

UPS

Uninterruptible Power System

Line Interactive Network

Sine Wave UPS

600VA/800VA/1000VA/1250VA

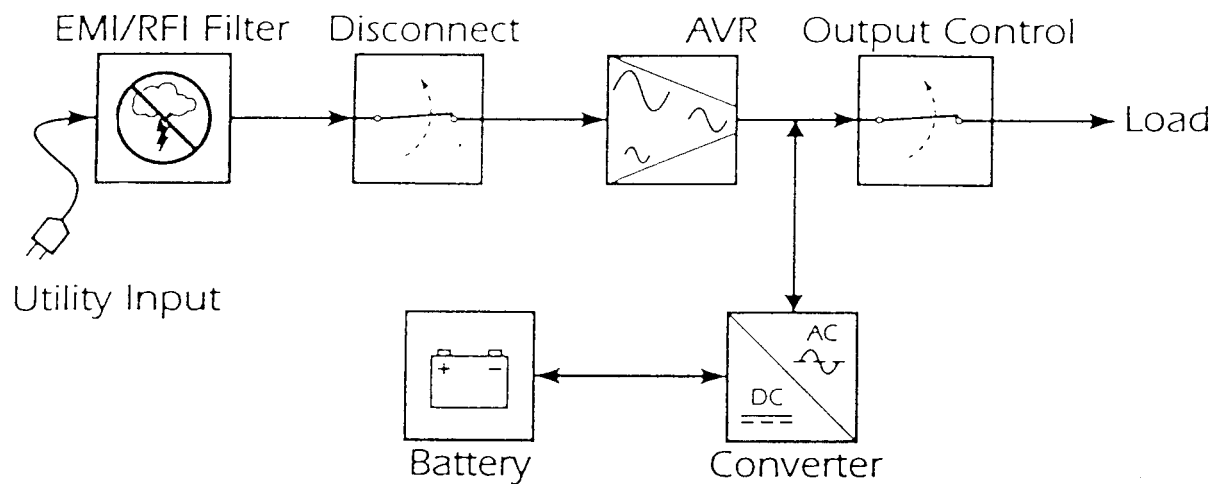
1500VA/2000VA/2500VA/3000VA

SERVICE MANUAL

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—Theory of Operation



This high-performance, line-interactive, uninterruptible power source (UPS) provides clean, reliable, AC power to computer systems---protecting them from power blackouts, brownouts, swells, sags, surges, and interference.

Normally, the UPS operates "on-line" supplying power from the utility input to the load (PC computer or other device). The converter circuitry is used to maintain an optimal float charge level on the battery.

When the utility fails, the converter supplies AC power to the load and the disconnect switch opens. The loads operate normally until shut down or until the battery is exhausted. The UPS automatically transfers the load back to utility power when the line voltage returns to normal.

The UPS also provides surge protection and EMI/RFI filtering, as well as AVR (Automatic Voltage Regulation), which corrects high and low input voltage without drawing power from the battery.

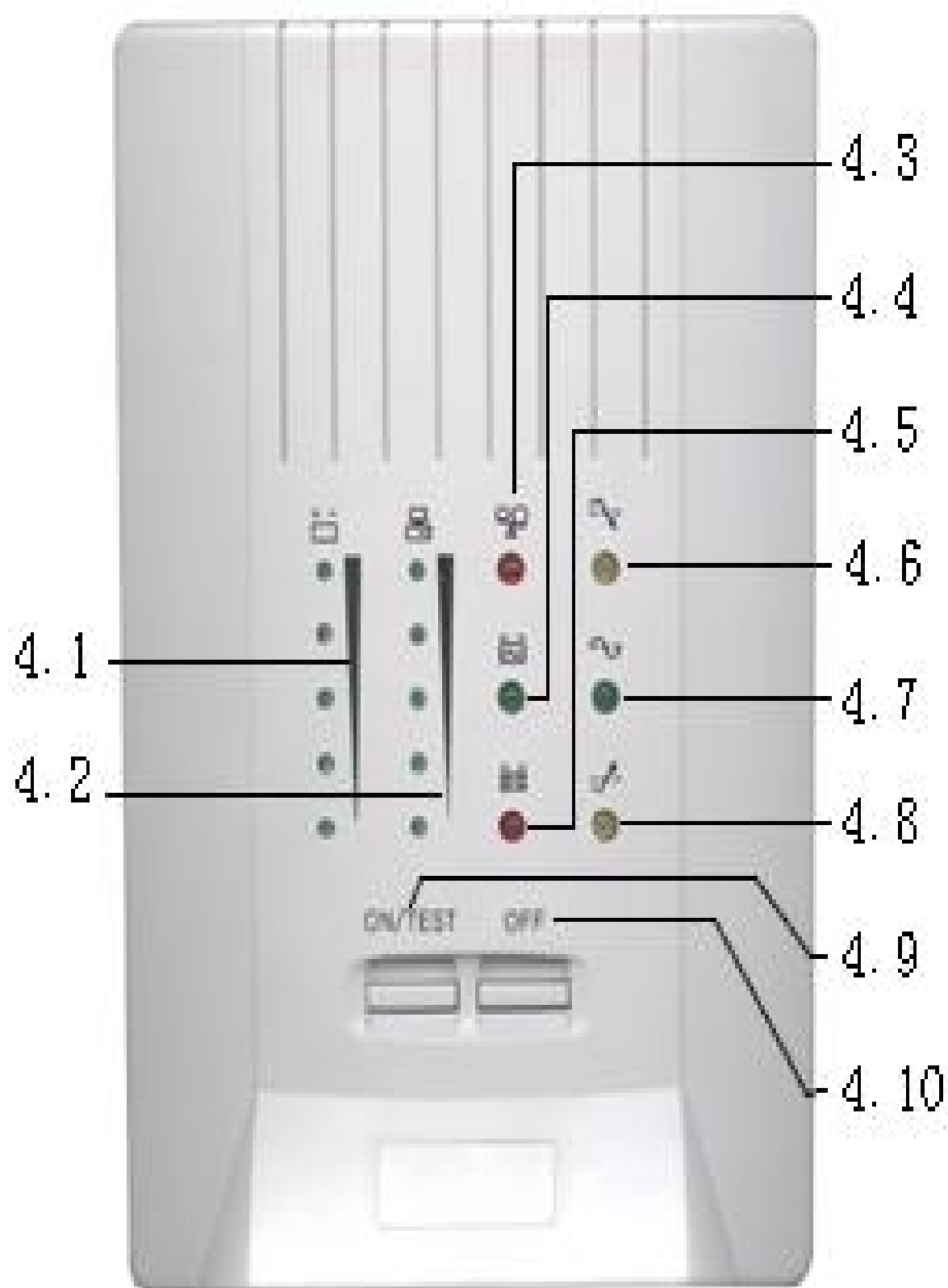
Output control uses the UPS's remote interface to turn the load on or off, without disabling other UPS functions.

二.The main parts of SMK are as below:

		SMK600	SMK800	SMK1000	SMK1250	SMK1500	SMK2000	SMK2500	SMK3000
REAL PANEL		INPUT SOCKET,OUTPUT SOCKET,DB9				AC INPUT POWER CORD,AC OUTLET, EXTERNAL BATTERY CONNECTOR,DB9			
				EXTERNALBATTER Y CONNECTOR		100V~120V:CIRCUIT BREAKER			
					100V~120V FUSE HOLDER				
PCB		PCB QUN801				PCB QUN807			100~120V QUN809
									200~240V QUN807
TRANSFORMER	100V	SMK600-1	SMK800-1	SMK1000-1	SMK1250-1	SMK1500-1	SMK2500-1	SMK2500-1	SMK3000-1
	120V								
	200V	SMK-600-2	SMK-800-2	SMK-1000-2	SMK-1250-2	SMK-1500-2	SMK-2500-2	SMK-2500-2	SMK-3000-2
	240V								
FAN				√	√	√	√	√	√
BATTERY		12V,7AH*2				12V,7AH*3	12V,7AH*4		12V,7AH*4*2 EXTERNAL BATTERY CABINET
CASE		CHASSIS , COVER							

三.ATTACHED CONNECTION DIAGRAM,FIGURE 1 FIGURE 2 AND
FIGURE 3.(see page 17,18,19)

四.ON/OFF & DISPLAY:UPS ON/OFF control and display the the UPS status



4.1 "BATTERY CHARGE" display

The 5-LED display on the front panel shows the present charge of the UPS's battery as a percentage of the battery's capacity.

4.2 "LOAD POWER" display

The 5-LED display shows the power drawn from the UPS by the load. The display indicates the percentage of the UPS's rated capacity. If all five LEDs light, thoroughly test your complete system to make sure that the UPS will not become overloaded.

If the UPS is overloaded, the overload LED lights and an alarm sounds.

4.3 "OVERLOAD" indicator (RED LED)

When the UPS is overloaded (the connected loads exceed the maximum rated capacity) the UPS emits continuous alarm to warn of an overload condition.

Remove noncritical load equipment from the UPS to eliminate the overload.

4.4 "ON BATTERY" indicator (GREEN LED)

The LED illuminates when the UPS is supplying battery power to the loads.

4.5 "REPLACE BATTERY" indicator (RED LED)

The LED illuminates when the UPS's battery is no longer useful and must be replaced.

For the best result, before replacing battery, please charge the battery 4 hours to make self-test.

If battery fails the self-test then replace with new battery.

4.6 "VOLTAGE REDUCTION" indicator (YELLOW LED)

The LED illuminates when the UPS is correcting a high utility voltage condition.

The loads receive voltage within the normal range.

4.7 "LINE NORMAL" indicator (GREEN LED)

The LED illuminates when the line input voltage is normal and the UPS is supplying utility power to the loads.

4.8 "VOLTAGE BOOST" indicator (YELLOW LED)

The LED illuminates when the UPS is correcting a low utility voltage condition.

The loads receive voltage within the normal range.

4.9 "ON&TEST" button

Press the button to turn on the UPS also activates the UPS's self-test (AC mode) or silence (Back up mode).

4.10 "OFF" button

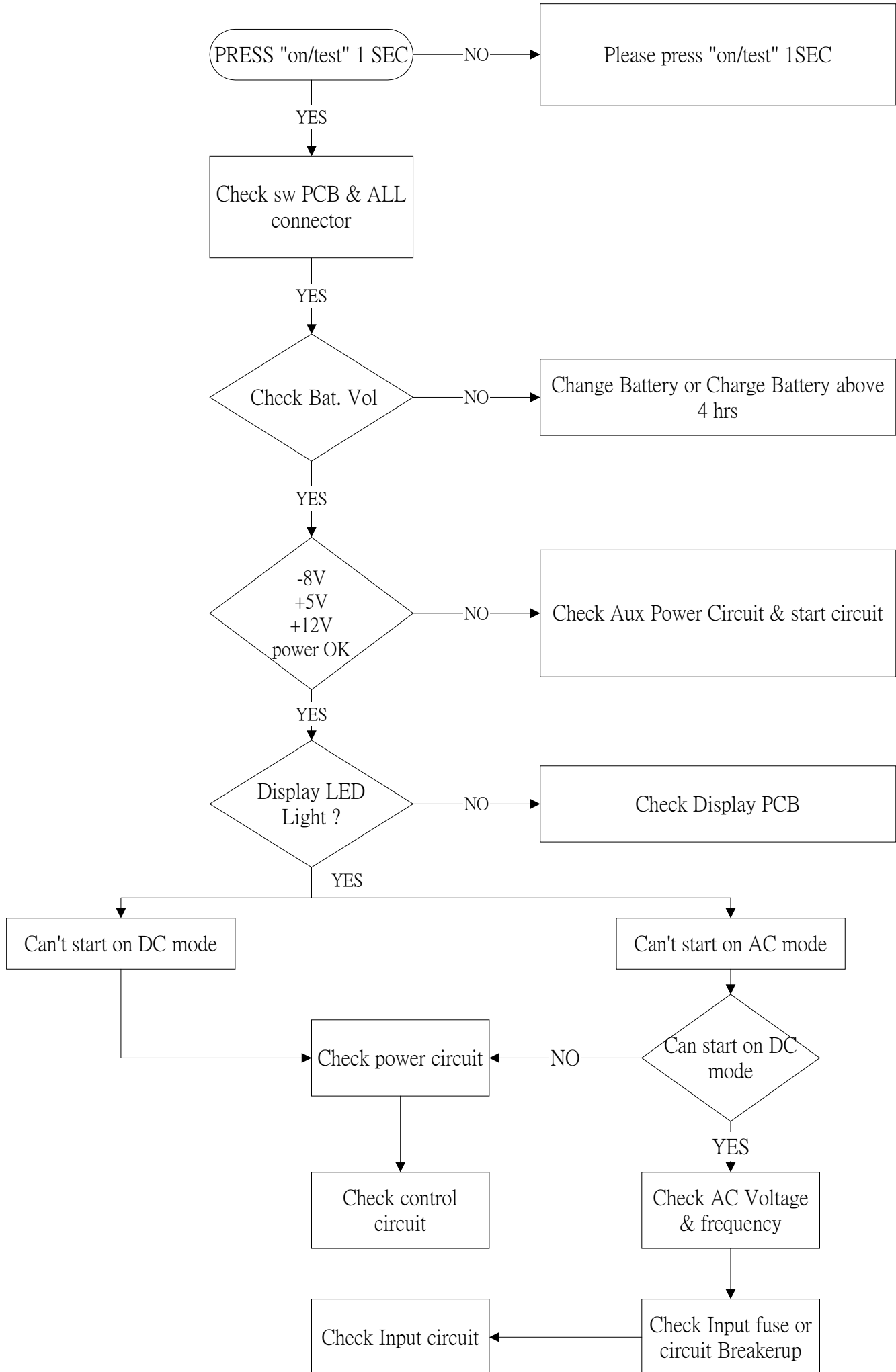
Press the button to turn off the UPS and the load.

