



CALIFORNIA ASSOCIATION OF ACCIDENT RECONSTRUCTION SPECIALISTS

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No. 7

Fall 1999

CONFERENCE '99

CONFERENCE '99

CONFERENCE '99



CONFERENCE '99

CONFERENCE '99

CONFERENCE '99

CONFERENCE TOPICS

- Black boxes in vehicles & related technology
- Live crash testing & the practical application of crush
- Bumper underrides and stiffness coefficients

CONFERENCE SPEAKERS

- Don Gilman - Vetronix Corporation
- James A. Neptune - Neptune Engineering, Inc.
- Donald J. Basham - Accident Reconstructionist

IN THIS ISSUE:

- [Schedule of Events/Classes/Training](#)
- [Blurbs from the Board](#)
- [Point of Rest](#)
- [New Member Spotlight](#)
- [ACTAR Comments](#)
- [ACTAR Exam Information](#)
- [Seminar/Conference Information](#)
- [WREX 2000 Conference](#)
- [Technology Today: Night Vision](#)
- [Body Language Article](#)
- [Test Your Skill](#)
- [Test Your Skill Answers](#)

SCHEDULE OF EVENTS

November 1999

	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

1-5: Intermediate Traffic Investigation by Los Medanos College. Information: (925) 439-2185 ext. 242

December 1999

			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

January 2000

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2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

24-28: Intermediate Traffic Investigation by Los Medanos College. Information: (925) 439-2185 ext. 242

31-Feb.11: Advanced Traffic Investigation by Los Medanos College. Information: (925) 439-2185 ext. 242

[Back to Top](#)

FUTURE CLASSES

2/28/00-3/10/00:
Traffic Accident Investigation by Los Medanos College. Information: (925) 439-2185 ext. 242

4/3/00-4/7/00:
Intermediate Traffic Investigation by Los Medanos College. Information: (925) 439-2185 ext. 242

5/29/00-6/2/00:
Intermediate Traffic Investigation by Los Medanos College. Information: (925) 439-2185 ext. 242

6/5/00-6/16/00:
Advanced Traffic Investigation by Los Medanos College. Information: (925) 439-2185 ext. 242

BLURBS FROM THE BOARD

Board of Directors

CHAIR Kevin Cassidy - San Jose Police Department

VICE CHAIR Duane Tannock - Palo Alto Police Department

DIRECTORS AT LARGE Al Sutcliffe - San Jose Police Department
Jim Willette - Mountain View Police Department

Rudy Degger - Rudy Degger & Associates, Inc.
Kerry Berg - Kerry A. Berg & Associates, Inc.
Daniel Trudell - ARS

I have received a lot of positive feedback following our CA2RS July quarterly training meeting. It seems that most of you enjoyed the training provided and also got a sick pleasure out of watching a PVC dummy getting whacked by a vehicle. Many thanks to the Concord PD for providing a wonderful facility and the "somewhat tired" test vehicle. Thanks also to the Rhonert Park DPS for providing the additional "push" needed to get the test vehicle up to speed. We couldn't have done it without you! (I guess if the tow companies were donating brand new Cadillacs, we'd feel bad about crashing them.)

I have heard from the instructor, Jerry Eubanks, and he has reviewed the video and data from the tests. He has discovered a few problems with the PVC dummy, but found it to be useful. However, more test data is needed to make a more accurate final determination. For now, we'll make some changes and save it for future training. Speaking of future training, in response to numerous inquiries he received following the meeting, he is interested in returning for a future class that will cover more of the equations and mathematics involved in pedestrian collision reconstructions. We'll plan on it.

For those of you who did not have the opportunity to attend the meeting, the board took an advisory vote from the membership regarding a membership fee increase. It seems that our expenses have come close to exceeding our income. During a somewhat lively discussion, a very appropriate and necessary question arose as to what were the actual expenses of CA2RS. I explained them off the top of my head to the best of my ability but it was further suggested that CA2RS publish an accounting statement at least annually. Quite honestly, it had not occurred to me before that such a statement would be necessary. However, looking at the phenomenal growth that CA2RS has experienced in the past year, it is obvious that a fair sum of money is now being handled in the administration of the organization. In response to the suggestion, CA2RS will be publishing an annual accounting statement at the end of the second quarter of each fiscal year. This will roughly coincide with our December newsletter and will be published within that document. Of course, the financial records of the organization are open year-round to inspection by any CA2RS member.

