# MOSS Motoring

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1988 #3


## 1988 Photo Contest

OK folks, it's time to dust off the old camera and start shooting. Entries are already coming in for the 1988 *Moss Motoring* Photo Contest. Whether you are shooting for art, catching the fun or documenting important details, you'll want to get in on the contest.

Here's your chance to make some of that photography pay off. The *Moss Motoring* Photo Contest is open to amateur photographers who may submit up to three entries each. Contest winners will receive generous gift certificates. Each person who enters will receive a $5.00 gift certificate just for entering.

Remember, the subject is British cars and the activities related to them. This includes vintage races, rallies, shows, social gatherings, restoration photos, tours and the vast array of activities enjoyed by all British car enthusiasts.

There's plenty of time to get your shots, but don't dally, the contest closes December 31, 1988

Please send all entries to:
Moss Motors, Photo Contest
PO Box MG
Goleta, Ca. 93116

### Contest Rules

1. All entries must be received no later than midnight December 31, 1988. Please see paragraph 5 for information that must accompany each entry.
2. Each entry must be the original unpublished work of the entrant.
3. Photos will be judged on the basis of content, photographic skill and appropriateness. Photo subject matter must be "British Car" related. Your entries may include cars, enthusiasts enjoying cars, competitive events, social outings or technical subject matter. This is a representative listing and should not be construed as a limit to the scope of entries.
4. Prizes will be awarded as follows:
One First Prize: a $100.00 (one hundred dollar) Moss Motors gift certificate. Second Prize, a $75.00 (seventy-five dollar) Moss Motors gift certificate. Third Prize: a $50.00 (fifty dollar) Moss Motors gift certificate. Four honorable mentions will be awarded a $25.00 (twenty-five) Moss Motors gift certificate each. Every entrant will receive a $5.00 Moss gift certificate. Winning photographs will be published in *Moss Motoring*.
5. Each entry must be labeled with the

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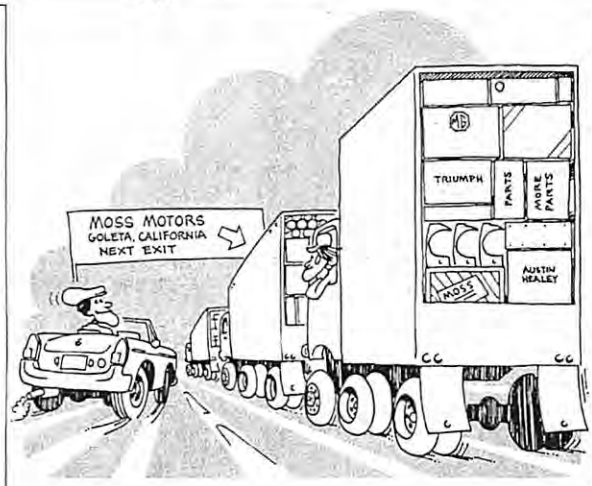


## Moss Buys Factory Stocks

BMC, British Leyland, BL Limited, Jaguar Rover Triumph, Austin Rover Group, call it what you will, the American arm of our British "factory" supply has pulled up stakes and left. Through the many years of changes and takeovers there has always been a source of factory parts located here in the States. But times are changing and even the Rover 3500 seems like a distant memory in the minds of foreign car dealers. Fortunately, the British are sensitive enough to the needs of us Yanks that they have taken steps to insure the long-term health of our parts supply.

The British Motor Heritage organization is, of course, dedicated to insuring a continued supply of new reproduction parts. Moss Motors has also contributed heavily to the supply of reproduction parts, but we find ourselves in the same situation as BMH; we can only reproduce things so fast. For many years we have pursued the Austin Rover Group in England, trying to get them to sell their existing supply of parts in this country. Eventually, negotiations began in earnest, and as of press time Moss Motors has successfully concluded a deal with ARG to buy all their remaining stocks of parts.

We have received about ten container loads of parts, and it has proven quite a challenge to find space for the stuff. The next big step will be to get it all sorted out and into stock. This is an ongoing process, but once again, by the time you read this much of that work will have been accomplished as well. The addition of these stocks will have some long term effects on what we have available and how to get it.

Everything that we can fit into our existing inventory will be converted to Moss six-digit part numbers.. The Moss organization will also have parts for some models we haven't previously covered. Before you pick up the phone however, please read on.

The time necessary to research and produce one new catalog, much less several, is way too long to make people wait. We have therefore transferred a considerable portion of the stocks to Moss Jaguar, Ltd. in Santa Barbara and added a toll-free order phone. The number is (800) 444-6914 and it is the same for all of the U.S. including California. Moss Jaguar can now supply your

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## Introducing Guaranteed Overnight Delivery

You want it, you got it! Moss regularly receives requests for special rush delivery on orders. Whether it's a car broken down on the side of the road out in the sticks, or just someone in need of that one last bit to prepare for this weekend's car meet, there are times when you need the part yesterday. We've always done this on a one-at-a-time basis for individuals, but for those who really need it, Moss Motors will now guarantee one day delivery of parts orders placed between when our phones open at 6:00 a.m. and 9:00 a.m. PST.

Guaranteed overnight delivery will not be an inexpensive service. Because we guarantee the order will go out regardless, it will be processed outside our normal computer operations. You have our assurance that a balky computer won't keep your order from leaving the building on time. Although we're glad to provide this service, we don't believe the cost should be borne by our whole customer base. Take a look at page 39 in our current 40th Anniversary Price Update to see the specific charges for your area.

When you call with an order and request overnight delivery, the salesperson will take your order and ask for a phone number. We will only call you back if there is a problem. If there are any shortages, you will have the option of cancelling the order at that point. We know that a cylinder head with no gasket may not do any good, so we want to inform you of what we have and let you decide how to proceed.

A few last notes on the service: please remember that it must be prepaid by charge card. CODs will not be accepted. Also, to help us make sure it gets out on time, please limit yourself to 20 items. Items that must normally be shipped by truck freight, or weigh over 70 lbs. cannot be shipped next day. Orders placed on Friday can be delivered Saturday for an extra $10.00 fee. Finally, the 9:00 a.m. cutoff is essential to guarantee the order goes out. We will not guarantee shipment of any next day orders placed after that time.

Most orders leave Moss within 48 hours, but sometimes that just isn't fast enough. When you absolutely must have the parts by tomorrow, try our Guaranteed Overnight Delivery.

# Focus on England

**Reports on Happenings in the Rainy Isles By Robert Goldman**

## NEC 1988

Just give me an excuse and I'm off to England. Not for the weather perhaps, but the prospect of a national car show sounded rather intriguing and combined with a few other activities would justify a trip. The National Classic Motor Show, held at the National Exhibition Centre in Birmingham, has

*This is only part of one of the two main exhibition halls at the National Classic Motor Show.*

in a few short years become the major all-marque car show in England. This year's show had an extra special event thrown in. British Motor Heritage (BMH) introduced the new MGB body shell by building an MGB during the three-day show. I've been to many car shows in the States, but never have I seen such a diversity of automobiles, displays and people in one place.

The hottest news in the industry this year has to be the the body shell introduction. The project required a considerable amount of time and money. Much of the original tooling had been thrown out in a field with little more than tarpaulins to protect the tools from the infamous English weather. The facility in which the shells are built didn't have the necessary electrical power available to operate the equipment, so a portable generating station has been installed outside the factory building. All the money and effort would have been wasted were it not for the efforts of British Motor Heritage's David Bishop, who brought all the elements together.

The first few shells were delivered only weeks before the show opened, and the attempt to build a car over the three-day show represented a considerable risk. What if things didn't fit? The construction team hardly had time available to hammer things in place, and how would it look to the huge crowds constantly gathered around watching if the front crossmember wouldn't fit? Fortunately, everything went as planned, and the completed car drove off the stand as scheduled.

The Heritage organization put on quite a display with dealers located around the the central area in trade show fashion. Moss Spares was a highlight in itself with a freshly completed MGA Twin Cam body shell as the feature attraction. We felt justifiably proud of Adrian Wood and his crew as they are building new MGAs without the benefit of factory tooling. One question often asked was, "How close is the Moss Spares shell to the original?" Considering that it's made almost entirely from off-the-shelf rust repair panels, we'd say our repro is exactly like an original.

At one point during the show, a gentleman seemed to be inspecting our MGA with particular care. I said hello and we got to talking about his days on the body assembly line. He regaled me with stories of the first MGA bodies built during 1955. At that time, the doors didn't fit properly so he and a co-worker had to physically bend each door to make it align at the bottom. He also remembered the trial fitting and hammering needed to fit fenders. His conclusion – our car looked awfully nice, especially considering it was hand built.

*From bare body shell to complete car in three days.*

Of course, there were many other attractions to be seen in addition to Moss and the Heritage people. There were more car clubs than you could shake a stick at. Owners, drivers, enthusiasts, enthusiastic drivers, drivers' owners; about any combination you can think of was posted somewhere as a type of club.

The stands varied from a few cars roped off from the mobs of spectators to a highly sophisticated Mini Cooper club. These guys had a mountain, complete with snow, with a Cooper parked up top. The structure was lighted from an overhead framework and there were display boards, video monitors and club members scattered all around. Every British sports car I have ever seen, plus a number I'd never heard of were represented. The only types conspicuous in their absence were Morgan and TVR.

