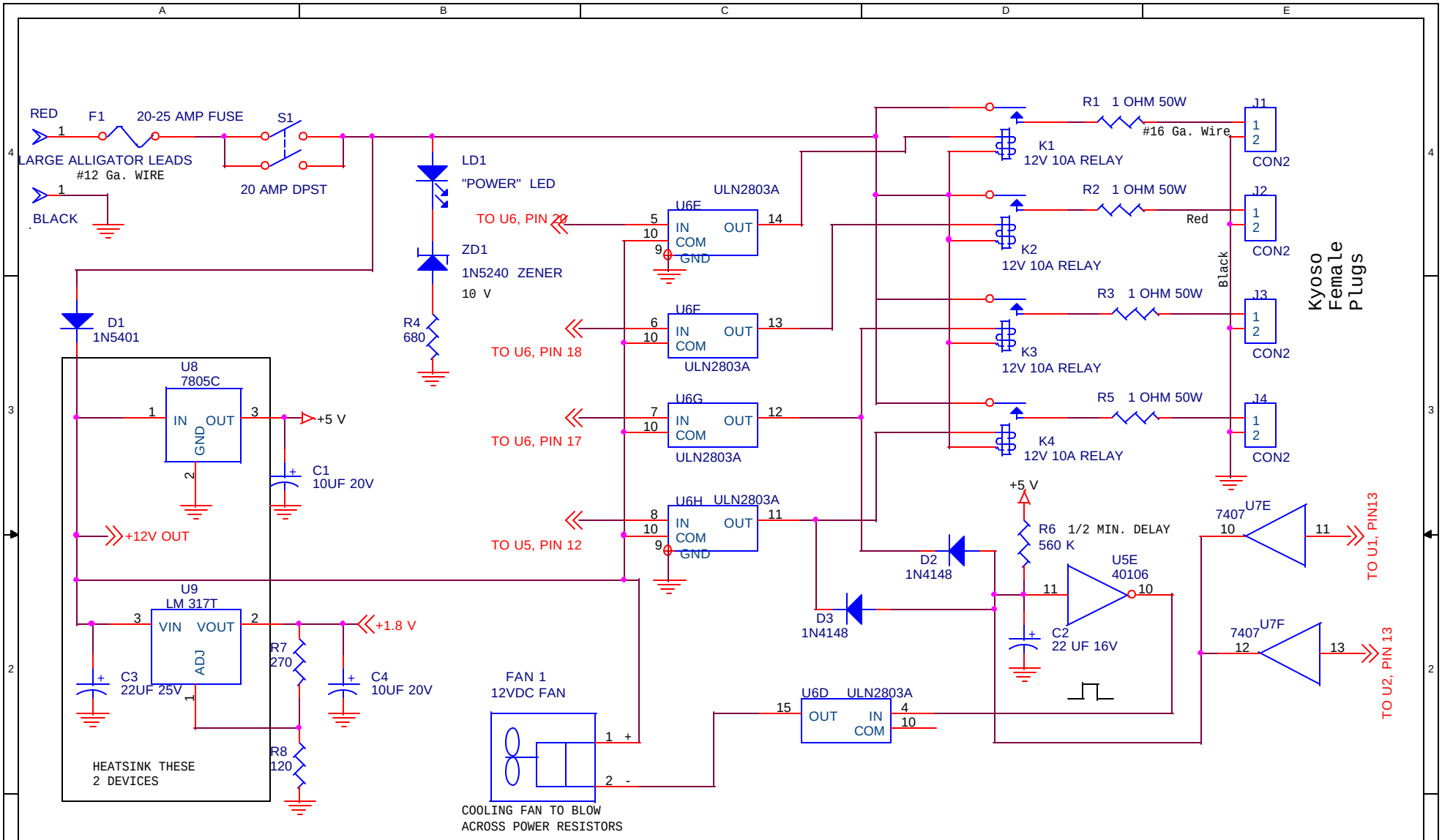

NOTES;
ONE TO 4 CHARGER INDIVIDUAL SELECTABLE CHARGEING TIMER SET AT 16 MINUTES, LED BAR GRAPH READS 2 MINITE INTERVALS.

