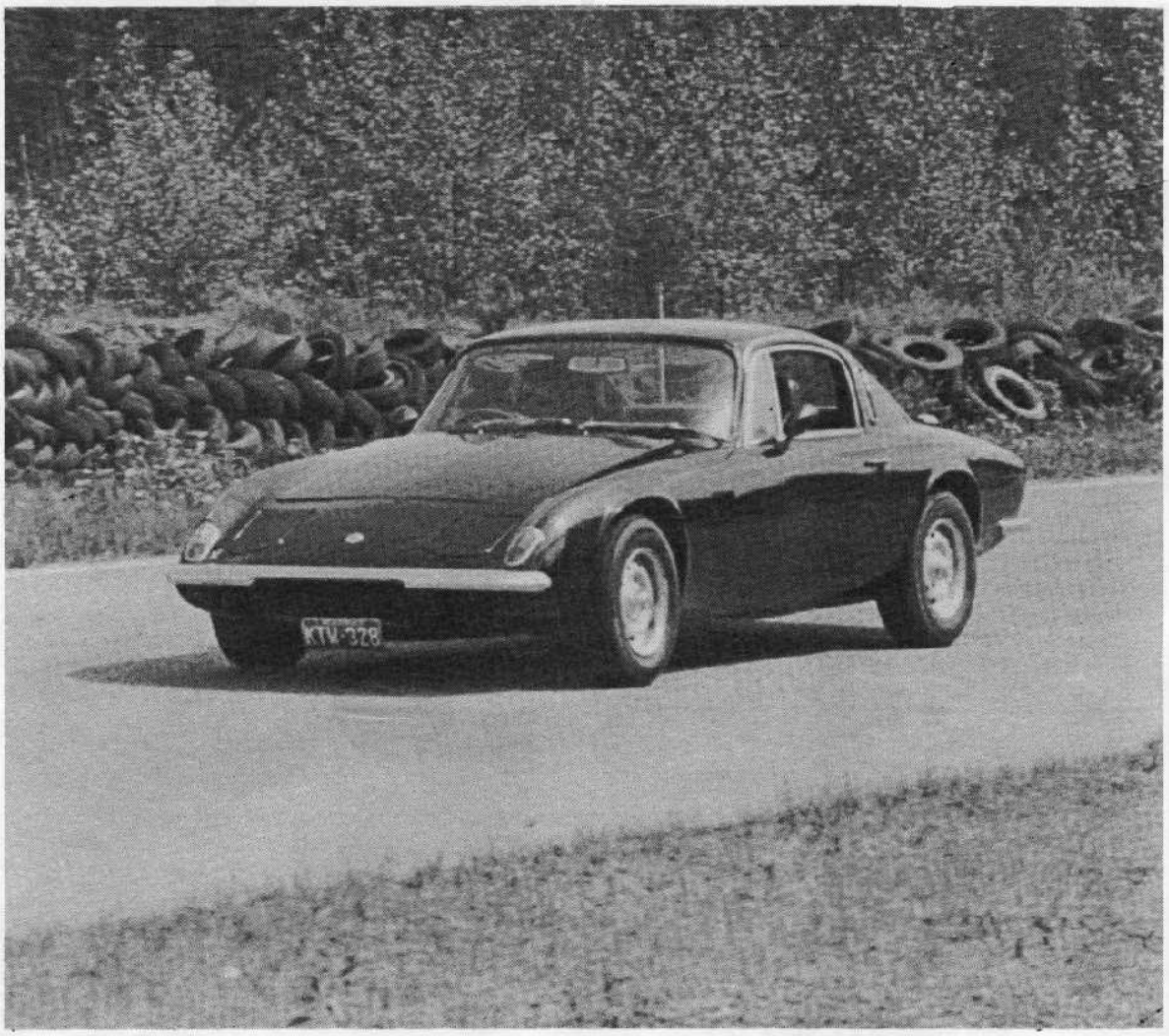
The Official Newsletter of the Lotus Car Club of British Columbia

cam journal

VOLUME 27 NUMBER 1

JANUARY / FEBRUARY/ MARCH 2006



Website News

by Malcolm Muir

Our club website is:

http://www.geocities.com/MotorCity/Garage/9235/

In case you haven't been to our website lately, best check it out. Dean Moncado has spent a number of hours updating and improving our web page.

Some of the items included are club photos, both past and present, parts 1 and 2 of Dean's restoration of his Élan +2 and updated links to out Lotus car clubs and suppliers. Surf in and check it out!

Please let Dean know some caption information about these photographs. Many I can remember, but the years can blur together and I can only guess. Some photos are included as samples.

Hugh McLellan's Seven S3 at Westwood

Gary Milligan's Europa Solo Special

Terry Edwards' Élan S3

Kim Spencer's Europa S2

Trevor Gagnon's Élan +2

cam journal

LOTUS CAR CLUB OF BRITISH COLUMBIA
PO BOX 45525, WESTSIDE RPO, VANCOUVER, BC V6S 2C5

VOLUME 27 NUMBER 1 **JAN-FEB-MAR 2006**

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COVER

The ex-Malcolm Muir's, ex-Mike Spence's '67 Elan Plus 2 burning up Westwood - 1985

The President's Point of View

Dave Rush Type 54

New Year's Eve came and New Year's Eve went and still there were no Canadian Market Elises to be seen but ones in previously unseen colors were sited at Weissach Jan 31. Three cars for Canada arrived here, one delivered to a local owner, one will be a Weissach demo and the third sent to Winnipeg. The demo has the touring, not sport suspension.

The Christmas supper has held at Vangelis' Greek Restaurant and as before, we teamed up with the Pacific Jaguar Enthusiast Group. Thanks to all who attended and it was a nice setting but unless someone else has a better location, next year it will be at my home to allow for less formal seating, more space and better mingling.

Thanks go out to Kevin Moroney who orchestrated the purchase of some great Norwich City F.C. away jerseys in Lotus colors and feature the Lotus ACBC. Norwich is some kind of sports group with Lotus as a sponsor. It seems a bit odd that Lotus is the sponsor rather than the sponsored but we're no longer in the less kind and gentle days of motoring when cars thundered and the sound systems hummed,

Dean has been updating the club photo album on the club's website at www.geocities.com/MotorCity /garage /9235 and there are lots of very early club photos. Thanks go out to Dean who found time after spending huge hours on his beautiful +2. It's ready for the road nearly complete. Having a vintage Lotus that is totally complete would take the intrigue out of thinking up the next upgrade.

Andrew Field of Boundary Bay advanced driving school still figures on a late summer opening for the very large piece of asphalt at Pitt Meadows Airport which will be dedicated to motorsport activities.

The New Year is here so it's time to ante up for 2006 dues if you haven't already. You will notice that this issue is thicker than normal since we are reducing the rate of publication from 6 times to 4 times per year. Between issues, we will have time to more closely review who has paid and will get the Cam Journal so be warned.

This winter, I'm rebuilding the Europa's crossflow and tidying up the whole engine bay. This week, the focus is on replacing the agricultural style header with one that has more equal length runs. I found a tubing bender in Maple Ridge who can do various small radiuses and small diameter mandrel exhaust bends in my header journey and a spaghetti-like mass is starting to grow out of the exhaust ports.

In looking at EPA fuel economy data, I noticed that the Bentley Arnage is classed as a midsize, Continental GT as Compact and The Aston Martin V12 Vanquish as a minicompact. The criteria are interior volume I guess but something just doesn't seen right.

Anything more than checking the oil on the new Lexus is250 is best left to the dealership

Am I a Lotus nut?

After 10 years of fantasizing, researching and dreaming... and about zero minutes of actually looking for one...I unexpectedly came across and bought a reasonably good example of an 88 Turbo Esprit with 103000km, in Jan 2000.

