



Freighter Aircraft Market

2022 Recap and 2023 Outlook

December 2022

STEPHEN J. FORTUNE

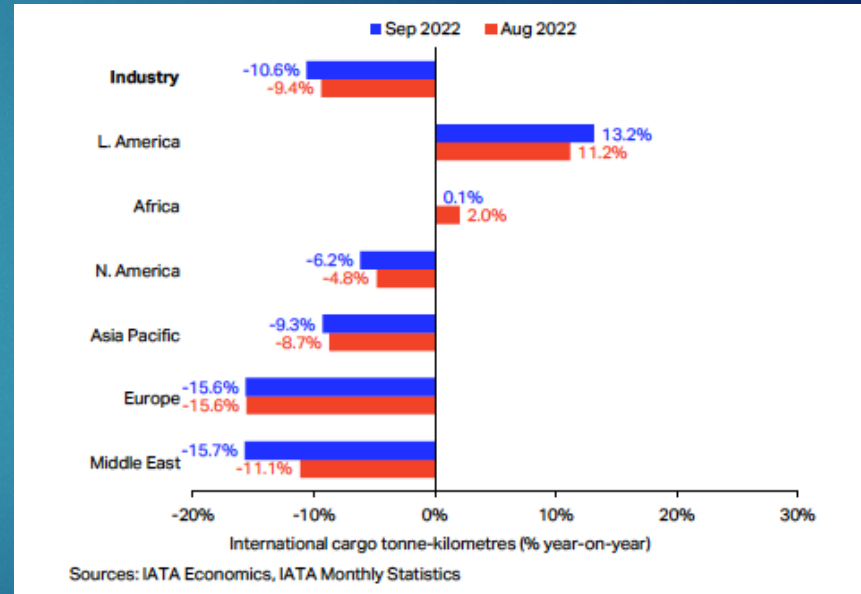
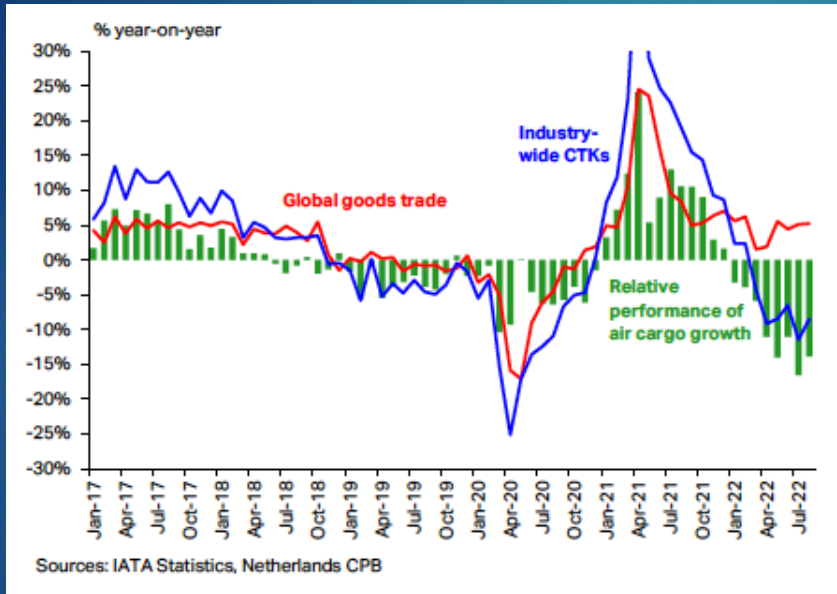


