

# FSAE Technical Inspection

## Review for Teams

**Introduction** - The goal of technical inspection is to confirm that your car complies with the requirements and restrictions of the FSAE Rules. The technical inspectors want you to pass tech and will clearly identify any areas of non-compliance that must be corrected.

The inspectors' goal is to thoroughly finish your inspection and to do it as quickly as possible. Your team can make that happen – and make inspection easier on yourselves - by being prepared.

*Here are some things that will help you prepare for tech:*

**Self Inspection** – Teams must self inspect their car and determine that it complies with the Rules before bringing it to tech inspection (Rule C2.3). Use the tech inspection form found on the FSAE website during your self-inspection. If you have a question about how a rule will be interpreted ask yourself the following: (1) what is the purpose of the rule? Every rule has a purpose which should be readily apparent. And (2) is what we've done a "good engineering practice"?

It's each team's responsibility to properly prepare and self-inspect their car. If the inspectors discover a large number of rule violations, or an incomplete self-inspection, then they may suspend their work and send you back to your paddock to make corrections.

We can't stress this enough: use the tech inspection form and do a point-by-point inspection of your car.

**Tech Inspection Schedule** – The technical inspection schedule will be posted on the competition website. Inspection usually opens on the afternoon of the first day and runs through the second, static events, day. Check the schedule for opening and closing times.

Tech inspection is also available on the next two, dynamic event, days. However, there will be a smaller number of inspectors on-site and you'll need to schedule an appointment before bringing your car. To schedule an inspection on Friday or Saturday come to the inspection area. The key is to keep the inspectors informed about your car's status so that they can be prepared when your car's ready for inspection. For example, if you're planning to work late on Thursday and want to be inspected early on Friday – tell the inspectors on Thursday.

Remember – Have your car completed and ready when you come to inspection.

**“Take-a-Number”** – During Part 1 of tech inspection, “scrutineering”, cars are scheduled for inspection using a “take-a-number” system. You don’t have to wait in a long line with your car; all you need to do is have it at tech when your number is called. (It works like the “take a number” system at the deli counter.) Upcoming numbers will be announced over the PA system. However, it also helps to keep an eye on which numbers are being inspected.

Inspection sequence numbers are issued at the tech inspection area starting roughly 1 hour before tech opens. Do **not** request a number until your car is ready to be inspected.

If your car isn’t ready when your number is called you’ll lose your position and go to the back of the inspection line.

**Tech Time** – The initial inspection of your car will typically take between 35 and 45 minutes.

**Rules Question Documentation** – If your team submitted a rules question and received an interpretation from the Rules Committee; then bring copies of both the question and answer with you to technical inspection. Without your copies the inspectors won’t know the Committee’s interpretation and will make their own.

**SEF Form** – If your team had an approved structural deviation supported by an approved Structural Equivalency Form, Rule B3.8, then you **must** bring copies of both the SEF and the approval email with you to tech inspection. The inspectors may NOT have records of your SEF and won’t know what’s been approved. It’s your responsibility to bring the documentation.

**Impact Attenuator Test Piece** –Bring the Impact Attenuator Test piece required by Rule B3.21.4 “Impact Attenuator Data Requirement”.

**Monocoque Test Specimens** – Monocoque builders must bring the test pieces required by Rule B3.28 “Monocoque Laminate Testing”.

**Restrictor Check** – During inspection you’ll need to disassemble your intake system to allow a no-go gauge to be inserted into the throat of the restrictor. You’ll need to bring the tools you’ll need for disassembly with you to inspection.

**What to bring to Tech.** - The following items must be brought to tech inspection under Rule C2.4 “Items to be Inspected”:

- Vehicle
- Dry and wet tires

- Driver's equipment including helmets, suits, gloves, eye protection, hair protection equipment, socks, and shoes for all drivers (Note: This includes your wrist restraints.)
- Fire extinguishers
- Push bar
- Structural Equivalency Form (SEF) copies
- Technical Inspection form
- All your team's drivers

Additionally you'll need:

- Impact attenuator test piece
- Monocoque test specimens – if applicable
- Tools to disassemble your air intake to allow access to the restrictor
- Tools to remove your body panels and any parts that are blocking inspection access
- Copies of your team's rules questions and Committee's answers
- Material to record the inspectors' comments

**Re-inspection** – If your vehicle doesn't pass tech the inspectors will identify the items that must be brought into compliance. When you've completed the corrections the inspectors will examine the items that did not comply. Re-inspections usually take from 2 to 20 minutes depending on the number and complexity of your changes.

There may be a separate tech line for re-inspections.

**Inspection Sticker** – The technical inspection sticker is issued in 3 sections as your car passes different parts of the inspection process. You will be given the 1<sup>st</sup> part of the sticker after you pass scrutineering.

**Tilt Table** – The tilt table is Part 2 of technical inspection. After you've received the first part of the inspection sticker proceed to the fuel station where your tank will be filled. Then proceed to the tilt table where your car will be checked for fluid leaks and stability.

**Noise Test** – After you receive your tilt sticker proceed to Part 3 beginning with the noise test. If your vehicle doesn't have a tachometer, then you'll need to bring a PC to allow the inspectors to monitor your engine RPMs during the test.

**Switch Tests** – The master switch tests are conducted after noise and immediately before the brake test. The tests confirm that your master switches work properly.

**Brake Test** – The brake test is the final step in the inspection process. The test consists of accelerating your car down the test course to the brake point and then

slamming on your brakes. All 4 wheels must lock. If you fail to lock you'll have to try again, and possibly make adjustments, until you pass.

**Operating Permission** – Once your car has received all three parts of the tech sticker it is allowed to run under power on the practice track and in the dynamic events.

**Sticker Removal** – If the officials believe your car may be out of compliance they can pull parts of your sticker and send you back for re-inspection. As examples, if a hole appears in your muffler you'll lose your Part 3 of the sticker until your noise level has been retested. If a wheel comes off during acceleration we'll pull Part 1 and you'll have to go back to tech.

**Failures after Inspection** – If your car is involved in an accident or suffers a significant failure it must be re-inspected. As examples, if part of your suspension collapses, or you collide with a barrier, then Part 1 of your tech sticker will be pulled and you must have your repairs re-inspected. Re-inspections only look at what you've fixed and shouldn't take very long.

**Notes for Rookie Teams** – (1) Here's a quote from a long time team: "We passed all three parts of tech on our first attempt, because we specifically built the car so it would pass. If you don't pass tech - you can't run your car." Their plan worked, you may want to try it. (2) If you have questions: ask. The officials, inspectors, judges and volunteers will be happy to answer your questions. Don't hesitate to ask questions. (3) If you need help: ask. You'll find the other teams at the competition are very willing to provide advice and assistance. The announcer will be happy to make your request over the P.A. system. (4) Although there's no limit to the number of times you can take your car back to tech, as a practical matter the quicker you get through the more time you'll have for the other parts of the competition. (5) Read the rules again. Understanding the rules is critical to success.