

## CASE REPORT

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# Decipherment of an Obliterated Vehicle Identification Number

**REFERENCE:** Srinivasan, G. J. and Thirunavukkarasu, G., "Decipherment of an Obliterated Vehicle Identification Number," *Journal of Forensic Sciences*, JFSCA, Vol. 41, No. 1, January 1996, pp. 163–165.

**ABSTRACT:** A case illustrating a novel method adopted by a criminal to conceal the act of tampering with the identification number on a vehicle chassis, and how microscopical study replaced the usual etching techniques in establishing the true identity of the stolen vehicle is described.

**KEYWORDS:** forensic science, criminalistics, obliterated serial number restoration, vehicle identification number, microscopy

The vehicle identification number (VIN) serves as the vehicle's fingerprint and is very vital for positive identification. Thieves often alter vehicle identification numbers to delay finding or to conceal the true identity of an automobile by filing deep enough to remove every vestige of the numbers so that none of the digits can be read. Fortunately, there are methods—such as chemical etching, electrical, magnetic etc. (1–5) by which these numbers can be restored to such an extent that they can be read, provided that the filing has not been too deep. We present a case which describes a novel method adopted by the criminal to conceal the act of tampering with the identification number on the vehicle chassis, and shows how microscopical study replaced the usual etching techniques in establishing the true identity of the stolen vehicle.

### The Case

The suspected theft vehicle, was a Maruti car (Fig. 1). At the outset, any alteration/tampering of identification numbers on this vehicle could not be visualized since the registration certificate bore the same identification numbers that were found on the vehicle. However, the vehicle was subjected to forensic examination to discover/establish the authenticity of the identification numbers.

### Examination

The identification numbers were at (i) the right side front top portion of the chassis for the chassis number (ii) the cylinder block of the engine for the engine number and (iii) a small chassis

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Received for publication 8 March 1995; revised manuscript received 8 May 1995; accepted for publication 15 May 1995.

identification plate rivetted to the left side front corner of the chassis bearing both the chassis and engine numbers.

The surface bearing the chassis number (Fig. 2) was cleaned with acetone to remove dirt and paint and it revealed that a tailor-made iron metal piece bearing the number "SB-308-IN 129037" was fixed simply with tinkering paste (an adhesive) over the chassis. Application of trifluoroethanol through the sides of the metal piece softened the tinkering paste, and the metal piece was separated with ease from the chassis (Fig. 3). Removal of the remaining traces of the tinkering paste beneath the metal piece separated from the chassis revealed the punched number "SB 308 IN 128037" (Fig. 4).

The area bearing the digits "128037" was found deeply filed in relation to the area bearing the other preceding numbers/letters



FIG. 1—Suspected stolen vehicle.



FIG. 2—The present chassis number on the chassis.



FIG. 5—Surface bearing the punched (Engine) number on the cylinder head.



FIG. 3—The tailor-made iron metal piece bearing the present number “SB 308 IN 128037” separated from the chassis.



FIG. 6—Cylinder head showing the engine number and deep filing marks.



FIG. 4—Punched numbers on the chassis beneath the metal piece (Fig. 3) separated from the chassis.

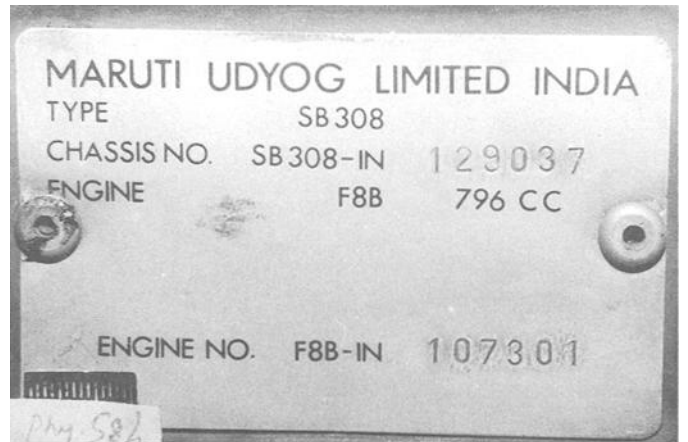


FIG. 7—Aluminum plate bearing identification numbers.