To round out the whole affair, a number of restoration firms were represented. One company was actually building a Jaguar C-type body from scratch at the show. They started with a wooden body form, a wheeling machine and a bunch of flat aluminum stock. I could have spent hours watching as a craftsman slowly formed the various panels on the wheel, but there was still the auto jumble to check out. I bought a couple bits for an old MG and an American book entitled *How to Fly*. It was published in 1910 and contains lots of factual information which has since been proven incorrect. Remember, the Frenchman Beleriot had not yet made his epic 22-mile flight across the English Channel at that time. The authors weren't even aware that the Wright Brothers had made their first powered flight in late 1903. I like to imagine what all the old parts and books have seen in their lives before going home with a happy new owner from the auto jumble.

As with any show, it had to end. As quickly as everything went together, it all came apart. The giant exhibition halls had gone from empty to full in an afternoon, then back into the flurry of activity from which they had come, the orderly displays melted within a few hours. Only memories remain of the 1988 National Classic Motor Show. If you ever have a chance to be in England at the beginning of May, take a drive to Birmingham. Spend a day or two at the show, then treat yourself to a walk through the National Motorcycle Museum located right next door. England has more than its share of history and charm to offer the curious traveler.

## SRX 210: The Le Mans MGA Twin Cam

One of the advantages of being "in the business" is the occasional bit of information which floats my way. While I was in England, our manager at Moss Spares commented that he knew the whereabouts of SRX 210 and asked if I would be interested in taking a look. I'm not a great student of license plate history, but I know the British penchant for famous or unusual automobile registration numbers, and I also know that SRX 210 is the Ted Lund Le Mans MGA Twin Cam. My answer was an unqualified yes.

*The Twin Cam's body shell in front of John's current race car.*

In stark contrast to the pushrod MGA's introduction in prototype form at Le Mans in 1955, the Twin Cam never enjoyed full official factory support at the classic French race. A special Twin Cam road race car was built under the factory code name EX186, but was never used in competition. The car hung around the factory for a few years, then was suddenly packed up and shipped to the U.S. EX186 still exists and is currently being restored to its original condition, but to my knowledge it has never participated in a major race.

No factory sponsored MGAs raced in the 1956-58 period, and it was only through the efforts of the MG Car Club's Northwest Centre that the type returned in 1959. Members of the Northwest Centre, keen to see an MGA back at Le Mans, contacted John Thornley and convinced him to support an effort. The Twin Cam roadster Abingdon prepared for the event was not significantly removed from the standard road going car of that period. The engine was specially prepared but produced little more power than a standard engine. An undershield was fitted, a long range fuel tank was installed and other necessary modifications were made for the grueling race.

The 1959 Le Mans team consisted of the one MGA, a dozen car club volunteers, mechanic Henry Stone who took a vacation from his job in MG's experimental shop to participate and the drivers Ted Lund and Colin Escott, both of whom had raced MGs previously. Despite the amateur nature of the team, they ran extremely well up until the eighteenth hour when Colin Escott struck a large dog on the Mulsanne straight. Damage resulting from the impact caused a restriction of airflow to the engine and gearbox which ultimately led to overheating and a seized gearbox. What started as a promis-

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MOSS Motoring

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## CONTRIBUTIONS INVITED

Contributions are greatly appreciated and every effort will be made to use appropriate material. Items for consideration should be mailed to: Moss Motors, Editorial Department, P.O. Box MG, Goleta, CA 93116. We regret that we cannot return any material. We also reserve the right to accept or reject any material on whatever grounds we decide; we reserve the right to edit or change any material to suit the needs of our publication, without prior notification to the contributor. "Letters to the Editor" will be accepted for publication provided they are accompanied by a name, address and phone number.

Contributors whose material is selected for publication in *Moss Motoring* will receive Moss Motors Gift Certificates in the following amounts:

$75.00 GIFT CERTIFICATES
Technical Articles, Marque Reviews, Histories (cars, race teams, etc.) and Personality Profiles

$40.00 GIFT CERTIFICATES
Book Reviews, Club Article Reprints (humorous or general interest)

$20.00 GIFT CERTIFICATES
Technical Hints, Tips, Cartoons, Humorous Anecdotes, Puzzles and Photos

# Prices

**Sale prices are valid from 9/5/88 through 10/16/88**

**Highlight prices are valid through January 1, 1989**

# Club Corner

## Thoughts on Starting and Keeping a British Car Club Active and Successful By Dick Hankinson

Stretched nearly the full block was a solid rank of British cars carefully backed into place as though ready for Le Mans. It was a good cross-section: Healeys, most of the post-war MGs, Jags and Triumphs, Mini-Coopers and a few pre-war cars. Not bad for an Iowa, two-sweater day in early April.

As I watched more people arrive my thoughts were drawn back to our first tentative newsletter five summers before. It said, "The first meeting was a success. Nearly two dozen cars showed up." The nice thing is that most of them were still here five seasons later. We must have been doing something right.

I tried to put my finger on the specific things that we had done to be successful. As I thought I began to ask myself, did we make the club grow or did we allow it to grow?

It was definitely the latter. Here are some of the things we discovered that allowed our club to grow.

**Avoid Organization**

Focus on the difference between getting organized and having an organization.

The process of organization diverts attention for the reason we exist: to drive British cars and to have fun doing it. Formal organization assumes permanence and continuity. Yet the success of the club is based on the success of individual events. There are people who are willing to give 200% for a single effort but who would refuse the commitment that is implied by an office in an organization. Don't stifle incentive with an organization chart.

A group has to have a few spark plugs to draw people together the first time. Those spark plugs are the beginning of a nucleus which consists of people who have said, "I could help do..." There isn't room for people who say, "It would be better if somebody would do..." That's how I became the first editor of our newsletter.

That nucleus group will have some turnover from event to event and from year to year, but it won't be much. There will always be a hard-core of people who are committed to keeping the group going. Anyone can join it if they are willing to contribute. Our group has only two titled and long-term positions, both staffed by volunteers: the editor and the treasurer.

How is it possible to avoid an organization? Allow people who want to see the club succeed become leaders without the impediments of bureaucracy and elections. And, instead of officers have a good...

**Newsletter**

I watched the newsletter and the club grow together. I placed major emphasis upon the newsletter because I have seen what it can do.

- It tells people the what, where and when about the next event.

- It tells people how much fun (artistic license is allowed) the last event was, who won and "aren't you sorry that you weren't there."

- It makes you look like an established, solid, active organization even while you're still struggling to find your way. It provides a substitute for all the facade and appearance of a formal organization that is not really necessary.

- It provides a continuity of membership even for those people who are only occasional attendees.

- It justifies charging dues, especially from those who rarely come. No dues, no newsletter. Dues support club activities. A newsletter is a profit center.

A newsletter sounds like a tall order, but I promise you that there will be somebody in your group who will sincerely enjoy writing a newsletter. You may have to ask a few people but you'll find one. And the rest of the club will be supportive because they'll realize how important it is.

Newsletters should be informal and folksy. The purpose of the club is to drive cars and have fun. Newsletters and editors should be punished for taking themselves seriously. If you're looking for a model, try to find a copy of the Vintage Sports Car Club Quarterly from Great Britain. they've got the right light touch.

Newsletters hold the interest of...

**People**

People are the critical ingredient. Otherwise there wouldn't be a club. But people in a British Car Club are an ever-changing variable. They came together because they like British cars, but they all don't like British cars in exactly the same way.

The fact that they like British cars is an advantage. On the whole they are really a decent bunch of roaring individualists who have a wide range of interests both in their cars and in their other lives. Recognize this or be prepared to have a very small group. The lack of a formal organization makes it easier to mold some of these typical types together:

- People who hate belonging to clubs and organizations of all types but find that this British Car Club is somehow fun and appealing. There's a lot of untapped leadership and talent to be found in this group. Maybe even a newsletter editor.

- The rabid marque enthusiast who can spot a non-original fitting at 50 yards and quote their marque's history and dates of model changes without notes. They won't drive on dirt, gravel, or through puddles, or appear on rainy days. But they'll add splendor to any display of British cars.

- The rabid driving enthusiast who thinks that every club event ought to be a crash helmet gymkhana or a time-speed-distance rally.

- The purely social semi-enthusiast who fills out the ranks.

- The mass of people whose only proof of existence is that their dues are faithfully paid and their newsletters are never re-

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# From the Mail Bag

Dear Sir,

Just a short note to let you see the end results of my happy labor for the last two years. As you can see from the pictures I am enclosing, my labors have paid off. I have been purchasing parts from your company, about 90% of the new parts that are in this 1959 MGA, and am completely satisfied with all the parts that I have received and also the service you and your company have given me.

I wish to again thank you for your courteous service and quality parts.

Sincerely,
Richard Hanrahan

*(Sorry we can't reproduce one of the photos here, Richard's car sure looks nice. We're glad to have contributed to his pride and joy – Ed.)*

Dear Bob:

I am writing to comment about your recent article "How Safe is Safe?", in particular the subject of roll bars. Due to recent court decisions on liability suits brought about by owners of vehicles against manufacturers of automobiles and roll bars, the following definitions have come about:

Roll bars are devices that are either attached to, or part of a vehicle's chassis frame. Show bars are devices which are bolted onto sheet metal parts of vehicles. Roll bars are used to protect occupants of the vehicle in a roll of a vehicle, while the purpose of show bars are for aesthetic reasons or for mounting lights. The legal rollover bar definition has been determined, based upon the requirements that National Professional Racing Associations use. However, I would like to point out that bolt-on bars are safer on older British cars than they are on newer American offroad vehicles. The main reason is that the sheet metal on the British cars, to which the bolt-on roll bars are attached, is thicker and stronger than the sheet metal on contemporary American vehicles. Also, older British cars tend to be lighter in weight than American offroad vehicles.

