

CST Newsletter

Volume 1, Issue 1

May, 2001

Welcome to first issue of the CST Newsletter

Included in this issue:

- New Board of Directors and officers elected.
- Membership Classes Adopted.
- A new project idea from the President.
- Project Guidelines accepted.

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New Board Elected at Annual Meeting

The 2001 annual board meeting was held on April 8th at Kris Guerquin's home in Seattle. The new board and officers were elected (see the picture at the right). Also shown in the picture is the CST display board with pictures of various past rocket engine tests and projects. The S4V model fuselage plug is the long white object below Rich Harman. The orange, inboard wing plugs can also be seen along with the black carbon composite rocket case and Rich Harman's aluminum rocket engine injector.

The new Board proceeded to adopt a number of proposals to refocus the Team. These included a set of dues paying membership classes, procedures for technical activities, project administration and management (see articles elsewhere), and a monthly printed newsletter.

The non-profit corporation papers for the state of Washington had lapsed a year ago. It was decided to contact the Secretary of State to get the corporation reinstated. We will also look into getting the



Standing L to R Billy Roeseler, Ladislav Janda, Vice President Kim Powell, Kris Guerquin, Secretary Bruce Watson. Kneeling L to R Treasurer Rich Collingwood and President Rich Harman.

501 C non-profit status from the IRS.

There was also some discussion about the CST Web page needing updating to reflect the current activity, dates, officers, meeting times and dates, etc.

Membership Classes Adopted

Four classes of dues paying memberships have been established. The money collected as dues are to be used for the operation of the organization or the indirect costs, e.g., general and administrative and overhead expenses. This also includes support of

- Corresponding Membership
- Associate Membership
- Corporate Sponsor Membership
- Administrative Membership

educational and informational activities of the Team.

Membership dues are due in January of each year. If a new member joins in July or after, dues are 50% of the full rate.

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President's Report

Rich Harman

The S4V is coming along nicely. As you can see from the picture, the wing roots have been installed in the bottom plug section. Just a little more filling and sanding, then the attachment of the completed outboard wing sections and it will be ready to pull a mold from.

We spent some time discussing a launch rail, tower, rod, etc. We will want a minimum of eight feet and preferably ten feet of launch guide. The most practical solution appears to be simple tee launch lugs riding inside a rail. The rail should be attached to a rigid support, which can be broken down. One idea is to use two sections of 4-6" diameter aluminum tubing joined with a tube coupler. The tube would be hinged at one point of a triangular base. From the other two points would be supports that attach to the mid point of the launch tube. Moving the supports up or down the tube, or moving the attachment of the supports on the base would adjust the angle of the launch tube.

Regarding cold gas thrusters. Sutton has almost no information on designing cold gas thrusters. I have another book, which goes into very long equations on the design of cold gas thrusters. So instead I have modified my existing MathCAD rocket equations to approximate



Kris Guerquin with the S4V showing the wing roots installed in the bottom plug section

a non-combustion rocket engine.

A 10lb thruster using compressed air regulated to 150psi should require a nozzle throat .188" diameter and a nozzle exit diameter of .6". I think we can easily make a test nozzle to verify this. The valve design is very simple. I had the idea of using a valve like those used in pneumatic spud guns. When I searched the web for cold gas thrusters I came across Moog's website (www.moog.com) and downloaded a pdf catalog of their thrusters. Turns out they use just such a valve. We will have to find a suitable solenoid for the valves.

Here is an idea how to use these 10 lb thrusters. Make four pairs of thrusters and mount them to the four corners of a hovercraft. The hovercraft would consist of four 2 ft diameter discs connected by 4 inch diameter PVC pipes (or aluminum) with a seat in the middle. An electric leaf blower would provide lift. The thrusters would be supplied by a scuba tank giving approx. 600 lb sec of thrust (compressed air has an Isp of 78). This exo-atmospheric maneuvering simulator (EAMS) would of course only work on very smooth surfaces but what fun it would be! If we only used it at events such as the engineering fair I'm certain that it would draw a great deal of attention. Other uses would be at the MOF and demonstrations at area schools.

Treasurer's Report

Rich Collingwood

Here is an updated Treasurer's report as of 4/28/01:

Corrected Checking balance	\$448.34
Corrected Savings balance	\$000.11
Total	\$448.45

Billy Roeseler	\$50	Administrative Member
Kris Guerquin	\$50	Administrative Member
Kim Powell	\$50	Administrative Member
Ladislav Janda	\$50	Administrative Member

Recent activity includes:

Donations:

Ladislav Janda	\$10
Billy Roeseler	\$10

Dues Paid:

Rich Harmon	\$50	Administrative Member
Rich Collingwood	\$50	Administrative Member
Bruce Watson	\$50	Administrative Member

Last deposit, dues/donations \$370

Last check #1044 to Rich Harmon for S4V Rocket motor \$800

Outstanding Praxair account balance \$7.44 (to be checked prior to payment)

There are no other balances due that I know of.

