3.1 Data Standards

3.1.1 Data Codes: Data is stored within System 25 as 8-bit bytes as follows:

Bit No.   8   7   6   5   4   3   2   1

MS bit [| | | | | | |] LS bit
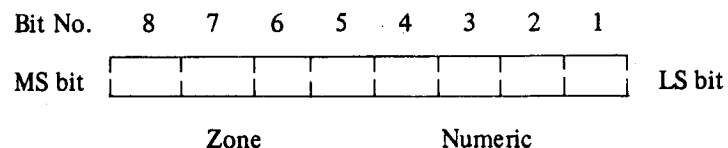
Zone   Numeric

The bits are numbered from 1 to 8; bit 8 is the most significant bit and bit 1 the least. Bits 8 to 5 contain the Zone code of the byte and have a value in the range 0 to 15. Bits 4 to 1 contain the Numeric code of the byte and have a value in the range 0 to 15.

The characters assigned to the codes are given in Table 1 for Zone codes 0-7 and correspond to the ISO 7 bit set. Zone codes 8-15 do not have assigned characters.

The 6 bit subset which is compatible with System Ten consists of Zone codes 2-5 (i.e. bits 8 and 6 are ignored).

3.1.2 Numeric Data: Numeric data is stored as variable length Binary Coded Decimal (BCD) byte strings in sign and modulus form. The Numeric code of each byte has a value in the range 0-9. For positive numbers each byte has a Zone code of 3, so that numbers are stored as their character code.

For negative numbers each byte except the least significant byte has a Zone code of 3. The least significant byte has a Zone code of 5. Thus the character representation of the least significant byte for the numerals 0 to 9 is P to Y, as in the following table:

Numeral	0	1	2	3	4	5	6	7	8	9	
											Positive number
Character	P	Q	R	S	T	U	V	W	X	Y	Negative number

Example: -1234 is stored as 123T.

3.2 Store Map

The Main Store is divided into a number of areas as shown in Fig. 2.

(a) Control Store from 0 to 2999, which contains I/O control and configuration data for use by the Control Processor.

(b) Common Store from absolute address 3000 which contains information accessible to all partitions. Write access is prohibited to locations 0 to 299 of Common. This area is called Protected Common.

(c) Partition Store. An area of store for each partition which contains the partition program, data and Index Registers.

Table 1   Character codes

Bit 8		0	0	0	0	0	0	0	0
Bit 7		0	0	0	0	1	1	1	1	ZONE CODE
Bit 6		0	0	1	1	0	0	1	1
Bit 5		0	1	0	1	0	1	0	1
	Column	0	1	2	3	4	5	6	7

Bit 4	3	2	1	0	1	2	3	4	5	6	7
0	0	0	0	NUL	DLE	SP	0	@	P	`	p
0	0	0	1	SOH	DC1	!	1	A	Q	a	q
0	0	1	0	STX	DC2	"	2	B	R	b	r
0	0	1	1	ETX	DC3	£	3	C	S	c	s
0	1	0	0	EOT	DC4	$	4	D	T	d	t
0	1	0	1	ENQ	NAK	%	5	E	U	e	u
0	1	1	0	ACK	SYN	&	6	F	V	f	v
0	1	1	1	BEL	ETB	'	7	G	W	g	w
1	0	0	0	BS	CAN	(	8	H	X	h	x
1	0	0	1	HT	EM	)	9	I	Y	i	y
1	0	1	0	LF	SUB	*	:	J	Z	j	z
1	0	1	1	VT	ESC	+	;	K	[	k	{
1	1	0	0	FF	FS	,	<	L	\	l		
1	1	0	1	CR	GS	-	=	M	]	m	}
1	1	1	0	SO	RS	.	>	N	^	n	-
1	1	1	1	SI	US	/	?	O	_	o	DEL

3.2.1 Control Store: The lowest numbered area of main store is called the Control Store which has been added for System 25. This area of store is not accessible to the partitions, except from Partition 0 in special circumstances, and is used to hold control information for Input/Output operations and for general system operation.

A duplicate set of A and B registers hold the control words in absolute address form and other registers are used by the Control Processor to progress the state of I/O transfers.

An area of control store is used to hold a translation table for the mapping of the logical device numbers within an I/O Instruction into real device numbers and IOC numbers.