

Medium-Term Business Plan “FY2019 MTBP” (FY2019 - FY2021) Aerospace Systems Company

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Kawasaki Heavy Industries, Ltd.

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1. Overview of Aerospace Systems Company

Business	Product/Market	Main Models
Aerospace	Aircraft/Space	<<Defense and Aerospace>> P-1 maritime patrol aircraft C-2 transport aircraft T-4 intermediate trainer Transport helicopter CH-47J/JA Payload Fairing
		<<Commercial aircraft>> Co-Production for Commercial aircraft Boeing 787 Boeing 777, 777X Boeing 767 Embraer 170/175 BK117 Helicopter
Engines	Aircraft Engines	<<Defense engines>> T55-712/712A engines for CH-47J/JA T53 engines for UH-1J/AH-1S Unmanned aircraft engines (developed in-house)
		<<Civil engines>> Civil aircraft engines (international joint development) V2500 for Airbus 320 Trent 1000 for Boeing 787 Trent XWB for Airbus 350XWB PW1100G-JM for Airbus 320neo

Aircraft/Space



159.9 billion yen
34%

FY2018
Net sales
463.9 billion yen

304.0 billion yen
66%

Aircraft Engines



Source: Japanese Aero Engines Corporation

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2. Business Strategy of Aerospace Systems Company (Aerospace Business Division)

Business Environment

■ Defense / Aerospace

- Domestic mass production business decreasing due to the expansion of FMS procurement
- Prices reduced through efficient procurement of defense equipment (bulk purchases, etc.)

■ Commercial aircraft

- Air passenger traffic is expected to grow steadily at an annual rate of 4.4%
- New companies in emerging countries entering aircraft industry, global homogenization leading to intensified competition

Our strengths (Core competencies)

■ Defense / Aerospace

- High system integration capabilities based on domestic development experience
- Capabilities for mass production, remodeling, logistics support, etc.

■ Commercial aircraft

- Design and manufacturing capabilities for metal and composite fuselage structures, on-site capability through KPS
- Efficient construction of production facilities, including automation, through collaborations with robot BC and Corporate Technology Division

Issues

• Stable CF creation from current production

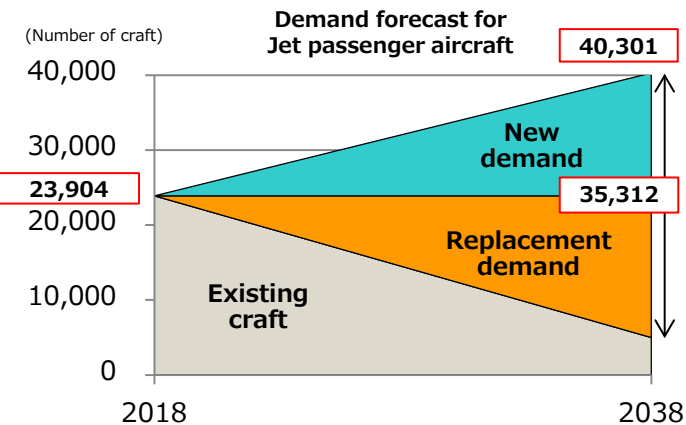
Steady promotion of mass production businesses for P-1, C-2, and Boeing 787, 777X

• Expansion of business revenue foundations

Operationalizing P-1 and C-2 derivatives, participation in new businesses such as next-generation commercial aircraft

• Selection of and concentration on new investments

Deciding Investment Target by evaluating project risk, Optimizing investment timing to compress cash demand



Source: Japan Aircraft Development Corporation

Drill robot for 777X



(FMS: Foreign Military Sales)
(Foreign military sales with the US)

(KPS: Kawasaki Production System)

2. Business Strategy of Aerospace Systems Company (Engine Business Division)

Business Environment

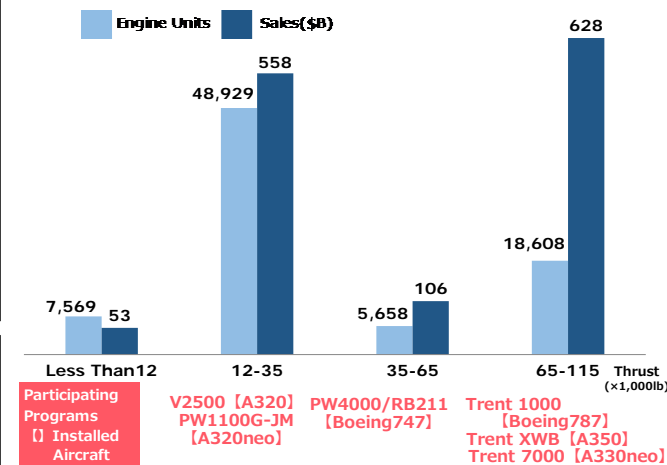
■ Defense engines

- Domestic mass production business decreasing due to the expansion of FMS procurement
- Prices reduced through efficient procurement of defense equipment (bulk purchases, etc.)

