

ARC Network Police Program: New Grassroots Police Program for all Traffic Investigation and Reconstruction Teams

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Abstract

The largest traffic investigation and reconstruction web site has recently launched a police department program. In a bid to expand its reach and help local and state funded police agencies, the Accident Reconstruction Communications Network (The ARC Network - <http://www.arcnetwork.org>) has developed a successful Police Program to help ease budget strains within the nation's many law enforcement agencies responsible for accident investigation. If implemented nationally, the program is could save the country millions of dollars for the acquisition of specific vehicular statistical data necessary to accurately investigate and reconstruct traffic accidents.

Figure 1



INTRODUCTION

The program, created to assist all traffic police units, has been reworked and field-tested during this last year. The data provided on the ARC Network has also been approved in courtroom litigation. Originally created for private practice accident reconstructionists, the ARC Network decided to show their own civic responsibility by providing the program to police departments at a fraction of the cost. With the added expense of the country's new Homeland Security priorities, the program has already proven to help ease budgetary challenges brought on by the September 11th attacks and has garnered high praise from accident investigators and accident reconstructionists from multiple

state and local police departments.

"This new police program takes hard-to-find and expensive data and places it in an easy-to-use, web-based format. This simple point-and-click method of obtaining critical data, results in a tremendous timesavings and better user experience. Most importantly, it will save millions of dollars for police departments throughout the country" said Scott Baker, ARC Network Founder and President. "Our goal has always been to network the entire accident reconstruction/investigation industry by provided valuable research information and tools necessary to help all investigators and reconstructionists do their work more efficiently and effectively."

The organization announced the police department program during their 2002 annual Crash Conference held in Seattle, Washington. The conference was a joint effort, held in conjunction with the Collision Safety Institute, <http://www.collisionsafety.net> founded by Rusty Haight, a former Police Officer, also known as the Human Crash Test Dummy. The announcement was well received by the attendees and speakers that featured private practice reconstructionists, engineers, police officers, and notably engineers from Ford Motor Company and a representative from NHTSA.

WHY CREATE SUCH A PROGRAM?

Through market research and economic evaluations, The ARC Network realized all police budgets across the country have been drastically reduced to accommodate for the added expenses related to National Security. The ARC Network program allows police departments to minimize the budgets related to accident investigation and reconstruction in both software and man-hours, without compromising the integrity of the data needed to accurately investigate and reconstruct vehicle accidents. This is critical in helping to maintain a functional, efficient investigation team. Program details can be found online by visiting <http://www.arcnetwork.org/members/police.asp>.

WHO IS ELIGIBLE FOR THE PROGRAM?

Eligibility is open to any state, county or municipal law enforcement agency with the responsibility for roadway crash investigations within their jurisdiction. Most departments who are already using the program include MAIT, accident investigation units, traffic units, reconstruction teams and traffic homicide.

PROGRAM DETAILS

The ARC Network provides traffic investigation and reconstruction units online access to critical vehicle information, in particular, Vehicle Crush Stiffness Data and Individual Vehicle Specifications. This vital statistical information is something all accident investigators and reconstructionist use in order to properly facilitate a crash investigation and is something departments currently pay for, in many cases, separately, for each vehicle involved.

ONLINE VEHICLE CRUSH STIFFNESS DATABASE OPERATIONS

The online database program and web interface were designed and tested with the help of multiple police and private practice users found through the company's online Expert Directory. These experts provided valuable input for data acquisition and display within the two online databases. Baker says, "The data used in the vehicle crush stiffness database comes directly from NHTSA crash testing. We simply use only the data needed to determine the A and B stiffness coefficients and run them through a web-based interface provided by Visual Statement, resulting in a much refined, to-the-point acquisition of the data needed. Instead of searching through crash reports and data sheets, The ARC Network provides the information in a quick and easy format, saving both time and money."

