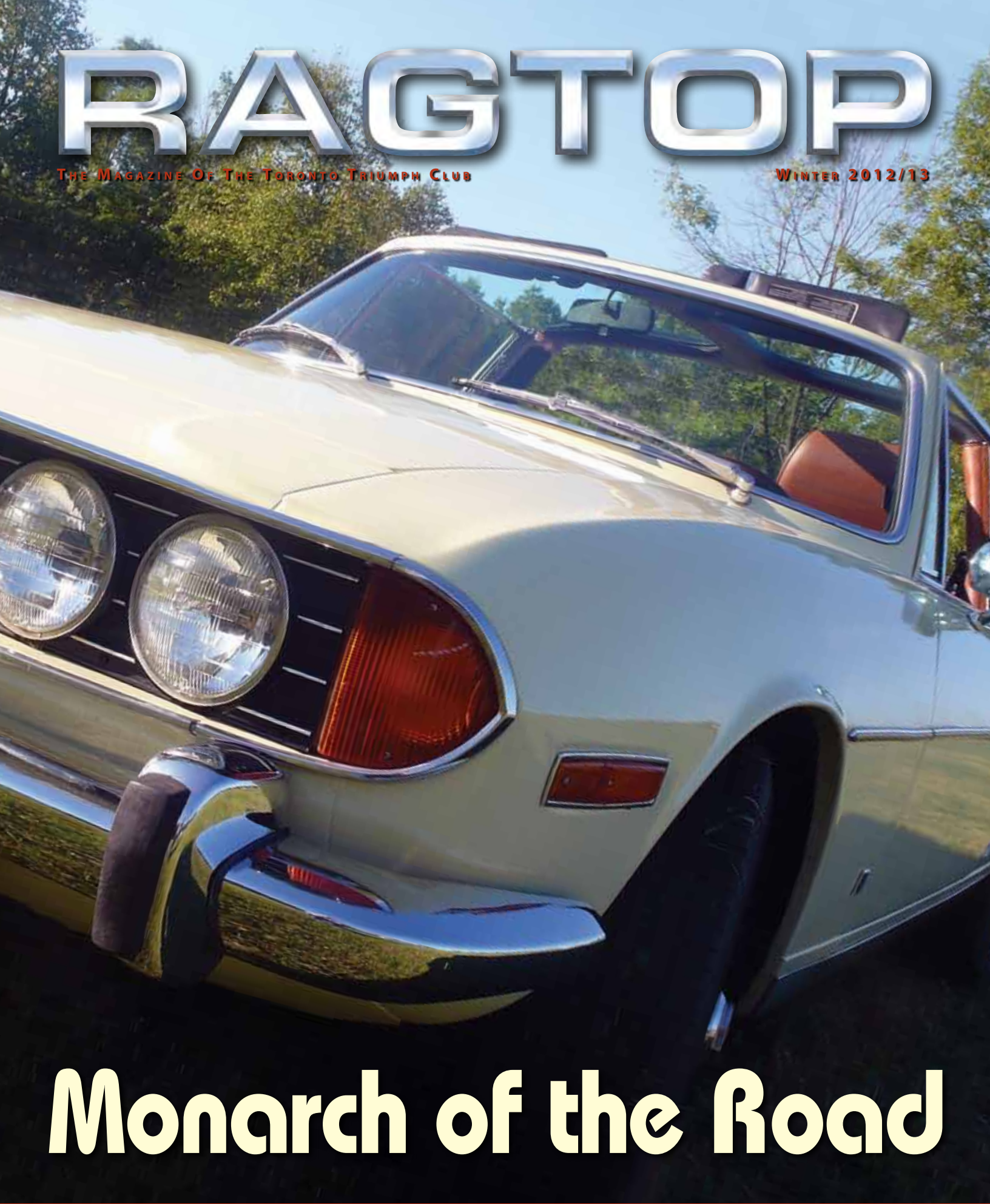
RAGTOP

The Magazine Of The Toronto Triumph Club

Winter 2012/13



Monarch of the Road

Maestro Michelotti • Stag Focus • Leak Down Test

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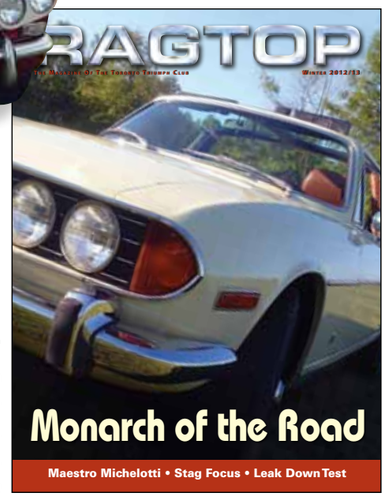

On the Cover

Assistant Editor Terence McKillen recently purchased this Jasmine Yellow 1972 Mk 1 Stag. Pictured here at BCD 2012.

Photo by Terence McKillen

Member Pages

Features

*denotes Stag Focus article

RAGTOP

SUBMISSIONS

Format: MS Word files are preferred. Send via email or on CD, 10Mb limit on email files. Send photos separately, do NOT embed in the text file. Hard copy submissions are acceptable, but not preferred. Graphics must be in major graphics formats, jpeg, tiff or Photoshop files. In Person: To the editor at the monthly meetings.
Mail: 2421 Poplar Crescent,
Mississauga, Ontario L5J 4H2
E-mail: Ragtop@TorontoTriumph.com

ADVERTISING

Contact the Club's advertising representative for details of dates and submissions. Submit ads as high resolution (min 300 ppi) PDF files, saved for print in CMYK format, fonts embedded, by E-mail to Ragtop@TorontoTriumph.com
The advertising year is from Jan.1 to Dec. 31. A copy of Ragtop is sent to all paid advertisers.

2012 ADVERTISING RATES

Rear Cover	$500 per year
Inside Front Cover	$475
Inside Back Cover	$450
Full Page Inside	$305
Half Page	$185
Quarter Page	$115
Business Cards	$70
Full colour	$115 extra
Second colour	$75 extra
Flyer Inserts	$190/issue (max 4 pgs)

(All rates are for 4 issues, except flyers)
Advertising@TorontoTriumph.com

2012 SCHEDULE

Issue	Deadline	Mailed
Spring	April 1	End of April
Summer	June 10	End of July
Fall/BCD Program	August 12	Mid September
Winter	Nov. 18	Mid December

General Enquiries
Info@TorontoTriumph.com

Ragtop is published quarterly by the Toronto Triumph Club Inc. ("TTC") and is distributed to its members as part of their annual dues. The TTC or the Editors cannot accept responsibility for the safe return of any submitted material. We will do our best, but accidents do occur.

We accept no responsibility for errors or omissions. Opinions expressed are those of the authors and do not necessarily reflect those of the TTC Executive or Membership.

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Not Long Now

One of the problems with being in the magazine business is that I'm always working three or more months ahead of everyone else (or I'm supposed to be!). Consequently, my Spring has already begun and I'm looking forward to summer. However, a quick look from my window swiftly brings me back to reality. I can see the remnants of a recent snow storm covering my lawn and my dog Charlie hesitates at the back door when I try to let him out for a run and looks up at me as if to say "You're kidding, right?"

Attending my youngest son's wedding recently added to the illusion that I was indeed into spring and summer was just around the corner, but standing outside the church in an overcoat and gloves in -6C temperature (-12C with the wind chill), once again brought me back to reality. The wedding went well, but my reality check continued when I realized my many house guests couldn't eat alfresco and there was absolutely nothing to do to keep them all entertained during the cold days of winter. We English don't do snow shoeing or ice fishing and one guest is such a staunch Manchester City supporter, the thought of going to a hockey game didn't excite him at all (well it was a Leaf's game, so I suppose I can't blame him really).

My guests have all gone home now and the honeymoon is over for my son and his new bride, so I have turned my mind to the (long) list of jobs I still have to do on Rosie before the start of the driving season, which despite what I've said above, really isn't long away now. I need to replace the rear springs I fitted last year - which are too tall - with the Goodparts ones that Fred McEachern supplied to me, fix a loose passenger door panel and stop the windows rattling, adjust the tracking and grease the steering box, check the valve lash, lubricate and adjust the throttle linkages and cables (they've been sticking) and various other small, but necessary, maintenance items. Oh, and I might finally get around to fitting the 1969 interior light unit I purchased four years ago and a door switch that's been missing since I bought Rosie in 2008.

I'm sure you are all busy doing similar jobs and some of you are even in the middle of complete restorations. Why not drop me a line to ragtop@torontotriumph.com and let me know what you're up to? I'm always looking for stories for Ragtop and our growing membership can learn a lot from your experiences.

This issue has a distinctly STAG flavour to it (you can tell our assistant editor just bought one!), but if you're not partial to venison, we've also got some great "how-to" and general interest articles to whet your appetite. Bon appetite!

— David Fidler

Kelly & Stephen Fidler tied the knot in February

Lots on Offer

About this time of year I always start to get a little restless and anxious for the driving season to begin. The dark days of winter are finally giving way and temperatures are climbing steadily from week to week. It won't be long now until we can throw open the garage doors and get out on the open road!

Fortunately, to pass the time we have some great monthly meetings scheduled to not only get your car looking great for spring, but also running better. I hope to see many of you at our March meeting, where Dave Lambert from Autoglym will give us some spring cleaning tips and 'hands on' experience with his products. Our April meeting features Philip Allen of Britcars at his shop in Woodstock, he will provide us with some carburettor tuning tricks. Be sure and visit the Events Calendar on the TTC website to see all of the great things we have in store for you this year.

On a personal note, I have been working very hard lately on my 1960 Triumph TR3A project. I hope to have it painted in the near future. With any luck (and if "real work" doesn't get in the way), I will have it on the road for Spring Fling at the end of May. If you haven't registered for Spring Fling yet, don't delay, it is already about 80% sold out as I write this and organizer Alex McLeod has some exciting events planned for you in the lovely Peterborough area.

I hope that you will take advantage of all that the TTC has to offer this year. Come out and have some fun. I'll be watching for you!

Cheers
— David "Tush" Tushingham

Spring Fling 2013 will be held in Perterborough

The Roadster Factory

TRF Is the World's Greatest British Sports Car Company

The Roadster Factory is large enough to be a major parts manufacturer and distributor but small enough to know our models very well, also small enough to offer very personal service to all of our customers. TRF is British Motor Heritage Approved, we are famous for high quality and reasonable prices, and we offer expert engine, gearbox, and rear axle rebuilds from our own shop, known as C.A.R. Components. Whether you show your car in concours events, enter it in competitive driving events, or drive it to work every day, you can do so with confidence, knowing that The Roadster Factory will always be here for you—on-line or just a phone call away.

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The Roadster Factory
P.O. Box 332, Armagh, Pennsylvania, 15920, U.S.A.
Telephone: (800) 234-1104 • Fax: (814) 446-6729
Internet: www.the-roadster-factory.com

Monthly Meetings

January

Another social night was held at the popular Jake's Boathouse in Brampton. A last minute decision to hold a social meeting (we had planned a tech session) at this location, and a change from Tuesday to Wednesday night due to room availability problems, meant a smaller than usual turnout. Those who did make it enjoyed an abundance of food (it was half price wings night!) and some excellent discussion about the driving season ahead.

Welcome New Members!

Name	Location	Vehicle
Doug Campbell	Oakville	Spitfire 1978
Peter L. Clark	Toronto	
Manny Cordeiro	Cambridge	TR250 1968
Jeff Cox	Mississauga	
Gerald Dimmelow	Georgina	
Michael Mason	Picton	
Kyle Paton	St. Catharines	
Thomas Steele	Toronto	

New Members from Jan. 24, 2013 to Feb. 21, 2013

Spam, spam, spam, spam...

Unlike the song the Vikings sang on Monty Python, spam is not beautiful, particularly when it chokes up your e-mail inbox. So we have spam filters... unfortunately these are designed catch ALL bulk e-mails. When the TTC sends you an important e-mail, such as a renewal reminder (you get 2 of these), or information about an event or meeting, we use a bulk e-mail program. It is very important that you add "TorontoTriumph.com" into your "Safe Senders" list, to prevent our e-mails going into your spam folder. Also, please take a moment to update your member profile with your current e-mail address. Thank you.

