

 **FORMULA**  
**VEE**®





# FORMULA VEE STARTERS BOOKLET

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1	Craig Ryan	January 1999
2	Joe Close	March 2004
3	Trevor Gray	December 2007
4	Ivan Casey	January 2013
5	Stephen Morrin	December 2017
6	Stephen Morrin	January 2021

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For enquiries, please contact:

[info@formulavee](mailto:info@formulavee)

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## 1.0 Introduction

Welcome to Formula VEE. This information pack is aimed at newcomers to Formula VEE and the sport of Formula VEE motor racing. We hope it will be helpful to those interested in both the social and competitive sides of the association.

We have tried to include as much useful information as possible in order for the reader to determine if Formula VEE is the class to which they would feel best suited. As an aside, the main purpose of Formula VEE is to provide a low-cost form of singleseater Motor Racing. It has been described as 'the biggest, most affordable, most competitive, singleseater racing formula in Ireland'. It has also proved to be a feeder class for drivers moving from karts on to higher singleseater classes. So, if you want to watch the budget, and still experience the highs and thrills of racing at speeds of up to 120mph, then read on!

New drivers should also refer to the General Information section which includes a 'Getting Started' sub-section for newcomers to the sport and what they need to do to become involved in Formula VEE racing.

### 1.1 Formula VEE Background

Formula VEE was established in Ireland in the mid 1970's to provide a low cost form of singleseater racing. Over 40 years later Formula VEE has remained within reach of the average person and boasts the healthiest grids and most competitive racing in Ireland. VEE's can now boast the highest popularity with 20-30 drivers regularly competing.

The Formula VEE National Championship consists of races in Ireland (Mondello National and Mondello International) and Northern Ireland (Kirkistown and Bishopscourt). In addition to the National Championship a second championship was also created to cater for the seasoned fun racer (B championship) as well as one for the novice driver (C championship).

There are approximately 11 championship rounds per year, typically held over 8 weekends, with the best 9 results counting towards your championship total. Each race meeting usually consists of qualifying and one race (with two races taking place on a double header weekend). For race meetings with a large number of entries there is a separate race for fun drivers and novices (B & C points will be scored in this race) in the morning, with a race for all drivers (National points to be awarded in this race) in the afternoon. Points are awarded to drivers according to their placing. These points are used to determine championship rankings throughout the season.

On occasion a non-championship Formula VEE Festival is held in Mondello in July with heats, semi-finals, and a final. This is the largest race meeting held at Mondello Park and the association teams up with a very deserving charity to raise much needed funds as well as having a great weekend of racing.

## 2.0 General Information

### 2.1 Getting Started

Newcomers should contact the association and meet some of the drivers at one of the various meetings if possible.

The atmosphere is very friendly, and newcomers are quickly made to feel welcome. All prospective newcomers should contact the association ([info@formulavee.ie](mailto:info@formulavee.ie)) and give their email address and phone number so that they can be included in the mailing list. A list of all race meetings can be found on the [www.formulavee.ie](http://www.formulavee.ie) website. Below is a very quick checklist of things to go through for anyone wanting to race in Formula VEE. We cover these things in more detail in the relevant sections of this Starter Pack.

Task	Section
Become an Association and Club Member	Club Memberships
Obtain Competition License	Racing Licenses
Purchase driver equipment	Safety Equipment
Purchase a car	Buying a Car
Get a Log Book for the car	Logbook

### 2.2 Race Day

The biggest moment and the ultimate goal for new competitors has to be the first race meeting when all the hard work in preparing your new car is over and all that's left is the buzz of hitting the throttle for the first time. The LAST thing you need at this point is for something to have been forgotten. This section tries to outline a number of tasks people need to complete in order to be properly prepared for the big day.

Drivers can take the car out on a pre-season test day organised by the track management (e.g. Mondello or Kirkistown) or a test day prior to a race weekend. In any case, a few general rules apply - be on time, be prepared, and be ready to go out when you're called.

### 2.3 Preparation

Preparation of your race car is hugely important and is therefore covered in the Vehicle Information section.

### 2.4 Registration and Entries

Every race requires you to send an official entry form to the race organizers (usually the track). This is done via online booking systems for Mondello and Kirkistown, and via physical entry form for Bishops court. Links to entry forms and booking portals will be made available to all drivers by the tracks and shared by the association. There is a closing date for entries for each race meeting and it is advisable to have your entry in on time; otherwise you may not get a spot on the

grid or you may be hit with a late entry fee. Details (including timetables) for the race meeting are generally sent out by email from the race organizers in the week preceding the race. When you arrive at the circuit, you will be met at the gate by an official who checks your name off the entry list. Head to the infield and get a spot for your car and trailer. On raceday, the first thing you'll need to do is put your car through scrutiny and then go through driver's sign-on.

## 2.5 Scrutineering

A few pointers to remember about scrutineering; it is not a scrutineer's job to make life difficult for you, rather they are there to ensure your car and equipment are safe for racing. Since they have a lot of cars to view before racing begins, it is your job to be fully prepared for scrutineering.

Have your logbook ready and your full race kit in the car (race suit, helmet, gloves, etc.). Ensure the brake fluid level is topped up (generally the first thing they check), all nuts and bolts are tight and your rain light works. It is best to leave the top body panels and engine cover loose for scrutineering. Also have the car completely free of mud, dirt and oil (the scrutineer can pull you up over a shoddy car). Basically the car must be in READY TO RACE condition when the scrutineer inspects it.

## 2.6 Driver Sign-on

Once your car has passed through scrutiny, the scrutineer will give you a sticker that must be stuck on the car and must be visible when you are seated in the car. You will also get a sheet of paper to say that you have passed scrutiny. The sheet of paper must then be taken, along with your race licence, to the driver sign-on desk. In Mondello, the sign-on desk is normally in the control tower and in Kirkistown it is normally in the office at the base of the control tower. Again, any VEE racer will help you find the sign-on desk.

You are now cleared for qualifying.

## 2.7 Qualifying

Drivers should be in the Paddock Assembly before the appointed time. Remember, the previous track session may be cancelled or deferred, so be early and listen for any announcements. At Paddock Assembly, there is no "pecking order". Drivers may take whatever place they wish. It is advisable but not essential for newcomers to take a position at the back of the grid until they have become familiar with the procedure.