■ Civil engines

- Air passenger traffic is expected to grow steadily at an annual rate of 4.4%
- Increased expectations for highly-efficient engines from economic/environmental standpoints

Forecast of Civil Engine Sales for the next 20 years.



Source: Japanese Aero Engines Corporation

Our strengths (Core competencies)

■ Defense engines

- Technological capabilities to handle the entire engine as the primary manufacturer
- Ability to develop unmanned aircraft engines (KJ series) in-house

■ Civil engines

- Capability to design/develop compressors, combustors, and gearboxes (3 modules)
- Track record of participating in programs as a module supplier

KJ14
(For Target Drone)



Intermediate Pressure Compressor(IPC) Module



©Rolls-Royce

FDGS
(Fan Drive Gear System)



Combustor



©Pratt & Whitney

Issues

• Reliably collecting on past investments for stable CF creation

Development/completion of new programs, handling increase production
 ⇒ increase in after-market sales

• Strengthening core competencies

Improving position as a strategic partner essential for international joint development of engines

• Expanding business revenue foundations

Further development of the solely developed engines for unmanned aircraft, entry into MRO businesses and peripheral equipment fields
 (MRO: Maintenance, Repair, Overhaul)

• Selection of and concentration on new investments

Deciding Investment Target by evaluating project risk, Optimizing investment timing to compress cash demand

2. Business strategy of aerospace systems company

Overall company policy (2019-2021)

1. Company Management Policy (Company Vision)

A leading company that continues to create new value which contributes to the world through superior technology and manufacturing in the aerospace field

2. Items to be handled during the MTBP to address issues of priority throughout the company

Pursuing improvements in profitability/FCF

- Improve profitability ⇒ advance cost reduction focused on KPS
- Improve FCF ⇒ improve working capital through CCC analysis (promoting inventory reduction and improving deposits)
- Investment selection ⇒ matching growth investment (development, equipment) and efficient maintenance investment to expand foundations of business revenue

Strengthen project risk management

- Multi-faceted evaluations before entry and strengthening monitoring during implementation

Business model innovation

- Investigating expansions of MRO business

Strengthen Resistance against Exchange Rate

- Strengthening of the Global Supply Chain to reduce Exchange Risk
- Reduce fluctuation of exchange rate by shortening period of Accounts Receivable in Foreign Currency and improving CCC.

3. Company-specific efforts/priority issues

Pursuing synergy effects by bringing together excellent knowledge from both the aerospace and engine business divisions

- ⇒ “Strengthen cost competitiveness” “Expand business through collaboration” “Create new business” “Strengthen development abilities”

2. Business Strategies by Product/Market (Aerospace Business)

Business Growth	Investment	Growth	Stable Collection	Company Equity Shift
Role				
High Profitability		Aircraft Space		
Stable Profitability				
Profit Improvement		Aircraft Engines		

Measure

Business stage: growth

Role during MTBP: securing high revenue

FY2018 sales ¥304 billion → FY2021 ¥330 billion

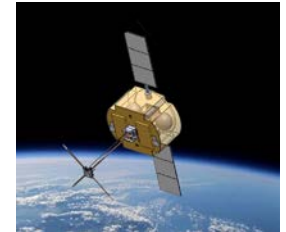
[Space defense]

Secure stable sales and profits, build production/technical infrastructure

- Improve profitability and secure reliable orders for P-1, C-2, and CH-47J/JA
- Operationalize derivative aircraft from P-1 and C-2, and participate in future fighter aircraft development
- Expand space business
- Expand MRO business



Electronic Warfare Aircraft



Debris Removal Satellite

[Civil aircraft]

Income from existing mass production businesses, securing CF, and investing in the next growth business

