



SAN DIEGO MIATA CLUB NEWS



VOLUME 1 NUMBER 7

NOVEMBER 1996

A CHAPTER OF THE MIATA CLUB OF AMERICA

UPCOMING EVENTS



November 19

Wheels 'n Meals

Boll Weevil



November 24

Fall Picnic Tour



December 14

Holiday Party

Key to Icons



Wheels n' Meals (Social)



Fun Run



Internet



Tech



Autocross

From the Editor

Changes: Past and Present

A couple months or so ago, I saw Mark Jordan (one of the original Miata designers) at a Concours D'Elegance in Los Angeles and we (or at least I) got to talking about the upcoming makeover for the Miata. I mentioned that I had met with Mr. Sato, the man in charge of the Miata exterior, who also did the body for the current RX-7, and how some of the RX-7 cues might be incorporated into the next Miata. Mark alluded that some of the curves from the RX-7 and prototype RX-01 doors will find it's way into the Miata doors. There probably won't be any frame changes till the year 2000. So most changes you'll see will be just cosmetic. The pop-up lights might be replaced by covered lights.



My hope is that the Miata won't go the way of the 240Z, RX-7 and Supra. The original designs were simple, fun cars that were inexpensive for what you got. In their last incarnations, the 300ZX, RX-7, and Supra have very little in common with their predecessors. Great handling and fast cars, to be sure, but they lost their original concept along the way. Simple, fun and inexpensive no longer entered the equation. Is it any wonder the Miata still does well in sales, and the others are being discontinued?

Sure more power would be nice, but then you need to beef up the frame and transmission to handle it. But then you need more power to counter the added weight, and so on. In the end you get a really fast handler for \$40,000 like the RX-7, which no one wants to purchase. When someone looks at that price, a Porsche looks like a bargain. I'd rather see the Miata discontinued in its current form than carry on a name as Ford did with the Thunderbird.

As you may or may not know, the Miata 1.6l engine came from the Mazda 323 turbo and the 1.8l engine is from the Protégé. When the Miata inherited the 323 engine, it also inherited the crankshaft design. If you have a 1990 or first half of 1991 model Miata, you have this crankshaft. The nose on these crankshafts are prone to breaking off, which means you get a new engine (after all costs are considered). The breakage usually happens not too long after a timing belt service is done. On the crankshaft, there is a chamfered end square key that secures the pulley against the crankshaft. This key looks like it can be pushed in from either end, but there is only one way it can be replaced correctly, and that is with the chamfered end going in first, with the long side on top. In other words, put the key in exactly in the same orientation as it was removed. Make note of its orientation when removed. If someone else does it, firmly remind them to take proper note of the key's orientation upon removal. If it is replaced incorrectly, the pulley can wobble against the crankshaft. This warps the key-way and eventually causes the nose of the crankshaft to break off. If the key is replaced correctly and the crankshaft bolt torqued correctly, the engine will be fine.

The crankshaft was redesigned for the latter half of the 1991 model. The 1.8l engine has this newer design. You still need to replace the key in the proper orientation, but the nose is less prone to breaking off. I don't mean to alarm anyone, but

CONTINUED ON PAGE 2



you need to be aware of this design point that is extremely critical. Mazda customer service should have known about this for years, but they deny the problem (and they wonder why Mazda's sales are down). Jack diLustro has found his pulley to be wobbling against the crankshaft. The work was done by a Mazda dealer, which employs factory-trained technicians. So this point must be hammered (no pun intended, well maybe a little) home to whoever does the timing belt service. For reference, see page 36 in the 1996 Spring issue of the Miata Club Magazine.

On a lighter note, a few of us gathered at Tony and Mary Beecher's house to do some suspension work on their car, as well as Rich Taylor's Miata. Tony put in some Eibach springs, Jackson Racing anti-roll bars, and Tokico HP shocks. His setup is very similar to mine; I have the same springs, but Motorsport bars and Tokico Illumina shocks. Both of our cars rub in the front wheel well. Two other members are using similar setups, but they don't have any rubbing. After talking to an Eibach representative at the last autocross at the stadium, he said that the full bump

stop must be used, even with lower springs. Sure enough, the cars that weren't rubbing had their full bump stops. When Tony and I did ours, we followed the MCA directive and cut off the lower 3/4" of the bump stop. Seems this is very, very wrong. So next week-end, we'll gather again, and put in new dust boots (bump stops are integrated into the boots). I'll let you know how it goes, but I'm sure that will solve the problem. So if you put in new shocks or springs, get some new dust boots as well from Mazda, as they tend to fall apart after 60,000 miles. They are about \$20 apiece, but can help maintain the life of your shocks. See you on the twisties...

—ROBERT "JTBOB" HOLLAND

The Shock Troops – NevadaBob, Rich, Tony, JT, Shawn, Ken, John, Mark and VoodooBob



PHOTO: ANTHONY (NEVADABOB) WILDE

So What's Going On with Those Crankshafts?

What Is This I Hear About Broken Crankshafts?



