



news

www.PanteraClubNorCal.com

Volume 34

Issue 6

June 2007

PRESIDENT

Gary Kono
(831) 438-1458
GKono@yahoo.com

VICE PRESIDENT

Bob Benson
(408) 402-9806
RCBSons1@aol.com

SECRETARY

Mike Drew
(707) 452-9284
MikeLDrew@aol.com

TREASURER

Jim Kuehne
(408) 981-2770
dmoseley@kuehneconstruction.com

CLUB STORE

John Hansen
(307) 732-1818
jhansen@bresnan.net

LIBRARIAN

Sharon Renshaw
(925) 372-7021
KittyLuvr480@aol.com

RAFFLE CHAIRMAN

Roger Sharp
(408) 463-9442
PPRSharp@aol.com

NAME BADGES

Doris Britschgi
(408) 866-1677
RnDBrit@earthlink.net

WEBMASTER

Mark McWhinney
(650) 906-6275
msm@portata.com

**MEMBERSHIP
COORDINATOR**

Russ Britschgi
(408) 866-1677
RnDBrit@earthlink.net

**EVENTS
COORDINATOR**

Diane Dean
(408) 683-4861
deandm@sbcglobal.net

**MOTORSPORTS
COORDINATOR**

Larry Finch
(559) 281-3497
PCNCVegasTrack@aol.com

Minutes of Meeting 31 May, 2007

The meeting was called to order at 8:01 by the president. In what must be a PCNC record, *all* club officers were present! (Except for John Hansen, who lives in Wyoming, of course). Turnout was excellent, with 12 Panteras and a Mangusta in the parking lot (along with some other noteworthy cars including a 1957 Continental Mark II), and (approximately) 40 members were present.

New Members/Guests: The club welcomed **Dennis DeMarco**, who bought a fairly stock red 1972 Pantera L two weeks ago, with the strict intention of flipping it. He is looking for some advice and help to get it ship-shape before he sells it, but he confessed he's starting to fall in love with it, and may have to keep it! There was a happy reunion in the parking lot, as he used to know Jim Murch some 30 years ago!

Greg Taylor introduced his Significant Other of some 35 years, **Diane Silver**.

Changes To Last Month's Minutes: Change to the change: Diane Dean would prefer to be referred to as a 'her' instead of 'him'. Also, Gary Kono stridently defended himself, saying he did not 'oversleep' and miss the POCA board meeting. Instead, he goofed up and saw the time "9:30" and thought that was the ending time, instead of the starting time! Once he figured out his goof, he couldn't find the meeting!

Club Treasury Report: Jim wrote a whole bunch of checks since the last meeting, taking care of all the final track event expenses. He has not yet received the income from the club store sales, but the treasury is still healthy.

Club Store Report: Rich Boschert had good news and bad news. The good news was that he received a whole pile of inventory, and had many items on-hand. The bad news is that he had no price list! Las Vegas sales were down slightly from the previous year, owing to the fact that we had little in the way of 'new' inventory this year, but overall the event was still financially successfully.

Club Website Report: Mark had nothing new to report this month, but mentioned that the PCNC E-news is still going strong. Periodically, Mark sends out a mass e-mail to PCNC members to remind them of the upcoming meeting, upcoming events etc. If you are not receiving this e-mail and would like to subscribe, simply drop Mark a line at mms@portata.com.

Club Membership Report: Things are going smoothly on the membership front. Russ had hoped to receive a comprehensive listing of those people who worked the club store in Las Vegas, but alas, that didn't happen. So if you did put in any volunteer time on behalf of PCNC, please let Russ know.

Past Events:

Pre-Las Vegas Tech Session: The tech session saw a pretty good turnout, and plenty of work was done (although there were no A/C recharges, which historically was the impetus for this event, back in the day....) There was plenty to eat, and good times were had by all. Roger joked that he couldn't get rid of Larry with a baseball bat. Larry then stood up and told his tale of woe—his tow truck started falling apart like a soup sandwich about 150 miles from Roger's house. He had to slow down due to a terrible vibration in the driveline, and he arrived at 2:00 a.m. with the rear end housing glowing red hot!!!

Jim Kuehne then worked on it during the tech session, for 12 hours straight! He added oil to the (totally empty) rear axle, and rebuilt the entire driveline. One U-joint had worn away to half its original diameter. Larry made thank-you presentations (in the form of signed photos of him driving his Pantera at the track the following weekend) to Roger Sharp and Jim Kuehne for their help with his truck, and to Jim Murch for manning his tabletop parts display in Las Vegas.

Las Vegas Track Event: This was Larry Finch's first year 'flying solo' without any input from Bill Santos, but he said Bill's mentoring and training helped him make it through. Roger and Jim were the heroes of the event, standing in the hot sun all day long, and Karen and Charlie ran the administrative side perfectly. Mike Drew spent the morning crawling around underneath other people's cars, performing safety inspections, and in some cases, finding and correcting safety problems.