At the appointed time, drivers will be directed to the pit lane, from where they will be released by the Marshals in a safe manner on to the track. From this point it is up to the driver to set the fastest time he or she can to attain the best possible grid position for the race. New drivers should watch their mirrors and avoid impeding faster drivers, signalling to the faster drivers on which side to overtake. A driver must do 3 complete laps in order to qualify to race. If a driver does not complete 3 laps, they may not be allowed to race. At the end of qualifying, the Chequered Flag will be shown. Drivers should slow down carefully, signal their intention and come in to the Paddock to the Scrutiny area in Parc Ferme as directed by the Marshals. After the car has been checked and passed, a driver can

then return to his/her place in the Paddock. Times for all drivers qualifying will be available at the noticeboard within 30 minutes. Drivers race grid positions are determined by the fastest times in qualifying.

## 2.8 Drivers Briefing

A drivers briefing is generally held after qualifying and before the first race of the day. All your questions regarding flags, grid placings, race schedule, etc. and rules of the event will be explained. Fines and possibly race licence endorsements apply to any driver who does not turn up for driver's briefing.

Generally, there will be a "first time" driver briefing for drivers who have never raced at a particular track. A member of the VEE Association can help you find out if there is a "first time" briefing.

## 2.9 Racing

As with qualifying, drivers should arrive early to Paddock Assembly for their race. However, this time the drivers will be lined up in order of their fastest qualifying times, the fastest first. At the appointed time, drivers will be directed on to the track and up to the grid to form up at the Start line as directed by the Paddock Marshals. When all the cars are in position, the Starter will wave the Green Flag to tell drivers to proceed on their "warm-up" lap. Drivers must maintain their positions on the warm-up lap. At the end of the warm-up lap, drivers will take their place as allocated earlier (there will be no Marshals this time, drivers must remember their allocated places and put their cars in the correct place themselves) to await the race start. When all cars are in place the starter will show the 5 second board. The red lights will then come on and racing begins once the red lights go out (all at the same time).

All of your preparation leads to this point and no amount of explaining can fully prepare a new driver for the first race. As a guide though, don't obstruct much faster drivers from overtaking and keep behind you, in a safe manner, drivers that are at around your own pace. Use your mirrors to ensure you know what is going on around you and always keep an eye out for marshals with flags

If you do have a little off, the marshals will signal this to other drivers and then help you out of the car or back on the track. If you're able to go on without any help, keep a close watch on any cars coming towards you and make sure the track is clear for you to continue. If you cannot continue, get out of the car and go to a safe location behind the barrier. Your car will be retrieved after the race. Whether racing or testing, if you have to slow down or pull off the track or into the pits, raise one arm high in the air to alert drivers behind you.

At the end of the race, after passing the chequered flag and slowing carefully, drivers will signal their intention and come in to Parc Ferme, located in the Scrutiny area in the Paddock as directed by the Marshals. After the car has been checked and passed, a driver can then return to his place in the Paddock area. Times for all drivers' race will be available at the noticeboard within 30 minutes.

Remember that racing is a non-contact sport and that you are racing to enjoy yourself. Race hard and race safe.

When there are sufficient entries a pre-lunch qualifying race for B and C drivers only will be held. Drivers in this race will score points for their respective B and C championships. The afternoon race will be for all drivers and will only score points for the National Championship. B and C drivers should immediately prepare their cars for the afternoon race, when the whole thing will start all over again.

**Important...** After qualifying and race, when the cars are in Parc Ferme, no-one except the driver of the car is allowed in Parc Ferme. No-one may do anything to the car. Nothing may be passed to the driver through the fence or otherwise. A driver who breaks this rule may be penalised and excluded.

## 2.10 Sponsorship

Formula VEE has continually proven a good sport for providing an advertising service for sponsors. Drivers seeking sponsorship should prepare a few pages of information for potential sponsors keeping in mind the following points. The key thing to establish with a sponsor is that rather than looking for a hand-out, you are offering the sponsor a SERVICE in return for their support. The main service is in representing the sponsor by way of advertising and promotion of their product/services. Point out that sponsor product and/or service names, logos etc. can be displayed on the car, racing suit, helmet etc.

At racing events, sponsor information can be given to the control tower for mention. Sponsor information can also be passed on to newspapers/magazines. Finally, sponsors may wish to display the car at shows or any place to attract customer interest. Drivers should outline what they are seeking from the sponsor. This would normally include entry fees, running costs etc. Even if a sponsor offered €500, this would cover a number of entries or a new set of tyres, or fuel for the season. You should not really expect much greater than €3000 – €4000 from any given sponsor and in this case you would likely be painting the car in the sponsors colours as well as the services covered above.

A note of the current levels of sponsorship should also be outlined. One final point; aim at the smaller companies to start with. Larger companies tend to have pre-set sponsorship budgets well before the start of the year

## 3.0 DRIVER INFORMATION

### 3.1 Driver Information

Drivers who intend to compete in Formula VEE should complete a number of tasks before the start of the season. Take careful note of the following section if you intend competing. Note that it takes time to prepare for the season (for example, buying suits, getting the paperwork organised etc.) so people should allow themselves plenty of time.

### 3.2 Club Memberships

Drivers should first become members of the Formula VEE Association if they wish to compete and score points in the championships. There is a yearly fee. Drivers should also join a car club in order to obtain competition licences at a reduced rate. Mondello Park Sports Club and County Kildare Motor Club have good relationships with Formula VEE. However, you can join any Motorsport Ireland affiliated club.

### 3.3 Racing Licenses

All drivers must hold a competition racing licence in order to compete. First time drivers apply for a Motorsport Ireland Competition Licence, which grants the driver a 'National B Race' (minimum) level licence. This allows people to compete in most Formula VEE events including the Championship rounds. Motorsport Ireland also needs to know if new VEE members currently hold any other competition or racing licences.

PLEASE NOTE: In order to get a race licence, you MUST complete and pass the Motorsport Ireland 'Introduction to Motorsport' course. This course is held at Mondello Park on regular occasions.

To obtain this licence, contact Motorsport Ireland and ask for a Race Starter Pack. You will get a DVD, the Licence application form, etc. along with instructions on what to do next. Note that a passport size photograph is needed as well as a doctor's medical report which is included on the back of the application for your family doctor to complete.

Note that a R.T.A. drivers licence is not required to hold a race licence

### 3.4 Safety Equipment

All drivers must wear an F.I.A. approved racing suit. Current (2021 season) regulations are a racesuit to FIA 8856-2000 with full body underwear, which covers the driver's body, arms and legs. Other equipment includes an approved full-face helmet, HANS, balaclava, boots, socks, and gloves.

