,734	09/847,734		A GROOVED SPINDLE MOTOR HUB WRAPPED WITH O-RINGS FOR DISK CENTERING	20010501		EF2000110041US0
333.	09/847,735	847,735		ACTIVE ACTUATOR FOR SHOCK WAVE CONTROL IN A DATA STORAGE DEVICE	20010501		EF2000090021US0
334.	09/847,774	847,774		Metal sleeve with precision dimples	20010501		EF2000100021US0
335.	09/850,958	850,958	6,947,252	Wave Stringer for Controlling Acoustic Noise and Shock Vibration in a Storage Device	20010507	20050920	EF2000050071US0
336.	09/859,836	859,836	6,744,590	Seek trajectory adaptation in sinusoidal seek servo hard disk drives	20010516	20040601	EF2000060051US0
337.	09/861,316	09/861,316	6,801,384	VOLTAGE-CONSTRAINED SINUSOIDAL SEEK SERVO IN HARD DISK DRIVES	20010822	20041005	EF2000060061US0
338.	09/872,700	872,700	6,700,731	IN-SITU LINEARIZATION OF MAGNETIC READ/WRITE HEAD TRANSDUCER POSITION ERROR SIGNAL	20010531	20040302	EF2000100031US0
339.	09/884,804	884,804	6,762,908	Air Razor And Disk Limiter for A Hard Disk Drive	20010618	20040713	CF1999080081US0
340.	09/892,790	892,790		Pseudo contact type negative pressure air bearing slider	20010628		CF1997080021US1
341.	09/931,125	931,125		Memory system for improving data input/output performance and method of caching	20000508		EC1996040121US1

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[ATTACHMENT 1 TO PATENT ASSIGNMENT - USA]

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LEGAL_CN # 5872639.2

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
342.	09/945,452	945,452		INSTABILITY RECOVERY ALGORITHM UTILIZING POSITIVE SENSE BIAS CURRENT SHOCK THROUGH THE READ SENSOR FOR MAGNETIC...	20010831		EF2001020021US0
343.	09/946,869	946,869	6,771,451	AUTO CENTERING OF DISKS ON A HARD DISK DRIVE	20010904	20040803	EF2001010021US0
344.	09/948,760	948,760	6,483,654	DISK DRIVE RECORDING APPARATUS HAVING ACTUATOR ARM WITH DUAL HEADS AND HEAD SWITCHING CONTROL METHOD	20010910	20021119	EC1994110251US1
345.	09/952,682	952,682	6,791,778	Method and apparatus to detect and manage servo sectors with defect on servo pattern area in hard disk drives	20010913	20040914	EF2000060091US0
346.	09/952,683	952,683	6,906,883	Servo defect management scheme in hard disk drives	20010913	20050614	EF2000060081US0
347.	09/952,684	952,684	6,982,849	Method and apparatus for providing positional information on a disk	20010913	20060103	EF2000050111US0
348.	09/973,869	973,869	6,762,402	APPARATUS FOR RECORDING AND READING DATA AND METHOD OF RECORDING AND READING DATA USING CONTACT RESISTANCE MEASUREMENT THEREOF	20011011	20040713	RX2000080031US0
349.	09/974,698	974,698	6,762,902	TIME VARYING, NON-SYNCHRONOUS DISTURBANCE IDENTIFICATION AND CORRECTION	20011009	20040713	EF2000110051US0
350.	09/977,324	977,324	6,717,768	AIR FLOW DAMPER FOR REDUCING AIR-BORNE NOISE VIBRATION IN INFORMATION STORAGE DEVICE	20011016	20040406	EF2000050081US0
351.	09/978,904	978,904	6,791,780	METHOD AND APPARATUS FOR PROVIDING WRITE CURRENT OPTIMIZATION	20011015	20040914	EF2001020011US0
352.	09/981,464	981,464	6,791,775	A NOVEL TECHNIQUE TO REDUCE HEAD THERMAL MOVEMENT FOR ATE MEASUREMENT WITH SPIN STUD	20011015	20040914	EF2001030031US0
353.	09/990,631	990,631	6,556,006	A NOVEL METHOD FOR GMR HEAD ELECTROSTATIC POPPING DETECTION	20011121	20030429	EF2000090031US0
354.	09/994,804	994,804	6,650,510	MAGNETIC HEAD	20011128	20031118	RE2000100031US0
355.	10/001,846	10/001,846	7,035,031	INSTALLATION OF HEATER INTO HARD DISK DRIVE TO IMPROVE RELIABILITY AND PERFORMANCE AT LOW TEMPERATURE	20011126	20060425	EF2000090011US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
356.	10/005,772	10/005,772	7,158,330	SERVO TRACK WRITING BY TRACK FOLLOWING ON A DEDICATED SERVO DISK ON A FLUID SPINDLE BEARING	20011108	20070102	EF2000110061US0
357.	10/006,512	10/006,512	6,898,040	Method to protect GMR heads during HDD operation	20011206	20050524	EF2001050081US0
358.	10/007,259	007,259	6,940,697	INTERCONNECTION ON THE TOP OR BOTTOM SIDES OF SUSPENSION ARMS(E-BLOCKS)	20011205	20050906	EF2001020031US0
359.	10/013,672	013,672	6,765,748	INTERLEAVED SERVO BURST FIELD FOR TRACK FOLLOWING	20011213	20040720	EF2001010011US0
360.	10/026,047	026,047	6,722,901	Connector cap to inhibit damage to a connector due to electrostatic discharge	20011221	20040420	EF2001050071US0
361.	10/026,047	10/026,047	6,722,901	CONNECTOR CAP TO INHIBIT DAMAGE TO A CONNECTOR DUE TO ELECTROSTATIC DISCHARGE	20011221	20040402	WA2003100051US0
362.	10/026,048	026,048		connector cap to inhibit damage to a connector due to electrostatic discharge	20011221		EF2001070031US0
363.	10/029,701	029,701	7,108,926	Perpendicular Magnetic Recording Medium	20011231	20060919	RE2000110071US0
364.	10/032,103	032,103	6,916,556	PERPENDICULAR MAGNETIC RECORDING MEDIUM	20011231	20050712	RE2000110061US0
365.	10/037,783	037,783	6,724,553	METHOD AND APPARATUS FOR GENERATING THE OPTIMUM READ TIMING FOR READ AND WRITE OFFSET OF A MEGNETO RESISTIVE HEAD	20011022	20040420	EF2001030061US0
366.	10/038,604	038,604	6,777,077	Perpendicular Magnetic Thin Film For Ultrahigh Density Recording	20020108	20040817	RE2000120011US0
367.	10/051,987	10/051,987		Method to test thermal decay of magnetic media	20020116		EF2001070041US0
368.	10/052,003	10/052,003		Antiferromagnetically coupled media using flash Cr interlayer between top magnetic layer a	20020116		EF2001070021US0
369.	10/072,889	072,889	6,954,320	Method and apparatus for determining disk drive parameter in accordance with ambient temperature	20020212	20051011	EF2000110071US0
370.	10/072,890	072,890	6,657,428	Apparatus and method for restoring stability to head of disc drive	20020212	20031202	EF2000110021US0
371.	10/072,979	072,979	6,922,300	Actuator latch device of hard disk drive	20020212	20050726	EF2000110031US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
372.	10/073,898	073,898	6,917,489	Apparatus and method for performing seek-servo routine of hard disk drive	20020214	20050712	EF2000110011US0
373.	10/081,557	081,557	6,754,040	Screw type spacer in disk drive system	20020220	20040622	EF2001080041US0
374.	10/096,662	096,662	RE39,831	METHOD & APPARATUS FOR PROVIDING POSITIONAL INFORMATION ON A DISK A DISK	20020314	20070911	EC1997040241US1
375.	10/100,960	10/100,960	6,771,458	MEDIA ENCLOSURES PROVIDING REDUCED AIR GAP AROUND DISK DRIVE MEDIA SURFACES OF A DISK DRIVE	20020318	20040803	EF2001070051US0
376.	10/101,809	101,809		One piece interconnect from channel chip to head slide	20050111		EF2001060011US1
377.	10/101,809	10/101,809		One piece interconnect from channel chip to head slide	20020322		EF2001060011US0
378.	10/103,485	103,485	6,710,594	MAGNETIC PERFORMANCE MEASUREMENT OF AMR,GMR, AND TMR HEADS USING WRITE INDUCTIVE HEAD	20020320	20040323	EF2001020041US0
379.	10/107,387	10/107,387	6,747,843	A ramp design for reducing Read-Write head positioning errors	20020326	20040608	EF2001100131US0
380.	10/117,518	10/117,518	6,967,822	A proximity latch mechanism using impact rebound crash stop for an outside disk ramp load	20020404	20051122	EF2001090011US0
381.	10/133,363	133,363	6,958,968	Optical head with GRIN lens	20020429	20051025	RK2001050061US0
382.	10/138,643	138,643	6,696,833	로렌즈력 현미경을 이용한 자성 매체 도메인 관찰법	20020506	20040224	RE2001070041US0
383.	10/139,917	10/139,917	6,922,303	REACTION MASS DUAL-STAGE ACTUATOR (DSA) AND SENSOR	20020506	20050726	EF2001120021US0
384.	10/143,942	143,942	6,713,920	Linear actuator using two rotors	20020514	20040330	RE2001010021US0
385.	10/146,017	10/146,017		ACTIVE DISK LOCKING SYSTEM IN A DISK DRIVE USING SHAPE MEMORY ALLOY	20020514		EF2001110161US0
386.	10/146,213	10/146,213		SERVO WRITING METHOD FOR HARD DISK DRIVES	20020514		EF2001110171US0
387.	10/155,022	155,022	6,996,740	Method of optimizing design parameters of data storage system and method of applying optimized design parameters	20020528	20060207	EF2001040011US0

