

Infrastructure Report

ASIA PACIFIC REGION 2020

COVER FEATURE

EXECUJET HAITE

INDUSTRY INSIGHTS

ACTSI

COMLUX AVIATION

DASSAULT AVIATION

GAMA AVIATION

SALUS AVIATION

SPECIAL FEATURES

FBO FACILITIES & HANGARAGE

IMPACT OF COVID-19 ON THE MRO MARKET

OEM MAINTENANCE COST PROGRAM

DIRECTORY

REGIONAL SERVICE PROVIDERS



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**DASSAULT
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Infrastructure Report

2020

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PUBLISHER'S NOTE

This is the 3rd edition of our Infrastructure Report, which has quickly grown into one of our most popular and widely read reports. As always with all our publications, each year we try to make them better and more informative, and the 2020 Infrastructure Report is no different. This time around we have coverage of all Asia-Pacific commercial and GA airports, including, for the first time, airstrips. Also, with our yearly in-depth research, our historical database continues to grow, meaning that ASG can present an ever-higher level of accuracy.

Looking back at 2020, the year has been spent under COVID-19. For us here in Asia, the first cases were reported in mid-December 2019, which was followed by the lockdown in Wuhan on January 23, 2020. Any business plans or budget we had for 2020 were consequently being rewritten by CNY and in February, we were all pivoting to "2020 Ver. 2.0".

Not too surprisingly, this did not include making substantial investments in new FBOs throughout the region. Just two new facilities opened in 2020 – one in China and one in India – and the only big announcement during the year came in October, when Bombardier and JETEX said they will partner on a new FBO in Singapore.

On the MRO side, there was even less activity as far as new facilities. But after 2019 when Dassault acquired Execujet's MRO operations; Jet Aviation completed the integration of Hawker Pacific; and Bombardier announced plans to quadruple the size of its service centre in Singapore, this was not too surprising – any year would be a slow down after 2019 in the Asia-Pacific region. COVID also led to most airports slowing down their expansion plans, thus indirectly impacting MRO growth as well.

The most interesting stories of 2020 regarding MROs were how most facilities used the time to increase their capabilities, i.e. becoming better by increasing their number of OEM and jurisdiction authorizations. The mix of maintenance requirements also changed through the year. With flight activity curtailed, less line maintenance was performed and more heavy maintenance & checks were undertaken, which consequently led to a satisfactory year for most facilities in the end.



The 2020 Infrastructure Report also has several special features this year. We delve deeper into the impact of COVID on the MRO industry; examine the issue of FBO parking and hangarage; and finally, discuss the various airframe and engine maintenance cost programs in the market.

Last but not least, we have ACTSI, Comlux, Dassault, Execujet, Gama and Salus Aviation graciously sharing with us their insights and views on the industry pre-COVID, in the current climate, and in the not-too-distant future.

A handwritten signature in black ink that reads "Jeffery C. Lowe". The signature is stylized with a large, looped 'J' and a cursive 'L'.

Sincerely,
Jeffery C. Lowe
Chief Executive Officer, Asian Sky Group

EXECUTIVE SUMMARY

There are 3,566 airports in the Asia-Pacific region - including Commercial and GA airports with runways and airstrips. These airports have a total of 72 Fixed-Base Operator (FBO) and 261 Maintenance, Repair and Overhaul (MRO) facilities serving the region's growing business aviation market. Of the 261 MROs, 138 facilities provide fixed-wing maintenance, and 151 facilities provide helicopter maintenance.

Australia is the most developed country, in terms of general aviation infrastructure, in the region. The country's fleet of 199 business jets and 855 helicopters (as of year-end 2019) is supported by 1,449 airports, 23 FBOs, 22 fixed-wing MROs and 44 helicopter MROs.

Mainland China is the next most developed region, in terms of business/general aviation infrastructure. It has a total of 428 airports, 13 FBOs, 38 fixed-wing MROs and 32 helicopter MROs to support its aviation market. Although most of the facilities lack the capabilities to perform heavy checks and overhaul operations, the country is expected to grow as an MRO center as its fleet ages and capabilities improve.

With a fleet of 122 business jets (as of year-end 2019), **Hong Kong**, is the fourth largest jet fleet market in the Asia-Pacific region. Despite the large fleet, the city is underserved with only one international airport, one FBO, six fixed-wing MROs and one helicopter MRO. The city has limited parking capacity, severely hindering the MRO capability of the facilities.

Of the 72 FBOs in the **Asia-Pacific** region, Australia is home to the most - 23. Following Australia, China has the second highest number of FBOs in the region with 13, primarily located in major cities like Beijing, Shanghai, and Shenzhen.

On-site **customs, immigration, and quarantine (CIQ)** is a service that not all FBOs offer. When available, CIQ allows for business jet passengers to get through security and customs in an expedited way - outside of the main, international passenger terminal. In Asia, onsite CIQ is available at 46 FBOs. Jet Aviation and Deer Jet are the largest FBO service providers in the region.

As of November 2020, the **Asia-Pacific** region has 31 factory-owned service centers - a significant increase from last year due to the acquisition of a few prominent Asia-Pacific maintenance companies by OEMs. Dassault Aviation's acquisition of ExecuJet and Textron Aviation's acquisition of Premier allowed both the OEMs to increase their presence in the Asia-Pacific region. The Asia-Pacific region is also home to 153 authorized service centers.

There are 40 regulatory approvals in the Asia-Pacific region, a stark difference from the **US and European** markets, where the maintenance facilities are either FAA or EASA approved. Some of the most common country approvals, apart from FAA and EASA, include Hong Kong or China's "B" registry, India's "VT" registry and Australia's "VH" registry.

Dassault has the largest number of factory-owned service centers in Asia-Pacific - seven, followed by Textron - four. Embraer, despite not having any factory-owned service centers in the region, has the largest network of authorized service facilities - 15, followed by Textron - 10.

Leonardo and **Bell helicopters** have a strong presence in the region, with Leonardo having two factory-owned MROs and 20 authorized service facilities, and Bell having two factory-owned MROs and 16 authorized service facilities.

¹ The lack of parking also impacts MRO capability, limiting providers to line maintenance activity and restricting their ability to perform crucial heavy maintenance checks and other work.

INFRASTRUCTURE OVERVIEW

BY THE NUMBERS:



AIRPORTS¹

3,566



FIXED-WING MROs²

138



FBOs

72



HELICOPTER MROs

151



ENGINE MROs

74

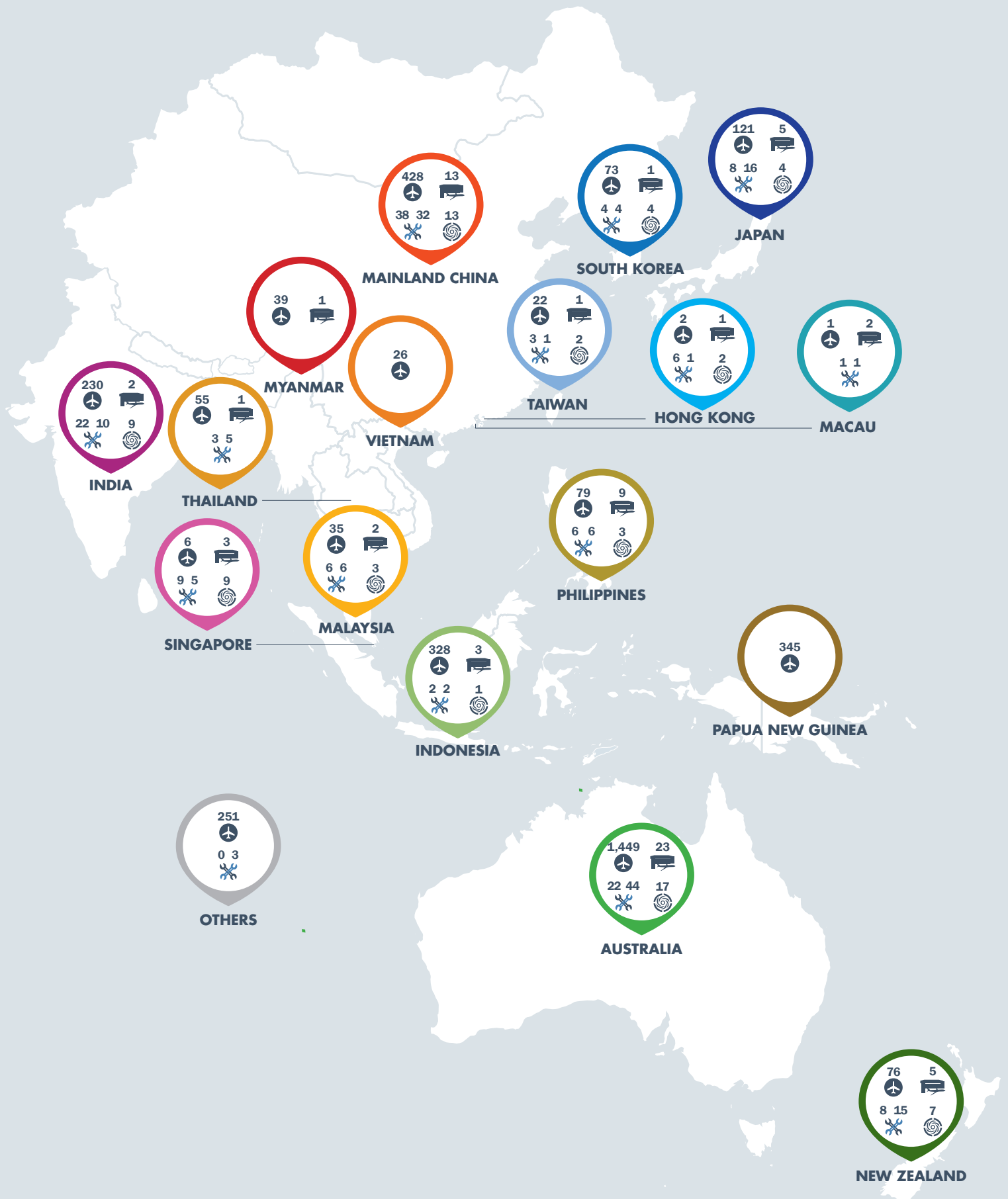
(Only facilities in operation are included in this map.)

¹ Includes Commercial and GA Airports with runways and airstrips.

¹ 2019 numbers have been adjusted.

² Includes an estimate of MRO facilities with ACJ and BBJ capabilities.







AVIATION CONCEPTS TECHNICAL SERVICES, INC.

INTERVIEW WITH RICHARD WOLFSKEIL; DIRECTOR OF MAINTENANCE;

Interview by Alud Davies

In mid-2018, Aviation Concepts Technical Services Inc (ACTSI) signed a 25-year lease agreement with the Subic Bay Metropolitan Authority, with the aim of turning Subic Bay International Airport into a regional business aviation hub. The first stage of regeneration was completed in 2019, when ACTSI renovated the existing hangars into a state of art facility that can accommodate up to seven Gulfstream G650 size aircraft simultaneously.

CAN YOU TELL ME ABOUT ACTSIS FACILITIES IN SUBIC BAY?

Situated at the crossroads of Asia-Pacific, ACTSI's facility is strategically positioned within the Subic Bay International Airport (SBIA). ACTSI has a 18,000 Sqm facility easily accommodating large aircraft. The SBIA runway length stands at 9,000 ft. With no slot restrictions, an average flight time to Subic is only one (1) hour & forty-five (45) minutes from Hong Kong, Macau and Taiwan, and a mere three (3) hours and fifty-five (55) minutes if arriving from Singapore, Malaysia, Indonesia, and Thailand.

Subic Bay is one of the Philippines' top environmentally sensitive natural playgrounds when it comes to sports and adventures both on land and sea. The cool breeze welcomes you to fun in the sand, extreme water sports, yachting, invigorating treks and amazing visits to its natural parks. It offers a wide diversity of cultural attractions, regional cuisine, adult leisure and family-oriented activities, all of which makes a visit to this oasis an unforgettable adventure.

PHASE ONE OF THE HANGAR RENOVATION WAS COMPLETED IN 2019, WHEN WILL PHASE TWO BE COMPLETED?

Due to the effects of the pandemic, which placed the entire aviation industry in a state of turmoil, we have had to push back development of Phase 2 by a few years. But our Phase 1

section has ample hangar space of 55,972 sq ft or 5,200 sqm which can accommodate up to 7 G650s at any given time. Our facility is also equipped with an annex of 35,300 sq ft or 3,280 sqm for our offices, battery workshops, sheet metal and tire shops, tool crib, dedicated client office space, and FBO.

HOW HAS COVID IMPACTED ACTSI?

We have been able to still accommodate 6 MRO events this year despite the travel restrictions. We adapted quickly as a response to operating in this Covid environment. It has not been easy but we were able to accomplish this with the combined efforts of every single team member in ACTSI.

HOW HAVE YOU DEALT WITH THE CHALLENGES THAT COVID HAS BROUGHT WITH IT?

As mentioned, we had to work closely together to draft a new set of procedures that would allow us to continue to operate. Procedures that are based on guidelines set forth by the Philippine Government, such as the Civil Aviation Authority of the Philippines (CAAP) Department of Transportation (DoTR) Inter Agency Task Force (IATF), & Subic Bay Metropolitan Authority (SBMA). As well international regulators such as ICAO, WHO, IATA, FAA, Cayman and Bermuda authorities.

AS OEMS LOOK TO EXPAND THEIR MAINTENANCE OFFERINGS, HOW WILL ACTSI STAY COMPETITIVE?

ACTSI is well positioned as a viable option to our potential customers as we continue to expand our capabilities. These approvals enable us to cater not just newer aircraft but those that are out of warranty. Being situated at Subic Bay International Airport is also an advantage due to no slot restrictions and its geographical make up. Our facility was recently upgraded to OEM standards which we are very proud of. We have a versatile group of highly skilled and rated engineers (both expat and local) who form the backbone of our MRO services. Myself, Stephen Klohr (QA Director), and Mark Moss (Maintenance Manager) are all former Gulfstream employees with 100 years of combined experience. ACTSI also has a Gulfstream approved Structures Technician and a Sheet Metal Expert, Ian McDowell, to round it off. Of course, we are all guided by the leadership of Fernando Gaspar, our President.

WHAT ARE YOUR EXPECTATIONS FOR THE MAINTENANCE SECTOR IN ASIA PACIFIC IN THE COMING YEARS?

We expect maintenance to pick up, as general maintenance services will be required to keep aircraft flight ready in the region. This pandemic has also created a shift in customer behavior which we are watching very closely. We feel that aircraft owners will want to find a more cost effective and reliable way to have their aircraft serviced in region, rather than sending their aircraft to the US for example.

WHAT CAN THE INDUSTRY EXPECT FROM ACTSI IN THE NEAR FUTURE?

We are working on expanding our approvals to include Philippine and Taiwan registered aircraft. Our sheet metal and tire shops will be active in Q1 of 2021. These will be new services that we feel will help aircraft owners whose aircraft have been parked for a good length of time in places like Hong Kong. Issues such as corrosion

www.actsi.aero



and exposure to natural elements are a few of the challenges aircraft owners and operators must still manage, and we at ACTSI will be able to address these.

WHAT ARE ACTSI'S MAINTENANCE CAPABILITIES?

Maintenance Capabilities	
OEM	MODEL
GULFSTREAM	G280
	GIV-X (G350/G450)
	GV
	GV-SP (G550)
	GVI (G650/G650ER)
ROLLS-ROYCE*	RRD Mark 611-8C
	BMW RRD BR700-710C4-11
	RRD BR700-725-A1-12
	RRD BR700-710A01-10
HONEYWELL*	AS907-2-1G

*Pre Self-Evaluation



AUTHORITY APPROVALS

FAA Part 145 | Cayman Islands
Bermuda

“

We are pleased to have found an MRO facility for our fleet that has not only met but exceeded our expectations. The responsiveness of the ACTSI Team is second to none.

-Lester Ingram, Aviation Consultant at
Challenger Aero Aviation Corp.

”





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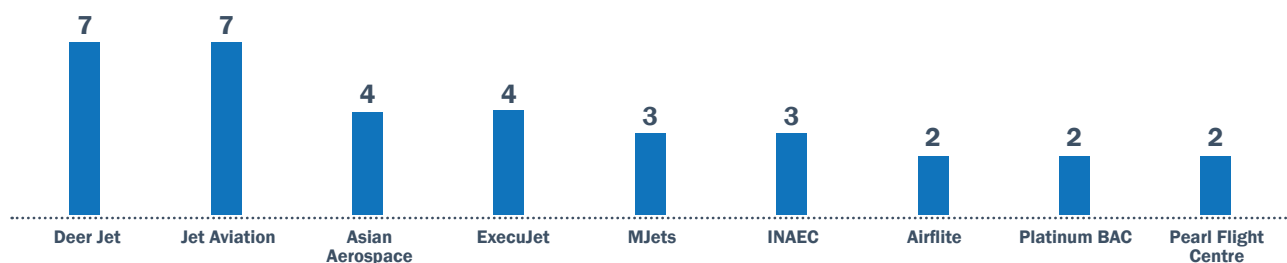
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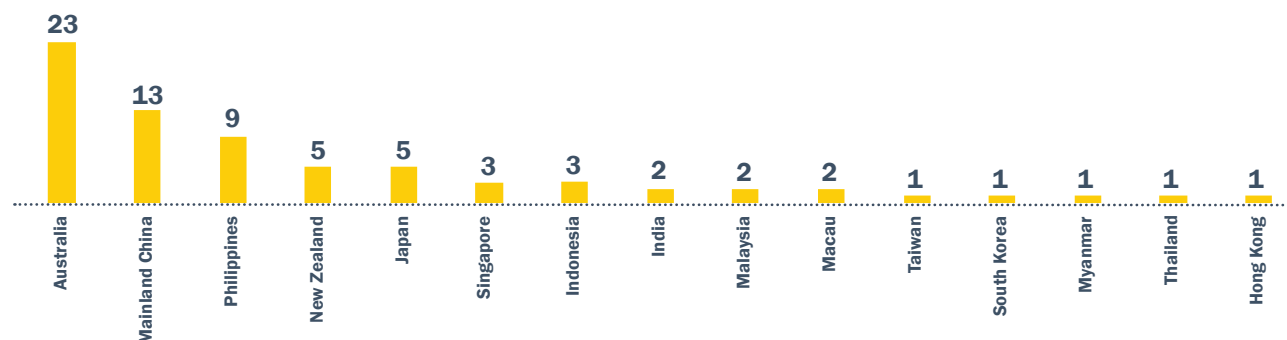
FBO OVERVIEW

Fixed-base operators (FBOs) are typically located at, or in vicinity of, an airport, with an operational objective of providing a hassle-free experience to business jet passengers at departure and arrival. Common FBO services and facilities include an executive lounge and flight planning, as well as ground handling services, such as fuel arrangement, aircraft marshalling and permit applications.

