IBM

704

electronic data-processing machine

manual of operation

word causes an end-of-record skip, leaving the incomplete word in the MQ. The tape check indicator will not be turned on because an incomplete word has entered the MQ. (*Note:* This will not decrease tape-checking when binary tapes are being read, because detectable incomplete binary words will be detected by the redundancy check.) If a CPY instruction is not given for the incomplete word, the extra characters are automatically brought into the MQ (because word $n + 1$ of a record is always transmitted to the MQ after n CPY's). A tape check occurs only if the computed lateral or longitudinal bits do not compare with those on the tape. Use the delay instruction, WRS 333_8 to delay the execution of any instruction until the MQ is available. After the delay instruction has been given, the store MQ (STQ) instruction may be used to store the contents of the MQ in core storage.

When an incomplete word is brought into the MQ from tape, the unused portion of the MQ contains zeros.

Character Alteration in BCD Mode

Altering characters when reading or writing in the BCD mode on the 704 changes the zones of some of the characters and the numerical code of the character representing zero. The zones differ from the 702 code because the 704 requires this zone change to help fast sorting procedures. Because redundancy checking is an even parity check on peripheral equipment (and in the BCD mode on the 704), the pure zero would not have a non-zero bit. Several pure zeros would correspond to an end-of-record gap. Thus, the zero character is changed to 00 1010 in the BCD mode. The zone alterations follow:

CLASS	IN 704	ON TAPE
Numerical	00	00
A to I	01	11
J to R	10	10
S to Z	11	01

Table III shows the automatic alteration of all characters during transmission in the BCD mode.

CHARACTER	IN STORAGE	ON TAPE	CHARACTER	IN STORAGE	ON TAPE
0	00 0000	00 1010	A	01 0001	11 0001
1	00 0001	00 0001	B	01 0010	11 0010
2	00 0010	00 0010	C	01 0011	11 0011
3	00 0011	00 0011	D	01 0100	11 0100
4	00 0100	00 0100	E	01 0101	11 0101
5	00 0101	00 0101	F	01 0110	11 0110
6	00 0110	00 0110	G	01 0111	11 0111
7	00 0111	00 0111	H	01 1000	11 1000
8	00 1000	00 1000	I	01 1001	11 1001
9	00 1001	00 1001	$\overset{+}{0}$	01 1010	11 1010
#	00 1011	00 1011	.	01 1011	11 1011
@	00 1100	00 1100	⌑	01 1100	11 1100
—	10 0000	10 0000	Blank	11 0000	01 0000
J	10 0001	10 0001	/	11 0001	01 0001
K	10 0010	10 0010	S	11 0010	01 0010
L	10 0011	10 0011	T	11 0011	01 0011
M	10 0100	10 0100	U	11 0100	01 0100
N	10 0101	10 0101	V	11 0101	01 0101
O	10 0110	10 0110	W	11 0110	01 0110
P	10 0111	10 0111	X	11 0111	01 0111
Q	10 1000	10 1000	Y	11 1000	01 1000
R	10 1001	10 1001	Z	11 1001	01 1001
$\bar{0}$	10 1010	10 1010	‡	11 1010	01 1010
$	10 1011	10 1011	,	11 1011	01 1011
*	10 1100	10 1100	%	11 1100	01 1100
&	01 0000	11 0000			

TABLE III