Membership Renewal Reminder

(Thank you if you have renewed since press time)

Name	Member #	Date	Name	Member #	Date
Ian Armitage	2816	04/13/13	Frank Manning	1986	04/21/13
Claudio Arteiro Moreira	3264	04/11/13	Peter & Bernadette May	2528	03/07/13
Paul Balmforth	3201	04/21/13	Barry Mean	1271	04/01/13
Eric Bapty	2615	04/21/13	Glen Mersel	5069	02/25/13
David Belluz	2296	04/21/13	Tony and Debbie Messenger	2742	04/01/13
Leslie & Mary Bond	1217	04/13/13	Clara Miehm	5055	02/28/13
Rob Burchell	5053	02/28/13	Jim & Rosemarie Morris	2930	04/21/13
Bob Burgar	5094	03/30/13	John Morton	3148	04/19/13
Andrew Burpee	5059	02/25/13	Jay Moszynksi	5083	03/08/13
Grant & Cheryl Buss	1460	04/01/13	Robert Muir	2806	04/13/13
Patrick Caria	3146	04/05/13	Lance Pedrick	5104	04/13/13
Richard Clark	3276	04/21/13	Lino Pessot	5046	03/04/13
Dennis & Nancy Clarke	2019	04/01/13	Bill Peter	5082	03/08/13
Bob Craske	2869	02/28/13	David & Gale Pierdon	1841	04/01/13
André de Goeij	5056	02/28/13	Colin & Christine Pillar	2885	04/13/13
Guido & Mary DiCesare	2080	04/01/13	Paul Podesta	5037	04/01/13
Gerald Dimmelow	5241	03/10/13	Carmine Preziuso	5086	03/10/13
Rob and Elaine Draper/Heaton	2886	04/13/13	Robert and Susan Ragsdale	2749	03/14/13
William Dronyk	5070	02/25/13	Rajesh Ramlakhan	5045	03/04/13
Dave & Jan Ertel	5044	03/04/13	Tricia Reitzel	5097	03/31/13
David Freeman	5077	03/09/13	Mike Roberts	5095	03/30/13
John Gabel	5103	04/13/13	Bill & Jen Ryan	2571	03/22/13
Peter Gabriels	3275	04/21/13	Richard & Kirstin Schwass	2304	04/01/13
Ferruccio and Celestina Gazzola	2507	04/13/13	Len Sellwood	5049	02/28/13
Dave and Pam Gildner	2241	04/13/13	Barry Smith	5084	03/08/13
George Godin	2825	04/18/13	David Soknacki	2542	03/29/13
Frank & Laura Gollinger	1482	04/01/13	Sheila and Drew Sperry	1160	03/09/13
Angelo Graham	5042	02/25/13	Malcolm Stagg	5098	04/19/13
David Grant	3274	04/21/13	Les Stein	1118	04/21/13
Tony Grosso	2150	04/06/13	John Tingle	3267	03/13/13
Brian Hillis	2841	04/18/13	Roger Tipple	5089	03/19/13
Jim & Willa Hopkinson	2297	03/01/13	Jaak & Karin Viirland	1249	04/01/13
Derek Johnson	5051	02/28/13	Shawn Vromman	2809	04/20/13
Don & Judy Johnson	1298	04/21/13	Greg & Susan Walker	1782	03/14/13
Wayne Johnson	1923	02/27/13	Erik Weeks	3124	03/21/13
Christopher Jones	5047	03/04/13	Stephen Wilkie	1998	04/21/13
David Kerry	3160	04/21/13	Dean Willers	5050	02/28/13
Tony Lant	2234	04/08/13	Ron Wood	5041	03/02/13
Chris Lindsay	2817	04/13/13	Dave & Liz Wright	2120	03/29/13
Neil and Jocelyn Lovell	2176	02/22/13	Alf Zeller	3269	04/21/13

Please go to www.TorontoTriumph.com and renew today! Valid as of February 21st 2013

Events Calendar

For Full Event List & More Details Go To www.TorontoTriumph.com

MARCH 2013

Club meeting - Tech Talk, Jakes Boathouse, Brampton

Tuesday, March 19, 7pm

Join Dave Lambert from UK company Autoglym in open discussion about the do's and don'ts of cleaning and protecting your car. Includes demos, some 'myth busting' and hands on experience.

Driving tour - March Madness, location/ route TBD.

Date/Time - TBA

Clear off the winter cobwebs, we're going for a drive! Weather permitting an early drive is scheduled for those suffering from 'Triumph withdrawal' and the winter blahs. Check our website and your e-mail box for details.

APRIL 2013

Club meeting - Tech Talk, Britcars, Woodstock

Saturday, April 27, 10am

Renowned Triumph expert Philip Allen of Britcars will host a technical session at his shop, demystifying the inner workings of carburettors and how to tune & balance them. Followed by lunch (subsidized) at a local restaurant. Check our website and your e-mail box for details.

Ancaster British Car Flea Market, Ancaster Fairgrounds

Sunday, April 21, 9:30am onwards

Southern Ontario's largest British car parts flea market featuring both used and new parts for all types of British cars. You will also find books, clothing, regalia, car club information and much more.
Open from 9:30 to 3:00, Admission is $7.00 (Youths under 18 are free)
www.ancasterbritish.ca

MAY 2013

Club meeting - Tech Talk, J.D. Auto, Rexdale

Tuesday, May 21, 7pm

Joe Dukova will hold a tech session at his shop, topic to be degreeing a cam and setting your timing. Light refreshments provided. Check our website and your e-mail box for details.

Annual Spring Fling,

Thursday, May 30 (2pm onwards) - Sunday, June 2

This year it is the TTC's honour to host and the location will be lovely, Peterborough, Ontario. Plan your arrival for the evening of Thursday May 30th as we have two full days of activities planned for Friday and Saturday. Sunday June 2nd will be the departure day home. Visit the Calendar page of our website to register and pay.

JUNE 2013

Drive Event/Car Show - VARAC Canadian Historic Grand Prix, Canadian Tire Motorsport Park

Sunday, 16, 7:00 am

The highlight of the VARAC season is the Canadian Historic Grand Prix at Canadian Tire Motorsport Park on June 13 -16, 2013. www.canadianhistoricgrandprix.com David Tushingham will be organizing a TTC drive to this fun event. Check our website and your e-mail box for details.

Annual BBQ

Date and location TBD

JULY 2013

Drive Event/Car Show - Brits in the Park, Lindsay

Sunday, July 21, 9:00am

The Victoria British Car Club presents their annual British classic event in downtown Lindsay. Registration/entry fee $10.00. www.victoriabritishcarclub.ca

AUGUST 2013

Drive Event/Car Show - Brits on the Lake, Port Perry

Saturday/Sunday, August 10/11, 9am (Dates to be confirmed)

Growing every year, this popular event will once again grace the main street in Port Perry. Check www.britsonthelake.com for confirmation of dates and schedule etc.

Club Meeting - Location and style of meeting TBD

Tuesday, August 20 (Provisional)

SEPTEMBER 2013

Club Event - British Car Day, 30th Anniversary Party, Bronte Park, Burlington

Sunday, September 15, Gates open for show cars 8:00 am

British Car Day is hosted annually by the Toronto Triumph Club, on the third Sunday of September. Since its inaugural event in 1984, it has grown in leaps and bounds and

now draws over 1000 British cars and 8,000 spectators. The event is the largest, one-day, all-British car event in North America. For more information visit www.BritishCarDay.com (Updates posted March onwards)

OCTOBER 2013

Event - VTR Nationals & Triumphfest, San Rafael, CA, USA

Wednesday, October 2

The Triumph Travelers Sports Car Club is hosting a combined Triumphest and Vintage Triumph Register National Convention, October 2-6, 2013. www.triumphtravelers.org

NOVEMBER 2013

Club Meeting - Annual General Meeting, Downsview

Tuesday, November 19th

Getting to know our members

DAVE SIMS

Name/ Owner: Dave Sims
Born: Horncastle, Lincolnshire, England
Residence: Burlington, Ontario
Member Since:1st January 2011
Triumph: 1968 TR250
Occupation: Retired
Pets: 2 cats – Tumbleweed & Mithril
Children: See above
Significant other: Maggie
Favourite place: Our next big vacation
Favourite reading: Detectives, thrillers, adventure, car magazines (esp. Ragtop)
Favourite movie: The Great Escape
Favourite food: Italian
Three people I would invite to dinner: 3 great Canadians – Leonard Cohen, Peter Robinson, Jacques Villeneuve.
Hobbies: Cars, travel, birding, playing piano (just started),reading, hiking
Favourite music: Mid-sixties to mid seventies Rock, Classical
Other vehicles currently owned: 2008 Porsche 911 Carrera S, 2010 Subaru Forester
Past restorations: Nothing since I was in Britain, where I owned various rolling restorations including Morris Minor, Morris 1000 convertible, Wolsley 1500 and Triumph TR5.

Background: Brought up and worked in Lincolnshire and Yorkshire in England before Maggie & I emigrated to Canada in 1977. Landed in Edmonton in February and the first car we saw on the highway outside the airport was a TR6. Tried to find a good example of a TR6 as my first car in Canada, but the cars I test drove were very rough, so I ended up with a Datsun 240Z. So far we've lived in Edmonton, Calgary, Lethbridge, Mississauga and Burlington. I owned a series of Datsun, Nissan and Porsche sports cars over the years and then after an impromptu visit to British Car Day in 2010 I realized how much I would like to own a LBC. I joined the TTC, got some advice from Tush and ended up purchasing the TR250 you see in the attached photo. I love it! **RAGTOP**

TRIUMPH STAG

"A Likeable and Lively Car, Unusually Well Equipped" – Autocar 1972

BY TERENCE MCKILLEN

As readers of Ragtop may by now have realized, I have a long-standing admiration for the Triumph Stag, colloquially billed in its day as the 'Monarch of the Road'. The interest goes back over 43 years to the release of the Mark 2 Triumph 2000 which was based on the impressive Stag styling exercise.

I have been seriously stalking an example of the species for some time. Next to the Triumph saloon cars such as the T2000/2500, T1300, Toledo and Dolomite, it is probably the least well known Triumph model to Canadian autophiles, principally because it was never officially imported to this country.

Mk 1 Stag in convertible mode with North American (Federal) specification wire wheels

The Stag was arguably Triumph's first attempt to enter the luxury car segment and although the term Yuppie wasn't coined until the 1980s, it was Triumph's hope that the Stag would appeal to the 'younger executive' who was ready to move on from a two-seat sports car to something more luxurious and refined that could also qualify as a family car or alternatively, to catch the fancy of the more affluent 'empty nester' who might be persuaded to revert back to a sporty car. In a sense, Triumph had already tested this market segment through the Vitesse 6 convertible as early as 1962.

The Stag is perhaps one of those cars that is better appreciated today than it was during its short production lifetime. Its failure to conquer the North American market is reminiscent of Standard Motors' earlier attempt with the post-war Mayflower and is at variance with the success Triumph achieved in the same market place with its TR roadsters. There are many reasons for the failure of the Stag to penetrate the identified market niche including external factors such as escalating hostilities in the Middle East, Ralph Nader-inspired regulatory changes in the United States with respect to safety, fuel economy and exhaust gas emissions and a myriad of internal reasons related to availability of capital, engineering decisions and rationalization of model development during the late 1960s to mid-1970s within Standard-Triumph and later, in the expanding Leyland-BMC conglomerate, as well as issues that affected the wider British car industry at the time, such as labour union strife, government mandated factory locations designed to relieve chronic regional unemployment issues and currency exchange variances between Sterling and the U.S. Dollar which had a marked impact on export sales.

The Stag was initially conceptualized as far back as 1963 as an independent styling effort by Italian designer Giovanni Michelotti, who had collaborated previously with Triumph on several successful designs, including the Herald, Vitesse, TR4, Spitfire and T2000 models. Michelotti's

Michelotti's original prototype

idea was to create an open-top car based on the Triumph 2000 saloon. Harry Webster, Triumph's Engineering Director at the time, was seeking a car to compete with the Mercedes 280SL but using as many parts as possible from the existing T2000 to produce a contender for the Grand Touring market and open another channel for Triumph sales into the U.S. In 1971, Triumph's marketing material called the Stag a "beautifully and finely engineered 'Grand Touring' car noted for its high performance for long Continental cruising so that sportsmen can drive untiringly across the long European Autoroutes and Autostrada or be equally at home on the great cross-country turnpikes and expressways of America." It went on to state that the Stag is "rightly named after that noble animal, noted not only for its speed and grace, but fierce devotion. The 'Monarch of the Glen' is now a monarch of the road."

The name Stag was the code name given to the concept model but was later adopted as the actual name during development in 1966, although, for a short period of time, the TR6 name was assigned to the project. The prototype had a shortened wheelbase from the T2000, a roll bar and concealed lights. It was equipped with a 2.5 litre 6-cylinder engine from the TR which did not carry through to the production model. However, the final design

The Triumph 2000 Mk II was based on the Stag design

resulted in a very stylish four-seat (2+2) convertible with removable hard top. At the time, such cars were not particularly common among British or for that matter, European manufacturers and Triumph had not previously bothered competing in the luxury vehicle class. The Michelotti design received immediate approval from Triumph's board of directors who ordered that the styling lines from the Stag be immediately adopted for the revised Triumph 2000/2500 Mk II saloon and estate models being planned, which reached showrooms in 1969, ahead of the Stag, leaving many people to erroneously conclude that the Stag design was copied from that of the Mk II saloon. The same familial design concept was later carried over in turn to the Spitfire Mk IV and GT6 Mk III models as well as to the T1300/Toledo/Dolomite saloons.