FORTUNE AVIATION SERVICES

2022 Recap

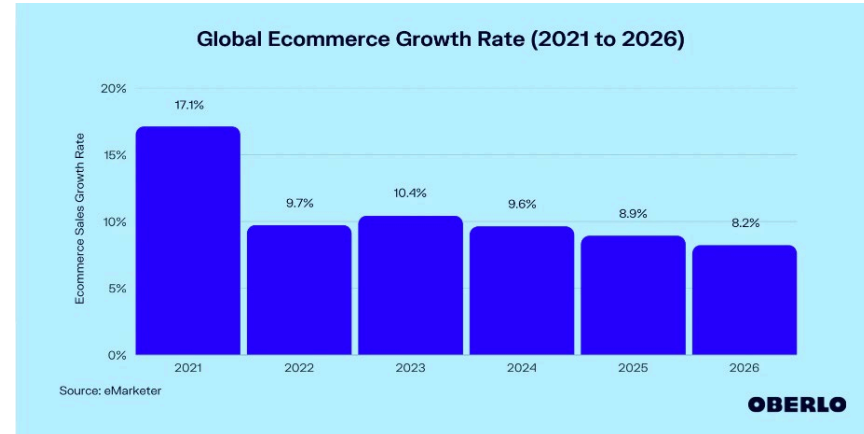
- ▶ Air Freight market growth slowed
- ▶ Ecommerce demand weakening
- ▶ Narrowbody conversion orders continued to outpace demand
- ▶ New small freight operators entering the market
- ▶ 777-300ER conversion competition heated up
- ▶ Intra-China freighter growth continues with demand shifting to widebodies
- ▶ China export market direction unclear due to Covid lockdowns and trade restrictions

Post pandemic growth turned negative in 2022



Ecommerce slows

- ▶ Global trade slowing directly impacting air freight demand
- ▶ Ecommerce growth rates are slowing from the rapid increases in 2021
- ▶ Modal shift will continue in N. America, but Ecommerce growth elsewhere will require additional air freight capacity
- ▶ Trade patterns shifting with more “on shoring” reducing demand for long-haul air freight
- ▶ China’s more inward focus will have a profound impact on long-haul air freight demand



Amazon expects a decrease in demand

- ▶ Majority of fleet (88%) under ACMI* contract providing Amazon with flexibility in fleet management
- ▶ The remaining aircraft (12%) are owned by Amazon and operator provides CMI
- ▶ 767-300ERSF feedstock declining, Amazon has selected the A330-300ERSF as a replacement/growth freighter
- ▶ Amazon agreed to lease ten A330-300P2Fs to be operated by Hawaiian Airlines
- ▶ Amazon may decide to obtain an Air Operating Certificate, consolidating operations
- ▶ Amazon continues to build distribution centers in the US reducing air freight requirement
- ▶ Modal shift and market slowdown may result in reduction in fleet, most likely 767s