In the past, Triumph Travelers Sports Car Club members have had roll-over accidents (including two at a hill climb race) and none had roll bar failures and the drivers were not seriously hurt.
Wade M. Dos Santos

Dear Editor,

An attempt is being made to form a register of the unique, limited production Austin-Healey HBN7 MKII, tri-carb two seaters.

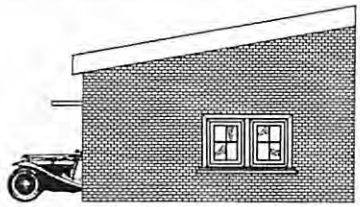
It is known that 355 were produced; of those, 316 were left-hand drive, 34 were "home-market" (England) specification, and five were export specification with KPH speedometers, locking steering wheel, modified tailpipe extension and two turn signal indicators in front. It is estimated that 250 of the left-hand drive cars came to the United States.

Of the 54 located and registered so far, four are right-hand drive and two are export specification.

Owners of the BN7 MKIIs are encouraged to send their cars' engine, chassis and serial numbers, along with original color (if known), and their name and address to Bill Bolton, 2930 NW Skyline Drive, Corvallis, OR 97330, USA.

In return for your participation, you will receive periodically updated copies of this interesting register.

Hans Nohr
Goleta, CA



# Bob's Garage

By Robert Goldman

## Rebuilding Your Old SU Fuel Pump

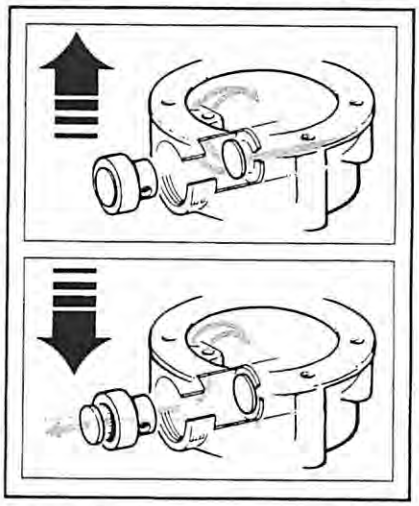
### Tips for the Non-Wizard Mechanic

We're climbing a 10,000-foot pass outside Cody, Wyoming and the guys in the MG TD running in front of us are having fuel pump trouble. The car is hot, we're at altitude and the fuel is boiling faster than the pump can move it. The pleasant exhaust note is punctuated with random moments of silence as the car slowly loses speed. Ultimately a solution is found, the hood side panels are off anyway, so the passenger reaches around the side of the car and pours a cup of cold water on the fuel pump every few minutes. This procedure gets them up the hill.

On another occasion, one I was told about but didn't actually witness, a man resorted to an unusual solution when the old SU failed. He hooked a wire to the end of the diaphragm, looped it around something up front and ran it back through the firewall. When the car started to die, he yanked on the wire to operate the diaphragm and force fuel to the carbs. Crude perhaps, but I'd call it ingenious under the circumstances. Everyone has had to bang on the fuel pump to get home at least once in their lives.

There are as many stories about the difficulty of rebuilding an SU pump as there are about rebuilding SU carbs. What do we really know about the Skinner family anyway? Can anyone guarantee their loyalty to the Crown? Were they perhaps German agents who's job it was to make English components equal to or worse than their Italian counterparts? We'll never know the answers to these questions, but in the meantime we still need to make the stupid things work. As far as rebuilding SU carbs is concerned, we have an informative video tape on the subject, parts, manuals, or complete rebuilt carb sets if you're so inclined. We have new fuel pumps too, but some people are sentimentally attached to their old ones.

I've never been too sentimental about fuel pumps myself. However, I recently had to rebuild one because the particular style of pump can no longer be had. I started with three pumps in pieces and collected enough bits together to make one "vintage" pump. In my case, I was building a pre-war pump with a bronze base. The basics of fuel pump rebuilding can be applied to most any SU style pump, even the old Hartings. (Remember those, from the days when after market pumps were made out of metal and were disguised to look something like an SU?) However, this article deals specifically with the MG T-series type pumps. The only real trick I noticed in the process was getting the diaphragm adjusted properly, but more on that later.



All modern day SU fuel pumps operate on the same basic principle. A flexible diaphragm is used to vary the volume of a chamber. Flow in and out of the chamber is controlled by a pair of one-way valves. As the diaphragm is pulled up, the chamber increases in volume, fuel is drawn in from the tank through a filter screen and through a one-way valve. When the diaphragm returns, chamber volume is decreased and fuel is forced out to the carbs through the other one-way valve. The diaphragm is drawn up by an electro-magnet which we will refer to as the coil and is forced back down by a spring. The coil is energized through a set of points. As the magnet pulls the diaphragm up, contact is broken at the points thus allowing the spring to push the diaphragm back down. When the diaphragm reaches the bottom, the points come back into contact, the coil is re-energized and the process starts over. We'll look at the operation of the points in more detail later. For now, let's start taking the old pump apart.

Your fuel pump will divide into two basic assemblies if you remove the screws around the base of the coil. We'll start with the base assembly because it is the easiest to deal with, so set the top portion aside for now.

Here is a list of the new parts you'll need for the whole job:

| | |
|---|---|
| Diaphragm | (Measure your old one and compare the length to our catalog description. If you have an early "long" diaphragm, Moss doesn't currently have a proper diaphragm. A later "short" diaphragm and coil can be installed on the same base.) |
| Fuel pump body gasket | |
| Points | (Buy the dual points unless you're an absolute nut for originality.) |
| Condenser | |
| Filter | (If the old one is permanently clogged.) |

Carefully separate the sandwich plate and main body casting. On very old pumps, the body is cast as a single piece. The body will probably have a good accumulation of rust and crud in it. Unscrew the filter and set it aside. All three fittings have fiber washers under them. Keep these with their respective fittings for now. Remove the inlet fitting and outlet fitting. Underneath the outlet you'll see a brass valve assembly. There is one fiber washer in front of and behind the valve assembly – pay close attention to their thicknesses. The outer one should be thicker and they will need to go back in the same orientation. Under the valve assembly is a round brass disk. This disk is the intake valve. It will most likely have a slightly ribbed side facing out and a smooth side which rests against the body and forms a seal. If either valve disk has a ridge worn in it, you may want to find a parts pump for spares. The disk in the outlet valve assembly can be removed for cleaning by squeezing the wire retainer and removing it. Put this guy right back together so you don't

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### *Parts Buyout*, *continued*

parts needs for Triumph Spitfire/GT6, Austin Marina, Rover 3500, and Jaguars with XK based engines or V12s. They may also be able to supply some parts for other British cars, but don't expect them to have everything you need for your Austin Princess.

Parts inquiries to Moss Jaguar should be made using factory numbers where possible and please don't ask for a catalog as they have none to supply. We should also mention that you will be dealing with a new car dealer's parts department as opposed to a mail order house, so their policies and procedures may be a little different from Moss Motors'.

This buy-out represents a substantial investment for us. However, we consider it to be entirely necessary to maintain the best possible parts supply for your cars. When we say that Moss Motors is the only source for your British sports car, we mean it.

### *Club Corner*, *continued*

turned because of "no forwarding address."

The last group should be nurtured. Never think that mailing their newsletter is a nuisance. Don't feel guilty about spending their dues money to support club events. They feel that the newsletter and their non-participation is worth the price of dues. In that way they help keep the club going. Some of them may eventually show up, along with the other types as a long as there is a...

**Wide variety of Events**

Our event year starts in February with our Christmas Party (we use a Lucas calendar) and Spring Planning Session.

All events are defined and volunteers accept responsibility. We encourage pairs of event leaders. We try to team someone who's never run a specific type of event with someone who already has. that way we expand our leadership base.

We try to provide something for every taste.

- Opening social gathering and lunch at the local pub which just happens to have British beer and draft.
- A informal fun rally to encourage first-time participants to find out that rallying is fun.
- A gymkhana with more emphasis on teamwork than on autocrossing.
- A serious time-speed distance rally.
- An Annual All British Car Show which attracts more than 60 cars and a large all day crowd.
- A fun run in the country.

In between we get invited to display cars at various events. All of a sudden driving British cars is socially acceptable and a gathering draws crowds full of nostalgia for cars they used to own or wished they had.

People don't think of Iowa as being British sports car country. We're a long way from either coast and the winter seems extra long without the chance for hood-down motoring. But, adhering to these principles, which we frankly didn't understand as we discovered them, has made our group a success and has attracted more British cars to our group than we ever thought existed in central Iowa.

Remember, forget organizations. Communicate instead. Create an environment where people can participate and lead from their very first meeting. Provide something for all interests and don't cry over the people who never show up.

Try it, pretty soon you'll have to start wearing name tags. We have.

