

October 17, 2007

Mail Stop 6010

Maurice R. Ferré, M.D.  
President and Chief Executive Officer  
MAKO Surgical Corp.  
2555 Davie Road  
Ft. Lauderdale, FL 33317

**Re: MAKO Surgical Corp.  
Registration Statement on Form S-1  
Filed September 19, 2007  
File No. 333-146162**

Dear Dr. Ferré:

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.

1. Please confirm that any preliminary prospectus you circulate will include all non-Rule 430A information. This includes the price range and related information based on a *bona fide* estimate of the public offering price within that range. Also note that we may have additional comments after you include this information.

Graphics

2. If you intend to use graphics on the prospectus covers or otherwise, please ensure that you provide them with your document.

Prospectus Summary

3. Please disclose how you anticipate selling version 2.0 of your Haptic Guidance System. Explain whether that will be a wholly different unit that existing customers must purchase, an upgrade that existing customers can purchase or is it part of a service contract for your existing customers.

4. If true, please highlight in the summary that you will not be able to recognize revenue in connection with the sale of your system until you deliver version 2.0 as describe in your risk factors on page 8.
5. If you elect to provide positive details in your summary, please balance your disclosure with equally prominent disclosure of negative details. For example:
  - On page 1, you highlight the 79 completed procedures, but it is not until page 10 in the risk factors that you mention the failed procedures;
  - On page 1 you mention six instillations but on page 44 you mention that revenue has been primarily from a single customer; and
  - On page 2, you mention the expected introduction of the onlay system in the fourth quarter of 2007, but on pages 9 and 10 in the risk factors you disclose that you do not have FDA approval for this system and that your expected introduction may be delayed for “any number of reasons.”

Our Market, page 1

6. Please tell us whether all industry data you cite in your document is publicly available. Also tell us whether:
  - you commissioned the industry reports;
  - the industry reports were prepared for use in your registration statement;
  - you are affiliated with the sources of the industry reports; and
  - the sources of the reports consented to being identified and to your use of their data in this registration statement.

Also, please provide us with a copy of the Duke University survey you cite at the end of the first full paragraph on page 2, marked to show the statistics you cite.

7. With a view toward balanced disclosure, please tell us whether (1) your product can be used for the entire population mentioned in the last sentence of the third paragraph as having declined total knee replacement surgery, and (2) there are alternatives other than your product that were or could be used for that population.

Risks Related to Our Business, page 3

8. Please disclose the risks you identify in this paragraph as prominently as the other disclosure in your summary. Please create bullet points for each of the risks you have highlighted here.

Risk Factors, page 8

9. We note your disclosure on page 71 that your representatives are present in the operating room. If the representatives' presence is required or otherwise limits the quantity of your sales, please add an appropriate risk factor.

Changes to financial accounting standards may affect our reported results of operations, page 21

10. Please clarify how this risk factor is specific to your company, industry or offering.

Use of Proceeds, page 35

11. Please disclose the approximate amount of proceeds that you currently intend to use for (1) sales and marketing and (2) research and development. See Regulation S-K Item 504.

Capitalization, page 36

12. We see that the pro forma data in your filing is not complete. We will review this pro forma data once you complete the disclosures.

Management's Discussion and Analysis, page 43

Results of Operations, page 49

13. Please tell us more about the "different utilization of the image-guided surgery technology" that Z-KAT was involved in prior to the contribution to your company.

The Period from Inception through December 31, 2004, page 52

14. Please discuss the reasons that revenue dropped to \$0 after you received your business from the Z-KAT.
15. With a view toward disclosure, please tell us whether the margins on your sales, when recognized, will be similar to the margins recognized by Z-KAT. Tell us the reasons for the differences.

Liquidity and Capital Resources, page 53

16. We note that you have entered multiple license and royalty agreements since September 2005. It appears that these agreements are expected to have a material impact on your operations, liquidity and product development. Management

Discussion and Analysis should describe and quantify the known or expected impact the agreements will have on your financial statements. Please revise MD&A to discuss the potential impact upon revenue, cost of sales, operating results and cash flows from the license and royalty agreements. Please also discuss how these license and royalty agreements will impact your future product developments.

