Journal of AHS Specifications

General Requirements

The *Journal of the American Helicopter Society* (JAHS) is the leading peer-reviewed technical publication dedicated to vertical flight. Published quarterly by the Vertical Flight Society (VFS), JAHS showcases original, high-quality research that advances the science and technology of all forms of vertical takeoff and landing (VTOL) aircraft.

As the vertical flight industry rapidly evolves with the rise of urban air mobility (UAM), advanced air mobility (AAM), and autonomous systems, JAHS remains at the forefront by publishing groundbreaking work across both legacy and next-generation systems.

Submitted manuscripts should meet the following criteria:

- Originality, clarity of technical writing
- Documented methods of approach
- Validity of measured or computed data (including sources of uncertainty)
- Conclusions that are supported by the data.
- Topic should also be of current or general interest to the technical community.

From these basic criteria, eligibility of the manuscript for publication in the Journal is decided. Manuscripts are only considered by the Editor-in-Chief with the clear understanding that they have not been published previously in print or electronic format and are not under consideration for publication elsewhere. In addition:

- A submitted manuscript is considered as a confidential document.
- Published manuscripts become the permanent property of The Vertical Flight Society (VFS) and may not be republished without written permission.
- It is the author's responsibility at the time of submission to certify that the submission contains no company proprietary or confidential information.
- Authors may be asked to provide copies of possibly duplicative materials that have been previously published or are being considered elsewhere.
- If a manuscript has been prepared for presentation at a technical meeting such as the Annual Forum or another VFS technical meeting, then the manuscript in this form is suitable for initial submission to the Journal. Following review and acceptance of the submission for publication, however, the final manuscript must be prepared following the Journal manuscript specifications given in this document.

Author Information

- A corresponding author must be designated and complete mailing address, telephone and an e-mail address must be provided.

- Each author should have participated sufficiently in the work to take responsibility for appropriate portions of the submitted manuscript.
- Only one author should take responsibility for the integrity of the work, from inception to the final published article. This is usually the corresponding author.
- Authorship credit will be based only on:
    1. Substantial contributions to conception, development of theory or acquisition of data, or analysis and interpretation of the technical data
    2. Drafting or revising the manuscript critically for intellectual content
    3. Final approval of the version of the manuscript to be published. All three of these criteria must be met by all of the authors.
- If authorship is attributed to a group, then all members of the group must meet the criteria and requirements for authorship, as described above.
- Other group members who do not meet authorship requirements may be acknowledged.
- In the case of more than five authors, the corresponding author may be required to submit a statement clearly defining the contributions made by each of the authors.

Peer Review

- The submitted manuscript is considered a confidential document.
- All submitted manuscripts are subject to a preliminary review by the Editor-in-Chief. Manuscripts that do not meet the criteria of the Journal or basic technical standards for publication will be declined.
- Manuscripts that pass this first test are sent to an Associate Editor in one or more areas of specialty for initial technical review. If the manuscript passes this step, it is then sent to a team of technical experts for a full peer review. The identities of these reviewers are kept confidential.
- General information from submitted manuscripts may be collected and analyzed but only to improve the quality of the editorial or peer review process.
- The full review process takes a minimum of three months but every effort is made to keep the review to less than six months.

Editing

- Submitted manuscripts are not edited before the review process.
- Accepted manuscripts will be checked and edited in accordance with the style of the Journal of the American Helicopter Society, which is explained in this document.
- The authors are ultimately responsible for providing the final manuscript in the correct format and style suitable for the Journal.
- Final manuscripts that require excessive markup and/or editing by the Associate Editor or Editor-in-Chief to meet the Journal style requirements will be returned to authors for modification.
- Manuscripts are not edited for technical content without the consent of the authors.
- The authors are responsible for all statements made in their paper.

Length

- Manuscripts must be a concise as possible and, unless approved by the Editor-in-Chief, should not exceed a maximum length of 44 pages of US letter size (8" x 11").
- The text must be double-spaced, 12-point type on one side of the page only, including abstract, references, appendices, equations, figures, tables, notes and any other supporting materials. The rule of thumb is that a figure or a table counts as one page toward the page count.
- Papers presented at the Society's Annual Forum and Technical Meetings are limited to twelve pages in the normal preprint format, although longer papers will be considered at the discretion of the Editor-in-Chief.
- Shorter manuscripts, at the request of the author, may be published as Technical Notes. These manuscripts are limited to nine double-spaced pages.
    - Technical Notes will be reviewed by the Editor-in-Chief or his/her designee, and if acceptable may be published more quickly.
    - Technical Notes, however, should be limited to new and important knowledge that may benefit the community if disseminated quickly.
    - Technical Notes must comply with the general manuscript specifications given in this document.