There have been reports of broken crankshafts by about 1% of Miata owners. The problem is confined to 1990 and early 1991 cars. Difficulties are related to the crankshaft nose, keyway, cam drive sprocket, or pulley bolt. Failures are often precipitated by the removal of the pulley bolt and cam sprocket to facilitate front crankshaft seal replacement. In the past, we recommended renewing the front seal during timing belt service as preventative maintenance. Now, it would seem prudent to leave the pulley bolt undisturbed provided the seal is not leaking. Luckily, it is not necessary to remove the bolt and sprocket in the course of regular timing belt service in 1990 and early 1991 cars.

Sounds Fairly Critical

It is. This malfunction renders the car inoperative. Replacement of the crankshaft requires removal of the engine. The crankshaft costs about \$450. Miscellaneous parts and labor must push the repair into the neighborhood of \$1500.

The Crankshaft Must be Replaced?

Your choices are to replace the crankshaft, substitute a nice used engine from a salvage yard, or install a new factory short block. Generally the least expensive alternative depends on each individual situation. Machine shop repair

of the crankshaft is not unheard of. I suppose if you found a really expert shop...if you are unemployed...or living in a third world country.... Well, I don't want to hear about it.

Why Does It Break?

Typically, the key wears the keyway slot in the crankshaft nose. Worn keyways are not repairable. In other cases, the pulley bolt will fail to stay tightly screwed to the front of the crankshaft. Insufficient tightening torque upon assembly is an obvious cause. Another less intuitive failure is excess torque can stretch the bolt which causes looseness. In some of the incidents, inserting the key into the keyway upside-down resulted in an interference fit. This improper assembly can stress the bolt, causing the head to break off. The misalignment also causes destructive imbalance. The imbalance can break the crankshaft. I should point out that some key and slot combinations are such that the key will fit in the slot either way without interference. It is also possible that v-belt tension and the forces necessary to drive the accessories may cause cyclical loading that leads to a fatigue failure of the crankshaft nose itself. We have closely examined perhaps a half dozen crankshafts. It is often not possible to determine what part of the assembly failed first.

Are There Symptoms?

In some of these scenarios, difficulties may not be immediately detectable. Usually a worn keyway will result in a poor running engine as the crankshaft loses its position relative to the camshafts. It is difficult to diagnose because the

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NOTICES

THE SAN DIEGO MIATA CLUB is an official chapter of the Miata Club of America. We are a nonprofit organization whose purpose is to promote the enjoyment of—and enthusiasm for—the Mazda Miata.

SAN DIEGO MIATA CLUB NEWS is the monthly newsletter of the San Diego Miata Club. Use of articles or stories by other MCA chapters is hereby granted, provided proper credit is given.

Submissions to the newsletter are welcomed and encouraged. Did you just add a new accessory to your Miata? How about writing a review and submitting it to the newsletter? Where possible, please send your electronic submissions to the newsletter editor, Robert Holland (robert@caliban.ucsd.edu). Submissions can also be faxed to the club's dedicated phone line or mailed to the club's post office box. Submission deadline is the 15th of each month.

Internet: The San Diego Miata Club has established a dedicated World Wide Web Home Page at <http://mmdshare.ucsd.edu/sdmc.html>.

The club has also established a members-only electronic mail list for those members with E-mail capability. If you included your E-mail address on your membership application then you should already be subscribed to the electronic mail list. If you recently acquired your E-mail account, please contact Cindy Paloma (paloma@cs.ucsd.edu) and request to be added to the electronic mail list.

Dedicated 24-hour voice/fax phone line:
(619) 670-7948

San Diego Miata Club

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MEETING PLACES

Wheels 'n Meals at Boll Weevil

Date: Tuesday, November 19

Time: 6:00 p.m.

Place: Boll Weevil, 9330 Clairemont Mesa Blvd. (At Ruffin Rd.), San Diego (571-6225)

Because Thanksgiving falls on the fourth Thursday, we have switched to the third Tuesday for this month. Come, hang out and have fun! Also, Boll Weevil has changed their menu. They have many new sandwiches, salads, etc. Something for everyone!

San Diego Miata Club Fall Picnic Tour

Date: Sunday, November 24

Time: 10:30 a.m.

Place: Park & Ride at Highway 15 and Deer Springs Road (North Escondido)

Run Leader: Tony Beecher

This tour will wind through San Diego County's north inland hills. We will stop for a picnic at a local farm. This farm is run by the founder of the Taco Bell empire. It has "a pristine produce farm with peridot fields, rocky creeks, oak and olive trees, and perfectly preserved antique equipment." Plan on bringing a picnic lunch or stop along the way.

Note: This run will NOT be canceled because of rain!

Highway to Heaven — Last month's SDMC Fun Run to Mt. Palomar

Holiday Party

Date: Saturday, December 14

Time: 7:00 p.m.

Place: 5032 Faber Way, San Diego (Faber Way is located near the intersection of Montezuma and 54th)

Host: Richard Scherschel — 286-2412

Plans are taking shape for our first annual Holiday Party! The party will be held at the home of member RICHARD SCHERSCHEL. It's going to be *pot luck*, so everyone please begin making plans to bring a favorite dish.

For those interested in participating, we will have an anonymous *gift exchange*. Bring a wrapped Miata-related or driving-related gift not to exceed \$25 in value.

Note: Please RSVP by December 1 to the Club line at 670-7948. Indicate number attending and the type of dish you will be bringing.

