

**ASSOCIATION OF
AUTHORISING
BODIES**



RULES & REGULATIONS

2020 EDITION

CLASS 1 – Toyota Yaris



"The Association reserve the right to alter/amend the Rule Book as required, and that the Association has the right to review and amend any Class or Construction Rules at the end of each racing year."

**VALID FROM JANUARY 2020
UNTIL FURTHER NOTICE**

ALL PREVIOUS EDITIONS ARE INVALID

IT IS THE RESPONSIBILITY OF THE DRIVER/CONSTRUCTOR TO ENSURE THAT ALL VEHICLES CONFORM FULLY TO THE REGULATIONS AND RULES CONTAINED WITHIN THIS RULEBOOK

IF THE REGULATIONS AND RULES DO NOT STATE THAT "YOU CAN DO IT" THEN IT MUST BE PRESUMED THAT IT CANNOT BE DONE.

CLASS 1 – Toyota Yaris

**FOR GENERAL BASIC CONSTRUCTION RULES (i.e. Basic requirements for all class of saloon vehicle).
SEE SEPARATE RULE BOOK –SALOONS – GENERAL.**

CLASS SPECIFIC CONSTRUCTION RULES

CLASS 1 – Toyota Yaris

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VEHICLE CONSTRUCTION RULES - CLASS 1.**CLASS SPECIFICATION.**

Must be a Front Wheel Drive Saloon of specified type and manufacture.
 Specified Vehicles – “Right Hand Drive” and “Manual” versions only.
 “Automatic” versions prohibited.
 All Light Van, Dual Purpose (Pick Up and Estate) models of vehicles are prohibited.

Specified vehicle.

Toyota Yaris 998cc VVTi 16V (1SZ-FE) engine 3 or 5 door bodyshell.
 Excluding: 1000cc (1KR-FE) & 1300cc (2SZ-FE) & (2NZ-FE) model variants.
 The Donor car must be of a build date manufactured after 1st January 1999 and before 1st January 2006.
 The chassis-Vin number plate may be retained or removed.

NASA reserves the right to amend the above list of vehicles giving 12 months notice regarding the addition or deletion of vehicles.

VEHICLE CONSTRUCTION RULES – GENERAL.**1. STATEMENT of CONFORMITY.**

Only methods of construction and modifications as listed are permitted. Any further modifications, other than those permitted, are prohibited. Any modifications other than those listed within the Vehicle Construction Rules are specifically excluded.
 i.e. If the rules do not “say” that a modification is permitted then it is not allowed.

1.1. ENGINE and TRANSMISSION/GEARBOX

- 1.1 a). Standard production original manual transmission engine and gearbox components and certain NASA Scrutineers Committee permitted replacement engine/gearbox components only must be used and be correctly fitted.
- b). The modification or alteration or interchanging of any unspecified part or component of the specified vehicle manufacturer’s engine & gearbox is prohibited. This includes prohibition of using any standard production parts to alter its working design.
- c). All engine and gearbox mountings must be retained in their original positions, be of good order and be appropriate to that vehicle. Standard production originals and NASA Scrutineers Committee permitted replacement engine/gearbox/axle “mountings” only must be used. Modification to and or of such mountings prohibited. The conversion of “flexible type” mountings to “solid type” mountings prohibited.

1.2 Engine & Bodyshell combinations.

Toyota Yaris 998cc VVTi 16V (1SZ-FE) engine 3 or 5 door bodyshells.
 Excluding: 1000cc (1KR-FE) & 1300cc (2SZ-FE) & (2NZ-FE) model variants.
Note.
 Any Toyota Yaris 998cc 16valve manual transmission engine & gearbox may be used in any 1999 to 2005 year of Toyota Yaris 998cc 16v 3 or 5 door bodyshell.
 The Donor car must be of a build date manufactured after 1st January 1999 and before 1st January 2006.
 The use of a complete post 1st January 2006 engine and or components or parts from a post 1st January 2006 engine is prohibited.

1.3 Crankshaft Stroke.

The crankshaft stroke must remain as fitted to provide the original engine cubic capacity.
 The crankshaft journals may be reground and or polished. The maximum permitted regrind is restricted to that for which standard replacement oversize bearings are readily available.
Note.
 The use of a post 1st January 2006 engine crankshaft is prohibited.

1.4 Cylinder Bore

Standard size pistons and liners only are permitted.
 Standard size replacement pistons only are permitted.
Note.
 It is not permitted to overbore and or fit oversize standard replacement pistons and/or liners.

1.5 Balancing.

After market balancing or reconditioning balancing and lightening /polishing of any components is not permitted.

1.6 Water pump. – As Standard Production.**1.7 Camshaft.**

Cam Lift See “Check Sheet”.

