

**Some useful tips on Micro-processor**

**Voltage and waveform are measured with A4 and A7 connected with 14.4V unless otherwise stated.**

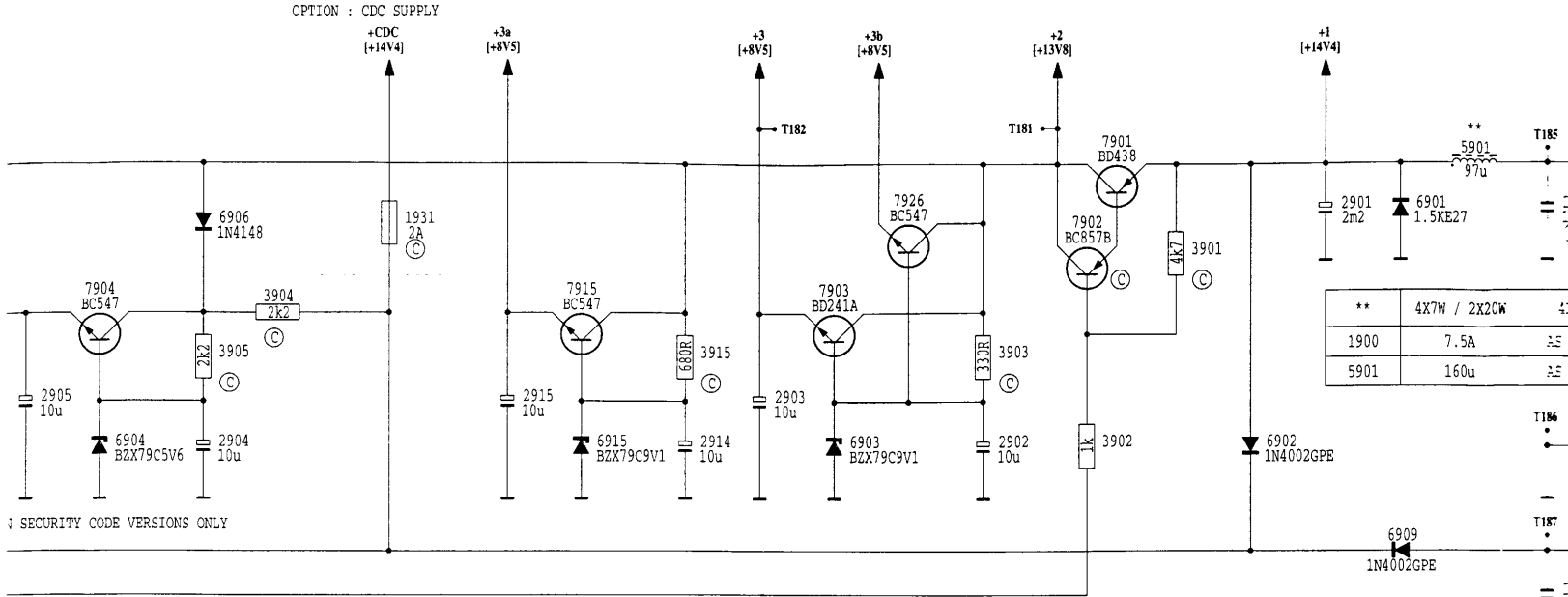
(on) = Power on

(off) = Power off

Pin. No.	Name	I/O	Function / Description	Voltage/Waveform
1-4		O	LCD segment driver output.	Square wave, 1.2Vdc, 50% duty cycle (on) Square wave, 0Vdc, 50% duty cycle (off)
5-6		O	Common drive output.	Staircase waveform, 1.2Vdc (on) Staircase waveform, 0Vdc (off)
7-9			No connection	
10	VLCD		LCD drive power supply	1.7V (on), 0V (off)
11	R1	O	Row Keyboard scan	
12	R2	O	Row Keyboard scan	
13	R3	O	Row Keyboard scan	
14	R4	O	Row Keyboard scan	
15			uP ground	
16	MAN_MUTE	O	To mute SOFAC	0V (Mute), 8.5V (non mute)
17	CAS_DOLBY / Beep	O		0V (Dolby on), 5V (Dolby off)
18	A0	O	Source selector	
19	A1	O	Source selector	
20	GND		Ground	
21			Crystal oscillator for clock	
22			Crystal oscillator for clock	
23	RESET		uP Reset	4V when either A4 or A7 is connected.
24	HOLD			4.8V (on), 0V (off)
25	HOT_INFO	I	For Thermal shutdown.	5V when temperature of set is ok. 0V when temperature of set is too high. Display shows "hot". Volume will be reduce automatically.
26	CAS_TRACK	I	To indicate Track direction	0V (Reverse direction), 5V (Forward direction)
27	CAS_MUTE	I	Mute cass. during Fast mode.	5V (Cass. in Fast mode)
28	CAS_PLAY	I	To indicate cass. play	0V (Cass. play), 5V (Cass play)
29	REMOTE_MRQ	I/O	For wire remote control	4.9V (on), 0V (off)