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	Official Application No.	Impro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
388.	10/155,023	155,023	7,193,799	Apparatus and method of removing resonance frequency in system	20020528	20070320	EF2001030011US0
389.	10/155,113	155,113	6,751,067	Actuator latch of hard disk drive	20020528	20040615	EF2001030021US0
390.	10/166,695	166,695	6,629,359	DEVICE AND METHOD FOR ASSEMBLING BASE AND MAIN BOARD ASSEMBLY	20020613	20031007	CF1998040071US1
391.	10/175,952	175,952	7,023,657	Hard disk drive having a damper for reducing vibration	20020621	20060404	RK2001060061US0
392.	10/202,780	202,780	6,967,809	SPIRAL SERVO CONTROL FOR SKEWLESS READ-WRITE	20020724	20051122	EF2002010031US0
393.	10/219,519	219,519	6,584,583	DATA PROCESSING METHOD AND SYSTEM	20020701	20030624	EC1997050621US1
394.	10/223,694	223,694	7,012,787	HEAD SUSPENSION ASSEMBLY FOR HARD DRIVE	20020820	20060314	EC1995111061US1
395.	10/226,404	10/226,404	6,828,784	STABILIZED READ BIAS CURRENT SELECTION BY BASE LINE POPPING NOISE LOOK UP	20020822	20040712	EF2002010021US0
396.	10/226,874	10/226,874	7,002,773	MEDIA ENCLOSURES PROVIDING REDUCED AIR GAP AROUND DISK DRIVE MEDIA SURFACES OF A DISK DRIVE	20020822	20060221	EF2001070051US1
397.	10/232,326	232,326	7,027,364	Information storage apparatus using charge	20020903	20060411	RE2001080011US0
398.	10/232,621	232,621	6,854,648	Information storage apparatus using semiconductor probe	20020903	20050215	RE2001060051US0
399.	10/234,846	234,846	7,466,505	Dummy write method for improving performance of data storage system and apparatus therefor	20020905	20081216	EF2001050011US0
400.	10/253,714	253,714	7,023,644	Method of recording servo data	20020925	20060404	EF2001050031US0
401.	10/256,553	10/256,553	7,089,649	METHOD OF MANUFACTURING HEAD GIMBAL ASSEMBLIES, ACTUATORS AND DISK DRIVES BY REMOVING THERMAL POLE-TIP PROTRUSION AT THE SPIN STAND LEVEL.	20020926	20060815	EF2002050071US0
402.	10/256,579	10/256,579		Disk drive bi-directional servo track write method and apparatus	20020926		EF2002050091US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
403.	10/264,394	10/264,394	6,753,103	DOUBLE LAYERED PERPENDICULAR MAGNETIC RECORDING MEDIA WITH NANOCRYSTALLINE STRUCTURED FEHF	20021004	20040622	EF2002070011US0
404.	10/266,539	10/266,539	7,012,785	Novel slider and suspension design for reducing head PES signal	20021007	20060314	EF2002050121US0
405.	10/288,475	288,475	6,836,390	Hard disk drive comprising flexible printed circuit with hole	20021106	20041228	EF2001080031US0
406.	10/288,506	288,506	6,822,835	Actuator latch of hard disk drive	20021106	20041123	EF2001080011US0
407.	10/294,115	10/294,115	6,975,475	METHODS AND APPARATUS DETERMINING AND/OR USING OVERSHOOT CONTROL OF WRITE CURRENT FOR OPTIMIZED HEAD WRITE CONTROL IN ASSEMBLED DISK DRIVES	20021114	20051213	EF2002050081US0
408.	10/294,326	10/294,326	6,909,571	SUSPENSION ACTIVE DAMPING CONCEPT	20021114	20050621	EF2002060071US0
409.	10/302,174	10/302,174		DAMPED DISK SPACER	20021121		EF2002070061US0
410.	10/314,937	314,937	RE39,004	Pseudo contact type negative pressure air bearing slider	20021209	20060307	CF1997080021US2
411.	10/325,731	325,731	6,784,475	Thermally stable ferroelectric memory	20021223	20040831	RE2001120041US0
412.	10/358,159	358,159	6,947,262	MAGNETIC READING HEAD	20030205	20050920	RE2002040031US0
413.	10/358,890	358,890	7,158,343	disk clamp of hard disk drive	20030206	20070102	EF2001110131US0
414.	10/361,636	361,636	6,791,790	hard disk drive having air pumping groove	20030211	20040914	EF2001110111US0
415.	10/361,818	361,818	6,924,962	actuator supporting apparatus of hard disk drive	20030211	20050802	EF2001110081US0
416.	10/376,082	376,082	6,958,875	Self Vaccine in disk drives	20030227	20051025	EF2002070071US0
417.	10/376,565	10/376,565	6,954,322	Insurance RCO to avoid the divergence of channel optimization	20030227	20051011	EF2002070081US0
418.	10/387,837	387,837	7,031,103	hard disk drive having disk locking apparatus	20030314	20060418	EF2001110071US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
419.	10/388,421	388,421	7,035,052	magnetic hard parking apparatus of hard disk drive	20030317	20060425	EF2001100011US0
420.	10/388,747	388,747	6,875,026	Connector apparatus of hard disk drive	20030317	20050405	EC1996020041US1
421.	10/390,317	10/390,317	7,032,157	The method to optimize the UDMA transfer by using the UDMA CRC error	20030317	20060418	EF2002110121US0
422.	10/391,778	391,778	7,359,159	actuator for hard disk drive	20030320	20080415	EF2001110141US0
423.	10/391,812	391,812	7,099,109	Hard disk drive having air flow accelerating device	20030320	20060829	EF2001110101US0
424.	10/394,067	394,067	7,106,553	hard disk drive having disk fluttering reducing unit	20030325	20060912	EF2001100091US0
425.	10/405,585	10/405,585		Antiferro coupled(AFC) media using Cr based alloy space layer	20030401		EF2002110091US0
426.	10/406,440	406,440	7,466,644	High-speed, high-density data storage apparatus employing time-division-multiplexing technique, and data recording method and data reproducing method both using the apparatus	20030404	20081216	RE2001110011US0
427.	10/410,189	410,189	7,068,472	actuator latch apparatus for hard disk drive	20030410	20060627	EF2001100041US0
428.	10/425,642	425,642	6,917,491	hard disk drive having disk protector and magnetic head protector	20030430	20050712	EF2002070021US0
429.	10/435,467	435,467	6,930,852	method of and apparatus for preventing generating of off-tracking in hard disc drive	20030512	20050816	EF2001110121US0
430.	10/444,960	444,960	7,190,549	Slim spindle motor and micro-drive apparatus comprising the same	20030527	20070313	RE2002090141US0
431.	10/444,962	444,962	7,229,707	Magnetic recording medium	20030527	20070612	RE2002090041US0
432.	10/444,963	444,963	7,085,105	Actuator latch apparatus for data storage device	20030527	20060801	RE2002110101US0
433.	10/445,208	445,208	7,420,783	Slim actuator and slim micro-drive apparatus comprising the same	20030527	20080902	RE2002090151US0
434.	10/456,572	456,572	7,101,634	Perpendicular magnetic recording media	20030609	20060905	RE2002070151US0
435.	10/458,666	10/458,666	6,956,710	FLEXIBLE BPI AND TPI SELECTION ON DISK DRIVES	20030609	20051018	EF2002060081US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
436.	10/460,169	460,169	7,516,345	interface device for peripherals and priority control method there for	20030613	20090417	EF2002040041US0
437.	10/462,803	462,803	7,203,028	stimulating acceleration constant of voice cil motor actuato suitable for the setting servo control method and apparatus	20030617	20070410	EF2002100021US0
438.	10/463,424	463,424	7,027,260	disk spacer for hard disk drive	20030618	20060411	EF2002010011US0
439.	10/463,472	463,472		Perpendicular magnetic recording media	20030618		RE2002070161US0
440.	10/463,472	463,472		Perpendicular magnetic recording media	20040625		RE2002070161US1
441.	10/463,860	463,860	7,117,399	method and apparatus for controlling data storage system according to temperature	20030618	20061003	EF2001120011US0
442.	10/512,967	512,967	7,141,999	SEMICONDUCTOR PROBE WITH RESISTIVE TIP AND METHOD OF FABRICATING THE SAME, AND INFORMATION MEASURING APPARATUS HAVING THE SEMICONDUCTOR PROBE	20041029	20061128	RE2002020021US0
443.	10/552,351	552,351	7,338,831	METHOD OF FABRICATING SEMICONDUCTOR PROBE WITH RESISTIVE TIP	20031111	20080304	RE2003020031US0
444.	10/606,727	10/606,727		Symmetric Suspension Interconnect Design	20030626		WA2003100071US0
445.	10/606,727	10/606,727		Symmetric suspension interconnect design for a flexure arm of a hard disk drive	20030626		IS2003010011US0
446.	10/615,956	615,956	7,060,375	Perpendicular magnetic recording media	20030710	20060613	RE2002090121US0
447.	10/617,171	617,171	7,277,256	actuator and hard disk drive employing the same	20030711	20071007	EF2002050051US0
448.	10/617,173	617,173	7,019,941	Filtering apparatus of hard disk drive	20030711	20060328	EF2002050021US0
449.	10/618,141	10/618,141	6,958,879	METHOD AND APPARATUS REDUCING OFF-TRACK HEAD MOTION DUE TO DISK VIBRATION IN A DISK DRIVE USING CONFIGURATION OF THE DISK DRIVE SERVO-CONTROLLER	20030710	20051025	WA2003100231US0
450.	10/618,524	10/618,524	6,920,018	DISK DRIVE APPARATUS FOR REDUCTION OF OFF-TRACK HEAD MOTION DUE TO DISK VIBRATION	20030710	20050719	EF2002060111US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
451.	10/618,630	618,630	7,031,107	magnetic hard parking system of hard disk drive	20030715	20060418	EF2002050131US0
452.	10/619,163	10/619,163	7,136,260	M&A reducing off-track head motion due to disk vibration in a hard disk drive through the	20030710	20061114	EF2002060091US0
453.	10/619,490	619,490	6,930,859	actuator locking apparatus of hard disk drive	20030716	20050816	EF2002050141US0
454.	10/621,354	621,354	6,992,849	method and apparatus for measuring magnetic write width of magnetic head using burst pattern	20030718	20060131	EF2002050011US0
455.	10/638,029	10/638,029		AMPLITUDE SPIKE DETECTOR FOR HEAD INSTABILITY	20030808		WA2003110041US0
456.	10/642,690	642,690	7,133,248	hard disc drive	20030819	20061107	EF2002050031US0
457.	10/644,901	644,901	7,333,281	Method and apparatus for writing inspecting servo information on disc drive	20030821	20080219	EF2002040021US0
458.	10/649,779	649,779	7,064,917	method and apparatus for controlling disc drive using counter-electromotive force	20030828	20060620	EF2002050041US0
459.	10/651,044	651,044	7,203,016	method for reproducing data and control device using controllable dummy read gate	20030829	20070410	EF2002040031US0
460.	10/657,351	10/657,351	7,133,251	CONNING MOTOR HUB SURFACE METHOD FOR HARD DISK DRIVES	20030908	20061107	WA2003120111US0
461.	10/657,587	657,587	7,064,923	Plastic counter-balance weights(snap-on)type	20030908	20060620	EF2002080121US0
462.	10/658,565	10/658,565	6,912,098	METHOD FOR DYNAMICALLY MEASURING SUSPENSION IN-PLANE AND OUT-PLANE THERMAL DRIFT IN HARD DISK DRIVES	20030908	20050628	WA2003100011US0
463.	10/664,967	664,967	6,972,920	Method and apparatus for preventing adjacent track erase in HDD	20030922	20051206	EF2002060031US0
464.	10/677,329	677,329	7,289,301	voice coil motor coupling structure of hard disk drive	20040122	20071030	EF2002060061US0
465.	10/677,532	677,532	7,088,535	off-track retry method in hard disk drive	20031003	20060806	EF2002060051US0
466.	10/685,709	685,709	7,222,267	method for providing information on errors of hard disk drive, hard disk therefore and information processing apparatus therefor	20031016	20070522	EF2002070031US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
467.	10/693,466	10/693,466		One piece interconnect from channel chip to head slide	20031023		WA2003100251US0
468.	10/693,945	693,945	6,979,128	spindle motor for hard disc drive	20031028	20051227	EF2002080011US0
469.	10/698,866	10/698,866	7,212,000	DETECTION OF A DEFECTIVE DISK OF A HARD DISK DRIVE	20031030	20070501	WA2003120211US0
470.	10/700,478	700,478	7,123,474	damping apparatus	20031105	20061017	EF2002100011US0
471.	10/702,401	10/702,401		FLYING HEIGHT MONITOR WITH SERVO AGC VOLTAGE FOR WRITE OPERATION IN A HARD DISK DRIVE.	20031104		WA2003120191US0
472.	10/702,659	702,659	7,082,014	actuator locking apparatus for hard disk drive	20031107	20070725	EF2002080051US0
473.	10/704,560	704,560	6,971,154	Hard disk balacing apparatus and method for hard disk drive	20031112	20051206	EF2002080031US0
474.	10/704,704	704,704	7,293,226	method and apparatus for adaptively performing defect scan according to channel characteristics	20031112	20071106	EF2002080071US0
475.	10/704,917	704,917	7,245,445	METHOD FOR MANAGING DEFECTS IN HARD DISK DRIVE RECORDING MEDIA THREEFOR AND HARD DISK DRIVE THEREFOR(JHS/MDS)	20031112	20070717	EF2002090031US0
476.	10/712,276	712,276	7,042,676	hard disk clamping apparatus	20031114	20060509	EF2002080021US0
477.	10/713,616	713,616		Method and apparatus controlling communication in the main flex and bridge flex circuits for multiple micro-actuators in a hard disk drive	20031113		IS2003040041US0
478.	10/713,616	713,616		Method and apparatus controlling communication in the main flex and bridge flex circuits for multiple micro-actuators in a hard disk drive	20031113		WA2003120181US0
479.	10/715,856	715,856	7,155,640	HOD defect list searching method(MEK/MDS)	20031119	20061226	EF2002090021US0
480.	10/717,516	717,516	7,230,793	Magnetic recording head with anisotropic medium placed between poles	20031121	20070612	RE2002110081US0
481.	10/717,574	717,574	7,212,368	head switching method using track number matching	20031121	20070501	EF2002080041US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
482.	10/732,242	732,242	7,050,267	HEAD-GIMBAL ASSEMBLY OF HARD DISK DRIVE	20031211	20060523	RE2002110331US0
483.	10/732,248	732,248	7,617,419	apparatus and method managing random-directional scratches on hard disk(MDS/SWC)	20031211	20091110	EF2002080111US0
484.	10/732,999	10/732,999	6,999,262	SERVO TRACK WRITING FOR ULTRA-HIGH TPI DISK DRIVE IN LOW DENSITY MEDIUM CONDITION	20031210	20060214	WA2003120071US0
485.	10/733,253	733,253	6,999,256	method of measuring tptp magnetic head controlling recording current	20031212	20060214	EF2002110071US0
486.	10/733,818	733,818	7,102,838	method of optimizing recording current and setting recording density of hard drive	20031212	20060905	EF2002110061US0
487.	10/735,631	735,631	7,545,592	flying height measurement method and system(MDS/SWC)	20031215	20090609	EF2002090011US0
488.	10/743,310	743,310	7,190,537	self raid system using hard disk drive having backup hard and method of writing data to and reading data from hard disk drive having backup head	20031223	20070313	EF2002080081US0
489.	10/745,709	10/745,709	7,174,414	METHOD AND APPARATUS MAPPING LOGICAL TRACKS IN A DISK DRIVE FOR OPTIMIZING TRACK SEEK TIME	20031223	20070206	WA2003110051US0
490.	10/747,122	747,122		method of making and updating optimal unlatch profile for hard disk drive(JGM/SWC)	20031230		EF2002110041US0
491.	10/750,638	10/750,638	7,369,364	AN INTERCONNECT FOR DISSIPATING ELECTROSTATIC CHARGES ON A HEAD SLIDER	20031219	20080506	WA2005040431US0
492.	10/753,348	753,348	7,099,114	air bearing slider for disc drive(MDS/TLJ)	20040109	20060829	EF2002110051US0
493.	10/754,361	10/754,361		PERPENDICULAR MAGNETIC RECORDING MEDIA WITH SYNTHETIC PINNED AND ANTIFERRO MAGNETIC LAYERED FILM STRUCTURE IN SUL	20040108		WA2003100091US0
494.	10/757,238	10/757,238	7,130,160	3 DIMENSIONAL MICROACTUATOR	20040113	20061031	WA2003120121US0
495.	10/762,332	762,332	7,123,449	air bearing slider for disk drive	20040123	20061017	EF2002110031US0
496.	10/766,946	766,946	7,203,029	method and apparatus for controlling track seek servd of disk drive(MDS/CJG)	20040130	20070410	EF2002100041US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
497.	10/768,177	768,177	7,016,142	APPARATUS AND METHOD FOR COMPLEMENTING RESONANCE USING ADAPTIVE NOTCH FILTER(MDS/MAB)	20040202	20060321	EF2002100031US0
498.	10/769,798	769,798	6,920,005	STORAGE APPARATUS AND READ ERROR RECOVERY METHOD THEREOF(MDS/DXR)	20040203	20050719	EF2002110021US0
499.	10/771,116	771,116	7,167,961	SINGLE HEAD DISK DRIVE HAVING BACKUP SYSTEM INFORMATION AND METHOD OF RECORDING AND READING SYSTEM INFORMATION THEREOF(MDS/DAA)	20040204	20070123	EF2002110011US0
500.	10/773,917	10/773,917	7,190,545	USE OFFLINE STW TOGETHER WITH SINGLE PASS SERVO COPY PROCESS	20040205	20070313	WA2003120021US0
501.	10/779,513	10/779,513	6,935,872	CONNECTOR CAP TO INHIBIT DAMAGE TO A CONNECTOR DUE TO ELECTROSTATIC DISCHARGE	20040212	20050830	WA2003100051US1
502.	10/790,782	790,782	7,228,454	METHOD AND APPARATUS OF PROCESSING DATA ACCORDING TO DATA TYPES	20040303	20070605	EF2002120021US0
503.	10/797,384	797,384		METHOD OF AND APPARATUS FOR RETRYING READING OR WRITING OF DATA(MHC)	20040310		EF2002120011US0
504.	10/805,543	10/805,543	7,369,367	MAGNETIC PROXIMITY LATCH AND OPTIONAL MAGNETIC CONTACT LATCH FOR A CRASH START/STOP HARD DISK DRIVE	20040319	20080506	WA2003120081US0
505.	10/812,613	812,613		DUAL SPEED CONTROL TO REDUCE AUDIBLE NOISE AND PROTECT HEAD DURING UNLOAD IN RAMP LOAD DRIVES WITH PAWL LATCH	20040329		WA2003120101US0
506.	10/842,798	10/842,798	7,630,167	METHOD AND APPARATUS TO DETECT SUB-MICRON PARTICLES IN A HARD DISK DRIVE WITH OPTICAL PICKUP	20040510	20091208	WA2004050051US0
507.	10/842,799	10/842,799		DOUBLE LAYERED PERPENDICULAR MAGNETIC RECORDING MEDIA WITH NANOCRYSTALLINE STRUCTURED FEHF	20040510		EF2002070011US1
508.	10/845,115	845,115	7,219,028	APPARATUS FOR TESTING HARD DISK DRIVE	20040514	20070515	EF2003020031US0
509.	10/845,116	845,116	7,401,168	METHOD AND APPARATUS FOR COMMUNICATION VIA SERIAL MULTI-PORT, AND RECORDING MEDIUM	20040514	20080715	EF2003020021US0
510.	10/847,579	847,579	7,529,063	SPINDLE MOTOR FOR DISK DRIVE	20040518	20090505	RE2003100101US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
511.	10/848,167	848,167	7,359,140	METHOD AND APPARATUS FOR ACCELERATION-BASED TRACK SEEKING SERVO CONTROL OF DISK DRIVE	20040519	20080415	EF2003010011US0
512.	10/851,671	851,671	7,489,618	POSITION DETECTION SYSTEM PROBE-BASED DATA STORAGE APPARATUS AND POSITION DETECTION METHOD	20040524	20090210	RE2003020061US0
513.	10/852,205	852,205	7,289,294	PARTICLE REMOVER FOR DATA STORAGE DEVICE AND RAMP HAVING THE PARTICLE REMOVER	20040525	20071030	EF2003030071US0
514.	10/854,248	854,248	7,372,694	MOUNTING PAD FOR DISK DRIVE	20040527	20080513	RE2003060051US0
515.	10/854,257	854,257	7,298,592	ACTUATOR WITH IMPROVED DYNAMIC CHARACTERISTIC AND DISK DRIVE HAVING THE SAME	20040527	20071120	RE2003090021US0
516.	10/857,513	10/857,513	7,375,921	Air Razor And Disk Limiter for A Hard Disk Drive	20040528	20080520	CF1999080081US1
517.	10/861,597	861,597	7,283,331	REDUCTION OF TRACK-MISREGISTRATION IN MAGNETIC DISK DRIVES USING LOWER ROLL CENTER OF HEAD	20040604	20071016	WA2003100121US0
518.	10/867,267	867,267	7,469,303	METHOD AND APPARATUS OF PROTECTING DATA IN DATA IN DATA TRANSMISSION SYSTEM(MHC)	20040614	20081223	EF2003030031US0
519.	10/867,492	867,492		METHOD AND APPARATUS FOR EFFECTIVELY STORING/REPRODUCING DATA IN MULTIMEDIA SYSTEM(MHC)	20040614		EF2003030021US0
520.	10/868,958	868,958	7,336,439	ACTUATOR HAVING ABSORPTION FILTER AND DISK DRIVE HAVING THE SAME	20040617	20080226	IS2003060021US0
521.	10/869,592	869,592		SUSPENSION PTICH LIMITER TANDEM DESIGN	20040615		WA2003100061US0
522.	10/870,789	10/870,789	7,330,333	HARD DISK DRIVE HOUSING HAVING ISOLATED POST TO IMPROVE MECHANICAL SHOCK RESISTANCE	20040616	20080212	WA2004070061US0
523.	10/872,301	872,301	7,259,938	ACTUATOR LATCH FOR DISK DRIVE(MHC)	20040618	20070821	EF2003030051US0
524.	10/872,303	872,303	7,301,730	SUSPENSION WITH STIFFENED END-TAB IN ACTRUATOR FOR DATA STORAGE DEVICE(MHC)	20040618	20071127	EF2003030061US0
525.	10/872,588	872,588	7,500,153	METHOD AND SYSTEM FOR ERROR CORRECTION IN DISK DRIVE	20040621	20090303	EF2003030011US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
526.	10/872,838	872,838		METHOD OF GENERATING RANDOM NUMBER IN HARD DISK DRIVE	20040621		EF2003030081US0
527.	10/873,658	10/873,658		RETRY REORDERING IN HARD DISK DRIVES	20040621		WA2003120041US0
528.	10/873,813	10/873,813	7,057,835	DATA TRACK PER INCH OPTIMIZATION THROUGH COMPILATION OF VOLTAGE GAIN AMPLIFIER CONTROL SIGNAL DATA	20040621	20060606	WA2004060081US0
529.	10/875,677	875,677	7,620,813	METHOD FOR AUTHENTICATING PROCESSING APPARATUS HAVING RECORDING DEVICE AND APPARATUS THEREFOR	20040625	20091117	EF2003030041US0
530.	10/876,869	876,869	7,355,803	METHOD AND APPARATUS FOR OPTIMIZING HARD DISC DRIVE AND RECORDING MEDIUM FOR THE SAME	20040628	20080408	EF2003030091US0
531.	10/878,044	878,044	7,187,518	FLEXIBLE PRINTED CIRCUIT FOR SPINDLE MOTOR AND DISK DRIVE HAVING THE SAME	20040629	20070306	RE2003060111US0
532.	10/880,002	10/880,002		A proximity latch mechanism using impact rebound crash stop for an outside disk ramp load	20040628		EF2001090011US2
533.	10/880,063	10/880,063	7,248,441	A proximity latch mechanism using impact rebound crash stop for an outside disk ramp load	20040628	20070724	EF2001090011US1
534.	10/885,872	885,872		PATTERNED MAGNETIC RECORDING MEDIUM AND METHOD OF MANUFACTURING THE SAME	20040708		RE2003050011US0
535.	10/886,171	10/886,171	7,009,803	METHOD AND APPARATUS OF DUAL STAGE SERVO CONTROL FOR TRACK FOLLOWING IN A HARD DISK DRIVE	20040706	20060307	WA2003120151US0
536.	10/886,663	886,663	7,203,895	ERROR CORRECTION DECODING METHOD AND APPARATUS	20040709	20070410	RE2003050041US0
537.	10/886,699	886,699	7,106,583	EMBEDDED TYPE DISK DRIVE MOUNTING STRUCTURE	20040709	20060912	RE2003070071US0
538.	10/887,913	887,913	7,099,100	APPARATUS AND METHOD FOR CONTROLLING HEAD LOADING IN DISK DRIVE	20040712	20060829	RE2003070061US0
539.	10/898,163	898,163	7,206,165	noise reducing apparatus for disk drive	20040726	20070417	IS2003060141US0
540.	10/900,562	10/900,562	7,158,347	GROUNDING CONNECTION BETWEEN SUSPENSION FLEXURE AND ARM ACTUATOR.	20040727	20070102	WA2003120131US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
541.	10/902,005	902,005	7,365,938	DISK DRIVE HAVING HEAT SINK DEVICE	20040730	20080429	IS2003060061US0
542.	10/903,720	10/903,720	7,031,095	SERVO CONTROLLER METHOD AND APPARATUS FOR HIGH TRACKS PER INCH HARD DISK DRIVES USING A DELAY ACCOMODATING STATE ESTIMATOR	20040729	20060418	WA2003110031US0
543.	10/903,730	10/903,730	7,336,436	HEAD GIMBAL ASSEMBLIES FOR VERY LOW FLYING HEIGHT HEADS WITH OPTIONAL MICRO-ACTUATORS IN A HARD DISK DRIVE.	20040729	20080226	WA2003120171US0
544.	10/903,731	10/903,731	7,009,804	METHOD AND APPARATUS FOR MICRO-ACTUATOR STROKE SENSITIVITY CALIBRATION IN A HARD DISK DRIVE.	20040729	20060307	WA2003120161US0
545.	10/909,686	909,686	7,490,357	method of protectig data in data storage system and disc drive using the same	20040802	20090210	IS2003040011US0
546.	10/910,330	910,330	7,307,812	filtering apparatus for disk dirve	20040804	20071211	IS2003060011US0
547.	10/910,349	910,349	7,369,366	SUSENSION ASSEMBLY OF ACTUATOR FOR DISK DRIVE	20040804	20080506	IS2003060151US0
548.	10/912,161	912,161	7,274,532	BASE MEMBER OF DISK DRIVE HAVING CLOCK WINDOW FOR SERVO TRACK WRITE	20040806	20070927	IS2003060161US0
549.	10/913,424	913,424	7,862,917	THERMALLY STABLE MAGNETIC RECORDING MATERIAL LAYER	20040809	20110104	RE2001110031US0
550.	10/916,913	10/916,913	7,256,961	DAMPED SPINDLE MOTOR FLANGE FOR THE DISK PACK IN A HARD DISK DRIVE	20040811	20070814	WA2004070091US0
551.	10/919,066	919,066	7,301,725	high stiffness cover plate and disk drive having the same	20040816	20071127	IS2003060131US0
552.	10/922,140	992,140	7,142,077	TWO-AXIS ACTUATOR WITH LARGE STAGE	20040820	20061128	RE2003050031US0
553.	10/922,861	992,861	7,247,968	TWO-AXIS ACTUATOR WITH LARGE AREA STAGE	20040823	20070724	RE2003050021US0
554.	10/925,147	925,147	7,599,278	RECORDING MEDIUM COMPRISING FERROELECTRIC LAYER, NONVOLATILE MEMORY DEVICE COMPRISING RECORDING MEDIUM, AND METHODS OF WRITING AND READING DATA FOR THE MEMORY DEVICE	20040825	20091006	RE2003090061US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
555.	10/925,147	925,147		Recording medium comprising ferroelectric layer, nonvolatile memory device comprising recording medium, and methods of writing and reading data for the memory device	20040825		RE200306001US0
556.	10/928,133	928,133	7,400,750	FINGERPRINT SENSOR AND FABRICATION METHOD THEREOF	20040830	20080715	RE200307004US0
557.	10/929,766	929,766	7,248,440	single lever type actuator latch system of disk drive	20040831	20070724	IS200306018US0
558.	10/933,774	10/933,774	7,271,973	FH COMPENSATION FOR UP/DOWN BER TREND DIFFERENCE	20040902	20070918	WA2003110021US0
559.	10/934,364	934,364	7,123,428	METHOD OF SCREENING HARD DISK DRIVE	20040907	20061017	IS2003050021US0
560.	10/934,561	934,561	7,406,020	METHOD OF WRITING DATA ON STORAGE DEVICE USING PROBE TECHNIQUE	20040907	20080729	RE200306004US0
561.	10/936,643	936,643	7,031,098	METHOD OF MEASURING COMPENSATION VALUE FOR SHORT TRACK SEEKING IN HARD DISC DRIVE AND METHOD OF COMPENSATION FOR BIAS USING THE SAME	20040909	20060418	IS200305008US0
562.	10/939,413	939,413	7,474,500	HARD DISK DRIVE HAVING AIR GUIDE	20040914	20090106	IS200308005US0
563.	10/942,772	942,772	7,218,467	method of optimizing write properties of magnetic head and defining magnetic head	20040917	20070515	IS200305004US0
564.	10/943,232	943,232	7,379,276	MAGNETIC RECORDING HEAD	20040917	20080527	RE200306008US0
565.	10/945,045	945,045	7,414,551	ENCODING AND DECODING METHODS AND APPARATUS FOR RECORDING SYSTEM	20040921	20080819	RE200306003US0
566.	10/947,116	947,116	7,099,106	METHOD OF UNLATCHING HEAD IN HARD DISC DRIVE	20040922	20060819	IS200306008US0
567.	10/947,437	947,437	7,301,720	method of determining and applying adaptive track zero position and disc drive using the same	20040923	20071127	IS200307001US0
568.	10/950,812	950,812	7,110,197	method for discriminating type of head and method for optimizing write parameter using the same in hard disc drive	20040928	20060916	IS200307003US0
569.	10/956,343	956,343	7,454,560	Method and apparatus to perform improved retry in data storage system	20041004	20081118	IS200307002US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
570.	10/959,209	959,209	7,085,096	METHOD OF GENERATING CURRENT TRAJECTORY FOR SEEK CONTROL OF HARD DISC DRIVE AND SEEK CONTROL SYSTEM USING THE SAME	20041007	20060801	RE2003060101US0
571.	10/963,554	963,554	7,355,812	DISK DRIVE HAVING ANTI-SHOCK STRUCTURE	20041014	20080408	RE2003090091US0
572.	10/968,126	968,126	7,289,290	METHOD OF CONTROLLING TRACK SEEK SERVO IN DISK DRIVE AND APPARATUS THEREOF	20041020	20071030	IS2003080031US0
573.	10/972,562	972,562	7,031,094	apparatus and method for detecting and compensating for resonance frequency in data storage system	20041026	20060418	IS2003080011US0
574.	10/973,831	973,831	7,006,019	RATE-7/8 MAXIMUM TRANSITION RUN CODE ENCODING AND DECODING METHOD AND APPARATUS	20041027	20060228	RE2003080051US0
575.	10/982,147	10/982,147		SUSPENSION SAG CONTROL (NOTCH CENTER) TO ELIMINATE OFF-TRACK MOTION DUE TO DISK FLUTTER	20041105		WA2003100131US0
576.	10/982,633	10/982,633	7,142,387	Application of Burst Correction Values To Read Mode Positioning	20041105	20061128	WA2004060071US0
577.	10/984,746	984,746	7,057,842	method, medium, and apparatus for offline self servo writig and disk drive using the same	20041110	20060606	IS2003080021US0
578.	10/986,023	986,023	7,256,960	damping structue for hard disk drive	20041112	20070814	IS2003100211US0
579.	10/986,024	986,024	7,283,323	damping structure for hard disk drive	20041112	20071016	IS2003100251US0
580.	10/986,345	10/986,345	7,248,443	INTEGRATED MEMS FLEXURE FOR FEMTO SLIDER	20041110	20070724	WA2004090011US0
581.	10/986,581	986,581	7,145,743	apparatus and method for unlatching a hard within a data storage device	20041112	20061205	IS2003080041US0
582.	10/986,684	10/986,684		FLEXIBLE DATA TPI IN HARD DISK DRIVE	20041112		WA2003120051US0
583.	10/987,044	10/987,044		System and apparatus for PES linearization	20041112		WA2003100101US0
584.	10/987,417	10/987,417		VARIABLE CONTROL OF WRITE PARAMETERS FOR HARD DISK DRIVE	20041112		WA2003120061US0
585.	10/988,582	988,582	7,602,585	suspension assembly having flexure limiter and actuator for disk drive adopting the same	20041116	20091013	IS2003100121US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
586.	10/993,478	10/993,478		METHOD AND APPARATUS TO BACK UP DATA IN A HARD DISK DRIVE	20041118		WA2004110171US0
587.	10/993,479	10/993,479		High-Reliability Hard Disk Drive With Internal Data Mirroring Capabilities	20041118		WA2004050071US0
588.	10/993,508	10/993,508	7,484,082	METHOD AND APPARATUS FOR MULTIPLE BOOT ENVIRONMENTS IN A HARD DISK DRIVE	20041118	20090127	WA2004110181US0
589.	10/994,278	994,278		disk clamping apparatus for data storage device	20041123		IS2004010021US0
590.	10/994,281	994,281	7,502,305	DATA STORAGE DEVICE AND METHOD OF TRACKING DATA STORED IN THE SAME	20041123	20090310	RE2003080011US0
591.	10/995,249	995,249		method of adaptively controlling retry process in data storage apparatus and disk drive using the same	20041124		IS2003100071US0
592.	10/996,057	996,057	7,888,718	CHARGE-DIPOLE COUPLED INFORMATION STORAGE MEDIUM	20041124	20110215	RE2003080061US0
593.	10/997,538	10/997,538	7,238,385	Antiferromagnetically coupled media using flash Cr interlayer between top magnetic layer a	20041123	20070703	EF2001070021US1
594.	10/997,965	997,965		method for recording data against ateand storage medim therefor	20041129		IS2003100401US0
595.	10/997,988	997,988	7,589,935	disk clamping apparatus and method for hard disk drive and hard disk drive with the same	20041129	20090915	IS2003100171US0
596.	11/002,113	002,113	7,486,474	hard disk drive	20041203	20090203	IS2003100201US0
597.	11/003,029	003,029	7,116,515	method and apparatus for compensating for torque changes in seek servo	20041203	20061003	IS2003100051US0
598.	11/008,179	008,179		PERPENDICULAR MAGNETIC RECORDING MEDIA	20041210		RE2003100081US0
599.	11/008,571	008,571	7,042,673	Hard disk drive calibration method and apparatus	20041210	20060506	IS2003100031US0
600.	11/014,239	014,239		MAGNETIC RECORDING MEDIA	20041217		RE2003110091US0
601.	11/014,688	014,688	7,522,378	MAGNETIC HEAD FOR RERPENDICULAR MAGNETIC WRITING	20041220	20090421	RE2003100071US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
602.	11/017,540	11/017,540	7,612,967	METHOD AND APPARATUS COUPLING AT LEAST ONE PIEZOELECTRIC DEVICE TO A SLIDER IN A HARD DISK DRIVE FOR MICROACTUATION	20041215	20091103	WA2004070081US0
603.	11/019,172	019,172	7,450,338	hard disk drive	20041223	20081111	IS2003100421US0
604.	11/019,667	019,667	7,277,250	track zero determination method used in data storage system and disk drive using the same	20041223	20071002	IS2003100041US0
605.	11/023,468	023,468	7,236,327	INFORMATION STORAGE MEDIUM AND APPARATUS ADOPTING THE SAME	20041229	20070626	RE2003090071US0
606.	11/028,053	11/028,053		INTEGRATED DUAL-STAGE ACTUATOR (DSA) DESIGN WITH THE BUILD-IN CONTACT DETECTION CAPABILITIES	20041230		WA2004050081US0
607.	11/028,078	11/028,078		SPIRAL DISK DAMPER TO CONTROL AIRFLOW WITHIN HARD DISK DRIVE	20041230		WA2003120091US0
608.	11/028,115	11/028,115	7,190,547	METHODS FOR DETECTING CONTACT BETWEEN A READ-WRITE HEAD AND THE ACCESSED DISK SURFACE IN A HARD DISK DRIVE	20041230	20070313	WA2005010041US0
609.	11/028,115	11/028,115	7,190,547	METHODS FOR DETECTING CONTACT BETWEEN A READ-WRITE HEAD AND THE ACCESSED DISK SURFACE IN A HARD DISK DRIVE	20041230	20070313	WA2005010031US0
610.	11/029,111	11/029,111		OD CRASH STOP FEATURE ON E-BLOCK ARM	20041230		WA2004100021US0
611.	11/030,892	030,892		Co-based perpendicular magnetic recording media	20050110		RE2003100091US0
612.	11/031,529	031,529	7,057,536	RATE 13/15 MAXIMUM TRANSITION RUN CODE ENCODING AND DECODING METHOD AND APPARATUS	20050110	20060606	RE2003090081US0
613.	11/039,634	036,634	7,453,669	Suspension assembly having reinforced end-tab and actuator for disk drive adopting the same	20050118	20081118	IS2003090011US0
614.	11/041,941	041,941	7,203,024	method of testing servo burst signals of hard disk drive and recording medium adapted thereof	20050126	20070410	IS2003100091US0
615.	11/045,126	045,126	7,512,812	method of securely erasing data and hard disk drive using the same	20050131	20090331	IS2003100281US0
616.	11/045,496	045,496	7,330,332	METHOD AND APPARATUS HIGH-SPEED COMPENSATION OF RRO ERROR IN HARD DISK DRIVE	20050131	20080212	RE2003100021US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
617.	11/046,763	046,763	7,457,077	Method and apparatus for optimally write reordering	20050201	20081125	IS2003110031US0
618.	11/049,763	11/049,763		METHOD OF CONTROL SPIRAL START POINT DURING AMMONITE SERVO TRACK WRITER PROCESS USING REFERENCE SERVO TRACK BAND	20050202		WA2004050021US0
619.	11/049,790	11/049,790	7,158,336	Window Timing Adjustment For Spiral Bursts	20050202	20070102	WA2004050061US0
620.	11/052,139	052,139	7,881,000	method of setting up a pro-amplifier for hard disk drive and hard disk drive incorporating the same	20050208	20110201	IS2003110011US0
621.	11/055,168	055,168	7,428,625	method of adaptively controlling data access by data storage system and disk drive using the method	20050211	20080923	IS2003100291US0
622.	11/059,570	059,570	7,110,205	method for controlling start of adaptive spindle motor disk drive using the method	20050217	20060916	IS2004010031US0
623.	11/059,602	059,602	7,088,544	method for controlling movement of head in data storage device and disk drive employing the method	20050217	20060808	IS2003120021US0
624.	11/060,498	060,498	7,271,968	head protecting circuit of hard disk drive	20050218	20070918	IS2004020021US0
625.	11/060,601	060,601		method controlling idle mode of hard disc drive and apparatus therefor	20050218		IS2004010041US0
626.	11/063,558	063,558	7,133,231	method and apparatus for recording data on hard disk drive, and storage medium therefor	20050224	20061107	IS2003110121US0
627.	11/065,152	065,152		PERPENDICULAR MAGNETIC RECORDING MEDIUM AND METHOD OF MANUFACTURING THE SAME	20050225		RE2003110081US0
628.	11/066,271	066,271	7,394,623	air bearing slider for disk drive and suspension assembly including the air bearing slider	20050228	20080701	IS2003110051US0
629.	11/069,560	069,560	7,333,285	Method of and apparatus for detecting actuator vibration in hard disc drive, and hard disc drive write control method of avoiding effect due to read/write head vibration	20050302	20080219	IS2004030041US0
630.	11/076,234	076,234	7,649,705	Method of controlling retry process and data storage apparatus using the same	20050308	20100119	IS2003120011US0
631.	11/086,848	086,848	7,352,536	Pivot shaft fixing structure in data storage device	20050322	20080401	IS2004030021US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
632.	11/096,556	11/096,556	7,158,335	A NEW METHOD FOR RESONANCE IDENTIFICATION IN HDD	20050401	20070102	WA2003120031US0
633.	11/103,993	103,993	7,382,565 B2	Method to avoid contact between the head and disk protrusions	20050411	20080603	WA2004090111US0
634.	11/123,094	123,094	7,580,210	METHOD, APPARATUS, AND MEDIUM FOR DETERMINING READ AND WRITE FREQUENCIES IN DATA STORAGE SYSTEMS AND A DISK DRIVING USING SAME	20050506	20090825	IS2004020011US0
635.	11/126,462	11/126,462	7,502,191 B2	METHOD AND APPARATUS REDUCING OFF-TRACK HEAD MOTION DUE TO DISK VIBRATION IN A DISK DRIVE USING CONFIGURATION OF THE DISK DRIVE SERVO-CONTROLLER	20050510	20090310	WA2003100231US1
636.	11/127,200	127,200	7,486,482	SINGLE LEVER TYPE ACTUATOR LATCH APPARATUS FOR DISK DRIVE	20050512	20090203	IS2004030091US0
637.	11/129,390	129,390	7,440,211	METHOD OF CONTROLLING TIMING OF SERVO PULSES AND DISK DRIVE USING THE METHOD	20050516	20081021	IS2004030071US0
638.	11/132,787	11/132,787		HARD-DISK DRIVE DESIGN FOR CONTACT RECORDING APPLICATIONS	20050518		WA2004090121US0
639.	11/132,852	11/132,852		METHOD OF MAKING HERMETICALLY SEALED HARD DISK DRIVE BY ENCAPULATION	20050518		WA2004090101US0
640.	11/138,270	138,270	7,538,975	DISK SPACER AND SPINDLE MOTOR ASSEMBLY EMPLOYING THE SAME	20050527	20090526	IS2004030031US0
641.	11/139,569	139,569	7,375,928	DISK DRIVE ACTUATOR LATCH APPARATUS AND METHOD	20050531	20080520	IS2004030101US0
642.	11/140,164	11/140,164	7,206,160	NEW METHOD TO CONTROL MULTI-OBJECTIVE MICRO-ACTUATOR IN HARD DISK DRIVES	20050526	20070417	WA2004050011US0
643.	11/141,412	141,412	7,164,558	actuator supporting apparatus of hard disk drive	20050601	20070115	EF2001110081US1
644.	11/142,750	142,750	7,602,586	HEAD PARKING RAMP FOR DATA STORAGE DEVICE	20050602	20091013	IS2004040031US0
645.	11/143,478	143,478	7,693,028	METHOD AND APPARATUS FOR DETECTING PROBE POSITION ERROR IN A DATA STORAGE SYSTEM AND METHOD AND APPARATUS FOR TRACKING DATA	20050603	20100406	RE2004030011US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
646.	11/143,847	143,847	7,664,981	METHOD OF RESTORING SOURCE DATA OF HARD DISK DRIVE AND METHOD OF READING SYSTEM INFORMATION THEREOF	20050603	20100216	IS2004040081US0
647.	11/145,908	11/145,908	7,093,346	CONNING MOTOR HUB SURFACE METHOD FOR HARD DISK DRIVES	20050603	20060822	WA2003120111US1
648.	11/149,303	149,303	7,327,530	HARD DISK DRIVE HAVING DISK DANGER AND DISK PROTECTOR CROSS-REFERENCE TO RALATED APPLICATIONS	20050610	20080205	IS2004030141US0
649.	11/151,245	151,245		HARD DISK DRIVE WITH DAMPING PLATE	20050614		IS2004050021US0
650.	11/153,327	153,327	7,643,242	HARD DISK DRIVE ASSEMBLY, MOUNTING STRUCTURE FIR HARD DISK DRIVE, AND MOBILE PHONE ADOPTING THE MOUNTING STRUCTURE	20050616	20100105	RE2004070051US0
651.	11/154,515	154,515	7,616,400	HARD DISK DRIVE ASSEMBLY HAVING MOUNTING BRACKET AND MOBILE PHONE EMPLOYING THE SAME	20050617	20091110	RE2004070081US0
652.	11/159,180	159,180	7,420,775	HARD DISK DRIVE	20050623	20080902	IS2004040071US0
653.	11/159,215	159,215	7,474,501	OUTER HUB ASSEMBLY AND SPINDLE MOTOR INCLUDING THE SAME IN HARD DISK DRIVE AND METHOD FOR SERVO-TRACK WRITING	20050623	20090106	RE2004060071US0
654.	11/176,414	11/176,414	7,253,978	METHODS AND APPARATUS DETERMINING AND/OR USING OVERSHOOT CONTROL OF WRITE CURRENT FOR OPTIMIZED HEAD WRITE CONTROL IN ASSEMBLED DISK DRIVES	20050706	20070807	EF2002050081US1
655.	11/181,849	181,849	7,903,364	METHOD OF PROTECTING HARD DISK FROM SHOCKS AND HARD DISK DRIVE THEREFOR	20050715	20110308	IS2004040011US0
656.	11/182,827	182,827	7,663,836	BASE PLATE AND COVER PLATE FOR HARD DISK DRIVE	20050718	20100216	IS2004090041US0
657.	11/186,756	186,756	7,342,739	METHOD AND APPARATUS FOR COMPENSATING FOR TORQUE VARIATIONS BASED ON TEMPERATURE IN SEEK SERVO OPERATION	20050722	20080311	IS2004040101US0
658.	11/187,954	187,954	7,532,439	ACTUATOR LATCH APPARATUS FOR HARD DISK DRIVE	20050725	20090512	RE2004060081US0