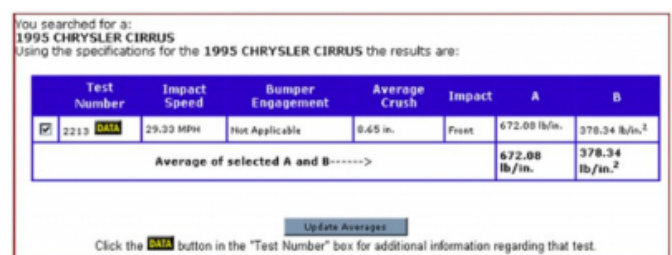
VEHICLE DATA ACQUISITION

Acquiring information from the database is quite simple. The company utilizes a simple drill down method beginning with the year of the vehicle being searched, followed by the make, and then model requested. There are two main databases that make up the bulk of what traffic accident investigators would be using for their investigation needs.

The first is a Crush Stiffness Database, which is an online database of vehicle crush stiffness coefficients. All of the raw information contained in this database has been gathered from NHTSA crash test data and converted to an easy-to-use, web-based format. Also included is a valuable extra link that provides the raw data from every crash test needed to perform the calculation.

Figure 2

"Sample" - Crush Stiffness Database Display

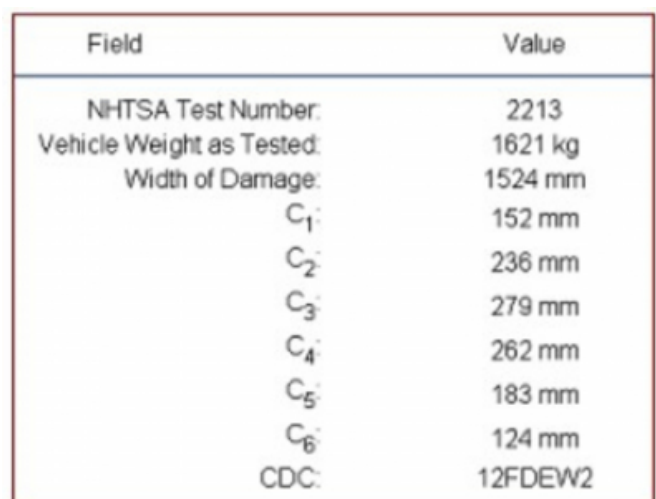


The screenshot shows a web interface for the Crush Stiffness Database. At the top, it says "You searched for a: 1995 CHRYSLER CIRRUS" and "Using the specifications for the 1995 CHRYSLER CIRRUS the results are:". Below this is a table with columns: Test Number, Impact Speed, Bumper Engagement, Average Crush, Impact, A, and B. The first row shows Test Number 2213, Impact Speed 29.33 MPH, Bumper Engagement Not Applicable, Average Crush 8.65 in., Impact Front, A 672.08 lb/in., and B 378.34 lb/in.². Below the table, it says "Average of selected A and B----->" and shows the average values: 672.08 lb/in. and 378.34 lb/in.². At the bottom, there is an "Update Averages" button and a note: "Click the DATA button in the 'Test Number' box for additional information regarding that test."

Test Number	Impact Speed	Bumper Engagement	Average Crush	Impact	A	B
2213	29.33 MPH	Not Applicable	8.65 in.	Front	672.08 lb/in.	378.34 lb/in. ²
Average of selected A and B----->					672.08 lb/in.	378.34 lb/in. ²

Figure 3

Raw Data Display



The screenshot shows a raw data display for NHTSA Test Number 2213. It lists various vehicle specifications and damage measurements. The data is as follows:

Field	Value
NHTSA Test Number:	2213
Vehicle Weight as Tested:	1621 kg
Width of Damage:	1524 mm
C ₁ :	152 mm
C ₂ :	236 mm
C ₃ :	279 mm
C ₄ :	262 mm
C ₅ :	183 mm
C ₆ :	124 mm
CDC:	12FDEW2

FACT: NHTSA estimates there are approximately 1.2 million accidents annually on our nation's highways.