Organization: The elements of the manuscript will be arranged in the following order:

- Title
- Abstract
- Notation (nomenclature)
- Introduction, main text (including figures, tables and equations)
- Conclusions
- Appendices (optional)
- Acknowledgments (optional) and references.
- A nomenclature section should always be provided unless the manuscript uses relatively few symbols, in which case the symbols can be defined in the text.
- All mathematical and other symbols should be clearly identified as such.

Title

- The title should be brief and concise (maximum of 12 words).
- Clever and catchy titles that are appropriate for informal presentations at the Forum are not generally appropriate for archival publications.
- Avoid the use of acronyms, symbols, abbreviations, and punctuation marks (hyphens, slashes, colons and question marks) and use of acronyms in the title are particularly discouraged.

Author(s) Name

- Place the author(s) full name below the manuscript title and include the author(s) official title, company affiliation, and simple address (city and state) on three lines below each author(s) name. Include an e-mail address.

- Do not include salutations, academic degrees, superfluous organizational levels within the company affiliation, or a full mailing address.

Source Footnote

If the paper was originally presented at a Forum or Technical Meeting, or was the recipient of one of the Society's award (i.e., the Nikolsky, Lichten, Cheeseman or Gessow awards), then this information is placed in a footnote at the bottom of the first page and should include the name of the meeting, the location and the date, for example, “Presented at the American Helicopter Society 52nd Annual Forum, Washington, D.C., June 4–6, 1996.” or “This paper received the American Helicopter Society 1996 Robert L. Lichten Award.”

Abstract

- An abstract of approximately 150 words is required for all papers and consists of a single paragraph.
- It should be a summary of the work contained in the paper and should be complete and not refer to figures in the paper nor should it cite any of the references.
- The abstract should indicate the subject dealt with in the paper and should clearly state the objectives of the investigation.
- Newly observed facts and conclusions based on the content of the paper must be briefly stated. Readers should not have to read the paper to understand the abstract.
- Neither the abstract (nor the conclusions, see below) should contain equations, symbols, acronyms or any discussion of proposed future research.

Notation

- A notation (nomenclature) is required for all submitted manuscripts. This section becomes optional only if a few symbols or if simple equations are used. In this case, the symbols should be defined in the text when they are introduced.
- If more than a few symbols or equations are used, a notation section should be included. It should be a list and must define all of the symbols used (including units).
- Place symbols in alphabetical order: English first, Greek next, the subscripts and superscripts.
- Do not define acronyms in the nomenclature. These should be defined in the text immediately after they are first introduced.
- All symbols should have units that are defined in a separate column next to the symbol. The metric or dual system (metric and English) should be used.

Introduction

- The introduction should introduce the subject matter, provide some background, including a brief assessment of prior work by others (citing relevant references), and an explanation of how the paper contributes to the field.
- This section is not a summary of the paper and it must not contain conclusions. The introduction tells the reader what has been done on this subject in the past, what needs to be done, and how the present results relate to past work and present needs.

Main Text

- Organize the main text under logical headings and subheadings.
- Do not number headings.
- Main headings are centered on the page, are set in bold-face type, and each word is capitalized.
- Subheadings begin at left margin above the text, are set in bold-face type, but only the first letter is capitalized. Sub-subheadings are set at the left margin on the first line of the paragraph and are set in italic type followed by a period.
- Use the third person voice.
- Avoid jargon, slang and commercialism.
- Use acronyms and footnotes sparingly.
- Use simple English prose in paragraph form wherever possible.
- Use parentheses and indented lists of numbered items ("bullet" lists) sparingly.

If a sequence of items needs to be set off by itself use the following examples as a guide:

- Use numbers with only the first line indented. An example of a list is as follows:

1) This is an example of the first item on a list, but note that only the first line of each item on the list is indented.
2) Item two follows item one.
3) Item three, and any other items follow until the end of the list.

- Alternatively (preferred) use numbers within the paragraph. An example is is as follows:

1) Item one
2) Item two
3) Item three.

