

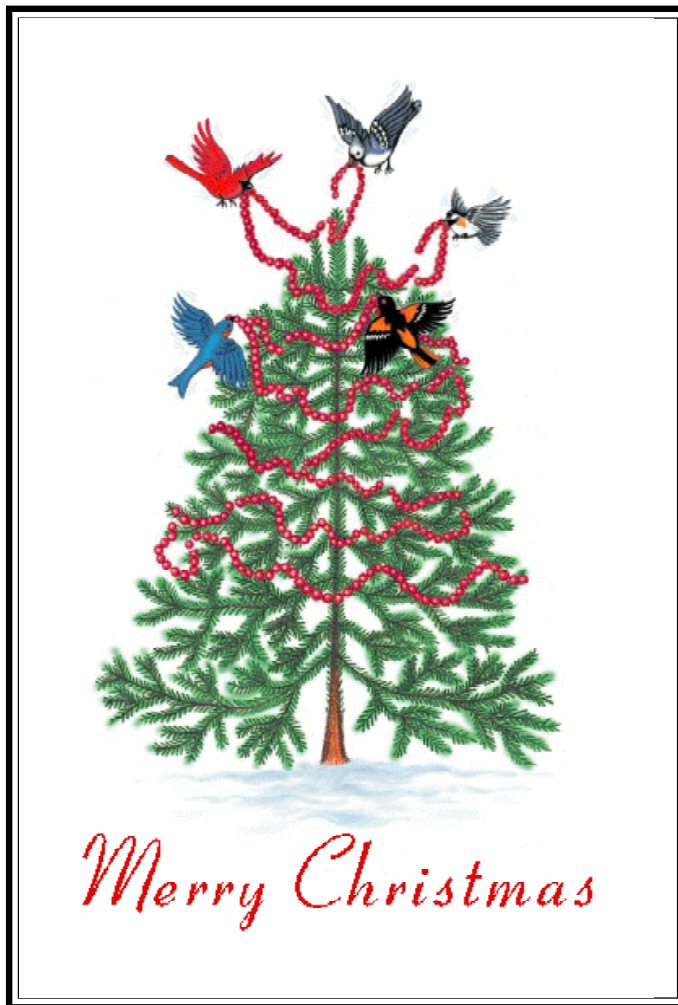


# **NCKCC** News

## Handcrafted Automobiles

*December 2003*

*Volume 21 Number 12*



## **2003 ANNUAL BRUNCH**

By Tom Wallters

Vern landed us a very nice venue for the annual "Christmas" brunch. The turnout was excellent, the attendee count was 30. We had a private room with a wall of windows overlooking the duck pond. The food and service were good, albeit not up to some of the magnificent brunches of past years. The hors d'oeuvres and champagne were a nice touch to start things off.

After some visiting and catching up with old friends and new ones, over a glass of champagne, we settled down for the serious eating. We selected among the choices of eggs benedict, beef steak, salmon or chicken. Like I said, the food was good, but some folks yearned for the fabulous brunches of past years -- especially Bob Bohaboy.

Once the eating subsided, Shane Williams called the business meeting to order. The first order of business was planning next year's activities.

Vern provided an Activities Menu - listing activities of the past, the dates if known and a space for the name of the "activity champion" -- an important role in making a targeted event a success. This activities menu gave us all food for thought, as we were eating the food for the tummy -- it brought back memorable experiences of past events, some of which made their

way onto the calendar for next year. The selected events and champions are listed on page 11, but needs some dates fixed and probably other corrections.

Chuck gave a brief pitch about the Oregon outing planned for June - next year's trip will include a visit to the Oregon Caves - more about that as the year progresses.

The next order of business was election of officers for the coming year. Steve Cameron will step up to the job of club president, congratulations Steve. Gene Stager agreed to replace Steve as vice president -- welcome aboard Gene. Vern agreed to continue as Treasurer. Tom agreed to continue as secretary. Pat Coolly will handle membership. Carolina Williams and Leanne Jones will team up as show chairmen (or is it chairwomen). James Wagner agreed to take on the job of activities chairman.

