



The American Society of Mechanical Engineers

THE UNIVERSITY OF TEXAS AT AUSTIN
COLLEGE OF ENGINEERING
Department of Mechanical Engineering
Austin, Texas 78712

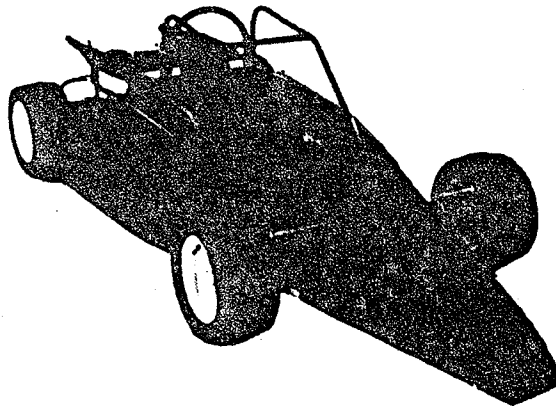
SAE The Engineering
Resource For
Advancing Mobility

Society of Automotive Engineers

ANNOUNCING THE 1982 FORMULA SAE COMPETITION

The Student section of the SAE at the University of Texas will host the Formula SAE Competition again in 1982. The student section of ASME has volunteered to help us in this endeavor. The rules have been modified slightly from those used for the 1981 competition in the interest of safety and to promote the educational objectives of the competition. A \$100 entry fee is required and the field will be limited to a maximum of 15 cars. If you need further information, please feel free to contact:

Prof. R.D. Matthews
SAE Faculty Advisor
167 Taylor Hall
The University of Texas
Austin, Texas 78712
(512) 471 4429



Longhorn Racing Team



Society of Automotive Engineers

1982 FORMULA SAE RULES

Design Constraints

General

Any four-stroke, single carburetor engine may be used. The intake area will be limited to one inch in diameter or the equivalent area. Any restrictor plate used must be visible to the judges before the race and must be placed between the carburetor and the intake manifold. For fuel injected engines, all intake ports must be inducted from a common one-inch orifice. Engine changes are allowed, providing the same type and size engine is used in the change. Carburetors can be changed between races providing the same size carburetor is used. Carburetor adjustments will also be allowed to meet the demands of the specific race. Any oxidant may be used.

Each vehicle must be capable of carrying one person, six feet tall, and weighing 200 pounds. Each of the events shall have a different driver. Minimum driver weight, including ballast, will be 150 pounds and the teams themselves will be responsible for providing ballast weight.

Each vehicle must be of student design and construction, and all engine modifications must be performed by students. A cost ceiling of \$2000.00 must be complied with, as verifiable with receipts. In the case of donated parts, a reasonable estimate of value will be acceptable. No cost will be associated with labor performed by students.

Safety

No participants from any team will be on the track. Race officials only can remove a car from the track so teams can work on them.

Due to the allowance of engine modifications, the safety aspects of the event will be strictly enforced. Each car must pass a safety inspection before it will be allowed to compete. A violation of the intent of a rule shall be considered a rule violation.

The following safety rules are to be followed:

- 1) The driver must wear an approved safety helmet and protective eyewear.
- 2) The vehicle must be equipped with a safety belt and shoulder restraints.

