

# C Modified Quarterly **cm-q**

V1-I4 / Fall 1999

## Time Management

As I type, there are very few shopping days left until Christmas. I had every intention of mailing this issue by the first week of December, but for a number of reasons this did not happen. I have to say the biggest hindrance to publishing V1-I4 has been a lack of time. Since the last issue of **cm-q**, I took a new job that has taken time away from my family and hobby. As I indicated in **cm-q** V1-I3, I place my family before my hobby, so V1-I4 had to wait.

## Congratulations

I would like to extend my congratulations to those of you who attended the '99 SCCA Solo2 Nationals. Although you are all champions for taking part in this event, special recognition is due the 1999 Solo2 National Champions Guy Ankeny in CM and Linda Smiley in CML. For those of you unable to make the trip, event results can be found on the SCCA's web site at <http://www.scca.org>

## FF Engine Discussions

Over the past several months, I have been following a number of discussions relating to the long-term viability of the Kent engine as the power plant of choice for FF. Check out "Rules" and "General" discussion areas of the web site <http://206.86.100.23/bformulafordunderground> for additional information. In my opinion, it's in the best interest of any FF owner (past, present, or future) to keep abreast of various issues being discussed/proposed on this web site.

## Change of Heart

In **cm-q** V1-I3, I outlined the logic that underscored my purchase of a '98 VW Beetle to replace my recently sold FF. My plan was Solo2 the Beetle at local / regional events while renting CM/BM rides for divisional / national events.

The above plan was still in place when **cm-q** V1-I3 hit the mailbox. I ran the Beetle at a local Solo2 the weekend prior to renting Peter Calhoun's '84 Reynard FF for the CenDiv Divisional.

Although I really enjoyed the Beetle as a run a round town car, I was a bit concerned regarding its Solo2 potential after running it "bone stock" at the local event. Let's just say that the Beetle was about as opposite a CM car as you can get!

After running Peter Calhoun's FF at the CenDiv Divisional, I totally gave up on the idea of using the Beetle as even a local Solo2 car. Even though the Beetle is infinitely more usable, I realized the enjoyment I get from owning a formula car that sits in my garage 99% of the time far exceeds the value of any street car!

## The New Ride

Once I had made the decision to buy another formula car, I was fairly certain that I would end up with a FF2000. Over the past a year and a half, I have tracked the winged formula car market paying close attention to the FF2000. Although it is classed with cars that have a far greater potential, I am convinced that the FF2000 is a viable alternative to the cars currently competing in BM.

Within a week of returning from the CenDiv Divisional with my mind set on a FF2000, a '88 Swift Europe SE3 located in Albuquerque, NM became available. In addition to being fully updated and reasonably priced, the car had a fairly interesting history.

The logbook stated that this car was SE3-1 making it the first Swift Europe to be sold by importer Cutis Farley. Although I could not confirm that it was the same chassis, I did learn that Farley set the F2000 pole and fastest lap at the '87 Runoffs in a SE3. I also discovered that one of the previous owners of SE3-1 was none other than '92 Solo2 CM National Champion Jeff Watson. At the '93 Solo2 Nationals, Watson managed to take the 5th trophy spot in BM with this car.

The exact details of how this car made it my garage are a bit convoluted, but needless to say, I am now the proud owner of a '88 Swift Europe SE3.



The "New Ride" – Photo by Tom White

## Happy Holidays

In closing, here's wishing you and yours a happy and safe holiday season.

-pru-  
50 bm

## Details

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### Treasury

| cm-q Expense / Income* |       |
|------------------------|-------|
| Publication Expenses~  | \$65  |
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| 99 Surplus (Deficit)   | \$135 |

\*rounded to nearest dollar  
~V1-I4 costs not included

### Disclaimers

This newsletter encourages your submissions. The views expressed by a given author are not necessarily those of the publication.

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The information in this newsletter is accurate to the best knowledge of the editors. All recommendations found within are made without guarantee on the part of the author, editor, or publisher. Any liability incurred in connection with the use of this newsletter is expressly disclaimed.

## Books

How to Build and Maintain Competitive (yet legal)  
Formula Ford 1600 Engines.

by Jake Lamont  
with Tom Andresen

Published in 1997 by Lamont  
Performance Products, Inc.

Available from Pegasus Auto  
Racing Supplies for \$30.99.

Whether you build your own engines or not, this book is loaded with useful tips and tricks to help you run faster and longer. Includes comprehensive sections on: disassembly & inspection, machining cylinder heads, carburetion, dry sump oil system, clutches, assembly and break-in, dyno tuning, maintenance and much more.

