USING THE VIN AS AN INVESTIGATIVE TOOL

The Vehicle Identification Number (VIN) can be useful in the course of an investigation. The VIN can establish if the burned vehicle matches the documentation provided by the victim. For example, there have been cases where a similar vehicle of lesser value was burned in place of the reported vehicle. Transmissions and engines can be corresponded to the chassis VIN to determine if parts are original. Most people are aware that the VINs of altered vehicles will not match and will remove the VIN plate on the dashboard and the door panel, but may be unaware of the other locations for the VIN.

VINs may also be removed from stolen vehicles to make identification more difficult. Many times the lesser known VIN stamps contain only portions of the VIN, such as the six digit serial number, and a person attempting to remove all VIN markings will not recognize it as such and leave it in place. Recall information can also be researched by identifying the year, make and model of a vehicle.

BY FRED HERRERA, CFI, SAN DIEGO, CALIFORNIA—With the knowledge of what the seventeen characters of the VIN represent and the coding to translate them, a partial VIN can still yield important information about the vehicle. This information can verify the year, make and model of the vehicle as well as ownership information. Ownership information can be also obtained by using existing paperwork in the possession of the owner or by a DMV/law enforcement computer search of vehicle.

As previously described, the actual locations of some VINs, even in published locations, are not readily found by an investigator. In the event that a VIN cannot be found, contacting the local vehicle theft task force can be helpful. If such a group is not available in your area, the your local law enforcement agency has personnel that specialize in VIN identification. Be prepared for these officers to readily offer assistance, but not necessarily give up their trade secrets. Also, practice searching for VIN locations by examining clean, unburned, newer vehicles, using the resources available to identify the VIN components. When it proves to be an important part of your investigation, you'll consider it time well spent.

ANATOMY OF THE VIN

The vehicle identification number (VIN) is a unique, standardized sequence of numbers and letters used to identify a vehicle. There are four sections to the 17 characters, each section identifying different aspects of the vehicle. The numbers or letters are coded and have assigned meaning, some standard, some manufacturer specific. The letters "I", "O" and "Q" are not used in order to reduce confusion over 1s and Is, and Os and 0s. To decode the VIN, a list of manufacturer coding or decoding software is needed. This coding can be easily acquired from many sources such as the manufacturer or the Internet.

The 17 characters of this VIN identifies the vehicle as a 2000 Mercedes Benz, C Class, C 230 trim, passenger small car, 4-door sedan, L4, 2.3 L, 185 hp, gasoline powered, 5-speed automatic, rear wheel drive, 3-point belts ETR (Emergency Tensioning Retractor), air bags, side impact air bag, check digit 1, made in Germany at Sindelfingen Assembly Plant by Mercedes Benz USA.
(Obtained with VinPower Software)

WORLD MANUFACTURER IDENTIFIER

The first three characters, comprising the first section of the VIN, are the World Manufacturer Identifier (WMI), which identify the manufacturing country, vehicle manufacturer and body type, in order. The first and second characters together identify the country and the second and third characters identify the manufacturer and body type.

Examples of the first character, or first manufacturing country character are U.S.A. (1 or 4), Canada (2), Mexico (3), Japan (J), and Korea (K). Predictably, most of the VINs we encounter start with 1 or J, having been manufactured in the United States or Japan. Examples of the second character, which is the first character of the manufacturer code and body type, are General Motors (G), Honda (H), Ford (F), Chevrolet (1), and Mercury (M). The first two characters can be examined for a quick estimate on where and who manufactured the vehicle, but sometimes the coding can be more complicated.

For example, 1ME denotes a Mercury passenger car manufactured in the United States, but KMH denotes a Hyundai passenger car manufactured in Korea. The United States codes are 1A-10 and a Mercury passenger car is coded as ME, together making the WMI code of 1ME. The country codes for Korea are KL-KR and a Hyundai passenger car is coded MH, which makes a World Manufacturer Identifier of KMH. The three WMI characters together specify whether the "M" refers to a Mercury or a Hyundai. The country code is also a giveaway in this case, since Mercury vehicles are not manufactured in Korea.