Cam/Valve Timing See “Check Sheet”.

1.8 Ignition System.

- a). The standard production Distributor and/or Distributor less (DIS) system / Electronic Control Unit (ECU) shall be correct for the engine fitted and must be retained in its entirety and remain in its original standard production form. It must be complete with the correct engine system sensors. E.g. Engine RPM & TDC etc.

The adaptation of any other distributors Distributor less (DIS) system or ECU, or sensors where they are fitted to other vehicle makes and/or models is prohibited.

Modification including disconnection and or removal and or sealing of any part of the vacuum advance system to prevent or enhance operation prohibited.

- b). The standard production Distributor and/or Distributor less (DIS) system / Electronic Control Unit (ECU) and associated sensors and Diagnostic “reader”/“interrogator” “plug in” connections must remain in their original standard production locations and must work. i.e. Be capable of operating when connected.
- c). The ECU shall be marked with identification showing the vehicle club prefix and vehicle number.
- d). The placing of or use of devices, whether within the wiring system or elsewhere, to provide false information to the ECU or any part of the fuel delivery control system is prohibited.
- e). For ECU's that are fitted with a vehicle immobiliser facility, the particular ECU immobiliser function may be overridden or disconnected, provided no other function of the ECU is affected. ECU rewriting, remapping, chipping and or performance enhancing modification are not permitted. NASA shall not be held responsible for the performance or damage of the above unit.
- f). Ignition Leads & Spark Plugs – Free.
- g). Standard production coil must be retained.

Note.

NASA reserves the right to:

- i. Remove and or retain the ECU fitted to the competitor's vehicle and retain that unit for inspection.
- ii. Remove the ECU and substitute it for NASA supplied unit for a set time period. e.g. the duration of a race meeting or a stated number of races.
- iii. Remove the ECU and substitute it for a unit as used by another competitor.
- iv. Place a “Scrutineers Seal” onto the ECU for a specified period of time chosen by the Chief Scrutineer.
- iv. Connect a “reader” to read and or check ECU settings.
- vi. NASA shall not be held responsible for the performance or damage of the above unit.

1.9 Cylinder Head.

The cylinder head **MUST** be the correct type for the engine concerned.

- i. Reconditioning of the cylinder head and its associated components must be carried out in accordance with the original manufacturer's recommendations and accepted “reconditioning and repair” practice. Excessive removal of metal or reconditioning and or chamber radiusing that is carried out to the extreme will result in the components etc; being deemed as outside the Class regulations and thus illegal.
- ii. Cylinder Head Thickness - See “Check Sheet”.
- iii. Cleaning:
Cleaning up or smoothing by removing metal or polishing of the original standard production finish is not permitted. Chemical and or “Ultrasonic” clean only permitted. “Sodium Bicarbonate (Soda Blasting)” cleaning permitted.

Inlet & Exhaust Ports

The inlet port and exhaust port surfaces, within the cylinder head, must remain as manufacturers original standard production finish and dimensions.

Note.

Replacement valve seats are not permitted.

Valve seat and valve head must remain as original manufacture. Reconditioning and or alterations from standard production finish are prohibited.

Valve Head Diameter - See Check Sheet.

Valve Guides

A standard production OE reconditioned and or replacement type only is allowed.

‘K-lined’ valve guides not permitted.

Cylinder Head Gasket.

Standard replacement types only permitted.

Cylinder Head Cam Cover.

Standard replacement types only permitted.

The external surface may be cleaned and polished and or have free decoration by painting or powder coating.

1.10 Air Box & Filter Box & Air Filter/Air Cleaner & Air Entry Ductwork.

The standard production air filter/cleaner “manual” model casing only is permitted.

The air filter/cleaner casing must be retained in its standard production form and fitted in its standard production location.

Modification of air filter/cleaner casing prohibited.

Note.

The use of an “Automatic” model casing and associated components is prohibited.

Air Entry Pipe/Ductwork.

The air intake/inlet pipe/ducts from the casing stub to its open air entry orifices must be retained in its standard production form and location.

A “mesh” or “lattice” may be fitted at or near the open air entry orifices minimise track debris entry.

Air Filter/Cleaner element type.

Free.

However an air filter must be fitted and secured within the standard production air filter casing in the standard production location.

All the air must enter the air filter/cleaner casing via the standard production entry orifice only.

1.11 Engine Fuel System

The standard production engine fuel system shall be retained and remain in its standard production form.

Fuel Injection Unit/Throttle Body.

The standard production Fuel Injection Unit/Injector/Throttle body must be retained in its standard production form. I.e. If a single-point fuel injection system is fitted, then it must be retained.

Modifications to Fuel Injection Unit/Injector/Throttle body prohibited.