Equations

- Unless only a few equations are used, all equations should be numbered in the order that they are introduced in the main text.
- All equations must be referred to in the main text by their number. Examples would be: “As shown in Fig. (2), the measurements etc. etc…” or “Equation (2) shows the measurements etc. etc. …”.
- All Equations and/or symbols must be presented in a suitable form that can be understood, and for final copies of the manuscript clarity for the typesetter is essential to avoid typographical errors.
- Any special or non-standard symbols should be clearly identified.
- Mathematical symbols are always italicized.
- Greek math symbols are not italicized.
- The use of bold face symbols to denote vectors is discouraged.

Figures

- **Final figures must be provided in either .eps or PDF format. The raster images should be 300 DPI, and the figure should not exceed 90.7mm.** Any other formats will cause readability quality issues.
- The final figure will be typeset from the same electronic file provided by the author.

- Each figure must be numbered in sequence and must have a caption below the figure.
- Each figure should be provided on a separate sheet, and a list of captions should be typed double-spaced on a separate sheet (not counted toward the page limit). Overly lengthy captions containing legends or other detailed content are discouraged.
- Each figure must be cited in numerical order in the text. Example of figure citations would be: “As shown in Fig. 4, the predictions etc.…” or “Figure 2 shows the predictions etc. etc. …”. In the Journal, figures will be reduced to a single column width of 3.25 inches (73 mm). At this reduced size all information on the figures must be readily legible.
- Axes, tick marks, and leaders should be no smaller than 6 points (2 mm) at the reduced scale.
- Plotted curves should normally be 1 point in thickness.
- Symbols sizes should be 6-point or larger at the reduced scale.
- If a legend is required, then symbols or line types in the legend must be identical to those in the figure.
- Lettering on the figure must be at least 6 points at the reduced scale.
- Figures with data require appropriate labeling of all axes, including units.
- Figures should not include information that can better be placed in the caption.
- In some cases, figures may be included at double-column width. The same rules for line thickness and type size also apply at this reduction.
- Color images are not acceptable for the final paper submission. The Journal will publish manuscripts in color, but the extra costs of production must be borne by the author.
- Grayscale images, particularly those originally produced in color often do not reproduce well in the final paper, and their use should be limited. However, grayscale can work successfully if care is taken to ensure that only a few levels of gray are included, generally six or less.

Tables

- The number of tables should be kept to a minimum.
- Each table should be simple and laid out with horizontal rules but no vertical rules.
- The top and bottom of each table is set off with a double rule. Beneath the column headings, a single rule is used to set off the tabulated numbers.
- Table footnotes should be placed under the bottom double rule and should be indicated by letters a, b, c, d, etc.
- Each table must have a number and a caption and should be cited in numerical order in the text.
- The methods of citing tables are the same as those for citing figures.
- Each table should be provided on a separate sheet and a list of table captions should be typed double-spaced on a separate sheet (not counted toward page limit).

Conclusions

- The most important results of the paper should be summarized as a concise list of numbered items.
- Conclusions should be supported by development in the main text and no new material should be introduced in this section.

- If the paper did not result in specific conclusions, then the section may be entitled Concluding Remarks, or Recommendations, with brief summary comments as appropriate.
- No references or equations must be cited in the conclusions section.

Appendices
- An appendix or appendices should be included only for highly specialized data, derivations, and so forth.
- Appendices should not be used to define symbols.
- The appendices should be numbered if more than one is used.
- Each appendix must be cited in the main text.

Acknowledgments
- If used, one or more acknowledgments to contributors, as sponsor or technical monitor should be placed at the end of the paper, before the references section.
- Also include any research or project support/funding sources here.

References: All reference material should be:
- Grouped in the final section of the paper, numbered, and placed in the order cited in the text.
- The references should be cites as: “This approach is discussed in Ref. 2. etc, etc.,…” or “Johnson (Ref. 3) showed that…” or “Reference 3 discusses the approach etc. etc., …” Do not use the superscript citation style such as “Johnson[1] showed that…”.
- Only cite material that will be readily available to the reader.
- Do not include classified material, internal company memoranda, or reports that would be unavailable to the reader through normal sources.
- Do not include a reference section and a bibliography.
- When on exists, the Document Object Identifier (DOI) number should be provided for all references by appending the text "DOI" and the DOI number to the end of each reference.

