

TRS-80 Model I Hard Disk Adapter Cable

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The hard drives sold for the TRS-80 line of computers, such as the 5 MB external drive, catalog number 26-1130, requires an adapter (cat. No. 26-1132) to connect to the expansion bus of the Model I. The information here will facilitate construction of the adapter.

The Model I expansion port is configured opposite to other connectors on the expansion interface board, such as the printer and floppy connectors.

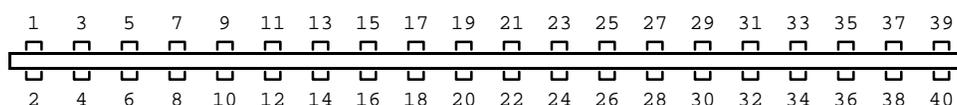


Figure 1. Model I expansion bus (from TRS-80 technical reference manual)

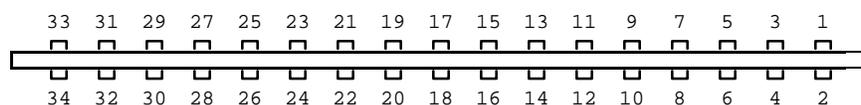


Figure 2. Model I printer and floppy connector configurations (from expansion interface manual)

To keep things “simple” for users, Tandy configured all their cables to connect the same way to the card edge connectors, namely with the pin 1 stripe to the right and the cable exiting from the bottom. Thus, the 40-pin cable on the hard disk adapter is wired backwards. The pin 1 stripe will actually connect to pin 39 on the card edge.

Image files HD1, HD2, and HD3 are high resolution photographs of an original Model I hard disk adapter. The adapter contains two resistors and two transistors. The transistors are NPN type 2222A, available from Radio Shack as catalog number 276-2006. The resistors are 1 KOhm, 5% tolerance, also available from Radio Shack as 271-1118.

Table 1 shows the connections needed for the interface. Column 1 lists the pin assignments for the 40-pin connector to the Model I following Tandy’s convention for the location of the stripe and cable routing. Column 2 lists the assignments for the TRS-80 Model I expansion bus. Column 3 lists the Model I signals. Column 4 lists the connection to ground or the pin number on the 50-pin connector to the hard disk. Column 5 lists signals found on the 50-pin bus of the Models III/4/4P series from the TRS-80 Model 4P service manual.

The first schematic diagram shows the true pin assignments for the adapter to allow for signal tracing. The second shows the pin assignments following the reversed cabling used in the original adapter for consistency of construction.

Table 1. Pin assignments for the Model I Hard Disk Adapter

40-pin Adapter Connector	TRS-80 Model I Expansion Bus	Model I Signal	50-pin Connector*	TRS-80/4P Signal
1	39	+5V	NC	
2	40	A2	21	XA2
3	37	GND	GND	
4	38	A6	29	XA6
5	35	A5	27	XA5
6	36	A7	31	XA7
7	33	WAIT*	41	IOBUSWAIT*
8	34	A3	23	XA3
9	31	A4	25	XA4
10	32	D2	5	XD2
11	29	GND	GND	
12	30	D0	1	XD0
13	27	A1	19	XA1
14	28	D5	11	XD5
15	25	A0	17	XA0
16	26	D3	7	XD3
17	23	TEST*	NC	
18	24	D6	13	XD6
19	21	INT*	NC	
20	22	D1	3	XD1
21	19	IN*	33	XIN*
22	20	D7	15	XD7
23	17	A9	NC	
24	18	D4	9	XD4
25	15	RD*	NC	
26	16	MUX	NC	
27	13	WR*	NC	
28	14	INTAK*	47	XMI*
29	11	A8	NC	
30	12	OUT*	35	XOUT*
31	9	A11	NC	
32	10	A14	NC	
33	7	A15	NC	
34	8	GND	GND	
35	5	A12	NC	
36	6	A13	NC	
37	3	CAS*	GND	
38	4	A10	40-pin/39**	
39	1	RAS*	40-pin/38**	
40	2	SYSRES*	37	XRESET*
			49	XIOREQ*

*NC = no connection, GND = ground, or number is on 50-pin connector to hard disk

** 40-pin lines 38 and 39 are shorted

50-pin connector pins involved in transistors & resistors

49 - collectors of both 2222As

35 -> (R/emitter of back 2222A) -> R -> base of front 2222A)

33 -> (R/emitter of front 2222A) -> R -> base of back 2222A)

