

# Japanese Aerospace Industry 2025

The Society of Japanese Aerospace Companies  
HULIC JP Akasaka Bldg.10F,  
2-5-8, Akasaka, Minato-ku,  
Tokyo 107-0052, Japan  
Telephone: (+81) 3-3585-0511  
Facsimile: (+81) 3-3585-0541  
<https://www.sjac.or.jp>



Apr.2025



THE SOCIETY OF JAPANESE AEROSPACE COMPANIES (SJAC)  
[www.sjac.or.jp](http://www.sjac.or.jp)

## Table of Contents

## *I* Continuous Expansion of Japanese Aerospace Industry...2

1. Significance of Aerospace Industry
2. Aircraft Related Activities
3. Space Related Activities
4. Aerospace Facts & Figures

## ***II* Japanese Aircraft Industry..... 10**

**Aircraft for National Defense ..... 10**

1. Most Advanced Fighter
2. Aircraft Development

**Civil Aircraft for Steady Growth Expectations ..... 12**

1. Increases in Demand for Passenger and Transport Aircraft
2. Japan's Role in Multinational Development
3. Domestic Development of Civil Aircraft

**Helicopters and State-of-the-Art Technologies ..... 14**

1. Civil Helicopters
2. Defense Helicopters

## Aircraft Engines ..... 16

1. Civil Engines
2. Defense Engines

**Japan's Highly Reliable Aircraft Equipment ..... 18**

1. Hydraulic Systems
2. Cabin Pressure and Air Conditioning Systems
3. Avionics and Flight Control Systems
4. Power Supply Systems
5. Landing Gear Systems
6. Other Systems

**Cabin and Interior Systems for In-Flight Comfort ..... 20**

**Advanced Aircraft Materials ..... 21****III Japanese Space Industry ..... 22****World Class Rockets..... 22**

1. Liquid Propellant Rockets
2. Solid Propellant Rockets
3. Launch and Control Facilities

**Satellite Development ..... 24**

1. Weather Satellites
2. Remote Sensing
3. Communication & Broadcasting Satellites
4. Quasi-Zenith Satellite Systems
5. Other Projects

**Contribution to the International Space Station ..... 26**

1. International Space Station
2. H- II B and HTV contribute to deliver supplies to ISS

***IV* The Society of Japanese Aerospace Companies ..... 28**

1. Industrial Policies Promotion
2. Industrial Foundation Buildup and Maintenance
3. Cooperation with Overseas Aerospace Industries
4. Japan International Aerospace Exhibition
5. Other Activities

**SJAC MEMBER COMPANIES..... 32**



# I Continuous Expansion of Japanese Aerospace Industry

After the end of the Second World War, the aerospace industry in Japan expanded steadily to satisfy its own defense requirements, but in recent years, participation in international joint development of civil aircraft has increased. In space operations, development of transportation and satellite systems has been promoted and increased. In this way, the Japanese aerospace industry has grown its position to stand alongside those in the US and EU.

## 1. Significance of Aerospace Industry

The aerospace industry is characterized by the following strategic components:

- By integrating advanced technologies with high-grade materials and components, the aerospace industry utilizes a wide range of supporting industries, and its technology also spreads to other industries, thus benefiting the economy as a whole.
- Through high-speed transportation, disaster prevention and other similar activities, this industry contributes to improve the daily lives of the people of Japan.
- As one of the most important components of defense, the aerospace industry is directly linked to national security.



T-4 Intermediate Jet Trainer (Kawasaki Heavy Industries, Ltd.)



HondaJet Elite S (Honda Motor Co., Ltd.)

## 2. Aircraft Related Activities

For a certain period after the end of the war, Japan was forbidden from any activities related to the development and production of aircraft, and our aerospace industry thus fell behind those of the US and Europe. Starting with the licensed production of defense aircraft, national development and production systems have grown. The development and manufacture of defense aircraft forms the foundation of the Japanese aerospace industry. In recent years the F-2 fighter (a joint Japan-US project), the OH-1 observation helicopter, the T-4 and T-7 trainer, and the US-2 search & rescue flying boat have been successfully developed and manufactured. The P-1 Fixed-wing Maritime Patrol Aircraft has been in operation since 2013, and the C-2 Transport Aircraft has begun its delivery to the base in March 2017. Japanese manufacturers are participating in the manufacture of the F-35A fighter jet, helping to further strengthen the foundation of the aerospace industry. Delivery of the F-35A has begun in 2018. Moreover, In 2020, the next fighter(F-2 successor) business had been launched under the leadership of Japan, and on December 14,2023, the Japan, the United Kingdom, and Italy held a meeting of defense ministers to establish an efficient collaboration system in the Global Combat Air Programme (GCAP), which is being jointly developed under the scheme called “GCAP International Government Organisation(GIGO)” and Founding Treaty was signed. In a joint statement, the minister of the three countries signed the “Convention on the Establishment of GCAP Government Agencies” and stated that GIGO would lay the foundation for strengthening the defense industrial base of each country and deploy the next generation of fighter aircrafts by 2035. The Convention on the Establishment of the GCAP International Government Organisation entered into force on December 10, 2024 and is expected to establish a system to centrally manage and administer collaboration between the governments of the three



V2500 Turbofan Engine (IHI Corporation)

countries and companies, contributing to the facilitation of the joint development. And in 2021, development of the UH-2 Multipurpose Helicopter, successor to the UH-1J, has completed and started its operation.

Demand led by passenger transport is expected to grow steadily, and Japanese manufacturers are actively developing and manufacturing civil aircraft. Production volume has been on the rise in recent years, and civil aircraft manufacturing now outstrips defense aircraft manufacturing. However, the pandemic of COVID-19 since the beginning of 2020 had brought sudden shrinkage to the civil aircraft market. Although there is now a recovery from the impact of COVIT-19, concerns remain regarding quality and supply chain issues

## 3. Space Related Activities

Japanese space-related projects are also world-standard projects. We have successfully developed launch vehicles such as the M-V, H-IIA/B, and Epsilon rocket, and in the satellite field we have contributed to the development of various engineering test satellites, marine and terrestrial observation satellites, communications, broadcasting and global navigation satellites, etc., including weather satellites such as the HIMAWARI 8 & 9.

The H-IIA/B launch service operations were transferred to the private sector, and by the H-IIA, the company performed a successful commercial launch of a Canadian communication satellite in 2015, UAE earth observation satellite in 2018, UAE Mars spacecraft in 2020 and U.K. Inmarsat communication satellite in 2021. The H-IIB rocket, an upgraded model of the H-IIA, was mounted with the unmanned H-II Transfer Vehicle (HTV) to carry supplies to the International Space Station, and all nine launches, from its first launch in 2009 to the last launch in May 2020, were successful. We have achieved an extremely high 98% launch success rate for the H-IIA/ B launch vehicles. The Japan Aerospace Exploration Agency (JAXA) is now developing a new key rocket, the H3, to serve as the successor to the H-IIA/B. This new rocket will be highly competitive internationally. Together with the Epsilon rocket, the latest compact solid-fuel rocket, hopes are high for the further development of the Japanese rocket launching sector.

In the satellite sector, two satellites ordered by a Turkish government-run communications company are successfully delivered in orbit. Qatar has also placed an order for a communications satellite, and this was launched in November 2018. Japanese satellite manufacturers are using their advanced technical capabilities, high quality, and competitive costs to open up the overseas market. At the same time, with regard to domestic satellite demand, there is an expectation for planned governmental procurement, such as the shifting from the current four quasi-zenith satellites to



Image of HIMAWARI 8/9 in Orbit (Mitsubishi Electric Corporation)

for OEMs. In the 1960s, Japan focused on the YS-11 transport aircraft and other similar domestic development projects. More recently, international joint development has become mainstream due to the increase in aircraft development-related risks, as the demand of wide-body aircraft has grown globally. Currently, Japan is playing a central role in the development of aircraft such as the Boeing767, 777, 777X, and 787, and engines such as the V2500, Trent1000, GEnx, GE9X, PW1100G-JM, etc. In the aircraft OEM business segment, we are proud of the HondaJet to become the most delivered business jet in its class. And recently, development of the Urban Air Mobility ongoing in Japan is attracting attention and a demonstration flight is scheduled to take place at the Expo 2025 Osaka, Kansai.

a eleven quasi-zenith satellite system in order to create a new Japanese global positioning system (GPS), the development of the Engineering Test Satellite 9 and the satellite successor to the ALOS-2, Satellite Constellation Plans for Security Applications, those are on the new Basic Plan for Space Policy.

In December 2020, HAYABUSA 2 has returned to the earth with the sample of the Ryugu asteroid.

In addition, the Smart Lander for Investigating Moon (SLIM) successfully landed on the Moon in January 2024, the fifth lunar landing in the world.

Japanese companies are developing elemental technologies and striving to increase reliability while reducing costs.



Launch of H3 (JAXA)



