



NASA Super Touring and Super Unlimited (NASA ST and SU)
Official 2014 National Rules
 Copyright 2014
 Version 8.4, January 1, 2014

1	Definitions and Claims.....	2
2	Sanctioning Body.....	2
3	Intent.....	2
4	Purpose.....	2
5	The Classes.....	3
6	Super Unlimited (SU).....	3
7	Super Touring (ST1, ST2, ST3).....	3
	7.1 Class Eligibility.....	3
	7.2 NASA CCR Section 15 and 18 Exceptions.....	4
	7.3 Vehicle Modification Restrictions/Limitations.....	4
	7.3.1 Restrictions and Limitations for All Vehicles.....	4
	7.3.2 Restrictions and Limitations for <u>Production Vehicles Only</u> ...5	5
	7.4 “Adjusted Weight/Power Ratio” Calculation.....	7
	7.4.1 Definitions.....	7
	7.4.2 Modification Factors.....	8
	7.5 Non-Production Vehicles Approved for “Production” Vehicle St.....9	9
	7.6 Example Calculations.....	10
8	Dynomometer/Power Testing.....	11
9	Forms, Inspection, Protests, Penalties.....	12
	9.1 Car Classification Forms.....	12
	9.2 Vehicle Inspection.....	13
	9.3 Protests.....	14
	9.4 Penalties.....	14
	9.5 On-Course Conduct.....	14
	Appendix A—Technical Bulletins, Approvals, Assessments for Specific Car Models... 15	
	BFG R1/R1S 245 & 275 Tire Exceptions.....	15
	BMW E46 Models.....	15
	Chevrolet Corvette C5 & C6.....	15
	Factory Five Roadster and Backdraft Cobra.....	16
	Ford Mustang and BMW E-36 M3.....	16
	GACTSCC Tires.....	16
	Rear Engine Location.....	16



®

NASA Super Touring and Super Unlimited (NASA ST and SU)

Official 2014 National Rules

Copyright 2014

Version 8.4, January 1, 2014

1 Definitions and Claims

NASA Super Touring (NASA ST) and NASA Super Unlimited (NASA SU) are automobile competition series focused on road course competition, and shall function as an advertising and marketing tool for the series sponsors, the independent sponsors of each team, as well as the official sanctioning body of the series. The trade names, “Super Touring[®] (ST)”, “NASA Super Unlimited (SU)” and these rules are the property of the National Auto Sport Association, Incorporated[®]; located at P.O. Box 2366, Napa Valley, CA 94558; 510-232-NASA (6272).

2 Sanctioning Body

The NASA ST/SU series is sanctioned by the National Auto Sport Association (NASA). All events are governed by these rules, applicable addenda, prima facie rules, as well as those found in the latest version of the NASA *Club Codes and Regulations*[©] (CCR).

3 Intent

The intent of these rules is to provide mandates to ensure that all Super Touring vehicles are modified within clearly established limits, so as to ensure an even platform, in which a contest of driving skill may provide the most talented drivers with great rewards. The rules shall be applied in a logical manner that seeks to provide competitors a safe and fair venue for competition, without a constrained interpretation of the rules based on phraseology or verbiage.

Rule changes will be announced via Technical Bulletins published in the Super Touring section of the www.nasaforums.com website and/or in a future Super Touring specific website. A permitted item cannot be modified to perform either a prohibited function, or the function of an item that would otherwise be assessed an additional Modification Factor. Vehicle legality is the sole responsibility of the driver.

4 Purpose

NASA ST/SU provides a venue for spirited on-track competition in high performance race cars of all makes, models, and types. Several key factors are considered in classing vehicles, using an “Adjusted Weight/Power Ratio” as the ultimate equalizer between vehicles. The relatively few modification specific rules will allow competitors to configure their cars to perform at an optimal level by using aftermarket parts, providing an opportunity for promotional exposure for the competitors’ sponsors, aftermarket tuners, parts manufacturers, and the vehicle manufacturers. Additionally, these series should provide a stage to showcase driving talent, in hopes that the most talented drivers will advance to even higher-level professional series. The format of the

rules encourages direct crossover from both high level NASA TT classes and race classes from multiple organizations.

5 The Classes

There are **three** Super Touring classes—Super Touring 1 (ST1), Super Touring 2 (ST2), and Super Touring 3 (ST3), **with** ST1 being the higher performance level class of the **three**. Super Unlimited (SU) is an unrestricted class for any closed wheel/fendered vehicle that complies with the safety requirements in the NASA CCR. An “Adjusted Weight/Power Ratio” (section 7.4), modified based on body type, engine type, transmission, drivetrain, tires, overall weight, (and Aerodynamic modifications in ST3 only), is used to equalize cars in each of the Super Touring classes, although there are some additional restrictions placed on all vehicles in Super Touring classes (sections 7.2 & 7.3).

6 Super Unlimited (SU)

Any four wheel race car that passes NASA safety tech inspection can be used to compete in SU (note: open wheel formula cars are not permitted). There are no maximum power limits or minimum weight limits. Any type and size tires may be used. All types of transmissions, chassis, frames, **bodies**, suspensions, aerodynamic modifications, and braking systems are legal. All of the rules in the NASA CCR in Section 15 and 18 will apply, except, the following rules will supersede those in the CCR:

CCR 15.6—Roll cages may be built to provide an unlimited amount of chassis stiffening. Any number of cage mounting points may be used above the six (6) minimum requirement, and, any number of additional tubes may be used above the minimum with additional attachment points to the body, including tubes that penetrate the firewall, or convert a production vehicle into a tube-frame chassis vehicle.

