

**U.S. ROCKET PROPULSION INDUSTRIAL BASE ASSESSMENT:  
Propulsion Survey****SCOPE OF ASSESSMENT**

The U.S. Department of Commerce, Bureau of Industry and Security (BIS), Office of Technology Evaluation (OTE), in coordination with the U.S. National Aeronautics and Space Administration (NASA) and U.S. Department of Defense (DOD) co-chaired Joint Army, Navy, NASA, Air Force Interagency Propulsion Committee (JANNAF) is conducting a survey and assessment of organizations responsible for the research, design, engineering, development, manufacture, testing, and integration of rocket propulsion-related products, components, and services. The principal goal of this assessment is to gain an understanding of the intricate supply chain network supporting the development, production, and sustainment of products and services across both the U.S. Government and commercial propulsion-related sectors. With the data collected in this survey, U.S. Government agencies will be better informed and able to develop targeted planning, acquisition, and investment strategies to ensure industry's ability to support critical defense and civil missions and programs.

**RESPONSE TO THIS SURVEY IS REQUIRED BY LAW**

A response to this survey is required by law (50 U.S.C. App. Sec. 2155). Failure to respond can result in a maximum fine of \$10,000, imprisonment of up to one year, or both. Information furnished herewith is deemed confidential and will not be published or disclosed except in accordance with Section 705 of the Defense Production Act of 1950, as amended (50 U.S.C App. Sec. 2155). Section 705 prohibits the publication or disclosure of this information unless the President determines that its withholding is contrary to the national defense. Information will not be shared with any non-government entity, other than in aggregate form. The information will be protected pursuant to the appropriate exemptions from disclosure under the Freedom of Information Act (FOIA), should it be the subject of a FOIA request.

Notwithstanding any other provision of law, no person is required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB Control Number.

**BURDEN ESTIMATE AND REQUEST FOR COMMENT**

Public reporting burden for this collection of information is estimated to average 14 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information to BIS Information Collection Officer, Room 6883, Bureau of Industry and Security, U.S. Department of Commerce, Washington, D.C. 20230, and to the Office of Management and Budget, Paperwork Reduction Project (OMB Control No. ####-####), Washington, D.C. 20503.

**BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act**

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**Important Note:**  
 The drop-down menus in several later sections are based on your responses in Section 4 (4a & 4b).  
 In order for all menus to work properly, you must complete these sections in order.

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**Section I: GENERAL INSTRUCTIONS**

A.	Your organization is required to complete this survey using an Excel template, which can be downloaded from the U.S. Department of Commerce, Census Bureau website: <a href="https://respond.census.gov/propulsion/download">https://respond.census.gov/propulsion/download</a> . For your convenience, a PDF version of the survey is available to aid your internal data collection. DO NOT submit the PDF version of your organization's response to U.S. Department of Commerce, Bureau of Industry and Security (BIS).
B.	This survey has been distributed on an corporate/whole organization and business unit/division basis and should be completed at the requested level. Each survey section should be completed consistently at the same reporting level. If reporting at an individual business unit/division level, call (202) 482-XXXX to confirm.
C.	Respond to every question. Surveys that are not fully completed will be returned for completion. Use the comment boxes to provide any information to supplement responses provided in the survey form. Make sure to record a complete answer in the cell provided, even if the cell does not appear to expand to fit all the information. <b>DO NOT COPY AND PASTE RESPONSES WITHIN THIS SURVEY.</b> Survey inputs must be entered by typing in responses or by using a drop-down menu. The use of copy and paste can corrupt the survey template. If your survey response is corrupted as a result of copy and paste responses, a new survey can be downloaded from the Census Bureau Survey Portal for immediate completion.
D.	<b>Do not disclose any classified information in this survey form.</b>
E.	Estimates are often acceptable, but in sections that do not explicitly allow estimates you must contact BIS survey support staff before including estimates.
F.	Questions related to this Excel survey should be directed to: (E-mail is the preferred method of contact). <a href="mailto:XXXX@bis.doc.gov">XXXX@bis.doc.gov</a> You may also speak with a member of BIS survey support staff by calling (202) 482-XXXX.
G.	After completing, reviewing, and certifying the Excel survey, submit the survey via our Census Bureau Survey Portal: <a href="https://respond.census.gov/propulsion">https://respond.census.gov/propulsion</a> Do not submit the survey via email.
H.	For questions related to the overall scope of this Defense Industrial Base assessment, contact:  Brad Botwin, Director, Industrial Studies Office of Technology Evaluation, Room 1093 U.S. Department of Commerce 1401 Constitution Avenue, NW Washington, DC 20230  To contact Mr. Botwin, email <a href="mailto:Brad.Botwin@bis.doc.gov">Brad.Botwin@bis.doc.gov</a> .  DO NOT submit completed surveys to Mr. Botwin's postal or personal e-mail address; all surveys must be submitted electronically via our Census Bureau web portal:  <a href="https://respond.census.gov/propulsion">https://respond.census.gov/propulsion</a>

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<b>Section II: Definitions</b>		
See definitions below. Extended definitions are available here: <a href="#">LINK</a> .		
Term	Definition	
Applied Research	Systematic study to gain knowledge or understanding necessary to determine the means by which a recognized and specific need may be met. This activity includes work leading to the production of useful materials, devices, and systems or methods, including design, development, and improvement of prototypes and new processes.	
Authorizing Official	Executive officer of the organization or business unit or other individual who has the authority to execute this survey on behalf of the organization.	
Basic Research	Systematic, scientific study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts.	
Commercial and Government Entity (CAGE) Code	Numbering system that identifies companies doing or wishing to do business with the U.S. Federal Government. The code is used to support mechanized government systems and provides a standardized method of identifying a given facility at a specific location. Find CAGE codes at <a href="https://cage.dia.mil/search/">https://cage.dia.mil/search/</a> .	
Commercially Sensitive Information (CSI)	Privileged or proprietary information which, if compromised through alternation, corruption, loss, misuse, or unauthorized disclosure, could cause serious harm to the organization owning it. This includes customer/client information, financial information and records, human resources information, intellectual property information, internal communications, manufacturing and production line information, patent and trademark information, research and development information, regulatory/compliance information, and supplier/supply chain information.	
Counterfeit	For the purpose of this survey, a counterfeit is a part, material, or other product that is not genuine because it 1) is an unauthorized copy; 2) does not conform to original design, model, and/or performance standards; 3) is not produced by the original manufacturer or is produced by unauthorized contractors; 4) is off-specification, defective, or used product sold as "new" or working; or 5) has incorrect or false markings and/or documentation.	
Customer	An entity to which an organization directly delivers the product or service that the facility produces. A customer may be another company or another facility owned by the same parent organization. The customer may be the end user for the item but often will be an intermediate link in the supply chain, adding additional value before transferring the item to yet another customer.	
Cyber Security	The body of technologies, processes, and practices designed to protect networks, computers, programs, and data from attack, damage, or unauthorized access.	
Data Universal Numbering System (DUNS)	A nine-digit numbering system that uniquely identifies an individual business. Find DUNS numbers at <a href="http://fedgov.dnb.com/webform">http://fedgov.dnb.com/webform</a> .	
Electric Propulsion	Propulsion Industrial Base Segment including: electric propulsion systems with unique applications with low thrusts, low accelerations, and trajectories exclusively in space, high specific impulse, long operating times, and generally a relatively massive power supply system, organized into three basic types, electro thermal rocket propulsion (resembles the chemical rocket units), electrostatic or ion propulsion engine, and the electromagnetic or magneto plasma engine. Includes TRL 6 and above.	
Facility	A building or the minimum complex of buildings or parts of buildings in which a company operates to serve a particular function, producing revenue, and incurring costs for the company. A facility may produce an item of tangible or intangible property or may perform a service. It may encompass a floor or group of floors within a building, a single building, or a group of buildings or structures. Often, a facility is a group of related locations at which company employees work, together constituting a profit-and-loss center for the company, and it may be identified by a unique DUNS number.	
Full Time Equivalent (FTE) Employees	Employees who work for 40 hours in a normal work week. Convert part-time employees into "full time equivalents" by taking their work hours as a fraction of 40 hours.	
Large Liquid Propulsion	Propulsion Industrial Base Segment including: larger chemical liquid propulsion systems and all engines with turbopumps (not including structural tanks, but including the features of the main propulsion system that reside in the tanks, as well as booster stages, upper stages, in-space transit stages, propellant, and pressurant). Includes TRL 6 and above.	
Large Solid Rocket Motor	Propulsion Industrial Base Segment including: solid rocket motors that are typically characterized by large diameter (e.g. 40" and larger) requiring more than one mix to cast a single motor and relatively limited production rate. Includes TRL 6 and above.	
North American Industry Classification System (NAICS) Code	Numbering system that identifies the category of product(s) or service(s) provided by an organization. Find NAICS codes at <a href="http://www.census.gov/epcd/www/naics.html">http://www.census.gov/epcd/www/naics.html</a>	
Product/Process Development	Conceptualization and development of a product prior to the production of the product for customers.	
Program Technology Transfer Activity	Agency and program initiatives to manage technology throughout the agency, program, and/or outside organizations. For example, the NSA Technology Transfer Program (TTP) transfers NSA-developed technology to industry, academia, and other research organizations, benefiting the economy and the Agency mission. The program has an extensive portfolio of patented technologies across multiple technology areas. Find more information about NASA's program here: <a href="https://www.nasa.gov/what-we-do/research/technology-transfer/">https://www.nasa.gov/what-we-do/research/technology-transfer/</a> Another example includes the DHS S&T Technology Transfer Program Office, which serves as the centralized office to manage technology transfer throughout DHS and the DHS laboratory network. Technologies developed and evaluated within the department can have tremendous potential for commercial applications throughout the nation, enhance the competitiveness of individual small businesses, as well as expand areas of exploration and cooperation for all non-federal partners. Find more information about DHS' program here: <a href="https://www.dhs.gov/science-and-technology/technology-transfer-program">https://www.dhs.gov/science-and-technology/technology-transfer-program</a> .	

Propulsion-related	Any activity/component/subsystem/test/product/service that contributes to U.S. Government or Commercial propulsion systems (including the propulsion of a launch vehicle, missile, and in-space spacecraft propulsion).
Research & Development (R&D)	All efforts of scientific study and experimentation, theoretical work, and original investigation undertaken primarily to acquire new knowledge or understanding of the underlying foundations of phenomena and observable facts, including the creative and systematic application of knowledge with specific practical aim or objective or the production of useful materials, devices, and systems or methods. Comprises such efforts at all levels (basic, applied, design, etc.), including the design, development, and improvement of prototypes and new processes to meet specific requirements.
Science and Technology (S&T)	Propulsion Industrial Base Segment including: all S&T research & development activities at a Technology Readiness Level (TRL) of TRL 5 and below (including engineering services).
Service	An intangible product (contrasted to a good, which is a tangible product). Services typically cannot be stored or transported, are instantly perishable, and come into existence at the time they are bought and consumed.
Single Source	An organization that is designated as the only accepted source for the supply of parts, components, materials, or services, even though other sources with equivalent technical know-how and production capability may exist.
Small Business Innovation Research (SBIR) Contracts	The Small Business Innovation Research (SBIR) program is a highly competitive program that encourages domestic small businesses to engage in Federal Research/Research and Development (R/R&D) that has the potential for commercialization. Through a competitive awards-based program, SBIR enables small businesses to explore their technological potential and provides the incentive to profit from its commercialization. By including qualified small businesses in the nation's R&D arena, high-tech innovation is stimulated and the United States gains entrepreneurial spirit as it meets its specific research and development needs. Find more information about SBIR here: <a href="https://www.sbir.gov/about/about-sbir">https://www.sbir.gov/about/about-sbir</a>
Small Liquid Propulsion	Propulsion Industrial Base Segment including: small chemical liquid propulsion systems, pressure-fed engines, and spacecraft propulsion (including the entire propulsion system, to include pressurant and propellant tanks, flow-control components, dedicated sensors, and engines). Includes TRL 6 and above.
Small Solid Rocket Motor	Propulsion Industrial Base Segment including: solid rocket motors typically characterized by small diameter (e.g. 40" and smaller) allowing casting of multiple motors from a single mix and relatively limited production rate). Includes TRL 6 and above.
Small Business Technology Transfer (STTR) Contracts	Small Business Technology Transfer expands funding opportunities in the federal innovation research and development (R&D) arena. Central to the program is expansion of the public/private sector partnership to include the joint venture opportunities for small businesses and nonprofit research institutions. The unique feature of the STTR program is the requirement for the small business to formally collaborate with a research institution in Phase I and Phase II. STTR's most important role is to bridge the gap between performance of basic science and commercialization of resulting innovations. Find more information about STTR here: <a href="https://www.sbir.gov/about/about-sttr#three">https://www.sbir.gov/about/about-sttr#three</a>
Sole Source	An organization that is the only source for the supply of parts, components, materials, or services. No alternative U.S. or non-U.S. based suppliers exist other than the current supplier.
STEM	STEM is the acronym for Science, Technology, Engineering and Mathematics.
Supplier	An entity from which your organization obtains inputs. A supplier may be another organization with which you have a contractual relationship, or it may be another facility owned by the same parent organization. The inputs may be goods or services.
Technology Readiness Level (TRL)	Technology Readiness Levels estimate the maturity of technology of a program during the acquisition process. TRL 1, for example, indicates the transition from scientific research to applied research and TRL 9 indicates a fully integrated product with operational hardware/software systems. Full descriptions of each TRL are located here: <a href="https://esto.nasa.gov/files/trl_definitions.pdf">https://esto.nasa.gov/files/trl_definitions.pdf</a>
Test and Evaluation (T&E)	Propulsion Industrial Base Segment including: government and non-governmental test facilities and test capabilities applied to specific engine/motor components, engine/motor subsystems, and the entire stage (engines, propellant tanks, avionics, etc.). Covering test and evaluation of activities TRL 6 and above.
United States	The "United States" or "U.S." includes the 50 states, Puerto Rico, the District of Columbia, the island of Guam, the Trust Territories, and the U.S. Virgin Islands.
Utilization Rate	The percent of an organization's potential output that is actually being used in current production, where potential output is based on a 7 day-a-week, 3x8-hour shift production schedule. Note: 100% utilization rate equals no downtime with full employment.
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**Section 1a: Organization Information**

This survey has been distributed on an Corporate/Whole Organization basis or a Business Unit/division basis and should be completed at the requested level. The entire survey document should be completed consistently at the same level (Corporate/Whole Organization or Business Unit/Division). In the box to the right, confirm whether this survey represents a response for your Corporate/Whole Organization or an individual Business Unit/Division.