The adaptation of any other systems, where they are fitted to other vehicle makes and/or models, including fitting of non-standard injector is prohibited.

The Fuel Injection Unit/Throttle body must be fitted with a throttle return spring of sufficient size, strength and movement such that the throttle closes once the 'accelerator' or 'throttle' pedal is released.

Fuel delivery control.

The standard production single "accelerator" or "Throttle" pedal, including "Accelerator/throttle cable" must be retained to control the operation of the fuel delivery system to the engine.

Note.

The accelerator cable/connection system must be sufficiently routed, shielded from any heat source, and lubricated to minimise the risk of seizure.

Fuel Sensors.

Fuel Sensors shall be retained and remain in their standard production form.

Inlet Manifold.

The standard production inlet manifold shall be retained and remain in its standard production form, complete with standard production water hoses, sensors and connecting electrical wiring. The disconnecting or by-passing of the same is prohibited.

Fuel Pump & Regulator.

The original vehicle manufacturers fitted fuel pump may be retained or removed.

Toyota Yaris fuel regulator only is permitted

The original Toyota Yaris fuel pump may be retained or removed.

Permitted alternative pump to original is Audi A3 1.6l pump.

Also the replacement fuel pump – Sytec FP604-15 (5 Bar).

Adjustable pressure type prohibited.

Carbon/Charcoal Canister.

The original vehicle manufacturers fitted "Evaporative carbon/charcoal canister" may be retained or removed.

If removed remaining hose connections must be blanked off with metal.

1.12 Engine Oil System.

The standard production engine oil system shall be retained and remain in its standard production form with the exception of:

- a). The oil pick up pipe may be repositioned and/or modified to function in the event of oil surge.
- b). The fitting of a sump oil baffle plate or plates permitted to minimise oil surge.
- c). Oil breather catch tank permitted.
- d). The fitting of an oil windage tray and or crankshaft scraper prohibited.

1.13 Component Sealing.

The engine must have, available at all times, provision for the fitting of at least one readily accessible scrutineer's wire seal/tag, such that the fitting of the wire seal/tag prevents access to internal engine components.

A minimum of two adjacent engine cylinder head retaining studs or bolts must have a single 1.2mm (1/16") diameter hole pre-drilled in each of them.

- i. Where the method of cylinder head retention is by means of stud and locking nut the hole must be located above a cylinder head retaining locknut but below the top surface of the stud. (See Fig 1).
- ii. Where the method of cylinder head retention is by means of a bolt the hole must be located through two adjacent edges of the hexagon head of the bolt.
- iii. Where cylinder head retaining studs and bolts are inaccessible, then a single 2mm (1/16") diameter hole must be pre-drilled in two accessible parts or areas of the engine.

The engine cylinder head, cam-cover must have, available at all times, provision for the fitting of at least one readily accessible scrutineer's wire seal/tag, such that the fitting of the wire seal/tag prevents access to internal engine components.

A minimum of two adjacent bolts must have a single 1.2mm (1/16") diameter hole pre-drilled in each of them.

1.14 Transmission/gearbox.

a). The standard production transmission/gearbox, drive-shafts, drive shaft vibration dampers and wheel hubs shall be retained in their standard production location and shall remain in their standard production form.

b). Standard production originals and NASA Scrutineers Committee permitted replacement transmission/gearbox drive-shaft and wheel hub components only must be used.

1.15 Gearbox/Transmission.

The transmission or gearbox must remain as per the manufacturer's original specification, complete with all gears including reverse gear and speedometer drives retained.

The 'Clutch' foot pedal assembly must be of standard production materials.

a). Gear Selector mechanism.

The standard production gear lever and gear selector system must be retained to control the operation of the transmission system "gear change" mechanism.

Steering wheel mounted or operated gear change devices are prohibited.

"Quick Shift" gear lever or gear selector devices are prohibited.

- b). Gear Ratios.
See "Check Sheet".
- c). Differential.
The differential must be free revolving at all times.
- d). Differential Turning Torque.
See "Check Sheet".
- e). Crownwheel & Pinion Ratio.
As listed on the NASA Check Sheet.
Interchanging/Swapping of differential CWP ratios between gearboxes prohibited.
The correct differential CWP and ratio must be fitted in the correct gearbox.
- f). Constant Velocity (C.V.) Joints.
The original standard production C.V. joints and flanges must be retained.
- g). Oil Cooler - Transmission/gearbox.
Where a transmission/gearbox oil cooler is fitted as a standard production item it must be retained.
The fitting of a non-standard production or aftermarket type or fitting a cooler where one was not originally fitted is prohibited.

Junior drivers only.

The gear stick/lever may be extended rearwards from standard production to suit the stature and arm reach of a Junior Driver only.