- Steady promotion of mass production business and improvement of profitability for 787 and 777X
 - ⇒ further promotion of KPS, utilizing IoT to further improve productivity and quality
- Participation in, and securing increased market share for, next commercial aircraft
- Increase orders for private helicopters



Boeing777X



BK117 D-3

(IoT: Internet of Things)

Aircraft/Space

2. Business Strategies by Product/Market (Engine Business)

	Business Growth	Investment	Growth	Stable Collection	Company Equity Shift
Role					
High Profitability			Aircraft Space		
Stable Profitability					
Profit Improvement			Aircraft Engines		

Measure

Business stage: growth

Role during MTBP: improving profitability

FY2018 sales ¥159.9 billion → FY2021 ¥205 billion

* Civil engine aftermarket sales ratio will expand toward FY2021, improving profitability
From FY2021 onwards, we will continue to invest for further growth using the profits earned from aftermarket sales

[Defense engines]

Further development of solely developed engines (KJ series)

[Civil engines]

Completing development/mass production for new programs and strengthening systems

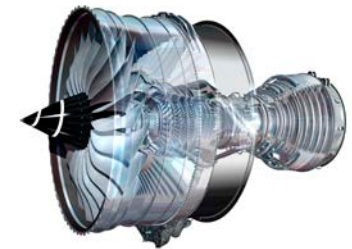
- Increase productivity by stabilizing quality, strengthening supply chain, utilizing IoT, etc.

Establishing system as a three-module integrator

- Strengthen design side through joint technology development with engine manufacturers and establish a system for increasing production

Investigation/preparation for MRO advancement

- Enter in stages from component repair and secure capabilities for maintaining engines



Trent XWB

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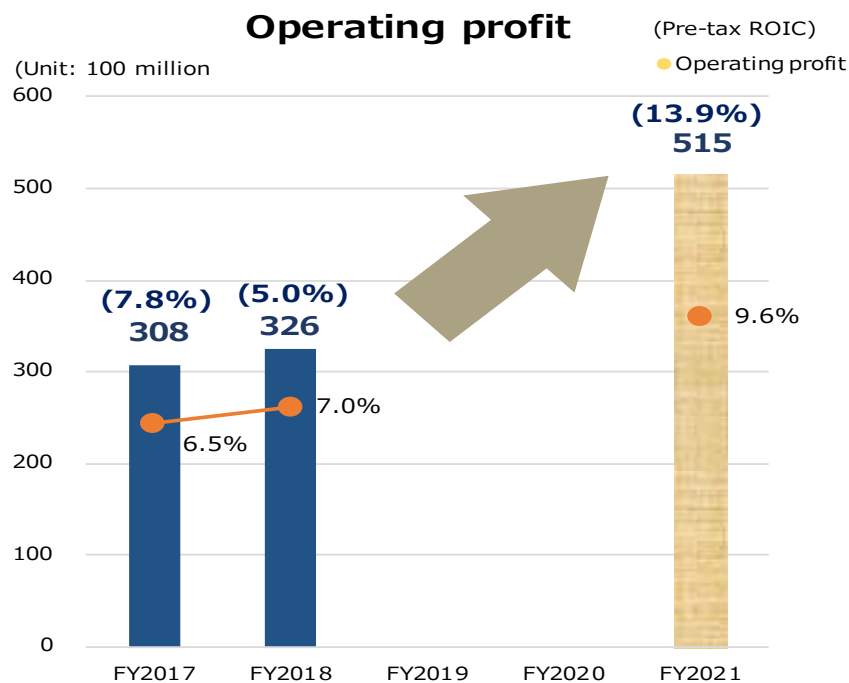
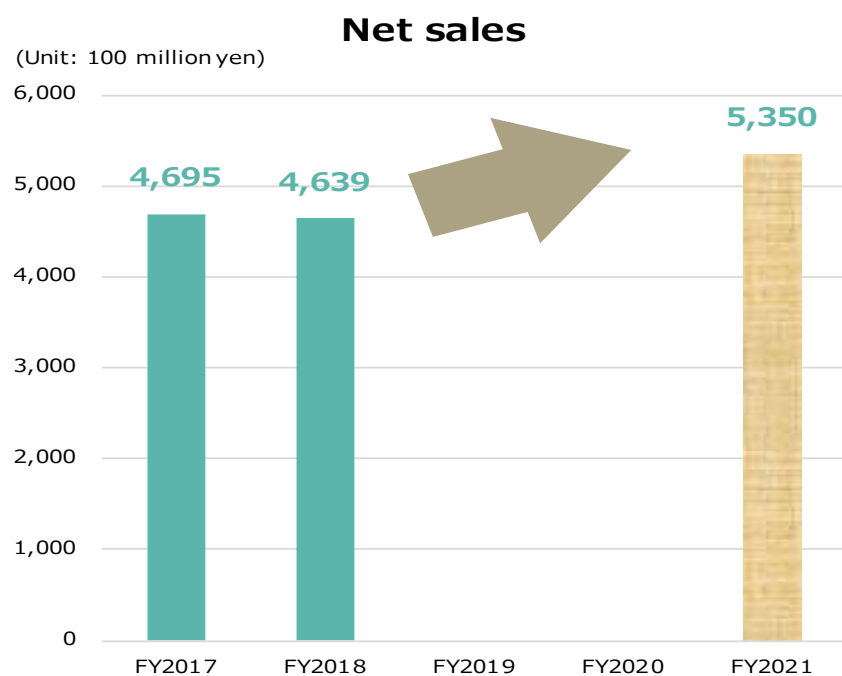


