

Mail Stop 3561

October 25, 2006

Via U.S. Mail & Facsimile (858) 523-5450

Mr. Timothy Conver
President and Chief Executive Officer
AeroVironment, Inc.
181 W. Huntington Drive, Suite 202
Monrovia, CA 91016

**Re: AeroVironment, Inc.
Registration Statement on Form S-1
Filed September 28, 2006
File No. 333-137658**

Dear Mr. Conver:

We have reviewed your filing and have the following comments. Where indicated, we think you should revise your document in response to these comments. If you disagree, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure. After reviewing this information, we may raise additional comments.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comments or any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Prospectus

General

1. Please provide us with any artwork that you intend to use. The inside front cover artwork should be clear illustrations of your product or business with concise language describing the illustrations. Artwork that does not convey the business purpose and language that strays beyond a limited scope will not be appropriate

inside the front cover. Please refer to Section VIII of the Division of Corporation Finance March 31, 2001 Current Issues and Rulemaking Projects Quarterly Update available at www.sec.gov.

2. Please revise your statement on page i that “[t]he information contained in this prospectus is current only as of its date” to clarify that the date to which you refer is the date of the prospectus.
3. In numerous places in the prospectus, you indicate your belief regarding some aspect of your UAS or PosiCharge products. Please provide us with the basis for these beliefs, examples of which include:
 - On page 51: Your UAS and PosiCharge products “provide unique capabilities that had not previously existed,” “perform reliably and affordably,” and have “high efficiency... relative to previous available alternatives.”
 - On page 52: “[F]or the fiscal year ended April 30, 2006, sales of our small UAS accounted for a significant majority of the U.S. military’s small UAS purchases.”
 - On page 52: Your work to develop certain battery charging algorithms “contributed to the major battery manufacturers offering battery warranties for fast charge.”
4. In numerous places in the prospectus, you compare your PosiCharge product to others in your industry. Please provide us with the basis for such comparisons and, if available to you and not already included, include in the prospectus a comparison with other fast charge competitors like those listed on page 8. Examples of your statements include:
 - On pages 2 and 48: “PosiCharge is able to recharge a typical electric industrial vehicle battery and return it to service up to 16 times faster than conventional charging methods.”
 - On page 52: “PosiCharge can reduce the amount of electricity required to support electric industrial vehicles by several hundred dollars per year per vehicle as compared to conventional battery chargers.”
 - On page 52: “[O]ther fast charge and conventional charge systems, which lack our current and voltage regulating tailored charge algorithms and monitoring capabilities, may actually contribute to lower battery performance and lifespan over time, ultimately resulting in higher battery costs and degraded vehicle performance.”
 - On page 52: “PosiCharge customers typically begin to realize cost savings when compared to battery charging within the first twelve months of operation.”
 - On page 56: PosiCharge DVS “is designed to deliver lower up-front

installation and ongoing utility costs when compared to other single vehicle fast chargers.”

- On page 56: PosiCharge MVS “is designed to deliver greater cost-savings as the number of vehicles simultaneously charged increases, as compared to competitive charging systems, which are currently capable of charging only up to eight vehicles at the same time.”
5. We note the dealer prospectus delivery obligation language you include on page i of the prospectus. Please also include this language on the outside back cover page of the prospectus. Refer to Item 502(b) of Regulation S-K.

Prospectus Summary

Overview, page 1

6. Please explain here what you mean by “funded backlog” and “unfunded backlog” in the last paragraph of this section.
7. Revise the last sentence of the first paragraph to give the growth rate for each of the three years, not the compound rate.
8. Revise the first sentence of the second paragraph to eliminate the capital letters in global war on terror.

Summary Consolidated Financial Data, page 5

9. We refer you to footnote 1 concerning the stock split to be reflected in your pro forma earnings per share. Please clarify whether the stock split will occur prior or subsequent to the effectiveness of your Form S-1 registration statements. If prior to effectiveness, SAB Topic 4C requires that stock splits effected after the date of the latest balance sheet presented, but before the effective date of the registration statement, be retroactively reflected, with disclosure, in the financial statements for all periods presented. Please advise or revise as appropriate.