*Dick will receive a Moss gift certificate for his contributopn.*

# A Triumphant Odyssey

## An Anglophile's Trip to the Races By Greg Lemon

Although I was too young to see the real thing without the help of a consenting adult, it has nevertheless long been an ambition of mine to see sports cars of the fifties and sixties on the race track. After being out of college for half a year (and employed at a full time job for nearly that long) I finally had the wherewithal to go for the next best thing. I had the money to attend a vintage race. That winter I started making plans to attend a race the following summer.

The first decision to be made concerned where to go. I decided on the vintage races in Elkhart Lake, Wisconsin, for a couple of reasons. First, my brother Jeff had gone the year before and brought back some dandy pictures; and second, even though it was over six hundred miles away from my home in Lincoln, Nebraska, it was as close as anything else. Jeff was already planning on going with his uncle-in-law, and I had a friend who wanted to go too. Both of our friends lived in Omaha, so we decided to pick them up there since it is right along the way. Jeff was going to take his TR7 convertible, but I hadn't yet decided how I would get to the races. I was leaning toward something British, old and sporty.

Fortunately, it just so happened I had two cars that fit the bill at the time, a 1966 Triumph TR4-A and a 1967 MGB-GT. Unfortunately, although it ran wonderfully despite over 120,000 miles on the odometer, the MG was all rust and bondo from the waist down, and the TR4 wasn't running at all. My keen financial instincts told me to sell the MG before the rust came through and use the proceeds to get the TR4 back on the road. The TR had an unfortunate encounter with a curb the summer before and was in need of attention for that and other mechanical problems. Despite the mechanical woes of the TR4, it was a good choice for the trip. It had a convertible top for air-conditioning and general all-around fun and adventure, and overdrive for relaxed interstate cruising. What it didn't have was a straight suspension or fresh mechanicals. The mounting for the lower front suspension A-arm was slightly sheared and very bent, oil pressure was good but the engine blew prodigious amounts of smoke, second gear synchros were gone, the front suspension was badly worn and the carburetors leaked gas.

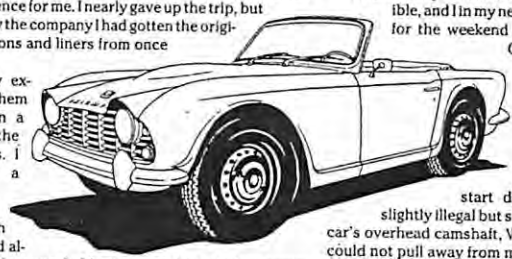
In recent years the local parts supply for TR4s has all but dried up, so I started placing orders with mail order houses for the parts needed to fix the TR. I thought I was planning well ahead for the early July trip by staring in March. Orders went out for major rebuild kits for the front suspension and the carburetors, a piston and liner set and other miscellaneous items like brake pads and radiator hoses. I then drove the TR crab-wise to a nearby welding shop and had the front suspension straightened and re-attached for about $90, a reasonable price, I thought. I drove the car briefly after that and decided that it needed major mechanical work. The head came off and went to one shop, the transmission came out and went to another shop. What was left of the car sat in the garage patiently awaiting my attention, while I sat on the couch awaiting parts and labor bills.

About this time the MG sold, bringing all of $1050, exactly half of what I had paid for it three years prior. My keen financial instincts had paid off again. At least I had some cash flow for the Triumph's ever mounting repair costs.

Parts started to trickle in around the middle of April. The first to arrive was the carburetor rebuild kit. It was the first time I had torn into Stromberg carbs (although I was familiar with SUs), but the rebuild only took an hour for the first carb and about half that for the second. It turned out that the only parts that really needed replacing were the rubber o-rings that act as a seal on the mixture adjusting screws. However, the rebuild kit was inexpensive so the whole business was worth it for the peace of mind. Even better than the peace of mind was the knowledge that I had finally put something back together after taking so many things apart.

The front suspension kit and some other miscellaneous parts arrived next. Everything was going smoothly and the car was steadily being put back together, but I still hadn't received the piston and liner set. The company I had ordered them from (not Moss) had none in stock and apparently was having trouble getting any in. I cancelled my order, called a couple of other places, and found a company that had one set in stock (again, not Moss). I ordered the set and it arrived about a week later. I was very excited as it was the last thing I needed to finish my work on the car.

My excitement died as I opened the box and discovered that it contained only three pistons and three liners. I called to explain the foul-up and they said that according to their computer they didn't have any in stock, and that it would take at least three weeks to get any more. This was about three weeks before the trip and I was desperate. I scoured *Hemming's Motor News* and called anyone I thought might possible have a set in stock, but I had no luck. I also went to a machine shop to see if new rings and honing might save my old parts, again no luck. This was really the low point of the whole experience for me. I nearly gave up the trip, but thought I'd try the company I had gotten the original three pistons and liners from once more.



I patiently explained to them why I was in a hurry to get the missing parts. I noted that a fourth piston and liner set to go with the three I had already received was probably sitting on their shelves somewhere even though their computer said it wasn't because they were only sold in sets of four. They promised to check it out. I got a call the next day; the parts were indeed on their shelves, even though they weren't in their computer, and would be sent right away. The parts arrived a couple days later. Although the mail order company did foul up my order originally, I will say on their behalf that they never questioned my claim that I had not received a fourth piston and liner, and acted quickly to rectify my problem once I had explained it to them fully.

All the pieces needed to put the engine back together were finally present and I began to work on the project in earnest. Other than a small problem I had remembering which way the connecting rods were supposed to be offset (which I fixed before any damage was done), everything went back together just like the manual said it should.

The engine and most of the car were back together and the moment of truth had arrived. I set the carburetors as per instructions and turned the key. Never having torn into an engine before, I was somewhat nervous, but it fired up right away and ran fairly smoothly. Later, as I tinkered with the carburetors the car sputtered and died. I re-started the car and it ran briefly, sputtered, died again, and would not restart. I had a queasy feeling as I went over in my mind what I might have done wrong when I was rebuilding most of the major mechanical components of the car, but I soon discovered my mistake, I had neglected to fill the gas tank.

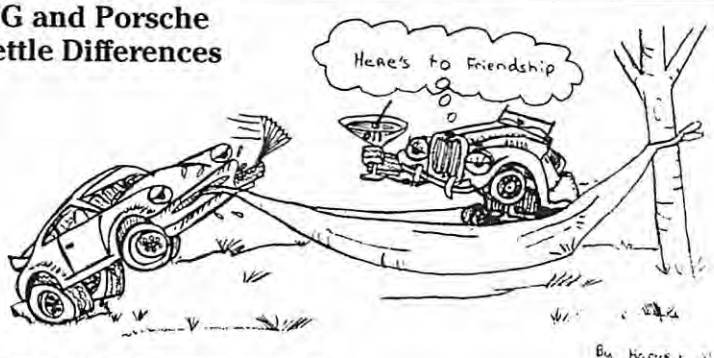
The night before the big day I went over the car one last time, checking fluids, hoses, and belts, and giving the car a quick tune-up. Then I took it out for a drive. The car was running perfectly, and my only concern was a rattling noise coming from the front of the engine. The noise had been there before I had done all the work on the car, and I had hoped that said work would make it disappear. No luck, and no time to do much about it either, the races were two days away! I chose to press on regardless and hope for the best. I drove the Triumph over to my brother's house to try to figure out how we were going to pack camping gear, cameras, clothes and four large men into two small sports cars. While those problems were being worked out a puddle of water slowly formed underneath the TR4. It turned out that the water pump was bad. We replaced it with the one off the TR3 my brother is restoring, but in our haste we didn't scrape the old gasket off well enough so I ended up doing the job all over again in the wee hours of the night. While I was re-installing the water pump my wife told me she had a flat tire on her Honda. The rattling noise didn't disappear with the replacement of the water pump either. It was one of those nights.

The next day we were ready to go, Jeff in his TR7 convertible, and I in my newly rebuilt TR4. We left on Friday for the weekend races, planning to stop first in Omaha to pick up our friends. It was balmy, the sun was shining, and my Triumph's exhaust note had settled into a healthy rumble which I could just hear over the wind noise at 65 mph in overdrive. As we hit Interstate 80 I engaged Jeff in a rolling start drag race. We backed off at a slightly illegal but sensible speed; despite the newer car's overhead camshaft, Weber carburetors and header it could not pull away from my nearly stock TR4 (I had opted for the larger 87mm pistons). I felt like I must have done something right when I rebuilt the car. This was probably the high point of the whole experience for me.

Someone once said all good things must come to an end. When we stopped in Omaha I discovered oil spattered all over the engine compartment. The culprit was a hole in the timing chain cover. The rattling I had heard had been caused by a very loose timing chain. It had crossed my mind that the

*continued on page 4H*

# MG and Porsche Settle Differences




*Harvey will receive a Moss gift certificate for his contribution.*

## How to Train Your Car, Properly

**Instructions By J. Dawson Geiger**

I don't work on my '59 Sprite. I consider that one of my better attributes. You see, I have the theory that cars have life to them; they are very aware of their owners. They want to please. So, if you work on them all the time, they figure that's what you enjoy. They want to make you happy, so they break down.

There's one guy in my car club who's an expert on fixing cars. He knows everything. He even holds clinics on how to fix cars. He drives a beautiful MGB. It's perfect in every way, including one breakdown every time he drives it. Crazy things, like twisting the shaft off the distributor. Slave cylinders die with regularity. I mean, these two are a perfect match.