Vern gave a brief Treasurer's report. In summary, we lost \$600 on the show and have \$13,000 in the bank - Vern will publish details.

Vern arranged for a discount on tickets to the car museum -- 20 took the tour. On our way out, we saw 4 NCKCC cars parked in front of the museum -- unfortunately we were not able to stay for the museum tour -- rats!

Well, that's that for this year - I look forward to the coming year's events -- hope to see many of you in the coming year.

## **BRUNCH ATTENDEES**

Shown below are most of the thirty Brunch attendees, which included Dave & Diane Alchin, Robert & Barbara Bohaboy, Steve & Pam Cameron, John & Vicki Cavaz, Vern & Carol Hance, Chuck & Kay Honodel, Dave & Leanne Jones, Paul & Ruth King, John & Marie Knebel, Chuck & Sue Maddux, Gene & Valerie Stager, Jim & Kathleen Standiford, James & Wendy Wagner, Tom & Irene Wallters and Shane & Carolina Williams.

## **AUTO MUSEUM TOUR**

For the Museum Tour 20 of us were fortunate enough to have a very knowledgeable and enthusiastic docent. His knowledge kept us facinated for over 2-hours. Finally a few had to break off and head home since it was almost dark when we finally quit.

A few of the memorable sights are shown below.



## **FORD GT ENGINEERING**

*This article was adapted from a story in the October 2003 issue of Automotive Engineering International.*

After the GT40 concept car's debut at the 2002 North American International Auto Show, the GT40 name proved unavailable due to licensing problems, so the car has been christened the "Ford GT."

Ford's 30-person engineering team faced an array of obstacles in designing and developing the GT, not the least of which was a deadline from Ford CEO Bill Ford. The other primary constraint was the need to maintain exterior styling that matches the 2002 concept car. Basic problems like providing for windows that open and keeping the car from lifting off the ground at high speeds were at odds with the styling as originally created. The extremely low 44-in. height made packaging a headache, while the GT's iconic roof cut for the doors undermined stiffness.

The first job was to create a plan for exactly how the company would build the car in such a short period of time. It was also critical to quickly select the team that would create the car. Hundreds of Ford employees applied for the limited number of jobs, but not all the managers of those who were selected were happy to see them go.

The next step was to partner with suppliers that had relevant experience to use their experience to Ford's advantage. "We went with major suppliers who had experience with this type of car for the body, interior, and powertrain," said Goodnow. Mayflower Vehicle Systems, Inc. and Saleen Inc.

contribute to the car's chassis and body, Lear Corp. provides the interior, and Roush Industries did engine design.

With the outline drawn up and the team in place, Ford set out to make a modern replica of a nearly 40-year-old racecar into something that meets today's government regulations for safety and emissions.

The GT is about 3 in. lower than other cars in its class, making interior packaging difficult. "The customer is not going to accept having three inches less head-room," Ewing said. "We looked at achieving the lowest possible ride height to gain some space." The carbon-fiber Sparco seats were chosen for their minimal thickness, with the result that head-room in the production car is quite good.

The original car was lower still; its 40-in height was the source of the number in the car's name. That meant tall racers like Dan Gurney had a tough time fitting inside, especially while wearing a helmet, thus the bubble in the roof. Nostalgic racing buffs may ask for their own "Gurney bubble" in the new car, but the company decided one was unnecessary.

Regaining the stiffness lost to the door cutouts required braces from the top of the rear cockpit bulkhead to the rear of the car.

The design team went to great lengths to make the cockpit as spacious as possible within the design constraints, taking care to avoid common supercar pitfalls. "We

didn't want to have the steering wheel offset or cocked to the side or compromise the footwell like a lot of mid-engined cars," said Ewing.

Footroom is commonly eroded by intrusion of the front suspension, but Ford mounted the lower A-arm as far forward as possible, angling it back to meet the kingpin. The suspension includes Eibach springs and uses dampers from Dynamic Suspensions.

The bodywork stretched over the chassis is nearly all 5083 aluminum formed by a superelastic stamping process that permits shapes that would otherwise be difficult to make. The resulting shape is largely true to the concept car and strongly echoes the old racecar. But the old car was designed with scant knowledge of the aerodynamics at work at high speeds, handicapping today's engineers who had to work with a similar form.