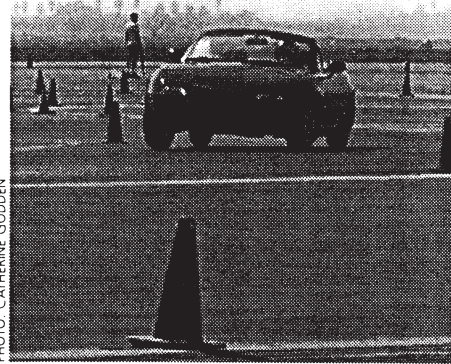
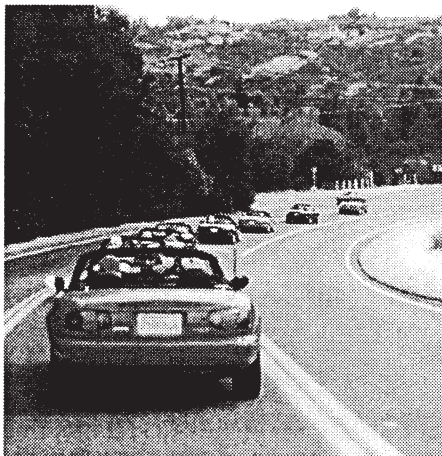


PHOTO: CATHERINE GODDEN

Stef Gould takes a corner at Lotus West's 28th Annual Slalom School

AUTOCROSS AT THE MURPH



The following autocross events are scheduled at Jack Murphy Stadium in San Diego for the remainder of 1996:

Saturday, November 2	Practice
Sunday, November 10	Racing
Sunday, December 8	Racing

Autocross information sources:

Steve Hart:	619-579-9093
Richard Scherschel:	619-286-2412
San Diego SCCA Hotline:	619-441-1333
Cal Club SCCA Hotline:	818-988-7223

Hey, Where Can I Get One of Those?

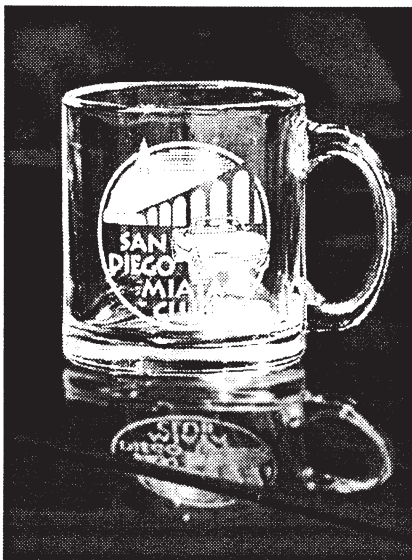
The Club's logo sandblasted deeply into glass mugs. Order from Rainer at the next Meals n' Wheels, fun runs, e-mail (rmueller@msd.cts.com) and send a check (they must be paid for in advance) R. Mueller, PO Box 4442, Oceanside, CA 92052 (619-433-8953)

13 oz coffee mug (pictured) — \$9.95,

16 oz beer mug — \$16.95

one liter beer mug — \$19.95.

A few dollars from each mug sale helps your club treasury.



UPCOMING NATIONAL AND REGIONAL EVENTS

November 9, 1996
Central Coast Winery Run
(SOCALM event — Canceled)

November 10, 1996
Open Board Meeting
Hosted by SOCALM

November 17, 1996
Petersen Car Muesum
Hosted by SOCALM

SOCALM Hotline: in transition





Installing My New KONI Shocks, 2

After installing the rear shocks the previous weekend, I was primed and ready to tackle the dreaded fronts.

The front shock removal requires some disassembly of the front suspension. After reviewing various sources, the options are:

1. Break the upper ball joint
2. Remove the upper A-arm
3. Break the lower tie rod
4. Remove the lower spindle

The last option was provided in the Spring issue of Miata Magazine (page 21). The accompanying graphic was very confusing, and really had nothing to do with the text.



After jacking up the front end, place it on jack stands. Remove the front wheels. Raise the hood and remove the plastic caps that cover the center of the upper shock mounting area. While you are there, LOOSEN (do not remove) the center mounting nut (17 mm) a couple of turns while the assembly is still in place.

Next comes the actual removal of the lower spindle. Start by removing the sway bar to lower wishbone link (14 mm). Remove the 17 mm bolt that holds the lower spindle to the lower control arm. Next remove the lower shock mounting bolt (17 mm). When the bolt is removed, grab the lower part of the shock and pull toward you. The coil spring will force the shock down a bit. You should be able to put a large screwdriver into the bolt hole of the shock and then push the shock away from you (toward the engine) and over the shock mount on the lower control arm. The shock mount is like a ramp on both sides of the bolt hole. The screwdriver will hold the shock back and allow you access the second bolt that holds the lower spindle in place. Below the shock mount, pointing down, is the 17 mm bolt. Remove this bolt and this will allow you to pivot the spindle/rotor/caliper out of the way as an assembly. The Miata Magazine article mentions using a flex joint but this is not necessary. A socket on an extension will work fine. When this assembly is out of the way,

it will allow the lower control arm to be pushed down and provide access to remove the shock.

Remove the upper shock mounting (14 mm) bolts. Place a pry bar (I used a 2 foot breaker bar) in the lower control arm where the lower spindle was removed. Step down on the bar and you can then maneuver the shock so you can remove the top of the shock and then lift the lower part out and away from the car.

