

*What Every Member of the
Trade Community Should Know About:*

**Turbojets,
Turbopropellers and
Other Gas Turbines,
(HTSUS 8411) and
Parts Thereof**



AN INFORMED COMPLIANCE PUBLICATION

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U.S. CUSTOMS and BORDER PROTECTION

NOTICE:

This publication is intended to provide guidance and information to the trade community. It reflects the position on or interpretation of the applicable laws or regulations by U.S. Customs and Border Protection (CBP) as of the date of publication, which is shown on the front cover. It does not in any way replace or supersede those laws or regulations. Only the latest official version of the laws or regulations is authoritative.

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PREFACE

On December 8, 1993, Title VI of the North American Free Trade Agreement Implementation Act (Pub. L. 103-182, 107 Stat. 2057), also known as the Customs Modernization or “Mod” Act, became effective. These provisions amended many sections of the Tariff Act of 1930 and related laws.

Two new concepts that emerge from the Mod Act are “informed compliance” and “shared responsibility,” which are premised on the idea that in order to maximize voluntary compliance with laws and regulations of U.S. Customs and Border Protection, the trade community needs to be clearly and completely informed of its legal obligations. Accordingly, the Mod Act imposes a greater obligation on CBP to provide the public with improved information concerning the trade community’s rights and responsibilities under customs regulations and related laws. In addition, both the trade and U.S. Customs and Border Protection share responsibility for carrying out these requirements. For example, under Section 484 of the Tariff Act, as amended (19 U.S.C. 1484), the importer of record is responsible for using reasonable care to enter, classify and determine the value of imported merchandise and to provide any other information necessary to enable U.S. Customs and Border Protection to properly assess duties, collect accurate statistics, and determine whether other applicable legal requirements, if any, have been met. CBP is then responsible for fixing the final classification and value of the merchandise. An importer of record’s failure to exercise reasonable care could delay release of the merchandise and, in some cases, could result in the imposition of penalties.

Regulations and Rulings (RR) of the Office of International Trade has been given a major role in meeting the informed compliance responsibilities of U.S. Customs and Border Protection. In order to provide information to the public, CBP has issued a series of informed compliance publications on new or revised requirements, regulations or procedures, and a variety of classification and valuation issues.

This publication, prepared by the National Commodity Specialist Division of Regulations and Rulings is entitled “Turbojets, Turbopropellers and Other Gas Turbines, (HTSUS 8411) and Parts Thereof”. It provides guidance regarding the classification of these items. We sincerely hope that this material, together with seminars and increased access to rulings of U.S. Customs and Border Protection, will help the trade community to improve voluntary compliance with customs laws and to understand the relevant administrative processes.

The material in this publication is provided for general information purposes only. Because many complicated factors can be involved in customs issues, an importer may wish to obtain a ruling under Regulations of U.S. Customs and Border Protection, 19 C.F.R. Part 177, or to obtain advice from an expert who specializes in customs matters, for example, a licensed customs broker, attorney or consultant.

Comments and suggestions are welcomed and should be addressed to the Executive Director, Regulations and Rulings, Office of International Trade, U.S. Customs and Border Protection, 1300 Pennsylvania Avenue, NW, (Mint Annex), Washington, D.C. 20229.

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TURBOJETS, TURBOPROPELLERS AND OTHER GAS TURBINES

This Informed Compliance Publication discusses the scope of heading 8411 of the *Harmonized Tariff Schedule of the United States* (HTSUS), which provides for turbojets, turbopropellers and other gas turbines and parts thereof.

The 2008 HTSUS subheadings under consideration are the following:

8411	Turbojets, turbopropellers and other gas turbines, and parts thereof:
	Turbojets:
8411.11	Of a thrust not exceeding 25 kN:
8411.11.4000	Aircraft turbines
8411.11.8000	Other
8411.12	Of a thrust exceeding 25 kN:
8411.12.4000	Aircraft turbines
8411.12.8000	Other
	Turbopropellers:
8411.21	Of a power not exceeding 1,100 kW:
8411.21.4000	Aircraft turbines
8411.21.8000	Other
8411.22	Of a power exceeding 1,100 kW:
8411.22.4000	Aircraft turbines
8411.22.8000	Other
	Other gas turbines:
8411.81	Of a power not exceeding 5,000 kW:
8411.81.4000	Aircraft turbines
8411.81.8000	Other
8411.82	Of a power exceeding 5,000 kW:
8411.82.4000	Aircraft turbines
8411.82.8000	Other

