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There are at least three types of security devices on credit cards that you aren't supposed to know about. These are the account number, the signature panel, and the magnetic strip.

The Account Number

A Social Security card has nine digits. So do two-part Zip codes. A domestic phone number, including area code, has ten digits. Yet a

complete MasterCard number has twenty digits. Why so many?

It is not mathematically necessary for any credit-card account number to have more than eight digits. Each cardholder must, of course, have a unique number. Visa and MasterCard are estimated to have about sixty-five million cardholders each. Thus their numbering system must have at least sixty-five million available numbers.

There are one hundred million possible combinations of eight digits --- 00000000, 00000001, 00000002, 00000003, all the way up to 99999999. So eight digits would be enough. To allow for future growth, an issuer the size of Visa or MasterCard could not opt for nine digits-- enough for a billion different numbers.

In fact, a Visa card has thirteen digits and sometimes more. An American Express card has fifteen digits. Diners Club cards have fourteen. Carte Blanche has ten. Obviously, the card issuers are projecting that they billions and billions of cardholders and need those digits to ensure a different number for each. The extra digits are a security device.

Say you Visa number is 4211 503 417 268. Each purchase must be entered into a computer from a sales slip. The account number tags the purchase to your account. The persons who enter account numbers into computers get bored and sometimes make mistakes. They might enter 4211 503 471 268 or 4211 703 417 268 instead.

The advantage of this thirteen-digit numbering system is that it is

unlikely any Visa cardholder has 4211 503 471 268 or 4211 703 417 268 for an account number. There are 10 trillion possible thirteen-digit Visa numbers (0000 000 000 000; 0000 000 000 001.....9999 999 999 999). Only about sixty-five million of those numbers are numbers of actual, active accounts. The odds that an incorrectly entered number would correspond to a real number are something like about 1 in 150,000.

Other card-numbering systems are even more secure. Of the quadrillion possible fifteen-digit American Express card numbers, only about 11 million are assigned. The chance of a random number happening to correspond to an existing account number is about 1 in 90,000,000. Taking all twenty digits on a MasterCard, there are one hundred quintillion (100,000,000,000,000,000,000) possible numbers for sixty-five million cardholders. The chance of a random string of digits matching a real MasterCard number is about one in one and a half trillion.

Among other things, this makes possible those television ads inviting holders of credit cards to phone to order merchandise. The operstators who take the calls never see the callers' credit cards nor their signatures. How can they be sure the callers even have credit cards?

They base their confidence on the security of the credit card numbering systems. If someone calls in and makes up a credit card number, the number surely won't be an existing credit card number. The deception can be spotted instantly by plugging into the credit-card company's computer. For all practical purposes, the only way to come up with a genuine

credit-card number is to read it off a credit card. The number, not a piece of plastic is enough.

Signature Panel

You're not supposed to erase the signature panel if you steal a card! You might be thinking that you could just write the cardholder's name on the panel. You're thinking that this would be great if you were going to withdraw some cash from the bank, for they make you sign a slip and it must match up to the signature on the card. If you or anyone else does this, you will soon find the card completely worthless (at least it can not be shown).

Some credit cards have background design that rubs off if anyone tries to erase the signature. There's the "fingerprint" design on the American Express panel, repeated Visa or MasterCard logos on some bank cards, and the "Safesig" design on others. The principle is the same as with the security paper, the wavy-line pattern erases, leaving a white area. This makes it obvious that the signature has been altered.

There is a more elaborate gimmick in credit-card panels. It is said that if you erase the panel, a secret word, "VOID", appears to prevent use of the card. The Administration has taken 15 common credit cards and sacrificed them to test this theory.

The odinary pen eraser will erase credit-card signature panels, if slowly. The panels are removed pretty easy with a cloth and Energine. This method disolves the panels cleanly.

Of the 15 cards tested, 6 had nothing under the panel (other than a contiuation of the cards back design where there was one). Nine cards had the words "VOID" under the panel. In all cases, the VOID's were printed small and repeated many times under the panel.

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<-><-> This is How They Ranked <-><->
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Cards with VOID Devices

Bloomingdale's
Bonwit Teller
Bullock's
Chase Convenience Banking Card
First Interstate Bank Card
I. Magnin
Joseph Magnin
Montgomer Ward
Visa (Chase Manhattan)

Cards without VOID Devices

American Express Gold Card
Broadway
MasterCard (Citibank)
Neiman-Marcus
Robinson's
Saks Fifth Avenue

When held to a strong light, the VOIDs were visible through the Bloomingdale's even without removing the panel.

The Way Around this Security!

There is but one way we could think of getting around this feature... painting over the panel! This would work only if the card didn't have a design on the panel. Cards that have a difficult color to match would be near immpossible also (Saks' panel is greenish-tan khaki color).

The Magnetic Strip

One of the last security devices is on the back, the brown magnetic strip. You probably think that there are sun-dry personal details about the cardholder stored in the strip. The strip is really no more information capacity than a similar snippet of recording tape. For their part, banks are reticent about the strip.

The strip need not contain any information other than the account number or similer identification. Any further information needed to complete and automatic-teller transaction --such as the current account balances-- can be called up from bank computers and need not be encoded in the strip.

Evidently, the card expiration date is in the strip. Expirated cards can be "eaten" by automatic-teller machines even when the expired card has the same account number and name as its valid replacement card. Credit limit, address, phone number, employer, ect., must not be indicated in the strip, for banks do not issue new cards just because this information changes.

It is not clear if the personal indentification number is in the strip or called up from the bank computer.

Many automatic teller machines have a secret limit of three attempts for providing the correct personal identification number. After three wrong attempts, the "customer" is assumed to be a crook with a stolen credit card and the card is "eaten".

It is possible to scramble the information in the strip by rubbing a magnet over it. Worker's in hospitols or research facilities with large electromagnets sometimes find their cards no longer work in automatic-teller machines.

The Bloomingdale's Color Code

Only in a few cases does the color of the credit card mean anything. There are the American Express, Visa, and MasterCard gold cards for preferred customers. The Air Travel Card comes in red and green, of which green is better. The most elaborate color scheme, and a source of some confusion to status-consious queues, is that of Bloomingdale's credit cards. The five colors of Bloomingdale's cards do not signify credit limits per se, but they do tip off the sales staff as to what type of customer you are. According to Bloomingdale's credit deptpartment, here is how it works: Low color in pecking order is blue, issued to Bloomingdale's employees as a perk in their compensation packages. The basic Bloomie's card is yellow. Like most department store cards, it can be used to spread payments over several months with the payment of a finance charge. The red card gives holders three months' free interest and is issued to customers who regularly make large purchases. The silver card is good for unlimited, but as with a

travel and entertainment card, all
charges must be paid within thirty
days. The gold card offers the same
payment options as the yellow card, but
is reserved for the store's biggest
customers.

<-><-><-><-><-><-><-=> David Lightman