

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT3995337

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	RELEASE OF SECURITY INTEREST

CONVEYING PARTY DATA

Name	Execution Date
U.S. BANK NATIONAL ASSOCIATION	07/15/2016

RECEIVING PARTY DATA

Name:	AEROJET ROCKETDYNE, INC. (F/K/A AEROJET-GENERAL CORPORATION)
Street Address:	2001 AEROJET ROAD
City:	RANCHO CORDOVA
State/Country:	CALIFORNIA
Postal Code:	95742

PROPERTY NUMBERS Total: 180

Property Type	Number
Application Number:	05783919
Application Number:	07308157
Application Number:	07629112
Application Number:	07637848
Application Number:	07704537
Application Number:	07770216
Application Number:	07878222
Application Number:	07941620
Application Number:	08076885
Application Number:	08080890
Application Number:	08082137
Application Number:	08120615
Application Number:	08132980
Application Number:	08134726
Application Number:	08147591
Application Number:	08166425
Application Number:	08200611
Application Number:	08213306
Application Number:	08213391
Application Number:	08226919

PATENT

Property Type	Number
Application Number:	08248932
Application Number:	08250243
Application Number:	08291385
Application Number:	08325891
Application Number:	08346646
Application Number:	08359808
Application Number:	08371914
Application Number:	08415802
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Application Number:	11233401
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Application Number:	13189300

Property Type	Number
Application Number:	13264721
Application Number:	13299718
Application Number:	13415155
Application Number:	13462909
Application Number:	13467238
Application Number:	13493554
Application Number:	13703787
Application Number:	13704554

CORRESPONDENCE DATA

Fax Number:

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Email: joel.landau@rocket.com

Correspondent Name: JOEL G LANDAU

Address Line 1: PO BOX 7922

Address Line 2: RLB70

Address Line 4: CANOGA PARK, CALIFORNIA 91304

NAME OF SUBMITTER:	JOEL G LANDAU
SIGNATURE:	/JGL/
DATE SIGNED:	08/05/2016
	This document serves as an Oath/Declaration (37 CFR 1.63).

Total Attachments: 14

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**RELEASE OF SECURITY
INTEREST IN PATENTS**

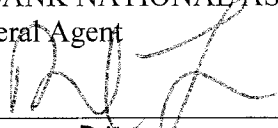
WHEREAS, pursuant to that certain Security Agreement, dated as of June 14, 2013 by and among GenCorp Inc. (reincorporated in Delaware as Aerojet Rocketdyne Holdings, Inc.) and the other Obligors party thereto, on the one hand, and U.S. Bank National Association, as Collateral Agent ("Releasor"), on the other hand, Aerojet Rocketdyne, Inc. (formerly known as Aerojet-General Corporation) an Ohio corporation ("Releasee"), granted to Releasor, as Collateral Agent, a continuing security interest in and a continuing lien upon certain of Releasee's patents and patent applications, described on Schedule A hereto ("Patents"), which was recorded in the United States Patent and Trademark Office at Reel 030656, Frame 0667 on June 21, 2013;

WHEREAS, Releasee has requested, and Releasor has agreed to provide, a document suitable for recording in the United States Patent and Trademark Office evidencing and effecting the release, relinquishment and discharge of Releasor's continuing security interest in and continuing lien upon the Patents and the assignment and transfer to Releasee of all of Releasor's rights in and to the Patents.

NOW, THEREFORE, in consideration of and in exchange for good and valuable consideration, receipt and sufficiency of which is hereby acknowledged, Releasor hereby, without any representation and warrant and without any recourse to Releasor, releases, relinquishes and discharges its continuing security interest in and continuing lien upon the Patents, and assigns and transfers to Releasee all of Releasor's rights in and to the Patents.

IN WITNESS WHEREOF, Releasor has caused this Release of Security Interest in Patents to be executed by its duly authorized corporate officer this 15th day of July, 2016.

U.S. BANK NATIONAL ASSOCIATION, as
Collateral Agent

By: 
Name: DAVID JASON
Title: VICE PRESIDENT

Schedule A

PATENTS

PATENT NO.	COUNTRY	FILING DATE	TITLE
5332359	US	10/12/1993	STATOR ASSEMBLY FOR A ROTARY MACHINE HAVING A CENTRIFUGAL ON IMPELLER AND VOLUTE
5310265	US	4/28/1993	HEXAGONAL CLUSTER NOZZLE FOR A ROCKET ENGINE
5415748	US	2/23/1994	PROCESS FOR THE ELECTROPHORETIC DEPOSITION OF DEFECT-FREE METALLIC OXIDE COATINGS
5444973	US	12/13/1993	PRESSURE-FED ROCKET BOOSTER SYSTEM
5473817	US	3/14/1994	METHOD OF MAKING COOLED ROCKET COMBUSTION CHAMBER CONSTRUCTION
5477613	US	3/14/1994	METHOD OF SIMULTANEOUSLY FORMING ROCKET THRUST CHAMBER COOLING TUBES
5534086	US	5/1/1995	METHOD FOR MAKING A COBALT-BORIDE DISPERSION-STRENGTHENED COPPER
5546656	US	11/30/1994	FABRICATION OF ROCKET THRUST CHAMBERS
5557928	US	8/16/1994	TUBE ROCKET THRUST CHAMBER CONSTRUCTION AND METHOD
5564753	US	10/3/1991	CRYOGENIC FLUID MANIFOLD
5566544	US	5/27/1994	ROCKET PREBURNER INJECTOR WITH TAILORED GAS TEMPERATURE PROFILE *
5580835	US	1/7/1991	CERAMIC FIBERS PRODUCED BY ELECTROPHORETIC DEPOSITION OF PARTICLES
5582000	US	2/8/1989	COOLABLE ROCKET NOZZLE FOR A ROCKET ENGINE