The event saw 45 cars on the track, of which 34 were Panteras. Six people ran for the first time utilizing the newcomer's discount plan. The weekend was remarkably free of incidents; Larry never needed to go out in his tow truck (although Mike Drew's Pantera did sputter around the track and subsequently conk out with a clogged fuel filter just as he entered the pits).

Larry Stock came in second place in the race, but was the first Pantera (behind Alan Foster in the full-race Mustang).

Roger said their day was made more entertaining by a female passenger who tried to go on-track wearing a miniskirt. They stopped her and sent her back to get some proper clothes; she went to a nearby trailer, but still fully in view, whipped off the miniskirt, down to her skimpy skivvies, and jumped into a driving suit. She did a few laps, and when she came back, she jumped out of the suit but couldn't find her miniskirt!

Roger and Jim enjoyed the show....

Gary Kono said that the most noteworthy event that took place was the fact that after 17 years of Fun Rally attendance, Mike Drew finally drove his Pantera to Las Vegas, which most people had never seen, and many doubted existed!

Friendship Day Car Show: The show was very well-organized, and on a beautiful site. De Tomaso cars were fortunate enough to get the best spot, near the Ferraris. Three Panteras and a Mangusta were on display, among 500-600 cars in total. The Pantera guys were holding a spot for a snoozy Steve Liebenow, when a Ferrari owner tried to horn in. They told him that they were trying to hold the spot for a De Tomaso Mangusta, and his eyes widened. He very happily gave up any claim to the spot, spoke of the Mangusta in reverent tones, and then idled off to find another place to put his car!

Reno/Tahoe Track Event: The Reno/Tahoe Panteras track event (which was leveraging an existing open track event run by Doug Gale, a Mangusta owner) was a mixed success, as three of the four Panteras wound up on the trailer by the end of the day. Larry Stock discovered moisture spraying into the cockpit after just four laps, and discovered that one of his heater hoses in the engine bay had sprung a leak and was spraying the firewall and back window with water! He created a single bypass hose and sorted that out, then returned to the track.

Driving rather too aggressively, he found an off-camber corner berm on a blind corner and drove straight over it, getting a full four feet in the air. He landed hard, bent the chassis (!) and bent an A-arm. D'OH!

Not a problem, he thought. He took his mangled Pantera back to the shop and returned with his '57 Lotus Super 7. He had a lot of fun for four laps, and then the car quit, supposedly because of an electric fuel pump problem. He moved the pump from the hot engine bay back to the trunk, replumbed it and rewired it, and the next day made exactly one lap before the fuel pump wire got wrapped up in the driveshaft and got ripped out! He then re-routed the wire inside the cockpit instead of underneath the car, and got in two more laps before the car quit again, this time for good.

Steve Rovarino had the impeller break off on his water pump, so that the pulley was still turning and everything looked normal outside, but inside the housing, the pump, wasn't. This wasn't an offshore no-name pump either, but rather a genuine Ford Motorsport unit. Julian Kift was afraid to run his new GT5 both days, so he ran his old Pantera on the second day. Although most people had had enough by the end of the day, he went out for 'one last session', and blew the motor!

Mark Tumbarello, on the other hand, had driven up to Reno from Modesto, ran without incident and then drove back home. Well-done!

Silver State Open Road Race: There were four Panteras entered in this year's event. Jason Eaton won the car show with his beautiful yellow Pantera. There were no incidents during the race, although the day before during a timed mile event, a race-prepared Viper coupe crashed at 202 mph and was destroyed—fortunately the driver was unhurt. The cause of the accident was that the driver, at over 200 mph, was fooling around with his GPS instead of driving!

Also, some dirtbag posted an E-mail to the De Tomaso E-mail forum claiming that Dennis Antenucci had crashed and been killed. It was several hours before it was positively determined that this was a cruel lie. In fact, Dennis ran at an average speed of 151.5 mph in the 150 mph class, and thus was well down in the class standings (but he finished!)

Eliot Kushner was humming along when airflow caused his front trunk to pop open, sucking out all his luggage including his wallet and cell phone! Deciding that the desert was an awfully big place, and it would be difficult to find them afterwards, he decided to stop and retrieve his gear, thereby earning a disqualification for stopping on the course.

Upcoming Events:

Vintage Mustang Owners of America/Nor-Cal Shelby Club Car Show At De Anza—16 June: PCNC member Tom Hasenberg is the head honcho of this event, and will be hosting a special display for PCNC members. Registration is now \$40. The Auto Tech school will be hosting a BBQ. See their flyer elsewhere in this newsletter for more information; you can also register on their website, at www.mustangassociation.net.

Concours de la Garage — Date TBA: Diane is still working out the details for a possible Concours de la Garage, but is leaning towards July 21st. There are still some issues to be worked out, including insufficient parking near people's homes, etc. Watch for a short-notice announcement and flyer in next month's newsletter; also, prepare to receive an E-blast from Mark McWhinney once the details are hammered out (see above if you aren't already receiving them!)