Use the following styles for references:

For a book the book title should be italicized. Include the names of all authors (the use of *et al.* is not acceptable for use in the reference list). The publisher and place of publication should be stated. Inclusive page numbers and/or chapter number should always be included. Examples are:
[1]Johnson, W., *Helicopter Theory*, Princeton University Press, Princeton, NJ, 1980, pp. 808–813.
[2]Leishman, J. G., *Principles of Helicopter Aerodynamics*, Cambridge University Press, New York, NY, Chapter 10.

For a section in a book the following style should be used:
[3]Friedmann, P. P., and Hodges, D. H., "Rotary-Wing Aeroelasticity with Application to VTOL Vehicles," *Flight-Vehicle Materials, Structures, and Dynamics*, edited by A. K. Noor and S. L. Venneri, Vol. 5, Part II, Chap. 6, American Society of Mechanical Engineers, New York, NY, 1993, pp. 299–391.

For a journal reference the title of the journal is italicized. All authors must be stated (do not use *et al.* for multiple authors). The volume, number and page numbers of the article must be given. The following style should be used:

Journals Volume 1 to Volume 53 (2008)

[4]Chopra, I., "Dynamic Stability of a Bearingless Circulation Control Rotor Blade in Hover," *Journal of the American Helicopter Society*, Vol. 30, (4), October 1985, pp. 40–47, DOI: 10:4050/JAHS.30.40.

Journals Volume 54 (2009) to Current

[5]Sidle, S., Sridharan, A., Chopra, I., Feshler, M., and Kull, P., "Investigation of Engine-Airframe Vibration Due to Main Rotor Hub Loads Using a Substructuring Framework," *Journal of the American Helicopter Society*, **64**, 042001 (2019), DOI: 10.4050/JAHS 64.042001.

For a report, the following style should be used:

[6]Carpenter, P. J., and Friedovich, B., “Effect of A Rapid Blade-Pitch Increase on the Thrust and Induced-Velocity Response of a Full-Scale Helicopter Rotor,” NACA TN 3044, 1953.

[7]Johnson, W., “A Comprehensive Analytical Model of Rotorcraft Aerodynamics and Dynamics, Part I: Analytical Development,” NASA TM 81182, 1980.

For a conference paper, the paper number (where available) and proceedings volume information must be given. For AHS meetings, the location of the meeting should be given. Examples of this style are:

[8]Sadler, S. G., “A Method for Predicting Helicopter Wake Geometry, Wake-Induced Inflow and Wake Effects on Blade Airloads,” Proceedings of the 27th Annual Forum of the American Helicopter Society, Washington, DC, May 1971.

[9]Brentner, K., and Jones, H. E., “Noise Prediction for Maneuvering Rotorcraft," Paper AIAA 2000–2031, Proceedings of the 6th AIAA/CEAS Aeroacoustics Conference, Lahaina, Hawaii, June 12–14, 2000.

Manuscript Package

- The corresponding author must send the final manuscript package (after the review has been completed and a revision has been requested) to the Associate Editor in charge of the review process.
- Do not send the final package to the Editor-in-Chief.
- All requirements for revisions that are stipulated by the editorial staff must be complied with at this stage.
- The package will generally include detailed written responses to reviewer comments, stating what has been done to comply with the comments or why not (a rebuttal).
- The Associate Editor will then make a preliminary decision and recommendation on whether to publish the manuscript.
- The final decision on publication lies with the Editor-in-Chief.

The package sent to the Associate Editor by the author must consist of the following elements:

- An electronic version of the manuscript in MS Word or LaTex, in single-column, double-spaced format on 8.5" x 11" letter paper with pagination. Explanatory material must be

provided for the electronic submission. A pdf of the paper should also be supplied, if possible.

- Electronic figures in either Postscript or TIFF formats. Do not use color figures unless prior approval has been received from the Associate Editor (page charges will apply). Each figure must be supplied as a separate file.
- Itemized responses to reviewer comments, as appropriate.
- Black & white digital photos of all authors (except if there are more than five authors, in which case no photos are required).

In addition, the author is responsible for the following items:

- The total length of the manuscript should be no more than 44 pages in the defined format, unless approval has been given from the Associate editor.
- On the title page, identify the corresponding author and provide a complete mailing address, telephone and e-mail address.
- On the title page, include the log (tacking) number that was assigned to the paper.
- An abstract that conforms to the required abstract format.
- A list of symbols (nomenclature) that conform to the required standard.
- Check all references for accuracy and completeness. Put references in proper format in numerical order, making sure each reference is cited in sequence in the text.