/360-20 2415 Tape

Sense Bytes

0	U	8	Command Reject
		4	Intervention Required
		2	Bus out Check
		1	Equipment Check /Counter Check
	L	8	Data Check
		4	Overrun
		2	Word Count Zero
		1	Data Converter Check
1	U	8	IBG Noise / Any Read Data Check (PE)
		4	TD Status A
		2	TD Status B
		1	7 Track
	L	8	At Load Point
		4	Write Status
		2	File protect
		1	Not Capable ●
2	U	8	not used
		4	" "
		2	" "
		1	" "
	L	8	" "
		4	Any Dead Track (P.E. only)
		2	Forced unconditionally
		1	Forced unconditionally
3	U	8	Data Reg. Check VRC (Read)
		4	LRCR/ Mult Track Error (PE)
		2	Skew (NRZI – WRT) (PE – RDF ,RDB)
		1	End Data Check (PE)
	L	8	Read Reg. Check VRC (NRZI – RDF 7, Enverlope Check (PE – WRT)
		4	1600 Bytes per Inch
		2	Backward
		1	C Compare Check (Parity Error) inactive for 7 Track Translate Operation

Unit Check → Non Existent, Not ready, Ready + not Rew., Ready + Rewind

Velocity Check in Start Envelope

Data Check

Sense Bytes 4 + 5 All Zeros

● PE Drive attempts to read NRZI Tape and TCU does not have NRZI Feature

---

Commands: Abbreviations

Command		Abbr
Write	Ø 1	WRT
Read	Ø 2	RDF
Read Bkwd	Ø C	RDB
Sense	Ø 4	SEN

Control Commands:

Command		Abbr
NOP	Ø3	NOP
Rewind	Ø7	REW
Rewind Unload	ØF	RUN
Erase Gap	1 7	ERG
Write TM	1 F	WTM
Bksp. Record	2 7	BSR
Bksp. File	2 F	BSF
Fwd Space Record	3 7	FSR
Fwd Space File	3 F	FSF
Transfer in Channel	Ø8	TIC

Unit Status

U	8	= not used Mod. 20
	4	= Status Modifier
	2	= Control Unit End
	1	= Busy
L	8	= Channel End
	4	= Device End
	2	= Unit Check
	1	= Unit Exception

Channel Status

U	8	= Channel Data Check
	4	= Interf. Control Check
	2	= Incorrect Length
	1	= Program Check

Condition Code = (Bits 2+3 in PSW) =	0 00	1 01	2 10	3 11
Mask Bits (Bit Value of M1 = Bits 8–11 in Branch on Condition)	1000 8	0100 4	0010 2	0001 1
XIO Tape	not used	CSW stored	Special I/O busy	Not operational

XIO

1	2	3	4	5	6
OP Code	DA	⊠	CCW-Address ← B1 → / D1 → ← B2 → D2 →		TCU	TD

CCW

1	2	3	4	5	6
Command	Flag	⊠	Data-Address (direct) No Register		Length-Count

CCW

1	2	3	4	5	6
Control Command	Flag	Any Address above 144 and below Core Storage Capacity			

CSW

1	2	3	4	5	6
TCU No	TD No	Unit Status	Chan. Stat.	Residual Count	CCW-Address (Last used CCW)

Data I/O Area
1 - 4095 Bytes
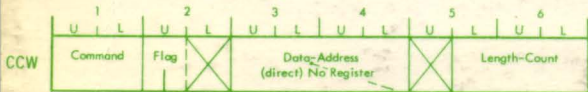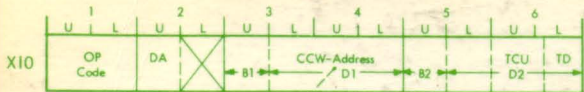
Chain- CCW
Flag: 8 Bit on = further CCW follows
8 Bit off = Last CCW
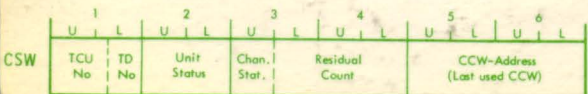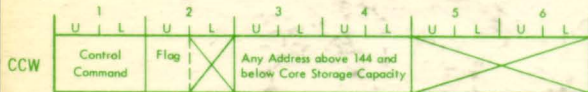
UNIT STATUS EXPLANATION:

Bit	Designation	When Used
0	Not Used	
1	Status Modifier	See bit 3, busy, description.
2	Control Unit End	1. At completion of an operation during which a TCU busy was indicated. 2. At completion of an operation during which a unit check or unit exception is detected.
3	Busy	1. With status modifier bit 1, a TCU is addressed and the TCU is busy with another command or has status pending for a different TD (short busy). 2. Without status modifier bit 1, a command other than test I/O is recognized and the TCU has status pending for the addressed TD (long busy) or (including test I/O the addressed TD is rewinding.
4	Channel End	1. A read, read backward, write, or sense command has been completed. 2. A control command has been accepted.
5	Device End	1. TD has completed a command: tape reaches LP during rewind; rewind-unload is completed at TCU level (TD drops ready); command is completed (occurs with channel end for non-control commands). 2. Occurs with channel end and unit check if TD ready drops while performing a command. 3. TD goes from not ready to ready if TCU selected TD while is was not ready, or if TCU initiated the rewind-unload that caused the TD to become not ready.
6	Unit Check	1. Any bit is on in sense byte 0. 2. TD performs read backward, backspace block, or backspace file into or at load point. 3. A rewind-unload is completed at TCU level. 4. A ready drop occurs during tape motion operations. 5. A non-existent TD is addressed during initial selection.
7	Unit Exception	1. A write, WTM, or erase gap operation is performed in the end-of-tape area. 2. A tape mark is detected during read, read backward, forward space block, or backspace block.