<Corporate - Whole Organization, Business Unit -Division>

Provide the following information for your organization (at the level of reporting). If not applicable, please write "N/A"				
Organization Name				
Business Unit Name (if applicable)				
Street Address				
City				
State		<State List>		
Zip Code		#		
A. Website				
Phone Number				
Primary Data Universal Numbering System (DUNS) Code (associated with the response level)		#		
Primary CAGE Code (associated with the response level)		#		
Is your organization publicly traded or privately held?		<Public/Private>		
If your organization is publicly traded, identify its stock ticker symbol.		#		
Is this the only location your organization currently operates?		<Yes/No>		
Does your organization have a parent company?		<Yes/No>	If Yes, provide the following information for your parent organization(s):	
		Parent Organization 1	Parent Organization 2	
Organization Name				
Street Address				
City				
State/Province		<State List>	<State List>	
Postal Code/Zip Code				
Country		<Country Drop Down List>	<Country Drop Down List>	
Phone Number		#	#	
Data Universal Numbering System (DUNS) Code(s)		#	#	
Primary CAGE Code (If not applicable, write N/A)		#	#	
Is your parent organization(s) publicly traded or privately held?		<Public/Private>	<Public/Private>	
If your organization is publicly traded, identify its stock ticker symbol.		#	#	
Organization headquartered in:		<Country Drop Down List>		
U.S. subsidiary of a non-U.S. parent company:		<Yes/No>		
Business unit or division of a U.S. parent company or organization:		<Yes/No>		
Percent of business equity owned by a foreign entity:			%	
Country:		<Country Drop Down List>		
Does your organization qualify as any of the following business types?		<Yes/No>	If Yes, indicate which types:	
A small business enterprise (as defined by the Small Business Administration)			<Yes, No>	
An 8(a) Firm (as defined by the Small Business Administration) For information on SBA's small business size standards <a href="http://www.sba.gov/category/navigation-structure/contracting/contracting-officials/eligibility-size-standards">http://www.sba.gov/category/navigation-structure/contracting/contracting-officials/eligibility-size-standards</a>				
A historically underutilized business zone (HUBZone)				
A minority-owned business				
A woman-owned business				
A veteran-owned or service-disabled veteran owned business				
E. Point of Contact regarding this survey:				
	Name	Title	Phone Number	E-mail Address
				State
Comments:				
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**Section 1b: Organization Information (Cont.)**

Provide the following propulsion-related identification codes for your organization, as applicable. If your organization has additional codes to report, ensure that the primary codes are entered in the boxes provided and include the additional codes in the comments box at the bottom of this Section.

**Business Identification Information**

A.	Propulsion-related PSC Codes*		Propulsion-related NAICS (6-digit) Code(s)**		* Product and Service (PSC) Code(s) are federal supply codes used by the United States government to describe the products, services, and research and development purchased by the government. Find your organization's PSC Code(s) at: <a href="https://www.fpds.gov/wiki/index.php/PSC%2C_NAICS_and_more">https://www.fpds.gov/wiki/index.php/PSC%2C_NAICS_and_more</a> .
	CAGE Code(s) ***		Propulsion-related HTS (10-digit) code(s)****		***Commercial and Government Entity (CAGE) Code identifies companies doing or wishing to do business with the U.S. Federal Government. The code is used to support mechanized government systems and provides a standardized method of identifying a given facility at a specific location. Find CAGE codes at: <a href="https://cage.dla.mil/search/">https://cage.dla.mil/search/</a> .
				**** Harmonized Tariff Schedule (HTS) codes (10-digit) can be found at "HTS Online Resource Tool" located under "Research Tools" at: <a href="http://www.ustic.gov/index.htm">http://www.ustic.gov/index.htm</a> .	

For all categories that best describe your organization's business type, select the level of focus based on 2016 revenue contribution. Next, indicate if your organization's participation in each business type is in a propulsion-related capacity and explain. Part B must be completed before Section 1C, Part A.

Business Types	Level of Focus	Propulsion-related?	Explain:
Academic Institution	<Primary, Additional, None>	<Propulsion-related, Not propulsion-related, Both>	Write-in:
Distributor			
Holding company			
Laboratory			
Manufacturer			
Non-profit			
Prototype manufacturer			
Research & development			
Service provider			
Testing facility			
Other (specify)			

Comments:

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**Section 1c: Organization Information (Cont.)**

For each of your organization's Propulsion-related Business Lines (left column), and from the listed propulsion industrial base business categories (heading), select from the relevant drop-down menus your organization's primary involvement in each Business Line/Category (the drop-down consists of your organization's Business Type inputs in Section 1b, Part B). Part A of this Section must be completed before Part B.  
 \*NOTE: See Definitions tab for definitions of each propulsion industrial base business category.

Propulsion-related Business Line	Propulsion Industrial Base Business Category							
	Large Liquid Propulsion	Small Liquid Propulsion	Large Solid Rocket Motor	Small Solid Rocket Motor	Science & Technology	Test and Evaluation	Electric Propulsion	Other
Composite materials								
Composite materials processing								
Electrical systems								
Engineering services								
Fabrication, (sub)system assembly								
Instrumentation, sensors, transducers								
Insulation								
Interconnects, fasteners, standards, seals								
Launch services								
Liquid propellant material								
Machining								
Maintenance/aftermarket/repair/refurbishing services								
Material preparation (casting, forming, molding, forging, additive manufacturing, etc.)								
Material processing/finishing (machining, coating, plating, heat treating, etc.)								
Mechanical controls								
Ordnance/ignition components or systems								
Prototyping								
Raw material provider								
Research and development								
Solid rocket propellant material								
System integration								
Test equipment								
Testing services								
Other (specify)								
Other (specify)								
Other (specify)								

Comments:

Drop Down Options
Academic Institution
Distributor
Holding company
Laboratory
Manufacturer
Non-profit
Prototype Manufacturer
Research & development
Service provider
Testing facility
Other (specify)

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**Section 2: Facilities**

Indicate the total number of facilities (see Definitions tab) that are a part of your organization in the box to the right.  
 Note: If your organization declared the survey response to be a Business Unit/Division-level response in Section 1a, then this section should contain Business Unit/Division-level data.

Of the total number of facilities provided above, indicate the total number of propulsion-related facilities and/or locations that are a part of your organization in the box to the right. If zero, proceed to Section B.

Identify all of your organization's U.S. and non-U.S. facilities with propulsion-related operations by Facility Name. Provide the **LOCATION** of the facility (City/State/Country), its **OPERATIONS** (primary business line and the percent of propulsion-related operations at the listed facility). Next, specify **OUTLOOK** (select the primary anticipated change and explain).

Internal/Owned Facilities									
A.	Propulsion-related Facility Name	Location			Operations		Outlook		
		City	State/Province	Country	Facility Primary Business Line (select from dropdown)	Percent of Propulsion-related Facility Operations	Do you anticipate any significant changes in the operations at this facility over the next five years?	Primary Anticipated Change	Explain
1					<Tab 1b, Part A - Selected>		<Yes, No, Unsure>	Write-in:	Write-in:
2									
3									
4									
5									
6									
7									
8									
9									
10									

Indicate the total number of external facilities (any locations/areas of use that are maintained by any other entity other than your organization) used by your organization in the box to the right.

Indicate the total number of propulsion-related external facilities and/or locations used by your organization in the box to the right (including use of government and non-government external labs and testing facilities). If zero, proceed to Section 3.

Identify all of your organization's propulsion-related use of external facilities that your organization utilizes by facility name. Provide the **LOCATION** of the facility (City/State/Country), its **OPERATIONS** (primary business line and the facility type). Next, specify **FACILITY OWNERSHIP** (name of the entity owning the facility and explain).

External Facilities									
B.	Propulsion-related External Facility Name	Location			Operations		Facility Ownership (U.S. Government and/or Company) Information		
		City	State/Province	Country	Facility Business Line Utilized (select from dropdown)	Facility Type	Owner/Entity Name	Explain	
1					<Tab 1b, Part A - ALL>	<Government Lab, Non-government Lab, Government Test and Evaluation Facility, Non-government Test and Evaluation Facility, Launch Provider, Launch Services.>			
2									
3									
4									
5									
6									
7									
8									
9									
10									

Comments:

**Section 3: Mergers, Acquisitions, Divestitures, and Joint Ventures**

**Mergers, Acquisitions, Divestitures**

From 2013-2016, indicate the number of mergers, acquisitions, and divestitures (both U.S.-based, and non-U.S. based) in which your organization has been involved.

Identify your organization's ten most recent mergers, acquisitions, and divestitures, if applicable.

Organization Name	Primary DUNS	Type of Activity	Country	Year	Propulsion-related?	Primary Objective	Explain
1 Write-in:	#	<Merger, Acquisition, Divestiture>	<Country Drop Down>	<Year Drop Down>	<Propulsion-related, Not propulsion-related.>	<Primary Objective Drop Down>	Write-in:
2							
3							
4							
5							
6							
7							
8							
9							
10							

A.

**Joint Ventures**

From 2013-2016, indicate the total number of joint ventures in which your organization participated.

Identify your organization's current joint venture relationships, including public/private R&D partnerships, if applicable.

Organization/Entity Name	Primary DUNS	Country	Year Initiated	Primary Purpose of Relationship	Explain
1 Write-in:	#	<Country Drop Down>	<Year Drop Down>	<Primary Purpose Drop Down>	Write-in:
2					
3					
4					
5					
6					
7					
8					
9					
10					

B.

Comments:

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<Primary Objective Dropdown>
Access to government contracts
Access to intellectual property
Bankruptcy restructuring
Broaden customer base
Develop new capabilities
Overcome market entry barrier/Geopolitical concerns
R&D access/coordination
Reduce costs
Tax-related
Vertical integration
Other objective (Explain)

<Primary Purpose Dropdown>
Access to financial resources
Access to suppliers
Access to technological resources
Broaden customer base
Creation of new technologies
Improved access to foreign markets
Improved access to U.S. markets
Product improvements
Reduced costs
Reduced lead times
Risk sharing
Other objective (Explain)

**Section 4a: Products and Services**

Identify each general propulsion-related product and service category in which your organization participates by selecting "Yes." In Section 4b, select the individual type of products or services within these categories in which your organization participates by providing further detail.

The list below contains links to a particular product and/or service segment. After completing this page, proceed to the corresponding sections with the products/services that pertain to your organization, but be sure to review all segments to ensure completion.

Indicate all general categories associated with your organization's propulsion-related products and services.

Part	Product and Service Category	Participation
A	<a href="#">Electrical, Ignition, and Control</a>	<Yes/No>
B	<a href="#">Manufactured Components</a>	<Yes/No>
C	<a href="#">Production Techniques</a>	<Yes/No>
D	<a href="#">Propellants and Other Materials</a>	<Yes/No>
E	<a href="#">Systems and Services</a>	<Yes/No>
F	<a href="#">Other</a>	<Yes/No>

Comments:

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**Section 4b: Products and Services**

For each Propulsion-related Product and Service Category in which your organization provides a product or service (including R&D, Test and Evaluation, etc.), indicate the following: type of participation (product/service); whether your organization performs R&D; if your organization uses Additive Manufacturing/3-D Printing for R&D; if your product is associated with a business type; if your organization uses Additive Manufacturing/3-D Printing for the product category; and provide a description of the products and/or services. Then, indicate the primary propulsion industrial base business category associated, the primary propulsion-related business line, the primary end-use, and if the product/service type is export controlled. Note that our definition of 'services' include R&D, Test and Evaluation, etc.