"We took an original car to the wind tunnel, configured like the 1968 Le Mans winner," said Kent Harrison, Performance Development Supervisor. "We had never seen anything like it. The front lift was unbelievable. We did some quick calculations and to drive at 220 mph down the Mulsanne straight, at night, in the rain took very brave men."

The team used a carbon-fiber 3/8th-scale wind-tunnel model to test solutions to the problem of lift. "The key was to corral and control the airflow under the car, because we couldn't really touch the top surface," Harrison explained.

The team looked to the racing world for ground-effects solutions that work out of

sight underneath the car. "The front split not only increases downforce, it reduces drag," said Harrison. That's because it includes vertical fences ahead of the front tires that deflect high airflow from striking the front tires. around from the front.

The car's underbody is smooth from front to back, with a NACA (National Advisory Committee for Aeronautics) duct in the floor ahead of each rear wheel to reduce pressure ahead of the spinning tires. Interestingly, the ducts increase downforce in the front of the car, not the rear. The reduced pressure accelerates air under the car, making the front splitter more effective.

The GT wears side splitters, which also serve to mitigate the effects of the inward-curved styling. The team tried put deflectors on them ahead of the rear tires, expecting to see benefits like those seen at the front of the car. "But we found it wasn't as effective as on the front splitter," said Harrison.

Instead, the team opted for another of the body parts named after racer Gurney. The GT features a 0.5-in "Gurney flap" across its tail that increases downforce without obvious styling changes.

The result is a car with a coefficient of drag of less than 0.39, compared to 0.423 for the racecar, with useful downforce front and rear compared to front lift and no rear lift or downforce on the GT40.

The GT's supercharged, intercooled aluminum 5.4 DOHC V8 may look like an amalgamation of parts used on other modular V8 engines for the Mustang Cobra

*(Continued on page 9)*

## **CHRONICLES OF A HANDCRAFTED AUTOMOBILE**

By Joel Heinke

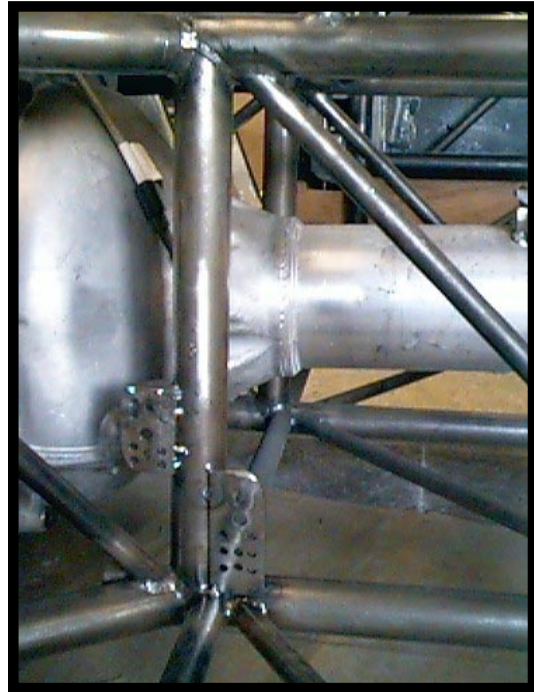
I hope you've had a good start to the holiday season and had a happy Thanksgiving. We have plenty to give thanks about at the Heinke household as my mother-in-law appears to be out of the critical stage and recovering. You may have noticed that I've not been able to attend club functions or contribute articles to the newsletter the last few months. It's amazing how a family medical emergency can change your focus.

My lesson learned is that while some of the modern medications are doing wonders, you have to be very cognizant that they can hurt you as well. My mother-in-law has diabetes and her doctor decided to change medication prescriptions. The new medication attacked her liver and made her sick. Her doctor failed to correlate her being sick with the medication change and her medical condition deteriorated to critical over a several month period. We finally forced her to get diagnosed by other doctors and fortunately they questioned the medications and intervened. Given this experience, I urge you to take the medication warnings about side effects seriously. Especially the ones about liver damage as this type of damage is permanent!

