



## 2005 WORLD CHALLENGE

VEHICLE MANUFACTURER: Cadillac  
YEAR & MODEL: CTS-V

This specifications form was developed by SCCA Pro Racing and will be used by the Series Technical Administrator to establish technical compliance for vehicles competing in the SCCA PRO RACING WORLD CHALLENGE series. Technical Administrator can also use, but is not limited to also using the following items to check compliance: Electronic Parts Catalog (EPC), Technical Information System (TIS), and the FIA/ASN Homologation forms (or equivalent documentation).

The specifications within this form include all modifications that have been approved by SCCA Pro Racing specifically for the vehicle model(s) and year(s) listed on this page. The parts, specifications and assemblies used shall be those for the unmodified stock vehicle, those permitted within the Pro Racing Regulations (PRR) and/or within this VTS. If the stock parts, specifications and/or assemblies exceed the performance potential of those approved within this form, then the parts, specifications and/or assemblies used shall meet those listed within this form.

Refer to SCCA PRR for rules regarding all vehicle specifications not specifically listed within the VTS. Specifications regarding wheels and tires may be found in Article 3 and Appendix A of the PRR. Specifications regarding brakes may be found in Article 3 of the PRR. Appendix A will list what size restrictor to use if a restrictor is required to be run.

When looking for the most current rules, go to [www.world-challenge.com](http://www.world-challenge.com) and look under the "Competitors" section for latest Technical Bulletins, Participant Bulletins, and Appendix A.

This Vehicle Technical Specification sheet is a permissive document. The exact configuration of any modification allowed within this VTS is subject to the approval of the TECHNICAL ADMINISTRATOR.

Note: this form will have measurements in both U.S. Standard and Metric units of measure when practical. U.S. measurements will be in parenthesis.

### 1. GENERAL VEHICLE DESCRIPTION:

Date Issued: 02.21.2005

Revision #: 1

Revision Date: 07.06.2005



# Vehicle Technical Specifications 2005

Vehicle CTS-V/R Class GT

A. Body Type (Sedan, Coupe, Hatchback): Sedan B. Engine Location (front, rear, mid): Front  
 C. Drive Type: Front: \_\_\_\_\_ Rear: X AWD: \_\_\_\_\_ D. Wheelbase: 2881 mm  
 E. Induction Type (Turbo, Super, N.A.): N.A. F. Appendix A Competition Weight: 3200  
 G. Rear Weight Bias Percentage: 50 %

## 2. ENGINE:

2.A.1. OEM Engine Designation: LS2  
 2.A.2. Displacement (Max): 6.026l / 368 cc 2.A.3. Number of Cylinders: 8  
 2.A.4. Rev-Limit: Required: (Y / N) Y 2.A.5. @ RPM 7400 2.A.6. Method: ECU  
 2.A.7. Compression Ratio (Max): 12.0:1 2.A.8. Piston Stroke (Max): 92mm  
 2.A.9. Restrictors – (teams are required to be prepared to install these restrictors):  
 % of Reduction: 30, 35, 40, 45, 50 Hole Diameter (mm): 75.3, 72.6, 69.7, 66.7, 63.6  
 2.A.10. Cylinder Firing Order: 1.8.7.2.6.5.4.3 2.A.11. Direction of Engine Rotation (incl. cams): Clockwise

## B. CYLINDER BLOCK:

Part Number: 12568952 (Order Number: 12568950)

2.B.1. Cylinder Block Material: Cast Aluminum 2.B.2. Cylinder Bore (Max): 102.1mm

## C. CYLINDER HEAD:

Part Number: 12560799 or 12564243 (Order Number: 88958622)

2.C.1. Cylinder Head Material: Cast Aluminum

## D. VALVE SYSTEM:

2.D.1. Number of Valves per Cylinder: 2.D.1.a. Intake: 1 2.D.1.b. Exhaust: 1  
 2.D.2. Valve Head Diameter (Max): 2.D.2.a. Intake: 50.8 mm 2.D.2.b. Exhaust: 39.37 mm

## E. INTAKE PORT DIMENSIONS:

2.E.1. At Inlet Manifold Face (Stock): 2.E.1.a. Height: 82.8 mm 2.E.1.b. Width: 29.2 mm  
 2.E.2. Intake Port Work Allowed (Yes or No): No 2.E.2.a. Depth from Face: N/A

## F. EXHAUST PORT DIMENSIONS:

2.F.1. At Exhaust Manifold Face (Stock): 2.F.1.a. Height: 33.8 mm 2.F.1.b. Width: 41.66 mm  
 2.F.2. Exhaust Port Work Allowed (Yes or No): No 2.F.2.a. Depth from Face: N/A

## G. PISTON & CONNECTING ROD:

2.G.1. Connecting Rod Length (Axis Centerline to Axis Centerline) Stock: 154.94 mm Approved: 155.58 mm  
 2.G.2. Reciprocating Assembly (rods, caps, bolts, piston, rings, pin, clips, bearings) Stock: 1308 g Min: 1190 g  
 2.G.3. Aftermarket Rods Allowed (Yes / No): Yes Aftermarket Pistons Allowed (Yes / No): Yes

H. CAMSHAFT: Part Number: 88958606 OR SCCA Profile#: LS21A

2.H.1. Rocker Arm Ratio: 1.70:1 2.H.2. Valve Actuation (direct action, etc.): Push Rod

Date Issued: 02.21.2005 Revision #: 1 Revision Date: 07.06.2005



# Vehicle Technical Specifications 2005

Vehicle CTS-V/R Class GT

2.H.3. Type of Cam Follower (roller, solid, etc.): Roller / Hydraulic  
2.H.4. Camshaft Base Circle: 37.82 mm 2.H.5. Camshaft Max Lift @ Cam Lobe: 8.509 mm

