

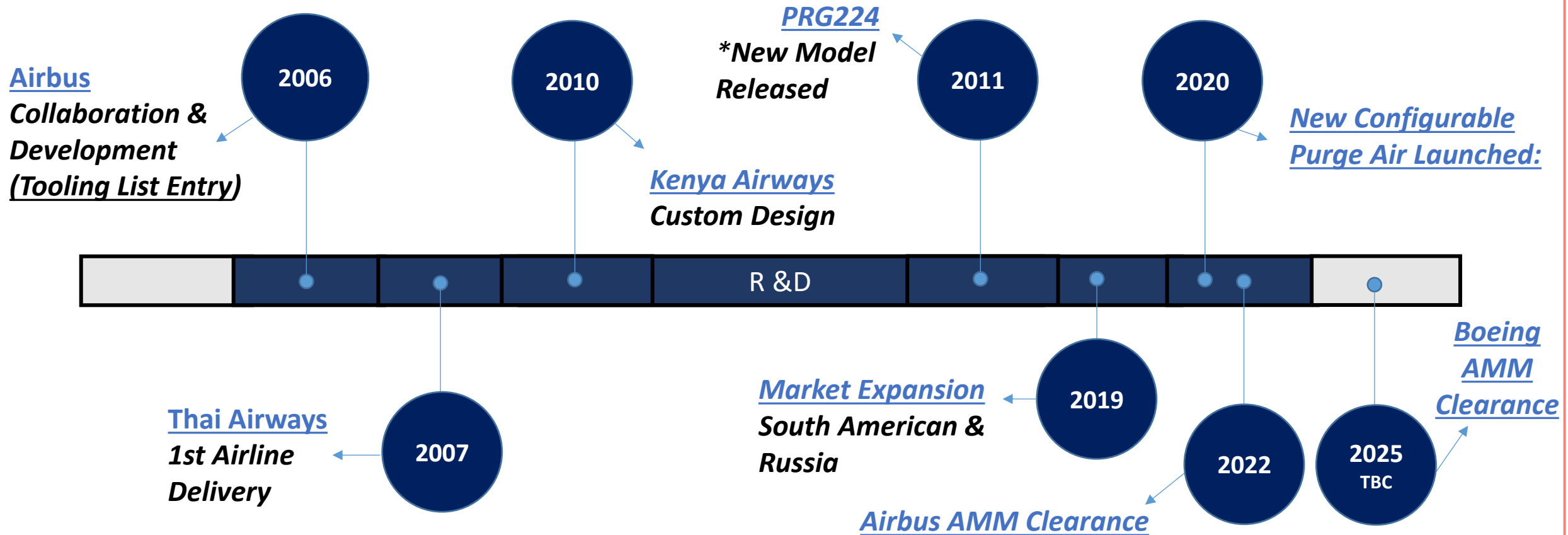


Purge-Air

Purge Air Evolution

Purge-Air is the only complete fuel tank entry system available

It has been specifically designed to be configured to suit the exact needs of your fleet and maintenance demands



Purge-Air Key Benefits

- Possible to gain fuel tank entry within 1-hour.
- Residual fuel can be removed in minutes - up to 110ltr/min.
- Ventilation of large wing tanks can be completed within 45mins.
- Jet Vac can quickly and safely remove any remaining puddles of fuel.
- Complete system can be run from a single hangar air supply.
- Contained storage for all equipment removes time required to identify, locate and collect prior to starting work.
- Improves working conditions for entrants within the tank.