PW1100G-JM

©Pratt & Whitney

Aircraft engines

3. FY2019 MTBP Quantitative Goals



[Aircraft/Space]

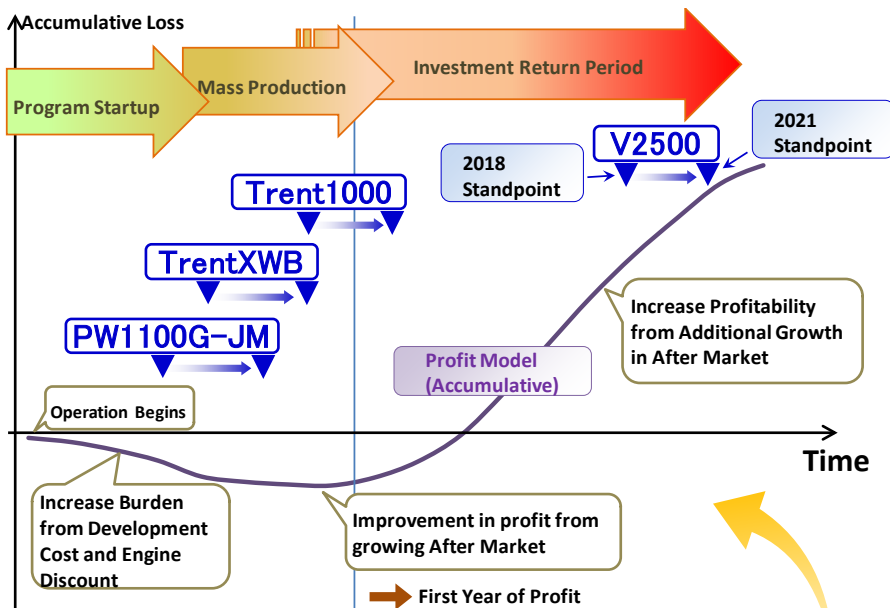
- Secure stable sales and profits with P-1 and C-2
- Expand earnings by increasing the number of 777X units and thoroughly reducing costs

[Aircraft engines]