Note.

Where a vehicle is to be driven by an adult competitor, any extensions fitted for a Junior competitor must be removed.

- 1.16 Transmission Location.
The transmission must be located such that it is connected to the engine as per original manufacturer's specification.
- 1.17 Clutch.
Standard production original and replacement clutch cover & plate only permitted.
The clutch cover plate may be balanced to the original manufacturer's standard only.
- 1.18 Engine Stabilisers.
The standard production engine stabilisers shall be retained in their standard production location and shall remain in their standard production form.

2 CHASSIS BODYSHELL

- 2.1 The bodyshell must be complete in its ENTIRETY, including all inner and outer wings, bonnet/engine cover, luggage compartment lid (boot/tailgate), doors, door pockets, rear seat bulkhead & backrest panel, rear inner wheel arches, rear seat pan, rear parcel shelf, boot floor, battery box/tray, rear valance and seams fitted.
Note.
 - i). Replacement panels.
Standard production or NASA permitted proprietary manufactured replacement body panels only to be used
The removal of any vehicle panel including engine cover/bonnet/luggage compartment lid/boot lid and replacement of the same with non-proprietary replacement metal panels is prohibited.
 - ii). Reinforcement of panels.
Reinforcement of panels is prohibited. Foam filling of panels is prohibited.
 - iii). Removal of bodyshell panels (Part of) and fixings.
Nil.
Tailgate hinges to be retained.
Removal of components or fixings on the body shell or its mechanicals is not permitted nor is the modification / relocation of same.
- 2.2 Vehicle Size & Dimensions – Restricted.
 - i. Vehicle Wheelbase – See Check Sheet.
 - ii. Vehicle Track. – See Check Sheet.
- 2.3 Rear passenger Compartment Doors.
The rear passenger's compartment doors (Nearside and offside) and tailgate must remain as original.
Removal of door tops (Window Frames) and or "skinning" prohibited.
- 2.4 Bonnet.
Removal or "skinning" of strengthening braces/ribs prohibited.
Bonnet hinges may be retained or removed.
- 2.5 Bumpers.
The original standard production front and rear bumpers must be retained complete with metal backing plate and remain in the standard production location. Non standard or aftermarket front and/or rear bumpers prohibited.
The original bumper fixing brackets/tags may be retained or removed.
It is permitted to fit 2 replacement and or additional bumper support brackets, constructed of maximum of 25mm steel flat, 3mm thickness. Each with 8mm bolt fixings.
Note.
Failure to ensure that the bumper remains fitted during racing is a Black Flag (Race Disqualification) offence.
- 2.6 Aerofolds/spoilers - Restricted.
Prohibited.
- 2.7 Towing Eye.
The original standard production towing eye must be retained.

3. WINDSCREEN / GLASS - As Saloons General.**4 STEERING**

- 4.1 The steering system from the steering wheel to the front wheels must remain as originally fitted to the vehicle make and model by the original vehicle manufacturer.

Junior drivers only.

The location of the steering wheel may be extended rearwards from standard production to suit the stature and arm reach of a Junior Driver only.

Note.

The steering wheel must be no further forward than standard production.

Where a vehicle is to be driven by an adult competitor, any extensions fitted for a Junior competitor must be removed.

- 4.2 Steering Column – Restricted.

The steering column must be as standard production and of correct standard production material.

It is not permitted to shorten nor lengthen the original standard production steering column.

The standard production column mounting bracket may be retained or removed.

If bracket retained - The original bracket must be fitted with padding for protection of driver legs.

If bracket removed - The column must be mounted from the front roll cage cross bar. The column must be mounted such that it remains at the standard production height and location.

Note.

The steering wheel height/angle adjustment bracket/lever must be securely fixed in its chosen height/angle location by welding or secondary fastening.

Junior drivers only.

The location of the steering column may be amended from standard production to suit the stature and arm reach of a Junior Driver only.

Note.

Where a vehicle is to be driven by an adult competitor, any amendments carried out for a Junior competitor must be removed.

- 4.3 Power Steering.

The standard production power steering system i.e. rack and associated parts may be retained or removed and replaced with a non-power steering system.

If removed the steering rack must not be replaced with a “quick” rack.

Steering column mounted power steering units must be fitted with padding for protection of driver legs.

For a non power steering model the replacement with a power steering rack is not permitted.

5 SAFETY HARNESS - As Saloons General.**6 SEAT - As Saloons General.****7 FIRE EXTINGUISHER - As Saloons General.****8 IDENTIFICATION - As Saloons General.****9 ELECTRICAL / INSTRUMENTS**

- 9.1 Wiring Harness & Charging system.

The standard production battery charging system including alternator must be retained.