Drain, Vent, Monitor, Entry

The complete fuel tank entry solution:-

- Full Breathing Air System
- Communications
- Residual Fuel Drain
- Venting
- Gas Detectors
- Jet Vac
- Lighting
- Rescue Mats
- Bespoke Container and Trailer



Purge-Air for Military Aircraft

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Purge Air military variants:

- Hawk
- A400M
- C130 and C-17
- P-8 Poseidon
- Other aircraft and helicopters being developed

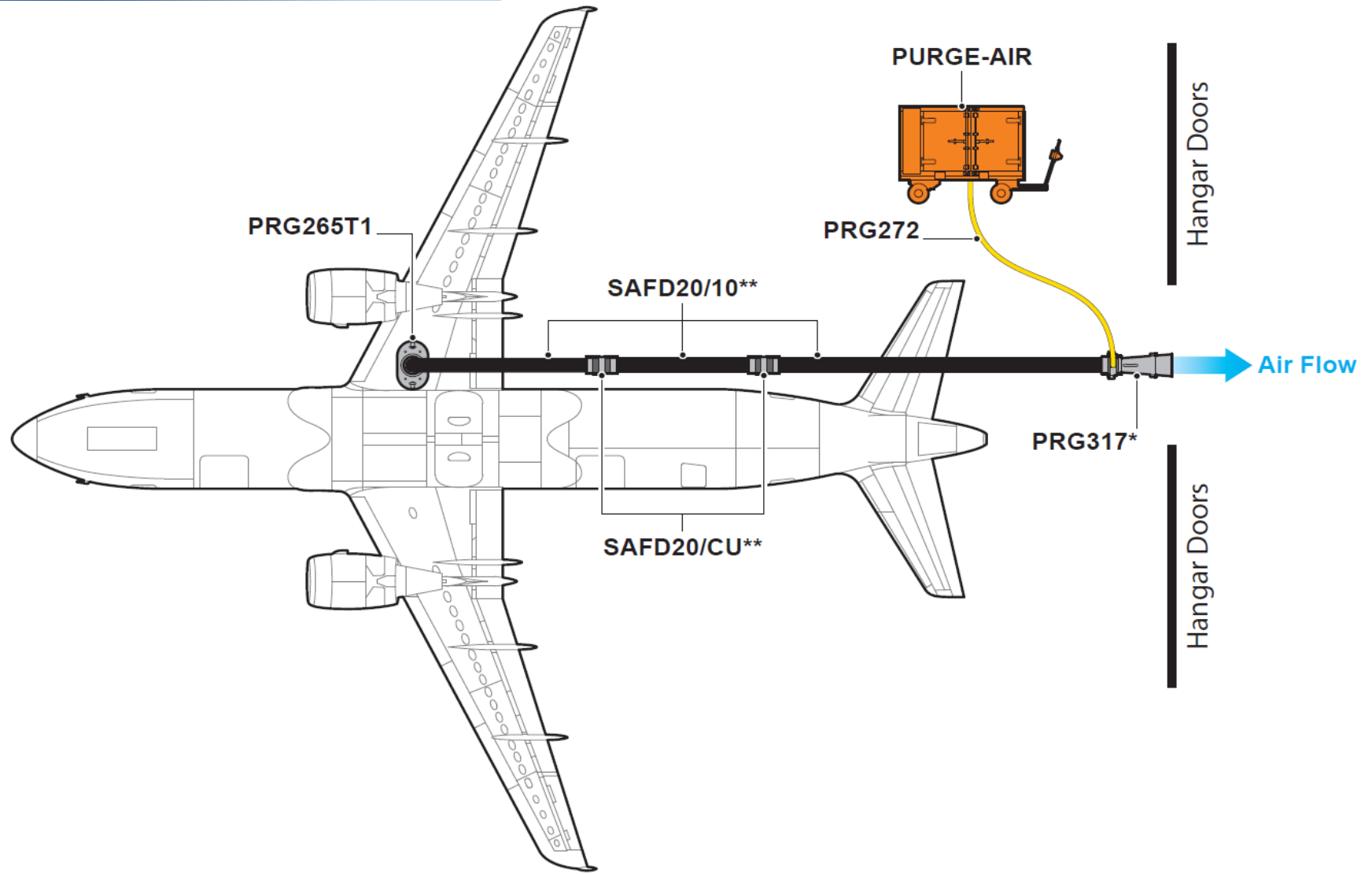
Aircraft Applications

The Purge-Air is featured in various Tooling Equipment Manuals and used on a wide variety of Civil and Defence aircraft,