Triumph's North American dealer network was also seeking an upmarket car, preferably with a V-8 engine, to compete with Mercedes and Jaguar and also the likes of Alfa Romeo and Porsche. Consequently, American consumer acceptance of the Stag was seen as crucial. Triumph management wanted up-market trim with cast alloy and wire wheels as options, power steering, a 14-gallon fuel tank, plus manual with overdrive or automatic gearbox options.

It was originally planned to develop the car over a two year period for release in 1968. However, release was delayed by a further two years as a result of many issues, not least by financial constraints and establishing priorities and rationalisation for new model releases following the 1967 merger between British Leyland (Triumph) and Rover and engine selection for the final production car. Triumph struggled to get Stags into dealerships in the UK by late 1970. The cars didn't reach American show rooms until 1971 due to further compliance issues with U.S. regulations. Ongoing supplies to the home market were subject to severe delivery delays as emphasis was placed on supplying cars to the U.S. export market.

The choice of engine for the production

An early Mk1 Stag in convertible mode and dealer-installed side rub strip

model contributed to some of the delay in bringing the Stag to market in a timely manner. Two engines were originally considered. The first option was to use a 2.0 litre fuel injected in-line six cylinder which was Harry Webster's preferred choice with an optional V-8 to follow. The second choice was a new 2.5-litre fuel injected 90 degree V-8 which shared some design similarities to the Slant-4 engine comprising an overhead camshaft with cast iron block and aluminium head which had been developed for the Triumph Dolomite as well as for the Saab 99 and which was subsequently used in the TR7.

A further option considered was a 3.5-litre V-8 unit brought to the mix through the Rover merger. Rover had acquired the Buick-developed engine from General Motors. It is often reported that prideful Triumph engineers rejected the Rover engine because it wouldn't easily fit in to the Stag, but likely Rover simply could not supply the number of V-8 engines needed to match the anticipated Stag production numbers. The T2000 saloon engine bay had been designed for an in-line engine, so substituting a V-8 resulted in considerable reworking, adding time and expense to the Stag's development. However, later Stag aficionados have successfully grafted the Rover engine into their cars without too much difficulty and the Rover V-8 actually provides more elbow room in the engine compartment.

Mk 1 Stag, this particular car has the Rover V-8 engine, 16 inch wheels and colour-matched trim on the T-bar brace. The brace was considered an advantage in meeting potential U.S. safety regulations for convertible cars

By 1969, the production engineers, now under the direction of Spen King, discarded any idea of using the six cylinder engine and opted for the Triumph V-8 but ordered that it be bored out to 3.0 litres (2,997 cc) to increase horsepower and low end torque (127/145 bhp SAE/DIN and 142/170

lb-ft SAE/DIN respectively) to cope with the extra weight added by the strengthening required by the convertible. Fuel injection was dropped in favour of twin Zenith-Stromberg 175 CDSE carburettors not only to meet U.S. emission standards but to avoid problems being experienced elsewhere with the Lucas PI units. A stronger gearbox and final drive, plus larger brakes and 14-inch wheels instead of 13-inch were specified to deal with the higher power output and all resulted in the final Stag production car loosing much of the planned commonality with the T2000.

The Michelotti styling also created some issues. For example, the headlights on the prototype were hidden behind slatted doors that slid electrically on tracks. Cold weather testing indicated that the sliding mechanism was prone to freezing and was therefore abandoned for regular exposed lights. Although this saved some money, there was no way to economize through the sharing of body panels with the saloon models because of the unique front and rear ends and the two-door, short-wheelbase format. In the end very few body panels were shared although some of the mechanical parts were common to both models.

As part of the refinements in the competition with Mercedes, a fully adjustable steering column was added, which later led to difficulties in complying with U.S. safety regulations. More serious engineering problems encountered were structural floppiness and scuttle shake. The torsional stiffness of the saloon car body disappeared in the convertible and the only available solution was to join the A- and B-posts with a torsional box across the top, giving the Stag an effective superstructure "hoop" with a T-bar brace to the windshield header. Although an engineering necessity, it was also considered to be an advantage in meeting anticipated U.S. safety regulations for convertible cars.

Technically, the car was very advanced at its launch in 1970 and was very well furnished in comparison to other models of the day. The Stag's rear-drive chassis was similar to that of the T2000, though the wheelbase was trimmed six inches. Unibody construction was retained, as was an all-coil independent suspension with front MacPherson struts and antiroll bar, and subframe-mounted rear semi-trailing arms. Brakes were servo assisted front disc/rear drum, steering was power-assisted rack-and-pinion and electric windows were standard. The Stag design team adopted new graphics for the instrumentation, replacing earlier 'whispy' style lines and numbers with cleaner, bold lettering that was easier to read at a glance. This instrumentation design would later be adopted on all subsequent Triumph models. With its refined styling, distinctive T-bar and hard/soft top options, the Stag received wide acclamation, and was quite literally, a "car for all seasons" as the Australian advertising brochures of the day proclaimed. The rear window on the hard top came with opening quarter lights and an electric demister.

Luxurious internal trim finish was ahead of its peers

However, it didn't take long for more ominous clouds to appear and Harry Colley, who was the senior engineer responsible for the development of the Stag from the first prototype until 1974, was, by the middle of 1971, solving a host of major problems particularly with engines overheating and cylinder heads warping. Some of the faults were due to poor build quality, endemic of the British motor industry at the time, while others related to design issues in the engine itself which had a cast chrome-iron block and aluminium-alloy cylinder heads.

It is reported that the prototype V-8 engine suffered from inadequately sized main bearings, but this problem was rectified in the 3.0 litre engine before going into production. Nevertheless, many U.S. imports required engine changes within two or three thousand miles, causing Triumph's warranty plan to dip into the red. Other problems occurred with stretching of the timing chains which were long, simplex roller link chains and often lasted less than 25,000 miles, resulting in very expensive damage when they failed. Other problems were related to inadequate engine maintenance due to a factory-specified 7,500-mile oil change interval. The aluminium heads often warped due to poor castings, and poor fitting head gaskets restricted coolant flow, leading to overheating. Retrospectively, Triumph engineers referred to the head gaskets as the Stag's Achilles' heel, blaming the Purchasing Department for securing a poor quality product.

The water pump, which was located between the V of the cylinders just under the air filter box, was mounted too high so even a small drop in coolant level left it running dry. Water pump failures also occurred because of premature wearing of the jackshaft bearing surfaces. In some cases, overheating was caused by clogged waterways in the cylinder block which were subsequently found to be filled with casting sand left over from manufacture. In addition, soft tops leaked and water was able to get into the boot/trunk.

British Leyland can be criticized for failing to invest the necessary resources into the development of the Stag or in more quickly solving the engine problems, but the car did evolve and many of the V-8 problems were ironed out by independent mechanics or restorers with alternative aftermarket solutions, if not by Triumph's own engineers.

The early cars, often referred to as the Mk I were manufactured between 1970 and February 1973 when the Mk II model was introduced. The Mk II had a number of mechanical and cosmetic differences. Although cars remained Mk IIs, as far as Triumph was concerned, until production ended in June 1977, the

The engine bay – not much working space. Surprisingly, the Rover V8 installation provides considerably more elbow room

1976 and 1977 models were sufficiently different to represent a third phase in the car's development.

The first Stags were offered with soft top, hard top or both. Manual transmission was standard. Automatic transmission was optional but a large number of cars were fitted with a Borg-Warner 3-speed automatic transmission (type 35). Early 4-speed manual transmission models could be ordered with an A-type Laycock overdrive unit and later ones came with a J-type Laycock unit on 3rd and 4th gears only. These first cars had their tail panels painted in the corresponding body colour. January 1972 saw changes including stainless steel sill trim strips, a thermostatically controlled engine air intake and re-designed cooling system.

Mk II models can be differentiated externally by emblems changing from light

A home market Mk 2 Stag recognisable by the black rear panel and badge background as well as the lack of rear quarter lights on the ragtop

grey background to black; sills and tail panels being in matt black rather than body colour as with the TR6, twin pinstripes were added and 5 spoke alloy wheels became an option. The clear side panels in the soft top were removed to avoid creasing and splitting problems. Internally, instrument dial designs changed along with the removal of the map reading lamp fitted to the glove-box lid and also interior lights moved from 'B' post to the centre of the T-bar. The engine had a higher compression ratio (but not U.S. models) along with redesigned domed pistons and combustion chambers. By 1975, the tail panels were back to body colour again and in October 1976, the last major change was the fitting of a Borg Warner type 65 gearbox on cars with automatic transmission. The Stag shared body colours with other Triumphs models and through its short production run as many as 40 different colours were offered - more than for any other Triumph model.

U.S. destined models comprised unique combinations of features specifically designed for compliance with regulations of various States (particularly California) and other marketing requirements, and were designated by Triumph as "Federal Specification", which included such things as U.S. Federal Department of Transportation compliant lighting, air conditioning, side impact beams in the doors, laminated windshields and tinted side glass, front seat headrests, various warning lights and buzzers, a lower compression engine, and a wide range of emissions controls not found on vehicles exported to other markets.

Troubled by far too many warranty claims, Stag sales in America, the prime target market, were abysmal. Further sales were lost following the 1973 oil crisis which also impacted other so-called gas-guzzling models, although to be fair, the Stag clocked in at a respectable 30 MPG in standard transmission format, closer to 20 MPG with three-speed automatic. To Triumph's management it must have seemed somewhat like déjà vu all over again, reliving the failure of the Triumph 2000 to penetrate the American market place eight years earlier, although in the latter case, it wasn't reliability issues that were the problem.

Triumph's aim was to have sales of 12,000 Stags a year but this was never achieved. The best year was 1973 when sales peaked at 5,508. Even the introduction of the Stag to Australia didn't reverse the trend although Australia went on to become the Stag's best overseas market. In total 25,939 Stags were built over the seven year production run. Of this number, 8,120 were export models, of which only 2,871 went to the United States. Triumph did not introduce the Stag to the Canadian market although some dealers may have imported one or two, from the U.S., as a special order. Sales in the home market were also affected by long delivery waits which could be up to 12 months or longer and to reliability issues, but UK sales outnumbered exports by about two to one. It is estimated that approximately 9,000 Stags still exist in the UK which represents about 36% of the production total. According to Michael Coffey, founder of the Triumph Stag Club USA, as many as 950 to 1,000 Stags may still be in existence in the U.S. and Canada out of what he estimates was 3,500 cars imported. Tony Fox believes that there are currently about 35 Stags in Ontario. Whatever the actual number of exports to the U.S., the global survival rate appears to be around 45% which is not bad for a so-called failure!

The Stag was originally manufactured at Triumph's Speke factory in Liverpool with the completed body shells being transported to the Canley plant for final assembly with the addition of the drive line and chassis. In 1975, with the introduction of TR7 assembly at Speke, full assembly of the Stag was moved to the Canley plant.

Factory-built Stag Fastback Prototype

There have been a number of special Stags created through the years, most of which were by specialist converters and individual enthusiasts, but at least two variants were factory conceived and designed but which never progressed beyond the prototype stage. One was a rath-

er attractive fastback and the other used the Fergusson four-wheel-drive transmission similar to that later adopted on the Jensen Interceptor FF.

Although not a race contender, the Stag did apparently join the Triumph competition program for a limited time in the U.S. as a rally car in the 1971 SCCA National/Regional championships and British Leyland often supplied a Stag for use as a pace car at racetrack events. In the U.K., Tony Hart of Hart Racing Services built a Stag to Modified Sports cars regulations and competed in Modsport championships until 1983. The engine was the original Stag V-8 with special four branch manifolds and custom exhaust. Carburettors were replaced by four 40DCOE Webers. Car & Car Conversions magazine recorded a 0 to 60 mph time of 4.8 seconds (against 9.3 seconds for the standard Stag) and a top track speed of 160 mph.

Over the years, some auto-journalists labelled the model as the "Triumph Snag". However, Maurice Smith of *Autocar* who was in charge of two long-term test cars and wrote test reports in June 1971, February 1972 and February 1977 had nothing of substance of which to complain other than the delivery delays, but praised the Stag as "a likeable and lively car, unusually well-equipped."

Likewise, a 1973 road test published in *Motor* could only find minor complaints like limited luggage space, difficulties in erecting the hood (soft top) and the weight of the hard top and described the Stag's standard equipment as lavish. Admittedly, removing the hard top is a two-person job unless one has rigged up some sort of sling from one's garage ceiling, but the soft top operation is far simpler than that of the TR6 as there are no button clips to contend with on the lower edges. The article reaffirmed *Motor*'s initial impression that the car was "not only unique in character and a highly desirable property, but that the standard of finish makes it a world-beater at the price."

However, U.S. commentators honed in on the indifferent build quality, so-called gutless automatic transmission and unresponsive steering. They complained that the optional hard-top was heavy and awkward to fit and the lack of leather upholstery placed the Stag outside the realm of the Mercedes SL.

Russ Smith, writing in the May 2012 issue of *Thoroughbred and Classic Cars* referred to the Stag, together with the Lancia Gamma, Alfra Romeo Montreal and Citroën SM, as the 'four classics of the Apocalypse' renowned for overheating engines, snapping and jumping cam belts and self-destructing gearboxes – tales he goes on to admit may largely be rooted in folklore rather than reality.