30	RDS_DATA	I/O		4.9V (on), 0V (off)
31	RDS_CLK	I		4.8V (on), 0V (off)
32	CAS_MOTOR	O		5V (Cass. play), 0V (Cass. Stop)
33			uP supply	4.58V (on) & (off)
34	REMOTE_SDA	I/O	For wire remote control	5V (on), 0V (off)
35	D <sup>2</sup> B_INT	I	D <sup>2</sup> B interrupt when CDC is connected	At 5V & 5ms/Div setting on scope, you can see a dip in voltage which represent D <sup>2</sup> B interrupt when CDC is connected.
36	REMOTE_SCL	O	For wire remote control	5V (on), 0V (off)
37	TEST CLOCK		For Clock accuracy alignment	
38	SDA	I/O	Serial data	5V (on), 0V (off)
39	SCL	O	General I2C bus control	5V (on), 0V (off)
40	EEP_WRITE	O	EEProm write enable	0V (Write enable), 5V (write disable)
41	EEP_SDA	I/O	EEProm serial data	5V (on), 0V (off)
42	EEP_SCL	O	EEProm clock	5V (on), 0V (off)
43		I	TEL_MUTE (Phone "Lo")	5V (set is muted and display shows "CALL") 0V (set play as normal)
			TEL_MUTE (Phone "HI")	5V (set play as normal) 0V (set is muted and display shows "CALL")
44	PA_MUTE	O	Power amplifier line out mute.	0V (mute), 5V (non mute)
45	C4	I	Column Keyboard scan	
46	C3	I	Column Keyboard scan	
47	C2	I	Column Keyboard scan	
48	C1	I	Column Keyboard scan	
49	BLINK_LED	O	Send pulses to blink LED when FRONT_DET is high	
50	MC_ON/OFF	I		4.4V (on), 0V (off)
51			Crystal oscillator	Sine wave, 0.5Vdc
52			Crystal oscillator	Sine wave, 2Vdc.
53-59			No connection	
60-80		O	LCD driver output	Square wave, 1.2Vdc, 50% duty cycle (on) Square wave, 0Vdc, 50% duty cycle (off)