In 6 years of Esprit ownership, driven for pleasure maybe 85% of the time, and 15% commuting, buying groceries, etc... here's the repair list, not in any particular order:

Master clutch cylinder (leaked)
Red hose replacement (common problem)
Window switches x3 (burnt out because there are no relays)
Window motors x 4 (common problem...car only needs 2...see above)
Added relays and fuses to window system (see above)
Front windshield (thanks ICBC!)
Shifter linkage (worn out)
Clutch output shaft (stripped, due to worn thrust washer, not my abuse, but maybe PO's)
Clutch (still had 40%,but while we were in there... these two were by far the most expensive problems)
Replaced gas Balancing hose (Common problem cheap fix)
Resealed leaking left rear window
Replaced Stereo amplifier (See above)
De rusted left gas tank (See above)
Replaced otter switch (Fans quit working after coolant change)
Added variable threshold thermostat (Otter switch was fine, but??)
Replaced inertia switch (Cracked, thought to be causing chronic stalling)
Replaced fuel pump relays (Kept cutting out from overheating and age, thought to be causing same chronic stalling)
Rewired relay sockets (Seemed like a good idea to a Lotus "Expert" to cure stalling)
Replaced gas filter (same "Expert" still hadn't solved the problem)
Overspeed module (Unapologetic and expensive Expert finally solved chronic stalling) Oil changes (always synthetic)

New tires (but they don't make 'em in these sizes anymore, sir...)
Replaced timing belt (always a good idea)
Rebuilt alternator (was not charging well)
Replaced rebuilt alternator (with a modded German one when rebuild failed)
Replaced third taillight bulbs (And couldn't see out the back at night from stray reflections...no wonder they took 'em out!!)
Replaced rear hoodstruts (Sagging badly...Cheap!! But not quite OEM)
Rear brake pads (relined, as not crossed to any North American car)
Front brake pads (cross to Toyota)
Steering rack rebuild (steering felt weird)
Alignment (see above)
Straightened bent front wheel (Ahh that's the problem! But why then didn't the alignment guy...)
Realigned drivers door (was sagging. Wonder if the silicone the PO used to hold the door trim was there to stop leaks)
Fixed sagging headliner (? See above)
Replaced broken sunroof clip (oops broke it myself in the showroom)
Bought replacement Esprit Logo (still haven't mounted it, paranoid of thieves)
Spark plugs
Air filter
Battery
Floor mats (made 'em myself but already need new ones, shouldn't have used cheap carpet)
Rebuilt funky cheap power driver's side mirror
Stopped trying to rebuild mirror control switch after it disintegrated the third time

Car presently has 140000km and needs:

Turbo rebuild
New front springs (One's cracked)
Rear pads (relined ones don't last)
Still have not solved bouncing headlight problem but think I know how.
The car came with a broken collapsible column that has been fixed but should probably be replaced. I have the part...
Drivers' door seal is worn
Engine cover seal is half gone
Damn window squirters are impossible to aim.

Farthest point I've driven the car: Hwy 12 & 97 junction, n of Cache Creek.
Farthest point I've been stranded by the car: Duncan BC
Longest day trip: 12 hours solid driving, with a few breaks
Longest overnight trips: 1 week (twice, for work. Cache creek and Duncan)
Number of times car has come home on a flatbed: (2. Both the long trips!)
Most expensive (& only) speeding ticket: $375 for "excessive speed" (I had just been going 200 but slowed down just before I saw the cop, west of Princeton BC)
Number of times I have drag raced the car: 0
Number of times a woman has been interested in me because of the car: 1 (maybe 2 but my wife swears it ain't so)
Number of times guys want to stop me to talk about the car: too many to count
Number of accidents car has caused by distracting other drivers: 1
Number of times its been called a Ferrari: too many
Number of times its been called a Delorean: Once
Number of times people have asked if it's 'real': 1

Has it all been worth it? Emphatically, yes.

Sacha Esprit Fassaert Vancouver BC
(Yes, that's really my name...!)

Calendar Of Events

All dates shown were correct at the time this calendar was assembled, and is subject to change, as more accurate information becomes available. For Cam Journal assembly dates, please ensure your typed or e-mailed articles and contributions are submitted to the editorial staff on or before that date. If articles are hand-written, please submit one week ahead of time to allow for typing. Addresses for meetings are shown on page one of the Cam Journal.

Malcolm Muir

FEBRUARY

1	Monthly Meeting 7:30 PM Hugh McLellan
8	Cam Journal Assembly Jan-Feb-Mar Issue
25-26	Collector Car Show & Auction Tradex Centre, Abbotsford, BC

MARCH

1	Monthly Meeting 7:30 PM David Ellis
15-16	SCCBC Races Mission Raceway, Mission, BC
29-31	Pacific International Auto Show BC Place, Vancouver, BC

APRIL

1-2	Pacific International Auto Show BC Place, Vancouver, BC
5	Monthly Meeting 7:30 PM Ron Solomon
15-16	SCCBC Races Mission Raceway, Mission, BC
22-23	VRCBC Spring Thaw Races Pacific Raceways, Kent, WA
28-30	BC Classic & Custom Show Tradex Centre, Abbotsford, BC
29-30	SCCBC Races Mission Raceway, Mission, BC

MAY

3	Monthly Meeting 7:30 PM TBA
13-14	SCCBC Races Mission Raceway, Mission, BC
17	Cam Journal Assembly Apr-May-Jun Issue
19-21	Knox Mountain Hillclimb Kelowna, BC www.knoxmtnhillclimb.com
20	All British Field Meet Van Dusen Gardens, Vancouver
20	Club Lotus NW Track Day Portland International Raceway
22	Victoria Day (Canada)
27-28	VRC Vintage Car Races Mission Raceway, Mission, BC Italian Cars Featured
29	Memorial Day (USA)

JUNE

7	Monthly Meeting 7:30 PM Dave Rush
10-11	SCCBC Races Mission Raceway, Mission, BC
25	Canadian Grand Prix Montreal, QE

JULY

1	Canada Day
1-2	Historic Car Races Pacific Raceways, Kent, WA
4	Independence Day (USA)
5	Monthly Meeting 7:30 PM Dan McLellan
7-9	Molson Grand Prix (CART) Toronto, ON
8-9	SCCBC Races Mission Raceway, Mission, BC
8-9	SOVREN Historic Races Portland International Raceway
21-23	Grand Prix Edmonton (CART) Edmonton, AB
22-23	SCCBC Races Mission Raceway, Mission, BC

AUGUST

2	Monthly Meeting 7:30 PM TBA
5-6	SCCBC Races Mission Raceway, Mission, BC
7	Civic Holiday (Canada)
16	Cam Journal Assembly Jul-Aug-Sep Issue
18-20	Monterey Historic Races Laguna Seca, Monterey, CA
19-20	SCCBC Races Mission Raceway, Mission, BC
20	Royal City Show & Shine New Westminster, BC Call 604-524-4996

SEPTEMBER

1	Club Lotus NW Track Day Portland International Raceway
2-3	All British Field Meet Portland International Raceway
2-4	Columbia River Classic Vintage Car Races Portland International Raceway
2-3	SCCBC Races Mission Raceway, Mission, BC
4	Labour Day
6	Monthly Meeting 7:30 PM Richard Lee
9-10	SCCBC Races Mission Raceway, Mission, BC
9-16	Targa Newfoundland Rally St. Johns, NL www.targanewfoundland.com
10	British Picnic in the Park Hougan Park, Abbotsford, BC Fraser Valley British Motorcar Club
16-17	Vancouver-Whistler Run Old English Car Club
23-24	SCCBC Races Mission Raceway, Mission, BC
23-24	VRCBC Fall Finale Pacific Raceways, Kent, WA

OCTOBER

4	Monthly Meeting 7:30 PM Malcolm Muir 604-467-6560
7-8	Maryhill Loops Hillclimb Goldendale, WA
9	Thanksgiving (Canada)
31	SEMA Show 2006 Las Vegas Convention Centre

NOVEMBER

1	Annual General Meeting 7:30 PM TBA
1-3	SEMA Show 2006 Las Vegas Convention Centre
3-4	Ladner-Bellingham Run Old English Car Club
15	Cam Journal Assembly Oct-Nov-Dec Issue
23	Thanksgiving (USA)

DECEMBER

24	Christmas Eve
25	Christmas Day
26	Boxing Day

http://www.abfm-pdx.com/2006/index.htm

Lotus Land

By Stephen Harper

I know that I'm not the only science-fiction fan in this club, and I'm sure that many of you will remember a television series from the 1970's called 'Space 1999'. Similarly, I'm sure that just about all of you can recall the 1968 film '2001: A Space Odyssey'.