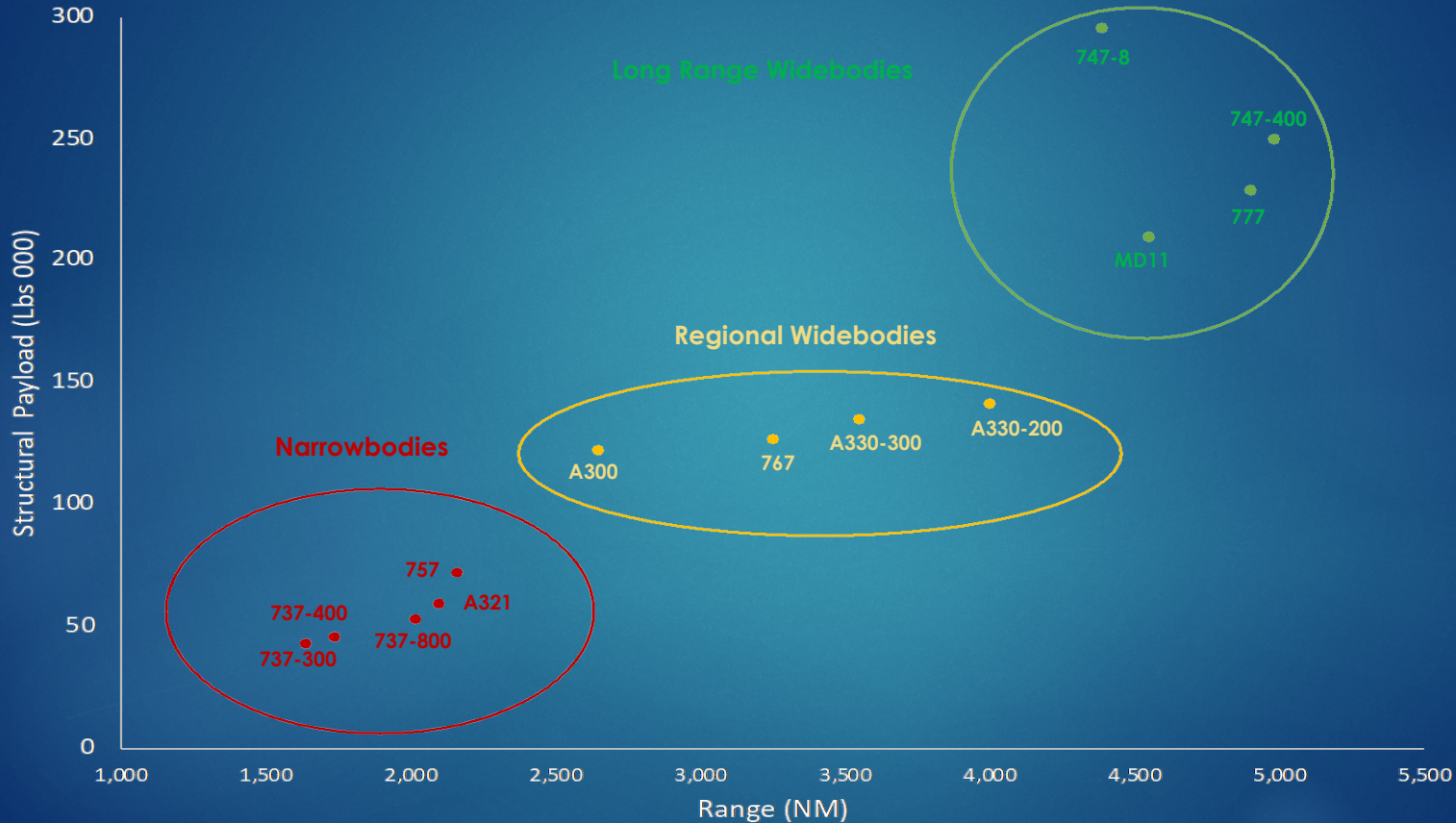
*Aircraft, Crew, Maintenance & Insurance

Aircraft Type/Operator	In Service	Orders
ATR 72-500F		
Silver Airways	5	
737-800BCF/SF		
Atlas Air	8	
Sun Country	12	
ASL Airlines	6	
	26	
767-200SF		
ATSG	12	
767-300ERSF		
ATSG	33	
Atlas Air	19	8
Cargojet Airways	2	
	54	8
A330-300P2F		
Hawaiian Airlines		10
Total	97	18

Amazon posts 7.2 percent increase in revenue, the slowest growth rate in two decades **NY Times Jul 22**

Amazon predicts sales growth slowdown for holidays, crushing shares **Reuters Oct 22**

Jet Freighter Fleet Payload & Range



Jet Freighter Fleet by Size Class

Narrowbodies

Type	Quantity	Change*
MD80SF	25	+3
737 Classic	282	-26
737NG	163	+36
757-200P2F	272	+8
757F	79	-
A320/321P2F	15	+9
Totals	836	+27

Regional Widebodies

Type	Quantity	Change*
767-200/300P2F	234	+16
767-300F	221	+12
A300/A310F-P2F/F	192	-1
A330-200F	38	-
A330-200/300P2F	20	+5
Totals	705	+32