CCR 15.8—An electrical master cut-off switch is required.

CCR 15.16—An approved suitable racing seat is required.

CCR 18.3—Any type of fuel or additives that are approved by the Race Director are permitted.

Front driver and passenger side fixed/Lexan windows are specifically not permitted unless they are factory installed during the manufacturing of the vehicle. Both front side windows must otherwise be in the down position while on track.

7 Super Touring (ST1, ST2, ST3)

7.1 Class Eligibility

Any four-wheel, fendered/closed-wheel vehicle that passes NASA safety technical inspection can be used to compete in Super Touring. “Production” vehicle models are those manufactured by an automobile manufacturer and must be approved for street use by the U.S. D.O.T., T.U.V, or Japanese government. All other vehicles, as well as “kit” cars, purpose-built track/race cars, and tube-frame vehicles are considered “Non-Production” vehicles, and will be assessed the “Non-Production Vehicle” Modification Factor listed in 7.4.2 unless the vehicle model is listed in Section 7.5 of these rules, and has been approved to compete under “Production” vehicle status. Alternately, a competitor with a vehicle originally qualified as a “Production” model may use the Modification Factor assessment for “Non-Production Vehicle” to avoid all “Production vehicle only” limitations/restrictions. All vehicles must comply with all NASA safety requirements in the CCR (see 7.2 exceptions), and all of the restrictions and limitations listed below in 7.2 and

7.3 to be eligible to compete. All competition is based on the “Adjusted Weight/Power Ratios” (section 7.4) below:

Super Touring 1 (ST1) = “Adjusted Wt/Hp Ratio” equal to, or greater than, **5.50:1**

Super Touring 2 (ST2) = “Adjusted Wt/Hp Ratio” equal to, or greater than, **8.00:1**

Super Touring 3 (ST3) = “Adjusted Wt/Hp Ratio” equal to, or greater than, **9.00:1**

The National ST Director will determine and publish any additional Modification Factor(s), specific limitations, and/or restrictions placed on **specific vehicle models**. **Performance enhancing modifications are otherwise unlimited.**

7.2 NASA CCR Section 15 and 18 Exceptions

All of the rules listed in the NASA CCR Sections 15 and 18 will apply, except, the following rules will supersede those in the CCR:

CCR 15.6—Roll cages may be built to provide an unlimited amount of chassis stiffening.

Any number of cage mounting points may be used above the six (6) minimum requirement, and, any number of additional tubes may be used above the minimum with additional attachment points to the body, including tubes that penetrate the firewall.

CCR 15.8—An electrical master cut-off switch is required.

CCR 15.9—Steering wheel lock removal is highly recommended, but not required.

CCR 15.16—An approved suitable racing seat is required.

Front driver and passenger side fixed/Lexan windows are specifically not permitted unless they are factory installed during the manufacturing of the vehicle. Both front side windows must otherwise be in the down position while on track.

7.3 Vehicle Modification Restrictions/Limitations

7.3.1 Restrictions and Limitations for All Vehicles (Non-Production and Production)

All vehicles must adhere to the following modification restrictions and limitations:

- 1) Active aerodynamic devices and/or modifications (including, but not limited to, computerized, cockpit adjustable, self-adjusting, and OEM) are not permitted.
- 2) Nitrous Oxide use is prohibited. Pre-existing tanks must be removed. Methanol/Alcohol-water injection is permitted provided that the mixture does not exceed 50% alcohol by volume. Methanol is not permitted as a fuel. (see CCR 15.19 and 18.3)
- 3) Sequential, paddle shift/semi-automatic, and dog-ring/straight-cut gears (i.e. non-synchromesh) transmissions are permitted, but will be assessed via the “Adjusted Weight/Power Ratio” formula regardless of whether they are OEM or not.
- 4) Tire and wheel size are unlimited, but non-DOT approved tires will be assessed via the “Adjusted Weight/Power Ratio”. Tire treatments and softeners are not permitted.
- 5) Up to two hundred and fifty (250) lbs. of added ballast is permitted. All ballast must be of solid material (no fluids or shot pellets) and safely secured in any location on the vehicle approved by NASA safety technical inspectors. The preferred method is

to use at least one (1) 3/8-inch grade-5 bolt, two (2) “fender” washers and a locking nut system for every fifteen (15) pounds of weight.(supersedes Section 15.20 of the NASA CCR)

- 6) From the start of qualifying through the end of post-race inspection, vehicles may not have any adjustments or modifications made to systems that could alter chassis dynamometer readings by changing horsepower levels (without the direct approval of the Race Director.) **Any hardware that allows a competitor or crew member to wirelessly connect to the ECU at any time during competition or post-competition impound is strictly prohibited, regardless of whether such hardware is external or internal to the ECU, and regardless of the direction of data flow.**
- 7) Tube-frame chassis conversion (partial or complete) is permitted, but **all tube-frame chassis conversion vehicles will be assessed the Modification Factor for “Non-Production” vehicles, and subsequently, none of the other rules specifically for “Production Vehicles Only” will apply (7.3.2).** If a vehicle cannot be driven safely, at full speed, with any of the added tubes removed, it is considered a tube-frame chassis conversion.

