



# Formula SAE® News Notes

Volume 5 Issue 1

March, 2000

## EDITOR'S NOTES

### FSAE™ NEWS NOTES

#### SAE INTERNATIONAL EDUCATIONAL RELATIONS

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Shanin Hart  
(724) 772-4046  
[hart@sae.org](mailto:hart@sae.org)

#### CREATIVE CONSULTING SERVICES

FSAE™ Event Coordination

Kathleen McDonald  
(248) 601-3075  
[katklauz@aol.com](mailto:katklauz@aol.com)



SAE COLLEGIATE  
DESIGN SERIES

## RULES QUESTIONS

Please remember that all rules questions must be in writing.

Direct your questions to:

Kathleen (Klauza) McDonald  
Creative Consulting Services  
1280 East Buell  
Oakland Twp., MI 48306

Fax: (248) 601-8934  
e-mail: [katklauz@aol.com](mailto:katklauz@aol.com)



## DEADLINES

### MARCH 1

#### Safety Structure Equivalency Form.

Please submit to Creative Consulting Services. You can either mail or fax the form and any supporting data to:

Creative Consulting Services  
1280 East Buell  
Oakland Twp., MI 48306  
Fax: (248) 601-8934

### MARCH 22

#### Questions on Cost Report.

March 22 is the last day to send questions to the rules committee on the correct location of specific items on cost report.

E-mail questions to:  
[katklauz@aol.com](mailto:katklauz@aol.com)

### APRIL 3

#### Cost Report

Please send to:  
Suzy Zukowski  
TEAM FSAE  
Chrysler Corporation  
CIMS: 483-01-14  
800 Chrysler Drive East  
Auburn Hills, MI 48326-2757

Teams who submit late reports will be assessed a penalty of **-10 points** per day with a maximum penalty of **-75 points**.

Teams who choose not to do a cost report will be penalized **-100 points**.

### APRIL 3

#### Pre-event Design Reviews.

Mail\*, fax or e-mail\* to:

Shanin Hart  
SAE International  
400 Commonwealth Drive  
Warrendale, PA 15096  
Fax: (724) 776-0890  
E-mail: [hart@sae.org](mailto:hart@sae.org)

**MUST REACH SAE BY 4/3/00**

**\*mail & e-mail are preferred.**

**TEAMS WHO DO NOT  
SUBMIT A PRE-EVENT  
DESIGN REVIEW WILL NOT  
COMPETE IN THE DESIGN  
EVENT, AND WILL RECEIVE  
ZERO POINTS FOR DESIGN!**

*Teams that submit a review, but are deemed to be unsatisfactory, also will not compete in the design event, but will receive between 5 and 20 pts. for their efforts.*

**APRIL 3****Vehicle Specifications for 2000 Event Program.**

These forms will be e-mailed to the preferred mail recipients of each team by March 10th.

These forms will be need to be e-mailed back to Shanin Hart at:

[hart@sae.org](mailto:hart@sae.org)

**APRIL 7****TEAM MEMBERS & SPONSOR LIST FOR 2000 EVENT PROGRAM**

E-mail your 2000 team member list and sponsors to Shanin Hart at:

[hart@sae.org](mailto:hart@sae.org)

**APRIL 10****FUEL ORDER**

We are happy to announce that Sunoco will once again provide the fuel for the 2000 event.

Please call, fax or e-mail your fuel order to Kathleen at: (248) 601-3075, Fax (248) 601-8934, or [katklauz@aol.com](mailto:katklauz@aol.com) Specify fuel type when ordering : Ultra 94, Unleaded Race Gas or M85. See page 4 for fuel specs.

**May 12****VISTEON POWERTRAIN COOLING SYSTEM AWARD**

**REPORT.** See page 8 for report specifications. Send Reports to:

Barry Blumel

Visteon Automotive Systems  
Climate Control Headquarters  
45000 Helm Street  
Suite C172

Plymouth, MI 48170

E-mail: [bblumel@visteon.com](mailto:bblumel@visteon.com)

**EARLY TECHNICAL INSPECTION**

Early tech inspection for the 2000 FSAE event will be strictly on a first come, first served basis. No appointments will be scheduled.

Early Tech will run from 4pm to 8pm on Wednesday May 19, 2000.

