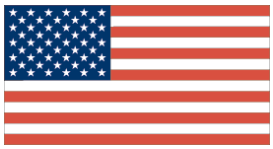
BOEING 747-400 Jumbo Jet

Commercial Wide Long Range Turbofan Jet Transport

USA North America



KEY DATES

First Order: Oct 22, 1985

First Flight: Apr 29, 1988

Certification: Jan 9, 1989

Delivery: First & Last

Jan 26, 1989 In Production

First Service/Operation

January, 1989 with Northwest

As a further development of the 747-300 stretched upper deck aircraft, Boeing launched the 747-400 in October, 1985, on the basis of an order for 10 aircraft placed by Northwest Airlines; this was followed by a 14-aircraft order from Singapore Airlines in March, 1986. The 747-400 is a greatly improved variant of the 747-300, with significant savings achieved through the use of lighter aluminum alloys and certain hardware adapted from the 757 and 767.

The 747-400 differs from the -300 in having numerous changes to the structure and systems. The wing span has been increased by the use of 6 ft (1.8 m) extensions on the wingtips with upward-pointing winglets for improved aerodynamics. The new wingtips increase the aspect ratio of the wing, thereby reducing induced drag and increasing the range of the aircraft by 3%. Extended wingtips plus winglets increase overall span to 212 ft. 2 in. (64.67 m.). Boeing says the -400 consumes 8 to 13% less fuel than the 747-300, and up to 17% less than the 747-200.

The changes include a choice of advanced technology, lean-burn engines such as the 56,000 lb (25,402 kg) thrust Pratt & Whitney PW4056, the 59,000 lb (26,339 kg) thrust General Electric CF6-80C2, and the 60,000 lb (26,785 kg) thrust Rolls-Royce RB211-524G/H.

The two-crew EFIS (Electronic Flight Instrument System, which is the electronic instrumentation in modern aircraft cockpits in which large multifunction CRT displays replace traditional electro-mechanical instruments; also termed "glass cockpit") cockpit instrumentation improvements of the 757 and 767 have been adapted to the 747-400, to transform a three-crew-member analog cockpit with electro-mechanical instruments to a full digital, two-crew flight deck with six multi-function CRT displays. The design provides even more capability than the 757/767 flight deck.

Depending on engines and other variables, the gross weight of the 747-400 ranges from 800,000 to 870,000 lb. Due to the added fuel capacity, more fuel efficient engines, and the new wingtips, the 747-400 has a range up to 8,400 mi (13,400 km).

The 747-400 powered by PW4056 turbofans, first flew in April, 1988 and entered service in January, 1989 with Northwest. On June 27, 1988, this first -400, a 747-451 for Northwest Airlines, set a new official weight record by reaching an altitude of 2,000 meters at a gross weight of 892,450 lb. Qantas Airways set the world distance record for commercial airliners by flying its first 747-400 from London to Sydney non-stop, a distance of 11,156 mi. (18,000 km) in 20 hr 9 min.

Japanese airlines have bought the 747-400D, without winglets and with other minor changes, for high intensity Japanese domestic routes. The undercarriage, wing and fuselage are strengthened to accommodate a high number of flight cycles (landings and takeoffs), but the -400D can be modified easily to the -400 standard. Boeing also initially offered a long-range version of the 747-400D, the -400D LR equipped with the winglets for service to the vacation spots in the Pacific, but this version has never been ordered.

The 747-400F freighter was announced in 1989 and first sold to Air France, but Cargolux of Luxembourg was the first to put the -400F into revenue service, opening a scheduled round-the-world freight service. The Cargolux 747-400F carried 110 tons of payload between Hong Kong and Fairbanks in 8.67 hr. Until then, Cargolux 747-200F freighters flying between the two cities required a fuel stop in Sapporo, Japan. Cargolux now has twelve 747-400Fs. The type is the most efficient cargo transport available, with a 13% improvement over that of the 747-200F in fuel burn per pound of freight carried.