17. We note that your customers are entitled by contract to receive the version 2.0 of your HGS and all interim software and hardware version enhancements at no cost. Please provide a sample contract for our review. Expand your disclosure here and in the footnotes to include the number of HGS units you are required to provide upgrades to version 2.0. Your disclosure should include the amount of deferred revenue and deferred cost of revenue associated with the upgrade obligation and the anticipated date of when you will satisfy all the related revenue recognition criteria.
18. In this regard, please describe the nature and timing of the remaining efforts and related cash requirements necessary to develop the version 2.0 into a commercially viable product. Describe the potential effects on results of operations and financial position if the technology is not successful and timely completed. For example, explain if the customer has a right of return if the version 2.0 is not available. Describe the current status of the project.

Contractual Obligations, page 55

19. We note that you have long-term purchase obligations with suppliers and a \$4.0 million payment to IBM that are not included in this table. Please tell us how this complies with the guidance in Item 303 of Regulation S-K and FR 67; *Disclosure in Management's Discussion and Analysis about Off-Balance Sheet Arrangements and Aggregate Contractual Obligations*. Also, significant purchase commitments or obligations under non-cancelable long-term contracts should be disclosed in the footnotes as well. Please revise or advise.

Business, page 57

20. Please identify the single customer mentioned on page 44.

Overview, page 57

21. With a view toward clarified disclosure, please tell us whether the May 2005 version of your product was robotic. If not, please tell us when you began to offer the robotic version.

Manufacturing and Assembly, page 72

22. Please disclose the expiration date and material termination provisions of your material supply agreements.

Intellectual Property, page 72

23. With a view toward disclosure, please provide us your analysis of the materiality of your licensed patents that expire this year and in the next couple of years.

Regulatory Requirements, page 75

24. Please reconcile your disclosures regarding introducing an “onlay knee implant system in the fourth quarter of 2007 subject to regulatory clearance” with your disclosure on page 76 that clearance usually takes three to twelve months.
25. Please clarify whether version 2.0 of your product will follow the 510(k) or PMA pathway. If you are uncertain, disclose the reason for the uncertainty and the basis for your disclosure regarding launch in the first half of 2009.

Fraud and Abuse Laws, page 80

26. Please tell us how you have determined that the arrangements mentioned at the top of page 29, including the royalty payments, are consistent with these laws.
27. Refer to the third-to-last sentence in the last full paragraph on page 81. With a view toward clarified disclosure, please tell us which aspects of your activities generate your concern of being subject to scrutiny under these laws.

Compensation Committee Interlocks and Insider Participation, page 87

28. Please clarify the nature and timing of the “formation transactions” that will precede the committee composition that you disclose.
29. Please provide the disclosure required by Regulation S-K Item 407(e)(4) for your last completed fiscal year.

Compensation Discussion and Analysis, page 88

30. Please revise to clarify who is making the decisions on compensation, whether it is the board, the compensation committee or other third-parties. For example in the penultimate paragraph on page 88 you describe that “the board of directors generally makes recommendations for review and ratification by the board at large.” Please explain how those recommendations were formulated. Please

clarify what it means to have other named executive officers attend compensation committee meetings other “than those portions of the compensation committee meetings during which executive compensation is discussed and approved.”

31. We note the reference to compensation surveys in the last paragraph on page 88. Please identify the surveys you used and their components, including component companies and how such benchmarks are determined. For example, please disclose whether you compared yourself to the 50<sup>th</sup> percentile benchmark, a range of benchmarks or otherwise.

Base Salary, page 89

32. We note your disclosure about how annual salaries are set taking into account “economic and industry conditions and company performance,” as well as the committee’s assessment of the “unique leadership skills, management experience and contributions” of the individual executive officer and the “mix of components.” Please describe specifically how these factors were used to make compensation decisions during the applicable periods; if instead compensation decisions were based on the subjective discretion of the board, please say so clearly and directly without implying that objective factors were used.

Long-Term Equity Compensation, page 91

33. Please tell us where in this section you have described the 1,352,250 and 150,000 shares issued to Dr. Ferré as described in the last paragraph on page 104. Also, please describe the business reasons for structuring the loans in this way including the 50% recourse.
34. We note your references to grants in 2007 based on 2006 performance. Please clarify when the committee decided to issue the grants, and provide us your analysis of whether these grants should be included in your compensation tables.

Benefits Programs, page 92

35. Please tell us whether the disclosure regarding these programs is included in your summary compensation table, or cite with specificity the authority on which you rely to exclude it.

Perquisites and Other Benefits, page 92

36. Please describe the reasons your board of directors decided to forgive these loans. Also, please describe the reasons for the 106,792 stock options granted on September 5.

2006 Summary Compensation Table, page 94

37. Please tell us why the loans and sale of restricted stock described at the end of page 104 are not disclosed in this table. Cite with specificity the authority on which you rely.