Monterey Historic Races/Concorso Italiano — 16-19 August: As of now the hotel has given us 22 rooms, with 16 of those rooms already reserved. Currently they are open to POCA members only; at the June meeting they will be further opened to the public (i.e. friends and non-POCA members). Diane is taking \$100 deposits right now; final room rates should be in the same neighborhood as last year. The theme for the dinner will be kept under wraps until the day of the event.

The Concorso Italiano folks experienced computer glitches, and so they have extended their discount entry window to June 15th. If you haven't already signed up, do so now!

Tesla Tour?: Garth Rodericks' brother works for Tesla Motors, the high-tech company that is producing the world's first serious electric-powered sports car (built on a Lotus Elise chassis). He can organize a tour of the manufacturing facility if there is sufficient interest.

Club Business: There was no club business to conduct.

Buy/Sell/Swap:

Gr4 Taillights Available: Larry Finch is pretty much the sole source for Gr4 taillights, at least in the western half of the USA; the Pantera vendors all use him when they need to get some.

He has a brand-new, never-used set of lights available for \$500, as well as numerous used sets in good-to-excellent condition, and also replacement lenses etc.

De Tomaso Magnamat: Chuck Melton had a magnetic mat imprinted with the De Tomaso logo for sale.

News, Clues and Rumors:

Mangusta Adventures: Steve Liebenow made it to Las Vegas, and his Mangusta was awarded the Gary Powley award for originality. He almost didn't make it, as his ignition switch completely sizzled while he was down in southern California, and he had to do some serious bodging to get the car running again.

More Mechanical Maladies: Trevor Fugere reported on his first-ever run to Las Vegas in his newly purchased Pantera. The engine began making screeching noises on the way there, but stubbornly refused to make a peep whenever he had a passenger on board to help diagnose the sound! Finally, with Las Vegas in sight, the alternator seized, which broke the belt, which caused the water pump to stop turning and the car overheated. AAA flatbedded it to the hotel parking lot, and he spent the entire next day removing and replacing it. He bumped into Brett Santos while having breakfast that day, and issued the lament that he needed to find some tools as he hadn't brought any. Brett went to Las Vegas without a car, but with a complete toolkit!

Jim Murch Takes One For The Team: Meanwhile, Jim Murch was busy helping everybody out. Jim's Pantera sputtered shortly after he left home for Vegas, so he decided discretion was the better part of valor, and took his Toyota SUV. He then became the PCNC fixit man, spending five hours working on Mark Tumbarello's alternator problem, then most of the next day helping Trevor. When asked if he had ever diagnosed the problem that had felled his own car, he quipped, "Well, I now know a lot of things that it isn't!"

Mike's Troubles In Paradise: Mike Drew elaborated on his own mechanical problems. His Pantera, which has been off the road for the better part of 17 years, was making its inaugural run to Las Vegas. It drove just fine, and on the first morning of the track event, a knowledgeable POCA member super-tuned the carburetor for him. Gray Gregory flogged the car mercilessly on the track and it ran like a champ. On the second day, however, it sucked the fiber 'sock' that De Tomaso put on the end of the fuel pickup, and the fuel filter clogged. He was able to take it apart and clean it, but afterwards the car still didn't run well; the brief time spent running with a clogged filter had wiped out the fuel pump. Larry Stock had just finished packing up his trailer when Mike asked him if he had a 351C fuel pump, which of course he did, and which of course was buried in the very center of the trailer!

Mike had a lot of help from the foreign POCA contingent, in the form of POCA members from Australia and Belgium (and Houston), and with the new pump and hoses installed, the car fired right up and made it back to the hotel (and subsequently home) without a hitch.

When It Rains, It Pours: Larry Stock had just returned home from the tech session, and while driving his Pantera home from work on the Monday, the engine, with 100 miles on it, simply exploded, throwing connecting rods through the oil pan! He figured he was through, but a bunch of Reno/Tahoe Panteras guys took time off and came over on Tuesday and performed an engine change, reinstalling the 12-year-old motor that was in the car when he bought it. He left

at 2:00 a.m. Wednesday morning.

He did quite well in the race, earning pole position. His main competition was a super-duper turbocharged Lotus Elise, with 400 hp in a 1300 lb car. He drove most of the race alone, and backed off due to the high (140 degrees) surface temperature of the track, but on the 8th lap the Lotus caught up to him. They went down the front straight side-by-side at 110 mph, and remained side-by-side all the way through turn 1 and turn 2. The Lotus driver later said that they were only inches apart, and that he could have adjusted Larry's side view mirror if he wanted! The Lotus had on-board telemetry that said they were both pulling nearly 2 lateral Gs at 85 mph through the corners.

Eventually Larry let the Lotus by, then re-passed him in a corner and took the win!