Risk Factors

General

10. Please consider a risk factor about growing congestion in battlefield skies and how this could limit the use of UAS vehicles. Describe any accidents that have occurred involving UAS vehicles. See Too many drones in Army’s future? Tight airspace may force cuts in UAV programs, dated July 10, 2006, in Army Times.

11. Please consider a risk factor about the “forward operating depot” you maintain in Iraq to support your UAS fleet used by the U.S. military, as referenced at the top of page 52. Include the number of company employees and the potential harmful results to the company and its employees should it be attacked or destroyed. As part of this risk factor, include instructors or other support personnel that you have stationed abroad generally, as referenced on page 55.
12. Consider adding a risk factor that any winding down of the war in Iraq might adversely affect your sales.

We rely heavily on sales to the U.S. government, page 7

13. You indicate that governmental agencies could exercise their rights to terminate contracts at-will. Please revise to indicate whether all or substantially all of your government contracts are terminable at will.

If critical components of our products that we currently purchase, page 9

14. Name your sole suppliers of critical components here or in the Business section and cross-reference the site here.

Our earnings and profit margins may decrease, page 12

15. We note that you define fixed-price and cost-plus-fee contracts in the risk factor on page 13 entitled, “Cost overruns on our contracts could subject us to losses...” Please define these terms in this risk factor instead or switch the order in which these risk factors appear.
16. In addition, please revise to indicate whether “development work” references research and development work.

Our business could be adversely affected by a negative audit, page 19

17. You indicate here and on page 61 that you are currently being audited by the Defense Contract Management Agency (“DCMA”) and that DCMA has “identified certain corrective actions to be taken with respect to our current system, which we are in the process of implementing.” On page 61, you identify the system under audit as the system “for the care, control and accountability of government property.” Please so identify the system in this risk factor, as well. In addition, please summarize material corrective actions which DCMA has

identified, if practicable. For example, if the need for certificates of authorization for certain flight tests of UAS outside military installations, which you discuss on the bottom of page 10, was identified as part of this audit, please so indicate.

Our management, whose interest may not be aligned with yours, page 22

18. We note the disclosure on page 22 indicating that the Company's executive officers and their affiliates collectively own 80.7% of the Company's outstanding shares of common stock. We also note that they currently control the vote on all matters requiring stockholder approval, including the election of directors and will continue to do so following completion of the offering. Please revise the notes to the Company's financial statements to disclose the existence of this control relationship. Refer to the disclosure requirements outlined in paragraph 2 of SFAS No.57.

Special Note Regarding Forward-Looking Statements, page 26

19. We note your statement in the last paragraph of this section that you cannot guarantee the accuracy or completeness of "statistical and other industry data generated by independent parties." A disclaimer of liability for material information provided by the issuer is not appropriate. Please revise to remove the language noted above. Alternately, revise to say that you believe and act as if they are accurate.

Use of Proceeds, page 27

20. Please quantify the various uses of proceeds, if practicable.

Dividend Policy, page 27

21. We note the disclosure on page 27 indicating that the Company's debt agreements restrict the Company from paying any dividends to its stockholders. Please revise the notes to the Company's financial statements to disclose the nature and terms of the restrictions imposed on the Company's ability to pay dividends by the terms of its debt arrangements. Refer to the requirements outlined in Rule 4-08(e) of Regulation S-X.

Capitalization, page 28

22. We note from the disclosure in the paragraph preceding your capitalization table on page 28 that "as adjusted" capitalization gives effect to the exercise of outstanding options by certain selling shareholders in the offering. If the exercise of these options will result in a material reduction of earnings applicable to common shareholders (excluding the effects of the offering), please revise to

disclose pro forma earnings per share for the latest fiscal year and subsequent interim period presented giving effect to the conversion, but not to the offering. This pro forma presentation should be included on the face of your statements of operations for the latest fiscal year and subsequent interim period presented and should also be disclose in your Summary Consolidated Financial Data. Refer to the guidance outlined in Topic Three, Section IV.C. 3. of the Division of Corporation Finance Staff Training Manual.