Termination and Change of Control, page 100

38. Please tell us why the amount for your CEO is blank in the first table. Also, tell us how the table reflects the different amount to be paid in connection with a change in control and for tax “gross-up payments.”

Certain Relationships and Related Party Transactions, page 104

39. Please ensure that the related-party transactions are fully described in one section of your document, rather than requiring investors to piece together relevant information from several portions of your document, like from here and from portions of a long financial statement footnote which itself refers investors to another footnote.

Policies and Procedures for Related Party Transactions, page 104

40. Please disclose the standards to be applied to your policies and procedures. For example, if the terms are not as favorable as a third party could offer, will the audit committee reject the transaction?

Z-KAT transactions, page 104

41. Please disclose in this section how Z-KAT is a related party, including the involvement of your director, Mr. Dewey.
42. Disclose the principle followed in determining the amount to be paid for the assets acquired from Z-KAT and identify the persons making that determination. Also, if the assets were acquired by Z-KAT within two years prior to the transfer to Mako, state the cost of the assets to Z-KAT.
43. Please revise vague disclosure to provide specific information regarding the transactions. For example:
- What “portion” of the annual royalties did you agree to pay as mentioned in the first paragraph? How was this portion determined?

- What “certain” licensor do you mean in the second paragraph? Why did you assume the license payments? Does Z-KAT retain any interest in the property that is subject to the license?
  - What “certain” inventory was purchased in the second paragraph? How was that inventory related to “certain sublicenses”? Why wasn’t that inventory related to the original contribution to your business? What is the nature of the “certain sublicenses”?
  - What is the interest rate on the loan? How was it determined?
44. With a view toward disclosure, please tell us whether Z-KAT is prohibited from competing with you.
45. Please fully describe the transactions mentioned in the footnotes on page 106 in which you issued affiliates stock in connection with the contribution, including how the transactions were related to your formation, the nature and amount of the Z-KAT debt and the exercise price of the warrants issued.

Employee Loans and Notes Receivable for Restricted Stock, page 104

46. Please clarify whether all outstanding loans to your CEO have been extinguished by the forgiveness. Also, clarify the amount of interest any principal that your CEO paid and the balance that was forgiven.

Recent Sales of Preferred Stock, page 106

47. Please disclose the conversion rate of the preferred stock.

Consulting Agreements, page 107

48. Please clarify how these agreements are related-party transactions. Disclose the material terms of the agreements.

Principal Stockholders, page 108

49. Please identify all the individuals with beneficial ownership of the shares held by the entities described in this table. Also, provide us your analysis that supports your conclusion that you can exclude the shares held by entities affiliated with your directors and executive officers from the beneficial ownership of your directors and executives officers.



Financial Statements, page F-1

50. Consideration should be given on an ongoing basis to the updating requirements of Rule 3-12 of Regulation S-X. An updated accountant's and valuation firm's consent should also be included with any amendment to the filing.

Statement of Operations, page F-4

51. It appears you have revenues from sales of products and services that appear to meet the 10 percent threshold for separate disclosure. Tell us your consideration of presenting these separately on the face of this statement, along with a separate presentation of related cost and expense.
52. We would generally expect to see historical earnings per share disclosures for each period presented assuming that shares were outstanding. Revise to disclose historical basic and diluted earnings per share on the face of the statements of operations, together with the number of shares used to compute such per share data for all periods presented or explain your basis in GAAP for omitting such disclosures. This comment also applies to your selected financial data table on page 41.

Note 2. Summary of Significant Accounting Policies, page F-9

Accrual for Warranty Costs, page F-13

53. If material, include a tabular reconciliation of your warranty liability in accordance with paragraph 14(b) of FIN 45.

Inventory, page F-13

54. We note that you have introduced several upgrades to your products and intend to introduce version 1.2 in the fourth quarter 2007. Please tell us about your inventory obsolescence policy. If material quantify the amount of impairment recorded for all periods presented.

Revenue Recognition

55. We note on page 71, that you have entered into three "co-marketing" agreements with hospitals. Please tell us more about these agreements. Explain if you provide any units or products free of charge to hospitals for use by surgeons. If so, discuss where these items are expensed and if there are any minimum purchase requirements. Refer to the guidance in EITF 01-09 as necessary.