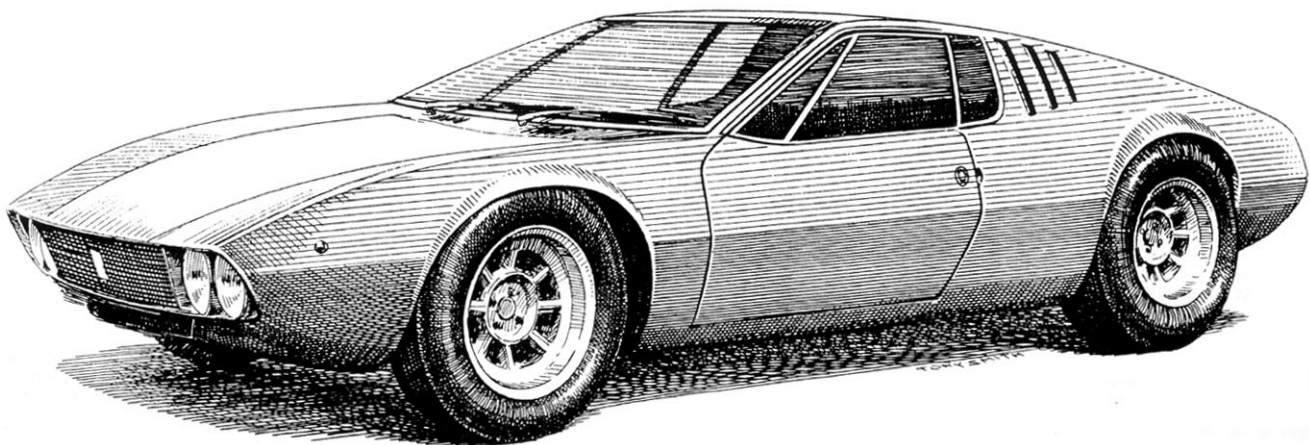
Doug's Pantera Makes The Scene: Doug Abadie's aluminum-Chevy-into-Pantera project has been documented in a couple of prior PCNC newsletters; this evening saw it making its first appearance at a PCNC meeting. His car got lots of attention both before and after the meeting!

Driving For Dinner Raffle: After much confusion, Steve Liebenow was the winner. The number on his ticket happened to read the same way both right-side-up and upside down!

Raffle Results: Roger and Brett passed the hat and doled out the tickets, with the following results:

Meguir's quick detailer — Brian Bernard
California Duster — Larry Stock
Simoniz tire black — Brian Bernard
Fast Orange hand cleaner — Rich Boschert
Red Line cap and oil funnel — Brett Santos
Pantera video — Peter Kovacs
Pick tools — Garry Choate
Dropped parts grabber — Bob Lucas
Armor-all — Bob Benson
Panteras by Wilkinson T-shirt — Garth Rodericks
Bottle of wine — Diane Silver, Curt Hall

The meeting was adjourned to the parking lot at about 9:30.



De TOMASO MANGUSTA

MEMBERSHIP NEWS

New (and Returning) Members for June:

Dan and Annie Lem of Concord. You may remember Dan from our April meeting. He was looking for a good Pantera at the time, and now POCA informs us that he has joined our club. Dan and Annie recently drove to Reno, and purchased an excellent Grabber Blue '73 Pantera. Way to go, Dan!

Mark Manoogian of Fresno. Mark is returning to PCNC after almost ten years of absence. At that time Mark had *three* Panteras—one white, one yellow, and one black and gold. I remember meeting Mark on my first trip to the Las Vegas Fun Rally back when only trucks had wheels bigger than 15 inches in diameter. How long ago could that have been?

Gary Spratling of Tiburon. Gary also is returning to PCNC after a little more than ten years away. He is the original owner of a lovely red '72 Pantera that is in the process of getting a Roush Racing all-aluminum small block 427 CID engine. Also the engine compartment is getting tidied up a bit. Look for this car at the Concorso Italiano as the completion date is set for August 1. Welcome back, Gary.

Dennis Wilson of Modesto. Dennis, having been a member in the early '90s, rejoined after much too long an absence. I have him down as owning a white '71 Pantera with the appropriate license plate of GET IT. Why are all the good vanity plates already taken? Welcome back to PCNC. We have just got to have a get-together in the central valley some time. Larry, Mark, Curt, Peter: let's do it!

June Membership Anniversaries:

We congratulate the following persons for the indicated years of continuous membership in the Pantera Club of Northern California:

Eliot Kushner: twenty years

Junior & Chris Wilson: eighteen years

Brian Bernard: fifteen years

Cheryl Pastore & Les Morgan: thirteen years

Chuck & Suzie Melton: ten years

Steve & Merry Dalcino: eight years

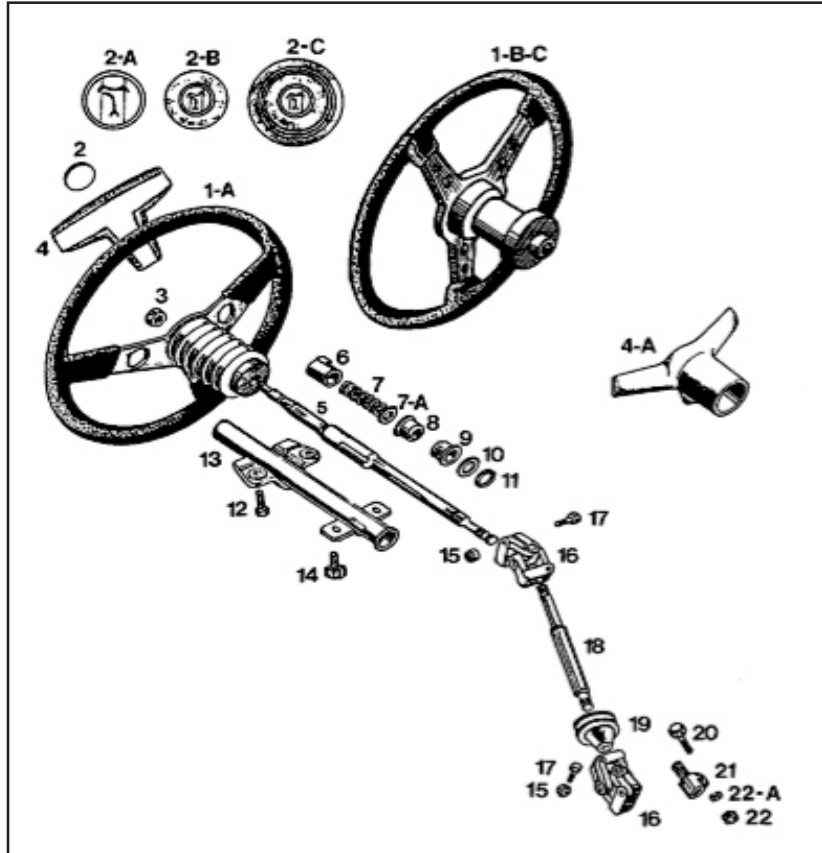
Mike Paul: five years

Steering Solutions

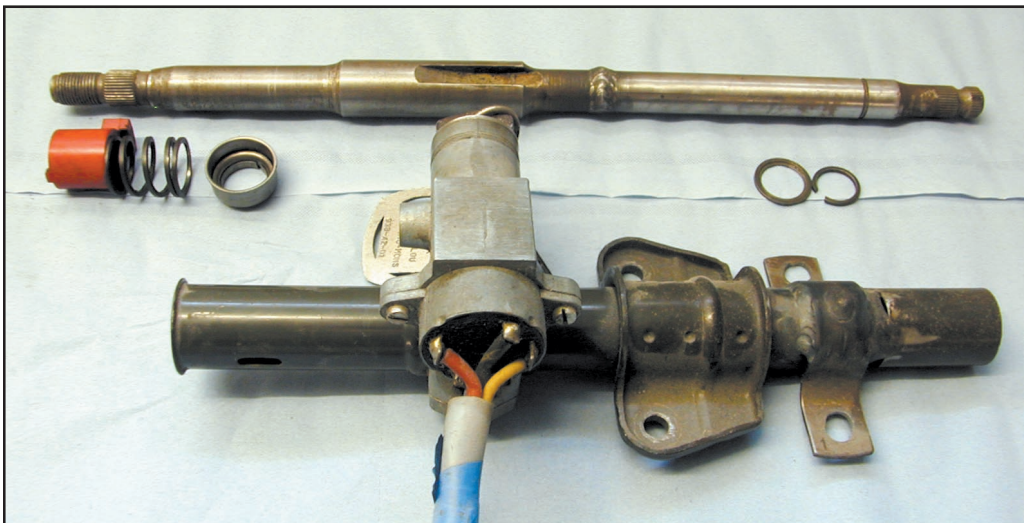
Story and Photos by Mike Drew

Among the many fine attributes the Pantera was imbued with was the steering. Contemporary road testers raved about the light, precise steering, one even going so far as to say that, "...you can drive around ants at 80 mph". Unfortunately time has taken its toll, and some Panteras have suffered degradation to their steering systems, often slowly enough that the owners haven't noticed. Fortunately, some of the Pantera vendors have identified the components that suffer from wear and have created new and improved parts to rectify the situation.

The most well-known condition involves the bushing on the passenger side of the steering rack. On the driver's side, the rack and pinion are held in close contact by means of a spring-compressed 'shoe', but on the passenger side, the rack slides through a bushing consisting of a stamped steel housing filled with a nylon bushing. Over time, this bushing wears out, which then creates unwanted play in the system, which manifests itself as up-and-down movement of the rack within the housing, which in turn leads



This drawing from the De Tomaso parts book illustrates each component in the steering linkage, upstream of the rack itself



This is the steering column disassembled; the steering wheel would be towards the left in this photo. The turn signal cam, spring, and upper roller bearing are on the left, with the snap ring and washer on the right. Not pictured is the nylon lower bearing, which is inside the tube, retained by the three punched-in portions just to the right of the clamp

to in-and-out movement of the passenger wheel. Most racks start to show wear after about 30,000 miles, and the bushings are totally shot by 60,000 miles. Since this is a well-known condition with a well-known fix (the stock bushing is either replaced by or augmented by an oillite (oil-impregnated bronze) bushing), I won't go into much detail here. The process has been

documented in the POCA newsletter several times in the past, and a comprehensive step-by-step discussion can be found on Mike Dailey's website, www.panteraplace.com. The bushings normally cost about \$35-40.