Additionally, the finances that were previously handled by the CA2RS Administrative Staff, are now the responsibility of the CA2RS Treasurer. Rudy Degger has agreed to accept an appointment to this position due to the fact that his office is currently supplying office space, the mailing address, and personnel for the organization. Lastly, CA2RS has obtained a checking account to fulfill its bill payment obligations. Previously, cash reimbursements were made by the Board upon presentation of receipts by the Administrative Staff.

As for the membership fee increase, after the discussion, the membership overwhelmingly voted that a fee increase was necessary and acceptable. Therefore, for new members, the membership fee is now \$40 (up from \$25) plus the one-time \$10 application fee. For past members who have not already renewed, the membership fee increase will not take effect until your next renewal in July 2000.

Part of the discussion about expenses centered on our greatest expense, this newsletter. However, the Board feels that it is a necessary and important communication with our members and any attempt to dismantle it would be detrimental to the organization.

Therefore, we are expediting our efforts to find alternative forms of communication to supplement it. The obvious alternatives are sending it via e-mail or posting it on a dedicated CA2RS website. These technologies are being explored and look for these to be a member's option for receiving the newsletter within the next six months.

As CA2RS grows, we are all learning more about the proper leadership and administrative procedures that are necessary to provide and operate a quality organization. The Board and Administrative Staff appreciate your patience and your continued suggestions to improve the organization.

Kevin Cassidy
CA2RS Chair

A Special Thanks

Thank you to the following individuals & agencies who helped to make our AUTO-PEDESTRIAN training at our last CA2RS meeting a success!

Jerry Eubanks - Automobile Collision Analysis
Bud Crosthwait - Concord Police Department
Concord Police Department
Rhonert Park Police Department

[Back to Top](#)

TECHNOLOGY TODAY: NIGHT VISION

On the Horizon: Night Vision

by Ann Job

at <http://carpoint.msn.com%20on%20the%20internet/>on the internet

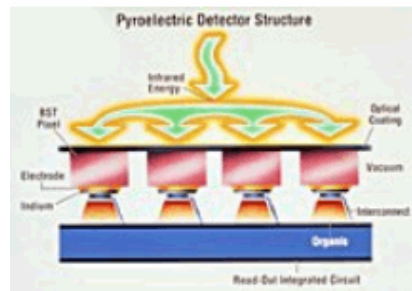
About a year from now, buyers of the Cadillac DeVille will be offered the same night vision technology that Desert Storm troops used in the Gulf War.

According to Ed Zellner, chief engineer for the 200 DeVille, "The 2000 DeVille will be the first vehicle in the world with night vision. It puts science to work for the safety of our customers." The technology, which operates via an infrared sensor behind the center of the car's grille, can detect people, animals and moving vehicles on the road or at the side of the road well before a car's headlights, even high beams, can illuminate them. The image of the person, animal or vehicle is then projected real-time onto a black-and-white heads-up display on the windshield in front of the driver. Objects emitting the most heat are whitest in the display, cooler ones can be black.

With the system providing a view down the road that's three to five times greater than what a driver sees with low-beam headlights and three times greater than some high beams, a driver's reaction time is greatly improved. And because the technology isn't hampered by

oncoming headlight glare, it can also improve a driver's vision in problematic glare situations, or even dense fog. And while drivers travel just 28% of their miles at night, 55% of all motor vehicle fatalities occur at night, according to Zellner. In addition, 62% of pedestrian/vehicle deaths occur at night, where visibility is a major factor.

Cadillac will market the thermal-imaging system, developed with Raytheon Systems Co., under the name "Night Vision." It will be optional on the DeVille, and while no pricing has been announced, Cadillac officials expect it to be similar to what was charged for other first-time technologies such as navigation systems and anti-lock brakes. That could put the price between \$1,000 and \$2,200. Night vision is also expected to reduce the \$300,000-plus annual car/deer crashes in the United States, Zellner said. More than 68,000 of them occurred last year in Michigan alone.