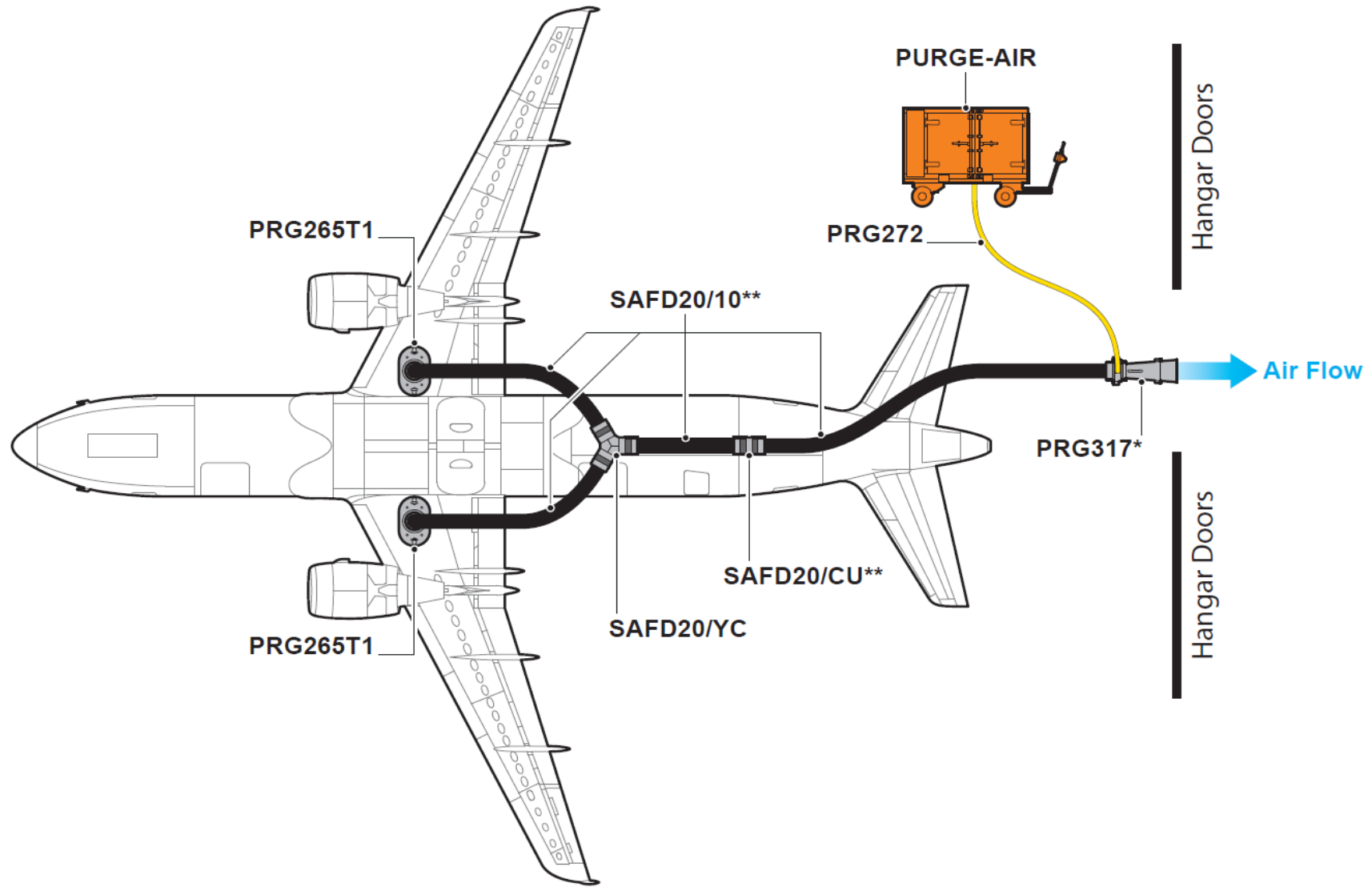
Including the following:-

- Airbus – A220, A300, A310, A318, A319, A320, A320, A330, A340, A350, A380, A400M
- BAE – Hawk & 146
- Boeing – B737, B747, B757, B767, B777, B787 & C-17 Globemaster
- Bombardier – C-Series & Q400
- Embraer – 145, 175 & 195
- Gulfstream – G150, G200, G280, G450, G550 & G650
- Lockheed – C-130 Hercules
- McDonald Douglas – F-18 Hornet
- Sukhoi Superjet 100
- In Development – Irkut MC-21, Comac ARJ21 and C919