**2000 SPONSORS**

Our sincere thanks to the following sponsors:

Altair Engineering  
Argonne National Laboratory  
Bruel & Kjaer  
DaimlerChrysler Corporation  
Detroit Section SAE  
Ford Motor Company  
General Motors Corporation  
Goodyear Tire & Rubber Company  
H.L. Yoh  
Hoosier Racing Tire  
Lear Corporation  
The Lincoln Electric Company  
Pi Research  
Robert Bosch Corporation  
Sports Car Club of America, Inc.  
Sunoco Race Fuels  
Transportation Research Center Inc.  
Visteon Climate Control  
William C. Mitchell

**REGISTERED TEAMS & CAR NUMBERS**

Current listing of registered teams and car numbers. If your school does not have a car number, please contact Shanin Hart at: 724-772-4046.

**FSAE News Notes**

00	Virginia Institute of Tech.
1	Univ. of Akron
2	Rochester Inst. of Technology
4	Univ. of Missouri, Columbia
5	Univ. of Washington
9	Univ. of Florida
10	Clarkson Univ.
11	Auburn University
12	Texas A & M Univ.
13	California State Univ., Northridge
15	Univ. of Colorado, Boulder
14	Pennsylvania State Univ.
16	Univ. of California, Irvine
17	Florida International Univ.
18	McGill Univ.
19	Univ. of Missouri, Rolla
20	Purdue Univ.
21	Univ. of Minnesota
22	Univ. of New Mexico
24	Univ. of Saskatchewan
25	Ohio State Univ.
26	Univ. of Michigan, Dearborn
27	Cornell University
28	Univ. of Louisville
30	Universite de Sherbrooke
31	Monroe County Comm. College
32	Univ. of Pittsburgh
33	Georgia Inst. of Technology
34	Union College
36	Univ. of Illinois, Urbana-Champaign
37	Vanderbilt University
38	Drexel Univ.
39	Duke Univ.
40	Queens Univ.
41	Colorado State Univ.
42	University of Windsor
43	Univ. of Hartford
44	Syracuse University
46	Univ. of Wisconsin, Madison
47	North Carolina State Univ
48	University of Iowa
49	Univ. of North Carolina, Charlotte
50	Southern Illinois Univ.
51	University of Delaware
52	Instituto Tecnologico de Chihuahua
55	Univ. of Central Florida
57	Oklahoma State Univ.
60	Univ. of Quebec, Trois-Rivieres
61	Brown University
62	Kansas State Univ.
63	University of Cincinnati
64	Univ. of California, San Diego
66	L Universite Laval

- 67 Rutgers Univ.
- 68 FAMU/FSU College of Engrg.
- 69 Ecole Polytech. de Montreal
- 70 Univ. of Michigan, Ann Arbor
- 72 Iowa State Univ.
- 73 Univ. of Leeds
- 74 University of Kansas
- 75 Florida Institute of Tech.
- 77 Cal Poly, Pomona
- 78 Marquette Univ.
- 79 Univ. of Texas, Austin
- 81 Saginaw Valley State Univ.
- 85 SUNY Buffalo
- 86 North Carolina A & T State Univ.
- 88 Cal State Univ., Sacramento
- 89 Univ. of Oklahoma
- 96 Univ. of Toronto
- 99 University of British Columbia
- 100 Univ. of Regina
- 101 Univ. of Alberta
- 103 Michigan State Univ.
- 111 Kettering Univ.
- 116 Cal Poly, San Luis Obispo
- 119 Univ. of Birmingham
- 121 New Jersey Inst. of Tech.
- 151 Dartmouth College
- 157 South Dakota School of Mines & Technology
- 200 U.S. Air Force Academy
- 232 Michigan Technological Univ.
- 360 Temple Univ.
- 400 West Virginia Univ.
- 418 Univ. of Quebec a Chicoutimi
- 500 Univ. of Puerto Rico, Mayaguez
- 505 Univ. of Arizona
- 575 Univ. of Toledo
- 600 Worcester Polytechnic Institute
- 709 Memorial Univ. of Newfoundland
- 812 Oakland Univ.
- ??? Univ. of Alabama
- ??? Univ. of Calgary
- ??? Carleton Univ.
- ??? Colorado School of Mines
- ??? Concordia Univ.
- ??? Kokushikan Univ.
- ??? Lawrence Tech. Univ.
- ??? McMaster Univ.
- ??? North Dakota State Univ.
- ??? Rensselaer Polytechnic Institute
- ??? United States Naval Academy
- ??? Univ. of California, Davis
- ??? Univ. of Texas, Arlington
- ??? Univ. of Utah