The planned launch of the stretched 500 to 600 passenger very large 747-500X and -600X was canceled in January 1997. Following the announcement by Airbus of orders for its new A340-500 and -600, Boeing has decided in 1998 to match the range and takeoff performance of the A340-500 by offering the new 747 proposal called 747-400LRX. The aircraft mates a 747-200 fuselage with strengthened undercarriage with the wings of a -400F Freighter. It would have a range 8,300 nm. (15,400 km), takeoff weight of 900,100 lb (409,100 kg), and carry 365 passengers. It is scheduled for 2002. Essentially, the proposed aircraft is a 747-400IGW with a -200 fuselage and an extra 600 nm range compared to the standard 747-400.

From its first flight in 1969, the 747 has been an airplane of superlatives: It was bigger, flew farther and carried more people than any other commercial airplane. Today, that's still true.

The latest model, the 747-400, can fly 416 to 524 passengers about 8,400 statute miles and is available in four models. The 747-400 has a two-pilot digital flight deck, a new interior and is powered by stronger, more efficient engines. With its huge capacity, extended range and improved fuel efficiency, the -400 offers the lowest operating costs per seat of any commercial jetliner. In addition to the passenger version, the 747-400 is offered as a "Combi" -- carrying passengers forward and cargo aft on the main deck -- as well as a domestic, high-capacity version and an all-cargo freighter. Boeing continues to study airplanes capable of carrying more passengers than today's 747s and will develop one only when there is sufficient market demand.

The 747-400 continues the 747 family legacy by integrating advanced technology into one of the world's most modern and fuel-efficient airliners. Currently, the only model in production, the 747-400 incorporates major aerodynamic improvements over earlier 747 models, including the addition of winglets to reduce drag, new avionics, a new flight deck and the latest in-flight entertainment systems.

The improved and advanced 747-400 delivers more range, better fuel economy and lower operating costs than the previous 747 models. The 747-400 has a range of approximately 8,430 statute miles (13,570 km) and the lowest cost per seat-mile of any twin-aisle airplane offered by any manufacturer. It has a dispatch-reliability rate of 98.8 percent.

Boeing delivered the first 747-400 in 1989 to Northwest Airlines. Since the first 747 delivery in 1969, Boeing has delivered more than 1,235 747s, of which 500 are high-technology 747-400s. The 747's longevity and popularity are based on its unbeatable low seat-mile costs, flexibility, long-range dominance, unmatched comfort options and ability to integrate new technology.

The 747-400's most noticeable aerodynamic improvement is the 6-foot longer wing with a 6-foot-high winglet angled upward and slightly outward. This change reduces fuel burn and extends the airplane's range. While designing the 747-400, Boeing engineers discovered that the kind of wing shape needed by the airplane created a whirling pattern, called a vortex, at the wingtip while the airplane moved through the air at cruising speed. The top part of that whirling movement of air actually pushed down on the top of the wing, creating drag.

Initially, it was thought that the problem could be solved by adding several feet to the wing, but that would make it difficult to navigate increasingly crowded airport taxiways and ramps. Longer wings would also reduce the number of airport terminal gates available to the 747-400. The acceptable solution came in the form of a compromise that involved lengthening the wing by 6 feet and adding the winglet.

The winglet provides the effect of having an even greater wingspan without outgrowing the standard airport slot. The wingtip extension and winglet offer a fuel mileage improvement of about 3 percent, which during the lifespan of an airplane amounts to considerable savings for the airlines and their passengers. The durable and lightweight winglets are made of graphite-epoxy materials, currently used on the Boeing 737, 757, 767 and 777 airplanes. The composite and aluminum winglet saves 60 pounds (27 kg) per airplane compared to an all-aluminum structure.

Boeing also recontoured the wing-to-body fairing for drag improvement and achieved additional efficiency from newly designed nacelles and struts for the airplane's advanced engines: the General Electric CF6-80C2B5F, the

Pratt & Whitney PW4062 and the Rolls-Royce RB211-524H. These engines provide up to 63,000 pounds of thrust.

Use of advanced materials allows considerable structural weight reductions throughout the 747-400. Metal flooring, previously used in the passenger cabin, has been replaced by light, tough graphite composite floor panels.

Structural carbon brakes are standard on the 747-400's 16 main landing-gear wheels. They provide improved energy absorption characteristics and wear resistance, as well as an estimated 1,800-pound (816 kg) weight savings over previous brakes.

