

and fully integrated flight controls. Primary supersonic goal is sustained supersonic cruise with enabling technologies including improved engine thrust to weight, powder metallurgy, superplastic forming, load alleviation using fault tolerant computers and supersonic laminar flow. Triple fuel efficiency is sought. Sonic boom overpressure reduction is seen as a compatible fallout. Transatmospheric goals recognize a "growing convergence of aeronautics and space technology." The transatmospheric regime remains largely unexploited. A capability to routinely cruise and maneuver into and out of the atmosphere is sought as an option with global importance. The technology needed includes an extrapolation of current trends (propulsion, materials, fuels, aerodynamics, system concepts, etc.) as well as new developments in artificial intelligence, hybrid air-breathing propulsion, etc.

Within this challenging context, I now turn to the R&M aspects and the issue of affordability. And here is where you come in. The report places a burden on university, government and industry to emphasize basic research and technology to meet the stated goals. But, as the report points out, future systems must also be affordable. Cost will be a major impediment to progress in achieving these goals unless concrete steps are taken. The current problem, in my view, is that we have not provided for cost/risk assessment early enough in the research and technology application process. It usually comes at the "mid-phase" or "final-phase," far too late, leading to short circuits of the system, costly overruns while bugs are being worked out while production stalls. You need to begin advocating for the building of cost models, including full provision for R&M, at the front end of the process.

Let's start with analysis and preliminary design methods. Think of a half dozen or so with which you are familiar. How many include a cost function model? How many could incorporate such a model? For example, what is the appropriate distribution of aerodynamic load along the span of an advanced subsonic transport wing designed to minimum cost?

Next look at demonstration experiments. The real value of experimental aircraft to demonstrate, prior to production commitment, certain advanced technologies, is a controversial subject. Few will argue that a flight demonstration may be the only way to determine whether some technical concept is achievable in flight. A case in point was the X-21 Laminar Flow Control aircraft of the early '70s. The aircraft did indeed show that fully laminar boundary layers can be achieved in flight. Even so, the program was criticized for not having addressed key R&M issues (keeping bugs off the leading edge or slots free of dirt during ground servicing). Nor did it address the integrated system (suction system power and weight trades). Project managers for such programs argue

that program cost prevents such consideration from being fully addressed. I believe that we can no longer not afford to incorporate these considerations into flight demonstration programs. The appropriate systems application cost modeling tools must be developed and implemented as part of any proposed experimental demonstration.

You can help with all this. Apply your influence in formulation of plans to address cost issues at the beginning of aerospace R&D endeavors. Become acquainted with the above report, along with NASA plans to prepare roadmaps to lay out a national strategy and technical approach toward achieving the goals. You might also wish to review a copy of the USAF Reliability and Maintainability Action Plan: R&M 2000, released in February 1985.

Let me now turn to other matters, after having convinced you to spend some of your valuable time on R&M issues. Of course, you'll direct important, timely results, including good economic analyses, to these pages.

You see above the pictures of our voluntary Editorial Staff. These gentlemen are responsible for the technical content of the Journal. They solicit papers, obtain reviews, recommend changes, accept, refer to other journals, and, occasionally, decline to publish. If you have questions regarding this process, look them up at technical meetings (or write directly).

The volunteer Editors are supported by an Editorial Staff in New York AIAA Headquarters. Norma Brennan continues to serve as the highly capable Director of the Editorial Department. She deserves a dozen roses daily for her diligent attention to detail and management skills. Elaine Camhi, for the past several years the Managing Editor for all the Journals, has just recently left the Department, but not the Institute, to become Managing Editor of *Aerospace America*. Over the years she has managed to keep in close touch with other aspects of the AIAA publication business, providing a well balanced perspective and encouraging novel ideas in Journal presentation. I welcome Bob Inman as new Journal Publications Managing Editor. Bob also continues to serve as Senior Editor for the *Journal of Spacecraft and Rockets* and the *Journal of Guidance, Control, and Dynamics*. My immediate right arm has been Kathleen Felix, aided by Faith Florer. They keep me up to date on backlog, compile each issue and otherwise proficiently handle the mechanics of producing JA. Kathleen's position also changes as she becomes Senior Editor of *AIAA Journal*.

Finally, please scan the list of Reviewers for 1985 (through August). They have given their time to assure timeliness and quality of each article in each issue.

Send me your Comments.

Thomas M. Weeks  
Editor-in-Chief

### Reviewers for the *Journal of Aircraft*—1985\*

Ahuja, K.	Ashley, H.	Bauer, D.	Bobbitt, P.	Bristow, D.	Carmichael, R.
Aiken, E.	Baghdadi, S.	Beckwith, I.	Bober, L.	Buell, D.	Carr, L.
Allburn, J.	Banger, R.	Bennett, R.	Boppe, C.	Burnet, C.	Cenko, A.
Allen, D.	Barger, D.	Berry, D.	Borland, C.	Burton, C.	Chang, J.
Amiet, R.	Barger, R.	Bertin, J.	Bowditch, D.	Bushnell, D.	Chapman, G.
Anderson, E.	Barnes, T.	Bevilaqua, P.	Boyden, R.	Butler, M., Jr.	Chen, A.
Anderson, J., Jr.	Barns, C.	Bhateley, I.	Brandon, J.	Calico, R.	Chen, R.
Anderson, M.	Barsoum, R.	Binion, T., Jr.	Briggs, C.	Cannon, P.	Christian, T.
Aronson, M.	Batina, J.	Bobbitt, P.	Briley, W.	Carlson, L.	Christian, T., Jr.

