

CASE REPORT

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Restoration of Obliterated Painted Registration Number on Vehicle

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ABSTRACT: A simple technique employed for the restoration of the obliterated painted registration number on a motor vehicle involved in a case of murder is described.

KEYWORDS: forensic science, restoration of obliterated numbers, painted registration numbers

The registration numbers, writings, and other painted marks, which are restored by chemical etching, are generally used for identification of vehicles involved in criminal cases. Often criminals change these numbers with numbers of their own choice, by obliteration or alteration. Methods such as specular reflectance, UV photography, X-ray shadowgraph, and washing away of softer fresh paint with suitable solvents, viz., chloroform or dioxane etc. are employed to detect such alterations and to restore the obliterated numbers and other marks (1). The case presented here illustrates how a simple technique employed by the authors has unambiguously restored the obliterated registration number and thus established the identity of a vehicle involved in a case of murder.

The Case

In a case of murder, the assailants hired a gray color Tata mini lorry with registration number “TN-02-C-5758”, during night hours, under the pretext of transporting cattles from their field. In the mid way, the driver and the cleaner were dragged out of the lorry and attacked with knives by the assailants. Then the assailants escaped successfully along with the lorry under the cover of total darkness presuming that both of them had died on the spot. While the cleaner died, the driver survived despite having received deep cut injuries in his throat and reported the incident to the police. During the investigation, one blue color Tata mini lorry with registration number “TN-23-A-2664” (Fig. 1) was seized and referred for forensic examination to ascertain its true identity.

Examination and Discussion

The lorry (Fig. 1) was examined to find out its original registration, chassis, and engine numbers. The registration number on the

plates fixed to the front and back of the lorry, when examined, had shown no change in them, and remained unaltered. These registration numbers were also painted on the right and left rear of the body of the lorry (Figs. 2 and 3). When the latter numbers were examined under specular illumination, no new marks or numbers were found underneath the surface. However, the paint flakes collected from different locations of the body of the lorry revealed three layers and the sequence from the top was blue, gray and black, black being the base paint. Localized etching of the present blue paint coating at the rear sides of the body, around the existing number at different locations to an extent of about 1 mm², showed some black paint sparsely underneath the top layer; Methyl Iso Butyl Ketone (MIBK), a common paint solvent, was selected for the above purpose after few trials. This suggested the possibility of some hidden number underneath the top blue layer. To restore this hidden number the conventional method suggested in the literature, viz., washing away of the top paint layer with suitable solvents (1) was not adopted because such washing away always has the danger of removing the crucial underlying layer also, while the top layer is removed in the process. Therefore, a modified technique, as described below, was employed.

The rear sides of the vehicle, where the registration number was suspected to have been obliterated by painting, were cleaned with water to remove dirt; then it was treated with MIBK using cotton swab, for about a minute, until the top layer just swelled or softened. Care was taken to avoid excess application of the solvent, as it might affect the layer underneath the top layer. The swelled or softened top layer was removed by gentle and careful squeezing of the surface uniformly with a small, handy and densely rolled ball of dry cotton. When the top paint layer was thus removed, the original identification number hidden underneath the top layer, on both the right and left rear sides of the lorry, appeared (Figs. 4 and 5). Significantly, the presence of brush marks in the letters and numerals and of the localized erasure of the original number made by the culprits during obliteration (indicated by an arrow in Figs. 4 and 5) were also revealed. Thus the technique had the capability of removing the top layer only. After the restoration, the surface was washed thoroughly with excess of water to protect from the effects of remnant solvent adhering to it, if any.

The chassis number stamped on the left long member of the chassis was found erased. The erased number could not be brought back by standard chemical etching methods (2–4) as it was filed away beyond the limit of restoration. Further, the two identification plates one carrying the chassis number and the other the engine

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FIG. 1—The lorry involved in the murder case.



FIG. 4—The restored registration number “TN-02-C-5758” just above the existing registration number on the right rear of the lorry (see Fig. 2) (arrow mark indicates the area of erasure).



FIG. 2—The existing registration number on the right rear of the lorry.



FIG. 5—The restored registration number “TN-02-C-5758” just above the existing registration number on the left rear of the lorry (see Fig. 3) (arrow marks indicate the area of erasure).



FIG. 3—The existing registration number on the left rear of the lorry.

number were found riveted respectively to the inner side of the cabin and to the engine. The numbers on them were not tampered with and they were in conformity with those of the lorry reported missing. The genuineness of these riveted identification plates are not always to be relied on as they could be easily replaced with new

ones; however, the original registration number restored on the body of the lorry ascertained the genuineness of the above riveted identification plates as these two numbers were related to each other. Thus the successful restoration of the registration number through the technique described here has helped to establish the identity of the lorry and solve the murder case.

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References

1. Nickolls LC. The scientific investigation of crime. Butterworth & Co. Ltd., London, 1956.
2. De Forest PR, Gaensslen RE, Lee HC. Forensic science- an introduction to criminalistics. McGraw-Hill Book Company, New York, 1983.
3. Thornton JJ, Cashman PJ. The mechanism of the restoration of obliterated serial numbers by acid etching. J Forensic Sci Soc 1976;16:69-71.
4. Srinivasan GJ, Thirunavukkarasu G. Decipherment of an obliterated vehicle identification number. J Forensic Sci 1996;41(1):163-5.

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