

BRAKE & NOISE TEST EVENT DESCRIPTION

Event Captain's: Noise - Gary Newton

Brake - Alba Colon
Brake - Mark Scott

Dates/Times:	Thursday Noise -	9:30 a.m. to 5 p.m.
	Thursday Brake -	10:00 a.m. to 5 p.m.
	Friday Noise and Brake -	8 a.m. to 5:30 pm Sharp

Location: The Noise will be located next to gate 50 and Tilt. The brake will be located past Gate 50 and to the Right. (See the site map in the Student's Manual and Registration Package)

Description:

No vehicle is permitted to perform Noise and/or Brake testing until it has: a) passed Tech Inspection and, b) passed the Tilt Table Test. Proof of this is the two "tech" stickers, which must be applied to the car. Then teams can proceed to Noise where the noise level will be tested, if passed, a 3rd sticker will be applied to indicate Noise Compliancy. Then teams can proceed to the Brake test for the 4th and final tech sticker. Once all 4 stickers are completed then a vehicle is approved to compete in all dynamic events.

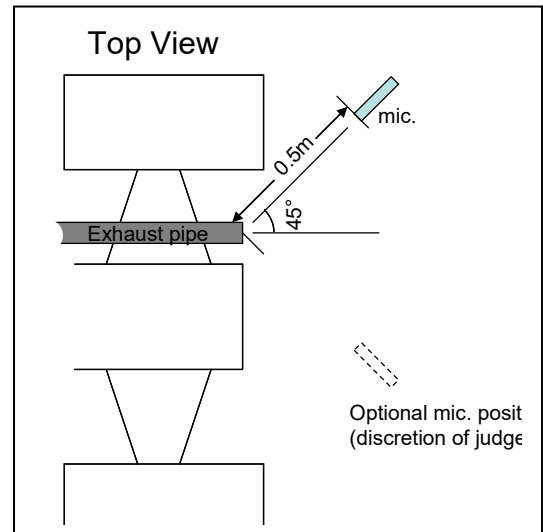
Noise Test Event Description

The static sound level test shall occur at a designated test station on a warmed-up vehicle. The vehicle will be placed in the station with the engine running and the transmission in neutral. The sound level meter will be positioned 0.5m from, and level with, each exhaust outlet. The microphone will be positioned at an angle up to 45 degrees from the outlet in the horizontal plane (see drawings) and be **un-obstructed**.

There are two steps to the noise test. 1) With the engine idling, the measurement must not exceed 103 dBC. If the team passes this test, the run up test will be run. If a team fails idle they must exit the area. 2) With the engine at the designated test speed, the measurement must not exceed 110 dBC. The designated test speed is approximately $\frac{3}{4}$ of the maximum engine speed as calculated by the SAE published formula.

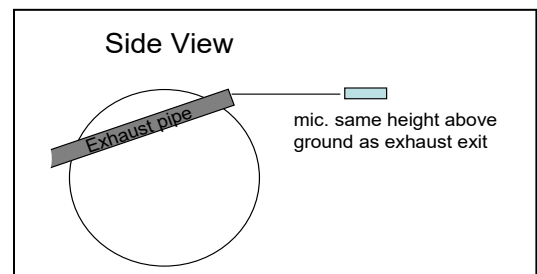
In the case of dual exhausts, both exhausts will be tested with the loudest one being the basis for judgment. **Meters are**

calibrated and will be checked and verified on-site on a regular basis! The placement of the microphone and the reading of the meter by the official is final and not open for debate/protest.



PLEASE NOTE – If your vehicle does not have a working tachometer, it is the teams' responsibility to come to the noise area prepared with ALL necessary tools ready for a tachometer reading (laptops, gauges, etc...). The target test speed is set by SAE and is published in advance. Test speeds will be rounded to the nearest 500. It is calculated by taking 2X stroke in mm and dividing it into 914.4X1000. If you have a rev-limiter that interferes with you being able to reach the target test speed you must disengage it or set it higher. **ALL TEAMS MUST HIT THE TARGET TEST SPEED!**

Any exceptions to RPMs test speed must come with note from tech approving it



Brake Test Event Description

When the vehicle passes noise, it may go to the Brake Event and it is there the final tech sticker will be awarded if the vehicle meets the brake requirements. Provided no changes have been made to the muffler or exhaust system, teams that pass noise but do not pass brake don't have to go through noise again if they work on the vehicle.

At the Brake Test Area, each driver WILL be instructed on the proper procedure. Tire pressures will be limited to **20 PSI MAX** and teams must be able to demonstrate this while in line. The tire gauge at the brake event is the official instrument. Once the driver is checked for safety gear and tires are checked for proper inflation the vehicle will be pushed to the staging area, when called to the start line by the starter the car can now be driven under its own power. With the car at the start line of the station a green flag (or similar signal) should be used to signal the start of each run. The driver must accelerate **to at least 30 mph** (typically getting into 2nd gear) until reaching the braking area, which is a box defined by water barriers. Once inside this box, the driver must apply the brakes with enough force to demonstrate full lock-up of all four wheels, the engine must remain running during the complete test. We are looking for the vehicle to brake from race speeds with all 4 wheels locking up and remain locked until the vehicle comes to a complete stop with the engine running.

If the vehicle passes, the person in charge will sign-off the approval form and provide the team with the final "tech" sticker. The vehicle is now free to proceed to the practice track or on to the dynamic events. (The approval forms shall be retained by the brake crew and turned in at the tech garage periodically.)

If the vehicle is unable to pass the brake tests in three attempts, the car must be repaired and then brought back for retest. The vehicle will not be allowed to compete without passing all tests. Note: The vehicle will not be permitted on the practice track without all 4 tech stickers; no exceptions.

Noise level can be measured at any time during the dynamic events. Penalties may be assessed if the sound level exceeds the mandated maximum, and noise sticker can be removed by officials.

PLEASE NOTE – An official will conduct a functional test of the External Master Kill Switch with engine running up and under power as part of the Noise Test Event and / or Brake Test Event.

Also, Operation of Noise Event Area and Brake Testing Event Area in **DAMP** conditions is at the discretion of the Captain of the specific area. See FSAE rules for tire use at specific conditions, Rule #B6.4.1 Also see Part D "Dynamic Event Regulations" Article 2 Weather Conditions and Article 3 Running in Rain for further clarifications.

Vehicles may be forced to return to this station for re-certification should the officials deem it necessary. Re-certification may be required if work is performed on the vehicle's braking system or exhaust system, or if the vehicle is involved in an incident that results in vehicle damage.

****At all times, drivers must be wearing complete and proper safety equipment and proper safety rules must be maintained in both areas.****

Safety guidelines for the Brake & Noise areas:

1. Only one car at a time in Brake or Noise area. Do not allow a second car into the area until the last one has completed its exit.
2. Only the vehicle push crew and the driver are allowed to enter the Noise and Brake areas. **All must have dynamic passes at each visit.**
3. Do not attempt certification of any vehicle without enough workers. Three (3) workers minimum, four (4) preferred at the Brake station. Three (3) workers recommended at Noise station.
4. Never place yourself in the line of travel of any car. Stay well away from the “hot” area.
5. Use hay bales for protection of workers and equipment.
6. Fire extinguisher must be with the car and crew at all times.
7. Use brooms and oil-dry as needed to keep braking area clean and dry.
8. Any vehicle damage or contact must be reported to the station manager(s).
9. No work will be allowed on the car inside the Brake or Noise areas. Car repairs and work must be performed outside of testing area. Specially marked areas will be set-up for this. Cars can then return to the test area at the discretion of the station manager.