**HOW TO BUILD AND MAINTAIN  
COMPETITIVE (yet legal)  
FORMULA FORD 1600 ENGINES**



by  
Jake Lamont  
Lamont Performance Products, Inc.

with  
Tom Andresen  
Andresen Engine Development

## Letters

### V1-I3 Printing Problems

Just wanted to thank you for the really good newsletter. Even though I am just a CM wannabe, it is very interesting reading.

Thought you might want to know (because of your previous printing problems) that my copy had a blurred streak across the page about one-third down that obscured a couple of lines. This affected most but not all the pages.

Thanks again for your efforts. Hope you will be back in CM soon.

Bill Hiatt

*Thanks for the feedback. The cost of issue V1-I3 was absorbed by the printer due to problems you have noted. Seems his copier developed a problem in the middle of producing the newsletter. We will get it right one of these days! In the meantime, accept my apologies.*

-pru-

### Future FF Owner

Thank you once again for all your efforts in providing this excellent newsletter for the CM community. C Mod is by far one of the finest groups in Solo2 and your work goes a long way in making this much more than a bunch of people who happen to drive the same type of cars.

Enclosed is my donation to the cm-q cause. I was happy to hear that you will continue the publication even during your sabbatical with your family. My plans to join your ranks this season were postponed due to an employment change, but I hope to have a FF for Solo1 and Solo2 next season.

Take care,

Roland Zuk  
Merkur XR4Ti ESP

*Thank you for the comments and donation! Although I have purchased another formula car, your comment regarding a family sabbatical still has a lot of bearing. When it comes right down to it, I really haven't had much spare time to work on the SE3 since I got it home. Still, it's nice to know that when I do get a free hour or so, I have a car sitting in the garage that needs my attention.*

-pru-



# Technical

## FF/S2 Engines

In this issue of **cm-q**, Tom Andresen of Andresen Engine Development offers his insights on the engines utilized by the FF/S2. Many thanks are due Tom for taking the time out of his busy schedule to answer the following series of FF/S2 engine related questions.

**cm-q:** What type of engine oil do you recommend?

**TA:** For engine break-in, we use conventional Pennzoil 10w30. After break-in, we suggest either Mobil 1 or Redline 10w30 synthetic.

**cm-q:** How often should engine oil be changed?

**TA:** In a Solo2 application, it depends on the number of events you run, but at minimum I would say 2 to 3 times a season. Once before the start of the year, with the remaining changes spaced out equally over the season.

**cm-q:** What type of oil filter do you use?

**TA:** We like the Fram filter. We have found there is little need to run any type of heavy duty racing filter.

**cm-q:** What is your advice regarding an oil cooler?

**TA:** Get rid of it! If you look at all the newer road racing FF, you will notice they have done away with oil coolers. The reason lies in the fact that you need your oil hot. I like to see oil temperature in the 200 to 230 degrees F range. Hot oil is the quickest way to free horsepower! Due to the short run times in Solo2, this can be tough to achieve. For one of our Solo2 customers, we went as far as to install an oil heater to help raise oil temperature.

**cm-q:** What type of coolant do you recommend?

**TA:** Water with the liquid Redline Water Wetter. I don't like anti-freeze for the simple reason that it's a pain to clean up if gets on the track.

**cm-q:** What do you think of thermostats?

**TA:** A thermostat is a great way to bring up and maintain engine temperature. If you do use a thermostat, don't forget to drill a couple of small holes in the top vane to help bleed air out of the system.

**cm-q:** Any specific advice regarding air cleaners / air boxes?

**TA:** We like the K&N or RamAir filters. If your car has an airbox, make sure it's tightly sealed. A light smear of grease will help in this regard. The grease also traps a surprising number of small particles.

**cm-q:** What type of sparkplug do you utilize?

**TA:** From a price and availability standpoint, it's hard to beat the Champion N6YC. A lot of people turn up their noses at the Champion. We've tried a number of different types and found the expensive trick plugs offer no advantages.

**cm-q:** Any sparkplug wire recommendations?

**TA:** We like the Taylor / Holley 8mm plug wire with the molded boot. The ignition systems of FF/S2 engines do not merit thicker wires than an 8mm.