U.S. Customs and Border Protection (CBP) has consistently classified turbojets in subheadings 8411.11 and 8411.12; turbopropellers in subheadings 8411.21 and 8411.22; and other gas turbines in subheadings 8411.81 and 8411.82, HTSUS. Classification therein is supported by the *Harmonized Commodity Description and Coding System Explanatory Notes* (ENs), which constitute the official interpretation of the Harmonized System. While not legally binding nor dispositive, the ENs provide a commentary on the scope of the headings of the Harmonized System and are thus useful in ascertaining the classification of merchandise. CBP believes the ENs should always be consulted. See T.D. 89-80, 54 Fed. Reg. 35127, 35128 (Aug. 23, 1989).

The ENs to heading 8411, HTSUS, are divided into three groups: 8411(A) - Turbojets; 8411(B) - Turbopropellers; and 8411(C) - Other Gas Turbines. The ENs provide:

This heading covers **turbojets, turbopropellers** and **other gas turbines**.

The turbines of this heading are, in general, internal combustion engines which do not usually require any external source of heat as does, for example, a steam turbine.

(A) TURBOJETS

A turbojet consists of a compressor, a combustion system, a turbine and a nozzle, which is a convergent duct placed in the exhaust pipe. The hot pressurized gas exiting from the turbine is converted to a high velocity gas stream by the nozzle. The reaction of this gas stream acting on the engine provides the motive force which may be used to power aircraft. In its simplest form the compressor and turbine are accommodated on a single shaft. In more complex designs the compressor is made in two parts (a two spool compressor) in which the spool of each part is driven by its own turbine through concentric shafting. Another variation is to add a ducted fan usually at the inlet to the compressor and drive this either by a third turbine or connect it to the first compressor spool. The fan acts in the nature of a ducted propeller, most of its output bypassing the compressor and turbine and joining the exhaust jet to provide extra thrust. This version is sometimes called a "bypass fan jet."

(B) TURBOPROPELLERS

Such engines are similar to turbojets, but have a further turbine downstream of the compressor turbine, which is coupled to a conventional propeller such as is used on piston engine aircraft. This latter turbine is sometimes referred to as a "free turbine", meaning that it is not mechanically coupled to the compressor and compressor turbine shaft. Thus most of the hot pressurized gas leaving the compressor turbine is converted into shaft power by the free turbine instead of being expanded in a nozzle as is the case in turbojets. In some cases, the gases leaving the free turbine may be expanded in a nozzle to provide auxiliary jet power and assist the propeller.

(C) OTHER GAS TURBINES

This group includes industrial gas-turbine units which are either specifically designed for industrial use or adapt turbojets or turbopropellers units for uses other than providing motive power for aircraft.

There are two types of cycles:

- (1) The simple cycle, in which air is ingested and compressed by the compressor, heated in the combustion system and passed through the turbine, finally exhausting to the atmosphere.
- (2) The regenerative cycle, in which air is ingested, compressed and passed through the air pipes of a regenerator. The air is pre-heated by the turbine exhaust and is then passed to the combustion system where it is further heated by the addition of fuel. The air/gas mixture passes through the turbine and is exhausted through the hot gas side of the regenerator and finally to the atmosphere.

There are two types of designs:

- (a) The single-shaft gas turbine unit, in which the compressor and turbine are built on a single shaft, the turbine providing power to rotate the compressor and to drive rotating machinery through a coupling. This type of drive is most effective for constant speed applications such as electrical power generation.
- (b) The two-shaft gas turbine unit, in which the compressor, combustion system and compressor turbine are accommodated in one unit generally called a gas generator, whilst a second turbine on a separate shaft receives the heated and pressurized gas from the exhaust of the gas generator. This second turbine known as the power turbine is coupled to a driven unit, such as a compressor or pump. Two-shaft gas turbines are normally applied where load demand variations require a range of power and rotational speed from the gas turbine.

These gas turbines are used for marine craft and locomotives, for electrical power generation, and for mechanical drives in the oil and gas, pipeline and petrochemical industries.

MERCHANDISE CLASSIFIED IN HEADING 8411

Gas turbine engines of all types are classified in heading 8411, HTSUS. These are, generally, internal combustion engines that produce their own pressurized gas by burning fuel. They are all primarily composed of a compressor, a combustion chamber, a turbine and nozzle.

