WATAI NEWSLETTER

April 2001 Issue The official publication of the Washington Association of Technical Accident Investigators

President's Message

I would like to thank the Board for suggesting that I consider a more formal involvement with WATAI and for the support of the membership in my election to the position of President.

My career in collision reconstruction dates back to 1985. I have worked in the Seattle area since 1991. I am a member of three technical accident investigation groups and I have participated in the groups as both a presenter and a seminar attendee. This experience has taught me one thing: an organization is only as good as its meetings.

Meetings and seminars are the principal method for a technical organization to interact with its membership. Moreover, the meetings are the principal benefit to a member. The meetings provide an opportunity for members to meet their colleagues and individuals in complementary disciplines. The meetings should offer training ranging from refreshers on old topics to training in new technology and information on the state-of-the-art.

I have been pleased with the meetings that WATAI has recently conducted. One of my goals as President is to help continue this trend and work to offer meetings that have relevance to the entire membership.

The meetings planned for 2001 should have interest to novices and veterans alike. Elsewhere in this newsletter, Bob Dolhanyk outlines the upcoming May meeting. This October, we have an exciting two-plus days planned at which time we will participate in human factors experiments dealing with nighttime driver performance. Volunteers will be needed for the study, so plan to be involved!

A further goal should be to increase our membership. If you have colleagues that are not currently members, spread the word and encourage them to join. Membership in WATAI enhances professional credibility and is a great and inexpensive way to help stay current.

I am interested in hearing from members regarding these or any issues. If you have ideas for seminar topics or any other suggestions, please drop me a line at moebes@arsoftware.com , phone me at 425-861-4666, or speak with me at the May meeting.

Regards,

Tim Moebes

Dates To Remember

May 9, 2001
WATAI Spring Meeting
CJTC
19010 1st Avenue S.
Seattle, WA

October 10-11, 2001
WATAI Conference
Bremerton, WA

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WATAI Fall 2000 Conference Highlights

Bv Vern Goodwin

We had a very interesting meeting this fall as we returned to the Bremerton location. The meeting began in the usual manner with donuts and coffee. That in itself was worth the yearly dues. During the short business meeting that followed, a plaque was presented to Garth and Linda Olson. Their help over the past few years has made our testing much easier and enjoyable. They were also awarded a lifetime honorary membership. Our thanks go out to Garth & Linda.

A plaque was presented to someone else. Oh Yeah, it was Dick Chapman. Dennis Martin made a mushy speech before presenting the plaque. But seriously…Dick, who stepped down from the presidents job, will be sorely missed. He worked tirelessly for the organization during his tenure as president. Thank you, Dick. Hopefully, that plaque and 3 dollars will get you a latte at any Starbucks.

An election of officers and board of directors was completed. Tim Moebes was elected as president. It appears that he has settled into the job quite nicely since then.

Following the business meeting we were treated to a wonderful presentation by Mark Bailey of MacInnis Engineering Associates, on the seemingly mundane subject of skidding to a stop. He summarized the results of some extensive testing that was done by them. They performed some 540 locked wheel skid tests from 60 km/hr (37 mph) while keeping all variables except type of tire and road wetness constant (to the extent possible). They used a highly instrumented vehicle. It had been outfitted to monitor and record each wheel rotation so that exact time of brake lock up could be recorded. A MacInnis 5th wheel was attached to the vehicle enabling the tracking of actual ground speed and position at any point in time. The brake system had been modified to disable the antilock brakes and a pneumatic brake actuation system had been installed so that the brakes could be applied at the same rate each time. The brake application time had been found comparable to that of real people.

Some very interesting results were obtained. A significant difference was found in the skid resistance between the types of tires being tested especially when wet. As one would hope, the performance tires exhibited a higher skid resistance than did the lower priced tires under both wet and dry conditions. The average friction coefficient for each skid, computed by measuring the skid mark and obtaining the speed at the beginning of the skid mark ranged between 0.82 and 0.87 dry. This is somewhat higher than what is often used for traveled asphalt. No skid mark was produced during the wet testing.

Another average friction coefficient computed by determining the point of first wheel lockup and the vehicle speed at the point of first wheel lockup varied between 0.54 and 0.61 wet and between 0.78 and 0.83 dry. Still another average friction coefficient, computed by determining the point of brake application and the vehicle speed at the point of brake application varied between 0.54 and 0.61 wet and 0.75 and 0.84 dry. These last 2 coefficients are probably of less use to the accident reconstructionist since we are often working from skid marks, but they do illustrate the different numbers that can be generated for the same test by slight variation in data gathering. It pays to know just how that friction coefficient you are using was determined! Note that none of these methods include driving along at a given speed, stomping the brakes and then getting out and measuring the skid mark length. That average "coefficient" could be calculated by using the initial speed and the skid mark distance from the data table.