五.TROUBLE SHOOTING CHART

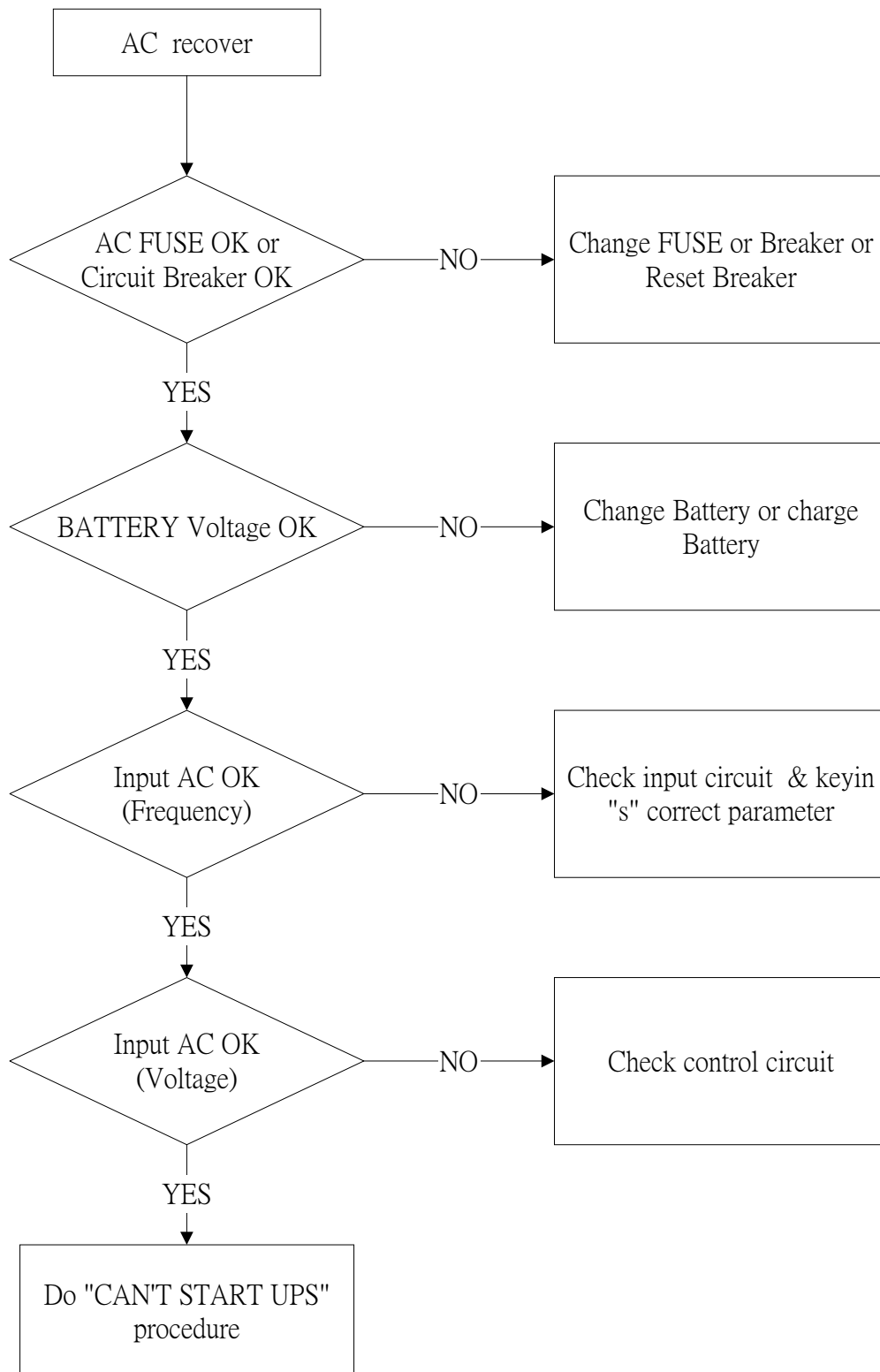
PROBLEM	POSSIBLE	ACTION TO TAKE
UPS will not turn on	On/test button not pushed or push too short	Press the on/test button to power the UPS and load.
	UPS input circuit breaker tripped	Reduce the load on the UPS by unplugging equipment and reset the circuit breaker by pressing the plunger back in
	Very low or no utility voltage	Check the AC power supply to the UPS with multimeter.
UPS will not turn on or off	Computer interface or accessory problem. Push on/test or off button too short.	Disconnect the computer interface or accessory,If the UPS now works normally. check the interface cable.the attached computer and the accessory.
UPS operates on-battery even though normal line voltage is though to exist	UPS's input circuit breaker tripped	Reduce the load on the UPS by unplugging equipment and reset the circuit breaker
UPS beeps occasionally	Normal UPS operation	Normal condition
UPS does indicators flash sequentially	The UPS's battery is weak due to recent outage or is near the end off its service life.	Charge the battery. If the battery is near the end of its service life. consider replacing the the battery even the replace battery indicator is not yet lit.
	The UPS's is overloaded.	Check the UPS's load display. Remove nonessential equipments.
Front panel indicators flash sequentially	The UPS has been shut down by remote control.	None.The UPS will restart automatically when utility power returns.
All indicators are flash and the UPS emits a constant tone	Internal UPS fault.	Do not attempt to use the UPS.Turn the UPS off and have it service immediately
The UPS operates normally, but the site wiring fault indicator is lit	Building wire error such as missing ground or hot to neutral wire reversal.	Have a qualified electrician correct the building wiring.
Low battery light is on and all LED is off	The UPS is shut down and the battery is discharged and exhausted	None.The UPS will return to normal operation when the power is restored and the battery has a sufficient charge
The replace battery light is lit	Weak batteries	The batteries to recharge for at least four hour. If the problem still exists after recharging replace with batteries.