Long Range Widebodies

Type	Quantity	Change*
747-200	2	-
747-400P2F	59	-
747-400F + ERF	159	-
747-8F	103	+1
777F	233	+13
MD10-30F	10	-2
MD11	119	-
Totals	685	+12

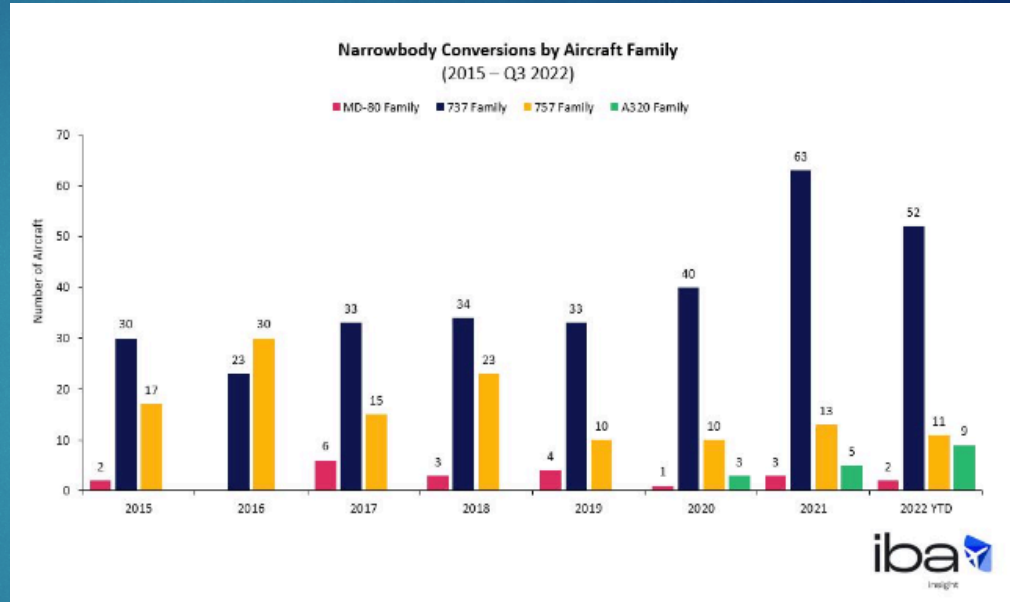
*Change since May 22

Source: IBA Insight

Narrowbody Freighter Conversions

2015-2022

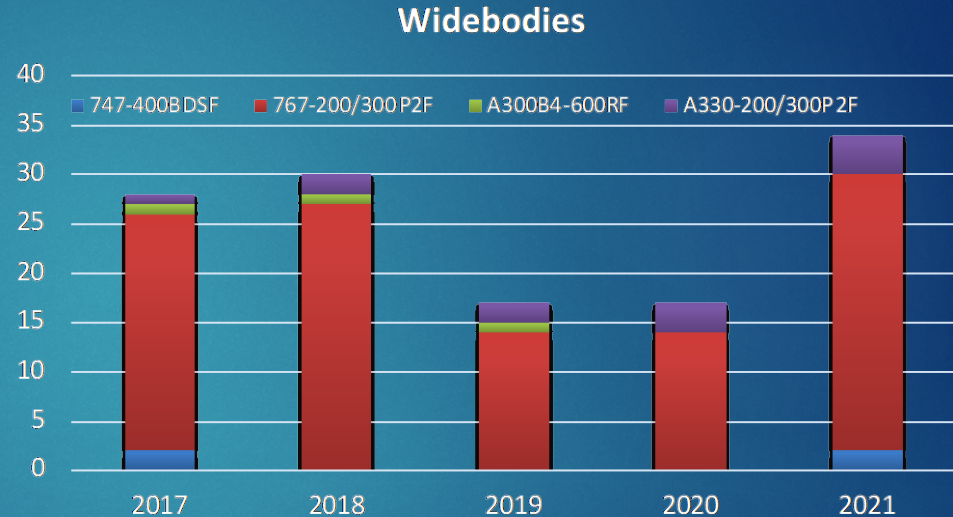
- ▶ Average 58 conversions/year; 466 total
- ▶ Annual growth increasing from 4.1% in 2022 to 55% by 2022
- ▶ 757 declining and should wind up by 2025
- ▶ 737NG rising beyond expected demand
- ▶ Despite economic slowdown, rate expected to increase further