Needless to say, progress on the GTO

project has been minimal over this period. Finally over the last few weeks I've been able to spend an hour here and there on the project. To-date the car has had no brakes and I've had to use a block of wood behind a tire to keep it from rolling on sloped surfaces. I decided it was time to make the manual emergency brake operational.

*Shown below: Mounting brackets for the brake handle were fabricated and tack welded in place. Fortunately there was a chassis tube in the right place for mounting this lever in the same place as in the original GTO.*



I found a vertical floor mount hand brake lever that looks very similar to original GTO from a company named Lokar. They were also able to supply the cables and special clevis adapters that connect to the Corvette emergency brake actuators. I installed the driver seat to make sure the hand brake location was easily reachable from the driver position. It took a bit of head scratching to determine where and how to mount the bits and pieces but in the end I was able to keep the mounts simple and straightforward.



*Above: The hand brake lever mounts to the chassis with a couple of bolts. The lever has an adjustable cable block for attaching the cables and adjusting slack from them.*

*Below: Cable mounting bracket is located on another chassis tube and cables are hooked up and adjusted.*



The most difficult brackets (not pictured) to fabricate turned out to be the ones for mounting cable ends to the wheel hubs. Part of the difficulty is that I've never seen the brackets used on the Corvette itself. The bolt holes for mounting them were obvious but the mounts themselves are sandwiched between the rear axle constant velocity (CV) joint and shock absorber. I mocked up a template in cardboard and adjusted it until I figured out a cable routing that would clear the axle and not rub on the shock absorber.

Once the brackets were all welded and bolted in place, I assembled and hooked up the hand lever and cables. It all seems to work well for the simple garage test. The real test will be when the car is placed on a sloped surface but that will need to wait for another day. For now, I'm happy to just be able to spend a few hours in the garage and make a little bit of progress.

## **WELCOME NEW MEMBERS**

This past month we have added three new member families to our club. Here is a little information about them, so please add them to your roster and help welcome them aboard.

Thomas & Joann Lugone live in Sunnyvale. (408) 247-6133, and drive a Bugatti Type 35 powered by a VW air cooled engine. They are interested in shows and driving events. Jim Wagner introduced them to our club when they both brought there yellow Bugattis to the same show.

Tom Kyle & Beth Hougardy live in Aptos, (831) 685-1456, and also drive a Bugatti Type 35A powered vy a 1.6 liter VW. They are interested in swap meets and club gatherings. They found us through the internet.

Paul & Mary Jane Thomson live in Concord, (925) 672-5477, and recently purchased a 1931 Alfa Romero which he is restoring. It is powered by a 1500 VW and has real spoke wheels with "knock-off" hubs. Paul also has a restored '57 Ford Fairlane Club Victoria, and has done several other "frame-up" restorations.

So, we say **WELCOME ABOARD** to these new members and hope to see them at our future activities.



*Shown above: Thomas & Joann Lugone in their Bugatti.*

*Shown below: This is Paul Thomson's Alfa Romero shortly after it arrived in its new home in Concord.*



### **2004 OFFICERS AND APPOINTEES:**

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Leanne Jones, Show Co-Chair	510-471-6411

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(Continued from page 5)  
and F-150 Lightning, but it is in fact made from entirely purpose parts.

The aluminum block features Siamesed bores with pressed cylinder liners. Creating a new block let the team cast in oil passages for the dry oil system, reducing the number of external oil lines. At the same time, coolant passages were redesigned so the GT's engine flows twice the 50 gal/min of coolant in the iron truck engine.

The heads are similar to those employed on the 2000 Mustang Cobra R factory racecar. A pair of fuel injectors mount in the ports, with a single injector used at idle and the pair working together at higher rpm.

Inside the center backbone mounted fuel tank, parts were designed for durability, because servicing the tank would be difficult in terms of its accessibility "The fuel sensor is piezoelectric so there are no moving parts," Hill said. "We were concerned about serviceability with the high g levels for this vehicle."

The GT uses cast exhaust manifolds rather than tubular headers for durability and heat-management reasons.