The 747-400 also achieved weight savings of approximately 4,200 pounds (1,900 kg) by using higher-strength aluminum alloys with improved fatigue life. These alloys, introduced on the 757 and 767, are incorporated in the 747-400's wing skins, stringers and lower-spar chords.

The 747-400 flight deck provides flexibility that is being incorporated in more models across the Boeing fleet. The 747-300's three-crew analog cockpit was transformed into a fully digital, two-crew flight deck with cathode ray tube (CRT) displays. Six 8- by 8-inch (200 by 200 mm) CRTs are used to display airplane flight control, navigation, engine and crew-alerting functions. They allow more information to be displayed with fewer instruments. The number of flight deck lights, gauges and switches was reduced to 365 from the 971 on the 747-300. Flight crew workload is designed to be one-half to one-third that of former 747 models.

In the event of an individual CRT failure, automatic or manual display switching is used as a backup. The Engine Indicating and Crew Alerting System (EICAS) can call up the status or schematics of various systems at any time on one of the CRTs. Crews can now obtain an update of the airplane's mechanical condition while in flight, whereas before, the information was only available to maintenance workers when the airplane was parked.

Boeing redesigned the interior of the 747-400 to improve passenger comfort, convenience and appeal. Ceiling and sidewall panels were recontoured with new, lighter-weight materials that provide an open, airy look. Passenger stowage capacity increased to 15.9 cubic feet (0.4 m3) in each 60-inch (152 cm) outboard stowage bin, or 2.9 cubic feet (0.08 m3) per passenger.

New laminate materials were designed to meet Boeing fireworthiness goals. A new thermoplastic blend reduces smoke and toxicity levels in the event of fire, and upper-deck ceiling panels are made of improved polyester and phenolic sheet molding materials instead of polyester.

Interior flexibility allows airline operators to relocate class dividers and galley and lavatory modules more quickly to serve market requirements. Lavatory installation is simplified by a vacuum waste system, and additional locations for galleys and lavatories are available. These "quick-change features" allow major rearrangement within 48 hours, while seats and compartments can be changed overnight.

Boeing also revised the 747-400 air-distribution system. This increases the main deck cabin air distribution zones from three to five, which allows ventilation rates in each zone to be regulated based on passenger density.

For the first time on any airliner, an optional cabin crew rest area uses space in the rear of the fuselage above the aft lavatories. This area, which can be configured for eight bunks and two seats, provides privacy as well as comfort for off-duty flight attendants. By relocating the crew rest to this area, 10 more profit-making seats are available on the main deck of the aircraft.

An optional 3,300-U.S.-gallon (12,490 L) fuel tank in the horizontal tail boosts the 747-400's range an additional 400 statute miles (650 km). The 747-400 also has a new 1,450-horsepower auxiliary power unit (APU) that provides an estimated 35 percent to 40 percent reduction in fuel consumption, better air pressurization performance on hot days, higher electrical output and reduced noise levels. Mounted in the rear fuselage, the APU supplies pressurized air for air conditioning and engine starting while the airplane is on the ground, plus electrical power to operate lights and other requirements during stops. The new APU can also be retrofitted to earlier 747s.

The 747-400 is available in passenger, combi, freighter and domestic configurations. The 747-400 Combi is two airplanes in one, carrying both passengers (forward) and cargo (aft) on the main deck. The 747-400 Freighter is the largest commercial cargo transport in service, and the 747-400 Domestic is a high-capacity (568 passengers) airplane that incorporates structural improvements to accommodate the increased takeoff and landing cycles of short-range operations. Because it does not need the drag-reducing capabilities of the 747-400's longer wing and winglet, the 747-400 Domestic uses the same wings as the 747-100, -200 and -300 models.

747-400M Mixed Passenger-Freighter Combi
Since its introduction in 1975, the Boeing 747 Combi has helped airlines around the world meet their long-range passenger and cargo requirements. The combi has a large side-cargo door behind the left wing, plus equipment that removes passenger seats and installs cargo tracks, giving airlines the option of carrying cargo in containers on the main deck behind passengers. This flexibility allows airlines to adapt the interior configuration to meet variations in seasonal markets and charter demands.