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WATAI May Meeting 2001

By By Bob Dolhanyk & Tim Moebes

WATAI is pleased to announce that Professor Frank Navin will speak to our group this May.

Frank Navin is a Professor of Civil Engineering at the University of British Columbia and has specialized in Road Safety Engineering since 1979. He has carried out about 100 vehicle impact tests and many other full-scale dynamic tests during that time. The vehicles range from small automobiles, buses and fully loaded tractor trailers. Professor Navin has focused much of his research on developing methods to explain the complexities of collisions so they are understandable by a large group of people.

Professor Navin has taught road safety engineering courses in Canada, China, USA, South America, South Africa, Thailand, Australia and New Zealand. We are grateful that he will take the time to share his expertise with us.

The first talk is NEWTON BY OBSERVATION AND COLLISION RECON-STRUCTION. This talk was developed for people who know of Newton's Laws but are not sure of them. It shows how everyday observations can be used to obtain our own set of rules, but Newton beat us to them a few hundred years ago. The purpose is to take the mystery out of Newton's Laws for ordinary folks. The talk shows how everyday life experience can be used to observe Newton's Laws.

The second talk Professor Navin will offer is WHERE AND WHEN DID THE TRUCK ROLLOVER? This talk summarizes a set of truck experiments over the last few years in cooperation with the RCMP. The particular exercise was to develop a set of simple rules that could help investigators obtain accurate and consistent estimates of a truck's rollover speed. There will be a short seven-minute video from the 2000 Rollover experiments. This second talk will have consider-able new information of use in collision reconstruction.

The meeting will be held at the Washington State Criminal Justice Training Center (CJTC) 19010 1st Ave South, Seattle, WA. The meeting will start at 8:00 am on Wednesday, May 9, 2001. So get out your calendars and mark the date and plan on attending this year's WATAI May meeting.

There will be an ACTAR examination the day before (contact Dick Chapman at dickchapman1@home.com for information) and as usual, six (6) ACTAR CEU's will be awarded for attendance at this meeting.

WATAI Board Members

President: Tim Moebes, Trantech Corporation e-mail: moebes@arsoftware.com
Vice President: Dennis Martin AIDE, Inc. email: dmartin@mde.com
Secretary: Bob Dolhanyk, Interstate Analysis & Vancouver PD e-mail: busman@e-z.net
Treasurer: Ron Edwards, Seattle Police Department e-mail: pedwards2@uswest.net
Sargeant At Arms: Pat Lowrey, Kent Police Department e-mail: carcrashes@aol.com
Position #1: Vern Goodwin, AIDE, Inc. e-mail: goodwin@mde.com
Position #2: Ed Wells, Ed Wells & Associates, Inc. e-mail: edwells@home.com
Position #3: Mel Knittel, Kollision Dynamics & Analysis e-mail: mknittel@hctc.com
Position #4: Greg Wilcoxson Washington State Patrol e-mail: gawilco@wsp.wa.gov
Position #5: Rocky Desimini, Oregon State Police e-mail. arts@oregontrail.net
Past President: Dick Chapman Dick Chapman & Associates, Inc. e-mail: dickchapman1@home.com

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Of particular interest was the amount of vehicle slowing that takes place before skid marks become visible. It is estimated that the vehicle's pre brake application speed is approximately 10% greater than that calculated using the skid mark length (at 37 mph). Also, the time period from brake application until skidding occurs is on the order of ¼ second. This could be an important consideration when evaluating perception/reaction times.

SAE paper 2000-01-1314, "Tire Friction During Locked Wheel Braking" gives much more info on the above testing.

Mr. Bailey continued his presentation by delving into the uncertainty of the many variables involved in the reconstruction of accidents and a method by which a "most likely" scenario can be arrived at (rather than just a range of possibilities). He presented a method known as the "Monte Carlo Simulation" by which each variable in a formula is assigned a range and then thousands of calculations of that formula are performed with the variables randomly selected from the assigned ranges. The result is a probability chart from which the range of results can be determined for any given probability level. For instance, for a vehicle with an 80 foot measured skid, a speed range of 40 to 45 mph might be determined for a 51% probability, or alternately, a speed range of 37 to 48 mph might be determined for an 80% probability. Mighty useful if you are anticipating questions about the reliability of your results. Coincidentally, MacInnis Engineering markets a software package to do this analysis.

