Postal Automation in Italy

by Giorgio Chianetta

Introduction

Italy is rather young in the matter of coding of mail, it was not one of the pioneer countries to develop machines so has less "classic" material and interesting suggestions for a collector and "student" of Postal Mechanisation.

News from Italy about PM isn't so much. The Italian Postal Service doesn't use ink-jet cancels, nor ATM, nor advanced IMP systems yet, neither their introduction is planned in the near future. The main PM subjects are the mechanical cancels, the coding/sorting systems and equipment (Fig. 1), the usage of barcode labels in postal services (Fig. 2), and the post office franking machines (Fig. 3).

Fig. 1

Fig. 2

Fig. 3

The Italian cancels collectors association (ANCAI) has several members specialised in mechanical cancels, whilst the fans of meter/franking prints have their specialised Society (AICAM); nothing of specific there is about PM, at least as we have got used to seeing with the British PMSC or the German ArGe BPA or other equivalent groups.
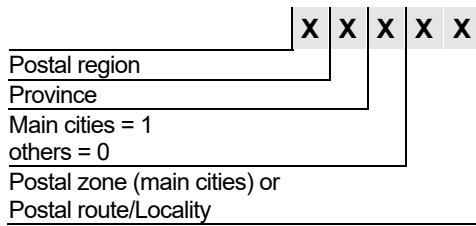
Looking at all the back numbers of IDENT and Newsletter you cannot find much about the subject of Italian PM, and the aforementioned points are - in my opinion - the reasons of this lack of information. With this article I hope to fill in part the gap and bring you some info, specially about the *letter automation*, my own specialisation.

The Italian Postal Code

The Postal Code, in Italian "Codice di Avviamento Postale" or "CAP", was introduced in Italy the 1st of July 1967, and it is composed by a five-digit code that in general represents the destination post office responsible of the mail delivery.

When the CAP was introduced, only 14 main cities were divided in postal zones, so their postcode depends on the street or place. They were Bari, Bologna, Brescia, Catania, Firenze, Genova, Milano,

Napoli, Padova, Palermo, Roma, Torino, Trieste, Venezia. Between 1978 and 1982, the postal zones were assigned also to Ancona, Brescia, Padova, Verona, and after also to Bergamo, La Spezia, Livorno, Pisa, Perugia, Pescara, Salerno, Reggio Calabria, Messina, Cagliari. When a city has a postal zones, the generic CAP (that ends with ..100) must be used only for P.O. box addresses, public offices, "poste restante" addresses.

				X	X	X	X	X

Postal region
Province
Main cities = 1
others = 0
Postal zone (main cities) or
Postal route/Locality

The Italian 5-digit CAP structure is showed on the left. The first digit of the postcode represents the postal region, an entity that is a set of administrative regions, and can include also some provinces belong to other administrative regions. The table below reports the postal regions codes and their composition in terms of administrative regions and provinces (the administrative structure in Italy is "Regione-Provincia-Comune", top-down).

Only for regions 9 and 5 there is a strict correspondence between postal region and administrative region. The region 2 doesn't include Mantova province that is in the region 4 instead, whilst it includes Novara province (it is in Piemonte) and Piacenza province (it is in Emilia-Romagna); region 4 includes Rovigo province (it is in Veneto). Finally, the province of Matera, in Basilicata region, is assigned to the postal region 7.

Postal Region	Composed by	
	Administrative regions	Administrative provinces
0	Lazio, Sardegna, Umbria	
1	Piemonte, Valle d'Aosta, Liguria	
2	Lombardia	Novara, Piacenza
3	Veneto, Friuli Venezia-Giulia, Trentino Alto-Adige	
4	Emilia Romagna	Rovigo, Mantova
5	Toscana	
6	Marche, Abruzzi	
7	Puglia	Matera
8	Molise, Basilicata, Campania, Calabria	
9	Sicilia	

Just to have a look at some basic geography of Italy, the Fig. 4 map shows all the Italian postal regions, administrative regions and their chief towns.

The second digit of the postcode represents the province code, numbered from 0 to 9 for each postal region. There are inevitable code duplications for postal regions with more than 10 provinces and for those created after 1967. This is the case of Udine and Pordenone (both have 3), and also Trieste and Gorizia (both have 34). In these cases, the province's identification has been possible using the forth digit: for instance 33100 is assigned to Udine and 33170 to Pordenone.