While both of these shows presented visions of the future, the reality has turned out to be quite different. Here we are in 2006, and if you are reading this then you are much more concerned about rebuilding the carburetors on your thirty year old car than you are about departing for 'Moon Base Alpha'. I cannot think of a single work of science fiction that has depicted a long-suffering British car owner piecing his car together, and yet that is the 'science fact' of today.

For those of you that weren't able to attend the February meeting, you missed out on an excellent opportunity to see two of the best examples of club members proving the science fiction writers wrong.

Hugh McLellan has been making good progress on the restoration of his Series 3 Lotus Seven, and it was nice to see so many shiny new bits scattered about the garage. Hugh has fitted a new chassis to the car (which to this day is still manufactured by Arch Motors) and I was quite impressed by the overall quality of its welding and assembly. I suppose that this should be expected given how much a new Caterham costs, but it was still pleasantly surprising.

Despite - or perhaps because of - all the shiny new bits, Hugh has encountered a few infuriating trouble spots with regards to re-assembly. It is quite surprising how a few extra chassis tubes, as well as the relocation of the windshield wiper assembly, can be the cause of so much consternation. I suppose in a way this explains the relative rarity of restored Lotus cars, as the overall simplicity does not translate into tasks being easily accomplished.

Needless to say, Hugh is doing a superb job of putting his Seven back together, and I look forward to seeing him on the road sometime in the not too distant future.

The other car that we were able to see was Dean Moncado's continuing Elan +2 restoration. In the last Cam Journal, I gave my impressions of driving Dean's superb little car. Unfortunately, Dean's progress during the past few months has been hampered by his busy schedule and the never-ending rains, but he is still quite confident of having the car ready in time for the annual All-British Field Meet at VanDusen Gardens in May.

On a somewhat different note, I'd like to remind everyone that if you haven't done so already, it is now time to renew your club membership. It is an easy thing to forget during the course of our hectic lives, but please take a moment right now to write a cheque and send it in.

And while I'm speaking about club business, I'd also like to mention the Cam Journal.

It has always been the goal of the club executive to have an entertaining and informative newsletter that surpasses the level of quality and content that one would expect from a club of our small size.

While we do our best to maintain the high standards, the fact is that the best articles are those that come from you, dear reader! Looking at the latest membership list, I see a number of new names that we haven't really heard from, and I challenge all of you - new members and veterans alike - to tell us the story of your Lotus. Perhaps if you don't have the time to write, you can send in some pictures, or write an email that we can publish.

Start Writing! Everyone will appreciate it!

Racing Quotes

Compiled by Stephen Harper

Here are some famous (as well as infamous) quotes from the world of motor racing.

"I am an artist. The track is my canvas, and the car is my brush"
- Graham Hill

"People used to think the worst about me, but my image is far too good now. People must be starting to think I'm a soft touch. I think I'll have to shoot somebody. A journalist, maybe."
- F1 Supremo Bernie Ecclestone

"I knew I'd been beaten by the best driver in the world"
- Rene Arnoux on his last lap battle with Gilles Villeneuve at Dijon 1979.

"Well, he borrowed Nigel Mansell's eyebrows, that's why he must be so quick"
- David Coulthard, commenting on 2005 World Champion Fernando Alonso

"I didn't want to be Champion of the world, I was just curious to find out what it felt like to drive a particular type of car fast"
- Jim Clark

"And we have had 5 races so far this year, Brazil, Argentina, Imola, Schumacher and Monaco!"
- who else but Murray Walker?

"Your driver will never win the championship until he learns not to hit people on the track!"
- James Hunt to Colin Chapman, commenting on Mario Andretti Zandvoort 1977

"One of the great things in motor racing is concentration. When I want to go faster I don't drive any faster, I just concentrate harder."
- Jim Clark

"Putting the engine in the rear part of the car is like having the horses pushing the cart".
- Enzo Ferrari

"You won't catch me driving a race car that I have built"
-Colin Chapman

"The secret of a successful marriage is not to be at home too much."
- Colin Chapman

"I'm not scared of driving fast in GP circuits...But I'm scared of driving my car on public roads and be overtook by idiots who think they're Fangio"
- Juan Manuel Fangio

"Well, well, young man, how much do you need to be content?"
-Enzo Ferrari's first words to Gilles Villeneuve

"When I left home for the German GP I always took a long moment to take a look at my home before stepping into the car, thinking this could be the last time. The chances of not coming home from The Ring were that big."
- Jackie Stewart

"Power is how fast an engine can punch. Torque is how hard it can punch."
- Martin Brundle

"Barry Sheen's riding that Suzuki as though he is married to it"
- Murray Walker

"Driving in Monte Carlo is like riding a bike in your house"
- Nelson Piquet

"Finishing second means you are the first person to lose"
- Gilles Villeneuve.

"Loads of overtaking is boring. You go fishing and you catch a fish every ten minutes and it's boring. But if you sit there all day, and you catch one mega fish, you come back with stories that you caught a fish this big (indicates a big fish), instead of this size (indicating a small fish)"
- Eddie Irvine on the lack of overtaking in F1

Tin Top Tales

The Arnold Four Times Rule

by Malcolm Muir

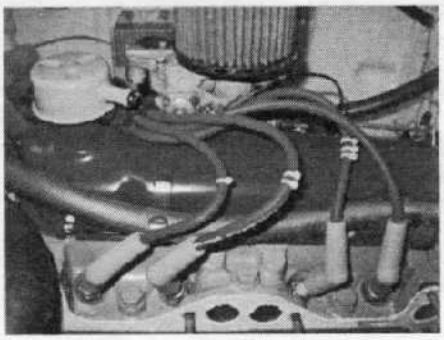
Many years ago, I attended a Lotus Technical Seminar in San Francisco, hosted by the late Graham Arnold of Club Lotus UK. Of the many things shared was "Arnold's Four Times Rule", which states the when undertaking a car project "everything will take four times longer and cost four times more than your original estimate". I would also like to add "and you will do each separate job four times."

The reason for the Four Times Rule is basic; hand-built cars don't necessarily go back together the way the came apart; a long passage of time passes between the disassembly and the reassembly; currency exchange fluctuations and shipping charges are not part of your budget estimates; and lastly, what fit on an early production 1967 vehicle, was normalized to the production version after 1969, and hence is different for your original part, and somehow you've got to make it fit or fix the old bit; it's maddening!

However, we refuse to be beaten by an inanimate object and therefore soldier valiantly onward, maxing out our MasterCards, spend countless hours in stooped or unnatural positions in the garage, in the car or over the workbench and repeatedly hear the same question from our peers' and spouses' "When the car be on the road?"!