Selected Consolidated Financial Data, page 32

23. Please disclose the nature of any matters that impact the comparability of your selected financial data for the periods presented. Refer to the guidance outlined in Instruction 2 to Item 301 of Regulation S-K.

Management's Discussion and Analysis, page 34

24. Please expand your MD&A to identify and discuss key performance indicators that management uses to manage the business and that would be material to investors, and to provide information about the quality of, and potential variability of, the Company's earnings and cash flows, so that investors can ascertain the likelihood that past performance is indicative of future performance. Refer to SEC Release No. 33-8350.

Supplemental Executive Retirement Plan Obligation, page 36

25. We note the disclosure indicating that accruals due to Dr. MacCready under the Supplemental Executive Retirement Plan will be reversed in connection with the Company's planned public offering. As Dr. MacCready is one of the Company's principal shareholders, it appears the reversal of this obligation should be accounted for as a capital contribution in the Company's financial statements. Please revise to explain your planned accounting treatment for the reversal of this obligation and the relevant technical accounting literature that supports your planned treatment.

Liquidity and Capital Resources, page 42

26. Revise to describe reasons for material changes in cash flows from operating, investing, and financing activities from period to period. We note that your disclosures are merely a reiteration of the cash flow statement. The liquidity discussion should focus on the reasons for the changes in assets and liabilities and the need for purchases of property and equipment, treasury stock, investments, acquisitions, etc.

Overview, page 47

27. Please better explain what “grid-tied” means with reference to Architectural Wind.

Small UAS, page 48

28. Please clarify here that Global Hawk and Predator referenced at the top of page 49 are not manufactured by you.
29. Please indicate to what extent commercial applications for UAS, such as those that you mention in the last paragraph of this section, have already developed. If most have not yet developed, please explain why not.

PosiCharge Fast Charge Systems, page 50

30. Please define what you mean by logistics in a business setting, as referenced on page 51.

Small UAS, page 51

31. You indicate that your five types of small UAS vehicles, with the exception of Dragon Eye, share a “common ground control unit.” Does this mean that their ground control units are the same?
32. In addition, how does the need for landing space comport with the use of these vehicles in urban environments? Please describe any other challenges to use of UAS vehicles in urban environments. For example, see Army finds Raven UAVs unsuitable for Baghdad use, dated September 6, 2005, in Aerospace Daily & Defense Report.
33. Revise the last sentence of this section to replace the compound annual growth rate with the growth rate for each of the three years. Make a similar change in the last sentence of the next section.

PosiCharge Fast Charge Systems, page 52

34. You indicate that PosiCharge was developed from your “innovative” work on electrical and hybrid vehicles and battery systems in the 1990s. Either revise to eliminate this adjective or detail how your work was innovative.

Technology and Research and Development, page 53

35. Please describe the makeup of and selection process for the intellectual property and commercialization committee you mention in the third paragraph on page 54. Is this a committee of the board of directors, management, or other employees?
36. Please indicate why you often choose to protect your intellectual property “through trade secrets as opposed to publication,” as referenced in the fourth paragraph on page 54.

Products and Services, page 54

37. We note the disclosure on page 54 indicating that the Company provides system solutions that typically include hardware, software, training, service, spare parts, and ongoing support. We also note from the disclosure on page F-10 that the substantial majority of the Company’s revenue is generated pursuant to written contractual arrangements to design, develop, manufacture, and/or modify complex products, and to provide related engineering, technical and other services according to the specification of the customers. We further note that these arrangements are accounted for pursuant to SOP 81-1. Please tell us and clarify in your accounting policy disclosures whether any of your sales arrangements provide for multiple deliverables that must be accounted for in accordance with the guidance outlined in EITF 00-21. If so, please tell us and expand your disclosure to explain how you consider the guidance outlined in EITF 00-21 in accounting for these arrangements.