It is worth mentioning that the act of rebuilding the rack can lead to unwanted play if the tie rod isn't properly tightened when the rack is assembled. I recently encountered a car whose rack had been 'professionally' rebuilt; the rebuilder failed to properlypeen the locking ring, and within a very few miles, the tie rod started to unthread itself from the end of the rack; fortunately the problem was discovered and fixed before the steering came apart completely!

Although this is one well-known source of imprecision, there are many other components that can use attention. Underneath the dashboard, above the pedals, the steering column has a male/female slider arrangement, where the steering column is intended to collapse in the event of a crash. There are two nylon clips with

raised humps attached to the male portion, which are designed to be a press-fit inside the female portion. Unfortunately, with age and use, these nylon clips can wear out, and the female slider can distort, which results in a fairly noticeable amount of play. The steering wheel can be rotated a few degrees before the slop is taken up and the rotational motion continues downstream to the rack.

Dennis Quella recommends tack-welding the two halves together (an alternative if you don't have welding equipment is to drill them and bolt them together), to make them rigid (this presumes you wear seat belts and won't ever contact the steering column in the event of a crash). I elected to bolt mine together, and let me tell you, it is no picnic trying to drill those holes. The pieces are made of hardened steel, and I wore out several drill bits in the course of drilling the holes. Once done, however, a nut and bolt locked the two halves together solidly, eliminating any source of play.

A better solution, one which retains the functionality of the collapsible column, is to replace the nylon clips with new ones from stamped steel. Panteras by Wilkinson sells these replacement clips, and although they are rather expensive at about \$15 each, they are highly effective. In practice, they are quite a bit too large to enable the two halves to fit easily together, which is a good thing. Once the clips are installed, the male slider has to be hammered into the female half (using a plastic or rubber mallet), which deforms the clips just enough to allow the halves to slide together without allowing any additional freedom of movement.



The male and female slider portions of the steering shaft system (these have been freshly cad-plated), along with the original nylon bushings (the two circular raised spots on each side are almost entirely worn away), and Wilkinson's stamped steel replacements

I have been astounded to see how many Panteras have this next problem. The steering shaft under the dash is supported within a steel tube; at the top is a roller bearing, and at the bottom, a solid nylon bearing which is pressed into an indentation several inches up from the end of the tube. A steel washer is secured by a snap ring on the steering shaft, and rides against the bottom bearing. Up top, there is a turn signal cam, a spring, and a spacer.

When a steering wheel is overtightened to the point where the spring fully compresses (coil-binds), the whole shaft is drawn up in the tube, and at the bottom the steel washer actually smashes and shatters the nylon bearing, leaving the bottom of the shaft unsupported in the tube. Almost ever Pantera I've ever seen fitted with a non-Momo aftermarket wheel has this problem (the Momo hub appears to be the proper length to keep this from happening).

In fact, when this happens, the spring at the top of the tube presses the assembly back towards the driver until it is stopped from moving any further by the U-joint hitting the bottom end of the tube. If the U-joint was removed, the whole assembly upstream would pull right out of the tube. Owners can test for this problem easily; there should be visible space between the top of the U-joint and the end of the tube, and pressing forward on the steering wheel should result in almost no play. On cars with a broken bushing, the wheel is free to 'boing' in and out as much as a half inch and the U-joint rests firmly against the tube. Besides the imprecise location of the steering wheel, the U-joint



Dennis Quella has machined a new oillite bearing to replace the often-damaged nylon bushing in the bottom of the tube



A snap ring positively engages a steel washer (which indexes on the snap ring); the other side of the washer rests against the bottom edge of the bearing



It is important to sand or polish the steering shaft smooth, so the bearing can spin freely upon it



Once the snap ring and washer are installed on the shaft, thoroughly lubricate them with grease or anti-seize

scraping on the bottom of the tube creates much unwanted friction, and interferes with steering smoothness.

Pantera Performance Center has created a replacement bearing, made of the same material as the steering rack bushing. With the tube removed from the car and dismantled, the remnants of the old bearing are driven out, and the new one is then installed. It is a press-fit, and normally needs to be hammered into position using an appropriately-sized socket and extension as the press tool. Test-fit it on the shaft to make sure the shaft passes freely through it, and polish or sand the shaft if required (pay particular attention in the area on either side



A deep socket is used as the drive tool, to drive the new bearing into the steering column tube until it comes to rest against the stops

of the indentation for the snap ring), then use heavy moly grease when assembling it. This bearing costs only about \$16.