FAN TURNS ON ANY CHARGE, AND STAYS ON 1/2 MINUTE AFTER CHARGER HAS TIMED OUT. FRONT PANEL LED SERVES AS A LOW VOLTAGE INDICATOR, DIMS AT 12 VDC SOURCE VOLTAGE, OUT AT 11 VDC.

UNIT DRAWS 700 Ma. IDLE
(ALL DISPLAYS LIT)
APROX. 20 AMPS WITH ALL
FOUR BATTERIES CHARGEING.

Title: 7.2 V FIELD CHARGER (4 BATTERIES)

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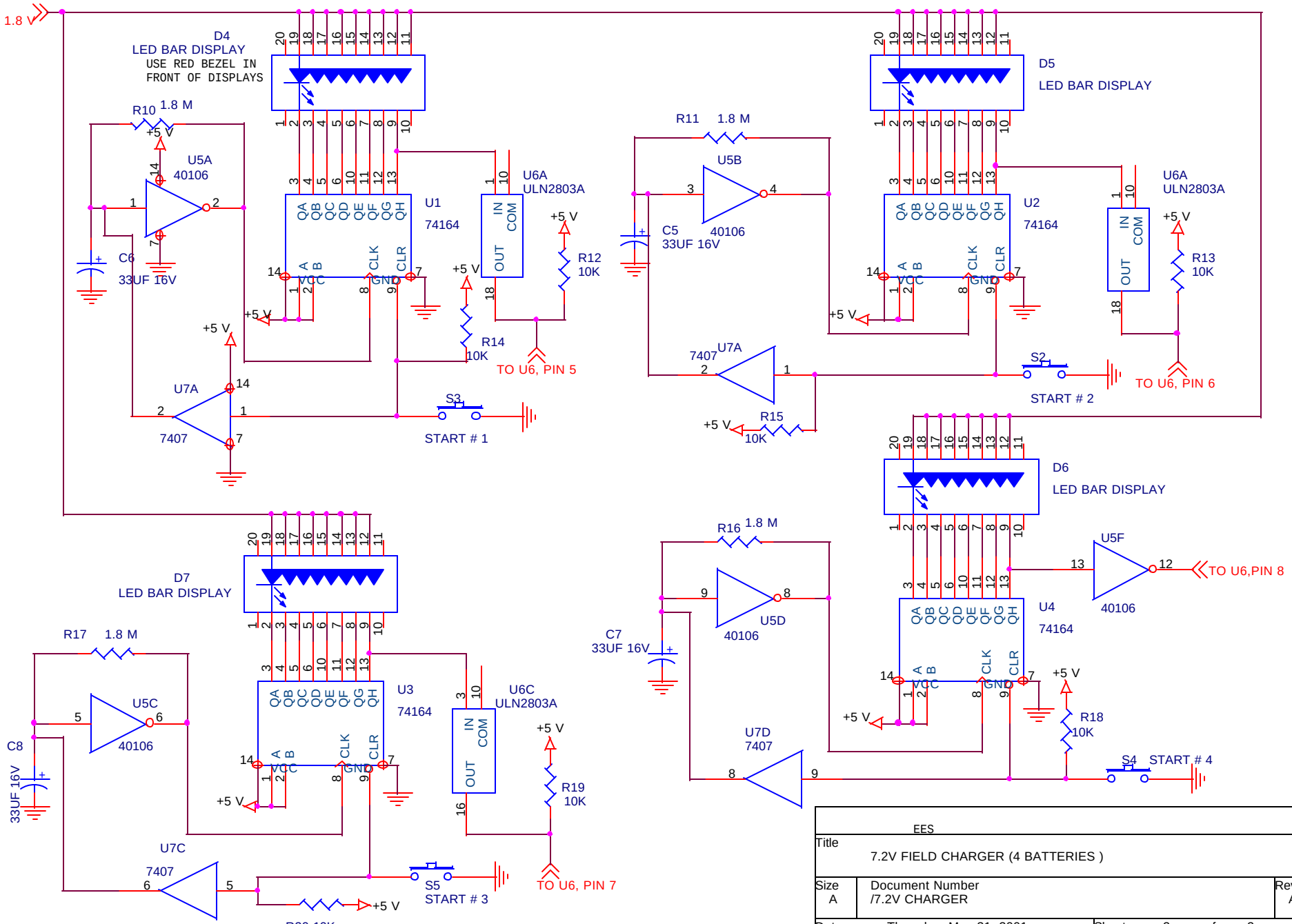
1.8 V
D4
LED BAR DISPLAY
USE RED BEZEL IN
FRONT OF DISPLAYS
R10 1.8 M
+5 V
U5A
40106
C6
33UF 16V
U1
74164
QA QB QC QD QE QF QG QH
A B CLK CLR
VCC GND
U6A
ULN2803A
IN COM OUT
R12
10K
R14
10K
TO U6, PIN 5
U7A
7407
S3
START # 1
D5
LED BAR DISPLAY
R11 1.8 M
U5B
40106
C5
33UF 16V
U2
74164
U6A
ULN2803A
R13
10K
S2
START # 2
TO U6, PIN 6
R15
10K
D6
LED BAR DISPLAY
R16 1.8 M
U5D
40106
C7
33UF 16V
U5F
40106
U4
74164
TO U6,PIN 8
R18
10K
U7D
7407
S4
START # 4
D7
LED BAR DISPLAY
R17 1.8 M
U5C
40106
C8
33UF 16V
U3
74164
U6C
ULN2803A
R19
10K
U7C
7407
S5
START # 3
TO U6, PIN 7
R20 10K
EES
Title
7.2V FIELD CHARGER (4 BATTERIES)
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A
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7.2 V FIELD CHARGER (4 BATTERIES) Revised: Thursday, May 31, 2001
/7.2V CHARGER Revision: A

