

PATENT ASSIGNMENT

Electronic Version v1.1  
Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	SECURITY AGREEMENT
CONVEYING PARTY DATA	
Name	Execution Date
Northrop Grumman Shipbuilding, Inc.	03/30/2011
RECEIVING PARTY DATA	
Name:	JPMorgan Chase Bank, N.A., as Collateral Agent
Street Address:	P.O. Box 2558
Internal Address:	Lien Perfection Unit
City:	Houston
State/Country:	TEXAS
Postal Code:	77252-8301
PROPERTY NUMBERS Total: 74	
Property Type	Number
Patent Number:	5176092
Patent Number:	5186117
Patent Number:	5191162
Patent Number:	5199912
Patent Number:	5286116
Patent Number:	5319686
Patent Number:	5333913
Patent Number:	5345058
Patent Number:	5363791
Patent Number:	5429338
Patent Number:	5452677
Patent Number:	5509830
Patent Number:	5526766
Patent Number:	5586801

501485282

PATENT  
REEL: 026064 FRAME: 0593

OP \$2960.00 5176092

Patent Number:	5590474
Patent Number:	5625549
Patent Number:	5633904
Patent Number:	5661768
Patent Number:	5691589
Patent Number:	5738386
Patent Number:	5758861
Patent Number:	5783893
Patent Number:	5832859
Patent Number:	5838861
Patent Number:	5875955
Patent Number:	6007022
Patent Number:	6174125
Patent Number:	6223676
Patent Number:	6374031
Patent Number:	D412966
Patent Number:	6444951
Patent Number:	6437279
Patent Number:	6476532
Patent Number:	6467759
Patent Number:	6254070
Patent Number:	5841147
Patent Number:	5622572
Patent Number:	6868794
Patent Number:	6695296
Patent Number:	6511047
Patent Number:	7274031
Patent Number:	6705571
Patent Number:	6697271
Patent Number:	6752250
Patent Number:	7213690
Patent Number:	6923298
Patent Number:	5613460
Patent Number:	6929379
Patent Number:	6851827

	7238066
Patent Number:	7845995
Patent Number:	7369921
Patent Number:	7726634
Patent Number:	7492052
Application Number:	12019977
Patent Number:	7746084
Patent Number:	7837175
Patent Number:	7878042
Application Number:	12500360
Application Number:	12544616
Application Number:	12245180
Patent Number:	5892299
Patent Number:	6003461
Patent Number:	6104103
Patent Number:	6223669
Patent Number:	6347461
Patent Number:	6729657
Patent Number:	7159818
Patent Number:	7284364
Patent Number:	7383685
Patent Number:	7707841
Patent Number:	D465189
Patent Number:	D522440
Patent Number:	5831365

# CORRESPONDENCE DATA

Fax Number: (800)494-7512  
*Correspondence will be sent via US Mail when the fax attempt is unsuccessful.*  
Phone: 202-370-4761  
Email: ecallahan@nationalcorp.com  
Correspondent Name: Elspeth Callahan  
Address Line 1: 1100 G St NW Suite 420  
Address Line 2: National Corporate Research  
Address Line 4: Washington, DISTRICT OF COLUMBIA 20005

ATTORNEY DOCKET NUMBER:	F132815
-------------------------	---------

NAME OF SUBMITTER:

**PATENT**  
**REEL: 026064 FRAME: 0595**

Rick Harrison

**Total Attachments: 10**

source=Patent Filing#page2.tif  
source=Patent Filing#page3.tif  
source=Patent Filing#page4.tif  
source=Patent Filing#page5.tif  
source=Patent Filing#page6.tif  
source=Patent Filing#page7.tif  
source=Patent Filing#page8.tif  
source=Patent Filing#page9.tif  
source=Patent Filing#page10.tif  
source=Patent Filing#page11.tif

## PATENT SECURITY AGREEMENT

March 30, 2011

WHEREAS, NORTHROP GRUMMAN SHIPBUILDING, INC., a Virginia corporation (herein referred to as the "**Grantor**") owns, or in the case of licenses is a party to, the Patent Collateral (as defined below);

WHEREAS, HUNTINGTON INGALLS INDUSTRIES, INC. (the "**Borrower**"), the Lenders party thereto, JPMORGAN CHASE BANK, N.A., as Administrative Agent, Issuing Bank and Swingline Lender, and CREDIT SUISSE AG, as Swingline Lender, are parties to a Credit Agreement dated as of March 11, 2011 as amended by Amendment No. 1 dated as of March 23, 2011 (as the same may be further amended, supplemented, replaced, renewed or otherwise modified from time to time, the "Credit Agreement"); and