The typical gas turbine engines takes air from the atmosphere, compresses it, and delivers it to the combustion chamber, where it is injected with fuel. The heat that comes from burning fuel expands the air. The resulting gases exit through the turbine into the nozzle, where it is accelerated at high speed to provide jet thrust or enable shaft power.

There are four main types of gas turbine engines: turbojets, turbofans, turboprops and turboshafts. Turbojets and turbofans are "reaction" engines; their output is derived from the reaction of the jet. Turboprops and turboshafts use the energy in the gas to drive a separate turbine connected to a propeller or power output shaft.

Turbojet

A turbojet, the simplest of gas turbine engines, is used mainly in high-speed aircraft with relatively low frontal areas. See, e.g., NY 868426 and NY 868489, dated January 7, 1992.

Turbofan

A turbofan is a gas turbine with a fan attached to the front of the engine. The fan is powered by smaller diameter turbojet engine mounted behind it. Part of the airstream from the ducted fan passes through the turbojet and is burned to power the fan. The majority of the flow, however, bypasses it, thus producing thrust more efficiently. The process yields lower jet velocity, but improves the engine's fuel and propulsive efficiency and lowers noise levels. For these reasons, the turbofan is the preferred engine for most commercially operated airliners.

The power of turbojet and turboprop engines is measured in pound thrust or kilonewtons (kN). This is the product of the exhaust mass flow per second and the difference between the exhaust velocity and the air inlet velocity. Unless you can calculate this on a slide rule or computer, the kN's ought to be on the invoice or certainly available from the importer or the seller/manufacturer. High thrust output is the hallmark of turbojet and turbofan gas turbines.

Turboprop

A turboprop is a gas turbine engine that uses most of the power output to drive a propeller via a reduction gearbox. It is a very efficient engine for low-speed, low-altitude aircraft. See NY 867419, dated October 22, 1991.

Turboshaft

A turboshaft is a gas engine optimized to produce shaft power instead of jet thrust. It is similar in operation to a turboprop engine, but differs mainly in that it powers a rotating cylindrical shaft, as to a pump or helicopter rotor, instead of a propeller. Some turboshaft engines are aircraft engines adapted for industrial and marine applications i.e., aero-derivative engines. Turboshafts are classified as "Other gas turbines" in subheadings 8411.81 and 8411.82, HTSUS. See HQ 966934, dated May 6, 2004.

The power of turboprop and turboshaft engines is measured in kilowatts (kW). A kilowatt may be expressed as .7457 of a unit of horsepower.

Generating Sets **NOT** in Heading 8411

Please note that gas turbines of any type imported together with an electric generator, constitute "generating sets," and are classified in heading 8502, HTSUS. The ENs to heading 8502 indicate that the term "generating sets" applies to the combination of an electric generator and any prime mover other than an electric motor. Generating sets consisting of the generator and its prime mover, which are mounted (or designed to be mounted) together as one unit or on a common base (see the General Explanatory Note to Section XVI), are classified in heading 8502, HTSUS, provided they are presented together. See HQ 087074, dated November 21, 1991. In that ruling, we stated:

It has been suggested that the cited General Explanatory Note may support the proposition that there must be substantial physical integration of the turbine and generator for these units to constitute a set for tariff purposes, and that a mere coupling of the shafts is insufficient in this regard. In our opinion, the note [EN] is inconclusive in imposing this requirement on the turbine and generator in issue here and, in any event, there is substantially more integration of these units than a mere coupling of the shafts. This note [EN], therefore, should not be interpreted in such a way as to contravene the otherwise clear scope of heading 8502.

Because the units in issue here are commonly bought and sold together, are commercially regarded as generating sets, and possess design features that indicate they will be permanently attached to one another, we conclude that they are designed to be mounted together as one unit for purposes of heading 8502.