7.3.2 Restrictions and Limitations for Production Vehicles Only

The following rules do not apply to any vehicle that is taking the Modification Factor assessment for “Non-Production Vehicle”, regardless of whether or not the vehicle was originally a Production vehicle. “OEM” is defined as any part that comes from the vehicle manufacturer either as a standard feature, a factory option, or on a factory optional trim model/package of that generation of the street-legal (in the U.S.A.) version of the vehicle.

- A)** Other than the listed exceptions, every Production vehicle must retain its unmodified:
- 1) OEM frame rails/rear frame cross beam, and/or Unibody, and Sub-frames/**suspension cross-members (in their OEM locations)**
 - 2) Strut/shock towers
 - 3) Inner/inboard side of the fender wells (any non-horizontal aspect)
 - 4) Rocker panels
 - 5) Transmission tunnel
 - 6) Floor pan
 - 7) Windshield frame location

The following are permitted exceptions to 7.3.2.A above:

1a) Frame rails, **sub-frames/suspension cross-members**, and unibodies may have maximum diameter 0.75 (3/4) inch holes drilled into them for purposes other than lightening, such as for the attachment of ancillary parts. Cutting and channeling is not permitted.

1b) Frame rails may have maximum diameter 1.25 (1-1/4) inch holes drilled solely for the purpose of the placement of jacking lugs/plates.

1c) Suspension sub-frames/suspension cross-members may be updated or backdated utilizing any OEM factory produced item that is a direct replacement piece for that model, regardless of year or street-legality, provided that it can be installed in the same location and the same manner as on the donor vehicle without modifications.

2a) Strut tower reinforcement plate addition is permitted.

2b) Slotting and removal of material from the top surface of the OEM strut/shock tower to the extent necessary to allow simple camber/caster adjustment is permitted.

3) The inner/inboard side of the fender well (any non-horizontal aspect) may have holes cut specifically for the purpose of the passage of brake ducts, external shock reservoirs, and brake lines/ABS wires. Plastic fender liners may be modified and/or removed. If the fender well itself is constructed of plastic, it is not considered a “liner”. The front, top, and rear aspects of the fender well may have modifications to allow vent holes for aero and/or cooling purposes (and specifically not for tire height clearance). As such, a component of the topmost aspect of the fender well must remain in the OEM location (but can be made of non-OEM material/venting).

4) Modification of the rocker panels solely for the placement of air jacks.

5) The transmission tunnel may be modified for the purpose of installing a competition driver seat. The floor pan must remain in its original position.

6a) Modifications of the floor pan for purposes of exhaust clearance only, and/or the rocker panel for side exit exhaust only are permitted and will be assessed a Modification Factor in the “Adjusted Weight/Power Ratio”.

6b) Removal of the floor section of the rear hatch/trunk space and either replacement with a sheet metal cover or placement of a fuel cell is permitted without an additional Modification Factor.

6c) Floor pans may have maximum diameter 0.75 (3/4) inch holes drilled into them for purposes of the attachment of ancillary parts, safety gear, seats, and for the passage of wires and hoses, and specifically not for the passage of suspension components.

B) Production Vehicle Aerodynamics

1) A rear wing (or rear spoiler for wagon-style bodies) may not exceed a height of eight (8) inches above the roof-line (or OEM windshield height for convertibles).

2) Modification of the OEM roof line is permitted, but will be assessed via a Modification Factor in the “Adjusted Weight/Power Ratio”.

C) Production Vehicle Additional Items

1) Floor pan modifications to include items such as sub-frame connectors, roll cage bracing, and fuel cell placement may be approved on a case-by-case basis by the National ST Director, and are subject to possible Modification Factor assessments.

2) Relocation of suspension mounting points is permitted, provided that the modifications do not violate any of the other rules above. One possible method is via the use of modified mounting point brackets attached to OEM mounting locations.

3) Modifications of transmission cross-members and mounts, differential mounts, and radiator core supports are permitted.

4) Modification of the OEM front bumper frame cross beam is permitted if a modified or replaced bumper beam remains that is equally strong for crash protection.

5) Modification and/or relocation of components of the firewall with engine relocation ten (10) inches or less (ie. no mid or rear engine conversion) is permitted, but is significantly limited by the requirement to retain the unmodified transmission tunnel and floor pan.

D) ST3 Only Production Vehicle Aerodynamics (does not apply to ST1 or ST2 vehicles)

The addition of non-OEM aerodynamic aides or modification of OEM body lines (unless specifically stated otherwise in these rules), will be assessed a Modification Factor to the “Adjusted Weight/Power Ratio” (7.4).

The following are permitted exceptions, and will not necessitate the assessment of the ST3 Non-OEM Aero Modification Factor:

- 1) Undertray/belly pan forward of the centerline of the front axle.
- 2) Removal of a convertible soft top/frame and/or adding a hardtop to a convertible provided that the hardtop uses a sealed rear window and is either OEM, an OEM option, or the same shape and size of an OEM/OEM option top.
- 3) Lexan front, rear, and rear side windows without uncovered holes.
- 4) Front wing window/frame removal and replacement with Lexan.
- 5) Hood replacement/modification for venting and/or weight reduction (“aero” hood pins are permitted).
- 6) Removal/cutting/drilling of the fascia for engine cooling, air intake, and brake ducting purposes.
- 7) Removal of rain gutters/drip edges and mirrors.
- 8) Flared and/or rolled fenders.
- 9) NACA ducts, air ducts, or air hoses placed in a side window frame solely for the purpose of driver cooling.
- 10) Headlamp, headlight covers, and fog lights may all be removed. The holes may be left open, used for brake ducts, or must be covered with material that replicates the shape of the OEM light/cover, leaving the shape of the OEM fascia intact.

