



January 20, 2012

Department of State
Bureau of Political-Military Affairs
Department of Defense Trade Controls
2401 E Street, N.W.
12th Floor, SA-1
Washington, D.C. 20522

ATTN: Charles B. Shotwell
Director, Office of Defense Trade Controls Policy

RE: Notice of Proposed Rulemaking, RIN 1400-AC98, Amendment to the International Traffic in Arms Regulations: Establishment of U.S. Munitions List Category XIX for Gas Turbine Engines.

Dear Mr. Shotwell:

The Aerospace Industries Association (AIA) and our member companies appreciate the opportunity to comment on the Department of State's proposed amendments to the International Traffic in Arms Regulations (ITAR). Revising Category XIX (gas turbines and associated equipment) of the U.S. Munitions List (USML) to describe more precisely which gas turbine engines and associated equipment warrant control on the USML will create a "positive" list which will result in a more predictable, efficient, and transparent export control system. AIA has long been a champion of sensible export control reform and we are encouraged the Administration shares this priority.

It should be noted that Category XIX is closely related to certain parts within Categories IV (missiles), VI (vehicles) and VIII (aircraft). A successful export control reform effort should address the symbiotic relationship of USML categories and enable security cooperation and building partnership capacity essential to U.S. national security interests.

The proposed rule for Category XIX carries significant risk in capturing commercial aircraft engines under the USML with significant negative consequences for U.S. commercial aviation. We would recommend a forum to discuss proprietary information so that the government can better understand commercial engine capabilities.

The harmonization of definitions has been a key tenet of Export Control Reform and is particularly important as the Administration establishes the framework for transferring items from the US Munitions list to the Commerce Control List. For example, the definition of "military gas turbine engines" requires additional clarification (please see below) and should be consistent on both lists.

Category XIX:

Part 121.16, Missile Technology Control Regime Annex, references engines in Categories IV and VIII. This section needs to be updated to reflect the movement of engines from VIII(b) to XIX. Additionally, there is overlap between Categories IV and the present VIII and proposed XIX/9A619. We recommend that clear guidance be provided to determine when an engine, including ramjets and scramjets, is controlled under IV, and when it is controlled under VIII/XIX.

With few exceptions, most aircraft engine platforms are developed using technologies and methodologies that are essentially common to both military and commercial applications. Only those engines with “specially designed” features or capability specific to USML aircraft should be controlled under the ITAR.

Additionally, the term “inventory” can be interpreted in multiple ways. It is not clear from the context of proposed XIX(a) if inventory is intended to mean in active use or “moth-balled” in storage. Removing the word “inventory” will not minimize the control but will help to clarify the scope of the rule. Further clarification/definition will be needed if the Administration decides to retain the word “inventory.”

The phrase “or capable of” is subject to wide interpretation. In terms of thrust, an engine can be significantly over-driven to produce extra thrust, but at the expense of reliability and durability. Yet, the engine is ‘capable of’ higher thrust, which means uncertainty in how to apply the threshold. By substituting ‘rated for,’ the engine thrust threshold is clear.

In addition, with sufficient engineering, a gas turbine engine could potentially be adapted for thrust augmentation. Deleting the phrase, “or capable of” will target the control on engines that actually possess the capability. Below are suggested revisions.

- (a) Turbofan/Turbojet engines ~~whether in development or production, or inventory~~ (including technology demonstrators), **“specially designed” for end items in USML category VI, VII, and VIII** and **rated for** 15,000 lbf (66.7 kN) of thrust or greater that has any of the following:

- (1) with ~~capable of~~ or designed for thrust augmentation (a.k.a. afterburner);

Category XIX(a)(4):

Many aircraft engines are physically “capable” of inverted flight, because downdrafts and wind-shear can create extended periods of negative-G operation. Any negative-G operation causes oil to move to the top of the compartments, so there is no difference to the engine between a slight negative G situation and inverted flight. However this inherent capability alone does not differentiate between military and commercial products. The term “capable of” would unintentionally control engines that operate temporarily in inverted flight (e.g. sport aircraft) or commercial aircraft recovering from emergency flight conditions. Below is suggested revision.