TOP OPERATORS BY NUMBER OF FBOs



TOTAL NUMBER OF FBOs BY COUNTRY/REGION



ASIA PACIFIC FBOs

23 AUSTRALIA

Airflite (2)
Archerfield Jet Base
Ausjet Aviation
AVWest
Blue Diamond Aviation
Cobham
ExecuJet (2)

Executive Airlines
Jet Aviation (6)
Maxem Aviation
Pearl Flight Centre (2)
Platinum BAC (2)
Rossair Charter
Shortstop Jet Charter

13 CHINA

Beijing Capital Jet
Deer Jet (7)
Guangzhou Yitong FBO
Shanghai Hawker Pacific
Shenzhen Joyee
Sino Jet
Tianjin Airport BAC

1 HONG KONG

Hong Kong BAC

2 INDIA

ExecuJet
MJets

3 INDONESIA

ExecuJet
Travira
Wira



5 JAPAN

Chubu Centrair Airport BAC
Fuji Dream Aviation
Haneda Airport BAC
Hirata Gakuen
Narita Airport BAC

2 MACAU

Macau BAC
TAG Aviation

2 MALAYSIA

SkyPark
Senai Airport Terminal Service

1 MYANMAR

MJets

5 NEW ZEALAND

Air Centre One
Air Napier
Capital Jet Services
ExecuJet/Capital Jet Services
Queenstown Corporate Jet

9 PHILIPPINES

ACTSI
Asian Aerospace (4)
INAEC (3)
Miascor

3 SINGAPORE

Jet Aviation
Wings Over Asia
Flying Colours

1 SOUTH KOREA

Avjet Asia

1 TAIWAN

EVA SKY JET CENTER

1 THAILAND

MJets

COUNTRY/REGION	FBO NAME	CITY
AUSTRALIA	Airflite	Adelaide Perth
	Archerfield Jet Base	Brisbane
	Ausjet Aviation	Melbourne
	AVWest	Perth
	Blue Diamond Aviation	Melbourne
	Cobham	Adelaide
	ExecuJet	Melbourne Sydney
	Executive Airlines	Melbourne
	Jet Aviation	Brisbane (2) Cairns Darwin Perth Sydney
	Maxem Aviation	Perth
	Pearl Flight Centre	Darwin Perth
	Platinum BAC	Gold Coast Melbourne
	Rossair Charter	Adelaide
	Shortstop Jet Charter	Melbourne
CHINA	Beijing Capital Jet	Beijing
	Deer Jet	Changsha Guilin Haikou Hangzhou Nanning Sanya Xi'an
	Guangzhou Yitong FBO	Guangzhou
	Shanghai Hawker Pacific	Shanghai
	Shenzhen Joyee	Shenzhen
	Sino Jet	Nanchang
	Tianjin Airport BAC	Tianjin
HONG KONG	Hong Kong BAC	Hong Kong
INDIA	ExecuJet	New Delhi
	MJets	New Delhi
INDONESIA	ExecuJet	Bali
	Travira	Jakarta
	Wira	Jakarta
JAPAN	Chubu Centrair Airport BAC	Nagoya
	Fuji Dream Aviation	Shizuoka
	Haneda Airport BAC	Tokyo
	Hirata Gakuen	Kobe
	Narita Airport BAC	Tokyo
MACAU	Macau BAC	Macau
	TAG Aviation	Macau
MALAYSIA	Senai Airport Terminal Services	Johor Bahru
	SkyPark	Kuala Lumpur
MYANMAR	MJets	Yangon
NEW ZEALAND	Air Centre One	Auckland
	Air Napier	Napier
	Capital Jet Services	Christchurch
	ExecuJet/Capital Jet Services	Wellington
	Queenstown Corporate Jet	Queenstown
PHILIPPINES	ACTSI	Manila
	Asian Aerospace	Cebu Clark Davao Manila
	INAE	Cebu Clark Manila
	Miascor	Manila
SINGAPORE	Flying Colours	Singapore
	Jet Aviation	Singapore
	Wings Over Asia	Singapore
SOUTH KOREA	Avjet Asia	Seoul
TAIWAN	EVA SKY JET CENTER	Taipei
THAILAND	MJets	Bangkok

% of FBO with
CIQ Capability

64%

% of FBO with
Aircraft Refueling

87%

% of FBO with
VIP Lounges

92%

% of FBO with
Private Jet Terminals

67%

% of FBO with
Aircraft Handling

96%

% of FBO with
Aircraft Hangarage

74%



COMLUX AVIATION

**INTERVIEW WITH RITA DAVID;
SALES DIRECTOR - APAC;
COMLUX AVIATION**

Interview by Alud Davies

With a growing need for connectivity, Comlux has placed a significant focus on charter markets in Asia. Supporting these markets as they expand and mature is Rita David, Sales Director – APAC, based in Macau. With 20 years of experience in business aviation and aircraft operations, Rita focuses on the Asia-Pacific region carefully monitoring market trends, demands, and developments, where she aims to bring the 'World-class Swiss-made service' to Asia-based clients.

HOW IS COMLUX SUPPORTING BUSINESS JET OWNERS & OPERATORS BASED IN HONG KONG AND THROUGHOUT ASIA?

Comlux is headquartered in Switzerland and has been developing itself around the world for the last 17 years. Our presence in Asia started in central Asia, Kazakhstan, where we established ourselves in 2008 with an operational center that included line maintenance. Four years later, in 2012, we opened Comlux Asia in Hong Kong to get closer to our customers in the region.

Comlux's great advantage is being able to provide one-stop solutions that satisfy customer needs in aircraft sales and acquisitions, aircraft operations and charter management, cabin interiors, maintenance and upgrades.

“From Hong Kong we serve our Asian based clientele, including Chinese clients, to the highest standards in the industry with what we call a “World-class Swiss-made service”.”

In fact, there are several Asian clients that came to Comlux originally because they were looking to purchase a new aircraft. After supporting them with the purchase negotiation and the cabin interior refurbishment, they finally decided to award us with the management and operations of their new aircraft. Customer trust is key in our business. A single interface, our passion and dedication, and our rigor and professionalism are appreciated in Asia and allow us to serve our customers in a region in a global manner.

VIP AIRLINERS ARE NOTORIOUSLY DIFFICULT TO CHARTER IN ASIA. HOW DOES COMLUX NAVIGATE THESE CHALLENGES OF CHARTERING A LARGER AIRCRAFT?

There are indeed challenges in selling charters on widebody aircraft such as the Boeing 767 SkyLady and the Boeing 777 Crystal Skye as large group travels are not so common for Asian clients. However, the demand is there and those who experience those aircraft quickly realize the benefits of this type of charter and we often see the same clients return. One of the great advantages of these products is the amazing space and social distancing that they provide onboard for the passengers, as well as between the passengers and the crew. With the current pandemic, it is a key advantage for our widebody aircraft and also bizliners, such as the elegant and extremely comfortable ACJ318 Elite based in Southeast Asia.

CAN YOU TELL US MORE ABOUT THE AIRBUS ACJ318?

The Airbus ACJ318 Elite that we have in our charter fleet is based at Clark International Airport in the Philippines. It features a beautiful cabin interior with an ultra spacious lounge area where VIP passengers can safely travel with their own space. The aircraft is fully optimized to travel to regional destinations and can fly to the Middle East and Australia nonstop. The rear of the cabin features a private suite convertible in a comfortable bedroom. It is the ideal aircraft to fly in Asia.

SKYLADY – THE BOEING 767-200ER – IS BACK IN SERVICE AFTER ITS REFURBISHMENT. WHAT MAKES THIS NEWLY REFURBISHED AIRCRAFT SO SPECIAL?

SkyLady provides 3 distinct cabin zones (Master Suite, Executive Class and Entourage Class) which offer great privacy for Asian clients with different needs.

Nowadays, on board Wi-Fi is commonly required for Asian clients with busy work schedules that fly long-haul routes. To further accommodate passenger needs, SkyLady's internet has been upgraded to a 2KU band system, which is the fastest available in the aviation industry, reaching speeds of up to 50 Mbps. On top of that, the Wi-Fi remains complimentary on all flights on SkyLady.

Taking into consideration long flights when travelling across regions, SkyLady promotes quality rest for passengers by providing, within an ultra silent cabin, one ultra-large king size bed, one double bed, and one single bed for guests in separate lounges. SkyLady also features 15 fully flat berthable seats for executive passengers.

With the ongoing pandemic situation, and to protect our and passengers and crew, a Ionization system has been installed in SkyLady. This has been proven to eliminate pathogens, bacteria, spores and viruses including COVID-19. Thanks to the system, the air in the cabin is even more purified and all passengers can enjoy a safe and comfortable flight.

HOW DOES COMLUX STAY COMPETITIVE?

It is important to review the Asian market trends, demands and developments. We appreciate the fleet reports from ASG which are fruitful and well documented. From the review, we adapt to the market needs and client expectations, by moving the fleet strategically when circumstances allow. At the same time, we adapt to different pricing models, as well as being able to keep the fleet updated to offer top of the range product to our clientele. Our client database in APAC includes governments, luxury travel organizers, large corporations and UHNWIs.

www.comlux.com



The interior of ACJ318 Elite



WHAT IS CHARTER DEMAND LIKE AT THE MOMENT?

With the reduction in airline flights in Asia, some travellers are stuck inside or outside their own countries. Consequently, the ones who can afford to do so, are turning to private jet operators to arrange flights, despite the higher costs.

According to some analysis, the risk of catching COVID-19 is at least 30 times lower in private jet versus airlines, as it minimizes the contact points and interaction with other passengers. The bottom line is that there is on average 700 touchpoints exposing passengers to the risk of contagion on a single commercial flight, whereas there are only 20 such interactions when using business aviation.

Therefore, there is an increase in demand, but many operators have to turn down requests due to travel restrictions imposed by most Asian countries such as China, Taiwan, Singapore and Malaysia. So private flights still remain constrained by country regulations at this stage.



SPECIAL FEATURE FBO FACILITIES & HANGARAGE

The Asia-Pacific region has seen a significant increase in its business jet and turbine helicopter fleet over the past five years. The number of business jets increased by 147 units, from 1,066 at yearend 2014 to 1,213 at yearend 2019, while the number of turbine helicopters increased by 781 units, from 3,592 in to 4,373 over the same period. These numbers are forecasted to grow due to the increasing population and net wealth in the region.

The rising business and general aviation fleet in the Asia-Pacific region is accompanied by increasing commercial passenger and cargo traffic numbers, which are both forecasted to grow exponentially in the coming years. The region is expected to see an increase of more than two billion annual passengers in the next 20 years – the largest growth of passenger traffic in the world. However, to be able to grow at the projected rate, Asia-Pacific countries need to resolve their aviation infrastructure bottleneck issues. Overcapacity and limited parking issues that plague the regional industry are a major challenge that needs to be addressed in the near future to ensure the continued growth of the Asia-Pacific aviation industry in general, and the business/general aviation industry in specific.

The lack of infrastructure support in the region affects the business and general aviation markets, which are often seen as playing second fiddle to the commercial aviation market, as the limited regional infrastructure – which is shared between the commercial and business/general aviation sectors – gives priority to commercial aircraft.

“

With the expansion of the fleet size, the demand for infrastructure support and parking space is increasing.

- Lei Zhang, Marketing Director at
Shanghai Hawker Pacific BAC

”

Due to limited slot availability for business aviation movements at airports, many operators opt instead for support services provided by Fixed-base Operators (FBOs). An FBO is a business aviation service provider that has been granted the right by an airport to provide services, such as: aircraft re-fueling, aircraft hangarage, light maintenance, and customs immigration, and quarantine (CIQ) services. These FBOs focus mainly on business/general aviation aircraft. As of November 2020, there were 72 Fixed Base Operators (FBO) in the Asia-Pacific region. This number needs to increase in the coming years to ensure there is enough infrastructure available to support the growing Asia-Pacific business/general aviation fleet.

The overcapacity issue at FBOs range in severity across the region. Of the 72 FBOs in the region, Australia is home to the most – 23. These Australian FBOs rarely face overcapacity issues and can comfortably serve the Australia business jet fleet – which stood at 199 units at the end of 2019. On the other side of the spectrum is Hong Kong – with only one FBO available to serve its fleet of 122 business jets (as of yearend 2019). Hong Kong thus faces severe overcapacity issues and is in dire need of new infrastructure. Lei Zhang, Marketing Director at Shanghai Hawker Pacific Business Aviation Centre in China, said in an interview with Asian Sky Group: “With the expansion of the fleet size, the demand for infrastructure support and parking space is increasing. The number of FBO and hangar facilities are expected to increase in the future and with the development of the industry, more professionals and services are required.”

The Future of the FBO Industry

2020s COVID-19 pandemic has hit the aviation industry hard, which witnessed a dramatic decrease in the demand and supply for air transportation due to the strict travel regulations imposed by countries, in an attempt to try and limit the influx of infected cases from foreign regions. The FBO business, which relies on flight activity, hardly saw any traffic in 2020. There is, however, still positivity regarding the future of the FBO business among industry professionals.

Lei Zhang from Shanghai Hawker Pacific Business Aviation Centre said: "The number of flights has decreased significantly compared to previous years. Although the business is affected by COVID-19 in the short-term, the long-term prospect of the industry is still optimistic."

“

Although the business is affected by COVID-19 in the short term, the long term prospect of the industry is still optimistic.

- Lei Zhang, Marketing Director at
Shanghai Hawker Pacific

”

Rita Tam, General Manager at TAG Macau FBO, says: "The main challenges are the travel restrictions imposed by different countries and the restrictions on travelling. There has been a significant impact due to COVID-19; both commercial and business aviation flights have dropped in comparison with last year figures. But there is a lot of potential to open FBOs and hangars in the future, in particular China as they are the one to pick up the economy during the COVID-19 period."

“

There is a lot of potential to open FBOs and hangars in the future, in particular in China as they are the one to pick up the economy during the COVID-19 period.

- Rita Tam, General Manager at
TAG Macau FBO

”

Despite the ongoing pandemic, the Asia-Pacific region witnessed two new FBO facility inaugurations in 2020 – by Bird ExecuJet at New Delhi's Indira Gandhi International Airport, India in July and by Sino Jet at Nanchang's Changbei International Airport, China in October. Additionally, Jetex, in collaboration with Bombardier, announced in October 2020, their plans to open a new FBO in Singapore to meet the growing demand for business aviation in the region.

With the Asia-Pacific business/general aviation fleet expected to grow in the future, companies and investors may feel that FBO business will inevitably bounce back as soon as the COVID-19 pandemic is over.





EXECUJET HAITE

INTERVIEW WITH PAUL DESGROSSEILLIERS; GENERAL MANAGER; EXECUJET HAITE

Interview by Alud Davies

Founded in 2010, ExecuJet Haite is a full-service business jet facility operating at Tianjin's Binhai International Airport. Since then, the company has been growing, both in size and capabilities and in October 2020 it announced the completion of China's largest business jet inspection and first 96-month check on an Embraer Lineage 1000. Paul Desgrosseilliers is the company's General Manager, having joined the company in 2013 from Jet Aviation.

EXECUJET HAITE OPERATES AT TIANJIN AIRPORT, CAN YOU TELL US MORE ABOUT THE FACILITIES THERE?

We opened a custom-built 5,800-square meter hangar and office complex in 2014 at Tianjin Binhai International Airport. The site includes nearly 2,700 square meters of business jet-dedicated hangar space, as well as additional hangar space availability in two other large adjacent hangars operated by our sister company. There's over 10,000 square meters of ramp space for parking, a full aircraft dedicated paint hangar, an on-site engine run-up bay, a customer and employee canteen restaurant, and a direct access security channel.

HOW MUCH DEMAND IS THERE AT THE MOMENT, AND WHAT TYPES OF MAINTENANCE IS BEING PERFORMED?

The demand for higher level base maintenance at our MRO has certainly grown in the past couple of years. As the aircraft have aged, our company has consistently matched our capabilities to keep up with deeper inspections. We routinely perform Embraer Legacy, Bombardier Global, and Dassault Falcon 7X and 8X calendar inspections under various authority approvals. Though they are the most common large inspections performed, we also see Bombardier Challengers, Embraer Lineage and Phenoms and even Gulfstream 550's from time to time for various base maintenance events.

WHAT HAS THE IMPACT OF COVID-19 BEEN ON EXECUJET HAITE, AND ON MROS IN GENERAL?

Much of the negative impact was felt due to the decline of flight activity which was consequently seen in the reduction of line maintenance and non-scheduled events, coupled with operator cost sensitivity and/or delay of any non-essential maintenance or upgrades. This decline has been mostly muted with an increase in base maintenance inputs as border closures have forced many operators and aircraft owners to select domestic MRO facilities as viable alternatives to repositioning the aircraft to foreign facilities as they have elected in the past.

The drastic reduction in trans-Pacific commercial flight activity has made international logistic handling and subsequent part availability during the pandemic an even greater challenge than in more normal times.



AUTHORITY APPROVALS

CAAC Part 145 | EASA Part 145
FAA Part 145 | Cayman Islands
Bermuda | Aruba

WHAT ARE EXECUTET HAITE'S MAINTENANCE CAPABILITIES?

Maintenance Capabilities	
OEM	MODEL
BOMBARDIER (ASF*)	Learjet 60
	Challenger 300
	Challenger 601/604/605
	Challenger 850
	Global XRS / 5000 / 6000
FALCON (ASC*)	Falcon 7X
	Falcon 8X
EMBRAER (ASC*)	Phenom 100 / 300
	Legacy 600 / 650
	Lineage 1000
GULFSTREAM	G450
	G550
BOEING	BBJ 737-7

*ASF - Authorized Service Facility

*ASC - Authorized Service Centre

HOW HAVE YOU DEALT WITH THOSE CHALLENGES?

Our entire team of front-line staff deserves most of the credit and is second to none in providing timely support to our customers. Their dedication to working all hours of the day and night in meeting demanding maintenance schedules while ensuring part shipments across multiple time zones and continents makes this possible.

Challenges notwithstanding, we did have some successes this past year. Over the summer we completed the largest business jet inspection to be performed in China on an Embraer Lineage 1000. The inspection was completed in only eight weeks and encompassed nearly 5,000 maintenance man-hours. We then performed a Legacy 650 96-month inspection, which was also a first in China, and that check totaled more than 3,000 maintenance hours. Through hard work and dedication our team clearly demonstrated to the market their ability to manage and complete complex maintenance inspections that would have previously required expensive and needless ferry flights to foreign repair stations.



HOW WILL YOU CONTINUE TO STAY COMPETITIVE AS A MAINTENANCE PROVIDER?

We seek to exceed customer expectations through safety, service, professionalism and quality. That of course is a relatively straightforward mission statement, but the way our corporate culture enables us to deliver upon these stated goals is exactly what makes it difficult for our competitors to replicate. People here enjoy coming to work and are routinely engaged in generating ideas and leading improvement projects. They are given various opportunities for paid training and career development, supplied with the best tools and are recognized and rewarded through a multitude of programs throughout the year. Most importantly, this allows us to retain our skilled and highly motivated talent, provide for a teamwork approach to serving the customer and open lines of communication between all stakeholders in ensuring a safe and high-quality service experience at every maintenance input.



WHAT ARE YOUR EXPECTATIONS FOR THE MAINTENANCE SECTOR IN THE ASIA PACIFIC, PARTICULARLY CHINA, IN THE COMING YEARS?

I expect the domestic Chinese MRO business to transition back to historical norms and the share of line to base maintenance to revert to a normal mix. Some operators may now return to overseas facilities, while others may now elect for domestic providers dependent upon a positive outcome during a pandemic driven input. This will allow some MRO companies that have delivered superior or similar service offerings to those found abroad to grow market share, while others may return to their previous position in the market.



WHAT CAN THE INDUSTRY EXPECT FROM EXECUJET HAITE IN THE NEAR FUTURE?

Unfortunately, the epidemic had temporarily paused our 2020 expansion plans which did include the addition of an interior shop where craftsmen will perform refurbishing, cabinetry repair, and refinishing. We now intend to fully execute upon these prior initiatives early next year. We also plan to launch some new service offerings in the area of component repair and overhaul, especially those considered to be dangerous goods. Various items for our more common aircraft types will now be serviced in Tianjin under the approval of multiple authorities, thereby greatly increasing our efficiency in meeting turnaround times in addition to providing additional cost savings to our customers.