Widebody Freighter Conversions

2017-2021

- ▶ Average 25 aircraft/year; 126 total
- ▶ 767s dominate (85% of total); primarily for ATSG, DHL & Amazon
- ▶ No further 747 conversions expected
- ▶ A330P2F spooling up for DHL, Amazon et al
- ▶ First 777-300P2F delivery expected in 2023
- ▶ Rate increasing but insufficient to meet expected demand



Source: IBA Insight

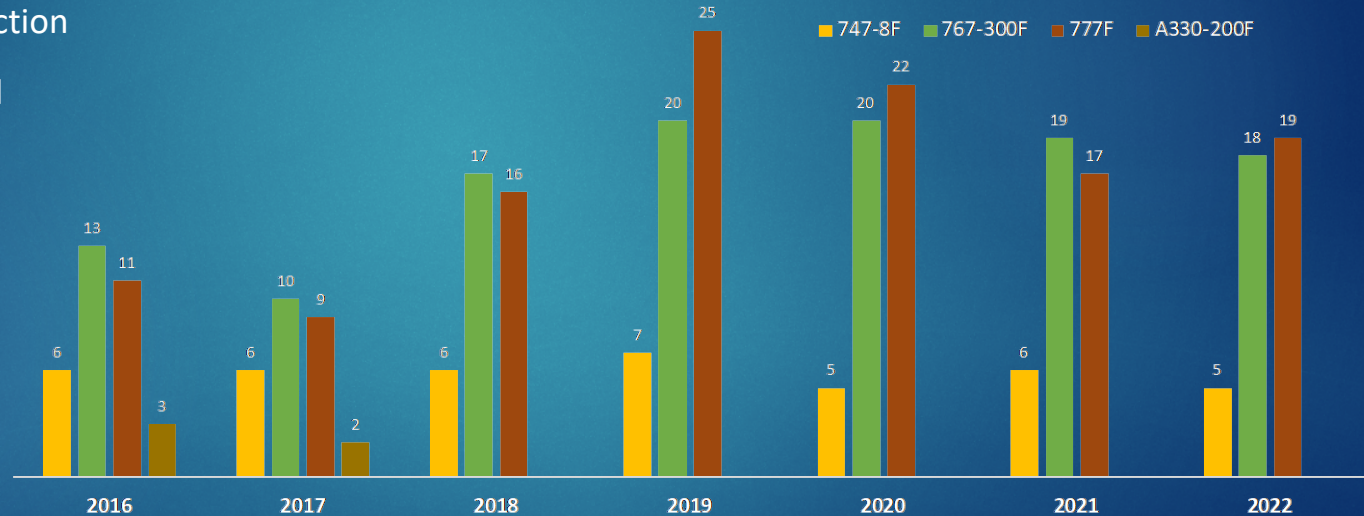
Production Freighter Deliveries

2016-2022

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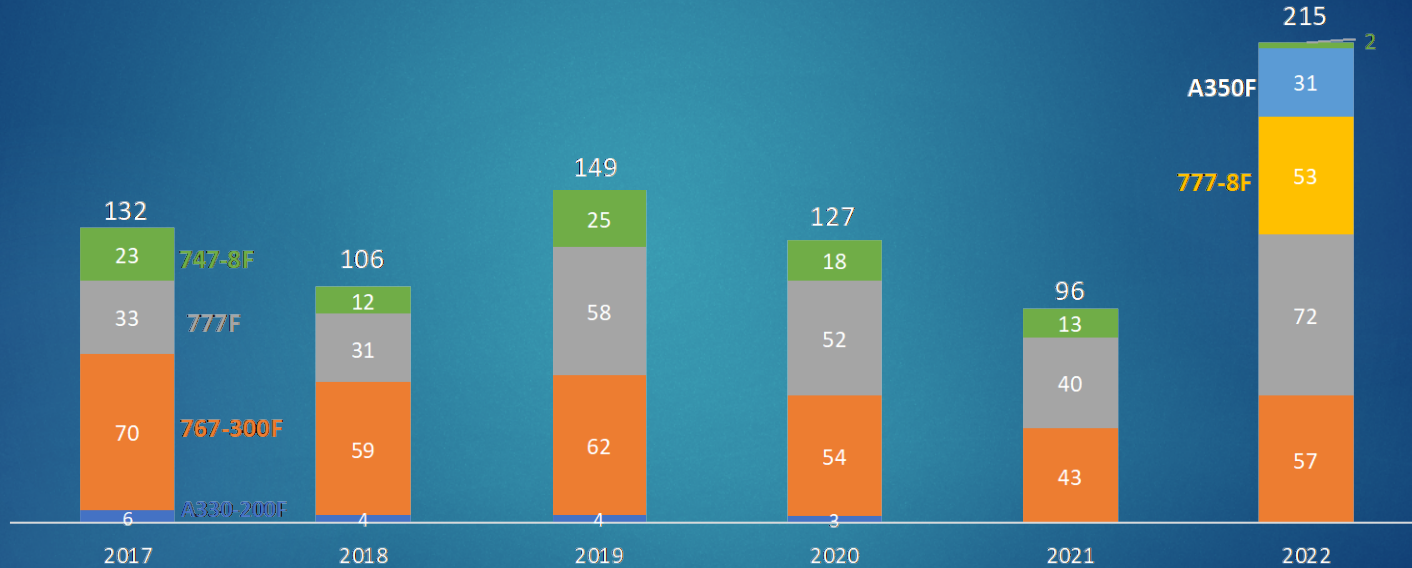
- ▶ Average 41 deliveries/year; 206 total
- ▶ No narrowbody production freighter
- ▶ 99% Boeing production
- ▶ 100% self-financed