Looking at the first and second digits pair we can read the national province code, even if not assigned using a standard method. In fact, other than the above exceptions, the province code attribution hasn't always followed the same rule for all the regions (geographic sometimes, random in

Fig. 4

other cases, etc.). Another problem against a clear CAP usage arise after the creation of the mechanised letter offices (see the related paragraph), as their area of influence depends on the postal organisation often very different from the CAP areas, so you can find several offices serving provinces pertaining to different postal regions, then with very different CAP: as example, the province of Mantova has the code 46 (even if located in Lombardia, it is included in postal region 4 of Emilia-Romagna), but it is pertaining to the Verona mechanised letter office, located in Veneto (postal region 3).

Coming back to the CAP structure, the third digit is the main cities flag: this digit is 1 for province chief town, 0 for the other cities. Last two digits' meaning (Zone or Route/Locality) depends on third digit value and the coding scheme is as follows:

If the third digit is 1:

- Last two digits are 00 for cities without postal zones (70 is used for Gorizia, Isernia, Oristano e Pordenone provinces).

- Last two digits are the city postal zone number for the 28 main cities where it is defined. The zone number is from 21 onwards, excluding 30, 40, 50, etc. As exception, the town of Ostia Antica (Roma) has the zone 19. High numbers are reserved for main post offices, large mailer, P.O. box addresses. The map on the right shows an example of postal zones division, that of Milano/Milan (the generic CAP is 20100).
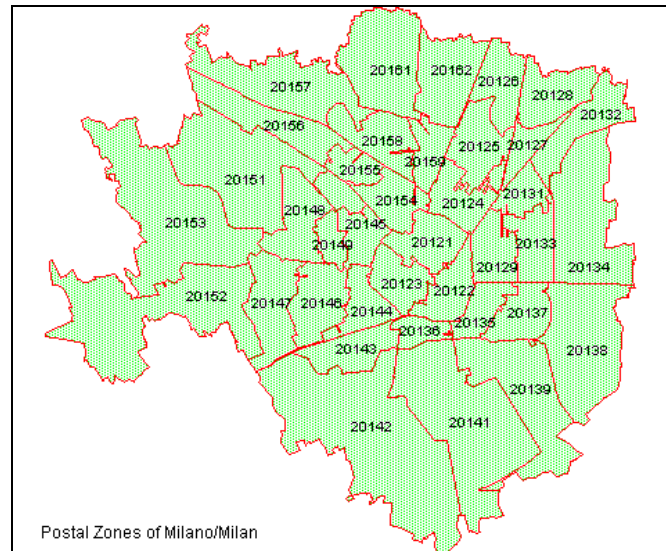

Postal Zones of Milano/Milan

Fig. 5

If the third digit is 0:

- The fourth digit is the routing path code ("stradale provinciale di avviamento" in Italian), grouping all the localities linked by the same communication route.

- The fifth digit is the office number ("località provinciale" in Italian), and assigned from 1 to 9 in alphabetic order for main offices, 0 for the other postal offices (in this way there are several offices with the same CAP).

Between 1970 and 1974 new provinces of Isernia and Oristano were created, paired to Campobasso (86) and Cagliari (09) respectively. New eight provinces created in 1992 (operational since 1995 only) keep their former CAP, waiting for the CAP reform and for postal transportation network reorganisation.

Province	Created	CAP	CAP in 1967	Province in 1967
Isernia	1971	86170	86019	Campobasso
Oristano	1974	09170	09025	Cagliari
Biella		13051	13051	Vercelli
Crotone		88074	88074	Catanzaro
Lecco		22053	22053	Como/Bergamo
Lodi	1992	20075	20075	Milano
Prato	(1995)	50047	50047	Firenze
Rimini		47037	47037	Forlì
Verbano-Cusio-Ossola		(*)	(*)	Novara
Vibo Valentia		88018	88018	Catanzaro

(*) several CAP numbers.

The CAP introduction in 1967 involved the Republic of San Marino and the Vatican City territories too. The Republic received the CAP 47031, following the rules for a locality in the Forlì province of the postal region number 4 (Emilia-Romagna). The Vatican City had instead the 00120 zonal CAP of Rome. Following the UPU convention for European countries, those postal code must be preceded by RSM- and SCV- respectively. Recently San Marino has adopted its own postal code called "CPI - Codice Postale Interno" (translated domestic postal code).