At the top of the steering column tube, the shaft passes through a roller bearing. Inexplicably, the inside diameter of the bearing is 0.770" while the outside diameter of the shaft is 0.745", which means that even if all else is good, there is still noticeable play, with the wheel and column free to move up-and-down and side-to-side. Fortunately, Pantera Performance Center also has an upgrade in the form of a tapered, stepped bushing. This bushing is a tight fit on the steering column (in fact it may need very minor sanding to fit over the column), and its curved profile indexes upon the curved surface of the stock upper bearing, centering it perfectly. In practice, the steering wheel hub, turn signal cam and spring are removed, then the bushing is simply slid down into position, and the removed parts are reinstalled. This now positively locates the steering shaft in the center of the bearing, while allowing the bearing to turn freely. This little gem is only about \$7.

Although it might be possible to conduct these modifications without removing the steering column tube from the car, normally it's a good idea to do so. The tube is secured to the chassis structure with four bolts (oddly, two of them use 13mm hex head bolts and the other two are metric allen bolts). The upper bolts pass through 'ears' welded to the sides of the tube, while



An original steering tube upper bearing on the left, with a new replacement bearing on the right. The machined aluminum centering spacer slides over the top of the steering shaft, and indexes on the curved radius of the bearing, centering the shaft perfectly

the lower ones pass through a clamp which is held to the tube with a single spot weld. On virtually every Pantera I've seen, that spot weld has broken, which means that the whole steering column is free to move around. The solution is to seam-weld the clamp to the tube. As the clamp is very close to the bottom (nylon) bearing, if you don't remove the bearing first, the heat from welding will melt it, leaving quite a mess on your hands!

Even when the tube is rigidly attached to the chassis, and is properly supported at both the top and the bot-

tom, there can be unwanted movement, caused by flexing of the supporting structure. Particularly on early cars, the structure under the dash was notoriously under-engineered, consisting of a poorly supported sheetmetal box. Enormous gains in rigidity can be gained by simply welding a pair of supporting strut braces between the back of the box, and the 'firewall'. Triangulating this structure will make it rock-solid. Of course this is best done with the entire inte-



The mounting bracket for the steering column tube is held in place with just a single spot-weld in the center of the bracket; on this car, as most cars, this weld was broken. This bracket was seam-welded along its entire length. Note the indentations on the left which locate the bottom bearing. Be sure to fully remove the remnants of the nylon bushing before welding the bracket, or the heat will melt the nearby bushing and make a real mess. (Don't ask me how I know this!)

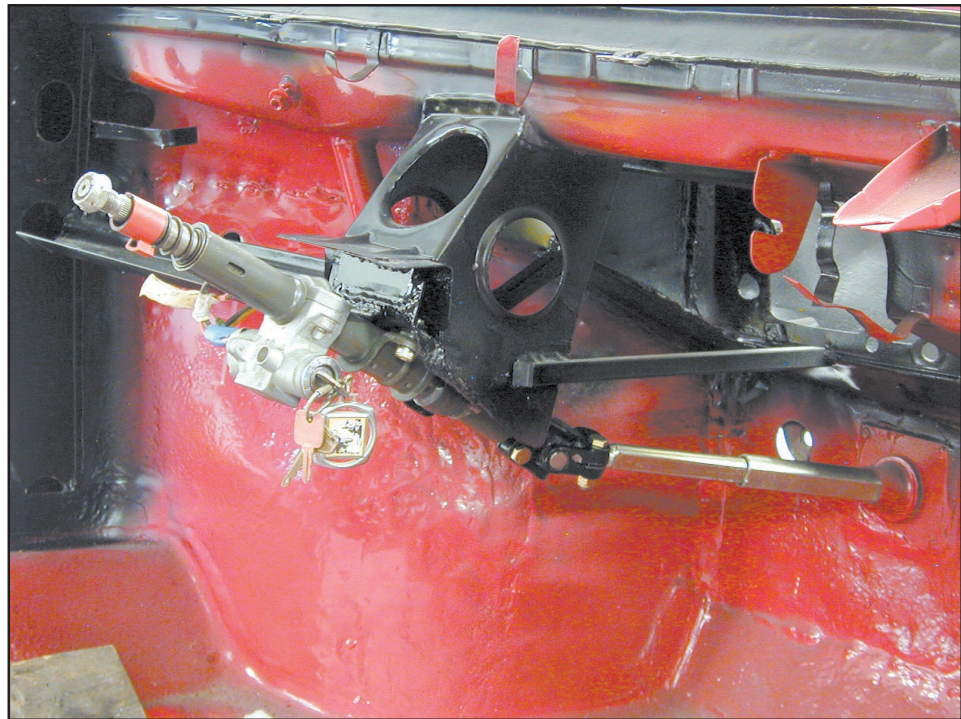
rior removed from the car, but if caution is exercised, it can be done with the car assembled. When routing the struts, ensure that they will clear any components that aren't installed at the time, such as the pedals and pedal support.