Longhorn Racing Team

- 3) The vehicle must be equipped with a three-point padded roll bar of at least 1" o.d., .083" thick steel tubing, or material of equal or greater strength.
- 4) The vehicle must have frame members that protect the legs and feet of the driver in the event of a side or head-on impact.
- 5) The vehicle will carry no more than one-half gallon of fuel and must be able to be safely refueled with the engine running. No driver will be in a car while refueling. This will be strictly enforced.
- 6) The vehicle must carry a class B & C fire extinguisher within easy reach of the driver. Minimum capacity shall be two pounds.
- 7) The vehicle must be equipped with an engine kill switch (not momentary type) within easy reach of the driver.
- 8) There should be no sharp edges on the vehicle.
- 9) The driver, fuel tank, and brake lines must be protected from the projectile debris as a result of a drive component failure (chains, sprockets, etc.) by a steel plate of at least 1/8" thickness.
- 10) Steering wheel, suspension components, oil plug and wheel spindles must be cotter pinned or safety wired.
- 11) No mirrors of any type will be allowed.
- 12) The brakes must be capable of sliding two tires on dry pavement, or of stopping the vehicle in 25 feet from a speed of 20 MPH.
- 13) Ballast weights must perform no other functions, and must be securely held in place.
- 14) "Specialized" work such as mandrel bending of tubing may be farmed out to professional machinists/metal workers, in the interest of safety. This is not to include engine work.
- 15) Mufflers are required on all cars.
- 16) If spillage on the track occurs, the race will be stopped, rerouted, then allowed to continue.
- 17) Two students and one judge will be assigned to monitor each car while in the pits to ensure safety.
- 18) The allowable fuels will be gasoline, diesel, gasohol, methanol, and ethanol
- 19) A 2 minute minimum driver change period will be strictly enforced for the endurance race

Performance Events

- 1) Acceleration - Best time of two tries for 100-yard acceleration from a standing start on a straight, paved course.
- 2) Fuel Economy - Maximum economy of fuel used in 10 laps. Best economy for two attempts. Entrants must provide whatever fuel their vehicle runs on, but the measured amount will be added by officials. All cars will be on the track at one time.
- 3) Edurance - Total elapsed time for 20 laps around a rigorous endurance course. The race will consist of two heats of 20 laps, and a mandatory driver change after ten laps. Best time will be submitted for scoring purposes.

Scoring

For the performance events, the fastest time or greatest distance will receive 100 points and the slowest or shortest distance will receive 20 points. These two points will be plotted on a points-versus-time graph and points for intermediate positions will be awarded according to positions on the graph. In the event that a car does not finish the event, the team will receive 10 points, and their time will not be used in computing other scores. In the event of a large number of failures (50-75%), an alternate method will be used to score the event, determined by the judges at that time.

For the appearance and design creativity awards, judging will be done by a team of professional engineers.

Protests

Protests of rule violations must be in writing and accompanied by a \$20.00 protest fee. If the protest is judged valid, the fee will be refunded and appropriate action will be taken. If the protest is judged invalid, the protest fee is forfeited. Decisions of the rules committee will be final. Questions concerning rules interpretations may be sent to the aforementioned address marked: ATTENTION: SAE RULES COMMITTEE.

Educational Objectives

- 1) The purpose of this competition is to promote engineering education, not just to race cars. We believe the following will aid in achieving this result:
 - A. Four-wheel suspension is required on all vehicles.
 - B. Nine to thirteen inch wheel diameter is required.
 - C. Engine modifications are strongly encouraged.

- 2) We recommend that teams include:
 - A. Non-race-experienced individuals
 - B. Cars built by organizations not just a few members.

- 3) Since this competition is sponsored and sanctioned by the Society of Automotive Engineers, SAE membership cards will be required of all participants on race day.



THE UNIVERSITY OF TEXAS AT AUSTIN
COLLEGE OF ENGINEERING
Department of Mechanical Engineering
Austin, Texas 78712

Society of Automotive Engineers

Announcing the Opening of the B&S Class for the 1982 Formula SAE Competition

The University of Texas, hosts of the 1982 Formula SAE Student Engineering Design Competition, are pleased to announce the opening of a B&S Class for this race. The B&S Class is intended for cars designed for Mini-Baja competitions. However, the cars will compete in the same races as the usual (A Class) Formula SAE cars and on the same track (asphalt, slightly rolling). Opening of the B&S Class is intended to give the Formula SAE Competition more visibility and to give Baja competitors another opportunity to race their cars. Any modifications^{*} may be made to the Baja/B&S Class vehicles as long as they comply with the attached safety rules. They do not have to comply with the rules regarding four wheel suspension or wheel diameter. The University of Texas will enter a B&S Class Formula car whose only modification will be smaller rear wheels and tires than would be used in a Mini-Baja. Separate trophies will be awarded for the B&S Class.

*

The 8 hp Briggs and Stratton engine must be used but may be modified.

Longhorn Racing Team