While many specific product/service areas are listed, not every possible product and service has been included. If there is a product/service type that is not listed in any of the sections below, please write-in your answers using the "Other" lines under each relevant category. You may also use "Part F, Other" to indicate any other product/service types that have not been already been included.

**A. Electrical, Ignition, and Control**

	Propulsion-related Product and Service Category	Participation Type	Conduct R&D?	Use of Additive Manufacturing/3-D Printing for R&D?	Business Type	Use of Additive Manufacturing/3-D Printing	Describe Product/Service	Primary Propulsion Industrial Base Business Category	Primary Propulsion-related Business Line	Primary End-Use	Export Controlled?
A1	Actuators	<Product/Service/Both>	<Yes/No/Not Applicable>	If yes: <Yes/No/Not Applicable>	<Prepopulated Business Types>	If manufacturer, prototype, or both: <Yes, all/Yes, some/No/Not Applicable>		<1c, Part A limited>	<1c, Part A limited>		<Yes, No, Unknown>
A2	Arm fire devices/Armed or safe										
A3	Avionics (sub)systems and components										
A4	Batteries										
A5	Electrical systems and components										
A6	Fuses										
A7	Harnesses										
A8	Igniter material										
A9	Igniter system and components										
A10	Mechanical controls										
A11	Ordnance systems and components										
A12	Power electronics										
A13	Pyrotechnics, cartridge and propellant actuated devices										
A14	Sensors										
A15	Transducers										
A16	Other (specify)										
A17	Other (specify)										
A18	Other (specify)										

Primary Propulsion Industrial Base Business Category
Large Liquid Propulsion
Small Liquid Propulsion
Large Solid Rocket Motor
Small Solid Rocket Motor
Science & Technology
Test and Evaluation
Electric Propulsion
Other
Primary End-Use
Government Defense
Government Non-defense
Commercial Defense
Commercial Non-defense
Unknown

**B. Manufactured Components**

	Propulsion-related Product and Service Category	Participation Type	Conduct R&D?	Use of Additive Manufacturing/3-D Printing for R&D?	Participation Category	Use of Additive Manufacturing/3-D Printing	Describe Product/Service	Primary Propulsion Industrial Base Business Category	Primary Propulsion-related Business Line	Primary End-Use	Export Controlled?
B1	Bearings										
B2	Bellows										
B3	Casings										
B4	Curvices										
B5	Dampers										
B6	Ducts, tubing, and hoses										
B7	Fairings and skirts										
B8	Fasteners, gaskets, o-rings, seals										
B9	Nozzles										
B10	Pressure vessels/motor cases										
B11	Regulators										
B12	Rotating machinery components										
B13	Springs										
B14	Spun metal domes										
B15	Strut										
B16	Thrust chamber										
B17	Turbopump										
B18	Valves										
B19	Other (specify)										
B20	Other (specify)										
B21	Other (specify)										

**C. Production Techniques**

	Propulsion-related Product and Service Category	Participation Type	Conduct R&D?	Use of Additive Manufacturing/3-D Printing for R&D?	Participation Category	Use of Additive Manufacturing/3-D Printing	Describe Product/Service	Primary Propulsion Industrial Base Business Category	Primary Propulsion-related Business Line	Primary End-Use	Export Controlled?
C1	Additive manufacturing										
C2	Brazing										
C3	Casting										
C4	Coating										
C5	Fabrication										
C6	Flow forming										
C7	Forging										
C8	Forming										
C9	Heat treating										
C10	Large machining										
C11	Metal joining										
C12	Molding										
C13	Plating										
C14	Precision machining										
C15	Sheet metal fabrication										
C16	Small machining										
C17	Turbopump machining										
C18	Other (specify)										
C19	Other (specify)										
C20	Other (specify)										

D. Propellants and Other Materials											
	Propulsion-related Product and Service Category	Participation Type	Conduct R&D?	Use of Additive Manufacturing/3-D. Printing for R&D?	Participation Category	Use of Additive Manufacturing/3-D Printing	Describe Product/Service	Primary Propulsion Industrial Base Business Category	Primary Propulsion-related Business Line	Primary End-Use	Export Controlled?
D1	Adhesives and resins										
D2	Coatings										
D3	Composite materials										
D4	Fuels (including RP-1 and RP-2)										
D5	HC polymer										
D6	Insulation										
D7	Liquid propellant and/or materials										
D8	PBI-NBR rubber										
D9	Oxidizer										
D10	Polymer										
D11	Pressurant										
D12	Raw materials (including Additive Manufacturing Stock)										
D13	Rayon										
D14	Solid rocket liner material										
D15	Solid rocket propellant material										
D16	Weld wire										
D17	Other (specify)										
D18	Other (specify)										
D19	Other (specify)										

E. Systems and Services											
	Propulsion-related Product and Service Category	Participation Type	Conduct R&D?	Use of Additive Manufacturing/3-D. Printing for R&D?	Participation Category	Use of Additive Manufacturing/3-D Printing	Describe Product/Service	Primary Propulsion Industrial Base Business Category	Primary Propulsion-related Business Line	Primary End-Use	Export Controlled?
E1	Component testing										
E2	Composite materials testing										
E3	Engine/motor system testing										
E4	Engineering services										
E5	Fabricated assemblies										
E6	Launch services										
E7	Machine parts and tooling										
E8	Materials testing										
E9	System and/or subsystem assembly										
E10	System and or subsystem integration										
E11	Test equipment										
E12	Test services										
E13	Test stand design										
E14	Other (specify)										
E15	Other (specify)										
E16	Other (specify)										

F. Other											
	Propulsion-related Product and Service Category	Participation Type	Conduct R&D?	Use of Additive Manufacturing/3-D. Printing for R&D?	Participation Category	Use of Additive Manufacturing/3-D Printing	Describe Product/Service	Primary Propulsion Industrial Base Business Category	Primary Propulsion-related Business Line	Primary End-Use	Export Controlled?
F1	Maintenance/aftermarket/repair/refurbishing										
F2	Cleaning agents										
F3	Propellant tanks										
F4	Other (specify)										
F5	Other (specify)										
F6	Other (specify)										
F7	Other (specify)										
F8	Other (specify)										
Comments:											

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Business Types
Academic Institution
Distributor
Holding company
Laboratory
Manufacturer
Non-profit
Prototype manufacturer
Research & development
Service provider
Testing facility
Other (specify)

**Section 5a: Support of U.S. Government (USG) - Agencies**

Indicate all USG departments and agencies your organization has supported, directly or indirectly, from 2013-2016 (including all affiliated laboratories). Indicate the type of support (Prime Contractor, Sub-Contractor, Both, or Other). Next, indicate if the type of support is propulsion-related, non-propulsion-related, both, or not applicable.

Agency Name	Propulsion-related?	Primary Propulsion Industrial Base Business Category	
U.S. Air Force (USAF)	<Yes - Propulsion-related, Yes - non-propulsion-related, Both, Not applicable>		
U.S. Army			
U.S. Department of Energy (DOE)			
U.S. Department of Homeland Security (DHS)			
U.S. Department of State			
U.S. DOD Defense Advanced Research Projects Agency (DARPA)			
U.S. DOD Missile Defense Agency (MDA)			
U.S. Intelligence Community (such as CIA, NGA, NRO, NSA, DNI, etc.)			
U.S. Marine Corps			
U.S. National Aeronautics and Space Administration (NASA)			
U.S. Navy			
National Oceanic and Atmospheric Administration (U.S. Department of Commerce)			
Other Agency		<Select from list>	
Other Agency		<Select from list>	
Other Agency		<Select from list>	
Unlisted Agency		(Write-in)	
Unlisted Agency		(Write-in)	
Unlisted Agency	(Write-in)		

**Comments**

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Primary Propulsion Industrial Base Business Category
Large Liquid Propulsion
Small Liquid Propulsion
Large Solid Rocket Motor
Small Solid Rocket Motor
Science & Technology
Test and Evaluation
Electric Propulsion
Other

Other Agency
DOD Other
U.S. Department of Agriculture
U.S. Department of Commerce (excluding NOAA)
U.S. Department of Transportation
Nuclear Regulatory Commission
Classified
Other



**Section 5c: Support of U.S. Government (USG) - USG Programs and Commercial Systems**

A. Based on the product and service categories in which your organization participated, indicate the total number of propulsion-related programs/systems your organization supported from 2013-2016.

For each program/system in which your organization supports (including rocket families and stages), select the primary propulsion industrial base business category, the secondary propulsion industrial base business category (if applicable), the type of support, the primary engine/motor/booster (if applicable, prepopulated from Section 5b), the primary product/service associated, the secondary product/service associated, if your organization conducts related R&D, and explain.

Program/System	Primary Product/Service Associated	Secondary Product/Service Associated	Primary Engine/Motor (if applicable)	R&D Support	Explain
Antares (expendable launch system developed by OATK to launch Cygnus spacecraft).	<All Products/Services selected previously>	<All Products/Services selected previously>	<Engine List specific to this program, and N/A>	<Yes/No>	Write-in:
Antares Bi-Propellant Third Stage (BTS) (includes three IHI BT-4 engines from Japan)					
Atlas V					
Centaur (2 RL 10s) - second stage of the Atlas launch vehicle					
Common Core Booster (used in Atlas V first stage powered by one RD-180 engine - used on 50+ flights of Atlas V).					
Black Brant					
Blue Origin New Glenn					
Blue Origin New Shepard					
CST-100 Starliner (use Atlas V, but compatible with Delta IV and Falcon 9, and likely Vulcan) (part of Commercial Crew Integrated Capability (CCiCap) Program)					
Delta IV Heavy					
Delta IV					
Delta IV Common Booster Core (Uses RS-68s)					
Delta Cryogenic Second Stage (DCSS)					
Vulcan					
Space Launch System (SLS) Exploration Upper Stage (EUS) - 4 RL 10 engines					
Space Launch System (SLS) Interim Cryogenic Propulsion Stage (ICPS)					
Space Launch System (SLS) Orion MPCV					
Orion					
Advanced Medium-Range Air-to-Air Missile (AMRAAM)					
AGM-114 Hellfire					
Evolved Expendable Launch Vehicle (EELV) uses Atlas V and Delta IV boosters - merged to create ULA. Is expected to use Falcon 9 F9 FT.					
Evolved Seasparrow Missile (ESSM) Blk 1					
Evolved Seasparrow Missile (ESSM) Blk 2					
<b>SpaceX</b>					
SpaceX Dragon					
SpaceX Dragon V2/Dragon 2					
SpaceX Falcon 9					
SpaceX Falcon 9 Full Thrust (uses Merlin 1D engines & Merlin 1D Vacuum)					
SpaceX Falcon 9 Heavy (Booster)					
SpaceX ITS Launch Vehicle (future 2 stage rocket powered by 42 raptor rocket engines, First stage ITS Booster)					
GMD/GBI Orion					
GMD/GBI RKV					
GRIFFIN					
JAVELIN					
M270 Multiple Launch Rocket System (M270 MLRS)					
MGM-140 Army Tactical Missile System (ATacMS)					
Minuteman III					
Patriot Advanced Capability (PAC-3)					
Patriot Advanced Capability (PAC-3) MSE					
RAM					
RAM Blk 2					
RIM-174 Standard Extended Range Active Missile (ERAM) aka Standard Missile 6 (SM-6)					
Sidewinder or AIM 9X					
Standard Missile 3 (SM-3)					
Standard Missile 3 (SM-3) Block IIA					
Standard Missile-2 (SM-2)					
Star 48BV					
Star 48 Upper Stage (using Star 48BV solid rocket motor)					
Tactical Tomahawk					
Terminal High Altitude Area Defense (THAAD)					
TOW					
Trident D5					
Program/System Write-in					
Program/System Write-in					
Program/System Write-in					
Program/System Write-in					
Program/System Write-in					

Comments:



**Section 6: Propulsion-related Suppliers**

Indicate the number of suppliers from which your organization has purchased propulsion-related products/services (excluding propellants, fuels, oxidizers, and pressurants) from 2013-2016.

Identify your organization's top 20 key critical propulsion-related suppliers (excluding propellants, fuels, oxidizers, and pressurants). Only identify suppliers that support products/services mentioned earlier in the survey (in Section 4).

If a supplier provides products more than one product/service area, complete the supplier information on two (or more) separate rows and alter the product/services area (and related information) accordingly.