Once the assembly was out of the car, decompress the spring as before.

As with the rears, the dust boots were history. I trimmed the remains of the dust boot from the bump stop and attached a dust boot I acquired at a 4x4 shop. I used 1 new dust boot on each side on the fronts.

I installed front springs from a '92 Miata and the overall length was the same as the ones removed. I installed the spring perch on the lower setting, as it came from Koni, there were only 2 perch settings — stock and lower.

Reassemble the unit (shock, perch, spring, dust boot attached to bump stop, upper mounting cap) install new center mounting nut. Don't forget the white disc.

Installation in the car is the reverse of the removal, don't forget to put the Teflon gasket back on top. Attach the shock at the upper mount first. You need to install the spindle/rotor/caliper before attaching the lower shock mount, but use a screwdriver to move the shock out of the way as when you removed it. Put the spindle back in the lower control arm and

It's easier to replace shocks with the help of friends — Mark and VoodooBob help JT.



PHOTO: ANTHONY (NEVADABOB) WILDE

install the first 17 mm bolt that was removed (the outer one). Use a flat-bladed screwdriver in the gap between the spindle and the end of the control arm. Lever the spindle a little so you can install the other 17 mm bolt for the spindle. You must torque this bolt to 70 ft-lbs at this time, as it will not be accessible later when the other bolts are torqued. Move the lower part of the shock into the mount on the control arm and install the 17 mm bolt.

Use a jack (car or floor) under the lower control arm to preload the suspension prior to torquing the bolts. Torque the 17 mm bolts to about 70 ft-lbs. The 14 mm bolt for the sway bar link and the 14 mm nuts for the upper shock mount need to be torqued as well. Do not forget to torque the center 19 mm nut. These values are in the service manual as well as the *Enthusiasts Manual*.

As with the rears, the first side took about 3 hours and the second side took about 45 minutes. It would probably have taken less time, but I installed Jackson Racing sway bars at the same time.

Lower the car and torque the wheel nuts. Set the shock adjustment to full soft, all around. After experimenting, I found I like 1 [one] turn all around.

I did not measure the ride height to start, but I can use a secondary measurement. My parking place has a concrete bump that the front air dam (Mazda part) would just scrape if I pulled up too far. After the shock installation, the air dam is 3/4" down from the top of the concrete bump. The car has a "slight" rake from front to rear, but this is not very noticeable after you drive the car and set the suspension.

Overall, I am quite pleased. The car is lower than stock, but not too low to drive daily. I sometimes rub the front air dam on deep driveways, but I would rather rub this than the bottom of the body as before I installed the air dam.

—ANTHONY "NEVADABOB" WILDE



Tech Day at Jackson Racing

Thanks again to Mark and the folks at Jackson Racing for a great Tech Day last month. It was a treat to meet Oscar Jackson and the other fine people there, and to learn Miata performance tips and tricks directly from one of the masters.

I'm sure all who went felt like kids in the proverbial candy store. I guess I was hungrier than most! After waiting for months for the new 1.8L CAI, it showed up at my door earlier in the week, which meant I could take advantage of the Club discount and free installation on Saturday (TOM AND STEF GOULD also had the 1.6 CAI installed in their beautiful BRG). At the same time I also got the new-design Jackson Racing cat-back exhaust system. The muffler is beautiful — all stainless steel with solid construction, a HUGE 4-inch chrome resonator tip (that fits perfectly in the cut-out), and a sweet, low-pitched tone that purrs when cruising and ROARS under hard acceleration. I love it!

On the other hand, MARK, VOODOO BOB and RAINER all thought I was crazy when I stuffed the old stock muffler in the passenger seat (with some help from KEN EVORY) and brought it home with me! C'mon guys, that old muffler and pipe look great sitting with the rest of the junk on the side of my house.

Of course, the real proof is in the performance. Here are the before and after dyno test results (timing for both runs at 14-degrees BTDC):



SDMC members: Tom Gould, JTBob Holland, Rich Taylor, Rainer Mueller, Anthony Wilde, Cindy Paloma, Stef Gould, Ken Evory, Jeri Jones, John O'Hara, John Godden. Front row: Mark Booth with Oscar Jackson, center and VoodooBob.

Max power @ 6200 rpm: 103.9 bhp → 112.6 (Gain = +8.4%) Max torque @ 5000 rpm: 98.0 ft-lbs → 108.0 ft-lbs (Gain = +10.2%)*

*Note: Recorded peak torque was 101.0 @ 3400 rpm, but this was clearly just a resonance spike on the graph. Smoothed peak torque of 98 was recorded normally at 5000 rpm.

This translates at the crank to approximately: Max power = 144.1 bhp (Gain = +12.6% over stock) Max torque = 121.5 ft-lbs (Gain = +10.5% over stock)

And this is with the car both cold and stationary on dyno. A warmed-up car and the ram-air effect of the CAI at speed can easily add another 2 or 3 points to both the horsepower and torque.

Looking at the dyno print-out graph, the "before" torque curve was flat or

falling from 3400 to 5000 rpm, while the "after" curve actually rises steadily over this interval. And the difference between the new and old hp curves increases steadily from around 3500 rpm through peak at 6000.