- ??? Univ. of Waterloo
- ??? Univ. of Western Ontario

## SPONSORED AWARDS

Here is a list of current sponsored awards for the 2000 Formula SAE Event. Please see the corresponding pages for the award criteria and information. More awards will follow in upcoming issues. You can find an up-to-date listing of sponsored awards at: <http://www.sae.org/students/fsaeawd.htm>

Goodyear Best Performance Award.....Page 5

U.S. Department of Energy through Argonne National Laboratory M85 Fuel Economy Award.....Page 6

U.S. Department of Energy through Argonne National Laboratory Top 5 M85 Finisher Awards .....Page 7

Visteon Power Cooling System Awards .....Page 8

## SAE MEMBER NUMBERS

Can't remember your SAE number? Are you having a hard time tracking down your team members to get their numbers for your updating your FSAE team listing? Stop looking and send an e-mail to Gretchen Brothers for a school roster of all SAE members at your university. Please send your school name in an e-mail to Gretchen at: [brothers@sae.org](mailto:brothers@sae.org)

## FSAE News Notes

### HOTEL INFORMATION

Please visit the hotel information at:  
[www.sae.org/students/fsaehot.htm](http://www.sae.org/students/fsaehot.htm)  
 Hotel room blocks will expire on April 26th. All reservations must be made prior to this date.

### UPDATE YOUR COLLEGIATE DESIGN SERIES VIDEO LIBRARY

**Available Videos:**

- 1999 Aero Design® East .....\$15.00
- 1999 Mini Baja® East .....\$15.00
- 1999 Mini Baja® Midwest .....\$15.00
- 1999 Mini Baja® West .....\$15.00
- 1999 Formula SAE .....\$15.00
- 1998 Formula SAE .....\$15.00
- Student Action in Engineering \$15.00

Call, fax or mail your order to:  
 Phone: (724) 772-8534  
 Fax: (724) 776-0890

**Educational Relations**  
**SAE International**  
 400 Commonwealth Drive  
 Warrendale, PA 15096-0001



**Sun Company, Inc.**  
 PO Box 1226  
 Linwood, PA 19061-7226  
 800 RACE GAS  
 Fax 610 859 1643

SUNOCO RACE FUELS  
 TYPICAL PROPERTIES OF FORMULA SAE SPEC FUELS

<u>PROPERTY</u>	<u>GT OPRG UNLEADED</u>	<u>ULTRA 94 UNLEADED</u>	<u>M85 BLENDED</u>	<u>METHOD</u>
Specific Gravity 60/60°F	.760	0.730	0.790	ASTM D287
API Gravity	54.7	62.3	47.6	ASTM D287
Research Octane No.	105	99	N/A	ASTM D2699
Motor Octane No.	95	89	N/A	ASTM D2700
AKI (R+M/2)	100	94	N/A	N/A
Reid Vapor Pressure	8 psi	7.1-15psi	7 psi	ASTM D323
Distillation, °F				ASTM D86
IBP	90	80	98	
10 %	150	95	140	
50 %	210	170	145	
90 %	230	280	146	
FBP	260	315	147	
Oxidation Stability	1440 + min	240 min	N/A	ASTM D525
Copper Strip Corrosion	No. 1	No. 1	N/A	ASTM D130
Existent Gum	1 mg/100 ml	1 mg/100 ml	N/A	ASTM D381
Aromatic Content	35 %	35 %	35 %	ASTM D1319
Appearance	Clear	Pink	Clear	Visual

Note: Ultra 94 Reid Vapor Pressure (RVP) is seasonally adjusted from 7.1 to 15.0 psi  
 Ultra 94 distillation temperatures vary with seasonal RVP  
 Net heat of combustion may be estimated from above data and Standard Test Method ASTM D3338