WHEREAS, pursuant to (i) a Guarantee and Security Agreement dated as of March 30, 2011 (as amended and/or supplemented from time to time, the "**Security Agreement**") among the Borrower, the Guarantors party thereto and JPMORGAN CHASE BANK, N.A., as Collateral Agent for the Secured Parties referred to therein (in such capacity, together with its successors in such capacity, the "**Grantee**"), and (ii) certain other Security Documents (including this Patent Security Agreement), the Grantor has guaranteed certain obligations of the Borrower and secured such guarantee (the "**Grantor's Secured Guarantee**") by granting to the Grantee for the benefit of such Secured Parties a continuing security interest in personal property of the Grantor, including all right, title and interest of the Grantor in, to and under the Patent Collateral (as defined below);

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Grantor grants to the Grantee, for the benefit of the Secured Parties, to secure the Grantor's Secured Guarantee, a continuing security interest in all of the Grantor's right, title and interest in, to and under the following (all of the following items or types of property being herein collectively referred to as the "**Patent Collateral**"), whether now owned or existing or hereafter acquired or arising:

(i) each Patent owned by the Grantor, including, without limitation, each Patent referred to in Schedule 1 hereto;

(ii) each Patent License under which exclusive rights are granted to the Grantor, including, without limitation, each Patent License identified in Schedule 1 hereto under which a United States Patent (including a pending patent application) is exclusively licensed to the Grantor; and

(iii) all Proceeds of the foregoing.

The foregoing security interest is granted in conjunction with the security interests granted by the Grantor to the Grantee for the benefit of the Secured Parties pursuant to the Security Agreement. The Grantor acknowledges and affirms that the rights and remedies of the Grantee with respect to the security interest in the Patent Collateral granted hereby are more fully set forth in the Security Agreement, the terms and provisions of which are incorporated by

reference herein as if fully set forth herein. In the event of any conflict between the terms of this Agreement and the Security Agreement, the terms of the Security Agreement shall govern.


Terms defined in the Security Agreement and not otherwise defined herein have, as used herein, the respective meanings provided for therein.

t

[Signature Page Follows.]

IN WITNESS WHEREOF, the Grantor has caused this Patent Security Agreement to be duly executed by its officer thereunto duly authorized as of the date first written above.

NORTHROP GRUMMAN SHIPBUILDING,  
INC.

By:   
Name: Mark Rabinowitz  
Title: Treasurer

[Signature Page to Northrop Grumman Shipbuilding, Inc. Patent Security Agreement]

**PATENT**  
**REEL: 026064 FRAME: 0599**

Acknowledged:

JPMORGAN CHASE BANK, N.A.,  
as Collateral Agent

By:   
Name: MATTHEW H. MASSIE  
Title: MANAGING DIRECTOR

[Signature Page to Northrop Grumman Shipbuilding, Inc. Patent Security Agreement]

**PATENT**  
**REEL: 026064 FRAME: 0600**

**Schedule 1  
to Patent  
Security Agreement**

**NORTHROP GRUMMAN SHIPBUILDING, INC.**

**UNITED STATES PATENTS AND DESIGN PATENTS**

<b>Patent No.</b>	<b>Country</b>	<b>Issued</b>	<b>Expiration</b>	<b>Title</b>
Appl. No. 07/753391 Reg. No. 5,176,092	US	1/5/1993	8/30/2011	Icebreaker Bow and Hull Form
Appl. No. 07/786708 Reg. No. 5,186,117	US	2/16/1993	11/1/2011	Submarine Steering Apparatus and Method
Appl. No. 07/755338 Reg. No. 5,191,162	US	3/2/1993	9/5/2011	Method and Apparatus for a Ship-Based Rocket Launching Structure
Appl. No. 07/745350 Reg. No. 5,199,912	US	4/6/1993	8/15/2011	Electric Power System for Marine Vehicles
Appl. No. 07/938420 Reg. No. 5,286,116	US	2/15/1994	8/31/2012	Bearing Assembly
Appl. No. 08/100621 Reg. No. 5,319,686	US	6/7/1994	7/30/2013	Dry Transfer of Spent Nuclear Rods for Transportation
Appl. No. 08/017690 Reg. No. 5,333,913	US	8/2/1994	2/12/2013	Galvanic Isolation Device
Appl. No. 07/925955 Reg. No. 5,345,058	US	9/6/1994	8/5/2012	Magnetic Field Negating System for Weldments
Appl. No. 08/062812 Reg. No. 5,363,791	US	11/15/1994	5/11/2013	Weapons Launch System
Appl. No. 08/105516 Reg. No. 5,429,338	US	7/4/1995	8/11/2013	Equipment Mount
Appl. No. 08/140663 Reg. No. 5,452,677	US	9/26/1995	10/21/2013	Hull Valve Assembly
Appl. No. 08/298095 Reg. No. 5,509,830	US	4/23/1996	8/23/2014	Marine Propulsor Cooling and Lubricating System
Appl. No. 08/345537 Reg. No. 5,526,766	US	6/18/1996	4/13/2013 Cont. of Appl. No. 08/046,786 filed 4/13/1993	Hull Markings
Appl. No. 08/329929 Reg. No. 5,586,801	US	12/24/1996	10/27/2014	Stud Mounted Hoist Ring
Appl. No. 08/512590 Reg. No. 5,590,474	US	1/7/1997	8/8/2015	Flange Bolt Hole Alignment Pin
Appl. No. 08/310946 Reg. No. 5,625,549	US	4/29/1997	9/23/2014	Boost-Buck Rectifier Bridge Circuit Topology with Diode Decoupled Boost Stage