A magnified view of the pyroelectric Detector employed within the Night Vision system.

Zellner also points out that as a DeVille driver returns home and rolls up the driveway, he or she "will be able to pick up an intruder slinking around [the] house in the dark."

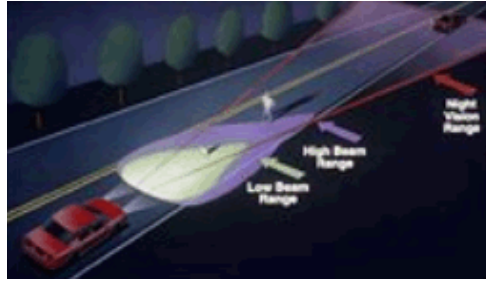
Cadillac General Manager John F. Smith declined to estimate development costs of Night Vision. And he and Zellner emphasize that in contrast to Gulf War uses where night vision was the primary source of information for troops in some circumstances, Cadillac's Night Vision remains "secondary" to the headlights in providing drivers with information about the road in front of them.

To keep it secondary, the Night Vision display is positioned as a peripheral device in the windshield. While it can be moved up and down within a range, it cannot become the central view for the driver out the windshield.



Cadillac has not yet shown Night Vision to insurers to determine if consumers might qualify for discounts on insurance premiums, Smith said. He added it's more likely Night Vision will spread to other vehicles, too.

The system turns on automatically when the car is started and the twilight sentinel system on the car detects low-light conditions. A driver can choose to turn it off, too, but cannot activate the system during daylight.



Night Vision allows the driver to see well beyond
The reach of the car's headlights. This technology
Helps drivers detect and avoid potentially
Dangerous situations.

Honda has been working for years on a similar night vision system, but spokesman Art Garner said the company has no imminent plans to introduce it for U.S. consumers.

BMW spokesman Wieland Bruch said BMW has "ongoing" research on night vision, but has no plans to install it yet on its vehicles.

Just a reminder...

If there is any information you would like changed, added, or deleted from your mailing address, please contact CA2RS Headquarters immediately. If you would like information to appear in our newsletters you must submit your materials to Jennifer. For deadlines please call (925) 284-7739 or e-mail at ca2rs@ca2rs.com.

[Back to Top](#)

POINT OF REST

Doctor v. Attorney

A doctor and a lawyer in two cars collided on a country road. The lawyer, seeing that the doctor was a little shaken up, helped him from the car and offered him a drink from his hip flask.

The doctor accepted and handed the flask back to the lawyer, who closed it and put it away. "Aren't you going to have a drink yourself?" asked the doctor.

"Sure, after the police leave," replied the attorney.

- from the internet

Microsoft vs. GM

At a recent computer expo (COMDEX), Bill Gates reportedly compared the computer industry with the auto industry and stated, "If GM had kept up with technology like the computer industry has, we would all be driving twenty-five dollar cars that got 1000 miles to the gallon."

In response to Mr. Gates' comments, General Motors issued the following press release (by Mr. Welch himself, the GM CEO), "If GM had developed technology like Microsoft, we would all be driving cars with the following characteristics:

1. For no reason whatsoever, your car would crash twice daily.
2. Every time they repainted the lines on the road, you would have to buy a new car.
3. Occasionally, executing a maneuver, such as a left turn, would cause your car to shut down and refuse to restart, in which case you would have to reinstall the engine.
4. Only one person at a time could use the car, unless you bought "Car95" or "CarNT". But then you would have to buy more seats.
5. Macintosh would make a car that was powered by the sun, reliable, five times as fast and twice as easy to drive.
6. The oil, water temperature and alternator warning lights would be replaced by one "general car default" warning light.
7. New seats would force everyone to have the same size bottom.
8. The airbag system would ask "Are you sure?" before going off.
9. Occasionally for no reason whatsoever, your car would lock you out and refuse to let you in until you simultaneously lifted the door handle, turned the key, and grabbed hold of the radio antenna.
10. GM would require all car buyers to also purchase a deluxe set of Rand McNally road maps (now a GM subsidiary), even though they neither need nor want them. Attempting to delete this option would immediately cause the car's performance to diminish by 50% or more. Moreover, GM would become a target for investigation by the Justice department.
11. Every time GM introduced a new model car, buyers would have to learn how to drive all over again because none of the controls would operate in the same manner as the old car.
12. You'd press the "start" button to shut off the engine.