My car knows I don't enjoy working on it, so it behaves itself. I don't even carry a screwdriver. That's not to say that the car doesn't test me every now and then. Just the other day I lifted the bonnet to check the oil and when I dropped the hood, the lights wouldn't work. So I looked at the wiring, jiggled it and the lights have worked ever since.

Other tests, too. Like the time the directionals for a right turn quit working. I ignored it. They got the message and a few weeks later started working.

I derive other benefits from this attitude. I don't have two thousand dollars worth of tools lying around, and the patio where I keep the car is grease free. When I take a trip, I don't have most of the baggage room taken up with a big tool box. I've taken it on trips where I have run many tanks of gas through it, never a problem. It'll go anywhere.

A trick to this training is: Never let the car see you with a wrench in your hand. If you must work on a car, work on a friend's and he on yours. While he is working on yours, try grimacing and, maybe, a little hand-wringing. The better your acting the more trouble-free miles you will have.

For instance, on a recent rally, I hit a downpour of rain. I kept motoring along hitting chuck-holes full of water – no problem. A friend drowned out, but see, he works on his car.

If you think this new freedom may be for you, I suggest you sell your present car and buy another. That is much simpler than trying to retrain your old one. Sell your tools, take the money and go on a long trouble-free trip. If you happen to see a black Bugeye whizzing by, give it a honk and a big wave.

*Dawson will receive a Moss gift certificate for his contribution.*

## *Triumphant Odyssey*, *continued from page 4A*

chain might be causing the noise, but I hadn't had sense enough to check it out. Now it was too late, the trip was off for me. I drowned my sorrows in an Omaha bar that night while my brother and his uncle-in-law headed across Iowa toward Elkhart Lake.

A new timing chain, timing chain cover and tensioner were installed on the car in a couple weeks and the TR4 has given me thousands of miles of pleasurable motoring since last summer. It's too bad I missed the races, but there's always next year. The important thing is that my car is running and I'm enjoying it, which was the real goal when I was rebuilding it anyway. Incidentally, I use the car for everyday transportation.

I learned a few things when I was restoring my Triumph. Some of what I learned is just common sense (which I may be a little short of), a lot of it can be found in books and magazine articles on the subject, but there are a couple of things I learned which I don't think fall in either of those categories. First, if you are stuck on a problem, try a different approach. This helped me out when I was trying to locate a piston and liner set and when I was trying to figure out why my engine wouldn't start after I had just put it back together. When faced with a problem I have a tendency to pick one particular method of solving the problem and sticking with it, even if it doesn't look as though it's working very well. You go so far down a particular path that you don't remember that at the beginning of your trip there were a number of paths that you could take. Secondly, if you are taking your rare and beloved classic to a shop that doesn't specialize in the make, leave them a couple of parts sources. I took my cylinder head to one of the better machine shops in town, but I discovered that the valves the shop had used were more expensive than the ones I could have ordered myself!

*Greg will receive a Moss gift certificate for his contribution.*

## Why Do it Yourself?

**Words of Encouragement for Amatuer Mechanics By Keith White**

I have never claimed to be the handy type. After all, I am an accountant, and my motto is: "If you can't fix it with a hammer, it ain't worth fixing." Thus, I must have been half out of my mind when I decided to purchase that sporty little '72 Triumph GT6. At the time, I thought, heck, the car is basically in decent shape...all it needs is a little elbow grease and a little TLC, and the car will be restored to concours condition. Not only did I feel up to the challenge, but I was on a mission to prove to myself that I could do it by myself. Besides, I couldn't afford to buy a completely restored car.

Well, here it is, five years later and my beautiful little GT6 is once again up on blocks, it's amazing how many projects can be dreamed up once you get a wild hair. Although I still do not consider myself as a member of that elitist group "the Handy Types," I am rather proud of the fact that I can now differentiate between the two basic types of repairs: those that are best left to the pros and those which I can reasonably expect to complete within the current fiscal year. Under the second category, there are two subcategories: those which will eventually be reverted to a job to be completed by the pros and those which my wife will veto because of insufficient funds.

Actually, I have been amazed at the things I have been able to repair and restore by myself (with more than a little help from Mr. Haynes and Mr. Bentley)! Granted, the car is still not, and probably never will be, in concours condition, but it does look and run better than it did on day one. I can honestly say that I have done most of the restoration by myself, which is nothing short of miraculous. I have also gained an immeasurable amount of respect for those people who are the handy types.

So why should a non-handy type attempt to do it himself? To that question I answer, "Why Not?" You could take the easy way out and buy a car that has already been restored. Just remember that by doing this, you are denying yourself the opportunity to say, when the car is finally done, "I did it myself!"

*Keith will receive a Moss gift certificate for his contribution*

# MOSS REBUILDING

Moss offers a growing line of top quality rebuilt components. Consider how simple it is to buy a complete unit ready to go, install it, and send your rebuildable core back for a refund. There is no need to worry about finding a good mechanic or buying expensive special tools. Every item we offer has been rebuilt to Moss Motors' stringent quality standards. Each item is backed by a 12-month, unlimited mileage warranty.

Your car is your passion, but only when it runs. Let Moss Rebuilding help you keep your car where it belongs ... on the road.

## TRANSMISSIONS

| Application | Part No. | Price | Core Charge | After Refund |
|---|---|---|---|---|
| TR2-3A (thru TS50000) (for early-type starters) | 041-430 | $725.00 | $ 75.00 | $650.00 |
| TR3A (from TS50001) thru TR3B (TSF series) | 041-431 | $725.00 | $ 75.00 | $650.00 |
| TR3B (TCF series) and TR4 (all-synchro gearboxes) | 041-432 | $695.00 | $ 75.00 | $620.00 |
| TR250/6 (TR6 thru 1972) | 041-433 | $729.50 | $ 75.00 | $654.50 |
| TR6 (from 1973 on) | 041-434 | $739.50 | $100.00 | $639.50 |
| TR4A | 041-435 | $725.00 | $100.00 | $625.00 |
| TR2-3 (to TS50000), overdrive (does not include overdrive unit or adaptor plate) | 041-437 | $725.00 | $ 85.00 | $640.00 |
| TR3A (from TS50001) thru TR3B (TSF series), overdrive (does not include overdrive unit or adaptor plate) | 041-438 | $725.00 | $ 85.00 | $640.00 |
| TR4A o/d* | 041-442 | NWA | call for availability | |
| TR250/6 (TR6 thru 72) o/d* | 041-440 | NWA | call for availability | |
| TR6 (from 73 on, J-type) o/d* | 041-441 | NWA | call for availability | |
| MGA (late 1500 thru early MKII) (10 spline first motion shaft) | 041-402 | $795.00 | $ 60.00 | $735.00 |
| MGB (1963-64 /3 main eng.) | 041-404 | $795.00 | $ 60.00 | $735.00 |
| MGB (1968-74) | 041-406 | $755.00 | $ 90.00 | $665.00 |
| MGB (1975-77) | 041-407 | $695.00 | $ 60.00 | $635.00 |
| MGB (1963-64 /3 main eng.) o/d* | 041-411 | NWA | call for availability | |
| MGB (1965-67 /5 main eng.) o/d* | 041-412 | NWA | call for availability | |
| MGB (1968-74 1/2) o/d* | 041-413 | NWA | call for availability | |
| MGB (1975-80) o/d* | 041-414 | NWA | call for availability | |

*Overdrive unit and adaptor not included.

## REBUILT ENGINES

| Application | Part No. | Price | Core Charge | After Refund |
|---|---|---|---|---|
| MGB (1963-64 /3 main) | 041-105 | $1747.00 | $175.00 | $1572.00 |
| MGB (1965-67 /5 main) | 041-106 | $1747.00 | $175.00 | $1572.00 |
| MGB (1968-71) | 041-107 | $1747.00 | $175.00 | $1572.00 |
| MGB (1972-74 1/2) | 041-108 | $1774.50 | $185.00 | $1589.50 |
| MGB (1974 1/2-80) | 041-109 | $1774.50 | $185.00 | $1589.50 |
| TR6 (1972-73) | 041-119 | $2175.00 | $300.00 | $1875.00 |

## I.R.S. HUB ASSEMBLIES

| Application | Part No. | Price | Core Charge | After Refund |
|---|---|---|---|---|
| TR4A thru TR6 (each) | 041-550 | $239.50 | $ 50.00 | $189.50 |

## DIFFERENTIAL & AXLE ASSEMBLIES

| Application | Part No. | Price | Core Charge | After Refund |
|---|---|---|---|---|
| TR3 (from TS56377 thru 3B) (for 9" brakes) | 041-501 | $829.95 | $200.00 | $629.95 |
| TR3 (10" brakes) | 041-507 | NWA | call for availability | |
| TR250/6 | 041-505 | $695.00 | $100.00 | $595.00 |