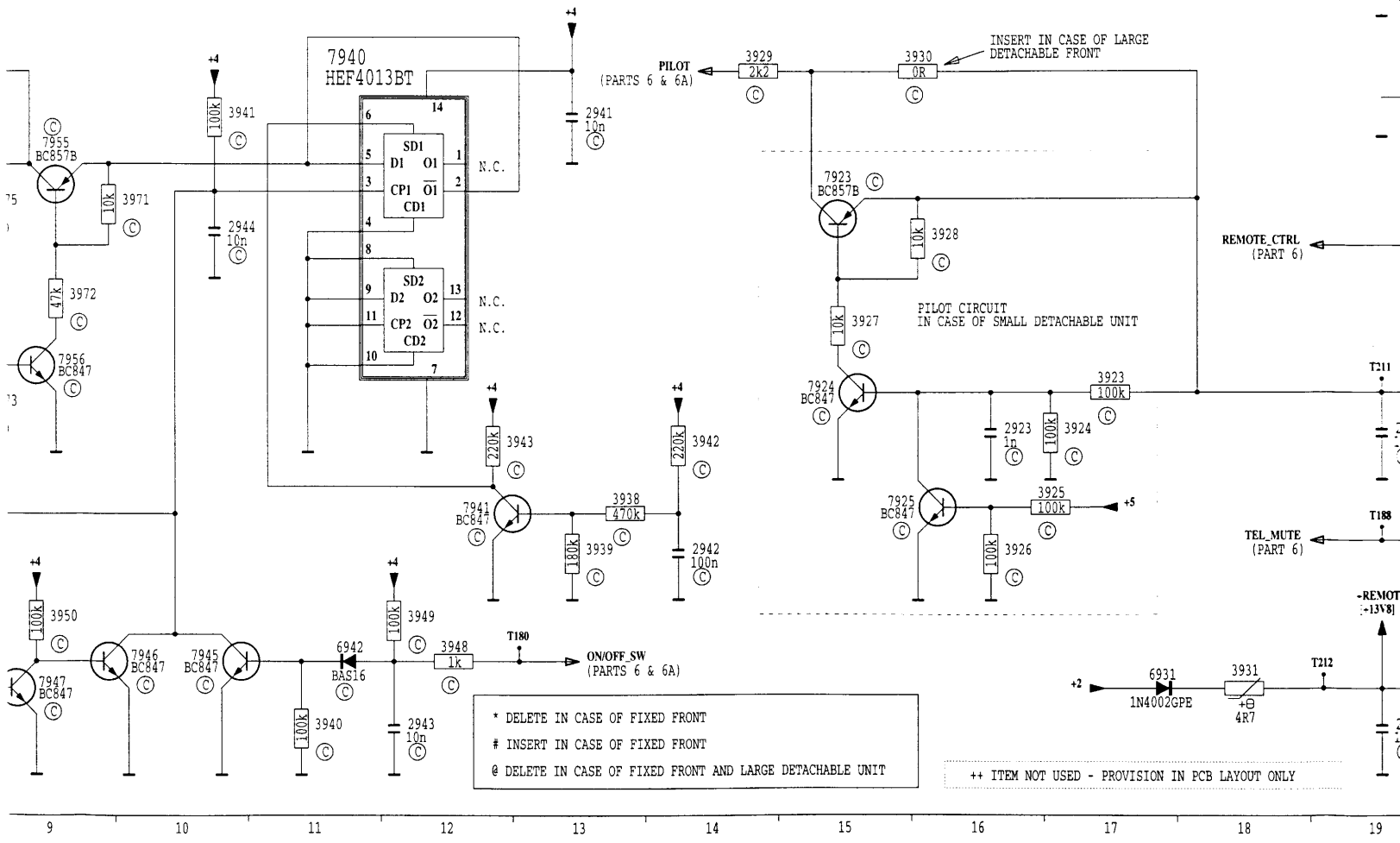


OPTION : CDC SUPPLY



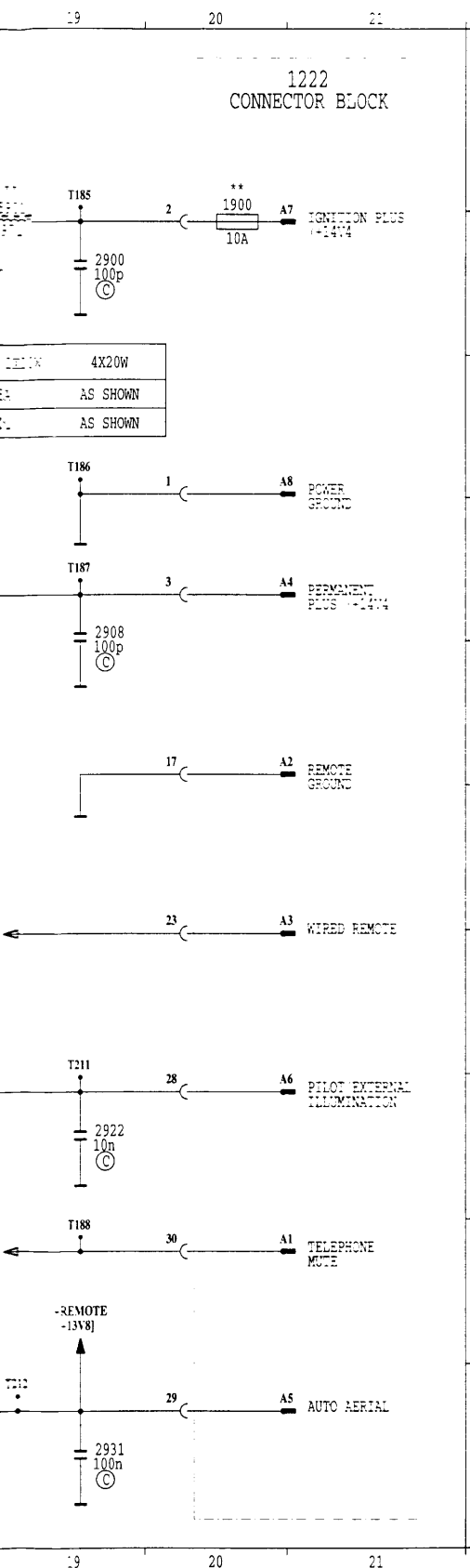
**	4X7W / 2X20W	4.5
1900	7.5A	1.5
5901	160u	1.5