I had performed all of these modifications to my own car over the years, and was less than pleased to see that it still had sub-standard steering, which manifested itself in a constant shake or judder at the wheel. With the help of an assistant who gently turned the wheel back and forth to take up the slop while I inspected it from underneath, I discovered that the lower U-joint was dramatically worn internally, and allowed enormous amounts of rotational movement before transmitting that movement to the downstream components (this was the only portion of the steering system I hadn't touched yet). Also, I was shocked to discover that whoever had assembled it had stripped the pinch bolt, so that it was rattling loose on the splined shaft! Fortunately I happened to have a spare U-joint and was able to change it out.

I now wonder if the fact that the entire steering assembly was bolted solid contributed to the failure of the U-joint; any shocks from chassis flex which would

have been absorbed by in-and-out movement of the slider would now have to be taken up by the U-joint. Although the quality solution would probably be to dismantle the male/female slider and replace the through-bolt with Wilkinson's clips, in the short term I have elected to simply use a smaller-diameter bolt. This will clamp the inner and the outer halves together to prevent rotational movement while theoretically affording the opportunity for slight in-and-out movement.

I am pleased to report that after performing all these minor upgrades to my car, the steering is absolutely superb, easily on par with a Lotus, which is known for its steering precision. Best of all, all these modifications can be performed in a single day, with a parts cost of only about \$65. It's the best \$65 you'll ever spend!



This photo shows the steering column mounting structure on a very early European pushbutton Pantera, #1256. The sheetmetal box was completely unsupported and very flexible; vigorous driving would see the whole steering column moving around. Note the two reinforcements made using half-inch steel tubing (the second one is visible by looking through the hole on the side of the box). These two tubes made a tremendous improvement in rigidity. Later cars had a sturdier arrangement from the factory, but still benefit greatly from reinforcement



The overhauled and blueprinted steering column, ready for installation in the car

CAR REGISTRATION

30th Annual VMOA Car Show in conjunction with

Nor Cal SAAC - June 16, 2007

(Please use a separate form for each vehicle registered)

Name: _____
Address: _____
City: _____ State: _____ Zip: _____
Day Phone: () _____ Evening Phone: () _____
Email address: _____

NOTE: I hereby understand that I am responsible for my automobile and its contents, and agree to release from liability **Vintage Mustang Owners Association, Nor Cal SAAC** and De Anza College (including its officers, agents or employees) for any damage, injury, lost or stolen property incurred during this event. I understand that I must have valid insurance for all street legal cars on the day of this show.

Signature: _____ Date: _____
Car insured with: _____
Policy No: _____ Expires: _____

Registration form will not be accepted unless all fields in this box are completed and signed.

Please provide the following information

Year of Production: _____ Body Style: _____
Color: _____ License Plate: _____

Please check ONE category below:

Car Show Entry Class entered: 2500 (Panters)
(See class descriptions for proper classification)

OR Car Corral Entry (Fords & Mercurys for sale)

CAR REGISTRATION (cont.)

30th Annual VMOA Car Show in conjunction with

Nor Cal SAAC

Club Affiliation (if any): _____
How many miles will you drive to our show: _____
Medium _____ Lg _____ X-Lg _____ XX-Lg _____ XXX-Lg _____
Additional T-shirts: Med. _____ Lg _____ X-Lg _____ @ \$15 ea.
XX-Lg _____ @ \$15 ea.

First Car at \$30.00 each* (if postmarked by June 6th) = \$ _____
Additional Car(s) _____ x \$20.00 ea. # (postmarked by June 6th) = \$ _____
Number of Car(s) _____ x \$40.00 each* (after June 6th) = \$ _____
Car Corral (Cars for sale) _____ x \$20.00 each = \$ _____
Total number of Additional T-shirts _____ x \$15 each = \$ _____
(In addition to the one included in your registration fee)
TOTAL DUE = \$ _____

**** NO REFUNDS ****

*One T-shirt included with indicated registrations.

#T-shirt not included with discounted registrations.

NOTE: Show T-shirts purchased the day of the show will be \$15.00.
One check for car registration and T-shirts is sufficient.

Please send these forms along with a check payable to VMOA:

Vintage Mustang Owners Association

Attention: Registrar

P.O. Box 5772

San Jose, CA 95150-5772

If you would like to pay with PayPal, you can register on our website at:
www.mustangassociation.net

A confirmation will be sent via postcard provided registration and payment are received prior to June 1st.

NEXT CLUB MEETING

**THURSDAY, June 28, 2007
8:00 P.M.**

**COCO'S RESTAURANT
1209 OAKMEAD PARKWAY
SUNNYVALE, CA
(Take Lawrence Expressway South Exit off Highway 101)**

UPCOMING CLUB EVENTS

June 16 ————— VMOA/Nor-Cal SAAC Car Show (Tom Hasenberg)

July TBA ————— Concours de la Garage (Diane Dean)

August 16-19 ————— Monterey Historics Races Weekend (Diane Dean)

REMINDER — NEWSLETTER ARTICLES DUE BY 15th OF EACH MONTH

www.PanteraClubNorCal.com



Russ Britschgi
143 Carlyn Ave.
Campbell, CA 95008