In 2010, *Classic Cars for Sale* magazine in the UK awarded the Triumph Stag the best classic Grand Tourer award and second-best overall, after the Jaguar E-Type and went on to note that it has never looked better.

The Stag can be considered a brilliant state-of-the-art design success, but unfortunately its transformation from drawing board to show room was a flawed exercise at many steps along the way. In the end the Stag did not achieve the success Triumph was seeking, the reasons for which are numerous, with at least some being beyond the control of the Triumph car division.

One is left to ponder what the outcome might have been had the original fuel injected in-line six or the Rover V-8 engine been adopted or if Triumph had remained outside of the expanding BLMC conglomerate and the ensuing inter-marque fratricide.

The Stag was nevertheless a car ahead of its time with a modern but classic design that has, 42 years on, more than withstood the test of time, allowing enthusiasts the opportunity of easily coping with long-distance touring while comfortably mingling with today's traffic.

The author's recently acquired 1972 Jasmine Yellow/Saddle Tan interior late Mk 1 Stag

Stag Stalk Ends

As I indicated at the beginning of this piece, I had been actively searching for a Triumph Stag for some time and in the summer of 2012, with the assitance of Toronto Triumph Club Stag guru, Tony Fox, I am pleased to report, to the lasting gratitude of O'Rua, our Irish Setter, that the stalking mission is over and that a fine specimen of the Monarch of the Road - a mid-1972 late Mk 1 in Jasmine yellow now has pride of place in our newly completed garage workshop.


The author's 1972 Mk 1 Stag

I have done some delving into the provenance of the car through the British Motor Heritage Trust and the Ontario Ministry of Transport and feel I now have the complete ownership history of this car sorted out.

The car was first registered to Dr. Anthony (Tony) Barringer, a British-born geologist-geophysicist who came to Canada in the mid-1950s and established a geophysical instrumentation research company in Toronto during the 1960s and 1970s, a gentleman that I actually knew professionally in the 1970s although I did not know of his ownership of the Stag at the time.

It appears that the car was shipped directly from the UK to Canada as a personal export delivery through Henly's Limited dealership in Coventry and not through a U.S. dealership as were the few other Stags that were imported to Canada. The BMHT were able to confirm my car had been allocated a local Coventry number plate (AWK 970) prior to shipment to Canada.

Dr. Barringer owned it from 11 October 1972 until 6 July 1977, when ownership transferred to Dr. Geyza Dekenedy, a Hungarian-born urologist, living in Barrie who kept it for 33 years until his death. Tony Fox acquired the car in May 2010 and passed it on to me in June 2012.

This car is therefore probably the only Stag (or one of a very select few) that was imported directly from the UK to Canada. Neat, eh?

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STAG SPARES

by Terence McKillen Co-Stag Marque Coordinator

Engine repair kit
IMAGE FROM RIMMER BROS' TRIUMPH STAG CATALOGUE

Owners of Triumph Stags, particularly those resident outside of the United Kingdom and more particularly those in Canada, have had a somewhat harder time obtaining spare parts on a timely basis for routine maintenance and rebuild projects than their confreres in the UK. This is because of the very limited number of Stags present in the country, currently estimated at about 45 to 50, of which 35 reside in Ontario. This has resulted in local LBC parts suppliers rarely attending to this segment of the market. The situation in the United States is a little better with the slightly larger survivor rate and the fact that the Stag was actually imported there, even if only for a limited, two year period.

In the U.S., parts for Stags were available through long-established Stag specialists, Walter Holliday, of Tuscon, Arizona. However, early in 2012, Rimmer Bros, the largest worldwide supplier and manufacturer of parts and accessories for the Triumph Stag (as well as other Triumph and LBC models), acquired most of Holliday's parts inventory and now can provide timely and competitive delivery to U.S. destinations.

Triumph Stag Parts USA, a business created by Triumph Stag Club USA founder, Michael Coffey, is the only US-based distributor of replacement parts for the Triumph Stag. TSPUSA also added some of the Holliday inventory to its existing supplies and can provide parts at competitive prices and with reasonable shipping costs. Unfortunately TSPUSA does not maintain an on-line parts catalogue or inventory description, so all transactions must be done on a one-to-one basis over the telephone.

In the United Kingdom there are three or four Stag parts suppliers who maintain a reasonably complete inventory:

The rotor arm for the Stag is similar to that used on 1994-95 Land Rover Defender, Discovery and Range Rover or 1996 Aston Martin DB7 or V-8 MGB

Shandong, China-made aluminium radiator. Image from Winner-Racing website

James Paddock, established in Chester, UK for over 30 years, is a supplier of quality parts for Triumph Stag and other Triumph models, and offers an on-line mail order service.

LDpart, an online shop for Triumph Stag parts located in Wendlebury, Oxfordshire, carries a range of 700+ parts for the Triumph Stag which meet or exceed OE standards.

Rimmer Bros, founded in 1982 by Bill & Graham Rimmer, and located in Lincoln, provides a full parts service for the Stag with extensive on-line and glossy coloured catalogues. My own experience with Rimmer's is that an order placed on-line on a Sunday will be delivered to my door in Mississauga as early as mid-day on Wednesday. Under three-day door-to-door delivery service is difficult to beat!

EJ Ward Motors, of Upper Bruntingthorpe, Leicestershire offer an on-line parts service for Triumph Stags as well as sales, repairs and restoration services.

Aldridge Trimming, of Wolverhampton, have been auto trimmers for over 70 years. The business offers an extensive range of high quality trim kits (carpeting, door panels, upholstery and soft tops as well as related trim and seals) for Stags and other Triumphs. Aldridge provides mail order services to customers worldwide. Their products are also available through Triumph Stag Parts USA, Rimmer Bros and James Paddock.

With any UK or U.S. based supplier, there is the added cost of freight and/or customs and brokerage fees which does tend to preclude one from just ordering a single part. However, parts obtained from the UK are shipped VAT free and without duty so are 17% cheaper than the published UK price, which helps offset some or all of the freight charges.

Closer to home, MacGregor British Car Parts, in Dundas, Ontario, maintains some parts for Triumph Stags, such as door and A-pillar seals and door handle gaskets, windshield glazing rubber, rubber boot and bonnet seals, replacement soft tops, parts for soft top frames and tonneau cover seals, pedal rubbers, wool carpets and mats and a supply of English leather cloth.

Fortunately, the Stag also shared parts with other Triumphs and even other British cars, particularly electrical components, so these can be sourced from your regular Triumph Roadster parts supplier, such as the likes of British Auto Sport, Peninsula Import Auto Parts or Obsolete Automotive in Ontario or Drakes' British Motors, in B.C. or Moss Motors, the Roadster Factory and Victoria British in the U.S., with some items even being available at your local Bentley, Aston Martin or Land Rover dealership, but probably at a considerably inflated price. However, none of these businesses may actually be familiar with the commonality of parts usage between the models/marques.

Included in this category are such elements as the air filter (TR7), oil filter (TR7), distributor cap (TR8), distributor rotor arm (TR8, Land Rover, Bentley, Aston Martin, MGB V8), front brake pads (TR8), trailing arm bushings (TR6), coolant expansion bottle (TR7), viscous fan coupling (TR7), crankshaft timing chain sprocket (TR7), timing chain tensioner (TR7), water pump gasket (TR7), water pump (TR7), starter motor (TR8), clutch cover, clutch plate and release bearing and yoke (TR6), timing chains (BMW 325i), engine mounts (TR6 and TR8). There are some other parts common between the Stag and the Triumph 2000/2500 and Dolomite saloon cars although this does not particularly help Canadian or U.S. owners. We are slowly building up a cross-referenced inventory of such non-exclusive parts.

Through the auspices of the Stag Owners Club in the UK, the Stag Owners Tooling Fund Limited (SOCTFL) was established in the early 1990s for the purpose of encouraging the remanufacture of high quality body panels and other parts for the Triumph Stag that are no longer available from original sources. Despite the small production volumes involved, SOCTFL is able to make limited grants and loans to manufacturers to subsidise tooling and production, and has established a distribution network in co-operation with specialist suppliers. Some examples of products supported by SOCTFL are reinforced water hoses, water pump shafts, and body panels such as door skins, wheel arch panels, rain channels, rear light rubber gaskets, camshaft covers and cylinder heads. A current list of available parts is published each month in the SOC Magazine along with details of suppliers who normally carry stock.

It is interesting to note that parts for the Stag are being manufactured in all corners of the world, including China and India. You can now buy an apparently very nice aluminium radiator for the Stag from China and stainless steel bumpers from Vietnam. It's astonishing that Stags should create such interest in the Far East for parts manufacture. However, the buyer must remain vigilant and be aware of potential pitfalls. Poorly hardened steel may be used in some critical products that will not meet or exceed original Triumph specifications. Caveat emptor! **RAGTOP**

LEARNING TO ♥ A STAG

Robin describes his move from a TR3A to a 1973 Stag

by Robin Searle Co-Stag Marque Coordinator

In 2010, Tony Fox invited me to navigate and test drive his Stag at Spring Fling. What a totally different driving experience from the TR3A! Power steering, servo assisted brakes, electric windows, tilt steering wheel, automatic transmission and four seats, all in a convertible, was very impressive. The V-8 engine was so different from the 4-cylinder 3A.

About a month after "Nellie," our TR3A, was taken from us in a horrific accident on May 25, 2008, my wife Ria told me, while still in hospital, that her days of riding in any TR roadster were over. None of the TRs could be considered as she had recurring nightmares over the events that enveloped us immediately following the 2008 Spring Fling. Her decision was very understandable as she had remained fully conscious through the whole incident, while I had, and still have, no memories of the event at all. Ria did add though, that she 'might' consider a Stag, but she would have to see how things progressed.

Stag guru, Tony Fox, learned of this flicker of interest and quietly found a Stag in Virginia with a fantastic body, but in need of some mechanical work as it had not been running in 18 years. He transported it to New York where the body was repainted before bringing the car north to Burlington.

Robin and Ria's Mk 2 Stag

Tony also took Ria out for a ride and invited her to drive the car. She commented that she felt "claustrophobic" compared to riding in our 'no doors' 3A, but agreed to visit Burlington to see the Stag with the engine and transmission out. Her answer still wasn't a "yes", but a less emphatic "no" and we revisited the Stag several times to witness its rebirth and agreed to store it in our garage over the winter of 2010, as Tony needed the space, Ria still gave no commitment.

For Christmas 2010, I gave Ria a set of custom license plates 'RIAS STAG'. How could she say no after that! So in March 2011, we became the proud owners of a signal red 1973 Mk 2 Stag. Tony Lant, from Lant insurance, personally welcomed us back into the classic car family and I even retained my no claims status.


The beautifully polished burr walnut dash

We first fired up the Stag in 2011 and Tony had warned me that all automatics "drip" transmission fluid and to place a tray under the car at all times. The transmission also tends to "clonk" when engaging drive or reverse. I found that the tachometer was not working and sent it to Rimmers for a rebuild. Meanwhile Tony leant me a spare which worked fine. We did a few local journeys and the transmission fluid more than dripped, it leaked out, about a ¼ of a pint each time. I had spoken to Michael Coffey of the Triumph Stag Club USA and he also confirmed that all Stags dripped and recommended catching the fluid and pouring it back in again. As Tony had earlier had the transmission completely rebuilt, I was not overly concerned at the time.

Spring Fling 2011 was held at Nottawasaga Inn, not far from our home, so we decided to take the Stag on her first major outing, including Hwy. 400, which I knew was going to bother Ria, but she agreed to go along. All went well until we reached Orillia when the car stalled at a set of lights and refused to restart. I phoned our "flatbed man," Alan, but had the engine restarted by the time he arrived. Alan suggested driving around the block and he would follow. She died again so Alan picked her up for her second flatbed trip to his garage.


one of many flatbed rides for Lilybelle before problems were permanently resolved

He checked the fuel pump which was working fine, but then took off the newly fitted fuel filter (only 11 miles on it) - it was clogged. The fuel tank had been cleaned out previously and had a new supply of gas. We decided to press on and duly arrived at Spring Fling only to have the car die as we entered the parking lot. After dinner, I bought three fuel filters at Canadian Tire so that we would hopefully be good for the Saturday tour. Overnight, about ½ pint of transmission fluid was in the dish.

Another major issue concerned getting the Stromberg carburetors to idle at 750 rpm. John Lille, "Mr. Carb", took a look and offered to come up to Brechin and "play" with them in my garage. After two visits, several removals and adjustings, they still refused to idle below 1300 rpm and I heard words from John that I never knew were in his vocabulary! A phone call to Tony indicated this was a fairly common occurrence in some Stags, but one solution was

to switch over to Holley carburetors. Tony was able to let me have a brand new set with the Stag adaptor fitting. Afterwards, John had no problem getting the idle speed down to 700-750 rpm.