When purchasing a helmet, the supplier should be able to advise you as to which models are suitable and compliant for Formula VEE. These can be obtained from a number of sources (see the Parts Suppliers section). Ensure that every piece of equipment complies with the standards set out in the Motorsport Ireland Yearbook. This book is free to download from the Motorsport Ireland website, and

the guidelines for safety equipment can be found in Appendix 2. ([www.motorsportireland.com](http://www.motorsportireland.com)).

Below is a list of driver equipment and typical price ranges:

Item	Price Range (new)
Race Suit	From €270
HANS	From €250
Helmet	From €340
Balaclava	From €40
Underwear	From €140
Gloves	From €65
Boots	From €100
Socks	From €20

Other safety equipment is required on the vehicle including fire extinguisher and full racing harness. Ensure these items are not damaged in any way when buying/preparing the vehicle. Check the labels on the harness for the expiry dates.

**IMPORTANT.** The harness must be replaced on the date shown, regardless of the condition. The fire extinguisher bottle must be examined and certified safe for use every year, before the start of the season.

You will also require a transponder on your car. The transponder is used by the circuit timekeepers to record lap times and track position. Check when buying a car whether or not the vendor will include the transponder in the sale. If not, you will have to buy or rent one. To rent a transponder, contact Mondello Park or [www.timing.ie](http://www.timing.ie); to buy one, go to [www.mylaps.com](http://www.mylaps.com) or check eBay. The required transponder models are either an AMB Tranx 260 (red) or AMB X2 transponder (red).

## 4.0 Vehicle Information

### 4.1 Technical Overview

Formula VEE cars are constructed as a single-seat, open-wheel chassis design of either spaceframe or monocoque construction. The two constructors of VEE chassis in Ireland are David Sheane (Sheane chassis) and Paul Heavey (Leystone chassis). Both chassis have a high success rate.

The cars utilise as many standard VW parts as possible. The engine is an air-cooled VW 'Beetle' 1600cc and the gearbox is a Variant 4 speed (and reverse) box. The front and rear axles are standard VW beetle parts, as are the drum brakes (front disc brakes are also allowed) and use steel rims and track tyres. Racing shock absorbers and springs are allowed as are non-standard rack-and-pinion steering (drivers have the option of continuing to use the original steering box rather than the rack).

Formula VEE is a limited budget class and as such, there are strict rules regarding the amount of modifications allowed to the vehicle. Basically the engine, carbs, brakes, and axles must remain standard in order to avoid the high cost of maintaining race performance engines as usually associated with other classes. Some mild tuning/blueprinting is permitted in order to increase performance, in accordance with the class regulations (specified in the Motorsport Ireland Yearbook). The latest copy of the Formula Vee Technical Regulations at the time of writing is included in Appendix 1. Please refer to the Motorsport Ireland yearbook for the latest version at any given time.

The performance of the cars is remarkable given their 'standard' configuration. Most cars are typically capable of speeds up to 110 - 120 mph and they are only a few seconds off the lap times achievable with the more expensive Formulae. A VEE is capable of lapping Mondello Park quicker than a Porsche 911 (but you don't get the brilliant stereo and leather seats!). The cars weigh 385 Kg with a minimum combined driver and car weight of 485 Kg.

### 4.2 Buying a Car

First time buyers have a number of options for finding a car, depending on what they wish to achieve from the sport, not forgetting their budget. The cars can vary in price dependent on the car's condition and the extra equipment offered with the car such as trailer, tools, spare tyres, etc.

Although an obvious option, the first-time buyer is recommended not to go for a brand new car. It is far cheaper to start with a proven used vehicle and work from there. The second option is to find a sound used car, which requires little or no major work. Most of these vehicles are sold through word of mouth, through various members of the club. A good starting point is to contact Paul Heavey or David Sheane or a member of the association committee and enquire about various cars for sale. They have an excellent knowledge of available cars, and more importantly what work, if any, is required for each. See the Contacts section below for their contact details.

Used cars may be sold as complete 'ready-to-race' cars or requiring some work such as an engine rebuild or new tyres, etc. You also need to check if the car comes with or without a trailer.

Another option would be to rent a car. This is called "arrive and drive" and has the advantage of having someone else do the work. The downside is the extra cost to rent the car with no asset at the year end. There are several reputable people from whom cars can be rented – see the Contacts section.

Brand new cars can be purchased with a trailer for approximately €11,000. Used cars typically range in price from €2,000 to €7,000. This mainly depends on the work required of the purchaser, the extra equipment supplied (trailer, tools, spare wheels and tyres etc.), and the proven performance of the car as reflected by previous year's results. A 'good' car can usually be found for around €4,000 to €7,000 with trailer and possibly some minimal extras - tyres for instance.

Replacement costs for parts in need of attention should also be reflected in the cost. If an engine is in need of a rebuild this may amount to €1,000 – €3,000. Tyres are approximately €450 to replace a set of 4. Chassis damage may cost in the region of €250 for minor straightening of various sections to €400 – €800 for an entire front or rear re-alignment. Front axle damage may cost €100 for re-alignment or €300 to replace. Typical panel damage would include damaged nose cones, which are available for around €90. A basic trailer can be purchased for around €600 from David Sheane. Closed (or covered) trailers can range from €1000. Ebay, Donedeal and other similar websites often throw up great bargains.

### 4.3 Logbook

All cars must have a logbook, which records the car's details (such as chassis number) and a photo of the car in the current body colour scheme. The purpose of the logbook is in the event of a car being damaged, which would be recorded in the logbook, scrutineers can check that any required repairs have been made by the next event.

The logbook must be presented to scrutiny at every race meeting or you don't race.

### 4.4 Running Costs

In general, and due to the nature of the regulations of Formula VEE, running costs are kept relatively low compared to other forms of racing in order to keep the sport open to those with a limited budget.

This is just an approximate guide to running costs. The main unknown cost is the price for repairing damaged equipment usually caused by a collision on the track or poor maintenance (not checking oil, etc.). These costs are usually low due to the availability of parts and the durability of the vehicle. Also, great value can be had from shopping around.

Entry Fees are currently €170 – €210 per single header event, or €280 - €310 for a double header event.

Testing is approx. €100 per half day, but is optional.

Fuel costs are around €50 per weekend. Only roadside pump fuel is used.