Subjectively, the difference is definitely noticeable, especially torque! The car revs much more freely up to redline, especially in gears 1 through 3, and full-throttle acceleration kicks in really hard. At freeway speeds passing is a breeze (literally!). With the cool nights we've been having anyway lately, Mickey is one happy Miata.

Come take a look at the next Meals 'n' Wheels. Maybe you can talk me into the JR headers and sway bars for the next Tech Day. Hmmm ... that JR version of the Eaton-Sebring supercharger is also real interesting.

—John O'Hara



PHOTOS: JOHN O'HARA



Above: Oscar Jackson explains how to read the results of the dymometer, and just how they relate to the member's cars performance.

Left: Oscar Jackson dynos the Gould's 1.6 BRG. After installing Jackson Racing's CAI, the otherwise stock Miata had 106 hp!



relative positions of the timing mark on the pulley and crank position sensor on the back of the intake cam do not change. That is, the timing light reports ignition timing is OK. Some owners experienced poor performance as the slipping sprocket allowed relative crankshaft and camshaft timing to wander. If the crankshaft nose breaks off, this is easy for a mechanic to diagnose. The car will not run and the mechanic finds the pulley assembly laying on the lower splash shield. In all examples, repair is the same; replace the crankshaft.

I Can Have a Problem Without Noticing?

Yes, it is possible to seem fine today and have a broken crankshaft tomorrow. It can happen at any time, regardless of mileage or whether you have had the 60,000 mile timing belt change. That said, it appears that failures are more likely after the pulley bolt has been carelessly replaced and usually within a few hundred miles. Although sudden and catastrophic failure is possible, many victims detect degraded engine performance or a noticeable pulley wobble.

Is The Design of the Crankshaft Poor?

Certainly, it is fair to say that the design is not tolerant of assembly errors. Put the key in wrong or get bolt torque wrong, and it is all over. It is also clear that the original short nose crankshaft is not a particularly efficient use of available knowledge on the part of Mazda. I understand the Mazda 323 had the same problem. On the other hand, if the crankshaft was strong enough to never break, the car would not weigh 2200 lbs. Keep in mind that a vast majority of 1990 Miatas are running many miles past their timing belt change and to over 100,000 miles without any problem. The 1991½ and later crankshaft is certainly better than the early part. It is easy to expand this concept to include the idea that the 1990 to 1991½ crankshaft design is, indeed, poor. At this point, however, I can not extrapolate to convince myself that Mazda should recall all early Miatas and install new crankshafts.

It might be fair for an owner and Mazda to share a pro-rated cost of an up-grade between zero and 100,000 miles. Of course, if we broke within 1000 miles of a dealer timing belt change, he should pick up the tab. However, what is fair and what the factory will do may be two different things. No car manufacturer, in my experience, has ever been able to see past the end of the warranty. Your, time, money, and sense of justice will have to be your guide on what you want to do. The Federal Government's regulatory attention is primarily safety and emissions issues.

Mazda Suggests That Incompetent Repair Is the Root Cause

No, it is one cause.

Clumsy repair techniques or inadequate tools are always a recipe for disaster. The factory claims the mid-year change in 1991 was to "improve serviceability". This is partially true. The new crankshaft is more robust. But when cars assembled in Hiroshima or repaired by trained Mazda dealers have crankshaft failures, it is clear that blame should not be laid entirely at the feet of the nearest shade tree mechanic.

We have traced only two failures to the reversed key. In one of these cases, the key was reversed on the other side of the ocean. In the last 1990 car I worked on, the key would fit cleanly into the keyway backwards. In two other failures, we are certain the key was inserted correctly. In several incidences, the key position could not be determined.

Can I Check My Miata Today?

Yes and no. If your Miata is a 1992 or newer,

forget this article. You have nothing to worry about. If you have a 1991 with VIN 209447 or more, you're safe. If you'd like, verify the stronger crankshaft and larger bolt are fitted by measuring the bolt shoulder diameter to be 1.455 inches. If your Miata is a 1990 or 1991 with VIN 209446 or less, you have a crankshaft with a smaller diameter nose. The pulley bolt shoulder diameter is 1.128 inches. There is an intermediate fix in the form of a longer nosed crankshaft with the same small diameter. Unfortunately, we can not predict whether you have a long nose crankshaft or earlier short nose crankshaft. The High Road as been unable to verify whether the long nose crank was fitted to any cars at the factory or if it is only a service part. If you order a new 1990 crankshaft from the dealer, you will automatically get a long nose version. There is no reliable 5 minute technique to check the condition of your keyway. Verification of these parts requires partial disassembly and examination of the components.

So I Have the Small Shoulder Diameter Bolt

Well, there you have it, the small bolt. You have two choices. You can ignore the situation completely. Just drive the car. It will probably never give you any trouble. Do you mind walking home too much? Your other option is to continue your investigation. Have your mechanic remove the pulley bolt. No other disassembly is required at this point, but he must not use an air wrench. Not even for loosening! Observe the exposed tip of the crankshaft. If it is nearly even with the face of the pulley, you have the long nose crankshaft. If the tip of the crankshaft is closer to ½ inch back in there, you have the dreaded short nose part. Withdraw the key with needle nose pliers. Make note of the chamfered corner, it should be on the back of the key and face toward the crankshaft. The key should not be bent, deformed, or mooshed.