Another reason for the combi's popularity is that it can be scheduled through an airport with the same turnaround time as any other passenger 747. Cargo operations do not interfere with passenger service, because main-deck cargo loading occurs in an area of the airplane where normally there is no activity. This simultaneous passenger-and-cargo-loading/unloading operation is possible because of the stability allowed by the fore and aft arrangement of the wing and body landing gear.

The large side-cargo door on the main deck allows cargo loading in the aft section at the same time passengers are boarded in the forward section. A locked partition separates the passenger compartment from the cargo area, accessible only by the crew. Roller trays on the 747's aft floor facilitate loading of 8-foot-wide (2.4 m) containers, or pallets, up to 20 feet long (6.1 m). The airplane's main deck can accommodate any container or pallet used in the aviation industry today in lengths of up to 20 feet (6.1 m).

The combi can handle large volume shipments such as automobiles, small boats, heavy machinery, drilling equipment and even small aircraft or helicopters. Environmental control in the cargo area allows transportation of live animals, perishable foods and cut flowers/vegetables, while maintaining separate environmental control of the passenger cabin. The 747-400 Combi incorporates additional fire protection, a two-crew digital flight deck, advanced engines, wingtip extension with winglet and new interiors.

The first customer for the 747-400M Combi was KLM Royal Dutch Airlines. The stretched upper deck of the 747-300 and 747-400 Combis can accommodate 44 more passengers than the standard 747-200 Combi. The 747-400 Combi is currently the only combi in production.

More than 30 customers operate a total of 144 747 Combis, including 58 747-400 Combis.

747-400F Freighter
The new-technology Boeing 747-400 Freighter is the all-cargo transport member of the 747-400 family. It can carry more cargo farther than any other commercial jet freighter, with the lowest operating cost per ton-mile.

All of the advances introduced in the new 747-400 passenger version are available in the all-cargo configuration.

The -400 Freighter can carry 124 tons (113,000 kg) of cargo more than 4,400 nautical miles. An additional 26 tons of payload or 1,200 nautical-mile range is possible compared to the 747-200 Freighter. The new model burns 10 to 16 percent less fuel than the earlier model, due to more fuel-efficient engines and larger wings.

Advanced materials allow considerable structural weight reductions, improved damage tolerance and fatigue resistance throughout both the freighter and passenger models of the 747-400.

The two-crew flight deck and reduced maintenance costs for avionics and engines provide further savings in direct operating costs.

The 747-400F has the same upper deck as the -200F. However, the upper-deck floor was revised to make room for two additional 10-foot-high (3.1 m) pallets on the main deck.

By relocating the upper-deck access ladder and revising guide rails and tie-down equipment, Boeing created an additional pallet position in the nose of the aircraft. These changes resulted in 774 cubic feet (21.9 cubic meters) more cargo space on the main deck than on the -200F.

Two additional LD-1 or LD-3 containers will fit into the aft lower hold and - depending on the pallet and container mix - two additional containers will fit into the forward lower hold - adding up to 700 cubic feet (19.8 cubic meters) of additional containerized cargo volume in the lower hold.

The -400 Freighter's improved powered cargo-handling system makes for smooth, fast loading and unloading.

Eleven customers have ordered a total of 73 747-400 Freighters. Cargolux Airlines was the first to put the

advanced freighter into service in November 1993. Thirty-six of the -400Fs have been delivered.

Boeing has been the world leader in civilian air cargo since the 707 Freighter was introduced more than 30 years ago. From its beginning in 1966, the 747 family was designed to include an all-cargo transport.

747 General Data
Boeing rolled out its 1,000th 747 from its wide-body factory at Everett, WA in 1994. A 747-400 model, it was destined for Singapore Airlines. Since the first one was built in 1969, Boeing has delivered more than 1,235 747s in all, worth a total of over $170 billion when adjusted for inflation. The 747-400 has been the best selling variant with more than 567 orders and 491 delivered by the end of 1999.

Altogether, 747s have accumulated over 33 billion miles (52 billion km) and have carried more than 3.3 billion people, the equivalent of more than half of the world's population. There are nearly 1,100 still in service.