PATENT NO.	COUNTRY	FILING DATE	TITLE
5591380	US	5/9/1995	PREPARATION OF ALUMINA-SILICA SOL GEL COMPOSITIONS
5660040	US	12/20/1994	SCRAMJET FUEL INJECTION SYSTEM HAVING INDEPENDENT FUEL SUPPLIES FOR SUPERSONIC AND HYPERSONIC OPERATION *
5679180	US	6/22/1995	Γ STRENGTHENED SINGLE CRYSTAL TURBINE BLADE ALLOY FOR HYDROGEN FUELED PROPULSION SYSTEMS
5683033	US	12/11/1990	ROCKET NOZZLE FOR A ROCKET ENGINE
5801453	US	6/11/1996	PROCESS FOR PREPARING SPHERICAL ENERGETIC COMPOUNDS
5751113	US	12/9/1996	CLOSED ELECTRON DRIFT HALL EFFECT PLASMA ACCELERATOR WITH ALL MAGNETIC SOURCES LOCATED
5845880	US	12/9/1996	HALL EFFECT PLASMA THRUSTER
5847493	US	12/9/1996	HALL EFFECT PLASMA ACCELERATOR
5881619	US	6/22/1993	METHOD AND APPARATUS FOR CUTTING BLOCKS OF SOLID ENERGETIC MATERIALS
5873241	US	5/23/1991	ROCKET ENGINE AUXILIARY POWER SYSTEM
5918460	US	5/5/1997	LIQUID OXYGEN GASIFYING SYSTEM FOR ROCKET ENGINES
5962803	US	3/25/1998	PROCESS FOR PREPARING SPHERICAL ENERGETIC COMPOUNDS
6053636	US	11/10/1998	HYDROSTATIC BEARING WITH COMPENSATORY FLUID INJECTION
6408760	US	12/18/1997	METHOD OF MANUFACTURING SOLID ROCKET MOTORS
6532741	US	6/29/2001	GAS GENERATOR FOR PRODUCING ADJUSTABLE FLOW
6606853	US	12/5/2002	ROCKET PROPULSION SYSTEM
6627126	US	7/16/2001	METHOD FOR PREPARING REFRACTORY CARBIDES
6629673	US	11/28/2001	ADAPTABLE SOLID-HYBRID ROCKET FOR CREW ESCAPE AND ORBITAL INJECTION PROPULSION
6652248	US	6/29/2001	CATALYST BED
6715293	US	3/28/2002	SCRAM JET ENGINE DESIGN *
6807805	US	3/11/2003	HYPERGOLIC FUEL SYSTEM
6883330	US	10/2/2002	VARIABLE GEOMETRY INLET DESIGN FOR SCRAM JET ENGINE
6907920	US	1/29/2002	HEAT EXCHANGER PANEL
7030576	US	12/2/2003	MULTICHANNEL HALL EFFECT THRUSTER
7051513	US	6/6/2003	ROCKET ENGINE TUBULAR CHAMBER WITH SINGLE PIECE JACKET
7117680	US	4/22/2004	COOLING SCHEME FOR SCRAMJET VARIABLE GEOMETRY HARDWARE *
7185675	US	4/15/2004	REDUCED GAIN THRUST CONTROL VALVE
7188477	US	4/21/2004	HIGH TEMPERATURE DYNAMIC SEAL FOR SCRAMJET VARIABLE GEOMETRY *

