



Buckeye Triumphs Newsletter

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 6-Pack Chapter
 Center of Triumph Register of America
 VTR Zone Member

May BT Business/Social/Driving/Eating Event – Saturday, May 11th

We have been invited to have a cookout at Paul and Jill Griesse's "Pau Hana" Farm in Granville, OH (for those that are curious, "Pau Hana" means "after work" in Hawaiian)

The Griesse's have graciously offered their estate for our Friday evening event during the 6-Pack TRials and have offered this date for a "dry run" to get to know the place. Ryan and I have visited on several previous occasions to see Paul's collection of cars. I think this should be fun.

Our day will start at the McDonalds on Sunbury Road and State Route 161 in Columbus. We leave McDonalds at 10:30. I will try to pick out a fun driving tour around Licking County and we should arrive at the Griesse's between 1:00 and 1:30.

I will arrange for the Burgers and Brats. I am asking that everyone else bring a favorite dish to share. This could be beans, potato (or any kind of) salad, dessert, munchies, etc. Because we need a count on the meat to bring, and because I don't want 10 desserts, please let me know what you can bring.

Contact me via email @ bruce.miles@buckeyetriumphs.org or call 740-587-4179 and leave a message. When I talked to Jill last week she said that they had a surprise, but said I would have to wait till the cookout. We'll see on the 11th.

I hope that everyone can attend this event. If you can't make the drive, join us at Pau Hana after 1:00. Take route 661 North out of Granville to 2640 North Street (this is route 661).

Mini Car show at the WOSU Stations Event – Monday, May 13th

Tom Wiebell of the News 820 "Open Line" program will be hosting a car inspection night as part of their automotive segment on Monday, May the 13th from 4:00 to 8:00 PM. We have been invited to bring our Triumphs down for a "Mini" car show as part of the event. Ryan went last year with Murry and we all had a fun time. (In fact, even though Paul Griesse lives not 2 miles from us, we met him at this event)

Come on down to the Fawcett center at 2400 Olentangy River Rd after work and join in on the fun. Other makes will be there, let's have a good TR showing!

Annual British Car and Swap Meet May 5th - Wadsworth, Ohio

If you are interested in going to this swap meet at the Holiday Inn Express, we are planning to meet at the McDonalds at Rt 37 and I71 at 8:30 Sunday morning. We will leave pretty much on time, so if you want breakfast, get there a little earlier. If you want, let Jim VanOrder (740-967-2110) or John Huddy (614-846-2321) know if you intend on going and meeting us at McDonalds. If you are interested in finding any goodies, this is usually a good sports car swap meet.

British Car and Bike Show at Easton Town Center – Sunday May 19th

The British Car Council of Central Ohio will hold their 13th Annual British Car Show at Easton Town Center on Sunday, May 19th, 2002 from 9AM till 3PM

Vehicles will be positioned around the Fashion District so that Easton visitors who are strolling in and out of shops can view this incredible collection of historic British automobiles and motorcycles.

This event is open to the public. Entry fees are \$7 in advance and \$10 the day of the show.

Show entrants will receive a voting ballot, an event dash plaque and a chance to win a door prize.

An awards presentation will be held at the conclusion of the show. For more information or to retrieve a registration form, email britsateaston@aol.com.



Take your British Car to Work Week May 27th through June 2nd - 2002

During the past several years you may have heard about the Annual British Car Drivers Week. This idea came from an article titled "Seldom Seen Cars" written by Peter Egan for the March 1997 issue of Road & Track magazine. In this article, Mr. Egan writes that he never sees old sports cars on the road anymore. As a result, we've decided to do what we can to help change this, for British cars anyway.

From that date on, British Car Week will always be celebrated during the last full week of May, and will always include both opposing weekends for more driving pleasure. The object of this week is for all British car owners to get their cars out of the garage, drive them, and help promote these treasured cars in whatever ways they can. Most of you drive your cars during the summer months and for some throughout the entire year, but rarely do we drive them on the roads in unison. This special week has been set aside for owners of "all British marques" to help promote these cherished cars, and possibly attract the attention of another potential enthusiast, young or old, who might decide to get involved and help preserve our hobbies, businesses, clubs, and most of all, our cars, and help us keep them on the roads well into the 21st century!!

The participation of this annual event has been very impressive. Many clubs get together and plan outings ranging from picnics, club meetings, or drives to a special place. Others use their cars for errands or drive them to and from work and find that it was so enjoyable, they keep right on doing so all Summer long!

As indicated by Gary Anderson, publisher of British Car Magazine, this event didn't create any traffic jams that we know of, but it did attract some attention and got people talking about these very special cars which is exactly what was intended.

See you on the road! Their web site is:

<http://users.arczip.com/zntech/britishcarweek.html>

RIVERRUN - Saturday, May 25th, 2002

A Sports Car Driving Tour

Riverrun is a 280+ mile, all-day driving tour using some of Ohio's most interesting and challenging roads. This year we'll go southeast to Gallipolis, sample a Remo's hotdog, then head east along the Ohio River to Little Hocking where we will go North along Ohio 555 to Zanesville for Ice Cream at Tom's Ice Cream Bowl (dessert first) We will then complete the trip at Clarks's Dining Room for homemade fried chicken.

Cars *leave* from the Bob Evans at Gender Road & US 33, near Canal Winchester, at 9:00AM.

We should be at the Ohio River around 12:30, and finish by 6:00 PM, depending on the time spent sightseeing. This is a tour rather than a rally.

The Central Ohio British Car Club Council invites all driving enthusiasts, regardless of vehicle make, model or type, to join us on Riverrun 2002.

Call Eric Jones at (740) 363-2203 for more details and to reserve your spot. There is a \$5.00 fee to cover organizational expenses.

You've got Mail! (Buckeye TRIUMPH Mail)

We're delighted to announce that Buckeye Triumphs members may now have email service under the

buckeyetriumphs.org domain name. Sunsposthosting.com who donates the hosting of our Website also donates this service. The one condition of the donation is that we do all the administration of the service ourselves. The following describes the service and how club members can initiate service. Our officers have been trying out the service for a few weeks and Nelson has been using it for a couple months.

Addresses: The email administrator decided that all the addresses will be of the form:

John.Dough@buckeyetriumphs.org. The address is not case sensitive so it will also work without the caps in the first and last name. However, if you use the caps, they'll appear in the address and look neat. This fixed structure using names was chosen so that the administrator wouldn't have to decide who got the address 68TR250, TR250, 70TR6, etc. (The administrator already assigned all the good TR addresses to himself anyway.) It's probably best to use the nickname you go by at club activities for the first name. Long names can be abbreviated if one wishes.