4. Aerospace Facts & Figures

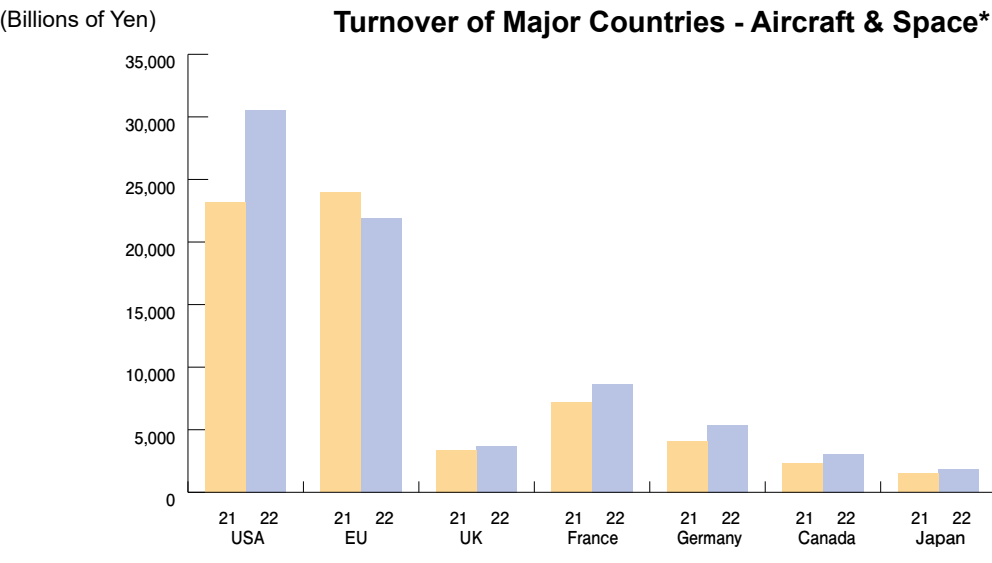
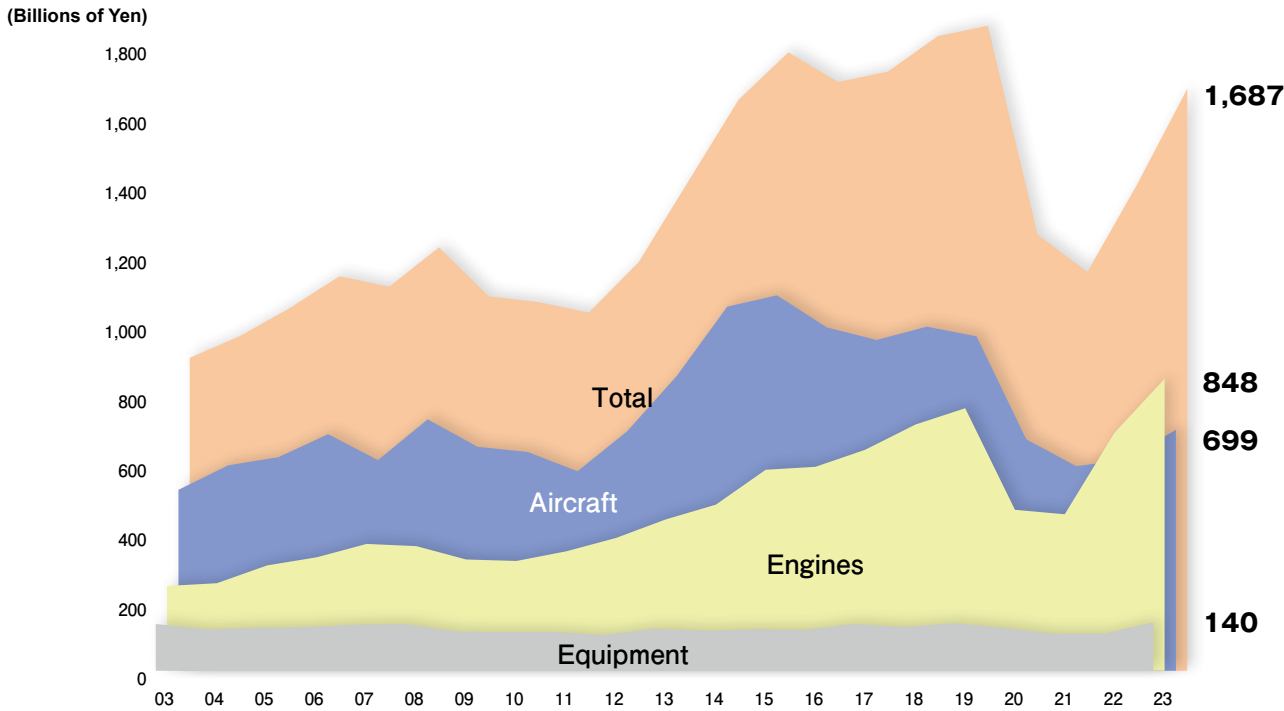
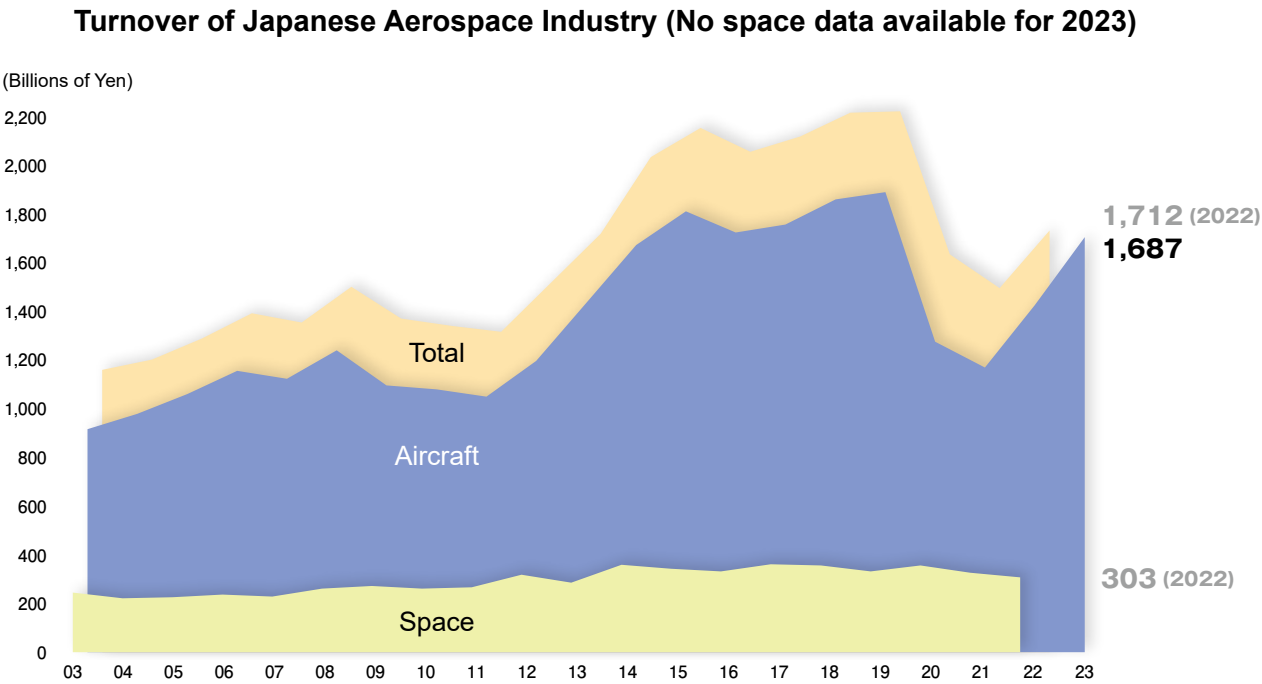
The aircraft sector accounts for a large portion of Japan's aerospace industry turnover. Looking at the aircraft sector's turnover of 1,687 billion yen in 2023 by demand type, defense aircraft account for 28% at 480 billion yen, and civil aircraft account for 72% at 1,207 billion yen. While defense aircraft demand has been slightly increasing or leveling off in line with the defense budget, civil aircraft demand reached a record high in 2019. However, the

COVID-19 disaster has been resolved, and the trend has been on the upswing since 2022. The scale of Japan's aerospace industry turnover is still small compared to that of major European and U.S. countries, but in addition to the expansion of commercial aircraft turnover due to the end of COVID-19, the scale of turnover is expected to expand in all defense aircraft and space-related fields.

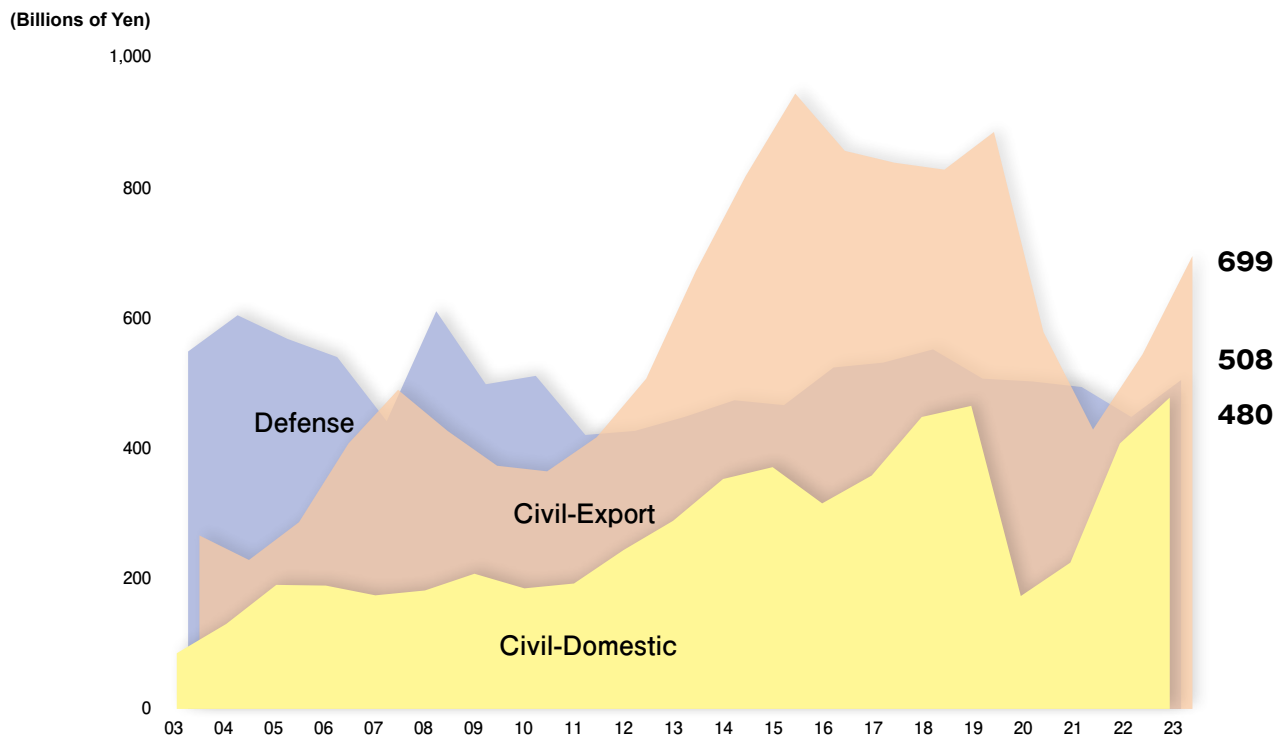
(1) Aircraft Business (Defense and Civil)

Turnover of airframes and their parts and accessories increased by 88 billion yen to 699 billion yen, accounting for 41% of total aircraft turnover. Turnover of engines and their parts increased by 157 billion yen to 848 billion yen, accounting for 50% of total aircraft turnover, while turnover of related equipment increased by 32 billion yen to 140 billion yen, accounting for 8%. From

FY2023 onward, the production of defense aircraft is expected to expand due to the steady increase in aircraft procurement and maintenance based on the Defense Force Development Plan. As for commercial aircraft, amid expected global growth in passenger demand, further expansion is expected, especially in MRO demand in the engine business, despite challenges such as Boeing's quality issues in the airframe business.



\*Please be noted, Turnover of Major Countries are in comparison of 2021 and 2022, due to the data announcement.





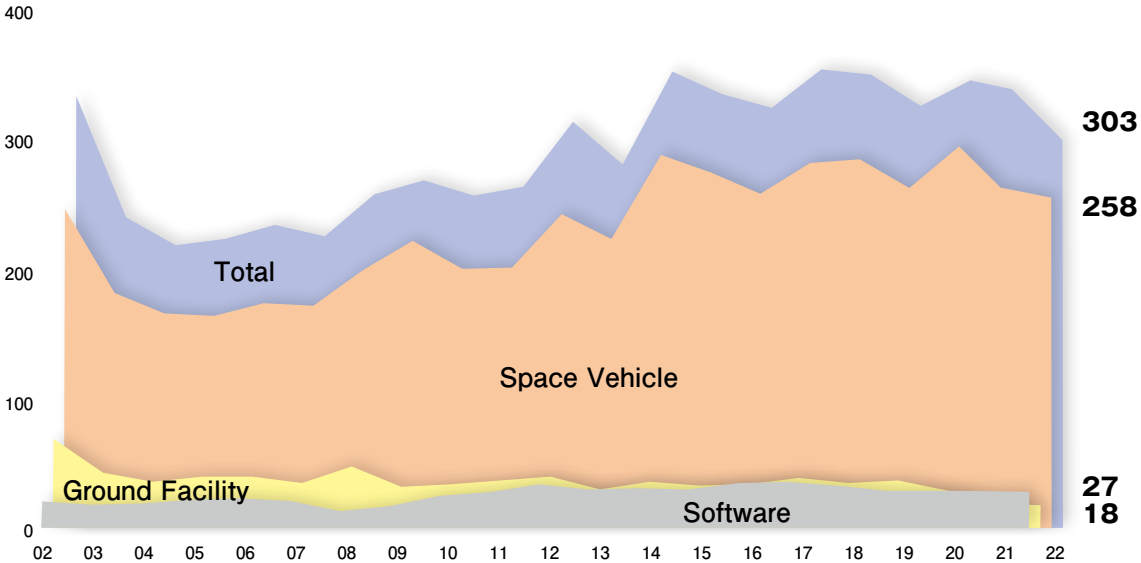


(2) Space Business (Based on 2022 data since 2023 data is not available)

The estimated turnover of the space sector in 2022 was 303 billion yen, down 4 billion yen from the previous year. However, with the success of successive launches of the H-IIA/B rockets, the turnover is expected to increase further, including orders from overseas.

