

2008 GTS Challenge Series Rules

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1.0 General Rules and Safety

All cars must display a GTS Challenge logo and class on each side of their car. These are available at the track or online for purchase.

All cars, drivers and entrants will be subject to N.A.S.A Club Codes and Regulations, specifically the Technical Requirements, Required Safety Equipment, Vehicle Safety Inspection, Vehicle Legality Inspection, and General Competition Vehicle Rules sections ([N.A.S.A CCR Sections 11 and 15-18](#)). This covers rules for safety equipment, including full roll cages, window nets, belts, extinguishers, etc., as well as car markings, appearance, etc. All cars must have a N.A.S.A Vehicle Logbook and drivers must meet NASA licensing requirements.

2.0 Promoting Sportsmanship

To promote both clean and competitive driving, **in addition to all NASA's rules and punishments as described in NASA's CCR** we will be racing under a **Modified 13/13 rule**. The intent of the modified 13/13 rule is to provide some degree of protection against casual body damage and contact by careless drivers, but without excessive or blind rulings. In multiple-car incidents details, accounts, and evidence will be reviewed to assess fault. Sanctions against offending drivers will be imposed on a sliding scale subject to discretion of the officials. Drivers in single car incidents will not be subject to sanction. 13/13 rule may vary slightly from region to region. An entrant can obtain a copy of a regions 13/13 rule at every event or via email from the regions GTS officials. The GTS Challenge 13/13 rule can also be applied to an entrant who's on track actions causes damage to another competitor's car even if they have no physical contact with that car. Incident reviews and judgments will be heard by any combination of NASA Race Directors, GTS Officials and/or Incident Review Boards (IRB). IRB's are assembled by NASA and GTS officials and may include race officials and race entrants.

The GTS Challenge 13/13 rule will not be applied in incidents involving cars from other race series that don't have a 13/13 rule. In those incidents the NASA rule(s) and procedure will apply. All entrants are strongly encouraged to keep a copy of and learn the NASA CCR.

This 13/13 rule can be applied post event as it is not always possible for things to be sorted out at the track in a timely manner. No 13/13 ruling can contradict the findings of a NASA ruling. 13/13 penalties can vary in length at the discretion of the GTS officials. Regardless of the length of the penalty, no penalty is over until the driver participates in at least one GTS event under the penalty.

3.0 Car Eligibility and Classification

Any sedan or coupe from any German manufacturer - Audi, BMW, Mercedes, Porsche, Merkur or Volkswagen - that has been modified to meet all N.A.S.A Club Codes and Safety Regulations, and having a N.A.S.A issued log book is eligible for GTS Challenge competition. There are six classes in GTS Challenge; GTSU, GTS5, GTS4, GTS3, GTS2, and GTS1. All cars will be classed on a power to weight ratio. Based on dynamometer test results the ratio will be calculated as follows:

If max torque is less than max RWHP: Car weight with driver divided by max RWHP (rear wheel horsepower) If max torque is greater than max RWHP: Car weight with driver divided by the average of max RWHP and max torque. The hp and torque of each dynamometer run will be averaged and then the dynamometer run with the highest average will be used in the weight to power ratio calculation:

$$\frac{\text{weight (lbs)}}{(\text{max RWHP} + \text{max torque})/2}$$

The following table displays the class each car will be in after the previous calculation is applied to each cars dynamometer results.

DOT race tires	Non-DoT race tires (slicks):
GTSU = 5.99 and lower	GTSU = 6.49 and lower
GTS5 = 6.0 - 8.49	GTS5 = 6.5 - 8.99
GTS4 = 8.5 - 10.99	GTS4 = 9.0 - 11.99
GTS3 = 11.0 - 14.49	GTS3 = 12.0 - 15.99
GTS2 = 14.50 - 18.49	GTS2 = 16.0 - 19.99
GTS1 = 18.50 and higher	GTS1 = 20.0 and higher

4.0 Car Modifications

Any modification is allowed as long as the car meets all NASA safety regulations.