Since 1967, the CAP structure hasn't had any change, even if just after few years of its introduction, the inefficiency of the Italian Postal Code was clear to the postal operators: in many cases the CAP was not unique for different localities, and for several province chief towns - also big ones - there is only a generic

code (..100), so all the fine sorting must be done by hand. The main defect in the CAP structure is the use of third digit in binary mode. This sets a strong limit to the number of possible CAP combination, only 20.000 instead of the possible 100.000. Besides, we can have only 100 numbers for each province and 100 for every province capital. At the Poste Italiane SpA are studying for a new and improved CAP system, having the target to give a unique code to every delivery post office, and a finest sorting for the inward mail on main cities, not only by postal zones but also for mailmen routing-path.

Preferred formats

The rules listing the post office preferred formats and the address layout for the machinable correspondence were defined very later after the CAP introduction, only in 1980, and became operative from 1st January of 1982. The main points of standard formats are:

Stamp position: up-right.
Address position: along the longest side
Length/Height ratio: ≥1,4
Dimensions: Min 90x140mm - Max 125x235mm
Weight: Min 3g - Max 20g

Preferred formats:
  Business type: 110x220mm (DL)
  Standard type: 114x162mm (C6)
Thickness:
  For envelopes: Max 5mm
  For postcards: Min 190g/m^2 - Max 300g/m^2

The requested windows position limits for window envelopes are:

Egr. Sig.
Luigi Bianchi
Via della Libertà 25
00152 ROMA RM

min 40 mm

min 15mm
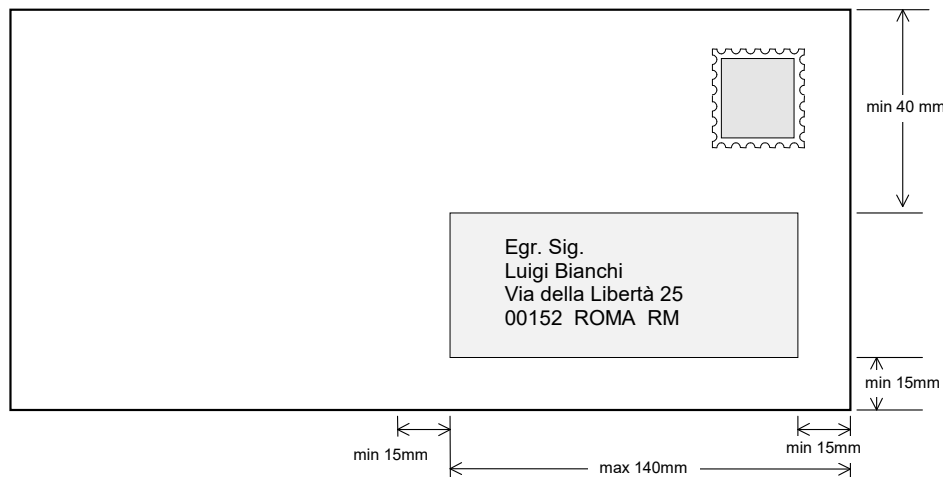
min 15mm

max 140mm

min 15mm

Fig. 6

Early letter automation

1967 was an important year for the postal service in Italy: other than the CAP introduction that was the year of the first fluorescent stamp, tagging feature requested for a new type of cancel machinery that had became operational in some offices 5 years before. I think we can consider as true early letter automation in Italy the introduction of the first German facing/cancelling machines produced by SEL, Standard Elektrik Lorenz, Berlin.

Reading the original SEL documents, around the end of 1962 at Napoli post office one AM1 cancelling machine and one FT machine were installed and during the next two years other 10 couples of SEL machines were installed at Milano, Roma, Torino, Firenze and Bologna post offices. In December 1967 a format culling and a facing/cancelling machine AM770 by AEG-Telefunken became operational at Genova post office (see Fig. 7). In 1976 other 3 machines were installed at Milano, Torino, and Verona post offices, assembled under license of AEG by the Italian company Elsag. Between 1972 and 1974, only in the offices of Trento and Ancona, were installed two facing/cancelling machines by BTMC-ITT, model AM2/F8400. From 1978 onwards, all the new machines were provided by Elsag (now Elsag-Bailey), as part of the equipment of the new mechanised letter offices under construction.

Fig. 7

First trials in coding/sorting of mail were conducted in early '70s at Firenze/Florence, where was created the first automated letter sorting plant, operative since 18 June 1971 even if there is some coded live mail dated February 1971. Florence was a pilot plant, created for testing the equipment and procedures, and carrying out the operators' training courses.