PATENT NO.	COUNTRY	FILING DATE	TITLE
7204078	US	7/21/2004	STAGED EMITTER-ATTRACTOR ION DRIVE
7213392	US	6/10/2003	ROCKET ENGINE COMBUSTION CHAMBER
7246483	US	7/21/2004	ENERGETIC DETONATION PROPULSION
7276290	US	8/27/2004	CRYOGENIC INSULATION
7299551	US	11/10/2004	METHOD OF ASSEMBLING A ROCKET ENGINE WITH A TRANSITION ZONE BETWEEN THE COMBUSTION CHAMBER AND THE COOLANT SYSTEM
7328571	US	11/29/2004	SEMI-AXISYMMETRIC SCRAMJET FLOWPATH WITH CONFORMAL NOZZLE
7347041	US	12/7/2005	ROCKET ENGINE COMBUSTION CHAMBER
7370469	US	12/13/2004	ROCKET CHAMBER HEAT EXCHANGER
7373774	US	2/12/2004	ENHANCED PERFORMANCE TORROIDAL COOLANT-COLLECTION MANIFOLD
7389636	US	7/6/2005	BOOSTER ROCKET ENGINE USING GASEOUS HYDROCARBON IN CATALYTICALLY ENHANCED GAS GENERATOR CYCLE
7553385	US	11/23/2004	COLD GAS DYNAMIC SPRAYING OF HIGH STRENGTH COPPER
7621119	US	6/30/2006	HEAT EXCHANGE INJECTOR FOR USE IN A ROCKET ENGINE
7685807	US	9/6/2006	THREE COMPONENT INJECTOR FOR KEROSENE-OXYGEN ROCKET ENGINE
7849670	US	4/15/2003	PROPULSION SYSTEM WITH INTEGRATED ROCKET ACCELERATOR
8122703	US	4/28/2006	COAXIAL IGNITION ASSEMBLY
7884279	US	3/16/2006	SOLAR TRACKER
7490469	US	8/7/2006	DUAL-FUNCTION STIRLING ENGINE SYSTEM
7685820	US	12/8/2006	SUPERCRITICAL CO ₂ TURBINE FOR USE IN SOLAR POWER PLANTS
8236190	US	6/13/2008	RECAST REMOVAL METHOD
8242375	US	8/14/2012	CONDUCTIVE EMISSIONS PROTECTION
8281603	US	8/11/2008	FASTENER ASSEMBLY FOR CONNECTING ROCKET ENGINE NOZZLES
8429894	US	4/30/2013	NANO-GRAINED ALUMINUM ALLOY BELLOWS
8365529	US	2/5/2013	HIGH TEMPERATURE MOLTEN SALT RECEIVER

Jurisdiction	Status	Application Date	Application Number	Grant Date	Patent Number	Title
United States	Granted	07/05/2001	09/899,813	05/27/2003	6,568,171	ROCKET VEHICLE THRUST AUGMENTATION WITHIN DIVERGENT SECTION OF NOZZLE

United States	Granted	07/19/2001	09/910,440	04/15/2003	6,547,182	SOLID ROCKET MOTOR BOLTED THRUST TAKEOUT STRUCTURE
United States	Granted	04/17/1997	08/843903	06/02/1998	5760378	METHOD OF INDUCTIVE BONDING SINTERED COMPACTS OF HEAVY ALLOYS
United States	Granted	05/04/1992	07/878222	11/26/1996	5578789	ENERGETIC PLASTICIZERS FOR POLYBUTADIENE-TYPE SOLID PROPELLANT BINDERS
United States	Granted	06/05/1995	08/469329	02/06/1996	5489700	3-AZIDOMETHYL-3-NITRATOMETHYLOXETANE
United States	Granted	04/13/1994	08/226919	11/21/1995	5468841	POLYMERIZATION OF ENERGETIC, CYCLIC ETHER MONOMERS USING BORON TRIFLUORIDE TETRAHYDROFURANATE
United States	Granted	11/04/1993	08/147591	10/10/1995	5456425	MULTIPLE PINTLE NOZZLE PROPULSION CONTROL SYSTEM
United States	Granted	10/17/1994	08/325891	02/20/1996	5491973	SELF-ACTUATING CONTROL FOR ROCKET MOTOR NOZZLE
United States	Granted	08/10/1999	09/371973	06/08/2004	6,746,651	AXIAL FLOW CATALYST PACK
United States	Granted	03/12/2003	10/388,266	12/21/2004	6,832,471	EXPANDER CYCLE ROCKET ENGINE WITH STAGED COMBUSTION AND HEAT EXCHANGE
United States	Granted	12/02/2002	10/308,645	10/12/2004	6,802,179	NOZZLE WITH SPIRAL INTERNAL COOLING CHANNELS
United States	Granted	02/05/2003	10/359,434	10/05/2004	6,799,417	DIVERSION OF COMBUSTION GAS WITHIN A ROCKET ENGINE TO PREHEAT FUEL
United States	Granted	09/13/2005	11/226,127	11/02/2010	7,823,376	THRUST AUGMENTATION IN PLUG NOZZLES AND EXPANSION-DEFLECTION NOZZLES
United States	Granted	03/02/2004	10/794,390	03/18/2008	7,343,732	ROCKET ENGINE CHAMBER WITH LAYERED INTERNAL WALL CHANNELS
United States	Granted	09/10/1993	08/120,615	11/07/1995	5,464,961	ARCJET ANODE
United States	Granted	10/07/1993	08/132,980	01/23/1996	5,485,722	CATALYTIC DECOMPOSITION OF HYDROXYLAMMONIUM NITRATE-BASED MONOPROPELLANTS
United States	Granted	9/8/1992	07/941,620	5,568,723	10/29/1996	LONG LIFE CATALYTIC GAS GENERATOR FOR SPACE PROPULSION APPLICATIONS
United States	Granted	06/24/1993	08/082137	09/12/1995	5,449,041	APPARATUS AND METHOD FOR SUPPRESSING A FIRE