Reassemble using a new key and new bolt. Clean all parts scrupulously including the threads in the crankshaft end. Put the whole thing back together. You should be able to push the key home with one finger. All the way in, the key end is below the surface of the pulley face. If you can not get it in, it is dirty, upside-down, the pulley and crank keyways are not lined up (they should not have moved), or the crankshaft keyway is damaged. Use Loctite on the bolt threads and torque to 80 to 87 ft lbs. This is not a minimum torque! It is not a torque suggestion, but rather a specification. Get the best torque wrench you can buy, borrow, or rent. Set it to 83.5 ft lbs.

No, I am not joking! Pray your error is less than 4%. If your mechanic does not seem sufficiently concerned regarding the correct torque, leave. Go to a competent shop. Period.

What Are the Definite Trouble Signs?

To do a complete check, we want to go one step past the verification of the key and the replacement of the bolt that I just described. Speed shops sell over-the-counter dye penetrant inspection kits. This will give you a great idea of the condition of your crankshaft nose. To use this test you will need to remove the camshaft drive sprocket. This will take several hours. On the up-side, if the results are favorable, you have avoided an engine removal. If you are very risk adverse, the key is mangled, or the crankshaft keyway is damaged, you will want to replace the crankshaft. Of course, the other reason to replace the crankshaft is if its end is already broken off or the bolt head breaks off when the mechanic tries to loosen it.

I Have Been Reading the Miata Mailing List On the Internet. There Seems to Be Some Confusion About the Proper Pulley Bolt Torque. You

Just Said 80-87 Ft-lbs. The Miata Magazine Had 120 Ft-lbs in the 1996 Tech Issue.

I am confused as to why anyone should be confused. Of course, I have a shop manual for every year Miata (two for 1990). I also have four crankshafts on my desk. It's all perfectly clear to me. In 1990, the correct torque is 80-87 ft lbs. For 1992 and later, the larger crankshaft uses 116-123 ft lbs. In 1991, the manual lists both torques in different places. It does not explain why this is so. But now you know, VIN 209446 or less and your torque is 80-87. VIN 209447 or more is tightened to 116-123 ft lbs. The 120 ft lb bolt is considerably larger than the 85 ft lb bolt.

If the Crankshaft Design Is Lame, Why Replace it With a New Lame Part?

Remember you are probably replacing a short nose crankshaft with a long nose crankshaft. We have not been able to confirm any failures of a 1990 long nose crankshaft. It appears that the quick fix, slightly improved, crankshaft has eliminated unexpected field failures. (If you discover a broken long nose crankshaft, I want to see it! For non-members, I will pay postage from anywhere in the country.)

Is There a Really Excellent Fix?

We are fairly sure the long nose crankshaft is reliable. However, if you have more money than you know what to do with, your Miata can help you. Yes, the 1991½ to 1993 crankshaft can be retrofitted to an early Miata. The crankshaft, pulley bolt, cam sprocket, front seal, pulley, spacer, and oil pump must be replaced as a set. I am not sure about the front cover. At least we know the engine block was not changed for the entire life of the Miata 1.6 liter. Realize that the dealer's references will not completely document this conversion. It is easy enough to do, but you have to play detective with the parts book. Understandably, Mazda did not provide the dealers with details for putting a 1992 crankshaft in a 1990 car. If any Peak To Peak Miata Club members want to do this conversion, your newsletter editor would welcome the opportunity to be a technical consultant. That is, if necessary, you can watch me while I do the work! By the way, an entire engine from a 1992 or 1993 will directly bolt into a 1990 Miata. This is a nice way to get the stronger crankshaft. Keep this in mind if you go with the engine replacement plan.

Are There Precautions I can Take With My "Might Be Bad" Crankshaft?

If you want to use the hope-for-the-best—I-don't-want-to-touch-it method of car maintenance, here are some simple guidelines:

- Be very particular about belt tension for the accessory belts and the timing belt. Judging belt tension by the poke-with-finger method is a little questionable. Consider buying a belt tension checker.
- If you are due for a timing belt change and the front seal is not leaking, change the timing belt but don't touch the pulley bolt. The timing belt can be replaced with out removing the cam drive sprocket from the crankshaft nose.
- It is easy to use the bolt to turn the engine in order to install the new timing belt. Don't do this. Instead, put the car in 5th gear and roll it to position the crankshaft. Do not put a wrench on the bolt unless you intend to remove it!
- If you really feel like you want to do something that might be constructive, replace the bolt with a new one.

—LANCE SCHALL
76760.2754@CompuServe.COM
Colorado's Peak to Peak Miata Club



HIGHWAY TO HEAVEN



PHOTO: TOM GOULD

On the morning of October 19, thirty-four Miatas assembled in the parking lot of North County Fair in Escondido to begin the Highway to Heaven run organized by RAINER MUELLER. This was the largest gathering of Miatas that ever convened for a run sponsored by the San Diego Miata Club. Rainer promised the participants one of the finest runs imaginable.

The cars left North County Fair and headed north on Interstate 15, getting off on Gopher Canyon Road. From there the group headed inland to Old Castle Road, then to West Lilac Road and on to Couser Canyon Road, one of Rainer's all time favorite Miata roads. Rainer had led several members of the club on this road on some of his previous runs, but when everyone gathered on the bridge at the end of this road, they all had huge smiles on their faces.