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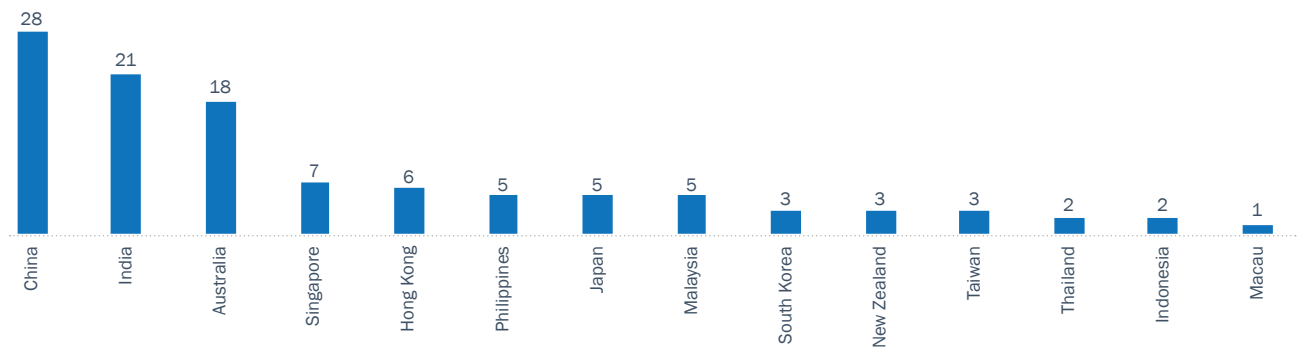


MRO OVERVIEW

Maintenance, Repair and Overhaul (MRO) services were established to secure the proper working and safety of aircraft; they can be carried out as a preventive measure before the emergence of trouble, or as troubleshooting for existing problems. MRO is generally broken down into two main categories: line maintenance and base maintenance.

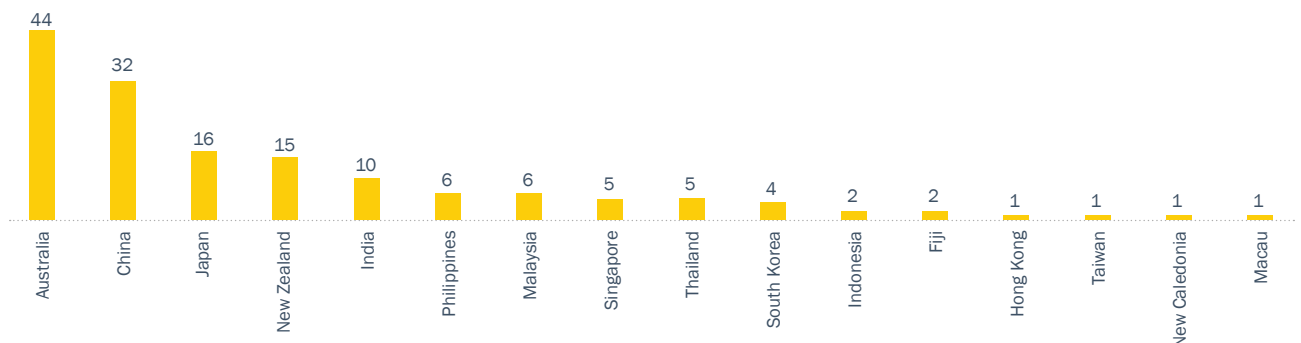
BUSINESS JETS

MRO FACILITIES BY COUNTRY/REGION

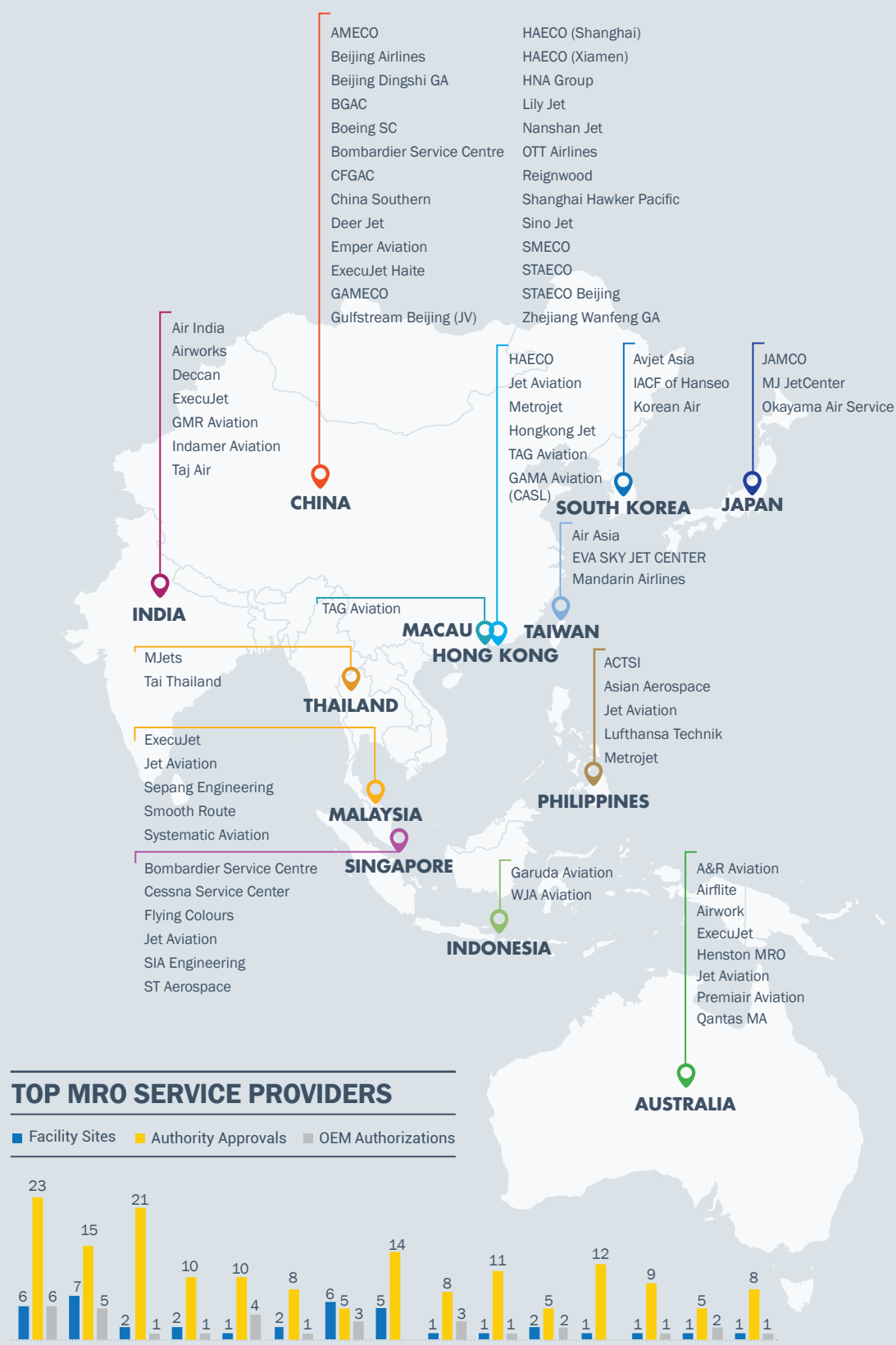


HELICOPTERS

MRO FACILITIES BY COUNTRY/REGION



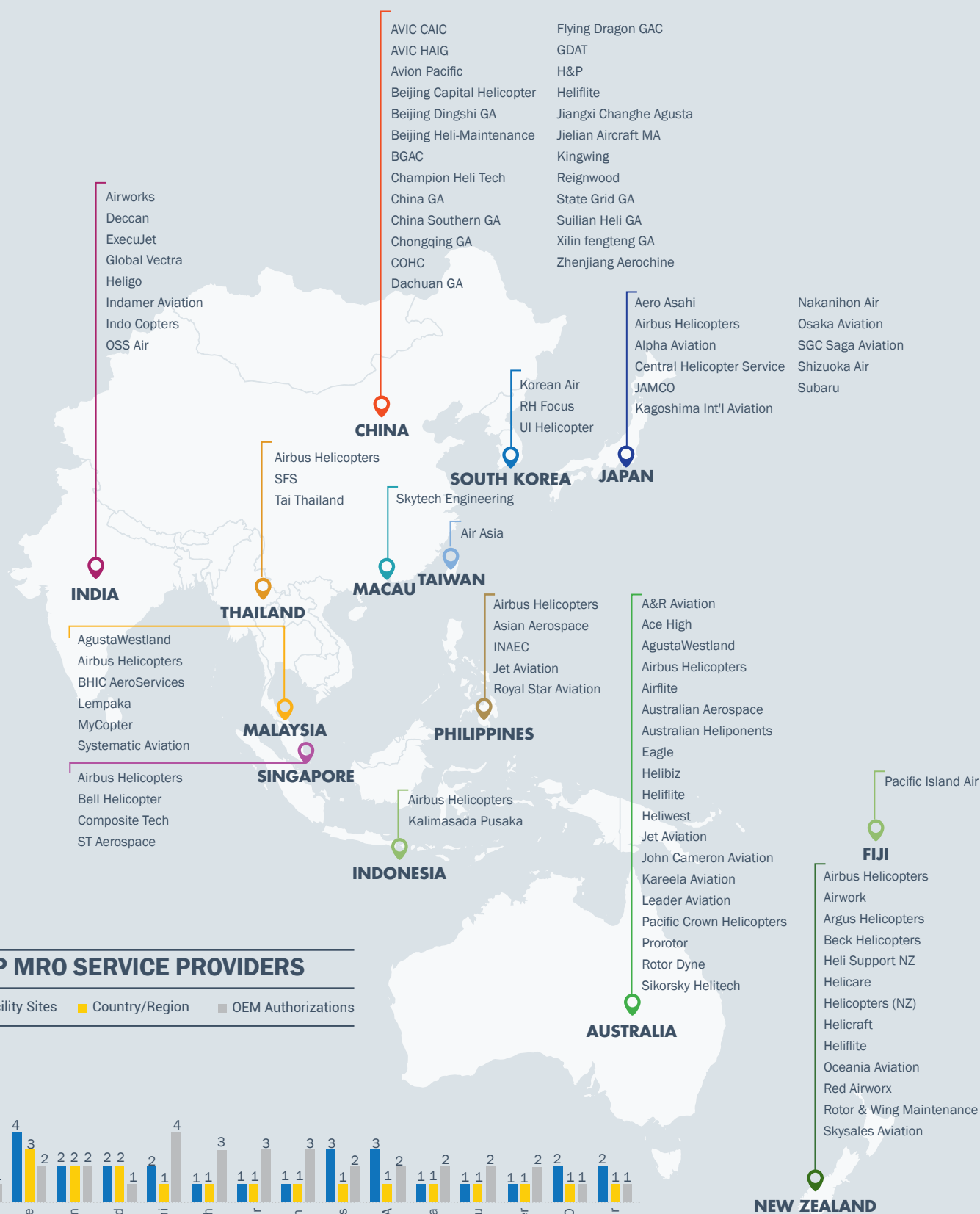
ASIA PACIFIC MRO NETWORKS - BUSINESS JET



ASIA PACIFIC TOP MRO SERVICE PROVIDERS - BUSINESS JET

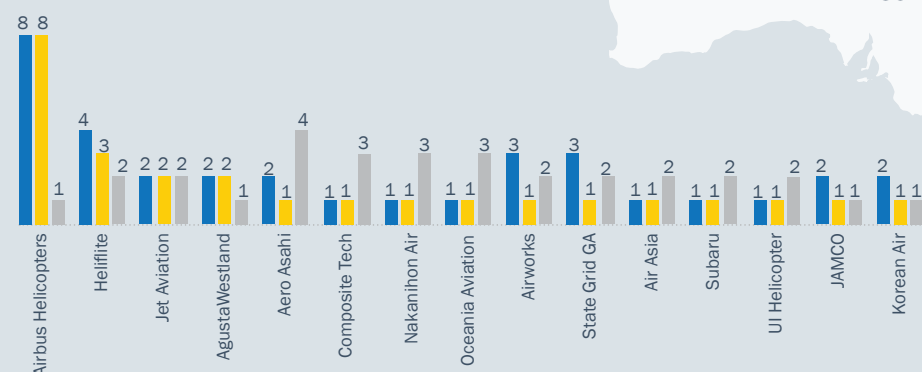
RANK	FACILITY	AUTHORITY APPROVALS / AIRCRAFT MODEL	RANK	FACILITY	AUTHORITY APPROVALS / AIRCRAFT MODEL
1	JET AVIATION	ID IM IN KY MO MY NZ PH PNG SG SM TH TW VN AR AU BM CN EASA FAA GG HK CA	8	HESTON MRO	ID JP KR MY PH QA SB TH VN VU AU CL FJ HK
	Airbus	ACJ Series		Airbus	ACJ320 ACJ321
	Boeing	BBJ Series			
	Bombardier	Challenger, Global, Learjet	9	SHANGHAI HAWKER PACIFIC	IM KY MO BM CN FAA HK
	Dassault	All Falcon models up to 8X		Bombardier	Challenger 604/Challenger 605, Global
	Embraer	ERJ135, Legacy, Lineage, Phenom 100/300		Dassault	Falcon 2000 EX/Falcon 7X/8X/Falcon 900/B EX
	Gulfstream	All Gulfstream models up to G650		Gulfstream	G IV/GIV-SP/G400/G450/G550
	Textron	Citation, Hawker			
2	EXECUJET	ID IM IN KY MY NZ SM TH VN AU BM CN EASA FAA HK	10	GAMA AVIATION (CASL)	IM KR KY MN MO TW BM CN EASA FAA HK
	Bombardier	Challenger, Global, Learjet		Airbus	ACJ319 ACJ320
	Dassault	Falcon 2000/900/7X/8X		Boeing	BBJ
	Embraer	ERJ-135/145, Phenom, Legacy, Lineage		Bombardier	Global
	Gulfstream	GIV/GIV-SP/GV/G200/G300/G350/G450/G500/G550/G650		Embraer	Legacy 600/650, Lineage 1000
	Textron	Citation, Hawker		Gulfstream	G IV/GIV-SP/G400/G450/G550/G650/ G650ER
3	BOMBARDIER SERVICE CENTRE	IM IN KY MO MY PH PK QA SG SM TW UAE AR AU BM CA CN EASA FAA GG HK	11	DEER JET	IM MO BM CN HK
	Bombardier	Challenger, Global, Learjet		Airbus	ACJ Series
				Boeing	BBJ
4	METROJET	IM KY PH QA SM AR BM CA FAA HK		Bombardier	Challenger 604
	Bombardier	Challenger, Global		Dassault	Falcon 7X
	Gulfstream	G200/G450/G550/G650/G650ER		Gulfstream	All Gulfstream models up to G650
				Textron	Hawker
5	EXECUJET HAITE	IM KY MO SM AR BM CN EASA FAA HK	12	HAECO (XIAMEN)	ID JP KH MY SG TH AU BM CN EASA FAA HK
	Bombardier	CRJ100/200, Challenger 604/Challenger 605/Challenger 800/850/Challenger 300/350/Challenger 600/601, Global, Learjet 60 XR		Airbus	ACJ Series
	Dassault	Falcon 7X Falcon 8X		Boeing	BBJ Series
	Embraer	ERJ135, Legacy 600/Legacy 650,Lineage 1000, Phenom 100/Phenom 300			
	Gulfstream	G IV/GIV-SP/G400 G450 GV/GV-SP	13	STAECO BJ	IM KY MO SM AR BM CN FAA HK
				Airbus	ACJ Series
				Boeing	BBJ Series
				Bombardier	CRJ100/200, Challenger 604/605, Global Express XRS
				Embraer	Legacy 600/650, Lineage 1000
				Gulfstream	G200/G300/G350/G450/G500/G550
6	TAG AVIATION	IM KY MO SM BM CN FAA HK	14	AIRFLITE	ID PH TH AU FAA
	Bombardier	CRJ100/200, Challenger 604/Challenger 605/Challenger 800/850/Challenger 600/601		Bombardier	Challenger 600/601/604/605, Global,
	Dassault	Falcon 7X		Embraer	Phenom 100/300
	Gulfstream	G IV/GIV-SP/G400/G300/G350/G450/G550/G650/GV/GV-SP		Textron	Citation, Hawker
7	AIRWORKS	IN KY SM UAE EASA	15	BOEING SC	KR MV TH UA BM CN EASA FAA
	Boeing	BBJ Series		Boeing	BBJ Series
	Bombardier	Challenger, Global, Learjet			
	Dassault	Falcon 900/B EX			
	Embraer	Phenom, Legacy			
	Gulfstream	G IV/GIV-SP/G400/G200/G500/G550/GV/GV-SP			
	Textron	Citation, Hawker			

ASIA PACIFIC MRO NETWORKS - HELICOPTER



TOP MRO SERVICE PROVIDERS

■ Facility Sites ■ Country/Region ■ OEM Authorizations



ASIA PACIFIC TOP MRO SERVICE PROVIDERS - HELICOPTER

RANK	FACILITY	AIRCRAFT MODEL
1	AIRBUS HELICOPTERS	
	Airbus	BK117 B0105 H120 H125 H130 H135 H145 H155 H215 H225 AS355 AS365
2	HELIFLITE	
	Leonardo Robinson	AW109 AW119 AW139 R66
3	JET AVIATION	
	Bell	Bell 430 Bell 505 Bell 205 Bell 206 Bell 212 Bell 230 Bell 407 Bell 412 Bell 427 Bell 429 Bell 204
	MD	MD 500 MD 600
4	AGUSTAWESTLAND	
	Leonardo	AW109 AW119 AW139 AW169 AW189
5	AERO ASAHI	
	Airbus	BK117
	Bell	Bell 430 Bell 206 Bell 412
	Leonardo	AW109 AW139
	MD	MD 900
	Sikorsky	S-76C S-76D S-92
6	COMPOSITE TECH	
	Airbus	BK117 B0105 H120 H125 H130 H135 H155 H215 AS355 AS365 SA315
	Bell	Bell 430 Bell 205 Bell 206 Bell 212 Bell 222 Bell 230 Bell 407 Bell 412 Bell 204
	Leonardo	AW109 AW119 AW139
	Sikorsky	S-76C
7	NAKANIHON AIR	
	Airbus	H135
	Bell	Bell 430 Bell 206 Bell 407 Bell 412 Bell 427 Bell 429
	Leonardo	AW109 AW139
7	OCEANIA AVIATION	
	Airbus	BK117 B0105 H120 H125 H130 H135 AS355
	Bell	Bell 505 Bell 205 Bell 206 Bell 212 Bell 222 Bell 407 Bell 412 Bell 429 Bell 204
	MD	MD 500 MD 530 MD 600 MD 900
	Robinson	R66
	Sikorsky	S-76A++ S-76B S-76C+ S-76C++ S-76D

RANK	FACILITY	AIRCRAFT MODEL
9	AIRWORKS	
	Airbus Bell	H135 Bell 206 Bell 222 Bell 230 Bell 407 Bell 412 Bell 429
	Leonardo	AW109
9	STATE GRID GA	
	Airbus Bell	H125 H225 AS332C Bell 429
11	AIR ASIA	
	Bell	Bell 430 Bell 205 Bell 206 Bell 212 Bell 407 Bell 412 Bell 204
	MD	MD 500 MD 600 MD 900
11	SUBARU	
	Bell Leonardo	Bell 205 Bell 206 Bell 412 Bell 204 AW139
11	UI HELICOPTER	
	Bell	Bell 430 Bell 205 Bell 206 Bell 212 Bell 222 Bell 230 Bell 412
	Leonardo	AW109 AW119 AW139 AW169 AW189
14	JAMCO	
	Airbus Bell Sikorsky	B0105 H135 H215 AS365 Bell 412 S-76C S-76D S-92
14	KOREAN AIR	
	Airbus MD	H155 AS365 MD500 MD520 MD530 MD600

ASIA PACIFIC MRO NETWORKS - TURBOPROP/PISTON



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NOSE TO TAIL AVIATION

INTERVIEW WITH GREG EDMONDS; CHIEF EXECUTIVE OFFICER; SALUS AVIATION

Interview by Alud Davies

The Maintenance Repair & Overhaul (MRO) and aftermarket support industries have proven to be fairly resilient, even during challenging times. A key factor in this resilience is the diversification of services and support, providing more comprehensive solutions for aircraft owners and operators; an approach the Salus Aviation group embodies.

Providing rotary and fixed-wing aftermarket support services and sales for the General Aviation (GA) sector, Salus Aviation's two main subsidiaries – New Zealand-based Oceania Aviation and US-based Heli-Parts Nevada (HPN) incorporate a wide range of capabilities that provide a one-stop-shop for operators – effectively reducing operating costs and minimising aircraft downtime.