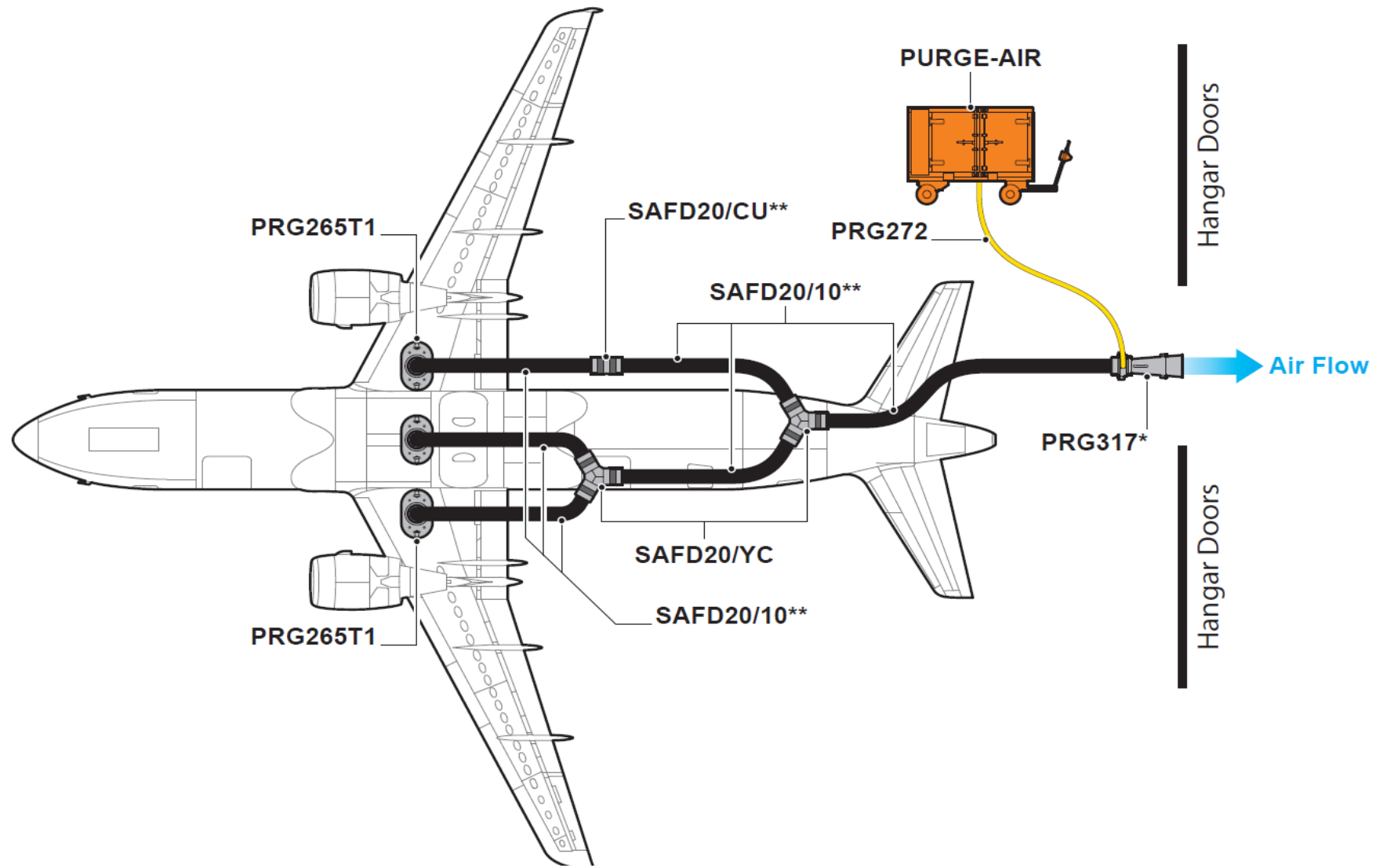
Single Tank Venting



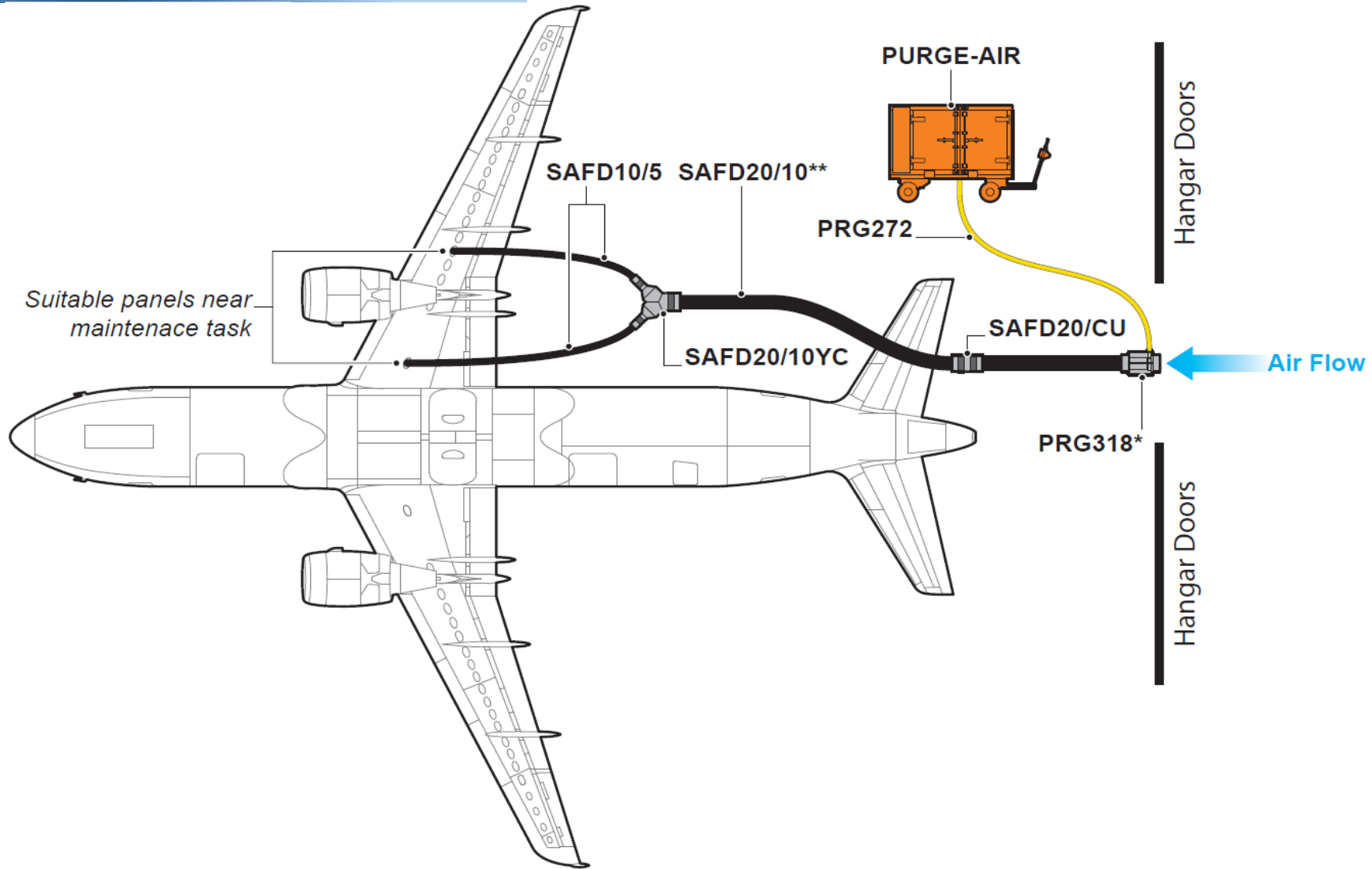
Double Tank Venting



Triple Tank Venting



Comfort Purge



Entry Process – Stage 1-3

Stage 1. Static Discharge:

Using the retractable static discharge reels, the aircraft and all auxiliary components can be safely earthed through the Purge-Air system.

Stage 2. Fuel Draining:

Fuel is pumped from the fuel tanks through the water drain or dedicated sump valves. This is done at a rate of up to 110ltr/min using the pneumatic pump through the reel mounted fuel hose and one of the specific aircraft fuel adaptors.

Stage 3. Fuel Tank Venting:

Purging and ventilation is carried out using the venturi or ATEX fan air movers. Anti-static ducting allows the system to be set up quickly for any tank configuration. Large wing tanks can be purged in approximately 45 minutes and continuous ventilation applied during tank operations.

