AC rectification

5V rail generation

VAA

11.4-12.7 V

Z4
DZ23C12

Q36
ZXMP4A16G

Q37
ZXMP4A16G

R151
4k3

R150
4k3

R149
4k3

R148
4k3

Q34
ZXMN4A06G

Q35
ZXMN4A06G

Z1
AZ23C12

11.4-12.7 V

GND

J9
Conn_01x03_Male

C57
C

CR17
PDS560

C29
1000u

R1
10k

U10
LM7805_TO220

VI
GND
VO

+5V

C19
C

GND

U13
LM317EMP

VI
ADJ
VO

R52
1k24

White

U13_adj

C33
C

GND

TP9
TestPoint

U15B
74HC74

D
C
S
R
Q
Q̄

GND

+5V

U15C
74HC74

VCC
GND

+5V

GND

Heater+ control

Flip flop -> PNP -> NPN -> P-channel ?

VAA

CR1
BZT52-B10

R106
75k

ZXMP4A16G
Q2

Red

another via to somewhere

R87
7k5

TP19
TestPoint

Q19
MMBT3904

R88
43k

R80
30k

GNDA

+5V

U15A
74HC74

MCU_43

R125
47k

R86
33k

TP27
TestPoint

To U1

R90
39k

15k
R89

MMBT3906
Q20

J1
Handle

Blue 4
White 3
Red 2
Green 1

Appears to be 1k9 resistor between white & blue

R49
0R

C21
C

L1

TP14
TestPoint

TP16
TestPoint

MH1

GND

U13_adj

R42
39k2

R41
13k7

C30
C

C17
C

CR4
BAV199

GNDA

CR2
BAV199

R3
0R05

To U1

TP7
TestPoint

R23
1k47

C35
C

C18
C

Via to somewhere below R24

R32
178k

TP30
TestPoint

R50
1k47

Red

C47
C

R53
100k

GND +5V

U4
OP177G

To U24

TP38
TestPoint

174k R24

GNDA

TP8
TestPoint

U5
OP177G

C32
C

R45
39k2

13k7
R35

TP39
TestPoint

Bi-color LED and 7 segment power

R44
47k

R46
47k

Q15
MMBT4403

Q4
MMBT4403

R60
680R

R61
680R

MCU_38

MCU_37

D1_9

D1_12

R72
270

R71
180R

CR12
LED_Dual_ACA

MCU_31

Q7
2N7002

7 segment power and control

U7
ULN2003A

COM

R48
10k

MCU_24

R27
10k

MCU_25

R25
10k

MCU_26

R22
10k

MCU_27

R21
10k

MCU_28

R19
10k

MCU_29

R17
10k

MCU_30

R36 180R
R37 180R
R38 180R
R39 180R
R40 180R
R28 180R
R29 180R

D1
X0xx10x3

a
b
c
d
e
f
g
DPX

DP1
DP2
DP3

CA1 D1_12
CA2 D1_9
CA3

MCU_36

R59
680R

47k
R43

Q?
MMBT4403

Switches

R31
47k

SW1

MCU_9

R47
47k

SW2

MCU_8

R119
47k

SW3

MCU_7

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