- 9.2 Instrumentation and Gauges

The speedometer and associated speedometer cable up to the external gearbox connection point may be retained or removed.

The use of an engine/fuel system “Rev limiter” and/or gear “Shift light” system prohibited.

- 9.3 Battery type – Restricted.

A single 12 Volt electrical battery of a maximum dimension size that is equal or similar to the standard production item only must be used. Electrical capacity free.

10 FUEL

- 10.1 Fuel Pump.

The original fuel pump may be retained or removed. See Rule 1.11 for permitted alternative pump.

- 10.2 Fuel Regulator.

Original Manufacturer Fuel-Regulator only is permitted.

11 COOLING SYSTEMS

- 11.1 The standard production cooling system shall be correct for the engine fitted, be in good working order and must be retained in its entirety and remain in its original standard production form.

- 11.2 Radiator - Restricted.

The water-cooling system radiator must remain in the original standard production location and position, and be as originally fitted to the vehicle make and model, by the original vehicle manufacturer.

Standard production replacement radiator only permitted.

- 11.3 Secondary Expansion Tank.
A secondary water-cooling system expansion tank may be fitted. Maximum capacity 1 Litre.
- 11.4 Water pipes/Hoses.
The standard production water pipes/hoses may be retained or replaced with equal pipes/hoses. Water pipes/hoses must be of metal or proprietary flexible hose. Silicone hoses permitted.
- 11.5 Oil Cooler/radiator type – restricted.
Engine oil cooler/radiator prohibited.
Oil/water fluid to fluid cooler/heat exchanger prohibited.
- 12 BRAKES**
- 12.1 Brake Hoses/pipes – As Saloons General.
For all components other than brake hoses/pipes, the standard production braking system must be retained, be correctly installed/fitted and be in good working order.
Standard production original and replacement brakes and brake components only permitted.
The 'Brake' foot pedal assembly must be of standard production materials.
Brakes may be subject to random spot checks of foot pedal operation whilst on the starting line.
Note.
i. The braking system must be as listed in the T.S.D. Manual for the vehicle used. Where a vehicle is listed as having "drum" brakes, then it is not permitted to fit "disc" brakes and vice-versa.
ii. The rear brake compensator may be removed.
iii. The practice of "Thinning" or lightening brake discs or drums or other braking components by "Thinning" and or "Diameter reduction" and or "Grooving", "Slotting" or "Drilling" and or other machining is prohibited.
iv. Non-standard replacement after market brake drums prohibited.
- 12.2 Handbrake.
The original vehicle handbrake and or parking brake, including the cable and its associated components must be retained. The handbrake/parking brake components must remain as original manufacture and operate the rear wheels braking system only.
It must work sufficiently to prevent the vehicle from rolling. i.e. pushed or rocked by the inspecting scrutineer.
The conversion of a cable system to hydraulic prohibited.
- 13 WHEELS**
- 13.1 Wheels – Restricted.
i. The wheels must be standard production or NASA permitted proprietary replacement wheel of a maximum of 5.5" (5.5J) width. Alloy wheels permitted. It is permitted to mix types (Steel/Alloy) of wheels on a vehicle.
ii. The diameter of the wheel must be as standard production - 13" or 14" diameter.
iii. All axles/hubs on the vehicle must be fitted with wheels that are of the same diameter. The use of different wheel diameter sizes on the offside and nearside and or the front and rear hubs/axles of the vehicle are prohibited.
iv. Offset/Inset is restricted. The wheel rim must not protrude more than 15mm beyond the original wheel arch.
v. The use of wheel adaptors and or combined adaptor and spacer to fit wheels of a different PCD from standard is not permitted.
iv. "Beadlock" and/or Beadlock type wheels are prohibited.
- 13.2 Wheel Spacers – Restricted.
Thickness Size 3mm but on standard production manufacturer steel wheels only.
Fitting of spacers in conjunction with alloy wheels prohibited.
- 14 TYRES**
- 14.1 Tyre Size - Restricted.
155/70 x 13.
155/80 x 13.
165/65 x 14.
175/65 x 14.
- 15 EXHAUSTS**
- 15.1 Exhaust System – Restricted.
The standard production original exhaust manifold and system must be retained in their entirety and remain in their original standard production location/position and form.
Note.
a) "Single" (One) or "dual" (Two) silencer box replacement exhaust systems permitted.
b). The fitting and/or use of any non standard production material or covering or coating or device that controls exhaust temperatures or affects exhaust scavenging is prohibited.
c). Exhaust mounting rubbers may be modified to retain vehicle exhaust system.
- 15.2 Lambda Sensor.
The Exhaust Lambda (Oxygen) Sensors shall be retained in their standard production location and remain in their standard production form.
- 15.3 Catalytic Converters
Catalytic Converters may be retained or removed. If removed the space remaining in the exhaust system pipe-work, following removal of the catalytic converter must be filled in with a piece of exhaust pipe that is of round circular section of a diameter that is the same as or not greater than the remaining standard production exhaust pipe-work.