Note 4. Related Parties, page F-19

The Company – Acquisition of Assets from Predecessor, page F-20

56. We note that under the contribution agreement, Z-KAT contributed certain assets, all required intellectual property rights, as well certain liabilities and all their employees. Please tell us and revise to disclose more about the December 2004 contribution agreement and subsequent addendums. Tell us the business purpose of structuring the contribution agreement the way that you did and provide the organization structure for Mako and Z-KAT both before and after the agreement. We may have further comments upon review of your response.
57. In this regard, please explain, in greater detail, how you valued and recorded the acquisition of assets from Z-KAT. We note that you consider Z-KAT the predecessor company and accounted for the transaction based on the historical costs of the assets of Z-KAT. We also note that you did not carry forward the retained earnings of Z-KAT. Please tell us why this presentation is appropriate given that it appears that you did not establish a new basis of accounting for Mako. Explain and support the entries that you recorded and cite the specific accounting literature upon which you relied. Specifically refer to the guidance in paragraphs D-11 through D-18 of SFAS 141.

Restricted Stock and Note Receivable from Related Party, page F-21

58. We note in July 2005 and May 2006, you issued 1,352,250 restricted common shares to your CEO and 150,000 restricted common shares to an entity affiliated with your CEO in exchange for promissory notes of \$631,000. Subsequent to this, you determined that the recourse provisions on part of the notes had no substance and treated the transaction as an option to acquire the common shares. Please explain for us in detail how you accounted for this transaction with references to the authoritative accounting literature which supports your accounting.
59. In this regard, we see on page F-37, that in September 2007, you forgave \$1,149,000 of outstanding loans to your CEO and recorded \$476,000 in additional compensation expense related to these restricted shares. Please tell how you valued, recorded and accounted for this transaction. Please revise the filing to also include this information.

Note 6. Commitments and Contingencies, page F-23

License and Royalty Agreements, page F-24

60. We see that in March 2006, you signed a license agreement with IBM which included a deferred payment of \$4 million upon a change in control and that you recorded the liability net of a discount of \$590,000. Please tell us and revise the

filing to disclose how you determined the net present value of the deferred license fee. Also, explain why classification as a non-operating expense is appropriate for the discount. Finally, revise to quantify the amount of royalty payments you are obligated to pay based on each product sold to IBM.

61. To assist a reader in understanding the license and royalty agreements, please disclose all the major terms of these agreements. For example, please discuss the license/royalty fees, terms and rates or tell us why you believe additional disclosure is not required. Also, provide us with a schedule of the components of the \$6.5 million license recorded as of June 30, 2007.

Note 7. Redeemable Convertible Preferred Stock, page F-25

Conversion Rights, page F-28

62. We note that your Series A, Series B and Series C redeemable convertible preferred stock is convertible into common stock only if the initial public offering aggregate proceeds raise at least \$25 million of proceeds at a purchase price of not less than \$3.96 per share. If your offering price per share is not at least \$3.96 per share and the offering does not raise at least \$25 million, it appears that your preferred stock will not automatically convert and your pro forma presentation and disclosure that the "conversion will occur upon completion of this offering" on page 6 and page 41 will not be accurate. Please advise.

Note 8. Stockholders' Deficit, page F-29

63. Provide us with an itemized chronological schedule detailing each issuance of your common shares, preferred shares, stock options and warrants since October 2006 through the date of your response. Include the following information for each issuance or grant date:
  - Number of shares issued or issuable in the grant
  - Purchase price or exercise price per share
  - Any restriction or vesting terms
  - Management's fair value per share estimate
  - How management determined the fair value estimate
  - Identity of the recipient and relationship to the company
  - Nature and terms of any concurrent transactions with the recipient
  - Amount of any recorded compensation element and accounting literature relied upon to support the accounting.

In the analysis requested above, highlight any transactions with unrelated parties believed by management to be particularly evident of an objective fair value per share determination. Please provide us with a chronological bridge of

management's fair value per share determinations to the current estimated IPO price per share. Also, indicate when discussions were initiated with your underwriter(s) about possible offering price ranges. We will delay our assessment of your response pending inclusion of the estimated IPO price in the filing.

Exhibits

64. We note your reference to an application for confidential treatment. We will provide any comments related to your request separately. Comments must be resolved and your application must be complete before we may accelerate the effective date of your registration statement.

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.

Maurice R. Ferré, M.D.  
MAKO Surgical Corp.  
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Page 13

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.

You may contact Kevin Kuhar at (202) 551-3662 or in his absence, Angela Crane at (202) 551-3554 if you have questions regarding comments on the financial statements and related matters. Please contact Jay Mumford at (202) 551-3637 or me at (202) 551-3617 with any other questions.

Sincerely,

Russell Mancuso  
Branch Chief

cc: (via Fax): Stuart A. Barr