Now the group headed east on Highway 76 past Pala and Pala Mesa, then turned slightly north to begin their ascent of Palomar Mountain. This challenging road was built to bring the 200" mirror to the top of the mountain for the Mt. Palomar Observatory. After climbing almost 6000 feet from sea level to the top of the mountain, the group rendezvoused at Mother's Mountain Restaurant. Many drivers and passengers were surprised as to how cold and windy it was near the top of the mountain.

After everyone reached the top, the group split in half to take a guided tour of the observatory. Rainer had arranged for a graduate student of the California Institute of Technology to give our group a one-hour tour of the world-famous observatory. While half of the group was touring the observatory, the other half was enjoying the

excellent vegetarian cuisine of Mother's. The parking lot of Mother's was quite a sight, filled with Miatas. Many of the group lingered inside Mother's because it was becoming foggy and even colder on the mountain top.

A few miles up the road it was sunny at the observatory. It was quite a treat to actually get inside of the dome and right up next this huge telescope which is responsible for many of the finest photographs ever taken of the galaxies. VOODOO BOB KRUEGER exclaimed that he had been a member of an astronomy club in San Diego but had never gotten as close to the telescope as our group had.

After the first group returned from the observatory, the second half gave up their seats inside Mother's to take their tour of the observatory. They were also greeted by John, the graduate student, who gave a most informative tour of the observatory. After the second group finished their tour, we all rendezvoused at Mother's again.

By now the fog was really socking in the road, as we headed down the back side of the mountain toward Lake Henshaw. The scenery is totally different going down this side of the mountain as compared to coming up the mountain. Once at the bottom, we headed east on Highway 76 again for a few short miles until we came to Meadow Mountain Road. Here we almost lost a few of our group since they were speeding by and apparently not paying attention (eh, NATALIA?). But the air horns of several of the members alerted those inattentive folks to the fork in the road. Meadow Mountain Road is a beautiful road which climbs about 2000 feet via many twists and turns, but it also affords

New Members!

Jon G. Braisted

Oceanside
1992 Red B

Kurt & Eivor Carlson

La Jolla
1993 Black & Red LE

Ricky Covarrubias

Murrieta
1991 Mariner Blue A

Phil Daoust

Ramona
1996 M (Starlight Blue)

Joe DeMartino

San Diego
1994 Black B

Steve & Gayle Hirschhorn

Escondido
1995 Black R

Shelley & Bruce Hotz

Spring Valley
1994 M (Montego Blue)

Bill & Karen Huss

Carlsbad
1993 Black C

Jack Monaco

San Diego
1996 Black

Dave Okamoto

Newport Beach
1995 Black PEP

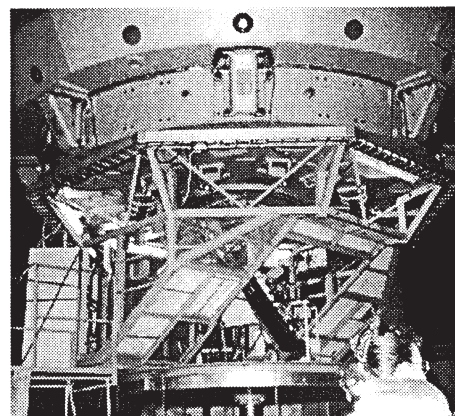
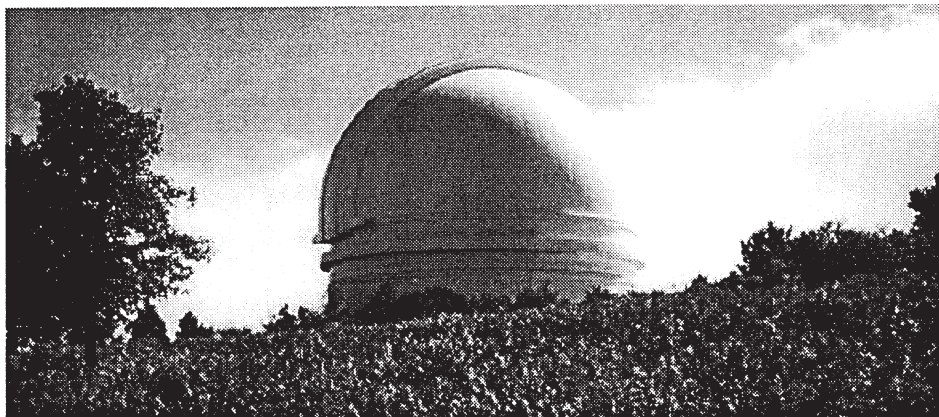
Eric & Lisa Stephenson

San Diego
1990 White

There are now 94 memberships consisting of 141 members.

- 32 Red
- 16 White
- 11 Black
- 10 Montego Blue
- 8 Mariner Blue
- 4 BRG
- 3 Laguna Blue
- 3 Silver
- 3 Starlight Blue
- 2 Yellow
- 1 Merlot
- 1 Unreported





PHOTOS: VOODOO BOB KRUEGER

Above and at right:
the Palomar dome at
the top of the run, and
inside the dome.

SDMC members
enjoyed a guided tour
including a close-up
view of the mirror at
the base of the tele-
scope.