747-400X
Initially Boeing studied a 920,000 lb (418,200 kg) gross weight version of the 747-400 that would add either 22,000 lb of payload or about 300 nm. to the aircraft's range. Much of the range improvement would result from additional fuel in the tailplane torsion box and in the forward lower cargo bay. The stronger wings and landing gear of the 747-400F also would be used.

Boeing announced in mid 2000 three 747 derivatives following the go ahead of the Airbus 3XX. Now it could be argued that Boeing have been complacent for the last 15 years regarding the 747-400. They have however come back with a vengeance and are offering alternative 747 developments all with a delivery date by 2005.

The derivatives, if Boeing decides to launch them, could be delivered to airlines sooner or at about the same time as the A3XX. Top Boeing sales executives are briefing the world's 12 top 747 operators on the new versions to assess demand and have visited several key Asia-Pacific carriers. Boeing's investment to upgrade the three 747 derivatives is estimated at about $4-billion, far less than $12.5-billion that Airbus is planning to spend on A3XX development.

The new models Boeing is discussing with airlines include a 747-400X , which would be the same size as the current 747-400 but use the strengthened 747-400F freighter wing and extra fuel tanks. It would have a 35,000-lb. heavier takeoff weight and 500 miles more range, to 8,850 statute miles. A typical three class seating would be 416. The 747-400X could be available as soon as 2002.

Next up is the 747X with a highly modified wing and amongst many other improvements a review of the internal arrangements giving something between 10 and 20 more revenue seats. The maximum take off weight goes over one million pounds and the range increases to 18 hours or 10,300+ statute miles.

The 747X's wing has a 210-in. wider span and the plane has more powerful engines. It would incorporate a slight stretch to accommodate the larger wing box and carry 430 passengers, slightly more than today's 747-400.

A 747X Stretch model would share the 747X wing and incorporate fuselage extensions totaling 31-ft. It could carry 504 passengers and fly almost 9,000 stat. mi. Both the 747X and 747X Stretch would have a maximum takeoff weight of over 1-million lb. and be powered by four 68,000-lb. thrust engines. With a timely launch, they could be delivered to first customers in early 2005, before the A3XX.

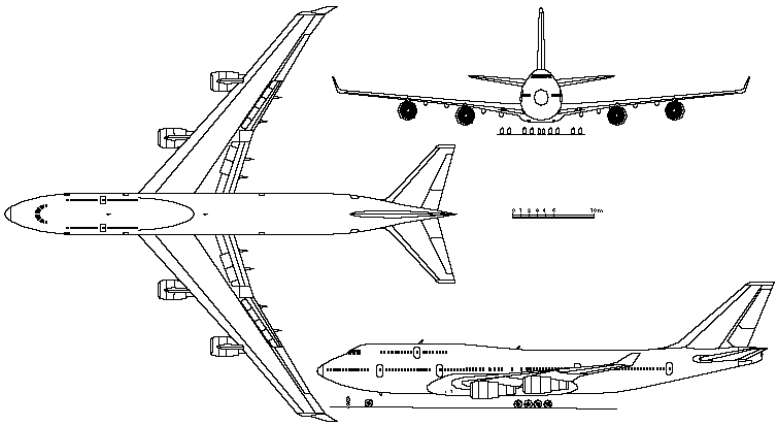
The 747X stretch can actually accommodate 660 people in a Japanese domestic high density layout, or 522 in the typical three class operation, around 30 seats less than the 3XX. However, Boeing are claiming further range than the Airbus, a higher cruising speed and lower noise plus, of course, commonality with current 747s. A freighter version is also available.

The 747-400 is currently the only model in production, and it is the best-selling member of the 747 family. Boeing completely redesigned the 747 with the -400 model, making major aerodynamic improvements, adding winglets to improve fuel efficiency, incorporating new avionics, installing a new flight deck and providing the latest in-flight entertainment systems.

The 747-400 flight deck replaced the analog systems of the 747 Classics with digital avionics, ultimately reducing the number of lights, gauges and switches from 971 to 365. Programmable displays and simpler cockpit procedures also reduced crew workload in the flight deck, allowing the number of crew members to decrease from three to two, eliminating the flight engineer.