In addition, development of the H3 rocket, the successor to the H-IIA rocket, has been underway since 2014, and with the successful launch in February 2024, it has moved into the mass production phase. The production of rockets and satellites accounts for about 85% of total space equipment production.

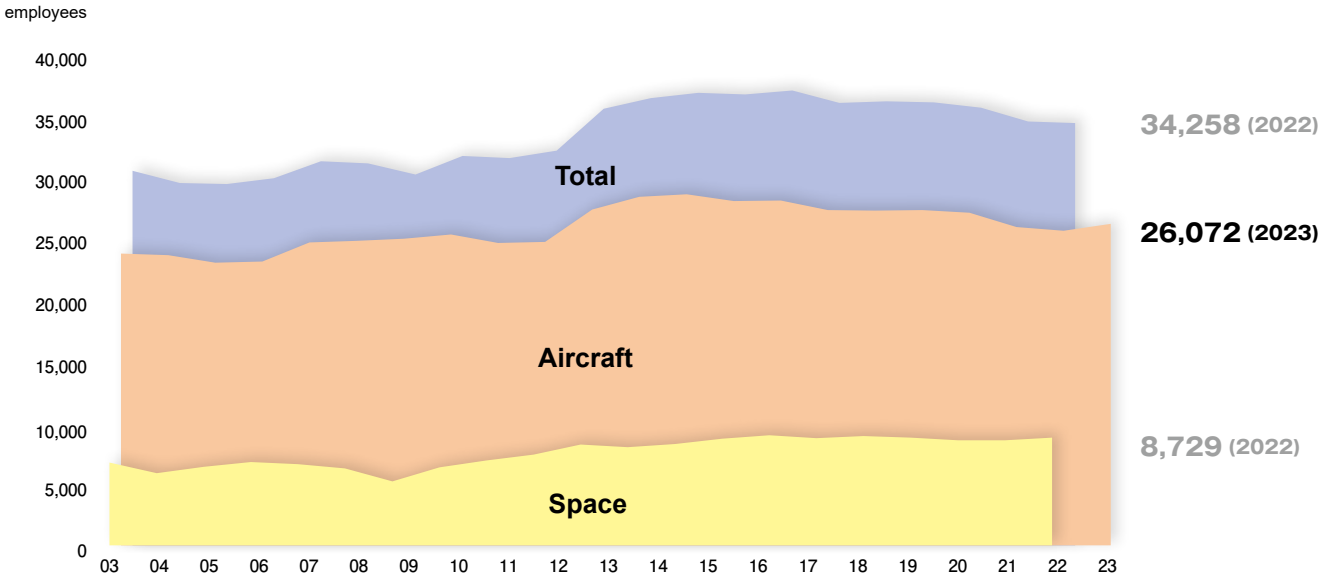
(Billions of Yen)



(3) Employment (No space data available for 2023)

The number of employees in the aerospace industry continued on a downward trend until 2005, however, after 2006, the number sometimes went up and down, but has gradually increased, and it has been almost

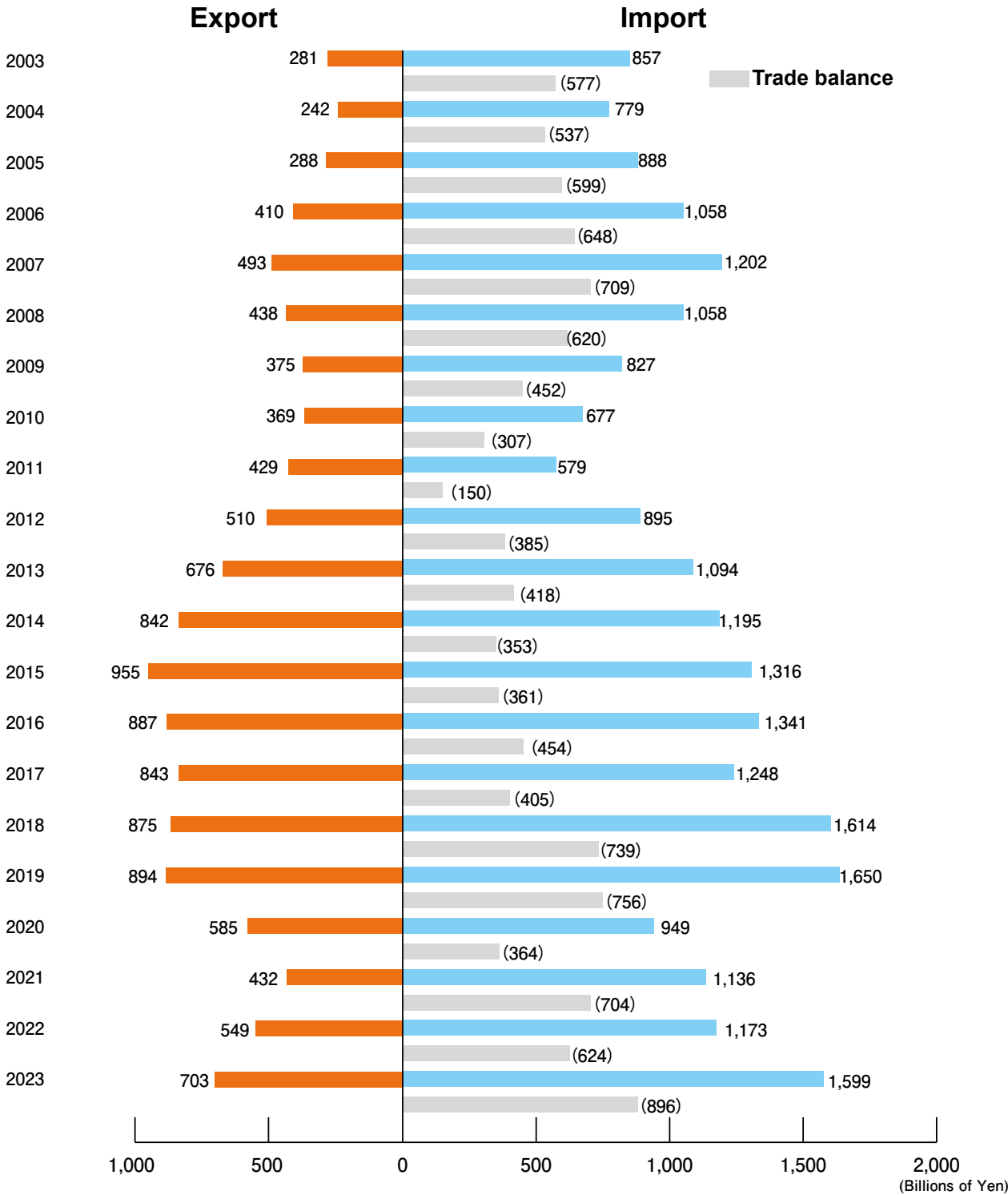
stable after 2014. The number of 2022 was 34,258. The number of employees in the aircraft sector decreased by 308 to 25,529 (2022) and the number of employees in the space field decreased by 100 to 8,729 (estimated figures).



(4) Foreign Trade

Exports of aerospace products increased before COVIT-19 due to expanded production of Boeing 777, 787, etc. and international joint projects with other foreign companies (aircraft engines such as Trent, GenX, PW1100G-JM, etc.), and then a significant decrease in 2020 and 2021 due to the impact of COVIT-19.

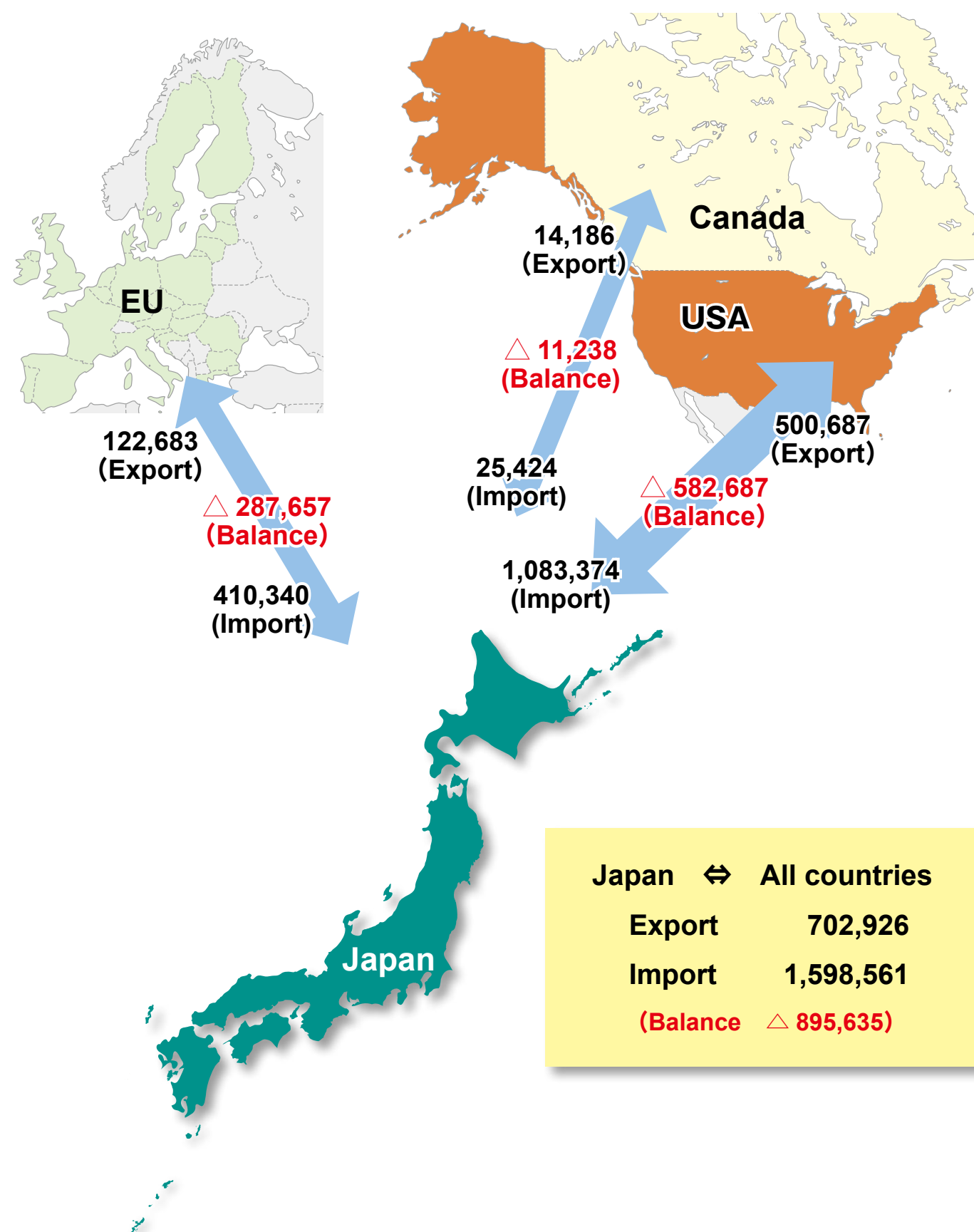
Exports amounted to 703 billion yen due to the recovery trend from 2022, but parts for airframes are still in the process of recovery due to the quality issues at Boeing. Imports of aerospace products, mainly aircraft purchases from U.S. and European aircraft manufacturers, totaled 1,599 billion yen in 2023, resulting in an import surplus of 896 billion yen in the balance of overseas trade of the aerospace industry in 2023.