CAN YOU PROVIDE AN OVERVIEW OF SALUS AVIATION'S NZ-BASED MRO COMPANY OCEANIA AVIATION AND WHAT MAKES IT UNIQUE?

Oceania Aviation is one of Australasia's largest and most recognised GA support providers. The NZ-owned and operated business delivers a comprehensive range of specialist services across both rotary and fixed wing aircraft, with their capabilities spanning almost all major OEMs. Oceania is unique in the fact that it provides turnkey aircraft support solutions, from regular line maintenance through to upgrading avionics, blade repair, component and engine overhaul, parts supply and reconfiguring aircraft via their deep maintenance facilities. The business also designs and manufactures innovative role equipment via its manufacturing division, providing solutions to operators who need to add functionality to their aircraft to maximise revenue. In a nutshell, Oceania allows aircraft operators to simply fly their aircraft, while letting the MRO business look after the rest.

HOW HAS THE ACQUISITION OF HPN LAST YEAR FURTHER EXPANDED THE SERVICE SCOPE?

The addition of HPN to the Salus group increased the group's footprint within the US market, while expanding its service offerings

to cover the supply, repair and overhaul of Safran engines and Airbus components. The acquisition was also beneficial for HPN in extending its reach into the Asia Pacific region, thus allowing the business to expand its inventory base even further as its loyal customer base grows. HPN is currently the single largest provider of overhauled and used Airbus components and Safran engines globally, also offering hourly engine leases to customers as part of its Engine Power on Demand (EPOD) program. The highly specialised services that the HPN team offer to Airbus customers have a strong level of demand particularly in the Australasian region, where there are a high proportion of Airbus helicopters and Safran engines.

HOW DOES HPN REDUCE DIRECT OPERATING & MAINTENANCE COSTS VIA ITS PARTS SUPPLY?

In many cases, helicopter operators are being pressured by rising maintenance, repair and overhaul bills and are looking for cost-effective alternatives that focus on solutions rather than sales. HPN has a small and specialised team that can fill this need by offering a range of alternative parts solutions for their customers, from part-life or surplus parts, to on-condition parts – all of which can be installed and maintained by their team of technical experts. All these solutions provide the same level of quality and safety but at a significantly lower cost than you could get from the OEM themselves who primarily sell factory-new parts. HPN's extensive

Oceania Aviation MRO Services		
CATEGORY	CAPABILITY	MAIN OEMS
Avionics	Install, Repair, Maintenance, Inspections	All GA aircraft
Helicopter Blades	Repair & Inspection	Airbus/Eurocopter, MD, Schweizer, BK117, Cabri G2
Helicopter Components	Repair, Overhaul, Exchange, Supply	Bell, Dunlop, MD Helicopters, Schweizer
Manufacturing & Design	Spray systems, cargo pods & swings, seat sliders	Airbus/Eurocopter & MD Helicopters
Airframes (fixed and rotary wing)	Maintenance, repair, overhaul, modifications, projects	Most leading GA aircraft types
Piston Engines	Repair & Overhaul, Diesel Upgrades, Exchange	Textron Lycoming, Teledyne Continental Motors, Rotax
Turbine Engines	Repair & Overhaul, Inspection, Lease/Exchange	Rolls - Royce 250 (C20, C20R, C30 & C47 series)
Propellers	Repair & Overhaul, Inspection	Hamilton Standard, Hartzell, McCauley, MT Propeller Sensenich
Parts Supply	New & used parts & components	Airbus/Eurocopter, Bell, MD, Robinson, Schweizer, Beechcraft, Cessna, Diamond, Continental, Lycoming, Rolls Royce

inventory of Airbus and Safran engines, parts and components allow the business to promise every customer the unique product they need, at the best possible price.

WHAT ARE SOME OF THE OTHER COST-SAVING BENEFITS HPN OFFERS TO OPERATORS?

HPN offers innovative Engine Power on Demand (EPOD) and Component Power on Demand (CPOD) leasing programs, which provide customers with fixed hourly direct operating costs, 24-hour customer service and support with no surprise costs. The programs allow customers to lease from HPN's extensive inventory of Airbus components and Safran Arriel engines, only paying for hours flown – rather than the fixed costs of owning the assets. Their 24-hour AOG emergency line also ensures that customers are never left without a solution to any issue they may face.

SALUS AVIATION HAS RECENTLY PARTNERED WITH AIR METHODS CORPORATION (AMC) TO PROVIDE FLEET MANAGEMENT THROUGH HPN'S TRADING COMPANY HELI TRADING NETWORK (HTN). CAN YOU TELL ME ABOUT THIS NEW AGREEMENT?

The agreement, which will be facilitated through HTN's Boulder City facility in Nevada, allows the Salus group to provide comprehensive management services for AMC which include assessment, refurbishment and divestment of their legacy aircraft and inventory, as well as aircraft storage and maintenance as required. These

services will help reduce AMC's Direct Maintenance Costs (DMCs), whilst also providing AMC with strategic sourcing and procurement support when they need new aircraft and parts. The partnership will likely provide additional value to the Salus group's customer network, increasing the supply and subsequently decreasing the costs of quality EMS aircraft and parts into the US and Asia Pacific markets.

DO YOU HAVE PLANS FOR FURTHER PARTNERSHIPS OR EXPANSION INTO OTHER REGIONS?

Absolutely. While Salus Aviation has short-term objectives focused on thriving within the current environment and setting up the business well for recovery post COVID-19, the group will continue to seek growth and acquisition opportunities within both the APAC markets and the USA/Canada region. Despite the current global challenges within the aviation industry and the impossibility of predicting when a rebound will start to be seen, the Salus group sees huge benefits in continuing to explore strategic partnerships like that of AMC, with customers and suppliers alike.

WHICH SEGMENT DO YOU FORECAST GROWTH/DECLINE IN THE COMING MONTH OR YEARS?

In the short term, the tourism segment is seeing a significant decline and is likely to continue to do so while international travel is restricted and recovery uncertain. The same goes for flight training, given the decreased demand for pilots for the short to medium term future as well as limited movement for international students. On the other hand, agriculture is continuing to see growth from a mission segment point of view, with more rotary craft being



reconfigured to allow for agricultural missions. Urban Air Mobility (UAM) is another area which will continue to see innovation and growth in the coming years, with many businesses continuing the race to invest and provide future solutions for large population centres (particularly across the Asian region).

WHAT ARE SOME OF THE KEY FOCUSES IN TERMS OF OCEANIA AVIATION'S SERVICE CAPABILITIES IN THE FACE OF THE CURRENT CHALLENGES IN GENERAL AVIATION?

At the moment, it is about supporting the key customer base and working with them to help keep their operating and maintenance costs down to ensure sustainability of their operations. There has been a lift in demand in particular around the helicopter reconfiguration and role equipment manufacturing areas, in some cases because operators are needing to diversify or add to their mission capabilities. For example, tourism operators have seen a decreased demand from international visitors, so some are looking to add agricultural mission capabilities to their fleet.

HOW IS SALUS AVIATION HELPING AIRCRAFT OPERATORS IN THE FACE OF THE FINANCIAL CHALLENGES THAT COVID-19 HAS PRESENTED?

The Salus group's MRO subsidiaries are continually working with customers to manage both their operating and maintenance costs, with a range of support measures offered - from re-negotiating maintenance and leasing agreements through to offering alternative MRO and parts solutions that can create valuable cost-efficiencies for the customer.

HAS COVID-19 CHANGED THE WAY MROS OPERATE, AND HOW IS SALUS AVIATION HELPING AIRCRAFT OPERATORS DURING THIS TIME?

COVID-19 has most definitely had an impact on the operations of MROs, primarily due to travel restrictions and the requirement for physical distancing and increased hygiene measures. Oceania

HPN Airbus & Safran Specialist Services	
AIRCRAFT	SERVICE/CAPABILITY
AS350 BA, B2, B3 & EC130	Maintenance & Repair
AS350 BA, B2, B3 & EC130	Component Overhaul/Exchange
AS350 dynamic components	Component Power on Demand (CPOD)
Airbus	Parts Supply
ENGINE	SERVICE/CAPABILITY
Safran Arriel (most engine variants)	Engine & Module Overhaul/Exchange
M01, M02, M03, M04, M05	Arriel module Parts and Exchanges
Safran Arriel	Parts & Components Supply
Safran Arriel (most engine variants)	Engine Power On Demand (EPOD)

Aviation has implemented a number of measures to ensure the safety of its customers while allowing continued service, including e-delivery and inspection for aircraft sales and parts, contact tracing, increased use of PPE and new aircraft sanitisation procedures.

IS OCEANIA AVIATION A GREY SHOP, OR DOES IT OPERATE IN AFFILIATION WITH THE OEMS?

Oceania Aviation operate as both a grey shop and in affiliation with OEMs, depending on the OEM and service capability. Oceania is an approved Customer Service Facility/Centre and/or Distributor for a number of major OEMs, including (but not limited to):

BELL | CESSNA | CONTINENTAL | DIAMOND | GARMIN | LYCOMING | MD | ROBINSON | SCHWEIZER | SCHWEIZER

The business has a number of other commercial partnerships and approvals, all of which are important in serving both local and international customers. Some services provided are operating under grey shop conditions, such as Oceania's Turbine workshop (which specialise in Rolls Royce 250 series engines) and Blade repair facility (which service Airbus blades alongside other OEMs).



www.heliveada.com

www.oceania-aviation.com

A large white commercial airplane is shown from a low angle, looking up at its nose and cockpit. The plane is inside a large hangar with a complex metal truss roof structure. The lighting is bright, coming from large windows on the right side of the hangar. The plane's nose is the central focus, with the cockpit windows visible above it. The wings and engines are partially visible on the right side.

CUSTOMER SERVICE NETWORKS

The Asia-Pacific region has a total of 138 Fixed-Wing and 153 Rotary Maintenance, Repair and Overhaul (MRO) facilities, as of November 2020. However, not all of these facilities have the same level of authorization and have been classified differently:

- **AUTHORIZED SERVICE FACILITY (ASF):** An authorized service facility is defined as an organization that has been deemed qualified by the Original Equipment Manufacturer (OEM) to perform maintenance, repair operations and alterations on an aircraft, airframe, or any part for which it is related and within the terms and conditions with the OEM. The degree of maintenance (line, base or both) that the ASF can perform for any aircraft is determined by the OEM. The ASFs have a special relation with the OEMs and provide the same level of maintenance, for which they are authorized, as any OEM, with the additional convenience of being local.
- **ORIGINAL EQUIPMENT MANUFACTURER OWNED (OEM):** OEM facilities are maintenance and repair facilities that have been set-up in different countries to provide factory level MRO services to operators locally. These facilities are owned by the OEMs themselves and thus have many benefits over other facility types- faster procurement and replacement of damaged parts, factory-level guaranteed service, etc.
- **THIRD PARTY:** Third Party facilities are neither owned by the OEMs nor have the authorization to provide maintenance and repair services by the OEMs. Although not directly authorized by the OEM, these facilities have the capabilities to provide maintenance services locally and at cheaper rates.
- **LOGISTIC CENTERS:** Strategically placed OEM authorized facilities aimed at providing replacement of after sales parts to operators or MRO facilities located in the region. Logistic centers are key to continued maintenance operations and can drastically reduce the lead time for sourcing of replaceable aircraft parts.

AIRBUS

■ ASF | ■ OEM | * Logistic Center | Unless otherwise indicated all are third-party providers



■ ASF | ■ OEM | * Logistic Center

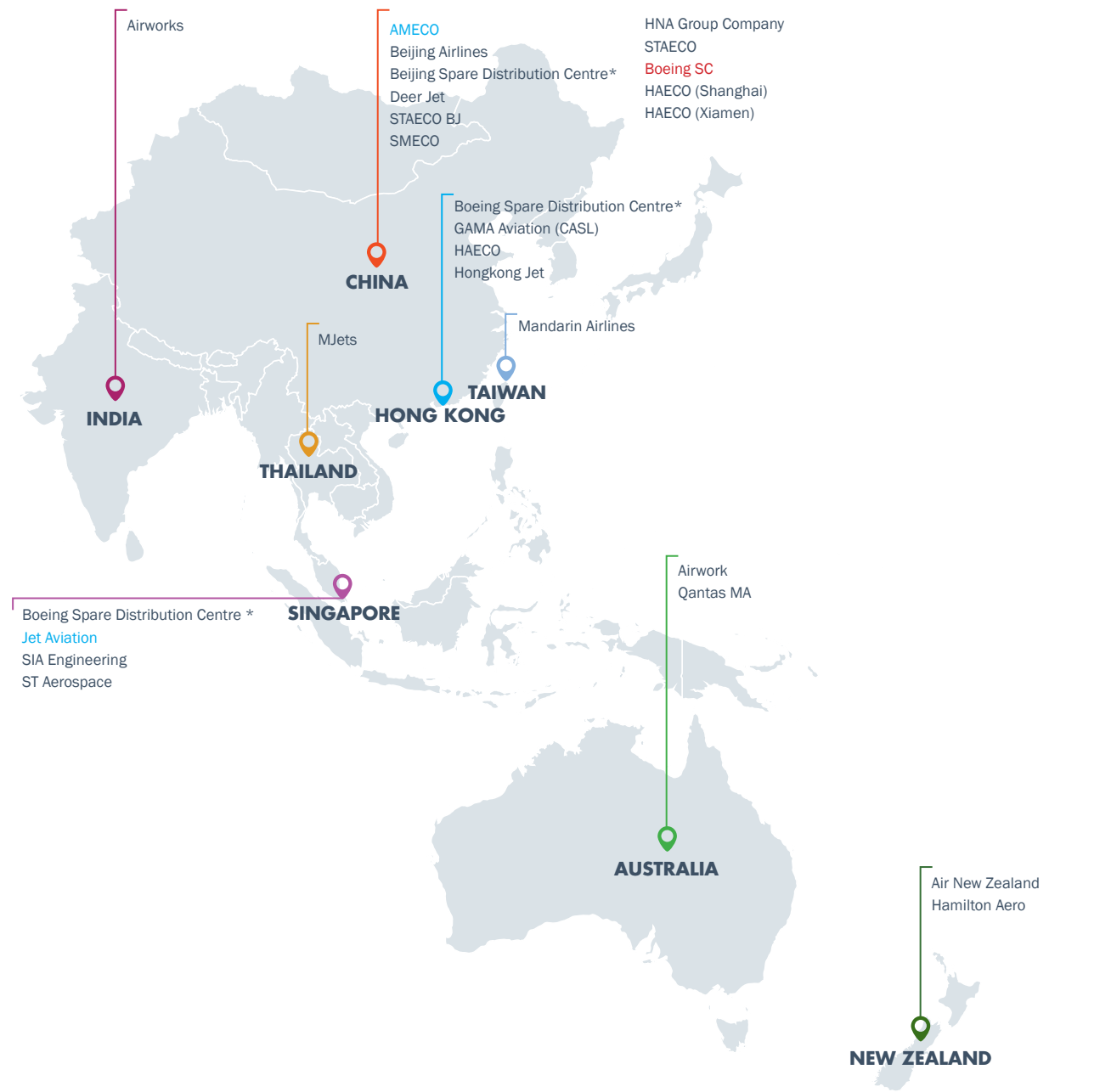
⊙ Both ● Line ○ Base

REGION/CITY	COMPANY NAME	AUTHORITY APPROVALS	ACJ318	ACJ319	ACJ320	ACJ321
MALAYSIA						
SEPANG	Sepang Engineering	EASA IN MY	⊙	⊙	⊙	⊙
SINGAPORE						
SINGAPORE	Jet Aviation	BM FAA HK KY SG	⊙	⊙	⊙	⊙
SINGAPORE	ST Aerospace	AU BM IN		⊙	⊙	

Note: Kindly refer to ASG Infrastructure Report - Country Profiles 2020 for more detailed information on Third Party MRO capabilities

BOEING

■ ASF ■ OEM | * Logistic Center | Unless otherwise indicated all are third-party providers



■ ASF ■ OEM | * Logistic Center

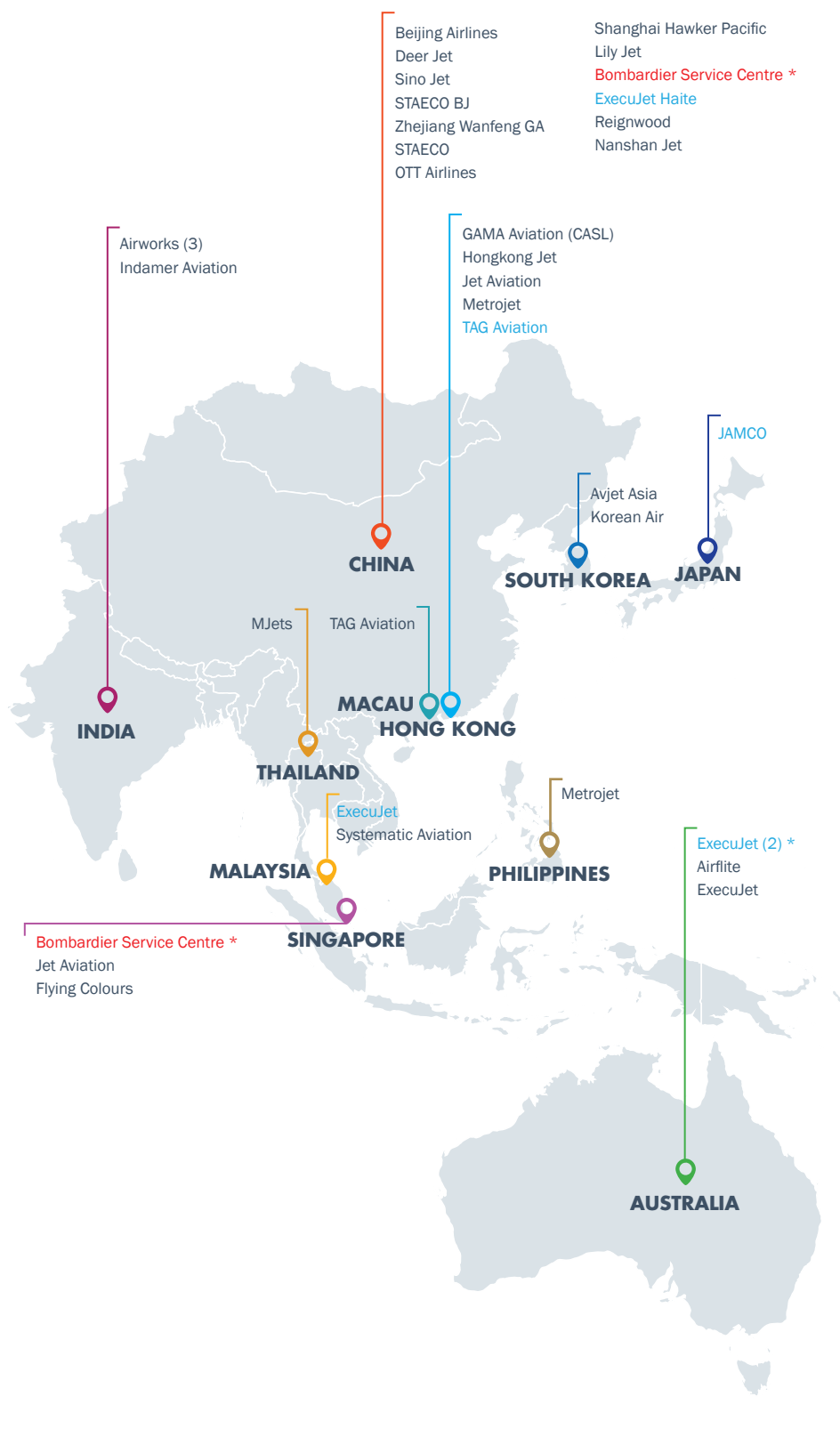
○ Both ● Line ○ Base

REGION/CITY	COMPANY NAME	AUTHORITY APPROVALS	BBJ	BBJ2	BBJ3
CHINA					
BEIJING	AMECO	CN	○	○	○
SHANGHAI	Boeing SC	BM CN EASA FAA KR MV TH UA	○	○	○
SINGAPORE					
SINGAPORE	Jet Aviation	BM FAA HK KY SG	○		