Input Type	Input Description	Product/Service that the input is utilized in:	Supplier Name	Supplier City	Supplier State (if applicable)	Supplier Country	Single/Sole Supplier?	Primary Propulsion Industrial Base Business Categories	Primary Engine/Motor (if applicable)	Primary Program/System (if applicable)	
1	<Product/Service List>	Write-in:	<Selected previously Product/Service List>	Write-in:	Write-in:	<State List>	<Country List>	<Single Source, Sole Source>	<Previously Selected PIB Categories>	<Previously Selected Engine/Motor List + NA>	<Previously Selected USG Program List + NA>
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

**Suppliers (Propellants, Fuels, Oxidizers, Pressurants)**

Indicate the number of suppliers from which your organization has purchased propellants, fuels, oxidizers, pressurants from 2013-2016. If zero, proceed to Section 7.

Identify your organization's top 20 key critical propulsion-related propellants, fuels, oxidizers, and/or pressurants suppliers from 2013-2016. Only identify suppliers that support engines/motors and/or programs/systems mentioned earlier in the survey (in Section 5).

If your organization purchases more than one product per supplier, list each product on a separate row.

Propellant, Fuel, Oxidizer, Pressurant Type	Product Name/Spec	Annual Quantity Used (2013-2016 average)	Supplier Name	Supplier City	Supplier State (if applicable)	Supplier Country	Single/Sole Supplier?	Transportation Method	Primary Engine/Motor (if applicable)	Primary Program/System (if applicable)
<Liquid Propellant, Solid Propellant, Fuel, Oxidizer, Pressurant>	Write-in:	Write-in:	Write-in:	Write-in:	<State List>	<Country List>	<Single Source, Sole Source>	<Drop down>	<Previously Selected Engine/Motor List>	<Previously Selected System/Program List>
	1									
	2									
	3									
	4									
	5									
	6									
	7									
	8									
	9									
	10									
	11									
	12									
	13									
	14									
	15									
	16									
	17									
	18									
	19									
20										

Comments:

**Section 7: Propulsion-related Supply Chain**

A. From 2013-2016, has your organization experienced any supply chain disruptions which impacted your organization's ability to provide adequate propulsion-related products and services? <Yes/No/Not Applicable>

If yes, for the top five disruptions of critical propulsion-related inputs by magnitude of impact, indicate the input and supplier associated with the disruption event, the length of the disruption (in days), the source of the disruption (by country), the primary reason for the disruption, the primary resolution outcome, the secondary resolution outcome, and explain.

	Input	Supplier	Length of disruption (days)	Source of Disruption (Country)	Primary reason for the disruption	Primary Resolution	Explain
1	<write-ins from suppliers tab>	<write-ins associated with that input type from suppliers tab>	#	<Country List>	<Natural disaster, Customs Issues, Ports Issues, Trade Dispute, Duties, Supplier Financial Distress, Transportation Issues, Inadequate Logistics Support, Other>	<Captive Capability, Stockpiling, Long Term Vendor Contracts, Identified Another Supplier, Legal Recourse, Waited Until Disruption Passed, Substituted Input, Designed-out Input, Other, None>	Write-in:
2							
3							
4							
5							

B. From 2013-2016, has your organization experienced any negative impacts from importing propellants/fuels/oxidizers/pressurants? <Yes/No/Not Applicable>

If yes, for the top five impacts of imported critical propulsion-related propellants/fuels/oxidizers/pressurants by magnitude of impact, indicate the input type, input name, and supplier associated with the impact. Then, select the source of the impact (by country), and explain the impact and resolution. Examples of impacts include pricing, timely delivery, quality, etc.

	Propellant, Fuel, Oxidizer, Pressurant Type	Product Name/Spec	Supplier Name	Direct Country Source	Primary Original Source Country (if known)	Explain
1	<Liquid Propellant, Solid Propellant, Fuel, Oxidizer, Pressurant>	<Write-ins from Tab 6>	<Write-ins from Tab 6>	<Country List>	Write-in:	Write-in:
2						
3						
4						
5						

C. From 2013-2016, did your organization have and adhere to any inventory and/or supply chain management practices for your propulsion-related products and services? <Yes/No/Not Applicable>

Select the supply chain management practices, methodologies, and systems that your organization utilized from 2013-2016 for propulsion-related products and services. For those that your organization did not utilize from 2013-2016, indicate if your organization is in process of establishing or pursuing each one. Explain.

Type		Use	Type		Use	Type		Use	Type		Use
1	Advanced planning system (APS)	<Yes – Currently, Yes-In process/pursuing, No, Not Applicable, Unsure>	9	Electronic data interchange (EDI)	<Yes – Currently, Yes-In process/pursuing, No, Not Applicable, Unsure>	17	Materials requirements planning (MRP)	<Yes – Currently, Yes-In process/pursuing, No, Not Applicable, Unsure>	25	Third party logistics (3PL)	<Yes – Currently, Yes-In process/pursuing, No, Not Applicable, Unsure>
2	Bar coding		10	Enterprise resource planning (ERP)		18	Network centric manufacturing		26	Use of external consultants	
3	Close partnership with customers		11	E-procurement		19	Outsourcing		27	Vendor managed inventory (VMI)	
4	Close partnership with suppliers		12	Few suppliers		20	Plan strategically		28	Vertical integration	
5	Customer relationships management (CRM)		13	Hold safety stock/stockpiling		21	Radio frequency identification (RFID)		29	Warehouse management system (WMS)	
6	Decision support/expert system		14	Just in time (JIT)		22	Subcontracting		30	Theory of constraints (TOC)	
7	E-business		15	Manufacturing resources planning		23	Supplier relationships management (SRM)		31	Use of full-time supply chain manager	
8	E-commerce		16	Many suppliers		24	Supply chain benchmarking		32	Other (specify)	

Explain:

Comments:

**Section 8: Employment**  
 Record your organization's total full year Full Time Equivalent (FTE) employees and contractors by year for your U.S.-based operations, distinguishing between workers that are U.S. citizens and workers that are not U.S. citizens. Then, record your organization's total full year Full Time Equivalent (FTE) propulsion-related employees and contractors by year for your U.S.-based operations, distinguishing between workers that are U.S. citizens and workers that are not U.S. citizens.  
 Then, estimate the percentage of your organization's total propulsion-related FTE Employees/Contractors for each category and year, distinguishing between workers that are U.S. citizens and workers that are not U.S. citizens.  
 NOTE: If your organization declared the survey response to be a Business Unit/Division-level response in Section 1a, then this section should contain Business Unit/Division-level data.

	2013		2014		2015		2016	
	U.S. Citizens	Non-U.S. Citizens	U.S. Citizens	Non-U.S. Citizens	U.S. Citizens	Non-U.S. Citizens	U.S. Citizens	Non-U.S. Citizens
<b>Total FTE Employees/Contractors (A)</b>	#	#	#	#	#	#	#	#
<b>Total Propulsion-related FTE Employees/Contractors (B)</b>	#	#	#	#	#	#	#	#
a Engineers (as a % of B)	%	%	%	%	%	%	%	%
b Information Technology Professionals (as a % of B)	%	%	%	%	%	%	%	%
c Production Line Workers (as a % of B)	%	%	%	%	%	%	%	%
d Scientists (as a % of B)	%	%	%	%	%	%	%	%
e Testing Operators, Quality Control, & Support Technicians (as a % of B)	%	%	%	%	%	%	%	%
f Other (specify)	%	%	%	%	%	%	%	%
h Other (specify)	%	%	%	%	%	%	%	%
i Other (specify)	%	%	%	%	%	%	%	%
<b>Total of a-i need not equal 100%</b>	SUM	SUM	SUM	SUM	SUM	SUM	SUM	SUM
<b>Estimate your organization's estimated turnover rate per year for your organization's US-based operations:</b>	2013		2014		2015		2016	
j Overall	Total (U.S. and Non-U.S. citizens)		Total (U.S. and Non-U.S. citizens)		Total (U.S. and Non-U.S. citizens)		Total (U.S. and Non-U.S. citizens)	
k Propulsion-related	%		%		%		%	
l Explain:								

Record your organization's total FTE propulsion-related STEM employees/contractors at the end of 2016.

Record by age category and degree category the number of FTE STEM-degreed and non-STEM-degreed propulsion-related employees and contractors (both workers that are U.S. citizens and workers that are not U.S. citizens) at the end of 2016.

Age Range	Current STEM-degreed Propulsion-related Employees/Contractors			Current STEM-related non-degreed Propulsion-related Employees/Contractors Associates and Below
	BA/BS	Masters/Professional	Ph.D.	
	Total (U.S. and Non-U.S. citizens)	Total (U.S. and Non-U.S. citizens)	Total (U.S. and Non-U.S. citizens)	Total (U.S. and Non-U.S. citizens)
1 Under 25				
2 26-35				
3 36-45				
4 46-55				
5 56-64				
6 65+				

Does your organization have difficulty hiring and/or retaining any part of its propulsion-related workforce? Yes/No

List top three factors that your organization experiences when having difficulty hiring and/or retaining propulsion-related employees, the primary employee category, and explain.

Hiring/Retaining Issue	Hiring/Retaining Type	Primary Employee Category	Explain
1 <Hiring/Retaining Issue List>	<Hiring/Retaining/Both/No Difficulty>	<Section 8, Part A Category>	Write-in:
2			
3			
4			
5			

For each propulsion-related occupation category, select the type of difficulty your organization has hiring and/or retaining staff. Next, indicate the number of unfilled vacancies for each category at the end of 2016, the average length of time the positions have been unfilled, the primary issue leading to the unfilled vacancies, the primary engine/motor affected (if applicable), and explain.

Propulsion-related Occupation Category	Difficulty	Number of Unfilled Vacancies	Average Length of Time the Current Positions Have Gone Unfilled	Primary Issue for the Unfilled Vacancies	Primary Engine/Motor Affected	Explain
a Engineers	<Hiring/Retaining/Both/No Difficulty>	#	Write-in: (in weeks)	<Issue Drop Down List>	<Pre-selected Engine/Motor List>	Write-in:
b Information Technology Professionals						
c Production Line Workers						
d Scientists						
e Testing Operators, Quality Control, & Support Technicians						
f Other (specify)						
h Other (specify)						
i Other (specify)						

2016 Non-U.S. Citizen FTEs: <Prepopulate AutoFill>

Identify the number of each type of non-U.S. citizen worker currently employed at your organization.

	H-1B	H-2B	F-1 Student Visa	Green Card	L: Intra-company Transferee	Other
FTE Employees						
FTE Contractors						

List each country (other than the U.S.) from which your organization has non-U.S. citizen workers (employees or contractors), and identify the number of each type of visa or green card holder associated with each country. Next, identify the primary propulsion-related occupation area in which the majority of employees/contractors from each country work, and select the primary industrial base business category most associated with that work.

Country	H-1B	H-2B	F-1 Student Visa	Green Card	L: Intra-company Transferee	Other	Primary Propulsion-related Occupation Area	Primary Propulsion-related Industrial Base Business Category
1						<Prepopulated>	<Prepopulated>	<Prepopulated>
2								
3								
4								
5								
6								
7								
8								
9								
10								

l Explain:

<Issue Drop Down List> & <Hiring/Retaining List>
Inability to hire foreign nationals due to export control laws
Lack of ability to train or apprentice applicants
Lack of applicants with relevant degrees
Lack of applicants with requisite security clearances
Lack of applicants with requisite skill sets
Lack of promotion potential for applicants
Lack of experienced applicants
Location/relocation issues
Environmental or safety risk concerns for applicants
Unable to provide competitive compensation due to federal contracts
Unable to provide competitive compensation for commercial work
Unsure/Lack of response to vacancy announcements
Other (specify)

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**Section 9: Sales**

Provide your organization's total sales information from 2013-2016 to U.S. and non-U.S. customers.

In Part B, indicate your organization's total propulsion-related sales (including commercial and government sales).

In Part C, indicate your organization's total NASA-related sales (including commercial and government sales).

In Part D, indicate your organization's total defense-related sales (including commercial and government sales, including a foreign military).

Note: "U.S." means U.S. domestic sales; "Non-U.S." means export sales from U.S. locations.

		Source of Sales Data:									
		Reporting Schedule:									
<b>Record in \$ Thousands, e.g. \$12,000.00 = survey input \$12</b>											
		2013		2014		2015		2016			
		U.S.	Non-U.S.	U.S.	Non-U.S.	U.S.	Non-U.S.	U.S.	Non-U.S.		
A.	Total sales, all customers (in \$)										
<b>Lines B-D need not sum to 100%. Estimates are acceptable. Ensure you complete lines B-D for all years with sales.</b>											
B.	Total propulsion-related sales (as a % of A)										
C.	Total NASA-related sales (as a % of A)										
D.	Total defense-related sales (as a % of A)										
Comments:											
<b>BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act</b>											

**Section 10: Top Customers**

Estimate the total number of both all and propulsion-related U.S.-based direct customers your organization had from 2013-2016 and the total number of propulsion-related direct U.S.-based customers from 2013-2016. Next, identify your organization's top ten propulsion-related U.S.-based direct customers from 2013-2016 in descending order by revenue.

\*A direct customer is the immediate entity to which you sell your propulsion-related products/services. Customers can include internal customers (i.e. other business units/divisions within your parent organization).