The tachometer arrived back from Rimmers but it still did not work. I refitted Tony's and it worked fine. I returned the rebuilt unit to Rimmers and bought a used one from Michael Coffey which he had tested and guaranteed worked fine – but not in my car! As I was going over to the UK, I decided to take it to a guy who rebuilds Smith instruments. However, closer to home, I discovered Nisonger Instruments of Marmaroneck, NY who have been Smith's agents since 1949. On their website they note that most Smiths electronic tachometers do not interact with electronic ignitions unless a circuit board has been added to allow the two to communicate. Neither Tony nor Michael was aware of this issue. Three weeks and four tachometers later, I finally had a working instrument!

My relationship with RIAS STAG almost came to an end with the leaking transmission. Tony was very upset as he had promised a working Stag, so he asked for the car to be returned to the transmission shop in Burlington, leading to her third ride on Alan's flatbed. The transmission was removed and the seals replaced, but Tony was worried about a secondary clonk when shifting from 2nd to 3rd, so out it came again. He graciously sent the car over to RB Racing where Howie went over the Stag, tweaked the engine and ignition system and properly set up the Holley's and so back home again on Alan's flatbed.

My brother Ian, who operated his own garage business for many years and owns an Austin Healy 3000, came over to take a look. We started the Stag but within two minutes he yelled, "Switch her off, the transmission is peeing fluid everywhere!" At that moment I would have sold the Stag for a dollar. Ian took a look at my dejected face, knew Ria and I were off on a train trip to Europe in two days, told me, "Go away, and enjoy yourselves. Forget the Stag. I will fix it while you are away." We returned 7 weeks later to find Ian had cured it! Despite three removals and installations, the transmission shop had failed to fit a breather pipe that goes up to the engine bay and sits behind the wiper motor. This allows the fluid to expand when the car is started and then drain back again. By now it was mid-October and no major trips at hand, but the Stag finally seemed to be working well.

The air intake for the Holley carburetors

During the fall of 2011, I ambitiously removed the soft top and rebuilt and painted the frame, replacing all the bolts, installing a new hood and new seals. Tony was good enough to come over, as he was experienced, to help refit it all back again. If we got the front two pins to lock into place, the rear plunger would not reach into its hole or vice versa. I removed and dismantled the rear catch and saw an attached welded nut to allow ¼ inch play, so had two extra nuts welded on top, re tapped all three, refitted the plunger, adjusted the length and problem was solved.

In early 2012, with only two weeks' notice, I prepared the car for the CIAS show in Toronto where she represented the Stag model. Many compliments were received on her appearance and our great neighbor, Ted, helped with the loading on and off for the show, as we were away South.

At this stage, Tony's instruction to me was to get some miles on the car. Our first trip was to Muskoka and all worked perfectly, so I decided that we would join the Queenston Heights brunch run in spring 2012. Ria by now was a real skeptic, but the Stag behaved flawlessly over the 360 mile one-day outing and Ria did some of the driving. There are absolutely no drips or leaks anymore, the fuel system works and the tachometer functions as it should. I had replaced the temperature gauge with a combination oil and water gauge and it shows good oil pressure and temperature.

Ria and I then took the Stag to Brighton where we met up with Harold McQueen, an original club member who had hosted the very first British Car Day on his farm some 29 years ago, and who still drives his 1959 TR3. Harold rebuilds and updates auto radios, and has done so for 50 years.

As our confidence grew, we decided to join the Finger Lakes - Canadian Invasion trip to upstate New York. John Lille agreed to ride shotgun and we departed on the four day trip with high hopes. The Stag behaved flawlessly for the 1,000 mile journey, including four laps of the Watkins Glen circuit. Ria sat in the car, eyes closed, regretting having agreed to the ride, especially in the corners, as it evoked memories of the May 2008 accident. I discovered that the Stag performed well on the tight corners and at speed.

Tony Fox gives advice on the soft top rebuild

I began to notice that more and more paint chips were appearing which stirred memories of my TR3A rebuild 27 years previously. Once again, John Lille took a look and opined that the original preparation did not appear to have been done well and the finish looked "wavy." We both noticed on the edge profiles that the paint appeared thin and the original brown colour was leaking through. John suggested taking it to his friend Ralph, who had painted John's TR4. Ralph, who took one look at the car and said it made him feel seasick from all the waves in the finish. He concluded

The Stag in Ralph's paintshop

that it would require a complete strip down with new hood hinges to try and level the front of the hood. All of the trim, lights, interior, roof, windows, door interiors and the rear half of the exhaust would have to be removed. I said that I wanted to strip the car at home and then trailer it down when he was ready to accept it, which turned out to be September.

Having spent many, many hours building the Stag up to running perfectly it seemed counterintuitive to now take it all apart again. However, I am glad that I did as I learned a lot more about the car in the process. Lights were removed first and a few horrors turned up. Some wires were twisted together and then just taped and exposed to the elements, as well as a lot of overspray from the previous paint job. The one thing that made the task easier was the fact that Tony had put back parts that had been removed previously, so there were no rusted or seized bolts. Removing the door windows and mechanism proved tricky, as was removal of the T-bar roof. All parts were placed in bags and labeled, together with the nuts and bolts, which made it easier later to check each one and refurbish the part if needed, including painting some pieces, and replacing seals and/or gaskets.

John was good enough to visit the car regularly, take pictures and keep me informed on progress. The whole body was stripped and flatted and imperfections resolved including two internal rust breakthroughs that were about to happen at the front of the door sills, near the wheel wells.

November 10th was final paint day with all the pieces that Ralph had removed being bolted back on and the final of the two-coat finish being added. Next Ralph insisted that he would personally polish the car which took him almost a week, including an entire weekend. On November 22nd we had Bull Pull Corp., who both collected and returned all the Triumphs to the CIAS, pick up the Stag and return it to Brechin.

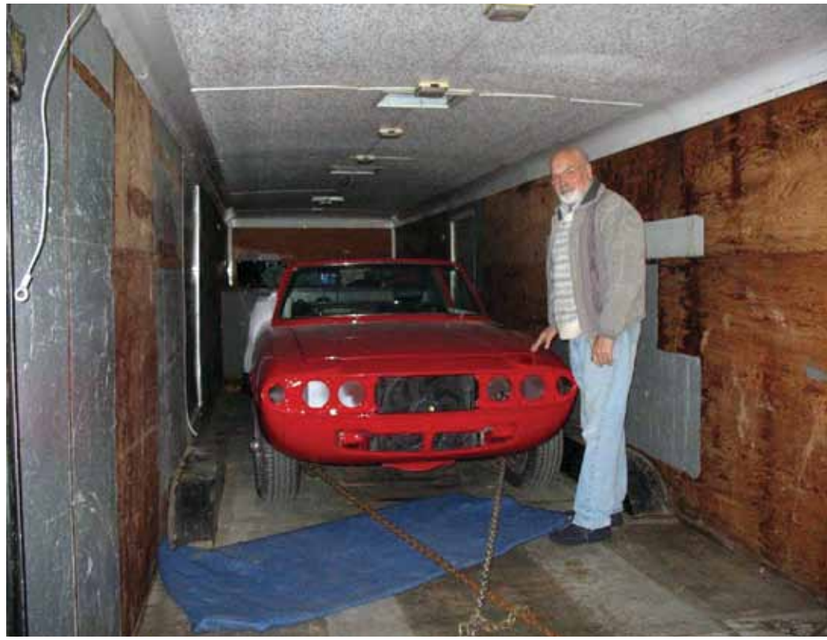
December has seen me refitting all of the parts that I had removed. The lights have been cleaned, bulbs and wiring checked and then refitted and rechecked, but I noticed that the grounding was suspect, so I added a couple of body grounding wires to correct that. The reversing lights had never worked so the switch under the shift lever was replaced, but it still didn't work. In the end, I ran a new ignition-controlled wire to the switch, with positive results, but not without discovering at least five twisted wire connectors under the carpet wrapped in electrical tape, now all fixed safely.

I am glad now, in retrospect, that I decided to go whole hog and fix everything as the car itself was generally in great condition. However, there were problems that we discovered that could have caused a potential major problem, fire or frustration sometime in the future.

I have been blessed with knowledgeable people helping, especially Tony Fox and John Lille who never gave up and my brother Ian, who finally cured the transmission leak.

We have named our Stag, "Lilybelle," in honour of our first grand-daughter Lily, and we are both now entirely in love with our 'new' Triumph Stag. The journey to this point has been tortuous and a huge learning experience. If anybody out there is getting despondent working on their Triumph, do not give up, but do check that the people you engage know what they are doing. Unfortunately, we wasted the 2011 driving season as a result of repeated mistakes made by the transmission shop.

Roll on spring! **RAGTOP**



Robin gets his repainted Stag delivered home at last

THE AMERICAN INVASION

by Terence McKillen

Some of the 24 Stags at Bronte

Where was Laura Secord when needed? The Triumph Stag Club USA must have heard of the Toronto Triumph Club's 2012 Invasion Classic to the Finger Lakes area in June and decided to up the ante by returning in force to British Car Day.

Actually, this is an annual event which has been encouraged and facilitated by the indomitable Tony Fox for the past ten or more years. This year I had the pleasure of joining up with members of TSCUSA for a series of outings and social gatherings organised over the Friday and Saturday prior to BCD.

Tony Fox, TTC's Stag marque coordinator and Regional Director of TSCUSA, organised the itinerary, together with partner Lynda Hill, including a mass arrival at the Bronte show grounds on the Sunday morning with the lead Stag sporting the Canadian and British flags.

A Staggering number of Stags at Hidden Valley Park

Eleven Stags took part in the events on Friday, 14 on Saturday and there were 24 Stags present for the car show on Sunday – not a record but a very satisfying turn out nevertheless for this less common Triumph model. Roughly half of the cars came from the United States, led by TSCUSA President, Michael Coffey, with visitors from as far afield as Scranton, Rochester, Ohio, Indiana as well as from the Detroit and Chicago areas. Five or six of the Stags were locally owned cars, while a further five belonged to TTC members.

The first day's tour started out from the Admiral's Inn in Burlington and included a tour of Dundurn Castle in Hamilton, now significantly more famous for its connection with a forebearer of the Duchess of Cornwall. Prior to leaving Dundurn, ragtops were hastily erected (and I must say, the Stag roof is so much easier to put up than that of the TR6 and earlier roadsters). We stopped at The Landings for lunch at the 50 Point Marina on Lake Ontario. An afternoon excursion to view some of the wineries along the Niagara Escarpment was curtailed due to the heavy rain that had settled in for the day.

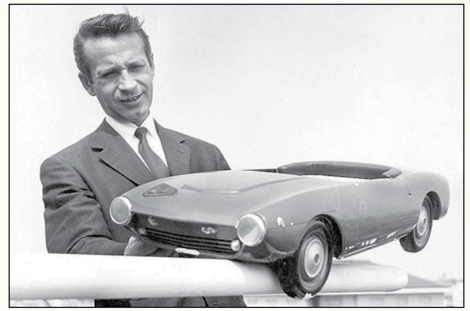
The Saturday tour was a Fox family event with Tony (Jnr) and wife Michelle pitching in with the organisation. A leisurely morning drive was completed through scenic country around Lowville and Kilbride and then on to Waterdown and ending with a picnic lunch at Hidden Valley Park in Burlington. After lunch the group reassembled at Tony and Michelle's house for tea, coffee and dessert, followed by the expenditure of some elbow grease as cars were washed and prepared for Sunday's show.

A very enjoyable gathering and banquet was held at the Admiral's Inn on the Saturday night primarily organised by Lynda with a less formal dinner get together at Jake's Grill & Oyster House in Burlington on the Friday evening. All-in-all, a great weekend of Triumph nostalgia, new friends made and old acquaintances renewed. Bring on next year! **RAGTOP**

THE ITALIAN CONNECTION

THE ACHIEVEMENTS OF MAESTRO MICHELOTTI

by Terence McKillen



Giovanni 'Micho' Michelotti.
PHOTO SOURCE: WWW.INFLUX.CO.UK/WORDPRESS/TAG/MICHELOTTI

Triumph Fury Prototype (1963)
PHOTO SOURCE: BRIAN SNELSON

Although the automobile industry has employed countless millions of people and thousands of car models have been made over the last century or so, it is interesting to contemplate that only a handful of people may have had a really significant influence on the fate of the business. The single most important attribute in the auto business is probably that of design and asthetics. At the end of the day, perhaps only a few dozen individuals have actually shaped the destiny of car design. One such individual was Giovanni Michelotti.

In a December 1978 speech delivered in Rome at a conference organized by the Italian Order of Architects, Michelotti stated, providing my translation of the Italian is correct, that the "designer has a very delicate task which is to dress up a car and the car is always comprised of four wheels, a steering wheel and an engine. As a designer, you need to know how to move these components around to create a car which will be accepted by the public."