Parts

The classification of turbine parts of heading 8411, HTSUS, is subject to Legal Note 2 to Section XVI, HTSUS, which states:

Subject to note 1 to this section, note 1 to chapter 84 and to note 1 to chapter 85, parts of machines (not being parts of the articles of heading 8484, 8544, 8545, 8546 or 8547) are to be classified according to the following rules:

- (a) Parts which are goods included in any of the headings of chapters 84 and 85 (other than headings 8409, 8431, 8448, 8466, 8473, 8487, 8503, 8522, 8529, 8538 and 8548) are in all cases to be classified in their respective headings;
- (b) Other parts, if suitable for use solely or principally with a particular kind of machine, or with a number of machines of the same heading (including a machine of heading 8479 or 8543) are to be classified with the machines of that kind or in heading 8409, 8431, 8448, 8466, 8473, 8503, 8522, 8529 or

8538 as appropriate. However, parts which are equally suitable for use principally with the goods of headings 8517 and 8525 to 8528 are to be classified in heading 8517;

- (c) All other parts are to be classified in heading 8409, 8431, 8448, 8466, 8473, 8503, 8522, 8529 or 8538 as appropriate or, failing that, in heading 8487 or 8548.”

Thus, only articles that are parts for use solely or principally with the gas turbines of heading 8411, HTSUS, not excluded by one of the provisions of Section XVI or any of the legal notes referred to above, and are not more specifically provided for elsewhere in chapter 84 or 85, HTSUS, are classified in heading 8411, HTSUS, in one of the subheadings below:

	Parts:	
8411.91		Of turbojets or turbopropellers:
8411.91.10		Cast-iron parts, not advanced beyond cleaning, and machined only for the removal of fins, gates, sprues and risers or to permit location in finishing machinery.....
	40	Parts of nonaircraft turbines
		Parts of aircraft turbines:
	60	For use in civil aircraft
	90	Other
8411.91.90		Other.....
	40	Parts of nonaircraft turbines
	80	Parts of aircraft turbines
8411.99		Other:
8411.99.10		Cast-iron parts, not advanced beyond cleaning, and machined only for the removal of fins, gates, sprues and risers or to permit location in finishing machinery.....
	10	Parts of nonaircraft gas turbines
		Parts of aircraft gas turbines:
	40	For use in civil aircraft
	80	Other
8411.99.90		Other.....
		Parts of nonaircraft gas turbines:
	30	Rotors or spindles and rotor or spindle assemblies
	60	Other
	90	Parts of aircraft gas turbines

The ENs to heading 8411, HTSUS, provide guidance as to what is considered a part of a gas turbine engine:

Subject to the general provisions regarding the classification of parts (see the General Explanatory Note to Section XVI), parts of the engines and motors of this heading are also classified here (e.g., gas turbine rotors, combustion chambers and vents for jet engines, parts of turbojet engines (stator rings, with or without blades, rotor discs or wheels, with or without fins, blades and fins), fuel feed regulators, fuel nozzles).

CBP has consistently classified parts of turbojets and turbopropellers in subheading 8411.91, HTSUS. See, e.g., HQ 956591, dated October 6, 1994 (fan blades for jet engines) and HQ 957085, dated October 17, 1994 (engine disk forgings). Parts of other gas turbines, including parts for adapted turbojets or turboprops, are classified in 8411.99, HTSUS. See, e.g., HQ 966925, dated September 7, 2004 and HQ 966934, dated May 6, 2004 (parts of an aero-derivative gas turbine); HQ 957578, dated February 5, 1998 (mounting base and enclosure for a marine gas turbine); and HQ 087981, dated December 21, 1990 (gas generator).

Caution should be exercised when classifying parts for adapted turbojets and turboprops to the extent that these are classified in the subheading in which their principal use is found. For instance, a part of an adapted turbojet which is principally used in a standard turbojet is to be classified in subheading 8411.91, not in 8411.99, HTSUS.

ADDITIONAL INFORMATION

The Internet

The home page of U.S. Customs and Border Protection on the Internet's World Wide Web, provides the trade community with current, relevant information regarding CBP operations and items of special interest. The site posts information -- which includes proposed regulations, news releases, publications and notices, etc. -- that can be searched, read on-line, printed or downloaded to your personal computer. The web site was established as a trade-friendly mechanism to assist the importing and exporting community. The web site also links to the home pages of many other agencies whose importing or exporting regulations that U.S. Customs and Border Protection helps to enforce. The web site also contains a wealth of information of interest to a broader public than the trade community. For instance, the "Know Before You Go" publication and traveler awareness campaign is designed to help educate international travelers.