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Item	Quantity	Reference	Part
1	1		RED BEZEL PLASTIC (FOR LED 4 DISPLAYS)
2	2	C4,C1	10UF 20V
3	1	C2	22 UF 16V
4	1	C3	22UF 25V
5	4	C5,C6,C7,C8	33UF 16V
6	1	D1	1N5401 3A DIODE
7	2	D2,D3	1N4148 DIODE
8	4	D4,D5,D6,D7	LED BAR DISPLAY
9	1	FAN 1	SMALL 12VDC FAN
10	1	F1	20-25 AMP FUSE
11	4	J1,J2,J3,J4	KYOSHO CONN.
12	4	K1,K2,K3,K4	12V 10A RELAY
13	1	LD1	"POWER" .2" LED
14	1	RED	LARGE ALLIGATOR LEAD
15	4	R1,R2,R3,R5	1 OHM 50W
16	1	R4	680 OHM
17	1	R6	560 K
18	1	R7	270 OHM
19	1	R8	120 OHM
20	4	R10,R11,R16,R17	1.8 M
21	7	R12,R13,R14,R15,R18,R19, R20	10K
22	1	S1	20 AMP DPST
23	1	S2 S2 S3 S4	MOMENTARY CONTACT SWITCH
24	1	PANEL MOUNT LED HOLDER	
25	1	FAN FINGER GUARD	
26	1	FRONT PANEL FUSE HOLDER	
27	4	U1,U2,U3,U4	74164 I.C.
28	1	U5	40106 I.C.
29	1	U6	ULN2803A I.C.
30	1	U7	7407 I.C.
31	1	U8	7805C REG.
32	1	U9	LM 317T REG.
33	1	ZD1	1N5240 ZENER
34	1	3/8" GROMMET	
35	4	1/4" GROMMET	

This charger was designed by me in 1993 to fill a need that I had. This was I had two R.C. model boats that needed 2 batteries each and I needed to charge them simultaneously, from my car battery. I could not find a commercial unit to do this, so came up with a neat project to fill the bill. Layout was done on a 2 proto-boards, one lays flat, and the other vertical for the bar graph displays. The displays a need red filter in front of them.

The unit is novel as it's display graph shows you the time the battery has been charging in 2 minute intervals up to 16 minutes when finished.

The "power" led indicates source voltage as it dims, and goes out at 11 vdc, this is needed because the unit draws 20 amps fully charging 4 batteries as you will need to run your engine or you will walk home!! The d.c. fan needs to be situated as to force air across the power resistors, the fan has a circuit to turn off ½ minute after the unit quits charging. Heat sink the two regulators (U8 & U9) to the metal case also. All of the parts are easy to get, most available at radio shack, allied, or digi-key

Good luck and happy charging,

Dave M.