Oddly enough, the doesn't have to be a hand-built Lotus for above to be true. Other British models like Mini, MG, TR4 and Austin-Healey seem to be exempt from the Four Times Rule. Mostly due to the immense number of enthusiasts, clubs and specialty retailers and wholesalers who support these marques, possibly better that BMC originally did.

Production cars, now there's the challenge. Many British production car manufacturers, even those supported by a US manufacturer, change models every 5 years, then abandon the line for the newer models. The factory will only offer parts support maybe 5-10 years and then disowned the cars. In the 60's & 70's most owners upgraded and sent their 10-15 year old British production car to the scrappers & crushers.



A few enthusiasts cling to their beloved cars, saw the handwriting was on the wall and amassed great quantities of spares.

Fast-forward 20 years and all of a sudden these forgotten British production cars (Sunbeam Alpines, Vauxhall Victors, Hillman Avengers, and yes Ford Cortinas, Anglias Escorts & Capris), become sought after due to their rarity.

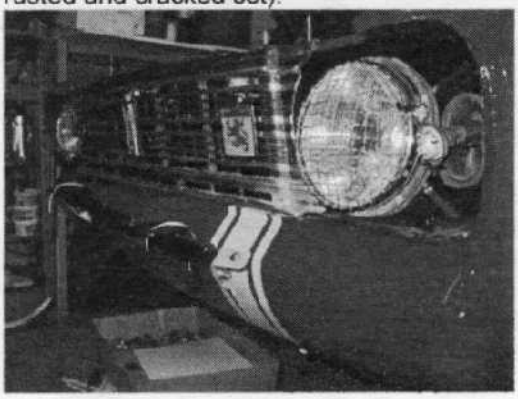
I was one of a number of odd fellows who liked British production cars and did all of the aforesaid things.

But enough of this musing.
The 1968 Mk II Ford Cortina 1600 GT rally car restoration/rebuild/preparation continues and application of the Four Times Rule came into effect.

You may recall, the car came home from the body & paint shop last September.
I had great hopes of completing and competing with the car in Historic rallying in late November.

However, reassembling a stock car is one thing; reassembling and preparing for competition is another.

I then had high hopes of getting the car running by the end of December, but finding a decent set of headers, amongst my slowing rusting collection, moved that step back by some weeks (I'm still waiting for my fabricator to see if he can salvage my best rusted and cracked set).



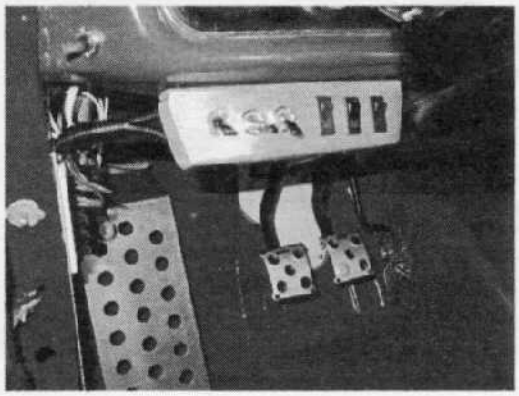
From an end-of-January point of view, it doesn't look promising for Thunderbird in late February either!

Still, in the dozen or so boxes of parts I had reserved for the project is slowly diminishing as the project goes back together. Scouting around on E-Bay recently, I have found some good "New Old Stock Parts", as well as seen bits and pieces go for silly quid; parts that I have 4 or more of, tucked away on one of my garage shelves.

The current state of the restoration & preparation is as follows: all suspension, brakes, drivetrain assembled to the car. Wiring is near completion and some of the exterior trim is on.

What is left to do, is reassemble the doors/windows/latches install the interior (at least the bare minimum for competition), windows, balance of exterior trim, second fuel tank, skid plate, headers, exhaust system, bleed the brakes and clutch, actual fire the engine, get the wheel alignment done, re-key all the locks and road test it!

Can all this be done by the beginning of April? In all likelyhood, yes. It should only take another month (times 4) and another few $$ (times four) to finish off!



Wikipedia.....my foot.

By Sadik Dobra

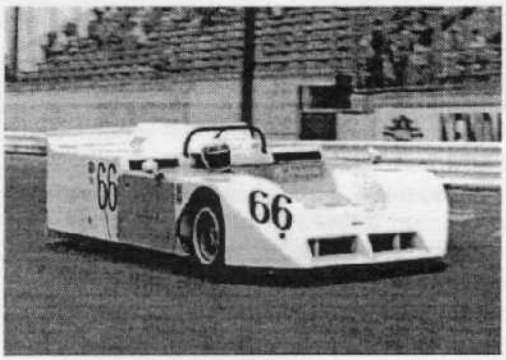
While I'm appreciative of Malcom's efforts in the last issue, adding the Chapman article and being also a fan of Colin's engineering genius, despite the fact that he had "the soul of used car salesman", it is Wikipedia that I find long on hype, and short on historical accuracy, as is the vogue in the new Millenium.
(Since I started writing this, this news item appeared..."Man Apologizes After Fake Wikipedia Post".
The slurred individual said he planned no legal action, but added that "Wikipedia is inviting ...more regulations of the Internet...by its allowing irresponsible vandals to write anything they want about anybody.")
I shudder to think what other misconceptions will be imposed on the current generation by the spin and glitz of the new media moguls (not to mention *The Administration*).....Caveat Emptor.

While Hazel Chapman may prefer things to be remembered this way, I can tell you just from memory that there was an equally ingenious pioneering racer, whose talent is unsung today, who was unappreciated and blackballed in his day, who predates Chapman considerably in introducing many of the innovations credited to ACBC.

The man of course was James Ellis Hall and the car the Chapparal. My hero and I, as a wide-eyed teen, actually smoked cigarettes together (when it was not a punishable offense) and in the Mosport paddock of all places.... can you imagine the horror!
Jim Hall's first Chapparal strongly resembled the Maserati Birdcage Tipo 61 he had campaigned in 1960.

Once into serious development, Hall with his friend and teammate Hap Sharp at Chapparal cars, actually boasted their own Rattlesnake Raceway in Midland, Texas, which could not be confused with backyard operations of the period. The track was equipped with timers and sensors, and the cars would carry reel-to-reel tape recorders monitoring various parameters for scientific evaluation of the design. Remember that this is the same period in which Carroll Shelby was transforming the AC Ace into the Cobra, and as I recall, the sum of Shelby's test equipment was Ken Miles.
Serious scientific testing was not to come into play until 1966, when with the might of the Ford empire, the Le Mans GT-40 Mk.II engines were run on a dyno, fully replicating RPM variations to be encountered on the circuit; no doubt prompted by humiliation in the two preceeding years at the hands of Ferrari. During dyno testing the 427s lasted approximately 48 hours and were cleared to use in the event.
In an age when the average race car builder was in his backyard with a welding torch, it was probably the fact that Hall had an education (Aeronautical Engineering) and money (Texas oil) and that soured the rest of the racing community against him, not to mention that he very often built faster cars. Competitors enmity aside, the high regard commanded by Jim Hall and his cars is indicated by the fact that his regular drivers were always Grand Prix World Champions, namely Phil Hill ('61) for the 2E, 2F cars and

Jackie Stewart ('69, '71, '73) for the later 2J.