In the afternoon we traveled to the Bremerton Airport to conduct more skid tests similar in nature to the ones described above but with the added desire to determine how (and if) the tire skid resistance changes with increasing vehicle speed. It was a very nice autumn day, little did we know that the rest of the fall would be nearly as nice. MacInnis Engineering had their test vehicle on site for the tests. A total of 26 slide to stop tests were run which basically ruined the two sets of tires WATAI had obtained for the tests (courtesy of Les Schwab). 12 tests were run averaging 36 mph, 11 tests averaging 53 mph and 3 tests averaging 72 mph. We would have preferred to do more high-speed tests but unfortunately tires and time ran out.

The results were presented the following morning with an obvious amount of midnight oil having been expended. The following table lists the actual results and the following charts summarize the results in graphical form. Keep in mind that the "brake distance" column lists the distance to stop from where the brake pedal is first depressed. Only a slight reduction in the measured coefficient of friction was recorded at the higher speeds compared to the lower speeds. However, due to the small sample size, little significance can be attached to the reduction. It can probably be safely said that there is not a large difference between coefficient of friction for 35 versus 70 mph under dry conditions, all other things held the same. Note that lower overall friction coefficients were produced in these tests than in the tests previously done by MacInnis. This was probably primarily due to having a smoother road surface at the airport.

MacInnis Engineering expended a great amount of time and expense in helping to make the test a success. Thank you, Mark and Trevor.

After the MacInnis presentation, Matt Williams, attorney for SAFECO, gave a very interesting talk concerning the history, practicality and admissibility of digital photographs. The bottom line concerning digital photographs seems to be that they are here to stay and that they have been and will continue to be

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AIRIL Meeting Approaches

By Tim Moebes & Bob Dolhanyk

An international meeting of interest to collision analysts will be held August 13 - 16, 2001 in Vancouver, BC

AIRIL '01 is the Fourth International Conference on Accident Investigation, Reconstruction, Interpretation and the Law.

AIRIL started in Australia (1995, 1997) and South Africa (1999). These meetings have acted as a forum for presenting noteworthy advances in many aspects of the study of accident analysis, road safety and the law. The aim of the Conference is to promote understanding and cooperation among police, engineers and lawyers and to provide a forum to discuss the areas of growing significance in the fields of vehicle accident investigation and reconstruction.

Topics include:

*Crash Investigation
*Accident Reconstruction
*Modeling/Simulation of Collisions,
*Crash Investigation and Presentation in Court
*Programs to Teach Accident Reconstruction
*Programs to Prevent Crashes
*Insurance Company Roles
*The Expert Witness
*Legal Requirement of Data
*Truck Collisions

Social Program

Social events will include an opening reception and a salmon barbecue banquet. Some free time will be scheduled during the Conference, and a choice of excursions will be available, A wide range of recreational facilitates are at hand.

There wise also be other events of interest to police and other that are now being arranged.

Spouse Program

There will be an operational spouse program to local sites of interest. More details will be available as the program develops.

Registration Fees

The early registration deadline is May 31, 200 1. Full Symposium fees are approximately $450 Canadian (300 US). Reduced student and companion fees will also be available. Limited 'scholarship' support will be provided by the Conference on a case by case individual assessment.

For full information on the Conference, check out April's website at:

http://www.civil.ubc.ca/home/AIRIL01

October Conference Plans Taking Shape - **By Dennis Martin**

We have a very exciting program and test plan being developed for our October conference. An internationally recognized expert and researcher on perception/reaction/visibility issues will be here to give classroom training and, even more exciting, to work with WATAI in doing some leading edge nighttime visibility studies under very dark conditions.

WATAI members will be given the opportunity to be test subjects and do some night time driving at the test facility at the Bremerton Airport. We will need as many test subjects as we can get to the site the night of October 10 and possibly the 9th as well.

Our conference will be on the 10th and 11th at the usual Howard Johnson's Hotel in Bremerton. Mark it on your calendars so you will be sure to be there. We would also ask you to invite your spouses, and adult friends and relatives to come and be part of the nighttime testing as well. DON'T MISS IT.

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used and admitted in court. The person who took the image must be able to stand up and say he was there and that what is depicted is what it looked like at the time, just like conventional photographs. Certain steps should be taken by the digital photographer to ensure that the images he says are original truly are and that they have not been altered. For those who missed this presentation, an article by Mr. Williams which covers most of the points in his talk appears in the September 2000 WATAI Newsletter. Our thanks go to Matt, a frequent contributor to our meetings.

