body axis centerline flow must be free from separation to allow the appropriate bluntness effects to be correctly simulated. Increasing the angle of attack from 0 deg will cause the separated flow to become asymmetric. The increased pressure on the windward surface will form an aximuthal pressure gradient, promoting a viscous crossflow mass addition to the leeward surface. Although the leeward separated flowfield will increase, its influence will diminish because of the reduced pressure in that region. On the dominant windward surface, the separated flow region will decrease due to azimuthal mass crossflow. Therefore, at high angles of attack and hence large amplitudes, to first order, the half-model results tend to the full-model trends, as observed.

Conclusions

The use of reflection-plate-mounted half-models in hypersonic wind-tunnel test programs does not provide interference-free static pitch stability data at low angles of attack. The primary source of corruption, with respect to the full-model flowfield is the presence of reflection plate surface ahead of the nose region. Even with this influence removed, the flowfield present on the supporting plate adjacent to the model promotes highly three-dimensional disturbances. Data presented here show that the deduced value of the pitching moment slope for a plate-supported half-model blunt cone varies significantly from its equivalent sting-supported full-model value.

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