Oil is changed twice a year.

In your first season, tyres should usually last a full season. The price is around €450 for a full set of 4 tyres

Engines are usually rebuilt every 1 or 2 seasons. The typical cost to have an engine rebuilt after this period is around €500 – €2,000 depending what needs replacing, who is rebuilding the engine, and how long since its last rebuild.

Gearboxes are normally rebuilt every 3-4 years and cost approx. €500.

Brakes and clutches are replaced depending on wear. Clutch friction plates are approx €40 with full clutch kits costing approx €120. Depending on brake pad manufacturer, they are approx €80-100 (full set of fronts) and need replacing once a year.

Every car must carry at least one onboard camera, which faces forward and provides (where possible) a view of the steering wheel and view of the circuit ahead. A 'GoPro' or similar model camera is the type which is typically used and prices vary.

## 4.5 Car Preparation

Apart from major work such as an engine rebuild, preparation of the car is not a huge task since most areas of the car are easily accessible. If you do not have the skills or inclination to do the work yourself, then you are best advised to contact somebody under the Formula Vee Teams list in the Contacts section.

Suspension set-up and wheel alignment is one area which may need some attention prior to an event. Generally the best approach is to have an experienced member set up the suspension as a starting point and make adjustments on the day, through advice from somebody experienced. Again, most of the teams will offer pre-race chassis setups at very reasonable cost. If body panels require painting, the best bet is to check with various car repairers around your area to get an idea of prices. Typical prices may range from €400 depending on the amount of work required. To get the best value, you would need to remove the panels from the car, prepare them yourself using a fibreglass repair kit, sanding everything smooth and just get the shop to spray them. Local sign companies can help you out with any stickers, stripes, etc. which you would like to use as part of your bodywork design.

Whatever the amount of work you intend doing yourself, make sure that you don't make any changes that you are unsure about without first consulting somebody. The cars are set-up to comply with a strict set of regulations, which dictate what is and isn't allowed. If you make illegal or dangerous/poor modifications then you may find the car failing the first scrutineers' inspection. Avoid the grief and ask.

The obvious pre-race preparation is having the car ready to race before you say good-bye to the folks and drive off to the meeting. Ensure that every last bolt is tight, all bodywork is secure and everything works (i.e. electrics, battery, engine etc.). Fill the tank and have the engine tuned and running. Also make sure both

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the engine and gearbox have enough oil. Check that the oil warning light, rear light and gauges all work (also, nothing should work when either the main kill switch or dash ignition switch are off).

Ensure the pedals, seat and harness, are all adjusted to suit the driver. Bleed and adjust the brakes (ask for help at the track if you don't know how to) and make sure the master cylinders are full of brake fluid. Check that there is no play in the steering and all wheels/hubs are tight (the wheel should not have any play when moved from the side left to right and top to bottom). There must not be any leaks in the brake lines, engine or gearbox.

The bodywork must display your competition number (supplied by the Formula VEE Association after you pay your membership) on the front and both sides of the car. You must also have an 'E' displayed on the bodywork at the point where the fire extinguisher pull is located, and a lightning bolt symbol next to the main kill switch. If you are a novice, you must have a square sign with yellow background and two black lines crossing top left to bottom right and top right to bottom left. The dimensions of all bodywork displays are outlined in your Motorsport Ireland yearbook.

Once you have the car prepared, all that is left is remembering to take a good set of tools, spare oil, tyres, fuel can, funnel, jack, etc. Pack your full race outfit and remember to take your transponder, competition licence and car logbook with you. It's also a good idea to include a plastic sheet to cover the car in case it rains.

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## 5.0 Formula VEE Association Information

### 5.1 Association Information

The Formula VEE Association offers members the opportunity to be directly involved in Irish motorsport. Newcomers will quickly feel welcome and discover a wealth of knowledge from other members. The association is known for its camaraderie, whilst maintaining a respectable level of competitiveness amongst its drivers. To get a feel for the association, people should first attend either a race meeting or one of the association meetings to meet other members.

### 5.2 Association Meetings

The Annual General Meeting (AGM) is usually held in November of each year. During this meeting the committee stands down and a new committee is elected. Proposed amendments to the regulations are debated on voted on and the calendar for the following year is agreed. The dates and location of these meetings can be obtained from the club secretary, or once a member, you will receive these details in the newsletter.

### 5.3 Race Meetings

Race meetings are held throughout the season, usually beginning in late March and continuing through to mid-October. There are 11 Championship rounds held over 8 weekends and one non-championship VEE Festival. Championship rounds are generally held about 3-4 weeks apart. The schedule for these rounds is available from the [www.formulavee.ie](http://www.formulavee.ie) website. There are also testing days organised on occasion in order for drivers to set up their cars and gain experience of the track. Experienced drivers are usually on hand to help newcomers.

### 5.4 Membership

New people should contact the association through the [www.formulavee.ie](http://www.formulavee.ie) website to find out how to become a member. This involves a fee for the year. New members are then placed on the Association's mailing list. There are other benefits for members, which may involve company sponsorship in the form of reduced prices for products etc.

### 5.5 Social Activities

Race meetings are an excellent social outing in themselves and some people usually meet for a few 7-Ups on the way home. An annual awards night is held every November to present trophies for each of the three championships and is always a very enjoyable night out. Other occasional activities include karting and members are notified of upcoming events through the monthly newsletter.

### 5.6 Social Media

Formula Vee is active on all popular social media channels, Facebook, Instagram, and Twitter. Give a like and a follow on your preferred platform to get regular updates and information about everything that is going on. We are always looking



## Formula VEE Ireland Starter Booklet



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for content to share so if you have anything relevant to racing or VW's please share it with us!

## 6.0 Contacts

Following is a list of various suppliers of products and services that people may find useful. Note that this is only a guide and Formula VEE does not endorse the companies, products or services nor take any responsibility on the company's behalf. All contacts are listed in alphabetical order.

### 6.1 Chassis Constructors

Paul Heavey Leastone Racing Cars 086 340 6809 <a href="mailto:leastone@eircom.net">leastone@eircom.net</a>	David Sheane Sheane Cars 0404 67189 <a href="mailto:sheanecars@eircom.net">sheanecars@eircom.net</a>
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### 6.2 Formula VEE Engine Builders

The following engine builders can supply new engines or overhaul your existing engine and will be able to advise on what parts are required.