Freighter Deliveries 2016-2022



Historical Production Freighter Backlog

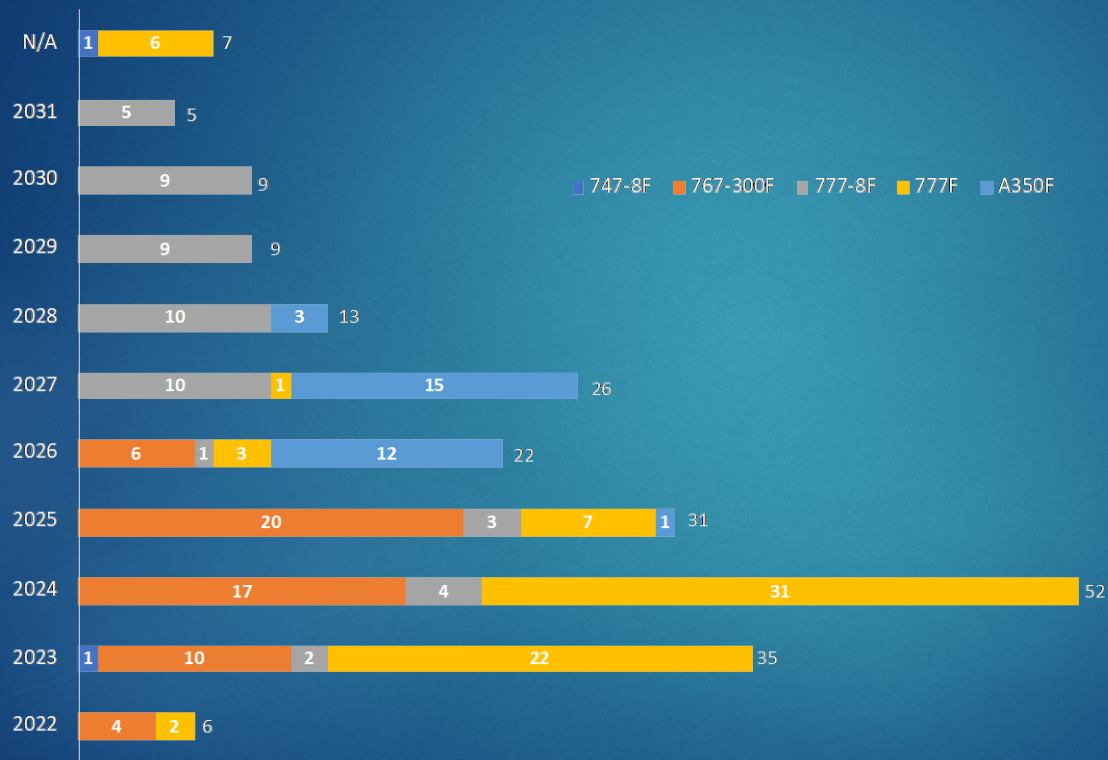
2017-2022



Source: IBA Insight

Production Freighter Future Deliveries 2022-2031

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Source: IBA Insight

- ▶ Narrowbody market competes with lower cost road and rail transport which will limit demand
- ▶ 737NG expected to be the dominant platform, but supply/demand imbalance developing
- ▶ 80+ 737 conversions expected this year; 50% increase from 2021
- ▶ Global slowdown will put further pressure on 737NG P2F oversupply
- ▶ A321P2F production will ramp up more slowly
- ▶ A321P2F in-service reliability & performance need to be proven
- ▶ Older 757s (pre-1990) will begin to retire

- ▶ Widebody P2F market growth is dependent on global trade which may slow in the near term, but rebound strongly
- ▶ Older 747-400P2Fs will retire and be replaced by the 777F, 777P2F, 777-8F and A350F
- ▶ 767-300ERP2F production steady, but will decline by 2024 and be overtaken by the A330P2F
- ▶ Amazon agreed to lease ten A330-300Fs which will be operated by Hawaiian Airlines
- ▶ 777-200LR & -300ERs are viable economic alternatives to the production aircraft
- ▶ Impact of the A350F and 777-8F will not affect the P2F market until late 2020s

Pax-to-Freighter Conversion Providers

Narrowbody	AEI	Boeing	C3	EFW/STAAero	IAI	PEMCO	Precision	Sine Draco
MD80	Certified							
B737 Classic	Certified					Certified		
B737NG	Certified	Certified			Certified	Certified		
B757		Certified					Certified	
A320			In Development	Certified				
A321			In Development	Certified			Certified	In Development

Widebody	Boeing	EFW	IAI	Mammoth	NIAR
A330-200/300		Certified	In Development		
B767	Certified		Certified		
B777-200LR				In Development	
B777-300ER			In Development	In Development	In Development

Certified
In Development

Source: Fortune Aviation Services

Fortune Aviation Services

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Globally recognized firm dedicated to providing clients with timely, accurate guidance for profitable commercial aircraft investments

Background

- ▶ *Thirty-five years in commercial aircraft leasing & trading experience with*
 - *FedEx*
 - *Potomac Capital Investment*
 - *Intrepid Aviation Partners*
 - *Q Aviation*
- ▶ *Co-founded Gemini Air Cargo – a US based ACMI cargo operator*
- ▶ *Completed freighter conversions of 747s, DC10s, and A300s*
- ▶ *Provide freighter market and conversion strategic guidance to investors, airlines, MROs and P2F engineering firms*