六.TROUBLE SHOOTING PROCEDURE

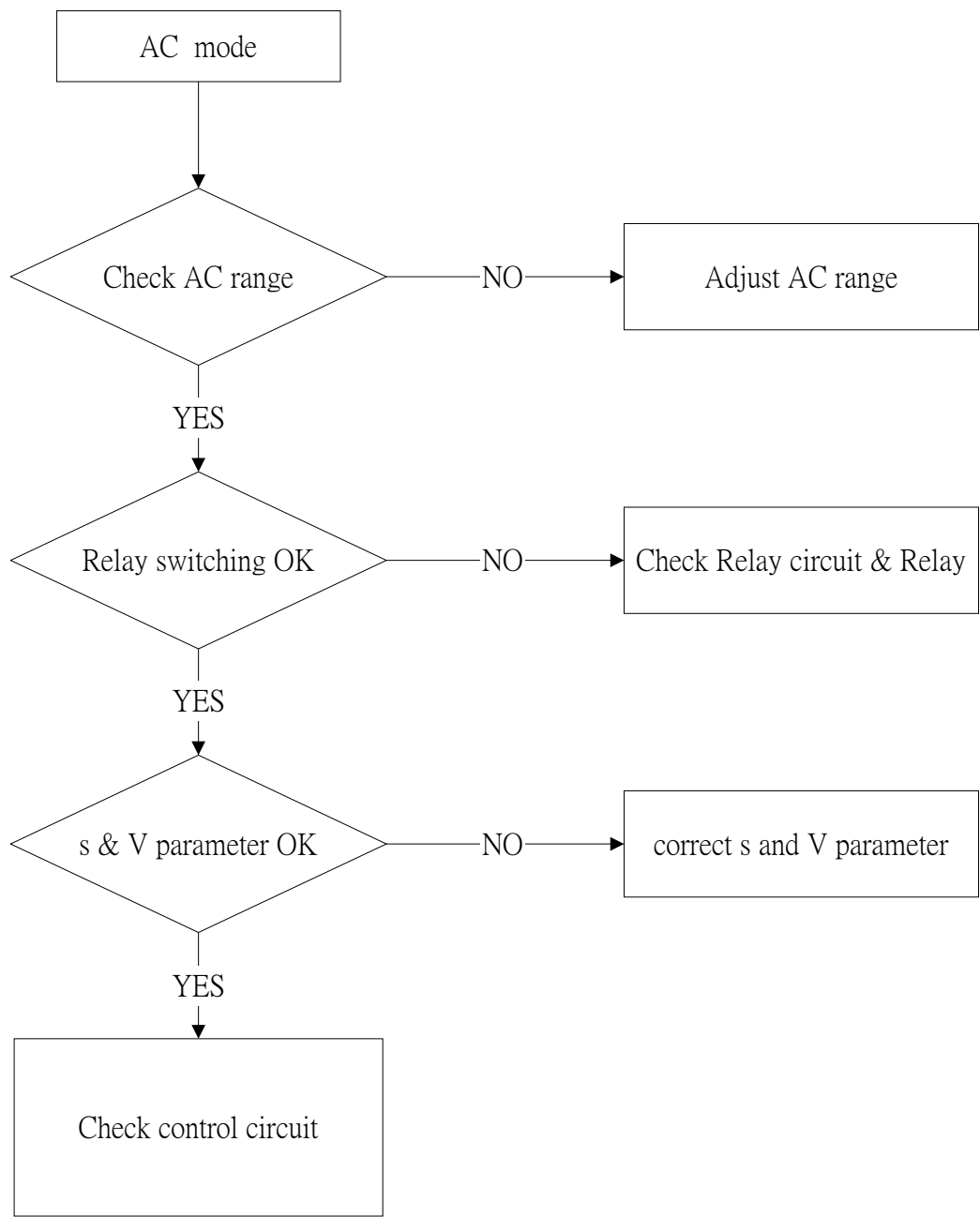
1.CAN'T START UPS



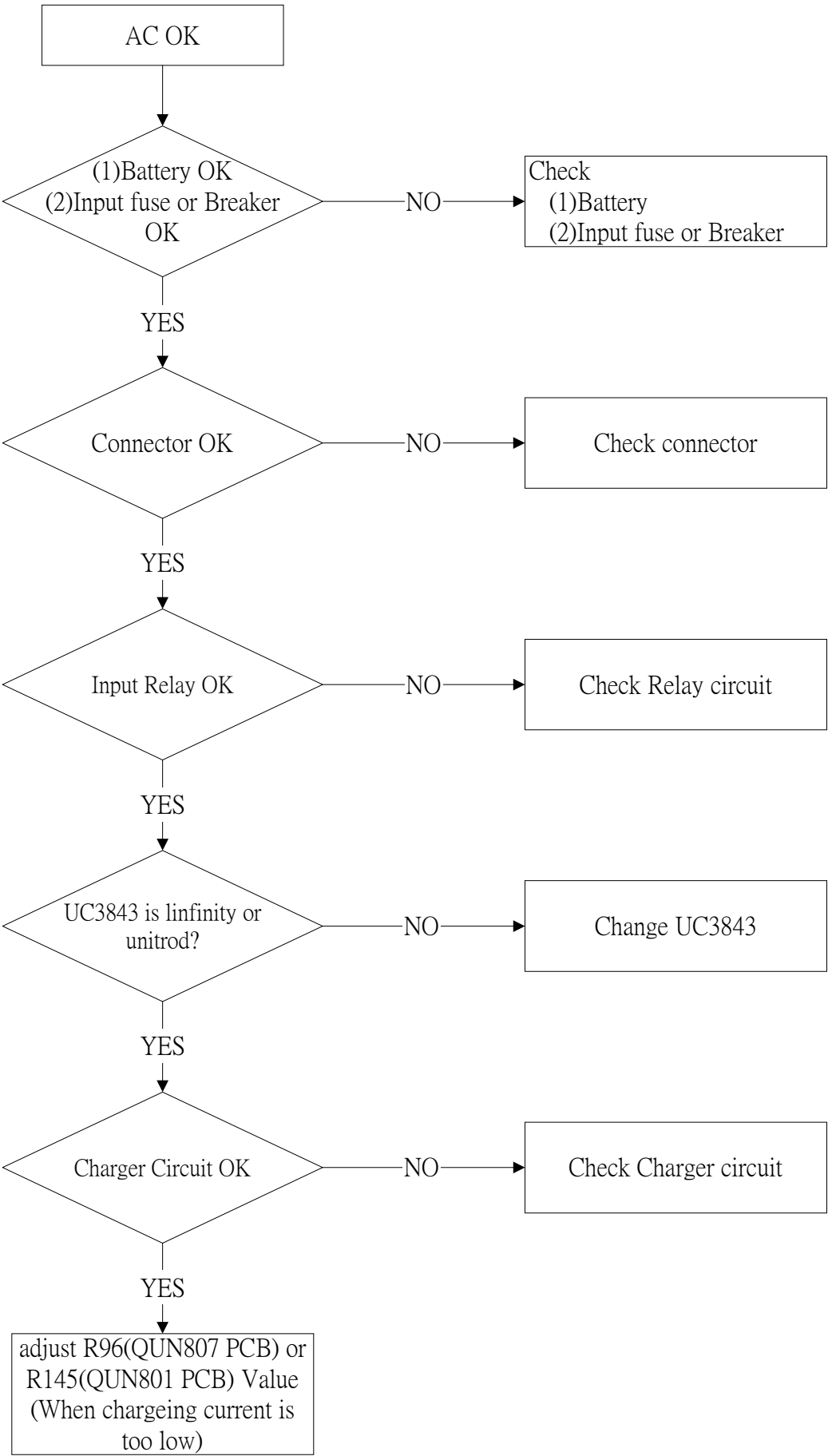
TROUBLE SHOOTING PROCEDURE
2.CAN'T AC START



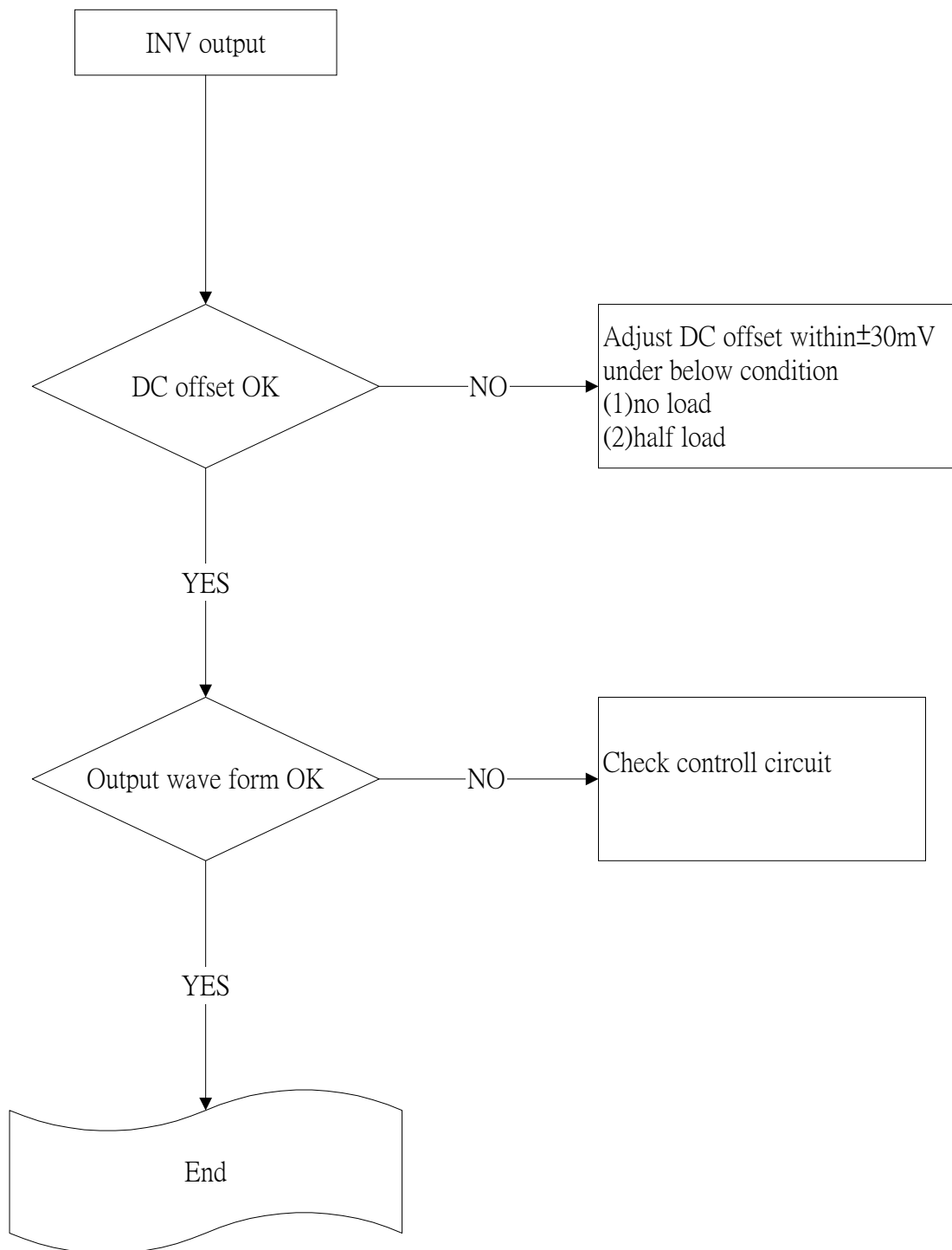
TROUBLE SHOOTING PROCEDURE
3.NO AVR FUNCTION