Note: Kindly refer to ASG Infrastructure Report - Country Profiles 2020 for more detailed information on Third Party MRO capabilities

BOMBARDIER

■ ASF | ■ OEM | * Logistic Center | Unless otherwise indicated all are third-party providers



ASF OEM * Logistic Center Both Line Base			Challenger 300/350	Challenger 600/601	Challenger 604	Challenger 605	Challenger 650	CHALLENGER 800/850	CRJ100/200	GLOBAL 5000	GLOBAL 5500	Global Express	Global Express XRS	GLOBAL 6000	GLOBAL 6500	Global 7500	Learjet 35/36 A	Learjet 40 XR	Learjet 45 XR	Learjet 60 XR	Learjet 70/75
REGION/CITY	COMPANY NAME	AUTHORITY APPROVALS																			
AUSTRALIA																					
MELBOURNE	ExecuJet	AU BM FAA ID IM KY SM VN																			
SYDNEY	ExecuJet *	AU BM FAA ID IM KY SM VN																			
CHINA																					
TIANJIN	Bombardier Service Centre *	AR BM CN EASA GG HK IM KY MO SM																			
TIANJIN	ExecuJet Haite	AR BM CN EASA FAA HK IM KY SM																			
HONG KONG																					
HONG KONG	TAG Aviation	FAA HK IM KY SM																			
JAPAN																					
SENDAI	JAMCO	JP																			
MALAYSIA																					
KUALA LUMPUR	ExecuJet	BM CN EASA FAA ID IM KY MY SM TH																			
SINGAPORE																					
SINGAPORE	Bombardier Service Centre *	AR AU BM CA CN EASA FAA GG HK IM IN KY MY PH PK QA SG SM TW UAE																			

Note: Kindly refer to ASG Infrastructure Report - Country Profiles 2020 for more detailed information on Third Party MRO capabilities

DASSAULT

■ ASF | ■ OEM | * Logistic Center | Unless otherwise indicated all are third-party providers



■ ASF | ■ OEM | * Logistic Center

● Both ● Line ○ Base

REGION/CITY	COMPANY NAME	AUTHORITY APPROVALS	Falcon 10	Falcon 20-5	Falcon 2000 EX	Falcon 50 EX	Falcon 7X	Falcon 8X	Falcon 900/B EX
AUSTRALIA									
BRISBANE	ExecuJet	BM FAA KY					●	●	
MELBOURNE	ExecuJet	BM FAA KY					○	○	
PERTH	ExecuJet	BM FAA KY					○	○	
SYDNEY	ExecuJet	BM FAA KY					○	○	
SYDNEY	Jet Aviation	AU EASA FAA PNG TH	○	○	○	○	○	○	○
CHINA									
BEIJING	Deer Jet	BM CN HK IM MO					○		
SHANGHAI	Shanghai Hawker Pacific	BM CN FAA HK IM KY MO GG			○		○	○	○
TIANJIN	ExecuJet Haite	AR BM CN EASA FAA HK IM KY					○	○	
HONG KONG									
HONG KONG	Jet Aviation	AR BM CA CN EASA FAA HK SM IM KY MO					○	○	○
INDIA									
MUMBAI	Airworks	EASA IN KY UAE							○
MUMBAI	Taj Air	IN			○				
NEW DELHI	ExecuJet	IN			○				
MALAYSIA									
KUALA LUMPUR	ExecuJet	BM CN EASA FAA HK IM KY MY			○		○	○	○
SINGAPORE									
SINGAPORE	Jet Aviation	AU BM CN EASA FAA ID IN KY MO PH PNG SG TH	○	○	○	○	○	○	○

Note: Kindly refer to ASG Infrastructure Report - Country Profiles 2020 for more detailed information on Third Party MRO capabilities

EMBRAER

■ ASF | ■ OEM | * Logistic Center | Unless otherwise indicated all are third-party providers



■ ASF | ■ OEM | * Logistic Center

● Both ● Line ○ Base

REGION/CITY	COMPANY NAME	AUTHORITY APPROVALS	ERJ135	Legacy 450	Legacy 500	Legacy 600	Legacy 650	Lineage 1000	Phenom 100	Phenom 300
AUSTRALIA										
MELBOURNE	ExecuJet	AU BM FAA ID IM KY NZ SM VN	●			●	●		●	●
PERTH	Airflite	AU FAA ID PH TH							●	●
PERTH	ExecuJet	AU BM FAA ID IM KY SM VN				●	●		●	●
SYDNEY	ExecuJet	AU BM FAA ID IM KY NZ SM VN	●	●	●	●	●		●	●
CHINA										
BEIJING	STAECO BJ	AR BM CN FAA HK IM KY MO SM				●	●	●		
SHANGHAI	OTT Airlines	CN				●	●			
TIANJIN	ExecuJet Haite	AR BM CN EASA FAA HK KY MO	○	○	○	○	○	○	●	○
HONG KONG										
HONG KONG	GAMA Aviation (CASL)	CN HK				●	●	●		
INDIA										
AHMEDABAD	Indamer Aviation	IN	●			●	●			
CHENNAI	Airworks	IN							●	●
HOSUR	Airworks	IN				●	●		●	●
MUMBAI	Airworks	IN							●	
MUMBAI	Indamer Aviation	IN	●			●	●			
INDONESIA										
JAKARTA	WJA Aviation	FAA ID SM				●	●			
SINGAPORE										
SINGAPORE	Jet Aviation	AR AU BM CN EASA FAA GG ID IM IN KY PNG SG SM TH TW VN	●	●	●	●	●	●	●	●

Note: Kindly refer to ASG Infrastructure Report - Country Profiles 2020 for more detailed information on Third Party MRO capabilities

GULFSTREAM

■ ASF | ■ OEM | * Logistic Center | Unless otherwise indicated all are third-party providers



ASF OEM * Logistic Center Both Line Base			G II/IIB	G III	G IV/GIV-SP/G400	G100/G150	G200	G280	G300/G350	G450	G500	G550	G650	G650ER	G650ER	GV/GV-SP
REGION/CITY	COMPANY NAME	AUTHORITY APPROVALS														
AUSTRALIA																
MELBOURNE	ExecuJet	AU BM FAA ID IM KY MY SM VN														
SYDNEY	ExecuJet	AU BM FAA ID IM KY MY SM VN														
CHINA																
BEIJING	Gulfstream Beijing (JV)	CN FAA GG HK IM KY MO SM														
SHANGHAI	Shanghai Hawker Pacific	BM CN FAA GG HK IM KY MO														
HONG KONG																
HONG KONG	Jet Aviation	AR BM CA CN EASA FAA HK IM KY MO SM														
HONG KONG	Metrojet	AR BM CA FAA HK IM KY QA SM														
SINGAPORE																
SINGAPORE	Jet Aviation	AR AU BM CN EASA FAA GG HK ID IN KR KY MO MY PH SG TH TW VN														

Note: Kindly refer to ASG Infrastructure Report - Country Profiles 2020 for more detailed information on Third Party MRO capabilities

TEXTRON

■ ASF | ■ OEM | * Logistic Center | Unless otherwise indicated all are third-party providers



■ ASF |
 ■ OEM |
 * Logistic Center
 ● Both
 ● Line
 ○ Base

REGION/CITY	COMPANY NAME	AUTHORITY APPROVALS	Citation 500/501(I/ISP)	Citation 510(Mustang)	Citation 525(M2/CJ1/+)	Citation 525A(CJ2/CJ2+)	Citation 525B(CJ3/CJ3+)	Citation 550(Bravo/II/IISP)	Citation 560(Encore/+)	Citation 560XL(Excel/XLS/XLS+)	Citation 650(III/VI/VII)	Citation 680(Sovereign/+)	Citation 680A(Latitude)	Citation 700(Longitude)	Citation 750(X/X+)	Hawker 400	Hawker 4000	Hawker 700/750	Hawker 800/XP	Hawker 800XP	Hawker 850XP	Hawker 900XP
AUSTRALIA																						
GOLD COAST	Premiair Aviation	AU	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
MELBOURNE	Premiair Aviation	AU	●	●	●	●	●	●	●	●	○	●	●	●	●	●	●	●	●	○	●	●
PERTH	Airflite	FAA ID PH TH	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
PERTH	Premiair Aviation	AU	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	●
CHINA																						
BEIJING	Beijing Dingshi GA	CN								●	●	●										
BEIJING	Deer Jet	CN														●			●	●	●	
SHANGHAI	OTT Airlines	CN										●										
XI'AN	CFGAC	CN		●					●													
INDIA																						
MUMBAI	Airworks	EASA IN KY SM UAE	●	●		●		●								●	●	●	●	●	●	●
NEW DELHI	ExecuJet	IN	●	●				●							●		●	●	●	●	●	●
JAPAN																						
OKAYAMA	Okayama Air Service	FAA JP	●	●	●	●	●	●	●	●		●										
MALAYSIA																						
KUALA LUMPUR	Smooth Route	MY						●		●					●							
SINGAPORE																						
SINGAPORE	Cessna Service Centre	FAA ID PH PNG VN	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
SINGAPORE	Jet Aviation	AU BM CN EASA FAA ID IN KY PH PNG SG TH VN								●					●	●	●	●		●	●	

Note: Kindly refer to ASG Infrastructure Report - Country Profiles 2020 for more detailed information on Third Party MRO capabilities

A high-angle, aerial photograph of a Dassault Rafale fighter jet in flight. The jet is silver with dark grey accents and is flying over a mountainous, snow-capped landscape. It is carrying two large external fuel tanks under its wings. In the background, another smaller aircraft is visible, and the sky is a clear, pale blue.

HOW DASSAULT'S FIGHTER JET HERITAGE DELIVERS A BETTER PASSENGER EXPERIENCE

Dassault, as many business jet users know, is the only manufacturer that builds both fighters and business jets. Fighters are incredibly sturdy aircraft, able to sustain nine-G maneuvers and rough carrier landings. While fighter pilots love to fly them, they wouldn't necessarily laud them for their flying comfort.

This unique fighter heritage helps explain the technological edge that Falcons enjoy over their rivals, an advantage that translates into an enhanced flying experience for Falcon passengers

Here are five of them.

1. DESIGN PHILOSOPHY

Strength, lightness and agility are specially-prized in fighter aircraft. A look at the Dassault Rafale fighter reveals a sleek, compact aircraft that can fly at speeds up to Mach 1.8, roll at 270 degrees per second and carry a massive external load of 20,000 pounds.

Dassault Aviation brings the same design priorities to its business jets. Falcons offer large cabins with a relatively small ramp presence. Falcons seem tauter, more graceful and compact, in part because their adaptable wings are smaller than those of competing aircraft.

Reduced wing area saves structural weight, minimizes drag and reduces the effects of turbulence, yielding a smoother ride. On approach, high lift devices are extended, allowing slower, safer landings with extra precise handling. Pilots rave about the crisp handling of Falcons. The bottom line for passengers is a well-mannered aircraft. One that offers an ultra-smooth flight in all conditions and the ability to get in and out of smaller, confined airports typically inaccessible to large business jets.

2. DIGITAL DESIGN TOOLS

All Dassault aircraft are designed using the latest versions of CATIA computer aided design and manufacturing (CAD/CAM) software. It so happens that CATIA, the world's leading engineering and design software, is produced by a Dassault sister company, Dassault Systèmes. CATIA was initially developed to improve the design and production process for fighter aircraft. With CATIA and now the 3DEXperience platform, the new generation product management lifecycle program recently introduced by Dassault Systèmes, engineers could innovate and iterate designs more quickly, adding strength where needed and reducing weight wherever possible, creating airframes that are both lightweight and strong. It is particularly useful in precision manufacturing, which ensures products come out the same way every time, with zero random error. A level of precision visible in the flawless external lines of each and a level, but even more so when peeking under its skin.

It is true that other aircraft manufacturers use Dassault Systèmes software, too. Not surprising, since it has become the world

3D design standard. But no bizjet maker has longer or deeper experience with these advanced tools than Dassault, something that allows the company to keep one step ahead of the competition.

And this makes a difference. Which leads us to point 3.

3. TOP ENGINEERS AND TEST PILOTS

Think of CATIA as a piano and Dassault engineers as concert pianists, playing different kinds of music but each using the same instrument. Though serving vastly different markets, Dassault fighters and business jets are designed by the same engineers and built to the same exacting production standards, and share tools and best practices from the same Dassault Systèmes software suite.

Similarly, Dassault's fighter test pilots are also its business jet test pilots—and they are a demanding lot. They provide invaluable input into the design of new Falcons, identifying and adapting the latest fighter derived technologies that can improve Falcon handling and safety.

4. A FOCUS ON HANDLING AND SAFETY THROUGH DIGITAL FLIGHT CONTROL TECHNOLOGY

The first business jet equipped with digital flight control technology was Dassault's Falcon 7X, introduced in 2005. The new Falcon 8X ultra-long range trijet, derived from the 7X, also features a digital flight control system, as will all subsequent Falcon models. The Falcon digital flight control system (referred to by many as a fly-by-wire system) reduces pilot workload by minimizing constant small input corrections to maintain flightpath trajectory. DFCS also responds automatically and more smoothly to turbulence, helping to further smooth out the ride for passengers.

Dassault began developing digital control technology for Mirage fighter jets way back in the 1970s. Its "closed loop" system is more automated

than in other business jets, eliminating, for example, the need for the pilot to constantly trim off control pressure as speed and attitude change. Closed loop DFCS is a direct spinoff of fighter design, where the pilot has to select a trajectory as quickly as possible so he can attend to other things going on in a potential combat situation.

5. HEAD UP DISPLAYS AND ENHANCED VISION SYSTEMS

Like digital flight control, head-up displays were invented for fighter pilots, so they could keep their eyes on flight instruments without looking down into the cockpit. Dassault was the first manufacturer to install a HUD on a business jet (the Falcon 2000) and has had more experience refining these systems for business jet use than anyone else. The company's most advanced HUD, the FalconEye Combined Vision System, provides an accurate picture of the surrounding terrain and airport environment day or night no matter what the weather, greatly enhancing safety during flight and facilitating poor visibility landings. It does this by blending a virtual terrain database with inputs from six cameras capturing light from the visual spectrum to infrared—the first time in business aviation that virtual and enhanced vision capabilities have been combined in a single HUD. FalconEye allows the pilot to fly approaches into almost any airfield, whether or not it is equipped with the kind of precision instrument landing systems found at larger airports. With FalconEye, pilots can safely descend to within 100 feet of the runway before picking up natural vision cues.

Falcon owners and passengers may not always be aware of all of this fighter jet technology transfer, though many savor the fighter mystique attached to the Dassault trademark and some may even regard their Falcon as their own private air force. But there's no doubt they appreciate the many flying benefits that the storied Dassault fighter heritage affords.

www.dassaultfalcon.com





SPECIAL FEATURE

IMPACT OF COVID-19 ON THE MRO MARKET

The COVID-19 outbreak was first identified in December 2019 and was subsequently classified as a pandemic by the World Health Organization (WHO) in March 2020. There have been more than 54 million confirmed COVID-19 cases as of November 2020.

The pandemic has had a significant negative impact on the aviation industry. There has been a complete standstill in flight activity, with governments asking its citizens to follow social distancing rules and closing its borders to ensure there is no influx of new cases from abroad. With increased travel restrictions and a decrease in demand among travelers, flights have been reduced mainly to freight and repatriation missions although the majority of aircraft have been grounded for most of the pandemic.

The lack of flight activity means a decrease in demand for non-scheduled and line maintenance operations – a major source of revenue for the Maintenance, Repair and Overhaul (MRO) industry. Asia-Pacific MRO businesses have not been significantly affected by the pandemic. The decrease in line maintenance and non-scheduled maintenance, due to the low flight activity, has been matched by an increase in base maintenance requirements. Regional MROs have also witnessed an increase in their customer base during the pandemic. Due to global lockdown and border closures, operators that previously relied on OEM operated MRO facilities in the west, now must turn to domestic MRO facilities as an alternative.

COVID-19 has forced many industries to adapt in order to survive. MROs that earlier focused only on commercial and business aviation aircraft are now focusing on other business – such as EMS and agriculture industries.

Paul Desgrosseilliers, General Manager at **ExecuJet Haite Aviation Services China**, said in an interview with Asian Sky Group: "Much of the negative impact was felt due to the decline of flight activity and consequently seen in the reduction of line maintenance and

non-scheduled events. This decline has been mostly muted with an increase in base maintenance inputs as border closures have forced many operators and aircraft owners to select domestic MRO facilities as viable alternatives to repositioning the aircraft to foreign facilities as they have elected in the past".



COVID-19 has forced operators to select domestic MRO facilities as viable alternatives to foreign counterparts.

- Paul Desgrosseilliers, General Manager at ExecuJet Haite Aviation Services China



Dexter Ampong, General Manager at **INAEC Philippines**, said: "COVID-19 has not had much difference in our business. Aircraft owners were still using their aircraft after a month or two of the initial shock of the pandemic. So, business as usual. Repairs and maintenance still have to be done."



Business is running as usual. Repairs and maintenance still has to be done.

