Vehicle Technical Specifications

Vehicle: 2008-2015 Mazda Mx5 2.5L  Class: TC

DRAFT VTS
Approved for Racing

Vehicle Manufacturer: Mazda
Year and Model: 2008 - 2015 Mx5

This draft of the listed vehicle’s VTS is posted with the specifications that we currently have for the vehicle. If a specification is highlighted in green, we are waiting to acquire that information from the manufacturer, or from certified documentation provided by the team(s). If a specification is highlighted in yellow, that specification is under review and may not be set until all blanks in the VTS sheet are completed. The specifications that are listed, and not highlighted, are considered to be a work in progress and may be changed without being posted by technical bulletin. Therefore, competitors may use the specifications listed to begin preparing their vehicles. The missing specifications will be added as they are received.

When a vehicle is in this draft form, it will be permitted to compete in any World Challenge competitions. Once the World Challenge Technical Staff has determined that this specific vehicle has demonstrated reasonable performance in relationship to other cars competing in the series and all specifications have been obtained, then this VTS sheet will be removed from DRAFT status and transformed into a final VTS. From that time forward, all changes to the VTS will be subject to VTS change request approvals.

Competitors needing a specification that is not listed should contact the World Challenge Technical Department to find out when that specification will be available and should not make assumptions as to what these specs might be unless otherwise directed to do so by the World Challenge Technical Department.

WC Vision Technical Department
E-Mail: competition@wcvision.com

This specifications form was developed by SCCA Pro Racing and will be used by the PWC Technical Manager to establish technical compliance for vehicles competing in the Pirelli World Challenge series. The Technical Manager 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 PWC Technical Regulations and/or within this VTS. If the stock parts, specifications and/or assemblies exceed the performance potential of those approved with this form, then the parts, specifications and/or assemblies used shall meet those listed within this form.

Refer to PWC Technical Regulations and Appendix A. for rules regarding all vehicle specifications not specifically listed within the VTS.

The most current rules can be downloaded from the official website: race.world-challenge.com and look for the latest Technical Bulletins, Participant Bulletins, and Appendix A.

The 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 Manager.
## 1. General Vehicle Description

<table>
<thead>
<tr>
<th>Item</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.A. Body Type</td>
<td>2 Door Convertible</td>
</tr>
<tr>
<td>1.B. Engine Location</td>
<td>Front</td>
</tr>
<tr>
<td>1.C. Drive Wheels</td>
<td>Rear</td>
</tr>
<tr>
<td>1.D. Wheelbase</td>
<td>91.7</td>
</tr>
<tr>
<td>1.E. Induction Type</td>
<td>Normal aspiration</td>
</tr>
<tr>
<td>1.F. Competition Weight</td>
<td>See Appendix A</td>
</tr>
<tr>
<td>1.G. Weight Distribution</td>
<td>52/48 %</td>
</tr>
</tbody>
</table>

## 2. Engine

<table>
<thead>
<tr>
<th>Item</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.A.1. OEM Engine Designation</td>
<td>L5</td>
</tr>
<tr>
<td>2.A.2. Maximum Displacement</td>
<td>2489cc</td>
</tr>
<tr>
<td>2.A.3. Number of Cylinders</td>
<td>4</td>
</tr>
<tr>
<td>2.A.4. Rev Limit</td>
<td>See Appendix A</td>
</tr>
<tr>
<td>2.A.5. Rev Limit Method</td>
<td>Fuel cut</td>
</tr>
<tr>
<td>2.A.7. Maximum Piston Stroke</td>
<td>100mm</td>
</tr>
<tr>
<td>2.A.8.a. Percentage Restriction</td>
<td>See Appendix A</td>
</tr>
<tr>
<td>2.A.8.b. Hole Diameter</td>
<td>See Appendix A</td>
</tr>
<tr>
<td>2.A.9. Cylinder Firing Order</td>
<td>1-2-3-4</td>
</tr>
<tr>
<td>2.A.10. Dir. of Engine Rotation</td>
<td>CW</td>
</tr>
</tbody>
</table>

### 2.B. Cylinder Block

<table>
<thead>
<tr>
<th>Item</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.B.1. Part Number</td>
<td>L591-100-300A Mazda Motor Corp.</td>
</tr>
<tr>
<td>2.B.2. Cylinder Block Material</td>
<td>Aluminum</td>
</tr>
<tr>
<td>2.B.3. Maximum Cylinder Bore</td>
<td>89MM</td>
</tr>
</tbody>
</table>

### 2.C. Cylinder Head

<table>
<thead>
<tr>
<th>Item</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.C.1. Part Number</td>
<td>L504-10-090</td>
</tr>
<tr>
<td>2.C.2. Cylinder Head Material</td>
<td>Aluminum</td>
</tr>
</tbody>
</table>

### 2.D. Valve System

<table>
<thead>
<tr>
<th>Item</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.D.1. Number of Valves Per Cylinder</td>
<td>2 for Intake, 2 for Exhaust</td>
</tr>
<tr>
<td>2.D.2. Max Valve Head Diameter</td>
<td>35mm for Intake, 30mm for Exhaust</td>
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</tbody>
</table>