Note.

The use of a proprietary replacement system from the exhaust manifold connection through to the rear incorporating the standard silencer but without a catalytic converter is permitted. Such a system must match the standard production exhaust system in pipe internal diameter and shape/profile including twists and turns.

- 15.4 The exhaust system must not protrude beyond the vehicle bodyline. The rear tailpipe may be shortened / cut, at any point after the standard production rearmost support bracket, to prevent it protruding beyond the vehicle bodyline. Shortening point is from 25mm after rear silencer box.

16 SAFETY SHIELDS

- 16.1 Sump Guard.
Sump Guard prohibited.

17 SUSPENSION

- 17.1 Suspension type is restricted.
The original manufacturer's standard production suspension system must be retained.
"Concentric Strut Top" mountings prohibited.

Note.

Front suspension sub-frame and components including anti-roll bar must remain as standard production.
Rear beam axle and trailing arm assembly/components must remain as standard production.

- 17.2 Wheel Camber & Wheel Castor.
It is not permitted to alter the camber / geometry of the suspension.
See Check Sheet.

Note.

Slight deviation from standard as a result of race track conditions is acceptable.
Excessive deviation of the camber angle from standard prohibited.

Wheel Alignment (Toe in/out). – Restricted.

Slight deviation from standard as a result of race track conditions is acceptable.
Excessive deviation from standard prohibited.

- 17.3 Front and Rear Suspension Springs – Restricted.
Standard production original and standard replacement suspension springs only are permitted.
It is permitted to shorten the permitted suspension springs to achieve an appropriate ride height following removal of interior trim – See rule 17.6.
"Concentric Strut Top" mountings prohibited.

- 17.4 Suspension Dampers – Restricted.
Standard production original and standard replacement front and rear dampers that are of the oil and/or gas filled type only are permitted.
Standard production replacement units as manufactured by: "KYB – Excel/Ultra"; Monroe – Original/Reflex" permitted.
Bilstein', 'Spax' or Gmax or similar equivalent and or equal type units prohibited.

- 17.5 Strut Brace – Restricted.
A proprietary manufactured "Strut Brace" may be fitted transversely between the engine compartment suspension top turret housings.

- 17.6 Vehicle ride height.
Any car where the ride height is felt to be high or to low to enhance the cars performance will be ordered and required to alter its ride height in respect of safety. Failure to comply will result in disqualification and disciplinary action.

18 PROTECTION

- 18.1 Rear Protection – Restricted.
Rear protection prohibited.

- 18.2 Distributor Protection – Restricted.
Distributor protection prohibited.

19 BALLAST – All Vehicles

- 19.1 The fitting of and or use of ballast is prohibited.
Note.
The use of over large or inappropriate components or structures may be deemed as ballast and prohibited.

20 VEHICLE CHECK SHEETS – CLASS 1.**All VEHICLES.**

NASA reserves the right to designate the information reference source and the method of component checking.

Note.

The 'Vehicle Check Sheet' data and other designated information source will be used in conjunction with the particular vehicle Palgrave / Glasses Guide Technical Services Data Sheet as a reference when checking the eligibility and legality of the vehicle and or any of its components.

Components used must be NASA Scrutineers Committee permitted "Standard production" or "Standard production replacement" items.

Components specifically manufactured for and or fitted to "Rally", "Homologation" "Motorsport", and "Competition" including low volume/number (e.g. less than 5,000) "Limited edition" and or "Special" type models or variants of vehicle by the original vehicle manufacturer or manufacturer appointed organisation or company are prohibited.

The replacing of any steel component with a steel or non-steel lightweight material component is prohibited.

In the event of any doubt a Scrutineer must be contacted for clarification before using the component concerned.

In order that an engine, engine ancillaries, and gearbox may be checked to ensure standard components have been used, given below are a set of dimensions and details.

All dimensions given, either maximum or minimum, include tolerances to cover all manufacturing deviations.

Any standard component checked will be within the dimensions given, hence any deviation at all above a maximum or below a minimum shows an ILLEGAL COMPONENT.

As all dimensions given include a tolerance for manufacturing deviations, where an engine is checked and found to have 10% of dimensions, to the absolute limit given, this unit will be deemed ILLEGAL.

The suspension dimensions have been given so that if it is felt a vehicle may be outside variations through normal wear and tear, a check may be carried out to ensure standard components have been used and correctly fitted.