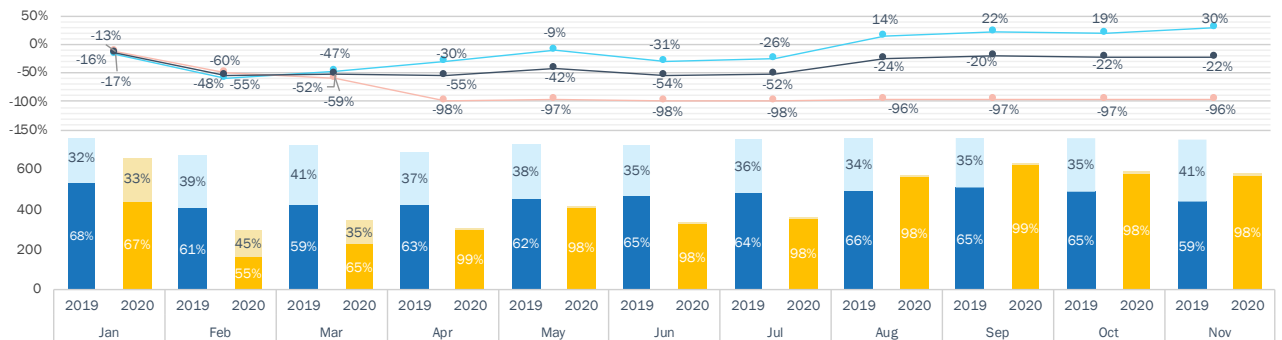
Dexter Ampong, General Manager at INAEC Philippines



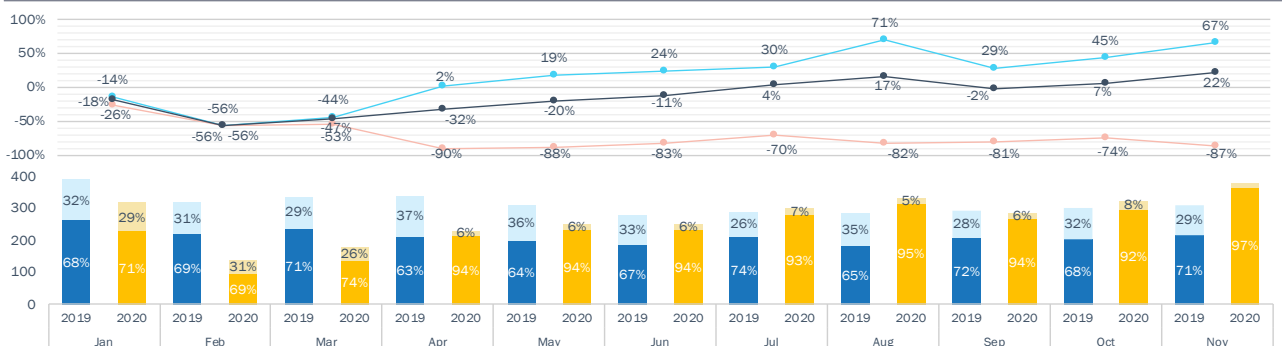
BUSINESS JET MOVEMENT BY CITY

■ 2019 Domestic Flights ■ 2019 International Flights ■ 2020 Domestic Flights ■ 2020 International Flights
 — % Change in Domestic Flights — % Change in International Flights — % Change in Total Flights

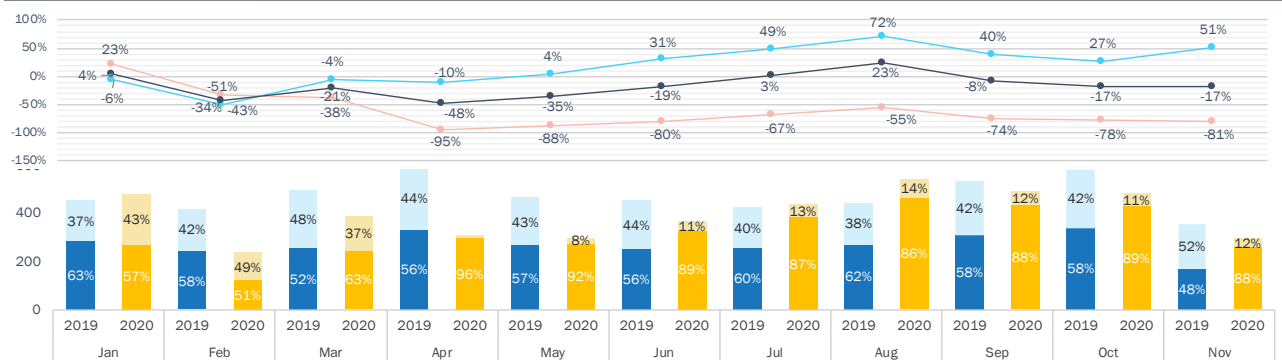
BEIJING



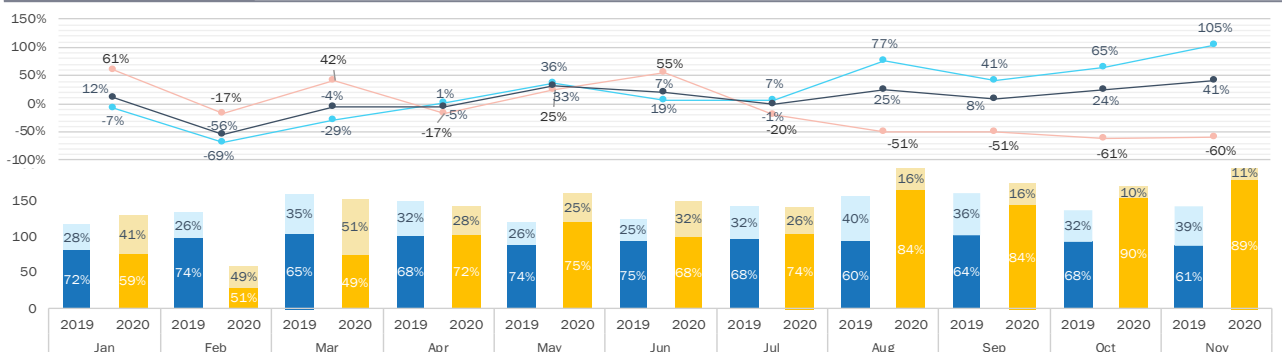
SHENZHEN



SHANGHAI



GUANGZHOU



Source: 1. https://en.wikipedia.org/wiki/COVID-19_pandemic

Liv Lewis-Long, Salus Aviation: "Reduced flight hours translates into a downturn in demand for maintenance, overhauls, and upgrades. As well as tourism, the flight training industry has been severely impacted with significant redundancies worldwide and little demand for new pilots in the current environment. This means lower maintenance and repair requirements for large flight school fleets. On the other hand, both the EMS and agriculture industries are seeing increased activity, which provides MRO firms the opportunity to increase business within these sectors to offset the reduction in demand from others. For MROs, it is about adaptability and flexibility in order to sustain business in the short term and set up for long term success."

“

For MROs, it is about adaptability and flexibility in order to sustain business in the short term and set up for long term success.

- Liv Lewis-Long, Head of Marketing & Communications at Salus Aviation

”

POST COVID-19 ERA

Companies in the region are optimistic about the future of the Asia-Pacific MRO business. With the border closures forcing operators and owners to depend on domestic MRO facilities, these MROs have the opportunity to stand out and prove they are just as capable of providing similar or superior services as compared to their western counterparts. MRO operations conducted within the Asia-Pacific region have the added benefits of being cheaper and having a lower lead time for Asia-Pacific operators.

James Walker, Commercial Manager at Airflite: "At the start of the pandemic, during the lockdown, business was slow, however in recent months General/Executive Aviation activity has picked up in the region and in turn MRO demand has been higher than expected. Airflite predict this trend will last into mid 2021 before Airlines return to some sense of normality."

“

In recent months General/Executive Aviation activity has picked up in the region and in turn MRO demand has been higher than expected.

- James Walker, Commercial Manager at Airflite

”

Some operators may, once the lockdown ends, return to overseas MRO facilities, however, some may be content with and opt for domestic MRO service providers. The regional MROs thus have an opportunity to increase their client base and shift client preferences to maintenance services provided by Asia-Pacific MROs.

Paul Desgrosseilliers, Execujet Haite: "I expect the domestic Chinese MRO business to transition back to historical norms and the share of line to base maintenance to revert to a normal mix. Some operators may now return to overseas facilities, while others may now elect for domestic providers dependent upon a positive outcome during a pandemic driven input. This will allow some MRO companies that have delivered superior or similar service offerings to those found abroad to grow market share, while others may return to their previous position in the market."

“

Clients may continue relying on domestic MRO companies that have delivered superior or similar service offerings to those found abroad even after the pandemic.

- Paul Desgrosseilliers, General Manager at Execujet Haite Aviation Services China

”

Alex Law, Senior Maintenance Support Manager at Hongkong Jet: "Since the outbreak of COVID-19 in early 2020, business has dropped significantly compared with 2019 due to heavy travel restrictions. But the market will gradually recover. A large number of clients are eagerly waiting to fly again as long as the travel restrictions are eased or more travel bubble schemes are formed. We believe that the demand for travel is strong and is on the rise, which will impact the MRO market positively in the future."

“

The demand for travel is strong and is on the rise, which will impact the MRO market positively in the future.

- Alex Law, Senior Maintenance Support Manager at HongKong Jet

”

Additionally, certain regions have started recovering and stabilizing from the pandemic and have reopened domestic flight routes. International borders are still closed to prevent imported cases of the virus. Thus, with domestic flight activity on the rise, domestic MRO facilities can further increase their market share by overseeing non-scheduled aircraft maintenance.



New Aviation Hangar Parking and Maintenance Facility Operational in Clark, 2021

全新公务机机库及维修站设施
2021年全面投入运营



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GAMA AVIATION

INTERVIEW WITH **DAVID WEARMOUTH;**
HEAD OF COMMERCIAL;
GAMA AVIATION

Interview by Alud Davies

Gama Aviation solidified its relationship with China Aircraft Services Ltd (CASL) in November 2017 when it became the General Sales Agent for CASLs fixed base maintenance packages in Hong Kong. Now, three years later, the collaboration is a major player in the Hong Kong maintenance market. David Wearmouth is Gama Aviation's Commercial Manager. He has more than 10 years' aviation experience, and joined the company from Metrojet.

WHAT DOES THE COLLABORATION WITH CASL MEAN FOR GAMA AND ITS AIRCRAFT MAINTENANCE SERVICES?

It is probably fair to say that most people will agree that Hong Kong is one of the major international business aviation hubs, and that the build-up of support services in Hong Kong since the early 2000s has helped secure this status. As a global company, it is only natural that Gama Aviation looks to offer services in critical areas, much like we do in Europe, the US and the Middle East. One of the key questions for us is "What can we offer that is different?". It was at this point that we were introduced to CASL, that had already identified the opportunity business aviation presented, but perhaps didn't have the skillset or time to convert the opportunity into a viable business. With CASLs access to infrastructure, something no other company can provide, and Gama Aviation's expertise that has been built up over the last 37 years, a collaboration was born that now sees CASL offering full business aviation maintenance services from its own facility at HKIA. The key takeaway for the market is that there is now an offering in Hong Kong that directly compares to other MROs; the client pays for a maintenance package with no add-ons. There are no hangar fees, no equipment rental fees, and all work is performed by CASL in its facilities with its own, dedicated business aviation licensed engineers.

WHAT ARE GAMA AVIATION'S MAINTENANCE CAPABILITIES?

MAINTENANCE CAPABILITIES	
OEM	MODEL
GULFSTREAM	G450
	G550
	G650
BOMBARDIER	Global 5000/XRS/6000
EMBRAER (ASF*)	Legacy 650

*ASF – Authorized Service Facility

HAS DEMAND FOR AIRCRAFT MAINTENANCE INCREASED SINCE THE START OF THE 2020? IS THERE MORE LINE MAINTENANCE OR HEAVY MAINTENANCE BEING CONDUCTED?

There is always demand for business aviation maintenance, as you can see by the number of business aviation MROs present in Hong Kong. Clearly the reduction in flying hours has seen a drop in unscheduled maintenance in 2020, but base maintenance is still required as per calendar requirements, therefore that has kept us busy. The drop in transient traffic has had quite an effect on business, so like many others, we are looking forward to the return of normal flying activities as soon as it is safe to do so.

HOW HAS GAMA AVIATION DEALT WITH THE CHALLENGE OF PARKING IN HONG KONG, PARTICULARLY AS MANY AIRCRAFT ARE GROUNDED NOW?

The key outcome of our collaboration with CASL is that space that was once purely dedicated to commercial airlines is now able to be shared with business jets. Whilst this doesn't help with long term parking solutions, it does mean that for each aircraft we are maintaining at CASL, an extra space is available on the ramp. We have had up to 10 aircraft under maintenance at one time at CASL which is a great use of scarce resource.

WHAT EFFECT WILL OEMS FOCUSING MORE ON THE MAINTENANCE INDUSTRY HAVE FOR 3RD PARTY MAINTENANCE PROVIDERS SUCH AS GAMA/CASL?

Undoubtedly it provides a challenge. OEMs cannot provide all the support alone, and they do need the assistance of third-party maintenance providers. The restrictions imposed by OEMs on certain tasks can be frustrating, and at the end of the day, it is the business jet owner who sees the increased costs associated with this. We don't have any intention of competing with the OEMs in Asia on the big checks such as the 8C or 120 month - something which we do successfully at our UK and US locations - but we do feel that inspections below this level can be achieved in a more cost effective manner at a local, experienced MRO. Unfortunately, adding in hangar costs that exceed thousands of US dollars per day means it is often more cost effective to fly the aircraft away, but now, with a facility able to offer normal check packages with no hangar costs, the argument to remain in Hong Kong becomes even stronger, as it prevents 'dead hours' on the airframe, engine and life limited components such as the landing gear

HOW DOES GAMA AVIATION / CASL STAY COMPETITIVE AS A MAINTENANCE PROVIDER?

Quite simply by offering services that clients can relate to globally. Hong Kong has always been slightly different, and now we are aiming to align it to our global network. The client pays for labour

and parts, and that's it. Whilst Hong Kong undoubtedly remains an expensive place to operate, CASL's distinct advantage is its existing infrastructure that can now be leveraged with a new line of business.

HOW IS GAMA AVIATION / CASL CONTINUING TO SUPPORT ITS CLIENTS DURING THIS CHALLENGING PERIOD?

In short, by delivering what we promise. We have used our supplier relationships to ensure clients are getting the best value for the services that they require. Even in periods when no flights are taking place we are doing all of the things you would expect of an international business aviation services provider.



WHAT ARE YOUR EXPECTATIONS FOR THE AFTERMARKET/MAINTENANCE INDUSTRY IN ASIA?

Demand will increase, but so will the number of companies that think it is easy to make a quick buck by offering substandard maintenance services. Aircraft owners need to ensure that they are selecting reputable suppliers that can also offer the best value for money. On an aircraft sale, you can see the effect that this has on asset value. An aircraft with a clean set of books, that has been managed by a respected international operator, combined with a check history with a similarly placed MRO, is attractive to a buyer. Simply would you buy a Ferrari that is serviced by Ferrari, or one from Bob's Autos? This is important as most people that will continue to fly in the coming years will be doing so with tightened purse strings, therefore it is imperative to ensure that the right money is spent in the right places. Skimping on maintenance is not a way to save money but having the ability to select the best value suppliers will ensure maintenance spend goes further.

WHAT CAN THE INDUSTRY EXPECT FROM GAMA AVIATION / CASL IN THE COMING YEARS?

We will continue with our strategy to offer high quality, best value maintenance services in Hong Kong. Our team is doing great work at CASL, and we expect this offering to go from strength to strength as more clients see that there is a great value offering available in Hong Kong. We have the benefit of two large companies behind our maintenance offering, therefore this provides some much-needed stability at a time like this. We will also be looking to take advantage of the full range of services we can offer from the CASL facilities.

www.gamaaviation.com

Gama Aviation

AIRBUS HELICOPTERS

■ ASF | ■ OEM | * Logistic Center | Unless otherwise indicated all are third-party providers



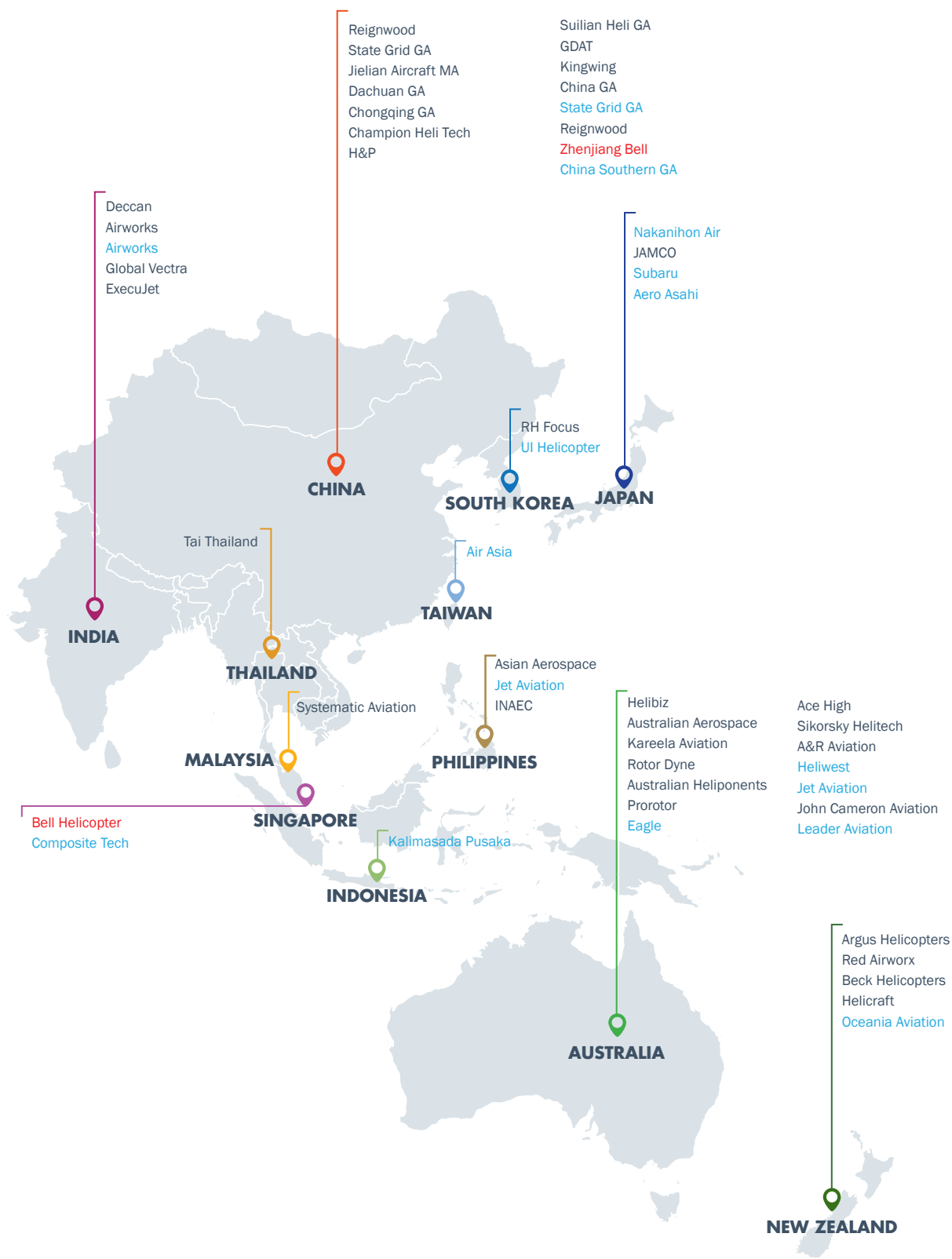
■ ASF |
 ■ OEM |
 * Logistic Center
 ● Both
 ● Line
 ○ Base

REGION/CITY	COMPANY NAME	AS355	AS365	BK117	B0105	H120	H125	H130	H135	H145	H155	H215	H225	SA315	SA341
AUSTRALIA															
BRISBANE	Airbus Helicopters	●	●	●		●	●	●	●	●	●	●	●		
SUNSHINE COAST	Pacific Crown Helicopters	●				●	●	●							
SYDNEY	John Cameron Aviation	●				●	●	●	●	●					
CHINA															
BEIJING	Beijing Capital Helicopter						●	●							
HUBEI	State Grid GA						●								
SHENZHEN	COHC		●				●				●	●	●		●
INDIA															
NEW DELHI	Indo Copters						●	●	●		●				
INDONESIA															
JAKARTA	Airbus Helicopters		●			●	●	●	●	●					
JAPAN															
NAGOYA	Nakanihon Air							●							
TOKYO	Airbus Helicopters	●	●			●	●	●	●		●	●	●		
MALAYSIA															
KUALA LUMPUR	Airbus Helicopters	●	●			●	●	●	●	●	●	●	●		
NEW ZEALAND															
AUCKLAND	Airbus Helicopters	●				●	●	●	●	●					
AUCKLAND	Airwork	●	●	●		●	●	●		●					
LUGGATE	Heli Support NZ	●				●	●	●							
PHILIPPINES															
MANILA	Airbus Helicopters	●	●	●	●	●	●	●	●	●	●				
SINGAPORE															
SINGAPORE	Airbus Helicopters	●	●	●	●	●	●	●	●	●	●	●			
SINGAPORE	Composite Tech	●	●	●	●	●	●	●	●		●	●		●	
SINGAPORE	ST Aerospace	●					●				●				
THAILAND															
BANGKOK	Airbus Helicopters	●	●			●	●	●	●	●	●				

Note: Kindly refer to ASG Infrastructure Report - Country Profiles 2020 for more detailed information on Third Party MRO capabilities

BELL HELICOPTER

■ ASF | ■ OEM | * Logistic Center | Unless otherwise indicated all are third-party providers



		ASF	OEM	* Logistic Center	Both	Line	Base						
REGION/CITY	COMPANY NAME	Bell 204	Bell 205	Bell 206	Bell 212	Bell 222	Bell 230	Bell 407	Bell 412	Bell 427	Bell 429	Bell 430	Bell 505
AUSTRALIA													
COFFS HARBOUR	Eagle	●	●	○	○			○	○				
LONSDALE	Leader Aviation	○	○	○	○			○	○				○
PERTH	Heliwest			○				●					
SYDNEY	Jet Aviation	●	●	○	●			○	●		●		
CHINA													
ZHENJIANG	State Grid GA										●		
ZHENJIANG	Zhenjiang Bell			●				●					●
ZHUHAI	China Southern GA							○					
INDIA													
MUMBAI	Airworks			●		●	●	●	●		●		
INDONESIA													
JAKARTA	Kalimasada Pusaka		○	○	○			○	○	●	●		○
JAPAN													
NAGOYA	Nakanihon Air			○				●	○	●	●		○
TOCHIGI	Subaru	○	○	○					○				
TOKYO	Aero Asahi			○					○			●	
NEW ZEALAND													
AUCKLAND	Oceania Aviation			○									○
PHILIPPINES													
MANILA	Jet Aviation		○	○	○		●	●	○	●	●	●	●
SINGAPORE													
SINGAPORE	Bell Helicopter			○				○	○		○		○
SINGAPORE	Composite Tech	●	●	●	●	●	●	●	●			●	
SOUTH KOREA													
SEOUL	UI Helicopter		○	○	○	○	○		○			●	
TAIWAN													
TAINAN	Air Asia	○	○	○	○			●	○			●	