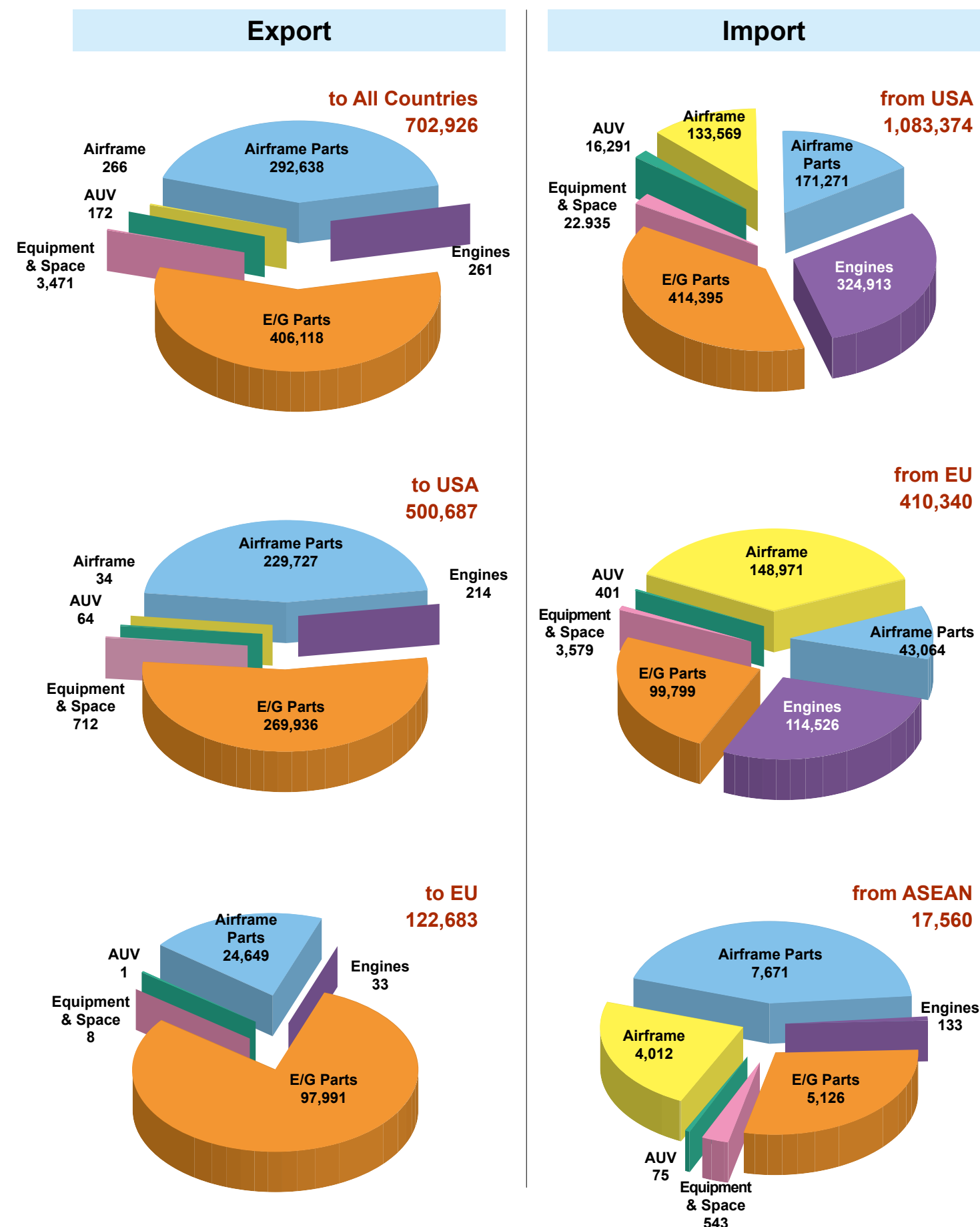
## Japan ⇄ USA / EU (2023)

(Millions of Yen)



## Export & Import – Destination and Products (2023)

(Millions of Yen)





# II Japanese Aircraft Industry

## Aircraft for National Defense

Japan's defense aircraft industry was reborn in 1952 with aircraft such as the F-86F and T-33A manufactured under license from the United States. In 1958, Japan's first jet trainer was developed and produced. Many significant steps in the advancement of the design and manufacturing technologies have followed. Today, Japanese aircraft manufacturers have their own capability to develop, produce and maintain a wide range of defense aircraft, such as fighter, transporter, patrol plane, trainer and search & rescue vessel, which has thus contributed to the national defense.

### 1. Most Advanced Fighter

#### • F-2

Developed jointly by Japan and the United States, the F-2 fighter is used in multiple roles, such as tactical air support, close air support and defensive counter-air operations. Highly regarded both at home and overseas, this fighter features a host of advanced technologies developed in Japan.

#### • F-35A/B

The F-35A (CTOL; Conventional Take-Off and Landing) is the latest fighter being introduced as the successor to the F-4 fighter. With the exception of a few completed aircraft, airframe and engine final assembly and inspection, as well as component manufacturing, are performed by Japanese companies. Participation in the manufacturing of the F-35A by Japanese manufacturers will contribute to strengthen the domestic business basis, and to support good operations. Delivery of the F-35A to the base has begun in January 2018. And six F-35B, STOVL (Short Take-off and Vertical Landing) aircraft, will also be introduced at the Nyutabaru Airbase in FY2024.

### 2. Aircraft Development

Japan Ministry of Defense is currently developing, and operating the following types of aircraft:

#### • Search & Rescue Flying Boat

Development of the US-2 Amphibious Search & Rescue Flying Boat, successor to the US-1A, has started in 1996, and succeeded its first flight in December 2003. Delivery to the base has started in March 2007.

#### • Fixed-wing Maritime Patrol Aircraft and Transport Aircraft

Development of the P-1 Fixed-wing Maritime Patrol Aircraft, successor to the P-3C, and the C-2 Transport Aircraft, successor to the C-1, has begun at the same time in 2001. By this method, common processes of these two aircraft were shared and reduced overall development costs. The P-1 succeeded the first flight in September 2007 and started the delivery to the base from March 2013. The C-2 successfully completed its first flight in January 2010 and the delivery to the base has begun in March 2017.

#### • Unmanned Aerial Vehicles

The Ministry of Defense has undertaken the research of unmanned aerial vehicles. Studies to evaluate conversion of the F-104 Fighter for pilotless operation was performed, and the ministry has developed an unmanned aircraft research system with autonomous flight functions capable of automatic landing.

#### • Trainer

The Ministry of Defense has been designing and developing a trainer such as the T-4 and T-7 in Japan. Both the airframe and engine of the T-4 intermediate trainer was fully developed and produced in Japan.

Making the most of its excellent agility, the aerial-combat research aircraft (nicknamed "Blue Impulse") appeals to people with flying displays held at various air bases throughout Japan.

On November 29, 2024, the Ministry of Defense announced that it had selected the T-6 and ground training equipment of Textron Aviation Defense of the United States, proposed by Kanematsu Corporation, as the next primary trainer aircraft and ground training equipment for the T-7 of Japan Air Self-Defense Force.

#### • The next fighter

The next fighter successor to the F-2, with the capability against future threat is under development. The development has started from 2020, by international collaboration led by Japan. And in 2020, F-2 successor business had been launched under the leadership of Japan, and on December 14, 2023, the Japan, the United Kingdom, and Italy held a meeting of defense ministers to establish an efficient collaboration system in the Global Combat Air Programme (GCAP), which is being jointly developed under the scheme called "GCAP International Government Organisation (GIGO)" and Founding Treaty was signed. In a joint statement, the minister of the three countries signed and set the goal for deployment by 2035.

The FY2025 budget includes the following items for the development of the next-generation fighter aircraft

- (1) "Development of next-generation fighter aircraft," including basic design of the aircraft and detailed design of the engine

- (2) "Research on unmanned aircraft to be linked with the next-generation fighter jet," including research on AI technology necessary to realize an unmanned combat support aircraft that can be linked with the next-generation fighter jet and other manned aircraft.
- (3) "Contribution to the joint development organization for the next fighter jet," which provides operating funds to promote Japan-UK-Italy joint development.

These technical capabilities of defense aircraft not only contributed significantly to the development and manufacture of civil aircraft, combined with the strengthening of the supply chain, as the ripple effect, but also have widely spread to other industries, and formed the basis of Japan's industrial technology.



C-2 Transport Aircraft (Kawasaki Heavy Industries, Ltd.)



US-2 Amphibious Search & Rescue Flying Boat (ShinMaywa Industries, Ltd.)



Unmanned Aircraft Research System (SUBARU Corporation)



F-2 Fighter (Mitsubishi Heavy Industries, Ltd.)



United States Air Force F-35A



P-1 Maritime Patrol Aircraft (Kawasaki Heavy Industries, Ltd.)



T-7 Primary Trainer (SUBARU Corporation)





## Civil Aircraft for Steady Growth Expectations

Aiming at risk reduction and being market oriented, the development of civil aircraft is carried out in multinational projects. Japan is proactive in the joint development of the Boeing777, 787, and other models.

In the field of aircraft OEM business, the HondaJet is well known and operated worldwide and a new aircraft, the Echelon, is under development.

### 1. Increases in Demand for Passenger and Transport Aircraft

Worldwide demand for passenger aircraft expanded at a record pace from 2005 after recovering from a low economic growth following the September 11, 2001 terror attacks. The demand was boosted by China, India and other rapidly growing emerging economies, and by good performance of low-cost carriers around the world. The demand plunged again in the aftermath of the global financial crisis in 2008, then, recovering again worldwide demand for passenger aircraft from 2010. And once again, in 2020, demand of passenger aircraft has decreased suddenly because of the COVID-19. After the recovery from COVID-19, this demand is expected to bounce back.



First delivery of Boeing 787 (All Nippon Airways Co., Ltd.)

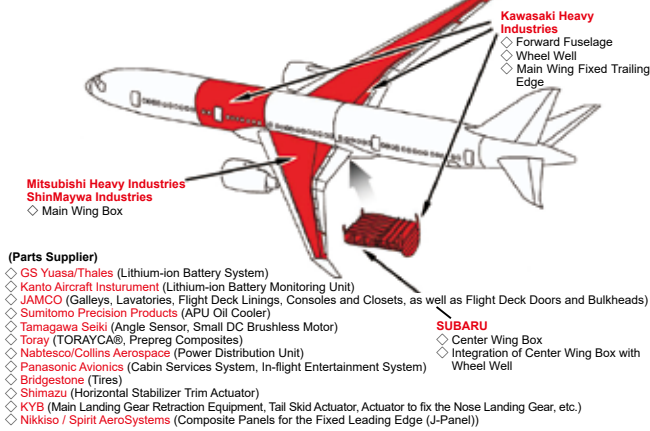


Airbus A350 (AIRBUS)

### 2. Japan's Role in Multinational Development

Japanese companies are active in projects such as those shown in the following table (Participation in International Projects), and they play an important role in the global production of aircraft. Japan has been involved in multinational development of aircraft such as the Boeing767, 777, and 787, and has steadily increased its production share. In July 2015 Japanese companies were officially contracted to manufacture approximately 21% of the main structural components used in the new Boeing777X passenger plane. Many Japanese companies are also participating in the production of the Airbus A320, A330, A350 XWB, and A380.