Let's consider, in order, the various innovations attributed to Chapman in Wikipedia:

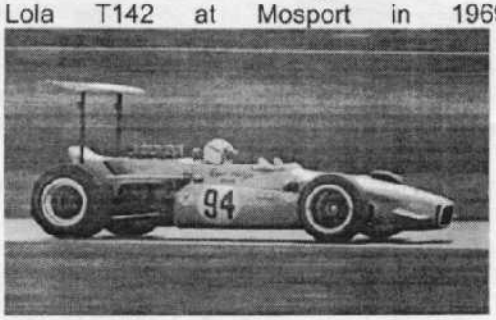
- **the FRP Monocoque:** while in the late 50s, Chapman had already introduced the Elite as an all fibreglass unibody, it was not until 1963 that he attempted to place this idea into a race car, the Lotus 25, in the form of stressed aluminium skin. At the same time in 1963, Jim Hall was developing the Chapparal 2 with an all fibreglass chassis, but to harness considerably more power (400hp) and weight than an Elite or a Lotus 25. In its first outing at Riverside in October 1963, the car qualified fastest and extended a lead of half a mile in 4 laps, before retiring with electrical problems. It is interesting to note that one of the racers in this event was Jim Clark in a Lotus 23, as well as other greats of the period such as Gurney, Foyt, G.Hill, Penske, Surtees, Jones, Rodriguez and Ginther. It is also noteworthy that some components of the early Chapparal, namely hubs, uprights, links and wheels, were of Lotus manufacture. This was probably a link developed earlier in the 1963 season when, as an aspiring F1 contender, Jim Hall raced a Lotus for BRP, the British Racing Partnership.

(that could be Roger Penske in foreground)

- **Rear mounted radiators:** were introduced on the Chapparal 2E in 1966. Along with the high wing, the car was said to be "bristling with innovations".

- **Wings:** The first wing experiments were seen in F1 in 1967. The high mounted rear wing was introduced on the Chapparal 2E at Bridgehampton in September 1966, Hall's engineering knowledge had from the start mounted the wing struts directly onto the rear uprights. (An issue needing more research is that of Swiss engineer-cum-racer Michael May having tried a moveable wing on his Porsche RSK around 1956). Note that none of Jim Hall's wings collapsed, while Chapman, in his desire for lightness, almost killed two top drivers, a World Champion and a future World Champion, all in the same weekend. It was at the Spanish GP at Barcelona-Montjuich in the spring of 1969 when, on lap 8, Graham Hill in a Lotus 49 had his rear wing collapse and crashed heavily into the barriers. Several laps later Jochen Rindt, who had been on pole and leading, had the same misfortune in the same location, sliding into the remains of Graham's car.

Both accidents were caused by wing failure and resulted in heavy damage to their cars, both drivers being very lucky to survive without severe injury. Rindt was trapped in his own wreckage and Graham, who had already saved Jackie Stewart in 1966 from his wrecked BRM at Spa, did the same for his teammate in Spain. Chapman is in fact, solely responsible for the CSI ban, two weeks later at Monaco, on "high mounted wings" and "moveable aerodynamics surfaces". I don't recall Chapparal wings ever collapsing, although Canadian racer Ludwig Heimrath had his McLaren wing collapse in 1967 and compatriot Eppie Wietzes did have two wing failures on his Lola T142 at Mosport in 1969.



- **Ground Effects:** Hall was experimenting with Ground Effects as early as 1961, culminating in the Chapparal 2J "sucker" car in 1970, well before the Lotus 78 of 1977 and Gordon Murray's "sucker" Brabham of 1978. Unflaterringly, the 2J's appearance prompted the first known instance of the comment: ".... looks like the box it came in". I had no idea the expression had become so popular with auto journalists but in researching, I find that Google will now present you with 94 hits, referring to everything from Pontiacs to Toyotas, but not a single mention of the Chapparal. Alas, there really does appear to be a conspiracy afoot to make certain Jim Hall never receives any of the credit he richly deserves. This is my contribution to one of my heroes.

The following excerpt on Ground Effects is from the 8w.forix.com website, author Darren Galpin.

"The origins of Ground Effect in racing go back to 1961, when Jim Hall was experimenting with a front-engined Chapparal-Chevrolet V8 sportscar. Jim Hall, in conjunction with the aerodynamicists of Chevrolet, built a car whose entire body shape was that of an inverted aerofoil, with both the nose and the tail upswept to form half-venturi tunnels at either end of the car (rather like the modern-day diffusers seen on F1 cars), the idea being to speed up the airflow beneath the car. The problem was that the front venturi caused the car to lift, the weight of the engine being the only thing stopping the car from flipping. A massive air-dam was then fitted to counteract this, but it generated so much downforce that the wheels started to grind their way through the top of the bodywork. The concept was not fully understood, and the idea was left to languish.

However, in the 1968-'69 off-season, an anonymous fan sent Jim Hall a sketch of a car with a fan on the back of it, the fan being used to extract the air from underneath the car. Hall again worked in conjunction with Chevrolet and its parent company General Motors, who developed the idea of having a skirt around the side of the car to stop the outside air rushing in from the side of the car to break the low pressure created by the fan. The result was the Chapparal 2J sucker-car (seen here with Jackie Stewart driving), which was raced in the 1970 Can-Am series. The car worked so well that it was promptly banned - an omen of what was to come.

The concept bubbled under the surface for a number of years, Robin Herd designing

wings into the side-pods of the March 701, and Gordon Murray playing with airdams and splitters with the Brabham BT44. The concept finally saw its re-emergence with Peter Wright's brilliant Lotus 78 and Lotus 79.

The evolution of Ground Effect on the Lotus 78 came about by accident. Peter Wright was at Imperial College, London, testing out the idea of putting water radiators in the leading edge of the side-pods. In a bid to try and improve on the unsuccessful Lotus 77, Wright was using a wind tunnel with a rolling road, a novelty at the time. However, the instrumentation began to show some unrepeatable results. Closer examination showed that the side-pods on the model were sagging, and as they got closer to the floor of the wind tunnel, the downforce increased.

Wright then proceeded to cut up bits of cardboard, extending the side-pods right down to the ground - the downforce level doubled. This accidental discovery showed the importance of maintaining an air-tight seal along the bottom of a car with profiled side-pods, and resulted in the successful Lotus 78 of 1977. Eddie Dennis, the shop foreman, at Hethel, first drove the prototype, known as JPS/15 or 78/1, but Gunnar Nilsson did subsequent development work. This car was later sold to Hector Rebaque, while Team Lotus raced JPS/16 and JPS/17 (78/2 and 78/3). Andretti, in 78/3 (here in the car's debut race in Argentina), won four races for Lotus, but had many reliability problems through the year. As the advantage of the car wasn't clear cut, most of the other teams hadn't cottoned on to the technical advantage. Colin Chapman himself publicly attributed his team's success to the special differential and its preferential tank-draining system - anything in fact but Ground Effect, in order to hide the discovery.

The "problem" with the Lotus 78 was that the center of pressure was too far forward in the car, which resulted in the drivers having to run with lots of rear wing in order to prevent too much oversteer, with a corresponding lack in straight-line speed. This was rectified in the Lotus 79.

The effect of the huge increase in downforce had not been anticipated, and the car fatigued extremely quickly. A second version, much strengthened (JPS/20, or 79/2), was entered in the BRDC International Trophy at Silverstone on 19 March, the first three Grand Prix having been entered with Lotus 78s. The race was flooded out, but Andretti soon took his car into the lead before aquaplaning off at Abbey, damaging the car extensively. It may have been an inauspicious start, but the concept had been proved, and once the Getrag gearbox was swapped for a Hewland, there was no stopping it. Once Peterson had set stunning times practising at Anderstorp, the car was taken to Zolder for the Belgian GP, its first World Championship race. It (JPS/20) was originally meant to be Andretti's spare car, but the team engineer Nigel Bennett reckoned it could be made into a racecar. Andretti talked to Chapman, and both put $500 into a kitty to be split between the mechanics if the 79 survived the race distance without a failure. Andretti qualified on pole by over a second, and led from start to finish... At the next Grand Prix in Jarama, Andretti and Peterson qualified 1st and 2nd, and finished 1st and 2nd, taking fastest lap along the way. The rest of the field was left standing. However, Brabham designer Gordon Murray had an idea.