Assuming most accidents involve at least two vehicles, it is estimated that 2.2 million vehicles are involved in an accident annually. Assuming you only need to calculate

speed from crush in 1 percent (1%) of your investigations, this crush database will be needed 22,000 times each year. If you were to purchase the data on a case-by case basis from a third party vendor, this information could cost our departments as much as \$880,000 each year – for just the crush data.

The second online database being offered in this unique drill down format is for the acquisition of Vehicle Specifications. All of the statistical information contained in this database has been gathered and converted to an easy-to-use, web-based format. This database is updated every year and includes most vehicle makes and models from 1971 through 2003. The accuracy of these vehicle specifications has been relied upon by professional accident reconstructionists for years. Because most police investigators need to submit a report of their investigation, the ARC Network has added a link to print the specs in a report-style format. The service is upgraded annually and is also searchable by following three simple steps. Enter the year of the vehicle - Enter the make of the vehicle - Enter the model of the vehicle.

Figure 4
“Sample” - Vehicle Specification Information Display

Year: 2000 Make: GMC TRUCKS Model: JIMMY 2DR SUV 2WD SLS	
Printable Format New Search	
Overall Length: 452 cm (178 inches)	Overall Width: 172 cm (68 inches)
Overall Height: 168 cm (66 inches)	WheelBase: 255 cm (100 inches)
Front Track Width: 139 cm (55 inches)	Rear Track Width: 139 cm (55 inches)
Curb Weight: 1646 kg (3628 lbs)	Front/Rear Weight Distribution: N/A %
Longitudinal distance between the center of the front bumper and the center of the base of the windshield	
120 cm (47 inches)	
Longitudinal distance between the center of the rear bumper and the center of the base of the backlight	
197 cm (78 inches)	
Station wagon and vans	
Longitudinal distance between the backlight top moulding and the front door latch pillar	
Pickups	
Longitudinal distance between the rearmost projection and the front door latch pillar	
The maximum vertical height of the side glass	
42 cm (17 inches)	
Vertical distance between the base of the side glass and the lower edge of the rocker panel	
77 cm (30 inches)	
Distance between side rails or maximum width of top	
116 cm (46 inches)	
The front overhang	
90 cm (35 inches)	
The rear overhang	
106 cm (42 inches)	
Printable Format	

AGENCIES CURRENTLY USING THE PROGRAM

According to the ARC Network, the organization now has over 40% of the State Police agencies using the program and many county and local police departments are beginning to use the program as well. Some of the law enforcement agencies using the program include:

Figure 5

▶ Arizona Highway Patrol	▶ Michigan State Police	▶ Pennsylvania State Police
▶ Bristol Township Police	▶ Minnesota State Patrol	▶ Seattle Police
▶ Florida Highway Patrol	▶ Nevada Highway Patrol	▶ Simi Valley Police Department
▶ Georgia State Patrol	▶ New Mexico State Police	▶ South Carolina Highway Patrol
▶ Grant County Sheriff's	▶ North Carolina Highway Patrol	▶ Utah Highway Patrol
▶ Illinois State Police	▶ Texas State Patrol	▶ Wisconsin State Patrol
▶ Kentucky State Police	▶ North Dakota Highway Patrol	▶ Washington State Patrol
▶ Lakewood Police	▶ Danville Police	▶ Modesto Police

Upon receipt of the departmental application and purchase order, officers within that agency will have immediate and unlimited access to the vital information utilized every day by in their work as part of the agency's invaluable accident investigative team.

The ARC Networks exclusive cost savings feature of the ARC Network program is that there are NO MULTI USER LICENSE FEES. Everyone within a particular agency utilizes the same User Name and Password providing unlimited usage for all department members for one low annual fee.

This successful program has been tested over the past eight months and has proven effective for use by all state, county, local traffic accident investigation and reconstruction units, and Major Accident Investigation Teams (MAIT) who chose to employ it. There is a free trial for those interested and comes with the recommendation of fellow officers across the country.

