

TECHNICAL BULLETIN

Formula Vee

REFERENCE:

CAMS Online Manual of Motor Sport, Race, 1st Category Racing Cars, Formula Vee:

http://www.camsmanual.com.au/02_race.asp#1st

RATIONALE:

To implement recommendations from the Formula Vee Association of Australia in respect of the Formula Vee technical regulations.

ACTION:

Amend 'Category Association' as follows:

"Formula Vee Association of Australia
~~10 Hod Way, Malaga WA 6090~~
PO Box 7690
Norwest BC, Baulkham Hills, NSW 2153
President: Mr Scott Wythe
Website: www.fvee.org.au"

Amend Article 2.3 as follows:

- "2.3 Suspension and Steering:
No part of the front or rear suspension shall be capable of being adjusted from the cockpit by any means.
- (i) The front suspension shall be any standard VW Type 1 H-beam front suspension, unless..."
- "(vi) Rear suspension:
The actuation mechanism and spring medium is free.

The following constraints shall apply:

- (a) Each axle tube shall be restrained in a longitudinal direction by a member having a single pivot point. Axle tube assemblies may be rotated to facilitate assembly.

- (b) Re-drilling of the shock absorber and spring plate mounting holes of the rear axle tubes is permitted. Shock absorber mountings are free. The existing shock absorber mounting brackets may be removed.
- (c) Telescopic shock absorber/s must be used.
- (d) Camber control devices are permitted.
- (e) Brackets may be attached to the rear axle tubes.
- (f) Removal of the brake pipe brackets from the axle tubes is permitted.
- (g) The use **of** Type 1 1200, 1300 and 1500 axles and axle tubes is permitted."

Amend Article 2.4, Brakes as follows:

- "(i) A dual circuit hydraulic system shall be used with front and rear brakes operated by separate master cylinders. Adjustable control of bias between front and rear brakes is permissible **and may be adjusted from the cockpit.**"

Amend Article 2.5, Wheels and tyres, (iii) as follows:

- "(c) Tyres shall be Dunlop CR82 (434):

Front:	120/590-15
Rear:	135/620-15

~~or American Racer – Formula Vee Racing Tyre:~~

Front:	5.5/70.0 x 15
Rear:	6.0/75.0 x 15"

Amend Article 2.6, Engine as follows:

- "(i) The engine shall be VW 1200cc or 1600cc Australian Type 1. The use of the 1600cc engine option will be permitted on a state-by-state basis. For further information contact the Formula Vee Scrutiny Director in your State. Only standard VW Type 1 1200cc engine components shall be used for the 1200cc engine, and only standard VW Type 1 1600cc components shall be used for the 1600 cc engine, unless specifically stated otherwise in these regulations. The engine shall be mounted inboard of the rear axle. **With the exception of Nitriding of cranks and Parkerising of camshafts, no coating of any internal engine parts is permitted other than a temporary lubricant for assembly.**"

Amend Article 2.6 (iv), Crankcase as follows:

- "(b) Machining of the crankcase in the following manner is permitted:
- crankcase halves may be faced and cylinder seats machined for equal deck height. Re-sizing of the rear main oil seal and oil pump apertures;

- crankshaft and camshaft tunnels may be align bored and thrust faces machined to accept standard or oversize bearings;
- drilling and tapping of the crankcase to accept a temperature sender unit and/or for the purpose of fitting an external oil cooler and/or filter;
- reconditioning of crankcase and cylinder head threads. **This includes the use of Heli-coils, case savers, self tapping studs, and larger studs;**
- enlargement of the..."

Amend Article 2.6 (x), Cylinders, Pistons, Rings and Gudgeon Pins as follows:

- Removal of metal from pistons **and gudgeon pins** for balancing purposes is permitted. ~~The removal of metal from gudgeon pins is permitted for the 1200cc engine only.~~ Metal removal must be confined to the inner surfaces of the piston so that the skirt perimeter is not modified in any way;
 - **For 1200cc engines** the pistons and gudgeon pins must comply with the minimum weight specified in art. 3, "Weights and Dimensions".
 - **For 1600cc engines** pistons may be lightened. Gudgeon pins are not to be lightened. Pistons shall be cast aluminium alloy with a steel insert and the profile of the bottom of the piston skirt shall be as manufactured. Piston and gudgeon pin shall comply with the minimum weight and dimensions specified in art. 3, "Weights and Dimensions". A piston ring, functioning in the normal manner, shall be fitted in each groove of the piston.
- **Machining the spigot faces of barrels to obtain deck height is permitted.**

Amend Article 2.6 (xi), Cylinder Heads as follows:

- “(c) Replacement of valve guides is permitted. Such replacements must conform to the specified dimensions and must be positioned in the standard VW manner (refer FVAA Technical Manual). **Knurling or K-Lining of valve guides is permitted.**”

Amend Article 2.6 (xii), Valve Train as follows:

“Valves must conform with Articles 1.1, 3 and 4 with the exception that they may be manufactured from any ferrous material.