Note: Kindly refer to ASG Infrastructure Report - Country Profiles 2020 for more detailed information on Third Party MRO capabilities

LEONARDO HELICOPTERS

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■ ASF | ■ OEM | * Logistic Center

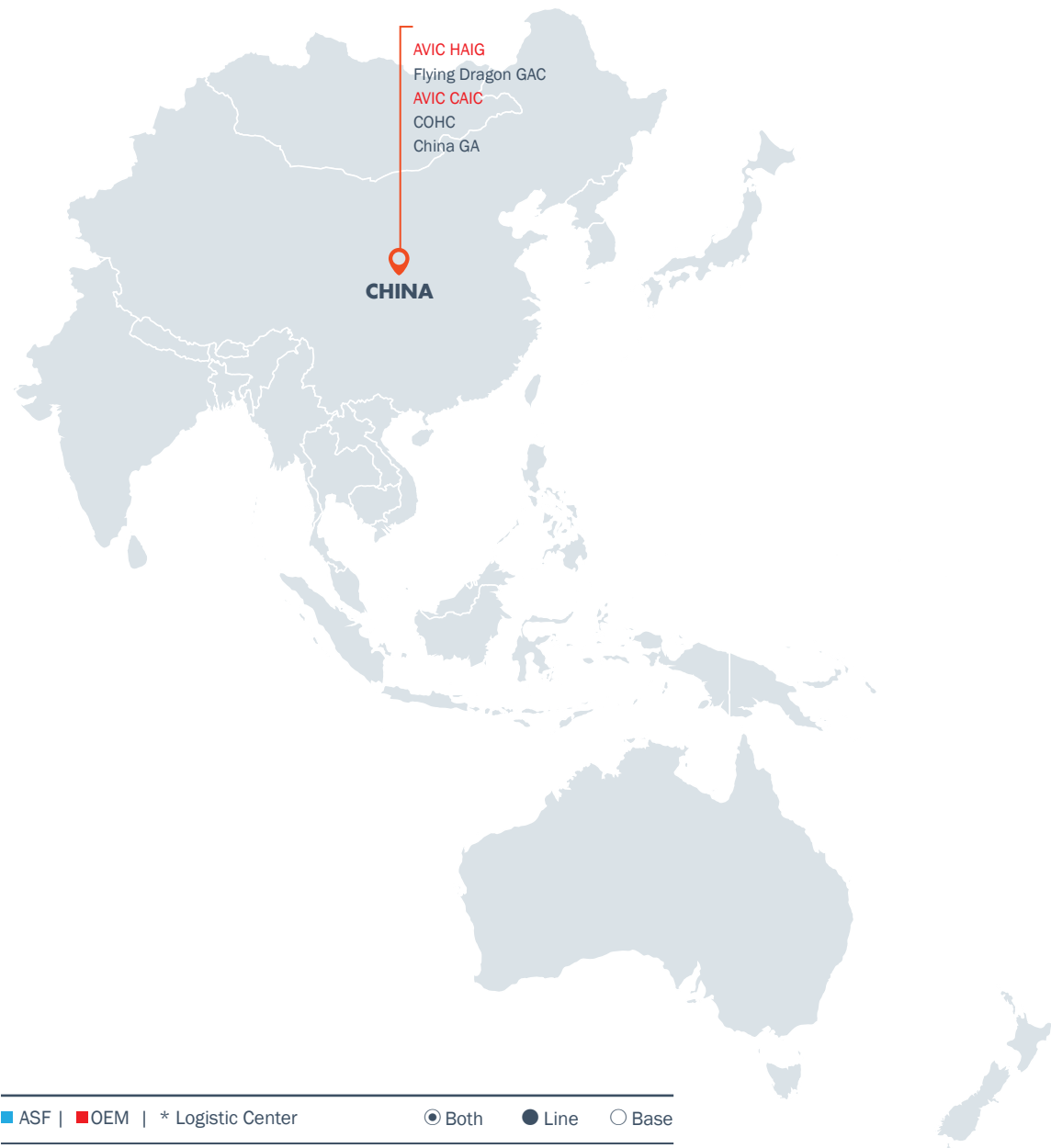
● Both ● Line ○ Base

REGION/CITY	COMPANY NAME	AW109	AW119	AW139	AW169	AW189
AUSTRALIA						
BRISBANE	Heliflite	●	●	●		
MELBOURNE	AgustaWestland	○	○	○	○	
PERTH	Airflite			●		
SYDNEY	Heliflite	●	●	●		
CHINA						
JINGDEZHEN	Jiangxi Changhe Agusta	●	●	●		
SHANGHAI	Kingwing	●	●	○		
INDIA						
MUMBAI	Airworks	●				
MUMBAI	Global Vectra			●	●	
NEW DELHI	Airworks	●				
NEW DELHI	OSS Air	●	●	●		
JAPAN						
KAGOSHIMA	Kagoshima Int'l Aviation	○				
NAGOYA	Nakanihon Air	○		●		
SHIZOUKA	Shizuoka Air	●		●		
TOCHIGI	Subaru			○		
TOKYO	Aero Asahi	○		●		
MACAU						
MACAU	Skytech Engineering			●		
MALAYSIA						
KUALA LUMPUR	AgustaWestland *	●		●	●	●
NEW ZEALAND						
NELSON	Helicopters (NZ)	○		○		
PHILIPPINES						
MANILA	Royal Star Aviation	●	●			
SINGAPORE						
SINGAPORE	Composite Tech	●	●	●		
SOUTH KOREA						
SEOUL	UI Helicopter *	○	○	○	○	○
THAILAND						
BANGKOK	SFS			●		

Note: Kindly refer to ASG Infrastructure Report - Country Profiles 2020 for more detailed information on Third Party MRO capabilities

AVICOPTER HELICOPTERS

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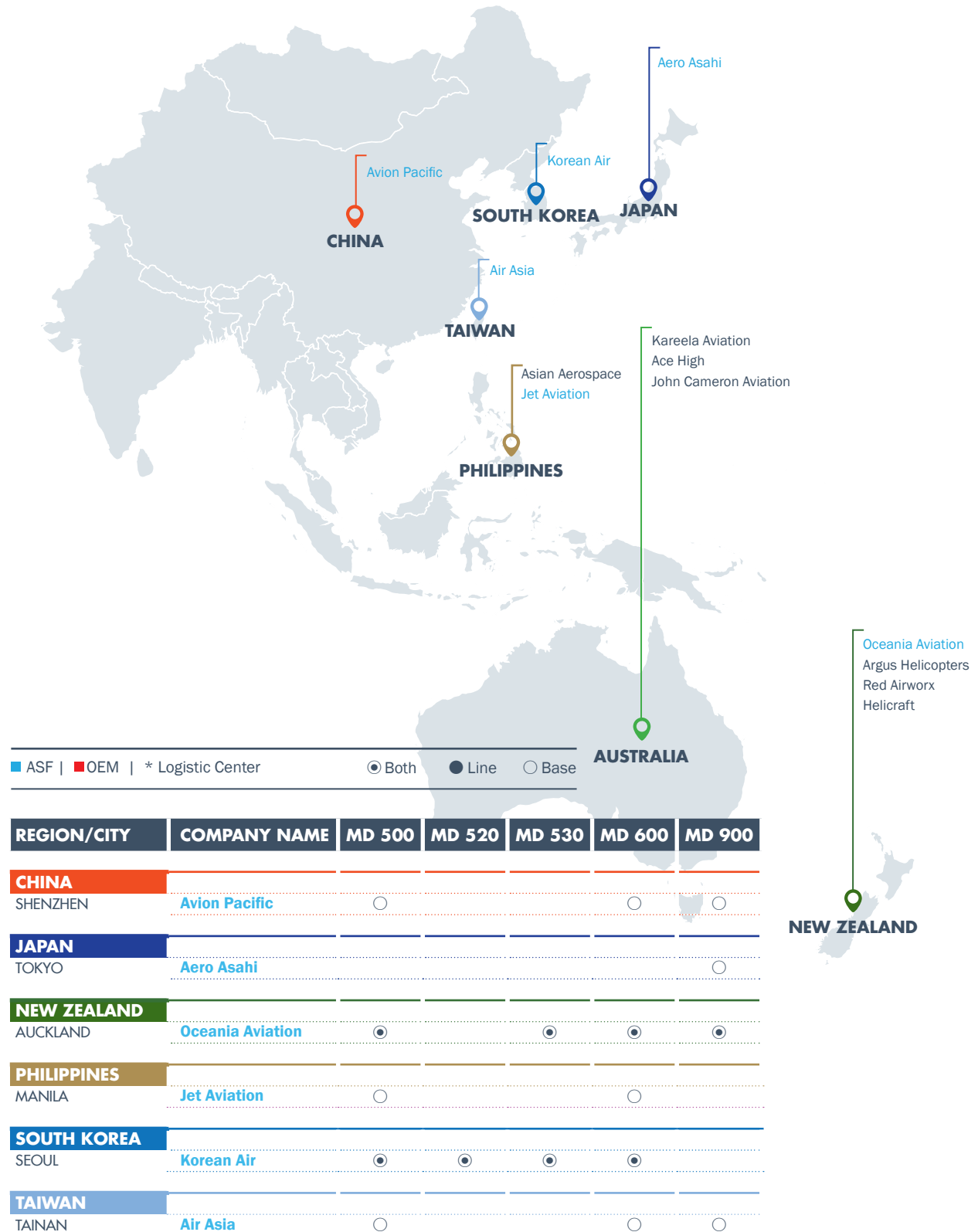
ASF | OEM | * Logistic Center Both Line Base

REGION/CITY	COMPANY NAME	AC311	AC312	AC313
CHINA				
HARBIN	AVIC HAIG		Both	
JINGDEZHEN	AVIC CAIC	Both		Base

Note: Kindly refer to ASG Infrastructure Report - Country Profiles 2020 for more detailed information on Third Party MRO capabilities

MD HELICOPTERS

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Note: Kindly refer to ASG Infrastructure Report - Country Profiles 2020 for more detailed information on Third Party MRO capabilities

SIKORSKY HELICOPTERS

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■ ASF | ■ OEM | * Logistic Center ● Both ● Line ○ Base

REGION/CITY	COMPANY NAME	S-76C	S-76D	S-92
JAPAN				
TOKYO	Aero Asahi	○	○	○
TOKYO	JAMCO	○	○	○
THAILAND				
BANGKOK	Tai Thailand	●	●	●

Note: Kindly refer to ASG Infrastructure Report - Country Profiles 2020 for more detailed information on Third Party MRO capabilities



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SPECIAL FEATURE

OEM MAINTENANCE COST PROGRAM

Airframe and engine maintenance programs are a frequently overlooked part of aircraft ownership. Yet they are also essential. Not only do they offer fixed costs that can be budgeted into the total cost of ownership, but by using an OEM program, aircraft owners can also ensure that their aircraft are serviced by fully OEM qualified technicians that will use genuine OEM parts.

We asked three companies that offer maintenance programs to explain all of the benefits that aircraft owners get from enrolling their aircraft on their programs.

WHAT IS THE AIRFRAME / ENGINE MAINTENANCE COST PROGRAM YOU OFFER? HOW DO OPERATORS BENEFIT BY ENROLLING?

"Dassault Aviation offers Falconcare for aircraft maintenance cost.

Benefits to operators that use this program include:

- Fixed and predictable costs on a monthly basis paid to Dassault.
- No bother on inspection of the maintenance invoices for any trouble shooting or the invoices after scheduled inspections every year.
- All the maintenance will be performed by the service centers authorized by Dassault for quality assurance.
- All parts used and installed in the aircraft are guaranteed to be genuine parts" – Kathy Liu, General Manager, Dassault Falcon Business Service (Beijing) Ltd

"Smart Services cost per flight hour programs greatly improve the predictability and confidence for flight operation budgets. As the first program of its kind in the business aviation industry our aim is to remove the unknown from maintenance costs. Ordering from Bombardier's 24/7 Parts Services offers customers peace of mind and ensures that our customers' aircraft is always serviced with genuine OEM parts. As a Smart Services customer, you have a direct access to one of seven parts depots located in strategic locations around the world, including Hong Kong, Singapore and Australia, in addition to our nine Factory Owned Service Facilities.

Bombardier's Smart Services programs are available from the time of new delivery, as well as for all in-service customers. When enrolling from new delivery, customers can take advantage of lower rates and avoid enrolment inspections down the line, while

benefiting from the strength and stability of the company that built your aircraft and knows it best.

Our customers join a community of owners and operators that have contributed to more than eight million flight-hours of participation and have given valued feedback leading to well-established cost coverage." – Annick Gagniere, Sr. Program Manager, Smart Services Sales & Development, Bombardier Aviation

"Pratt & Whitney Canada offers several pay-per-hour (PPH) engine maintenance programs – a concept we pioneered more than 30 years ago. Tailored for various aircraft types and fleet sizes, (Eagle Service™ Plan {ESP™}) is for single corporate/private aircraft, Fleet Service Plan for fleets of one to five helicopters, and Fleet Management™ Program {FMP™} for larger fleets of aircraft) The programs allow for payment of maintenance events – planned or unplanned -- in budgeted increments based on the number of hours flown per month.



Bombardier provides the "Smart Services" cost per flight hour programs to greatly improve the predictability and confidence for operating budgets.

ESP, for example, has been very popular with our customers over the years, with the adoption rate for some of our engine types – notably our turbofan engines – being very high. We recently refined our ESP coverage options to just two – Gold and Platinum – reflecting trends in the industry towards more comprehensive levels of coverage.

Customers are drawn to our PPH programs for a number of reasons – because they offer a long-term cost guarantee to meet their engine maintenance needs, and because they provide peace of mind. Such PPH programs are viewed by the aviation finance industry as contributing to enhanced aircraft valuations. What's more, these programs are transferrable at aircraft sale and there are no annual minimums.” – Catherine Cunningham, Associate Director – Public Relations & Communications, Pratt & Whitney Canada

CAN YOU TELL US MORE ABOUT WHAT IS COVERED BY THE PROGRAMS THAT YOU OFFER?

“Parts and labor costs on scheduled maintenance, unscheduled maintenance, AOG on-site support, service bulletins, consumables, documentation subscriptions, CAMP tracking system, discount training fee, shipment cost, etc.

It is valid throughout the aircraft overhaul period and can be renewed after every overhaul.

The contract is transferable if the aircraft is sold to new owner. – Kathy Liu, General Manager, Dassault Falcon Business Service (Beijing) Ltd

“Bombardier's aircraft maintenance cost coverage includes the following essential elements:

- Unscheduled airframe system components including avionics, pneumatics, hydraulics, windshields, actuators and more
- Tire and brake wear
- Life limited and discard components per scheduled inspections such as: gaskets, seals, O-rings, fasteners if not reusable and landing lights, wing-tip lights, strobes, beacons, flight-deck lights, batteries etc.
- Bombardier alert and recommended service bulletins kits
- Restoration and recertification labor coverage such as: Crew O2 and Firex bottle exchange, Wheel shop labor for tire change,



Dassault provides the “Falconcare program” which valid throughout the aircraft overhaul period and can be renewed after every overhaul.



P&W C offers the “Eagle Service Program (ESP)” which is tailored for various aircraft types.

battery bench check

- Additional options include: Landing Gear Overhaul, Cabin System Components and APU– Annick Gagniere, Sr. Program Manager, Smart Services Sales & Development, Bombardier Aviation

HOW MUCH IMPACT DOES BEING ENROLLED ON AN AIRFRAME OR ENGINE MAINTENANCE PROGRAM MAKE TO THE RESIDUAL VALUE OF AN AIRCRAFT?

“Enrolment on the Falconcare program can add as much as 20% to the value of an aircraft on sale– Kathy Liu, General Manager, Dassault Falcon Business Service (Beijing) Ltd

“The residual value of an aircraft that has been maintained under a Smart Services program will ultimately have a much higher resale value and it will spend less time on market than other aircraft. This is essentially since over the course of its lifetime, a Bombardier aircraft will have been mostly serviced at Bombardier's award-winning service centres and at an Authorized Service Facility (ASF). Our skilled technicians use airframe and system components designed exclusively for Bombardier aircraft, installed by award-winning technicians who know the aircraft best.

It is also worth noting that the Smart Services offering is also fully transferable at the time of aircraft sale. This enables buyers to step into convenient cost coverage program that has been demonstrated to improve aircraft resale value. – Annick Gagniere, Sr. Program Manager, Smart Services Sales & Development, Bombardier Aviation

Research has shown that, especially with business aircraft, most pre-owned aircraft buyers now insist the aircraft they are considering are on a pay-per-hour engine maintenance program, such as our ESP. An article on our customer service blog Airtime that examined data from Fortune 100 companies: “In 2009, only one of the top five companies' flight departments had their engines on a plan. By 2014, that number had jumped to four out of five – reflecting a major shift in the market that continues today.” According to one of our internal experts quoted in the article: “Brokers have run a ton of data and metrics in recent years showing that aircraft on engine programs sell faster than those that are not.”

Another Airtime article reported on a study conducted by Asset Insight. The study looked at an Embraer Phenom 300 business jet (PW535 engines): "After five years, the value of the Phenom 300 with engines enrolled in ESP was \$6,607,986, compared to a value of just \$4,189,227 had the engines not been enrolled. With that sort of capital at stake, you really want to have the right plan for your aircraft." – Catherine Cunningham, Associate Director – Public Relations & Communications, Pratt & Whitney Canada

GIVEN THE BENEFITS OF ENROLLING AN AIRCRAFT ON AN AIRFRAME MAINTENANCE COST PROGRAM, WHY DO YOU THINK THAT SOME OPERATORS CHOOSE NOT TO ENROL THEIR AIRCRAFT?

"Reasons for not enrolling in the program include:

- New aircraft under warranty, so parts are replaced free of charge.
- New aircraft with very few defects.
- Operators want to perform scheduled maintenance by themselves but aren't authorized by Dassault to claim for such labor.
- New aircraft owner has no idea on how much is reasonable for maintenance costs. Some aircraft owners consider joining the program after the 1C inspection – Kathy Liu, General Manager, Dassault Falcon Business Service (Beijing) Ltd

"Essentially, customers do not enrol in an airframe maintenance cost program because they may not have experienced first-hand the many significant benefits of the program.

The reality is, there are so many benefits to these essential services. The Bombardier Smart Services cost-per-flight hour provides customers with immediate peace of mind due to budget predictability for genuine OEM aircraft parts and maintenance costs. A Smart Services maintenance plan can provide customers with a convenient monthly flight-hour service charge, that essentially replaces the unpredictable expenses that can occur for most parts. Not to mention certain labour costs as well. These programs also offer customers the utmost in cost protection when it comes to



The "Smart Services" program is available from the time of new-delivery, as well as for all in service customers.



The "Falconcare" covers parts and labor costs on scheduled maintenance, unscheduled maintenance, AOG on-site support, service bulletins, consumables, etc.

maintenance services, enabling them to tailor their cost coverage based on operational needs through all available options.

Complete coverage begins by enrolling in the Smart Services program, which provides extensive parts coverage for Learjet, Challenger and Global aircraft. Customers then have the freedom to choose a selection of additional coverage options, including landing gear overhaul, cabin system components, scheduled and unscheduled labour related to part removals from normal operations.