Entry Process – Stage 4-6

Stage 4. Breathing Apparatus / Communications:

The system comprises of breathing apparatus for 4 people (2 operatives & 2 backup safety personnel).

Air quality testing and filtration ensure safe, clean breathing air is always available and supplied to the entrants.

Stage 5. Jet Vac:

The Jet-Vac allows rapid extraction of any residual fuel which may remain puddled around internal structures within the tank.

Stage 6. Maintenance Task:

Perform required maintenance task inside the fuel tank using the lighting, comfort/rescue mats & gas detectors as required.

Standard Equipment



Standard equipment

Additional equipment available on request

- Venturi or ATEX fan air mover
- Anti-static ducting
- Couplings
- Aux hose or ATEX extension leads
- Aircraft specific tank adaptors
- Pump through water drain / fuel sump points
- Puddle vacuum
- Calibrated gas detectors
CSA Class I, Division 1, ATEX and IECEx Zone 0
- Portable lighting
ATEX and IECEx Zone 0
- Earth provisions
- Breathing apparatus
- Communications system
ATEX Zone 0 and Factory Mutual Class I, Div 1
- Rescue / comfort mats
- Aluminium container with fork pocket
- Trailer
- Braked castors

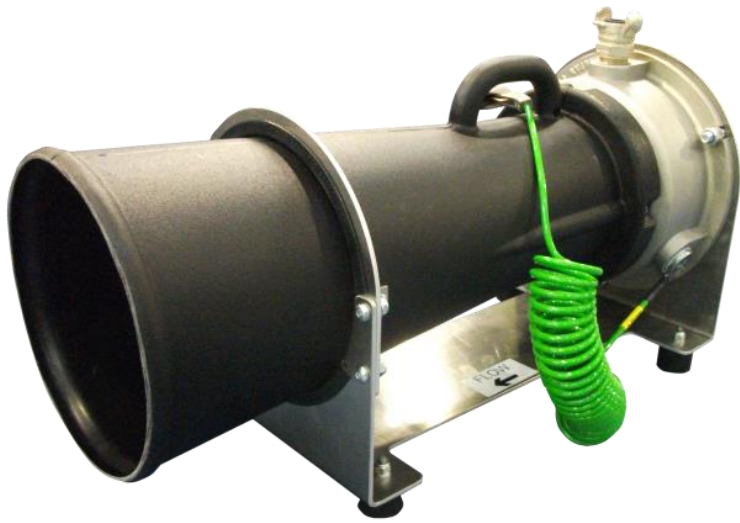


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● Standard — Not available ○ Optional

Venting – Air Movers

- Venting of the fuel tanks is carried out using either,
 - A compressed air power venturi
 - An ATEX fan Air Mover
- Air Movers can be orientated to ‘force air in’ or ‘draw air out’ of the tanks.