Mechanised Letter Offices

The first mechanisation plan was written in Italy in the early '70s and did originally provide for a network of 25 main mechanised letter offices (*CMP - Centro di Meccanizzazione Primario*) and 75 secondary mechanised letter offices (*CPO - Centro Postale Operativo*). The present situation is a bit different, as there are 23 CMP and only 12 CPO (official 1996 data by Poste Italiane SpA). As far as I know, there are no plans for other CMPs, at least for now.

| City	CMP name (cancel dies)	Operational
Trento	Trento CMP	12/1975
Ancona	Ancona CMP	14/9/1977
Verona	Verona CMP	26/9/1977
Bari	Bari CMP	15/11/1979
Genova	Genova Brignole CMP	1/10/1979
Torino	Torino Nord Via Reiss Romoli CMP	11/1979
Milano	Milano Peschiera Borromeo CMP	1979
Padova	Padova CMP	2/10/1979
Brescia	Brescia CMP	1980
Catania	Catania CMP	1980
Bologna	Bologna CMP	1980
Genova	Genova Aeroporto CMP	1982
Roma	Roma Fiumicino CMP	1982
Firenze	Firenze CMP	18/6/1971
Palermo	Palermo CMP	1982
Venezia	Venezia Marco Polo CMP	1982
Roma	Roma S. Lorenzo CMP	1982
Cagliari	Cagliari Elmas CMP	1983
Napoli	Napoli CMP	01/1984
Pescara	Pescara CMP	1984
Lamezia Terme	Lamezia Terme CMP	1984
Milano	Milano Roserio CMP	1984
Torino	Torino Via Nizza CMP	1990

The table on the left lists all the 23 CMPs presently operational in Italy, in order of estimated start of operations date (for all the CMPs I am still collecting all the data concerning the official start, trials, model and number of equipment, etc.). You can note that Torino, Milano, Genova and Roma have two CMPs.

All the CMPs are located in specific buildings, usually near airports or main railways stations, mainly built during the '80 decade. In these offices all the steps related to the coding/sorting of mail are executed, from the facing/cancelling up to the final sorting. A CMP is responsible for collecting, sorting and dispatching of the mail in a specific area. The CPOs are smaller offices usually located in province chief towns postal offices where there are no CMPs, and should be equipped only with a facing/cancelling machine and a set of coding desks for the pre-sorting. All the mail handled by a CPO is sent to the competent CMPs for further sorting, sacking and dispatching or delivering. The map in Fig. 8 shows the locations of all the CMPs.

Some info about the cancel dies of the machines used in a CMP. There are two main groups: cancel machines used in the automatic sorting lines, and cancel machine used as off-line support (BNG, OMT, Hasler, and other models and subtypes). The first group of cancels, the most interesting as related to the coding/sorting, has had some changes in the machine dies in these last 20 years. Anyway you can define four main types of dies.

The first type is the original SEL cancel, in various shapes, where the CMP name was not present yet (I): in fact those SEL or AEG machines were probably the same used in the pre-CMP offices, usually named as "FERROVIA" or "FERR. CORRISP." in their inscriptions (see also Fig. 7). The second type is the first one with some indication of mechanised offices: all the graphics symbols are black-filled, like in a negative printing, and the inscriptions have always the city name and the "CENTRO MECCANIZZATO" label (II). This type was used between the end of 1979 and June 1980 in 10 CMPs. Third type is the positive mirrored version of the previous one (III) with only the CMP city name: this type has been used since July 1980 until 1981 in 11 offices. Last type, the current one in almost all the CMPs, has been in use since around July/August of 1981 (IV); sometimes the "CMP" label is dotted in the inscription.

