

# Contrails Explained

By Lloyd Sunderland

Contrails form when climatic conditions are right, irrespective of altitude. Ambient humidity and temperature determine the critical point at which contrails might form. They result when an unbalance is caused by motion, heat and combustion products from a passing aircraft.

Depending upon all of these factors, the contrail may fade abruptly or it may persist and become the nucleus of a new cloud formation. One can observe high flying jets to see how contrails form at various altitudes as they climb or descend. In some cases there is only a brief trail visible, and other times they reach from one horizon to the other.

It was a common sight to see the bomber string fly into relatively clear skies with the lead groups generating persistent contrails. Following waves of bombers would fly into these contrails, and the soup would begin to thicken. After several waves passed through, conditions were no longer VFR. Each succeeding wave had to climb in order to keep the formation on course.

On the 16th of July, 1944, we climbed to 30,200 feet to stay above the contrail-spawned clouds over Munich. The only time that I ever experienced real vertigo was when leading a low squadron of B-17s and looking up at planes that were generating serious contrails.

Each prop on every plane in the formation made a huge swirl that continued to rotate as we passed underneath. I had the sensation that the entire formation had gradually turned into a 90 degree bank. When flying close formation one can't concentrate on flight instruments to get oriented. I asked my copilot if he was OK and could he take over and he said, fine. All was well in a few moments after I could look away from those rotating contrails and get my bearings.

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