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	Official Application No.	Inpro- (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
659.	11/189,853	189,853	7,764,459	METHOD, MEDIUM, AND APPARATUS OPTIMIZING REPEATABLE RUN-OUT COMPENSATORS	20050727	20100727	IS2004040091US0
660.	11/192,422	192,422		method and apparatus for detecting free fall of mobile device and recording medium storing computer program for executing the method	20050729		RE2005060041US0
661.	11/196,412	196,412	7,573,676	MAGNETIC RECORDING HEAD	20050804	20090811	RE2004090021US0
662.	11/201,117	201,117	7,573,681	HGA PROTECTING MEMBER AND METHOD OF INSTALLING HGA TO HDD USING THE SAME	20050811	20090811	IS2004060041US0
663.	11/201,120	201,120	7,336,437	METHOD AND APPARATUS FOR PROTECTING HARD DISK DRIVE IN PORTABLE MOBILE APPARATUS	20050811	20080226	IS2004050051US0
664.	11/201,435	201,435	7,433,158	SHIPPING COMB FOR MOVING ACTUATOR OF HARD DISK DRIVE	20050811	20081007	RE2004100281US0
665.	11/202,242	202,242	7,489,619	PROBE POSITION ERROR DETECTING METHOD AND APPARATUS IN PROBE-BASED DATA STORAGE SYSTEM	20050812	20090210	RE2004070011US0
666.	11/212,605	212,605	7,419,843	METHOD OF MANUFACTURING SEMICONDUCTOR PROBE HAVING RESISTIVE TIP	20050829	20080902	RE2004060051US0
667.	11/219,732	219,732	7,319,224	SEMICONDUCTOR PROBE WITH RESISTIVE TIP AND METHOD OF FABRICATING THE SAME	20050907	20080115	RE2004060041US0
668.	11/221,933	221,933		RECORDING AND/OR REPRODUCING APPARATUS SUSPENSION ASSEMBLY AND METHOD	20050909		IS2004060061US0
669.	11/224,351	224,351	7,620,879	Method of Detecting and Correcting a Prescribed Set of Error Events Based on Error Detecting Code	20050913	20091117	RE2005060021US0
670.	11/226,212	226,212	7487388	METHOD OF RECOVERING REALLOCATION SECTOR IN DATA STORAGE SYSTEM AND DISC DRIVE USING THE SAME	20050915	20090203	IS2004060051US0
671.	11/229,701	229,701	7,535,677	DISK DRIVE SUSPENSION ASSEMBLY AND RECORDING AND/OR REPRODUCING APPARATUS WITH SUSPENSION ASSEMBLY	20050920	20090519	IS2004060071US0
672.	11/236,595	236,595	7,328,615	METHOD AND APPARATUS FOR DETECTING FREE FALL OF ELECTRONIC DEVICE	20050928	20080212	RE2004070041US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
673.	11/240,570	240,570	7,687,838	RESISTIVE MEMORY DEVICE HAVING ARRAY OF PROBES AND METHOD OF MANUFACTURING THE RESISTIVE MEMORY DEVICE	20051003	20100330	RE2004070031US0
674.	11/241,967	241,967	7,489,461	DISK DRIVE, MEDIUM AND METHOD OF COMPENSATING FOR A WRITE PARAMETER	20051004	20090210	IS2004060081US0
675.	11/242,874	242,874	7,827,470	Party-Based Error Detection Code for Perpendicular Magnetic Recording Channel	20051005	20101102	RE2004080051US0
676.	11/245,644	11/245,644	7,158,337	Eliminating PES Spike at Index	20051007	20070102	WA2006060241US0
677.	11/247,305	247,305	7,486,478	MAGNETIC HEAD	20051012	20090203	RE2004100261US0
678.	11/248,161	248,161	7,531,983	METHOD OF CONTROLLING STARTUP CURRENT OF MOTOR AND DISK DRIVE USING THE METHOD	20051013	20090512	IS2004070041US0
679.	11/251,907	251,907	7,436,146	STEPPING MOTOR SPEED CONTROL METHOD AND APPARATUS SUITABLE FOR THE SAME	20051018	20081014	RE2004100211US0
680.	11/252,717	252,717	7,423,838	SERVO CONTROL METHOD AND APPARATUS SUITABLE FOR THE SAME	20051019	20080909	RE2004100221US0
681.	11/254,762	254,762	7,677,805	fluid dynamic bearing and hard disk drive employing the same	20051021	20100316	RE2004090041US0
682.	11/257,097	257,097	7,497,626	SPINDLE MOTOR STRUCTURE AND HARD DISK DRIVE EMPLOYING THE SAME	20051025	20090303	RE2004100091US0
683.	11/257,105	257,105		METHOD AND APPARATUS FOR ENHANCING WORK EFFICIENCY BY SHARING APPLICATION BETWEEN HOST AND HARD DISK DRIVE	20051025		RE2004080031US0
684.	11/259,085	259,085	7,601,443	PERPENDICULAR MAGNETIC RECORDING MEDIA WITH LAMINATED SOFT MAGNETIC UNDERLAYER	20051027	20091013	RE2004070021US0
685.	11/260,290	260,290		INTERCONNECT AND HEAD GIMBAL ASSEMBLY WITH THE SAME	20051028		IS2004100151US0
686.	11/260,295	260,295	7,519,765	METHOD OF DOWNLOAD MAIN CODE TO FLASH MEMORY	20051028	20090414	IS2004100261US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samung Reference No.
687.	11/261,612	261,612	7,733,761	FERROELECTRIC RECORDING MEDIUM COMPRISING ANISOTROPIC CONDUCTION LAYER, RECORDING APPARATUS COMPRISING THE SAME, AND RECORDING METHOD OF THE SAME	20051031	20100608	RE2004080041US0
688.	11/263,800	263,800	7,315,432	TRACK-SEEK CONTROL METHOD OF HDD AND RECORDING MEDIUM SUITABLE FOR THE SAME	20051102	20080101	IS2004100111US0
689.	11/263,801	263,801	7,362,538	METHOD, MEDIUM, AND APPARATUS RECORDING A SERVO PATTERN	20051105	20080422	IS2004100191US0
690.	11/263,842	263,842	7,453,667	HARD DISK DRIVE, HARD DISK DAMPER, AND METHOD FOR THE SAME	20051102	20081118	IS2004080031US0
691.	11/264,002	264,002	7,349,183	ACTUATOR ASSEMBLY HAVING OPTIMIZED 4-BAR LINKAGE TYPE ACTUATOR ARM, HARD DISK DRIVE EMPLOYING THE SAME, AND METHOD FOR OPTIMIZING SHAPE OF X X X X X X OPENING FORMED IN ACTUATOR ARM	20051103	20080325	RE2004100291US0
692.	11/268,448	268,448	7,315,433	NON-REPEATABLE RUN OUT COMPENSATING APPARATUS AND METHOD AND DISK DRIVE USING THE SAME	20051108	20080101	RE2004090111US0
693.	11/269,545	269,545	7,643,243	DAMPER FOR INFORMATION STORAGE DEVICE	20051109	20100105	RE2004100051US0
694.	11/269,571	269,571	7,337,263	METHOD OF VARYING RECORDING DENSITY OF DATA STORAGE MEDIUM AND DISK DRIVE USING THE METHOD	20051109	20080226	IS2004080021US0
695.	11/270,591	270,591	7,286,320	Hard disk drive having a damper for reducing vibration	20051110	20071023	RK2001060061US1
696.	11/270,940	11/270,940	7,583,468	METHOD AND APPARATUS OF DUAL STAGE SERVO CONTROL FOR TRACK FOLLOWING IN A HARD DISK DRIVE	20051110	20090901	WA2003120151US1
697.	11/281,369	281,369	7,321,479	METHOD FOR WRITING SPIRAL REFERENCE SERVO SIGNAL IN HARD DISK DRIVE AND METHOD FOR COMPENSATING FOR TEMPERATURE	20051018	20080122	RE2004090081US0
698.	11/282,670	282,670	7,471,480	SELF SERVO WRITING METHOD, HARD DISK DRIVE USING THE SAME, AND RECORDING MEDIUM STORING THE METHOD	20051121	20081230	IS2004080071US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
699.	11/285,281	285,281		PROBE HEAD AND METHOD OF FABRICATING THE SAME	20051123		RE2004110011US0
700.	11/287,406	287,406	7,663,832	METHOD OF COMPENATING FOR TRACK ZERO POSITION IN REFERENCE SERVO TRACK COPYING SYSTEM AND DISC USING THE SAME	20051128	20100216	IS2004080051US0
701.	11/289,443	289,443	7,564,655	ACTUATOR OF HARD DISK AND METHOD OF FABRICATING THE ACTUATOR	20051130	20090721	IS2004100541US0
702.	11/290,418	290,418	7,248,429	ADAPTIVE SETTLING CONTROL METHOD AND APPARATUS IN TRACK SEEK MODE OF DISK DRIVE	20051201	20070724	RE2004090101US0
703.	11/291,926	291,926	7,248,428	METHOD, MEDIUM, AND APPARATUS CONTROLLING TRACK SEEK IN A RECORDING AND/OR REPRODUCING APPARATUS	20051202	20070724	IS2004090021US0
704.	11/296,265	296,265	7,859,851	FLEXIBLE PRINTED CIRCUIT AND BRACKET STURCTURE FOR HARD DISK DRIVE	20051208	20101228	IS2004100421US0
705.	11/296,340	296,340	7,432,673	METHOD AND APPARATUS FOR CONTROLLING CURRENT GAIN CHANGE OF SPINDLE MOTOR DRIVER	20051208	20081007	IS2004090151US0
706.	11/297,873	297,873	7,570,453	DISK DAMPER DESIGN TO INHIBIT INADVERTENT CONTACT BETWEEN A DISK AND THE DISK DAMPER	20051207	20090804	WA2005040351US0
707.	11/297,874	297,874		SLOT DESIGN IN E-BLOCK ACTUATOR FOR STRUCTURAL SYMMERTY	20051207		WA2005040331US0
708.	11/298,721	298,721	7,282,836	APPARATUS OF ROTATIONAL PZT ACTUATOR WITH NOVEL ELECTRODE	20051208	20071016	WA2005050091US0
709.	11/298,721			CONNING MOTOR HUB SURFACE TO COMPENSATE DISK CONNING ANGLE FOR BALANCED HEAD FLYING HEIGHT ON BOTH SIDES OF A DISK IN MIRROR ABS HARD DISK DRIVES	20050603		WA2006090171US0
710.	11/302,379	302,379	7,248,425	DISK WRITING/REPRIDUCING APPARATUS AND METHOD	20051214	20070724	RE2004120051US0
711.	11/302,381	302,381	7,552,380	METHOD AND APPARATUS FOR ENCODING AND DECODING OF A MODULATION CODE	20051214	20090623	RE2004110051US0
712.	11/304,791	304,791	7,606,005	ACTUATOR OF HARD DISK DRIVE	20051215	20091020	IS2004090061US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
713.	11/305,241	305,241	7,813,072	METHOD AND APPARATUS FOR IMPROVING PERFORMANCE OF HARD DISK DRIVE AT LOW TEMPERATURE	20051219	20101012	RE2004100301US0
714.	11/320,952	320,952	7,616,408	STRUCTURE AND METHOD FOR CONNECTING FLEXIBLE PRINTED CIRCUIT AND ACTUATOR ARM IN HARD DISK SWAGE PLATE WITH STRESS RELIEF FEATURE	20051230	20091110	IS2004090191US0
715.	11/321,008	321,008			20051228		WA2005040211US0
716.	11/322,340	322,340	7,411,210	SEMICONDUCTOR DEVICE PROBE WITH RESTSTIVE TIP AND METHOD OF FABRICATING THE SAME	20060103	20080812	RE2004100121US0
717.	11/323,624	323,624		INTERNAL TEMPERATURE CONTROLLED HARD DISK DRIVE	20051230		WA2005040281US0
718.	11/323,778	11/323,778		METHOD AND APPARATUS COUPLING TO A SLIDER IN A HARD DISK DRIVE FOR MICROACTUATION	20051230		WA2005040381US0
719.	11/324,488	324,488	7,463,445	METHOD OF CONTROLLING TRACK SEEK IN HDD AND A RECORDING MEDIUM THEREFOR	20060104	20081209	IS2005020021US0
720.	11/325,576	325,576	7,663,830	Method of forming servo data HDD and self servo write method using the same	20060105	20100216	IS2004100181US0
721.	11/328,114	328,114	7,292,403	LOW FREQUENCY DISTURBANCE COMPENSATION CONTROL DEVICE AND DISK DRIVE USING THE SAME	20060110	20071106	RE2004100161US0
722.	11/329,062	329,062	7,903,372	MAGNETIC RECORDING HEAD AND METHOD OF MANUFACTURING THE SAME	20060111	20110308	RE2004100031US0
723.	11/329,724	329,724	7,576,940	NEW METHOD FOR IN-SITU MICROACTUATOR STROKE SENSITIVITY MEASUREMENT IN HARD DISK DRIVES	20060110	20090818	WA2005050071US0
724.	11/329,851	329,851		NEW METHOD FOR IN-SITU MICROACTUATOR STROKE SENSITIVITY MEASUREMENT IN HARD DISK DRIVES	20060109		WA2006010051US0
725.	11/330,169	330,169	7,663,826	Method and apparatus for copying data from one disc drive to another disc drive	20060112	20100216	IS2004100311US0
726.	11/331,012	331,012	7,085,106	Actuator latch apparatus for data storage device	20060113	20060801	RE2002110101US1
727.	11/331,487	331,487	7,280,305	METHOD OF CONTROLLING NANO-SCALE FLYING HEIGHT WITH SENSING AND ACTUATION CIRCUITRY	20060113	20071009	WA2005040301US0
728.	11/333,326	333,326	7,593,180	Data read control method and HDD suitable for the same	20060118	20090922	IS2004100171US0