**I. CRANKSHAFT:** Part Number: Aftermarket Steel crankshaft maintaining stock throw dimensions.

2.I.1. Mass (Stock): 22.45 kg 2.I.2. Mass (Min): 20.41 kg

**J. FLYWHEEL:** 2.J.1. Stock Ring Gear Diameter: 359 mm

**L. INTAKE MANIFOLD:** Part Number: 12589181 (Order Number: 89017648)

2.L.1. Port at Cylinder Head Face (Stock): 2.L.1.a. Height: 82.55 mm 2.L.1.b. Width: 27 mm

2.L.2.a Allow Port Match to Head (Yes/No): Yes 2.L.2.b Depth: 25 mm

2.L.3.a Throttle Body Bore Diameter: 90 mm 2.L.3.b Part Number: 12570790

2.L.4. # of Throttle Bodies: 1 2.L.5. # of Butterflies per Throttle Body: 1

2.L.6. Intake Manifold Material: Nylon 6 2.L.7. Manifold Pieces: 1

2.L.8.a Intermediate Port Matching Allowed (Yes / No): N/A 2.L.8.b Depth from Face: N/A

**M. REQUIRE ENGINE SEALS LOCATION:**

2.M.1. Valve Cover Seal #1: Rearmost bolts in center of valve cover.

2.M.2. Valve Cover Seal #2: Rearmost bolts in center of valve cover.

2.M.3. Front Cover Seal #3: N/A

2.M.4. Oil Pan Seal #4: Left, rear corner bolt and next one on the left-side.

**N. ENGINE MISCELLANEOUS:**

90mm manual Throttle bodies per approval. Submit application to SCCA Pro Racing.

Engine may be relocated rearward a total of 214 mm.

Oil pan and sump KGM-3022R5 may be used.

**3. DRIVETRAIN:**

**A. TRANSMISSION:**

3.A.1. Number of Forward Speeds: 6 3.A.2. Manufacturer: Tremec

3.A.3. Gear Ratios: 3.A.3.a. 1st: 2.50 3.A.3.b. 2nd: 1.59 3.A.3.c. 3rd: 1.21

3.A.3.d. 4th: 1.0 3.A.3.e. 5th: 0.83 3.A.3.f. 6th: 0.77

3.A.4. Gear Shift Pattern / Engagement (synchromesh, dog-ring, etc.): H-pattern / Synchromesh

**C. FINAL DRIVE:** Axle Ratio: 3.90 / 4.10

**D. DRIVETRAIN MISCELLANEOUS:**

Quarter Master assembly containing bell housing, ring gear, clutch, and starter (p/n: 39517790) is permitted.

Mid-Valley adapter plate (p/n STA202-ADCW) is permitted.

Date Issued: 02.21.2005

Revision #: 1

Revision Date: 07.06.2005



# Vehicle Technical Specifications 2005

Vehicle CTS-V/R Class GT

Production Tremec T-56 transmission must be rotated on its side due to clearance issues.

## 4. SUSPENSION:

4.A. Suspension Type (Double A-arm, etc.): 4.A.1. Front: Double A arm 4.A.2. Rear: Multi-link

### 4.B. SUSPENSION MISCELLANEOUS:

Front assembly (p/n: 1902-E1-1000)(L&R) permitted.

Front upper control arm (p/n: 1902-E1-3000) permitted.

Front cradle (p/n: 1902-E1-8000) permitted.

Rear trailing arm (p/n: 1902-F1-4000) permitted.

Rear cradle (p/n: 1902-F2-8000) permitted.

Note: the front and rear cradles are production pieces modified for reduction in ride height.

Stock steering rack may be repositioned forward and up a total of 138.5 mm due to clearance issues.

## 5. CHASSIS:

5.A. See Technical Department for information:

### 5.B. CHASSIS MISCELLANEOUS:

Transmission access panel may be installed in transmission tunnel.

Replica of rear seat platform permitted.

Bolt-in rear X-brace extending behind rear axle may be used.

Transmission tunnel may be production appearing replica.

Rocker bottom pinch flange and Sled Rails may be trimmed and capped.

Rear chassis rails may be raised 101.6 mm.

Fire wall may be moved rearward 78 mm.

## 6. BODY:

6.A.1 Stock Coefficient of Drag (Cd): .354 6.A.2. Total Frontal Area: 2.20m<sup>2</sup>

6.B. Body Overhang (Measured from Axle Centerline): 6.B.1. Front: 876 mm 6.B.2. Rear: 1095 mm

6.C. Stock Body Materials: Steel Body with Non-metallic front and rear fascias

6.D. Maximum Body Width: 1890.6 mm

6.E. Permitted Rear Wing Design (GT class Only): CTS-1D-000

### 6.D. BODY MISCELLANEOUS:

Rear Quarter panels (p/n: CTS-1A-140) (L&R)

Front door assembly (p/n: CTS-1A-110) (L&R)

Rear deck lid (p/n: CTS-1A-150)

Front fascia (p/n: CTS-1A-010)

Front splitter assembly (p/n: CTS-1A-020)

Hood assembly (p/n: CTS-1A-030)

Front fenders (p/n: CTS-1A-100) (L&R)

Rocker panel assembly (p/n: CTS-1A-120) (L&R)

Rear door assembly (p/n: CTS-1A-130) (L&R)

Rear fascia (p/n: CTS-1A-160)

Date Issued: 02.21.2005

Revision #: 1

Revision Date: 07.06.2005