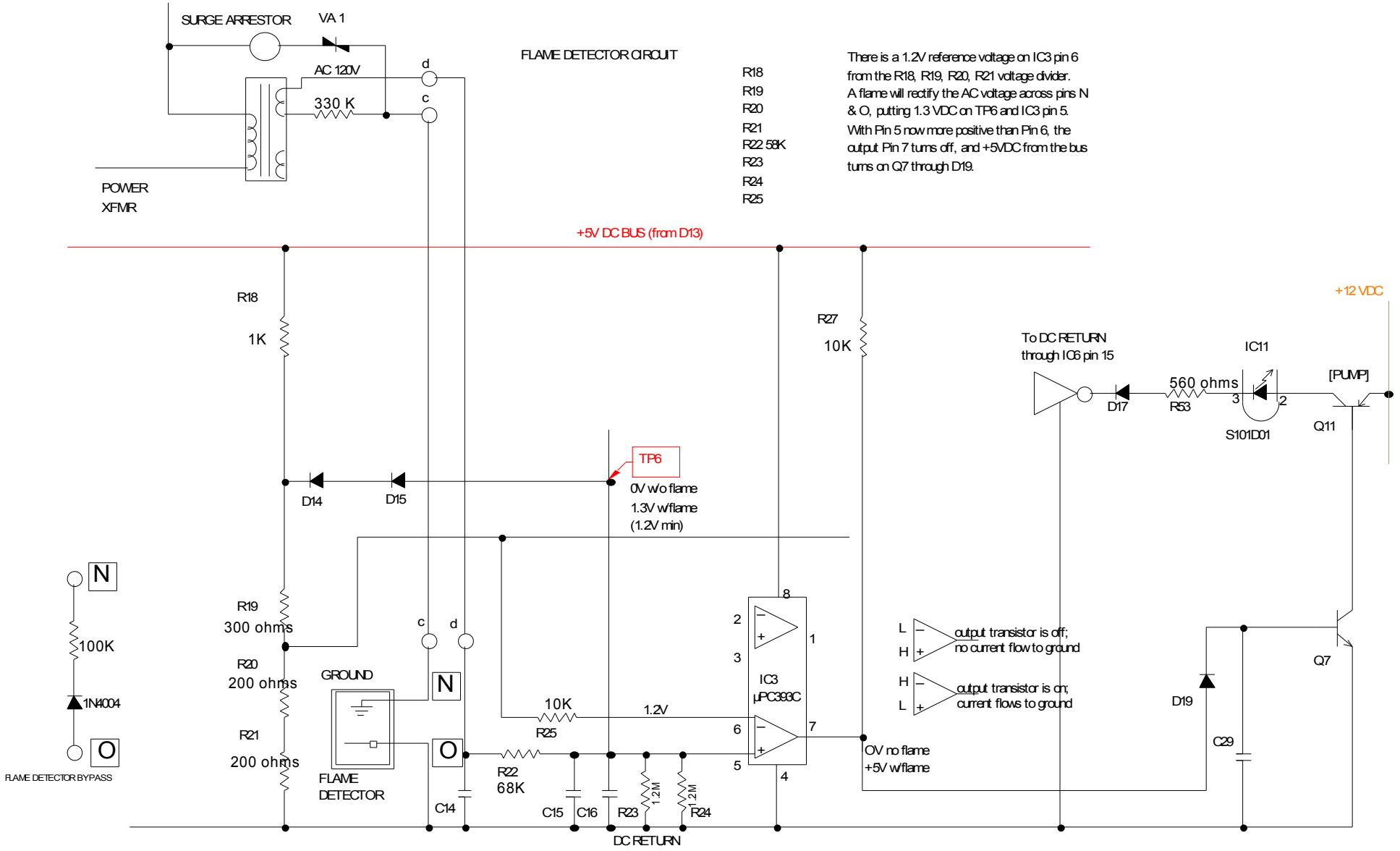
FLAME DETECTOR CIRCUIT
SURGE ARRESTOR
VA 1
AC 120V
330 K
d
c
POWER
XFMR
R18
R19
R20
R21
R22 58K
R23
R24
R25
There is a 1.2V reference voltage on IC3 pin 6 from the R18, R19, R20, R21 voltage divider. A flame will rectify the AC voltage across pins N & O, putting 1.3 VDC on TP6 and IC3 pin 5. With Pin 5 now more positive than Pin 6, the output Pin 7 turns off, and +5VDC from the bus turns on Q7 through D19.
+5V DC BUS (from D13)
R18
1K
R27
10K
+12 VDC
To DC RETURN
through IC6 pin 15
IC11
560 ohms
[PUMP]
D17
R53
S101D01
Q11
TP6
0V w/o flame
1.3V w/flame
(1.2V min)
D14
D15
N
100K
1N4004
O
FLAME DETECTOR BYPASS
R19
300 ohms
R20
200 ohms
R21
200 ohms
GROUND
FLAME
DETECTOR
c
d
N
O
10K
R25
1.2V
R22
68K
C14
C15
C16
R23
1.2M
1.2M
R24
IC3
µPC393C
L
H
output transistor is off;
no current flow to ground
H
L
output transistor is on;
current flows to ground
0V no flame
+5V w/flame
D19
C29
Q7
DC RETURN