TROUBLE SHOOTING PROCEDURE
4.CAN'T RECHARGE

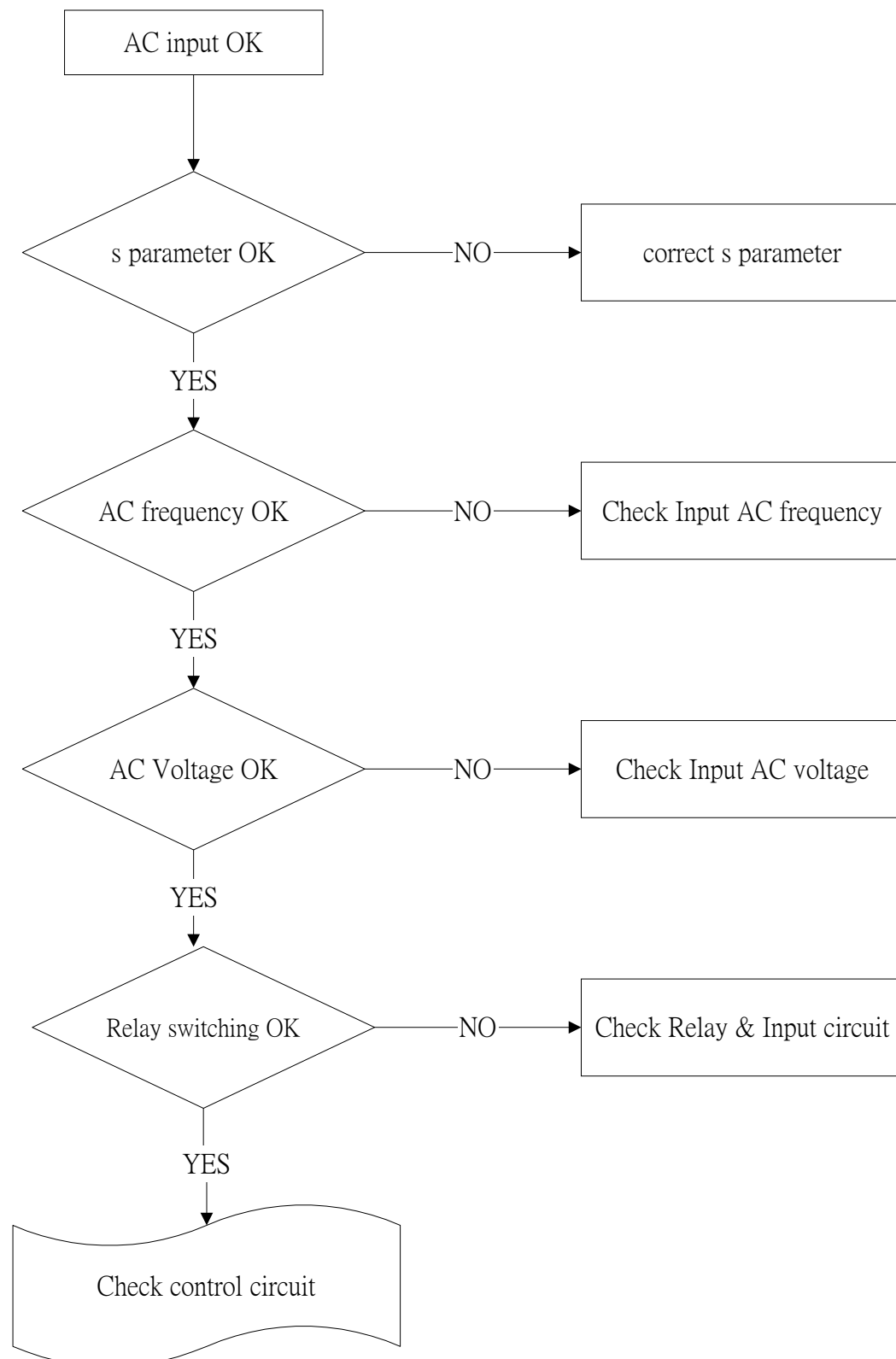


TROUBLE SHOOTING PROCEDURE
5.INVERTER OUTPUT WAVE WAVEFORM ABNORMAL

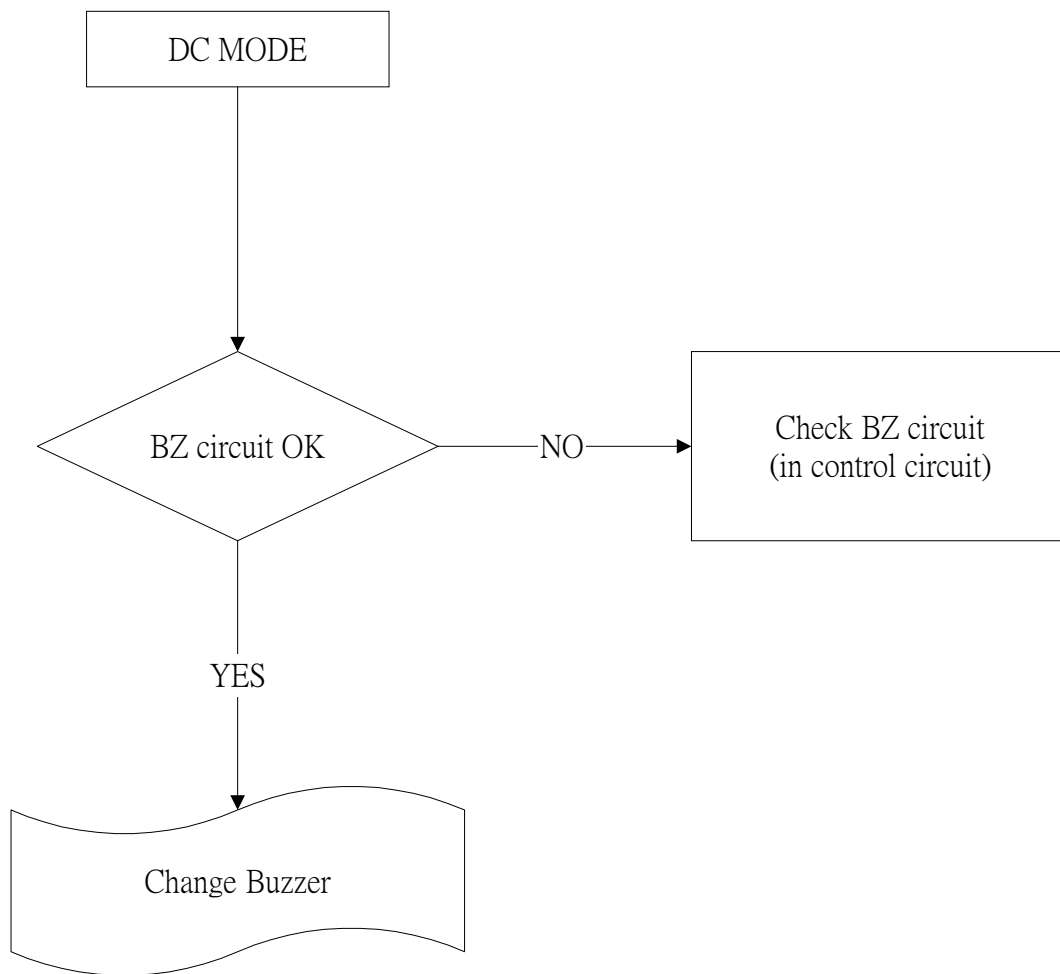


TROUBLE SHOOTING PROCEDURE

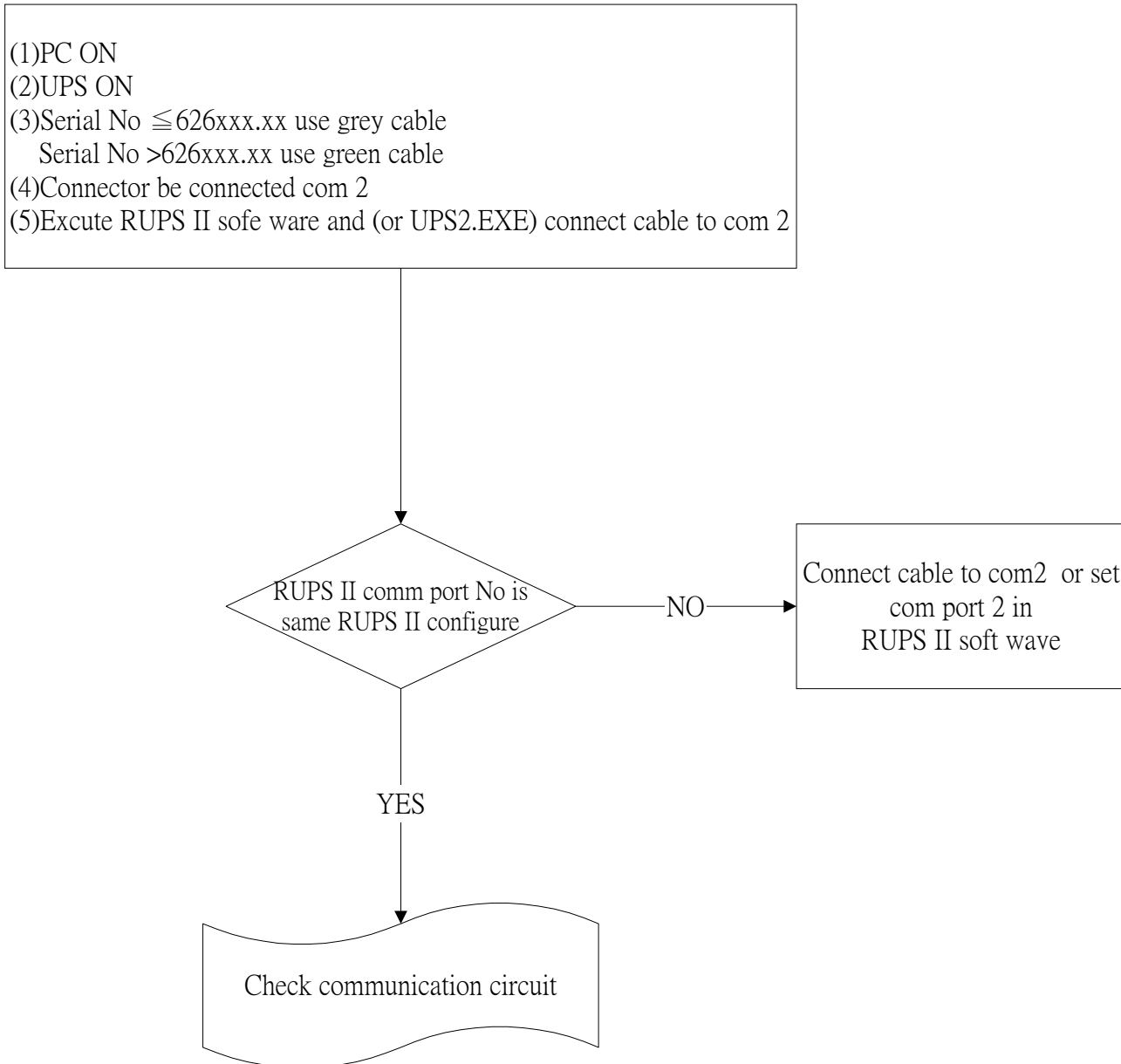
6.FREQUENCY CAN' T BE SYNCHRONOUS (DC MODE CAN' T GO INTO AC MODE)