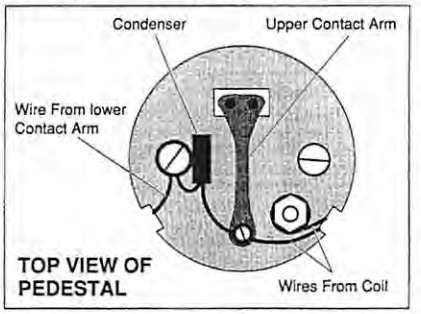
## CARBURETORS

| Application | Part No. | Price | Core Charge | After Refund |
|---|---|---|---|---|
| MGA 1500 (AUC784) | 041-701 | $349.50 | $ 65.00 | $284.50 |
| MGA 1600 and MKII (AUC943) | 041-702 | $375.00 | $ 75.00 | $300.00 |
| MGB (1963-67) (AUD52/135) | 041-704 | $325.00 | $ 60.00 | $265.00 |
| MGB (1968) (AUD625) | 041-705 | $325.00 | $ 45.00 | $280.00 |
| MGB (1969) (AUD326) | 041-706 | $329.50 | $ 45.00 | $284.50 |
| MGB (1970) (AUD405) | 041-707 | $345.00 | $ 45.00 | $300.00 |
| MGB (1971) (AUD465) | 041-708 | $344.00 | $ 50.00 | $294.00 |
| MGB (1972) (AUD493) | 041-709 | $337.50 | $ 65.00 | $272.50 |
| MGB (1973-74) (AUD550) | 041-710 | $329.50 | $ 75.00 | $254.50 |
| TR2 (AUC721) | 041-730 | $425.00 | $110.00 | $315.00 |
| TR3-3A (AUC768) (with banjo fittings on float lids) | 041-731 | $364.50 | $ 80.00 | $284.50 |
| TR3A-4 (AUC878) (with push-on fittings on float lids) | 041-732 | $359.50 | $ 75.00 | $284.50 |
| TR4A (AUD284) | 041-734 | $375.00 | $ 70.00 | $305.00 |

forget how it came apart.

Once all the parts have been removed from the base, clean the base and sandwich plate. Making certain the mating surfaces are clean, smooth, and flat. Clean or replace the filter and reassemble the base. If the fibre washers are in decent shape, they can be reused. Moss doesn't have specific listings for the fibre washers. When the base is all back together with the valves properly reinstalled, we're ready to start on the fun part.

Remove the top cap to expose the Bakelite pedestal and points. If you have a spare pump, use it as a sample of how



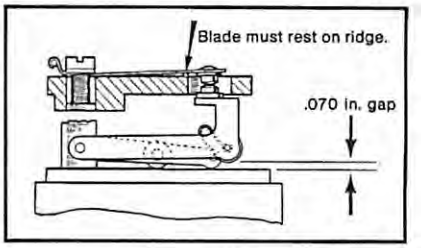

the parts go back together. If not, take a picture, draw a map, or fire up your memory so you won't forget how things go together. Ultimately, everything should be removed from the pedestal so it can be cleaned. Watch the order that washers come off the pedestal mounting screws and terminal stud. You may want to keep them in order on the screws and stud so you know where they belong.

Unscrew the diaphragm by holding it at its base and unscrewing it from the points. Remove the lower portion of the points by pulling the free floating pin out of the pedestal. The top portion of the points is, obviously, held in place by the small screw. Be careful of the two wires coming out of the electro-magnet body. I broke one of the lugs off mine and had to re-solder it. Unfortunately, there is just barely enough wire to reach up to the top of the pedestal.

Once everything is cleaned up, install the new point set on the pedestal making sure the "roll-over" spring on the lower portion of the points is installed in the same orientation as the old ones. Set the top portion of the points under the the wires from the condenser and coil. When the points are open, the top portion should just rest on the little raised lip at the base of the opening in the pedestal. Tighten down the pedestal mounting screws when everything is in place, but don't go crazy. The screws don't need as much torque as your cylinder head studs.

The next operation is to install the new diaphragm. Feed the diaphragm up through the coil housing into the threaded fitting on the points. First I'll quote the SU book on how to adjust the diaphragm:

1) Slacken the screw securing the contact blade (upper portion of points or upper contact arm) and swing the blade to one side, so that the points no longer make contact.




2) Holding the coil housing in the left hand, screw the diaphragm in generously with the thumb of the right hand, alternately pressing gently and turning until the rocker "throw-over" ceases.

3) Unscrew the diaphragm one sixth of a turn at a time in the same manner, slowly pressing and turning until the "throw-over" just operates.

4) At this point continue unscrewing until the nearest securing screw hole is just lined up, and then again four holes (two-thirds of a complete turn). The diaphragm is now correctly set.

5) The contact blade, previously swung to one side, should now be replaced in its correct position.

Try the book instructions first. If you don't get satisfactory results, try my ignorant method. I left the contacts alone and screwed in the diaphragm, pressing until I had a nice satisfactory "roll-over". In other words, I didn't have to ram the thing up or pull it down hard to get a good over center action.

The final operation, prior to testing, is to attach the two halves of the pump. A number of people have returned new diaphragms saying they don't look like their original ones and the new ones don't work. I suspect this has something to do with the book procedure on attaching the base. Many people say that their manuals recommend holding the diaphragm up while tightening the six screws. I disagree. Let the diaphragm hang down while tightening the base. This gives enough "slop" for the spring to push the diaphragm down and move fuel toward the carbs. If the book procedure is followed, the spring has to stretch the rubber ever so slightly to complete the output stroke. This slight extra effort may mean the difference between a working and non-working pump. Don't forget the plastic piece which rests between the rubber and the iron ring on the diaphragm base. Its job is to keep the diaphragm centralized. I hardly see the point, but it must be there for a reason.

Now to test our rebuilt pump. Give the pump a ground and run Twelve volts to the terminal stud at the top. You should get a happy rapid ticking. If not, make sure the wires are hooked up properly and then try readjusting the points. Still no ticking? Something is obviously wrong. I'd say it's time to call in the local expert. Another good test before installing the pump is to place your thumb over the inlet and outlet while the pump is running. You should get a good vacuum on one side and pressure on the other. My pump worked, but not very well at first. I swapped the two washers on either side of the outlet valve in the base (remember, one is thicker than the other) and it worked much better. If all seems well, put the pump back on the car, connect everything, check for leaks, and go for a test ride.

There is a lot more to be said about different types and vintages of SU fuel pumps. There is also much to be said about trouble shooting, but I'm out of space, so it'll all have to wait for the next issue. In the mean time, good luck and whatever happens, don't let those *&$%@#! things get you down.

## *Photo Contest,* *continued*

photographer's name and address. Do not write on either the back paper or the front (emulsion) side of the print. Apply a separate label to the back of the print.

6. This contest is limited to black and white and/or color prints only. We regret that we are unable to accept color transparencies for this contest. Entries must be no smaller than 5 x 7 nor larger than 11 x 14 glossy prints. Entries need not be mounted but should be packed securely to avoid damage. Moss Motors may request the original negative of any entry. All nonconforming entries will be disqualified.

7. Up to three (3) submissions will be accepted from each entrant. Each must be labeled individually.

8. All entries become the property of Moss Motors for their exclusive use. No entries can be returned.

9. If there are recognizable persons in your photo, a signed release must accompany your entry. If securing a release is impossible, a letter explaining why a consenting signature could not be obtained must accompany the entry.

10. All winners will be notified by February 1, 1989. If you wish a list of the winners, send a SASE to Editor, *Moss Motoring*, P.O. Box MG, Goleta, CA 93116.

11. The *Moss Motoring* Photo Contest is open to amateur photographers only. Employees of Moss Motors, Ltd. or Moss subsidiaries and their immediate families are not eligible.

# Late Breaking News Items

## 1988 Moss Customer Survey

It has been a few years since we last took a survey of our customers, so we have decided to run a survey in the next issue of Moss Motoring. We hope that you will participate as Moss looks upon this as a major means of communication between you and us.

This is a big chance for you to affect the future course of Moss Motors. You'll have the opportunity to make recommendations about Moss products and services; what you like and don't like about the way we do business. How well have we done? We want to know what you think of the newsletter too and what material you would like to see.

We hope you'll take the time to fill out the survey and send it back. Your small investment of time and a 25¢ stamp will help Moss Motors do a better job of serving your needs.

## SK Carbs Chosen for formula Atlantic

In a recent press release, TWM Induction announced that SK racing carburetors have been chosen for use on Formula Atlantic engines built by Toyota Racing Development USA. Toyota is making a considerable investment in the Formula Atlantic racing program. Their engines will be used in all cars during the 1989 series. Needless to say, TWM is quite proud of the fact that they have been chosen to supply carbs for these engines.

Moss Motors congratulates TWM on their success with the SK racing carburetor and would like to remind you that these same SK racing carbs can be purchased from Moss for a variety of British applications. TWM also supplies an excellent tuning manual which Moss sells for $4.95 under part number 212-825.

## SK RACING CARBURETORS

SK racing carburetors are designed specifically for people who want the most from their cars. Designed from scratch as a racing carb, the SK has excellent flow characteristics and is infinitely tuneable to match any engine setup.

| | | |
|---|---|---|
| 212-825 | SK Technical Manual | $4.95 |
| 621-700 | Spridget 1275 | $329.95 |
| 621-710 | MGA 1600 & MKII, MGB 1963-'74 | $329.95 |
| 621-720 | MGB 19741/2-'80 | $329.95 |
| 621-730 | TR4-4A (dual) | $629.95 |
| 621-740 | TR6 1973-'76 (triple) | $899.95 |
| 621-750 | Austin Healey 6 cylinder (except early BN4 w/2 port head) | $1175.00 |

All kits come complete with manifold(s) and linkage.
Not legal for use on pollution controlled motor vehicles.