7.4 “Adjusted Weight/Power Ratio” Calculation

7.4.1 Definitions

The “Adjusted Weight/Power Ratio” for each vehicle will be calculated based on a simple competition weight to peak chassis dynamometer (Dyno) horsepower ratio (Wt./Hp), followed by the adjustment of the resulting ratio by adding to, or subtracting from it, based on the list of “Modification Factors” below. Competition weight is defined as the minimum weight of the vehicle, with driver, any time that it competes in a qualifying session or race. Note: peak chassis dynamometer horsepower and dynamometer testing procedures are defined in Section 8.

Tire width is determined by the number printed on the tire sidewall by the manufacturer. If a tire does not have a manufacturer’s printed number on the sidewall, then actual tread width measurement (not contact patch) will be used. All DOT-approved tires must be available for purchase by the general public through Federal or state licensed tire dealers.

7.4.2 Modification Factors

The “Modification Factor” listed after each item below is added or subtracted from the actual measured Wt/Hp ratio to determine the “Adjusted Wt./Hp Ratio” that determines vehicle legality in each ST class.

Non-Production Vehicle: ST1 & ST2 = -0.4
ST3 = -0.7

Production Vehicle Body Type: 4-door Sedan or 5-door Wagon = +0.2
(none of these apply to Modification of the OEM roof line/shape = -0.3
Non-Production vehicles) Modification of the floor pan for exhaust clearance only
and/or the rocker panel for side exit exhaust only = -0.2
ST3 ONLY: Non-OEM Aero (see 7.3.2.D) = -0.4

Engine: Rotary with a maximum of two rotors and one turbocharger turbine = +0.3
Naturally aspirated (non-rotary) engine with displacement 1.9L or less = +0.3
Rear Engine Location ('99+ year only) w/Comp. Wt. less than 2700 lbs = -0.2
Rear Engine Location ('99+ year only) w/Comp. Wt. 2700-2900 lbs = -0.1
(Rear Engine = Behind rear axle only—See Appendix A)

Transmission: Dog-ring/straight-cut gears (non-synchromesh),
and/or sequential/paddle shift/semi-automatic = -0.2
(no assessment for automatic utilizing a torque converter)

Drivetrain: AWD = -0.3
FWD = +1.0

Tires: Non-DOT approved tires = -0.7 (GACTSCC Continentals see App. A)
Size 10.5” (267mm) to 9.6” (244mm) non-DOT approved = +0.3
Size 9.5” (241mm) or smaller non-DOT approved = +0.7
Size 275 to 250 (DOT approved) = +0.3 (BFG R1/R1S 275 excluded—App. A)
Size 245 or smaller (DOT approved) = +0.7 (BFG R1/R1S 245 excl.—App. A)

Competition Weight:

Less than:

2999-1800 lbs	1799 lbs or less
3000 lbs -0.1	1800 lbs -2.0
2600 lbs -0.2	
2200 lbs -0.3	

Equal to or **Greater** than:

3300-3599lbs	3600lbs +
3300 lbs +0.1	3600 lbs +0.4
3400 lbs +0.2	3700 lbs +0.5
3500 lbs +0.3	3800 lbs +0.6

Note: If between 3000 lbs and 3299 lbs, there is no Modification Factor.

Note: All vehicle weights will be measured to the tenth of a pound (xxxx.x), then

rounded off to the nearest pound for all calculations. Any weight ending in “.5” (xxxx.5x) will be rounded up or down to the benefit of the competitor.

The following vehicles will not use the above tables if the vehicle Competition Weight is less than 1800 lbs. The Competition Weight Modification Factor for these vehicles shall be = -0.3:

Allison Legacy, Baby Grand, Brunton Stalker, Caterham 7, Exomotive Exocet, Legends, Lotus 7, Pro Challenge, Thunder Roadster, Westfield Super 7

7.5 Non-Production Vehicles Approved for “Production” Vehicle Status

The following vehicles are approved to use “Production” vehicle status in Super Touring, **provided that the frame/chassis, body/aero remain in the original manufactured configuration** as specified by the manufacturer. Both the “Non-Production Vehicle” Modification Factor and the “Production Vehicle Body Type” Modification Factors will not be assessed, but the vehicle specific Modification Factor listed below for each model will apply:

No Modification Factor Models:

Backdraft Cobra RT3 (no TD body/no aero, no hardtop, FF Challenge air dam ok) = -0.0

Dodge SRT10 Viper ACR-X = -0.0 (may have additional Aero/Body mods)

Dodge Viper Competition Coupe = -0.0 (may have additional Aero/Body mods)

Ferrari 348, 355, and 360 Challenge Series = -0.0 (ST1 & ST2) (may have additional Aero/Body mods)

Factory Five Roadster (no aero, no hardtop, FF Challenge air dam ok) = -0.0

Legends = -0.0 (may have additional Aero mods)

Porsche 996 GT3 Cup & 997 GT3 Cup = -0.0 (ST1 & ST2), and = -0.4 (ST3)(may have additional Aero/Body mods)