**Top U.S.-Based Customers**

Estimate the total number of direct U.S.-based customers from 2013-2016:

Estimate the total number of direct propulsion-related U.S.-based customers from 2013-2016:

Direct U.S. Propulsion-related Customer Name		DUNS Number (if known, if applicable)	Type of Customer	Customer City	Customer State	Primary Product/Service Provided	Type of Support	Primary Engine/Motor	Primary Propulsion Industrial Base Business Category		
A.	1	Write in:	<U.S. Government Defense, U.S. Government Non-Defense, Commercial Defense, Commercial Non-defense, Other>	Write in:	<List of States>	<Product/Service List>	<Manufactured Product, Distributed Product, Service, Research and Development, Other>	<Previously selected Engine Motor List>	<Previously selected PIB categories>		
	2										
	3										
	4										
	5										
	6										
	7										
	8										
	9										
	10										

Next estimate the total number of all non-U.S.-based direct customers your organization had from 2013-2016 and the total number of propulsion-related non-U.S.-based customers from 2013-2016. Next, identify your organization's top ten **propulsion-related** non-U.S.-based direct customers from 2013-2016 as defined by revenue.

**Top Non-U.S.-Based Customers**

Estimate the total number of direct non-U.S.-based customers from 2013-2016:

Estimate the total number of propulsion-related non-U.S.-based customers from 2013-2016:

Direct non-U.S. Propulsion-related Customer Name		DUNS Number (if known, if applicable)	Type of Customer	Customer City	Customer Country	Primary Product/Service Provided	Type of Support	Primary Engine/Motor	Primary Propulsion Industrial Base Business Category		
B.	1	Write in:	<U.S. Government Defense, U.S. Government Non-Defense, Commercial Defense, Commercial Non-defense, Other>	Write in:	<List of Countries except United States>	<Product/Service List>	<Manufactured Product, Distributed Product, Service, Research and Development, Other>	<Previously selected Engine Motor List>	<Previously selected PIB categories>		
	2										
	3										
	4										
	5										
	6										
	7										
	8										
	9										
	10										

Comments:

**BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act**

**Section 11a: Research & Development**

A. Does your organization conduct research and development (R&D)? Note: This section is not limited to contract R&D - include all R&D as reported in your organization's income statement in Section 12. If no, proceed to Section 12. <Yes/No>

In Part B, record your organization's total R&D dollar expenditures and type of R&D expenditures from 2013-2016. Also estimate if R&D expenditures will increase or decrease in 2017. In Part C, identify your organization's R&D funding amount for each year from 2013-2016. Then, list the percent of total R&D dollars by funding source from 2013-2016. Also estimate if R&D funding will increase or decrease in 2017.

Source of R&D data:		Reporting Schedule:				Estimate
		Record \$ in Thousands, e.g. \$12,000.00 = survey input of \$12				2017
		2013	2014	2015	2016	<Increase/Decrease/No Change>
B.	1 Total R&D Expenditures	\$\$	\$\$	\$\$	\$\$	
	2 Basic Research (as a % of B1)	%	%	%	%	
	3 Applied Research (as a % of B1)	%	%	%	%	
	4 Product/Process Development (as a % of B1)	%	%	%	%	
	5 Total of 2 - 4 (must equal 100%)	0%	0%	0%	0%	
	6 Total Propulsion-related R&D Expenditures	\$\$	\$\$	\$\$	\$\$	
	7 NASA-related R&D (as a % of B6)	%	%	%	%	
	8 DOD-related R&D (as a % of B6)	%	%	%	%	
	9 Other USG-related R&D (as a % of B6)	%	%	%	%	
	10 Non-USG-related R&D (as a % of B6)	%	%	%	%	
11 Total of 7 - 10 (must equal 100%)	0%	0%	0%	0%		

Source of R&D data:		Reporting Schedule:				Estimate in the next
		Record \$ in Thousands, e.g. \$12,000.00 = survey input of \$12				Increase/Decrease
		2013	2014	2015	2016	
C.	1 Total R&D Funding Sources	\$\$	\$\$	\$\$	\$\$	
	2 Internal/Self-Funded/IRAD (as a % of C1)	%	%	%	%	
	3 Total U.S. Government (USG) (as a % of C1)	%	%	%	%	
	4 NASA (as a % of C3)	%	%	%	%	
	5 DOD (as a % of C3)	%	%	%	%	
	6 Other USG (as a % of C3)					
	7 Total State and Local Government (as a % of C1)	%	%	%	%	
	8 Universities - Public and Private (as a % of C1)	%	%	%	%	
	9 U.S. Industry, Venture Capital, Non-Profit (as a % of C1)	%	%	%	%	
	10 Non-U.S. Non-government Investors (as a % of C1)	%	%	%	%	
	11 Non-U.S. Governments (as a % of C1)					
	12 Other (specify)	%	%	%	%	
	13 Total of 2 - 3, 7 - 12 (must equal 100%)	0%	0%	0%	0%	
14 Total R&D expenditures reimbursed by the U.S. Government	\$	\$	\$	\$		
15 Propulsion-related (as a % of C14)	%	%	%	%		
16 DOD-related (as a % of C14)	%	%	%	%		
17 NASA-related (as a % of C14)	%	%	%	%		

D. Does your organization utilize the R&D Tax Credit? <Yes - Federal R&D tax credit only; Yes - State R&D tax credit only; Yes - Both Federal and State R&D tax credits; No; Unsure>

If yes, what percentage of this credit applies to your propulsion-related R&D? %

Identify the total number of prizes awarded to your organization from 2013-2016. If zero, proceed to Section 11b. #

Identify your organization's top five prize funding from 2013-2016. Select the year prize was awarded, the dollar amount, the organization from which the prize originated (sponsor/underwriter), the funding source category (section C, lines 2-10) and explain.

Year Awarded	Funding Prize Title	Dollar Amount Awarded	Funding Source Category	Sponsor/Underwriter
<2013, 2014, 2015, 2016>	Write-in:	\$\$	(2-10 above)	Write-in:

Comments:

**Section 11b: Research & Development (cont.)**

Identify the propulsion-related R&D Application Areas in which your organization performed R&D from 2013-2016 by indicating the number of R&D projects your organization participated in from 2013-2016. Then, indicate the average Technology Readiness Level (TRL) of your R&D activities ([https://esto.nasa.gov/files/trl\\_definitions.pdf](https://esto.nasa.gov/files/trl_definitions.pdf)). Next, indicate the average DOD Science and Technology (S&T) Activity Level (if applicable), and specify if the research performed in each application area utilizes additive manufacturing. Next, estimate the percentage of total R&D for each category selected, and indicate the source of funding (including the funding agency and funding vehicle, if applicable). Then, indicate the primary propulsion industrial base business category associated with the R&D application area, and explain.

Propulsion-related R&D Application Areas	Participation (# of projects)	Primary TRL Level	Primary DOD S&T Activity Level	Use of Additive Manufacturing/3-D Printing	Primary Funding Source	Primary Funding Agency (if applicable)	Primary Funding Vehicle (if applicable)	Primary Propulsion Industrial Base Business Category	Explain
1 Analytical modeling	#	<TRL 1, TRL 2, TRL 3, TRL 4, TRL 5, TRL 6, TRL 7, TRL 8, TRL 9, Not Applicable>	<Basic Research 6.1, Applied Research 6.2, Advanced Technology Development 6.3, Demonstration and Validation 6.4, Engineering and Manufacturing Development 6.5, RDT&E Management and Support 6.6, Operational System Development 6.7, Developmental Test and Evaluation, Operational Test and Evaluation, Not Applicable>	<Yes, No, Not Applicable>	<From R&D Expenditures with any value over zero, Tab 11a>	If Federal is the source: <Agency List, Other, and Not Applicable>	If Federal is the source: <DPA Title III, DOD S&T Funding, Other Transactional Authority (OTA), Defense Advanced Research Projects Agency (DARPA), SBIR, STTR, Space Act Agreements, Other, Not Applicable>	<Pre-selected Propulsion Industrial Base Business Category>	Write in:
2 Boosters									
3 Casings									
4 Combustion Chambers									
5 Electric propulsion/rockets									
6 Environmentally friendly propellant/fuel									
7 Fuel oils									
8 Gas turbines									
9 High-temperature materials									
10 Hybrid rockets									
11 Hydropropulsion									
12 Hypersonic									
13 Inert propellants									
14 In-space propulsion									
15 Large liquid rockets									
16 Large solid rockets									
17 Laser Electric Propulsion									
18 Laser Thermal Rockets									
19 Liquid propellant and fuels									
20 Missiles - liquids									
21 Missiles - solids									
22 Nozzles									
23 Nuclear thermal/nuclear fusion propulsion									
24 Propellant tanks									
25 Retropropulsion									
26 Satellite tethers									
27 Sensors									
28 Small liquid rockets									
29 Small solid rockets									
30 Solid propellant and fuels									
31 Storable oxidizers									
32 Supersonic retropropulsion									
33 Thermal rockets									
34 Thrusters									
35 Other (specify here)									
36 Other (specify here)									
37 Other (specify here)									

Comments:

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**Section 11c: Research & Development (cont.)**

A. Has your organization received any propulsion-related federal research and development (R&D) funding from 2013-2016? If no, proceed to Section 12.		<Yes/No>																						
Does defense-related R&D shape the development of your commercial propulsion-related product lines?		<Yes, No, Unsure, Not Applicable>																						
Explain:																								
Does NASA-related R&D shape the development of your commercial propulsion-related product lines?		<Yes, No, Unsure, Not Applicable>																						
Explain:																								
B. Estimate the degree of compatibility between your propulsion-related R&D and your non-propulsion-related R&D?		%																						
Explain:																								
Estimate the degree of compatibility between your NASA-related R&D and your DOD-related R&D?		%																						
Explain:																								
Indicate whether your organization's R&D funding has been impacted by changes in U.S. Government propulsion-related spending from 2013-2016, the type of change, and the degree of change.		Yes/No	Type of Change	Degree of Change																				
		<Yes/No>	<Increased/Decreased/No Change>	<Significantly, Moderately, Little, Not Impacted, Not Sure, Not Applicable>																				
If your organization's R&D funding decreased as a result of changes in U.S. Government propulsion-related spending, indicate the action your organization has taken from 2013-2016 (or plans to take from 2017-2021) to mitigate the negative impact. Then select the source of the funding decrease is either NASA-related and/or DOD-related. Explain.																								
<table border="1"> <thead> <tr> <th>Results</th> <th>Action</th> <th>NASA-related?</th> <th>DOD-related?</th> <th>Explain</th> </tr> </thead> <tbody> <tr> <td>1 Co-license(d) with other organizations</td> <td rowspan="11" style="text-align: center;">&lt;Taken, Plan to Take, No, Not Applicable&gt;</td> <td style="text-align: center;">&lt;Yes/No&gt;</td> <td style="text-align: center;">&lt;Yes/No&gt;</td> <td rowspan="11" style="text-align: center;">Write-in:</td> </tr> <tr><td>2 Decrease(d) R&amp;D activities</td></tr> <tr><td>3 Delay(ed) investment</td></tr> <tr><td>4 Eliminate(d) R&amp;D activities</td></tr> <tr><td>5 Outsource(d) R&amp;D activities to non-U.S.-based locations</td></tr> <tr><td>6 Outsource(d) R&amp;D activities to other U.S.-based locations</td></tr> <tr><td>7 Partner(ed) with non-U.S. government entities</td></tr> <tr><td>8 Partner(ed) with private sector companies</td></tr> <tr><td>9 Partner(ed) with universities</td></tr> <tr><td>10 Substitute(d) with other type(s) of R&amp;D funding</td></tr> <tr><td>11 Other (specify)</td></tr> </tbody> </table>					Results	Action	NASA-related?	DOD-related?	Explain	1 Co-license(d) with other organizations	<Taken, Plan to Take, No, Not Applicable>	<Yes/No>	<Yes/No>	Write-in:	2 Decrease(d) R&D activities	3 Delay(ed) investment	4 Eliminate(d) R&D activities	5 Outsource(d) R&D activities to non-U.S.-based locations	6 Outsource(d) R&D activities to other U.S.-based locations	7 Partner(ed) with non-U.S. government entities	8 Partner(ed) with private sector companies	9 Partner(ed) with universities	10 Substitute(d) with other type(s) of R&D funding	11 Other (specify)
Results	Action	NASA-related?	DOD-related?	Explain																				
1 Co-license(d) with other organizations	<Taken, Plan to Take, No, Not Applicable>	<Yes/No>	<Yes/No>	Write-in:																				
2 Decrease(d) R&D activities																								
3 Delay(ed) investment																								
4 Eliminate(d) R&D activities																								
5 Outsource(d) R&D activities to non-U.S.-based locations																								
6 Outsource(d) R&D activities to other U.S.-based locations																								
7 Partner(ed) with non-U.S. government entities																								
8 Partner(ed) with private sector companies																								
9 Partner(ed) with universities																								
10 Substitute(d) with other type(s) of R&D funding																								
11 Other (specify)																								
C. Indicate the number of propulsion-related Small Business Technology Transfer (STTR) and Small Business Innovation Research (SBIR) contracts your organization received from 2013-2016. If zero, proceed to Part E.		#																						
For each agency, indicate the number of SBIR and/or STTR contracts your organization received from 2013-2016 for each phase, the primary propulsion industrial base business category associated with the awards, and explain.																								
		Phase I		Phase II		Phase III		Explain																
Propulsion-related contracts		Number of Contracts	Primary PIB Business Category	Number of Contracts	Primary PIB Business Category	Number of Contracts	Primary PIB Business Category																	
STTR	U.S. Department of Defense	#	<PIB>	#	<PIB>	#	<PIB>	Write-in:																
	U.S. Department of Energy																							
	U.S. Department of Health and Human Services																							
	National Aeronautics and Space Administration																							
	National Science Foundation																							
SBIR	U.S. Department of Agriculture																							
	U.S. Department of Commerce - National Institute of Standards and Technology																							
	U.S. Department of Commerce - National Oceanic and Atmospheric Administration																							
	U.S. Department of Defense																							
	U.S. Department of Education																							
	U.S. Department of Energy																							
	U.S. Department of Health and Human Services																							
	U.S. Department of Homeland Security																							
	U.S. Department of Transportation																							
	U.S. Environmental Protection Agency																							
	National Aeronautics and Space Administration																							
	National Science Foundation																							
	D. Indicate the number of propulsion-related Program Technology Transfer activities in which your organization has participated from 2013-2016:		#																					
Note: Program Technology Transfer is defined as the movement of knowledge or technology developed by a federal laboratory to private organizations into the commercial marketplace (including patent dissemination, licensing of intellectual property, and R&D collaborative relationships including Cooperative Research and Development Agreements (CRADAs).																								
E. If greater than zero, explain any propulsion-related Program Technology Transfer Activities in which your organization engaged in from 2013-2016. If there are more than two, include information for your organization's top two activities.																								
		Agency	Title	Explain																				
Program Technology Transfer Activity		<Agency Drop down>	Write-in:	Write-in:																				
Comments:																								