ARC NETWORK EDUCATION AND TRAINING RESOURCES ALSO AVAILABLE

Both the ARC and CSI are instrumental in the continued education of the accident reconstruction community. According to Haight, “All accident reconstructionists are not created equally and may be completely up to speed with the most current training, tools and equipment. There are many organizations out there that provide this service including CSI and in order for an accident reconstructionist to maintain his or her higher level of competency, continuing education is a must.”

To assist in that effort, the ARC Network has forged various educational relationships with the Collision Safety Institute as well as such notable institutions of higher education as Northwestern University, Institute of Police Technology and Management (IPTM), the University of California Riverside, the Aviation Safety Network (serving the International

Airline Industry), Texas A&M (TEEX), and the Pennsylvania Institute for Law Enforcement Education (ILEE), formally known as the Traffic Institute for Police Services (training over 5,000 U.S. police officers and military personnel each year). Education resources also include twelve state-run and international organizations. All come highly recommend for the continued education of your accident reconstruction and police personnel.

ABOUT THE ARC NETWORK

A former accident Reconstructionist, Scott Baker founded the Arc Network organization in 1998. Mr. Baker was formally trained in accident reconstruction at Northwestern University and worked for a private company in San Diego, California as a collision analyst and expert witness. Mr. Baker decided to leave accident reconstruction and pursue a new business venture - an Internet shopping mall. Scott Baker successfully programmed one of the first Internet shopping malls on the Internet. After a couple years he chose to sell the business and get back to his roots in accident reconstruction. After a couple years of research and gaining experience by working for a Fortune 500 computer company, Scott launched the ARC Network.

The ARC Network is a professional organization for the Accident Reconstruction and Traffic Investigation Industry. The purpose of our organization is to provide our members and visitors of the web site a multitude of communication and research tools that aid in the efficiency and effectiveness of daily case requirements. It is the ARC Network's goal is to provide the best and most accurate information to everyone participating in this field. The ARC Network serves the following disciplines:

State and local Police Officers
Accident Reconstructionists
Attorneys
Insurance Professionals
Medical Professionals
Transportation Professionals
Government Entities

Forensic Engineers

The ARC Network web site serves as a “community” where accident reconstruction professionals can visit daily and research new and cutting-edge information to help educate them in their discipline. Equally important, we have designed the ARC Network to be as simple to use as

possible. The ARC Network allows users to enter the Web site specifically designed for them and their industry and retrieve the information they want as quickly as possible.

A FEW OF THE SPECIAL FEATURES OF THE ARC NETWORK ARE

Research Directory – the ARC Network offers a categorized research section allowing users to find the information they need in the fewest clicks possible. In this section users will find research information on airbags, drunk driving, crash tests, rollovers, CDR, tires, vehicles, traffic signage and more

Open Discussion Forums – users will find the largest and most frequently used online discussion forum on the Internet. Experts in reconstruction, traffic safety, and engineering from all over the world view the forum daily. The discussion forums allow users to view posts, post questions, and reply to posts.

News & Events – This section provides daily news targeted to accident reconstruction, traffic investigation, and automotive safety. The ARC also hosts the largest events calendars where users can easily locate classes, conferences, and seminars.

Global Expert Directory – contains over 300 experts in accident reconstruction.

Education – Locate and access information on many leading colleges and schools dedicated to teaching accident reconstruction and traffic investigation. Users will find other helpful information like online equations, dictionaries, and a test your skill section sponsored by ARC educator sponsors like Northwestern University and IPTM.

Products and Services – The ARC Network hosts a non-biased section displaying products and services available from other companies to help users do their job better.

Membership – The ARC Network offers memberships of all levels, from individual to organizational. Although much of the information provided on the ARC is free, the Member's Only section offers online vehicle specs, vehicle stiffness data, expert directory listings, crash data, and more.

CONTACT INFORMATION

The ARC Network, <http://www.arcnetwork.org>, 11650 Iberia Place, Suite 201, San Diego, CA 92128, Tel: 858-618-1085 Fax: (858) 618-1088 email:

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References

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