Patent No.	Country	Issued	Expiration	Title
Appl. No. 08/336503 Reg. No. 5,633,904	US	5/27/1997	11/9/2014	Spent Nuclear Fuel (SNF) Dry Transfer System
Appl. No. 08/593158 Reg. No. 5,661,768	US	8/26/1997	11/9/2014 Division of Pat. No. 5,633,904 filed 11/9/1994	Spent Nuclear Fuel (SNF) Dry Transfer System
961104585	CH		6/28/2016	Detachable Magnet Carrier for Permanent Magnet Motor
961104585	DE		6/28/2016	Detachable Magnet Carrier for Permanent Magnet Motor
961104585	DK		6/28/2016	Detachable Magnet Carrier for Permanent Magnet Motor
961104585	ES		6/28/2016	Detachable Magnet Carrier for Permanent Magnet Motor
961104585	FI		6/28/2016	Detachable Magnet Carrier for Permanent Magnet Motor
961104585	FR		6/28/2016	Detachable Magnet Carrier for Permanent Magnet Motor
961104585	GB		6/28/2016	Detachable Magnet Carrier for Permanent Magnet Motor
961104585	GR		6/28/2016	Detachable Magnet Carrier for Permanent Magnet Motor
961104585	IT		6/28/2016	Detachable Magnet Carrier for Permanent Magnet Motor
961104585	NL		6/28/2016	Detachable Magnet Carrier for Permanent Magnet Motor
961104585	PT		6/28/2016	Detachable Magnet Carrier for Permanent Magnet Motor
961104585	SE		6/28/2016	Detachable Magnet Carrier for Permanent Magnet Motor
960171427	JP		6/28/2016	Detachable Magnet Carrier for Permanent Magnet Motor
1019960026614	KR		6/28/2016	Detachable Magnet Carrier for Permanent Magnet Motor
Appl. No. 08/496928 Reg. No. 5,691,589	US	11/25/1997	6/30/2015	Detachable Magnet Carrier for Permanent Magnet Motor
Appl. No. 08/608588	US	4/14/1998	2/28/2016	Lightweight Pipe Clamp

