OUTPUTS: L Vp Vff
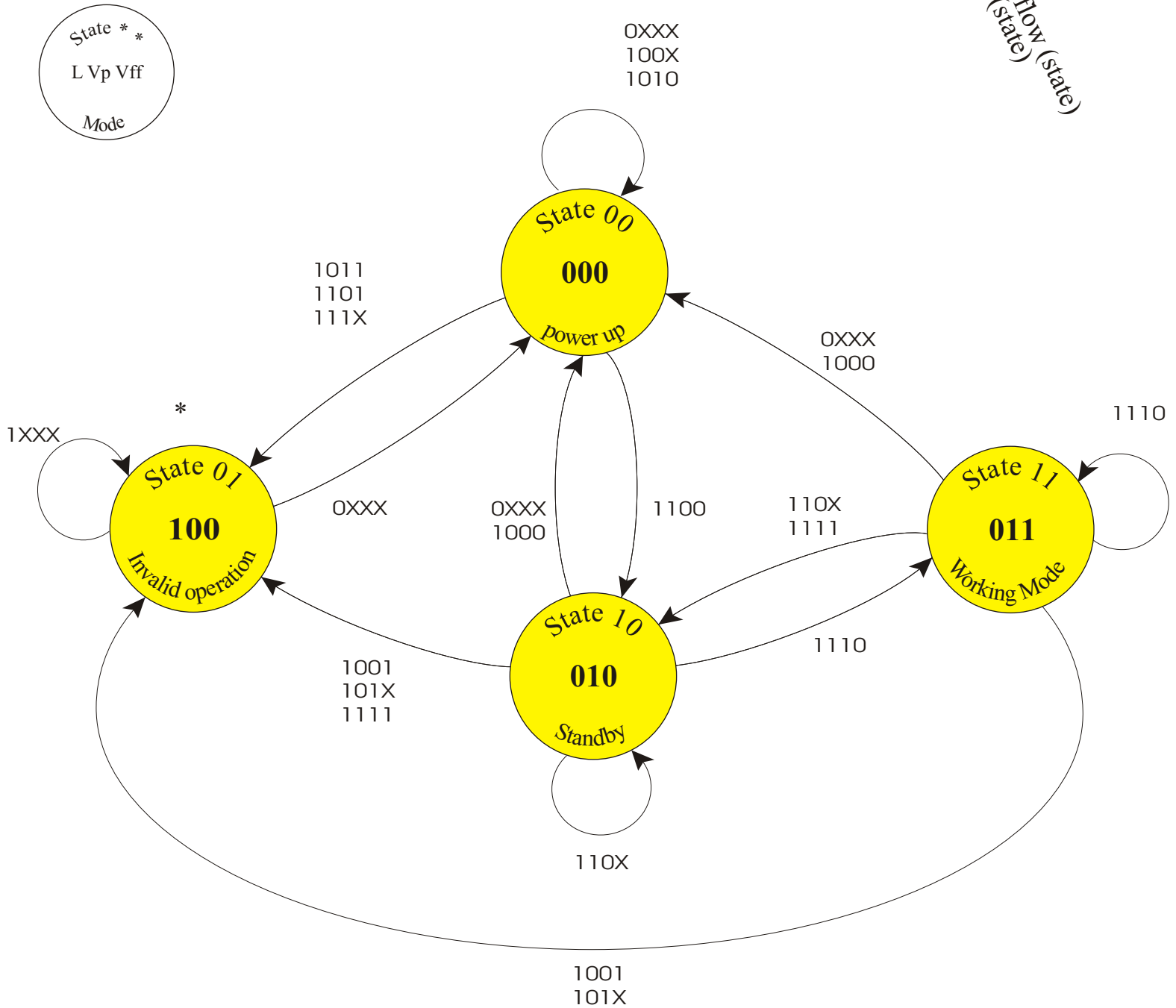
L: Invalid Op status light (0=off, 1=on)
Vp: Pressure valve (0 = off, 1 = on)
Vff: Forward flow valve (0 = off, 1 = on)

Inputs

A B C D

A: pump
B: pressure (state)
C: forward flow (state)
D: panic

State **
L Vp Vff
Mode

0XXX
100X
1010

State 00
000
power up

1011
1101
111X

0XXX
1000

1110

*
1XXX

State 01
100
Invalid operation

0XXX

0XXX
1000

1100

110X
1111

State 11
011
Working Mode

1001
101X
1111

State 10
010
Standby

1110

110X

1001
101X

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*: From "Invalid Operation" it is possible to reset the machine to "power up" mode by simultaneously depressing both pressure and forward-flow *off* buttons.

Boolean Equations

New State s

Q1$_+$:   ABCD + ACDF' + B'CDE'F' + ACDE'

CD{ AB + AF' + B'F' + AE'}

$$= CD\{ A[B + F' + E'] + B'F'\}$$

Q0$_+$: A'BC + A'CDF + A'CEF + CDEF' + ACD'F + ACEF' + AB'CE

A'[BC + CDF + CEF] + CDEF' + A[CD'F + CEF' + B'CE]

A'C[B + DF + EF] + CDEF' + AC[D'F + EF' + B'E]

C[A'{ B + DF + EF}] + DEF' + A{[D'F + EF' + B'E}]

$$= C[A'\{B + F(D+E)\}] + DEF' + A\{ D'F + E(F' + B')\}]$$