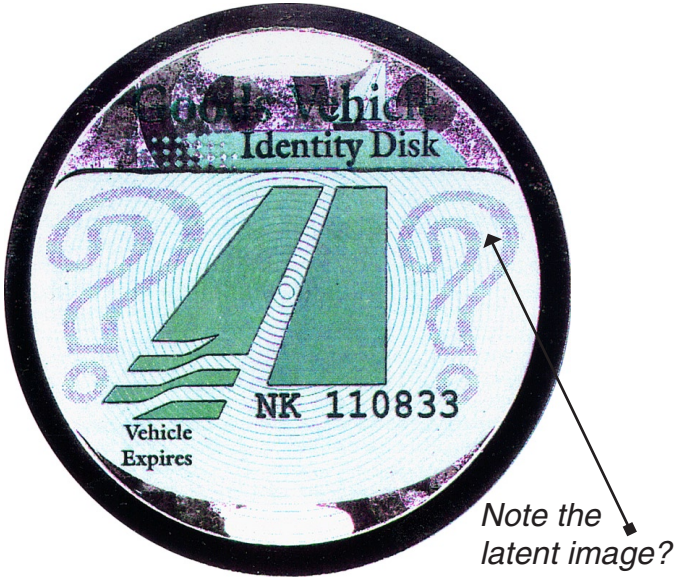
Tampering and forging

Another area of concern is fraudulent tampering and alteration of personalisation details of documents ie changing names, amount boxes and signatures. Originally achieved by carefully erasing or removing details with a round bladed scalpel and then 'Letrasetting' or overprinting false details. Nowadays aqueous/chemical solvents are used which do not damage the printed image locally nor stain the paper.

Visual tamper evident alerts

Latent image messages or symbols which appear when valid security documents are fraudulently colour copied or scanned provide a useful validation check at Post Offices, Banks and Building Societies. They are very difficult to print successfully and require strict quality control, special security inks/paper, and meticulous press work. Specialist laboratory equipment such as spectrophotometers are necessary for ensuring that screen densities, angles and line and colour values are perfectly reproduced. Also many cheques and security documents are printed on watermarked bank papers in combination with covert images which only appear when viewed under Ultra Violet light. Special security inks are used to highlight or stain when a document is tampered with or attacked by solvents.

This example was originally blocked in metallic silver (shown in grey) and overprinted in green lithography ink.



This colour copy shows how the silver prints almost black and how the diffraction image on the surface breaks up.

What can be done to prevent fraud?

All is not doom and gloom - the same equipment described above can be used to produce designs of such complexity that it would extremely difficult to counterfeit or to tamper with.

The table on the *next page* illustrates a variety of features which can be used together with ratings of fitness for purpose and considered usefulness of each feature. The left hand axis lists the methods used to counterfeit and to falsify details. The headings across the top correlate with these side headings. Certain features such as holographic foil are globally effective but at a high price and they are prone to substantial printing production problems.

It is prudent to relate the use of costly security features to:

- ☆ cash value;
- ☆ security protection of state/public and
- ☆ the protection of valuable property.

It is not worth using expensive security design features on low value documents – unless like postage stamps – they are produced in huge quantities.

HP **High protection**

MP **Medium protection**

LP **Low protection**

NP **No protection**

Features listed alongside used to defeat fraud methods used below

	Special security papers – threads, watermarks, planchettes, chemical additives etc.	Special inks – fugitive, erasable, chemical/aqueous solvent, UV, IR, metallic, photochromic etc.	Guilloche patterns, complex borders, borders, concentric screens, images, % line/tone images, vignettes etc	Waved and distorted lettering, extra small print and scrambled or camouflaged words.	Printing on both sides of sheet.	Back to front registering of interlocking design feature.	Latent image lithography/intaglio.	Multi-workings combined with split duct rainbow printing.	Printed laminates, holographic and diffraction foils with complex outline shape	Mixture of printing methods – lithography, dry-offset and intaglio.	Special numbering devices – with penetrating dye in ink.	Optical character/mark recognition characters	Blind embossing, specially shaped perforation holes
1 Hand methods - meticulous alteration eg painting grounds, hand lettering, erasing and repairing resultant damage etc.	HP	HP	HP	MP	LP	HP	HP	HP	HP	HP	Not applicable	HP	HP
2 Photographic methods – colour filtering, enlarging and retouching.	HP	LP Except UV metallic inks photochromic	LP	MP	NP	HP	HP	HP	HP	HP	HP	HP	HP
3 Fraudulent colour scanning and consequential 4-colour process plate making.	HP	LP Except UV and metallic inks	MP	LP	LP	HP	HP	HP	HP	HP	HP	HP	HP
4 Colour copying – Laser or Bubble Jet in conjunction with tampering with details on unprotected colour print.	HP	LP Except UV and metallic inks	MP	LP	HP	HP	HP	HP	HP	HP	HP	HP	HP
5 Printed forgeries with printed falsification of personalisation details.	HP	LP Except UV metallic inks photochromic	MP	LP	Not applicable	HP	HP	HP	HP	Not applicable	Not applicable	HP	MP
6 Tampering with details using chemical/aqueous solvents. Repairing damage and falsification of personalisation.	HP	HP	HP	HP	Not applicable	HP	HP	HP	HP	HP	Not applicable	HP	Not applicable
7 Re-originating using colour scanners, editing on computer and image-setting.	HP	NP Except UV metallic inks photochromic	HP	NP	NP	HP	HP	HP	HP	NP	NP	HP	NP