Initiating Service: Members can initiate service by contacting the email administrator who is also the Webmaster by clicking the Webmaster button on the navigation bar on the left bottom of the Website or by contacting Nelson (Nelson@buckeyetriumphs.org) 740 587-2509. If you can't track down Nelson, contact Backup Bruce at Bruce.Miles@buckeyetriumphs.org (740) 587-4179. The administrator needs to know the name you want to use for the account. (Please don't try TR7.Smith, the administrator may be dumb, but not that dumb)

Passwords: The email administrator will assign a very simple password when the account is set up. You should then use the iMAIL feature mentioned later to change it to a password of your choice.

Mailbox Size: The mailboxes are 3 Mbytes. When the mailbox is full, incoming messages will be bounced back to the sender. The young man I know who uses the email server to supplement his hard drive should probably do a bit of housekeeping once in a while and throw out some of those notes from his girlfriends.

Problems: Contact the administrator/webmaster if you encounter problems such as a forgotten password or can't make it work. If you can't track down Nelson, contact Backup Bruce.

Using email: One must have Internet access to use the email service. The service can be accessed via iMAIL using a browser (Internet Explorer or Netscape Navigator) or via resident email programs such as Outlook, Outlook Express, Eudora, or the email thing in Netscape Communicator. The administrator uses both methods, iMAIL when traveling (there are Internet Cafes in most parts of the world ---- he has used them in Africa, Asia and many places in Europe) and Outlook Express from his home PC. The firewalls in some organizational networks might block access via the resident email programs (they block the SMTP protocol) so iMAIL may be the only way to access the email in those cases. Also, personal features and preferences and password changes can be done only via iMAIL.

This information is repeated and a description of how to use iMAIL and how to setup PC resident email programs is on the Website. From the homepage click the **Club** button to get to the **Club** page. Once on the **Club** page, click the **email** button to get to the email stuff.

Editor's Corner

This will be one of my largest newsletters in quite some time. (I almost feel like I need to add a table of contents.) Lots to talk about, plenty of things going on during the month of May.

I am *really* excited about our outing on the 11th to Pau Hana farm. A fun time should be had by one and all.

Nelson sent me a scan from the latest TRF catalog:



He claims that if you look real close you can see John Huddy "downing one" in the shade!

Our business meeting had a very nice turnout. Murry had another birthday on the same day (we are not saying which birthday it was)



April started out with a fun event when we were able to help the Henry's body tub be re-united with a fully restored frame. Buck has obviously worked very hard on this restoration and the running gear looks just about perfect. Here are some pictures of the blessed event:



Many hands make light work! Many baked items were consumed during this event. I haven't talked to Buck in the last couple of weeks but I believe that we will see this car on the road sometime in May.

After we had re-united the body, I noticed that we had failed to install the accelerator shaft (and the annoying nylon bushes that go in the body). This is a much easier job with the body off. Buck talked to Nelson and Nelson came up with a dandy solution of using a bronze bushing with a circlip to snap the unit in place. A MUCH better idea. These were handmade on Nelson's metal lathe. (I think that we may soon see a "Nelson's Parts" link on the Web site ☺)

Ryan has discovered autocross and is now a card-carrying member of the SCCA. Here he is tearing up the track in his TR6. He posted some good times, no "off course" or cones.



My TR6 got to go to the Prom! (I know that Ryan is going to kill me for printing this picture!)



Our tour to the Banbury Tea room had a good turnout. The weather was rainy early but all tops were down by the end of the day!

If you can believe this, Ryan was not in attendance. He was off "porting" his head for the 250 project. This is the first one of these events I have attended solo in quite some time! (I missed the "in cockpit" chatter) Here we are preparing to leave:



I think we had 13 cars in all.

For those of you that did not go, the Banbury Tea Room is a British theme restaurant. Here is what a British breakfast looks like:



Here is a "group shot":



When we were finished, they closed up! (We had cleaned them out!)

Oops, I almost forgot. Be sure to read Nelson's "Brake Theory" article in this issue, he has done a fine job of documenting the whole brake system. We now know how to the mysterious "brake booster" works. He has a device for measuring if you brake booster is operating correctly. I need to have him bring it to some of our upcoming events.

I hope I haven't forgotten anything else. Many things to do in May!

Please let me know if you are coming on the 11th and also let me know what dish you are bringing. If your TR is not running, join us anyway!

I look forward to seeing you folks in May.

Bruce Miles bmiles@INTInfo.com

And now also: Bruce.Miles@BuckeyeTriumphs.org

Next Newsletter Article Deadline – May 25th, 2002

April Meeting Minutes

Minutes of the meeting of Buckeye Triumphs for April 2 and April 20, 2002

The meeting was held at Bruno's Pizzeria. A good time was had by all (30+ people!!). We had a room mostly to ourselves and it was quiet except for our noise. The food was really good and we had a short business meeting to discuss upcoming events, etc. The following information was obtained at that meeting and the April 20 drive, described as follows:

The "Tech Session" on April 6, held to attach the body to the chassis, went well and the job was completed quickly. It would have been too much for fewer guys than were there, but they managed just fine.

The first "drive/outing" was held on Saturday, April 20 and we had 13 Triumphs and one "American" car participate. We found a neat covered bridge and had a fun short drive to Buckeye Lake. The luncheon at the Banbury Cross Tearoom, although late, as usual, was fun, and for those who have been to England, said it was a very authentic experience. The food was good and the prices were reasonable. Who knew that "brown sauce" was actually steak sauce?!!

Upcoming events:

- No business meeting in May
- May 5--Wadsworth Swap Meet
- May 11--Drive to Granville area and lunch at Paul Hana Farm
- May 19--Easton (We need help from 10:00-11:00 at the registration desk and also later to count points for the judging!!)
- June 4--Business meeting being arranged by Jim and Margo Washburn-location TBA
- June 8--We need help assembling the registration packets for the TRA. We will meet at Huddy's--more later
- June 12-14 TRA
- June 15--MidOhio--lots of Triumphs in the featured marquee!! Don't miss this one!! Buy tickets before June 13th and save \$!!
- July is the Immke show--more later. You can register online.

The treasury is building, some of which comes from the "Trials" registrations coming in. Don't forget to register early for the competition and any accommodations that you need!! See the website for details.

Register early for the TRF Summer Party, Sept 26-29th. Many of us are staying at the Holiday Inn in Indiana, Pa. (not the "Express"). Rooms fill fast so don't delay!!

That's it for April. See you in Wadsworth or at the Paul Hana Farm!!

Respectfully submitted, Margo Washburn, Secretary

President's Corner

May, 2002

April has come and gone; a rapid transit into May that left some of us wondering "Where did April go? Is it really May already? Why is my Spring to-do list growing faster than my

to-done list? One answer might be that we were a very active club in April.

Our Tuesday business / social meeting at Bruno's Pizza was very well attended and a special treat for Murry Mercier, as Jacqueline arranged for the Birthday cake and merriment, as well as hosting the evening event. Congrats and thanks.