#### Boeing 787



Boeing787 Industrial Participation (Japan Aircraft Development Corporation)

#### Airbus A350



Airbus A350 Industrial Participation (AIRBUS)

### 3. Domestic Development of Civil Aircraft

Japan developed the YS-11 60-seater transport aircraft in 1964 as the first national developed civil aircraft. The MU-2, FA-200, FA-300 and MU-300 business jets followed during the period until 1980. The Mitsubishi SpaceJet (formerly known as MRJ), which was launched in 2008 and successfully completed its first flight in 2015, ceased development in 2023. And nowadays, the

HondaJet had won the most delivered business jet in its class for five consecutive years from 2017, and currently over 200 HondaJets are operated worldwide. HondaJet is currently developing a new aircraft, the Echelon, which will be the first small aircraft to cross the United States without refueling.



HondaJet Elite II (Honda Motor Co., Ltd.)

#### Participation in International Projects

Project	Area of participation	Scope of participation
Boeing 767	Forward fuselage, aft fuselage, main landing gear door, etc.	15% program partner
Boeing 777. 777X	Center section, center fuselage, aft fuselage, etc.	21% program partner
Boeing 787	Wings, center wings, front fuselage, etc.	35% program partner
Bombardier Challenger 350	Wings, main landing gear	RSP
Bombardier G 5000 / 6000	Wings, center wings, center fuselage	RSP
Bombardier CRJ 700 / 900	Nose and main landing gear system	RSP
Embraer 170 / 190	Wings and center wings	RSP
Gulfstream	Flaps and landing gear operation devices, etc.	Supplier
Airbus A350	Premium seats, ICE Galleys, carbon fiber, etc.	Supplier
Airbus A380	Cargo doors, vertical stabilizer structure material, carbon fiber, water tanks, etc.	Supplier





## Helicopters and State-of-the-Art Technologies

As the largest user of helicopters after the US and three other countries, Japan develops and manufactures fuselages, engines and all other helicopter components. The technologies used in fuselage and transmission production in this country have an excellent reputation throughout the world. The rotor system is the most important part of these components, and Japan has successfully developed and produced a composite-material, bearing-less version of this system that makes full use of cutting-edge technologies. The Japanese aerospace industry is also proactively participating in multinational development projects.

### 1. Civil Helicopters

- BK117

The BK117 has been developed jointly with MBB of Germany (now part of Airbus Helicopters). This helicopter is used for flying medical services, police, firefighting, disaster aid, etc., and is a top seller in both domestic and overseas markets.



BK117D-2 (Kawasaki Heavy Industries, Ltd.)

- SUBARU BELL 412EPX

The SUBARU BELL 412EPX is joint development helicopter by Bell Textron of the U.S. and Japanese manufacturer. This multipurpose helicopter with the latest transmission is highly reliable even in severe conditions.



SUBARU BELL 412EPX (SUBARU Corporation)

- Japanese companies are currently participating in the following international joint development projects.

#### Participation in International Civil Helicopter Projects

MD902 (MD Helicopters)	Production of the transmission
AW139 (AgustaWestland)	High-speed gearbox (RSP)

### 2. Defense Helicopters

- OH-1 Light Observation Helicopter

The OH-1 is the first helicopter fully developed in Japan. And, it has been honored with the Howard Hughes Award by the American Helicopter Society. Featuring an all-composite, bearing-less rotor system, it benefits from extremely high maneuverability.



OH-1 (Kawasaki Heavy Industries, Ltd.)

- AH-64D Fighting Helicopter

The AH-64D, which has distinguished information and fighting capabilities, is the successor model to the AH-1S, and in the operation it takes part as the core of the network-centered combat. Under License Production.



AH-64D (SUBARU Corporation)

- SH-60L Anti-Sub Patrol Helicopter

The SH-60L, which completed development on December 22, 2023 as a capability-enhanced version of the SH-60K, is said to further improve the capabilities of the flight control system to support pilots in a variety of situations.



SH-60L (Mitsubishi Heavy Industries, Ltd.)

- MCH-101 Airborne Mine Countermeasures (AMCM) and transport Helicopter

The MCH-101 is the successor of the MH-53E, and it is based on the EH-101. It is used for AMCM and transport roles. The AMCM system is integrated domestically.



MCH-101 (Kawasaki Heavy Industries, Ltd.)

- UH-2 (Multipurpose Helicopter)

The UH-2, successor to the UH-1J, was developed by redesigning the latest and upgraded model of Japan and overseas companies' joint developed helicopter, which provides superior safety, operational readiness and wide cabin. In June 2021 development has completed and started its operation.

In addition, Japanese manufacturers produce helicopters under license, such as for the CH-47 (Boeing, heavy transport helicopter) and the UH-60J (Sikorsky, multipurpose helicopter).



UH-2 Multipurpose Helicopter (SUBARU Corporation)





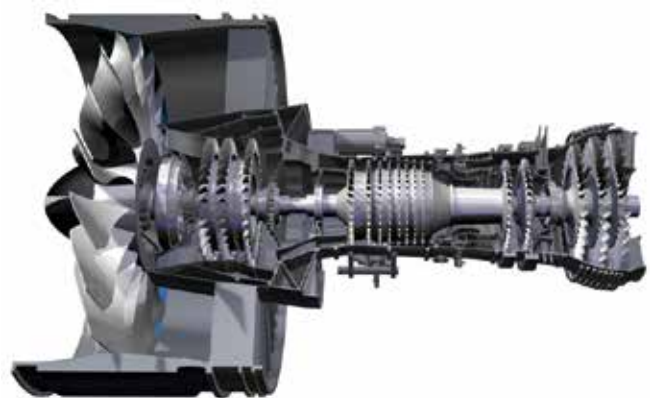
# Aircraft Engines

For the development of civil aircraft engines, Japan plays key roles in international joint development projects for such engines as the CF-34, Trent 1000, GEnx, PW1100G-JM, etc. For the development of both defense and civil engine, several national projects are underway with the focus on developing advanced technology applications.

## 1. Civil Engines

Engine development requires an enormous amount of time, money and increasing risks of being outperformed against growth requirements. Because of such difficulties for any single company to endure, these projects very often become international joint development projects. Since the participation in the V2500, we have continued to be involved in and a key player in these international collaborative projects, like the GE90, PW4000, Trent series and CF-34. The status of participation has grown: In V2500 – design of the fan, and in GE90, PW4000, CF34-8 and CF34-10 – extended to compressor, combustor, turbine, and in Trent series – including design of FADEC (Full Authority Digital Electronics Control). Japan’s technical expertise has been implemented in almost every area of the engine. Japanese companies play an important role in the global joint development of the engines like the Trent1000 and GEnx for the Boeing787. Japanese companies are also taking part as the manufacturer of the low pressure turbine

components of the GE9X engine, which is developed for the Boeing777X. In addition, Japanese companies are participating in global joint development of the PW1100G-JM engine for the Airbus A320neo to achieve fuel-efficiency, low-pollution, and noise-reduction, with Pratt & Whitney (P&W) taking the lead.



PW1000G (P&W), to serve as the base for developing PW1100G-JM



Trent 1000 (Rolls-Royce)



GEnx (GE Aviation)

## International Joint Development for Civil Aircraft Engine

Engine	Aircraft	Components developed	Level of participation
V2500	A320, MD90	Fans, low-pressure compressors, fan cases, etc.	Program partner 23%
PW4000	A310/330/340, 777	Low-pressure turbine vanes, disk, combustor, active clearance control, etc.	RSP 11% and subcontract
GE90	777	Low-pressure turbine rotor vanes disks, long shafts, etc.	RSP 10%
Trent700/800	A330, 777	Low-pressure turbine vanes, disks, long shafts, low-pressure turbine disks, turbine cases, etc.	RSP 3%
CF34-8/10	CRJ700/900, EMBRAER170/190, ARJ21	Low-pressure turbine module, high- pressure compressor rear stages, fan rotors, gearboxes, etc.	RSP 30%
Trent500	A340	Mid- & low-pressure turbine vanes, compressor cases, turbine cases, etc.	RSP 5%
Trent900	A380	Low-pressure turbine blade	Subcontract
GP7200	A380	Coupling shaft	Subcontract
GEnx	787	Low-pressure turbines, high-pressure compressors, shafts and combustor cases	RSP 15% and subcontract
Trent1000	787	Mid-pressure modules, combustor modules, low-pressure turbine vanes	RSP 15.5%
PW1100G-JM	A320 neo	Fans, low-pressure compressors modules, combustor, low-pressure shafts	Program partner 23%
TrentXWB	A350 XWB	Mid-pressure modules, combustor parts, low-pressure turbine blade, mid-pressure turbine disk, mid-pressure turbine blade, shafts, engine heat management system	RSP 15% and subcontract
Passport20	Global7500	Low-pressure turbine module & shafts, high- pressure compressor rear stages, fan stators, gearboxes, etc.	Program partner 30%
Trent7000	A330 neo	Mid-pressure modules, combustor parts, low-pressure turbine blade, mid-pressure turbine blade, engine heat management system	RSP and subcontract
GE9X	777X (under development)	Low-pressure turbine rotor vanes disks, long shafts, etc.	RSP 10.5%

## 2. Defense Engines

Regarding the engines of defense aircraft, both the F3-IHI-30 turbofan engine and the TS1-M-10 turbo shaft engine that were developed in Japan are used in the T-4 intermediate jet trainer and the OH-1 observation helicopter respectively. Furthermore, the F7-IHI-10 fan engine with a high bypass ratio, is selected and operated for the P-1 Fixed-wing Maritime Patrol Aircraft. And looking at research and development, X-2 (Advanced Technology

Demonstrator) equipped with the XF5-1 demonstration engine, an after burning fan engine with low bypass ratio, has successfully completed the flight test, and following that, development of the XF9-1 engine, aiming for the next fighter with maximum thrust of 15 tons, also has been accomplished. It was announced that the results of the performance and fuctional tests has saw the targeted specification.



F7 (IHI Corporation)



XF9-1 (IHI Corporation)





## Japan's Highly Reliable Aircraft Equipment

Along with the fuselage structure, a wide range of reliable equipment is required for the construction of an aircraft. In defense applications, Japanese manufacturers provide radar systems, digital control systems and other products, all of which make use of advanced technologies. For civil use, Japanese products, which are highly reliable in quality and delivery, have been well known by overseas OEM and customers. To participate in the international development project for the Boeing777, Japanese manufacturers, competing with overseas manufacturers, have taken orders for actuators, valves and many other types of equipment.

### 1. Hydraulic Systems

Hydraulic systems are used in flight controls, high-lift devices and landing gear for remote control operations. Japanese manufacturers supply the Boeing777 electronic flight control actuation systems, flap drive systems for the Boeing747-8 and flight control actuation systems.