TROUBLE SHOOTING PROCEDURE
7.INV MODE NO ALARM

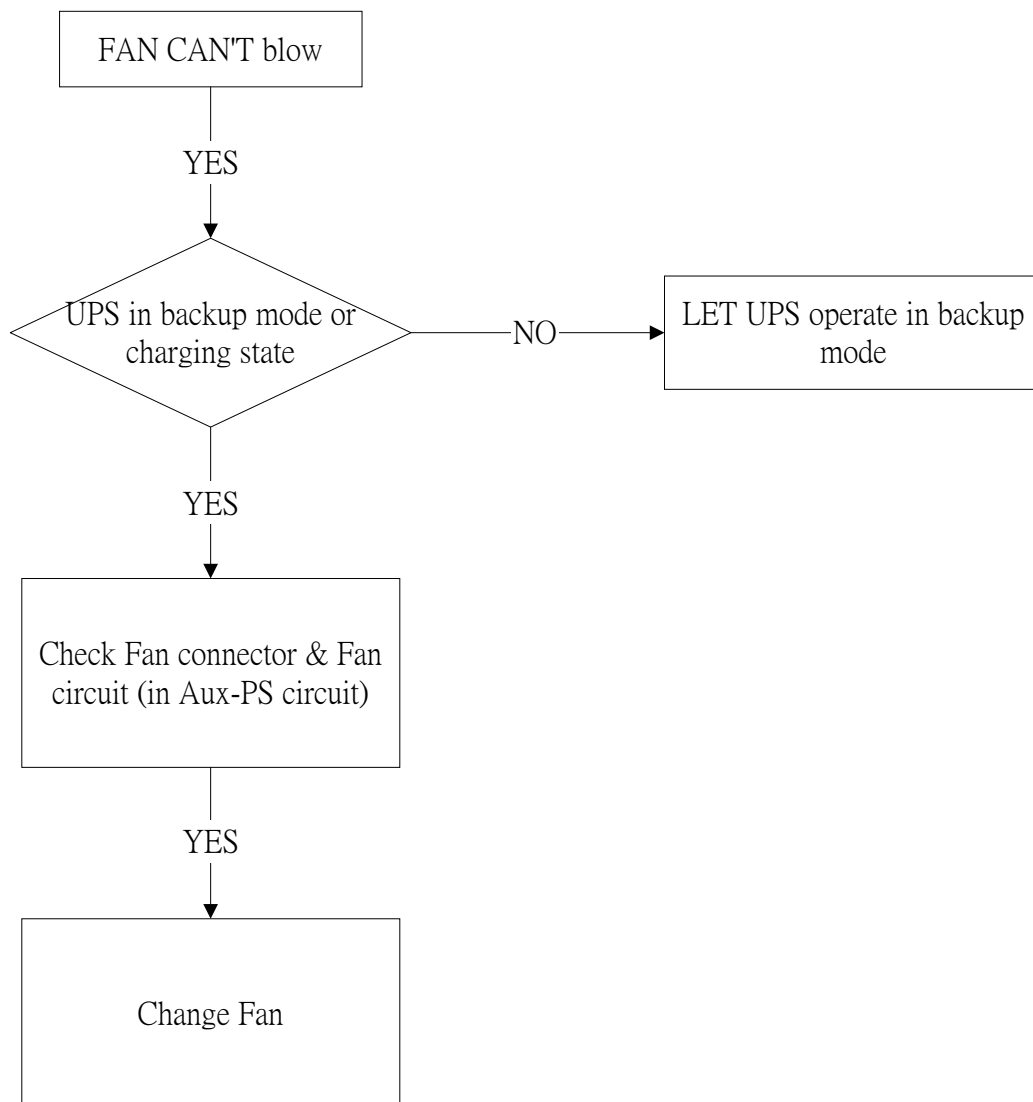


TROUBLE SHOOTING PROCEDURE
8.CAN'T COMMUNICATE

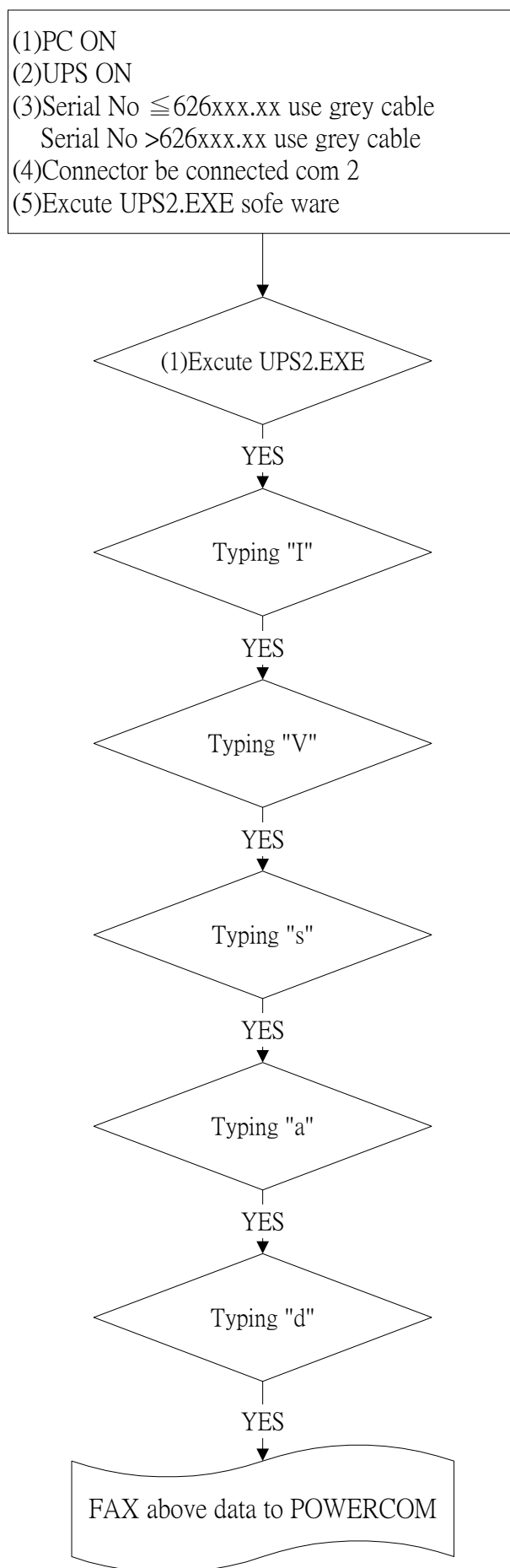


TROUBLE SHOOTING PROCEDURE

9.FAN CAN'T blow

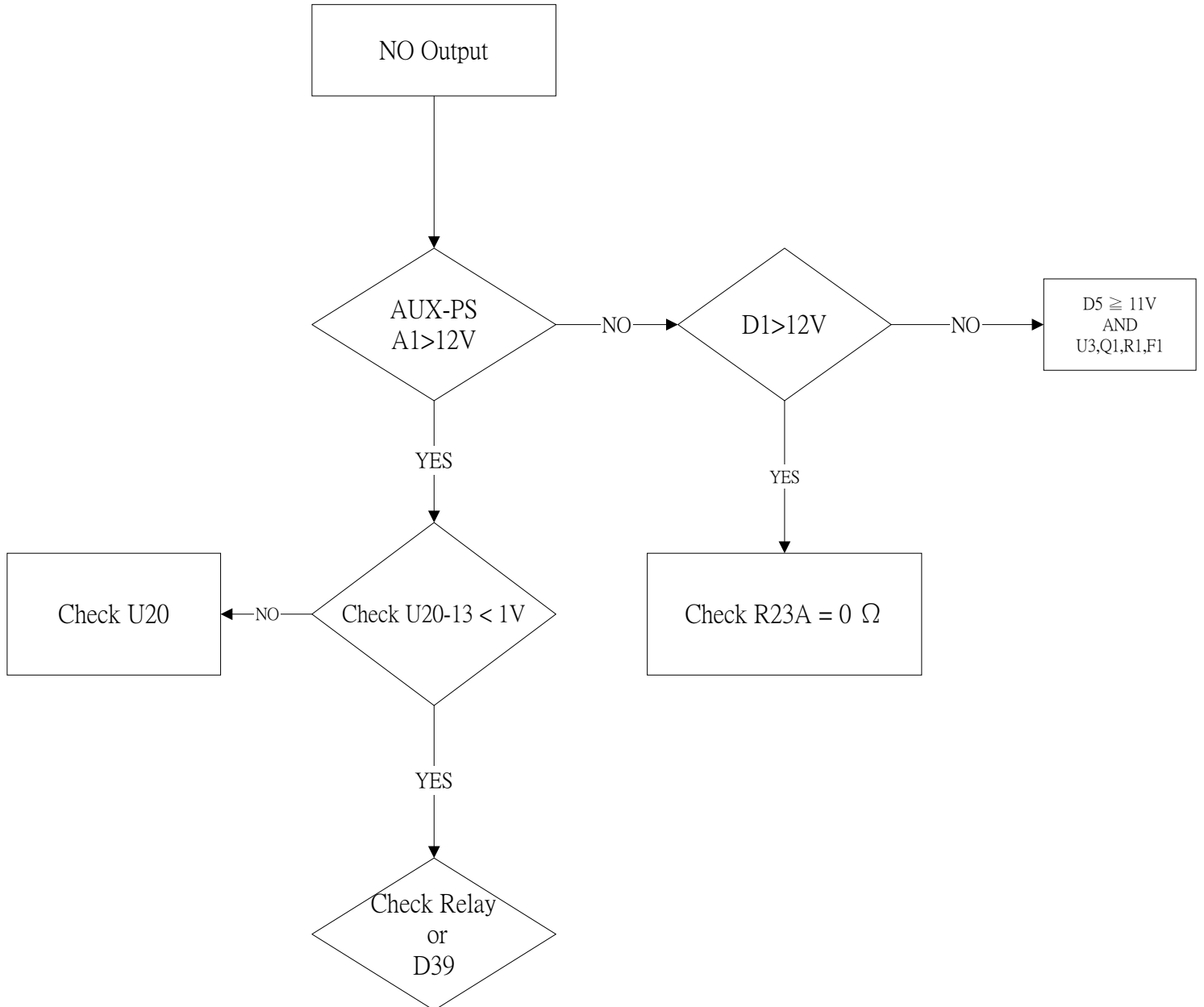


TROUBLE SHOOTING PROCEDURE
10.OTHER PROBLEM



TROUBLE SHOOTING PROCEDURE

11.RY1 dosen't work



The operational illustrations for UPS2.EXE

1. Please connect the ups to the **COM2** port of computer by RS-232 cable included in the UPSMON package.
2. Then run “UPS2.EXE” under MS-DOS mode and type the following commands to modify the setting of SmartKing.

a : analog data display

Vbat, Vin, inv, Vout, Pnl, Load, OTP, bcap

d : digital data display

mode,model,sts,sts1,alarm,flga,flgb,flgd

t : system clock display

task_time,clk4,clk3,clk2,clk1

V: AVR voltage setting or display

Vn set voltage, n is from 0~3, for example V2

V without parameter is used for inquire setting voltage

for example: 184 248 150 212 160

Q: BEEPER on or off

Q1: Display UPS status inquire

T: UPS selftest

SR: UPS shut down & restore

SnnRmmmm,nn: .1~10 min., mmmm: 0000~9999 min.

C: clear T or S command

L: green function, 1:set, 0:clear

pU: enable change paramters, when you want to change the setting.

S: regulate the value of synchronicity, s10~13

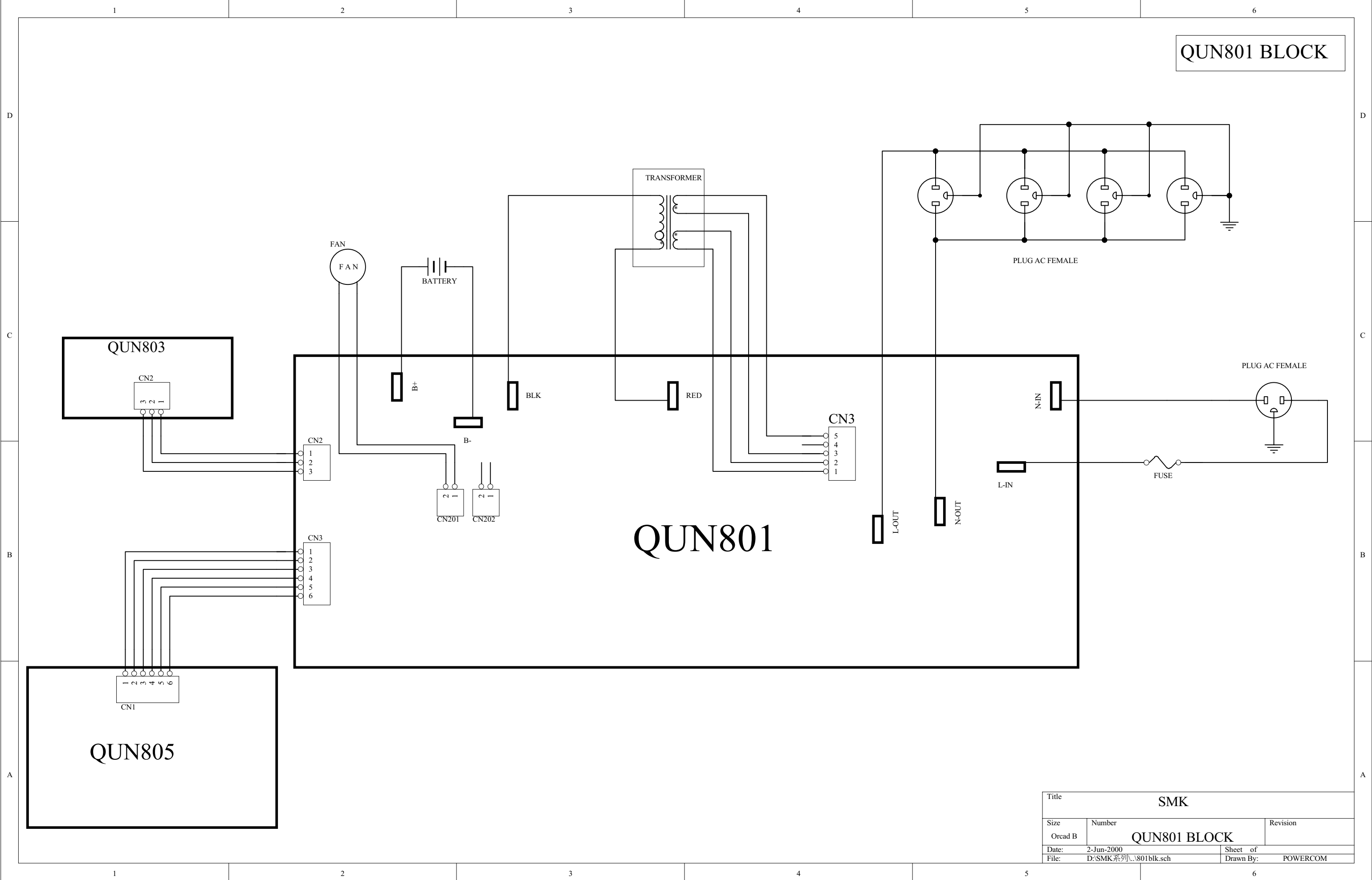
W: for long backup time of half load model , for 0:long backup time 1:normal

P: set active point of relay

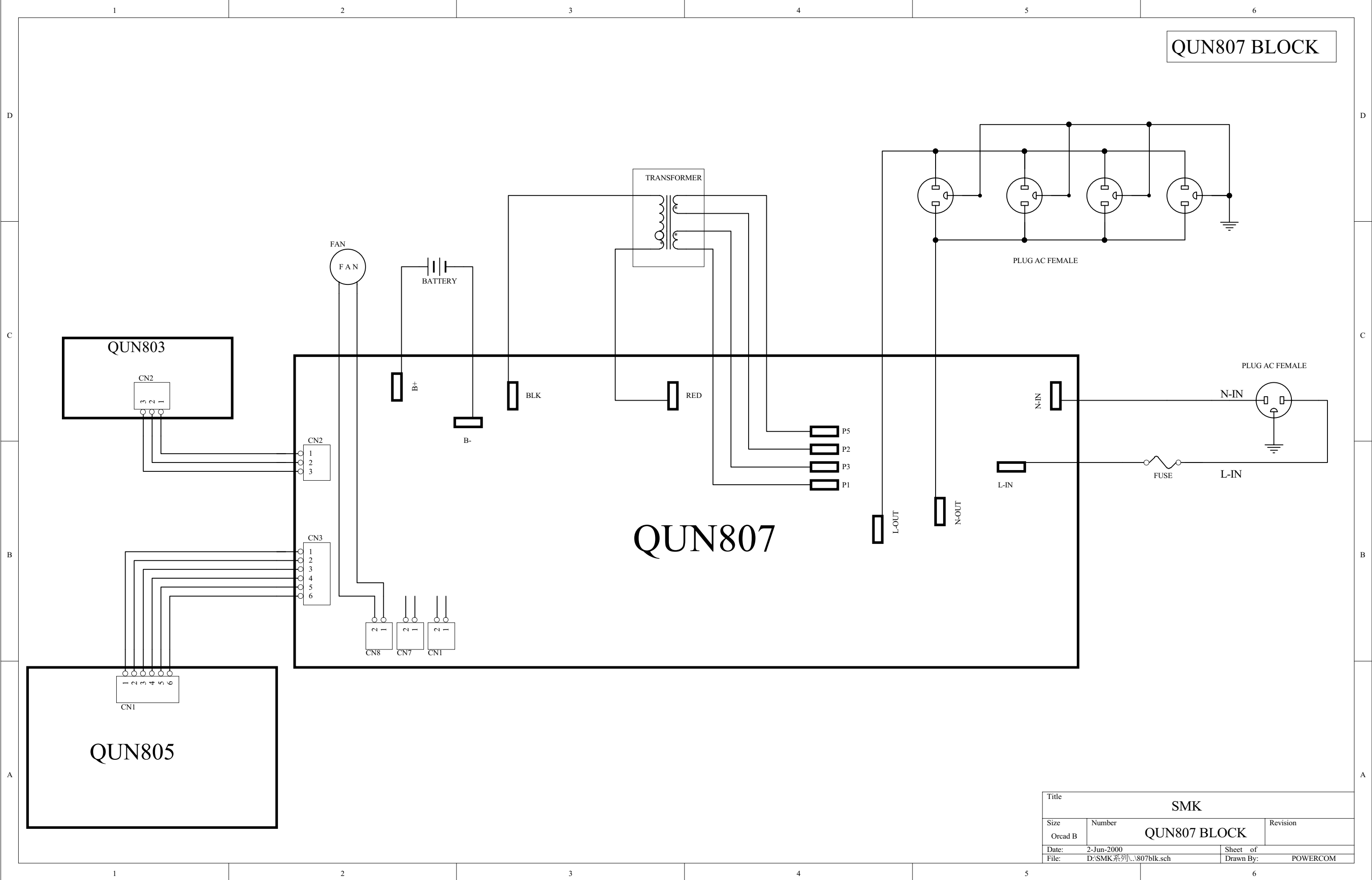
I: information display of company & model