DIMENSIONS AND DETAILS ARE GIVEN IN ORDER OF AN ENGINE STRIP and or VEHICLE CHECK.

SPECIFIED VEHICLES.**VEHICLE CHECK SHEET CLASS 1 - TOYOTA YARIS 998cc 16V.**

THE PURPOSE OF THE INFORMATION GIVEN IS ONLY TO CHECK THE LEGALITY OF THE VEHICLE, ENGINE, ENGINE ANCILLARIES, AND GEARBOX.

ENGINE: 1SZ-FE.

CYLINDER HEAD

Head Thickness Minimum = 112.5mm.

VALVE LIFT & VALVE TIMING

The following valve lift & valve timing combinations only are permitted. without all valve operating components.

VALVE TIMING

VVT – As Standard Production.

VALVE GUIDES

A standard production OE or NASA permitted reconditioned and or replacement type only is permitted.

VALVE SPRINGS.

Valve Spring Free Length = 55.4mm.

VALVE HEAD DIAMETER.

Inlet valve head diameter (Max) = 26mm.

Exhaust valve head diameter (Max) = 22.6mm.

CAMSHAFT

A standard production OE replacement camshaft only is permitted. The camshaft must remain in its original standard production form and be complete with identifying rings and or markings.

The production or adaptation or modification of a camshaft to provide the listed valve timing and/or valve lift, but non standard timing and/or valve lift at regular degrees of rotation is prohibited.

Camshaft VVT Controller & System must be as standard production.

CAM HEIGHT

Maximum Inlet =... 44.43mm.

Maximum Exhaust = 44.06mm.

PISTONS

Pistons to be as standard production original and replacement complete with identification marks.

Bore = 69mm.

Piston Diameter = 68.96mm.

No of Piston rings = 3.

The omission of any standard production piston ring is prohibited.
 Piston Crown must remain as standard complete with 'Fitment Dot'.
 Piston must be correct for 1999 to 2006 engine.
 Bore = 71/71.030mm.
 Piston Diameter = 70.98mm.
 No of Piston rings = 3.
 Piston skirts must be not be modified or shortened.

CRANKSHAFT Crankshaft Stroke = 66.70mm.

FUEL INJECTORS.

Fuel Injection Multiple Point = ECCS.
 Injectors must be standard and correct for engine.
 Injectors from other models and or vehicles prohibited.

REV LIMIT. "Rev Limiters" must operate at standard production rpm maximum = **6750** rpm.

AIR INTAKE DUCTS.

Check for holes drilled and slits cut into air box & duct air intake system.

FLYWHEEL AND CLUTCH.

The starter ring gear must be the correct type for the flywheel used.
 Standard production original and replacement clutch only permitted

MAIN BEARINGS.

Standard production original and replacement types for the particular engine block used only permitted.

GEARING FULL STRIP CHECK.

During a full strip, given below are the numbers of teeth in gearbox.

5 speed gearbox only permitted.

C551 - 5 Speed

	Input gear	Output gear
1st	3.545:1	
2nd	1.913:1	
3rd	1.310:1	
4th	1.027:1	
5th	0.850:1	
Rev	3.214:1	
Final Drive Ratio	4.294:1	

Note

The correct differential must be fitted in the correct gearbox.
 Interchanging of differentials prohibited.
 Use of other differentials including 3.25:1. Prohibited.

DIFFERENTIAL TURNING TORQUE

The differential must have a turning torque of a maximum of 3 lbf/ft (36 lbf/in) (4 Nm) at all times, when measured at the wheel hub. i.e. When the transmission is set to neutral and the nearside wheel and tyre raised off the ground whilst the offside wheel and tyre assembly remains on the ground, and vice-versa, then when a torque wrench is applied onto the wheel hub nut the maximum turning torque of the differential and driveshaft assembly must not exceed the stated maximum regardless of the temperature of the unit.

BRAKES

Front Brake Disc - Vented:- Standard production diameter = 235mm.
 Front Brake Disc - Vented:- Standard production thickness = 18.0mm Maximum. 16.0mm Minimum.

Rear Brake Drum - Standard production diameter = 200mm minimum. 201mm Maximum.

SUSPENSION.

Front Wheel Camber = -0° 35' -/+45' Max.
 Rear Wheel Camber = -1° 00' -/+ 45' Max.

WHEELBASE.

2370mm (93.3").

WHEELS

Check correct wheels fitted.
 Diameter = 13" or 14".
 Width = Size 13" x 5.5" (5.5J) maximum.
 Size 14" x 5.5" (5.5J) maximum.