Michelotti's name is pretty much synonymous with the design of almost all of the post-World War II Triumph offerings. The Italian born Michelotti was unquestionably one of the most prolific sports car designers of the 20th century. Outside of the Triumph group, Michelotti was associated with other European marques such as BMW, Ferrari, Lancia, Maserati, Renault, DAF and Volvo. He was also associated with truck and bus designs for Leyland Motors and British Leyland. Although dominantly focussed on European marques, Michelotti was also a pioneer in design work for Japanese automakers as they geared up to attack European and North American markets in the early 1960s.

Born in Turin in 1921, the son of a coachbuilder, Michelotti is arguably one of the most important individuals in the history of Italian automobile coach building and yet is one of the least well known. He remained independent throughout a prolific career which took him from the role of apprentice with Carozzeria Farina (now Pininfarina) in 1936, at the age of 15, to a partnership with Carrozzeria Alfredo Vignale, before opening his own design studio (Studio Technico e Carrozzeria G. Michelotti, Torino) and taking on work for other design houses such as Bertone and Ghia.

One year at the Turin Motor Show, more than thirty of the cars on display were of his design creation, spread over several marques. During his career he designed more than 1,200 cars. When asked whether he had ever designed anything other than cars, Michelotti admitted to having once designed a coffee making machine.

It was Harry Webster, then Director of Engineering, who through a chance meeting was introduced to the mercurial little Italian and signed him up as a consultant to Standard-Triumph in 1957 and thereby ensured that a new generation of Triumph cars would have significantly more flair than their predecessors. Michelotti had a reputation for working best under tight schedules and could come up with a sketch for a whole new car design in as little as half an hour, worked out on a table napkin or menu card over dinner with Webster, who would often drive from Coventry to Turin and back in a weekend to confer with the maestro.

From 1957, "Micho", as Webster affectionately called him, was responsible for all new models produced by Standard-Triumph, starting with a facelift of the Standard Vanguard and designing the Triumph Italia 2000 Coupé, the latter based on the TR3 chassis and mechanical components although the car was manufactured by Vignale in Italy. This was followed by several attempts to create a successor for the TR3 while at the same time rescuing Triumph's new saloon car – project Zobo or the Triumph Herald as it became known. These efforts included the famed TR3 Dream car prototype which was presented at the Geneva motor show in 1957. However, the concept car turned out to be more luxurious and consequently more expensive than Triumph was willing to consider for a new production model, but it did provide a platform for the TR's future.

The story of Michelotti's initial engagement as recounted by Webster is pretty impressive. He was asked to help correct and finalise the Zobo prototype developed by the team of Arthur Ballard for the new small, economical sedan (four seats, two doors) subsequently to become the Herald. Webster stopped off in Turin on the return journey from a holiday in Sorrento. As it happened, Michelotti had not come up with any inspiration, so Webster parked his car at Michelotti's studio at three in the afternoon, leaving his wife and daughter in the car and started to monitor progress. At some point Webster commented that they were wasting their time so why didn't Michelotti just start afresh with a clean sheet of paper. Michelotti apparently rose to the challenge and in three or four minutes had sketched the Herald coupé and they immediately set off transferring everything to scale. It was almost midnight when Webster finally left the studio and returned to his car where his wife Peggy and their daughter were huddled asleep. While Webster and his family searched for a hotel, Michelotti worked all night completing sketches of the Herald sedan, estate and convertible. Working together, the pair saved the Zobo project and assured Triumph's survival and credibility.

In due course, the TR4 emerged and although the chassis came from the TR3, handling for the new roadster was improved by a three-inch wider track and a switch from cam-and-lever to the more precise rack-and-pinion steering, but the pressed-steel body used by Michelotti was the car's most important feature. It had a stylish full-width shape and broke new ground for a sports Triumph with wind-up door windows and a novel hardtop as well as an optional 'Surrey' or 'Targa' top, the latter often assumed as a Porsche invention from 1966, but in reality a Michelotti concept from five years earlier.

Almost all of Triumph's 1960s and 1970s offerings can be credited to Michelotti's designs, including the Herald introduced in 1959, the Vitesse, Spitfire, GT6, TR4, TR5/250, 2000, 2500, 1300, 1500, Stag, Toledo and Dolomite. The only Triumphs after 1960 that were not his work were the TR6 and the TR7/8 as well as the Honda-based Acclaim. At the time of the TR5 re-design requirement for the TR6, Michelotti was too involved in other projects to cope with the short time line required by Triumph, but in 1979 Micho was responsible for the re-design work on the TR7, removing the roof to create the more successful roadster model. Following the merger with British Leyland, Michelotti also undertook a facelift of the BMC 1100 and designed the Australian built Leyland P76, often referred to as Australia's Edsel, as well as the Leyland National single-deck bus. He also produced a proposal for the Triumph Puma-Rover P10 project which subsequently was renamed RT1 (denoting Rover-Triumph), to signify that this was a car that integrated both Triumph and Rover engineering and which eventually led to production of the Rover SD1 model.

Michelotti also created a number of Triumph prototypes which did not go into production, such as the Fury, the Lynx, the Zest and the Zoom, as well as

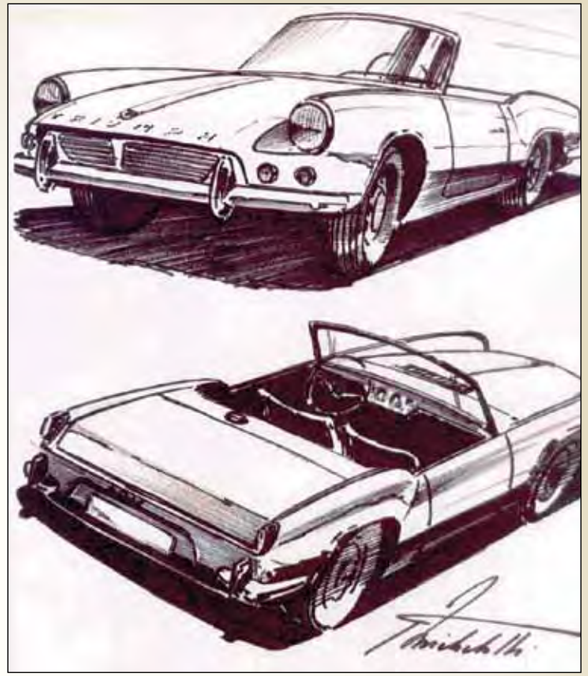
the BLMC ADO70 and ADO74 prototypes, both Mini-based designs and the P82 intended to replace the Morris Marina for Leyland Australia. The Triumph Fury was a very interesting two-door roadster design exercise carried out in 1963. It was based on a monocoque body using components from the Triumph 2000 saloon including the 2.0L 6-cylinder engine, although the use of the 2.5L 6-cylinder was possibly intended, had the car gone into production. Unfortunately, the Fury lost out to the TR5/250 and TR6 series which continued with the separate body on chassis construction. It appears that the main consideration for Triumph in sticking with separate chassis construction was to facilitate the complete knockdown format (CKD) for assembly in overseas markets and the ability to quickly interchange body styles on the same rolling frame.

Not long afterwards, Michelotti went on to construct the Stag prototype following the same basic design inputs considered for the Fury. The Stag design was initially an independently conceived project which Michelotti hoped to exhibit as a concept car at the 1966 Turin Motor Show but Harry Webster, with a keen eye for expanding sales in the crucial North American market, officially adopted it for development by Triumph, although it took a further four years to complete.

During his career, Michelotti introduced a few cars under its own name, including the Fiat 127-based 'Every', a luxury version of the Daihatsu Taft and the 'PAC', a one-off city car prototype, based on the Daihatsu Cuore.

Michelotti's association with BMW started with the BMW 700 coupé in 1959. In 1961 he introduced the successful Neue Klasse or New Class series of designs of which the most notable was the BMW 2002. Michelotti also worked with the Dutch automaker DAF, starting in 1963, when he redesigned the Daffodil 31. The DAF 44, in 1966, was a completely new design from his drawing board and he also helped form its later derivatives, which following the 1975 takeover of DAF by Volvo, culminated in the Volvo 66. He was also responsible for the absolutely gorgeous DAF 55 Siluro coupé prototype revealed at the 1968 Geneva Motor Show.

He worked on designs for other European marques such as Ferrari, Fiat, Lancia, Maserati, Renault's Alpine, and even the occasional contract for Jaguar and Ford, as well as for Japanese manufacturers Nissan-Prince, Hino and Daihatsu. The Reliant Scimitar SS1 was his last design to reach production, although posthumously four years after his untimely death from cancer in 1980.



Michelotti's favourite car design, the Triumph Spitfire.

In a 1977 interview with Italian journalist Clelia d'Onofrio, Michelotti was asked which of his designs was his favourite. He immediately responded, "The [Triumph] Spitfire, as it has been in production for fifteen years, but I designed it in 1957." Actually, production of the Spitfire continued until 1980, a spectacular run of 18 years. Not only was the Spitfire one of the most popular cars by Giovanni Michelotti, it was clearly the car that gave him the most satisfaction, and perhaps it will be remembered as the maestro's masterpiece.

Micho's son, Edgardo, together with other enthusiasts in July 2001, on the eightieth anniversary of the birth of Giovanni Michelotti, founded L'Associazione Registro Storico Michelotti (www.michelotti.com) with the goal of establishing a record of Michelotti designed cars still in existence around the world, as well as to organize cultural events around such cars. Membership of the Association is open to any owner of a Michelotti designed car.

Michelotti's twenty-odd year association with Triumph resulted in the creation of almost all of the models that we hold so dearly to this day. His sports car designs provided fun, exciting, affordable top-down motoring for the mass market and contributed greatly to the creation of the 'car enthusiast' hobby that we continue to enjoy forty to fifty years on. In a recent conversation with fellow TTC members on this subject, all agreed that, leaving aside engineering developments, the unique timelessness of Michelotti's styling designs can still hold their own against almost anything created subsequently. **RAGTOP**

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TRIUMPH VITESSE

by Terence McKillen

The unique slanted 4-headlights on this Mark 2 Vitesse distinguished it from the Herald in a head-on view.

The Vitesse celebrated it's 50th anniversary in 2012 and had a nine year production run from 1962 to 1971. It was another spectacular design success by Giovanni Michelotti who raided the existing parts bins at Triumph's Coventry plant to create essentially a new model out of thin air. The Vitesse was conceived as a sportier, roomier and smoother Triumph Herald and was produced in saloon and convertible variants. The Vitesse was equipped with an in-line six-cylinder engine which started life as a 1.6 litre displacement growing to 2 litres in the 1966 and later models, giving it a considerable edge over the rather mediocre powered Herald. The in-line six was similar to the power plants later used in the contemporary GT6 and Triumph 2000 models and which went on to evolve in to the 2.5 litre motor used in the TR6.

As a 17 year old in the summer of 1963, I could hardly believe my good fortune when I was offered the keys by a family friend to her brand new Vitesse convertible for a week during the school holidays. There was only one catch; I had to show her 16 year old nephew, on a visit from the United States, something of the Irish countryside and life style. Well, we took that car on every twisty back road we could find in the Wicklow Mountains and we drove up the Enniskerry hillclimb circuit so many times we could likely have done it blindfolded! Although the term 'chick magnet' hadn't yet been coined, the convertible Vitesse certainly worked its charms whenever we pulled up at a corner store, coffee house or whatever passed as a teenage haunt in those days. It was a sad day when I had to return the keys and revert to my regular daily transportation – a Honda 50! That Vitesse, and the Triumph 2000 later acquired by my dad, obviously ignited some sort of spark in the dark recesses of my psyche for things Triumph which has only recently been fulfilled, fifty years later, through ownership of a TR6 and earlier this year through the addition of a Triumph Stag.

The Vitesse name had previously been used by Triumph on a car made in the immediate pre WWII years (1936-38). However, by the early 1960s, thought was being given to a sports saloon based on the successful Herald, but using an existing 6-cylinder engine from the Standard side of the business. Michelotti devised a design that used almost all the body panels from the Herald. From the rear, it was almost impossible to distinguish a Vitesse 6, as the early model was known, from a Herald, but from the front, the Vitesse was quite distinctive as it had been given a reworked bonnet/hood that was flatter and which sloped up at the sides, together with a distinctive slanted 4-headlamp design. The initial engine was a 1596 cc version of Standard-Triumph's traditional straight-6 derived from the engine used in the Standard Vanguard Six, but with a smaller bore diameter of 66.75 mm (2.628 in), compared with the 74.7 mm (2.94 in) bore on the Vanguard. It was aspirated through twin Solex B32PIH semi-downdraught carburettors, later replaced by B321H carburettors. The Herald gearbox was strengthened and offered with optional Laycock De Normanville 'D-type' overdrive. The rear axle was changed to an uprated differential. Front disc brakes were standard as were larger rear brake drums, and the Herald fuel tank was enlarged. The front suspension featured uprated springs to cope with the extra weight of the new engine, but the rear suspension was basically standard Herald – a swing-axle, transverse-leaf system which Herald, Spitfire and GT6 owners quickly discovered to be inadequate, especially for the more powerful Vitesse and GT6. The chassis was basically the same as the Herald, and the Vitesse was available in convertible and saloon forms. Unlike the Herald, a coupé never got beyond the prototype stage and only a handful of Vitesse estates were assembled to special order.