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**Section 12: Financial Information**

Report line items from your organization's financial statements for years 2013-2016.

Note: If your organization declared the survey response to be a Business Unit/Division-level response in Section 1a, then this section should contain Business Unit/Division-level data.

Source of Financial Line Items:					
Reporting Schedule:					
Business Type:					
Cash Flow Statement (Select Line Items)		<b>Record in \$ Thousands, e.g. \$12,000.00 = survey input of \$12</b>			
		2013	2014	2015	2016
A	Depreciation and Amortization				
B	Stock Based Compensation				
C	Change in Working Capital				
D	Cash Flow From Operations				
E	Capital Expenditures				
F	Dividends Paid				
Income Statement (Select Line Items)		<b>Record in \$ Thousands, e.g. \$12,000.00 = survey input of \$12</b>			
		2013	2014	2015	2016
A	Net Sales (and other revenue)				
B	Cost of Goods Sold				
C	Selling, General & Administrative Expense				
D	Research & Development				
E	Earnings Before Interest and Taxes (Operating Income/Loss)				
F	Interest Expense				
G	Net Income				
Balance Sheet (Select Line Items)		<b>Record in \$ Thousands, e.g. \$12,000.00 = survey input of \$12</b>			
		2013	2014	2015	2016
A	Cash and Cash Equivalents				
B	Inventory - Raw materials				
C	Inventory - In process				
D	Inventory - Completed goods				
E	Accounts Receivable				
F	Goodwill and Intangibles				
G	Total Current Assets				
H	Total Assets				
I	Accounts Payable				
J	Total Current Liabilities				
K	Total Liabilities				
L	Retained Earnings				
M	Total Owner's Equity*				

\*Total Owner's Equity (line O in the Balance Sheet) should equal Total Assets (line H) less Total Liabilities (line J)

Use the space provided to qualify with narrative any anomalies, transactions, or non-recurring events reflected in your financial statement line items, e.g. reporting restatement, merger and acquisition, Chapter 11, SEC investigation, etc.

Comments:

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<b>&lt;Business Type&gt;</b>
Sole Proprietorship
Partnership
Corporation
S Corporation
Limited Liability Company
Other

**Section 13: Standards/Certifications**

Identify the certifications and/or standards that your organization maintained at the end of 2016, or that your organization is working to obtain below.									
Type of Standard/Certification		Maintained/Pursuing			Type of Standard/Certification			Maintained/Pursuing	
1	AMS (specify)			16	ISO 9001			31	Qualified Bidders List
2	ANSI/ASQC Z1.4	<Had in 2016, In Process/Pursuing, No, Not Applicable>		17	ISO 10012-1	<Had in 2016, In Process/Pursuing, No, Not Applicable>		32	Qualified Products List
3	ANSI/ESD S20.20		18	ISO 14000	33		Qualified Manufacturer List		
4	ANSI/ISO/IEC 17025		19	ISO 14001	34		Other (specify)		
5	AS9003		20	ISO TS16948	35		Other (specify)		
6	AS9003a		21	Independent/Internal certifications from customers	36		Other (specify)		
7	AS9100		22	J-STD-001DS	37		Other (specify)		
8	AS9100D		23	MIL-Q-9858	38		Other (specify)		
9	AS9120		24	MIL-STD-45662 A	39		Other (specify)		
10	Capability Maturity Model Integration (CMMI)		25	NADCAP (specify)	40		Other (specify)		
11	DoD 5000		26	NASA STD 5012	41		Other (specify)		
12	DMEA Trusted		27	NASA STD 5019	42		Other (specify)		
13	FAA Certified		28	NASA STD 6016	43		Other (specify)		
14	ISO 28000		29	NASA STD 6016A	44		Other (specify)		
15	ISO 9000		30	NCLS (specify)	45		Other (specify)		
Has your organization had any issues in obtaining any of the above certifications or meeting any of the above standards? If yes, identify the top three, select the primary and secondary issues, and explain.									<Yes, No, Not Applicable>
Explain:									
Record the number of times your organization had to requalify from 2013-2016 for propulsion-related purposes? If zero, proceed to Part C.								#	
Record the number of suppliers your organization had to requalify from 2013-2016?								#	
Explain your organization's requalifications below, indicating the type of requalification needed, the name of the qualification, and explanation of the requalification, the primary reason the requalification(s) occurred, and the primary challenge with the process. Then, estimate the number of times that requalification of the listed Requalification Type* occurred from 2013-2016, the amount the requalification(s) cost on average (estimate is acceptable), and the average length of time the requalification(s) took to complete on average. Then, select the primary impact on your organization's requalification experienced as a result of the requalification(s) (if any). If Other is selected for any of the five requalification types, explain.									
	Type	Requalification Type	Explain	Primary reason the requalification(s) occurred	Primary Challenge	Estimate the number of times your organization had to requalify from 2013-2016?	Estimated requalification cost (if multiple, provide the average)	Estimated length of time the requalification process takes in weeks (on average)	Primary Organizational Impact
1	<Internal/Organization, Supplier, Other>	Write-in:	Write-in:	<Moved Operations, Obsolescence, Other, TBD>	<Cost, Limited Visibility into Technical Engineering, Inadequate Guidance, Unclear Requirements, Long Lead Time, Other, None>	#	#	#	<Increase costs of associated products/services, increase lead time of associated products/services, discontinuation of products/services that require qualification, Purchase products Other, None>
2									
3									
4									
5									
Explain:									
Does your organization have any suggestions to improve the requalification process for your organization and/or suppliers?									<Yes/No>
If yes, document your organization's top three types of requalifications in which you have suggestions to improve and explain.									
	Type	Requalification Types	Recommendation Type	Explain					
1	<Internal/Organization, Supplier, Other>	Write-in:	<Process Improvement, Cost Reductions, Paperwork/Documentation, Audits, Other>	Write-in:					
2									
3									
Comments:									

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**Section 14: Additive Manufacturing (A.M./3-D Printing)**

A. Indicate your organization's involvement in A.M./3-D printing technology? If no, proceed to Section 15a. <Yes-propulsion-related, Yes-not propulsion-related, Yes-Both, No>

Select how your organization utilized A.M./3-D printing technologies in its operations from 2013-2016 for each application area. Next, rank by frequency the selected application areas from 1 – 5, with 1 being used the most and 5 being used the least. Explain.				
	Application Area	Propulsion-related?	Rank Top 1-5	Explain
B.	1 Direct Manufacturing	<Yes-propulsion-related, Yes-not propulsion-related, Yes-Both, No>	<1, 2, 3, 4, 5, Other, N/A>	Write-in:
	2 Prototyping			
	3 Research and Development			
	4 Tooling/Machining			
	5 Integration into systems and/or subsystems			
	6 3D/AM Design (as a product/service)			
	7 3D/AM Design (to outsource)			
	8 Other (specify)			
	9 Other (specify)			
	10 Other (specify)			

C. Indicate all A.M./3-D printing processes adopted by your organization from 2013-2016 by selecting the primary purpose for that process and the primary type of A.M./3-D processes utilized. Next, indicate the primary **propulsion-related** product with which the additive manufacturing process is associated and indicate the primary program/system associated (if applicable). Next, select the primary engine/motor associated with the primary product (if applicable), and explain.

	Additive Manufacturing/3-D Printing Process Type	Propulsion-related?	Primary Application Area	Primary Product Associated	Primary Product End-Use	Primary Program/System (if applicable)	Primary Engine/Motor (if applicable)	Primary Benefit
C.	1 3-D Welding	<Yes-propulsion-related, Yes-not propulsion-related, Yes-Both, No>	<Types selected above and None>	<Product List>	<Drop-down>	<Drop-down + N/A>	<Previously selected Engine/Motor List + N/A>	<Customized Parts, Cost-effectiveness, Mobile printing capability, low volume production, Increased Innovation Opportunities, Overcoming Previous Engineering Limitations, Lightweight products, More Accurate/Uniform Parts, Other>
	2 Binder Jetting							
	3 Continuous Liquid Interface Production							
	4 Directed Energy Deposition							
	5 Machining/finishing A.M./3-D Products							
	6 Material Extrusion							
	7 Material Jetting							
	8 Powder Bed Fusion							
	9 Sheet Lamination							
	10 VAT Photopolymerization							
	11 Other (specify)							
	12 Other (specify)							
	13 Other (specify)							

D. Estimate the dollars invested into propulsion-related A.M./3-D (including equipment, facilities, specialists, etc.) in your organization from 2013 - 2016.

	<b>Record \$ in Thousands, e.g. \$12,000.00 = survey input of \$12</b>			
	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Estimated dollars invested				

Is your organization looking to invest in A.M./3-D technology and/or capabilities in the next five years? <Yes-propulsion-related, Yes-not propulsion-related, Yes-Both, No, Not Sure>

If yes, select the primary application area and primary process type for the top three areas and explain.

	Primary Application Area	Primary Additive Manufacturing/3-D Printing Process Type	Explain
1	<Prepopulated>	<Prepopulated>	
2			
3			

If no or not sure, explain:

Comments:

**Section 15a: Capital Expenditures/Capacity**

Record your organization's capital expenditures corresponding to the select categories below for 2013-2016.

Note: Ensure your Source of Capital Expenditure Data is consistent with your response in Section 1a. For example, if you have declared this to be a Business Unit/Division-level response, this section should contain Business Unit/Division-level data.

Source of Capital Expenditure Data:					
Capital Expenditure Reporting Schedule:					
Capital Expenditure Category		<b>Record in \$ Thousands, e.g. \$12,000.00 = survey input of \$12</b>			
		2013	2014	2015	2016
<b>a. Total Capital Expenditures</b>		\$	\$	\$	\$
A.	1 Machinery, Equipment, & Vehicles [as a % of a]	%	%	%	%
	2 IT, Computers, Software [as a % of a]	%	%	%	%
	3 Land, Buildings, & Leasehold Improvements [as a % of a]	%	%	%	%
	4 Other (specify)	%	%	%	%
	5 Other (specify)	%	%	%	%
	<b>(Lines 1 through 5 must sum to 100%)</b>		<b>#VALUE!</b>	<b>#VALUE!</b>	<b>#VALUE!</b>
6	Propulsion-related capital expenditures [as a % of a]	%	%	%	%

B.	From 2013-2016, were your organization's overall and propulsion-related capital expenditures adversely impacted by reductions in U.S. Government spending? And/or does your organization anticipate them to be in 2017?		2013-2016		2017
	Overall		<Yes, No, Not Applicable>	<Yes, No, Not Applicable>	
	Propulsion-related		<Yes, No, Not Applicable>	<Yes, No, Not Applicable>	
Explain:					

Indicate your organization's utilization rates. "Utilization" is the fraction of an organization's potential output that is actually being used in current production, where potential output is based on a 7 day-a-week, 3x8-hour shift production schedule. **Note:** 100% utilization rate equals no downtime with full employment.