Membership Classes Adopted

(Continued from page 1)

The four Membership Classes are:

Corresponding Member \$30.00 annual dues.

Corresponding Membership is for those interested individuals who live outside the immediate area and/or cannot attend meetings. Corresponding members receive the Newsletter and have all privileges of Associate members except direct participation in technical activities, (unless he/she is sponsored by a Administrative/ Associate member). There is no age limit for corresponding membership.

Associate Member \$35.00 annual dues.

Associate members are "active" members who have all the privileges of Administrative members except that of serving as a project or testing chief or in any other manner being in charge of the Team's technical or scientific activity. They are not eligible to vote at meetings of the membership or for officers of the Team or hold office themselves. Associate membership is an initial active membership and can lead to an Administrative member-

ship with approval of the Executive Council after certain Team requirements are met. Associate members must be 18 years or older.

Corporate Sponsor Member \$100.00 minimum annual dues.

Corporate Sponsor Membership is for interested companies who wish to sponsor the Team's activities. Corporate Sponsor Members have none of the regular member privileges except to receive the Newsletter. Their logo will appear on the Web site and in the monthly newsletter for the duration of their membership in the sponsor section.

Administrative member \$50.00 annual dues.

Administrative members can serve as a project or testing chief or in any other manner being in charge of a Team's technical or scientific activity. They are eligible to vote at meetings of the membership or for officers of the Team or hold office themselves. Administrative members must be 18 years or older. The Executive Council is made up of the elected officers from the administrative members.

CST Sponsored Project Guidelines

"For the most part, individuals who achieve significant breakthroughs in discovery, invention or innovation tend to follow a similar process. They work systematically, with purpose and measured intent, while allowing their intuition and inner senses to guide their decisions."

*A quote from the da Vinci Project X-Prize contestant.
<http://www.davinciproject.com/start.htm>*

For all technical activities that are officially approved and supported by the Canyon Space Team a set of guidelines for project administration and management is recommended as follows:

- A. A project request with plan, timetable, costs, resources (material and personal), and a statement of how it helps to accomplish the organizations primary goal will be presented to the Administrative Members for approval by vote at a monthly general meeting. Members may vote in person at the meeting or by e-mail proxy vote.
- B. The project will produce all necessary drawings and documentation to the extent necessary so that similar hardware could be built using the same drawings and documentation. Common sense should be the rule rather than the exception.
- C. A Project Chief (Designer/Engineer/Manager) will be responsible for project management, administration, accounting (coordinating accounting with the treasurer), and technical leadership of the project. This person will, in most cases, also be the project requestor. Not the least of their responsibilities is to keep the project focused, on task, and on schedule. The Project Chief will be required to give updates each month at the general member meeting.
- D. Funding will be from donations, contributions, contracts, and other such sources. Donations, contributions, and contracts will require a majority approval of the Executive Council before entering into any type of agreement to accept and use these funds for the project.

CANYON SPACE TEAM

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<http://www.canyonspaceteam.org>

The primary goal of the Canyon Space Team is to support low cost, private, human access to space (sub-orbital, semi-ballistic flight) including research and development.

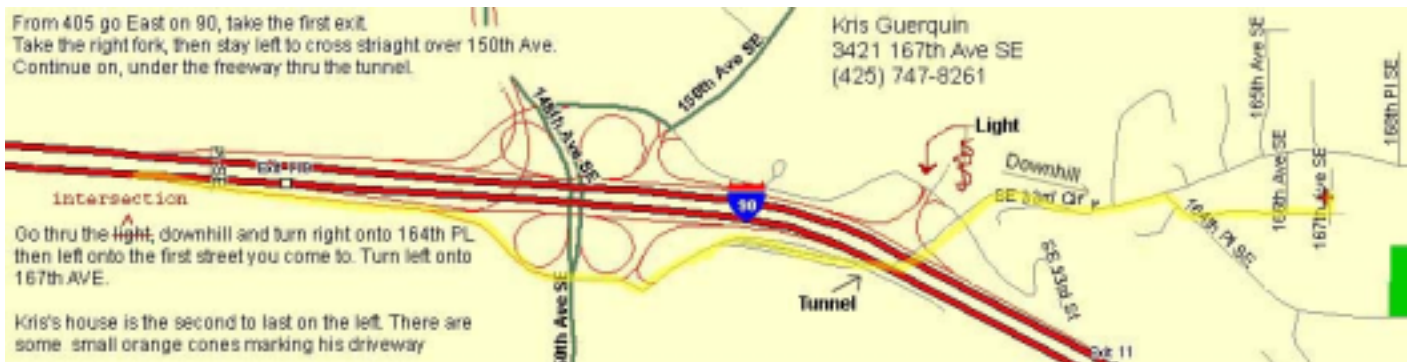
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May 2001 General Meeting

Place: Kris Guerquin's home

Date: Sunday
May 13, 2001

Time: Noon



Directions on how to get to Kris Guerquin's house