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
729.	11/333,679	333,679	7,573,668	METHOD OF CONTROLLING NANO-SCALE FLYING HEIGHT WITH SENSING AND ACTUATION CIRCUITRY	20060116	20090811	WA2005110011US0
730.	11/334,514	334,514	7,408,739	Disk spacer of hard disk drive and spindle motor assembly having the disk spacer	20060119	20080805	IS2004100591US0
731.	11/334,623	334,623	7,667,932	INTEGRATED ACTUATOR AND SENSOR IN A MULTILAYERED PIEZOELECTRIC DEVICE	20060117	20100223	WA2005080081US0
732.	11/339,677	339,677	7,333,292	SEEK SERVO CONTROL METHOD FOR ADAPTING TO SUPPLY VOLTAGE VARIATION AND DISK DRIVE USING THE SAME	20060126	20080219	IS2004100441US0
733.	11/341,584	341,584	7,499,244	DISK HOLDER FOR OFF-LINE SERVE-TRACK WRITER	20060130	20090303	RE2004100171US0
734.	11/345,366	345,366		ELECTRICAL READ HEAD HAVING HIGH SENSITIVITY AND SOLUTION POWER AND METHOD OF OPERATING THE SAME	20060202		RE2004100131US0
735.	11/346,377	346,377		METHOD AND APPARATUS FOR DETERMINING LOADK OF INPUT/OUTPUT COMMAND IN INPUT/OUTPUT SUBSYSTEM	20060203		RE2004100191US0
736.	11/347,221	347,221	7,464,196	지능형 입출력 최적화 방법 및 장치	20060206	20081209	RE2004100181US0
737.	11/348,228	348,228		ASYMMETRIC TYPE PERPENDICULAR MAGNETIC RECORDING HEAD AND METHOD OF MANUFACTURING THE SAME	20060207		RE2004100231US0
738.	11/348,485	348,485	7,820,311	FERROELECTRIC RECORDING MEDIUM AND WRITING METHOD FOR THE SAME	20060207	20101026	RE2004100271US0
739.	11/349,176	349,176	7,663,094	PROBE FOR DATA STORAGE APPARATUS	20060208	20100216	RE2004110031US0
740.	11/352,316	352,316	7,602,584	MAGNETIC RECORDING HEAD AND METHOD OF MANUFACTURING THE SAME	20060213	20091013	RE2005010041US0
741.	11/355,968	355,968		DATA RECORDING MEDIUM INCLUDING FERROELECTRIC LAYER AND METHOD OF MANUFACTURING THE SAME	20060217		RE2004100241US0
742.	11/357,824	11/357,824	7,697,236	METHOD AND APPARATUS FOR IMPROVED DISK DAMPER IN A HARD DISK DRIVE	20060417	20100413	WA2005040341US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samung Reference No.
743.	11/359,579	359,579	7,952,828	Hard disk drive, method for parking magnetic head of hard disk drive, and computer readable recording medium recording the method	20060223	20110531	IS2005070061US0
744.	11/364,172	364,172	7,537,845	Perpendicular magnetic recording media	20060301	20090526	RE2002090121US1
745.	11/364,982	364,982	7,317,590	FOD IN SITU CLEARANCE MEASUREMENT CONCEPT	20060228	20080108	WA2005090011US0
746.	11/364,984	364,984	7,286,315 B2	METHOD TO DETECT THE TOUCH DOWN OF THE FLYING HEAD ON DISK	20060228	20071023	WA2005050101US0
747.	11/366,044	366,044	7,489,480	LAMINATED ACTUATOR ARM IN A HARD DISK DRIVE	20060301	20090210	WA2005120181US0
748.	11/367,452	367,452		METHOD OF MANUFACTURING PATTERNED RECORDING MEDIUM	20060306		RE2004110061US0
749.	11/369,506	369,506		ABS DESIGN FOR REDUCING EFFECTS OF PARTICLE CONTAMINATION	20060306		WA2005120111US0
750.	11/369,600	369,600	7,253,985	DELAY CLOCK TRACK READ BACK DATA TO COMPENSATE TIME VARIANCE DUE TO DISK THERMAL EXPANSION IN AMMONITE SERVO TRACK WRITING	20060306	20070807	WA2005120071US0
751.	11/375,314	375,314	7,394,612 B2	THIRD ORDER CURVE FIT FOR MR SKEW	20060313	20080701	WA2004100041US0
752.	11/376,793	376,793	7,265,936	NEW ALGORITHM FOR DSA/MICROACTUATOR LOOP GAIN CALIBRATION	20060315	20070904	WA2005040421US0
753.	11/378,354	378,354		PERPENDICULAR MAGNETIC RECORDING HEAD AND RECORDING MEDIUM FOR RECORDING DATA USING THE SAME	20060320		RE2005010031US0
754.	11/384,326	384,326	7,923,262	METHOD OF MANUFACTURING PATTERNED FERROELECTRIC MEDIA	20060321	20110412	RE2004120011US0
755.	11/384,375	384,375	7,644,338	Method of Detecting and Correcting a Prescribed Set of Error Events Based on Error Detecting Code	20060321	20100105	RE2005060021US1
756.	11/387,472	387,472	7,423,829 B2	CIRCUIT FOR FLYING HEIGHT ON DEMAND	20060322	20080909	WA2005040391US0
757.	11/387,928	387,928		MAGNETIC RECORDING HEAD AND METHOD OF MANUFACTURING THE SAME	20060304		RE2005010051US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
758.	11/397,254	11/397,254	7,420,764	SERVO CONTROLLER METHOD AND APPARATUS FOR HIGH TRACKS PER INCH HARD DISK DRIVES USING A DELAY ACCOMODATING STATE ESTIMATOR	20060403	20080902	WA2003110031US1
759.	11/397,717	397,717	7,719,162	ACTUATOR AND METHOD OF DRIVING THE SAME	20060405	20100508	RE2005020021US0
760.	11/401,336	401,336	7,561,373	Bias compensation method and appropriate bias force profile generation method, recording media and hard disk drive	20060411	20090714	IS2005030041US0
761.	11/401,940	401,940	7,477,465	METHOD OF PROTECTING DATA ON RECORDING MEDIUM AND RECORDING MEDIUM STROING PROGRAM FOR EXECUTING THE METHOD	20060412	20090113	IS2005030031US0
762.	11/407,951	407,951	7,330,329	METHOD AND APPARATUS FOR CONTROLLING UNLOAD STANDBY TIME OF HARD DISK DRIVE	20060421	20080212	IS2005030011US0
763.	11/409,054	409,054	7,619,858	Hard stack assembly, hard disk drive having the same, and hard disk drive method	20060424	20091117	IS2005040071US0
764.	11/409,056	409,056	7,369,352	Apparatus, medium, and method with seek servo control considering temperature change	20060424	20080506	IS2005030081US0
765.	11/411,868	411,868	7,548,399	Head stack assembly protecting member and method for installing head stack assembly in hard disk drive using the same	20060427	20090616	IS2005070111US0
766.	11/413,000	413,000		PERPENDICULAR MAGNETIC RECORDING HEAD	20060428		RE2005010021US0
767.	11/416,135	416,135	7,477,480	DISK SPACER, HARD DISK DRIVE WITH THE DISK SPACER, AND DISK BALANCING METHOD USING THE DISK SPACER	20060503	20090113	IS2005040181US0
768.	11/416,137	416,137	7,851,706	Flexible printed circuit and manufacturing method thereof	20060503	20101214	IS2005040191US0
769.	11/417,697	417,697	7,369,347	FLYING CLEARANCE CONTROL USING THIN FILM PZT ON MAGNETIC RECORDING HEAD	20060503	20080506	WA2005120061US0
770.	11/417,758	417,758	7,505,227 B2	NEW METHOD TO PREVENT POLE TIP PROTRUSION DUE TO HEATING	20060503	20090317	WA2005120101US0
771.	11/417,760	417,760	7,569,088	PASSIVE SYSTEM FOR FORCED CONVECTIVE COOLING OF A DISK DRIVE	20060503	20090804	WA2005080101US0
772.	11/430,030	430,030	7,660,059	Method of controlling write strength of HDD recording medium recorded thereon program suitable for same	20060509	20100209	IS2005010041US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
773.	11/433,157	433,157		BALANCED HEAD STACK ASSEMBLY IN DUAL STAGE ACTUATOR WITH NOVEL COMBINATION OF POLARITIES	20060515		WA2005050081US0
774.	11/434,607	434,607		RECORDING HEAD WITH INTEGRATED PREAMPLIFIER	20060515		WA2005080091US0
775.	11/435,271	435,271		METHOD AND DESIGN OF IMPROVED SHOCK PERFORMANCE IN HGA	20060515		WA2005120141US0
776.	11/437,209	437,209	7,505,222 B2	FOD INSITU CLEARANCE MEASUREMENT CONCEPT	20060519	20090317	WA2005080131US0
777.	11/438,358	438,358	7,561,364	method and apparatus for controlling disc drive using counter-electromotive force	20060523	20090714	EF2002050041US1
778.	11/442,238	442,238	7,391,588	CONNECTOR AND HARD DISK DRIVE INCLUDING THE SAME	20060530	20080624	IS2005040011US0
779.	11/442,239	442,239	7,715,140	Method of determining size of error and write control method for hard disc drive, hard disc drive using the write control method, and media strong computer programs for executing the method	20060530	20100511	IS2005030091US0
780.	11/444,298	444,298	7,359,141	SERVO CONTROL METHOD, APPARATUS USING THE SAME, AND RECORDING MEDIUM HAVING PROGRAM FOR EXECUTING THE METHOD	20060601	20080415	IS2005060011US0
781.	11/445,153	445,153	7,369,344	Method and apparatus for compensating for offset of disk drive	20060602	20080506	IS2005080031US0
782.	11/446,573	446,573	7,369,348	Hard Disk Drive Adaptation to Humidity	20060602	20080506	WA2006050091US0
783.	11/448,723	448,723	7,528,371	SEMICONDUCTOR PROBE HAVING RESISTIVE TIP WITH ASPECT RATIO AND METHOD OF FABRICATING THE SAME	20060608	20090505	RE2005050041US0
784.	11/450,135	11/450,135	7,542,237	DATA STORAGE SYSTEM WITH SLIDER HAVING SHAPE MEMORY ALLOY PADS	20060608	20090602	WA2005080111US0
785.	11/450,156	450,156		STRESS REDUCING FEATURE ON THE SUSPENSION TAIL	20060608		WA2005040291US0
786.	11/451,417	451,417	7,619,845	method and apparatus for controlling disc drive using counter-electromotive force	20060613	20091117	EF2002050041US2
787.	11/452,611	452,611		METHOD AND APPARATUS FOR A HARD DISK DRIVE PROVIDING DUAL HEAT TRANSFERS FOR AN INTERNAL THERMAL ZONE	20060613		WA2006010031US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
788.	11/452,612	11/452,612	7,581,404	METHOD AND APPARATUS FOR A SYSTEM USING AT LEAST ONE HARD DISK DRIVE PROVIDING DUAL HEAT TRANSFERS FOR AN INTERNAL THERMAL ZONE	20060613	20090901	WA2006010041US0
789.	11/452,898	452,898	7,336,438	WRITE CONTROL METHOD OF HARD DISK DRIVE, HARD DISK DRIVE ADAPTING THE METHOD AND RECORDING MEDIUM THEREOF	20060615	20080226	IS2005030101US0
790.	11/453,267	11/453,267	7,673,462	METHOD AND APPARATUS CONTROLLING DUAL HEAT TRANSFERS FOR INTERNAL THERMAL ZONE OF A HARD DISK DRIVE	20060613	20100309	WA2006010021US0
791.	11/453,306	11/453,306	7,757,496	THERMOELECTRIC DEVICE PROVIDING DUAL HEAT TRANSFERS FOR INTERNAL THERMAL ZONE IN A HARD DISK DRIVE	20060613	20100720	WA2006010011US0
792.	11/454,107	454,107	7,558,026	APPARATUS OF LOW COST DUAL STAGE ACTUATOR	20060614	20090707	WA2005040371US0
793.	11/462,104	462,104	7,561,381	Base member and hard disk drive having the same	20060803	20090714	IS2005060031US0
794.	11/464,488	11/464,488		METHOD OF MANUFACTURING HEAD GIMBAL ASSEMBLIES, ACTUATORS	20060814		WA2006050101US0
795.	11/471,094	471,094		MAGNETIC RECORDING HEAD WITH POLE TIP RETRACTION CAPABILITY	20060619		WA2005120051US0
796.	11/471,777	11/471,777	7,295,400 B2	Method and Apparatus for Mechanically Balancing the Disk Pack of a Hard Disk Drive	20060620	20071113	WA2006070041US0
797.	11/471,850	471,850		RECORDING HEAD WITH INTEGRATED PREAMPLIFIER	20060620		WA2006020031US0
798.	11/474,127	474,127		Prevention of Disk Damage Due to Load/Unload by Using Rounding Corner of TE	20060623		WA2006050061US0
799.	11/474,383	474,383	7,599,144	METHOD AND APPARATUS COMPENSATING DISTURBANCE IN STATE CONTROL DEVICE	20060626	20091006	RE2005050081US0
800.	11/476,652	476,652	7,643,241	Methods calculating RRO and PRO compensation value in HDD	20060629	20100105	RE2005050071US0
801.	11/477,624	477,624	7,799,445	PERPENDICULAR MAGNETIC RECORDING MEDIA WITH SOFT MAGNETIC UNDERLAYER	20060630	20100921	RE2005040061US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
802.	11/478,855	478,855		The Slew Rate Control in the Write Current Shape of Magnetic Recording Systems	20060629		WA2006050051US0
803.	11/479,967	479,967		Hard Disk Drive Head Actuator Control During Power Cycles for Improved RELiability	20060629		WA2006050141US0
804.	11/480,339	480,339	7,979,045	FLEXURE BASED DSA WITH HIGH SHOCK AND CLEARANCE	20060629	20110705	WA2005120161US0
805.	11/480,443	480,443	7,430,093	SEEK CONTROL METHOD OF HARD DISK DRIVE, DRIVE ADOPTING METHOD	20060705	20080930	IS2005030111US0
806.	11/480,896	480,896	7,817,373	Cover assembly of a hard disk drive	20060706	20101019	IS2005030171US0
807.	11/482,037	482,037	7,499,237	RECORDING CONTROLLING METHOD IN HDD AND HDD USING THE SAME	20060707	20090303	IS2005040091US0
808.	11/482,535	482,535	7,333,288	NEW METHOD FOR WRITTEN-IN RRO CORRECTION APPLICABLE TO BOTH SINGLE-STAGE AND DUAL-STAGE OPERATION IN DISK DRIVES	20060706	20080219	WA2005120121US0
809.	11/482,640	11/482,640	7,715,150	RECORDING HEAD WITH INTEGRATED PREAMPLIFIER	20060706	20100511	WA2006020021US0
810.	11/482,690	482,690	7,287,421	SEMICONDUCTOR PROBE WITH HIGH RESOLUTION RESISTIVE TIP AND METHOD OF FABRICATING THE SAME	20060710	20070730	RE2005050061US0
811.	11/483,846	483,846	7,564,654	ACTUATOR LATCH DEVICE FOR HARD DISK DRIVE	20060711	20090721	IS2005030141US0
812.	11/484,692	484,692		Optimum PMR media properties for high density recording	20060712		RE2005030041US0
813.	11/492,860	492,860	7,742,368	Near field light generating device and heat assisted magnetic recording head with the same	20060726	20100622	RE2005070041US0
814.	11/493,585	493,585	7,639,454	Reduce off track head field in write gap by adding gap shield	20060727	20091229	RE2005040011US0
815.	11/494,464	494,464	7,511,920	HARD DISK AND SPINDLE MOTOR ASSEMBLY	20060728	20090331	RE2005050051US0
816.	11/494,505	494,505	7,660,146	FERROELECTRIC RECORDING MEDIUM AND METHOD OF MANUFACTURING THE SAME	20060728	20100209	RE2005040031US0
817.	11/497,554	11/497,554		Mechanism Preventing Separation of Heads fromMedia While Not Operating	20060731		WA2006050151US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
818.	11/498,042	498,042	7,751,151	BASE PLATE,HARD DISK DRIVE WITH THE BASE PLATE,AND METHOD FOR ATTACHING HEAD STACK ASSEMBLY ON THE BASE PLATE	20060803	20100706	IS2005040131US0
819.	11/498,095	498,095	7,605,014	Fabrication method of shielded resistive probe	20060803	20091020	RE2005050031US0
820.	11/500,890	500,890	7,440,302	Nano-Roll Storage Device	20060809	20081021	RE2005060011US0
821.	11/501,828	501,828		고효율 근접장광 발생장치 및 이를 이용한 열보조 자기기록헤드	20060810		RE2005100241US0
822.	11/502,020	11/502,020	7,773,339	Virtually Extended Disk-Champ Design	20060809	20100810	WA2006050131US0
823.	11/502,054	11/502,054	7,724,479	Shock Prevention Method Using Auxiliary Mass-damper System	20060809	20100525	WA2006050121US0
824.	11/503,296	503,296	7,672,081	In-Situ Soft Underlayer Domain erasure	20060814	20100302	RE2005050021US0
825.	11/503,297	503,297		고밀도 수직 자기 기록용 Head	20060814		RE2005060061US0
826.	11/504,829	11/504,829		Conning Motor Hub Surface Apparatus For Hard Disk drives	20060815		WA2006110051US0
827.	11/504,829	11/504,829		XX	20060815		WA2006090041US0
828.	11/505,414	505,414	7,663,844	ACTUATOR ARM WITH ARM HOLE TO IMPROVE DYNAMIC CHARACTERISTICS AND ACTUATOR ASSEMBLY HAVING THE SAME	20060817	20100216	IS2005050031US0
829.	11/506,889	506,889		Light Delivery Module Structure for Field Enhancement	20060821		RE2005060051US0
830.	11/508,996	508,996	7,609,591	Optically Heat Assisted Hybrid Head	20060824	20091027	RE2005100101US0
831.	11/509,614	509,614	7,400,466	METHOD AND APPARATUS FOR DRIVING SPINDLE MOTOR USING ADAPTIVE FEEDFORWARD CONTROL	20060825	20080715	IS2005080071US0
832.	11/510,796	510,796	8,023,228	Heat Assisting Magnetic Recording Head	20060828	20110920	RE2005100131US0
833.	11/512,354	512,354	7,663,982	Field Enhanced Optical Waveguide Emitter	20060830	20100216	RE2005100141US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
834.	11/513,050	513,050		ACTUATOR AND HARD DISK DRIVE EMPLOYING THE SAME	20060831		RE2005060111US0
835.	11/513,380	513,380		HARD DISK DRIVE AND METHOD OF FABRICATING THE SAME	20060831		IS2005070041US0
836.	11/514,082	514,082	7,667,924	PARTICLE EXTRACTING DEVICE OF HARD DISK DRIVE AND HARD DISK DRIVE INCLUDING THE SAME	20060901	20100223	RE2005060091US0
837.	11/514,275	514,275	7,573,672	COVER MEMBER WITH AIR GUIDING PORTION AND HARD DISK DRIVE INCLUDING THE COVER MEMBER	20060901	20090811	RE2005060081US0
838.	11/514,982	514,982	7,489,471	BIAS CALCULATION, BIAS COMPENSATION, AND BIAS TABLE EDITING METHODS FOR HDD, RECORDING MEDIA STORING COMPUTER PROGRAMS FOR EXECUTING THE SAME, AND HDD USING THE SAME	20060905	20090210	RE2005060031US0
839.	11/517,303	517,303	7,449,346	METHOD OF MANUFACTURING FERROELECTRIC THIN FILM FOR DATA STORAGE AND METHOD OF MANUFACTURING FERROELECTRIC RECORDING MEDIUM USING THE SAME METHOD	20060908	20081111	RE2006030071US0
840.	11/518,249	518,249	7,567,401	METHOD AND APPARATUS FOR CONTROLLING MOTOR ROTATION IN HARD DISK DRIVE	20060911	20090828	IS2005070021US0
841.	11/523,907	11/523,907		REDUCTION OF ELECTROSTATIC CHARGES IN A HARD DISK DRIVE	20060919		WA2005040241US0
842.	11/525,263	11/525,263	7,350,400	New Test Method to Measure Lube Mobility	20060922	20080401	WA2006050071US0
843.	11/525,292	525,292	7,301,719 B1	Novel Clearance Sweep Test	20060921	20071127	WA2006050041US0
844.	11/525,293	11/750,638		DATA STORAGE SYSTEM WITH MEDIA HAVING SHAPE MEMORY ALLOY PROTECTED LAYER	20060921		WA2005120151US0
845.	11/525,681	11/525,681		Pitch Angle Adaptation to Altitude and Humidity Conditions	20060922		WA2006050231US0
846.	11/525,828	525,828	7,796,360	Perpendicular magnetic recording head and method of manufacturing the same	20060925	20100914	RE2005110141US0
847.	11/526,689	526,689	7,464,584	Contact force modulation method for probe storage	20060926	20081216	RE2005080121US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
848.	11/527,492	527,492	7,442,571	SEMICONDUCTOR PROBE WITH RESISTIVE TIP AND METHOD OF FABRICATING THE SAME, AND INFORMATION MEASURING APPARATUS HAVING THE SEMICONDUCTOR PROBE	20060927	20081028	RE2002020021US1
849.	11/528,028	11/528,028		ADVANCED AIR BEARING AND DETECTION METHOD FOR MEDIA GLIDE TESTING AT ULTRA-LOW FLYING HEIGHT	20060926		WA2005120191US0
850.	11/528,226	11/528,226	7,743,207	The New Method to Detect Pre-Contact Of ...	20060926	20100622	WA2006050181US0
851.	11/528,300	11/528,300		NEW FLYING HEIGHT RESOLUTION IMPROVEMENT METHOD	20060926		WA2005040311US0
852.	11/528,547	528,547	7,333,286	Array Printhead and inkjet image forming apparatus having the same	20060928	20080219	IS2005060051US0
853.	11/528,960	11/528,960	7,605,994	Multiple Sinusoidal Seek Servo System fro Reducing Seek Acoustics and Seek Time in Hard Disk Drives	20060927	20091020	WA2006080121US0
854.	11/529,600	529,600	7,746,599	HARD DISK DRIVE	20060929	20100629	IS2005080051US0
855.	11/529,641	529,641	7,304,817 B1	Jerk Controlled Seek System for Minimizing Residual Vibration in Hard Disk Drives	20060927	20071204	WA2006080131US0
856.	11/543,525	11/543,525		OPTIMIZED PDLC DESIGN FOR CSS SLIDER	20061004		WA2005120131US0
857.	11/545,130	545,130	7,307,810 B1	ViXXXX	20061009	20071211	WA2006090061US0
858.	11/546,240	546,240	7,316,072	XY STAGE MODULE, STORAGE SYSTEM EMPLOYING THE SAME, AND METHOD FOR FABRICATING THE XY STAGE MODULE	20061012	20080108	RE2005100191US0
859.	11/556,754	556,754	7,430,088	RETRACTING METHOD OF HARD DISK DRIVE, HARD DISK DRIVE ADOPTING THE METHOD, AND RECORDING MEDIUM STORING PROGRAM FOR EXECUTING THE METHOD	20061106	20080930	IS2005070191US0
860.	11/560,994	560,994	7,636,213	RECORDING CURRENT OPTIMIZATION METHOD OF HARD DISK DRIVE, RECORDING MEDIUM STORING PROGRAM TO EXECUTE THE METHOD AND APPARATUS EMPLOYING THE SAME	20061117	20091222	IS2005080111US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
861.	11/561,406	11/561,406		Air Bearing Surface Method And Apparatus Optimizing Flying Height On Demand Efficiency During Flying Height On Demand Activity Of Slider in a Hard Disk Drive	20061119		WA2006050251US0
862.	11/580,181	11/580,181	7,349,173 B1	Self-Tuning Settle Controller in Hard Disk Drives	20061011	20080325	WA2006090131US0
863.	11/580,635	11/580,635	7,385,780	Online Identification of Secondary Actuator Transfer Function via system Decoupling in Multiple-stage actuator Servo Systems in Disk Drives	20061012	20080610	WA2006070011US0
864.	11/581,326	581,326		수직이방성 중간층이 삽입된 수직자기기록용 저노이즈 연자성하지층	20061017		RE2005110131US0
865.	11/581,330	581,330	8,046,595	METHOD OF CONTROLLING OPERATING CLOCK FREQUENCY OF HARD DISK DRIVE, RECORDING MEDIUM, AND HARD DISK DRIVE	20061017	20111025	IS2006010021US0
866.	11/582,336	582,336	7,459,809	One-axis locked XY-stage	20061018	20081202	RE2005100261US0
867.	11/582,924	11/582,924	7,423,831	Utilization of the Acceleration Zone in ammonite Servo Writing	20061017	20080909	WA2006050031US0
868.	11/582,925	11/582,925		DETECTION OF HDI IN DISK DRIVES USING READ BACK SIGNAL	20061017		WA2005040271US0
869.	11/585,890	585,890	7,630,171	HARD DISK DRIVE	20061025	20091208	IS2005080231US0
870.	11/586,019	11/586,019		A Trop Disk-Damper Imbedded Hard Disk Drive	20061024		WA2006070051US0
871.	11/586,535	586,535	7,663,837	ROTOR BLADE AND HARD DISK DRIVEHAVING SAME	20061026	20100216	IS2005080011US0
872.	11/586,608	586,608	7,667,925	HARD DISK DRIVE	20061026	20100223	IS2005100011US0
873.	11/586,775	11/586,775	7,349,169	Method and Apparatus For Improved Starting And/Or Stopping In A Contract Start-Stop (CSS) Hard Disk Drive	20061025	20080325	WA2006070081US0
874.	11/586,778	586,778	7,760,469	Air Bearing Design for Reducing ABS Contamination Induced by Vapor Condensation for a Drive in a Humid Environment	20061025	20100720	WA2006070061US0
875.	11/586,881	586,881	7,420,760	Reducing the FH Drop in Humid Condition by Hearing Leading Edge of Air Bearing to Raise Saturation Vapor Pressure	20061025	20080902	WA2006070071US0

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REEL: 020400 FRAME: 0203

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samung Reference No.
876.	11/586,964	11/586,964	7,394,614 B2	The Control Method to Reduce Settle TMR in Hard Disk Drives	20061025	20080701	WA2006090111US0
877.	11/586,965	11/586,965	7,379,262 B2	Higher-Order State Estimator for Low TMR in Hard Disk Drives	20061025	20080527	WA2006090121US0
878.	11/586,966	11/586,966	7,411,761 B2	Seek Adaptation System in Hard Disk Drives	20061025	20080812	WA2006090071US0
879.	11/586,971	11/586,971	7,342,740	In-Situ Compensation Method of Microactuator Stroke Sensitivity Subject to Temperature Variation	20061025	20080311	WA2006050221US0
880.	11/588,031	588,031		Hard Disk Drive with Means to Regulate Internal Saturation Vapor Pressure	20061025		WA2006070031US0
881.	11/591,745	11/591,745	7,420,759	SELF -CONSTRUCTION OF NORMALIZED PLAYBACK TRANSFER CURVE FOR TMR/GMR NONLINEAR PLAYBACK ANALYSIS	20061031	20080902	WA2005120081US0
882.	11/593,494	593,494	7,450,328	Method for recording busts on a disk and related apparatus	20061107	20081111	IS2005080221US0
883.	11/594,199	594,199	7,613,587	METHOD FOR COMPENSATING FOR ACCELERATION VECTOR OFFSET; RECORDING MEDIUM STORING PROGRAM FOR EXECUTING THE METHOD, AND RELATED APPARATUS	20061108	20091103	IS2005080021US0
884.	11/595,876	595,876	7,520,998	METHOD OF FABRICATING MICRO ACTUATOR JAVING MEDIA SRAGE	20061113	20090421	RE2005090231US0
885.	11/598,075	598,075	7,525,751	HARD DISK DRIVE ADAPTED TO DETECT FREE-FALL AND PERFORM EMERGENCY PARKING OF READ/WRITE HEAD PRIOR TO IMPACT	20061113	20090428	RE2005100341US0
886.	11/598,771	598,771	7,949,927	Error correction method and apparatus for predetermined error patterns	20061114	20110524	RE2006010061US0
887.	11/598,806	598,806	7,890,841	Post-viterbi error correction method and apparatus	20061114	20110215	RE2005090181US0
888.	11/598,807	598,807	7,889,818	Method and apparatus for controlling sampling of signals produced in relation to stored data	20061114	20110215	RE2005120011US0
889.	11/599,801	11/599,801	7,595,964	METHOD FOR REDUCING OFF TRACK HEAD MOTION DUE TO DISK VIBRATION IN A HARD DISK DRIVE THROUGH THE HEAD GIMBAL ASSEMBLY	20061114	20090929	WA2006110061US0

[ATTACHMENT 1 TO PATENT ASSIGNMENT - USA]

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PATENT

REEL: 020400 FRAME: 0208

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
890.	11/600,112	600,112	7,452,232	hard disk drive	20061116	20081118	IS2005100061US0
891.	11/600,669	11/600,669	7,612,959	Method for correcting added and lost bits in a hard disk drive using error correction codes.	20061115	20091103	WA2006050171US0
892.	11/601,055	11/601,055	7,561,358	MULTI-REGISTER READ CHANNEL OPTIMIZATION	20061116	20090714	WA2004090091US0
893.	11/603,370	11/603,370	7,400,468 B2	Vibration Detector for Hard Disk Drive	20061122	20080715	WA2006080141US0
894.	11/604,263	604,263		Complementary Probe Operation for Nearest Neighbor Reference	20061127		RE2005080031US0
895.	11/606,030	606,030	7,965,461	INFORMATION REPRODUCING APPARATUS	20061130	20110621	RE2005090171US0
896.	11/606,912	606,912	7,414,808	APPARATUS AND METHOD FOR ADAPTIVELY ADJUSTING RECORDING DENSITY OF A DISK UTILIZING A TRAPEZOIDAL SHAPED MAGNETIC HEAD	20061201	20080819	IS2005090051US0
897.	11/607,957	607,957	7,889,626	Media-mass-balanced xy scanner for probe storage	20061204	20110215	RE2005090291US0
898.	11/607,969	607,969	7,701,663	HARD DISK DRIVE	20061204	20100420	IS2005100021US0
899.	11/617,281	617,281	7,929,250	HEAD SLIDER, HARD DISK DRIVE INCLUDING THE SAME, AND METHOD OF FLOATING THE SAME	20061228	20110419	IS2005100171US0
900.	11/621,677	621,677	7,832,083	SHIPPING COMB	20070110	20101116	IS2005100041US0
901.	11/622,109	622,109	7,663,842	ACTUATOR APPARATUS OF A HARD DISK DRIVE	20070111	20100216	IS2005100211US0
902.	11/633,472	633,472	7,751,302	INFORMATION MEDIA AND METHOD AND APPARATUS FOR WRITING AND REPRODUCING INFORMATION USING THE SAME	20061205	20100706	RE2005110161US0
903.	11/633,541	633,541	7,570,449	RETRACT CONTROL METHOD OF HDD AND HDD USING THE SAME	20061205	20090804	IS2005100131US0
904.	11/633,564	633,564	8,032,698	Hybrid hard disk drive control method and recording medium and apparatus suitable therefor	20061205	20111004	IS2005100301US0
905.	11/637,009	637,009	7,483,233	METHOD AND APPARATUS FOR DRIVING VCM UNLOADING HDD HEAD	20061212	20090127	RE2005090021US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
906.	11/640,305	640,305	8,035,913	PARKING RAMP FOR HARD DISK DRIVE	20061218	20111011	RE2005090281US0
907.	11/643,761	643,761	7,710,686	Heat-assisted magnetic recording head and method of manufacturing the same	20061222	20100504	RE2005100211US0
908.	11/643,775	643,775		Granular type SUL을 채택한 수직 자기기록 미디어	20061222		RE2006040141US0
909.	11/645,173	645,173		HARD DISK DRIVE, METHOD FOR MANAGING HARD DISK DRIVE SCRATCHES AND RECORDING MEDIUM STORING COMPUTER PROGRAM TO PERFORM THE METHOD	20061226		IS2005100091US0
910.	11/648,552	648,552	7,697,227	HARD DISK DRIVE	20070103	20100413	IS2005100241US0
911.	11/648,563	648,563	7,577,001	SUPPORT STRUCTURE OF ELECTRONIC DEVICE AND HARD DISK DRIVE COMPRISING THE SAME	20070103	20090818	IS2005100641US0
912.	11/649,205	649,205	7,791,841	HEAD SLIDER FOR HARD DISK DRIVE	20070104	20100907	RE2005100171US0
913.	11/650,229	650,229	7,688,543	Device to Generate a Desiccant in a Hard Disk Drive	20070105	20100330	WA2006100071US0
914.	11/650,419	650,419	7,667,417	APPARATUS AND METHOD COMPENSATING RECURRING FALSE SPEED ERRORS IN DC MOTOR AND DISK DRIVE ADOPTING SAME	20070108	20100223	IS2005100411US0
915.	11/650,420	650,420	7,583,464	APPARATUS AND METHOD COMPENSATING MECHANICAL TOLERANCE OF BRUSHLESS DIRECT CURRENT MOTOR AND RELATED DISK DRIVE	20070108	20090901	IS2005100341US0
916.	11/650,940	650,940	7,746,753	Topography-Decoupled Detection Method for a Resistive Probe	20070109	20100629	RE2005090191US0
917.	11/651,541	651,541	7,706,105	HARD DISK DRIVE, SUSPENSION ASSEMBLY OF ACTUATOR OF HARD DISK DRIVE, AND METHOD OF OPERATION OF HARD DISK DRIVE	20070110	20100427	RE2005100231US0
918.	11/652,586	652,586	7,754,354	PATTERNED MEDIUM AND METHOD FOR MANUFACTURING THE SAME	20070112	20100713	RE2005100391US0
919.	11/652,596	652,596	7,602,202	Embossed local electric field sensing probe with spacer structure	20070112	20091013	RE2005090241US0

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REEL: 030400 FRAME: 0210

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
920.	11/652,674	652,674	7,587,808	voice coil motor coupling structure of hard disk drive	20070112	20090915	EF2002060061US1
921.	11/654,738	11/654,738		THE SLEW RATE CONTROL IN THE WRITE CURRENT SHAPE OF MAGNETIC RECORDING SYSTEMS	20070117		WA2006100011US0
922.	11/654,899	11/654,899		New Flying Height Measure Method Using Both Intensity and Phase Channel in HDD System	20070117		WA2006050241US0
923.	11/655,005	655,005		Ferroelectric Disk Drive	20070111		WA2006070021US0
924.	11/655,217	655,217		dual 이방성자계 (HK) type 하지연자성층	20070122		RE2006020041US0
925.	11/655,936	655,936		열적으로 안정한 read head 소자	20070122		RE2005100351US0
926.	11/655,969	655,969	7,814,394	POST VITERBI ERROR CORRECTION APPARATUS AND RELATED METHODS	20070122	20101012	RE2005100121US0
927.	11/656,391	656,391	7,606,970	HYBRID DISK DRIVE AND METHOD OF CONTROLLING DATA THEREIN	20070123	20091020	IS2005100221US0
928.	11/657,190	11/657,190		Adaptive temperature and altitude compensation for writing on disk drives	20070123		WA2006050161US0
929.	11/657,595	657,595		PERPENDICULAR MAGNETIC RECORDING MEDIUM WITH CONTROLLED DAMPING PROPERTY OF SOFT MAGNETIC UNDERLAYER	20070125		RE2005100041US0
930.	11/682,997	682,997		HARD DISK DRIVE PROTECTION APPARATUS AND METHOD, AND DEVICE HAVING THE SAME	20070307		IS2005120021US0
931.	11/695,094	695,094	7,602,571	APPARATUS AND METHOD TO CONTROL FLYING HEIGHT OF MAGNETIC HEAD IN RETRY MODE AND DISK DRIVE USING THE SAME	20070402	20091013	IS2005120031US0
932.	11/698,081	698,081	8,007,931	Domain wall noise shunting layer를 갖는 PMR Media	20070126	20110830	RE2006010071US0
933.	11/698,339	11/698,339	7,719,792	PZT Excitation Mechanism for Co-Located DSA Drives for Improved Drive Reliability	20070126	20100518	WA2006080091US0
934.	11/698,751	698,751		New Method to Detect Pre-Contact of Lfying Head n Hard Disk Drive	20070126		WA2006050081US0
935.	11/699,991	699,991	7,489,467	METHOD FOR MEASURING TRACK WIDETH OF HARD DISK DRIVE	20070131	20090210	IS2005100671US0