At the beginning of the season, the interim BT45C, with a full-width nose section, according to Niki Lauda was suffering from acute oversteer. For years Murray had been experimenting with skirts on the underside of the BT44, but he hadn't realised that the full-width nose was creating a ground-effect downforce at the front of the car. Then he saw the Lotus 79 at Monaco (it was taken as a spare car, but not raced), and it clicked into place. He then knew how Colin Chapman achieved his speed.

The problem for him was that the Brabham used a flat-12 Alfa Romeo engine, and the

heads of the engine projected into the area where the venturi tunnels would ideally be located. However, he spotted a loophole in the regulations - an extractor fan, as used on the Chapparal 2J, could be used to reduce air pressure as long as its primary function was not aerodynamic as defined in the rules. He was going to claim that the primary function of the fan was to draw air through the car to cool the engine, rather than accelerating the air to gain downforce. The fact that this beneficial effect occurred was purely coincidental... This approach was declared legal by the racing authorities.

The technical problems involved were quite huge. The whole engine bay was sealed, so that air couldn't be drawn through the engine and break the low pressure area beneath the car. Flexible skirts were developed which extended to the road surface, as well as extending back and around the suspension arms. A thermodynamics expert, David Cox, was even employed to work out the number of fan blades, pitch and optimum rotation speed!
The fan was driven from the gearbox via a series of shafts and clutches, the clutches being used to prevent the fan from over-driving the gearbox on gear changes. The material the fans were made from proved to be problematic. While testing at Brands Hatch, the original plastic blades disintegrated, followed quickly by glass-fibre versions. Magnesium versions were then cast, but these were only available in the week preceding the Swedish GP at Anderstorp.

The system worked brilliantly. During first practice the front skirt started to wear away, but once a skid was placed on the bottom of the skirt, no further problems were encountered. The fan was so effective, that the car could be seen to suddenly squat downwards when the throttle was blipped in the pits. Its illegality was soon protested, but it was allowed to race, Lauda and Watson qualifying 2nd and 3rd behind the Lotus 79 of Andretti. Andretti eventually dropped out due to valve spring caps breaking under load, causing a valve to break, allowing Lauda into the lead. Once a back-marker dropped oil onto the track, the Brabham was in a race of its own, seemingly unaffected by the slippery surface. Lauda went on to win by 34.6 seconds.

Rumour had it that Colin Chapman had sketched desigs for a twin-fan Lotus 79 on his flight back home, but although the Brabham car was declared legal, Bernie Ecclestone (team manager/owner of Brabham) decided that it was better to sacrifice the short term advantage of the fan car than to compromise the Formula One Constructors Association (FOCA), of which he was president. " .....end of excerpt.

Ideas introduced by Hall, which have endured, but bear no relation to Chapman are:

- **Spider web spoke wheels:** now erroneously credited and referred to as BBS wheels, were originally developed to dissipate heat from the Chapparal brakes.
- **Moveable aerodynamics surfaces:** The Chapparal being an automatic, the driver's left foot operated a pedal to flatten the rear wing on the straightaways. A lesser known fact is that there was also a front intake mounted flap on the 2F, spring loaded to release at 140mph, so that downforce would not pull the front end into the ground. Porsche 917s for Le Mans of 1969 had also debuted with two small moveable half-wings, which were also banned almost immediately.

Non-automotive designs by Chapman, which bear no relation to Hall are:

- **Otis Elevators** acceleration/ deceleration mechanisms.
- **British Railways** railcar coupling devices.

Here is A.J. Foyt in his own inimitable style..... most interesting to Lotus fans is the following:

"I'll tell you as far as the foreign drivers, even today, I know Schumacher is unbelievable, but to me, if the man was livin', the best Formula 1 driver that I ever respected, and I got to know him pretty good, was Jimmy Clark – by far. I mean, I watched him come run a stock car, and how he adapted to that at Rockingham. But what I'm trying to say is he adapted and ran a damn good race and was not in the best car. It was a factory car, but it wasn't the car like I had, or Fred Lorenzen, or some of them. And he drove good...I know they talk about Ayrton Senna and they talk about Schumacher -- and I know Schumacher's good, don't get me wrong, but if that boy was livin' today, they'd have to beat Clark."

The rest of the time, Foyt was known for his on-air candour with comments such as: "If my crew would get their thumbs out of their asses..."

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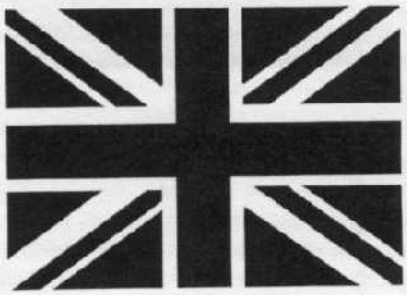
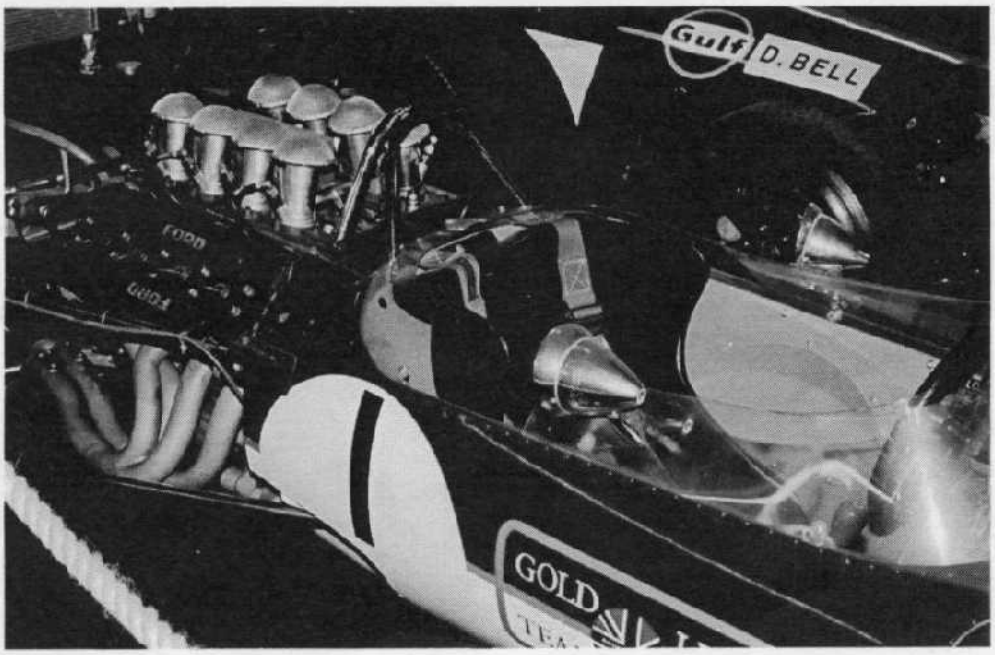
just for interest, or if you're travelling, see also.....

http://utahlotusmuseum.com/





Colin Chapman Article Points of Clarification

Thank you, Sadik, for your contribution to this issue of the Cam Journal with respect to Jim Hall and Chaparral. The article was well researched and the inclusion of historic pictures is always a nice touch. We are constantly calling for articles for the newsletter, original, researched or re-printed from reputable sources. (Although reputable sources are still only one journalist's or another's opinions).

Two points of clarification need to be made.

The Colin Chapman article was a little filler piece as a short commemorative to the founder of Lotus, particularly since his untimely demise in December 1983. There have been, of course, been many books published on the man, his company, his achievements, etc, some complimentary, some not so much.

That the piece provoked another contribution to the newsletter, was not the desired reaction, but was certainly welcome.

Information in the public domain often carries a disclaimer; so it is with Wikipedia. In reviewing the site, there are two places where the administrators clearly state, "Wikipedia makes No Guarantee Of Validity".