Jurisdiction	Status	Application Date	Application Number	Grant Date	Patent Number	Title
United States	Granted	04/03/1995	08/415802	11/14/1995	5,465,795	FIRE SUPPRESSING APPARATUS FOR GENERATING STEAM FROM A WATER-ICE MIXTURE
United States	Granted	06/06/1995	08/468678	03/11/1997	5,609,210	APPARATUS AND METHOD FOR SUPPRESSING A FIRE
United States	Granted	05/25/1994	08/248932	06/13/1995	5,423,384	APPARATUS FOR SUPPRESSING A FIRE
United States	Granted	08/28/1996	08/704214	03/25/1997	5,613,562	APPARATUS AND METHOD FOR SUPPRESSING A FIRE
United States	Granted	10/16/1995	08/543,659	02/25/1997	5,605,039	PARALLEL ARCJET STARTER SYSTEM
United States	Granted	04/09/1998	09/058,314	01/16/2001	6,173,565	THREE AXIS PULSED PLASMA THRUSTER WITH ANGLED CATHODE AND ANODE STRIP LINES
United States	Granted	08/28/1998	09/143,294	02/29/2000	6,031,334	METHOD AND APPARATUS FOR SELECTIVELY DISTRIBUTING POWER IN A THRUSTER SYSTEM
United States	Granted	11/10/1999	09/437,795	02/11/2003	6,518,693	METHOD AND APPARATUS FOR MAGNETIC VOLTAGE ISOLATION
United States	Granted	10/07/1999	09/414,223	01/29/2002	6,342,092	APPARATUS TO SEPARATE GAS FROM A LIQUID FLOW
United States	Granted	09/14/2001	09/952709	08/13/2002	6,432,178	APPARATUS TO SEPARATE GAS FROM A LIQUID FLOW
United States	Granted	11/13/1998	09/191,749	03/27/2001	6,208,080	MAGNETIC FLUX SHAPING IN ION ACCELERATORS WITH CLOSED ELECTRON DRIFT
United States	Granted	01/29/2001	09/674,463	09/02/2003	6,612,105	UNIFORM GAS DISTRIBUTION IN ION ACCELERATORS WITH CLOSED ELECTRON DRIFT
United States	Granted	02/17/1999	09/251,530	04/10/2001	6,215,124	MULTISTAGE ION ACCELERATOR WITH CLOSED ELECTRON DRIFT
United States	Granted	11/29/2001	09/997,868	03/09/2004	6,702,038	HYBRID FIRE EXTINGUISHER
United States	Granted	02/27/2002	10/085,884	09/02/2003	6,612,243	FIRE EXTINGUISHER
United States	Granted	09/10/2002	10/241,820	01/03/2006	6,982,520	HALL EFFECT THRUSTER WITH ANODE HAVING MAGNETIC FIELD BARRIER
United States	Granted	09/21/2005	11/233,401	01/16/2007	7,164,227	HALL EFFECT THRUSTER WITH ANODE HAVING MAGNETIC FIELD BARRIER
United States	Granted	07/09/1998	09/112,390	06/04/2002	6,397,580	HIGH PERFORMANCE ROCKET ENGINE HAVING A STEPPED EXPANSION COMBUSTION CHAMBER AND METHOD OF MAKING THE SAME
United States	Granted	03/22/2002	10/104,327	07/08/2003	6,588,199	HIGH PERFORMANCE ROCKET ENGINE HAVING A STEPPED EXPANSION COMBUSTION CHAMBER AND METHOD OF MAKING THE SAME

United States	Granted	06/30/1998	09/107343	06/13/2000	6,075,321	HALL FIELD PLASMA ACCELERATOR WITH AN INNER AND OUTER ANODE
Jurisdiction	Status	Application Date	Application Number	Grant Date	Patent Number	Title
United States	Granted	05/11/1998	09/076,032	06/27/2000	6,079,101	ROCKET ENGINE WITH ONE-PIECE COMBUSTION CHAMBER STEP STRUCTURE AND ITS FABRICATION
United States	Granted	12/02/1996	08/758,867	11/03/1998	5,831,155	APPARATUS AND METHOD FOR SIMULATING ROCKET-TO-RAMJET TRANSITION IN A PROPULSION SYSTEM
United States	Granted	11/08/1996	08/745,641	07/28/1998	5,784,877	ROCKET-RAMJET ENGINE CASING PORT CLOSURE
United States	Granted	03/24/1977	05/783,919	05/18/2004	6,736,912	COMBUSTIBLE COMPOSITIONS FOR AIR-AUGMENTED ROCKET ENGINES
United States	Granted	07/21/1998	09/119,516	02/03/2009	7,484,353	ROCKET MOTOR CASE USING PLANK SECTIONS AND METHOD OF MANUFACTURE
United States	Granted	07/29/1999	09/363,013	01/10/2006	6,984,273	PREMIXED LIQUID MONOPROPELLANT SOLUTIONS AND MIXTURES
United States	Granted	01/08/2002	10/038,858	01/27/2004	6,681,560	NOZZLE THROAT AREA CONTROL APPARATUS AND METHOD
United States	Granted	05/15/2002	10/145,540	10/26/2004	6,808,572	SOLID PROPELLANT FORMULATIONS AND METHODS AND DEVICES EMPLOYING SAME FOR THE DESTRUCTION OF AIRBORNE BIOLOGICAL AND/OR CHEMICAL AGENTS
United States	Granted	10/06/1998	09/166,942	02/15/2000	6,024,810	CASTABLE DOUBLE BASE SOLID ROCKET PROPELLANT CONTAINING BALLISTIC MODIFIER PASTED IN AN INERT POLYMER
United States	Granted	11/28/2005	11/287,297	8/4/2009	7,568,348	NOZZLE ASSEMBLY FOR ROCKET AND RAMJET APPLICATIONS
United States	Granted	08/30/2010	12/871,125	10/16/2012	RE43731	INTEGRATED AIR INLET SYSTEM FOR MULTI-PROPULSION AIRCRAFT ENGINES
United States	Granted	03/06/2008	12/043,593	04/12/2011	7,921,778	SINGLE PHASE TUNGSTEN ALLOY FOR SHAPED CHARGE LINER
United States	Granted	04/30/2004	10/837,516	04/22/2008	7,360,488	SINGLE PHASE TUNGSTEN ALLOY FOR SHAPED CHARGE LINER
United States	Granted	02/27/2006	11/363,573	11/24/2009	7,621,429	PISTON TANK WITH COMPOUND PISTON FOR HIGH LOADING AND EXPULSION EFFICIENCY
United States	Granted	09/13/2006	11/531,630	07/27/2010	7,762,078	NOZZLE WITH TEMPERATURE-RESPONSIVE THROAT DIAMETER
United States	Granted	04/13/2004	10/823,380	01/02/2007	7,155,898	THRUST VECTOR CONTROL SYSTEM FOR A PLUG NOZZLE ROCKET ENGINE
United States	Granted	05/06/2005	11/123,374	12/15/2009	7,631,482	MULTIPLE PHASE POWER SUPPLY FOR ROCKET ENGINES
United States	Granted	05/18/2006	11/437,279	10/14/2008	7,436,122	HELICON HALL THRUSTER