Paul Heavey	Robertstown	086 340 6809	<a href="mailto:leastone@eircom.net">leastone@eircom.net</a>
Damian Doherty	Ballymena	0044 777 159 2519	<a href="mailto:teamddr@hotmail.com">teamddr@hotmail.com</a>
SM Racing	Clane	087 7934 209	<a href="mailto:stephenmorrin@gmail.com">stephenmorrin@gmail.com</a>
LOH Motorsport	Donadea	085 177 17779	<a href="mailto:kevin.ohara@lohmotorsport.com">kevin.ohara@lohmotorsport.com</a>
Andrew Delaney	Kilkenny	087 782 1924	

### 6.3 Gearbox Rebuilders

SM Racing	Clane	087 7934 209	<a href="mailto:stephenmorrin@gmail.com">stephenmorrin@gmail.com</a>
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## 6.4 Formula Vee Teams

Formula VEE teams offer race engineering services as well as 'arrive and drive' hire packages. The package on offer is agreed at the start of the season and can be tailored to suit your needs. These teams can also carry out repair work should you need it.

Trevor Delaney	Carrickmacross	087 280 1117	<a href="mailto:deltaracing@eircom.net">deltaracing@eircom.net</a>
Leastone Racing (Paul Heavey)	Robertstown	086 340 6809	<a href="mailto:leastone@eircom.net">leastone@eircom.net</a>
LOH Motorsport	Donadea	085 177 1779	<a href="mailto:kevinohararacing@yahoo.ie">kevinohararacing@yahoo.ie</a>
Adam Macaulay	Ashford	087 163 4365	<a href="mailto:adamaca@gmail.com">adamaca@gmail.com</a>
Stephen Morrin	Clane	087 7934 209	<a href="mailto:stephenmorrin@gmail.com">stephenmorrin@gmail.com</a>
Garry Newsome	Ashford	087 643 4295	<a href="mailto:newsomeracing@eircom.net">newsomeracing@eircom.net</a>
David Sheane	Blainroe	0404 67189	<a href="mailto:sheanecars@eircom.net">sheanecars@eircom.net</a>

## 6.5 Parts Suppliers

Leastone Racing	Robertstown	086 340 6809	<a href="mailto:leastone@eircom.net">leastone@eircom.net</a>	Chassis kits, rose joints, seat belts, brakes, trailing arms, suspension parts
LOH Motorsport	Donadea	085 177 1779	<a href="mailto:kevin.ohara@lohmotorsport.com">kevin.ohara@lohmotorsport.com</a>	Racewear, helmets, rose joints
Sheane Cars	Blainroe	0404 67189	<a href="mailto:sheanecars@eircom.net">sheanecars@eircom.net</a>	Chassis kits, rose joints, brakes, trailing arms, suspension parts, seals
VW Spares	Castledermot	059 916 2756	<a href="http://www.vwspares.ie">www.vwspares.ie</a>	All VW parts
Aircooled Technology	Galway	087 255 2578	<a href="http://www.air-cooled-parts.com">www.air-cooled-parts.com</a>	All VW parts
Murray Motorsport	Dublin 12	01 450 0555	<a href="http://www.murraymotorsport.com">www.murraymotorsport.com</a>	Motorsport related hardware, helmets, racewear
Demon Tweaks	UK	0044 978 664 466	<a href="http://www.demon-tweaks.co.uk">www.demon-tweaks.co.uk</a>	Motorsport related hardware, helmets, racewear

## 6.6 Other Contacts

Motorsport Ireland	Dublin 2	01 677 5628	<a href="http://www.motorsportireland.ie">www.motorsportireland.ie</a>
Mondello Park	Kildare	045 860 200	<a href="http://www.mondellopark.ie">www.mondellopark.ie</a>
Kirkistown Circuit	Down	0044 28 4277 1325	<a href="http://www.kirkistown.com/">http://www.kirkistown.com/</a>
AMB Transponders	UK		<a href="http://www.mylaps.com">www.mylaps.com</a>
Timing.ie	Ireland		<a href="https://www.timing.ie/contact/">https://www.timing.ie/contact/</a>



## Leastone *Racing Cars*

Winner of the Multiple Formula Vee Championships - Inboard suspension  
all round Streamline design - Chassis kits from €1850

Contact Paul Heavey on 086 340 68 09

Leastone Racing Cars, Lowlowtown, Kilmegaw, Co. Kildare. Ph: +353 (0)45 860 658  
e-mail: [leastone@eircom.net](mailto:leastone@eircom.net) or visit [www.leastoneracing.com](http://www.leastoneracing.com)

## Sheane Cars Ltd

"The People who put SPORTS into MotorSPORTS"  
Winners of numerous Irish & UK Championships

**With 35 years experience of building and  
preparing Formula Vee Cars (we introduced  
Formula Vee in 1975)**

We are the people to talk to for new and secondhand cars. Preparation, repairs and spare parts including shocks, harnesses, engine and gearbox parts, oil coolers, dzus fasteners etc. etc.

We also hire race cars.

Contact David at:  
Sheane Cars Ltd  
Blainroe  
Wicklow.

Phone 0404 67189  
Fax 0404 68518  
E-mail [sheanecars@eircom.net](mailto:sheanecars@eircom.net)



## **APPENDIX 1: Formula VEE Technical Regulations**

These regulations are up-to-date as of the time of writing (December 2020). The regulations are very stable and have changed very little over the last 20+ years. However from time to time changes to regulations may be voted in at a meeting of the association. Please refer to the Motorsport Ireland website for the latest version of these regulations.

# 2019 MOTORSPORT IRELAND FORMULA VEE CHAMPIONSHIP TECHNICAL REGULATIONS

## 1. Technical Regulations

Formula VEE Is a low cost formula designed for single seater (Monoposto) racing cars, based on original VW components of Types 1, 2 and 3. Original VW components are only recognised as such if they are contained in the Spare Parts Catalogue of Volkswagenwerk and/or bear a clear identification mark as original VW components and have undergone all the working processes prescribed by the manufacturer for production and/or were fitted as standard equipment on road going vehicles of types 1, 2 or 3. Any components which are not covered in the above paragraph are permitted only if covered in these regulations, Section 1 to 7, and Appendices 1 to 3. Original Standard VW Components must be reworked only as described in sections 1 to 7 and appendices 1 to 3, It must be possible at all times to establish their identity as standard VW parts. It is not permitted to add, apply or remove material to the standard VW components in any form or manner, unless expressly permitted in Sections 1 to 7 and Technical Notes 1 + 2.