- (a)(4) **designed for sustained** ~~capable of~~ inverted flight **in excess of 30 seconds**;

Category XIX(a)(5):

Commercial airlines regularly fly above 40,000 feet. The capability to produce greater than 50 percent of aircraft engine thrust at 40,000 feet will not differentiate between commercial vs. military engines. Additionally, it is not clear what engine thrust level should be used to set the 50 percent threshold. Since it is unclear how the thrust level is to be measured, AIA is unable to produce a specific list of commercial engines which would now be controlled on the ITAR. At cruise conditions, engine thrust is very low, but power extraction for environmental controls, meal preparation, lighting, and passenger entertainment is high. Therefore, the thrust level should be based on the engine's maximum thrust capability, which is typically at take-off. Below is suggested revision.

(a)(5) **rated for** capable of high power extraction (greater than 50 percent of **maximum rated** engine thrust) at altitudes greater than **50,000** feet;

Category XIX(a)(6):

Many commercial aircraft engines will be caught unintentionally under Category XIX (a)(6).

In-flight thrust reversal is a capability found in commercial engines. Although it is predominantly used for USML purposes, in-flight thrust reversal presents no technical advantage to an aircraft over modern speed-brakes, and inclusion of this as a determining factor will unintentionally capture older technology engines. Whether the engine has the ability to reverse thrust while in the air, e.g., the DC-8, or on the ground should not determine its USML vs. CCL jurisdictional status. AIA suggests Category XIX (a)(6) be deleted in its entirety.

Category XIX(b):

Turboshaft engines are essentially power plant systems and are used for land, sea or air vehicles in the same manner and to the same extent whether in a military or civil use. AIA recommends the addition of the phrase "specially designed for systems listed in Categories VI, VII and VIII" to limit the scope of the ITAR to those engines designed uniquely for defense articles separately listed on the USML. In addition, for the reasons described above, we recommend the deletion of the word "inventory."

Category XIX(b)(1):

Additionally, the proposed rule categorizes turboshaft and turboprop engines meeting the horsepower threshold and that have cooled low pressure turbines (LPT) or cooled power turbines (PT) as subject to USML control. While no current commercial engines use cooled LPT or PT blades, this functionality does not provide any particular military advantage. Inclusion here also raises inconsistencies between XIX and CCL Category 9, which currently does not have similar expansive controls. The net effect of the rule change is that all turboprop or turboshaft engines capable of 1,500 shp would be controlled by the ITAR simply because the engine has a cooled LPT or PT. This expanded control will severely inhibit AIA member companies' ability to commercialize cooled LPT or PT technology for the civil turboshaft or turboprop market and put them at a distinct competitive disadvantage. Cooled LPT or PT technology will be a key discriminator for commercial customers who demand greater specific fuel consumption and lower emissions. Turboshaft and turboprop engines with cooled LPT or PT are more appropriately controlled on the CCL.

Category XIX(b)(3):

Commercial use of tilt-rotor aircraft is a developing sector. This technology is not innately military and should not be relegated to USML control. U.S. government officials recognize the benefits of tilt-rotor aircraft and have used it themselves while traveling within the U.S. Private citizens should also be able to enjoy the benefits of tilt rotor aircraft as the technology commercializes. By controlling this technology on the USML AIA member companies will be at a competitive disadvantage as they work to expand this technology to the commercial market. AIA recommends eliminating XIX(b)(3).

Category XIX(c):

There is an overlap between XIX(c) (engines for unmanned aerial vehicle systems, cruise missiles, or target drones) and Category IV(d) (missile and space launch vehicle power plants.) Per Part 121.16, Missile Technology Control Regime Annex, Item 3, Category 2 (a) and (b), certain engines are referenced in both Categories IV(h) and VIII(b). Both USML categories reference power plants/engines for 'missiles.' We urge the Administration to provide a clearer distinction between the two Categories.