Thunder Roadster pre-'08 body/no-wing type = -0.0

With Modification Factor Models:

Allison Legacy = -0.2 (ST1 & ST2), and = -0.5 (ST3)

Baby Grand = -0.2 (ST1 & ST2), and = -0.5 (ST3)

Backdraft Cobra RT3 (TD, hardtop, or any aero mods) = -0.2 (ST1 & ST2), and = -0.5 (ST3)

Brunton Stalker (no aero) = -0.2 (ST1 & ST2), and = -0.4 (ST3)

Caterham 7, Lotus 7, Westfield Super 7 (no aero) = -0.2 (ST1 & ST2), and = -0.4 (ST3)

Exomotive Exocet (no aero/wing/splitter) = -0.2 (ST1 & ST2), and = -0.4 (ST3)

Ferrari 430, 458 Challenge = -0.2 (ST1 & ST2) (may have additional Aero/Body mods)

Factory Five Roadster (if any aero mods, wing, or splitter) = -0.2 (ST1 & ST2), and = -0.5 (ST3)

Factory Five Type 65 Coupe = -0.2 (ST1 & ST2), and = -0.5 (ST3)

Lotus 2-Eleven = -0.2 (ST1 & ST2), and = -0.5 (ST3)

Panoz GTRA & GTWC = -0.2 (ST1 & ST2), and = -0.5 (ST3) (may have additional Aero mods)

Panoz GTS = -0.3 (ST1 & ST2), and = -0.6 (ST3) (may have additional Aero mods)

Porsche 991 GT3 Cup = -0.2 (ST1 & ST2) (may have additional Aero mods)

Pro Challenge = -0.2 (ST1 & ST2), and = -0.5 (ST3)

Thunder Roadster ('08+ aero body/wing type) = -0.2 (ST1 & ST2), and = -0.4 (ST3) (may have additional Aero mods including wing removal)

Note: Future “Production” status approved vehicles and any associated Modification Factor will be posted on the www.nasaforums.com website in the Super Touring section.

7.6 Example Calculations

Example: 2006 Chevrolet Corvette Z06, with OEM transmission, on DOT approved 345 size tires, weighing 3000 lbs, with 375 peak rwhp:
 $3000/375 = 8.0$ (ST2)

Example: 2003 Dodge Viper Comp Coupe, with OEM transmission, on non-DOT approved 345 size tires, weighing 3600 lbs, with peak chassis dyno power of 620 rwhp:
 $3600/620 = 5.81$, minus -0.7 (non-DOT's), plus 0.4 (3600 lbs or greater) = 5.51 (ST1)

Example: 2005 Ford Mustang, with dog-ring gearbox, frame/subframe/floor pan mods, on non-DOT 10.5" slicks, weighing 3300 lbs, with peak chassis dyno power of 515 rwhp:
 $3300/515 = 6.41$, minus 0.4 (Non-Production), minus 0.2 (dog box), minus 0.7 (slicks), plus 0.3 (10.5" non-DOT's), plus 0.1 (3300 lbs or greater) = 5.51 (ST1)

Example: 2005 Subaru STI (awd, 4-door sedan), with OEM transmission, on DOT approved 275 size tires, with ST3 aero mods, weighing 2902 lbs, with 312 peak awhp:
 $2902/312 = 9.3$, plus 0.2 (4-door sedan), minus 0.5 (ST3 aero), minus 0.3 (AWD) plus 0.3 (275 DOT's), = 9.0 (ST3)

Example: 2009 Thunder Roadster (aero type) with OEM sequential transmission, on DOT approved 245 size tires, weighing 1500 lbs, with 166 peak rwhp:
 $1495/168 = 8.9$, plus 0.3 (engine displacement less than 1.9L), minus 0.2 (sequential transmission), plus 0.7 (245 DOT's), minus 0.3 (weight factor for TR), minus 0.4 (Production status approval in ST3) = 9.0 (ST3)

Example: 2008 Porsche 997 GT3 Cup, with OEM sequential transmission, on non-DOT approved 320 size tires, weighing 2700 lbs, with 409 rwhp:
 $2700/409 = 6.60$, minus 0.1 (rear engine), minus 0.2 (sequential transmission), minus 0.7 (non-DOT's), minus 0.1 (less than 3000 lb), minus 0.0 (Production status approval) = 5.50 (ST1) Same car but on 345mm DOT's at 2900 lbs and 345 rwhp = 8.0 (ST2)

Example: Mazda GT tube-frame with sequential transmission, on DOT approved 245 size tires, weighing 2250 lbs, with 247 peak rwhp:
 $2250/247 = 9.11$, minus -0.7 (Non-Production ST3), plus 0.3 (2 rotor), plus 0.7 (245 DOT's), minus 0.2 (sequential), minus 0.2 (weight) = 9.01 (ST3)

Note: If one knows the competition weight of the vehicle, a simple reverse calculation will yield the maximum horsepower allowed for that vehicle. Begin by adding/subtracting all of the Modification Factors for the vehicle as listed above. Then use either the 5.50, 8.00, or 9.0 ratio (depending on which class the car is being prepared for), and subtract that number from the ratio to get the vehicle's actual target wt/hp ratio. Divide the competition weight by this number to obtain the horsepower target.