### 2.E. Intake Port Dimensions

<table>
<thead>
<tr>
<th>Item</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>2.E.1. At Intake Manifold Face</td>
<td>1.625 Height, 2.00 Width</td>
</tr>
<tr>
<td>2.E.2. Intake Port Work Allowed</td>
<td>None</td>
</tr>
<tr>
<td>2.E.2.a. Depth From Face</td>
<td>NA</td>
</tr>
</tbody>
</table>

### 2.F. Exhaust Port Dimensions

<table>
<thead>
<tr>
<th>Item</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.F.1. At Exhaust Manifold Face</td>
<td>1.4375 Height, 1.4375 Width</td>
</tr>
<tr>
<td>2.F.2. Exhaust Port Work Allowed</td>
<td>Not allowed</td>
</tr>
<tr>
<td>2.F.2.a. Depth From Face</td>
<td>NA</td>
</tr>
</tbody>
</table>

### 2.G. Piston and Connecting Rod

<table>
<thead>
<tr>
<th>Item</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.G.1. Connecting Rod Length</td>
<td>151.8mm Stock, 151.8mm Approved</td>
</tr>
<tr>
<td>2.G.2. Reciprocating Assembly</td>
<td>986g Stock, 986g Minimum</td>
</tr>
<tr>
<td>2.G.3. Aftermarket Rods Allowed</td>
<td>No</td>
</tr>
<tr>
<td>2.G.4. Aftermarket Pistons Allowed</td>
<td>No</td>
</tr>
</tbody>
</table>

### 2.H. Camshaft

<table>
<thead>
<tr>
<th>Item</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.H.1. Part Number</td>
<td>In – L3G2-12-420 or Exh - L309-12-441A</td>
</tr>
<tr>
<td>2.H.2. SCCA Profile Number</td>
<td>2.H.</td>
</tr>
<tr>
<td>2.H.3. Rocker Arm Ratio</td>
<td>NA</td>
</tr>
<tr>
<td>2.H.4. Valve Actuation</td>
<td>Tappet</td>
</tr>
<tr>
<td>2.H.5. Type of Cam Follower</td>
<td>Solid</td>
</tr>
</tbody>
</table>
2.I. Crankshaft
2.I.1. Part Number: L591-11-300

2.J. Flywheel

2.K. Forced Induction Intake System
2.K.1. Turbocharger Manufacturer and Model: NA
2.K.2. Supercharger Manufacturer and Model: NA
2.K.3. Compressor Inlet Diameter: 2.K.4. Number of Compressors: 
2.K.5. Compressor Pinwheel Inlet OD: 2.K.6. Turbine Pinwheel Inlet OD: 
2.K.7. Maximum Boost Pressure: 
2.K.8.a. Number of Intercoolers: 2.K.8.b. Intercooler Locations: 
2.K.8.c. Intercooler Dimensions: 
2.K.9. Permitted Modifications: 
2.K.10. Required MAP Sensor Location: 
2.K.11. Turbo Compressor Map: 

2.L. Intake Manifold
2.L.1. Part Number: LF9G-13-130B & LFE2-13-100
2.L.3.a. Allow Port Match to Head: no 2.L.3.b. Port Matching Depth: na

2.M. Required Engine Seal Locations
2.M.1. Valve Cover Seal #1: 
2.M.2. Oil Pan Seal #2: 

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2.N. Engine Miscellaneous:

Allowed Engine Parts:
- Rod Bolts (ARP) – part #: 0000-01-5312
- Pistons – part #: 0000-01-5208
- Camshaft, Intake – part #: 0000-01-5305-IN
- Camshaft, Exhaust – part #: 0000-01-5305-EX
- Valve Spring and Retainer Set – part #: 0000-01-5309
- Cylinder Head, Machined – part #: 0000-01-5301
- Engine Short Block – part #: 0000-01-5009-KT
- Cold Air Intake – part #: 0000-06-5150-KT

The compression ratio is 12:1
The Maximum bore inner diameter is 3.5040 – 3.5051 in.
Allow spec MX5 cup header – part #: 0000-06-5407
Aftermarket Piston (old part no): CP-3505L5DEEPVR

Alternate P/S pulley Approved:
Team may fabricate a pulley that will be no bigger in outer diameter than 5.75", which uses a similar serpentine belt as stock. Water pump and alternator pulleys must remain stock.