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REEL: 020400 FRAME: 0219

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
936.	11/700,836	700,836	7,701,657	HIGH-DENSITY RECORDING METHOD FOR HARD DISK DRIVES AND A PRE-AMPLIFIER CIRCUIT SUITABLE FOR USE WITH SAME	20070201	20100420	IS2005100071US0
937.	11/700,845	700,845	7,667,917	METHOD AND APPARATUS FOR CONTROLLING WRITE PARAMETER ACCORDING TO VOLTAGE VARIATION	20070203	20100223	IS2005100711US0
938.	11/701,489	701,489		Advanced Self Under Layer Structure	20070202		RO2005100021US0
939.	11/702,091	702,091		CACHE CONTROL METHOD FOR HYBRID HDD,RELATED PROGRAM,AND HYBRID DISK DRIVE USING SAME	20070205		IS2005100731US0
940.	11/704,270	704,270	7,876,533	BALANCER,HEAD STACK ASSEMBLY WITH THE SAME, AND METHOD FOR MANUFACTURING THE BALANCER AND OVERMOLD OF THE HEAD STACK ASSEMBLY	20070209	20110125	IS2005100451US0
941.	11/704,284	704,284	7,589,931	METHOD,APPARATUS, AND STORAGE MEDIUM FOR CONTROLLING TRACK SEEK SERVO IN DISK DRIVE, AND DISK DRIVE USING SAME	20070209	20090915	RE2005110031US0
942.	11/704,288	704,288	7,508,615	METHOD OF CONTROLLING MOVEMENT OF A TRANSDUCER AND DISK DRIVE USING SAME	20070209	20090324	IS2005100311US0
943.	11/709,709	709,709		Field Enhanced Tapered Optical Emitter for Heat Assisted Magnetic Recording	20070223		RE2006050121US0
944.	11/709,719	11/709,719		PRML CHANNEL WITH ZERO-MEAN NOISE REDUCTION	20070221		WA2005080121US0
945.	11/710,079	11/710,079	8,023,227	Hard Disk Drive with Means to Regulate Internal Saturation Vapor Pressure	20070223	20110920	WA2006090181US0
946.	11/710,430	710,430	7,911,928	High density data stragwe device and data recording or reproducing method using the same	20070226	20110322	RE2006060051US0
947.	11/710,431	710,431	7,819,652	Mold for nano-imprinting and method of manufacturing the same	20070226	20101116	RE2006060111US0
948.	11/711,737	711,737	7,903,775	METHOD AND APPARATUS FOR CONTROLLING TRANSMISSION FREQUENCY IN SERIAL ADVANCED TECHNOLOGY ATTACHMENT	20070228	20110308	IS2006010051US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
949.	11/712,990	712,990	7,986,105	METHOD OF FABRICATING NANOWIRE MEMORY DEVICE AND SYSTEM OF CONTROLLING NANOWIRE FORMATION USED IN THE SAME	20070302	20110726	RE2005120101US0
950.	11/713,663	713,663		PERPENDICULAR MAGNETIC RECORDING HEAD AND METHOD OF MANUFACTURING THE SAME	20070305		RE2005120031US0
951.	11/713,730	713,730		자기기록 매체 및 그 제조방법	20070305		RE2006060091US0
952.	11/723,567	723,567	7,659,562	Electric field read/write head and method of manufacturing same and data read/write device	20070321	20100209	RE2006050021US0
953.	11/726,431	11/726,431	7,580,213	NEW METHOD TO MINIMIZE AMPLITUDE VARIATIONS ASSOCIATED WITH MEDIA/HEAD RESPONSE CHARACTERISTICS IN SERVO WRITING OF PERPENDICULAR MAGNETIC RECORDING	20070321	20090825	WA2005120091US0
954.	11/729,852	729,852		Information recording media, method for manufacturing the information recording media, read/write head and method for manufacturing the read/write head	20070330		RE2006070041US0
955.	11/730,199	730,199	7,869,164	FLEXIBLE PRINTED CIRCUIT BOARD AND HARD DISK DRIVE EMPLOYING THE SAME	20070330	20110111	IS2006010011US0
956.	11/730,435	730,435		PERPENDICULAR MAGNETIC RECORDING HEAD FOR HIGH RECORDING DENSITY	20070402		RE2006030111US0
957.	11/731,251	11/731,251	7,542,226 B2	NEW ALGORITHM DECOUPLING ALTITUDE EFFECT FROM TEMPERATURE/HUMIDITY SENSOR	20070329	20090602	WA2007020041US0
958.	11/736,152	736,152	7,619,842	METHOD OF DETERMINING OPTIMAL WRITE CURRENT PARAMETERS OF MAGNETIC RECORDING DEVICE AND STORAGE DEVICE USING THE METHOD	20070417	20091117	IS2006030031US0
959.	11/745,609	745,609	7,968,253	NANO IMPRINT MASTER AND METHOD OF MANUFACTURING THE SAME	20070508	20110628	RE2006090081US0
960.	11/747,287	747,287	7,688,684	Light Delivery in HAMR Head	20070511	20100330	RE2006070181US0
961.	11/748,566	748,566	8,003,163	Patterned granular media 및 그 제조방법	20070515	20110823	RE2006080101US0
962.	11/750,404	750,404	7,994,499	공간 분해능 향상을 위한 전기장 센서의 구조	20070518	20110809	RE2006070061US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
963.	11/751,843	751,843	7,924,522	APPARATUS AND METHOD OF DETECTING ERROR SYMBOL, AND DISK DRIVE APPARATUS USING THE SAME	20070522	20110412	IS2006020061US0
964.	11/755,765	755,765	7,881,014	Magnetic multilayer patterned recording media	20070531	20110201	RE2006080121US0
965.	11/758,295	758,295	7,747,121	Circular Bent Metallic Waveguide	20070605	20100629	RE2006080111US0
966.	11/758,795	758,795		Trapezoidal cone shape patterned media	20070606		RE2006090011US0
967.	11/766,226	766,226	7,859,788	HARD DISK DRIVE(HDD), METHOD IMPROVING READ HIT RATION IN HDD, AND MEDIUM RECORDING COMPUTER PROGRAM PERFORMING METHOD	20070621	20101228	IS2006040061US0
968.	11/766,941	766,941	7,548,393	HDD TRACK FOLLOWING CONTROL APPARATUS AND METHOD	20070622	20090616	IS2006030061US0
969.	11/766,944	766,944	7,548,390	HDD WRITE CONTROL METHOD AND APPARATUS	20070622	20090616	IS2006030071US0
970.	11/768,466	768,466	8,018,689	HARD DISK DRIVE	20070626	20110913	IS2006040231US0
971.	11/769,060	769,060		ADAPTIVE SPINDLE MOTOR STARTUP METHOD AND DISK DRIVE USING THE SAME	20070627		IS2006040091US0
972.	11/769,955	769,955	7,636,216	METHOD OF DETERMINING HEAD CHARACTERISTIC OF HDD AND RECORDING MEDIUM TO PERFORM THE SAME	20070628	20091222	IS2006030011US0
973.	11/772,441	772,441	7,671,616	Semiconductor probe having embossed resistive tip and method of fabricating the same	20070702	20100302	RE2006080011US0
974.	11/772,955	772,955	7,583,465	DISK DRIVE ADAPTIVE RESONANCE COMPENSATION METHOD AND APPARATUS	20070703	20090901	IS2006030111US0
975.	11/772,959	772,959	7,777,982	DISTURBANCE COMPENSATION DETERMINATION APPARATUS, A RELATED METHOD, A COMPUTER-READABLE MEDIUM STORING A COMPUTER PROGRAM RELATED TO THE METHOD, AND A DISK DRIVE COMPRISING THE APPARATUS	20070703	20100817	IS2006030101US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
976.	11/774,937	774,937		METHOD OF MANUFACTURING FERROELECTRIC THIN FILM FOR DATA STORAGE AND METHOD OF MANUFACTURING FERROELECTRIC RECORDING MEDIUM USING THE SAME METHOD	20070709		RE2006070051US0
977.	11/775,244	775,244	7,602,573	DEVICE AND METHOD FOR ADJUSTING DISTANCE BETWEEN MAGNETIC HEAD AND DATA STORAGE MEDIUM	20070710	20091013	IS2006030241US0
978.	11/776,630	776,630	7,889,459	HEAD STACK ASSEMBLY FOR HARD DISK DRIVE AND HARD DISK DRIVE INCLUDING HEAD STACK ASSEMBLY	20070712	20110215	IS2006030171US0
979.	11/777,292	777,292	7,952,835	HEAD STACK ASSEMBLY AND HARD DISK DRIVE HAVING THE SAME	20070713	20110531	IS2006030181US0
980.	11/778,665	778,665	7,894,164	HEAD STACK ASSEMBLY HAVING A HEAD GIMBAL AND HARD DISK DRIVE INCLUDING THE SAME	20070717	20110222	IS2006040241US0
981.	11/780,025	780,025	8,023,224	HARD DISK DRIVE	20070721	20110920	IS2006040291US0
982.	11/781,327	781,327	7,808,745	HARD DISK DRIVE HAVING CRASH STOPPER AND METHOD OF ASSEMBLING THE SAME	20070723	20101005	IS2006100521US0
983.	11/781,382	781,382	7,952,825	Method and apparatus adjusting reference clock frequency and disk drive using same	20070723	20110531	IS2006030281US0
984.	11/781,391	781,391	7,662,491	Method of manufacturing high density patterned media & its application	20070723	20100216	RE2006070011US0
985.	11/782,095	782,095	7,826,173	Disk spacer and hard disk drive having the same	20070724	20101102	IS2006020071US0
986.	11/782,171	782,171	7,619,848	Method of searching to find a servo pattern corresponding to a servo pattern copy process	20070724	20091117	IS2006040211US0
987.	11/784,359	11/784,359		Method and Apparatus for Alternative temperature sensing in the hard disk drive system	20070405		WA2006090091US0
988.	11/788,450	11/788,450	7,760,455	Method of Preventing Off-Track Write in Disk Drives	20070419	20100720	WA2006090081US0
989.	11/800,864	11/800,864		FLOW BALANCER FOR TMR IMPROVEMENT	20070507		WA2007020031US0
990.	11/805,978	11/805,978		Detecting Head-Disk Contact During Off-Track Operations	20070525		WA2006080081US0

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PATENT

REEL: 020400 FRAME: 0225

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
991.	11/810,188	11/810,188	7,535,667	Erase Band Compensated Offset Servo Trimming	20070604	20090519	WA2007020211US0
992.	11/810,339	11/810,339	7,869,161	Dual WG PMR Writer Design	20070604	20110111	WA2007030051US0
993.	11/811,853	11/811,853		Method and Design of Trace Line of HGA with Narrow Foot Print	20070611		WA2006080111US0
994.	11/820,588	11/820,588		NANOCRYALLINE STRUCTURED CO-BASED ALLOY INTERMEDIATE LAYER (IL) REPLACING RU LAYER IN PERPENDICULAR MAGNETIC RECORDING MEDIA FOR HARD DISK DRIVE	20070619		WA2007030091US0
995.	11/820,707	11/820,787	7,830,632	LARGE DATA BLOCK WRITTEN ON OVERLAPPING TRACKS IN A HARD DISK DRIVE	20070619	20101020	WA2007020011US0
996.	11/820,992	11/820,992		DERIVING SERVO PES FROM DC ERASED BURSTS IN PERPENDICULAR RECORDING	20070620		WA2007020021US0
997.	11/824,037	11/824,037	7,881,015	Drag-and-Drop Workflow Editor	20070629	20110201	WA2006110021US0
998.	11/824,147	11/824,147	7,542,227 B2	FLYING HEIGHT MEASUREMENT AND CONTROL WITH USER DATA SIGNAL	20070629	20090602	WA2007020051US0
999.	11/825,104	11/825,104		METHOD AND APPARATUS TO SELECT OBJECTS OF INTEREST DURING PHYSICAL BROWSING BY "FRAMING" (OUTLINING) THEM WITH FINGERS OR HANDS	20070702		WA2007040081US0
1000.	11/830,160	830,160	7,982,995	METHOD OF WRITING DATA USING COERCIVITY DISTRIBUTION OF DATA STORAGE MEDIUM	20070730	20110719	IS2006030221US0
1001.	11/832,159	832,159	7,787,211	Back Electro Motive Force (BEMF) calibration method, method of controlling unloading of disk drive apparatus using BEMF calibration method, and disk drive apparatus using the same	20070801	20100831	IS2006040131US0
1002.	11/835,874	835,874	7,828,981	SEMICONDUCTOR PROBE WITH HIGH RESOLUTION RESISTIVE TIP AND METHOD OF FABRICATING THE SAME	20070808	20101109	RE2005050061US1
1003.	11/837,885	837,885	7,564,644	ADAPTIVE DISTURBANCE REPRESSING METHOD AND APPARATUS, AND DISK DRIVE APPARATUS USING THE SAME	20070813	20090721	IS2006040251US0

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PATENT

REEL: 090400 FRAME: 0226

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1004.	11/842,218	842,218		HARD DISK DRIVE WITH DISK EMBEDDED DOS BOOT IMAGE AND FIRMWARE DOWNLOAD METHOD	20070821		IS2006040271US0
1005.	11/842,443	842,443		Solvent Soluble Stamp for Nano Imprint Lithography	20070821		RE2006100071US0
1006.	11/843,095	843,095		SERVO CONTROL METHOD AND APPARATUS IN SEEK RETRY CONDITION AND DISK DRIVE APPARATUS USING THE SAME	20070822		IS2006040381US0
1007.	11/843,145	843,145	7,663,834	DATA SECTOR PHASE CORRECTION METHOD AND DISK DRIVE APPARATUS USING THE SAME	20070822	20100216	IS2006040281US0
1008.	11/844,004	844,004		The Hybrid Head and Slider in Heat Assisted Magnetic Recording	20070823		RE2006110181US0
1009.	11/846,105	846,105		ACTUATOR LOCKING SYSTEM OF HARD DISK DRIVE AND METHOD OF LOCKING ACTUATOR USING THE SAME	20070828		IS2006030271US0
1010.	11/846,747	846,747		HYBRID HARD DISK DRIVE AND DATA STORAGE METHOD THEREOF	20070829		IS2006040321US0
1011.	11/851,028	851,028	7,787,351	Write Scheme for Ferroelectric HDD	20070906	20101019	RE2006110011US0
1012.	11/854,124	854,124		INFORMATION STORAGE MEDIUM USING NANOCRYSTAL PARTICLES, METHOD OF MANUFACTURING THE INFORMATION STORAGE MEDIUM, AND INFORMATION STORAGE APPARATUS INCLUDING THE INFORMATION STORAGE MEDIUM	20070912		RE2006110251US0
1013.	11/861,348	861,348		CoNiPt 기록층을 갖는 패턴드 미디어어	20070926		RE2006090091US0
1014.	11/861,417	861,417	7,759,954	SEMICONDUCTOR PROBE HAVING RESISTIVE TIP AND METHOD OF FABRICATING THE SAME	20070926	20100720	RE2006080171US0
1015.	11/869,203	869,203		Disk damper apparatus, hard disk drive apparatus with the same, and method of fabricating the disk damper apparatus	20071009		IS2006040221US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1016.	11/869,811	869,811		PERPENDICULAR MAGNETIC RECORDING MEDIUM AND METHOD OF MANUFACTURING THE SAME	20071010		RE2003110081US1
1017.	11/869,880	869,880	7,924,532	Head gimbal assembly of hard disk drive	20071008	20110412	IS2006040201US0
1018.	11/872,059	872,059		FERROELECTRIC INFORMATION STORAGE MEDIUM AND METHOD OF MANUFACTURING THE SAME	20071015		RE2006120061US0
1019.	11/872,065	872,065	7,759,153	METHOD OF FABRICATION ELECTRIC FIELD SENSOR HAVING ELECTRIC FIELD SHIELD	20071015	20100720	RE2006090111US0
1020.	11/890,837	890,837		Dynamically Adjusted Ramp Speeds at Various Environment in LUL Drives	20070807		WA2006090101US0
1021.	11/891,903	11/891,903		NANOPATTERNING OF DISK MEDIA WITH FLASH SACRIFICIAL LAYER IN BLOCK COPOLYMER LITHOGRAPHY	20070813		WA2007050031US0
1022.	11/891,995	11/891,995		PATTERNED MEDIA WITH LOW SWITCHING FILLED AND ADJACENT TRACK ENCROACHMENT (ATE) USING ECC (EXCHANGE COUPLED COMPOSITE) MEDIA	20070813		WA2007020261US0
1023.	11/894,870	11/894,870		SWAGING PROCESS FOR ACTUATOR ARM OF HARD DISK DRIVE	20070821		WA2007070161US0
1024.	11/897,936	11/897,936		Method and Apparatus for Independent Piezoelectric Excitation in the Micro-Actuator Assemblies of A Hard Disk Drive for Improved Drive Reliability	20070831		WA2006080101US0
1025.	11/899,650	11/899,650		PROCESS FOR FILLING A PATTERNED MEDIA OF A HARD DISK DRIVE WITH UV-CURED LUBRICANT	20070906		WA2007040091US0
1026.	11/899,791	11/899,791		Method and Apparatus for Ferroelectric Disk and Ferroelectric Disk Drive	20070907		WA2007030081US0
1027.	11/923,016	923,016	7,561,368	Hard disk drive having improved head stability at low temperature and method of applying current to a head of the hard disk drive	20071024	20090714	IS2006070031US0
1028.	11/923,976	923,976	7,944,782	90°-BENT METALLIC WAVEGUIDE HAVING TAPERED C-SHAPED APERTURE, METHOD OF FABRICATING THE WAVEGUIDE, LIGHT DELIVERY MODULE INCLUDING THE WAVEGUIDE, AND HEAT ASSISTED MAGNETIC RECORDING HEAD HAVING THE WAVEGUIDE	20071024	20110517	RE2006120051US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1029.	11/930,223	930,223	7,933,190	ELECTRIC FIELD READ/WRITE DEVICE AND METHOD OF DRIVING THE SAME	20071031	20110426	RE2007020231US0
1030.	11/933,449	933,449		PERPENDICULAR MAGNETIC RECORDING HEAD AND METHOD OF MANUFACTURING THE SAME	20071101		RE2007040031US0
1031.	11/936,147	936,147	7,930,467	Method of Converting a Hybrid Hard Disk Drive to a Normal HDD	20071107	20110419	IS2006100011US0
1032.	11/937,269	937,269	7,948,707	MAGNETIC RECORDING MEDIUM, METHOD OF RECORDING SERVO PATTERN ON MAGNETIC RECORDING MEDIUM, AND MAGNETIC HEAD	20071108	20110524	RE2007030021US0
1033.	11/939,766	939,766		METHOD OF MANUFACTURING PATTERNED MAGNETIC RECORDING MEDIUM	20071114		RE2007040371US0
1034.	11/942,762	942,762	8,031,439	HEAD STACK ASSEMBLY AND HARD DISK DRIVE COMPRISING THE SAME	20071120	20111004	IS2006080011US0
1035.	11/945,400	945,400	7,858,010	SOFT TEMPLATE WITH ALIGNMENT MARK	20071127	20101228	RE2006080281US0
1036.	11/945,479	945,479		PERPENDICULAR MAGNETIC RECORDING HEAD AND METHOD OF MANUFACTURING THE SAME	20071127		RE2007040221US0
1037.	11/946,074	946,074	7,881,002	Patterned magnetic recording medium having reduced magnetic interaction between neighboring magnetic recording layers	20071128	20110201	RE2007040331US0
1038.	11/946,957	946,957	7,620,519	Burn-In Process of producing Data Correlating Elevation of Disk Drive Head to Temperature and Method of Controlling the Elevation of the Disk Drive Head Using the Data	20071129	20091117	IS2006100191US0
1039.	11/949,278	949,278		PERPENDICULAR MAGNETIC RECORDING HEAD	20071203		RE2006110141US0
1040.	11/951,363	951,363	8,035,920	PERPENDICULAR MAGNETIC RECORDING HEAD AND METHOD OF MANUFACTURING THE SAME	20071206	20111011	RE2007030291US0
1041.	11/952,278	952,278		Low resistance tunnel barrier for TMR sensors	20071207		RE2006120081US0
1042.	11/957,511	957,511	7,808,025	ELECTRIC FIELD READ/WRITE HEAD, METHOD OF MANUFACTURING THE SAME, AND INFORMATION STORAGE DEVICE COMPRISING THE ELECTRIC FIELD READ/WRITE HEAD	20071217	20101005	RE2007040321US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1043.	11/957,595	957,595	7,915,109	이온화 충돌 반도체 소자를 이용한 새로운 탐침구조	20071217	20110329	RE2006100051US0
1044.	11/964,328	964,328		FERROELECTRIC HARD DISK SYSTEM	20071226		RE2007010011US0
1045.	11/965,836	965,836	7,852,738	Method of improving sensitivity of electric field sensor, storage apparatus including electric field sensor, and method of reproducing information of the storage apparatus	20071228	20101215	RE2007040351US0
1046.	11/972,207	972,207		WAVEGUIDE STRUCTURE, MANUFACTURING METHOD THEREOF AND HAMR USING THE SAME	20080110		RE2006100201US0
1047.	11/973,814	11/973,814	7,880,991	A Write Timing System For Hard Disk Drives Using Bit Patterned Media	20071009	20110201	WA2007020251US0
1048.	11/975,251	11/975,251	7,826,162	Apparatus and Method for Sensing an External Magnetic Field to Protect a Perpendicular Magnetic Recording (PMR) Hard Disk Drive	20071017	20101102	WA2007070131US0
1049.	11/986,367	11/986,367		Hard Disk Drive Tunneling Magnetoresistive Annraling Heads with A Fly on Demand Heater	20071120		WA2007080111US0
1050.	11/986,383	11/986,383		Self PSA adjustment using thermal adapter on suspension for improving takeoff in hot/wet environment	20071120		WA2007070151US0
1051.	11/998,396	11/998,396	7,738,208	DATA RECOVERY THROUGH ELIMINATING ADJACENT TRACK INTERFERENCE	20071128	20100615	WA2007070051US0
1052.	12/001,231	12/001,231	7,768,728	Detecting Head/Disk Contact Using timing Jitter	20071210	20100803	WA2007070011US0
1053.	12/001,885	12/001,885		Temperature coefficient of resistance measurement of TMR head using flying height control heater and determine maximum bias voltage of TMR heads	20071212		WA2007080141US0
1054.	12/001,886	12/001,886	8,040,632	Grounding Structure of TMR and GMR heads with a flying on-demand heater	20071212	20111018	WA2007090021US0
1055.	12/002,631	12/002,631		Apparatus and Method Using A Disk Drive Slider And/Or a Peltier Plate in an Atomic Force Microscope	20071217		WA2007070141US0
1056.	12/003,846	003,846	7,586,712	Method of and apparatus for detecting actuator vibration in hard disc drive, and hard disc drive write control method of avoiding effect due to read/write head vibration	20080102	20090908	IS2004030041US1