Mail Interruption Unforeseen

By Tim Moebes

In late January and early February, delivery of mail to WATAI's post office box was suspended by the Postal Service for non-payment. The Postal Service claims that they submitted an invoice to the box in December. However, the invoice was not in the box when the mail was collected in early January.

The situation was noticed when the mailbox was empty on February 19th. About the same time, members began to alert us to that their mail was returned.

The fee for the box was paid and mail service has resumed. We apologize to any members that were inconvenienced.

For the record, WATAI's mailing address remains:

WATAI
P.O. Box 70211
Bellevue, WA 98005

LAST MAILED NEWSLETTER

This will more than likely be the last WATAI Newsletter published in print and mailed to members. So make sure you save it because it may be worth a lot of money someday!

Kidding aside, the newsletter is another victim of the digital age.

The newsletter's new home will be on our webpage at: www.watai.ws. Be sure to check it out.

WATAI News:

By Ed Wells

One of the best bargains of the past twenty-two years is only going to be getting better! Yes, it is true. The original application fee and yearly dues for WATAI have been raised only once since our Charter Meeting in October of 1979! And now, it will be better! Your Board of Directors is proposing that you approve an adjustment of the costs for belonging to WATAI to better reflect the costs and value of the training that we enjoy,

While we have a wealth of in-house knowledge, we have found that we have a need to bring experts from far and wide to share knowledge in areas that we have not yet been exposed. All of that takes money, and in order to raise that money, the Board of Directors have recommended the following ad adjustments to our bylaws to better reflect our income versus expenses needs.

We are proposing an increase in the yearly dues for Individual Members, from $30.00 to $50,00 per year, with the one-time application fee increasing from $10.00 to $20.00, to become effective October 2001 upon approval of the members.

The Board of Directors has also recommended a fee structure for our new membership classification, Corporate Member, approved by the members last year, and that goes into effect at the end of the current fiscal year in October 2001. Upon approval of the members, the fees for Corporate Members will be $40.00 per member, per year, with a yearly Corporate fee of $40.00 per year to cover the cost normally associated with the application fees. The lesser fee for Corporate Members, lower than that for Individual members, benefit not only WATAI, but also the corporate and governmental entities that provide individual members from single sources. History has shown that there is considerable turnover in job assignments within companies and agencies, and that when a WATAI member has been promoted or reassigned to a non-crash related position, the replacement was not always made aware of the value associated with WATAI membership. Thus WATAI, and the company or agency all lost. The addition of the Corporate Membership classification will encourage these governmental or corporate entities to keep the WATAI positions filled. This new classification allows an employer the opportunity to designate any given number of WATAI membership slots to anyone in their organization so that they can keep their key people trained. By making it easier and more cost-effective to keep all of their Corporate Member slots filled, all should benefit.

WATAI was the first association of its kind, anywhere in the world, but it is one of the last to reflect the rising costs of providing the quality training for which we have been known. The dues paid by WATAI members are our primary source of income and, unlike many similar associations and societies, WATAI has never charged admission for any of our programs, testing or seminars. Put our May and October sessions on your calendar, today, so that you can see, first hand, how wisely your investment in WATAI is being used,

5th wheel testing at the Fall Conference

Washington Association of Technical Accident Investigators
PO Box 70211
Bellevue, WA 98005
Address Corrections *Requested*

ACTAR Examinations, Scheduled

The current ACTAR Examination schedule is:
Saturday April 21, 2001 - Jacksonville Florida - CUTOFF DATE: April 6, 2001
Tuesday May 8, 2001 - Seattle, Washington - CUTOFF DATE: April 24, 2001
Monday May 14,2001 - Golden Colorado - CUTOFF DATE: April 23 2001
Sunday June 10, 2001 - Ft. Collins Colorado - CUTOFF DATE: May 25 2001
Thursday July 12, 2001 - Phoenix Arizona - CUTOFF DATE: June 25, 2001
Sunday July 15, 2001 - Grand Rapids Michigan - CUTOFF DATE: June 29, 2001
Sunday August 12, 2001 - Vancouver British Columbia Canada - CUTOFF DATE: August 3, 2001
Sunday September 23, 2001 - Danville Illinois - CUTOFF DATE:, August 31, 2001
Tuesday October 2, 2001 - Albany New York - CUTOFF DATE: September 21, 2001
Sunday October 14, 2001 - Concord California - CUTOFF DATE: September 21, 2001
See ACTAR's website for additional information (www.actar.org)