**2000 Formula SAE®**

## Award Outline

<b>Award Name</b>	The Goodyear Best Performance Award
<b>Sponsors</b>	Goodyear Tire & Rubber Company
<b>Awarded For</b>	Highest combined points scored in acceleration and skid pad
<b>Award Classes and Prizes</b>	1 <sup>st</sup> - 8 tires 2 <sup>nd</sup> - 6 tires 3 <sup>rd</sup> - 4 tires
<b>Award Criteria</b>	This award recognizes top performance in the acceleration and skid pad events.
<b>Eligibility Criteria</b>	Teams must be registered to compete, comply with all FSAE™ rules, and receive scores in the acceleration and skid pad events.
<b>Application Required</b>	X No
<b>Application Deadline</b>	N/A
<b>Application Submitted To</b>	N/A
<b>Judging Period</b>	X On-site (May 21, 2000)
<b>Judging Process</b>	Based on final combined scores for acceleration and skid pad
<b>Judges</b>	N/A
<b>Award Presented At</b>	Banquet

**2000 Formula SAE®**

## Award Outline

<b>Award Name</b>	The U.S. Department of Energy through Argonne National Laboratory M85 Fuel Economy Award
<b>Sponsors</b>	Argonne National Laboratory
<b>Awarded For</b>	Top M85 finisher with the best fuel economy
<b>Award Classes and Prizes</b>	1 <sup>st</sup> - \$1,000
<b>Award Criteria</b>	This award recognizes and rewards the team that utilizes methanol fuel (M85) in their vehicle design and obtains the best fuel economy.
<b>Eligibility Criteria</b>	Teams must be registered to compete, comply with all FSAE™ rules, and run on M85 fuel.
<b>Application Required</b>	X No
<b>Application Deadline</b>	N/A
<b>Application Submitted To</b>	N/A
<b>Judging Period</b>	X On-site (May 23, 2000)
<b>Judging Process</b>	Based on final overall fuel economy score of M85 vehicles
<b>Judges</b>	N/A
<b>Award Presented At</b>	Banquet

## 2000 Formula SAE®

### Award Outline

<b>Award Name</b>	The U.S. Department of Energy through Argonne National Laboratory M85 Awards
<b>Sponsors</b>	Argonne National Laboratory
<b>Awarded For</b>	Top five M85 finishers
<b>Award Classes and Prizes</b>	1 <sup>st</sup> - \$1,500 2 <sup>nd</sup> - \$1,250 3 <sup>rd</sup> - \$1,000 4 <sup>th</sup> - \$750 5 <sup>th</sup> - \$500
<b>Award Criteria</b>	This award recognizes and rewards teams that utilize methanol fuel (M85) in their vehicle design.
<b>Eligibility Criteria</b>	Teams must be registered to compete, comply with all FSAE™ rules, and run on M85 fuel.
<b>Application Required</b>	X No
<b>Application Deadline</b>	N/A
<b>Application Submitted To</b>	N/A
<b>Judging Period</b>	X On-site (May 23, 2000)
<b>Judging Process</b>	Based on final overall score of M85 vehicles
<b>Judges</b>	N/A
<b>Award Presented At</b>	Banquet

## The Visteon Powertrain Cooling System Award

First Place	\$1,500
Second Place	\$1,000
Third Place	\$500

### Objective

This award promotes the understanding of analysis, design, and construction of a powertrain cooling system.

### Requirements

To be eligible for the award, a team must be registered to compete, comply with all FSAE™ rules, and submit a report. This report should include, but not be limited to:

- ◆ Important system design factors that were considered.
- ◆ Describe process of system analysis to arrive at final design.
- ◆ What modeling/CAE tools were used in system analysis.
- ◆ Report any test data demonstrating system performance.
- ◆ Cost and weight analysis.

Report must be submitted to:

Barry Blumel  
Visteon Automotive Systems  
Climate Control Headquarters  
45000 Helm Street Suite C172  
Plymouth, MI 48170 USA

Email [bblumel@visteon.com](mailto:bblumel@visteon.com)

### Deadline

Teams must submit the report by May 12, 2000.

### Judging

During the event on Friday, May 19, the judges will visit each team that submitted a report in order to review the powertrain cooling system of the vehicle. During this meeting, the team may describe their system in more detail, along with answering any questions the judges may have. Judges will consider analysis, modeling, testing, design, and construction of the complete powertrain cooling system.

### Questions

Questions about the award should be directed to (e-mail preferred):

Attention	Barry Blumel
Telephone	(734) 416-7275
Fax	(734) 416-6772
E-mail	<a href="mailto:bblumel@visteon.com">bblumel@visteon.com</a>