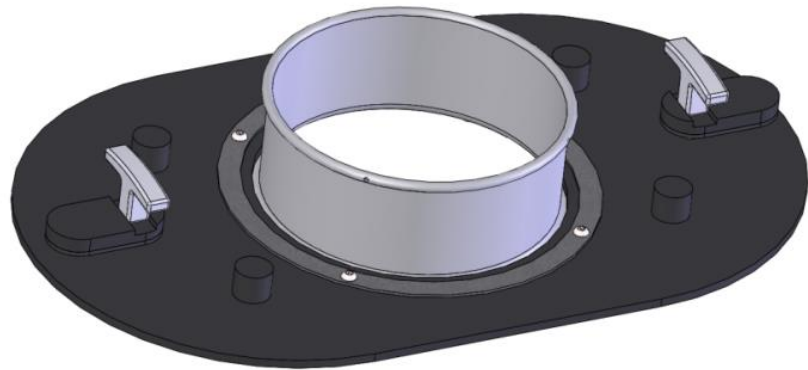
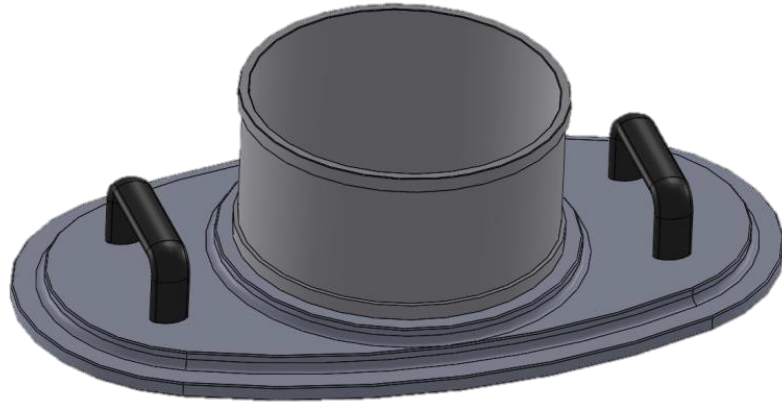
Benefits	
Venturi	ATEX Fan
<ul style="list-style-type: none">• No moving parts• Powered using the same supply as the Purge-Air, no electricity required• Lightweight• Speed can be adjusted	<ul style="list-style-type: none">• Consistent performance• No reliance on compressed air pressure and flow• More efficient – cheaper to run• Quieter

Ducting and Couplers

- The Air Mover is connected to the aircraft using a combination of anti-static ducting and couplers.
- Earth provisions are integrated to protect against static build up.
- Ducting comes complete with its own integrated storage bag and ratchet strap design to enable connection.
- Simultaneous venting of multiple tanks can be achieved.



Aircraft Fuel Tank Adaptors



- The anti-static ducting is connected to the aircraft using an aircraft specific tank adaptor.
- Tank adaptors come in a range of different designs to suit the tank opening.
- The range of tank adaptors is constantly increasing, using in house design and development capabilities.

Equipment — Model Dependent



A pair of gas detectors are supplied, both fitted with O₂, LEL and PiD sensors which are calibrated specifically for working within an aircraft fuel tank.

- One black which detects at a flammable level
- One yellow which detects at a toxic level

Four full face masks are included to protect the wearer against the risks of inhalation, ingestion and irritation from the presence of toxic fluid and vapour.

Four breathing air harnesses are provided which provide a secure connection to the breathing air system.



Equipment — Model Dependent

Breathing Air System - Primary



Filtration will remove

- Solid Particles
- Oil Mist/Vapour
- Water Mist/Vapour
- Carbon Monoxide
- Carbon Dioxide
- Odours and Fumes

- The breathing air system is design to be supplied by the hangar air supply which is filtered within the Purge-Air.
- There are two separate breathing air supply reels, designed to support two teams of two – “In use” and as an emergency backup.
- Audible warnings indicate when there is a supply issue.