All GTS cars must use an engine built by the manufacturer of the make of car. Example: Any Porsche model car may use any Porsche engine as long as was manufactured by Porsche. Swapping engines between models is allowed, while switching engines between makes is specifically not allowed. Any car with engine make differing from car make that has previously competed in GTS Challenge prior to 11/1/07 shall be grandfathered into GTS and may continue to race in GTS. Grandfathered cars may switch back to an original engine without penalty but may not change from one engine manufacturer to another. Example: A Porsche 944 w/V8 Chevy installed may switch to any Porsche engine but may not switch to a V8 Ford. The goal is to limit further proliferation of out of manufacturer engine swaps

Additional roll cage bracing and construction is allowed and recommended. Tube Frame cars will be classed according to the "Non-DoT" class numbers. "Tube Frame" is defined as any car that does not utilize the stock manufacturer's unit body or chassis. Modification of suspension and drive train mounting points alone does not constitute at Tube Frame. Tube Frame cars running on Non-DoT tires will be bumped one class.

4.1 Cockpit adjustable engine management systems

All adjustable engine management systems must be declared on the [Dynamometer certification form](#) (see below). Failure to do so will result in disqualification of all timed sessions for the weekend. Adjustable engine management systems include but not limited to; Off the shelf systems such as Motec or MegaSquirt that can upload and download from external computers, potentiometers, diodes and switches that can alter signals form engine sensors, factory install devices such as traction control that changes engine performance when non-drive wheels are stationary.

5.0 Determining the lbs/RWHP, torque ratio

GTS Challenge will attempt to have a dynamometer at each event. However, the hosting NASA region is responsible for providing the dyno and it is solely at the discretion of NASA officials if a

dyno is or is not present. When a dyno is present, there will be post race impound after every race. Post race impound will be held in one of the following two ways.

1. Top three finishing positions will go directly to the impound area immediately following the race.
2. A designated class or classes must go to post race impound. In this method, all entrants in a particular class(s) must go to impound after the race. If this method is used, entrants will be notified on the pre-race grid and/or while exiting the track after the race session. A GTS or NASA official will notify entrants with a sign that clearly indicates which class(s) are to go report to impound.

If a driver, for whatever reason, is not sure if his/her class is required for impound, then that driver should assume that it is their class and go to impound. **Any required entrant/driver that does not report immediately to impound forfeits all points and finish position for that race.**

Scales shall be available at all events, and GTS Challenge may require any or all entrants to have cars weighed at any or all GTS Challenge events.

GTS Challenge recognizes that no set of rules can prevent cheating. Dynamometer testing is intended to be used only in case of a possible misclassification, either at request by GTS officials or upon filing of a protest filed by a competitor.

It is required that all entrants have their car dynamometer certified before entering their first GTS Challenge race of each season. Dyno test results must be accompanied by a signed and completed [Dynamometer certification form](#). The form is available at the GTS website. GTS Challenge will provide a list of accepted dynamometer service providers. If the list does not include a dyno service near you or you use a dyno service not on the list, submit the contact info for the provider to GTS Challenge to have them added to our list. **Any entrant without official dyno testing results will be in GTSU until properly classed per this rule set.** Compliance with these rules is the responsibility of the driver/entrant. All entrants should be aware of the differences between brands and types of dynamometers. Dyno results can vary as much as 30% - 40%, depending on brand. Results of a dynamometer at an event are final, regardless of dyno results from any previous testing.

5.1 Dynamometer procedures for AWD (All Wheel Drive) Cars

Because it is nearly impossible to have an AWD dynamometer at an event, all AWD cars must have dyno results before entering their first event. This dyno testing must be done on a Dynojet brand dynamometer. Dyno test results must be accompanied by a [Dynamometer certification form](#). **There will be no exceptions.** Any car without the certification will run in GTSU. The Dynamometer certification form must be completed at the time of the dyno testing and signed by the dyno operator and the entrant. In the event of a protest against an AWD car, the protested and protesting parties must both be represented at the re-testing. Re-testing must follow the same procedures and the fees will be paid by the party in error. If a GTS official's presence at the re-testing is required, the party in error shall pay the GTS officials expenses.