Jurisdiction	Status	Application Date	Application Number	Grant Date	Patent Number	Title
United States	Granted	12/18/2006	11/640,646	02/15/2011	7,886,516	COMBINED CYCLE INTEGRATED COMBUSTOR AND NOZZLE SYSTEM
United States	Granted	04/16/2008	12/148,027	07/27/2010	7,762,195	SLOW COOK OFF ROCKET IGNITER
United States	Granted	06/26/2008	12/147,396	03/01/2011	7,895,823	HEAT EXCHANGER FOR A ROCKET ENGINE
United States	Granted	10/18/2006	11/582,589	09/21/2010	7,797,943	CORE BURNING FOR SCRAMJET ENGINES
United States	Granted	12/10/2007	11/953,717	05/18/2010	7,717,280	TWO PIECE AFT CLOSURE FOR A ROCKET MOTOR CASE
United States	Granted	11/08/2007	11/983,244	11/15/2011	8,056,319	COMBINED CYCLE MISSILE ENGINE SYSTEM
United States	Granted	02/26/2008	12/072,487	05/29/2012	8,186,145	ROCKET NOZZLES FOR UNCONVENTIONAL VEHICLES
United States	Granted	03/04/2008	12/041,810	09/13/2011	8,016,211	PINTLE-CONTROLLED PROPULSION SYSTEM WITH EXTERNAL RING ACTUATOR ()
United States	Granted	03/04/2008	12/041,797	10/23/2012	8,291,691	MULTI-FUNCTIONAL PULSE-DIVIDED ROCKET

PATENT APPLICATIONS

APPLICATION NO.	COUNTRY	FILING DATE	TITLE
13/180,755	US	7/12/2011	AGGLOMERATOR WITH CERAMIC MATRIX COMPOSITE OBSTACLES
13/467,238	US	5/9/2012	INJECTOR HAVING MULTIPLE IMPINGEMENT LENGTHS
13/299,718	US	11/18/2011	CENTRIFUGAL IMPELLER

Jurisdiction	Status	Application Date	Application Number	Title
United States	Filed	08/12/2003	10/638,547	GAS GENERANT COMPOSITIONS AND METHODS
United States	Filed	05/12/1998	09/076,105	MINIMUM SMOKE PROPELLANT COMPOSITION
United States	Filed	11/02/1993	08/145,410	SECURITY DEVICE
United States	Filed	03/12/2001	09/803,662	INSENSITIVE NITROCELLULOSE-BASED GAS GENERATOR FORMULATIONS
United States	Filed	07/23/2002	10/200,597	CONTROLLED AUTOIGNITION PROPELLANT SYSTEMS
United States	Filed	03/03/2003	10/376,297	CONTROLLED AUTOIGNITION PROPELLANT
United States	Filed	10/13/2009	12/578,404	HIGH VOLTAGE MULTIPLE PHASE POWER SUPPLY
United States	Filed	06/12/2007	11/811,949	CO-SINTERED MULTI-SYSTEM TUNGSTEN ALLOY COMPOSITE
United States	Filed	11/23/2010	12/952,426	CO-SINTERED MULTI-SYSTEM TUNGSTEN ALLOY COMPOSITE