The web address of U.S. Customs and Border Protection is <http://www.cbp.gov>

Customs Regulations

The current edition of Customs and Border Protection Regulations of the United States is a loose-leaf, subscription publication available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402; telephone (202) 512-1800. A bound edition of Title 19, Code of Federal Regulations is also available for sale from the same address. All proposed and final regulations are published in the Federal Register, which is published daily by the Office of the Federal Register, National Archives and Records Administration, and distributed by the Superintendent of Documents. Information about on-line access to the Federal Register may be obtained by calling (202) 512-1530 between 7 a.m. and 5 p.m. Eastern time. These notices are also published in the weekly Customs Bulletin described below.

Customs Bulletin

The Customs Bulletin and Decisions ("Customs Bulletin") is a weekly publication that contains decisions, rulings, regulatory proposals, notices and other information of interest to the trade community. It also contains decisions issued by the U.S. Court of International Trade, as well as customs-related decisions of the U.S. Court of Appeals for the Federal Circuit. Each year, the Government Printing Office publishes bound volumes of the Customs Bulletin. Subscriptions may be purchased from the Superintendent of Documents at the address and phone number listed above.

Importing into the United States

This publication provides an overview of the importing process and contains general information about import requirements. The current edition of *Importing Into the United States* contains much new and revised material brought about pursuant to the Customs Modernization Act ("Mod Act"). The Mod Act has fundamentally altered the relationship between importers and U.S. Customs and Border Protection by shifting to the importer the legal responsibility for declaring the value, classification, and rate of duty applicable to entered merchandise.

The current edition contains a section entitled "Informed Compliance." A key component of informed compliance is the shared responsibility between U.S. Customs and Border Protection and the import community, wherein CBP communicates its requirements to the importer, and the importer, in turn, uses reasonable care to assure that CBP is provided accurate and timely data pertaining to his or her importation.

Single copies may be obtained from local offices of U.S. Customs and Border Protection, or from the Office of Public Affairs, U.S. Customs and Border Protection, 1300 Pennsylvania Avenue NW, Washington, DC 20229. An on-line version is available at the CBP web site. *Importing into the United States* is also available for sale, in single copies or bulk orders, from the Superintendent of Documents by calling (202) 512-1800, or by mail from the Superintendent of Documents, Government Printing Office, P.O. Box 371954, Pittsburgh, PA 15250-7054.

Informed Compliance Publications

U.S. Customs and Border Protection has prepared a number of Informed Compliance publications in the "*What Every Member of the Trade Community Should Know About...*" series. Check the Internet web site <http://www.cbp.gov> for current publications.

Value Publications

Customs Valuation under the Trade Agreements Act of 1979 is a 96-page book containing a detailed narrative description of the customs valuation system, the customs valuation title of the Trade Agreements Act (§402 of the Tariff Act of 1930, as amended by the Trade Agreements Act of 1979 (19 U.S.C. §1401a)), the Statement of Administrative Action which was sent to the U.S. Congress in conjunction with the TAA, regulations (19 C.F.R. §§152.000-152.108) implementing the valuation system (a few sections of the regulations have been amended subsequent to the publication of the book) and questions and answers concerning the valuation system.

Customs Valuation Encyclopedia (with updates) is comprised of relevant statutory provisions, CBP Regulations implementing the statute, portions of the Customs Valuation Code, judicial precedent, and administrative rulings involving application of valuation law. A copy may be purchased for a nominal charge from the Superintendent of Documents, Government Printing Office, P.O. Box 371954, Pittsburgh, PA 15250-7054. This publication is also available on the Internet web site of U.S. Customs and Border Protection.

The information provided in this publication is for general information purposes only. Recognizing that many complicated factors may be involved in customs issues, an importer may wish to obtain a ruling under CBP Regulations, 19 C.F.R. Part 177, or obtain advice from an expert (such as a licensed Customs Broker, attorney or consultant) who specializes in customs matters. Reliance solely on the general information in this pamphlet may not be considered reasonable care.

Additional information may also be obtained from U.S. Customs and Border Protection ports of entry. Please consult your telephone directory for an office near you. The listing will be found under U.S. Government, Department of Homeland Security.

“Your Comments are Important”

The Small Business and Regulatory Enforcement Ombudsman and 10 regional Fairness Boards were established to receive comments from small businesses about Federal agency enforcement activities and rate each agency’s responsiveness to small business. If you wish to comment on the enforcement actions of U.S. Customs and Border Protection, call 1-888-REG-FAIR (1-888-734-3247).

REPORT SMUGGLING 1-800-BE-ALERT OR 1-800-NO-DROGA



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