3. Drivetrain

3.A. Transmission
3.A.1. Number of Forward Speeds: 6

3.A.3. Gear Ratios:
- 1st: 3.815
- 2nd: 2.26
- 3rd: 1.64
- 4th: 1.177
- 5th: 1
- 6th: .787

3.A.5. Gear Engagement: Syncromesh

3.B. All Wheel Drive System
3.B.1. Transfer Case Manufacturer and Model No.: na
3.B.2. Center Differential Type and Manufacturer: na

3.C. Final Drive
3.C.1. Axle Ratio: 4.10

3.D. Drivetrain Miscellaneous

Allow alternate transmission counter lever assembly – Mazda part #: 000-02-5701
4. Suspension

4.B. Suspension Miscellaneous
Alternate Rear Toe Link Approved:
Mazda Part No: 0000-04-5408, Megan Racing Part No: MRS-MZ-1470

Alternate Rear Upright Approved – Must use the following parts only:
Upright - part no: F151-26-11XA Right, F151-26-12XA Left
Hub Flange - part no: F151-26-241A
Wheel Bearing - part no: F151-26-151
Axle Modification - Must use Rx8 outer cv joint with Mx5 Axle and Mx5 inner CV joint.

Alternate Rear Suspension Approved. Front Upper, Rear Upper, and Thrust Arms must be same length as stock. See specifications below and on the VTS Sheet.

Rear Camber Arm
Megan pn: MRS-MZ-1410, variable length

Front Upper Control Arm
Megan Racing pn: MRS-MZ-1420, 11.745°/+/-0.125°

Rear Upper Control Arm
Megan Racing pn: MRS-MZ-1421, 11.425°/+/-0.125°

Lower Thrust Control Arm
Megan Racing pn: MRS-MZ-1480, 14.898°/+/-0.125°

5. Chassis
5.A. See Technical Department for information
5.B. Chassis Miscellaneous

Alternate Brake Approved:
Stop Tech front big brake kit:
Part number: 87.551.4300 (ST-40 calipers, 328 x 20 mm rotors)
Rx8 Front Brake conversion:
Caliper, R - F1Z7-33-98Z, Caliper, L - F1Z7-33-99Z 1, Rotor - F160-33-251A

Alternate ABS Control Unit Approved – Must use Rx8 part only.
Part no: F1Y1-43-7A0

6. Body
6.C. Stock Body Materials:  __Steel/plastic/aluminum___
6.D. Maximum Body Width at Front Wheelhouse:  67.7”
6.E. Maximum Body Width at Rear Wheelhouse:  67.7”
6.F. Permitted Rear Wing Design:  
6.F. Body Miscellaneous:  

Car must be run with a roof. Aftermarket roof is allowed.
Approved Roofs:
Mazda Factory Roof: NH52-V4-630 –XX
Mazdaspeed part number: 0000-07-5901.
CCP Fabrication, part number: MAZ-NCWHITE.

Alternate Battery location from stock:
Battery may be moved to the furthest forward, flat section of the passenger foot well. Battery must be installed per Tech Regulations.

Camshaft Profile

Intake Cam - part # 97102

Seat duration  276.5 at .014"
.050" duration  243.0
Gross valve lift .436"
Net valve lift .422"

Exhaust Cam - part # 97103

Seat duration  252.8 at .014"
.050" duration  213.4
Gross valve lift .373"
Net valve lift .359"

Permitted Cam Tolerances

Camshafts used for this car must meet the specifications above within the following tolerances:

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration at the seat</td>
<td>(From 0.020&quot; lift to 0.030&quot; lift)</td>
<td>+/- 6.5 degrees</td>
</tr>
<tr>
<td>Duration on flank</td>
<td>(From 0.100&quot; lift to 0.100&quot; before maximum lift)</td>
<td>+/- 4.0 degrees</td>
</tr>
<tr>
<td>Duration over nose</td>
<td>(From 0.100&quot; before maximum lift up to maximum lift)</td>
<td>+/- 6.0 degrees</td>
</tr>
<tr>
<td>Maximum Lift</td>
<td>(This tolerance applies to maximum lift only)</td>
<td>+/- 0.005 in (0.127 mm)</td>
</tr>
</tbody>
</table>
Vehicle Technical Specifications

Vehicle: 2008-2015 Mazda Mx5 2.5L  Class: TC

Mazdaspeed Mx5 Roof

Mazdaspeed Mx5 Roof – part number label

CCP Fabrication Roof

CCP Fabrication Roof

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Alternate transmission counter lever assembly – Mazda part #: 000-02-5701

Alternate Mazda Rx8 ABS Controller

Alternate Mazda Rx8 ABS Controller
Vehicle Technical Specifications

Vehicle: 2008-2015 Mazda Mx5 2.5L  Class: TC

Alternate Mazda Rx8 Rear Upright

Alternate Mazda Rx8 Rear Upright

Alternate Mazda Rx8 Rear Hub

Alternate P/S Pulley
Vehicle Technical Specifications

Vehicle: 2008-2015 Mazda Mx5 2.5L  Class: TC

Alternate Rear Upper Front Link
Megan Racing MRS-MZ-1420

Alternate Rear Upper Rear Link
Megan Racing MRS-MZ-1421

Alternate Rear Upper Front Link
Megan Racing MRS-MZ-1470

Alternate Rear Thrust Link
Megan Racing MRS-MZ-1480

Alternate Rear Camber Link
Megan Racing MRS-MZ-1410