United States	Filed	01/19/2011	13/008,939	COMBINED CYCLE INTEGRATED COMBUSTOR AND NOZZLE SYSTEM
United States	Filed	05/03/2012	13/462,909	ROCKET NOZZLES FOR UNCONVENTIONAL VEHICLES
United States	Filed	9/24/2010	12/811,910	PROPULSION SYSTEM WITH MOVABLE THERMAL CHOKE
United States	Filed	11/17/2010	12/948,558	INTERNAL RESISTIVE HEATING OF CATALYST BED FOR MONOPROPELLANT CATALYST RESISTIVE HEATING OF A CATALYST BED
United States	Filed	1/25/2012	13/264,721	CYCLIC ENERGETIC NITRAMINES DESENSITIZED WITH LINEAR NITRAMINES
United States	Filed	3/8/2013	13/704,554	MITIGATION OF ORBITING SPACE DEBRIS BY MOMENTUM EXCHANGE WITH DRAG-INDUCING PARTICLES
United States	Filed	01/23/2012	13/355,949	SELECTABLE RAMJET PROPULSION SYSTEM
United States	Filed	03/08/2012	13/415,155	ENERGETIC ADHESIVE FOR VENTING COOKOFF
United States	Filed	06/01/2011	13/151,155	CATALYST, GAS GENERATOR, AND THRUSTER WITH IMPROVED THERMAL CAPABILITY AND CORROSION RESISTANCE
United States	Filed	07/22/2011	13/189,257	WASTE HEAT RECOVERY FOR FORCED CONVECTION BIOMASS STOVE
United States	Filed	07/22/2011	13/189,300	ENHANCED RADIATIVE TRANSFER AND HEAT RECOVERY FOR COMBUSTION DEVICE
United States	Filed	06/11/2012	13/493,554	ULTRA-HIGH SUCTION CAPABILITY PART-SHROUDED ROCKET ENGINE INDUCER
United States	Filed	2/21/2013	13/703,787	END-BURNING PROPELLANT GRAIN WITH AREA-ENHANCED BURNING SURFACE Formerly EXPONENT MODIFIED MINIMUM SMOKE CONFIGURATION
United States	Filed	01/23/2013	61/755,931	ELECTROHYDRODYNAMIC PROPULSION CONCEPT FOR REDUCED ACOUSTIC SIGNATURE APPLICATIONS
United States	Filed	02/13/2013	61/764,500	HYBRID ELECTRIC DRIVE-PUMP FED LIQUID ENGINE ROCKET ENGINE
United States	Filed	3/15/2013	61/788,608	METHOD FOR PRODUCING FRAGMENT/REACTIVE MATERIAL ASSEMBLY

* Denotes subject inventions with the U.S. government right to a non-exclusive license.

PATENT LICENSES

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3. In Licenses:

APPLICATION NO.	COUNTRY	FILING DATE	TITLE
13/170,433	US	6/28/2011	DAMPER FOR AN INTEGRALLY BLADED ROTOR *
12174114.4	EP	6/28/2012	DAMPER FOR AN INTEGRALLY BLADED ROTOR *

* Denotes subject inventions with the U.S. government right to a non-exclusive license.

Jurisdiction	Aerojet Status	Licensor/Licensee	Patent No	Grant Date	Title
United States	Licensee	Licensed from Busek, Inc., Natick, MA	6,150,764	11-21-2000	TANDEM HALL FIELD PLASMA ACCELERATOR
United States	Licensee		6,075,321	6-13-2000	HALL FIELD PLASMA ACCELERATOR WITH AN INNER AND OUTER ANODE
United States	Licensor	Licensed to General Dynamics OTS, Redmond, WA	5,423,384	6-13-1995	APPARATUS FOR SUPPRESSING A FIRE
United States	Licensor		5,613,562	3-25-1997	APPARATUS FOR SUPPRESSING A FIRE
United States	Licensee	Licensed from General Dynamics OTS, Redmond, WA	5,641,938	6-24-1997	THERMALLY STABLE GAS GENERATING COMPOSITION
United States	Licensee		5,866,842	2-2-1999	LOW TEMPERATURE AUTOIGNITING PROPELLANT COMPOSITION
United States	Licensee	Licensed from Simula, Inc.	6,062,143	5-16-2000	DISTRIBUTED CHARGE INFLATOR SYSTEM

Jurisdiction	Aerojet Status	Licensor/Licensee	Patent No		
Multiple see below	Licensee	Licensed from American Pacific Corporation	PLEASE SEE BELOW		
Country	Patent No. Issue Date	Application No. Filing Date	Title		
CANA	2100218 11-27-2007	2100218 7-9-1993	PREPARATION AND POLYMERIZATION OF PERFLUOROALKOXY AKYLENE OXIDES TO PREPARE HYDROPHOBIC POLYETHERS		
CANA	2210204 11-7-2006	2210204 1-16-1996	MONO-SUBSTITUTED FLUORINATED OXETANE MONOMERS		
CANA	2447132 10-7-2008	2447132 5-10-2002	FLUORINATED SHORT CARBON ATOM SIDE CHAIN AND POLAR GROUP CONTAINING POLYMER, AND FLOW, OR LEVELING, OR WETTING AGENTS THEREOF		
CHINA	1209392 7/6/2005	02801483.9 5/10/2002	POLYMERIC SURFACTANTS DERIVED FROM CYCLIC MONOMERS HAVING PENDANT FLUORINATED CARBON GROUPS		
FRAN	2694297 7-7-1995	9308517 7-9-1993	PREPARATION AND POLYMERIZATION OF PERFLUOROALKOSY AKYLENE OXIDES TO PREPARE HYDROPHOBIC POLYETHERS		
FRAN	1389224 1-13-1010	02769705.1 5-10-2002	POLYMERIC SURFACTANTS DERIVED FROM CYCLIC MONOMERS HAVING PENDANT FLUORINATED CARBON GROUPS		
GBRI	2269816 10-30-1996	9314107 7-8-1993	PREPARATION AND POLYMERIZATION OF PERFLUOROALKOSY AKYLENE OXIDES TO PREPARE HYDROPHOBIC POLYETHERS		
GBRI	1389224 1-13-1010	02769705.1 5-10-2002	POLYMERIC SURFACTANTS DERIVED FROM CYCLIC MONOMERS HAVING PENDANT FLUORINATED CARBON GROUPS		