Record your organization's utilization rate in 2016:		Overall	Propulsion-related?
1 Estimate the number of weeks it would take to raise your organization's propulsion-related utilization rate to 100% in light of a surge in demand.		%	%
Explain:		#	#
C. Identify the general constraints your organization would face in meeting a surge in demand for propulsion-related products. Provide a brief description of each constraint.			
Type of Constraint		Propulsion-related?	Explain
2	<b>Capital:</b> Equipment, Facilities, Infrastructure	<Yes - Propulsion-related, Yes-Not Propulsion-related, Both, No - No Constraints>	Write-in:
	<b>Funding:</b> Access to Adequate Funding		
	<b>Inventory:</b> Availability of Input Materials		
	<b>Quality Control:</b> Evaluation/Testing/Validation		
	<b>Workforce:</b> Labor Availability, Costs		
	Other (specify)		

From 2013-2016, has your organization owned or leased any machinery or tooling specifically for USG propulsion-related products/services? <Yes, No, Not Applicable>  
 Record your organization's top 10 most key critical machinery and tooling (including additive manufacturing machines) used for USG propulsion-related products and services. For each machine/tool, list the name, the use/purpose of each item; whether the item was purchased, leased, or government furnished equipment (GFE), or combination thereof; the System/Program Application (if applicable), and the current status of the machine/tool (e.g. idle, mothballed, in-use, re-tooled/re-built for non-USG products/services, etc.). Explain.

Machine/Tool	Use/Purpose	Level of Ownership	System/Program Use	Current Status	Explain
1 Write-in:	Write-in:	<Drop Down>	<Prepopulated + NA>	<Drop Down>	Write-in:
2					
3					
4					
5					
6					
7					
8					
9					
10					

Comments:

Level of Ownership
Owned
Leased
GFE
Combination
Other

Current Status
Idle
Mothballed
In-use
Re-tooled/rebuilt for Non-USG
Other

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**Section 15b: Capital Expenditures/Capacity**

For each type of cost-sharing arrangement, select the type of participation in which your organization participated from 2013-2016 and your organization's anticipated participation from 2017-2021. Next, indicate your organization's primary purpose, and explain.					
	Propulsion-related Cost Sharing Arrangement Type	Participation (2013-2016)	Anticipated Participation (2017)	Primary Purpose	Explain
A.	1 U.S. Government-sponsored	<Yes, No, Not Applicable>	<Yes, No, Not Applicable>	<Primary Purpose>	Write-in:
	2 University-sponsored				
	3 Inter-agency cooperation				
	4 Public private partnerships				
	5 Partnership with subcontractor				
	6 Partnership with subsidiary				
	7 Partnership with downstream suppliers				
	8 Other (specify)				
	9 Other (specify)				
	10 Other (specify)				
Have any factors deterred your organization from participating in propulsion-related cost-sharing arrangements? If none, select "No" and explain. For each deterring factor type, select yes if applicable.					<Yes/No>
	Deterring Factor Type		Primary Propulsion-related Cost Sharing Arrangement Type	Explain	
B.	1 Legal Costs	<Yes, No>	<Prepopulated from 15b, A>	Write-in:	
	2 Legal Time/Burden				
	3 Regulatory Burden				
	4 Financial Concerns				
	5 Intellectual Property Concerns				
	6 Contract Vehicle				
	7 Logistics/Operations				
	8 Export Control Adherence				
	9 Other (specify)				
	10 Other (specify)				
	11 Other (specify)				
Explain:					
Are the Federal Acquisition Regulation (FAR) and Defense Federal Acquisition Regulation (DFAR) adequate for establishing beneficial cost-sharing contracts?					<Yes/No/Unsure>
Explain:					
Comments:					
<b>BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act</b>					

Primary Purpose
Reduce Risk
Reduce capital investment needed per
Utilize different talent and skill sets
Tax benefits
RDT&E
Other

**Section 16: U.S. Government (USG) Contract Information**

Provide the following information on your organization's USG contracts:

A.	Provide the number of propulsion-related U.S. Government (USG) contracts and subcontracts your organization has received from 2013-2016. If zero, proceed to Part E (below).	
	Number of propulsion-related prime contracts awarded to this organization from 2013-2016:	#
	Number of propulsion-related subcontracts awarded to this organization from 2013-2016:	#

Identify the top ten USG contracts in which your organization participates, in descending order of total contract award dollars. Include Contract ID Number, the primary DUNs associated with the organization associated with that contract, the type of support (Prime/Sub-contract/Other), Contract Type, Program/System Supported (or N/A), the primary propulsion industrial base business category, the two primary related products/services your organization provides for that contract, and a brief explanation.

**Do not disclose any classified information in this survey form. If any of the requested information is classified, enter "Classified" in the corresponding field.**

	Contract ID Number	Contract Type	Primary Program/System	Primary Propulsion Industrial Base Business Category	Product/Service 1	Product/Service 2
B.	1	#	<Contract List>	<Prepopulated>	<Prepopulated>	<Prepopulated>
	2			<PIB Business Categories List>		
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					

<Contract Types Dropdown>
Lowest Price Technically Acceptable (LPTA)
Best Value
Fixed Price
Incentive
Cost Reimbursement
Time and Materials
Other
Not Applicable

Are any contract vehicles inhibiting your organization's ability to provide propulsion-related products and/or services to the federal government? <Yes/No/Not Applicable>

If yes, identify the top three contract types by selecting the Contract Type from the dropdown menu and provide an explanation for each type.

	Contract Type	Explain
C.	1	(Prepopulated list of contract types)
	2	(Prepopulated list of contract types)
	3	(Prepopulated list of contract types)

D. Have recent efforts to reform federal acquisition helped or hindered your propulsion-related business lines? <Helped, Hindered, Neither, Not Applicable>  
 Explain:

E. 1 Does your organization consider itself dependent on the U.S. Government for its continued viability? <Yes/No/Not Applicable/Unsure>  
 Explain:

2 Indicate the total number of rated orders (DO or DX) your organization received from 2013-2016 from a U.S. Government agency and/or affiliated contractor. A rated order means a prime contract, a subcontract, or a purchase order in support of an approved program issued in accordance with the provisions of the Defense Priorities and Allocation System (DPAS) regulations (15 CFR part 700).

	Overall	Propulsion-related
DO	#	#
DX	#	#

Comments:

**BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act**

**Section 17a: Obstacles Affecting Long-Term Viability**

Identify the issues impacting your organization's propulsion-related operations negatively. Then, rank the top five issues from both columns (1 = Most Important; 5 = Least Important) by writing in numbers 1-5 next to only the leading five issues. Each number should be recorded only once. Lastly, provide an explanation of each your top issues.

	Issue	Impact	Rank (Top 1-5)	Explain	Issue	Impact	Rank (Top 1-5)	Explain
A.	Access to USG R&D Funding	<Yes - Negative, No, Not Applicable>			Physical Security Breaches	<Yes - Negative, No, Not Applicable>		
	Aging Equipment, Facilities, or Infrastructure				Program/System Cancellation			
	Availability of Capital				Proximity to Customers			
	Barriers to Entry in the Commercial Space Market				Proximity to Suppliers			
	Buy American Act Waivers				QA/QC requirements (costs, lead time, standard			
	Counterfeit Parts				Quality of Inputs			
	Cyber Security Breaches				Reduction in U.S. Government Demand			
	Difficulty Presenting New, Innovative Products to the U.S. Government				Requalification/Recertification			
	DMSMS Design-out/Substitution				Research and Development Costs			
	Environmental Regulations/ Remediation				Sequestration			
	Export Controls/TAR Regulations				Skills Retention			
	Government Acquisition Process				Software Assurance			
	Government Purchasing Volatility				Taxes			
	Government Regulatory Burden				Testing (internal)			
	Healthcare				Testing (procured) - Commercial Site			
	High Fixed Costs				Testing (procured) - US Government Site			
	Import Restrictions/Tariffs				Transportation of End-product			
	Inability to Adopt New Production Methods				Transportation of Supplies			
	Labor Availability				U.S. Material Availability			
	Labor Costs				U.S. Patent Infringement by U.S. Actors			
	Labor Skills				U.S. Patent Infringement by Non-U.S. Actors			
	Material Price Volatility				U.S. Supplier Reliability			
	Non-U.S. Material Availability				U.S.-based Competition			
	Non-U.S. Subsidies				Variability in U.S. Government Demand			
	Non-U.S. Supplier Reliability				Other (specify)			
Non-U.S.-based Competition			Other (specify)					
Pension Costs			Other (specify)					

B. Are the current propulsion-related North American Industry Classification System (NAICS) codes an adequate representation of your organization's products and/or services? <Yes/No/Unsure>  
 Explain how the NAICS codes could be adjusted to more accurately represent your organization's propulsion-related products/services.  
 Explain:

C.	How many patents does your organization have registered with U.S. Patent and Trademark Office (USPTO)?	#	
	How many of your organization's total patents registered with USPTO are propulsion-related? If zero, proceed to Section D below.	#	
	Has your organization encountered any instances of patent infringement on your propulsion-related intellectual property?	<Yes/No>	
	If yes, were you able to identify the source of the infringement?	<Yes/No>	
	If yes, were you able to resolve the issue to your satisfaction?	<Yes/No>	

If any instances of patent infringement occurred, list the top three by impact. List the organization that infringed (or allegedly infringed) on the patent, the location of that organization, the product/service from your organization that was affected, the primary program/system that product/service supported (if applicable), and explain.

	Organization	Location (Country)	Product/Service affected	Program/System Supported	Explain
1	Write-in:	<Country Drop Down>	<Prepopulated Drop Down>	<Prepopulated Drop Down>	Write-in:
2					
3					

D. Has your organization resisted or refrained from pursuing joint ventures in order to prevent other companies from utilizing your intellectual property? <Yes-Propulsion-related, Yes-Not Propulsion-related, Yes-Both, No, Not Applicable>  
 Explain:

Comments:

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**Section 17b: Obstacles Affecting Long-Term Viability**

Does your organization sell any products or services that are export controlled?		<Yes-ITAR, Yes-EAR, Yes-Both/No>	
Does your organization export any products or services that are export controlled?		<Yes-ITAR, Yes-EAR, Yes-Both/No>	
If yes, has your organization lost export sales opportunities of propulsion-related products or services to non-U.S. competitors because of U.S. export controls (ITAR, EAR) from 2013-2016?		<Yes-ITAR, Yes-EAR, Yes-Both/No/Unsure/Not Applicable>	
If yes, identify the top three countries with which your organization would like to do propulsion-related business but cannot due to export controls. Identify the primary product/service affected, how that product/service is export controlled to the country listed, and explain.			
A.	Country	Primary Product/Service	Primary Export Control Regulation
	1	<Country Drop Down>	<Prepopulated Product/Service Category>
	2	<Country Drop Down>	<ITAR, EAR, Both>
	3	<Country Drop Down>	<ITAR, EAR, Both>
How would your organization characterize the impact of the Export Control Reform (ECR) Initiative on your organization as it relates to propulsion-related technology? Find information on export control reform here: <a href="http://2016.export.gov/ecr/index.asp">http://2016.export.gov/ecr/index.asp</a>			< Favorable/Unfavorable/No Effect/Unsure>
Explain:			
To the best of your knowledge, have U.S. export control regulations (ITAR, EAR) had any of the following negative impacts on the propulsion-related aspects of your organization? Yes/No. If "Yes," explain in the box provided.			<Yes/No>
Identify, as applicable, the following negative impacts posed by export control of your organizations propulsion-related products/services. Then, rank the top five issues (1 = Most Important; 5 = Least Important) by writing in numbers 1-5 next to only the leading five issues. Each number should be recorded only once. Then, select the primary export-related regulation affecting the ranked impacts/outcomes. Last, provide an explanation of each your top issues.			
B.	Impacts/Outcomes	Rank (Top 1-5)	Primary Export Control Regulation
	Discontinue(d) regulated products and/or services	<1, 2, 3, 4, 5>	<ITAR, EAR, Both>
	Avoid(ed) exporting products/services		Write-in:
	Engage(d) in cost-sharing and/or pursue co-licensing of intellectual property		
	Incentivize(d) non-U.S. competitors to "design-out" U.S. propulsion-related export controlled products		
	Incentivize(d) non-U.S. competitors to provide "ITAR FREE" substitute propulsion-related products		
	Locate(d)/relocate(d) production facilities outside the United States		
	Locate(d)/relocate(d) R&D facilities outside the United States		
	Modify(ied) the composition of products/services to avoid export regulations		
	Reduce(d)/eliminate(d) investment in propulsion-related products/services		
	Reduce(d)/eliminate(d) investment in propulsion-related R&D		
	Other (specify)		
Other (specify)			
Other (specify)			
Does your facility engage in Diminishing Manufacturing Sources & Materials Shortages (DMSMS)* or obsolescence activities? If no, skip to the Part D(below).			<Yes/No>
Who is the point of contact for DMSMS/obsolescence at your location?			
Name (Last, First, Middle)		Title	Phone
Write-in:		Write-in:	Write-in:
E-mail			
Write-in:			
C. Estimate how much (in thousands of dollars) your location spent in each of the last four years on finding, managing, and/or resolving DMSMS/obsolescence problems on DOD systems or projects, including parts, components, materials, and software:			
Record \$ in Thousands, e.g. \$12,000.00 = survey input of \$12			
		2013	2014
1	DMSMS/Obsolescence Expenditures	\$\$	\$\$
		2015	2016
		\$\$	\$\$
Is your organization familiar with the Air Force's current proposal to release excess stockpiled Intercontinental Ballistic Missile (ICBM) motors to the commercial market from their stockpile of nearly 900 excess ICBMs?			<Yes/No>
Does your organization perceive that the release of an undetermined number of surplus rocket motors from ICBM solid rocket motors as damaging to the U.S. commercial propulsion industrial base either by stifling innovation or deterring future investments?			<Yes-Stifling innovation, Yes-deterring future investment, Yes-Both/No/Unsure>
Explain:			
D. Record your organization's anticipated harm/benefit from the release of surplus ICMBs as either direct, indirect, both, none, or unknown. Explain.			
	Type	Explain	
Harm	<Direct, Indirect, Both, None, Unknown>		
Benefit	<Yes/No/Unsure>		
Comments:			

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**Section 18: Cyber Security**

Estimate your organization's spending on physical and cyber security, in thousands of dollars, for each year 2013-2016. Then, state the number of physical and cyber security incidents your organization has recorded in each year from 2013-2016.