Full Stop

A police officer (who shall remain nameless) pulled over a red Porsche after it had run a stop sign. "May I see your driver's license and registration please?"

"What's the problem, officer?"

"You just ran the stop sign back there at the last intersection."

"Oh, come on pal, there wasn't a car within miles of me."

"Nevertheless sir, you are required to come to a complete stop, look both ways, and proceed with caution."

"You gotta be kidding me!"

"It's no joke, sir."

"Look, I slowed down almost to a complete stop, saw no one within twenty miles, and proceeded with caution."

"That's beside the point, sir. You are supposed to come to a complete stop, and you didn't. Now if I may see your license and -"

"You've got a lot of time on your hands, PAL! What's the matter, all the doughnut shops closed?"

"Sir, I'll overlook that last comment. Let me see your license and registration immediately!"

"I will, if you can tell me the difference between slowing down, and coming to a complete stop."

The police officer had enough. "Sir, I can do better than that." He opened the car door, dragged the obnoxious motorist out, and proceeded to beat him over the head with his nightstick.

"Now sir, would you like me to slow down or come to a complete stop?"

- from the internet

[Back to Top](#)



**Please welcome our newest members to
CA2RS**

Randall Pitts - Fairfield Police Department

Benn Karne - Karne Engineering

Mark Dang - Alameda Police Department

Sean McMenamin - Alameda Police
Department

John Muse - John Muse & Associates

Bob Snook - California Highway Patrol
(MAIT)

George Ogilvie - Oregon Collision Analysis

Thomas Gorrie - Union City Police
Department

Steve Greenlee - San Jose Police
Department

Jerry Eubanks - Automobile Collision

Analysis
Eugene Vanderpol - Vanderpol & Associates
Edward Lewandowski - Kensington Police Department
Stephen Benanti - Massachusetts State Police
John Garton - CHP
Chris Kauderer - Kauderer & Associates
David Casteel - The Ayres Group
Roman Beck - The Ayres Group
Bryan Ranoles - Accident Research & Biomechanics
Peter Giacobbi - Accident Recon Experts
Dane Lobb - CHP
Matthew King - J2 Engineering

[Back to Top](#)

ACTAR SCHEDULE OF ACCREDITATION EXAMINATIONS

DATE	DEADLINE	LOCATION
October 5, 1999 - Tuesday	September 17, 1999	Allentown, Pennsylvania
October 17, 1999 - Sunday *	October 1, 1999	Concord, California
Date TBD in April 2000 - Sunday	TBD	Jacksonville, Florida
May 21, 2000 - Sunday	May 1, 2000	Eau Calire, Wisconsin
September 24, 2000 - Sunday	September 1, 2000	Riverside, Texas

* The October 17, 1999 exam will follow the two-day seminar hosted by CA2RS at the Hilton Hotel in Concord.

For Application, Questions or Comments contact:

Al Baxter - Administrator
 PO Box 5436, Hudson, FL 34674
 1-800-809-3818

Also see the ACTAR web site: <http://www.actar.org/>

ACTAR Examination Fees

NON-MEMBER FEE	MEMBER FEE
Application: \$175.00	Application: \$150.00
Exam: \$75.00	Exam: \$50.00
Total: \$250.00	Total: \$200.00 - You save \$50!

Member fees are applicable to individuals who are currently members of a participating organization of ACTAR, the Accreditation Commission for Traffic Accident Reconstruction. CA2RS is a participating organization of ACTAR.

[Back to Top](#)

WORLD RECONSTRUCTION EXPOSITION 2000

Are you ready for the largest Combined Conference of non-profit AI/AR organizations ever held?!