(I) (II) (III) (IV)
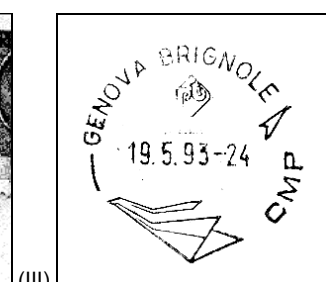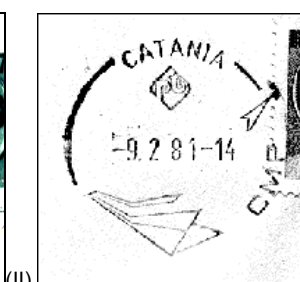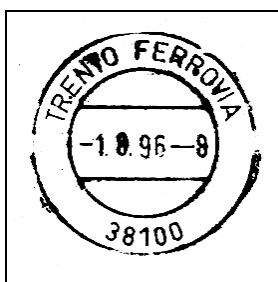
Note that is still active the substitution of all the cancel dies, of handtstamp and machine cancels, subsequent to the introduction of the new Poste Italiane logo. Anyway, this saturation upgrading has not involved the facing/cancelling machines yet.
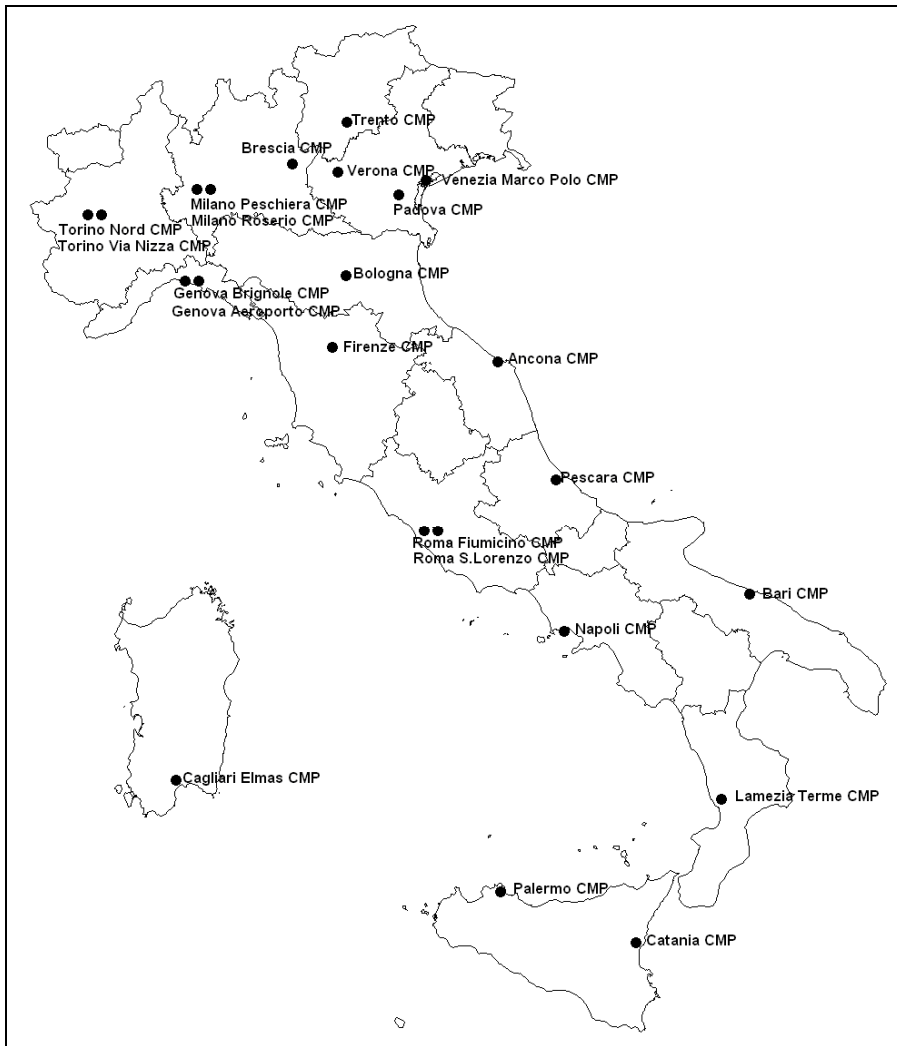

Fig. 8

Early matrix coding

First coding system by AEG-Telefunken and Elsag was tested in Italy in the Firenze pilot plant in 1971. That was a matrix barcode printed with fluorescent ink in pale yellow color, similar to the type in use in Germany in that period. Idents, from 0 to 9, were always printed in the same bars' ink. The coding was the usual 5-digits 2/5 code read left to right.