**cm-q:** What about the cap, rotor, condenser and points?

**TA:** We prefer the Bosch branded stuff.

**cm-q:** Could you compare and contrast the Bosch and Motorcraft distributors?

**TA:** Many of the older cars use the Motorcraft distributor. Properly set up, it's perfectly fine. The costs associated with setting up the Motorcraft distributor are such that, if it breaks, you are better off replacing it with a Bosch. 009. On the subject the 009, some of the newer distributors have shaft grooves opposite the desired direction. This manufacturing error causes oil to be swept up versus pushed down. This is more an irritation, as it doesn't interfere with the operation of the distributor. I also recently discovered via a supplier that the Bosch 009 is no longer being produced.

**cm-q:** When should a FF/S2 motor be rebuilt?

**TA:** For a total rebuild, roughly after three full Solo2 seasons. Due to its high impact on engine performance, FF owners might want to consider having the head freshened each season.

**cm-q:** Do you have any comments regarding timing?

**TA:** The points on these engines tend to wear quickly. Dwell should be checked after every few events. Replace the points when you notice the dwell beginning to slip. Set your timing back to 38 to 40 degrees after a point change

**cm-q:** What type of fuel do you recommend?

**TA:** We like dedicated racing fuels. VP C12 tops our list. We don't like aviation fuel. We've seen a lot of valve problems in those engines using aviation fuel. Aviation fuel lacks the additives of a good racing fuel.

**cm-q:** Does carburetor jetting ever need to be adjusted?

**TA:** If your jetting was set on a dyno, you really shouldn't need to play with it. In all but the extreme cases, dyno set jetting will yield the best results.

**cm-q:** What is the redline rpm of FF/S2 engine?

**TA:** In both engines, the power falls off after 7000 rpm, so there's really no reason in doing it. Spinning these motors beyond 7000 rpm is not a good idea as you start to stress the weaker points of the engines. In the S2, the rods are the weak point, but the rules are such that we can replace these with stronger after market rods. In the FF, the crank is currently the weakest link.

**cm-q:** What is your opinion of the proposals before the SCCA regarding an upgraded FF crankshaft?

**TA:** It's a step in the right direction. The proposed new cranks would still be cast but made from higher quality steel. These cranks would cost a bit more, but they would be more reliable.

## Technical Continued

**cm-q:** What is done to build an engine for torque versus horsepower?

**TA:** What we really do is change the rev range of the overall power band. By varying cam timing, we can move the power band up or down to suit the given application. In comparison to the power band used in road racing, the typical Solo2 power band is at much lower rev range

**cm-q:** How often does an engine need new piston or rods?

**TA:** If the engine has not been abused, rarely do these items need replacing. Obviously an engine failure is a different story.

**cm-q:** How often does an engine need new sleeves?

**TA:** It depends on the amount of time the engine has spent at top r.p.m. as well as the amount of dirt that has passed through the engine. On a road racing engine, we might replace the sleeves after three full seasons. A Solo2 engine may never need new sleeves.

**cm-q:** What's the best type of oil pump?

**TA:** From a power standpoint, the belt driven oil pumps will yield 1% to 1.5% more power than the cam driven pump. They are expensive and you have to worry about the belt breaking. If the belt breaks on a belt driven pump, your engine blows. With the cam driven pumps, you don't need to worry about belt failure.

**cm-q:** What causes engine vibration?

**TA:** For whatever reason, some engines vibrate while others are extremely smooth. It seems that each engine has its own unique harmonics. To me, this is bothersome and hard to understand, as all of the engines we build are prepared to the same standard. This is an area that I am actively investigating.

**cm-q:** What type of exhaust/coating do you recommend?

**TA:** Our dyno has shown that the Hi-Tech exhaust works as advertised. It's worth the extra expense. We prefer a coating such as Jet-Hot over paint.

**cm-q:** Any pointers for shipping an engine to a builder?

**TA:** Make sure you get all of the fluids out of the engine! Once a leak is discovered, an airline will stop shipment of your engine. If you're lucky, the airline will turn it over to a trucking company; otherwise, you will have to figure out how to get the engine to its final destination. Trucking companies seem to lose engines that leak. Leaking engines find their way to the back of warehouses. Finally, do not ship any car specific item to the engine builder. We try our best not to lose things, but the car specific stuff is the stuff that usually winds up missing.

**cm-q:** How long does a typical engine rebuild take?

**TA:** In the off season, expect four weeks. In the summer, a rush job for a previous customer can be done in two weeks.

**cm-q:** What's your opinion regarding the practice of pulling the sparkplugs to build oil pressure prior to starting an engine?

**TA:** After an engine installation or oil change, I can see the worth, but not each time you roll the car off the trailer. I have experienced too many starter problems to recommend this practice. The fewer times you use the starter the better.