The Eaton supercharger pumps 12 psi of boost into the engine through an intercooler that lowers the temperature of the intake charge by 125-140 degrees F. Ford opted for forced induction because it needed high output, but lacked the development time to design a new engine that made 500 hp in naturally aspirated form. Supercharging presented the challenge of managing the high whine that is characteristic of the device. Some vehicles, like the F-150

Lightning, employ this sound to advertise their pumped-up status. But blower whine would be out of place on the expensive GT, so the company vowed to eliminate it from the car.

"We decided early on that we were going to get rid of the supercharger noise," Hill said. This was especially difficult, because in the GT the supercharger is only inches from the driver's right ear, and it is the first thing the driver sees when looking out through the rear window to back out of a parking space.

The company used baffles in the intake tract to prevent supercharger whine from trumpeting out of the intake scoops and used carefully chosen rear-window glass to insulate the cockpit from the engine bay. "The rear window is double glass," Hill said. "For the rear glass we looked at what thickness the glass should be and what the air gap should be. We decided not to go with triple pane because of weight. It would have added two pounds."

Putting the engine's 500 hp to the ground is a Ricardo racing-style transaxle that features triple synchronizers on first through fourth gears and double synchronizers on fifth and sixth. Power to the gearbox is modulated through an AP Racing 9.5-in two-disc clutch. The twin setup was chosen to relieve clutch pedal effort, though it presents clutch rattle challenges for engineers to sort out. "We are below 40 pounds on pedal effort, which is world-class for this horsepower level," said Hill.

## FOR SALE

COBRA-. Registered 2001 Shelby <200 miles, smog exempt, Amtz styling, Butler quality. 351 Cleveland w/ 10" setback, Jag rear-end, 4-spd top-loader, Hurst shifter, H.D. half-shafts and strut assy. 52% wt on 12" Z-rated rear rubber, 10" rubber front. 6-piston 13" Wilwood brakes. Hood, trunk, doors molded inside & out. Finished eng. compt. Marty Krueger 775-852-1453 or E-mail mck427@msn.com (3/02)

COBRA Ford power, Jag rear-end. Silver w/ black interior. \$21,500 Call Bob Elster 707-938-3254 (1/02)

COBRA - VW KIT - 427 Snake body fits on your 3" shortened VW chassis. \$6,200 Call Wayne McAllaster (510) 656-5844 or E-mail medusa427@aol.com (4/03)

FERRARI Testarossa (Ladre kit) On stock 1988 Fiero - under 20K original miles. V-6, 5-spd stick, A/C, AM-FM cassette, Hayashi Racing wheels with VR rated Goodyears. \$8,000 Call Warren Okamura 925-458-4030 evenings. (4/03)

FERRARI Testarossa (Dazzling Black Convertible) 34K original miles on Corvette platform. One of nine, cusom built by SCM Motors for Mid-east royalty. at \$85K each. 626-458-922 asking \$30,000. (5/03)

MERCEDES 500K 4-PASSENGER. This all metal replica was built by H.T. Price with leather interior, 400cid Ford power, auto tranny, A/C, stereo/cassette, wood steering wheel. Call Diana (574) 277-3798. Write 51500 Orange Rd., South Bend, IN 46628-9419. (3/02)

MERCEDES 500K PARTS - For Classic Factory 500K: (4) door latch plates, patterns for tall tail light bases and side window frames. Also windshield frame patterns for 4-pass 500K. Call Diana (574) 277-3798. Write 51500 Orange Rd., South Bend, IN 46628-9419. (3/02)

MERCEDES 500K Heritage kit, unassembled, body in crate. Burgandy exterior/interior. All options. Stub Chevy front end, 350 engine and auto tranny (not rebuilt) \$14,000 Call Louis Boscacci (415) 892-5245. (04/03)

MERCEDES SSK (Gazelle) replica. 2.3 liter 4-cyl, 4-spd tranny. Excellent condition. \$9,950 o.b.o. Norval Gryte 707-942-8215 or e-mail <gryte@calicom.net> (10/03)

MERCEDES SSK (Gazelle) replica. 2.3 liter 4-cyl, 4-spd tranny. Low miles but needs some TLC.. \$4,500 o.b.o. Mike Brauner 925-934-1441 (10/03)