SECURITY CODE VERSIONS ONLY



\* DELETE IN CASE OF FIXED FRONT  
 # INSERT IN CASE OF FIXED FRONT  
 @ DELETE IN CASE OF FIXED FRONT AND LARGE DETACHABLE UNIT

++ ITEM NOT USED - PROVISION IN PCB LAYOUT ONLY



1222	A20	7923	F15
1921	H 2	7924	H15
1922	B 2	7925	H16
1931	B11	7926	B15
1941	H 5	7927	B 7
2900	B19	7940	E11
2901	B18	7941	I12
2902	C15	7942	F 7
2903	C14	7943	H 8
2904	C10	7944	I 8
2905	C 7	7945	J10
2906	C 7	7946	J10
2907	C 5	7947	J 9
2908	D19	7948	J 3
2910	F 2	7949	I 3
2911	F 4	7950	J 3
2914	C13	7955	F 9
2915	C12	7956	G 9
2921	C 4	7957	G 2
2922	H15	9901	B 3
2923	H16		
2931	T19		
2941	F13		
2942	I14		
2943	J12		
2944	F10		
2945	H 6		
2946	C 8		
3901	B17		
3902	C16		
3903	B11		
3904	B11		
3905	C10		
3906	C 9		
3907	C 7		
3908	E 3		
3909	D 3		
3910	F 3		
3911	F 4		
3912	F 4		
3913	C11		
3914	A 5		
3920	D 3		
3921	C 3		
3922	C 4		
3923	H17		
3924	H17		
3925	H17		
3926	F11		
3927	F16		
3929	E14		
3930	E16		
3931	J18		
3938	H13		
3939	I13		
3940	C11		
3941	F10		
3942	H14		
3943	H14		
3944	H14		
3945	H 7		
3946	H 7		
3947	H 7		
3948	C12		
3949	I12		
3950	F 9		
3951	J 3		
3952	C 6		
3953	C 6		
3954	C 6		
3955	C 6		
3956	C 6		
3957	C 6		
3958	H 3		
3959	F 2		
3960	H 3		
3961	H 3		
3971	F10		
3972	G 9		
3973	H 9		
3974	G 9		
3975	B 3		
3976	B 6		
3977	B 6		
5901	B19		
6901	B18		
6902	C17		
6903	C14		
6904	C10		
6905	C 6		
6906	E10		
6907	D 4		
6908	D 8		
6909	D13		
6915	C13		
6920	H 2		
6921	C 3		
6931	J17		
6941	J 7		
6942	J11		
7901	A16		
7902	B16		
7903	E14		
7904	B 6		
7905	B 6		
7906	B 6		
7907	E 3		
7915	B12		
7921	B 3		
7922	B 3		

Voltage measured in FM mode with

A4 = 14.4V  
A7 = 14.4V

unless otherwise stated.

(OFF) = Power off  
(ON) = Power on

+1	+14.4V
+2	+13.8V
+3a, +3b	8.5V
+4	+5V
+5, +5a, +5b	+5V
+7	+5V
+CDCC	14.4V
Vref	5V
V_LAMP	10V
+REMOTE	+13.8V

7940 HEF4013BT

1	N.C.
2	4.56V
3	0V
4	GND
5	4.56V
6	0V
7	GND
8	GND
9	GND
10	GND
11	GND
12	N.C.
13	N.C.
14	5V

7901 BD438

C	13.8V (ON)
	0V (OFF)
B	13.7V (ON)
	14.4V (OFF)
E	14.4V

7902 BC857B

C	13.8V (ON)
	0V (OFF)
B	12.9V (ON)
	14.4V (OFF)
E	13.7V (ON)
	14.4V (OFF)

7925 BC847

(ON)	Set is turn on.
(OFF)	Set is turn off and apply 14.4V at pinA6.
C	0V (ON)
	0.6V (OFF)
B	0.6V (ON)
	0V (OFF)
E	GND

7924 BC847

(ON)	Set is turn on.
(OFF)	Set is turn off and apply 14.4V at pinA6.
C	0V (ON)
	0V (OFF)
B	0V (ON)
	0.6V (OFF)
E	GND

7923 BC857B

(ON)	Set is turn on.
(OFF)	Set is turn off and apply 14.4V at pinA6.
C	0V (ON)
	14.37V (OFF)
B	0V (ON)
	13.36V (OFF)
E	0V (ON)
	14.4V (OFF)