F: information display of rating

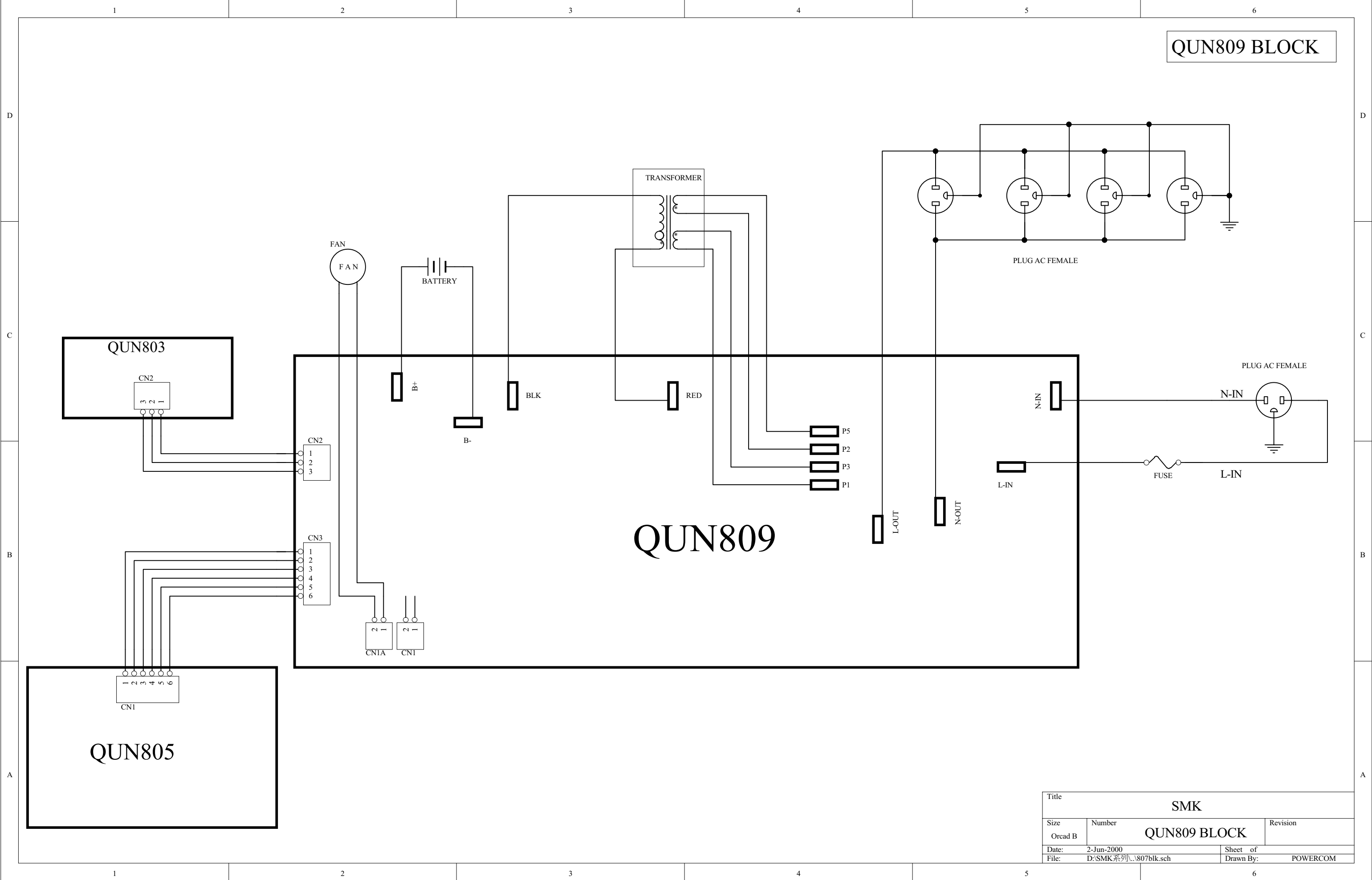
hm: for UPSMON PLUS network



Title			SMK		
Size	Number		Revision		
Orcad B	QUN801 BLOCK				
Date:	2-Jun-2000		Sheet of		
File:	D:\SMK系列\801blk.sch		Drawn By:	POWERCOM	

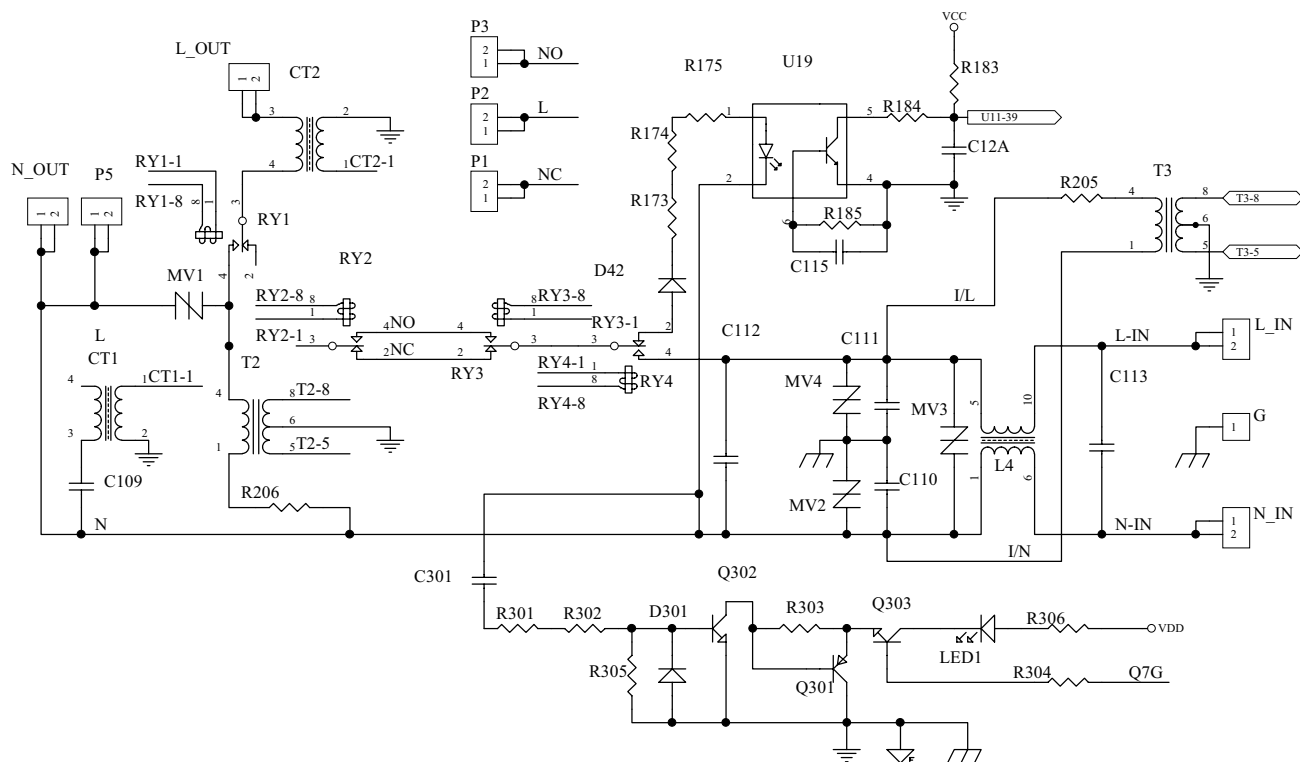
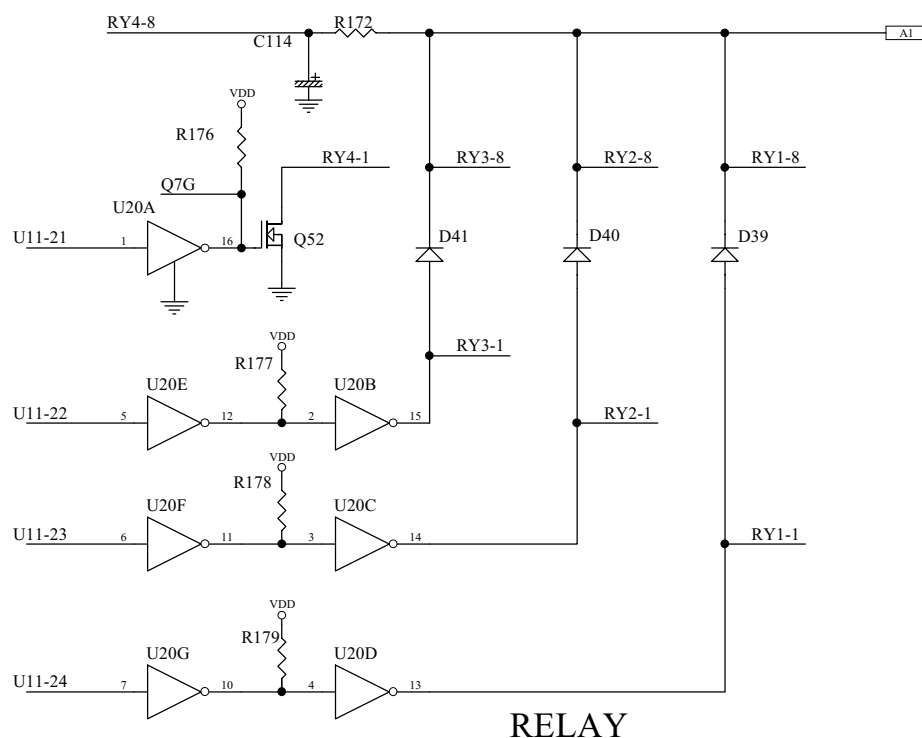


Title		SMK	
Size	Number	Revision	
Orcad B	QUN807 BLOCK		
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File:	D:\SMK系列\...\807blk.sch	Drawn By:	POWERCOM



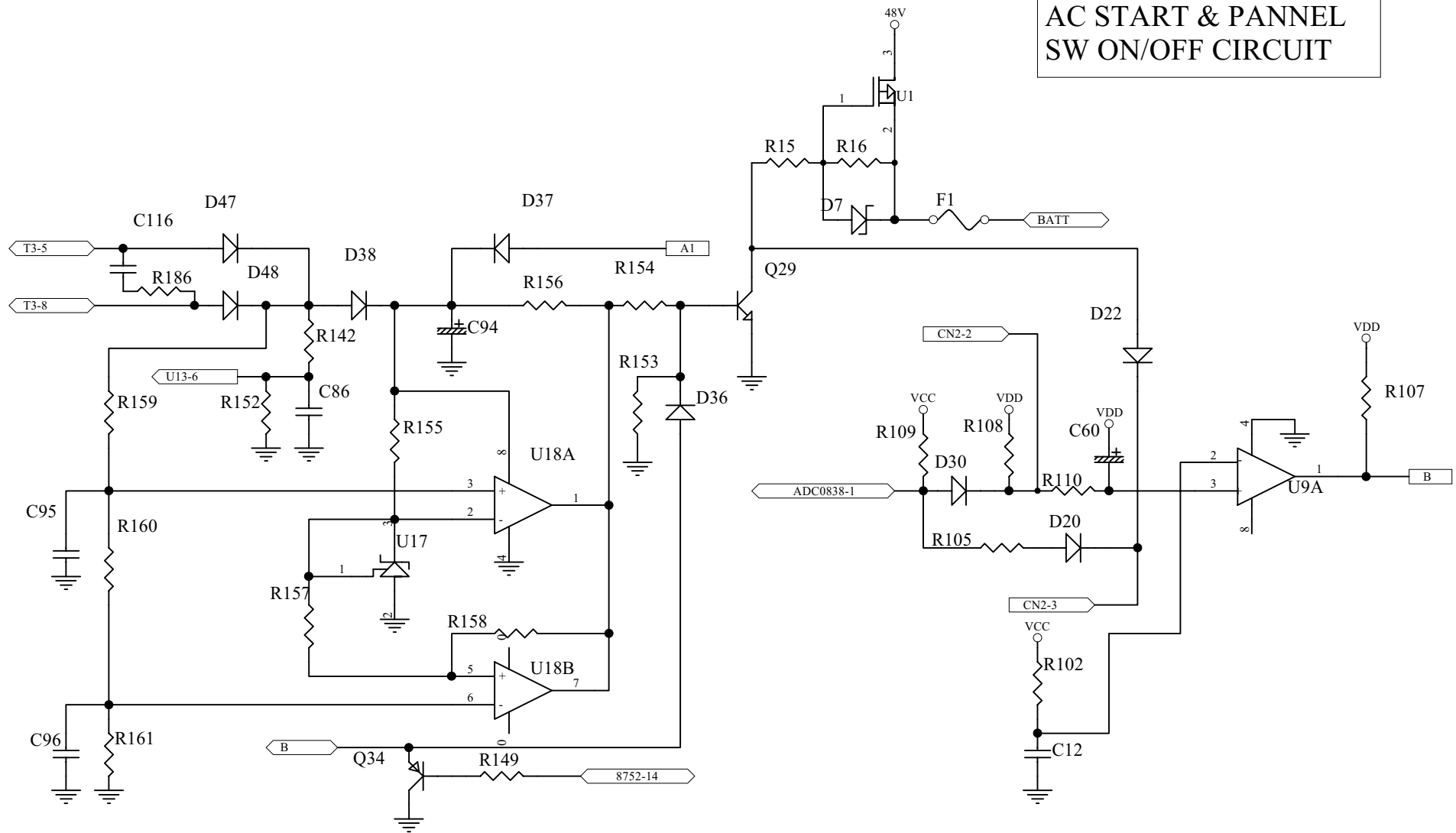
Title		SMK	
Size	Number	Revision	
Orcad B	QUN809 BLOCK		
Date:	2-Jun-2000	Sheet of	
File:	D:\SMK系列\...\807blk.sch	Drawn By:	POWERCOM