Category XIX(d) and (f)(1):

Categories XIX(d) and (f) of the proposed rule also cite aircraft engines by name. Specifying engine numbers creates a static list and will eventually "catch" obsolete engines on the USML. Rather than listing particular engine families, we recommend where possible further identifying specific technologies or engine performance characteristics that warrant inclusion on the USML. If a critical technology is not already included in the draft XIX(a) or (b), those sections should be revised to capture any critical technologies or engine performance characteristics where possible to craft an appropriately targeted definition. Even if the engines are not caught by XIX(a) or (b), they will remain subject to "600-series" controls of the CCL and will require an EAR authorization to most destinations. Further, the controls on parts and components defined in Category XIX (f) (1) should be limited to those items "specially designed" for the critical technologies or engine performance characteristics.

Category XIX(f)(2):

The proposed change to the definition of "hot section" in Category XIX(f)(2) would represent a substantial increase in control over the present VIII(b). The existing VIII(b) control is well established and generally understood, and covers the combustor, high pressure turbine (HPT) components regardless of cooling, and cooled low pressure turbine (LPT), nozzle, augmentor and nozzle components. The proposed definition would cover all components in the LPT and exhaust, regardless of cooling status. Because XIX(f)(2) is categorized as Significant Military Equipment (SME), this would reclassify a large number of formerly Category VIII(h) non-SME components as SME.

The change is inadvisable as it would have a severe, adverse impact on both U.S. industry and the supply of engine parts to the U.S. and partner militaries. Changing the "hot section" definition will require wholesale changes to classification processes and electronic databases already developed and used by U.S. industry, requiring significant investment in employee retraining and modifications to various software applications. The change also would impose significant new and unwarranted licensing burdens on exporters. Agreements for the manufacture abroad of these parts and components also would require Congressional Notification, and the lesser technology associated with uncooled turbine components would

be subject to the same heightened requirements as for the more sensitive 'hot section'(e.g., nontransfer and use certificates, 'build-to-print' restrictions, fewer available exemptions, etc.). The definition of 'hot section' components in Category XIX(f)(2) should utilize the same Category VIII(b) wording established in 2008, and not be expanded.

Category XIX(f)(3):

Regarding engine monitoring systems, these systems are found on most commercial engines and are not military technology. We suggest deleting section XIX (f)(3).

Additionally, AIA believes all items qualifying under 17(c) as of 2008 should not be captured in the final rule. We recommend inclusion of language, similar to the existing note to USML VIII(h), that establishes a bright line for standard equipment covered by a civil aircraft type certificate issued by the Federal Aviation Administration.

We fully concur with the need for increased scrutiny over classified components or items that contain classified software. However, it is unclear why unclassified items under the proposed rule require equivalent controls just because they are developed or manufactured with classified information. If a security classification guide allows the end product to be considered unclassified, then it should not be treated differently unless the item in question provides a unique military capability or functionality.

In fact, increased ITAR scrutiny may actually have the unintended effect of drawing unnecessary attention to the component and expose sensitive development or production capability. The bottom line is that if the component requires additional protection, the item will be appropriately classified by the governing security classification guide. Raising the unclassified item's profile could pose OPSEC risk and jeopardize sensitive design or production information.

Below are suggested edits for Section 121.1, Category XIX:

~~*(a) Turbofan and turbojet engines (including technology demonstrators),~~
"specifically designed" for items in USML category IV, VII, and VIII and ~~capable of~~ **rated at** 15000lbf (66.7kN) of thrust or greater that have any of the following:

~~(1) with or capable of~~ or designed for-thrust augmentation (afterburner);

~~(4) capable of~~ designed for sustained inverted flight in **excess of 30 second**;

~~(5) capable of~~ **rated for** high power extraction (greater than 50 percent of **maximum rated** engine thrust) at altitudes greater than **50,000** feet.