Using the Ford Mustang example above:

$$-0.4 - 0.2 - 0.7 + 0.3 + 0.1 = -0.9$$

$5.5 - (-0.9) = 5.5 + 0.9 = 6.4$ (note that subtraction of the negative number here results in addition) $3300/6.4 = 515.6 = 515$ max hp for ST1 $3300/8.9 = 370.8 = 370$ max hp for ST2
(note: watch for rounding errors that could lead to non-compliance—If one used 371 hp above, the result would be $3300/371 = 8.894 - 0.9 = 7.994$ which is less than 8.00:1)

8 Dynamometer/Power Testing

Each year/[race season](#), the owner/driver must submit a completed NASA Super Touring Car Classification Form and a certified dynamometer (Dyno) report to the ST Director prior to the car's first competition in order to compete in ST1, ST2, and ST3. Certified Dyno reports are potentially valid for up to a maximum of three years (provided that no changes have been made to the vehicle that would alter Dyno readings). However, at his discretion, a NASA ST Director (or Race Director) may require an updated certified Dyno report (at the driver's/owner's expense) after one year from the date of the previous report. Any competitor wishing to drive without a certified Dyno report will compete in the Super Unlimited (SU) class. All competitors are required to include the latest certified Dyno report and a copy of the ST Car Classification Form in their vehicle logbook at all times. Any subsequent modifications or adjustments done to the car that could alter power output will require repeat Dyno testing, and a new certified Dyno report. NASA Officials may request repeat Dyno testing at any other time.

A certified Dyno report consists of three separate, reproducible Dyno tests with SAE correction, with the car owner's name, car number, car year/make/model, shop name and phone number, and Dyno operator's name on the [Dyno sheet](#), accompanied by a completed ST Dyno [Certification Form](#). [Dyno testing should be done with the vehicle at normal operating temperature, with at least 28 psi tire pressure \(but should be at normal operating tire pressure if higher\), and in 4th gear unless the car has a six or seven speed transmission. If the vehicle has more than five gears, then the testing should be done in the gear closest to a 1:1 ratio.](#) The highest peak horsepower number of the three tests will be used as the official certified horsepower for weight to horsepower calculations. A smoothing factor up to five (5) is permitted. All Dyno graphs must show decreasing power for 300 rpm from the peak horsepower level, or the car must reach the rev-limiter during the Dyno testing.

Dynamometer tests must be conducted on a Dynojet Model 248 or 224 for front and rear wheel drive vehicles, and on a Dynojet, Mustang, Dyno Dynamics, or Dynapack for AWD cars, in a commercial facility that offers dynamometer testing as part of their business and is open to the public. All Dyno test results using a Mustang dynamometer or Dyno Dynamics dynamometer will have 10% added to the maximum horsepower reading to obtain the number that will be used to calculate the "Adjusted Weight/Power Ratio" (Mustang or Dyno Dynamics Dyno awhp x 1.1 = Maximum awhp for Wt/Hp calculation). Each Regional ST or Race Director may retain the option to specify which business locations will be the approved centers for that particular region. Please check with the ST Director in your area for instructions.

Dynamometer tests are official and certified when performed by series Officials. It is the responsibility of the competitor to be within power levels on any Dyno that NASA officials choose to use for testing. The Dynojet will be the preferred Dyno for all vehicles, and will be used exclusively when available.

As AWD Dyno availability is limited, NASA Officials may use any of the four AWD Dynos listed above. AWD drivers need to be especially careful that their cars will be compliant on any official Dyno that is available.

From the start of qualifying through the end of post-race inspection, vehicles may not have any adjustments or modifications made to systems that could alter chassis dynamometer readings by changing horsepower levels (without the direct approval of the Race Director.)

Examples of such systems are driver-adjustable electronic tuning and engine timing advance devices, fuel pump output modification devices, boost controllers, adjustable MAP and MAF

voltage clamps, and any other system that could alter the Dyno readings when measured for compliance purposes. Vehicles that have more than one fuel/timing program or “map” in the computer/ECU/PCM must submit a certified Dyno report (3 pulls) for each of those fuel/timing “maps” regardless of which one will be used during competition. As well, the method used to switch between these “maps” must be clearly written on the ST Car Classification Form and the ST Dyno Certification Form. Any restriction device placed in the air intake system must be clearly identified as such and marked to indicate its dimensions, and those dimensions must be written on the Dyno Certification Form.

Any hardware that allows a competitor or crew member to wirelessly connect to the ECU at any time during competition or post-competition impound is strictly prohibited, regardless of whether such hardware is external or internal to the ECU, and regardless of the direction of data flow.

For compliance testing, the dynamometer operator and the Super Touring Director or NASA Official will determine the dynamometer testing procedures and how many test runs will be performed for any given car being tested in order to obtain accurate test data. Prior to the dynamometer inspection the competitor may top off any fluids needed to ensure the engine and drivetrain are not damaged during testing. The fluids must be added with a NASA Official present. No other modifications or adjustments may be made to the car. To ensure fairness, a NASA Official, or an individual appointed by a NASA Official, will operate any cars being inspected on the dynamometer. SAE correction with a smoothing factor of five (5) will be used. Any run that results in an erratic or non-reproducible result may be dismissed by Super Touring officials.