TYRES

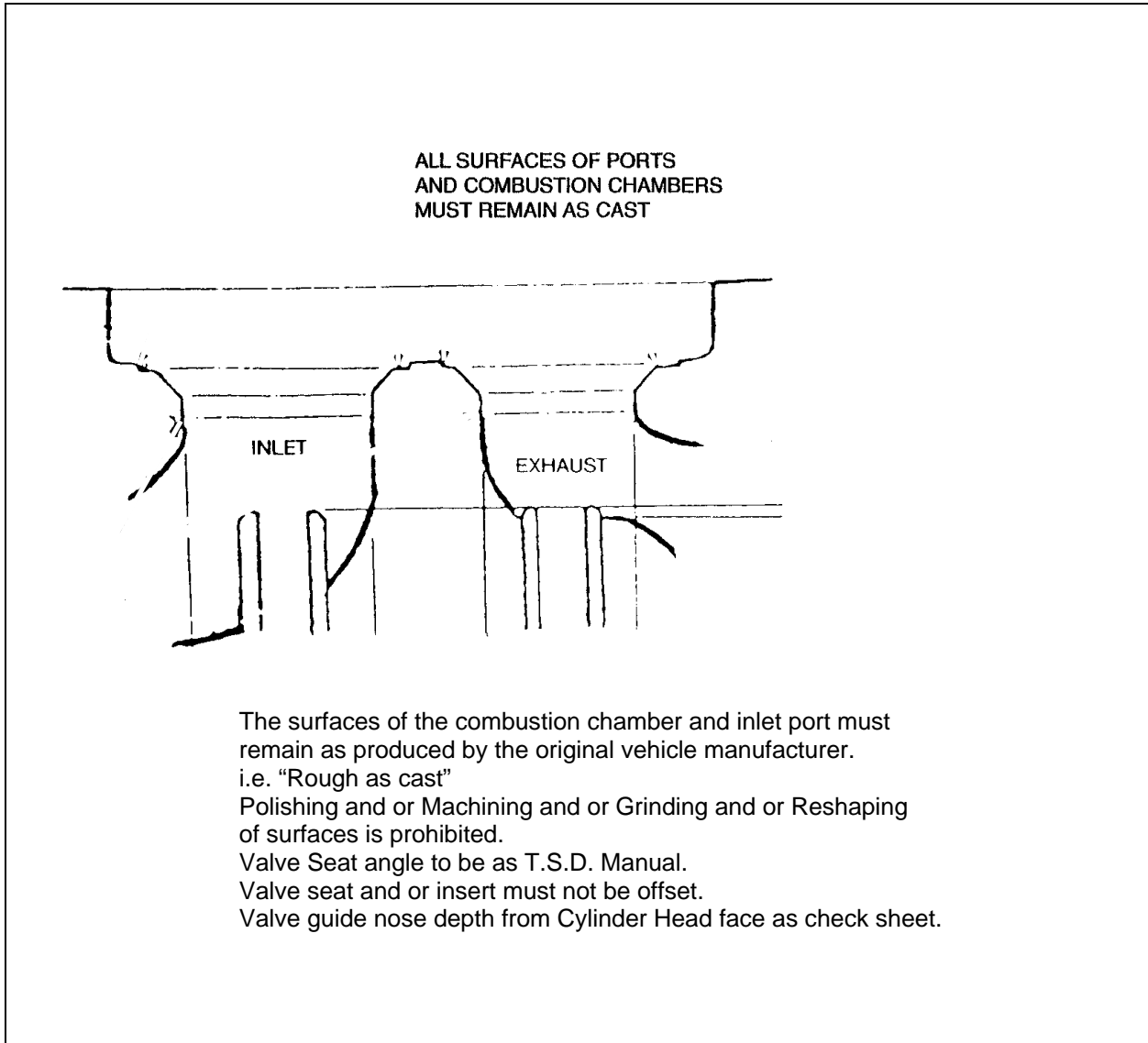
Check correct tyres fitted.
 Tyre size
 155/70 x 13. 165/65 x 14.

155/80 x 13. 175/65 x 14.

See T.S.D Manual Sheet for other measurements.

DRAWINGS.

DRAWING No. 1 CYLINDER HEAD INLET & EXHAUST PORTS.



FIGURES

FIGURE 1a – ENGINE SEALING – As Fig 12a – Saloons General.

FIGURE 1b – ENGINE SEALING - As Fig 12b – Saloons General.

The construction rules in this book are intended for use by Autograss cars taking part in Autograss events as defined by the NATIONAL AUTOGRASS SPORT ASSOCIATION on a natural surface and are not necessarily considered safe for other forms of motor sport.

Drivers are advised that if they intend using their cars at events, other than events as defined by the NATIONAL AUTOGRASS SPORT ASSOCIATION They should ensure that their cars comply with the organiser's construction rules.

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