Some of the important elements covered in the Smart Services program include avionics components; brakes and tires; windshields; electrical; hydraulic and flight control system components and more. – Annick Gagniere, Sr. Program Manager, Smart Services Sales & Development, Bombardier Aviation

"On a very basic level, the customer may be new to aircraft ownership and unaware of the benefits of a PPH program. Or, they may not be far enough along in their ownership journey to fully appreciate how engine maintenance requirements – especially unplanned ones – can affect flight operations, particularly if their business depends on aircraft dispatch reliability.

It is also possible that they may be unaware that a program like ESP is not just about budgeting for maintenance requirements, it is about moving their aircraft towards a more fully planned maintenance environment with no maintenance surprises. For example, some levels of ESP coverage provides complementary digital engine services – such as Oil Analysis, our FAST™ diagnostic and prognostic solution, and Proactive Services – which monitors and predicts engine performance, so that remedial action can be taken long before an issue occurs.

These highly advanced, software-based systems alert us and operators when future maintenance might be required. This helps extend the time between maintenance events and helps eliminate unscheduled downtime. As an example, our Oil Analysis technology is up to 100 times more sensitive than other oil analysis methods and can detect a possible event up to hundreds of hours in advance. – Catherine Cunningham, Associate Director – Public Relations & Communications, Pratt & Whitney Canada



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CUSTOMER SERVICE NETWORKS - ENGINES



ENGINE MAINTENANCE OVERVIEW



17 AUSTRALIA

Airflite
Asia Pacific Aerospace
Eagle
ExecuJet (3)
Helibiz
Jet Aviation (2)
Pacific Crown Helicopters

Pacific Turbine
Safran Helicopters
Sigma Aviation
South West Aviation
Standard Aero
TAE Aerospace
Vector Aerospace

13 CHINA

AVIC HAIG
Bombardier Service Centre
COHC
ExecuJet Haite
General Electric

GAMECO
H&P
Reignwood
Safran Helicopters (4)
Shanghai Hawker Pacific

2 HONG KONG

Jet Aviation
Metrojet

9 INDIA

Air India (2)
Airworks
ExecuJet
Helicopter Engines
Hindustan Aeronautics
Indo Copters
Taj Air
Turbomecca

1 INDONESIA

Garuda Indonesia

4 JAPAN

Alpha Aviation
Japan Aerospace Corp
Mitsubishi
Safran Helicopters

3 MALAYSIA

ExecuJet
Global Turbine Asia
Nusantara Aviation

7 NEW ZEALAND

Airwork
Argus Helicopters
Beck Helicopters
Heli Support NZ
Oceania Aviation
Red Airworx
Southair

3 PHILIPPINES

Airbus Helicopters
Jet Aviation
ACTSI

9 SINGAPORE

Bombardier Service Centre
Cessna Service Centre
Dallas Airmotive
Jet Aviation(2)
Pratt & Whitney
Safran Helicopters
Standard Aero
Vector Aerospace

4 SOUTH KOREA

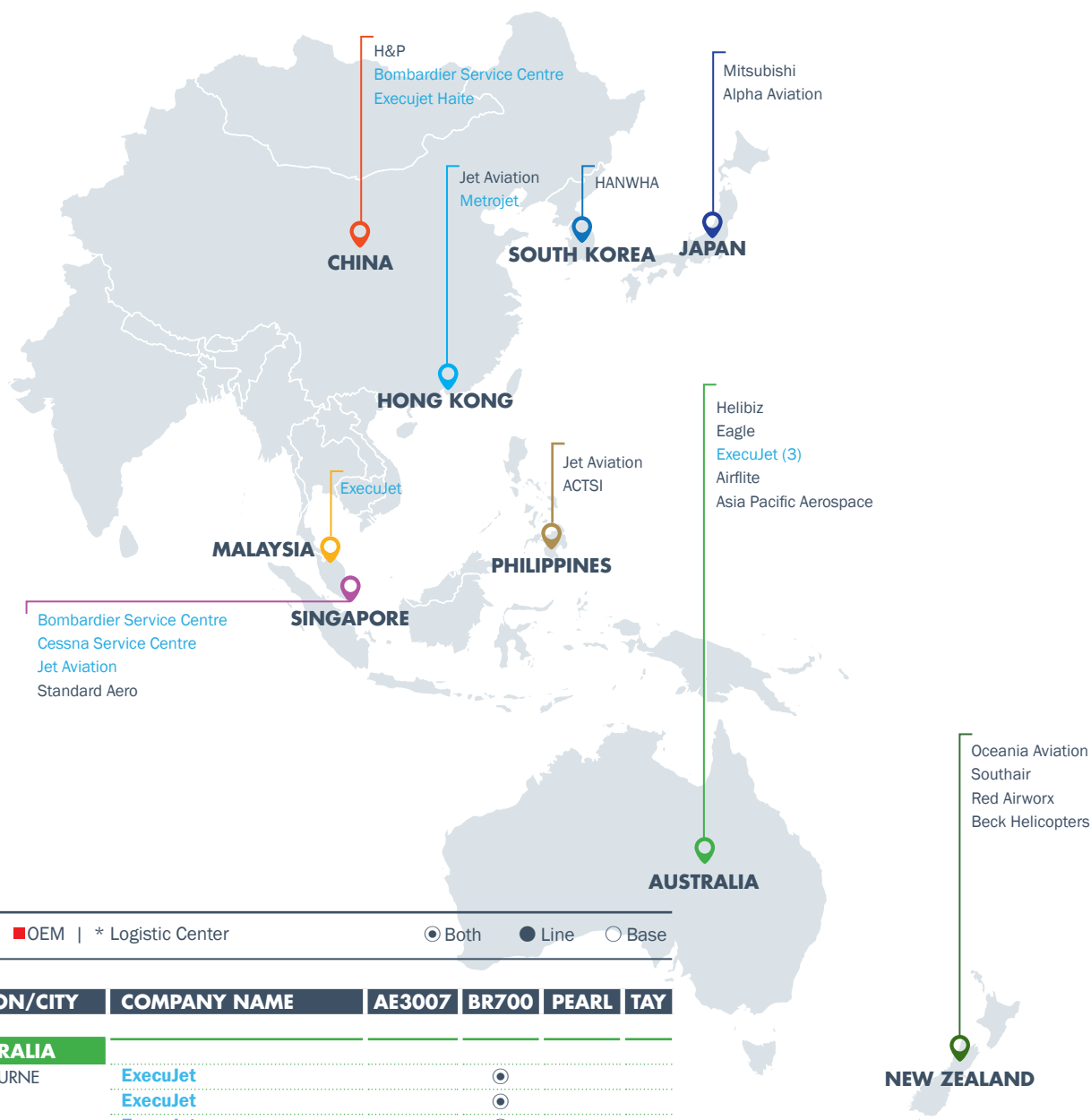
Gimpo
HANWHA
Korean Air
General Electric

2 TAIWAN

Air Asia
EGAT

ROLLS-ROYCE

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REGION/CITY	COMPANY NAME	AE3007	BR700	PEARL	TAY
AUSTRALIA					
MELBOURNE	ExecuJet		●		
PERTH	ExecuJet		●		
SYDNEY	ExecuJet		●		
CHINA					
TIANJIN	Bombardier Service Centre		●		
TIANJIN	ExecuJet Haite	●	●		
HONG KONG					
HONG KONG	MetroJet		●		●
MALAYSIA					
KUALA LUMPUR	ExecuJet		●		
SINGAPORE					
SINGAPORE	Bombardier Service Centre		●	●	
SINGAPORE	Cessna Service Centre	●			
SINGAPORE	Jet Aviation	●	●		●

Note: Kindly refer to ASG Infrastructure Report - Country Profiles 2020 for more detailed information on Third Party MRO capabilities

PRATT & WHITNEY CANADA

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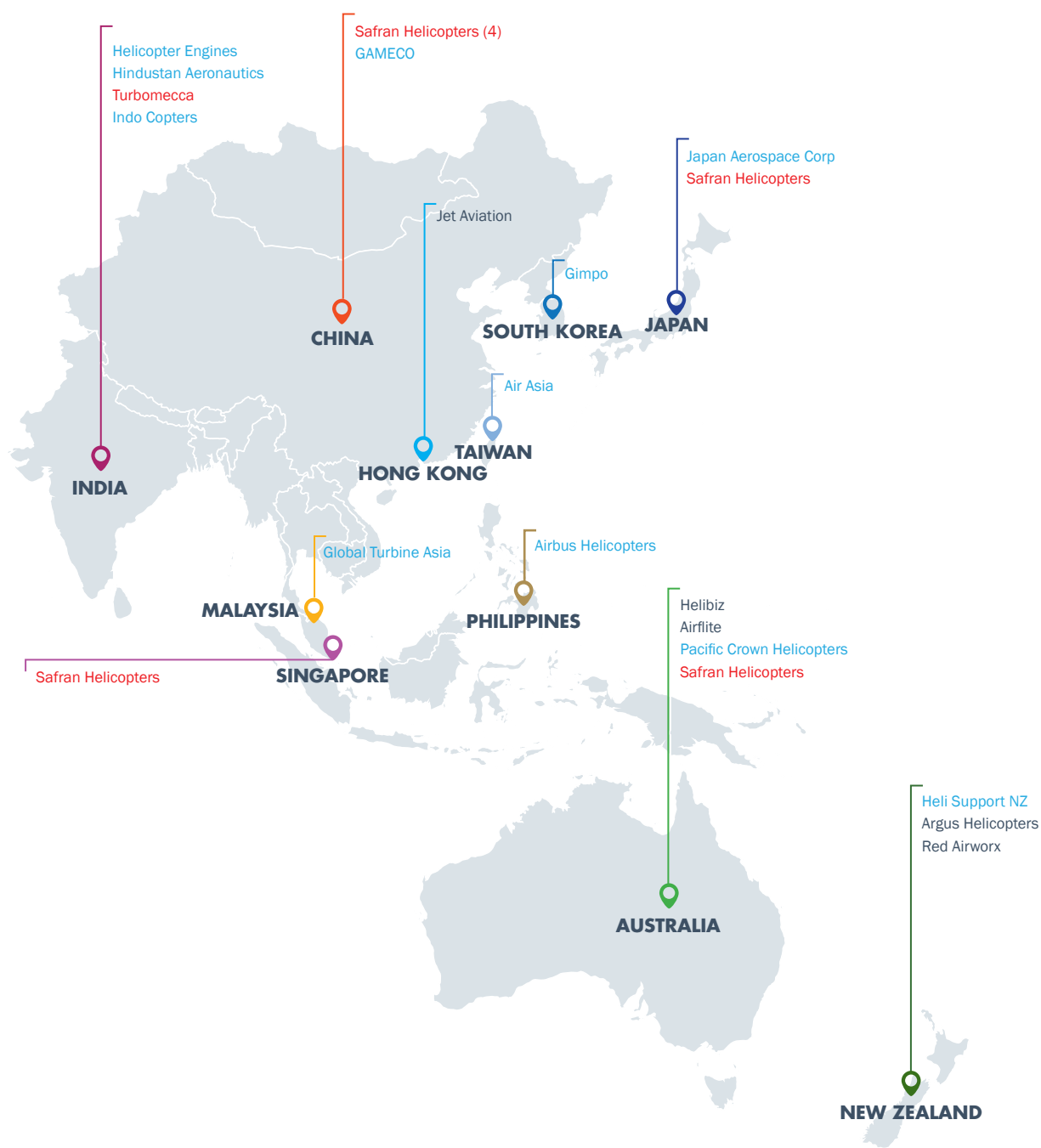


REGION/CITY	COMPANY NAME	PT6	PW100	PW150	PW200	PW300
AUSTRALIA						
BRISBANE	Vector Aerospace	●				
JAPAN						
KOMAKI	Mitsubishi	●			●	
SINGAPORE						
SINGAPORE	Pratt & Whitney	●	●	●	●	●
SINGAPORE	Vector Aerospace		●			

Note: Kindly refer to ASG Infrastructure Report - Country Profiles 2020 for more detailed information on Third Party MRO capabilities

SAFRAN

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■ ASF | ■ OEM | * Logistic Center

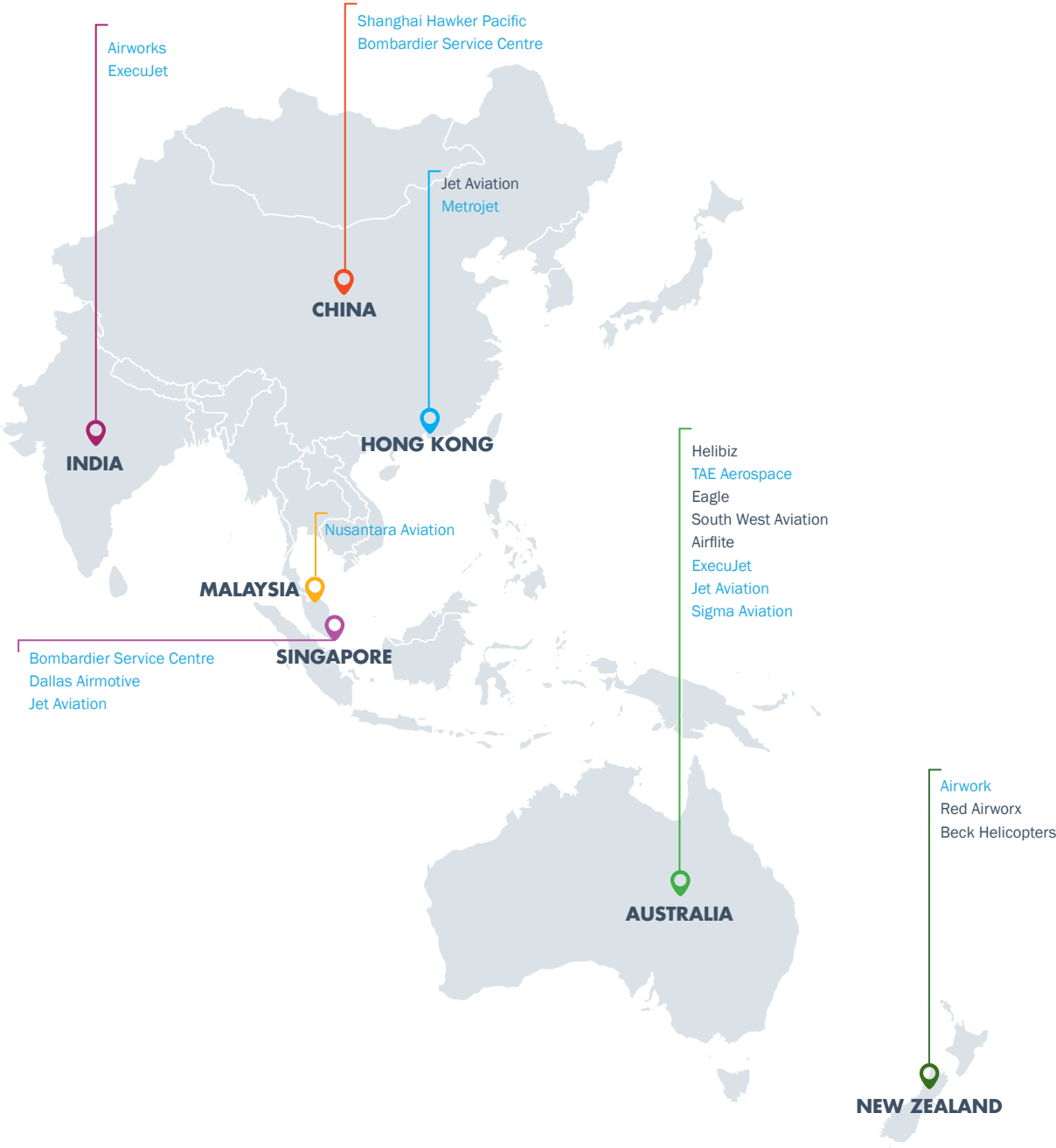
● Both ● Line ○ Base

REGION/CITY	COMPANY NAME	ARRIEL	ARRIUS	ARTOUSTE	ASTAZOU	MAKILA	TM 333
AUSTRALIA							
SUNSHINE COAST	Pacific Crown Helicopters	●	●				
SYDNEY	Safran Helicopters	●	●				
CHINA							
BEIJING	Safran Helicopters	●	●			●	
CHENGDU	Safran Helicopters	●	●			●	
GUANGZHOU	GAMECO	●	●	●	●	●	●
SHANGHAI	Safran Helicopters	●	●			●	
TIANJIN	Safran Helicopters	●	●			●	
INDIA							
BANGALORE	Helicopter Engines						●
BANGALORE	Hindustan Aeronautics	○	○	○	○	○	○
BANGALORE	Turbomecca						●
NEW DELHI	Indo Copters	●					
JAPAN							
TOKYO	Japan Aerospace Corp	●				●	
TOKYO	Safran Helicopters	●	●			●	
MALAYSIA							
SUBANG	Global Turbine Asia	●	●	●	●	●	●
NEW ZEALAND							
LUGGATE	Heli Support NZ	●	●	●	●	●	●
SINGAPORE							
SINGAPORE	Safran Helicopters	●	●	●	●	●	●
SOUTH KOREA							
GYEONGGI-DO	Gimpo	●	●	●	●	●	●
TAIWAN							
TAINAN	Air Asia	●	●	●	●	●	●

Note: Kindly refer to ASG Infrastructure Report - Country Profiles 2020 for more detailed information on Third Party MRO capabilities

HONEYWELL

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■ ASF | ■ OEM | * Logistic Center

● Both ● Line ○ Base

REGION/CITY	COMPANY NAME	ATF3	HTF7000	TFE731	TPE331
AUSTRALIA					
AMBERLY	TAE Aerospace				●
SYDNEY	ExecuJet		●	●	
SYDNEY	Jet Aviation			●	
TAMWORTH	Sigma Aviation				○
CHINA					
SHANGHAI	Shanghai Hawker Pacific			●	
TIANJIN	Bombardier Service Centre		●		
HONG KONG					
HONG KONG	Metrojet			●	
INDIA					
NEW DELHI	Airworks			●	
NEW DELHI	ExecuJet			●	
MALAYSIA					
BANDUNG	Nusantara Aviation				●
NEW ZEALAND					
AUCKLAND	Airwork				○
SINGAPORE					
SINGAPORE	Bombardier Service Centre		●		
SINGAPORE	Dallas Airmotive		●	○	
SINGAPORE	Jet Aviation	●		●	

Note: Kindly refer to ASG Infrastructure Report - Country Profiles 2020 for more detailed information on Third Party MRO capabilities

GENERAL ELECTRIC

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■ ASF | ■ OEM | * Logistic Center

● Both ● Line ○ Base

REGION/CITY	COMPANY NAME	CF34	CFM56	GENX	PASSPORT
AUSTRALIA					
MELBOURNE	ExecuJet	●			●
PERTH	ExecuJet	●			
SYDNEY	ExecuJet	●			
CHINA					
SHANGHAI	General Electric Capital Corporation	●	●	●	
TIANJIN	Bombardier Service Centre	●			●
MALAYSIA					
KUALA LUMPUR	ExecuJet	●			
SINGAPORE					
SINGAPORE	Bombardier Service Centre	●			●
SOUTH KOREA					
SEOUL	General Electric Capital Corporation	●	●	●	

Note: Kindly refer to ASG Infrastructure Report - Country Profiles 2020 for more detailed information on Third Party MRO capabilities

DIRECTORY: REGIONAL SERVICE PROVIDERS

As a guide to aviation service providers in the Asia-Pacific region, ASG's Directory delivers potential customers with a quick and easy way to find the top providers, including contact information and service scope.





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CURRENT AUTHORITY / APPROVALS

- FAA CRS 40NY711D
- CAYMAN CAACI AMO - 290-CAY-AMO-2020
- CAYMAN CAACI CAMO - 054B-CAY-CAMO-2016
- Bermuda BCAA AMO - BDA / AMO / 542

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APPENDIX

ABBREVIATION

AE UAE	CA Canada	ID Indonesia	MO Macau	PH Philippines	SM San Marino
AR Aruba	CN China	IM Isle of Man	MY Malaysia	PK Pakistan	TH Thailand
AU Australia	GG Guernsey	IN India	NZ New Zealand	QA Qatar	TW Taiwan
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