Flight Control Hydraulic System (Nabtesco Corporation)



Flap Drive System (Shimadzu Corporation)

### 2. Cabin Pressure and Air Conditioning Systems

Cabin pressure and air conditioning systems protect passengers, crews and on-board equipment from changes in cabin pressure and temperature, and enable safe and comfortable flights. The cabin pressure and air conditioning systems for the Embraer 170 regional jet have been jointly developed by Japanese manufacturers and Collins Aerospace.

### 3. Avionics and Flight Control Systems

#### (1) Flight Systems

Modern aircraft deploy flight controls based on active control technology and a flight management system that uses advanced electronics. The mainstream flight control system is an electrically signaled control system called fly-by-wire. In Japan, the P-1 Fixed-wing Maritime Patrol Aircraft has been equipped with an optically signaled control system called fly-by-light.



Air Conditioning System (Sumitomo Precision Products Co., Ltd. / Collins Aerospace)

#### (2) Navigation Systems

Navigation systems locate the exact position of aircraft in flight and direct them to their destinations safely, quickly and without fail. Japanese manufacturers produce inertial navigation systems and GPS receivers.

#### (3) Flight Deck Systems

A flight deck system consists of flight instrumentation, attitude displays and aural and visual warning systems. Installed in a cockpit, the system is operated by pilots. Japanese manufacturers supply liquid crystal displays for the Next-Generation Flight Deck Systems for the Boeing787 and Airbus A380.



Aerospace Instruments (Oki Electric Industry Co., Ltd.)



Head-up Display (Shimadzu Corporation)



Cockpit Display (Oki Electric Industry Co., Ltd.)

### 4. Power Supply Systems

Power supply systems for today's aircraft require high voltage and large capacity to meet diversifying needs and technological advancement. Japanese manufacturers have teamed up with Collins Aerospace to develop power distribution units for the Boeing787.

### 5. Landing Gear Systems

Landing gear systems for the Bombardier CRJ700 and CRJ900 have been jointly developed by Japanese manufacturers and Collins Aerospace. And in addition, radial tires for the Boeing777, 787 and Airbus A350, A380 are also supplied by Japanese manufacturer.

### 6. Other Systems

Japanese companies are currently active in the development and production of simulators.



Power distribution units (Nabtesco Corporation / Collins Aerospace)



Landing Gear (Sumitomo Precision Products Co., Ltd.)





## Cabin and Interior Systems for In-Flight Comfort

In the field of cabin and interior systems, Japanese manufacturers respond to customer requirements and apply the latest technologies in the development of the world's best products. Products of Japanese manufacturers, such as galleys, lavatories, aircraft seats and in-flight AV systems that optimally match the passengers' needs, have an excellent reputation with a large worldwide market share. Japanese manufacturers can continue to lead the world in terms of technical achievements for cabin and interior systems.



Aircraft Seats (JAMCO Corporation)



Aircraft Galley (JAMCO Corporation)



Aircraft Lavatory (JAMCO Corporation)

## Advanced Aircraft Materials

Composite material, such as carbon fiber reinforced plastic (CFRP) in particular, are expanding and are becoming widely used. Japan accounts for 70% of the world carbon fiber products for CFRP and supplies main wings and center wing box etc. for the Boeing787, which consists of 50% of composite material. Titanium alloys are also expanding and are becoming widely used following back of the composite material, which is used for jet engine components, such as fan casing and turbine blade. These components are manufactured with the Japanese excellent precision forging and casting technologies.



V2500 Turbofan Engine (IHI Corporation)



Carbon Fiber Materials (Toray Industries, Inc.)



Carbon Fiber Materials (Toray Industries, Inc.)



Material for shafts used in GE90 engines (Daido Steel Co., Ltd.)



Nickel based alloy forgings for aircraft engines (Proterial, Ltd.)



# Japanese Space Industry

## World Class Rockets

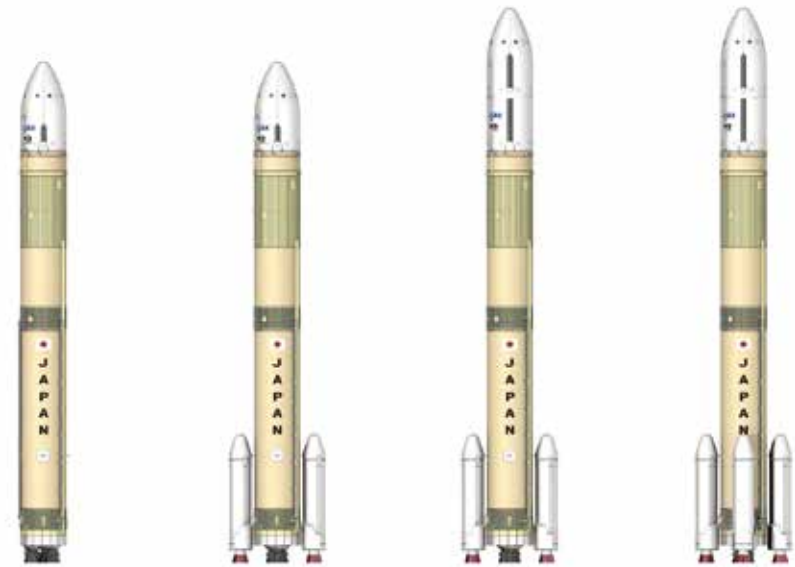
Japan is continuously maintaining and operating rocket launch, tracking, and control functions in order to keep its independent space development and utilization capabilities. Successful launches of the H-IIA, the world's top-class liquid propellant rocket of Japan, has brought launching orders from the foreign satellite operators. And the development of the H3, the successor to the H-IIA/B, is under way. Japan has also succeeded at developing the Epsilon rocket, a solid-fuel rocket designed to be compact, offer high performance levels, and low cost.

Japan's first space experiment was conducted in 1955 with the testing of a 20-cm pencil rocket. Since then, we have fully applied our technical strengths, and this effort has allowed Japan to take its place among the world's leading space-exploration nations.

### 1. Liquid Propellant Rockets

In 1975, Japan successfully launched the N-I with the assistance of the United States. Following this, development of the N-II and H-I were advanced with the aim of improving both performance and the level of domestic production; accordingly, 1994 saw the successful launch of the H-II, a launch vehicle that was produced completely in Japan. Using liquid hydrogen as fuel and liquid oxygen as an oxidizing agent, this rocket's engine offered extremely high levels of performance. In 2001, the Japanese H-IIA was successfully launched, and in the process, it became Japan's primary large-scale launch vehicle. This rocket was developed by the Japan Aerospace Exploration Agency (JAXA), and the launch business was transferred to

a private company in 2007. The successful launch of the H-IIA launch vehicle No.49 in September 2024, together with the success of all nine launches of the H-IIB launch vehicles brought our successful launch rate to 98.3%. We are receiving orders for the launch of foreign satellites, and we anticipate that Japan will soon be active on the global stage. Since 2014, development has been underway of the new H3 key rocket, and H3



H3 Launch Vehicle Line up (JAXA)

Principal Japanese Launch Vehicles

No.	Specifications	H- II A	H- II B	H3 (plan)	Epsilon
1	Length	53 m	57 m	63 m	26 m
2	Diameter	4.0 m	5.2 m	5.2 m	2.6 m
3	Gross weight	289 t	531 t	575 t <sup>*2</sup>	95.4 t
4	SSO launch capability	approx.3.6 t	—	4.0 t or above <sup>*1</sup>	0.59 t
5	LEO launch capability	approx.10 t	approx.16.5 t	—	1.2 t
6	GTO launch capability	approx.4.0 t	approx.8.0 t	6.5 t or above <sup>*2</sup>	—

Gross weight: Not include payload weights  
SSO: Sun synchronous orbit  
LEO: Low earth orbit  
GTO: Geostationary transfer orbit

<sup>\*1</sup>:with no solid-fueled boosters  
<sup>\*2</sup>:with 4 solid-fueled boosters

launch vehicle No. 2 was launched in February 2024 and 5th H3 rocket launched the MICHIBIKI No. 6 (Quasi-Zenith Satellite) in February 2025. The development of the LE-9 first stage engine is critical for the H3, and the ground firing tests are proceeding as planned. In order to ensure the reliability of the H3, improved versions of

existing engines (for the second stage rocket, the LE-5B, and for the solid-fuel rocket booster, the SRB-3) with proven track records will be used for the later stage rockets. It is aimed to cut costs by half and reduce work times in order to follow the H-IIA in securing further launch orders from foreign satellites.

### 2. Solid Propellant Rockets

Japan developed the global top class M-V solid-fuel rocket, which achieved success on a global scale through the launch of scientific satellites, solar observation satellites, and astronomical observation satellites such as the HAYABUSA, however the operation of this rocket has finished in 2006. The Epsilon launch vehicle was developed as a compact, high performance, low cost next-generation rocket which uses elements of the M-V and H-IIA. The first Epsilon launch vehicle prototype was launched successfully from the Uchinoura Space Center in Kagoshima Prefecture in September 2013. The development of the Epsilon launch vehicle represents a new era of development, including innovative new technologies such as self-inspection and mobile operation, while making good use of the technology of existing rocket motor. Expectations are high for its use as a delivery system for small satellites, a segment which is expected to see a great deal of future growth. In December 2016, Epsilon No.2 has launched ERG Satellite "ARASE", in January 2018, Epsilon No.3 has launched small high resolution radar satellite "ASNARO-2", in January 2019, Epsilon No.4 has launched "RAPIS-1" (RAPid Innovative payload demonstration Satellite 1), and in October 2021, Epsilon No.5 has launched "RAISE-2", all successfully.



Launching of Epsilon No.5 (JAXA)

### 3. Launch and Control Facilities

Satellite tracking, command and control in Japan are carried out at three communication centers and three tracking centers, the most important of which are the launch facilities at the Tanegashima Space Center

and the Tsukuba Space Center. Furthermore, these installations represent a complete system for the launch, command and control of satellites.



Uchinoura Space Center (JAXA)



Tanegashima Space Center (JAXA)





## Satellite Development

The most imperative usage of space is to assure national security, social peace and activities. In 1970, Japan launched its first satellite, OOSUMI, becoming the fourth spacefaring nation to launch a domestically manufactured satellite using a rocket of her own. Then in 1977, Japan successfully launched a geosynchronous orbit satellite. With technical capabilities rating among the best in the world, Japan is currently receiving orders from overseas for satellite launches, and is involved in the development and production of satellite systems, onboard sensors and components.

### 1. Weather Satellites

The first satellite launched for practical use by Japan was the HIMAWARI weather satellite of 1977. Following this, a total of seven weather satellites were put into operation, allowing valuable weather-related information to be supplied domestically and throughout the Asian region.

As a successor to these earlier weather satellites, HIMAWARI 8 was launched in October 2014, and was in operation until November 2022 when HIMAWARI 9, the standby satellite in orbit launched in November 2016, has begun operations.

Furthermore, development of the HIMAWARI 10 has begun.