Note: If your organization declared the survey response to be a Business Unit/Division-level response in Section 1a, then this section should contain Business Unit/Division-level data.

A.	Source of Security Expenditure Data:						
	Reporting Schedule:		<b>Record \$ in Thousands, e.g. \$12,000.00 = survey input of \$12</b>				
	1	Physical Security Expenditures	2013	2014	2015	2016	
			\$\$	\$\$	\$\$	\$\$	
	2	Cyber Security Expenditures	\$\$	\$\$	\$\$	\$\$	
	3	Physical Security Incidents	#	#	#	#	
	4	Cyber Security Incidents	#	#	#	#	
	From 2013 to 2016, have cyber incidents across the marketplace caused your organization to increase its information security budget?						Yes/No
	Explain:						
B.	1	Is your organization aware of Defense Federal Acquisition Regulation Supplement (DFARS) 252.204-7009, Limitations on the Use or Disclosure of Third-Party Contractor Reported Cyber Incident Information? <a href="http://www.acq.osd.mil/dpap/dars/dfars/html/current/252204.htm">http://www.acq.osd.mil/dpap/dars/dfars/html/current/252204.htm</a>				Yes/No	
	Explain:						
	2	Who is responsible for administering your organization's internal computer network(s)?				Dropdown	
3	Who is responsible for administering your organization's external computer network(s)?				Dropdown		

If your organization is unable to determine physical security expenditures due to leasing space that includes security measures, check here:  
  
<Yes/No/Not Applicable>

<---- Dropdown  
Internal IT Department  
Internal IT department and external U.S. service provider  
  
Internal IT Department and external non-U.S. service provider  
Only U.S. external service provider  
Only non-U.S. external service provider  
Not Applicable

Provide the following information on your organization's Commercially Sensitive Information (CSI)*:											
C.	1	Is the computer or computer network that houses your organization's CSI connected to the Internet, either directly or via an intermediary network or server? <small>*CSI includes customer/client information, financial information and records, human resources information, intellectual property information, internal communications, manufacturing and production line information, patent and trademark information, research and development information, regulatory/compliance information, and supplier/supply chain information.</small>							Yes/No		
	2	Does your organization have defined, structured methods for actively protecting CSI? Explain:							Yes/No		
	3	Estimate the percentage of your organization's CSI that is stored with:					External Cloud Service Providers	%			
							External Data Storage Providers	%			
		Does your organization either restrict or prohibit your external cloud service or external data storage provider(s) from storing CSI outside of the U.S.?					External Cloud Service Providers	<Restrict/Prohibit/No/Unknown>			
							External Data Storage Providers	<Restrict/Prohibit/No/Unknown>			
	4	Does your organization have the following cloud-based security protocols?									
		Advanced authentication (biometrics, smartphone tokens etc.)		<Yes/No>		End-point protection		<Yes/No>		Identity and access management	<Yes/No>
		Real-time monitoring/analytics		<Yes/No>		Threat intelligence		<Yes/No>		Other	<Yes/No>
	Explain:										
5	Does your organization have the below defined, structured methods for actively protecting the following types of CSI?				<Yes/No/Not Applicable>		Explain				
	Customer/client information										
	Financial information and records										
	Human resources information/employee data										
	Information subject to export control regulations (EAR and/or ITAR)										
	Intellectual property related information										
	Internal communications including negotiation points, merger and acquisition plans, and/or corporate strategy										
	Manufacturing and production line information										
	Patent and trademark information										
	Regulatory/compliance information										
	Research and development (R&D) related information										
	Supply chain and sourcing information										
	Other (specify)										
D.	Using the drop-down lists and free-text entries below, indicate the type(s) and severity of any cybersecurity events that have occurred at this organization from 2013-2016.										
	Event			Impact Level		Frequency	Explain (incident and follow-up)				
	1	(Choose from Drop-Down)		Severe/Moderate/Low/None		#	Write in				
	2	(Choose from Drop-Down)		Severe/Moderate/Low/None							
	3	(Choose from Drop-Down)		Severe/Moderate/Low/None							
	4	(Choose from Drop-Down)		Severe/Moderate/Low/None							
	5	(Choose from Drop-Down)		Severe/Moderate/Low/None							
	6	Other Cybersecurity Event		(Specify)		Severe/Moderate/Low/None					
	7	Other Cybersecurity Event		(Specify)		Severe/Moderate/Low/None					
	8	Other Cybersecurity Event		(Specify)		Severe/Moderate/Low/None					
<p>Note: The FBI encourages recipients to report information concerning suspicious or criminal activity to their local FBI field office or the FBI's 24/7 Cyber Watch (CyWatch). Field office contacts can be identified at <a href="http://www.fbi.gov/contact-us/field">http://www.fbi.gov/contact-us/field</a>. CyWatch can be contacted by phone at 855-292-3937 or e-mail at <a href="mailto:CyWatch@ic.fbi.gov">CyWatch@ic.fbi.gov</a>. When available, each report submitted should include the date, time, location, type of activity, number of people, and type of equipment used for the activity, the name of the submitting company or organization, and a designated point of contact.</p>											
Comments:											

Event Dropdown
User idle time and lost productivity because of downtime or systems performance delays
Disruption to normal operations because of system availability problems
Damage or theft of IT assets and infrastructure
Incurred cost of damage assessment and remediation
Business interruption
Exfiltration of CSI data
Theft of personnel information
Damage to software and/or source code
Theft of software and/or source code
Damage to company production capabilities or systems
Destruction of information asset
Reputation loss, market share, and brand damages
Ransomware Attack
Other

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**Section 19: Test & Evaluation/Outreach Information**

Indicate if your organization had any testing needs either in 2016, and/or anticipated from 2017-2020. If no or not applicable, proceed to Part D. <Yes - 2016, Yes - 2017-2021, Yes - Both, No, Not Applicable>

Indicate your organization's engine and/or motor testing needs in 2016, and future plan(s) for performing testing. Section A must be completed before Section B.

Approach to Rocket Propulsion Testing		Use in 2016	Anticipated Future Use (2017-2020)
A.	Lease(d) facilities	<Yes, No, Not Applicable>	<Yes, No, Not Applicable>
	Use(d) facilities owned by your company		
	Use(d) facilities owned by other industry entities (other companies, universities, etc.)		
	Use(d) NASA facilities		
	Use(d) non-government facilities		
	Use(d) other government facilities		
	Other (specify)		

Select your rocket propulsion test needs both at the end of 2016, and anticipated from 2017-2021.

Type of Test	Capability in 2016	Procured in 2016	Capability Begin/Increase in 2017-2021	Procured Testing Needed 2017-2021	Primary Approach to Testing	Primary Fuel Type	Primary Oxidizer Type
Ambient Stage	<Yes, No>	<Yes, No>	<Yes, No>	<Yes, No>	<Prepopulated>	Write-in:	Write-in:
Altitude Stage (100K+ Lb Thrust)							
Altitude Stage (50K-100K Lb Thrust)							
Altitude Stage (< 50K Lb Thrust)							
Ambient Engine (100K+ Lb Thrust)							
Ambient Engine (50K-100K+ Lb Thrust)							
Ambient Engine (25K-50K Lb Thrust)							
Ambient Engine (0-25K+ Lb Thrust)							
Altitude Engine (50K-100K Lb Thrust)							
Altitude Engine (25K-50K Lb Thrust)							
Altitude Engine (0-25K Lb Thrust)							
B.	Altitude Engine (100K+ Lb Thrust)						
	Thermal Vacuum (Engine or Stage)						
	Component (e.g. Preburner, etc.) (specify)						
	Component (e.g. Preburner, etc.) (specify)						
	Component (e.g. Preburner, etc.) (specify)						
	Altitude Hypergolic						
	Ambient Hypergolic						
	Ambient Solid						
	Ambient Hybrid						
	Altitude Hybrid						
	Other (specify)						
	Other (specify)						
	Other (specify)						

Indicate if your organization plans to invest in new or improved facilities that your organization will own and/or lease? <Yes - Own, Yes - Lease, Yes - Both, No>

Explain:

Indicate if your organization utilized NASA test facilities from 2013-2016. <Yes, No>

If yes, provide information on your three most recent test experiences

Date	Place	Type of Test	Explain	Primary Test Factor	Secondary Test Factor	Best Aspect of Testing	Area(s) requiring improvement
Write-in:	Write-in:	<Part B above>	Write-in:			Write-in:	Write-in:

Indicate if your organization plans to utilize NASA test facilities from 2017-2021. <Yes, No>

If your organization does not plan to utilize NASA rocket propulsion test facilities from 2017-2021, select the top three limiting factors affecting your decision and explain.

Test Factor	Explain
<List from above>	Write-in:
<List from above>	
<List from above>	

Select your organization's perception of NASA testing services for each test factor by capability level. Explain.							
Test Factor		Capability Level		Explain			
Ability to support virtual presence for test planning, execution, and other requirements		<High, Medium, Low>		Write-in:			
Ability to stop testing if necessary and obtain a refund for unperformed services							
Access to test project management information (cost to date, schedule status...)							
Ability to tailor facility, instrumentation, and special test equipment to meet requirements							
Access to a wide range of ancillary services such as laboratories and machine shops							
Compliance with government regulations (Environmental, Safety, etc....)							
Clear and effective communications							
Close proximity to your company operations							
Cost of Testing							
Cycle time of test processes							
Ease of administrative and business processes							
High reliability of capability							
Quality and accuracy of collected test data							
Quality of post testing data and summary packages							
Reliable information security							
Support from test personnel							
Responsive to changing requirements and objectives during testing							
Test facility capability matches or exceeds requirements							
Ease of personnel visit access to NASA facilities							
Timeliness for test entry							
Importance of customer being able to control safety and quality in testing activities							
<b>Outreach</b>							
There are many federal and state government programs and services available to assist your organization to better compete in the global marketplace. If your organization would like information regarding these government programs, select the specific areas of interest below. The U.S. Department of Commerce will follow-up with your organization regarding your selections.							
Continuous Improvement/ Lean Manufacturing	<Yes/No>	Export Assistance	<Yes/No>	Prototyping	Yes/No	Technology Acceleration	<Yes/No>
Cybersecurity		Export Licensing (ITAR/EAR)		Quality Management and Control		Vendor/Material Sourcing	
Design for Assembly		Government Procurement Guidelines		Research and Development (R&D) Assistance and Partnership		Other (specify)	
Design for Manufacturability		Market Expansion/Business Growth		Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) contracts		Other (specify)	
Energy and Environmentally Conscious Manufacturing		Product Design		Supply Chain Optimization		Other (specify)	
Comments:							

**BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act**

**Section 20: Certification**

The undersigned certifies that the information herein supplied in response to this questionnaire is complete and correct to the best of his/her knowledge. It is a criminal offense to willfully make a false statement or representation to any department or agency of the United States Government as to any matter within its jurisdiction (18 U.S.C.A. 1001 (1984 & SUPP. 1197)).

Once this survey is complete, save a copy and submit it via the Census portal: <https://respond.census.gov/propulsion>. Be sure to retain a copy for your records and to facilitate any necessary edits or clarifications.

Organization Name	
Organization's Internet Address	
Name of Authorizing Official	
Title of Authorizing Official	
E-mail Address	
Phone Number and Extension	
Date Certified	

In the box below, provide any additional comments or any other information you wish to include regarding this survey assessment.

How many hours did it take to complete this survey?	
-----------------------------------------------------	--

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