The 34-car fleet pauses
after negotiating the
Couser Canyon
twisties.

Below: Miatas line up
to start the winding
ascent to the 6000-
foot summit of
Palomar Mountain.



PHOTO: JOHN O'HARA



PHOTO: ANTHONY (NEVADABOB) WILDE

many spectacular vistas with beautiful
fall colors.

Shortly after finishing this leg of the
journey we found ourselves at Dudley's
Bakery, a Mecca for bread lovers, and
the aroma in the parking lot turned all
the drivers and their passengers into
dough devotees! We all got into line to
buy our favorite variety of bread, cook-
ies, and pies. And many of us were
seen munching on our delights as we
exited the parking lot heading west for
home.

— RAINER MUELLER



Holiday Party

Plans for our first annual Holiday Party are underway. As mentioned last month, dinner will be pot luck so please begin making plans to bring your favorite dish. We will feature a gift exchange for those interested in participating (the gift exchange is not mandatory). Bring a wrapped Miata related or driving related gift (not to exceed \$25 in value). Once again, my thanks to member RICHARD SCHERSCHEL for opening his home to the membership!

Please note that plans for a Holiday Light Tour *before* the party have been canceled. It was pointed out that everyone would have food (pot luck) in their cars and many wondered how they would keep it warm while we toured some local neighborhoods. If there is enough interest, perhaps we can have an informal Holiday Light Tour *after* the party. I would be happy to lead such an informal tour if desired.

Buy Mine at Hine?

John Hine has informed us that they have discontinued the discount they were offering to the various car clubs. Apparently, they stopped the discount about two months ago but we were not properly informed. The good news is that we still have several other dealers that demonstrate they want your business by offering a discount to members. In addition, we plan to continue to pursue the goal of expanding the LOCAL BUSINESS DISCOUNT benefit over the coming months. Please remember to support the businesses that support the club!

Here We Grow Some More

With thanks to members TOM AND STEPHANIE GOULD, we were finally able to do the recruiting postcard mailing to the names given us by Miata Club of America. The postcards were mailed on October 18 and in less than a week I have received 15 requests for a sample newsletter and membership application. Two of those have already come back accompanied by a check! In addition, the postcard mailing has been directly responsible for two other new members joining via our web page.

I've taken a few minutes here and there to talk to some of these potential new members and one comment is common with many of them....they did not know the San Diego Chapter existed. Apparently, the chapter listing that accompanies the magazine just gets missed by the majority of MCA members. It will be interesting to see how many calls we receive when the fall issue of Miata Magazine hits the mailboxes, complete with a spotlight article on the San Diego Miata Club!

Jackson Racing Visit

Miata Club of America has asked me to write an article about our recent visit to Jackson Racing. If all goes as planned, the article should appear in the winter issue of Miata Magazine. This will give our club exposure in two consecutive issues of the magazine! Thanks to JOHN O'HARA and his trusty camera, we also have pictures to accompany the article. Also, check out John's write-up of our visit to JR in this issue. Thank you John!

California Here They Come

Plans are underway to hold a National Miata Event in California in August of 1997. Barbara Beach, the Advertising and Promotions Director for Miata Club of America, is working with Moss Motors up in Goleta, California to host a Miata event similar to the successful British Car Festival they sponsor each year. The goal is to have a minimum of 200 Miatas at the event (300 would be even better!). Barbara asked me to float the idea on our mailing list and the response was 100% favorable. Sounds like fun to me! Let's DO IT!

Logo Goodies

At the recent Highway to Heaven fun run, member RAINER MUELLER displayed a beautiful glass coffee mug, complete with an etched San Diego Miata Club logo. The quality and detail of the logo is awesome! The mugs are available in three sizes, 13 oz., 16 oz. and one liter. To order, or for more information, see Rainer at the next event or telephone him at 433-8953. All mug orders must be prepaid. Each mug purchased adds a few dollars to

the club treasury so please help support your club. Thanks Rainer!

Newsflash!! Potential run leaders or event coordinators take note.... member Jeri Jones is offering a FREE set of San Diego Miata Club magnetic door logos to each member that sponsors an event! Or, if you prefer, I guess you could talk Jeri into selling you a set of the logos but what fun would that be? My thanks to Jeri for her continued support of the club!

Tragedy Strikes Our Own

I am saddened to report that members RUTH AND LOU STARK have lost their home to the wildfires that raged out of control during our recent Santa Ana winds. They had precious little time to get to safety and early reports indicate that they managed to save only the cars and the cat. Everything else was lost to the fire.

For those that do not know, Ruth and Lou were part of the original 11 founding members of the San Diego Miata Club. Both have been active club members with Ruth being especially busy in the dual role of Secretary and Events Coordinator. Some of those fun runs you have been enjoying lately are a direct result of Ruth's determination to give us at least one good driving event each month.

As of this writing, I've not had a chance to speak with Ruth or Lou but the word is that their insurance company is doing a first class job in helping them get back on their feet. They already have temporary housing in a local hotel with plans to move into a rental unit (house, condo or apartment) as soon as possible. Their house will be rebuilt.

Ruth and Lou...our hearts go out to you. If there is anything that any of us can do for you, please don't hesitate to let us know. You are part of "us" and we want to help you in any way we can.

Until next month — keep that top down!

— MARK