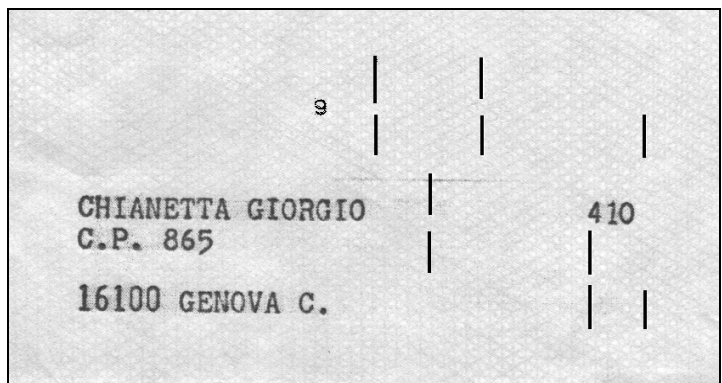|	Value									
	0	1	2	3	4	5	6	7	8	9
P		I	I		I			I		
1		I		I		I		I		
2			I	I			I			I
4	I				I	I	I			
7	I						I	I	I	

Fig. 9

Sometimes only first three digits were printed (outgoing mail), the remaining two were printed by the destination CMP as code of incoming mail. So you can find mail with a complete 5-digit code in one shot, only first three digits, and 3+2 digit with two ident strikes. In the previous figure there is an example of matrix coding (printed in black for a better viewing) where you can note a conventional coding 16108 for P.O. box addresses in Genova ("Casella Postale" or "C.P." in Italian), even if the address CAP is the generic 16100.

Current linear coding

The present code in use is a linear barcode, similar to most of the current European codes, bar/no-bar negative 2/5. Codes are sprayed in black ink and the whole bar is 30 positions long, five groups of six, with a 1cm gap after the third position from right. The code must be read right to left and the coding key is as follows:

0	1	2	3	4	5	6	7	8	9
|||••|	••||||	•|•|||	|••|||	•||•||	|•|•||	||••||	•|||•|	|•||•|	||•|•|

Next Fig. 10 is an example of standard 5 digit code, the most usual, printed in this case by the coding desk ident 2 of Genova Brignole CMP. Idents can be numeric or alphanumeric, depends on the number of coding desks installed in a CMP. Idents are always printed nearly 6cm on the left of the 5-digit bar, and can have two position, left and right: the leftmost position is for outward coding, whilst the rightmost position is for the inward coding, often present with the fine sorting 4-digit additional code (see next paragraph). In this cover, the ident 2 is placed in the outward/left position (the void right place is marked as a small dot).

An OCR coding printed by a SARI system (SARI stands for "Sistema Automatico Ricono-scimento Indirizzi", built by Elsag in early '80s) doesn't have any ident, except perhaps for the Firenze plant. In Fig. 11 there is a general view of a SARI system, and in Fig. 12 a detail of the SARI reader optical group.
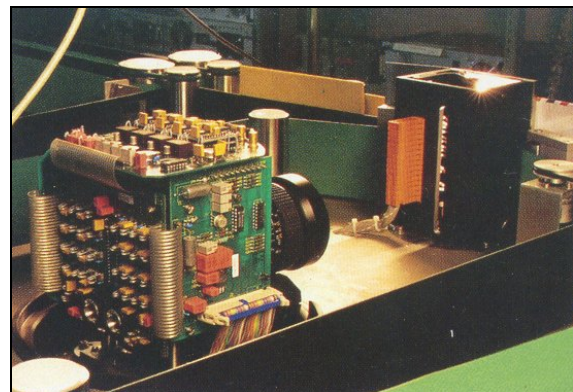

Fig. 10

Fig. 11

Fig. 12

Both coding desks and SARI systems can print partial coding, depends on their outward (first 3 digits) or inward (last 2 digits) coding phases. You can have different types of combinations when two partial codes are printed together.

Next two figures show some examples of double printings. Here is a SARI outward 161 code followed by an inward 28 coding by desk 0.
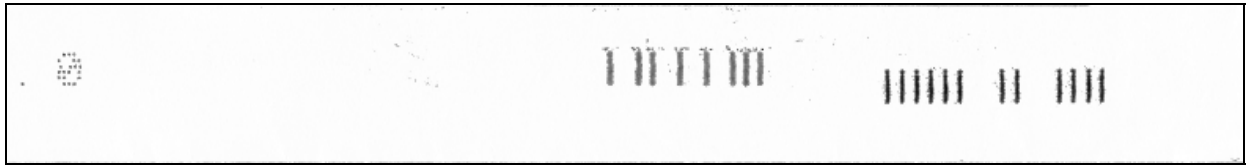