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1057.	12/004,456	12/004,456		Method and Apparatus for Spindle Stiffness And/Or Damping In a Fluid Dynamic Bearing Spindle Motor Used in a Hard Disk Drive	20071219		WA2007070061US0
1058.	12/006,616	12/006,616		Apparatus and Methods Supporting Device Triggered Disengagement of a Hot-Swappable Serial Device by a Host System	20080103		WA2007090031US0
1059.	12/006,826	12/006,826	7,599,142	Apparatus And Method for Slider-Disk Contact Detection by Monitoring the Spindle Control Signal in a Hard Disk Drive	20080103	20091006	WA2007070121US0
1060.	12/008,144	12/008,144		Reducing written-in errors in servo patterns	20080108		WA2007090101US0
1061.	12/009,853	12/009,853		Fly Height Detection during Write Operation	20080122		WA2007090121US0
1062.	12/011,365	12/011,365		Method and Apparatus For Wide Track Erasure In A Hard Disk Drive	20080124		WA2007100021US0
1063.	12/011,727	011,727	7,944,641	Overshoot duration range selection in a hard disk drive	20080128	20110517	WA2007080131US0
1064.	12/012,255	12/012,255		METHOD AND APPARATUS SUPPORTING A SLIDER HAVING MULTIPLE DEFLECTION RAILS IN A NEGATIVE PRESSURE POCKET FOR A HARD DISK DRIVE	20080131		WA2008070141US0
1065.	12/012,858	12/012,858	7,633,707	Circuits for VCM back AMF Measurement with a Bias Voltage to Control Head Flying Location on Disk	20080205	20091215	WA2007110141US0
1066.	12/012,883	12/012,883		Heat Assisted Spindle Motor of A Hard Disk Drive	20080205		WA2007080121US0
1067.	12/012,927	12/012,927		Method and Apparatus for An Air Bearing Surface in A Hard Disk Drive Using At Least One Patterned Disk Surface	20080205		WA2007110111US0
1068.	12/012,928	12/012,928		Method and Apparatus for Temperature Control In a Disk Drive And/Or An Assembled Circuit Board	20080205		WA2007100071US0
1069.	12/017,657	017,657		HARD DISK DRIVE APPARATUS, METHOD TO COMPENSATE REPEATABLE RUN OUT OF HARD DISK DRIVE APPARATUS, AND COMPUTER-READABLE RECORDING MEDIA RECORDING THE METHOD	20080122		IS2006100491US0
1070.	12/018,270	018,270		PERPENDICULAR MAGNETIC RECORDING MEDIUM AND METHOD OF MANUFACTURING THE SAME	20080123		RE2007030061US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1071.	12/018,303	018,303		HEAD SLIDER, HARD DISK DRIVE HAVING THE SAME, AND METHOD OF CONTROLLING THE HEIGHT OF THE HEAD SLIDER	20080123		IS2006100221US0
1072.	12/018,349	018,349	8,035,918	SPINDEL MOTOR HUB, DISK PACK, AND HARD DISK DRIVE HAVING THE SAME	20080123	20111011	IS2006100341US0
1073.	12/018,430	018,430	7,885,026	MAGNETIC RECORDING MEDIUM AND METHOD OF FABRICATING THE SAME	20080123	20110208	RE2007040011US0
1074.	12/018,820	018,820		MAGNETIC RECORDING MEDIUM, HARD DISK DRIVE EMPLOYING THE SAME, AND METHOD OF MEASURING WR OFFSET OF THE HARD DISK DRIVE	20080124		RE2007040021US0
1075.	12/018,939	018,939	8,035,921	PERPENDICULAR MAGNETIC RECORDING HEAD AND METHOD FOR MANUFACTURING THE SAME	20080124	20111011	RE2007040101US0
1076.	12/021,340	021,340		FLEXIBLE PRINTED CIRCUIT HOLDING MECHANISM OF HARD DISK DRIVE AND ACTUATOR ASSEMBLY INCLUDING THE SAME	20080129		IS2007010011US0
1077.	12/021,345	021,345	8,035,925	ACTUATOR LATCH SYSTEM OF HARD DISK DRIVE	20080129	20111011	IS2006020151US0
1078.	12/021,390	021,390		Ferroelectric HDD용 Ferroelectric media의 구조의 제조 방법	20080129		RE2006100141US0
1079.	12/022,214	022,214		ACTUATOR LATCH SYSTEM OF HARD DISK DRIVE	20080130		IS2006040181US0
1080.	12/022,289	022,289		METHOD AND APPRATUS TO ADJUST THRESHOLDS OF TRANSMISSION ENVELOPE DETECTOR	20080130		IS2006080091US0
1081.	12/023,206	023,206		HEAD STACK ASSEMBLY AND HARD DISK DRIVE APPARATUS WITH THE SAME	20080131		IS2006100421US0
1082.	12/025,083	025,083		ACTUATOR LATCH SYSTEM OF HARD DISK DRIVE	20080204		IS2006070021US0
1083.	12/025,375	025,375		Nano Imprint Lithography Process 및 System	20080204		RE2006110121US0
1084.	12/025,826	025,826		ACTUATOR LATCH SYSTEM OF HARD DISK DRIVE	20080205		IS2006100381US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1085.	12/026,767	026,767	7,583,467	HARD DISK DRIVE APPARATUS, METHOD TO CONTROL FLYING ON DEMAND OF HARD DISK DRIVE APPARATUS USING THERMAL ASPERITY SIGNAL, AND RECORDING MEDIA FOR COMPUTER PROGRAM THEREOF	20080212	20090901	IS2006110111US0
1086.	12/028,025	028,025		High Field Gradient Write Head	20080208		RE2007020051US0
1087.	12/028,931	028,931	7,920,351	METHOD OF SETTING AC ERASE FREQUENCY AND AC ERASE METHOD BASED ON DATA FREQUENCY	20080211	20110405	IS2006100061US0
1088.	12/029,719	029,719	8,045,281	METHOD OF SETTING WRITE FACTOR IN HARD DISK DRIVE AND HARD DISK DRIVE USING THE SAME	20080212	20111025	IS2006100051US0
1089.	12/031,922	031,922	7,880,988	HARD DISK DRIVE AND ASSOCIATED METHOD FOR OPTIMIZING WRITE PARAMETERS	20080215	20110201	IS2006110091US0
1090.	12/031,943	031,943	7,957,086	HARD DISK DRIVE APPARATUS, METHOD TO CONTROL FLYING HEIGHT OF MAGNETIC HEAD THEREOF, AND RECORDING MEDIA FOR COMPUTER PROGRAM THEREFOR	20080215	20110607	IS2006100311US0
1091.	12/033,177	033,177		HARD DISK DRIVE APPARATUS	20080219		IS2006060011US0
1092.	12/035,702	035,702	7,798,802	DUAL-SIDE IMPRINTING LITHOGRAPHY SYSTEM	20080222	20100921	RE2007050211US0
1093.	12/038,878	038,878		ELECTRIC FIELD READ/WRITE HEAD, METHOD OF MANUFACTURING THE SAME, AND INFORMATION STORAGE DEVICE COMPRISING ELECTRIC FIELD READ/WRITE HEAD	20080228		RE2007050181US0
1094.	12/039,112	039,112	8,043,733	BIT PATTERNED MEDIUM	20080228	20111025	RE2007060071US0
1095.	12/042,602	042,602	7,835,095	APPARATUS AND METHOD OF SETTING UP BIT ERROR RATE CRITERION AND APPARATUS AND METHOD OF PERFORMING BURN-IN TEST OF HARD DISK DRIVE	20080305	20101116	IS2006110121US0
1096.	12/044,173	044,173	7,593,178	METHOD OF REDUCING ABRASION OF DISK BY USING DITHERING PROCESS AND DISK DRIVE USING THE SAME	20080307	20090922	IS2006100561US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1097.	12/048,421	048,421	7,998,661	METHOD OF NANO-PATTERNING USING SURFACE PLASMON EFFECT AND METHOD OF MANUFACTURING NANO-IMPRINT MASTER AND DISCRETE TRACK MAGNETIC RECORDING MEDIA USING THE NANO-PATTERNING METHOD	20080314	20110816	RE2007070281US0
1098.	12/052,034	052,034		APPARATUS AND METHOD OF DRIVING MOTOR, AND DRIVE APPARATUS USING THE SAME	20080320		IS2006100551US0
1099.	12/053,720	053,720		PERPENDICULAR MAGNETIC RECORDING HEAD AND METHOD OF MANUFACTURING THE SAME	20080324		RE2007060131US0
1100.	12/054,728	054,728	7,990,645	DTR(Discrete Track Recording)의 Servo Pattern	20080325	20110802	RE2007040301US0
1101.	12/055,344	055,344	7,746,589	BIT PATTERNED MEDIUM, READING HEAD FOR READING DATA RECORDED ON BIT PATTERNED MEDIUM, AND HARD DISK DRIVE FOR RECORDING/READING DATA ON/FROM BIT PATTERNED MEDIUM	20080326	20100629	RE2007050241US0
1102.	12/057,406	057,406		MAGNETIC RECORDING MEDIA AND METHOD OF FABRICATING THE SAME	20080328		RE2007090181US0
1103.	12/061,687	061,687		MAGNETIC HEAD AND METHOD OF FABRICATING THE SAME	20080403		RE2007060041US0
1104.	12/061,823	061,823		PERPENDICULAR MAGNETIC RECORDING MEDIUM AND METHOD OF MANUFACTURING THE SAME	20080403		RE2007080061US0
1105.	12/070,141	12/070,141		Method and Apparatus for Estimating Air Flow Effects in a Hard Disk Drive	20080215		WA2007080161US0
1106.	12/077,814	12/077,814		SWITCHING FIELD CONTROLLED (SFC) MEDIA USING ANTI-FERROMAGNETIC THIN LAYER IN MAGNETIC RECORDING	20080320		WA2007070031US0
1107.	12/080,640	12/080,640		Write Head with Common Mode Termination Resistor	20080403		WA2008010131US0
1108.	12/082,150	12/082,150	7,885,028	Data Error Recovery Using Voting on Multiple Retrials	20080408	20110208	WA2007110131US0
1109.	12/098,630	098,630	7,961,420	DISK DRIVE APPARATUS AND METHOD OF ADAPTIVELY CONTROLLING FLYING HEIGHT OF MAGNETIC HEAD TEHREIN	20080407	20110614	IS2006100141US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1110.	12/098,914	098,914		A DURABLE DATA STORAGE SYSTEM AND METHOD	20080407		IS2007080171US0
1111.	12/100,012	100,012		PATTERNED MAGNETIC RECORDING MEDIUM AND METHOD OF RECORDING TRACK INFORMATION ONTO THE SAME	20080409		RE2007090211US0
1112.	12/100,633	100,633		MEMORY APPARATUS TO WRITE AND READ DATA, AND METHOD THEREOF	20080410		IS2006050021US0
1113.	12/101,384	101,384		PATTERNED MAGNETIC RECORDING MEDIUM AND METHOD OF SELF SERVO WRITING ONTO THE SAME	20080411		RE2007090321US0
1114.	12/106,852	106,852		MAGNETIC THIN FILM STRUCTURE, MAGNETIC RECORDING MEDIUM INCLUDING THE SAME, AND METHOD OF MANUFACTURING THE MAGNETIC RECORDING MEDIUM	20080421		RE2007100011US0
1115.	12/108,205	108,205		PERPENDICULAR MAGNETIC RECORDING MEDIUM AND METHOD OF MANUFACTURING THE SAME	20080423		RE2007020031US0
1116.	12/108,664	108,664		HARD DISK DRIVE APPARATUS, METHOD OF CONTROLLING FLYING HEIGHT OF MAGNETIC HEAD THEREOF, AND RECORDING MEDIUM TO CONTAIN COMPUTER PROGRAM THEREFOR	20080424		IS2006110031US0
1117.	12/108,679	108,679		HARD DISK DRIVE, METHOD OF CONTROLLING FLYING HEIGHT OF MAGNETIC HEAD THEREOF, AND RECORDING MEDIUM CONTAINING COMPUTER PROGRAM THEREON	20080424		IS2006100121US0
1118.	12/111,217	111,217	7,787,208	tracking method for HDD	20080429	20100831	RE2007070341US0
1119.	12/111,994	111,994		Electrically Assisted Magnetic Recording(EAMR) 용 기록 Head	20080430		RE2007050221US0
1120.	12/114,845	114,845		MAGNETIC RECORDING HEAD COMPRISING CONICAL MAIN POLE TIP AND METHOD OF MANUFACTURING THE SAME	20080505		RE2007070351US0
1121.	12/117,766	117,766		PERPENDICULAR MAGNETIC RECORDING MEDIUM AND METHOD OF MANUFACTURING THE SAME	20080509		RE2007080201US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1122.	12/120,819	120,819		ELECTRIC FIELD READ/WRITE HEAD, METHOD OF MANUFACTURING THE SAME, AND INFORMATION STORAGE DEVICE COMPRISING ELECTRIC FIELD READ/WRITE HEAD	20080515		RE2007070311US0
1123.	12/123,492	123,492		PERPENDICULAR MAGNETIC RECORDING HEAD AND METHOD OF MANUFACTURING THE SAME	20080520		RE2007080051US0
1124.	12/126,427	126,427	8,064,324	ELECTRIC FIELD EFFECT READ/WRITE HEAD, METHOD OF MANUFACTURING THE SAME, AND ELECTRIC FIELD EFFECT STORAGE APPARATUS HAVING THE SAME	20080523	20111122	RE2007090151US0
1125.	12/127,390	127,390	7,948,700	BIT PATTERNED MEDIUM	20080527	20110524	RE2007060091US0
1126.	12/128,788	128,788	7,889,628	FERROELECTRIC RECORDING MEDIUM AND WRITING METHOD FOR THE SAME	20080529	20110215	RE2004100271US1
1127.	12/136,870	136,870		HEAD SLIDER AND HARD DISK DRIVE HAVING THE SAME	20080611		IS2006100321US0
1128.	12/137,318	137,318		PERPENDICULAR MAGNETIC RECORDING MEDIUM	20080611		RE2008010231US0
1129.	12/138,055	138,055	7,885,169	ELECTRIC FIELD SENSOR HAVING VERTICAL STRUCTURE, FABRICATION METHOD THEREOF, AND STORAGE UNIT USING THE SAME	20080612	20110208	RE2007070191US0
1130.	12/142,048	142,048	7,885,170	READING/WRITING HEAD USING ELECTRIC FIELD, DATA READING/WRITING APPARATUS INCLUDING THE SAME, AND METHOD OF MANUFACTURING THE SAME	20080619	20110208	RE2007100161US0
1131.	12/142,903	142,903		MAGNETIC HEAD AND RECORDING APPARATUS EMPLOYING THE SAME	20080620		RE2007090191US0
1132.	12/143,938	143,938	7,952,826	METHOD OPERATING HARD DISK DRIVE ON THE BASIS OF PREDICTED DEFECT USING HIERARCHICAL CLUSTERING AND CURVE FIT	20080623	20110531	IS2007020011US0
1133.	12/148,268	12/148,268		Method to Form Feature on Photo Resist In Fabrication of Disk for Hard Disk Drive	20080416		WA2007070021US0
1134.	12/150,810	12/150,810	7,742,251	Timing Insensitive Method and Apparatus for Spectral Analysis In a Disk Recording System	20080430	20100622	WA2007100041US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1135.	12/152,306	12/152,306		Method and Apparats for Reducing Slider Contact Probability in a Load-Unload (LUL) Hard Disk Drive	20080512		WA2008010101US0
1136.	12/152,306	12/152,306		METHOD AND APPARATUS FOR REDUCING SLIDER CONTACT PROBABILITY IN A LOAD-UNLOAD (LUL) HARD DISK DRIVE	20080512		WA2008020031US0
1137.	12/152,449	12/152,449		Method and Apparatus for Adaptive Control and/or Use of A Vibration Sensor in a Hard Disk Drive	20080512		WA2007110151US0
1138.	12/152,454	12/152,454		Method and Apparatus for Flying Height on Demand Heaters in a Hard Disk Drive	20080512		WA2007110121US0
1139.	12/166,374	166,374		INFORMATION STORAGE MEDIUM USING FERROELECTRIC, METHOD OF MANUFACTURING THE SAME, AND IN FORMATION STORAGE APPARATUS INCLUDING THE SAME	20080702		RE2007100171US0
1140.	12/169,291	169,291		MAGNETIC WRITE HEAD AND METHOD OF MANUFACTURING THE SAME	20080708		RE2007080161US0
1141.	12/170,339	12/170,339		Method and Apparatus for Dampening and Filtering Air Flow Effects in a Hard Disk Drive	20080709		WA2007090011US0
1142.	12/173,512	12/173,512	7,827,328	Method and Apparatus for a Disk Storage Device Including File System and At Least One Network Interface	20080715	20101102	WA2008010121US0
1143.	12/178,968	178,968		ARM BLADE, HEAD STACK ASSEMBLY COMPRISING THE SAME, AND HARD DISK DRIVE COMPRISING THE HEAD STACK ASSEMBLY	20080724		IS2007030061US0
1144.	12/179,786	179,786		SUSPENSION INTERCONNECT AND HEAD GIMBAL ASSEMBLY INCLUDING THE SAME	20080201		IS2007060101US0
1145.	12/186,665	186,665		COUPLING STRUCTURE OF HARD DISK DRIVE USING STUD	20080806		IS2007080201US0
1146.	12/203,242	203,242		ACTUATOR LATCH SYSTEM OF HARD DISK DRIVE	20080903		IS2007060051US0
1147.	12/203,855	12/203,855	7,813,076	Method for Estimating Position Error Gain for Disk Drives	20080903	20101012	WA2008010141US0
1148.	12/209,689	12/209,689		Method and Apparatus for A Hard Disk Drive Including a Balanced Piezoelectric Motor Micro-Actuator	20080912		WA2008020041US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1149.	12/217,443	12/217,443	7,688,542	A Method to Identify Short Spirals	20080702	20100330	WA2008030021US0
1150.	12/239,163	239,163		FERROELECTRIC RECORDING MEDIUM AND METHOD OF MANUFACTURING THE SAME	20080926		RE2007110141US0
1151.	12/242,350	12/242,350	7,804,660	Method for Unloading Head without Calibration in Hard Disk Drives	20080930	20100928	WA2008090101US0
1152.	12/251,072	251,072		DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS OF THE INVENTION	20081014		RE2008020301US0
1153.	12/261,557	12/261,557	8,040,628	SYNCHRONOUS WRITING WITH TIMING ERROR DETECTION IN BIT PATTERNED MEDIA DISK DRIVES	20081030	20111018	WA2009010101US0
1154.	12/275,703	275,703		PATTERNED MAGNETIC RECORDING MEDIUM AND METHOD OF MANUFACTURING THE SAME	20081121		RE2003050011US1
1155.	12/277,416	277,416		PERPENDICULAR MAGNETIC RECORDING MEDIUM	20081125		RE2008020291US0
1156.	12/291,623	291,623	7,827,322	METHOD AND APPARATUS OF PROTECTING DATA IN DATA IN DATA TRANSMISSION SYSTEM(MHC)	20081112	20101102	EF2003030031US1
1157.	12/300,177	300,177		ELECTRIC FIELD INFORMATION READING HEAD, ELECTRIC FIELD INFORMATION WRITING/READING HEAD AND FABRICATION METHODS THEREOF AND INFORMATION STORAGE	20081110		RE2006030041US0
1158.	12/301,179	301,179		HEAT-ASSISTED MAGNETIC RECORDING HEAD GIMBAL CROSS-REFERENCE TO RELATED PATENT APPLICATION	20081117		RE2006030171US0
1159.	12/304,627	304,627		Laser Diode Mounting and Channel Switching method for HAMR Head	20081212		RE2006040061US0
1160.	12/323,047	12/323,047		SES Assisted Wite Fly Height Monitor and Control	20081125		WA2007100011US0
1161.	12/323,367	12/323,367	7,773,336	Harmonic Measurement For Head-Disk Spacing Control	20081125	20100810	WA2007070041US0
1162.	12/327,720	12/327,720		Apparatus Minimizing Impedance in Flex-To Printed Circuit Board Connection Through the Disk Base of A hard Disk Drive	20081203		WA2008080011US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1163.	12/331,641	331,641	7,970,572	METHOD OF DETECTING FREE FALL AND APPARATUS TO DETECT	20081210	20110628	IS2007040071US0
1164.	12/335,759	12/335,759		Head Actuator Velocity Control for Electrical Power off in a Disk Drive	20081216		WA2008120021US0
1165.	12/335,822	12/335,822	7,876,519	Self-Spinning Disk Bulk Erasure For Hard Disk Assembly	20081216	20110125	WA2007100031US0
1166.	12/337,172	12/337,172		Dynamic Pitch and Roll Se4nsing in Hard Disk Drives	20081217		WA2008010091US0
1167.	12/349,464	12/349,464		APPARATUS FOR RETAINING LUBRICANT ON THE DEPOSITED END OF A SLIDER IN A HARD DISK DRIVE	20090106		WA2008080061US0
1168.	12/351,141	351,141		HARD DISK DRIVE	20090109		IS2007040021US0
1169.	12/353,416	353,416	7,841,867	HARD DISK DRIVE APPARATUS	20090114	20101130	IS2007030011US0
1170.	12/353,425	353,425		HARD DISK DRIVE AND METHOD OF CONTROLLING AUTO REASSIGN OF THE SAME	20090114		IS2007040201US0
1171.	12/353,918	12/353,918		Writer and Reader Center Alignment with Servo and Data Track in Discrete Tracker Recording	20090114		WA2007080151US0
1172.	12/354,601	12/354,601		In-Situ Dynamic Pitch And Roll Adjustment In Hard Disk Drives	20090115		WA2008020021US0
1173.	12/354,866	354,866	8,004,787	METHOD AND SYSTEM FOR SERVO TRACK WRITE	20090116	20110823	IS2007010051US0
1174.	12/356,605	356,605		HARD DISK DRIVE	20090121		IS2007030021US0
1175.	12/357,435	357,435	8,040,636	Retract Pin을 Bobbin Pin 대체하는 New Latch System	20090122	20111018	IS2007040091US0
1176.	12/358,355	358,355	7,978,428	METHOD OF READING DATA STORED IN A DATA STORAGE DEVICE AND DATA STORAGE DEVICE THAT PERFORMS A DATA READ RETRY OPERATION	20090123	20110712	IS2007040131US0
1177.	12/359,155	12/359,155		Capillary Electrophoretic Instrument and Capillary Array Assembly	20090123		WA2008070081US0
1178.	12/362,688	362,688	8,014,092	METHOD OF DETECTING BAD SERVO TRACK IN HARD DISK DRIVE	20090130	20110906	IS2007040081US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1179.	12/364,664	364,664	8,035,914	HARD DISK DRIVE AND METHOD FOR DESIGNING ADDITIONAL	20090203	20110111	IS2006120051US0
1180.	12/367,085	12/367,085	7,729,081	On-Line Bias Estimator In Hard Disk Drives	20090206	20100601	WA2008110211US0
1181.	12/372,635	12/372,635		Perpendicular Magnetic Recording Medium With Anti-Perfromagnetically Coupled Magnetic Layers and Magnetic Storage Apparatus	20090217		WA2008110201US0
1182.	12/385,458	385,458	7,800,864	actuator latch apparatus for disk drive	20090408	20100921	IS2003100411US1
1183.	12/389,112	12/389,112		Method and Apparatus for Shock and Rotational Vibration Sensing In a Hard Disk Drive	20090219		WA2008110121US0
1184.	12/391,320	391,320	8,031,438	ACTUATOR LATCH SYSTEM OF HARD DISK DRIVE	20090224	20111004	IS2007070021US0
1185.	12/402,410	12/402,410		Apparatus of A Slider Limiter For Protecting Read-Write Head From Non-Operational Shock In A Hard Disk Drive	20090311		WA2009010021US0
1186.	12/402,418	12/402,418		Equalization and Minimization of Multi-head Stack Assembly's Motion during Self Servo Writing and HDD Operation	20090311		WA2009010031US0
1187.	12/406,352	406,352	7,782,563	HARD DISK DRIVE ADAPTED TO DETECT FREE-FALL AND PERFORM EMERGENCY PARKING OF READ/WRITE HEAD PRIOR TO IMPACT	20090318	20100824	RE2005100341US1
1188.	12/414,629	12/414,629	7,864,483	Method and Apparatus For Adaptive Gain Balancing of At Least Of Two Rotational Sensors In a Hard Disk Drive	20090330	20110104	WA2009010051US0
1189.	12/416,621	12/416,621		Silent Retract of Head In Hard Disk Drive	20090401		WA2009010071US0
1190.	12/417,698	417,698	8,023,379	DEFECT INSPECTION METHOD AND DISK DRIVE USING SAME	20090403	20110920	IS2007010061US0
1191.	12/419,459	419,459		RAMP TO PARK READ/WRITE HEAD AND HARD DISK DRIVE INCLUDING THE SAME	20090407		IS2007030041US0
1192.	12/427,992	427,992		SLIDER OF A HARD DISK DRIVE AND HARD DISK DRIVE HAVING THE SAME	20090422		IS2006120021US0
1193.	12/428,496	428,496		SUSPENSION ASSEMBLY AND ACTUAROE HAVING THE SAME IN HARD	20090423		IS2007040101US0
1194.	12/428,534	428,534		DISK CLAMP AND HARD DISK DRIVE HAVING THE SAME	20090423		IS2007080121US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1195.	12/428,724	428,724		METHOD OF PROCESSING HARD DISK DRIVE	20090423		IS2006120031US0
1196.	12/429,243	429,243		DATA STORAGE DISK HAVING VARIABLE LOCATION SIGNAL AND DISK DRIVE USING THE DATA STORAGE DISK	20090424		IS2007080011US0
1197.	12/430,197	430,197		METHOD OF HANDLING SERVO SECTOR DEFECT	20090427		IS2006120011US0
1198.	12/431,963	431,963		HARD DISK DRIVE AND SERVO TRACK WRITING SYSTEM FOR THE SAME	20090429		IS2008020021US0
1199.	12/434,104	434,104		DATA STORAGE DEVICE HAVING DIFFERENT CONTROL INFORMATION IN DIFFERENT AREAS AND METHOD OF PROVIDING AND EMPLOYING THE SAME	20090501		IS2007020041US0
1200.	12/436,715	12/436,715		Actuator Latch For Minimizing Effect Of Non-Operational Rotary Shock In a Load-Unload (LUL) Hard Disk Drive	20090506		WA2009010041US0
1201.	12/458,012	458,012		METHOD AND APPARATUS FOR COPYING DATA	20090629		IS2008030061US0
1202.	12/463,335	12/463,335		Apparatus of A Arm Limiter for Minimizing Effect of Non-Operational Shock in A Hard Disk Drive	20090508		WA2009010061US0
1203.	12/463,340	12/463,340	8,040,630	Method and Apparatus for Estimating Touchdown of A Slider In a Hard Disk Drive	20090508	20111018	WA2008110131US0
1204.	12/464,976	464,976		HARD DISK DRIVE	20090413		IS2007040121US0
1205.	12/465,148	465,148		SUPPORTING AND DAMPING STRUCTURE OF HARD DISK DRIVE	20090513		IS2007030081US0
1206.	12/470,778	470,778	8,029,681	MASTER RECORDING MEDIUM FOR MAGNETICALLY TRANSFERRING SERVO PATTERN TO THE MAGNETIC RECORDING MEDIUM AND METHOD OF MANUFACTURING THE SAME	20090522	20111004	RE2008050051US0
1207.	12/472,441	472,441		MASTER RECORDING MEDIUM HAVING IMPROVED MAGNETIC TRANSFER PERFORMANCE	20090527		RE2008040031US0
1208.	12/473,198	12/473,198		Apparatus and Method for Stabilizing Slider Flying Height Over A Discrete Track Media Disk Surface in a Hard Disk Drive	20090527		WA2008100041US0
1209.	12/473,207	12/473,207		Apparatus For Correcting Single Bit Insertion or Deletion in a Data Payload with a Checksum Corrector	20090527		WA2008090011US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1210.	12/478,716	12/478,716	7,952,830	Method and Apparatus for Estimating Flying Height in a Hard Disk Drive	20090604	20110531	WA2008110191US0
1211.	12/481,297	12/481,297	7,859,783	Increased Format Efficiency Using Disk Synchronized Write	20090609	20101228	WA2008110111US0
1212.	12/483,330	483,330	8,031,427	METHOD OF SERVO WRITING, METHOD OF COMPENSATING PHASE MISMATCH OF SERVO PATTERN AND HARD DISK DRIVE ON WHICH THE METHODS ARE IMPLEMENTED	20090612	20111004	RE2008030021US0
1213.	12/485,093	485,093		MAGNETIC RECORDING MEDIUM	20090616		RE2008040081US0
1214.	12/485,150	485,150		SERVO MASTER AND MAGNETIC TRANSFER METHOD USING THE SAME	20090616		RE2008040101US0
1215.	12/486,925	486,925		CONTROLLER, DATA STORAGE DEVICE, AND DATA COMMUNICATION SYSTEM HAVING VARIABLE COMMUNICATION SPEED	20090618		IS2008050011US0
1216.	12/489,560	489,560		ELECTRIC FIELD READ/WRITE APPARATUS AND METHOD	20090623		RE2008030191US0
1217.	12/493,925	12/493,925		Hard Disk Drive With Data Error Recovery Using Multiple Reads and Derived Reliability Information	20090629		WA2009040021US0
1218.	12/497,066	497,066		SERVO MASTER MAGNETICALLY TRANSFERRING SERVO PATTERNS TO MAGNETIC RECORDING MEDIUM, AND MAGNETIC TRANSFER METHOD USING THE	20090702		RE2008040051US0
1219.	12/499,835	499,835		METHOD AND APPARATUS FOR CACHE FLUSH CONTROL AND WRITE RE-ORDERING IN A DATA STORAGE SYSTEM	20090709		IS2007120041US0
1220.	12/499,984	499,984		DATA STORAGE DEVICE AND SYSTEM HAVING IMPROVED WRITE SPEED	20090709		IS2008040071US0
1221.	12/502,246	502,246		ACTUATOR LATCH MECHANISM AND HARD DISK DRIVE INCLUDING THE SAME	20090714		IS2008030051US0
1222.	12/511,992	511,992		DATA STORING LOCATION MANAGING METHOD AND DATA STORAGE SYSTEM	20090729		IS2007120051US0
1223.	12/535,898	535,898	8,035,908	METHODS OF FORMING AND READING SERVO TRACK AND DATA STORAGE APPARATUS	20090805	20111011	IS2008040031US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samung Reference No.
1224.	12/536,111	12/536,111		Exchange Coupled Composite (ECC) PMR Media Without Protective Layer Through Soft-Ferrite	20090805		WA2008080021US0
1225.	12/536,396	12/536,396		Enhanced Head Srew Optimization For High Disk Access	20090805		WA2008090091US0
1226.	12/538,286	538,286		HYBRID STORAGE APPARATUS AND LOGICAL BLOCK ADDRESS ASSIGNING METHOD	20090810		IS2008030021US0
1227.	12/547,600	547,600		HARD DISK DRIVE AND METHOD OF MANUFACTURE	20090826		IS2008040041US0
1228.	12/551,729	551,729		FLEXURE, HEAD SUSPENSION ASSEMBLY INCLUDING THE FLEXURE, AND HARD DISK DRIVE INCLUDING THE HEAD SUSPENSION ASSEMBLY	20090901		IS2007110021US0
1229.	12/557,571	557,571		HYBRID HARD DISK DRIVE CAPABLE OF STORING FILE HAVING SPECIFIED CONDITION, A METHOD OF CONTROLLING THE SAME, AND RECORDING MEDIUM ADAPTED FOR EXECUTING THE METHOD	20090911		IS2007120021US0
1230.	12/557,606	557,606		HYBRID HARD DISK DRIVE TO RAPIDLY READ FILES HAVING SPECIFIED CONDITIONS, METHOD OF CONTROLLING THE HYBRID HARD DISK DRIVE, AND RECORDING MEDIUM FOR THE HYBRID HARD DISK DRIVE	20090911		IS2007120031US0
1231.	12/575,690	575,690		HEAD GIMBAL ASSEMBLY AND ACTUATOR HAVING THE SAME IN HARD DISK DRIVE	20091008		IS2007120071US0
1232.	12/577,946	577,946		DATA STORAGE METHOD AND DEVICE, AND SYSTEM THEREFOR	20091013		IS2007120061US0
1233.	12/615,489	615,489		HARD DISK DRIVE	20091110		IS2008090031US0
1234.	12/623,540	623,540	7,904,794	Method of Detecting and Correcting a Prescribed Set of Error Events Based on Error Detecting Code	20091123	20110308	RE2005060021US2
1235.	12/633,509	12/633,509		Method and Apparatus for Detecting Rapid of Track Following and Protection Nearby Tracks From Rapid off Track Writing in a Hard Drive	20091208		WA2009090071US0
1236.	12/637,484	637,484	7,897,415	FERROELECTRIC RECORDING MEDIUM AND METHOD OF MANUFACTURING THE SAME	20091214	20110301	RE2005040031US1