No extra parts, washers, or spacers may be fitted to alter the performance of the engine other than that mentioned in Section 2, Camshaft etc. and in Technical Note 2 under Valve Springs.

### FOR THE PURPOSE OF THESE REGULATIONS:

TYPE 1	=	BEETLE 1200, 1300
TYPE 2	=	TRANSPORTERS
TYPE 3	=	1500, 1600 VARIANTS AND FASTBACK

All with aircooled engines.

**IMPORTANT: The onus of proving that his/her car is eligible rests entirely with the driver/entrant.**

## 2. Engine

An engine must be used, having a maximum piston displacement of 1603.08cc, with a stroke of 69mm  $\pm$  0.1mm. Maximum piston size 85.96mm and a maximum bore size of 86.018mm. This engine must consist of standard VW components of Type 1, 2 or 3. Any form of supercharging is prohibited. Pistons, rings, bearings and con-rods are unrestricted as regards manufacturer, but must confirm in dimension, specification and weight to the original VW part. CRANKSHAFT and CON-RODS must be unmodified, apart from any machining necessary to balance or recondition same.

### NOTE:

1. For the balancing of con-rods and piston assemblies, it must always be possible to establish the identity of one standard unmodified piston and con-rod in each group of four in any one engine.
2. All engine parts must be assembled in the manner described in the official workshop manual – in particular.
  - a) Pistons must have arrow facing flywheel.
  - b) Con-Rods must have forge marks facing up.
  - c) Camshaft drive gear must be fitted to crankshaft with concave face towards flywheel and timing mark towards the crankshaft pulley end.
  - d) All Gaskets may be substituted by gasket cement or totally removed.

**CAMSHAFT**, as supplied by Kent Cams to Formula VEE Ireland Specification must be fitted.

**CAM FOLLOWERS, PUSH RODS and ROCKERS** and all pertaining parts must be standard (Technical Note 1). Only aluminium Push Rods to be used. The length of the push rods must be 281-282mm. If difficulty is found in obtaining tappet clearance, the rockers may be filed or ground at the adjusting end only. Alternatively, a 1mm thick spacer may be placed under the rocker shaft pedestal, if required, to assist in obtaining the correct valve clearance. Cam followers with a lubricating hole are permitted (e.g. Lube-a-Lobe). Hydraulic cam followers are not allowed. The mating of the Camshaft to the CAM drive should be held by two or three bolts. The timing of the Camshaft Gear to the Camshaft cannot be altered. The fitting of spacers in any form between the cam bearing and camshaft is not permitted. Machining of the camshaft to alter valve timing is not permitted. Any type of **PUSH ROD TUBES** may be fitted. Valves other than VW Valves may be used, provided that they conform in spec. to the original part (Technical Note 2).

High Ratio rocker arms and swivel head tappet screws are not permitted.

**CRANKSHAFT PULLEY** may be turned down or replaced by a non standard pulley.

**PISTON DECK HEIGHTS** may be altered by skimming the cylinder barrels, but the piston may not protrude above the top of the barrels at T.D.C.

**OIL SYSTEM** sump baffle and sump extension may be fitted. Oil pump may be replaced by larger capacity unit. Dry sump system not permitted. Oil cooler and remote filter permitted. Cylinder block may be tapped to re-route oil feed to cooler and filter. All oil pipes fitted must be able to withstand a pressure of 10 bar, which is equivalent to 145 lbs p.s.i. If the 'top hat' projects below the floorline of the car, an adequate sump guard must be fitted.

**VALVE SPRINGS** as per Technical Note 2.

**CYLINDER HEADS** – Standard VW Twin-port cylinder heads as per Technical Note 2 only, permitted. Heads using long reach plugs may be used so long as all other specifications are as original.

**ROCKER COVERS.** To help prevent oil leakages from Cylinder Head Rocker Covers, any type of Rocker Cover may be used, and the standard Rocker Cover may be modified as per Appendix 3.

**INLET MANIFOLDS** – Standard VW type 2 or 3. They may be polished internally, but internal diameter at bottom end, adjacent to Cylinder Head must not exceed 33mm. A stack may be fitted between each inlet manifold and the carburettor and both stacks may be joined by a balance pipe. Dimensions of stacks and balance pipe unrestricted.

**CARBURATION** Two Zenith VN 2 Carburettors, unmodified in any way, apart from the altering of jets and removal of choke butterfly (if required) must be used. 29mm chokes only may be used.

Alternatively, from the 1998 season, two Weber 34 ICT Carburettors, with a choke size of 29mm complete with aluminium inlet manifolds, as supplied to Formula VEE in kit form by McNamara Carburettor and Injection Centre or by Autocavan Ltd., may be used instead of the Zenith VN2 Carburettors. The aluminium inlet manifolds must be used 'as cast' and may not be modified in any way, except to grind the outside surface to permit the free movement of the mounting nuts at the cylinder head. The part number for the kit

comprising the carburettors and manifolds is 234 ICT098. The Throat diameter of the manifold is 33mm.

Throttle linkage, air cleaners are free. It is recommended that a separate throttle return spring is fitted to each carburettor. A minimum of three throttle return springs must be fitted.

**EXHAUST SYSTEM** must not extend further than 60cms from the axis of the rear axle. The height of the exhaust system at outlet(s) must be no higher than 60cms. (Driver in car, car in race trim).

**SILENCER**, an adequate silencer must be fitted and secured using BOLTS. It must be included in any exhaust system dimensions. The dimensions of the silencer are free. Two independent forms of fixing must be applied. All cars must comply with relevant circuit requirements.

**FUEL PUMP & TANK** A manual fuel pump suitable for VW Type 1, 2 or 3 only, must be used. A non-return valve may be fitted to the fuel tank breather pipe. If a non-return valve is not fitted, the breather pipe must be looped higher than the top point of the tank (filler) and must then continue to under the bottom point of the chassis, where it must be secured, e.g. run through a hole in the sump guard and tied securely.

**CLUTCH** Mode of operation, clutch lining and springs unrestricted. Number of springs may be changed. Clutch may not be lightened.

**FLYWHEEL** Standard Type 1, 2 or 3 flywheel must be used, but it may be lightened and balanced by the removal of material. Additional or larger dowel pins and larger gland nut may be used for fixing the flywheel.