Many of the curious and talented were present at the Henry's on Saturday morning for the refitment of Mike and Mary's TR6 body to its frame. We all took turns with the job at hand and the coffee, donuts and subs. The results were rewarding and we have the photos to prove it.

Jim and Gayle Van Order took us on a memorable drive through the winding roads and hilly countryside south of Buckeye Lake to the Banbury Cross Tea Room for a spot of tea and some pub food. The Banbury Tea room was quaint, the food too typically British and the weather cleared for the drives home. Not a great day for everyone but a start for our 2002 driving events. Thanks Jim, and Gayle- 'I'm off the u-turn hook, right?'

May events will be more busy, busy stuff:

Jim VanOrder is planning a 'convoy' to the Wadsworth Swap meet on 5/5.

The May social and business meeting will be hosted by Bruce Miles on 5/11 as he takes us to Pau Hanna farm on a SATURDAY not a Tuesday evening for a visit and lunch at the site of a Fall 6-Pack Ohio Homecoming event. The following Sunday, we want a 'really good showing' at the Easton British Car Day on 5/19; you'll be able to see some terrific cars and do your Mother's Day gift shopping nearby. See ya there and invite another member to join us at these events. Look for the newsletter details.

Please renew your memberships by sending your check to Jim VanOrder and plan to participate in our May events. Thanks for your continued support and participation. See ya real soon.

Bob Mains bob.mains@ode.state.oh.us

A Chronicle of Triumph: how I became addicted

As my senior year winds down, I find myself busier than ever getting my car and myself ready for summer. After getting completely hooked on auto-crossing last year, I decided that I would try to do as much racing as possible this year. I did some research on the Internet and found the nearest SCCA Solo II (SCCA's brand name for autocross), which is held by the Ohio Valley Region every other weekend at one of the Ohio State University's parking lots.

A few weeks ago I started getting ready for my first outing of the season, a driver's ed on the 12th. After a thorough inspection of the underside of the car, I discovered that the water pump in my car had started to leak, and I soon realized that there was no way I was going to get the going in time to run. So come Saturday I was standing in the rain trying to pick up as much as possible without actually having a car. I

had fun, but I do believe that I may have stayed a LITTLE dryer if I had brought my TR.

I did manage to actually get the car up and running for last weekend's event where I mainly just started to get a feel for what pressure the tires should run at. My initial setup (on the advice of my friend Artie) had way too much tire pressure, and didn't handle very well...The rear end was much looser than normal and I had it in a power slide around one of the tight corners. Towards the end, I finally started to get the feel for the car and what it could do.

The reason I thought my story was relevant to the BT newsletter, was because I was very surprised at the reaction to my car from the other racers. The car generated much interest, and many positive comments. The guy that was waving the green flag told me that he liked my car right before he started me on the course. I even met a guy at the driver's ed that had a TR6 which he says he will definitely race his TR6 on the next nice race day. It was no surprise that the other guys liked the Panasports and my wide tires!

So I guess that my message to you that if any of you are thinking about racing your triumph, you should do it. The people at these events all seem to be nice and I was welcomed with open arms. Hopefully in a couple weeks I will have a better feel for the car, and possibly put out some quicker times.

Ryan rjhmile@yahoo.com

Officers and the Fine Print

The Buckeye Triumphs Newsletter is a publication of Buckeye Triumphs, and the content herein is not officially endorsed by the staff or members of Buckeye Triumphs, their families, or lawyers. If you decide to follow the advice of anything inside this newsletter, you do at your own risk. We are all adults here, so if you do something stupid, own up to it and don't sue the club. Heck, we don't have any money anyway... Club address: Buckeye Triumphs, P.O. Box 584, Lithopolis, OH 43136-0584

Annual Dues: \$20.00 General email: buckeyetriumphs@ameritech.net
Web Site: <http://www.BuckeyeTriumphs.org>

Our current crop of Buckeye Triumphs Officers include:

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Newsletter Editor: Bruce Miles (740) 587-4179 bmiles@intinfo.com	Secretary: Margo Washburn 614-882-5219 jimbo165@earthlink.net

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Affiliations: 6-Pack Chapter -- Center of Triumph Register of America -- VTR Zone Member

Buckeye Triumph Upcoming Events		
Date	Event/Location	Host
May 5	25th Annual British Swap Meet and Car Show. Holiday Inn Express, I-76 & Rt. 94, Wadsworth, OH.	The Northeast Ohio Austin Healey Club of America http://ahbugeye.com/neoahca/
May 11	BT drive and cookout at Paul and Jill Griesse's Pau Hana Farm in Granville, OH	Bruce Miles 740-587-4179
May 17 – 19	Import/Replicar Nationals (and huge swap meet) Carlisle, Pennsylvania	http://www.carsatcarlisle.com/Import/import.htm For more information call (717) 243-7855
May 19	British Car Show Easton Towne Center	British Car Council
May 25 th	River Run is a 300+ mile, all-day driving tour using some of Ohio's most interesting and challenging roads.	Eric Jones (740) 363-2203
Last week of May 27 th through June 2 nd	Take your British Car to Work Week	http://users.arczip.com/zntech/britishcarweek.html
June 14-16	Sprint Vintage Grand Prix at Mid-Ohio Sports Car Course – Triumph is the Featured Marque!	www.midohio.com 1-800-MID-OHIO. Special ticket pricing is being offered to Triumph owners ordered by June 13, 2002

Notes from Nelson:

Elaine sets the mark! That's right, about a dozen Buckeye Trumphers showed up at the Henry's on Saturday May 6 to help Buck mate the body of his TR6 to the frame. It was cool --- about freezing. Elaine showed up with her top down as pictured below. If you look closely you can see our bundled up shivering leader on the left – with his top up. The Licking County contingent would have had their tops down but we were concerned about finding parking places for four vehicles so instead we all road together in Bruce's boat. The rest of those guys (except for Carl who came with Elaine) must be a bunch of wusses.