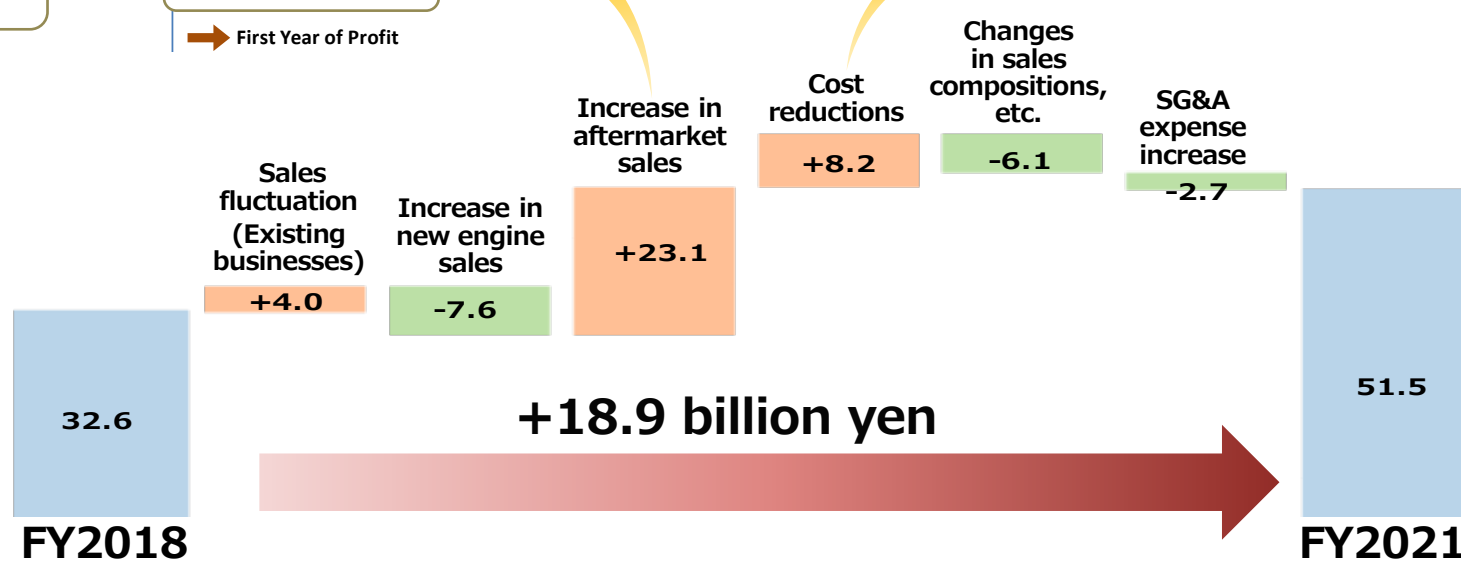
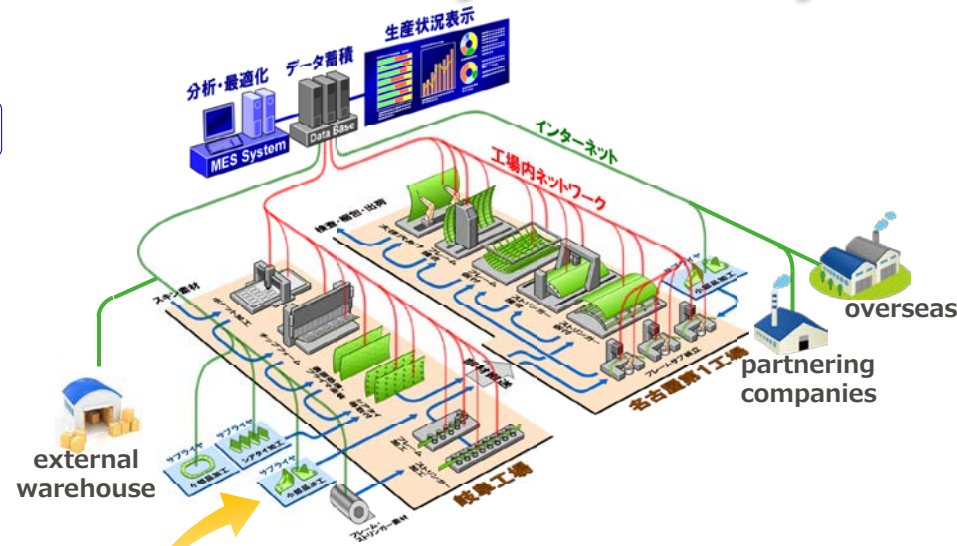
- Improve profitability by increasing aftermarket sales

3. FY2019 MTBP Quantitative Goals (Factors for Improving Operating Profit)

【Civil Engine Profit Model and Major Programs】



<<Realizing reduced costs through KPS>>



4. Long-Term Direction Until FY2030

Deepen core competencies to create new businesses and aim for continuous growth.

- **Secure continuous orders** by responding flexibly to changes in the security environment (responding to reductions in defense budgets)
- **Participate in new programs** by strengthening technology/production base (responding to intensifying international competition)
- **Create new businesses** by pursuing synergy effects



Kawasaki, working as one for the good of the planet

“Global kawasaki”

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Actual business results may differ materially from these business forecasts due to various important factors resulting from changes in the external environment and internal environment. Important factors that may affect actual business results include, but are not limited to, economic conditions, the yen exchange rate against the U.S. dollar and other currencies, the tax system, and laws and regulations.