## DIPSTICKS & V/C THUMB NUTS

**New!**

Only a very few MG TCs came from the factory with MG crested valve cover thumb nuts. These throwbacks to pre-war days are an extremely attractive addition to a cast alloy valve cover on any MGT. All of the T-series used an MG crested oil dipstick which matches the thumb nuts. We now have excellent reproductions of both the TC and TD/TF style dipsticks too. All of these items are chrome plated, solid brass castings.

| | | |
|---|---|---|
| 433-830 | TC Oil Dipstick | $14.95 |
| 433-820 | TD/TF Oil Dipstick | $12.50 |
| 224-250 | V/C Thumb Nut | ea. $6.95 |

# Turn Signals

## Understanding Them and Making Them Work By Robert Koval

If you have ever wondered how that simple looking little three prong flasher unit actually performs the task of blinking the turn signal lamps on and off this no-nonsense explanation should unveil the mystery. Beyond that, it will provide information of a practical nature which should be useful in diagnosing and repairing a faulty turn signal circuit. A 1963 TR4 was the vehicle which launched this project, but the information herein will readily transfer to other vehicles.

A real flasher unit was carefully dissected to make it reveal its secrets. It did so, reluctantly. The resistance heater (see [9], Fig. 1) for example is a wire finer than a human hair. It is so brittle that it will usually break if an attempt is made to bend it sharply. It can not be soldered. It must be spot-welded to the bi-metal strip (10). Since it is the weakest link in the electrical chain, it is the common source of trouble in the flasher unit. Even the adventurous do-it-yourselfer will find it much more economical to replace the flasher than to attempt a repair when it dies.

Fig. 1 gives a general picture of the wiring. It does omit a host of intermediate connections between the hot battery terminal and terminal #3 of the flasher. This is of no consequence in explaining how the flasher operates. (Do not despair. The omitted intermediate connections will be picked up in Fig. 2.) Note that all of the following components are on the plug-in flasher unit proper: (1), (2), (3), (9), (10), (11), (12) and (13) of Fig. 1. The small isometric sketch shows the terminal identification of the plug-in flasher in Fig. 1.

**THEORY OF OPERATION**

Assume the driver signals for a left turn by moving the turn signal switch (8) to the left turn position. An interesting series of events is then executed. These will be examined one step at a time while referring to Fig. 1.

STEP 1. The left front and rear turn indicator lamps (4) and (5) are "cold" meaning their filaments have very low electrical resistance. Electrons immediately rush from the hot battery terminal to terminal #3 of the flasher, through the resistance heater (9), out of terminal #1 of the flasher, through the turn signal switch (8), and through the cold filaments of the left turn indicator lamps (4) and (5).

STEP 2. The turn indicator lamps (4) and (5) do not immediately come ON, but their filaments do begin to heat up, and during this time period current is flowing in the resistance heater (9).

STEP 3. The current in the resistance heater (9) produces heat which is transferred to the bi-metal strip (10) since the resistance heater (9) is physically mounted on the bi-metal strip (10). The heat causes the bi-metal strip (10) to flex or bend by an amount sufficient to close the contacts at (11).

STEP 4. Because the contacts at (11) are now closed the resistance heater (9) is electrically bypassed. Electrons from the hot battery terminal flow through the heavy wire windings of the electromagnet (12), out through contacts (11), to terminal #1, through switch (8), and through turn indicator lamps (4) and (5), turning them ON.

STEP 5. At this point three thins happen simultaneously.

A. The current in the heavy wire windings cause the armature of the electromagnet (12) to be pulled to the pole of the magnet, closing contacts (13) which allow the green monitor lamp (15) on the dashboard to come ON.

B. The extremely low resistance of the heavy wire windings (12) are bypassing electrons around the resistance heater (9), allowing the resistance heater (9) to cool down.

C. The heavy wire windings (12) are furnishing an electron path from the hot battery terminal to the turn indicator lamps (4) and (5) which therefore remain ON.

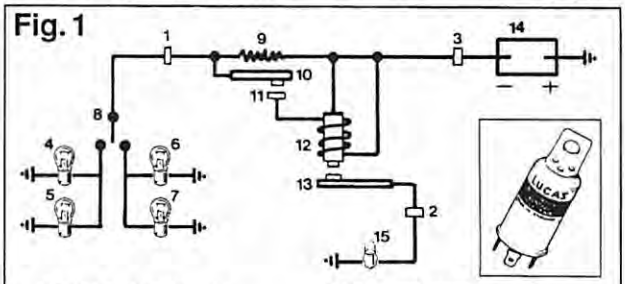
STEP 6. The turn indicator lamps (4) and (5) remain ON until the resistance heater (9) on the bi-metal strip (10) cools sufficiently to allow the bi-metal strip (10) to return to its original position. This takes less than one second.

STEP 7. When the bi-metal strip (10) returns to its original position the contacts at (11) "open" and two things happen:

A. Electrons can no longer flow through the heavy wire windings (12) on the electromag-

*continued on page 7*

**Fig. 1**




1. Terminal #1 of flasher unit
2. Terminal #2 of flasher unit
3. Terminal #3 of flasher unit
4. Left front turn indicator lamp
5. Left rear turn indicator lamp
6. Right front turn indicator lamp
7. Right rear turn indicator lamp
8. Turn signal switch on steering column
9. Resistance heater on bi-metal strip
10. Bi-metal strip
11. Contact points for turn indicator lamps
12. Heavy wire windings on electromagnet
13. Contact points for green monitor lamp
14. Battery
15. Green monitor lamp on dashboard



## *SRX 210*, *continued*

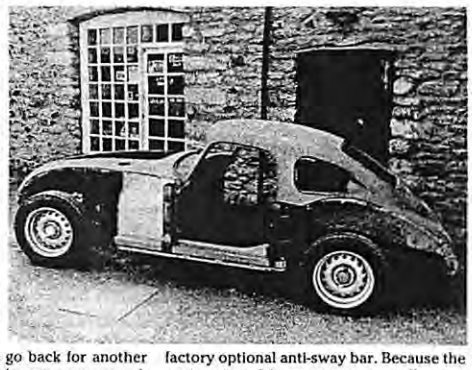
ing performance, ended as a disappointing failure.

The team decided to run again in 1960, so once more the car was prepared. This time, the body was rebuilt into a fastback coupe under the direction of Don Hayter from the Abingdon Design Office. The body was hurriedly constructed at Bodies Branch and employed pop rivets to hold all the panels together. Despite this questionable construction technique, the car's exterior is beautifully smooth in the best Abingdon tradition. The engine was bored out to 1762cc and other work was done to ensure reliability, but once again the car's basic mechanical specification bore a strong resemblance to a standard car. Things went well in 1960, the Twin Cam finished first in class and 13th overall. Among the cars beaten by the MG were a team of three experimental Triumph Twin Cams which despite a 200cc displacement advantage, couldn't keep up with the MG.

The MGA Twin Cam went out of production in 1960, but the Northwest Centre team returned to Le Mans for one last try in 1961. To improve streamlining and provide more downforce, a special nose was built for the car. The traditional MG grille was discarded and the headlight locations moved back along the fenders. With the promise of another good performance ahead the Twin Cam started the '61 race and within two hours came to rest, the victim of a broken rod bolt.

SRX 210 never ran again at Le Mans, instead it "retired" to the club circuits of England where it put up creditable performances until its overall weight (the car was built for reliability, not pure speed) made it uncompetitive against the current crop of super-lightweight roadsters. Although some accounts tell that no effort was spared to lighten the car, this is not true. Certain components of the rolling chassis have been drilled until there is little left, but the basic frame and its superstructure were never touched. Considering how overbuilt the MGA frame has proven, I think they could well have taken a great deal of weight out of the frame without ill effects. The coupe body and extra racing equipment more than made up for any weight saved by drilling the floorboard mounting rails.

As is the case with so many cars, SRX 210 is currently undergoing restoration on about the ten-year plan. I visited the Northwest MG Centre in Holme where the car is located. The proprietor, John Benson-Wilson proved to be an extremely friendly host and even pulled the body and chassis out of the alcove in which they were stored so I could take pictures. Unfortunately, the engine and interior components were not available for viewing, so I guess I'll just have to go back for another look. John said the car's owner was spending about ten pounds at a time on the car and that it would take some time to finish.



SRX 210 exhibits many of the characteristics which make English cars so endearing to Americans. As mentioned previously, the body is held together with pop rivets. John showed off some new pieces which he had installed on the body. When was the last time you used a hand riveter to make proper "original" repairs? In defense of the bodyshell, I must say that it appeared to be beautifully smooth. Obviously, much care had been taken in forming the panels. John also pointed out a rather nasty looking heli-arc weld running across either side of the front apron. He wasn't sure of its origins, but it may be that when the nose was changed for the 1961 event the work was done with less than the normal MG care.

Other visible differences from a standard Twin Cam include adjustable rear lever arm shocks, a dual fuel pump mount (neatly installed and drilled for lightness), quick lift jacking points at the ends of the frame and a factory optional anti-sway bar. Because the car is stripped down, many potentially interesting bits and pieces were not available for viewing. We'll check back in down the road to see how things are going.