Patent No.	Country	Issued	Expiration	Title
Reg. No. 5,738,386				
Appl. No. 08/710457 Reg. No. 5,758,861	US	6/2/1998	9/18/2016	Compression Mount for Equipment
Appl. No. 08/546317 Reg. No. 5,783,893	US	7/21/1998	10/20/2015	Multiple Stator, Single Shaft Electric Machine
Appl. No. 08/587552 Reg. No. 5,832,859	US	11/10/1998	1/17/2016	Welded Stud Hanging Assembly for a Blasting and Coating Containment System
Appl. No. 08/891595 Reg. No. 5,838,861	US	11/17/1998	7/11/2017	Transition Assembly for Optical Fiber
Appl. No. 08/730920 Reg. No. 5,875,955	US	3/2/1999	10/18/2016	Internally Mounted Pipe Clamping Device
Appl. No. 08/967052 Reg. No. 6,007,022	US	12/28/1999	11/10/2017	Internal Combustion Catapult
Appl. No. 09/408434 Reg. No. 6,174,125	US	1/16/2001	9/29/2019	Method and Apparatus for Racking and Unracking Pipe
Appl. No. 09/447520 Reg. No. 6,223,676	US	5/1/2001	11/23/2019	Control for X-Stern Vehicle
Appl. No. 09/535194 Reg. No. 6,374,031	US	4/16/2002	3/27/2020	Penetrator for Blown Optical Fiber and Method Relating Thereto
Appl. No. 29/097352 Reg. No. D412,966	US	8/17/1999	8/17/2013	Valve Handle
Appl. No. 09/785506 Reg. No. 6,444,951	US	9/3/2002	2/20/2021	Welding Rod Extending Assembly for Attachment with Electrode Holder
Appl. No. 09/723466 Reg. No. 6,437,279	US	8/20/2002	11/28/2020 (+57 days)	Method and Apparatus for Leveling and Shielding a Stud Gun and Operator
Appl. No. 09/222476 Reg. No. 6,476,532	US	11/5/2002	12/29/2018	Magnetostrictive-Compensated Core of Electromagnetic Device
Appl. No. 09/785401 Reg. No. 6,467,759	US	10/22/2002	2/20/2021	Controllable Equipment Mount
Appl. No. 989332069 Patent No. EP0991874	DE		7/1/2018 National stage entry of PCT/US98/14 021	Shock Absorption Mount
Appl. No. 989332069	ES		7/1/2018	Shock Absorption Mount
Appl. No. 989332069	FR		7/1/2018	Shock Absorption Mount
Appl. No. 989332069	GB		7/1/2018	Shock Absorption Mount
Appl. No. 989332069	IT		7/1/2018	Shock Absorption Mount
Appl. No. 09/462235 Reg. No. 6,254,070	US	7/3/2001	1/4/2020 National stage entry of PCT/US98/14 021 filed 7/1/1998	Shock Absorption Mount
Appl. No. 08/920651 Reg. No. 5,841,147	US	11/24/1998	8/29/2017	Intermodal Modular Spent Nuclear Fuel

Patent No.	Country	Issued	Expiration	Title
				Transportation System
Appl. No. 08/520463 Reg. No. 5,622,572	US	4/22/1997	8/28/2015	Extra-Strength Steel and Method of Making
Appl. No. 10/265739 Reg. No. 6,868,794	US	3/22/2005	10/8/2022 (+185 days)	Material Turn Table
Appl. No. 09/986355 Reg. No. 6,695,296	US	2/24/2004	11/8/2021	Shock and Vibration Isolation Mount with Variable Thickness Support Section
Appl. No. 09/464233 Reg. No. 6,511,047	US	1/28/2003	12/15/2019	Method and Apparatus for Making a Plurality of Blown Optical Fiber Insertions Into a Duct
Appl. No. 10/095023 Reg. No. 7,274,031	US	9/25/2007	3/12/2021 Cont.-in-part of Appl. No. 09/803035 filed 3/12/2001 4 year maint. Fee due 3/26/2011	Radiation Shielding
Appl. No. 10/201085 Reg. No. 6,705,571	US	3/16/2004	7/22/2022	System and Method for Loading Stores on an Aircraft
Appl. No. 09/930249 Reg. No. 6,697,271	US	2/24/2004	8/16/2021	Cascaded Multi-Level H- Bridge Drive
Appl. No. 09/963566 Reg. No. 6,752,250	US	6/22/2004	9/27/2021 (+29 days)	Shock, Vibration and Acoustic Isolation System
Appl. No. 10/662731 Reg. No. 7,213,690	US	5/8/2007	9/27/2021 Cont.-in-part of Pat. No. 6,752,250 filed 9/27/2001	Self-Powering Shock, Vibration and Acoustic Isolation System
Appl. No. 10/850209 Reg. No. 6,923,298	US	8/2/2005	9/27/2021 Cont. of Pat. No. 6,752,250 filed 9/27/2001	Shock, Vibration and Acoustic Isolation System
Appl. No. 08/642123 Reg. No. 5,613,460	US	3/25/1997	8/31/2014 Cont. of Appl. No. 08/298,858 filed 8/31/1994	Submersible Vessel External Load Mounting System
Appl. No. 10/912347 Reg. No. 6,929,379	US	8/16/2005	7/22/2022 Cont. of Pat. No. 6,851,827 filed 7/22/2002	Submersible Lantern
Appl. No. 10/201058 Reg. No. 6,851,827	US	2/8/2005	7/22/2022 (+129 days)	Submersible Lantern
Appl. No. 10/948061	US	7/3/2007	9/23/2024	Pod Propulsion System