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1237.	12/647974	647,974		Method of manufacturing high density patterned media & its application	20091228		RE2006070011US1
1238.	12/648,577	648,577		DATA SECTOR PHASE CORRECTION METHOD AND DISK DRIVE APPARATUS USING THE SAME	20091229		IS2006040281US1
1239.	12/662,412	662,412		MAGNETIC PRINTING STAMP, METHOD OF MANUFACTURING MAGNETIC PRINTING STAMP AND MAGNETIC PRINTING METHOD	20100415		IA2008090061US0
1240.	12/683,690	683,690		HYBRID STORAGE APPARATUS AND METHOD OF SHARING RESOURCES THEREIN	20100107		IS2008070011US0
1241.	12/685,692	685,692		HARD DISK DRIVE	20100112		IS2008090011US0
1242.	12/690,703	12/690,703	8,009,383	Seek Control Method to Avoid Flex Cable Resonance during Settle in Hard Disk Drive	20100120	20110830	WA2009100011US0
1243.	12/708,341	708,341	8,042,259	MAGNETIC RECORDING HEAD AND METHOD OF MANUFACTURING THE SAME	20100218	20111025	RE2004100031US1
1244.	12/714,182	12/714,182		Method and ZApparatus for At Least One Actuator ARM Damper Covering At Least One Lightening Hole in a hard Disk Drive to Reduce Track Mis-Registration (TMR)	20100226		WA2009100111US0
1245.	12/722,565	722,565	8,021,770	PERPENDICULAR MAGNETIC RECORDING MEDIUM	20100312	20110920	IS2008070031US0
1246.	12/722,581	722,581		PERPENDICULAR MAGNETIC RECORDING MEDIUM	20100312		IS2008070021US0
1247.	12/722,827	722,827		HARD DISK DRIVE	20100312		IS2008100111US0
1248.	12/724,444	724,444		METHOD OF CONTROLLING FLYING HEIGHT OF MAGNETIC HEAD OF HARD DISK DRIVE	20100316		IS2008110011US0
1249.	12/724,658	724,658		HARD DISK DRIVE	20100316		IS2008100041US0
1250.	12/749,689	749,689		APPARATUS AND METHOD OF GENERATING RANDOM NUMBER	20100330		IS2008110081US0
1251.	12/749,706	749,706		HEAD STACK ASSEMBLY AND HARD DISK DRIVE HAVING THE SAME	20100330		IS2008100171US0
1252.	12/749,727	749,727		HARD DISK DRIVE	20100330		IS2008100181US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1253.	12/750,988	750,988		HARD DISK DRIVE	20100331		IS2008100061US0
1254.	12/753,969	753,969	8,049,981	METHOD OF CONTROLLING A FILTER COEFFICIENT OF A CONTINUOUS TIME FILTER AND DATA STORAGE DEVICE THEREOF	20100405	20111101	IS2008110111US0
1255.	12/754,769	754,769		METHOD RELOCATING CODE OBJECTS AND DISC DRIVE USING SAME	20100406		IS2008120011US0
1256.	12/757,473	757,473		HARD DISK DRIVE	20100409		IS2009010011US0
1257.	12/758,192	758,192		APPARATUS AND METHODS OF CONTROLLING A POWER MANAGEMENT MODE OF A DIGITAL PROCESSING DEVICE	20100412		IS2008110031US0
1258.	12/759,764	759,764		SERVO PATTERN ERASING METHOD AND APPARATUS OF HARD DISK DRIVE	20100414		IS2008080011US0
1259.	12/761,186	761,186		SERVO PATTERN WRITING METHOD OF HARD DISK DRIVE	20100415		IS2008090051US0
1260.	12/761,670	761,670		METHOD AND APPARATUS FOR CONTROLLING CLOCK FREQUENCY	20100416		IS2008100071US0
1261.	12/761,997	761,997		CONTROLLER, DISK DRIVE HAVING THE CONTROLLER, AND DATA PROCESSING SYSTEM HAVING THE DISK DRIVE	20100416		IS2008110041US0
1262.	12/762,403	762,403		HARD DISK DRIVING CIRCUIT AND METHOD OF DRIVING SPINDLE MOTOR	20100419		IS2008100031US0
1263.	12/766,108	766,108		HARD DISK DRIVE	20100423		IS2008110061US0
1264.	12/766,436	766,436		METHOD AND APPARATUS FOR PRESERVING DATA OF A HARD DISK DRIVE	20100423		IS2008100141US0
1265.	12/767,940	767,940		HEAD STACK ASSEMBLY, A HARD DISK DRIVE INCLUDING THE SAME, AND A METHOD OF MANUFACTURING THE SAME	20100427		IS2008100211US0
1266.	12/768,185	768,185		HEAD STACK ASSEMBLY, HARD DISK DRIVE COMPRISING THE HEAD STACK ASSEMBLY, AND METHOD OF REDUCING OFF-TRACK IN THE HARD DISK DRIVE	20100427		IS2008100201US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1267.	12/772,368	772,368		HARD DISK DRIVE	20100503		IS2009020011US0
1268.	12/774,872	774,872		Method for controlling flying height of magnetic head and disk drive using the method	20100506		IS2009040011US0
1269.	12/781,228	781,228		Information recording media, method for manufacturing the information recording media, read/write head and method for manufacturing the read/write head	20100517		RE2006070041US1
1270.	12/783,682	783,682		HARD DISK DRIVE	20100520		IS2008100021US0
1271.	12/783,803	783,803		SERVO PATTERN FORMING METHOD OF HARD DISK DRIVE	20100520		IS2008100011US0
1272.	12/783,827	783,827		DATA STORAGE DEVICE AND DATA STORAGE SYSTEM INCLUDING THE SAME	20100520		IS2008110101US0
1273.	12/783,831	783,831		DATA STORAGE DEVICE AND DATA STORAGE SYSTEM	20100520		IS2008110091US0
1274.	12/788,382	788,382		DISK DRIVE DATA STORAGE SYSTEMS AND METHODS USING BACKUP POWER SOURCE CHARGED BY SPINDLE MOTOR	20100527		IS2008100161US0
1275.	12/796,346	12/796,346		DETECTING TOUCH DOWN AND/OR ASSESSING QUALITY IN A HARD DISK DRIVE	20100608		WA2009100021US0
1276.	12/797,963	12/797,963		FLOATING GUARD BAND FOR SHINGLE MAGNETIC RECORDING	20100610		WA2010050011US0
1277.	12/813,619	813,619		Hard disk drive	20100611		IS2009040031US0
1278.	12/816,411	816,411		ENCODER CAPABLE OF COMPENSATING FOR TILT, HARD DISK DRIVE USING THE SAME, AND SERVO TRACK WRITING SYSTEM FOR THE HARD DISK DRIVE	20100616		IS2008090021US0
1279.	12/819,362	819,362		DATA STORAGE MEDIUM ACCESSING METHOD, DATA STORAGE DEVICE AND RECORDING MEDIUM TO PERFORM THE DATA STORAGE MEDIUM ACCESSING METHOD	20100621		IS2008100151US0
1280.	12/824,914	824,914		METHOD OF CONTROLLING READING OR WRITING OPERATION OF DISK DRIVE	20100628		IS2008070051US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1281.	12/835,862	835,862		HARD DISK DRIVE HAVING SLIDER LIMITER	20100714		IS2008100121US0
1282.	12/843,264	12/843,264		Method of Seek Trajectory Generation for Better Tracking and Faster Settling in Hard Disk Drives	20100726		WA2010050031US0
1283.	12/844,391	844,391		STORAGE DEVICE SUPPORTING AUTO BACKUP FUNCTION	20100727		IS2009040051US0
1284.	12/844,505	12/844,505		METHOD TO RECOVER DATA SECTOR DAMAGED BY ABRUPT POWER LOSS IN HARD DISK DRIVES	20100727		WA2010050061US0
1285.	12/848,339	848,339		HARD DISK DRIVE	20100803		IS2009070041US0
1286.	12/855,732	855,732		METHOD OF OPERATING PRE-AMPLIFIER, PRE-AMPLIFIER, AND APPARATUSES INCLUDING THE SAME	20100813		IS2009070011US0
1287.	12/870,182	12/870,182		SOC Hardware Engines for Multi-rate Notch Filters	20100827		WA2010060011US0
1288.	12/870,944	870,944		METHOD OF UNLOADING TRANSDUCER IN DATA STORAGE DEVICE AND DISK DRIVE AND STORAGE MEDIUM USING THE METHOD	20100830		IS2009090261US0
1289.	12/881,488	881,488		SYSTEM AND METHOD TO CONTROL SPIN-UP OF STORAGE DEVICE (As Amended)	20100914		IS2009050021US0
1290.	12/882,524	882,524		Disk drive controlled according to head disk interference and method for controlling the disk drive	20100915		IS2009060051US0
1291.	12/890,843	890,843		METHOD OF MANAGING DEFECT AND APPARATUSES USING THE SAME	20100927		IS2009060041US0
1292.	12/894,248	894,248		Method for setting zone layout of recording media and data storage apparatus and storage media applying the same	20100930		IS2009060011US0
1293.	12/903,032	12/903,032		PARTIAL RIBS IN DISK BASE TO STIFFEN A HARD DISK DRIVE	20101012		WA2010070021US0
1294.	12/905,279	905,279		Method and apparatus for recording data, method and apparatus for reproducing data, recording medium	20101015		IS2009070031US0
1295.	12/908,556	908,556		BASE MEMBER INCLUDING TWO-STEP RECESSES AND HARD DISK DRIVE DEVICE INCLUDING THE SAME	20101020		IS2009090021US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1296.	12/938,544	938,544		METHOD OF PROCESSING DEFECT OF RECORDING MEDIUM AND DATA STORAGE DEVICE AND STORAGE MEDIUM USING THE METHOD	20101103		IS2009070051US0
1297.	12/938,547	938,547		METHOD OF FIXING WRITE DEFECT, AND DATA STORAGE APPARATUS AND STORAGE MEDIUM EMPLOYING THE METHOD	20101103		IS2009070081US0
1298.	12/939,328	939,328		READ RETRY METHOD AND APPARATUS CAPABLE OF PERFORMING THE READ RETRY METHOD	20101104		IS2009070091US0
1299.	12/943,077	943,077		DISK SPACER FOR DATA STORAGE DEVICE AND HARD DISK DRIVE HAVING THE SAME	20101110		IS2009080061US0
1300.	12/981,807	981,807		METHOD OF DETECTING APPROXIMATE TOUCH-DOWN, METHOD OF ADJUSTING HEAD FLYING HEIGHT USING THE DETECTED APPROXIMATE TOUCH-DOWN, AND DISK DRIVE	20101230		IS2009090641US0
1301.	12/983,902	983,902		METHOD OF WRITING SERVO PATTERN TO DISK OF A HARD DISK DRIVE AND HARD DISK DRIVE CONFIGURED TO PERFORM THE METHOD	20110104		IS2009080031US0
1302.	12/983,997	983,997		METHOD AND APPARATUS FOR PREVENTING DATA LOSS IN HARD DISK DRIVE	20110104		IS2009090091US0
1303.	12/985,586	985,586		HDD 동작중 외부 충격 및 진동으로 발생하는 인접 Track Write 방식을 위한 Latch system	20110106		IS2009090421US0
1304.	12/987,295	987,295		ASYMMETRIC DISK CLAMP AND SPINDLE MOTOR ASSEMBLY INCLUDING ASYMMETRIC DISK CLAMP	20110110		IS2009090081US0
1305.	13/006,557	006,557		METHOD OF CENTERING A DISK OF HARD DISK DRIVE	20110114		IS2009090011US0
1306.	13/008,419	008,419		SERVO TRACK WRITER AND OPERATING METHOD	20110118		IS2009090051US0
1307.	13/015,080	015,080		DATA BACK-UP METHOD AND APPARATUS USING THE SAME	20110127		IS2009090161US0
1308.	13/015,100	015,100		STORAGE SYSTEM AND METHOD OF PROCESSING DATA USING THE SAME	20110127		IS2009090501US0

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REEL: 029400 FRAME: 0238

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1309.	13/017,517	017,517		METHOD OF COMPENSATING FOR IMBALANCE OF HARD DISK DRIVE, APPARATUS TO PERFORM COMPENSATION, AND HARD DISK DRIVE MANUFACTURED THEREBY	20110131		IS2009090451US0
1310.	13/018,458	018,458		SERVO ROUTINE FOR TRACK SEEKING IN A HARD DISK DRIVE AND HARD DISK DRIVE FOR PERFORMING THE SAME	20110201		IS2009090691US0
1311.	13/018,459	018,459		IC PROTECTION CIRCUIT, METHOD FOR PROTECTING IC, AND APPARATUSES HAVING THE IC PROTECTION CIRCUIT	20110201		IS2009090331US0
1312.	13/019,338	019,338		METHOD AND APPARATUS FOR ADJUSTING NUMBER OF ITERATIONS IN ITERATIVE DECODING PROCEDURE	20110202		IS2009090461US0
1313.	13/019,339	019,339		METHOD ADJUSTING GAIN OF VARIABLE GAIN AMPLIFIER AND APPARATUS USING SAME	20110202		IS2009090171US0
1314.	13/019,424	019,424		SYSTEMS AND METHODS OF TRANSFERRING DATA BETWEEN A DISK DEVICE AND AN EXTERNAL STORAGE DEVICE	20110202		IS2009080101US0
1315.	13/019,674	019,674		METHOD OF INDEXING DATA IN DATA STORAGE DEVICE AND APPARATUSES USING THE METHOD	20110202		IS2009090481US0
1316.	13/023,153	023,153		DATA STORAGE DEVICE, STORING MEDIUM ACCESS METHOD AND STORING MEDIUM THEREOF	20110208		IS2009090181US0
1317.	13/024,361	024,361		METHOD AND APPARATUS FOR MANAGING DEFECTS OF RECORDING MEDIUM	20110210		IS2009090371US0
1318.	13/028,465	028,465		METHOD OF RESTORING MASTER BOOT RECORD OF STORAGE MEDIUM, STORAGE MEDIUM DRIVING DEVICE, AND STORAGE MEDIUM	20110216		IS2009090471US0
1319.	13/030,282	030,282		METHOD OF COMPENSATING FOR ERROR AND TRANSCIEVER SYSTEM USING THE METHOD	20110218		IS2009090321US0
1320.	13/038,636	038,636		DECODER AND APPARATUSES INCLUDING THE SAME	20110302		IS2009090271US0
1321.	13/038,677	038,677		HEAD PARKING RAMP AND HARD DISK DRIVE HAVING THE SAME	20110302		IS2009090581US0
1322.	13/043,971	043,971		DISK DEVICE AND WRITE METHOD	20110309		IS2009090151US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1323.	13/045,505	13/045,505		SELF-SERVO WRITER WITH ITERATIVE LEARNING CONTROL MECHANISM AND METHOD OF OPERATION THEREOF	20110310		WA2011010051US0
1324.	13/053,647	053,647		METHOD AND APPARATUS FOR CONTROLLING A MOTOR IN A DISK DRIVE	20110322		IS2009090521US0
1325.	13/069,709	069,709		METHOD AND APPARATUS FOR DETECTING TOUCH-DOWN AND CONTACT BETWEEN A HEAD AND A STORAGE MEDIUM USING A SENSOR, AND A DISK DRIVE AND STORAGE MEDIUM USING THE METHOD	20110323		IS2009080051US0
1326.	13/069,715	069,715		METHOD OF DETECTING TOUCH-DOWN OF A HEAD, METHOD OF ADJUSTING A HEAD FLYING HEIGHT USING THE METHOD OF DETECTING THE TOUCH-DOWN OF THE HEAD, AND DISK DRIVE USING THE METHOD OF DETECTING THE TOUCH-DOWN OF THE HEAD	20110323		IS2009080041US0
1327.	13/075,132	13/075,132		Timing/phase error decomposition to handle large initial timing error on no-clock-head (NCH) drives	20110329		WA2011010101US0
1328.	13/079,054	079,054		HARD DISK DRIVE	20110404		IS2009090441US0
1329.	13/079,943	079,943		DISK DEVICE AND RELATED WRITE METHOD	20110405		IS2009090111US0
1330.	13/079,953	079,953		HARD DISK CONTROL MODULE, APPARATUSES HAVING THE SAME, AND METHOD OF CONTROLLING UNLOAD STANDBY TIME THEREOF	20110405		IS2009090431US0
1331.	13/080,815	080,815		METHOD OF PROTECTING INFORMATION WRITTEN TO RECORDING MEDIUM, AND DISK DRIVE AND RECORDING MEDIUM EMPLOYING THE METHOD	20110406		IS2009090671US0
1332.	13/082,876	13/082,876		Breather Filter for Stiffening HDA Assembly	20110408		WA20110110041US0
1333.	13/085,657	085,657		APPARATUS AND METHOD OF DETECTING A DEFECTIVE SECTOR IN A DISK DRIVE	20110413		IS2009090311US0
1334.	13/113,534	113,534		NANO IMPRINT MASTER AND METHOD OF MANUFACTURING THE SAME	20110523		RE2006090081US1

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1335.	60/246,324	60/246,324		APPARATUS FOR REDUCING HARD DISK DRIVE SPINDLE MOTO ASSEMBLY IMBALANCE	20001106		WA2003120231US0
1336.	N/A			보이스 코일 모터에서 누설자속을 감소시키기 위한 장치 및 방법			EC1996070041US1
1337.	N/A			Perpendicular Magnetic Recording Medium	20040319		RE2000110071US1
1338.	US19894346 56A	434,656	4,999,724	Disk drive having an electrically isolated disk stack	19891113	19910312	IS2009120021US0
1339.	US19917559 34A	755,934	5,521,771	Servo gain compensation in a disk drive	19910906	19960528	IS2009120101US0
1340.	US19918122 31A	812,231	5,257,252	Adaptive control system for a disk drive actuator	19911218	19931026	IS2009120031US0
1341.	US19928696 03A	869,603	5,315,456	Programmable servo timing generator	19920416	19940503	IS2009120071US0
1342.	US19928739 28A	873,928	5,481,694	High performance multiple-unit electronic data storage system with checkpoint logs for rapid failure recovery	19920424	19960102	IS2009120091US0
1343.	US19928943 93A	894,393	5,270,892	Conductor configuration for magnetoresistive transducers	19920605	19931214	IS2009120041US0
1344.	US19928943 94A	894,394	5,309,304	Magnetoresistive transducer conductor configuration	19920605	19940503	IS2009120061US0
1345.	US19928944 15A	894,415	5,307,226	Improved magnetoresistive transducer with substantially perpendicular easy axis	19920605	19940426	IS2009120051US0
1346.	US19931382 92A			Electrical interconnect for a head/arm assembly of computer disk drives	10/15/1993		IZ2010090211US0
1347.	US19937626 7A	076,267	5,325,254	Thin film inductive transducer having improved yoke and pole tip structure	19930611	19940628	IS2009120081US0
1348.	US19942369 47A	236,947	5,523,910	Recording/reproducing device having a bypassing pole electromagnet actuator latch of low power requirement	19940502	19960604	IS2009120111US0
1349.	US19943586 12A	358,612	5,768,050	A HARD DISK DRIVE USING A ROTARY ACTUATOR AND HAVING AN ISOLATED VOICE COIL MOTOR	19941214	19980616	FC1993115071US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1350.	US19954053 14A	405,314	5,557,839	Method of fabricating an improved transducer suspension assembly	19950316	19960924	IS2009120121US0
1351.	US19954067 56A	406,756	5,579,190	Disk drive having an improved transducer suspension assembly	19950316	19961126	IS2009120131US0
1352.	US19954113 64A			Zone bit recording enhanced video data layout	3/27/1995		IZ2010090261US0
1353.	US19954895 13A	489,513	5,663,853	HARD SLIDER ASSEMBLY HAVING FIRST AND SECOND LEADING EDGE TAPERED PORTIONS FORMED ON LOWER AND UPPER SURFACES OF AND AIR INFLOW EDGE	19950612	19970902	FC1993105081US0
1354.	US19955023 98A	502,398	5,815,910	Method for manufacturing a magnetic head	19950714	19981006	XB1995010291US0
1355.	US19965864 29A	586,429	5,684,653	Method and apparatus for minimizing seek time in a disk drive by increasing power amplifier power based on power amplifier voltage head room	19960116	19971104	IS2009120141US0
1356.	US19966494 35A	649,435	5,663,855	A MAGNETIC LATCHING APPARATUS FOR AN ACTUATOR OF A HARD DISK DRIVE	19960517	19970902	FC1994055091US1
1357.	US19966791 63A	679,163	5,708,581	Method for maximizing feedforward orthogonality for minimizing servo system nuller instability	19960712	19980113	IS2009120151US0
1358.	US19967388 37A			Amorphous alloy of light rare earth-transition metal and semi-metal, magneto-optical recording layer made of the alloy, and magneto-optical disk adopting the layer	10/28/1996		AH19950350441US0
1359.	US19967674 35A	767,435	5,870,238	SECTOR PULSE GENERATING DEVICE AND METHOD IN HARD DISK DRIVE	19961216	19990209	EC1995040291US1
1360.	US19967682 31A	768,231	6,590,728	Hard disk drive having extended data region	19961217	20030708	EC1994110371US0
1361.	US19967771 37A	777,137	5,946,706	PROGRAMMABLE CONTROL SEQUENCER OF DISK CONTROLLER AND METHOD FORMAP ALLOCATION THEREFOR	19961230	19990831	EC1994110301US0
1362.	US19967771 42A	777,142	5,943,682	PROGRAMMABLE CONTROL SEQUENCER OF DISK CONTROLLER AND METHOD FORMAP ALLOCATION	19961230	19990824	EC1994090011US0
1363.	US19977816 32A	781,632	5,777,832	Disk and disk clamp device for hard disk drive	19970110	19980707	EC1995110421US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1364.	US19978422 16A	842,216	5,926,338	METHOD FOR CONTROLLING A REPEATABLE FOLLOWING ERROR IN A HARD DISK DRIVE	19970424	19990720	EC199602021US0
1365.	US19978537 99A	853,799	5,920,440	GRAY CODE DECODING CIRCUIT OF A HARD DISK DRIVE	19970509	19990706	FC1993035081US1
1366.	US19978570 67A	857,067	5,907,454	Technique for preventing dew from forming on internal components of hard disk drive	19970515	19990525	EC1996020021US0
1367.	US19978741 29A	874,129	5,940,021	APPARATUS AND METHOD FOR MEASURING A CHARACTERISTIC PULSE WIDTH FOR A DATA CHANNEL IN A DATA HANDLING DEVICE	19970612	19990817	EC1996030201US0
1368.	US19978774 76A	877,476	5,931,697	Header connector device for making electrical connection between the head stack assembly with the main circuit board in a hard disk	19970617	19990803	EC1996020071US0
1369.	US19978972 51A	897,251	5,926,340	Method of compensating for non-linear torque characteristics of a voice coil motor of a computer hard disk drive	19970718	19990720	EC1996030271US0
1370.	US19979460 63A	946,063	5,982,308	CIRCUIT FOR COMPENSATING FOR MISSING PULSES WHEN DECODING THE GRAY CODE IN HARD DISK DRIVE AND METHOD THEREFOR	19971007	19991109	EC1996050161US0
1371.	US19979588 44A	958,844	6,523,086	METHOD FOR IMPROVING PERFORMANCE OF READ CACHE OF MAGNETIC DISK DRIVE	19971028	20030218	EC1996050311US0
1372.	US19981265 93A			Magnetic head transferring device with improved magnetic head unlocking for hard disk drives	7/31/1998		AB1997120071US0
1373.	US19982195 19A	219,519	6,584,583	DATA PROCESSING METHOD AND SYSTEM	19981223	20030624	EC1997050621US0
1374.	US19987245 4A			Method of controlling flying of magnetic head and device therefor in hard disk drive	5/5/1998		AB1997050011US0
1375.	US19988966 4A	089,664	5,930,096	VOLTAGE PROTECTION CIRCUIT	19980603	19990727	EC1997010011US0
1376.	US19992749 28A			Adjustment mechanism for servo track writer for use in hard disc drive	3/23/1999		BA1998110231US0
1377.	US19993854 44A			Radiation apparatus of hard disk drive	8/30/1999		AB1998090051US0
1378.	US20004806 60A			Filtering apparatus for hard disk drive	1/11/2000		AB1998080011US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1379.	US20005804 59A			Disk drive head suspension assembly with microactuator	5/30/2000		AH199904011US0
1380.	US20006767 57A			Micro actuator	10/2/2000		AH199907014US0
1381.	US20007258 06A			Filtering apparatus for hard disk drive	11/30/2000		AB1999090021US0
1382.	US20012996 1A			Perpendicular magnetic recording disk	12/31/2001		RX2000100031US0
1383.	US20016831 31A			Vertical writing type magnetic head	11/23/2001		RX2000080261US0
1384.	US20018228 58A			Negative pressure air bearing slider including negative pressure rail with a protruding stepped portion	4/2/2001		AB2000030141US0
1385.	US20018511 41A			6 degree-of-freedom (DOF) motion measuring apparatus	5/9/2001		RX2000110081US0
1386.	US20018740 18A	874,018	6,590,746	NEGATIVE PRESSURE AIR-LUBRICATED BEARING SLIDER	20010606	20030708	RX2000060081US0
1387.	US20019550 61A			Disc balancing device	9/19/2001		AB2000060021US0
1388.	US20019967 83A	996,783	6,587,302	METHOD FOR CONTROLLING REPEATABLE RUNOUT COMPENSATION ALGORITHM	20011130	20030701	EC1997050091US2
1389.	US20021420 78A	142,078	6,961,207	DISK DAMPER TO REDUCE AIR VIBRATION	20020508	20051101	EF2001050051US0
1390.	US20021539 09A			Disk chuck	5/24/2002		BA2001080021US0
1391.	US20021983 40A			Controlled particle deposition in drives and on media for thermal asperity studies	7/17/2002		CF1999080071US1
1392.	US20022335 37A	233,537	7,062,698	Method and apparatus for controlling head instability in data storage system	20020904	20060613	EF2001050021US0
1393.	US20022885 07A	288,507	7,095,595	HARD DISC DRIVE COMPRISING FLEXIBLE PRINTED CIRCUIT WITH DAMPING MATERIAL	20021106	20060422	EF2001080021US0
1394.	US20027461 4A	074,614	6,593,736	STABILIZATION OF MAGNETIC DOMAIN IN A GMR HEAD USING DC WRITE CURRENT AND READ BIAS CURRENT	20020211	20030715	EF2001030041US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1395.	US20033616 35A	361,635	7,151,650	head assembly and drive system adopting the same	20030211	20061219	EF2001100021US0
1396.	US20034181 41A			Disk writer and writing method thereof	4/18/2003		BA2002090061US0
1397.	US20034371 97A	437,197		Spindle motor for hard disk drive	20030514		RE2002110021US0
1398.	US20036171 72A	617,172		disk clamp of hard disk drive	20030711		EF2002050151US0
1399.	US20036532 02A	653,202		method and apparatus for controlling hard disc drive	20030903		EF2002060021US0
1400.	US20036615 25A	661,525		hard disk drive having hole cover for blocking electromagnetic wave	20030915		EF2002070041US0
1401.	US20036760 25A			Disc centering device	10/2/2003		BA2002090021US0
1402.	US20036761 44A			Disc centering device	10/2/2003		BA2002090031US0
1403.	US20048103 95A	810,395	7,333,297	NEGATIVE PRESSURE AIR BEARING SLIDER HAVING PARTICLE REJECTION RAILS AT NEGATIVE PRESSURE POCKET	20040326	20080219	WA2004030031US0
1404.	US20048451 52A	845,152	7,243,043	METHOD OF TESTING HARD DISK DRIVE AND COMPUTER READABLE MEDIUM THEREFOR	20040514	20070710	EF2003020011US0
1405.	US20049183 92A			Servo track writer and a chuck thereof	8/16/2004		BA2003110021US0
1406.	US20049835 89A	983,589		authentication method of data processing apparatus with recording device and apparatus for the same	20041109		IS2003100161US0
1407.	US20049860 42A	986,042		housing for hard disk drive having structure to reduce flutter of disk	20041112		IS2003100191US0
1408.	US20049980 40A	998,040		suspension assembly having flexure limiter and cactuato for hard disk drive using the same	20041129		IS2003100241US0
1409.	US20051312 37A			Disk recording apparatus	5/18/2005		BA2004050031US0
1410.	US20051424 91A	142,491		BASE PLATE AND HARD DISK DRIVE PROVIDED THEREWITH	20050602		IS2004050011US0