From the Internet: This month I have two prizes from the Triumph email list. The first relates to a body & paint horror story that explains why you folks are so anxious for me to bring one of my TRs to Easton:

First Person: *I suppose the Europa's unrelentingly-ugly condition will make the TR4 look better. This has worked for several cars over the years. For a fee, I can bring the Europa over to make your car appear better, also. For a little extra, I can bring my ugly Suburban, too.*

Second Person: *For those of you in the Midwest, I have a TR3B that will make almost anything look better. I'm available for parties and other summer activities.*

This one related to installing front springs: *When I did the springs I had an unusual situation. I was working on the car in the back of a friend's factory. He had a huge great monstrous hydraulic press and a metal strapping machine for crates. You can see where this is going can't you? I put each spring in the press squished it down good and then used a thin metal strap to tie them down. Then I just dropped them in place and cut the strap with a tin snip with long handles. The spring thunked into place and I pulled out the strap with some vicegrips. Worked great the first time. The next time I tried that trick, I left the compressed springs standing on the ground for a moment while I prepared. I guess the straps were a bit marginal. I was under the car and heard a great BOOOING!!!, followed by a crash as one of the springs shot through the air and landed in the parts depot a hundred feet away. Just imagining what would have happened if I had been holding the spring when it let go - made me feel queer all over. Last time I tried that trick I can tell you.*

Repairing Stripped Threads: Many of us have found stripped holes on our TRs-- or stripped them ourselves by over tightening bolts or nuts. I've had the most trouble with the cast aluminum trailing arms and gearbox cases. (Over one weekend a few weeks back, Rod Yost found three stripped trailing arm holes and I found (or made) two stripped gearbox holes.) The studs that secure the wheel hub and brake backing plate are the problem on the trailing arm. These studs are 5/16-24 (fine thread) and the fine threads don't have much of a bite and tear out of the aluminum rather easily. All the holes I've had trouble with on the gearbox are 5/16-18, course thread. I think the problem with the gearbox is partly due to wear. The gearboxes are getting old enough that the bolts have been removed so many times that the aluminum threads just wear away.

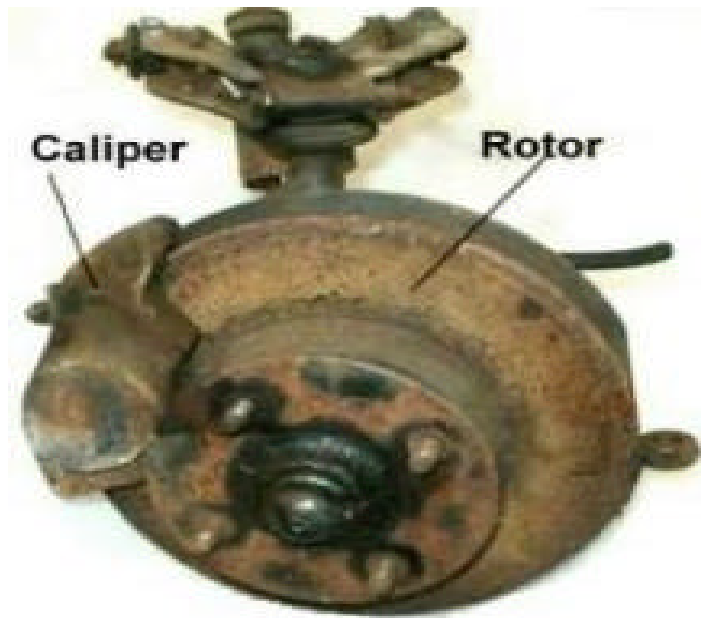
One way to repair the threads is to use Heli-Coils. The Heli-Coil requires a minimum enlargement of the hole. However, special taps and tools are required which makes it pretty expensive for the home mechanic, especially if one wants to do several size holes. A search of the Internet will bring a wealth of information about Heli-Coils.

I've repaired stripped threads in the past by drilling a larger hole, tapping the hole to a standard thread and then screwing in a thread insert. The inserts I've used in the past for 5/16 inch holes either required 1/2 inch holes or 7/16 holes with fine thread. I prefer to use the smallest hole possible and course threads to get the best bite in the aluminum castings. Bruce Miles showed me a flier he picked up at the fastener store recently describing thin wall 5/16-18 and 5/16-24 E-Z LOK inserts that have an outside thread of 7/16-14. No special tools are required to install the inserts. Rod Yost tried to buy some of these at the same fastener store and other stores in Newark, no luck. I found them at [McMaster-Carr](http://www.mcmaster.com) (<http://www.mcmaster.com>) for ~ \$1 each in lots of 10. In the future I plan to keep a few spares of both the course and fine thread 5/16" inserts. The following shows some of my stock. The pink stuff (if you get this off the Website, you get colors) is thread lock.

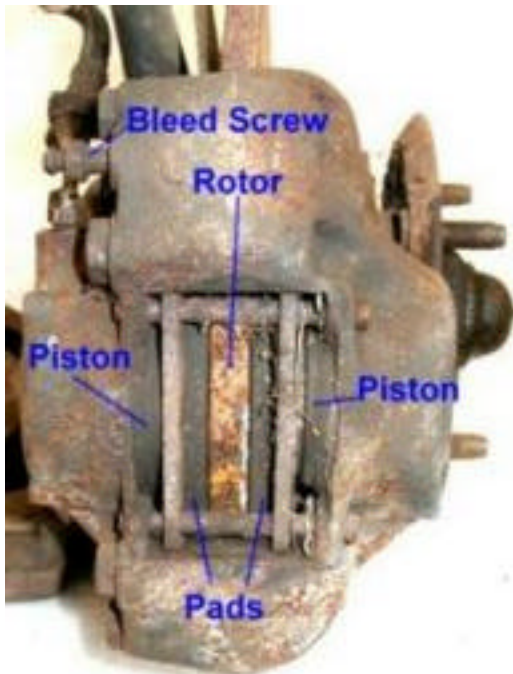


Brake Theory: Last month we started a discussion of the TR250/TR6 brake system. This month we conclude that discussion.

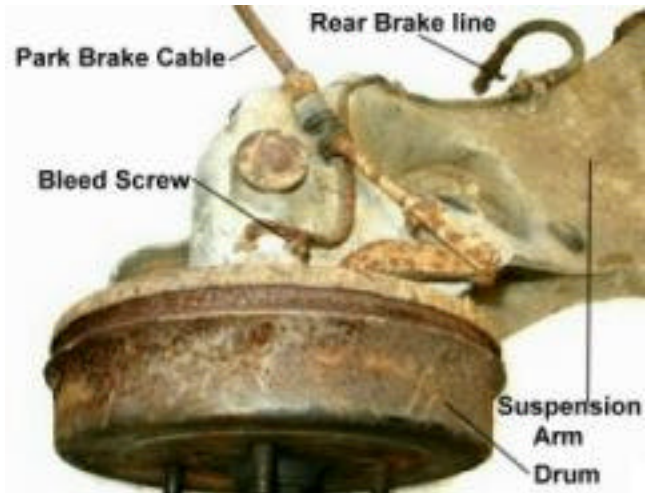
Front Brakes: The right front suspension from my '70 TR6 is shown below. These have been off the car since the late '80s. The rotor surface would normally be smooth from usage. (Hopefully they'll look a little better after we've overhauled them.) The caliper is to the rear upper side of the axel. The fluid input pipe and bleed screw are on the upper back side of the caliper.