MERCEDES SSK (Gazelle) replica. 2.3 liter 4-cyl, 4-spd tranny. Partially completed.. \$2,500 o.b.o. + shipping. 510-895-8522 or e-mail <dbensonco@aol.com> (10/03)

MERCEDES SSK (Gazelle) 2.3 Pinto powered, gray w/ red fenders, Auto tranny.. License &Smog thru 3/04. Priced for quick sale. only \$3,000 obo. B. Pincus 925-939-7581 05/03)

MARLENE - 500K kit by CRL, complete but not assembled. White body & interior. Includes Ford 2.8L V-6 and auto tranny. Make offer to Andrew Moriarty 916-689-2325 (11/03)

PANTERA Factory built, only one known to exist. Red w/ beige interior, Chev power.\$35,000 Call Bob Elster 707-938-3254. (1/02)

PACKARD '31 4-pass Coupe. All metal replica built on '67 Buick Wildcat running gear. 2000 miles on rebuilt 430 CID V-8, 4-bbl, 360 hp engine with chrome side pipes. \$7,500 o.b.o. Bill Kaiser 415-648-6250 (10-03)

STERLING powered by '63 Buick 3.8 liter V-8. Fast, reliable, smog legal. White w/ brown interior. Removable sunroof, stereo, CB. Gorgeous, one-of-a-kind looker. Ya gotta hear the engine snarl. Excellent condition. **REDUCED TO \$4,000.** Roy Yates 650-365-1909. (2/01)

2003 NCKCC San Leandro Show and 2003 AHA Knott's Berry Farm Show. Available as DVD or VHS tape. Each show is \$16 postpaid in U.S. Send check to VMH Services, 3317 Ellesmere Ct. Walnut Creek, CA 94598. Call 925/938-1442 for info on credit card payment via "PayPal" (6/03)

"Cars for Sale" ads in the Kit Car Sun are for members only. Rate is \$10 for 12 issues.

The kit car industry on the internet:

**kitcar.com**  
and  
**cobracountry.com**

- kit cars For Sale by Owner...
- in 22 kit categories plus Cobracool
- Consumer Alerts, show coverage
- over 1200 web pages
- Pro tips on motorcar photography

*Curt Scott*

661-251-2223

Note: Curt Scott has a great web report on the Monterey Historic Races at [www.cobracountry.com](http://www.cobracountry.com) - Help him identify one last person in a group shot.

## **CALENDAR OF EVENTS - 2004**

- January ??, 2004 - Nothing scheduled.
- February ??, 2004 - Tour of NUMMI auto assembly plant Fremont, Shane Williams, Champion
- March 27, 2004 - Towe Auto/Railroad Museum, Sacramento. Cameron or Stager, Champion ??
- April 17, 2004 - Coming Out for new cars and members. Leanne Jones, Champion
- April 24-25, 2004 - AHA Knott's Berry Farm Show.
- May ??, 2004 - Boat Tour of Mothball Fleet from Martinez, Vern Hance, Champion.
- June 5 & 6, 2004 - Walnut Creek Art & Wine Fest. Paul King, Champion
- June 17-20, 2004 - Oregon Run, Oregon Caves, OHAA meet. Maddux, Champion
- July 3, 2004 - Torchlight Parade, Benicia + Dine Out. Maddux, Champion
- July 17?, 2004 - Bethel Island 50s Bash. Hance, Champion
- July 21??, 2004 - Fallon, NV GoldMine State Park overnight, Bohaboy, Champion
- August 14?, 2004 - Hot August Niles Car Show. Shane Williams, Champion.
- September 11 & 12, 2004 - NCKCC San Leandro Show. L. Jones+C.Williams, Chair.
- September ??, 2004 - Walnut Festival Evening Parade, Paul King, Champion.
- October ??, 2004 - Wine Tour by Leanne Jones, Champion.
- October 22-24, 2004 - Club Sandwich, Laughlin. NV
- November 14, 2004 - Annual Brunch (Ryde Hotel or Hs'Lordships) Champion needed
- December 2004 - No NCKCC event scheduled.