6.0 Post Race impound and Protest Procedure

Dynamometer variance forgiveness:

The purpose and intent of forgiveness is to address the variance in dynamometer results and define post race impound and protest procedures.

Due to the multiple factors that can alter dynamometer results, a forgiveness of 4 HP is allowed. In cases where torque is greater than HP and figured into the weight/power ratio, the average of HP and torque will also be allowed -4 forgiveness. This applies to all post race impound and/or

protest dynamometer testing where the car meets the minimum weight required by official dynamometer results on record with GTS Challenge and/or NASA.

Official results do NOT include the -4 forgiveness. The intended purpose is given as a safeguard to entrants that have made every effort to assure their cars legality. GTS Challenge still recommends and encourages entrants to run their cars at least 50 – 100 lbs over minimum weight as an additional safeguard. **If a car does not meet its required minimum weight there is NO forgiveness granted to that entrant.**

Post race impound procedures:

The following are the procedures to be followed at each GTS Challenge event.

When a trackside dynamometer is present:

All cars designated for impound proceed directly to impound after leaving the track. Failure to do so will result in disqualification. Cars are to be weighed first because 3-6 pounds of fuel can be used on the dynamometer. (Per NASA CCR, 5 pound forgiveness is given to every competitor.) All cars NOT meeting their required minimum weight must be dynamometer tested regardless of their finishing position and do NOT receive the -4 forgiveness at the dynamometer. Scales should be available to entrants during the event for their use, and all entrants are encouraged to verify their weight before the qualifying and race sessions. The dynamometer testing immediately follows the scales. Cars shall be a normal operating temperature when going on the dynamometer. GTS and/or NASA officials must be present the scales and dynamometer. The results of any impound or protest dynamometer testing replaces the results on record with GTS/NASA.

When a trackside dynamometer is NOT present:

All cars designated for impound proceed directly to impound after leaving the track. Failure to do so will result in disqualification. Cars are to be weighed and checked against official GTS results. Any car not meeting minimum required weight shall be disqualified. (Per NASA CCR, 5 lb forgiveness is given to every competitor.)

Protest procedures:

If a dynamometer is present at the track, protest procedures are the same as impound procedures. If no dynamometer is present the post race weight shall be used and a Dynojet dynamometer facility convenient to the protested party shall be used. The party in error shall pay all costs for the protest. A GTS official need not be present and a GTS Dynamometer Certification Form must be completed and submitted to the acting GTS regional director. Official findings of the protest will be disclosed as soon as they are available.

Dynamometer and weight record keeping:

The acting regional GTS Director or NASA official shall record GTS entrant dynamometer and weight information in the following manner. When a new GTS entrant submits a GTS Dynamometer Certification Form, the minimum required weight shall be calculated and recorded in the vehicle logbook with the current date and official signature. After each event the dynamometer and weight results shall be submitted to the GTS National Coordinator via methods put in place. Each time an entrant is impounded and/or protest testing, the results become his/her official GTS Challenge power and weight data. All numbers shall be rounded to the second decimal place.

A complete and up to date list of all entrants will be available to all GTS directors and a copy will be present at all events.

Dynamometer equipment:

All post race impound and protest dynamometer testing shall be done on a Dynojet 248 or similar model Dynojet dynamometer (note AWD exceptions). SAE Correction (if available) shall be used for all dynamometer testing. Smoothing factor 4 shall be used. Some versions of dyno software may not have more than three different smoothing factors, in such cases; the highest available factor shall be used. Post race impound and protest dynamometer results override the results of record. Entrants must take into consideration the differences in makes and models of dynamometers and make needed weight adjustments.