September 24-29, 2000
College Station, Texas USA
Hosted by: TAARS

Co-Sponsored by:

ASPACI | CA2RS | CATAIR | FARO | IAARS | IATAI | ITAI
M(a)ATAI | M(i)ATAI | M(id)ATAI | NAPARS | NATARI | NJAAR | NYSTARS
PSFM | SARS | SATAI | SCARS | SOAR | TAARS

Vendor information: Those wishing to reserve a table for Vendors Night, Wednesday, September 27, 2000, to display their company's products and/or services may contact George Bonnett, telephone: 407-639-0124; or e-mail: rec-tec@att.net; Chairman, WREX2000 Combined Conference Vendor Committee.

This will be an historic event! Start making your plans now to attend.
(Additional details of the conference may be found at: <http://www.wrex2000.org/>)

[Back to Top](#)

BODY LANGUAGE

News Update from
"Graduating Engineer & Computer Careers"
March 1999

A cooperative project being run by the U.S. Air Force and the Society of Automotive Engineers (SAE) is using a full body laser scanner to collect data on the size and shape of the human body. The Civilian American and European Surface Anthropometry Resource (CAESAR) project formed in 1997, includes a number of partners from the ground vehicle, off-highway, aerospace and apparel industries.

Data gathered from volunteer subjects is collected in one 17-second pass with the Air Force-owned Cyberware WB-4 Whole Body Scanner. Participants are provided with bike shorts, a latex cap and, for women, sports bras, allowing the scanner to produce closely contoured images in each of three positions (one standing and two sitting). When the scan is complete, data from the multiple scanning instruments is combined to create a 3-D image of the participant's body.

CAESAR plans to scan 4,000 men and women in the United States and 4,000 men and women in Italy and the Netherlands. The data will be used to improve car interiors, seating

and instrument panels as well as to modify sizing standards in the apparel industry.

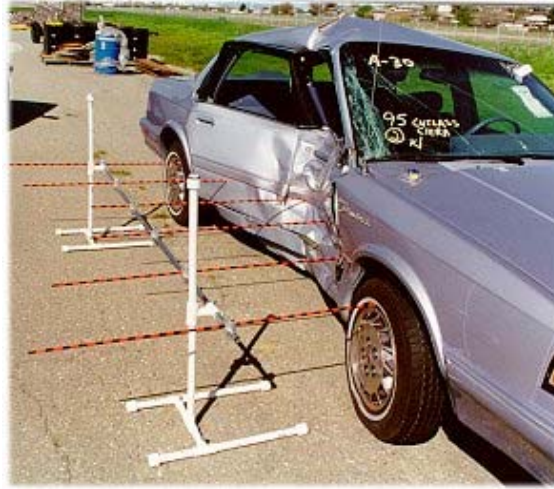
[Back to Top](#)

TEST YOUR SKILL

1. A motorcycle accelerates from a stop at a constant rate of 11.5 feet per second. What is the speed of the motorcycle in 50 feet?
2. Of the five basic pedestrian trajectories, which is expected when a Volkswagen van impacts a standing adult? The Volkswagen was traveling 30 mph and is braking at the time of impact.
3. You measure a critical speed scuff and determine the cord length is 50 feet and the middle ordinate is 3 inches. You determine that the drag factor (f) is 0.65. What is the radius of the critical speed scuffmark? What was the speed of the car that left the mark?
4. A car (3,000 lbs) and a truck (5,000 lbs) collide head-on. The speed of the truck is 55 mph. How fast must the car travel to completely stop the truck? Hint: Their respective kinetic energies must be equal at the time of impact.
5. A car is launched from a ramp and travels a horizontal distance of 60 feet before impacting the ground. The car then slides an additional 100 feet before coming to a stop with a drag factor (f) of 0.40. The horizontal length of the ramp is 10 feet and the height is 2.5 feet. The car's center of mass falls 6 feet during the flight. What is the launch velocity of the car?