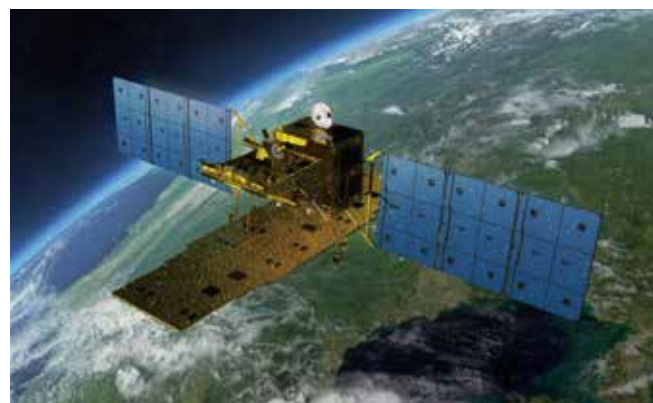
### 2. Remote Sensing

The importance of remote sensing missions such as global observation and resource surveying is expected to become ever more important. In the global monitoring sector, the Advanced Land Observing Satellite-2 "DAICHI-2" (ALOS-2) was launched in May 2014. It features PALSAR-2, a terrestrial visualization radar with a higher resolution and wider monitoring area than the sensor of former satellite DAICHI. Since November 2014 it has provided observation data used for mapping, regional observation, disaster condition assessment, resource exploration, and more. Its observation data has been successfully used to confirm

changes in topography before and after the September 2014 eruption near the summit of Mount Ontake, as well as ash fall conditions. The Global Precipitation Measurement (GPM) satellite launched in February 2014 contains the Japanese-developed Dual-frequency Precipitation Radar (DPR), which has been used to provide observation data to the public since September 2014. Numerous satellites, including the SHIZUKU water circulation monitoring satellite, launched in May 2012, have been launched as part of the GPM mission, led by the U.S. and Japan. These satellites are providing global precipitation data every three hours to related organizations for use in weather forecasting, flood prediction, and other individual purposes.



Izu-Oshima island observed by "DAICHI-2" (ALOS-2)(JAXA)



Advanced Land Observing Satellite "DAICHI-2" (ALOS-2)(JAXA)



Rendering of GOSAT-2 in Orbit (Mitsubishi Electric Corporation)

The Radar Earth Observation satellite "ASUNARO-2" which was compatible with small size, light weight, low cost, high resolution by restricting lifespan, observation width and function than the conventional satellite, was launched in January 2018, and its taken image has been released in March.

Development of the Greenhouse gases Observing SATellite-2 "GOSAT-2" was launched in October 2018, and the data has been released to the public since August 2019.

### 3. Communication & Broadcasting Satellites

Japan has launched the SAKURA series of communication satellites and the YURI series of broadcasting satellites, and has developed the technologies which enable to make practical use of satellites. Satellites made in foreign countries used to dominate the Japanese market, however successes like the exclusive receipt by Japanese companies of orders for the TURKSAT-4A/4B and the Es'hailSat satellite help to advance Japan's competitiveness in the international market.

The development of the next-generation Engineering Test Satellite 9, aiming 2025 launch, is underway and the purpose is to develop and verify the upgrading satellite and communication missions, so as to further strengthen Japanese international competitiveness.

### 4. Quasi-Zenith Satellite Systems

Positioning information is used in various applications, such as vehicle navigation systems and GPS-equipped mobile phones. Usage of this information is expected to continue to grow. Japan currently uses primarily U.S. GPS, but the Quasi-Zenith Satellite-1 "MICHIBIKI" was launched in September 2010 for complementary and augmentation services.

In 2017 satellites 2 through 4 has been launched, and in November 2018, precision GNSS service has started. In addition, satellites 5 through 7 are scheduled to be launched in 2023, to create the seven-satellite structure. And continuous development operation for eleven-satellite structure are planned afterwards.



Quasi-Zenith Satellite-1 " MICHIBIKI" (JAXA)

### 5. Other Projects

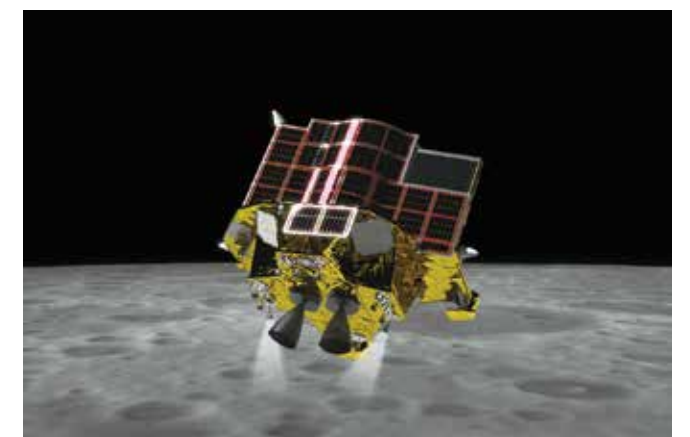
Japan is also participating in using satellites for astronomical observation and space science exploration, as well as for technology validation. The HISAKI Spectroscopic Planet Observatory for Recognition of Interaction of Atmosphere, launched in September 2013, is attempting to shed light on the universal and particular characteristics of the Jovian magnetosphere by performing spectroscopic observation of extreme-ultraviolet rays from earth orbit.

HAYABUSA 2, a successor to the highly successful HAYABUSA (MUSES-C) science exploration spacecraft, was launched in December 2014, and has reached the Ryugu asteroid in June 2018, where to collect the information to research the birth and the evolution of our solar system and the materials of life. In February and July 2019, HAYABUSA 2 has succeed in touching down to the Ryugu, and sample were collected successfully. In December 2020, the capsule of HAYABUSA 2 has landed on the desert of Australlia and the sample analysis is being conducted.

The Smart Lander for Investigating Moon(SLIM) was launched by the H-IIA Launch Vehicle No. 47 in July 2023, and successfully made a highly-precise landing on the Moon in January 2024.



TURKSAT-4A/4B (Mitsubishi Electric Corporation)



Smart Lander for Investigating Moon(SLIM) (JAXA)





## Contribution to the International Space Station

Japan has participated in the International Space Station project, jointly operated by the U.S., Russia, Japan, Canada, and the European Space Agency (ESA), from its inception. We have also supplied the KIBO Japanese Experiment Module. We are also making significant contributions to the completion and operation of the ISS project by supplying it via "KOUNOTORI" H-II Transfer Vehicle (HTV). And Japan will also take part in NASA's Lunar Gateway project.

### 1. International Space Station

Orbital assembly of the International Space Station (ISS) began in 1999, and was completed in July 2011. Japan has supplied the KIBO Japanese Experiment Module (JEM), the largest ISS space experiment module. KIBO was delivered to the ISS by the space shuttle, and began full-fledged operation from July 2009. KOUNOTORI, a space station supply vehicle, then began transport of experimental devices and materials.

A close approach system designed in Japan for docking KOUNOTORI is used in the U.S. cargo delivery spacecraft Cygnus.

Many Japanese astronauts, such as Koichi Wakata, Soichi Noguchi, Naoko Yamazaki, Satoshi Furukawa, Akihiko Hoshide, Kimiya Yui, Takuya Onishi, and Norishige Kanai were on duty at the ISS and have taken part in assembly of the KIBO and docking operations for the H-II Transfer Vehicle. Astronaut Akihiko Hoshide, the second Japanese commander of the ISS, following the first Japanese commander Astronaut Koichi Wakata who accomplished his mission in 2014, returned to the ISS in April 2021 by the Crew Dragon spacecraft of U.S. and led his team until November the same year. And since October 2022, Astronaut Koichi Wakata has started his third ISS mission, the most in Japan, which is planned for six months.

It is announced that the service of ISS will be extended to 2030.

Japan has joined to NASA's Lunar Gateway project since 2019. And in November 2022, the future possibility of Japanese astronaut to be boarding on the Gateway was announced. Japan is well experienced through the

missions of ISS and we are looking forward to seeing Japanese technology will also take part in this new space field.



International Space Station (ISS) (JAXA/NASA)



Astronaut Hoshide on extravehicular activity (JAXA/NASA)



KIBO, Japanese Experiment Module (JAXA/NASA)



Astronaut Wakata and 68th ISS expedition crew members (JAXA/NASA)

### 2. H-II B and HTV contribute to deliver supplies to ISS

In 1997, Japan began development of an unmanned cargo transporter to carry supplies to the International Space Station (ISS). In 2003 we began research and development on the H-IIB, an unmanned cargo transporter. The first H-IIB has successfully launched the first KOUNOTORI in September 2009.

After that, the second KOUNOTORI was successfully launched in January 2011 and the third in July 2012. From the launch of the fourth KOUNOTORI in August 2013, launches are handled by the private sector, and continuing to the launch of the ninth KOUNOTORI in May 2020, all have successfully launched.

The ninth KOUNOTORI was the last launch, and the new model (HTV-X) with a radically altered structure which will cost only half of the current model is under development for ISS and Gateway supply mission.



H-IIB No.9 (JAXA)



KOUNOTORI No.9, unmanned space station supply vehicle (JAXA/NASA)



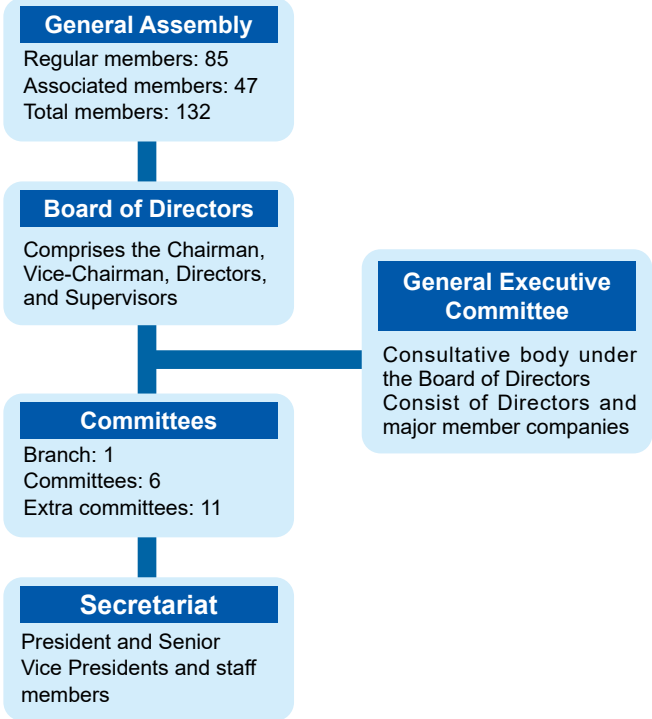
Launch of H-IIB No.9 (JAXA)



# IV The Society of Japanese Aerospace Companies

The Society of Japanese Aerospace Companies (SJAC), founded in 1952, at the reopening year of Japanese aviation industry, has contributed to the growth of our aerospace industry through its various activities, as listed below.

## Organization



\*Member companies are involved in the development, production, maintenance and trading of devices, materials and related services for aircraft, rockets, satellites.

## 1. Industrial Policies Promotion

- Participation and support in reviewing Japan’s aerospace administration.
- Negotiation with relevant government ministries and departments with respect to budget and system reviews for Japan’s aerospace industry.



SJAC General Assembly (May 2024)

## 2. Industrial Foundation Buildup and Maintenance

- Wide range of survey, research and development activities
  - Investigation of the domestic and overseas aerospace industries status quo
  - Search of trends in aerospace technology
  - Research and development of future aeronautic technologies
  - Review of technical standards (i.e., JIS, ISO, etc.)
- SJAC operates as the aerospace evaluation branch of Japanese Industrial Standards (JIS). Also through SJAC, the Japan Aerospace Quality Group (JAQG) operates as an implementation monitor for quality assurance systems in compliance with IAQG, the de facto standard of the aerospace industry.
- Management of EDI (Electric Data Interchange) centers
- SJAC-managed electric procurement ordering systems are now used by approximately 300 companies in the Japanese aerospace industry.