**COOLING** The standard fan, fan housing and shrouds may be altered/removed. Additional cooling ducts may be fitted.

**ELECTRICAL EQUIPMENT** An operable electrical starter and a dashboard ignition switch are compulsory. The ignition switch and starter button must be operational from the driver's seat with seat belts fastened. In addition to this, a separate rear light switch must be installed. This switch must operate a rearward-facing red warning light of a minimum of 21 watts, with surface area minimum 20 cm<sup>2</sup>, maximum 40 cm<sup>2</sup>, which must be located within 10cms of the centre line of the vehicle and be clearly visible from the rear. The warning light must be switched on when visibility conditions are reduced, or when instructed by an official. Only bayonette-type bulbs or LED lights may be used. If using LED lights then a minimum of 75% of the LEDs must be working. Battery unrestricted. Only dry cell batteries must be used.

Ignition unrestricted, except double ignition not allowed. A 009 distributor must be used using either contact breaker points or Lumenition (or similar) contactless ignition which must be connected directly to the coil with 2 wires and fitted inside the distributor cap. Generator and pedestal may be removed. Master switch must be fitted to the lower main hoop of the rollover bar and must be identified from outside the car. Driver must be able to operate master switch when fully seated in car with belts fully tightened.

### 3. THE GEARS AND AXLE DRIVE

A fully synchromesh VW Type 1 or 3 gearbox must be used. All four forward gears as well as reverse gear must be present and in operative condition. Shift linkage free. The fitting of a locking differential, even with a limited slip, is prohibited.

The following gear ratios may be used:

<b>Gear</b>	<b>SET 1 TYPE 3 (Variant)</b>
FIRST	3.80
SECOND	2.06
THIRD	1.26 <i>(29:23 or 63:50)</i>
FOURTH	0.89 <i>(24:27) or 0.88 (53:60)</i>
DIFF	4.125

Reverse gear must be fitted and operational.

The internals of the gearbox must be assembled as originally intended by the manufacturer (with the exception of the differential, which may be reversed to allow for the repositioning of the gearbox at the rear of the car).

**Only 80W90 gear oil can be used in gearboxes.**

#### **4. CHASSIS**

Construction unrestricted but must be of ferrous metal construction. However, it must be able to withstand with an adequate degree of safety, all the stresses encountered in operation. Minimum ride height is 4cms. Engine covers, made of aluminium or fibreglass and painted to complement the remainder of the bodywork, must be fitted. The cover must be at least the height of the top of the firewall and must cover the length and breadth of the crankcase, enveloping the upper chassis rails and must not terminate before the rear crossmember.

**FRONT AXLE** must be original VW Type 1 or trailing arm torsion spring design. Connection of the front axle to the chassis is unrestricted. The front axle must be fitted with telescopic shock absorbers, manner of operation and make unrestricted. Coil springs may be used in conjunction with front shock absorbers.

The arrangement and method of fixing the shock absorbers is unrestricted. The shock absorber attachment horn of the front axle may be altered or removed. The piece (connection) between the torsion bars may be removed and replaced with a steel box section of minimum 50mm x 25mm size and 2.5mm wall thickness (EN 10219-2 2006) but the distance between the top and bottom beam elements must remain unchanged.

For adjustment of the suspension, one torsion spring may be replaced by a stabiliser, anti roll bar and the other may be altered. The fitting of a further stabiliser in any form is permitted. The centre grubscrew mounting, retaining the torsion springs, may be repositioned by cutting and rewelding the tube, or by fitting an adjustable grubscrew mounting.

**STEERING GEAR** Standard Beetle steering box or any steering rack may be fitted, and steering arms are unrestricted.

Drop arm between steering box and steering arm assembly must be the original standard part. An extension of minimum thickness 1/4" may be fitted between the drop arm and steering rods but it must be bolted to both parts. It may also be welded.

**REAR AXLE** The rear axle/rear suspension must be of trailing link construction. Coil springs, together with telescopic shock absorbers, must be used for the suspension of the rear wheels. Mode of operations, construction, make and fixing of shock absorbers is

unrestricted. Dual systems are not permitted. The removal of shock absorber horn from axle tube is permitted.

Dampers with remote canisters are not permitted.

The fitting of a stabiliser or an equaliser is allowed. The use of VW double jointed axle (even partially) is not permitted.

**BRAKE SYSTEM** All components of the wheel brakes must be VW Standard TYPE 1 or 3. From the 1997 season, front disc brakes are optional. The specification and part numbers as agreed with and provided to the MI Race Committee. The foot brake must be constructed as a dual circuit brake. Each brake master cylinder must be fed by a separate fluid reservoir. The make and type of master cylinder and make of brake linings is unrestricted. The fitting of a brake pressure distributor is permitted. For cooling the brakes, cooling air ducts may be fitted. Machining of the internal, non-friction surface of brake drums is not permitted.

Any aircooled VW Beetle wheel brake cylinder may be used on the rear brakes

**WHEELS** Wheels are supplied by Weller or Starco to Formula VEE Ireland.

Two specifications exist and both of these are permissible.

Wheels may be fastened to hubs using standard VW wheel bolts, or alternatively using proprietary screw-in after-market M14 wheel studs and nuts. The studs must be threaded into the wheel hub and welded to the inside of the hub to prevent loosening

**TYRES** The only tyres permitted are TOYO PROXES R888 or R888R (GG Compound). All tyres on the car must be either R888R or R888 and no mixing is allowed. Minimum tread depth of 1.6mm is to be maintained around the circumference of the tyre measured across 75% width of the tyre.

Permitted Compounds:

Toyo Proxes R888R

Front: Toyo Proxes R888R 185/60R13 80V GG (Medium Hard) Compound

Rear: Toyo Proxes R888R 205/60R13 86V GG (Medium Hard) Compound

Toyo Proxes R888

Front: Toyo Proxes R888 185/60R13 80V GG (Medium Hard) Compound

Rear: Toyo Proxes R888 205/60R13 86V GG (Medium Hard) Compound

Nominated supplier: SW ADAIR TYRES. 49 Killymore Rd, Newtownstewart, Co. Tyrone BT78 4DU. Tel No: 048 8164 8428.

**BODY** must not project beyond the rearmost point of the gear shift rod. The driver must, at all times, be able to get in and out of the car without removing any part of the bodywork. Wings, aerofoils and enveloping bodywork is not allowed. No part of the body, frame or suspension may project beyond a vertical axis in a plane connecting the front and rear tyres.