Small UAS, page 55

38. Please include the size of the fleet for each vehicle and each of its primary customers.

Contract Engineering Services, page 57

39. Please indicate why you are not seeking to grow this service offering at this time.

UAS Manufacturing and Operations, Page 59

40. Please define ISO and “ISO 9001: 2000” referenced on the top of page 60.

Competition, page 60

41. Your list of UAS competitors here differs somewhat from that provided on page 8. For example, you include Northrop Grumman Corporation as a competitor on

page 8 but state here that its Global Hawk is not viewed by you as direct competition. Please revise to make your disclosure consistent.

Regulation, page 61

42. Please revise to elaborate on the corrective actions identified by the DCMA. Include any financial statement impact including costs of implementation in your disclosure.

Bidding Process, page 62

43. You state in the third paragraph that you are the “sole provider under the only two programs of record established by the DoD for small UAS, a 2006 U.S. Army/SOCOM contract for Raven and a 2003 U.S. Marine Corps contract for Dragon Eye.” Please provide additional background and context for these contracts so investors can better assess their significance. For example, how big are the contracts in dollars and in number of vehicles delivered, and for what length of time are the contracts?
44. In addition, if these were the only two such UAS programs, how did you come to supply the U.S. Navy, as identified in the chart on page 55, which is not one of the customers under the two contracts? How did you come to supply customers with the Swift, the Wasp, and the Puma, as identified in that same chart, which are not vehicles you supplied under the two contracts? Furthermore, how did you come to be the sole provider of Ravens to the U.S. Army in 2004, which you highlight in the second paragraph, two years before your contract with the Army under one of the two “programs of record”? In addition, you also identify these contracts on page 47 as the only “competitively bid U.S. military small UAS programs of record as of July 29, 2006.” Were these the only two such programs of any kind or the only two competitive programs? Please revise to clarify your disclosure or advise.

Transactions with Officers and Directors, page 77

45. Revise the notes to the financial statements to disclose the significant terms of the voting agreement with certain principle shareholders of the Company. Refer to the requirements outlined in paragraph 2 of SFAS No.57.

Principal and selling stockholders, page 78

46. By footnote or otherwise, please identify the natural persons with voting or investment control over the Taylor Family Trust. Refer to Interpretation 1.60 of Telephone Interpretation Manual (July 1997).

Common Stock, page 80

47. The last sentence of the first paragraph of this section, which says that all shares now outstanding and to be outstanding upon completion of this offering are fully paid and non-assessable, is a legal conclusion which you are not qualified to make. Either delete the sentence or attribute it to a law firm and file a consent in the next amendment.

Underwriting, page 86

48. Please expand this section to disclose that the selling shareholders may be deemed to be underwriters with respect to the shares they are offering for resale.

April 30, 2006 Financial Statements, page F-1

Consolidated Statements of Income, page F-4

49. We note from pages 34 and F-9 that you classify the gains and losses from sales and disposals of assets as a component of other income (expenses), net. Please revise to reflect these amounts as components of operating income or explain why you do not believe this is required. Refer to the guidance outlined in paragraphs 25 and 45 of SFAS No.144 and footnote 68 to SAB Topic 13.
50. We note from the disclosure on page 34 that you include interest income and expense in "other income and expense." Please revise to provide separate disclosure of interest expense in your consolidated statements of operations. Refer to the requirements outlined in Rule 5-03(8) of Regulation S-X.

Consolidated Statements of Shareholders' Equity, page F-5

51. We note that you have repurchases of common shares, however, have no treasury stock presented. Please tell us and revise to disclose your accounting policies with regard to these repurchased shares including any plans authorizing the repurchases, any stock retired, and any stock held and how the value was determined. Also, please tell us and clarify in your financial statements whether any compensation expense was required to be recognized in connection with share repurchases. If not, please explain why.

Research and Development, page F-11

52. Revise to disclose the related costs of sales associated with customer funded research and development for the periods presented in your financial statements.

Note 2. Inventories, net, page F-14

53. From the schedule on page F-24, the balance of inventory reserves increased significantly in fiscal 2005. Please tell us and explain in MD&A and the notes to your financial statements the facts or circumstances responsible for the increase in inventory reserves during 2005. Also, please provide us with further details on any write-downs or impairments taken and the reasons for such actions. Additionally, revise the notes to your financial statements to disclose such transactions as necessary.