The next photo shows an edge view of the caliper. When the brakes are applied the pistons squeeze the pads against the rotor. There are no springs to pull the pads away from the rotor when the hydraulic pressure is removed. The pistons ride against the pads that are adjacent to the rotor when the brakes are released. This system is self-adjusting in that as the pads wear, the quiescent position of the pistons moves closer to the rotor. It is also self-adjusting with respect to the position of the rotor; when pressure is applied to the pedal each piston moves to push its pad against the rotor. The braking force is then applied between the two pistons. Afterwards, when the pressure is released, the pistons remain in essentially the same position.



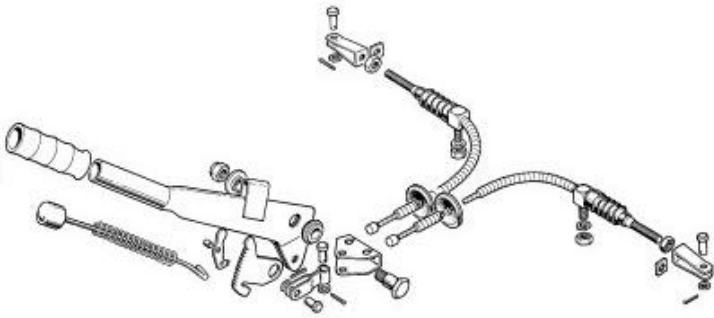
Rear Brakes: The next photo shows the top of the right rear suspension arm (trailing arm) with various brake components identified.



The photo below shows the side view with the drum removed. (Things are pretty dirty which is usually the case after a couple a weeks or months of use.) The adjuster at the bottom is set to hold the lower part of the shoes just short of rubbing the drum. When the brakes are applied, the fluid forces the piston out of the cylinder in turn forcing the shoes apart at the top and against the drum. The cylinder is free to slide to front and rear as required to adjust to the position of the drum. This floating design insures that all the force generated in the cylinder is applied to forcing the shoes against the drum. There is a mechanical lever beside the rear cylinder that also forces the top of the shoes apart and against the drum when the park brake is applied.



Handbrake: The sketch below shows the components of the handbrake system. The sketch was taken from the TRF TR250 catalogue and then processed. The system consists of a ratcheting handle that is connected via cables to a lever in each rear wheel that forces the brake shoes against the drums.



Servo: I looked up servo at Merriam-Webster OnLine and was referred to **ser-vo mech- a nism** Date: 1926: "an automatic device for controlling large amounts of power by means of very small amounts of power and automatically correcting the performance of a mechanism."

For this system, the "controlled" is the force applied to the master cylinder piston. The "controlling" is the force applied to the brake pedal. If everything is working right, a small force on the brake pedal can produce a large force on the master cylinder piston. Where does the extra force come from ---- as some of the younger generation are fond of saying --- "it sucks" -- the suction coming from that black hose to the intake manifold. Us more mature folks might say "the depression in the intake manifold is transferred via the black hose to the servo creating a situation where atmospheric pressure can be used to push on the brakes".

The next photo of my '76TR6 shows the brake master cylinder and the servo, the big black canister to which the master cylinder is mounted. The black hose connects the servo to the intake manifold.

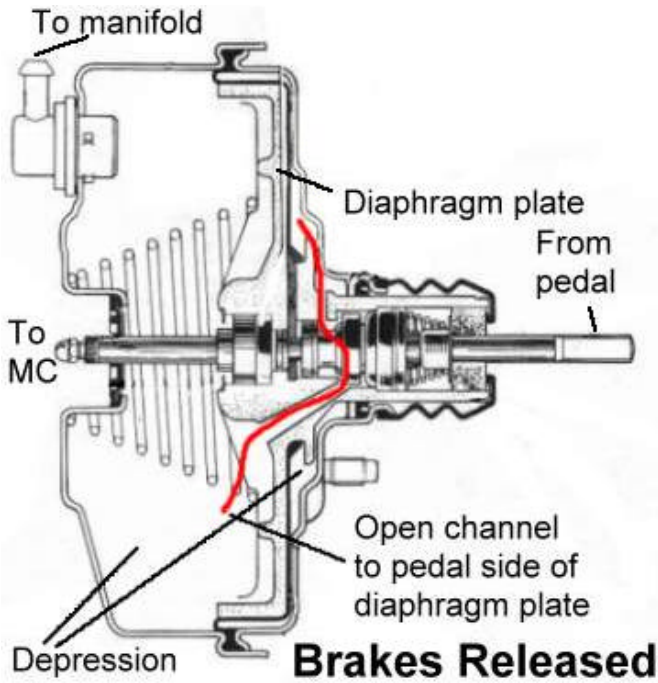


The next photo shows the inside of an old servo I had lying around.

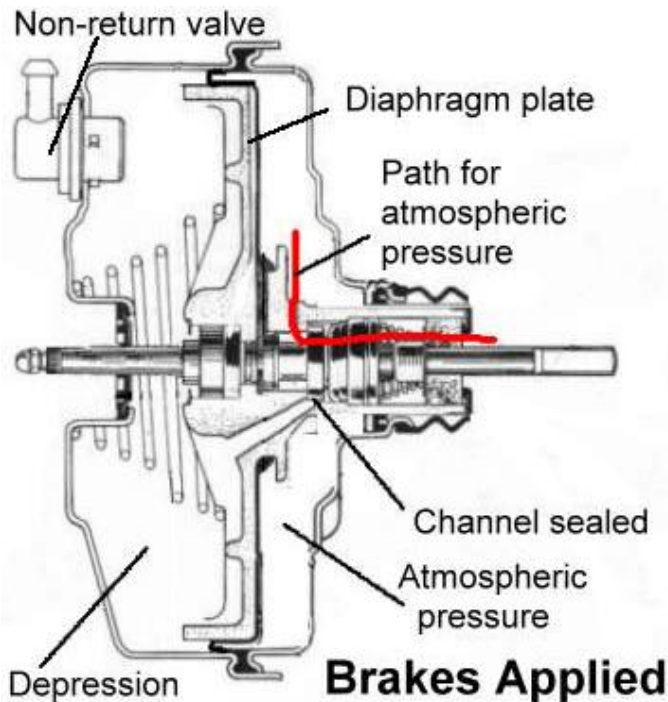


The next sketches show a little more detail of the servo. I started with a sketch from an old Haynes manual and then "processed it" to get the two views. The next sketch shows the relaxed position. The chamber inside the canister is sealed. If you hook up a vacuum gage to the hose from the intake manifold to the servo you should read 15 to 20 inches of mercury (engine at idle). Recall that atmospheric pressure is ~30 inches of mercury or ~ 14.7 psi (at sea level). This means that the atmosphere is pushing on the manifold with a relative pressure of 15 to 20 inches of mercury or about 7 to 10 psi. So, the suction from the intake manifold reduces the pressure inside the canister creating a depression such that the atmosphere is pushing on the outside with a pressure 7 to 10 psi greater than the pressure on the inside is pushing back. The little plastic fitting on the upper left where the hose connects contains a non-return valve oriented such that air can't flow back from the manifold side to canister should the engine stall losing manifold depression. (An alternate description that could have been generated by one of my former students: "Now I understand it ----- the canister is filled up with a vacuum and the non-return valve keeps it from leaking out". You can speculate as to her hair color.)