The interior was significantly improved over the Herald models with wooden door cappings added to match the wooden dashboard and it was provided with better quality seats and door trims. Exterior trim was also improved with stainless steel side trim and satin-silver anodised alloy bumper cappings replacing the white rubber Herald design. Like the Herald, the Spitfire and GT6, the Vitesse was designed with a large forward hinging bonnet which included the wheel arches, providing full access to the engine and front suspension.

In mid-1963, just over a year after the car's launch, the Vitesse received a modest facelift when the dashboard received a full range of instrumentation instead of the large single dial, and from September 1965, the twin Solex carburettors were replaced by twin Stromberg CD 150s. Power output increased from the original 70 bhp (52 kW) at 5,000 rpm to 85 bhp, enough to provide a useful performance boost and making the car a much more flexible performer. Contemporary motor road tests indicated a top speed of 91 mph (146 km/h), with the 0 - 80 mph (0 - 130 km/h) time decreasing from 46.6 seconds to 33.6 seconds.

The Vitesse 6 sold extremely well for Triumph, and was the most popular Vitesse variant sold during the model's lifetime with 31,261 units produced over its four year production run (22,814 saloon models). The car was favourably received for its performance as well as its fuel economy, and the interior was well-appointed. The Vitesse had few rivals in its price range and it was able to perform as well as many sports cars of the day, but had the advantage of being a four-seat family car. The convertible, in particular, was virtually unique in the marketplace and it wasn't until the advent of the Stag in 1970, that another 4-seater sporting convertible became available.

The Vitesse 6 convertible was exported to the U.S. in LHD format as the Triumph Sports 6, from 1962 until 1964. It was marketed as a "limited edition car", but had very "limited" success with only 679 being sold before Triumph called it a day and focussed on its two-seat roadster models. Although the Sports 6 was better suited to American highways than the Herald, it faced competition from local cars such as the new Ford Mustang convertible, particularly in regard to pricing and general panache. The Vitesse was also offered in Canada in Vitesse 6 and Sports 6 formats, but sales volumes are not readily available.

In 1966, Triumph upgraded the engine to 1998 cc, in line with the new GT6 coupé, and relaunched the car as the Vitesse 2-Litre. Over the two-year production run, 10,830 units were produced (7,328 saloons). Power was increased to 95 bhp (71 kW). In addition to detail modifications, a stronger all synchromesh gearbox and uprated brakes and an improved, stronger differential were added. The performance increase highlighted the excessive understeer deficiency of the original rear suspension, which wouldn't be corrected until the launch of the Vitesse Mk 2 in 1968.

The Mark 2 was the final update to the Vitesse range. Essentially intended to be Triumph's answer to growing criticism of the rear suspension, the Mark 2 was fitted with a completely redesigned layout using Rotoflex rear couplings. This system, also shared with the new GT6 MkII and the early GT6 MkIIIs, (GT6+ in the US market), tamed the wayward handling somewhat and gave the Vitesse a firmer, progressive road holding.

Other improvements included tweaking the engine to provide 104 bhp (78 kW), cutting the 0 - 60 mph time to just over 11 seconds and providing a top speed over 100 mph (160 km/h). The main changes were to the valve timing, to give earlier opening of the inlet valves compared with the earlier 2 litre engine through a re-profiled camshaft and the use of the cylinder head from the TR5 allowed for increased inlet valve diameters and better porting. The exterior featured a new grille, wheel trims and rear panel and the interior was upgraded once more in order to share parts with the newly revised Herald 13/60. Additional colours were offered for the Mark 2 models. 9,121 cars were produced over the final three year production run (5,649 saloons).

Although it took six years to finally achieve the necessary refinement of the original design, the Mk2 was the ultimate Vitesse variant, a saloon or convertible with performance superior to that of its contemporary MGB, Sunbeam Alpine or TR4 roadster models, but with four proper seats and a good sized boot/trunk. Over the nine year production cycle, the Vitesse sold 51,212 units of which 15,421 (30%) were convertibles, until it was withdrawn in July 1971, even though sales in the U.K. were still respectable and the Dolomite and Dolomite Sprint replacement models were still respectively 12 to 24 months away from showrooms. All-in-all, not a bad little Triumph to add to one's collection! **RAGTOP**

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IGNORANCE & CONFIDENCE

by Terence McKillen

"All you need in this life is ignorance and confidence; then success is sure." - Mark Twain

The job is always easier with an assistant and a heavy lump hammer.

It is often said in motorcycling circles that Harley Davidson owners have, out of necessity, evolved the ability to hear at a special frequency. This syndrome is not caused by the excessive noise emanating from the full-bore pipes attached to most Harleys or the fact that they rarely wear crash helmets. If there was a medical term for this aptitude it would likely be difficult to pronounce, so it is simply best referred to as the ability to deal with "parts falling off." The uninitiated might conclude that a small stone has been kicked up by a tire and thrown against a mud guard, engine sump or frame, but experienced owners recognize the difference. They can instantly distinguish that metal-on-metal sound and will quickly look over their shoulder or glance in the rear view mirror to see what may have separated from their machine and fallen on to the pavement.

Some owners of classic British cars have developed the same uncanny syndrome. In the case of the HD owners it is the base frequency shock waves from the low revving twin cylinder thumpers that, given half a chance, vibrate apart any and every nut and bolt that is left unattended for any period of time. In the case of our LBCs, it is the result of Father Time acting through the rather outdated body on frame design and less than modern suspension which manifests itself through one's posterior every time the car passes over a manhole cover or expansion joint in the road surface. Of course, there may be the added ingredient of careless reassembly following any maintenance or upgrade work.

In conversation with Triumph and other LBC owners over the past year or two, I have tried to gain some perspective on the type of maintenance, restoration work and upgrading people are prepared to tackle themselves before seeking outside professional help. I have concluded that classic car owners can be divided into several categories of ability, but there are basically two main types: those that do most of their own mechanical work and those that do very little in-house repair work and contribute their share to the estimated annual $35 billion North American historic car service sector.

Within the first category there are those that are comfortable with performing only the very basic of routine maintenance chores while at the other extreme are those quite comfortable and capable of conducting complete body-off restorations and engine rebuilds with a wide variety of capabilities in between.

Since the early 1990s and with each passing new model year, modern cars have become more and more advanced, such that it is increasingly more difficult for the average car owner to contemplate, let alone actually work, on their own vehicle. Long gone are the days when the average person could fix any number of issues with just a basic set of hand tools. Of course, for classic LBC owners, these time-honoured skills are still an essential necessity. Our cars will always have oil, spark plugs, brake fluid, radiator fluid and the likes to be inspected and changed and low mileage intervals; ignition timing and carburettors to be adjusted and routine bits and pieces to be replaced. Our cars will continually be in need of on-going maintenance which may often have to be carried out at the side of the road or in the parking lot of some overnight pit stop.

The key decision to be made is who will do that maintenance; the owner, a corner mechanic or a classic car specialist? If you can find a reliable, economically realistic and trustworthy example of the latter, then hang on to that connection because with each passing year there are fewer professionals out there with the know how to keep our LBCs running. New graduates of auto maintenance schools will likely never have worked on a carburettor aspirated motor or know how to adjust ignition points, particularly if they are the double type as used on the Triumph Stag. There are so many differences between a 1960-1970s era British car and today's North American or international automobile that the average repair shop jockey will be scratching his or her head and learning on your car as they go along – not the best situation to be in.

I spent a good portion of my teens and early twenties involved with motorcycles, not just road machines but off-road competitions involving post-WWII British models, Bultaco from Spain and some early Japanese machinery for good measure. I quickly learned how to strip down and carry out almost any type of maintenance and repair. The advantage of learning on a motorcycle or other small engines, such as outboard motors, ATVs or Skidoos, is the ease of access and the ability to lift individual component parts up on to a workbench without the necessity of inspection pits, hoists and lifting tackle. But the basic knowledge can be applied to any four, six or eight cylinder four stroke engines.

When I first purchased my 1973 TR6 a couple of years ago, I was a little daunted initially with the prospect of tackling any major tasks as it had been some time since I had actually done any hands-on mechanical repair work. However, with the help and encouragement of fellow TTC member Colin Pillar, and later with the added

The advantage of learning on a motorcycle engine is the ease of access and the ability to lift individual component parts up on to a workbench without the necessity of inspection pits, hoists and lifting tackle.

A myriad of jobs were tackled with none so difficult that it could not be managed by a team of amateur mechanics.

assistance from Colin's neighbour, Sean Doherty, it soon became apparent that we could tackle almost any task that the Triumph could throw our way. Between my Six and Colin's Six, we quickly delved into the nether regions of clutches, transmissions, overdrives, drive shafts, differentials, valves, big and little end bearings, thrust washers, pistons, rings, carburettor rebuilds, brake system overhauls, electrical diagnostics, installing relays and rewiring, dealing with cooling issues, replacing cam shafts and timing chains, refurbishing gauges, replacing windshields, repairing soft tops, rebuilding seats and a myriad of other jobs both large and small. We found that none of the tasks were so difficult as to move them beyond the capabilities of an amateur mechanic. We made the occasional mistake along the way, but we did learn from our mistakes – although sometimes it took four or five attempts to get it right! We also discovered that some of the instructions in the Haynes or Bentley manuals were incorrect, so it pays not to blindly follow the steps in the book without thinking. We did conclude, however, that a job is always easier with an assistant and sometimes a heavy lump hammer.

With the addition of a Triumph Stag to the stable earlier this year, we are finding that comparable jobs that could easily be tackled on the Six are much more complicated and time consuming on the Stag. It is not that the work itself is more complicated, but just getting at a particular component requires the removal of so many other components that it adds significantly to the time and difficulty element. One of the first tasks I had to tackle on the Stag was the replacement of the left hand side engine mount as the original rubber component had collapsed, leaving the engine sitting at a somewhat unnatural angle. On the TR6, it would have been at most an hour or two's work, but on the Stag it turned out to be a nightmare from which my knuckles and finger tips have only just recovered!

If classic car clubs such as the TTC are going to survive in the long term and the vehicles to which we are dedicated to preserve and drive are going to continue to be driven well into the future, an important goal has to be keeping the necessary automotive skills and knowledge base alive. In Southern Ontario, we are very fortunate to have a number of excellent British car parts suppliers and component repair specialists on our door step, all of whom seem to be more than willing to share their collective knowledge not only with the variance in quality of the parts being supplied, but also on the intricacies of the task being tackled.

As owners and lovers of classic British cars, we all have a role to play in supporting not only the Triumph tradition, but the wider LBC heritage. Not only do we have to maintain and preserve the cars, but we have to ensure the necessary skills and knowledge are passed along, sharing them with those newer to the hobby and handing them down from one generation to the next.

One way to do this is to contribute technical articles for publication in magazines such as 'Ragtop' or to conduct a technical session for fellow club members, or perhaps offer to help a fellow member work on their car, passing on not only the technical knowledge, but equally importantly, the confidence, to a new generation of enthusiasts.

I would therefore encourage any classic car owner to follow the advice of Samuel Langhorne Clemens (otherwise known as Mark Twain) and proceed with a little ignorance and some degree of confidence when you undertake your next maintenance or repair work. It may not be as difficult as you assume! **RAGTOP**

Holding up under pressure

TR6 Owner, Colin, examines the value of the 'Leak Down Test'

BY COLIN PILLAR

I think it would be fair to say that most TTC members are familiar with the use of a compression test as a diagnostic tool. Many may even have a compression tester in their kits and there is no question that a compression test is an effective way to quickly evaluate the health of a motors' top end. Warm up the engine, pull the plugs and check each cylinder. With a few drops of oil in a suspect cylinder, one can even get an idea as to whether the problem relates to valves or rings. Not bad, but with a little more effort and equipment, one can perform a leak down test which will go well beyond simply getting an idea as to what's what up top. With the leak down test one will be able to evaluate each cylinder, each valve, the piston rings and even the head gasket. Furthermore, and perhaps of greatest value, this test can also be undertaken at various stages during the assembly of a motor. You can check as you go rather than waiting until the key can be turned to see if everything is ok! All this and you don't even need a computer!

Essentially, the leak down test differs from a compression test in that it measures the amount of air leakage within a cylinder by introducing compressed air into a stationary motor while the compression test requires that the motor be cranked over in order to measure the amount of compression the piston can generate within the cylinder. All motors leak air, the question is how much and from where. With compressed air and the motor in a stationary position, this information can be obtained by simply looking and listening.

The Leak Down Test gear includes a compressor, a quick connect/disconnect hose attachment with brass spark plug adaptor, air regulator and other minor bits and pieces.

The tools required to perform a leak down test include an air compressor capable of producing something in the range of 4 cfm at 100psi (most 110 volt home hobby type units should comfortably achieve this), a basic tool kit, a length of hose and a leak down tester.