GERM	4323307 2/1/2013	P4323307.4 7-12-1993	PREPARATION AND POLYMERIZATION OF PERFLUOROALKOSY AKLYLENE OXIDES TO PREPARE HYDROPHOBIC POLYTHERS
GERM	69636747 1-18-2007	96903699.5 1-16-1996	POLYMERS AND PREPOLYMERS FROM MONO-SUBSTITUED FLUORINATED OXETANE MONOMERS
GERM	60029998.8 9-21-2006	00982547.2 12-8-2001	MONOHYDRIC POLYFLUORO OXETANE OLIGOMERS, POLYMERS, AND COPOLYMERS AND COATINGS CONTAINING THE SAME
Country	Patent No. Issue Date	Application No. Filing Date	Title
GERM	60235077.8 1-13-1010	02769705.1 5-10-2002	POLYMERIC SURFACTANTS DERIVED FROM CYCLIC MONOMERS HAVING PENDANT FLUORINATED CARBON GROUPS
ITALY	1389224 1-13-1010	02769705.1 5-10-2002	POLYMERIC SURFACTANTS DERIVED FROM CYCLIC MONOMERS HAVING PENDANT FLUORINATED CARBON GROUPS
JAPA	3335427 8-2-2002	2005-170179 7-9-1993	PREPARATION AND POLYMERIZATION OF PERFLUOROALKOSY AKLYLENE OXIDES TO PREPARE HYDROPHOBIC POLYTHERS
JAPA	4112611 7-2-2008	1996-521881 1-16-1996	POLYMERS AND PREPOLYMERS FROM MONO-SUBSTITUED FLUORINATED OXETANE MONOMERS
JAPA	4460249 2-19-2010	2003-326937 9-18-2003	MONO-SUBSTITUED FLUORINATED OXETANE MONOMER
JAPA	4017988 9/28/2007	2002-589539 5/10/2002	POLYMERIC SURFACTANTS DERIVED FROM CYCLIC MONOMERS HAVING PENDANT FLUORINATED CARBON GROUPS
JAPA	4027601 10-19-2007	2000-597340 2-3-2000	POLYESTER WITH PARTIALLY FLUORINATED SIDE CHAINS
JAPA	5221055 3-15-2013	2007-104259 4-11-2007	MONO-SUBSTITUED FLUORINATED OXETANE MONOMER
NETH	1389224 1-13-1010	02769705.1 5-10-2002	POLYMERIC SURFACTANTS DERIVED FROM CYCLIC MONOMERS HAVING PENDANT FLUORINATED CARBON GROUPS
SWIT	1389224 1-13-1010	02769705.1 5-10-2002	POLYMERIC SURFACTANTS DERIVED FROM CYCLIC MONOMERS HAVING PENDANT FLUORINATED CARBON GROUPS
TAIW	NI-69639 5-15-1995	82108480 10-13-1993	PREPARATION AND POLYMERIZATION OF PERFLUOROALKOSY AKLYLENE OXIDES TO PREPARE HYDROPHOBIC POLYTHERS
USA	6,380,351 4-30-2002	09/521,258 3-8-2000	COPOLYMERS AND COPREPOLYMERS FORMED FROM MONO-SUBSTITUED FLUORINATED OXETANE MONOMERS AND TETRAHYDROFURAN
USA	6,417,314 7-9-2002	09/520,815 3-8-2000	FLUORINATED POLYURETHANE ELASTOMERS PREPARED FROM POLYETHER PREPOLYMERS FORMED FROM MONO-SUBSTITUED FLUORINATED OXETANE MONOMERS
USA	6,448,368 9-10-2002	09/521,263 3-8-2000	POLYMERS AND PREPOLYMERS FORMED FROM MONO-SUBSTITUED FLUORINATED OXETANE MONOMERS