The rubber diaphragm together with the diaphragm plate divides the canister into two airtight chambers. The key to the operation is a pair of valves located on the left end of the pedal push rod that controls the pressure on the pedal side of the diaphragm plate. In the relaxed state, there is an open channel shown by the heavy red line on the next sketch that equalizes the pressure on both sides to the 7 to 10 psi depression of the manifold. The big spring forces the diaphragm to the pedal side of the canister.



When the pedal is depressed slightly, a valve seals the channel between the two sides of the diaphragm plate. As the pedal is depressed slightly further, a path is opened along side of the pedal push rod and into the pedal side of the diaphragm plate to allow air into the pedal side chamber where it quickly reaches atmospheric pressure. This means that the pressure on the pedal side of the diaphragm is 7 to 10 psi greater than on the master cylinder side. The diaphragm is 6" diameter or ~ 28 square inches. At 7 to 10 psi that gives 200 to 280 pounds force ---- yes that helps push the master cylinder piston.



Now what happens if one pushes the pedal part way and the master cylinder piston has moved part way but hasn't

reached the point where the pads and shoes are firmly against the rotors and drums --- the master cylinder piston is still easy to push because the pressure in the hydraulic system hasn't started to build? Will the diaphragm plate continue to move to the left forcing the left push rod further into the master cylinder? The answer is (fortunately) no.

But first --- what kind of forces are exerted by the springs? With the vacuum not connected I measured a force of ~ 25 pounds to get the output to start moving and ~ 40 pounds to get movement when the spring was fully extended. With the vacuum connected, the output moved over it's entire range with an input force of ~ 15 pounds. The pedal is really a big lever (see next photo) where the servo connects 2.56" from the fulcrum and the center of the pedal is 9.85" from the fulcrum. That means the pedal force is $2.56"/9.85" = .256 \sim 1/4$ the force on the servo. (Conversely, the pedal moves $9.85"/2.56" = 3.85$ times the distance as the master cylinder primary piston.) So, the ~ 15 pounds required to move the output with the vacuum connected requires less than 4 pounds pedal force.



Now, back to the case where you're holding the pedal part way down and have not yet encountered significant back force from the master cylinder piston. The pressure on the pedal side chamber will continue to push the diaphragm plate a very short distance till the valve to the atmosphere closes and then slightly further till the valve between the two chambers opens just long enough to allow the pressure on the two sides to adjust to exactly match the back force from the master cylinder; it then stops moving. This is the "**automatically correcting the performance of a mechanism**" from the definition. Slick!

Now what if the engine stalls? The non-return valve stops air entering from the manifold. However, each time the brakes are applied, air enters the pedal side chamber and then goes to the master cylinder side chamber when the pedal is released. Rough guess -- you loose half the remaining assistance each pedal pump.

What if the servo system fails completely? The brakes can be applied without the servo assistance with the additional 25 to 40 pounds servo input force (6 to 10 pounds at the pedal)

to overcome the force of the bedspring. However, much greater pedal pressure is required to stop a moving vehicle.

The forces: Guess we've beat the servo to death. But, before we leave the theory, let's try to get a handle on the hydraulic pressure in the brake lines and the forces on the shoes and pads. Lets assume you slam on the brakes with the engine decelerating. We should get 250 pounds net force from the servo (high depression in the manifold due to deceleration). Let's assume you can put 80 pounds pedal pressure, which translates to 308 pound force (amplified by the 3.85 pedal mechanical ratio). Hence, we get 308 pounds force on the primary piston without the servo and 558 pounds with both pedal and servo.

The master cylinder primary piston diameter is 0.81" so the cross sectional area is ~0.52 square inches. Therefore, the 308 pounds pedal force on the piston will produce a hydraulic pressure of ~590 psi, and the combined pedal plus servo force of 558 pounds will produce ~1070 psi.

The pistons in the front calipers are 2 1/8 inch diameter so the cross-sectional is ~3.5 square inches so the ~590/1070 psi hydraulic pressure produces a force of ~2065/3745 pounds on each of the four pistons and also on the associated pads against the rotors.

The rear cylinder pistons are 0.7 inches diameter giving ~0.38 squares inches cross-section and a force of ~225/405 pounds on each of the four rear brake shoes due to the ~590/1070 psi hydraulic pressure. The brake shoes are really levers that pivot around the around the adjustor at the one end and are pushed by the wheel cylinder piston on the other end. The lever has the effect of increasing the force of the shoes on the drum somewhat --- maybe by a factor of two if the brakes are adjusted snug to the drums.

Measurements: Calculations are fine, but what if I slipped a few digits on the calculator and the pressure is really 100,000 psi? This is easily solved with a few measurements. The test setup I used is shown next.

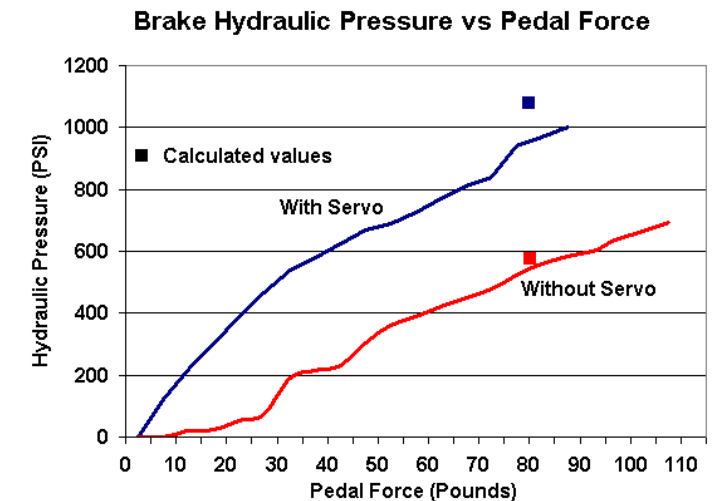


I took a 14" by 24" scrap board and attached a 12" square shelf to the upper right corner. The pedal assembly is attached to the underside of the shelf. The servo and master cylinder are mounted to the pedal assembly. The hose at the top goes to the vacuum pump that is setting behind the board. (I blocked out the trash on the bench and shelves behind the board to make the photo look better.) I made a 7/16" to 3/8" reducer for the front brake port and screwed a bleed nipple into the reducer. A 0 to 1000 psi gauge is attached to the rear brake port using an old rear brake hose.

