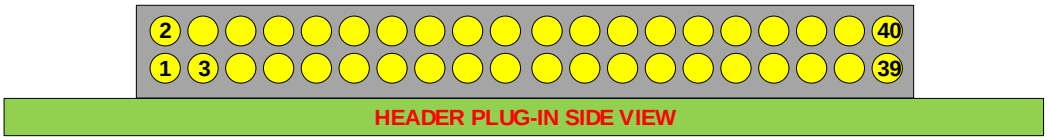
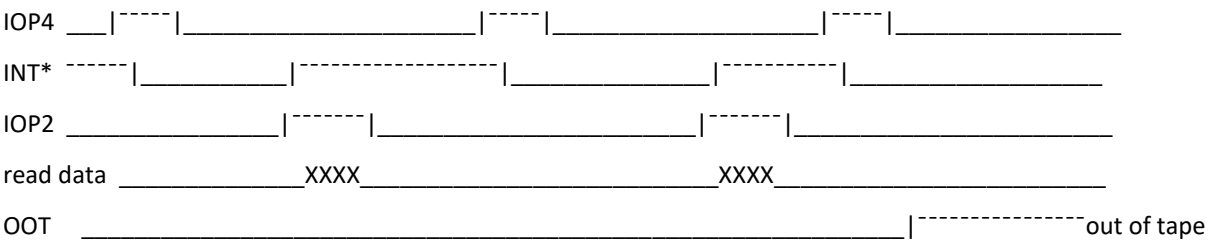
Finger connector B09 → 2x20 pin header connection and signals to/from READER



remarks	function	finger	2x20 pin header		finger	function	remarks
		B2	1	2	A2	+5V	
		A1	3	4	B1	RDR RUN*	not used
		C2	5	6	D2	IOP1	via R → +5V
		F2	7	8	D1	INITIALIZE*	
		F2	9	10	E2	QUALIFY	via R → +5V
		J2	11	12	E1	INT*	
	GND	C1	13	14	H2	IOP4	
	GND	C1	15	16	H1	Out of Tape	
		F1	17	18	K2	IOP2	
		L2	19	20	J1	SKIP*	not used
		K1	21	22	M2	D7	needs pull-up
		K1	23	24	L1	INITIALIZE	not used
		N1	25	26	P2	D6	needs pull-up
		N2	27	28	M1	D0	needs pull-up
		R1	29	30	S2	D5	needs pull-up
		R1	31	32	P1	D1	needs pull-up
		R1	33	34	T2	D4	needs pull-up
		R2	35	36	S1	D2	needs pull-up
		T1	37	38	V2	D3	needs pull-up
		U1	39	40	V1		

Signals IOP1, IOP2, and IOP4 are only valid when QUALIFY ≡ 1.
From PC04_PC05_engrDrws_Mar73.pdf page 30: data bits output only valid when IOP2 ≡ 1 (signal AND-ed).
IOP4 pulse latches the data signals from the photo-amplifier outputs.



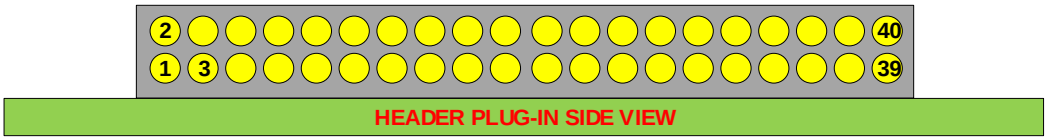
IOP1 only enables the SKIP output (when IOP1 ≡ 1). SKIP output is from the flip flop FLAG, INT also comes from the FLAG flip flop. → IOP1 and SKIP are not needed. Connect IOP1 to +5V via pull-up resistor.

After IOP4 pulse INT is activated when data is available. If INT is not activated within 10 ms, the RUN signal becomes inactive, indicating that the reader is “out of paper”. When IOP2 is activated, INT is cleared.

IOP4 must not come too fast after IOP2 (and read data). Or, tape keeps on moving and at the next feed hole INT is activated. Can be detected with IOP1 and SKIP, but the PC11 does not use these two signals.
==> generate IOP4 with a timer, thus IOP4 pulse cannot be faster than the reader can keep up to (t > 3.3 ms) ??

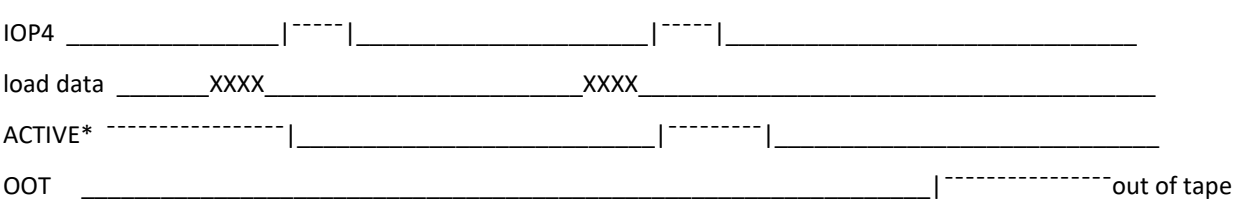
Out Of Tape: active high (papertape present ≡ 0 / out of tape ≡ 1).

Finger connector B10 → 2x20 pin header connection and signals to/from PUNCH



remark	function	finger	2x20 pin header		finger	function	remark
		B2	1	2	A2		
		A1	3	4	B1	INITIALIZE*	
		C2	5	6	D2	IOP1	tied to GND
		F2	7	8	D1	OOT	
		F2	9	10	E2	QUALIFY	via R → +5V
		J2	11	12	E1	INT*	not used
		C1	13	14	H2	IOP4	
	GND	C1	15	16	H1	ACTIVE*	
		F1	17	18	K2	IOP2	tied to GND
		L2	19	20	J1	SKIP*	not used
		K1	21	22	M2	D7	
		K1	23	24	L1	READER FEED	??? not used
		N1	25	26	P2	D6	
		N2	27	28	M1	D0	
		R1	29	30	S2	D5	
		R1	31	32	P1	D1	
		R1	33	34	T2	D4	
		R2	35	36	S1	D2	
		T1	37	38	V2	D3	
		U1	39	40	V1		

Signal IOP4 is only valid when QUALIFY ≡ 1.
IOP4 pulse latches the data and subsequently starts the punch cycle.



After the IOP4 pulse ACTIVE* becomes active during 4.5 msec. The punch needs more time to punch the character. So, when ACTIVE* does not become active, the next character cannot be loaded and subsequently be punched with an IOP4 pulse. Between two IOP4 pulses must be at least 100 msec (10 characters/sec).
When the puncher runs out of papertape, the signal OOT is activated, indicating that the punch is “out of paper”.

Out Of Tape: active high (papertape present ≡ 0 / out of tape ≡ 1).