**cm-q:** Thanks for your time. It has been eye opening!

**TA:** My pleasure. I'm glad that I could help.

If you have additional questions as a result of this column, please phone Andresen Engine Development at 815 338 3966 and ask for Tom.

## Technical Contributors

Without the following contributors, the **cm-q** Technical columns would not be possible. Please make the effort to contact these businesses the next time you are in the market for a given product or service.

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### Engine Development



### Driveline Specialist



For a free drivetrain catalog, contact Taylor Race Engineering at 972 422 0567 or toll free at 800 922 4327. Our fax number is 972 422 8677. Check out our online catalog at [www.taylor-race.com](http://www.taylor-race.com). We can also be reached via e-mail at [tayrace1@airmail.net](mailto:tayrace1@airmail.net).

## **cm-q** Subscribers

Note that if the names of your favorite CM competitors are not on this list, they are not currently receiving **cm-q**. Please forward the appropriate information and I will send them the latest issue

## CM Numbers

Here's the current national CM Numbers listing. As is usually the case in the off season, cars are being sold, switched, updated, painted, etc. Please review all of the information and forward any updates for the 2000 season. As some on this listing are not **cm-q** subscribers, I ask that you update the information for those lost soles that you know.

## Contacts

Here's the revised **cm-q** contacts listing. To facilitate ease of use, this listing has been squeezed to one page. Let me know if it is too difficult to read. Also, please forward any additional contacts that you would like to see listed.

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## For Sale



### 1984 Van Diemen Formula Ford

Campaigned as Solo II car 6 weekends in the last two years. Wife says some of these toys must go. Rockerarm rear and pushrod front suspension. Two spare noses. Small amount of other spares but has two sets of mounted slicks and one set of mounted rains. Enough to do a season of autocross up to nationals. Minor work to return to road race if desired(reinstall fire system). This is a good car, I simply have no time to learn to drive it at it's considerable limit. Great beginner road racer or great entry to C mod autocross. Would consider package deal with 18 ft enclosed trailer set up for this car. 1600 Kent last rebuilt by Andreson. Has been reliable. Hewland Mark 8. Excellent shifting. You only need the clutch for starts once you are experienced with this set up. Call or E mail for more info. Would consider enclosed trailer package with car for \$9000. \$6500.

Contact Albert at 319-338-1085 or via email at [acram@home.com](mailto:acram@home.com)

### 1983 Van Diemen Formula Ford



Campaigned as Solo II car for last 6 seasons but easily converted back to RR if desired. Has updated wider front suspension. Rockerarm at all corners. Single adjustable Koni shocks. Spare springs if you don't like my setup. New fuel cell summer of 1999. 1600 Kent last rebuilt 5 seasons ago by Clem but only autocross since. Has been reliable. Hewland Mark 8. Excellent shifting. Spare gears. Set up with autocross integral shaft first. Would consider enclosed trailer package with car for \$9000. \$6500.

Contact Albert at 319-338-1085 or via email at [acram@home.com](mailto:acram@home.com)

### 1979 Tiga FFA



New Parts. Complete frameup winter 1998. Williams Engine 1998. Shocks(Carrera). Springs(4 or 5 Sets). Rod ends throughout. All new hardware. All new wiring, floor pan, bulkheads, hoses, starter, radiator and fans (electric), new dash (polished aluminum). Replated all suspension parts. Other stuff. Spare nose. Spare lower body (Old Style, ground effects look). 1 set Revolutions. 1 set Ultralight Panasports (New last year). 1 set Rains on steels. Spare front A-Arms. This car has been spared no expense. \$6500.00.

Contact Mike Bultemeier via e-mail at [hottvr@tfs.net](mailto:hottvr@tfs.net) or by phone at 816-461-1600 (h) or 816-224-5852 (w).

### 1975 Lola T-342



Autocross only since full rebuild. Andresen Engine, Strengthened frame, Revolution wheels with slicks, ATS wheels with rains, excellent condition. Runs strong. Custom open trailer included. \$8,000.00 or Best Offer.

e-Mail: [tgrau@msn.com](mailto:tgrau@msn.com)

## V2-I1 Preview

I have a couple of ideas for the **cm-q** V2-I1 Technical article, but I have yet to make contact with any of the subject matter experts. I'm open to suggestions, but I am leaning toward an article on wheels and tires.

I couldn't quite hook up with the husband / wife team that was the subject of the V1-I4 Driver / Car column. I'm positive that we will connect in time for **cm-q** V2-I1.

As always, I welcome your submissions. The deadline for the next issue of **cm-q** is February 1st. My plans are to have V2-I1 mailed to your home in the February 15<sup>th</sup> time frame.