IAQG Meeting in Brussels (April 2024)



Reception at Embassy of the United Kingdom (October 2024)

## 3. Cooperation with Overseas Aerospace Industries

SJAC, participating in such international exhibitions that take place in Paris and Farnborough, holds meetings for interaction with the U.S., EU and other foreign

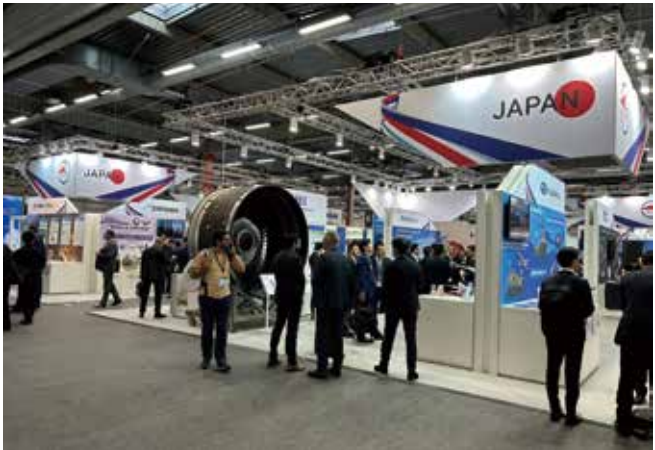
industries, thus promoting international cooperation in the aerospace industry.

### Major Aerospace Industrial Associations in the world

Countries / Regions	Industrial Associations
Worldwide	International Coordinating Council of Aerospace Industries Associations (ICCAIA)
U.S.A.	Aerospace Industries Association of America (AIA)
Europe	Aerospace and Defense Industries Association of Europe (ASD)
U.K.	Advancing UK Aerospace Defence and Security Industries (A D S)
France	French Aerospace Industries Association (GIFAS)
Canada	Aerospace Industries Association of Canada (AIAC)



Deligation Dispatched to France (August 2024)



International Paris Air Show (June 2023)



Space Industry Workshop in U.K.(January 2025)



Farnborough International Air Show (July 2024)



# **JAPAN** INTERNATIONAL EXHIBITION **AEROSPACE 2024**

URL <https://www.japanaerospace.jp/en/>

## 4. Japan International Aerospace Exhibition

The 16th International Aerospace Exhibition 2024 (JA2024) was held at Tokyo Big Sight for four days from October 16 to 19, 2024. At the venue, 685 companies and organizations from 27 countries and regions exhibited their cutting-edge products and technologies. Approximately 37,000 people visited the exhibition during the entire period, and about 1,600 business meetings were held. In addition, many international conferences, lectures, seminars and symposiums were held. In addition, various events with the cooperation of the Japan Air Self-Defense Force were held on Public Day, and the TV animation “Uchu Nanchara Kotetsukun” was performed on stage, providing fun for adults and children alike. The next International Aerospace Exhibition is scheduled to be held in Tokyo in the fall of 2028.



### ◆◆ Japan International Aerospace Exhibition 2024 (JA2024)

Organizers: Japan Aerospace Industries Association, Tokyo Big Sight Inc.

Dates: [Trade Days] October 16 (Wed) - 18 (Fri)

[Trade and Public Day] October 19 (Sat)

Venue: Tokyo Big Sight West Exhibition Hall

Number of exhibitors: 685 companies and organizations (including 201 overseas exhibitors)

Exhibition Size: 10,263 m<sup>2</sup> (1,157 booths)

Participating countries: 27 countries/regions

Australia, Austria, Belgium, Brazil, Canada, Czech Republic, Finland, France, Germany, India, Finland, France, Germany, India, Israel, Italy, Korea, Malaysia, Mexico, Morocco, Philippines, Singapore, South Africa, Morocco, Philippines, Singapore, South Africa, Spain, Taiwan, Tunisia, Turkey, UK, U.S.A., Vietnam

Number of visitors: 37,168 (67 countries/regions)



Japan International Aerospace Exhibition 2024 (JA2024)

Please refer to the Japan Int'l Aerospace Exhibition HP, <https://www.japanaerospace.jp/en/>



## 5. Other Activities

SJAC regularly communicates with the relevant government offices, and it also maintains a good relationship with the public through the publishing of superior publications. SJAC also publishes publicity materials such as the monthly magazine “Aviation and Space (Japanese)” and “Japanese Aerospace Industry (Japanese and English),” to introduce the aerospace industries of Japan. SJAC also owns the website ([www.sjac.or.jp](http://www.sjac.or.jp)), to introduce its activity, and moreover SJAC takes part in the operation of the website ([www.skyworks.info](http://www.skyworks.info)), to help the young people to understand about the Japanese aircraft field. In addition, SJAC gets in contact with and coordinate with relevant government ministries, departments, universities, laboratories and groups.





SJAC MEMBER COMPANIES

REGULAR MEMBERS 85 Companies

A&D COMPANY, LIMITED  
AERO ASAHI CORPORATION  
ALL NIPPON AIRWAYS CO., LTD.  
CHUBU NIHON MARUKO CO., LTD.  
COMMERCIAL AIRPLANE COMPANY  
DAIDO STEEL CO., LTD.  
EAGLE INDUSTRY CO., LTD.  
FUJI FILTER MANUFACTURING CO., LTD  
FUJITSU LIMITED  
FURUKAWA ELECTRIC CO., LTD.  
FURUNO ELECTRIC CO., LTD.  
GS YUASA TECHNOLOGY LTD.  
HARADASEIKI CO., LTD.  
HONDA MOTOR CO., LTD.  
HITACHI INDUSTRIAL PRODUCTS, LTD.  
ICS CORPORATION  
IHI AEROSPACE CO., LTD.  
IHI CORPORATION  
JAMCO CORPORATION  
JAPAN AIRCRAFT DEVELOPMENT CORPORATION  
JAPAN AIRLINES CO., LTD.  
JAPAN AVIATION ELECTRONICS INDUSTRY, LTD.  
JAPAN RADIO CO., LTD.  
JAPANESE AERO ENGINES CORPORATION  
KANTO AIRCRAFT INSTRUMENT CO., LTD.  
KAWANISHI AERO PARTS PRODUCTS CO., LTD.  
KAWASAKI HEAVY INDUSTRIES, LTD.  
KOITO MANUFACTURING CO., LTD.  
KYOCERA CORPORATION  
MAXIS-ENGINEERING INC.  
MEIRA CORPORATION  
METRO WEATHER CO., LTD.  
MINEBEAMITSUMI INC.  
MITSUBISHI ELECTRIC CORPORATION

MITSUBISHI ELECTRIC SOFTWARE CORPORATION  
MITSUBISHI HEAVY INDUSTRIES, LTD.  
MITSUBISHI HEAVY INDUSTRIES AERO ENGINES, LTD  
MITSUBISHI PRECISION CO., LTD.  
MITSUI SEIKI KOGYO CO., LTD.  
NABTESCO CORPORATION  
NAKANIHON AIR SERVICE CO., LTD.  
NEC AEROSPACE SYSTEMS, LTD.  
NEC CORPORATION  
NEC SPACE TECHNOLOGIES, LTD.  
NGK SPARK PLUG CO., LTD.  
NIHON PALL LTD.  
NIKKISO CO., LTD.  
NIPPI CORPORATION  
NIPPON AVIONICS CO., LTD.  
NOF CORPORATION  
NSK LTD.  
NTN CORPORATION  
OKI ELECTRIC INDUSTRY CO., LTD  
PROTERIAL, LTD.  
RENEAS ELECTRONICS CORPORATION  
SAKURA RUBBER CO., LTD.  
SAMTECH CORPORATION  
SANTEC CO., LTD.  
SHIMADZU CORPORATION  
SHINMAYWA INDUSTRIES, LTD.  
SHOUNAN SEIKI CO., LTD.  
SHOWA AIRCRAFT INDUSTRY CO., LTD.  
SINFONIA TECHNOLOGY CO., LTD.  
SKYDRIVE INC.  
SOFTBANK CORPORATION  
SOGO SPRING MFG., CO., LTD.  
SUBARU CORPORATION  
SUMIJU PRECISION FORGING CO., LTD.

SUMITOMO PRECISION PRODUCTS CO., LTD.  
TAMAGAWA SEIKI CO., LTD.  
TANIDA LTD.  
TEIJIN LIMITED  
TERAUCHI MANUFACTURING CO., LTD.  
THE FURUKAWA BATTERY CO., LTD.  
THE JAPAN STEEL WORKS, LTD.  
THE YOKOHAMA RUBBER CO., LTD.  
TOKYO AIRCRAFT INSTRUMENT CO., LTD.  
TOKYO KEIKI INC.  
TORAY INDUSTRIES, INC.  
TOSHIBA ELECTRO-WAVE PRODUCTS CO., LTD.  
TOSHIBA INFRASTRUCTURE SYSTEMS & SOLUTIONS CORPORATION  
UACJ CORPORATION  
YAMAHA MOTOR CO., LTD.  
YDK TECHNOLOGIES CO., LTD.  
YOSHIMITSU INDUSTRY CO., LTD.

ASSOCIATED MEMBERS 47 Companies

ALERIS ALUMINIUM JAPAN LTD.  
BAE SYSTEMS JAPAN GK  
CHUDEN CTI CO., LTD.  
CHUOZUKEN CO., LTD.  
CHURYO ENGINEERING CO.,LTD.  
CSP JAPAN, INC.  
DELOITTE TOHMATSU SPACE AND SECURITY LLC.  
EVA AVIATION.COM CO.  
EXPLORER CONSULTING JAPAN INC.  
FUJI INDUSTRIES CO., LTD.  
GLOBAL SECURITY CORPORATION  
HIGH-RELIABILITY ENGINEERING & COMPONENTS CORPORATION  
INTERNATIONAL AIRCRAFT DEVELOPMENT FUND  
ISHIKAWA-GUMI, LTD.

ITOCHU AVIATION CO., LTD.  
ITOCHU CORPORATION  
JAPAN AEROSPACE CORPORATION  
JAPAN MANNED SPACE SYSTEMS CORPORATION  
JAPAN SPACE FORUM  
JASPA CO., LTD.  
JAJUX INC.  
JUPITOR CORPORATION  
KANEMATSU AEROSPACE CORPORATION  
KANEMATSU CORPORATION  
KYOKUTO BOEKI KAISHA, LTD.  
MARUBENI AEROSPACE CORPORATION  
MARUBENI CORPORATION  
MARUBUN CORPORATION  
MIKUNI AEROSPACE CORPORATION  
MITSUBISHI CORPORATION  
MITSUFUJI CORPORATION  
MITSUI BUSSAN AEROSPACE CO., LTD.  
MITSUI & CO., LTD.  
MITSUI - SOKO HOLDINGS CO., LTD.  
MORIMURA BROS., INC.  
NIPPON AIRCRAFT SUPPLY CO., LTD.  
NTK INTERNATIONAL CORPORATION  
RAYTHEON SYSTEMS SUPPORT COMPANY  
SHINTOA CORPORATION  
SKY PERFECT JSAT HOLDINGS INC.  
SOJITZ AEROSPACE CORPORATION  
SOJITZ CORPORATION  
SPACE ENGINEERING DEVELOPMENT CO., LTD.  
SUMISHO AERO-SYSTEMS CORPORATION  
SUMITOMO CORPORATION  
TIS SOLUTION LINK INC.  
TOKYO BIG SIGHT INC.