Fig. 13

Next there is a SARI 3 digit outward coding 161 (to Genova) by Firenze CMP (I as OCR ident typical of that CMP), completed with a 71 inward coding printed in Genova CMP desk 0 (note that 71 is a conventional coding for PO boxes).
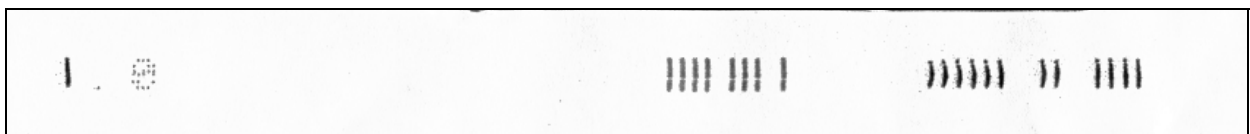

Fig. 14

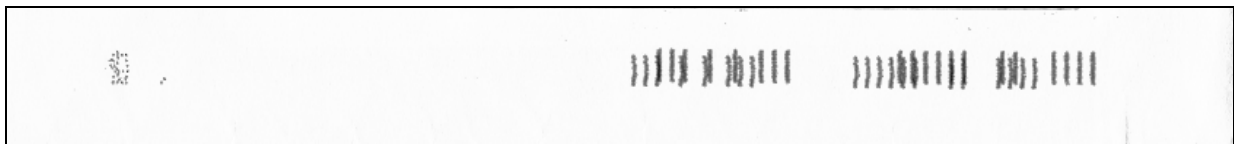Last figure shows that non always the double coding is successful.

Fig. 15

About Firenze CMP idents, I don't have precise info, but can suppose that being the former AEG-Elsag plant, there should be a "I" for the OCR coding and other combination of a four positions bar code for the desk idents (see next example).
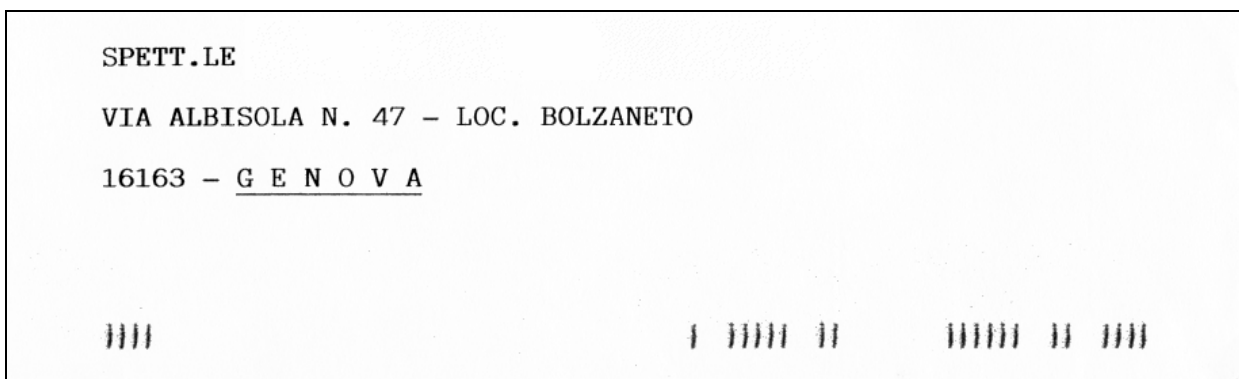

Fig. 16

Path code (or 3rd zone code)

When the linear coding was introduced around 1991, a new feature as extension of the standard five digit coding became available: that was a four digit additional code printed on the left of the CAP code, between it and the ident mark. Operators call it "3rd zone code" (in fact it is the 3rd group of bars) and is related to the fine inward sorting, finest than the 2 digit city zonal code already present in the CAP, because there should be a single code for each mailman path. Only in the last years the use of this code has spread out, perhaps because in this years new fine sorting machines have been available (I saw that one of Genova Brignole CMP in January 1996, but not operative yet).

Path code usage is related in some way to the new version of CAP system: new postal zones in main cities should indicate group of delivering path ("areole" in Italian), whilst the extended barcode should

represent a finest sorting for each group. I know that the Elsag coding desks have the "extract code" feature already present, i.e. typing the first part of the address the exact path code is assigned automatically.

In these years, the extended path code has been used in different ways. Except for some occasional use on foreign mail (9999 code in some CMP), there are three main usage. The next figure shows one of it, printed by the coding desk 3 of Genova Aeroporto CMP as refining of 16031 CAP code printed by the desk 2 of the CMP of origin (Catania), and decodes 0301. This way decodes the last two CAP's digits using all the four digits available. Another method, used in some CMPs (or by some operators?), has first two digits set to a dummy 99 and remaining two are a replication of the CAP inward code: 9926, 9928, 9948, etc, from right to left.