I used a bathroom scale with a stick attached to measure the input force. The setup is shown on the below. The stick is positioned against the pedal and the scale is then pressed with the desired force as indicated by the scale reading. Every project needs the universal fastener as seen on the bottom of the scale.



The measurements are plotted below.



The curves are a little erratic; the system operation is probably more linear than indicated. The problem was that I had a difficult time holding the scale steady. The gauge topped out at 1000 psi, which is why the "With Servo" curve stops at 1000 psi. The "Without Servo" stops at about 110 pounds pedal pressure where I topped out. The computed values from above are plotted and are well within a reasonable error for all the assumptions and the "Rube

Goldberg" test setup. I was a bit surprised with the servo operation. I expected the curve to kick in at a little higher pedal force and I expected the curve to be steeper initially. One thing is clear, using the brake pedal for a footrest is probably bad for the fuel efficiency.

Next month we look at some part of the brakes in more detail if I don't find something else to gab about.

Nelson Riedel -- nelson@buckeyetriumphs.org

Late TR Guy

The Continuing Adventures Of...



May 2002: By Bruce Clough (clough@erinet.com)

TPVDJBAT200508 Makes It Home- Oh What Have I Done?

There is another TR7 in the garage now, and the Concorde is sitting outside. Now how did this happen?



The Victim – Not A Pleasant Story

It happened because none of you folks would buy it, so I had to save it from the scrap heap, that's how! There – feeling a bit guilty now? No, okay, fine...on with the story

Long story short – guy and gal moving. Car has sat for 14 years in garage, needs to move it ASAP. Takes my \$250 offer. Moving it here was another thing...

I didn't want to bother Frank Ciboch again for a trailer – he was way too good to us getting the Backyard Buddy! I

decided to flatbed it over. Stopped by Thomas Towing & Shop on Col Glenn just outside the base. Set up the move for 0900 Saturday morning, going from Willow Mist Dr. in Dayton to Sutts Trail. They assured me it would be there at 0900.

0830 – Showed up at place car was at to ensure tires held air and it would roll.

0930 – No truck. Called shop, said that he had gone to get it, but since he didn't have a radio they didn't know where he was.

1000 – No truck. Called shop, said that he was surely in the truck and headed out.

1030 – No truck. Called shop, said he had to be almost there.

1100 – No truck. Called shop, they asked me if he was supposed to show up at "Willard Moss" or "Sits Trail". I canceled tow trying not to yell obscenities at the same time. Called up Sandy's Towing, set them up to pick car up between 1300 and 1500. Gave them detailed instructions on where to tow it.

1500 – No truck. Called Sandy's, said that they had a driver call in sick, was scheduled to be there in 30 – 45 minutes.

1600 – No truck. Called Sandy's, said he was on the road now heading toward Willow Mist.

1630 – Call confirming car was picked up.

1700 – Call from Sandy's asking where Sutts Trail was. Turns out Sandy's has a new map program that doesn't have Sutts Trail (built 1994) or Sieber Trace (built 1991) on it. I suggested they can their map program and use Map Quest!

1800 – Car arrives, dropped off, and fee paid.

So instead of getting the car home at 1000 I finally get it at 1800. What's eight hours! In my humbler opinion, don't try to save money going with part-time haulers, full time shops, go with a professional hauler! The cost is more, but it gets done!

The car itself is a 1980 Convertible TR7, white with tan interior. It's not a 30th anniversary edition like Inca (La-La), looking more like Dianne Ciboch's car with more rust and before she had it painted purple! The original plan was a parts car, but Alice suggested it would be put to better use as a daily work car for her. It could sit at school and nobody could hurt it much. That much was true! However, best laid plans on mice and men – on trying to start it I discovered that the motor was froze solid. 8 ft breaker bars would not budge it! On to parting it out!

Before I discuss the viable economic process of parting a car, I thought I'd go over the paperwork found inside. The prior owner kept records on the car, and this is the maintenance done to that point:

Year	Repair	Total Cost
1980	1000 Mile Service	\$ 7.00
1982	Rustproofing	\$ 158.00
1983	Tune-up	\$ 34.00

1984	Carb & Thermostat	\$ 45.00
1984	Repair Tire	\$ 7.00
1984	Overhaul Clutch Hydraulics	\$ 81.00
1985	Exhaust System	\$ 284.00
1985	Battery	\$ 58.00
1985	Tune-up	\$ 41.00
1986	Body Work	\$ 765.00
1986	Oil Pressure Sending Unit	\$ 69.00
1986	Water pump & Head Work	\$ 528.00
1986	Radiator Replacement	\$ 190.00
1986	Brake Shoes	\$ 65.00
1987	Two Tires	\$ 111.00
All	Misc parts	\$ 470.00
Total Cost		\$2,913.00

\$2900 for seven years of driving pleasure. This did not include normal maintenance like oil changes. In relationship to the worth of the car (\$9700 in 1980) he spent well near a third the purchase price in maintenance, well over any of our cars here at the Clough ranch...except for the Triumphs which would be pushing it had I sent them out to be fixed. Pays to work on you own cars sometimes...of course, one might say that if we didn't have the cars in the first place we'd be retired and living in Boca Raton by now...



Engine Compartment Before MVT Had A Bit Of Fun

As a parts car this thing was par excellent! It has a new water pump in it (\$320 from Victoria British – ka-ching) and new radiator (\$400 by VB – Ka-Ching!). I paid for the car and towing right there. I also grabbed some body trim pieces for the TR8 that are no longer made, as well as most of the interior panels that fit the TR7 (door, knee pads, back panel, rear deck carpet, etc.). I also saved the electrical stuff, gages, and trunk trim panels. Fuses? You bet, like the Grinch I took every last one. These will fit either the TR8 or TR7, and they both could use them! Lights? Took

all but the headlights since original good plastic is scarce and pricey.

It was at this point that our Spring tech session happened. I love giving a bunch of guys donuts and spanners, then setting them loose on some hapless victim. Piles of parts resulted. Then the feeding frenzy started with club members who needed parts! By the end the engine compartment looked like this:



Engine Compartment After We Had Fun

I would say it was pretty much gutted – even the head came off easily, and no broken head studs. A miracle if you ask me!



Miami Valley Triumphs Members Fight For The Good Parts – Can They Fit A Spit?

Voodoo Economics: eBay At It's Best

Say you have some junk parts, and an old hulk leftover from a parts feeding frenzy, and you need to get rid of it – fast. Where do you go? Easy, eBay. As with Mikey eating anything on that old Life cereal commercial, people on eBay will buy anything. So what did I sell? I sold things separate that I knew would fetch a decent price compared to the pain of boxing them up. This included:

1. NOS Inner Fenders I got with the car.
2. Carbs, air box, and heater pipe which attached to them.
3. Jack, tool kit (jack handle and lug wrench), owner's manual and tool kit bag.
4. All the emission control stuff, including the cat converter.