In research, one reviews many sources, then forms one's own opinion based on what one has read. Because most of us never actually met or worked with or for Colin Chapman, we rely on the observations and opinions of those who have. I have had two occasions to hear Graham Arnold speak of Colin Chapman, some of it complimentary, some of it adversarial.

Whether you cared for the man or not, we still drive, maintain, restore and race his creations. Remember him, as you will.

Anyone have any opinions of Keith Duckworth?

Again, it is great that Sadik took the time and effort to research further and provided us with an article of substance. I will confine my articles to things I know about first hand.

Malcolm Muir
February 8, 2006

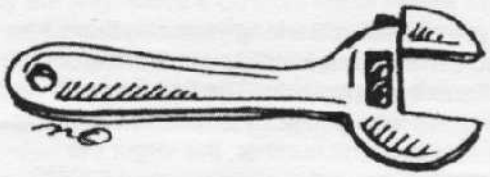
Wikipedia:General disclaimer

From Wikipedia, the free encyclopedia

General disclaimer – Use Wikipedia at your own risk – Wikipedia does not give medical advice – Wikipedia does not give legal opinions – Wikipedia contains spoilers and content you may find objectionable

http://en.wikipedia.org/wiki/Wikipedia:General_disclaimer

Tech Tips



More Stuff from The Maple Ridge Garage

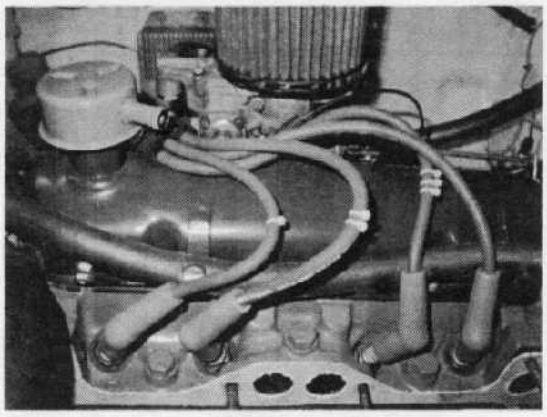
by Malcolm Muir

Elsewhere in this issue I wrote about my ongoing restoration project, the 1968 Cortina 1600GT rally car. Some of the following tips you may have seen before, some may be new, but hopefully you can use some of these ideas on your Lotus project.

Most people either love or hate Canadian Tire. However they have a lot of stuff, some of it is clearly consumer level auto parts and accessories, but some items I have found to be of good quality and look appropriate in an older British car.

Gaskets

Turn signal, parking and taillights have foam gaskets between the plastic lens and the white-metal base. The passage of time takes its toll on these gaskets and re-using them or replacing them is next to impossible. Canadian Tire have a white, closed cell weather-strip, ¼" wide with a self-adhesive backing. This works great as gasketing material and I have used it on both the tail-lamps as well as the front parking lamps.

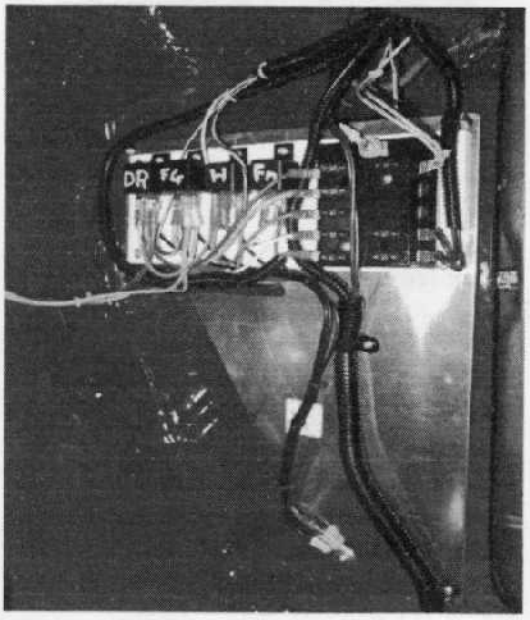


Electrical

Wiring or re-wiring is usually recommended for English cars. You can buy pre-fabricated harnesses (such as the Painless brand) or a reproduction harness from the UK. Either way, it is usually necessary to secure it in place. I found 1/8", ¼" and ½" size loop black Nylon wire clamps, which secure loose wires, or harness bundles using a #8 or #10 self-tapping screw.

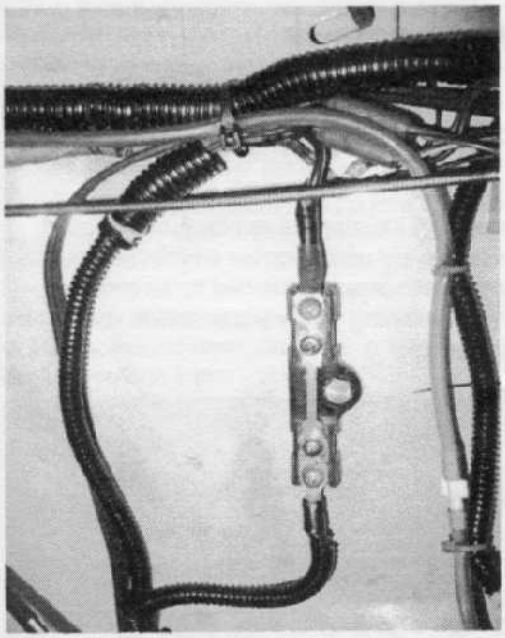
By the way, these Nylon clamps are also good for retaining brake lines. They won't rust or cut into metal (or wire insulation)

Canadian Tire also have black corrugated plastic slip-on wiring cover which cleans up loose wires, or added wired to an existing loom for running extra accessories, or speaker wire.



Auxiliary fuse & relay panel.

If you are scratch-wiring your car, there are two things you should consider doing differently from stock. The first is to increase wire gauge by at least one size up (the smaller the number, the larger the diameter; e.g. if the old wire was 16 AWG, the new wire should be 14 AWG). The second is to fuse as many circuits as possible. English cars were notorious for inadequate fusing and marginal wiring (especially when it comes to grounding wires) and many cars caught fire from electrical shorts. If you've upgraded to an alternator, install a main fuse (say 50 or 60 Amps).



Main fuse from alternator

Auxiliary relays should be used for high current draw devices, including after-market high wattage headlights (OEM switch were designed for 45/55 Watt sealed beams lamps); fog/driving lights, air horn compressors and electric cooling fans.

Whenever you have to feed wires through metal or fiberglass, be sure to use a rubber grommet (again available in various diameters from Canadian Tire).

The grommet prevents the insulation from chafing and possible shorting out.

Bodywork

Car bodies have holes drilled in them in various places fro mounting trim, handles, hinges, etc. After getting all your body work and paint done, invariably a hole gets filled on, or you forgot an accessory item or want to add an accessory item for which you must drill a hole through your fresh paint.

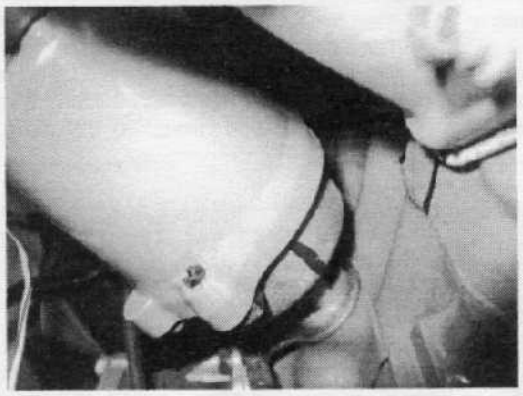
Clean the surface thoroughly and apply masking tape to the area where the hole is to be drilled. Measure twice or three times, and then mark with a fine point felt tip marker where you want to drill your hole. Start your hole with the smallest bit in your index. Slowly enlarge the hole 2 or 3 sizes up at a time until you have reached the final size, then enlarge by one drill bit size to allow for clearance. Apply touch-up paint to the inside edge of the hole to seal the fiberglass (or steel) to exclude moisture.

