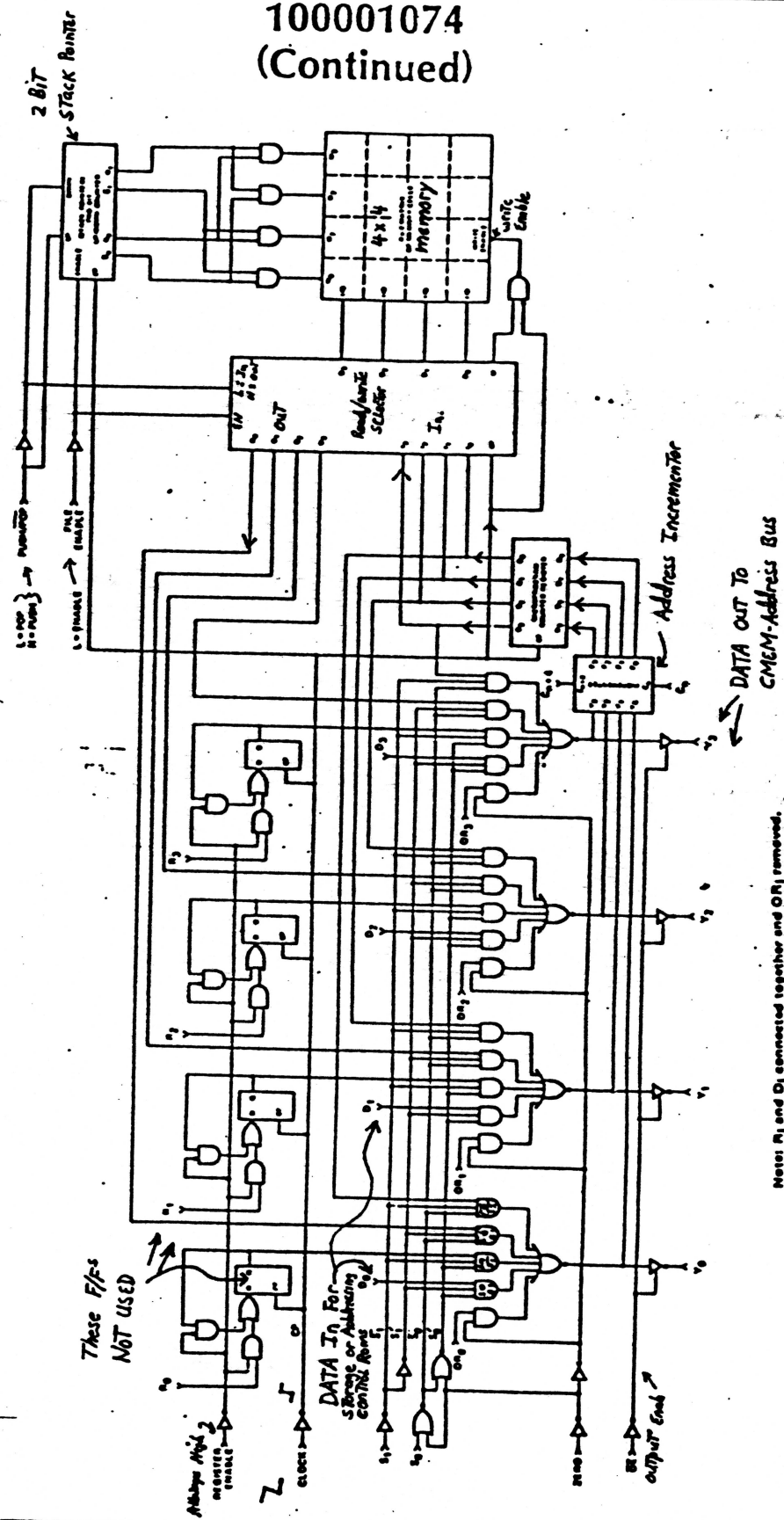


Micro-Sequencer
Located Sheet (3D5)

100001074
(Continued)

MICROPROGRAM SEQUENCER BLOCK DIAGRAM



100001074
(Continued)

Pin 11 ADDRESS SELECTION

OCTAL	S ₁	S ₀	SOURCE FOR Y OUTPUTS	SYMBOL
0	L	L	Microprogram Counter	μPC
1	L	H	Register	REG
2	H	L	Push-Pop stack	STK0
3	H	H	Direct inputs	D _i

Pin 9 OUTPUT CONTROL

OR _i	ZERO	OE	Y _i
X	X	H	Z
X	L	L	L
H	H	L	H
L	H	L	Source selected by S ₀ S ₁

Z = High Impedance

Pin 19 SYNCHRONOUS STACK CONTROL

FE	PUP	PUSH-POP STACK CHANGE
H	X	No change
L	H	Increment stack pointer, then push current PC onto STK0
L	L	Pop stack (decrement stack pointer)

H = High
L = Low
X = Don't Care

Pin 15-20 OUTPUT AND INTERNAL NEXT-CYCLE REGISTER STATES

CYCLE	S ₁ , S ₀ , FE, PUP	μPC	REG	STK0	STK1	STK2	STK3	Y _{OUT}	COMMENT	PRINCIPLE USE
N N+1	0 0 0 -	J J+1	K K	R _a R _b	R _b R _c	R _c R _d	R _d R _a	J -	Pop Stack	End Loop
N N+1	0 0 0 1 -	J J+1	K K	R _a J	R _b R _a	R _c R _b	R _d R _c	J -	Push μPC	Set-up Loop
N N+1	0 0 1 X -	J J+1	K K	R _a R _a	R _b R _b	R _c R _c	R _d R _d	J -	Continue	Continue
N N+1	0 1 0 0 -	J K+1	K K	R _a R _b	R _b R _c	R _c R _d	R _d R _a	K -	Pop Stack; Use AR for Address	End Loop
N N+1	0 1 0 1 -	J K+1	K K	R _a J	R _b R _a	R _c R _b	R _d R _c	K -	Push μPC; Jump to Address in AR	JSR AR
N N+1	0 1 1 X -	J K+1	K K	R _a R _a	R _b R _b	R _c R _c	R _d R _d	K -	Jump to Address in AR	JMP AR
N N+1	1 0 0 0 -	J R _a +1	K K	R _a R _b	R _b R _c	R _c R _d	R _d R _a	R _a -	Jump to Address in STK0; Pop Stack	RTS
N N+1	1 0 0 1 -	J R _a +1	K K	R _a J	R _b R _a	R _c R _b	R _d R _c	R _a -	Jump to Address in STK0; Push μPC	
N N+1	1 0 1 X -	J R _a +1	K K	R _a R _a	R _b R _b	R _c R _c	R _d R _d	R _a -	Jump to Address in STK0	Stack Ref (Loop)
N N+1	1 1 0 0 -	J D+1	K K	R _a R _b	R _b R _c	R _c R _d	R _d R _a	D -	Pop Stack; Jump to Address on D	End Loop
N N+1	1 1 0 1 -	J D+1	K K	R _a J	R _b R _a	R _c R _b	R _d R _c	D -	Jump to Address on D; Push μPC	JSR D
N N+1	1 1 1 X -	J D+1	K K	R _a R _a	R _b R _b	R _c R _c	R _d R _d	D -	Jump to Address on D	JMP D

X = Don't care, 0 = LOW, 1 = HIGH, Assume C₀ = HIGH
Note: STK0 is the location addressed by the stack pointer.