Patent No.	Country	Issued	Expiration	Title
Reg. No. 7,238,066			(+203 days)	with Rim-Mounted Bearings
Appl. No. 11/771175 Reg. No. 7,845,995	US	12/7/2010	9/23/2024 (+192 days) Cont. of Pat. No. 7,238,066 filed 9/23/2004	Pod Propulsion System with Rim-Mounted Bearings
Appl. No. 11/351550 Reg. No. 7,369,921	US	5/6/2008	2/10/2026 (+45 days)	Power Distribution Expert System
Appl. No. 11/567811 Reg. No. 7,726,634	US	6/1/2010	12/7/2026 (+461 days)	System and Method for Tensioning and Locking a Safety Strand
Appl. No. 11/562186 Reg. No. 7,492,052	US	2/17/2009	3/10/2027 (+109 days)	Electronically Moderated Expansion Electrical Generator
Appl. No. 12/019977 Publ. No. 20080193239	US			Portable Multi-Function Machine Tool
Appl. No. 11/867965 Reg. No. 7,746,084	US	6/29/2010	10/5/2027 (+403 days)	Impedance Measurement Using Line-to-Line Current Injection
Appl. No. 11/766154 Reg. No. 7,837,175	US	11/23/2010	6/21/2027 (+824 days)	Variable Torque Valve Actuator
Appl. No. 12/248749 Reg. No. 7,878,042	US	2/1/2011	10/9/2028 (+75 days)	Shock Simulation Generator
Appl. No. 12/500360 Publ. No. 20100018722	US			Overhead Servicing of Machines
Appl. No. 12/544616	US			Tuned Rolling Wave Energy Extractor
Appl. No. 12/245180 Publ. No. 20100014198	US			Method, Apparatus and Computer Program Product for Fault Protection
Appl. No. 08/719096 Reg. No. 5,892,299	US	4/6/1999	9/24/2026 12 year maint. fee due 6/22/2011	Simultaneous Power Supply Source
Appl. No. 08/988780 Reg. No. 6,003,461	US	12/21/1999	12/11/2017	Quick-Acting, Water- Tight Composite Door Assembly
Appl. No. 09/301745 Reg. No. 6,104,103	US	8/15/2000	5/8/2018 Cont. of Appl. No. 09/074,399 filed 5/8/1998	Simultaneous Power Supply Source
Appl. No. 09/100127 Reg. No. 6,223,669	US	5/1/2001	6/19/2018	Vessel Having a Standardized Hull Capable of Having a plurality of Optional and Operational Modular Structures and Method of Construction

Patent No.	Country	Issued	Expiration	Title
				Therefor
Appl. No. 09/455794 Reg. No. 6,347,461	US	2/19/2002	12/7/2019	Portable Draft Measurement Device and Method of Use Therefor
Appl. No. 10/037283 Reg. No. 6,729,657	US	5/4/2004	1/4/2022 (+147 days)	Method and Apparatus for Fastening a Tube to a Wall
Appl. No. 10/958481 Reg. No. 7,159,818	US	1/9/2007	10/5/2024 (+53 days)	Multi-Spectral Air Inlet Shield and Associated Inlet Structure
Appl. No. 10/917212 Reg. No. 7,284,364	US	10/23/2007	8/12/2024 (+434 days) 4 year maint. fee due 4/26/2011	Passive Exhaust Suppressor and Method
Appl. No. 11/760097 Reg. No. 7,383,685	US	6/10/2008	8/12/2024 Division of Pat. No. 7,284,364 filed 8/12/2004	Passive Exhaust Suppressor and Method
Appl. No. 11/302705 Reg. No. 7,707,841	US	5/4/2010	12/13/2025 (+1091 days)	Phase Cooling Method and Apparatus
Appl. No. 29/074330 Reg. No. D465,189	US	11/5/2002	11/5/2016	High Performance Multipurpose Frigate
Appl. No. 29/074331 Reg. No. D522,440	US	6/6/2006	6/6/2020	Multi-Function Corvette
Appl. No. 08/888369 Reg. No. 5,831,365	US	11/3/1998	6/30/2015 Division of Pat. No. 5,691,589 filed 6/30/1995	Detachable Magnet Carrier for Permanent Magnet Motor
Appl. No. 990403386 Reg. No. 3032298	GR		6/29/2016	Detachable Magnet Carrier for Permanent Magnet Motor
Reg. No. 2440402	CA	1/15/2008	12/15/2019	Radiation Shielding
Appl. No. 027266048 Reg. No. EP1380034	EP		3/12/2022	Radiation Shielding
Reg. No. 2538899	CA	11/30/2010		Passive Exhaust Suppressor and Method

**PATENT LICENSES (INFORMATION REGARDING PATENTS SHOULD BE INCLUDED)**

Name of Agreement	Parties Licensor/Licensee	Date of Agreement	Patent or Serial No.
None.			