If screws or bolts, which go through the bodywork, will be exposed to the elements, use stainless steel hardware. They will not rust to the body of other hardware. Again you can buy in bulk at Canadian Tire, or a parts jobber such as Lordco.

Rivet, don't screw your VIN plate to your bodywork using stainless steel rivets

Engine

When setting up your distributor, orient the distributor rotor so that it points closest to the #1 cylinder when it aligns with the contact in the distributor cap. This way, when you later have to tune the engine, it will easy to tell at a glance where to set your timing mark. I also use a light or bright colour of touch up paint (white, red, or yellow) and mark the body of the distributor at each of the high-tension lead connection points on the cap.



Distributor marked for #1 cylinder

Use Zip-ties, Zap-straps, Ty-wraps or what ever you want to call them around the ignition leads for quick identifications (one on #1, two on #2, etc.).

Racing regulations state that there must be two throttle return springs on the carburetors or throttle linkage; this is also a good idea for the street. I have experienced the momentary panic that a stuck WFO throttle can bring.

Overflow and catch tanks for coolant and oil will keep you engine compartment clean and can even prevent underhood fires.

If you are running an electric cooling fan, also consider wiring a manual override switch (wired in parallel with the Thermoswitch) in case of failure of the latter.

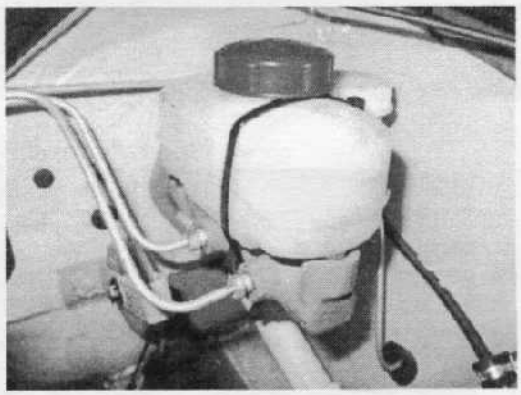
White or Lithium grease, applied in a thin coat on hose barbs (PCV, radiator, heater core, etc) will prevent the rubber from Vulcanizing to the metal.

Miscellaneous

When fabricating plates, brackets or faceplates, make a cardboard template of the pieces first. That way you can custom fit, trim or modify with a pair of scissors. Once you have settled on your final design, you can transfer the dimensions to your sheet aluminum, steel or plastic stock.

By the way, Dave's Custom Metal Works in Port Coquitlam sells full sheets and off-cuts of 0.040" Aluminum at $1.64 per square foot. They also have heavier grades for about $2.00 per square foot.

Zip-ties, Zap-straps, Ty-wraps we mentioned earlier. These handy items are available in various lengths and colours and some even have an eyelet so then can be fastened in place with a self-tapping screw. Not only can they be used for lashing wiring together or to anchor points, the can be used for a variety of other jobs:



Ty-wrap hold-down, brake master cylinder reservoir

Marking ignition leads, we mentioned earlier.

Holding dual brake master cylinders to the cylinder body (a small steel snap rings hold the Nylon reservoir in place and I have seen this blow out and leak).

Lashing parallel brake lines together (looks neater, too).

Restraining cables and hoses away from heat sources, moving parts or linkages.

They are also good on small hoses such as distributor vacuum lines and windshield washer hoses as they act like hose clamps. I'm sure you can come up with other uses.

Happy restoring!

Letter from Calgary – January '06

The weather has been unusually mild by Calgary standards throughout January, so I decided to break the Esprit out of its winter hibernation the other day. It's a bonus at this time of year when the roads are not only clear of snow and ice but also of the tons of sand and gravel that can give any paint job instant dermabrasion when following a truck (and there enough of those around here). So out I went. Didn't go anywhere exciting, didn't find any good new roads and didn't go particularly fast, but it was good to get behind the wheel again. It was not a very exciting drive but I think it was good for the car, and for me, to get it out on the road, fully warmed up and through all the gears. We take our fun where we can find it.

It's a similar story for the Europa back in White Rock. It hasn't been grounded by weather, but still has been in the garage for most of the winter. I manage to get it out every time I make it back for a few days so at least it is being driven occasionally. As a general comment, it seems that Lotus work better when used regularly rather than being allowed to sit for extended periods. A bit of mud doesn't really hurt them either.

Since there are no good driving tales to recount, I may as well pass on an anecdote from last summer. I had just arrived back in White Rock one Friday evening and took the Europa out for an essential domestic chore – picking up a pizza. There was a family group of about six people standing outside the restaurant when I pulled up and, of course, the car attracted their attention. A young guy, in his mid-twenties, came right over and excitedly asked "Is that a Europa?" I answered "yes" and expressed mild surprise that he recognized it. His immediate answer, accompanied by outstretched hands and thumb-twiddling motions was "I used to race one in *Gran Turismo.*"

Whatever else you can say about video games, at least they pass on some knowledge of the classic cars.

- Mike Boyle

WEBSITES FYI

by Malcolm Muir

When it comes you find out about vintage racing events as well as static car shows, it's often easiest to go to the web. Below are a number of useful sites that provide information on current events and schedules. These resources are invaluable for assembling our Calendar of Events as well as planning your year to decide which event you may want to attend. Happy surfing!

Road Race Tracks

Laguna Seca Raceway
www.laguna-seca.com

Mission Raceway Park, Mission, BC
www.missionraceway.com

Pacific International Raceway, Kent, WA
www.pacificraceways.com

Portland International Raceway
www.portlandraceway.com

Performance, Navigational & Vintage Rallying

Canadian Association of Rallysport
www.carsrally.ca

Rally America
www.rally-america.com

West Coast Rally Association
www.rallybc.com

Clubs & Organizations

Confederation of Autosport Car Clubs
www.caccautosprt.org

The Old English Car Club & Registry Society of BC
www.oecc.ca

Society of Vintage Racing Enthusiasts
www.sovren.org

Clubs & Organizations

Sports Car Club of America
www.wcca.org

Sports Car Club of BC
www.sccbc.net

Vintage Auto Racing Association
Vararacing.com

Vintage Racing Club of BC
www.vrcbc.ca

Western Canadian Ice Racing Association of BC
www.carsonice.com

Specialty Magazines

Classic Motorsports
www.classicmotorsports.net

Victory Lane
www.vitorylane.com

Factory Sites

Lotus Cars UK
www.grouplotus.com

Lotus Cars USA
www.lotuscars.com

Also check out our website for lots of other links
http://www.geocities.com/MotorCity/Garage/9235/

Lotus Car Club of British Columbia

P.O. Box 45525 Westside R.P.O., Vancouver, B.C. V6S 2Z5

Membership Application/Renewal

Application Type: New____ Renewal____ (Please check one)

Name:_____ Spouse/Partner's Name:_____

Address:_____ Telephone: (Res.):_____

City:_____ (Bus.):_____

Province/State:_____ Fax:_____

e-mail:_____ Website:_____

Car 1	Car 2
Model:_____	Model:_____
Year:_____	Year:_____
Colour:_____	Colour:_____
Serial #:_____	Serial #:_____
Modifications:_____	Modifications:_____
_____	_____
_____	_____
_____	_____

Special Interests/Skills:_____

Signed:_____ Date:_____

Please make your cheque payable to: Lotus Car Club of British Columbia
P.O. Box 125, 3456 Dunbar St.
Vancouver, B.C. V6S 2C2

Thanks for your Interest !