“SB 308 IN,” and these two show differences with respect to size, clarity and depth. Due to deep filing no number was deciphered on the chassis.

The surface bearing the punched (engine) number “F8B IN 107301” on the cylinder head (Fig. 5) was devoid of the usual milling pattern indicating deep filing (Fig. 6) and hence no number other than this number was observed.

The aluminum chassis identification plate rivetted to the chassis (Fig. 7) was examined with 10X hand magnifier and the portion bearing the punched numbers “29037” and “07301” revealed conspicuous evidence of superficial erasure. Such evidence of erasure

was absent on the metal surface corresponding to the sixth digit “1” (Figs. 8 and 9).

Microscopical examination of this rivetted chassis identification plate under oblique light revealed the erased numbers as “02238” (Fig. 8) and “29463” (Fig. 9) under the presently punched numbers “29037” (Figs. 7 and 8) and “107301” (Figs. 7 and 9) respectively.

Examination of the backside of the metal plate revealed even projections corresponding to the presently punched numbers only and not the deciphered numbers. Further, the dimension of the presently punched and deciphered numbers was similar. Absence of erasure in and around the surface of the sixth digit “1” (Figs.



FIG. 8—Photograph showing the superficial erasure and the erased chassis number (see Fig. 7).

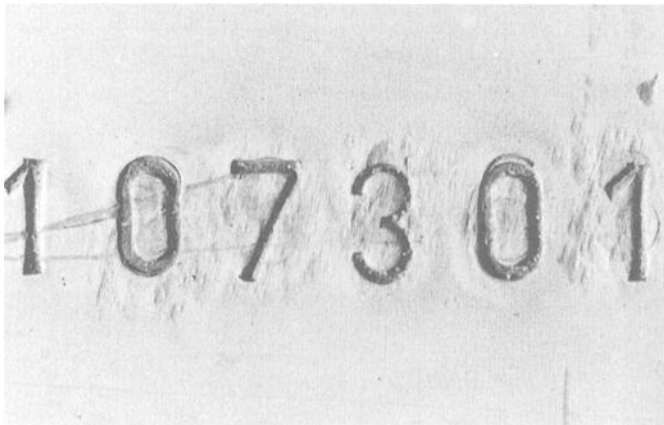


FIG. 9—Photograph showing the superficial erasure and the erased engine number (see Fig. 7).

8 and 9) in both of the chassis and engine serial numbers and absence of projections on the reverse side of the plate corresponding to deciphered numbers and similarity in dimension of the deciphered and present numbers led to the conclusion that the sixth digit “1” could either be an additional punch made along with the already existing numbers or an over punch made exactly over the previous number, “1.”

Thus, it can be deduced that the original chassis and engine serial numbers could either be 02238 or 102238, and “29463” or “129463,” respectively.

## Discussion

Lately, it has been the practice of criminals to remove by cutting the portion where the chassis number was punched and substitute for it by welding in a tailor-made metal piece with the number of their choice. In this case, the criminal affixed a small metal piece, after punching the numbers (Fig. 3), exactly over the chassis portion where the chassis number had already been punched (Fig. 4) to conceal any detection of his conspicuous tampering of the original chassis number.

If the examination had been constrained only to the punched surface of the chassis, viz., punched numbers (Fig. 3), the task of unraveling the tampering (Fig. 4) of the original chassis number would not have been possible. Even though the chemical etching did not reveal any of the erased numbers on the chassis, conclusive proof of tampering was established by the evidence of deep filing and differences noticed between the numbers “128037” and the preceding numbers “SB 308 IN” as far as their size, clarity and depth is concerned (Fig. 4). Absence of the usual milling pattern, but the presence of deep filing marks on the surface (Fig. 6) where the engine number had been punched also indicated tampering with the engine number by filing.

The preliminary microscopical study alone of the erased chassis and engine numbers of the chassis identification plate (Fig. 7) under proper illumination paved the way to easily deciphering the erased numbers (Figs. 8 and 9) and in establishing the true identity of the vehicle.

It is suggested that preliminary but essential studies such as visual, specular reflectance and microscopical studies etc. need to be exhausted before resorting to etching techniques.

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