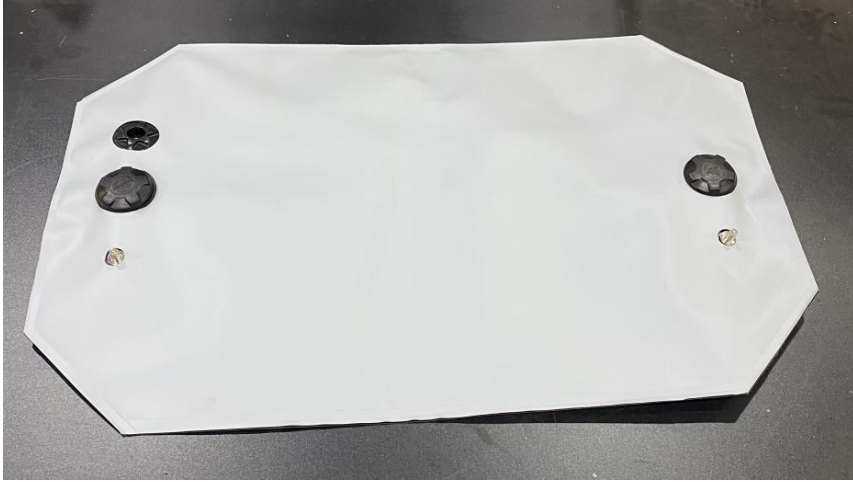
Breathing Air System – Back-up

- Four compressed air cylinders can be used as ‘back-up’ in the event of a compressor failure or as a primary source if working on the apron.
- A breathing air quality electrical compressor is included to recharge the cylinders.
- Air-quality test kit is also included to check the contents of the cylinders as well as periodic tests on the filtered hangar air supply.



Equipment — Model Dependent

Rescue/Comfort Mats



Three different sized inflatable bag-mats

- Primarily designed to aid emergency entrant removal
- Can also be used as a comfort mat to improve the awkward working position within the tank.
- Mats are filled using a valved hose, fed directly from the Purge-Air.
- Manufactured from an anti-static material and incorporate a pressure relief valve to avoid over inflation.

Jet Vac

A compressed air-powered vacuum is used to remove fuel that could be puddled around internal structures of the tank.

- 25 Litre capacity.
- Supplied with a sacrificial hose end fitting to protect internal finish of tank.
- Power is supplied directly from the Purge-Air.



Provisions to allow up to 5 operators to communicate within a confined and hazardous space.

- Intrinsically safe
 - (ATEX Zone 0)
- Hands free
- Private network
- 30m operating cable
- Water and dust proof
- Throat mic and ear-piece
- Emits no RF signals
- Individual volume control
- Two way
- Easy to operate
- Reliable & rugged
- Battery powered
- Supplied in a IP rated case



Lighting – P.A1, M & P.A2

A selection of different ATEX Zone 0 lighting solutions are included to improve the working conditions inside the tank.

- 2 OFF AAA powered LED Hand Torch
- 2 OFF AAA powered LED Head Torch
- 2 OFF Rechargeable LED Task Light

All of the above are stored within an IP rated injection moulded case.



- There is a bespoke training package which can accompany each variant of the Purge-Air.
- The aim of each packages is to ensure users are fully competent and confident to safely use all aspects of the chosen system.
- Additional content can be included on request such as “Train a Trainer” and in-depth maintenance.
- It is recommended that refresher training is undertaken every 12 to 24 months depending on use.

Purge-Air Summary

- The complete aircraft fuel tank entry solution.
- Can be configured to suit exact fleet and existing equipment.
- Aircraft downtime is reduced.
- Improves safety and efficiency of any activity within a fuel tank.
- Comprehensive training packages are offered.
- Service packages available to ensure the Purge-Air is ready when needed.