BOEING 747-400 Jumbo Jet

TECHNICAL FACTS



DIMENSIONS		
W Span ft/m	211	6
W Area ft/m2	5,650	52
W Sweep°	37.5°	
Length ft/m	232	7
Height ft/m	63	1
ACCOMODATIONS		
Cockpit/Cabin Crew		2
Typical Configuration		
412 Seats		
Seating		
3 Class	10940	Max 66
CARGO Capacity		
5,333 ft3		151 m
Price US$		169,000,00

ENGINE & MAXIMUM TAKEOFF WEIGHT OPTIONS

Model	Powerplant			Max Thrust lb / kg / kN			Takeoff W. lb/kg	
747-400	4	General Electric	CF6-80C2B1F	57,900	26,263	258	870,000	394,626
747-400	4	Pratt & Whitney	PW4056	56,750	25,741	252	870,000	394,626
747-400	4	Pratt & Whitney	PW4056	56,750	25,741	252	850,000	385,554
747-400	4	Rolls Royce	RB211-524G	58,000	26,308	258	800,000	362,875
747-400	4	Rolls Royce	RB211-524G	58,000	26,308	258	800,000	362,875
747-400	4	Rolls Royce	RB211-524H	60,600	27,488	270	870,000	394,626
747-400/400	4 PW		PW4056	56,750	25,741	252	870,000	394,626
747-400D LR	4	General Electric	CF6-80C2B1F	57,900	26,263	258	870,000	394,626
747-400D LR	4	Pratt & Whitney	PW4056	56,750	25,741	252	870,000	394,626
747-400D LR	4	Rolls Royce	RB211-524G	58,000	26,308	258	870,000	394,626
747-400D SR	4	General Electric	CF6-80C2B1F	57,900	26,263	258	600,000	272,156
747-400D SR	4	Pratt & Whitney	PW4056	56,750	25,741	252	600,000	272,156

SPECIFICATION & PERFORMANCE

Model	Powerplant			Max Thrust lb/kg/kN			Engine Weight	
747-400	4	General Electric	CF6-80C2B1F	57,900	26,263	258	10490	1

Weights	lbs	kg
Max Takeoff	870,000	394,626
Max Landing	630,000	285,764
Zero Fuel	535,000	242,672
Empty	397,405	180,260
Max Payload	137,612	62,420
w/Max Fuel	189,933	14
Max Fuel	380,782	172,720
UsGal/lit	57,097	215,900
w/Max Payload		41,646
UsGal/lit		7,717

Speeds	Mach	knots	mph	kmh	@Altitude ft/m	
Never Exceed	0.93					
Max Operating	0.90	532	1	185	30,000	9,144
Typical Cruise	0.86	490		985		

Airport Performance	knots		ft/m	
V1 / Vr / V2	564	?		3,335
Vs / Vat	4	4,302	242,680	2,134

Ranges	Flight Time	nm	miles	km
w/Max Payload	?	General	12,779	12,419
w/Max Fuel	15.7	151,946		
Ferry	0.0			