USA	6,891,013 5-10-2005	09/520,476 3-8-2000	FLUORINATED POLYURETHANE ELASTOMERS PREPARED FROM POLYETHER PREPOLYMERS FORMED FROM MONO-SUBSTITUTED FLUORINATED OXETANE MONOMERS AND TETRAHYDROFURAN
USA	6,037,483 3-14-2000	08/477,168 6-7-1995	SOLVENT-FREE PROCESS FOR THE PREPARATION OF MONO-SUBSTITUTED FLUORINATED OXETANE MONOMERS
USA	5,668,250 9-16-1997	08/483,219 6-7-1995	POLYETHER COPREPOLYMERS FORMED FROM MONO-SUBSTITUTED FLUORINATED OXETANE MONOMERS AND TETRAHYDROFURAN
USA	5,668,251 9-16-1997	08/539,405 10-5-1995	PREPARATION OF CO-PREPOLYMERS FROM MONO-SUBSTITUTED FLUORINATED MONOMERS AND TETRAHYDROFURAN
USA	5,650,483 7-22-1997	08/539,555 10-5-1995	PREPARATION OF MONO-SUBSTITUTED FLUORINATED OXETANE PREPOLYMERS
Country	Patent No. Issue Date	Application No. Filing Date	Title
USA	5654450 8-5-1997	08/539,696 10-5-1995	MONO-SUBSTITUTED FLUORINATED OXETANE MONOMERS
USA	5,807,977 9-15-1998	08/371,914 1-12-1995	POLYMERS AND PREPOLYMERS FROM MONO-SUBSTITUTED FLUORINATED OXETANE MONOMERS
USA	7,354,985 4-8-2008	10/678,663 10-3-2003	FLUORINATED THERMOSET POLYURETHANE ELASTOMERS PREPARED FROM POLYETHER PREPOLYMERS FORMED FROM MONO-SUBSTITUTED FLUORINATED OXETANE MONOMERS
USA	6,479,623 11-12-2002	09/615,160 7-13-2000	AMORPHOUS POLYETHER GLYCOLS BASED ON BIS-SUBSTITUTED OXETANE MONOMERS
USA	6,660,828 12-9-2003	09/855,053 5-14-2001	FLUORINATED SHORT CARBON ATOM SIDE CHAIN AND POLAR GROUP CONTAINING POLYMER, AND FLOW, OR LEVELING, OR WETTING AGENTS THEREOF
USA	6,998,460 2-14-2006	10/999,362 11-29-2004	AMORPHOUS POLYETHER GLYCOLS BASED ON BIS-SUBSTITUTED OXETANE AND TETRAHYDROFURAN MONOMERS
USA	6,403,760 6-11-2002	09/473,518 12-28-1999	MONOHYDRIC POLYFLUORO OXETANE OLIGOMERS, POLYMERS AND COPOLYMERS AND COATINGS CONTAINING THE SAME
USA	6,927,276 8-9-2005	10/316,412 12-11-2002	MONOHYDRIC POLYFLUORO OXETANE OLIGOMERS, POLYMERS AND COPOLYMERS AND COATINGS CONTAINING THE SAME
USA	6,962,966 11-8-2005	09/727,637 12-1-2000	MONOHYDRIC POLYFLUORO OXETANE OLIGOMERS, POLYMERS AND COPOLYMERS AND COATINGS CONTAINING THE SAME
USA	6,972,317 12-6-2005	10/108,916 3-28-2002	MONOHYDRIC POLYFLUORO OXETANE OLIGOMERS, POLYMERS AND COPOLYMERS AND COATINGS CONTAINING THE SAME
USA	6,727,344 4-27-2004	10/108,318 3-28-2002	MONOHYDRIC POLYFLUORO OXETANE OLIGOMERS, POLYMERS AND COPOLYMERS AND COATINGS CONTAINING THE SAME

USA	5,674,951 10-7-1997	08/510,686 8-3-1995	ABRASION-RESISTANT AND LOW FRICTION COATING COMPOSITIONS
USA	6,673,889 1-6-2004	09/397,715 9-16-1999	RADIATION-CURABLE COATINGS CONTAINING POLYFLUOROOXETANE
USA	7,087,710 8-8-2006	10/882,738 6-30-2004	POLYMERIC SURFACTANTS DERIVED FROM CYCLIC MONOMERS HAVING PENDANT FLUORINATED CARBON GROUPS
USA	7,022,801 4-4-2006	10/657,056 9-5-2003	POLYMERIC SURFACTANTS DERIVED FROM CYCLIC MONOMERS HAVING PENDANT FLUORINATED CARBON GROUPS
USA	6,383,651 5-7-2002	09/384,464 10-27-2000	POLYESTER WITH PARTIALLY FLUORINATED SIDE CHAINS
USA	6,579,966 6-17-2003	10/294,942 11-14-2002	CURED POLYESTERS CONTAINING FLUORINATED SIDE CHAINS
USA	6,686,051 2-3-2004	09/698,554 10-27-2000	CURED POLYESTERS CONTAINING FLUORINATED SIDE CHAINS
USA	7,846,507 10-7-2010	10/966,528 10-15-2004	METHOD OF MAKING AN EASILY CLEANABLE POLYMER LAMINATE
USA	7,727,436 6-1-2010	10/492,572 3-5-2003	COATING DERIVED FROM POLYESTERS CROSSLINKED WITH MELAMINE FORMALDEHYDE
USA	7,320,829 01-22-2008	10/774,187 2-5-2004	FLUORINATED POLYMER AND AMINE RESIN COMPOSITIONS AND PRODUCTS FORMED THEREFROM

The Obligors and the Collateral Agent, on behalf of the Secured Parties, hereby acknowledge and agree that the security interest in the foregoing patents and patent applications (i) may only be terminated in accordance with the terms of the Security Agreement and (ii) is not to be construed as an assignment of any patent or patent application.

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