This left me with the rest of the car, which I listed separately. Now, I've never sold a car on eBay, so I was up for the experience (couldn't be much worse than towing)! As usual with my auctions, there was no reserve and the bidding started at 25 cents (when you know that the stuff will sell there's no use in sticking a high starting bid – it will make it there naturally). At the end of the actions, these were the results

Part	High Bid
Emission Control	\$ 60.00
Carbs	\$ 48.00
Jack & Tool Bag	\$ 57.00
Inner Fenders	\$ 104.00
Rest Of Car	\$ 237.00
Total	\$ 506.00

Not bad, and add to that the parts sales from the tech session (\$75) one comes up with a total of \$576 for a \$350 investment, and this doesn't count in the value of the parts pulled off and saved! The reason I'm writing this is to prove that there is a residual worth in your cars. If nothing else, someone on eBay will buy it! Don't throw it out or crush it!!!!

This Month's Technical Tips From The Wedge Email List

Steering Column Bushings

This month the first topic is the steering bushing that goes between the firewall and the column. If you've never replaced this, it's a bugger, believe you me. It's plastic, so one would think it would snap in easy. Looks can be deceiving, and this is certainly a case of that!

Robert Asked:

I've fought this new steering column bushing two times now and I still can't get the damn thing in - I've tried softening it in the microwave and I still can't get it in. Anybody give me some other advice or am I just going to have to bite the bullet and drill out the bolts on the steering column and pull the whole steering column out?

To which Bill replied:

I just changed my steering wheel bushing and will be writing an article with pictures in the next TR8CCA Newsletter (Sept). The TR8CCA gets so much great stuff from this list its only fair I share my draft copy of my write-up here as it looks like there is a need right now! I was struggling too to

get the Damn bushing pushed in and then discovered a neat trick and it pushed right in! BUT now the steering is a little tight seems there's no play, not up and down but in and out pushing and pulling the steering wheel. May have to give Woody a call :-) Its drivable and was hoping it would just loosen up a bit. Well, anyway here is draft copy of what will appear in the Sept. Issue of TR8CCA Newsletter without the photos, Bob Evans, I can email you the photos if you would like?

Steering Bushing Replacement

1. *Disconnect battery terminal because you will have key on to unlock the steering shaft*
2. *Turn key on all the way so steering lock disengages*
3. *Disconnect Steering Column U clamp under dash (Muffler like) closest clamp to steering wheel. (Not the clamp near the pedals) remove bolt all the way as it is keyed into a shaft detent it should fall down shaft and hit other clamp*
4. *Now remove bolt from first steering knuckle inside of firewall. Bolt closest to bushing. Bolt has to be completely removed because steering shaft has detent that bolt goes through.*
5. *Now go inside and pull up on steering wheel and should free itself from knuckle joint. If it doesn't pry a screwdriver into slot of knuckle and then try again. Steering wheel should pull up a 6-10 inches. Plenty of room to work on installing new bushing.*
6. *Now the fun part..... I tried various "puller" type things to try and pull the bushing into the hole with a turn of a screw but no success. I finally used others method, put a pan of water on the stove got it boiling and then brought to the garage and put bushing into the hot water and then tried pushing it into the hole. Still no luck, that is a tight fit for sure. I could get one edge started and almost get half of the bushing into the groove but no luck pushing the remainder in. Reheated it again & I finally got the top part in the groove and then inserted a screwdriver shaft into the center hole and used the rounded shaft to force down the lip by pushing down and moving it back and forth it popped right in. Getting it started with your fingers at the top and then using a rounded screwdriver shaft to press it in seems to be quite easy!*
7. *Now put the steering wheel back in the steering knuckle and make sure the indent in the shaft is lined up so the bolt goes all the way through. This assures that the shaft is in all the way and aligned correctly so the bolt goes through the knuckle. Then Put U Clamp back together under dash aligning the indent for this bolt too. This puts your steering wheel position right back to where it was before. (Well, almost!!! I think I am one tooth off in the steering knuckle spline shaft because Steering wheel is slightly off center, so maybe that bolt will go into the knuckle one tooth off ?)*

Wow, hope that helps. Qn with the next one:

Rusty Trailing Arm Connections

Don S wrote:

I just found a small rust hole where the trailing arm hooks up to the unibody. I removed the driver seat and found that the hole is at the seam where the floor panel attaches to the rear verticle piece. It looks as if the rust follows the seam all the way across the body. The good news is that there is only one weak spot.

My question is how have others fixed this area. I'm just thinking of just welding the seam shut. Any advice before I make a mistake would be greatly appreciated.

To which Rob replied:

I did the same repair last summer, and added gussets to reinforce the area directly above the control arms after replacing the small rusted area. I would cut out the offending thin area and add new metal rather than just rewelding the seam. Too much welding could make the repair brittle. The rest of the seam would probably be fine with a good scraping and some paint to prevent further rust.

While you have the MIG welder out, I'd recommend boxing the lower control arms and adding poly bushings, it was a big improvement.

My car is an early coupe with a Buick conversion and very little potential value to collectors. My repairs were carefully done, but would not fool anyone who was looking for them. If you have a Tr8, you might want to have it professionally repaired.

Next month I'll put in here a product review. I was going to do it this month, but the pictures were late, files were on the wrong computer, dog ate the paper, yadda, yadda, yadda...



Buckeye TRIUMPHS REGALIA

Golf Shirts –Outer Banks - 100% Cotton\$35.00

- Style 17434-Solid body color with Collar of contrasting color
 - Wine, with Navy Blue
 - Spruce, with Navy Blue
 - White, with Black
 - Navy Blue, with Green
 - Oatmeal, with Green

Style 17489-Solid body color with a striped Collar

- Spruce, with Blue Stripe
- White, with Black Stripe
- Black, with Red Stripe
- Red, with Blue stripe

T-Shirts- Lt Grey Cotton \$14.00

- BTC Logo - front
- Large Wreath Logo – back

Patch Embroidered Logo \$12.00

Buckeye TRIUMPHS Logo \$10.00
– Embroidered on your article

Select your favorite jacket, shirt or bag since the logo can be added to almost any cloth article at a cost of about \$10.00.

Send or bring your articles to Bob Mains. Turn-around is usually about 2-4 weeks. (Names or lettering can be added for additional costs).

Classifieds:

These classifieds are free to BTC members, given, of course, that they relate to Triumphs, and are for private (not business) use. No, you cannot sell that old couch here! We'll run classified ads for two months, beyond that you'll have to ask for an extension.

FOR SALE:

PARTS...PARTS...PARTS - Triumph and LBC parts available... New, Used & NOS... The Roadster Factory, Moss & Victoria British items at discount prices.

Many common parts in stock.

Doug's Parts 614-878-6373 Braden.13@OSU.edu
<http://www.triumphparts.com>