BOEING 747-400 Jumbo Jet

WORLD FLEET

Model	Power Model	Operator	Order	Owned	Leased	InOps	Util
747-400M Combi	PW4000	AIR CANADA		3		**3**	9.0
747-400	PW4000	AIR CHINA INTERNATIONAL	1	5		**5**	7.5
747-400M Combi	PW4000	AIR CHINA INTERNATIONAL	1	7		**7**	9.2
747-400	CF6-80C2B1F	AIR FRANCE		7		**7**	10.6
747-400M Combi	CF6-80C2B1F	AIR FRANCE		6		**6**	11.4
747-400M Combi	PW4000	AIR INDIA		6		**6**	8.1
747-400M Combi	CF6-80	AIR NAMIBIA	1				8.5
747-400	CF6-80C2B1F	AIR NEW ZEALAND	1	7		**7**	10.5
747-481	CF6-80C2B1F	ANA - ALL NIPPON AIRWAYS		7	6	**13**	10.8
747-481D	CF6-80C2B1F	ANA - ALL NIPPON AIRWAYS		4	5	**9**	6.1
747-400	CF6-80	ANSETT AUSTRALIA		1		**1**	10.2
747-400	CF6-80C2B1F	ASIANA AIRLINES	3	3		**3**	11.0
747-400F	CF6-80C2B1F	ASIANA AIRLINES		4		**4**	10.2
747-48EM Combi	CF6-80C2B1F	ASIANA AIRLINES		5		**5**	11.4
747-400F	CF6-80	ATLAS AIR	3	6		**6**	10.7
747-400	RB211-524G/H2	BRITISH AIRWAYS		57		**57**	13.2
747-400F	RB211-524G/H2	BRITISH AIRWAYS		1		**1**	11.2
747-400	CF6-80	CANADIAN AIRLINES		4		**4**	12.0
747-400F	CF6-80	CARGOLUX AIRLINES	4	8		**8**	11.1
747-400	RB211-524	CATHAY PACIFIC AIRWAYS		19		**19**	12.6
747-400F	RB211-524	CATHAY PACIFIC AIRWAYS		2		**2**	11.3
747-400	PW4000	CHINA AIRLINES		12		**12**	11.5
747-400F	PW4000	CHINA AIRLINES	13	2		**2**	10.2
747-400	PW4000	EL AL ISRAEL AIRLINES		4		**4**	8.1
747-400	CF6-80	EVA AIRWAYS		5		**5**	11.2
747-400F	CF6-80	EVA AIRWAYS	3				10.2
747-400M Combi	CF6-80	EVA AIRWAYS		10		**10**	11.1
747-400	CF6-80	GARUDA INDONESIA		3		**3**	10.4
747-400	CF6-80C2B1F	JAPAN AIRLINES	11	29		**29**	11.0
747-400D	CF6-80C2B1F	JAPAN AIRLINES		8		**8**	5.5
747-400	CF6-80	KLM ROYAL DUTCH AIRLINES		5		**5**	10.2
747-400M Combi	CF6-80	KLM ROYAL DUTCH AIRLINES	4	15		**15**	10.2
747-400	CF6-80	KOREAN AIR	2	25		**25**	10.2
747-400F	CF6-80	KOREAN AIR	3	3		**3**	10.2
747-400M Combi	CF6-80	KOREAN AIR		1		**1**	10.2
747-400M Combi	CF6-80	KUWAIT AIRWAYS		1		**1**	10.2
747-400	CF6-80	LUFTHANSA GERMAN AIRLINES	5	18		**18**	10.2
747-400M Combi	CF6-80	LUFTHANSA GERMAN AIRLINES		7		**7**	10.2
747-400	CF6-80C2B1F	MALAYSIA AIRLINES	6	11	2	**13**	11.8
747-400M Combi	CF6-80C2B1F	MALAYSIA AIRLINES			2	**2**	11.8
747-400	CF6-80	MANDARIN AIRLINES		1		**1**	10.2
747-400	PW4000	NORTHWEST AIRLINES	1	13		**13**	10.2
747-400	CF6-80	PHILIPPINE AIRLINES	4	3		**3**	10.2
747-400M Combi	CF6-80	PHILIPPINE AIRLINES		1		**1**	10.2
747-400	CF6-80	QANTAS AIRWAYS	3	21		**21**	10.2
747-400	CF6-80	ROYAL AIR MAROC		1		**1**	10.2
747-400	CF6-80	SAA - SOUTH AFRICAN AIRWAYS		8		**8**	10.2

BOEING 747-400 Jumbo Jet

747-400	CF6-80	SAUDI ARABIAN AIRLINES	2	3		**3**	10.2
747-400	CF6-80	SINGAPORE AIRLINES	8	36		**36**	10.2
747-400F	CF6-80	SINGAPORE AIRLINES		8		**8**	10.2
747-400	CF6-80	THAI AIRWAYS INTERNATIONAL		14		**14**	10.2
747-400	CF6-80	UNITED AIRLINES	1	43		**43**	10.2
747-400	CF6-80	VIRGIN ATLANTIC		6		**6**	10.2
		Summery	27	21	0	**21**	