Two adequate rear-view mirrors must be fitted. Side Pods may be fitted from 1.1.99.

Technical Specifications will be published at a later date. All bodywork, including engine cover, must be in place at the start of qualifying and racing.

## 5. TECHNICAL DATA

Minimum weight in race trim without driver is 385kgs.

Minimum weight with driver is 485kg. No fuel may be added during qualifying or racing.

## 6. SAFETY

### 6.1 Fire Extinguishers

As per current MI Regulations. Fire extinguishers must be operational from driver's position in cockpit, and must be plumbed in. Extinguisher nozzles must be directed at the fuel tank and both carburetors. Control must be identified from outside the car.

### 6.2 Seat Belts

A six point harness must be fitted and in good condition.

### 6.3 Overalls

All drivers in Formula VEE must wear overalls, gloves, boots, socks, balaclava and helmet to the approved standards as per Appendix 2 of the current Motorsport Ireland yearbook. Underwear must be flame-resistant. Driver's name and blood group must be permanently affixed to the suit.

## 7. GENERAL

Only proprietary fuels, such as those available in normal petrol stations shall be used. Additives which shall alter the properties (octane value, etc) of the fuel are not permitted. The maximum permitted rating for fuel is 99 octane.

All cars must be presented for scrutiny and event in a clean and raceworthy condition. Any car which, in the opinion of the appointed scrutineer, does not meet with these requirements will be excluded from the event.

Exhaust pipes and silencer must be painted with a heat-resistant paint, **or be in a presentable condition.**

At the discretion of the appointed scrutineer, after the first two laps of practice, all cars must return to the pit lane for an oil check, when cars which pass this check shall return to the track for a minimum of a further 10 minutes of practice.

### Technical Note 1

#### Kent Camshaft

A Camshaft supplied by Kent Cams to Formula VEE Ireland must be used. All components in the operating train of the valve gear must be of standard production quality, dimensions and tolerance, especially in regard to their operating geometry. With the use of the Kent Camshaft, the gear wheel may be moved to obtain the correct timing through the gearwheel and camshaft of 7 degrees 30 minutes BTDC maximum, with 1mm of clearance at the inlet valve. The gearwheel must be drilled through into the camshaft, these must then be pinned. From the beginning of the 2007 season, only Kent camshafts made from original blanks to the proper specification may be used. Re-profiled camshafts may be used provided they have been sent back to Kent Cams for testing and stamped, if they are found by Kent Cams, to be within tolerances.

### Technical Note 2

#### FORMULA VEE

Cylinder Head Volkswagen Type 2 or 3 Twin-Port with the following dimensions:

Rocker ratios should be 1.1:1.0

MINIMUM COMBUSTION CHAMBER VOLUME IN CYLINDER HEAD	50.0cc
MAXIMUM DIAMETER OF INLET PORT AT HEADFACE	32.0mm

MAXIMUM DIAMETER OF EXHAUST PORT AT HEADFACE	32.5mm
INLET VALVE HEAD DIAMETER	35.55mm
EXHAUST VALVE HEAD DIAMETER	31.9mm
INLET AND EXHAUST PORT FINISH	AS CAST
INLET VALVE LENGTH	112.0mm
EXHAUST VALVE LENGTH	111.9mm
VALVE SPRINGS: 6.5 COILS O/D	31.1mm
WIRE DIAMETER	3.9mm
UNCOMPRESSED LENGTH	Not to exceed 52.5mm

SPACERS MAY BE FITTED UNDER THE VALVE SPRING. THE TOTAL LENGTH OF THE UNCOMPRESSED SPRING PLUS THE SPACERS MAY NOT EXCEED 54.8mm.

The step in the Combustion Chamber on some Cylinder Heads may be removed. As stated above, minimum combustion chamber volume in cylinder head is 50cc. Cylinder heads may be machined to allow for this. A steel spacer may be placed between the head and the barrel to achieve the required volume.

These dimensions are given as a minimum/maximum size for each section of the cylinder head. The standard part must not be machined in order to obtain these dimensions unless specifically advised by these regulations.

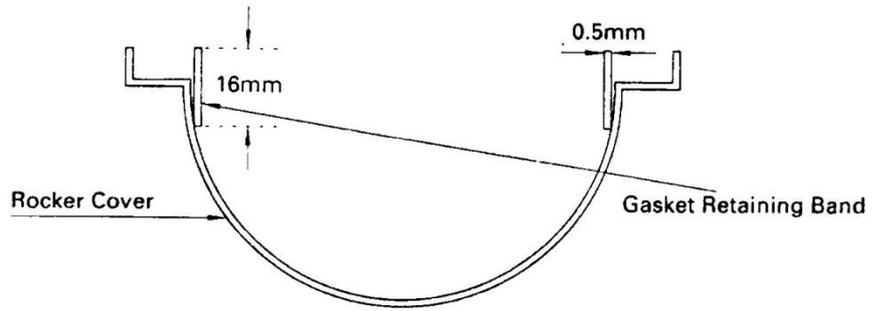
In the event of an engine being stripped for an eligibility check, excess carbon must be removed from the combustion chamber and top of piston.

The final decision regarding the eligibility of any car rests with the appointed eligibility scrutineer. At a meeting of drivers and officials held in November 1996, it was decided that the maximum claimable in any case for an engine strip would be €500, and for a gearbox strip, €500. The onus is on the competitor to ensure that his/her car complies with the regulations.

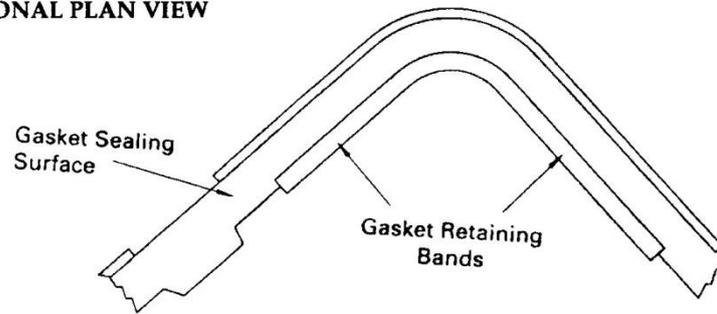
**APPENDIX 3**

**CROSS SECTION VIEW**

**GASKET SEALING SURFACE**



**SECTIONAL PLAN VIEW**



Dimensions given are in mm  $\pm$  0.5mm