

All (ATA 21/36) GULFSTREAM AIRCRAFT CABIN AIRFLOW REFRESH RATES

G100™/G150™/G200™/G280™/GII™/GIII™/ GIV™/G300™/G400™/ G350™/G450™/GV™/ G500-5000™/G550™/

GVII-G500™/GVII-G600™/G650™/G650ER™

Gulfstream Customer Support, Mechanical Systems Group

Gulfstream Aerospace has been contacted by operators requesting information on the cabin/cockpit airflow as a result of the ongoing COVID-19 pandemic. Many operators have asked what the cabin refresh rate is and why HEPA filters are not installed. The following information has been gathered to answer those questions.

All Gulfstream model aircraft utilize a 100% refresh rate, meaning that the air supplied to the occupants is never recycled and is replenished at a defined rate based on air volume supply and cabin volume. The attached chart depicts the air supply and the rate at which this airflow is replenished during a typical cruise altitude for specific models. The rate of cabin air exchange shows the cabin occupants are essentially always receiving a fresh, clean air supply.

In addition to this cabin air exchange rate, there are a few other items to consider putting minds at ease. The air supply being used comes from the engine high stage compressors. The engine compresses outside air to very high pressures and temperatures which will destroy impurities that may be in the air supply. The APU also compresses the airflow sufficiently providing a clean supply of air.

As the airflow continues through the environmental control system of the aircraft, there is yet another stage of compression taking place. As the air enters the environmental control units (aka air cycle machine), the air temperature is again raised before the rapid expansion stage takes place within the unit. This gives an additional cleaning to the supply of air before being supplied to the cabin occupants.

Sample of programs shown

GULFSTREAM AIRCRAFT								
CABIN AIR FLOW RATE								
Aircraft	G650	GVII-G600	GVII-G500	G550	G450	G280	G200	G150
Total Cabin Refresh Rate (min) at Typical Cruise Altitude and Cabin Temp of 70°F	3.0	2.7	2.5	2.5	2.3	3.2	2.6	2.7
Typical Cruise Altitude	FL450	FL450	FL450	FL450	FL410	FL410	FL410	FL380