\*This list represents names received through October 1985. We regret the inadvertent omission of the following reviewers' names from the list published in the January 1985 issue.

Dillenius, M.	Hakkinen, R.	Mercer, J.	Robinson, M.	Theisen, J.
Fidler, J.	Hemsch, M.	Moran, J.	Smith, A.	Widnall, S.
Geller, E.	Kohlman, D.	Nixon, P.	Stahara, S.	

Church, E.	Hankey, W.	Lerwick, T.	Paynter, G.	Stockman, N.
Clay, J.	Hankey, W. Jr.	Levesque, A.	Peake, D.	Streett, C.
Clement, W.	Hanson, D.	Lezius, D.	Peterson, C.	Strong, J.
Cooley, D.	Hardy, R.	Liu, C.	Phang, J.	Stroud, J.
Cosentino, G.	Harris, T.	Liu, C.-H.	Pinnell, W.	Struble, W.
Cosner, R.	Hartwich, P.	Lo, C.	Pinoco, E.	Suarez, J.
Coupry, G.	Hassig, H.	Lorber, P.	Plourde, G.	Sundararajan, N.
Cox, C.	Hawkins, J.	Luidens, R.	Pretz, W., Jr.	Swift, T.
Cunningham, A.	Hegna, H.	Lutze, F.	Purvis, J.	Swihart, J.
Cunningham, A., Jr.	Hendricks, W.	Lux, D.	Putnam, L.	Tai, T.
Cunningham, H.	Henne, P.	Mace, J.	Quintiere, J.	Thayer, E.
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Cutchins, M.	Hertz, T.	Maine, R.	Ralston, J.	Thomas, R.
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Dash, S.	Hewett, M.	Malmuth, N.	Ratwani, M.	Thompson, J., Jr.
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Del Guidice, P.	Hinkle, T.	Marconi, F., Jr.	Rehfield, L.	Tingdahl, M.
Demetriades, A.	Hinson, M.	Maresca, C.	Retelle, J., Jr.	Tinoco, E.
Dillard, D.	Hodge, J.	Margason, R.	Revell, J.	Tobak, M.
Dillenius, M.	Hoftka, R.	Marvin, J.	Rizk, M.	Tobias, L.
Dillner, B.	Holdhusen, J.	Maskew, B.	Rizzetta, D.	Tobler, R.
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Doane, P.	Holst, T.	McAlister, K.	Roger, K.	Townsend, J.
Dollyhigh, S.	Honig, S.	McAllister, K.	Rogers, E.	Uselton, J.
Donath, R.	Houbolt, J.	McCullers, L.	Rooney, E.	Vanderplaats, G.
Dowell, E.	Hummel, D.	McGrew, J.	Roskam, J.	Vicroy, D.
Drzal, L.	Hunt, B.	McIntosh, W.	Rotelle, J., Jr.	Waggoner, E.
Dugundji, J.	Huttsell, L.	McWha, J.	Rowan, J.	Walters, M.
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East, R.	Jobe, C.	Mehta, V.	Rozendaal, R.	Ward, D.
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Eklund, T.	Johnson, J., Jr.	Melnik, R.	Rudd, J.	Weisshaar, T.
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George, M.	Knouff, A.	Newman, J.	Sears, W.	Wu, J.
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Gessow, A.	Kourtides, D.	Ni, R.	Selberg, B.	Yaros, S.
Giesing, J.	Kraft, E.	Ni, R.-H.	Sewall, W.	Yates, E. Jr.
Gilles, D.	Kuhlman, J.	Niedling, L.	Shang, J.	Yesil, O.
Gills, D.	Kuhn, R.	Nixon, D.	Shankar, V.	Yip, L.
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Grafton, S.	Lakshminarayana, B.	Oberkampf, W.	Simpson, R.	Youngblood, J.
Grandt, S.	Lamar, J.	Oplinger, D.	Sinko, J.	Yu, N.
Gudice, D.	Lan, C.	Orlik-Ruckemann, K.	Sobieski, J.	Zyzys, E.
Guman, R.	Landgrebe, A.	Ormsbee, A.	Soedel, W.	
Hackett, J.	Lapins, M.	Ornberg, T.	Somers, D.	
Hagerup, H.	Lattu, K.	Palmer, W.	Speir, D.	
Hallauer, W.	Laurence, W.	Parger, R.	Stahara, S.	
Hallauer, W., Jr.	Lebacqz, J.	Pate, S.	Steenken, W.	
Han, D.	Lee, J.	Paulson, J.	Stengel, R.	
Hanafee, J.	Lee, K.	Paulson, J., Jr.	Stephens, J.	