Note 8. Stock Based Compensation, page F-16

54. We note from the disclosure provided in Note 8 that the Company granted 63,000 stock options with an exercise price of \$15.00 per share during the fiscal year ended April 30, 2006. Please tell us and explain in the notes to the Company's financial statements and MD&A how the Company determined the fair market value of its common shares and the related exercise price of the options granted during the fiscal year ended April 30, 2006. As part of your response and your revised disclosure, please address the following:

- For each option grant made during the period, please indicate the number of options granted, the exercise price, the fair value of the common stock at the date of grant, and the intrinsic value, if any, per option.
- Indicate the valuation method and significant assumptions used to determine the fair value of your common shares and indicate whether the valuation was based on a contemporaneous or retrospective valuation. Also, please indicate whether the valuation was performed by an independent valuation specialist or a related party.
- To the extent that the expected public offering price of your common shares exceeds the exercise price of options granted during the preceding twelve month period, please discuss in MD&A each significant factor contributing to a difference between the fair value of each option grant and the expected public offering price.

Refer to the guidance outlined in paragraphs 179 and 182 of The AICPA Practice Aid "Valuation of Privately-Held-Company Equity Securities." We may have further comment upon review of your response and your revised disclosures.

55. Also, please revise to include the pro forma disclosures required by paragraph 45 of SFAS No.123 in your Summary of Significant Accounting Policies. Refer to the guidance outlined in paragraph 2e of SFAS No.148.

Note 9. Income Taxes, page F-19

56. Please tell us and explain in Note 9 the nature of the reconciling item included in the reconciliation of your statutory tax rate to your effective tax rate for the fiscal year ended April 30, 2004, described as “reduction of amount in excess of tax liability.” As part of your response, you should also explain why you believe it is appropriate to account for this item as a change in estimate rather than as a correction of an error.

Note 10. Related Party Transactions, page F-20

57. We note the disclosure indicating that the Company provided a loan to its Chief Executive Officer for \$599,000 in June 2004 to facilitate the exercise of stock options. We also note that this loan was repaid during April 2005. Please tell us and revise the disclosures provided in Note 10 to indicate the number and terms of the options exercised through the issuance of this note and the significant terms of the note received from the Company’s Chief Executive Officer. Your response and your revised disclosure should indicate whether this note was recourse or non-recourse and should also indicate whether variable accounting was required for the options exercised through the issuance of the note and the reasons why variable accounting was or was not required.

General

58. Please update the financial statements, if necessary, as required by Rule 3-12 of Regulation S-X.
59. An updated accountant’s consent should be included with any future amendments to your Form S-1 registration statement.

Confidential Treatment Request

60. We have received your confidential treatment request related to this filing and will respond to it separately.

As appropriate, please amend your registration statement in response to these comments. You may wish to provide us with marked copies of the amendment to expedite our review. Please furnish a cover letter with your amendment that keys your responses to our comments and provides any requested information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes all information required under the Securities Act of 1933 and that they have provided all information investors require for an informed investment decision. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Notwithstanding our comments, in the event the company requests acceleration of the effective date of the pending registration statement, it should furnish a letter, at the time of such request, acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in connection with our review of your filing or in response to our comments on your filing.

We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. We will act on the request and, pursuant to delegated authority, grant acceleration of the effective date.

We direct your attention to Rules 460 and 461 regarding requesting acceleration of a registration statement. Please allow adequate time after the filing of any amendment for further review before submitting a request for acceleration. Please provide this request at least two business days in advance of the requested effective date.

Mr. Timothy Conver
AeroVironment, Inc.
October 25, 2006
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You may contact Heather Tress at (202) 551-3624 or Linda Cvrkel at (202) 551-3813 if you have questions regarding comments on the financial statements and related matters. Please contact Joshua Ravitz at (202) 551-4817 or me at (202) 551-3755 with any other questions.

Sincerely,

Max A. Webb
Assistant Director

cc: Via Facsimile (858) 523-5450
Craig Garner, Esq.
Michael Sullivan, Esq.
Latham & Watkins, LLP