After spending time on the car itself, John took me around his parts, service and restoration facilities for a look. The shop itself is a stone building which at one time was part of a dairy operation — how typically English. After spending time in the shop we wandered out to have a look at his latest MGA race car, but that's a story for a future issue of *Moss Motoring*.

net so the contacts at (13) "open" causing the green monitor lamp (15) on the dashboard to go OFF.

B. The electrons from the hot terminal of the battery can get to the turn indicator lamps only through the resistance heater (9) which, due to its high resistance at this moment, will NOT permit sufficient current into the lamps (4) and (5) to make them stay ON. Lamps (4) and (5) go OFF.

STEP 8. Since lamps (4) and (5) are OFF their filaments cool down, giving them low resistance. This lets heavy current flow in the resistance heater (9) and the whole sequence is repeated from STEP 1. This cycle goes on and on until the turn signal switch (8) is returned to the center OFF position.

Subjected to the scrutiny of careful observation the system is found to be simple in concept and clever in design.

**TROUBLESHOOTING THE SYSTEM**

Time will take its toll in corrosion and rust in all older vehicles. These culprits not only destroy body panels and structural members, they disrupt electrical systems in the most insidious manner. If the turn signals are not operating properly, the circuit may be diagnosed as follows. We are assuming the battery is at full charge, the ignition switch is ON, and the flasher unit is good. Refer to Fig. 2.

1. Refer to the vehicle wiring diagram to determine if there is a fuse in the turn signal circuit. If there is, either replace it with a good fuse or confirm that the original fuse is good. Be absolutely certain that the fuse terminals and the fuse socket terminals are clean.
2. Inspect the lamps in the turn signal system and insure they are ALL good. A bad lamp may cause erratic operation of the flasher unit, since the operation of the unit depends on the cold and hot resistance of the turn indicator lamps.
3. Test the turn signal switch itself.

A. Remove the flasher unit from the socket.

B. Place a jumper wire from terminal #1 to terminal #3 on the socket itself.

C. Turn the ignition switch ON.

D. Move the turn signal switch in position to signal for a right turn. The right hand front and rear turn indicator lamps should come ON. They will not flash, but if they come ON and stay ON the switch has passed the right turn test.

E. Move the turn signal switch in position to signal for a left turn. The left hand front and rear turn indicator lamps should come ON. They will not flash, but if they come ON and stay ON the switch has passed the left test.

Obviously, if the turn signal switch does not pass both tests, look for a malfunction in the switch, its contacts, and/or the wiring associated with the switch.

4. Remove the jumper wire from the socket and plug the flasher unit back into the socket.

Assuming the battery is at charge, the fuse is good, the lamps are good, the flasher unit is good, the ignition switch is ON and the turn signal switch is good the turn signal circuit should be operating properly.

Ah! But suppose it does not! Now what?

The next logical place to look for trouble is in the lamp sockets. In most cases the "ground return" for a lamp is made by the lamp body simply touching the "ground" side of the lamp socket. You can imagine that over the years a great deal of dust, dirt and corrosion can build up inside the lamp sockets. If the sockets are simply dirty they may be cleaned with a bit of TV tuner cleaner, a toothbrush and some elbow grease. There are times when it may be necessary to resort to using some household cleanser and a small wire brush chucked in an electric drill to clean the sockets. From the standpoint of safety it would be wise to use a battery-operated cordless drill. There is no sense in risking electrocution for the sake of repairing a turn signal system!

On some older cars, especially if the lamp sockets are made of aluminum, the sockets are often corroded so badly that no amount of physical scrubbing will repair them. The obvious solution is to replace the sockets – if you can find replacements. Let's suppose you can't. (We're not licked yet!)

Some may look on this last resort as "cheating" and perhaps they are correct, but it will safely put the vehicle back on the road until replacement sockets are found. The last resort solution is this: Purchase replacement lamps with brass bases. Solder a pig-tail ground wire to the brass base of each lamp, thread the wire through the socket (even if you have to drill a hole for it) when inserting the lamp into the socket. Connect the pig-tail ground wire to any good, clean ground, either in a nearby section of wiring harness or directly to a chassis bolt. The length of the pig-tail ground wire will be determined by the distance from the lamp socket to the selected ground point.

If this last resort fails to restore the turn signal system to full operation it will be necessary to make a physical and eye-ball inspection of the turn signal circuit, wire by wire. This is not as difficult as it sounds if an electrical map is drawn of ONLY the turn signal circuit by consulting the vehicle wiring diagram. As an example, such a map is shown in Fig. 2. It is for a 1963 TRIUMPH TR4. When making the map, indicate the wire colors to make the circuit tracing job easy when actually working on the circuit in the vehicle.

With the map in hand begin at the solenoid (2) of Fig. 2 and follow wire by wire through the circuit. For instance, in Fig. 2, the lead from the solenoid (2) to the ammeter (3) is marked N. The COLOR CODE chart shows that N indicates a brown wire. Make a visual inspection of the brown wire, paying special attention to the condition of the terminals at its ends. If they are dirty, corroded, or hanging by a thread of copper wire they must be thoroughly cleaned and/or replaced. If the decision is made to replace them be sure to solder the replacements to the harness. Do not trust a crimped connection to perform with the same efficiency as a soldered connection!

There are about 14 wire terminals in the circuit of Fig. 2 between the solenoid (2) and terminal #3 of the flasher unit (9). If each of these terminal-to-wire connections is just slightly inefficient it is easy to understand that the 14 poor connections in series add up to trouble in the circuit.

If a physical inspection of the individual wires seems to indicate that all is well, yet the circuit is not operating properly, we may temporarily bypass whole sections of the circuit with a jumper wire to make a test. Suppose in Fig. 2 we think there are some poor, hidden connections between the solenoid (2) and the flasher (9). A temporary jumper wire may be connected (see dashed line in Fig. 2) from the solenoid (2) to terminal #3 of the flasher (9). This temporary jumper bypasses the ammeter (3), the voltage regulator (4), the ignition switch (5), the fuse (6), the in-line connector (8) and all associated terminal-to-wire connections in the bypassed section. If the circuit now operates normally, or with marked improvement, chances are that the problem is in some part of the circuit that is being bypassed. For those vehicles over 15 years of age oxidation at the terminal-to-wire connections should be suspected.

Inspect very carefully at points where the wiring harness passes through rubber grommets. Over the years the rubber deteriorates, and road vibration can cause the wire insulation to wear through. Where this happens the bare wire rubs on the chassis ground and can cause intermittent electrical problems – if you're lucky. (If you're not lucky the wiring harness simply catches on fire, resulting in considerable unsolicited attention from bystanders.)

And now a word about oxidation. Oxides are the compounds formed when metals combine with oxygen. Oxides are insulators. Insulators are notoriously poor conductors of electricity.

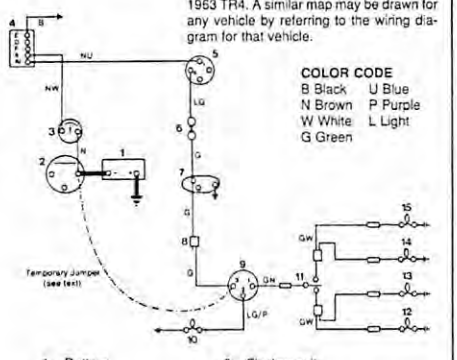
If the headlights seem dim, if there are nagging and intermittent electrical problems, if the vehicle is old and if inspections similar to those mentioned to this point fail to resolve the problem(s), there is a high probability that oxidation is the cause. Even a cursory inspection will reveal that almost ALL the terminals at the ends of the wires in the wiring harness (regardless of the make of the car or country of origin) are CRIMPED, not soldered. Regardless of how firmly the crimp was made when the terminal was attached to the wire (perhaps 20 years ago – more in some cases), oxygen will get to the crimped connection. The oxygen will combine with the copper to form insulating copper oxide, and over the years this oxide will constantly decrease the efficiency of current flow between the terminal and the wire to which the terminal is crimped.

A temporary solution is to wash the connections liberally with TV tuner cleaner and re-crimp the terminals. Note: this is only a temporary solution! For a permanent fix there are basically two choices: one, cut each offending terminal from the harness and solder a new terminal in its place; or two, replace the complete wiring harness.

Vintage sports cars are passionately loved by their owners and drivers. A special breed of enthusiast keeps these cars on the road in safe driving condition. Once the challenge to preserve these treasures is accepted it is in the best interest of all concerned to share information. The intent of this presentation is to disseminate practical information among those who love these vehicles and work to keep them rolling, insuring that future generations will have the opportunity to enjoy and appreciate them as much as we do. *Bob will receive a Moss gift certificate for his contribution.*

**Fig. 2**

This electrical map will allow a wire-by-wire inspection of the turn signal circuit of a 1963 TR4. A similar map may be drawn for any vehicle by referring to the wiring diagram for that vehicle.




1. Battery
2. Solenoid
3. Ammeter
4. Voltage regulator box
5. Ignition switch
6. Fuse
7. Voltage stabilizer
8. In-line connector
9. Flasher unit
10. Dashboard monitor lamp
11. Turn signal switch
12. R F turn indicator lamp
13. R R turn indicator lamp
14. L F turn indicator lamp
15. L R turn indicator lamp