Fig. 17

Last coding type, the most used now that fine sorting machines are fully operative, is composed by the postal zone code followed by its subdivision, numbered from 01 onwards: the resulting path code is like 2808, 4801, etc. from right to left. Reading the full 9 digits bar you can decode for instance: 16148+4806
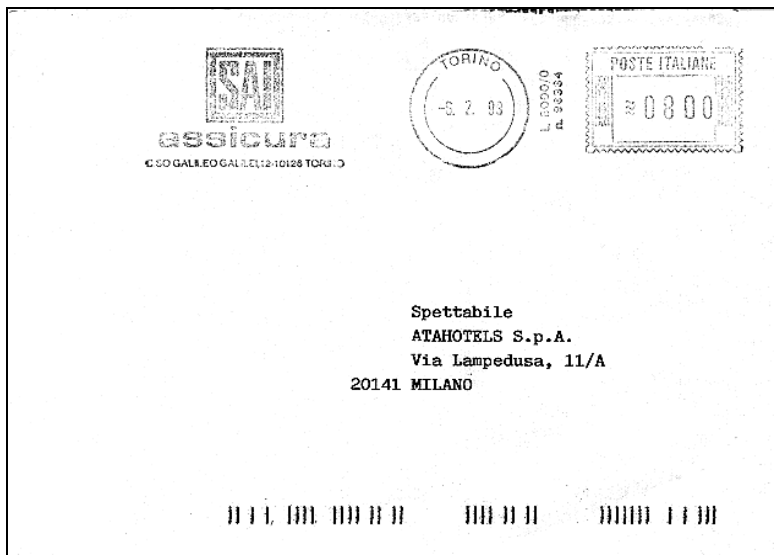

Fig. 18

(my personal address), 16128+2808, 10146+4606, etc.

New SARI systems can print this extended 9 digits code in one shot (in Fig. 18 see an example of 20141+4119).

The extended code has created a set of combinations among the possible ways to obtaining a complete 9-digit code. Here is a table showing the report of my search among the 14 possible codes combinations: a dot means a possible combination found in real mail, a question mark is for those possible combinations not found yet in all the mail examined (more than 3.000 pieces), a gray-filled box means non applicable:

Outward / Inward	CD3	CD5	SARI3	SARI5
CD2	●		●	
CD4	●	●	●	●
SARI4	?	●	?	●
SARI4+2	●		●	
SARI2	●		?	

Rows/columns header legend: for outward codes CD3 stands for coding desk 3-digit code, CD5 complete coding desk CAP code, SARI3 and SARI5 are for the OCR n-digit codings, whilst for inward codings CD2 means the final 2-digit of CAP by coding desks, SARI4 the SARI path code, SARI4+2 the SARI path code and the final CAP code in one shot, SARI2 only the final CAP code, all printed by OCR.

There are other interesting code mixing: covers with matrix/linear coding in the period 1990/1991, Italian coding on mail addressed inland or abroad mixed with one or more foreign codings (in general, Italian mail addressed to foreign destination should not be coded, but have the ident only, like the EXPRESS domestic mail).

Damaged letters

Mail damaged by cancelling or sorting machines, if still deliverable is sometimes marked with a special stamp like "LETTERA LACERATA DA MACCHINA SMISTATRICE" ("mail damaged by sorting machine"). If roughly damaged is delivered inside POSTEL (Italian electronic mail) or other service covers. In the next figure there is an example of such a cover, from Genova Brignole CMP: there is the Genova Ferrovia handstamp, the free-franking elliptic handstamp and a special handstamp "CORRISPONDENZA LACERATA DALLA / MACCHINA BOLLATRICE ELETTRONICA / L'UFFICIALE POSTALE" ("correspondence torn by the electronic cancelling machine - the postal Officer"). Year ago, covers were adjusted using one or more adhesive label with the "Poste Italiane" inscription inside a double circle.

Fig. 19

Conclusions

As said in the introduction, this article doesn't have the target to be exhaustive on the subjects related to the Italian Postal Mechanisation: several other things could be written about other PM fields or about the same coding and sorting matter: trials, test mail, plant descriptions and equipment, etc. Anyway I hope this article could provide enough information to arouse some interest and increase the tiny - I suppose - number of people studying and collecting Italy.

Giorgio Chianetta