INPUT CINCUIT & RELAY DRIVER

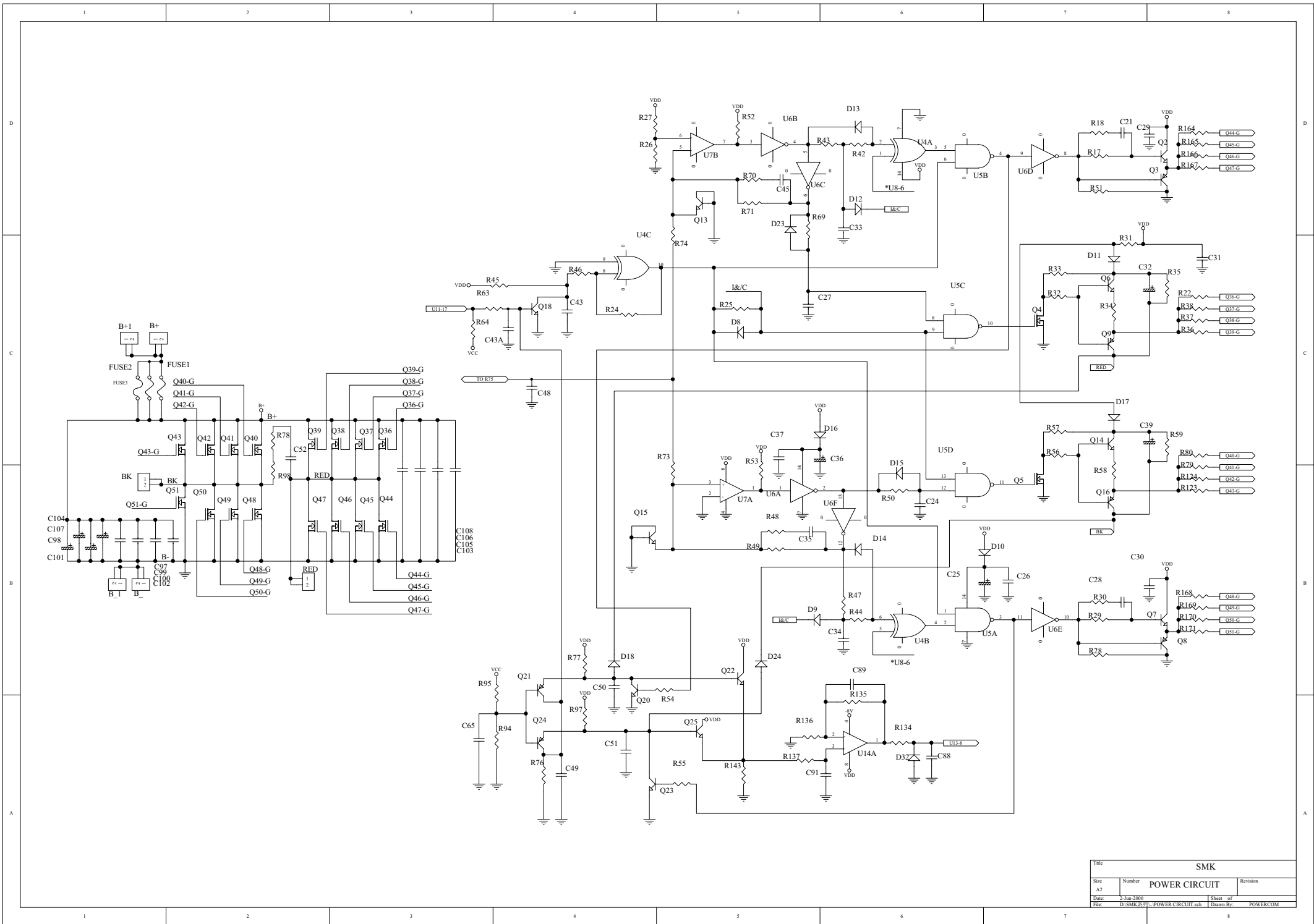


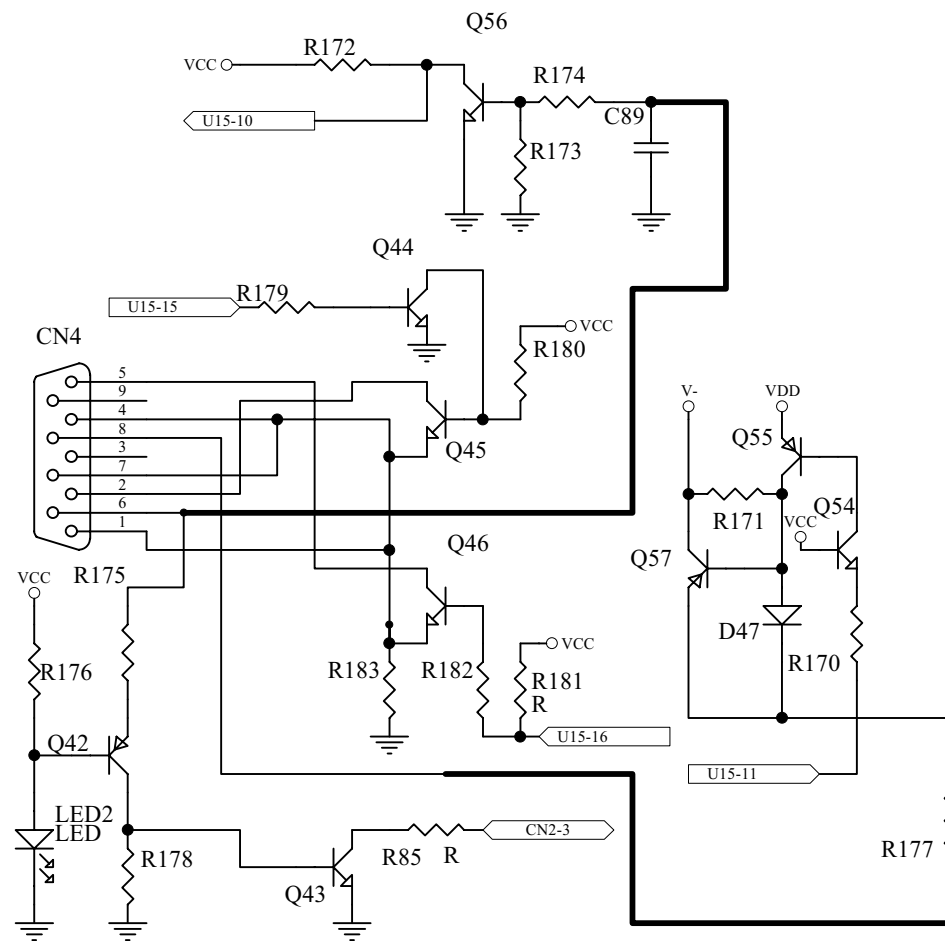
Title			SMK		
Size A3	Number INPUT CIRCUIT & RELAY DRIVER			Revision	
Date:	2-Jun-2000			Sheet of	
File:	D:\SMK系列\IN RELAY DRIVER sch			Drawn By:	POWERCOM

AC START & PANNEL SW ON/OFF CIRCUIT



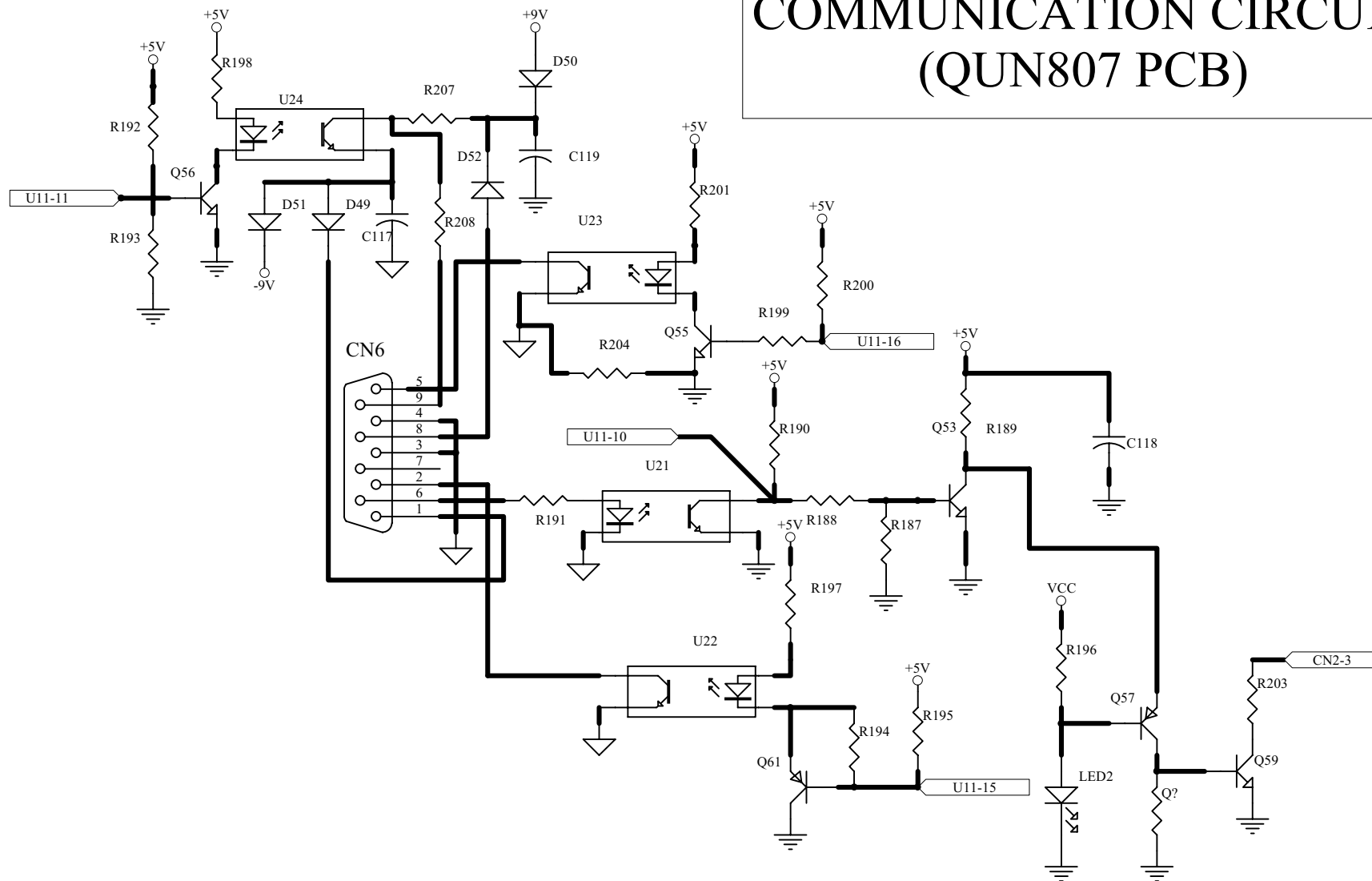
Title			SMK
Size	Number	Revision	
A4	AC ATART & SW ON/OFF CIRCUIT		
Date:	1-Jun-2000	Sheet	of
File:	D:\SMK系列\AC START.sch	Drawn By:	POWERCOM