NASA is actively conducting research on the use of in-car GPS monitoring units as an alternate method of compliance testing of horsepower output. Traqmate GPS data acquisition monitoring will be used in 2014 as an additional method of non-invasive compliance testing, but not as the sole reason for disqualification. If NASA elects to begin compliance testing with GPS units without Dyno testing confirmation, competitors will be given adequate notice prior to their use, including details of the units to be used, so that they may do their own testing if desired.

9 Forms, Inspection, Protests, Penalties

All aspects of NASA CCR Section 17.0 Vehicle Legality Inspection shall be enforced except as defined below.

9.1 Car Classification Forms

All ST competitors **must** submit a completed Super Touring Car Classification Form and certified Dyno report to the Regional ST Director or Race Director (if there is no ST Director) prior to the first qualifying session of a race day. Once a Form has been submitted during a season, if there are no modifications to the vehicle that would change the form, a new form does not need to be submitted at subsequent races in the same region. **A new ST Car Classification Form and certified Dyno report must be submitted when a competitor competes in a different region or at a Championship event.** Forms can be downloaded here: <http://www.nasapracing.com/rules.html>. Super Unlimited (SU) competitors do not need to submit any classification forms or certified Dyno reports.

Any ST competitor who has not submitted a completed ST Car Classification Form and certified Dyno report prior to competition will be subject to one or more of the following penalties at the discretion of the Race Director in consultation with the ST Director:

- 1) Disqualification from the competition session;
- 2) Transfer to the Super Unlimited Class;
- 3) Loss of one position place for race results, or move to the back of the pre-grid after a qualifying session.

Competitors are permitted (and encouraged) to enter a maximum horsepower level on the ST Car Classification form that is higher than that showing on their certified Dyno report to allow room for Dyno variance (between the pre-competition testing done by the competitor and any compliance testing performed by ST Officials).

A driver may choose to compete at any time in a higher level class than would be dictated by the “Adjusted Wt./Hp Ratio”. A car may be modified an unlimited number of times, and substitute vehicles may be used provided they comply with all ST/SU rules. Substitution of a vehicle after qualifying sessions are completed will result in the new vehicle being placed at the back of its class in pre-grid.

9.2 Vehicle Inspection

All completed ST Car Classification Forms will be available from the ST Director (or Race Director if there is no Regional ST Director) for review by any competing driver by request (at the track). Super Touring vehicles are subject to detailed inspection by any NASA Technical Inspector and visual inspection by Super Touring competitors at any time when the car is at the track or at prearranged mutually agreed upon times when the car is not at the track. Super Touring Directors retain the right to request any disassembly or other procedure required to verify vehicle compliance. At random times or at the discretion of the Super Touring Series Directors, any car may be ordered to report for rules compliance on a chassis dynamometer. All Super Touring competitors have the option to be present for official chassis dynamometer testing; however, the results of Dyno testing are the property of NASA, and will only be shown to Super Touring Officials, who will let the competitor know whether or not the vehicle was compliant, and may show the competitor the results at their discretion. **Competitors must comply with any request by the ST Director to review and/or download ECU program “maps” using the competitor's programming hardware and software, when such equipment is used by the competitor.** As well, competitors may have GPS accelerometers placed in/on their vehicles at any time by Super Touring Officials to help verify rules compliance. And, as stated above in Section 8, GPS monitoring may become an acceptable substitute for Dyno testing in the future (and would be announced with adequate notice given prior to such use).

At any event where dynamometer testing (or GPS compliance testing once it is approved) is not available, Super Touring Officials will use the maximum chassis Dyno horsepower level entered on the ST Car Classification Form along with the actual vehicle weight after competition to calculate the “Adjusted Weight/Power Ratio” for that vehicle. **However, if the actual vehicle weight is less than the Minimum Competition Weight listed on the ST Car Classification Form, it will be D/Q'd.** At their discretion, Super Touring Officials may have the vehicle sealed and transported for off-site Dyno testing at a later date.

At events where Dyno testing (or GPS compliance testing once it is approved) is available, Super Touring Officials at their option will use either: a) the maximum chassis Dyno horsepower level entered on the ST Car Classification Form along with the actual vehicle weight after competition to calculate the “Adjusted Weight/Power Ratio” for that vehicle; or b) the results of Dyno testing

either requested by Super Touring Officials or performed due to a protest at the track to calculate the “Adjusted Weight/Power Ratio”. Again, if the actual vehicle weight is less than the Minimum Competition Weight listed on the ST Car Classification Form, it will be D/Q'd.

9.3 Protests

Protests of another competitor’s vehicle, for good cause, may be filed up to 30 minutes after the completion of a race or qualifying session, with the Race Director. A specific part does not need to be specified in the protest if the protest is about power levels, but an explanation of why the vehicle is being protested is required. Any protest requesting a Dyno test of a competitor's vehicle will require the protesting competitor to submit a cash deposit in the amount necessary for NASA to obtain the Dyno test. If the protest is found to be valid, the deposit shall be returned to the protesting party, and the competitor that was found to be non-compliant will be required to pay for the Dyno test. If the vehicle is found to be compliant, the protesting party will forfeit the deposit, and it will be used to pay for the Dyno test. Frivolous and “nuisance” protests may result in some type of action against the protesting party.

9.4 Penalties

Cheating and non-compliance are not welcome and will be subject to harsh penalties. Penalties will be assessed as follows, although the Race Director may choose to assess more severe penalties.