~~(6) capable of directed flow thrust reversing, using bypass/fan and core flow air and also capable for being deployed in flight.~~

*(b) Turboshaft and Turboprop engines, including those in development, production, **operation or technology demonstrators**, and **"specially designed" for end items in USML Categories VI, VII or VIII, and** ~~or inventory (including technology demonstrators)~~, **rated at** 1500 shp (1119 kW) that:

- (1) ~~cooled low pressure turbine, cooled intermediate pressure turbine; or~~
- (2) contain parts or components controlled in paragraph (f)(4) of this category; or
- ~~(3) capable of oil sump sealing when the engine is in the vertical position.~~

*(c) Engines, **including those** in development, production, operation, or ~~inventory~~ technology demonstrators, "specially designed" for armed or military unmanned aerial vehicle systems, cruise missiles, ~~or~~ target drones, or other items listed in USML Categories IV and VIII.

~~*(d) AGT1500, CTS800, TF40B, T55, TF60, T700, and TF50 engines.~~

*(e) Full Authority Digital Engine Controls (FADEC) and Digital Electronic Engine Controls (DEEC) "specially designed" for gas turbine engines controlled in this category.

(f) Components, parts, accessories, attachments, or associated equipment as follows:

- (1) components, parts, accessories, attachments, and equipment "specially designed" **for the technology or engine performance characteristics listed in XIX (a) or (b) above** AE1107C, F101, F107, F112, F118, F119, F120, F124, F125, F135, F136, F414, F415, J402, GE38, TF40B, and TF60;

Note: Components, parts, accessories, attachments, and equipment that are common to listed and non-listed engines shall not be considered "specially designed" for the engines in this subparagraph.

Note: Digital engine controls (e.g., Full Authority Digital Engine Controls (FADEC) and Digital Electronic Engine Controls (DEEC)) "specially designed" for the engines identified in (f)(1) of this category are controlled by (e) of this category.

- *(2) hot section components (i.e., combustors **chambers and liners, high pressure** turbine blades, vanes, ~~nozzles, disks and related cooled structure; shrouds~~ **cooled low pressure turbine blades, vanes disks and related cooled structure; cooled augmenters; and cooled nozzles**). **However, if such military hot section components are manufactured to engineering drawings dated on or before January 1, 1970, with no subsequent changes or revisions to such drawings, they are not controlled under the USML.** "specially designed" for gas turbine engines ~~controlled this category and related cooled components (i.e., cooled low pressure turbine blades, vanes,~~

~~disks; cooled augmenters; and cooled nozzles) "specially designed" for gas turbine engines controlled in this category. The cowl, diffuser, dome, chamber, shells, and liners for the combustors are also controlled by this paragraph;~~
~~(3) engine monitoring systems (i.e., prognostics, diagnostics, and health) "specially designed" for gas turbine engines and components controlled in this category; or~~
(4) any component, part, accessory, attachment, equipment, or system that:

(i) is classified;

(ii) contains classified software;

~~(iii) is manufactured using classified production data; or~~

~~(iv) is being developed using classified information.~~

~~"Classified" means classified pursuant to Executive Order 13526, or predecessor order, and a security classification guide developed pursuant thereto or equivalent, or to the corresponding classification rules of another government.~~

(g) Technical data and defense services directly related to the uniquely military function defense articles enumerated in paragraphs (a) through (f) of this category.

Finally, there are current exemptions on the USML that are critical to efficient defense trade. There is an exemption under Section 123.16(b)(9) for the export of unclassified parts and components to a U.S. company's foreign subsidiary if the item will be used for manufacture, assembly, testing production, or modification. Unfortunately, there is no parallel license exception in the EAR for intra-company transfers. If a USML item does not need a license to be sent to Country X, then that same item should not need a license to travel to Country X under the CCL. AIA encourages the Department of Commerce to enact similar licensing exemptions on the CCL for former ITAR items that currently enjoy such exemptions on the USML.

AIA has long been a champion for sensible export control reform and we commend the Administration for their tireless efforts to achieve meaningful reform. Please know that AIA is a willing and committed partner to reform efforts going forward.

Best regards,



Remy Nathan
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Aerospace Industries Association