- (a) Shimming of the rocker shaft posts to the cylinder head is permitted. Machining of the side of the rocker shaft post to facilitate alignment of the tappet with the valve centreline is permitted.
- (b) The valve rockers must be of genuine VW manufacture and of a type supplied on Australian VW 1200 or 1600 Type 1 sedans. No modification of the rocker is permitted save for removal of metal on the underside of the tappet lever arm and tappet screw boss. Tappet adjusting screws shall be 8mm diameter. The rocker arm ratio shall not exceed 1.18:1 (refer Formula Vee Technical Manual for details). Wave washers may be replaced with flat washers or spacers, and the spring clips that locate the rockers may be replaced by spacers held by bolts or pins inserted into the end of the rocker shafts. The maximum valve lift measured at any time during or at the completion of competition shall be 9.6mm on the inlet valves and 9.2mm on the exhaust valves. The valve lift will be measured “as found” in parc fermé.

- (c) Shimming at the valve spring seat is permitted.
- (d) The use of non-standard swivel foot valve adjusters is permitted provided no non-authorised modifications to any other components are made.
- (e) The use of lash caps VW part No. 113 109 621 or similar is permitted.**

Amend Article 2.6 (xiii), Lubrication System as follows:

- “the use of any standard VW Type 1 oil pump;
- the fitting of an external oil cooler.
- removal of the standard oil cooler;
- the fitting of an external oil filter;
- the use of a non-standard oil pump cover plate. The standard oil pump outlet port may be blocked when such a cover plate is used;
- the use of a sump extension. Any such extensions must be fitted without modification of the crankcase and conform with the specified dimensions. The oil pickup pipe may be extended. The sump plate is free;
- the installation of baffles completely within the crankcase;
- **the conversion of a twin relief case to single relief;**
- the standard crankcase oil filter/breather outlets may be modified;
- any oil filler neck extension and cap may be fitted.”

Amend Article 2.8, Transmission as follows:

- (i) “The transmission shall be standard VW, as defined in Section 1 “Definition”, unless specifically stated otherwise. The transmission shall be located behind the rear axle. **Gear sets must remain standard unless otherwise noted in the rules. Narrowing, re-profiling or lightening in any way is prohibited. No coating of any internal gearbox parts is permitted other than a temporary lubricant for assembly.**”

Add new Article 2.8 (iii), (b) & (v) as follows:

- (b) **“Aftermarket cases and housings may be manufactured from aluminium alloy. The cases must be similar in design to the genuine part with the exception of external ribbing. The internal configuration must remain the same as the original part. Any aftermarket case shall not weigh less than any eligible original VW case. A direct replacement transmission case, VW part # 081-301-051, or replacement replica, “Rhino” case is permitted.”**

Add new Article 2.8 (v) as follows:

- “(v) The following reconditioning practices are permitted:**
 - **Build up selector forks;**
 - **Linish back of syncro clutches to obtain free play;**
 - **Linish longitudinal thrust face of gears to obtain free play;**
 - **Remove detent spring plugs and replace with grub screws;**
 - **Bush selector rod guide holes in gear carrier;**
 - **Re-machine circlip grooves on rear of pinion and 1st motion shafts;**

- **Weld syncromesh hub to gear;**
- **Recondition detent groves in selector fingers;**
- **Recondition detents in syncromesh selector hubs;**
- **Reconditioning of threads;**
- **Regrind syncromesh teeth on hubs and gears.”**

Amend Article 3.3 (iii) as follows:

(iii)	Flywheel weight:	1200cc engine	5.4kg minimum
		1600cc engine	7.0kg minimum
	Clutch pressure plate weight:		3.3 3.25 kg minimum

Amend Article 4 (x) as follows:

x	valve push rods <u>gear box case & selector housing</u>
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Add new Article 5 (u) as follows:

<u>u</u>	<u>valve push rods</u>
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