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REEL: 090400 FRAME: 0255

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1411.	US20051493 66A	149,366		SPINDLE MOTOR	20050610		RE2004060011US0
1412.	US20051511 99A	151,199		HARD DISK DRIVE AND METHOD ADOPTING DAMPING MEMBER WITH X X X OPEN-CELL STRUCTURE	20050614		IS2004030131US0
1413.	US20051555 20A	155,520		method of setting communication parameter between host system and peripheral device	20050620		IS2004050071US0
1414.	US20051745 96A	174,596		LATCH SYSTEM OF HARD DISK DRIVE AND METHOD OF FORMING THE LATCH SYSTEM	20050706		RE2004090031US0
1415.	US20052139 43A	213,943		SUSPENSION AND ACTUATOR WITH THE SAME FOR USE IN HARD DISK DRIVE	20050830		IS2004100131US0
1416.	US20052429 40A			Structure and method for reducing impedance-discontinuity in flexible printed circuit of hard disk drive	10/5/2005		RI2004110041US0
1417.	US20052451 99A	0245199		SPINDLE MOTOR DRIVING METHOD AND APPARATUS	20051007		RE2004070061US0
1418.	US20052602 97A	260,297		FLEXIBLE PRINTED CIRCUIT AND HARD DISK DRIVE WITH THE SAME	20051028		IS2004070061US0
1419.	US20052652 53A	265,253		DISK DRIVING APPARATUS AND MAGNETIC DISK APPARATUS HAVING THE SAME	20051103		RE2004120031US0
1420.	US20052684 66A	268,466		AUTHENTICATION METHOD OF HARD DISK DRIVE AND RECORDING MEDIUM STORING THE SAME	20051108		IS2004100301US0
1421.	US20052837 57A	283,757		AUTHENTICATION METHOD IN DATA STORING APPARATUS AND RECORDING MEDIUM STORING THE SAME	20051122		IS2004090031US0
1422.	US20052907 98A	290,798		DATA RECORDING DISK AND DISK DRIVE HAVING THE SAME	20051201		IS2004090181US0
1423.	US20052944 62A	294,462		HEAD SLIDER AND HARD DISK DRIVE INCLUDING THE SAME	20051206		IS2004100121US0
1424.	US20053030 30A	303,030		HARD PARKING RAMP FOR HARD DISK DRIVE	20051216		IS2004090141US0
1425.	US20053169 65A	316,965		METHOD OF RECORDING SERVO PATTERN ON MAGNETIC DISK, DISK DRIVE USING THE SAME, AND MAGNETIC DISK USING THE SAME	20051227		IS2004100101US0

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LEGAL_CN # 5872639.2

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1426.	US20053209 47A	320,947		METHOD OF TRANSFORMING ADDRESS OF DISC DRIVE AND DISC DRIVE USING THE METHOD	20051230		IS2004100251US0
1427.	US20053209 71A			Bracket for disk drive	12/30/2005		RI2005070021US0
1428.	US20055078 2A→US2005 050782A			Transporting apparatus	2/7/2005		BA2003120051US0
1429.	US20055185 9A	051,859	7,184,234	method and apparatus and compensating for servo timing jitter, and disk drive using the same	20050204	20070227	IS2003100111US0
1430.	US20055956 6A	059,566		Method for partitioning hard disc drive and hard disc drive adapted thereto	20050217		IS2003100271US0
1431.	US20063280 83A	328,083		SPINDLE MOTOR FOR HARD DISK DRIVE	20060110		IS2005030021US0
1432.	US20063369 24A	336,924		Method of Determining Format Parameters of HDD	20060123		IS2004100241US0
1433.	US20063441 61A	344,161		Method of processing defects of HDD. HDD and recording medium suitable for the same	20060201		IS2004100651US0
1434.	US20063522 62A	352,262		Slider, head gimbal assembly and hard disc drive	20060213		IS2005070051US0
1435.	US20063530 22A	353,022		Force Generating Apparatus	20060214		IS2005010031US0
1436.	US20063674 22A			Perpendicular magnetic recording disk	3/6/2006		RX2000100031US1
1437.	US20063762 37A			Digital magnetoresistance sensor	3/16/2006		RE2004120021US0
1438.	US20063952 59A			Buffer for disk drive and disk drive assembly having the same	4/3/2006		RI2005060021US0
1439.	US20064047 58A			Perpendicular magnetic recording media	4/17/2006		N/A
1440.	US20064090 57A	409,057		Method, medium, and apparatus controlling domain characteristics of a magneto-resistive sensor	20060424		IS2005020011US0
1441.	US20064668 87A	466,887		Data storing medium and hard disk drive having the same	20060824		IS2005070011US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samung Reference No.
1442.	US20064767 52A	476,752		HARD DISK DRIVE WITH AIR CIRCULATION UNIT	20060629		IS2005030061US0
1443.	US20064809 26A	480,926		SPINDLE MOTOR ASSEMBLY USABLE WITH A HARD DISK DRIVE	20060706		IS2005030181US0
1444.	US20064919 69A	491,969		Method and apparatus for suppressing resonance of hard disk drive using notch filter	20060725		IS2005040101US0
1445.	US20064936 53A	493,653		ACTUATOR WITH IMPROVED VOICE COIL MOTOR AND HARD DISK DRIVE HAVING THE SAME	20060727		IS2005060061US0
1446.	US20065074 55A	507,455		ACTUATOR AND HARD DISK DRIVE HAVING THE SAME	20060822		RE2005100111US0
1447.	US20065165 78A	516,578		HARD DISK DRIVE HAVING IMPROVED SHOCK RESISTANCE	20060907		RE2005080061US0
1448.	US20065305 26A	530,526		Spindle Motor Assembly Useable In a Hard Disk Drive	20060911		RE2005070021US0
1449.	US20065330 29A	533,029		Hard Disk Drive	20060919		RE2005070031US0
1450.	US20065487 32A	548,732		ACTUATOR AND HARD DISK DRIVE HAVING THE SAME	20061012		RE2005080071US0
1451.	US20065823 86A	582,386		Hard Disk Drive and Flexible Printed Circuit Ribbon Thereof	20061018		RE2005080011US0
1452.	US20065838 33A	583,833		SPINDLE MOTOR ASSEMBLY AND HARD DISK DRIVE HAVING THE SAME	20061020		RE2005080021US0
1453.	US20065915 62A	591,562		DISK DAMPER AND HARD DISK DRIVE HAVING THE SAME	20061102		IS2005070171US0
1454.	US20066033 71A	11/603,371	7,440,223	Written-In PRO Correction for Hard Disk Drives	20061122	20080909	WA2006050211US0
1455.	US20066060 74A	606,074		INFORMATION RECORDING AND REPRODUCING APPARATUS	20061130		RE2005090161US0
1456.	US20066171 02A	617,102		APPARATUS TO FIX A DISK AND A METHOD THEREOF	20061228		RE2005110051US0
1457.	US20066348 87A	634,887		DISK CLAMP AND HARD DISK DRIVE INCLUDING THE SAME	20061207		IS2005080261US0

PATENT

REEL: 020400 FRAME: 0258

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samung Reference No.
1458.	US20066371 42A	637,142		METHOD AND APPARATUS FOR DETECTING/CORRECTING DEFECT AREA AND RELATED DISK DRIVE	20061212		IS2005090031US0
1459.	US20076732 30A	673,230		PRINTED CIRCUIT, METHOD OF MANUFACTURING THE PRINTED CIRCUIT, PRINTED CIRCUIT/ELECTRONIC ELEMENT ASSEMBLY, AND METHOD OF MANUFACTURING THE PRINTED CIRCUIT/ELECTRONIC ELEMENT ASSEMBLY	20070209		IS2005100461US0
1460.	US20076836 35A	683,635		METHOD AND APPARATUS TO DETECT DATA AND DISK DRIVE USING THE SAME	20070308		IS2005120011US0
1461.	US20076846 84A	684,684		DISK USABLE WITH HARD DISK DRIVE AND HARD DISK DRIVE HAVING THE SAME	20070312		IS2005100141US0
1462.	US20077000 33A	700,033		Slim spindle motor and micro-drive apparatus comprising the same	20070131		RE2002090141US1
1463.	US20077568 49A	756,849		SUSPENSION CAPABLE OF REDUCING LOSS OF HIGH FREQUENCY SIGNAL	20070601		IS2006020161US0
1464.	US20077614 76A	761,476		DISK DAMPENER, HARD DISK DRIVE COMPRISING THE DISK DAMPENER, AND RELATED METHOD	20070612		IS2006020101US0
1465.	US20077622 48A	762,248		HEAD STACK ASSEMBLY AND HARD DISK DRIVE HAVING THE HEAD STACK ASSEMBLY	20070613		IS2006030261US0
1466.	US20077802 04A	780,204		HEAD GIMBAL ASSEMBLY AND HARD DISK DRIVE HAVING THE SAME	20070719		IS2006040171US0
1467.	US20077878 79A	11/787,879		GLIDE TEST AND CALIBRATION USING FOD (FLYING HEIGHT ON DEMAND) HGA DESIGN	20070417		WA2005040251US0
1468.	US20077886 30A			Fabrication of discrete track media for narrow groove and improved reliability	4/20/2007		WA2007020231US0
1469.	US20078116 68A			High-flow rate filter wall design	6/11/2007		WA2007020221US0
1470.	US20078410 59A	841,059		Method forming servo SYNC mark patterns and preventing write faults in hard disk drive	20070820		IS2006050081US0
1471.	US20078749 53A	874,953		Hard disk drive apparatus to control flying height of magnetic head and method thereof	20071019		IS2006090081US0
1472.	US20078994 96A	11/899,496		Hard Disk Drive with Power Saving Feature	20070906		WA2007050061US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1473.	US20079430 44A	943,044		HARD DISK DRIVE APPARATUS AND METHOD OF DECIDING DATA FORMAT OF HARD DISK DRIVE APPARATUS	20071130		IS2006080031US0
1474.	US20082154 41A	12/215,441	7,826,166	New Data Pattern for Fly Height Measurement	20080627	20101102	WA2008040121US0
1475.	US20082252 5A	022,525		ACTUATOR LATCH APPARATUS AND HARD DISK DRIVE APPARATUS HAVING THE SAME	20080130		IS2006100461US0
1476.	US20082324 0A	023,240		MAGNETIC RECORDING MEDIA AND HARD DISK DRIVE APPARATUS HAVING THE SAME	20080130		IS2006100021US0
1477.	US20082333 5A	023,335		STRUCTURE TO MOUNT HEAD STACK ASSEMBLY ON BASE MEMBER AND HARD DISK DRIVE INCLUDING THE SAME	20080131		IS2006100541US0
1478.	US20083306 15A	330,615		METHOD OF FORMING REFERENCE PATTERN	20081209		IS2007040151US0
1479.	US20093153 63F			Hard disk drive	6/18/2009		N/A(Design Patent)
1480.	US20093153 64F			Hard disk drive	6/18/2009		N/A(Design Patent)
1481.	US20093402 88F			External hard-disk	7/16/2009		N/A(Design Patent)
1482.	US20094178 21A	417,821		HARD DISK DRIVE AND METHOD OF SETTING WRITE-VERIFY TEMPERATURE THEREOF	20090403		IS2006120041US0
1483.	US20094301 70A	430,170		METHOD AND APPARATUS ESTIMATING TOUCH-DOWN APPROACH FLYING HEIGHT FOR MAGNETIC HEAD OF DISK DRIVE	20090427		IS2007030101US0
1484.	60/290,128 (provisional)			Apparatus and method for dampening disk vibration in storage device			EF2001040031US0
1485.	60/290,128 (provisional)-			AIR FLOW STABILIZER ON OFF-LINE SERVO TRACK WRITER			WA2003120011US0
1486.	60/302,940 (provisional)-			CONNECTOR CAP TO INHIBIT DAMAGE TO A CONNECTOR DUE TO ELECTROSTATIC DISCHARGE			WA2003120251US0

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LEGAL_CN # 5872639.2

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1487	60/256,226 (provisional)			TIME VARYING, NON-SYNCHRONOUS DISTURBANCE IDENTIFICATION AND CANCELLATION IN A ROTATING DISK STORAGE DEVICE.			WA2003120261US0
1488	60/232,961 (provisional)			VOLTAGE-CONSTRAINED SINUSOIDAL SEEK SERVO IN HARD DISK DRIVES			WA2003120291US0
1489	60/232,647 (provisional)			SEEK TRAJECTORY ADAPTATION IN SINUSOIDAL SEEK SERVO OF HARD DISK DRIVES.			WA2003120301US0
1490	60/195,759 (provisional)			WRITING HEAD FOR PERPENDICULAR MAGNETIC RECORDING			WA2003120321US0
1491	60/171,016 (provisional)			AN OPTIMIZED DESIGN OF GENERALIZED FOURIER TRAJECTORY FOR A HARD DISK DRIVE SERVO MECHANISM.			WA2003120331US0
1492	60/171,015 (provisional)			A GENERALIZED FOURIER SEEK METHOD FOR DESIGNING A HARD DISK DRIVE SERVO MECHANISM			WA2003120341US0
1493	60/165,160 (provisional)			VIBRATION ISOLATOR			WA2003120351US0
1494	60/149,932 (provisional)			ACOUSTIC INSULATOR FOR CONTROLLING NOISE GENERATED IN A STORAGE DEVICE.			WA2003120361US0
1495	60/149,943 (provisional)			ACOUSTIC NOISE BARRIER FOR A HARD DISK DRIVE.			WA2003120371US0
1496	60/160,722 (provisional)			HARD DISK DRIVE BASE INCORPORATING A SHOCK DAMPING STRUCTURE.			WA2003120381US0
1497	60/166,089 (provisional)			SINGLE LEVER BI-DIRECTIONAL INERTIA LATCH			WA2003120391US0
1498	60/810,281 (provisional)			Air Bearing Design got High Temperature / High humidity Operation			WA2006050111US0
1499	60/108,666 (provisional)			IMPACT GUARD FOR LIMITING HARD DISK MOVEMENT			CF1998110231US0
1500	60/107,376 (provisional)			VIBRATION ABSORBENT SKIN FOR A HARD DISK DRIVE			CF1998110221US0
1501				Air Bearing Surface and FOD Systems with Self-Limiting Clearance to Prevent Contact			WA2011010081US0
1502	61/359,721 (provisional)			Adjust Push-Down values for Slipping Grown Defects on SMR (Shingle Magnetic Recording) HDD			WA2010070011US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1503.	61/436,580 (provisional)-			OC Hardware Engines for Sine/cosine Generation and Discrete Fourier Transform (DFT)			WA2010060021US0
1504.	61/366,891 (provisional)-			No-Sector-Gap Wedge Operation for SMR (Shingle-Magnetic-Recording) HDD			WA2010080041US0
1505.	61/420,726 (provisional)-			Method for robust fly height measurement			WA2010110031US0
1506.	61/420,317 (provisional)-			Optimal Spiral Disk Drive Servo Seeking System			WA2011010131US0
1507.	61/469,614 (provisional)-			Arm Dampers with an Air Venting Channel for Improved Track Misregistration			WA2011030041US0
1508.				Hardware Rapid Off-track (ROT) Detection Using Combo IC and RV Sensors			WA2011010061US0
1509.				INTEGRATED PASSIVE MAGNETIC LATCH ASSEMBLIES			EC1997010081US0
1510.				HARD DISK DRIVE BASE INCORPORATING A SHOCK DAMPING STRUCTURE			EF1999110011US0
1511.				A GENERALIZED FOURIER SEEK METHOD FOR DESIGNING A HARD DISK DRIVE SERVO MECHANISM			EF2000040011US0
1512.				AN OPTIMIZED DESIGN OF GENERALIZED FOURIER TRAJECTORY FOR A HARD DISK DRIVE SERVO MECHANISM			EF2000040021US0
1513.				METHOD & APPARATUS FOR PROVIDING A THIN FILM R/W HEADS WITH SLANTED POLE TIP CONFIG.			EC1997010041US0
1514.				METHOD & APPARATUS FOR PROVIDING POSITIONAL INFORMATION ON A DISK			EC1997010051US0
1515.				METHOD & APPARATUS FOR PROVIDING THERMAL ASPERITY COMPENSATION			EC1997020141US0
1516.				METHOD & APPARATUS FOR DUAL INDUCTANCE OF A THIN FILM DISK DRIVE HEAD			EC1997020151US0
1517.				METHOD & APPARATUS FOR IMPLEMENTING AN INTERLEAVED ENHANCED PARTIAL RESPONSE DECODER FOR SEQUENCE DETECTION			EC1997010071US0

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1518.				Shingled Write 방식의 Disk Drive에서 Servo영역에 보상 값을 기록하는 방법.			IS2010050071US0
1519.				Special Zonemap 으로 환경변화 및 외란에 의한 Write Performance 및 Data신뢰성 개선.			IS2010050081US0
1520.				HTL Selection Merge scheme			IS2010060081US0
1521.				Write scheme matching cluster alignment for improving read performance of HDD Translation Layer applied HDD			IS2010070011US0
1522.				Cache prefetch policy for optimization of HDD Translation Layer applied HDD			IS2010070021US0
1523.				HTL을 이용한 Shingle write 시 가상의 Zone 및 가상의 Band를 사용한 운용 방법			IS2010070031US0
1524.				Mapping Algorithm(HTL)을 사용 한 Shingle Write 시 HDD의 Data 공간 이외의 Spare 공간을 이용한 Sudden Power-Off상황의 Mapping Information Recovery 방법			IS2010070041US0
1525.				Shingled Write를 사용하는 HDD의 Logical Band 설정 최적화 방법			IS2010070051US0
1526.				Dynamic Address Mapping(HTL)을 사용하는 Shingled Write 드라이브의 Data I/O Error handling 방법			IS2010070061US0
1527.				Common Reserved Virtual Band를 활용한 Performance Drop 방지			IS2010070101US0
1528.				Write fault retry 발생 시 성능 저하를 줄이는 방법			IS2010060131US0
1529.				HDD의 전원인가 초기 write 동작을 통한 빠른 Head 안정화 algorithm과 이를 이용한 초기 write 동작 HDD 신뢰성 향상 방법			IS2010070171US0
1530.				디스크 변형에 의한 High PES발생시 RamRcc를 하여 Write하는 법			IS2010100071US0
1531.				Adaptive BEMF detection method for spindle motor control			IS2010060111US0
1532.				하드 디스크 드라이브에서 회로 구동 전압 보정 방법			IS2010070151US0

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	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1533.				Position Error Linearization by modifying burst profile in HDD			IS2010100231US0
1534.				Viterbi를 이용한 SNR 측정 및 계산방법과 SNR을 이용한 제품에 parity-length 차등 적용			IS2010060051US0
1535.				SMR 드라이브의 Flash memory 사용량을 최적화 하는 SPOR scheme			IS2010080061US0
1536.				SMR(Shingled Media Record)을 위한 Adaptive Mrtune optimize			IS2010100261US0
1537.				HDI sensor input signal 을 target 으로 맞추 수 있는 preamplifier			IS2010090011US0
1538.				시간 단위로 FOD control 할 수 있는 preamplifier			IS2010100011US0
1539.				Serial ATA Interface에서 SYNC Escape 예외상황 처리 중 발생하는 하드웨어와 펌웨어의 응답 속도 차이에 의한 문제점의 개선 방법.			IS2010100151US0
1540.				Re-allocation sector의 read performance 향상 방법 및 장치			IS2010100171US0
1541.				Smart defect scan algorithm & variable sector location method for long sector format			IS2010100191US0
1542.				Initial sector weak write개선을 위한 head의 preheating value 최적값 선택 알고리즘			IS2010100201US0
1543.				Offline Multi Pass Servo Copy에서의 Servo Track Alignment			IS2010090061US0
1544.				이종 매체를 갖는 고성능 대용량 저장장치			IS2010060071US0
1545.				USB 디바이스 용 Mirror-based NAS (Network Attached Storage)의 데이터 동기화 기술			IS2010070121US0
1546.				USB 디바이스 가능한 Mirror-based NAS (Network Attached Storage)의 빠른 데이터 동기화 기술			IS2010070131US0
1547.				Mirror-based NAS에서 교체 (추가) Disk Drive를 위한 지연 동기화 기술			IS2010070141US0
1548.				Media 의 불균일성에 의한 HDD(Hard Disk Drive) 용량 부족 및 신뢰성 문제를 개선하기 위한 원주 방향 BPI 조절방법			IS2010100041US0

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PATENT

REEL: 020400 FRAME: 0262

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1549.				Dual Bonded Lube heat sink system having carbon pillar structure			IS2010100361US0
1550.				Head 특성 산포가 HDD 용량에 미치는 영향을 최소화하기 위한 Head/Media Matching 방법 및 이를 위한 HSA 제작 방법 및 Disk.			IS2010100411US0
1551.				Ramp Friction 감소를 위한 Lift tab부 Surface texture 형상 구현			IS2010070221US0
1552.				He-STW 및 Re-work 조립성 개선을 위한 Asymmetry Rim 구조를 갖는 Gasket-header			IS2010100051US0
1553.				PSA/RSA를 보상할 수 있는 active gimbal integrated suspension			IS2010100091US0
1554.				Arm design with air-block to reduce FPC vibration			IS2010100111US0
1555.				Ramp 조립성 향상에 관한 방법			IS2010100271US0
1556.				HDD의 밀폐성능 향상 및 변형 저항 구조			IS2010100141US0
1557.				Cover 조립성 향상을 위한 Cover 형상 개선			IS2010100121US0
1558.				Slider 내부에 공기유동 통로를 두어 ABS 내의 reverse flow를 억제하는 기술			IS2010100371US0
1559.				Servo preamble FOD control			IS2010100421US0
1560.				RV(Rotary Vibration) Sensor Output Monitor를 통한 ROT(Rapid Off-Track Erase) 개선 방법			IS2010030021US0
1561.				ECC Error 위치 정보를 이용한 defect type 분석과 효율적인 defect control			IS2010030051US0
1562.				특정영역에 집중된 Massive data defect 처리 방법			IS2010090041US0
1563.				Air flow를 이용한 air fluctuation 저감 Base design			IS2010100181US0
1564.				Head MRR 에 따른 Head Flying Height 조절			IS2010030031US0

PATENT

REEL: 020400 FRAME: 0265

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LEGAL_CN # 5872639.2

	Official Application No.	Inpro (Application No.)	Issue No.	Title	Filing Date	Issue Date	Samsung Reference No.
1565.				SATA Pim 11을 이용한 하드디스크 드라이브의 적응적(Adaptive) 동작모드 설정 방법			IS2010030061US0
1566.				디스크 드라이브 장치의 주기적인 외부외란 보상방법			IS2010050051US0