VEHICLE DESCRIPTOR SECTION

The second section contains the fourth through eighth characters and is the Vehicle Descriptor Section (VDS). The VDS identifies vehicle features such as body style, engine type, brake system, seat belts and airbags, model, series, and gross vehicle weight range. Unlike other sections of the VIN, there is no standard for coding; each manufacturer can create the coding for their respective vehicles. With reportedly almost 36,000,000 possible codes, it is impossible to find a single source for all decoding. If information from the VDS is needed, the manufacturer is the best source for codes but a lot of the coding can be found through an Internet search.

The third section, which is the ninth character, is the VIN accuracy check digit. The check digit represents a four-step calculation which is a security feature in the VIN number. Copy the VIN number from your vehicle and try it out. The steps are as follows:

Step 1: Assign to each number in the VIN its actual mathematical value and assign to each letter the value specified for it in the following chart:

Assigned values:
A=1, B=2, C=3, D=4, E=5, F=6, G=7, H=8, J=1, K=2, L=3, M=4, N=5, P=7, R=9, S=2, T=3, U=4, V=5, W=6, X=7, Y=8, Z=9

Step 2: Multiply the assigned value for each character in the VIN by the position weight factor specified in the following chart:

VIN position and weight factor:
1st=8, 2nd=7, 3rd=6, 4th=5, 5th=4, 6th=3, 7th=2, 8th=10, 9th=0, 10th=9, 11th=8, 12th=7, 13th=6, 14th=5, 15th=4, 16th=3, 17th=2.

Step 3: Add the products from steps 1 and 2 and divide the total by 11.

Step 4: The rounded numerical remainder of the calculation is the check digit that is in the 9th position in the VIN. If the remainder is 10, then the letter "X" is used for the Check Digit.

Example VIN:	J N 1 C A 2 1 D 4 W T 5 0 0 5 6 6
Character value:	1, 5, 1, 3, 1, 2, 1, 4, 4, 6, 3, 5, 0, 0, 5, 6, 6
Position factor:	8, 7, 6, 5, 4, 3, 2, 10, 0, 9, 8, 7, 6, 5, 4, 3, 2

Calculation:
8+35+6+15+4+6+2+40+0+54+24+35+0+0+20+18+12= 279
279÷11=25.36 rounded to 25.4

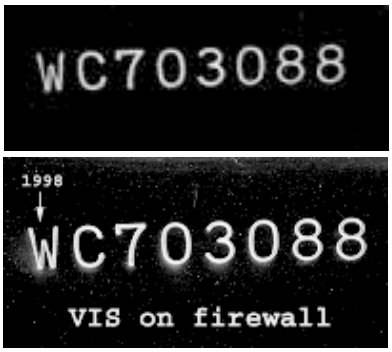
Check digit: The rounded remainder of the calculation is 4, which is correct for this 1998 Nissan Maxima SE, GLE, GLX mid-size passenger car, front-wheel-drive, 4 door sedan with a gasoline powered 3.0 L V6 engine, equipped with 3 point belts and dual air bag, manufactured by Nissan Motors Co., Ltd. at the Oppama Assembly Plant in Japan. *(Description via free VinPower software)*

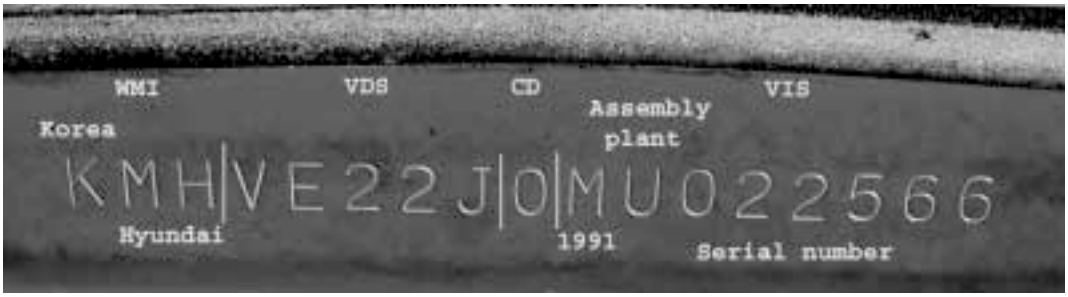
VEHICLE IDENTIFIER SECTION

The fourth section, or Vehicle Identifier Section (VIS), contains characters ten through seventeen. The tenth character represents the year and is a sequential number or a letter. The pattern repeats every 30 years, using the letters A-Y *(except for I, O, Q, and U)* and the numbers 1-9, as follows:

1999 & 2029—X, 2000 & 2030—Y, 2001 & 2031—1,
2002 & 2032—2, 2003 & 2033—3, … 2009 & 2039—9,
2010 & 2040—A, 2011 & 2031—B, 2012 & 2032—C.