Any car exceeding the minimum “Adjusted Weight/Power Ratio” for its declared class, or otherwise found to be non-compliant with the rules for its declared class, will be penalized in accordance with the NASA CCR and these rules. The Regional penalty for competing with a vehicle in a class lower than that dictated by the Super Touring Classification system or an otherwise non-compliant vehicle, regardless of driver/owner intentions, will be a two race disqualification for the previous two races in that region for the first offense. A second offense in the same region will result in a loss of half of the season points, a two race suspension, and disqualification from the race. At third offense in the same region, there will be a loss of all season points and a four race suspension. Any Regional disqualification or suspension will result in zero points that cannot be dropped.

Either the Regional ST Director or the Regional Race Director will report by e-mail all disqualifications under the above paragraph to the National ST Director, who will maintain a log of all disqualifications for non-compliance with classing rules. The National penalty for any driver disqualified three times in one season (regardless of Region) will be revocation of eligibility to compete in the NASA Championships (in any series). The fourth offense in two seasons (regardless of Region) will result in permanent ejection from the ST (and PT & TT) series.

Any decision made by a NASA Official at an event can be appealed per the NASA CCR.

9.5 On-Course Conduct

In addition to the passing rules in the NASA CCR, along any straight section of the track, whether attempting to pass or attempting to prevent a pass, a driver that forces another competitor to drive off the racing surface in order to prevent car-to-car contact will be penalized by the Race Director. The penalty will be solely at the discretion of the Race Director, but the

suggested minimum penalty for such a dangerous and unsportsmanlike maneuver is disqualification and a one race suspension.

Appendix A—Technical Bulletins, Approvals, Assessments for Specific Car Models

BFG R1/R1S 245 & 275 Tire Exceptions:

Exceptions to Section 7.4.2 (Tires):

- 1) The size 275 BFG R1 and R1S tires will not be assessed a Modification Factor for tire size (I.e. not the listed +0.3) when calculating the “Adjusted Weight/Power Ratio”.
- 2) The size 245 BFG R1 and R1S tires will be assessed a Modification Factor of +0.3 for tire size (I.e. not the listed +0.7) when calculating the “Adjusted Weight/Power Ratio”.

BMW E46 Models:

Allowance of repair and/or prevention of rear sub-frame connection point failures as noted in the settlement of the class action lawsuit settled 8-10-09 with BMW. The following modifications are permitted without a Modification Factor assessment, and are not intended as performance enhancing modifications:

The material used cannot exceed 0.110” (inches) in thickness. Plates may be trimmed to fit the area being repaired or reinforced. Any vertical offset of the sub-frame or suspension caused by the use of these plates is legal. Holes are allowed for the existing fasteners and for additional holes for rosette welds. Existing cracks or damage may be welded before the repair.

1. One plate (A) not to exceed 206MM x 108mm in size. Two bends are allowed to contour to chassis but must be included in overall size.
2. One plate (B) not to exceed 163mm x 81mm in size. One bend allowed to contour to chassis but must be included in overall size.
3. Two plates (C) not to exceed 134mm x 73mm in size, (one plate per side).
4. Two plates (D) not to exceed 66mm x 42mm in size, (one plate per side).
5. Two plates (E) not to exceed 82mm x 92mm in size, (one plate per side).

Plates (A), (B), (C), and (D), must be placed between the sub-frame and differential carrier and can be attached to the underbody by welding or bonding. Plate (E) can only be used in the trunk area to cover the access hole made to weld the top of the sub-frame connections, and can be attached by welding or bonding.

Chevrolet Corvette C5 & C6:

1) Removal of the B-pillars (and OEM arch) above the window sill lines is permitted if replaced with a NASA-legal full competition racing cage. Any changes to the roof line will result in the Modification Factor assessment listed in the rules above.

2) The OEM driver side floor top layer of fiberglass and balsa wood under the seat may be removed without a Modification Factor assessment for the purpose of gaining head room for the driver. When inspected from the underside, the OEM floor pan must be unchanged, and the OEM metal supports where the seat studs attach must be unaltered.

3) The OEM balsa wood floors may have the wood removed and substitute metal flooring in the same location as the OEM wood floors with an additional Modification Factor of -0.2. It is not permitted to raise or lower the floor from the OEM height compared to the rest of the body/chassis, **without taking the “Non-Production Vehicle” Modification Factor**. If the wood

flooring is left intact, metal plating may be placed over the wood, inside the cockpit, without an additional Modification Factor.

Factory Five Roadster and Backdraft Cobra:

No Modification Factor for FF Challenge “standard front air dam” or exact replica built with different material [on Production status approved vehicles](#).

Ford Mustang and BMW E-36 M3:

"Upper sub-frame connectors" that penetrate and modify the floor pan will be assessed a -0.2 Modification Factor (seen commonly in American Iron Mustangs).

GACTSCC Tires:

Grand Am Continental Tire Sports Car Challenge tires are exempt from the -0.7 Modification Factor for Non-DOT approved tires when calculating the “Adjusted Wt/Hp Ratio” (Does not include “Rolex series” tires). [They will use the tire size Modification Factors for DOT approved tires](#).

Rear Engine Location:

This Modification Factor applies only to vehicles with engines that are behind the rear axle, with model years from 1999 to present, and with the listed Minimum Competition Weight. [Vehicles with rear engine location that are from prior to 1999, or weigh more than 2900 lbs or already take the Modification Factor assessment for Non-Production vehicle are not assessed a Modification Factor for Rear Engine Location.](#)