The DBD Crush Deformation Jig

Simplify your crush deformation measurements and provide outstanding demonstrative trial evidence



for more information visit <http://www.rudydegger.com/products.htm>

[Back to Top](#)

EXCERPTS FROM ACTAR COMMENTS BY AL BAXTER, ADMINISTRATOR



I am pleased to announce that ACTAR has processed its 1000th applicant for accreditation in August, well before Y2K! We now have had over one thousand reconstructionists begin the process. As of August 27, we now have 634 reconstructionists currently holding accreditation and 83 waiting for examination results or a test site near where they live.

In other news, the Colorado State Patrol has confirmed that their agency will become the 20th Participating Organization on the Governing Board of Directors, joining the Pennsylvania and Michigan State Police who have been affiliated with ACTAR.

The Winter-Spring edition of the ACTAR News contained a survey from requesting feedback on several areas regarding how ACTAR can meet the needs and goals of the accident reconstruction community. (Note: the entire Survey Form is available for review on the ACTAR Website at: <http://www.actar.org>). One of the questions asked of all accredited reconstructionists was how can ACTAR and the process be better promoted. Many of the replies indicated that ACTAR should get the word out to attorneys, insurance companies and judges. I am happy to report that as this is being written, copies of the ACTAR Directory have been mailed to almost 800 insurance companies, bar associations and all the Federal Appeals Courts in the United States and Canada. We are also placing the finishing touches on an article about ACTAR written by Joseph Badger ACTAR #142 that can be published in bar association newsletters and magazines. I hope to have this article ready for mailing before the end of the year.

During the last nine months there have been a few interesting court cases concerning expert witnesses in general and accident reconstructionists in particular. [One] case in January of 1999 came to light involving the qualifications of an expert witness. This matter was *Wilson v. Woods, Meyers Bakeries and MCC Transportation* and was decided by the three judge panel of the US 5th Circuit Court of Appeals. The sole issue on appeal of this case from the District Court was the court's decision to deny the plaintiff's expert witness' testimony. The case involved a tractor semi-trailer, which struck a passenger vehicle in the rear, and the question of the truck's speed at the point of impact was at issue.

The expert witness offered in this case was primarily an expert in fire reconstruction and investigation. He held a Bachelor of Science and Master of Science degrees in mechanical engineering, but never completed his doctorate degree. The expert taught courses in mechanical engineering at various colleges and vocation schools. His 25 years as a consultant was in the fire area and he had only recently shifted his professional emphasis to automobile accident reconstruction.

As the Plaintiff's attorney moved to qualify the expert in accident reconstruction, the defense on voir dire revealed that the expert never held professional rank, never taught an accident reconstruction course or any other course that involved automobile accident reconstruction, had no degree or certification in accident reconstruction (but did complete a correspondence course from the Traffic Institute), he had not completed the requirements for certification by the Association of Accident Reconstructionists (I believe here the court was referring to ACTAR), and, although he had testified in various cases, one court had refused to qualify him as an expert in vehicle accident reconstruction based on his lack of qualifications.

The court upon questioning the expert witness candidate ascertained that he never conducted any studies or experiments in the field of accident reconstruction, did not take any measurements or collect any data from the accident scene in this case, did not examine the tires or other mechanical parts involved in the accident, based his calculations on publicly accessible data published by NHTSA, and was unable to show that his training or experience as a mechanical engineer gave him the expertise in the field of accident reconstruction that was distinguishable from training received by other mechanical engineers. Based on all these facts, the court refused to qualify him as an expert witness. The appeals court upheld this finding without dissent.

...If you have read this far you can see a definite pattern here that the courts rely on for expert witness testimony. First, if you are not accredited by ACTAR, get accredited. Second, as a member of one of ACTAR's participating organizations, you should be more than just a name on a membership roster. You should be participating in testing. You should be writing papers for the various newsletters on the appropriate technical subject matter. Get involved, and attend meetings and conferences. Make presentations. If you don't, someday you may not be able to take the stand as an expert witness.

[Back to Top](#)

TEST YOUR SKILL ANSWERS

1. 33.9 feet per second (fps)

2. forward projection
3. 1250.1 feet, 161.9 feet per second (fps)
4. 71 miles per hour (mph)
5. 54.2 feet per second (fps)

[Return to Newsletters >>](#)