The eleventh character denotes the assembly plant and is set by individual manufacturers.





Characters twelve through seventeen, the last six characters, are the serial number of the vehicle. Most of the time, all six characters are numbers and the last four of the VIN are always numbers. Some manufacturers restart the numbering each year; others will use different numbering sequencing for individual models and may incorporate the sequence of vehicle production at the assembly line. Many times the VIN stamps in hidden locations are the VIS, sometimes without the year code.

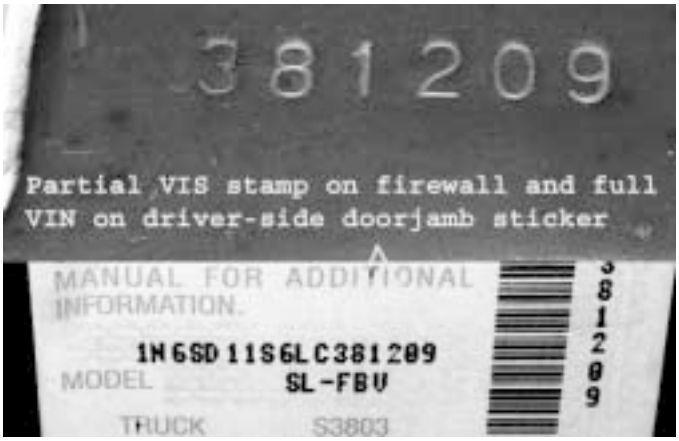
VIN HISTORY & CODE LAW

In the 1950s automobile manufacturers began placing vehicle identification numbers on cars and car parts. At that time, there was no standardized system of coding. In 1977, the International Organization for Standardization (ISO) Standard 3779 established a universal system of identification, the ISO-VIN, using numbers and letters to identify numerous aspects of individual vehicles. The last revision occurred in 1983 and the seventeen character ISO-VIN included identification of motor vehicles, trailers, motorcycles and mopeds.

The code law for vehicle identification number requirements in the United States is contained in the Code of Federal Regulations (CFR), Chapter V—National Highway Traffic Safety Administration (NHTSA), Title 49, Part 565.1 through 565.7 and was first implemented with model year 1981. The sections include Purpose and Scope, Applicability, Definitions, General Requirements, Motor Vehicles Imported into the United States, Content Requirements and Reporting Requirements.

VIN LOCATIONS

The VIN is displayed and hidden on all vehicles. The most widely known VIN location is at the lower left corner of the windshield, visible from the outside of the vehicle. This location is specified in 49CFR565.4(f), (g), (h), and (i). Per the section, the VIN must be readable under daylight conditions to a person with 20/20 vision. The characters must be a minimum of 4 mm high and there are to be no spaces. The type face for VIN is Capitol san-serif.



In 1987 the Department of Transportation issued the Federal Motor Vehicle Theft Prevention Standard, which required 1987 automobiles that were high theft hazard to have VIN markings on 12 to 14 of their major components. In 1994 the standard was amended to include multi-purpose passenger cars and light trucks. In 1997 the standard was further amended to include VIN markings on the transmission, front and rear bumper, engine, hood, right and left door, sliding cargo door, right and left quarter panels and rear assembly, pickup/cargo box, rear doors and hatchback/deck lid, tailgate.

Other common locations for VINs are the upper passenger side of the firewall in the engine compartment, the left hand inner wheel arch, steering column, the radiator support bracket, the machined pad on the front of the engine and on various component parts.

A conversation with a member of the Regional Auto Theft Task Force in San Diego revealed that a number of these listed VIN locations are considered classified information and even though available on the Internet, the actual locations may be very difficult to find. Also, there are other VIN locations that are for law enforcement use only and for obvious reasons are not available for publication.

VIN DEFINITIONS

Code of Federal Regulations, Title 49, Section 565.3 Definitions:

(a) *Federal Motor Vehicle Safety Standards Definitions.* Unless otherwise indicated, all terms used in this part that are defined in 49 CFR 571.3 are used as defined in 49 CFR 571.3.