Entrants are encouraged to use a Dynojet facility for dynamometer testing and completion of the GTS Dynamometer Certification Form, but any dynamometer may be used (note AWD exceptions). If not using a Dynojet 248, consider the differences between dynamometer makes and models when calculating your minimum weight.

All impound and protest dynamometer runs **MUST** be performed with a dynamometer technician driving the car. No entrant or crew member can be at the controls of the car while dyno testing takes place. There will be no exceptions to this rule. Failure to comply will result in disqualification.

As GTS Challenge rules are based on weight to power ratios, there are only a few outside factors that may be protested. All protest concerning DoT vs. race slack, tube-frame vs. stock chassis and cockpit adjustable engine management shall be filed according to NASA procedures as described in section 17.5 of the NASA CCR. Any protest requiring a dynamometer test shall follow the procedures outlined in these rules.

Classes are based on lb/WHP, torque ratio, protests will be allowed based only on that ratio. In other words, technical protests about car competitiveness will be limited to a claim that a car exceeds the allowed (lower) limit for its declared class. As there is no lower limit to the lb/RWHP, torque ratio for GTSU cars, there will be no protests or impounds for that class.

Protests must be filed within 30 minutes of the end of an on-track session, and may be filed at the end of practice or qualifying sessions as well as races. Upon receiving the protest, the Race Director and GTS Challenge officials may accept the protest, extend the time allowed to file, or reject the protest. It is left to the discretion of NASA and/or GTS Challenge officials present to determine the validity of the protest. Any dynamometer testing required for a protest shall be done on the trackside dynamometer (if available) or on a Dynojet 248 dynamometer at a facility convenient for the protested party.

In the effort to encourage a fun, friendly, sportsmanlike racing environment, competitors are encouraged to discuss issues of incorrect classing whenever possible prior to filing a protest. Likewise, scales will be made available throughout the course of events to weigh cars as necessary. Cars which are believed to be close to the limit of the lb/RWHP ratio for a class are recommended to have plans to increase weight, if necessary, to maintain legality.

6.1 Protest Bond

The amount of the protest bond shall be the cost for a dyno run. Payment for the dyno run shall be determined by the outcome of classification. If the combined scale and dyno results show the car was classed correctly, the dyno cost shall be paid by the protesting party. If the car is found to have been classed incorrectly, the cost shall be paid by the protested competitor.

7.0 Testing Results for Post Race Impound and Protests

If in post race impound or protest an entrant is found to have a lower lb/RWHP ratio than class allows the entrant/driver will forfeit points and finishing results for the race. The car will be moved up to the correct class for the remainder of the competition season, effective immediately or the

entrant can make add ballast or permanent performance modification to remain in class. The later will require new results to be obtained from scale and dynamometer testing. Additional penalties may be imposed for repeat offenders at the discretion of GTS Challenge officials, including but not limited to removal of times for qualifying sessions, time or position penalties for races, and point's penalties.

The results of dynamometer tests, as well as results from post-session weights, shall be available to all competitors. As much as to show compliance, this is intended to dissuade unnecessary protests in cases of well-documented cars. Results of protest, when resulting in a reclassification of a car or ballast added, shall be noted in the vehicle logbook by GTS officials.

Any ballast added to a car must meet NASA safety regulations as defined in the CCR.

8.0 National Championship Rules

GTS Challenge is recognized as a Nationals class within NASA. Entrants must meet the NASA standards to qualify for the Nationals.

9.0 Regional Championship Rules

There will be a Regional Champion for each GTS Challenge class in each N.A.S.A region that holds GTS Challenge races. Only points scored in events held in the driver's home region are counted. The number of events counted will vary from region to region, calculated by 75% of the races held by the region. For example, if a region holds 8 races, then a driver's best 6 will be counted, If 19 races are held, then the 14 best are counted.