For me, an air compressor is such a basic tool that I can hardly imagine getting by without one. For one thing, I don't think that I can remember how to hammer in a finishing nail by hand and I am certainly not inclined to pay to check my tire pressure at a gas station. With an air compressor in hand, setting up to do a leak down test only required the purchase of a leak down tester. I bought my tester from NAPA, in stock, for about $80.00. I should mention also that, if one has the time and the inclination, a compression tester can be adapted to become a leak down tester for about $25.00 for additional connections and hoses. If you are interested, YouTube , has a video that does a good job of describing how to go about this.

The first step in performing a leak down test is to ensure that your car is in neutral and will not roll. Do you trust the parking brake? If not, chocks may be a good idea. Once sure that "Trumpy" is going to stay put while in neutral, pop the hood, number the spark plug wires and remove all the spark plugs. I think that having the spark plug wires numbered is a good idea in general, but this is particularly important here as you will want to be able to easily and quickly identify which wire is for which cylinder. This brings us to the only tricky part of the test. The piston of the cylinder being tested should be at, or near, top dead center on the firing stroke. For the #1 cylinder, this is not very difficult. For the other cylinders, a little more thought is required.

There are two reasons for the piston of the cylinder being tested to be correctly located. Firstly, and most importantly, both the exhaust and intake valves must be fully closed. Locating the piston at 'top dead centre' (TDC) on the firing, or compression stroke, will ensure that both valves are closed. Or at least, as closed as they are going to get depending on their condition! Also, it is important to remember in a four stroke motor that each piston has a TDC on the compression as well as the exhaust stroke. The valves are fully closed only on the compression stroke. Secondly, the piston will be less likely to be forced downward by the compressed air when at

Colin made up a lever to assist with rotating the motor and avoiding scraped knuckles

Adjust the regulator on the tester until the needle on the tester gauge is at 0 in the area of the gauge marked "Set."

Rotating the motor to locate the sparking point. Note the white ground wire.

A leak down reading of less than 20% is about as good as it is likely to get on a TR6 motor and a reading of less than 30% is acceptable.

TDC (think about standing on the upper pedal of a bicycle when the crank is in the vertical position). For me, the simplest way to locate TDC on the firing stroke in a fully assembled motor is to use the spark plug as an indicator. With a grounded spark plug inserted into the sparkplug wire related to the cylinder to be tested (hence the need to number the wires), turn on the ignition and rotate the engine by hand in the normal operating direction until the spark plug sparks. The snap of the plug will be heard as well as the spark seen but it may help to reduce ambient light levels in order to see the spark more clearly. Once the spark has been seen, rotate the motor a further 10º or so to allow for static spark advance and you will have the piston in a position workably close to TDC. Starting the test sequence with the #1 cylinder is a good idea as the TDC markings on the pulley will serve as a double check to the process for the first test.

With my TR6, I found that it was possible to rotate the motor using the fan blades providing that the spark plugs were all removed. After a few rotations, however, I decided that this method of rotating the motor provided limited control and certainly proved to be a good way to bang up the knuckles! To help with this problem, I invested some time and effort into making up a lever that hooked to the hub of the fan body and enabled me to rotate the motor easily and with good control.

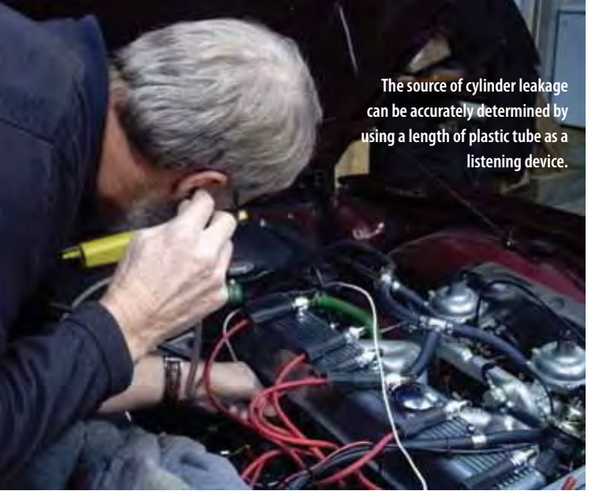
With the piston correctly located, the actual leak down test process is straight forward. The tester has a quick disconnect between the gauge side of the tester and the hose with the spark plug thread adapter. With the two components disconnected, screw the adapter into the spark plug opening of the cylinder (finger tight is fine) to be tested and connect the gauge side of the tester to the air compressor. Turn on the air compressor and allow the compressor to run until it cycles off automatically (it is preferable to keep ambient noise to a minimum). Set the regulator on the output side of the compressor to between 90 and 100psi and adjust the regulator on the tester until the needle on the tester gauge is at 0 in the area of the gauge marked "Set."

Double check that the car is in neutral and that you have left nothing near any moving parts of the motor. If a lever was used to rotate the motor, be sure that it has been removed. Keep in mind, even with the piston at TDC, it is possible for the compressed air that will be introduced into the cylinder to cause the motor to rotate. Once everything has been double checked, and with fingers out of harm's way, connect the gauge side of the tester to the spark plug side and read the gauge. In my experience, a leak down reading of less than 20% is about as good as it is likely to get on a TR6 motor and a reading of less than 30% is acceptable. Readings over 40% indicate that you have an internal problem and that help is needed. If the motor does rotate, reset and check the piston location and try again. If the problem persists, reducing the output pressure from the compressor should help.

Remember though, the "set" position of the leak down tester will likely have to be readjusted to 0 again in order to accommodate for the reduced pressure.

If the reading is found to be acceptable, one can simply move on to the next cylinder and repeat the process. If the first cylinder to be tested was #1, then one would simply move on through the 1, 5, 3, 6, 2, 4 cylinder firing order of the TR6 motor. This would result in each test requiring only a 120 degree rotation of the motor at which point the next plug should fire indicating that that cylinder is nearing TDC.

If a cylinder is found to have excessive



The source of cylinder leakage can be accurately determined by using a length of plastic tube as a listening device.

A bad exhaust valve can be identified by listening to the tube while inserted into the exhaust pipe.

leakage, the source of the leakage can be accurately determined by using a length of plastic tube as a listening device.

A failed head gasket can be detected by inserting the tube into the cylinders adjacent to the cylinder being tested. Excessively worn rings can be identified by listening to the tube while held to the dipstick opening.

A bad exhaust valve can be identified by listening to the tube while inserted into the exhaust pipe and intake valves can be checked by lifting the carburetor piston and inserting the tube into the intake side of the carburetor. The noise heard from a problem component will be very noticeable while the noise from a good component will be subtle or not present at all. The only exception to this will be listening for ring issues at the dipstick opening. There will always be a hiss of air as it escapes through the gap in the piston rings.

In this case one will have to evaluate the degree of leakage by comparing different cylinders. Also, if everything else is quiet, then it would be logical to look to the rings as being the problem.

For me, however, the most important benefit of the leak down test is that it can be performed on a motor at various points during the reassembly process. As Terence McKillen mentioned in the British Car Day issue of *Ragtop*, the ability to test that a cylinder head gasket has sealed completely before taking the time to install other components is a major benefit. Terence and I both had occasion to remove the cylinder heads from our cars this past winter. We did my car first and had the motor fully assembled complete with coolant, oil and exhaust system only to find that the motor wouldn't start due to a lack of compression. After a few frustrating days, and nights, I picked up a leak down tester and quickly concluded that the head gasket was leaking between virtually all the cylinders. When it came time to do Terence's car, we performed a leak down test once the head was installed and found that the head gasket of his car had also failed to seal between two of the cylinders. We quickly solved the problem by increasing the torque of the cylinder head bolts to the maximum noted in the Bentley Manual where we had initially tightened them only to a middle point in the range with the idea that we would retorque to a higher setting after the motor had run in for a few hundred miles. A leak down test when the head is first bolted down, and before the rocker assembly is added, takes only a few minutes because all the valves are closed. Resolving problems that are found at this stage takes a fraction of the time that would be expended if the problem were only discovered at completion of the reassembly.

Intake valves can be checked by lifting the carburetor piston and inserting the tube into the intake side of the carburetor.

One thing is for sure! We will never fully reassemble a motor without performing a leak down test once the cylinder head is bolted down. We are converts!

I would like to thank TTC member, friend, neighbour and sometime LBC assistant mechanic, Sean Doherty, for taking the photographs used to illustrate this article. **RAGTOP**

REFERENCES

Cylinder Leak Down Tester, How To Build, YouTube
www.youtube.com/watch?v=7UcOn8OEt0Y

Speke Easy

BY TERENCE MCKILLEN

My last Triumph outing of the 2012 season was on December 24th when I took the Six out for a run over to Bronte with Colin Pillar, stopping on the way home to top off the gas tank prior to the winter lay away. The Stag's last outing was on December 18th but earlier, on November 29th, the day before the first brief snowfall of the season, David Sims accompanied me in his TR250 on an excellent drive over the back roads north of Oakville/Burlington through Kilbride and on to the escarpment. The remnants of an early morning frost on the switch-back curves provided some excitement! On that occasion, we stopped off to visit MG aficionado, Rudy Koster, who has a 1976 TR6 restoration project and related Triumph parts for sale. It could be an interesting but fairly onerous project for someone to take on but the price would be right. Over coffee, David noted that our opening drive of the season had been an impromptu TTC outing organised by David Fidler on March 11th, giving us a driving season this year of nine months. As Colin understated in an email the day after the snowfall, "With the white stuff from above as well as from the bowels of public works trucks, it looks like it may be time to give up the road and get out the tools!"

There are some notable Standard and Triumph anniversaries coming up during 2013. It will be the 90th year since the production of the Triumph 10/20 in 1923, Triumph's first car; the 110th year since the founding of the Standard Motor Company in 1903; and the 125th year since Triumph opened its first factory in Coventry in 1888. As far as other models go, the Triumph Super 8 and Gloria 10 will celebrate 80 years (1933), the Triumph Dolomite 1½ litre will be 75 years (1938), the Triumph 2000 Roadster and Saloon will be 65 years (1948), the TR2 will be celebrating 60 years (1953) and the Triumph 2000 Mk 1 and Standard 8 saloons will be celebrating 50 years (1963). Look out for more information on these historic models in future issues of 'Ragtop'.

Speaking of tools, I plan to tackle a few jobs on both cars over the winter period. The Stag will get a new set of saddle tan coloured carpeting and a new battery clamp. The Six will be going on the hoist to have the oil seals and gaskets replaced on the front timing cover and the engine plate in order to cure a minor but annoying oil leak. While the radiator is out, I plan to fit a new set of green coolant hoses with authentic period clamps.

Al Moss, the founder and spirit of Moss Motors, passed away on September 25, 2012 at the age of 80. Al changed his California based business from British sports car repairs and service in 1961 to develop a mail order parts service. By 1977, he had purchased 48 tons of obsolete inventory from Standard-Triumph and published the first comprehensive TR2-4 catalogue and the rest, as they say, was history.

I previously reported experiencing an issue with the distributor rotor arm in my Six failing twice last season. I had initially blamed the lack of spark on the Pertronix electronic ignition unit or the Lucas coil. However, it appears that the carbon content of the plastic now used as a replacement for bakelite in most new rotor arms is too high and the plastic itself can becomes a conductor. This condition not only potentially robs spark energy at the plugs resulting in misfires but, as in my case, the spark can be completely misdirected to the spring clip on the underside of the rotor, thereby grounding out on the shaft of the distributor with resultant no spark at all. The solution is to use a premium rotor arm from Advanced Distributors (www.advanceddistributors.com) whose rotor design is based on the original Lucas rotor but is manufactured from a red-coloured, highly non-conductive resin and the brass contact is molded to the body rather than riveted. All of which eliminates the common causes of rotor failure. This product, which comes with a 3 year warranty, is available through British Auto Sports and is only marginally more expensive than a regular aftermarket replacement.

According to the latest edition of 'Triumph World', the Standard Motor Company Limited has been reborn! It seems that the Standard Motor Club in the UK (membership c. 1,000) was able to obtain the registration from the Companies House in London and has incorporated itself as a company limited by guarantee. The club members have now become members of the company with liability capped at £1.00. What a great way to preserve the name for posterity!

Want to perk up the intensity of your rear or side marker lights? Consider replacing the light bulbs with LED equivalents. However, if you use LED bulbs in the turn signals it will be necessary to change over to an electronic flasher unit as the LED bulbs draw too little current to activate the original mechanical blinker unit. If sticking with conventional bulbs, to help the intensity of the rear turn signals and rear/stop lights, consider making new reflectors out of silver mylar. A 2x8 ft. roll of mylar costs about $4.00 and is readily available at craft and hobby shops or from www.amazon.com. Don't know where to look for suitable LED bulbs? Moss Motors (www.mossmotors.com) now stocks suitable replacement bulbs for tail lights, back up lights, turn signals and panel lights as well as electronic flasher units which can also be sourced through Fred McEachern at British Auto Sports or you can also mail order from LiteZupp (www.litezupp.com). LED bulbs are not cheap, costing around $25 a piece. **RAGTOP**

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