This document supports a complete article on the building, by GMT Composites of Bristol, Rhode Island, of a mast for the sailing vessel *Morgan's Cloud*. It should be read in conjunction with the article, available at:

http://www.morganscloud.com/gear_failures_fixes/gfmast.htm

To learn more about *Morgan's Cloud* and her owners, Phyllis Nickel and John Harries, go to:

www.morganscloud.com

Morgan's Cloud: Mast Project

I. Introduction

A. This is the latest, and hopefully final version of these notes. I have included copies of relevant emails as well as our original notes and specifications. This document with all of the notes and emails between the parties constitutes the agreement between GMT and John Harries & Phyllis Nickel.

B. It is agreed that equipment and design specified in this document and the attached emails are all included, without additional cost, in the GMT quotation, a copy of which is attached.

C. Morgan's Cloud is not a yacht, she is an expedition sail boat. Our goals in the new mast and spinnaker pole acquisition are:

1. Reliability
    a. In our experience this usually equates to simplicity
2. Ruggedness
    a. Some equipment is reliable only if it is treated within very specific guidelines. That is not what we are looking for
    b. For example our current vang and boom goose necks are massive and have never given trouble. The new mast should be the same
3. Ease of maintenance
4. Ease of repair, at least temporary

D. We have a finite amount of money to spend on this refit, when it is gone there is no more. Therefore:

1. We need to make sure that when a contract is signed it is at the full sailing price with no unexpected extras
2. We would like to work on the project ourselves to save money but want a deal where the overall responsibility for everything fitting together (including the parts to be reused) and working remains with GMT
    a. In other words we will provide any amount of sweat and grunt but when it comes time for a critical measurement, we would like to see it verified by GMT or MMR

E. This specification is to form a part of the contract

F. The requirements herein and in other communications represent our thinking on the best way to specify the mast, however we encourage GMT and MMR to make suggestions for better ways to do things as the detailed design process continues

II. Requirements

A. Mast to be tapered

B. All fittings to be isolated from tube

C. The boom and vang goose necks must be in exactly the same positions, relative to the mast heel, as they are on the old mast. This may not be accurate on the sail plan

D. Electrical Conduits

1. Our current conduits are too small
2. Conduit for
    a. Mast head
        (1) Tri-light
        (2) VHF
        (3) Mast instruments
    b. Steaming and deck light
    c. First spreaders
        (1) Two antennas
    d. No radar conduit is required

E. Storm trysail track

1. Port side
2. Current Measurements:
    a. Starts 117-1/2" up from heel of mast
    b. Extends 29'-3" from bottom to top
3. On new mast extend 8" down from current measurements

F. Separate halyard for storm trysail

G. Front of mast stowage for spinnaker pole

1. Design of system to prevent breakage of mast dick or car by inadvertent athwart movement of the pole when removing from storage

H. Paint to be Awlgrip Matterhorn white

I. GMT to provide new link plates

J. Masthead

1. We need to work out placement of equipment so it won't be fouled by burgee
2. Burgee
3. Lightning rod
4. Hawk wind indicator

a. Aft of mast on extension

5. Electronics wand mounting point
   a. Front of mast to clear burgee
   b. May require extender
6. VHF antenna

K. Mast Heal

1. A plug to be supplied to mate to the exiting mast step and tongue.
2. Female groove to have additional fore and aft clearance to allow the mast to be moved fore and aft for tuning.
3. Bolt hole to be cut in mast heal to take retaining bolt.
   a. Can this hole be elongated to allow the above tuning movement?

L. Main halyard

1. Main halyard sheave to be roller bearing type
2. Exit on starboard side
3. It is intended to use a 1:1 halyard initially, but we would like facility to change to a 2:1 at a later date.

M. Clutches required for all halyards and lifts except main halyard, which will have its own halyard and no clutch

1. We have not used clutches on halyards in the past and are happy to take advice on this point from MMR and GMT

N. Exit boxes and clutches to be high enough to facilitate jumping the halyard by 6' person

1. We guess that there is a trade off here between jumping the halyard and reaching the clutch

O. Winch placement to be optimal for a 6' person, standing

P. The existing mast steps will not be reinstalled

Q. Signal Halyard Blocks

1. Burgee
2. Port and starboard signal halyard blocks on first spreaders

III. Attachments

A. Eyes for lazy jacks

B. Harness eye on front face of mast

IV. Reuse

A. It will be GMT's responsibility within the quoted price to remove from the old mast and install on the new:

1. The Frederiksen mainsail track system
2. Three halyard winches
3. The Harken spinnaker pole system (GMT will charge us for additional track sections required to accommodate the mast stowed pole)
4. Boom vang plumbing
5. Combined deck and steaming light with SS guard
6. Pad eyes at base of mast each side for harness attachment (to be moved up about 12" inches depending on winch placement)
7. Spinnaker halyard block
    a. Reuse current block
    b. Only one is required, installed on port side
    c. (Although we would like cranes for two halyards we normally only reeve and use one).
8. We can do the following installations, but provision should be made for them:
    a. VHF antenna and cabling
    b. Mast head tri light and cabling
    c. Mast instrument wand base and wiring
    d. Deck and steaming light and cabling.