(b) *Body Type* means the general configuration or shape of a vehicle distinguished by such characteristics as the number of doors or windows, cargo-carrying features and the roofline (e.g., sedan, fastback, hatchback).

(c) *Check Digit* means a single number or the letter X used to verify the accuracy of the transcription of the vehicle identification number.

(d) *Engine Type* means a power source with defined characteristics such as fuel utilized, number of cylinders, displacement, and net brake horsepower. The specific manufacturer and make shall be represented if the engine powers a passenger car or a multipurpose passenger vehicle, or truck with a gross vehicle weight rating of 4536 kg. (10,000 lbs.) or less.

(e) *Incomplete Vehicle* means an assemblage consisting, as a minimum, of frame and chassis structure, power train, steering system, suspension system and braking system, to the extent that those systems are to be part of the completed vehicle, that requires further manufacturing operations, other than the addition of readily attachable components, such as mirrors or tire and rim assemblies, or minor finishing operations such as painting, to become a completed vehicle.

(f) *Line* means a name that a manufacturer applies to a family of vehicles within a make which have a degree of commonality in construction, such as body, chassis or cab type.

(g) *Make* means a name that a manufacturer applies to a group of vehicles or engines.

(h) *Manufacturer* means a person—(1) Manufacturing or assembling motor vehicles or motor vehicle equipment; or (2) Importing motor vehicles or motor vehicle equipment for resale.

(i) *Model* means a name that a manufacturer applies to a family of vehicles of the same type, make, line, series and body type.

(j) *Model Year* means the year used to designate a discrete vehicle model, irrespective of the calendar year in which the vehicle was actually produced, so long as the actual period is less than two calendar years.

(k) *Plant of Manufacture* means the plant where the manufacturer affixes the VIN.

(l) *Series* means a name that a manufacturer applies to a subdivision of a "line" denoting price, size or weight identification and that is used by the manufacturer for marketing purposes.

(m) *Trailer Kit* means a trailer that is fabricated and delivered in complete but un-assembled form and that is designed to be assembled without special machinery or tools.

(n) *Type* means a class of vehicle distinguished by common traits, including design and purpose. Passenger cars, multipurpose passenger vehicles, trucks, buses, trailers, incomplete vehicles and motorcycles are separate types.

(o) *Vehicle Identification Number* means a series of Arabic numbers and Roman letters that is assigned to a motor vehicle for identification purposes.

VIN RESEARCH

Once the VIN number is obtained, there are many resources available to identify the WMI, VDS, VIS and check digit. Persons in law enforcement can utilize the State Users Network (SUN) to access Department of Motor Vehicle files. The SUN networks can also be used with license plate information to find out the VIN of record for the vehicle. "Pay for use" and membership services are available, primarily over the Internet, which will research and provide information on VINs. The manufacturer of the vehicle can also provide decoding information for any of their vehicles.

An Internet search, using a search engine such as Google, can be used for generic or specific searches. "VIN" or "VIN decoders" will bring a lot of information to the screen. A more specific search, such as "Ford VIN" will bring Ford-specific information. Using a VIN decoder is fast and easy. There are many sites allowing free use of decoders that will provide a breakdown of the VIN. Go to www.carfax.com for free VIN checks. At www.analogx.com, by clicking the "Online" tab, then "VinView", a relatively detailed VIN report is available. Ford VINs can be completely decoded at www.fleet.ford.com under the "Maintenance" tab, "VIN Decoder" drop-down.

There is also software available that allows VINs to be decoded on your computer without being connected to the Internet. At www.vindecoder.com, two free demo programs are available that give VIN information. VinPower will give information on VIN numbers that are entered into the search field and VINCoder is a utility that will give examples of partial VINs using pre-loaded vehicle information. The free decoders don't provide as much information as the pay services but are sufficient to identify the World Manufacturer Identifier, some of the Vehicle Descriptor Section, the Vehicle Identifier Section, and the accuracy of the Check Digit. ●

References:

1. International Organization for Standardization (ISO), Standard 3779 (1883)
2. Code of Federal Regulations (CFR), Chapter V- National Highway Traffic Safety Administration (NHTSA), Title 49, Part 565.1 - 565.7
3. Federal Motor Vehicle Theft Prevention Standard, 49CFR541
4. www.carfax.com
5. www.analogx.com
6. www.fleet.ford.com
7. www.vindecoder.com

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