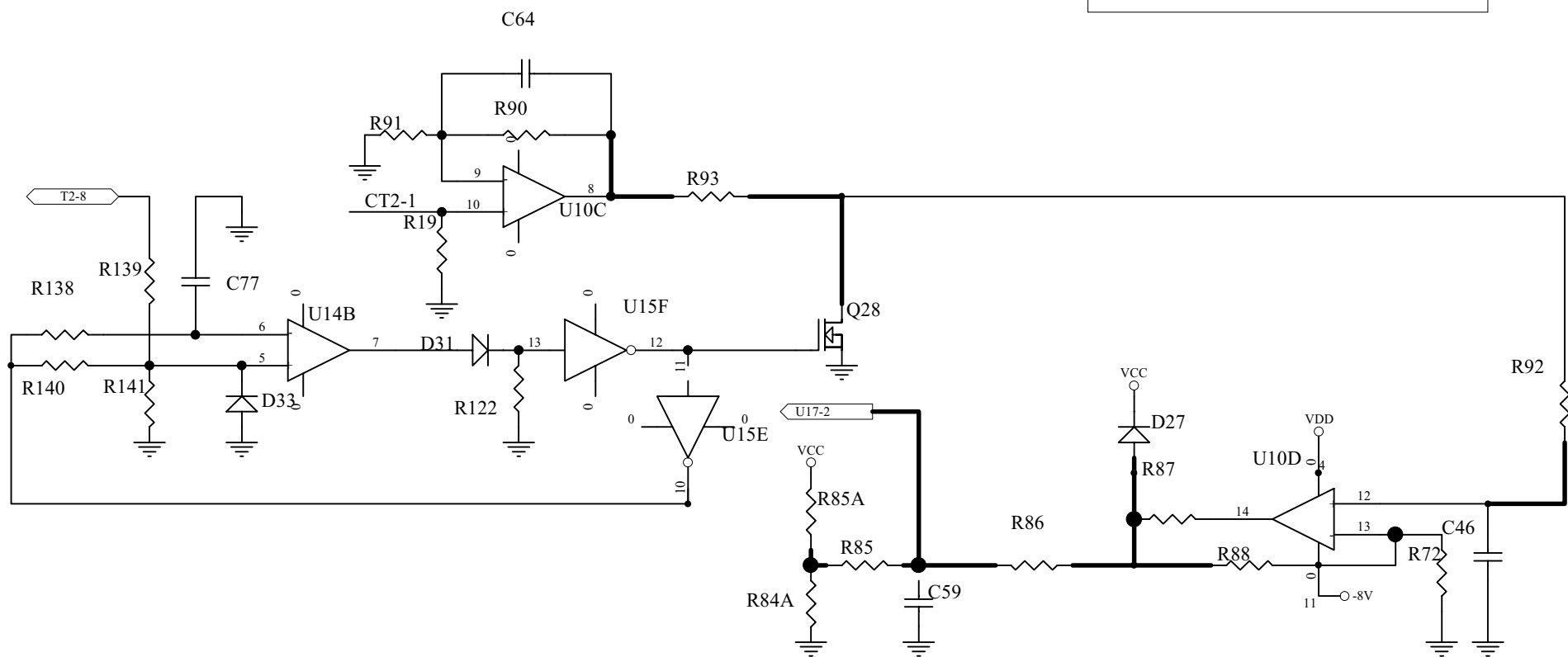
Title			
SMK			
Size	Number	Revision	
A4	COMMUNICATION CIRCUIT		
Date:	2-Jun-2000	Sheet of	
File:	D:\SMK系列\COMMUNICATION1.sch	Drawn By:	POWERCOM

COMMUNICATION CIRCUIT (QUN807 PCB)

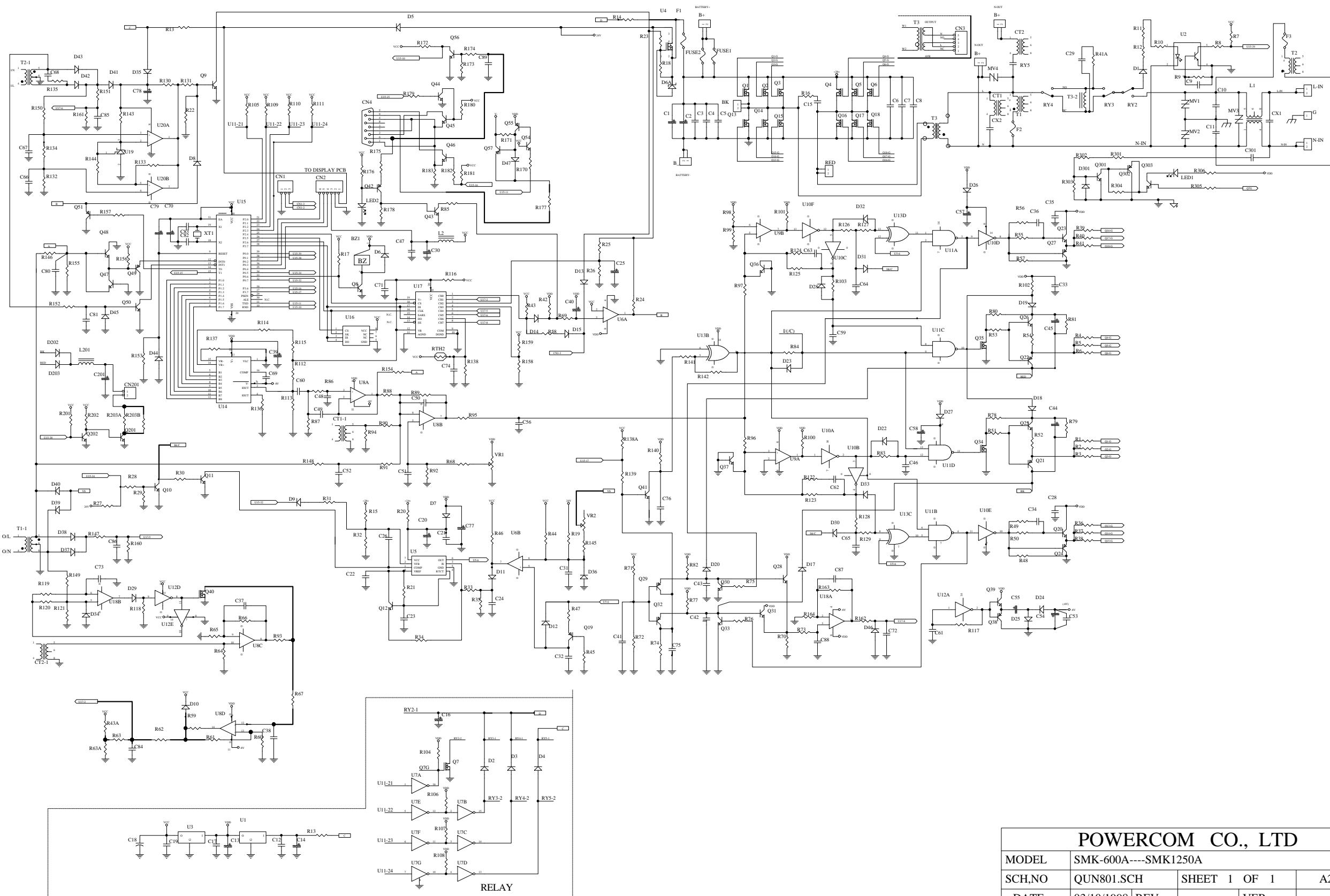


Title			SMK
Size	Number	Revision	
A	COMMUNICATION CIRCUIT		
Date:	1-Jun-2000	Sheet of	
File:	D:\SMK系列\QUN807 COMMUNICATION	Drawn By:	POWERCOM

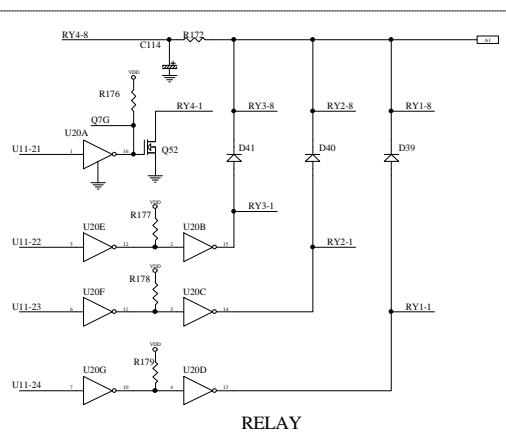
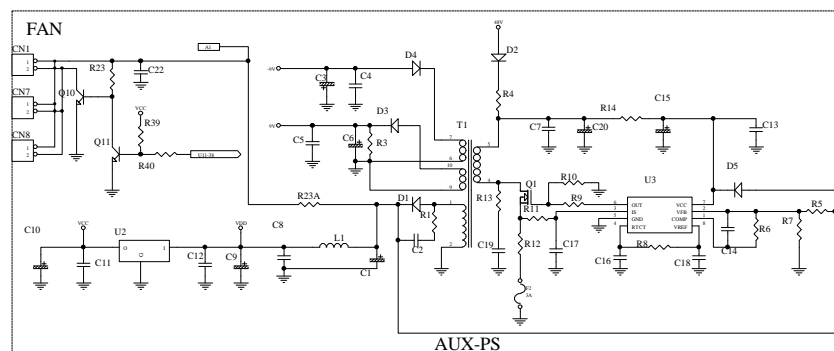
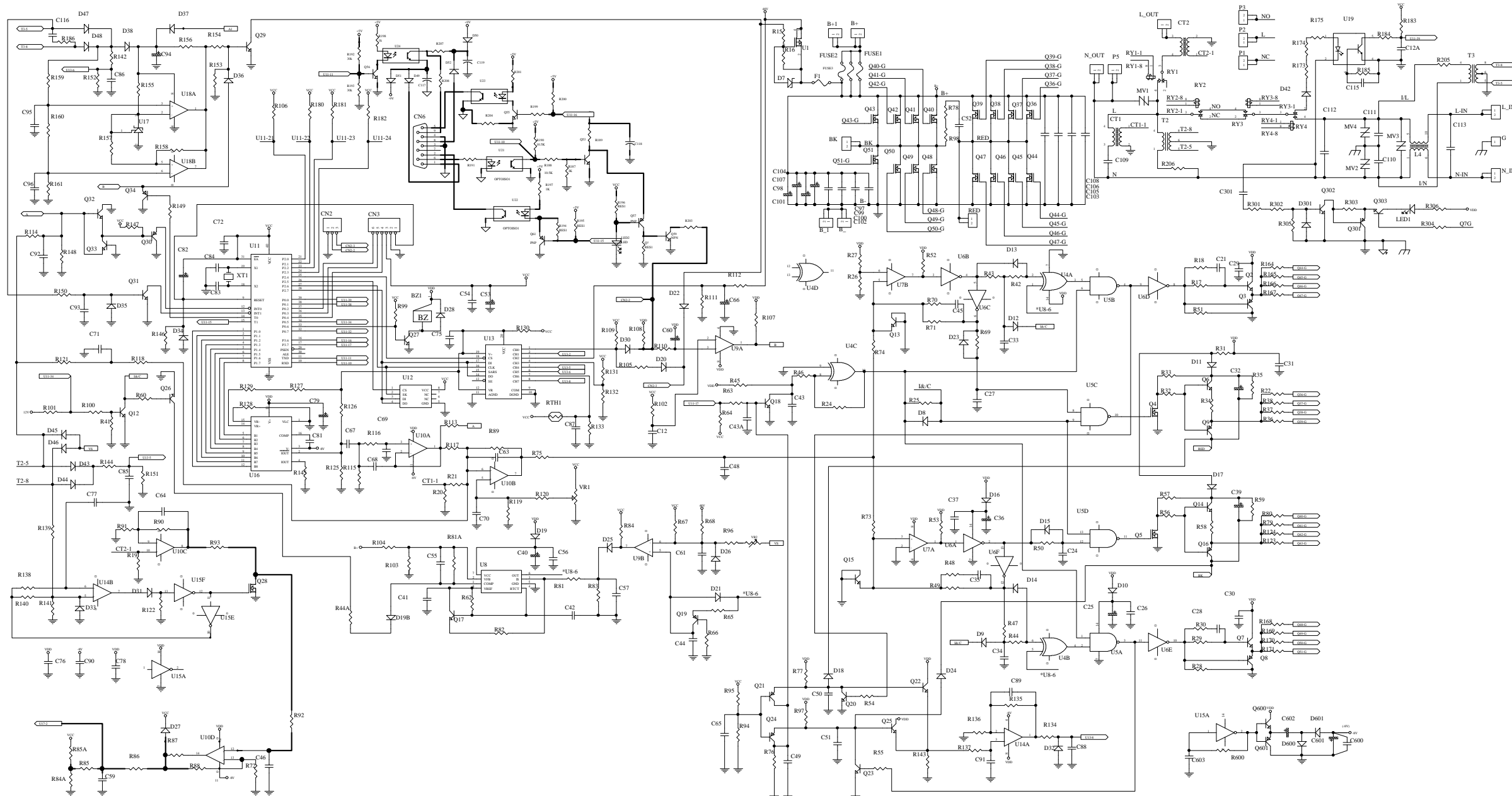
LOAD CIRCUIT



Title		
SMK		
Size	Number	Revision
A4	LOAD CIRCUIT	
Date:	5-Jul-2000	Sheet of
File:	D:\SMK系列\LOAD CIRCUIT.sch	Drawn By: POWERCOM



POWERCOM CO., LTD			
MODEL	SMK-600A---SMK1250A		
SCH,NO	QUN801.SCH	SHEET 1 OF 1	A2
DATE	03/10/1998	REV	VER
APPROVED		CHECK	DESIGN



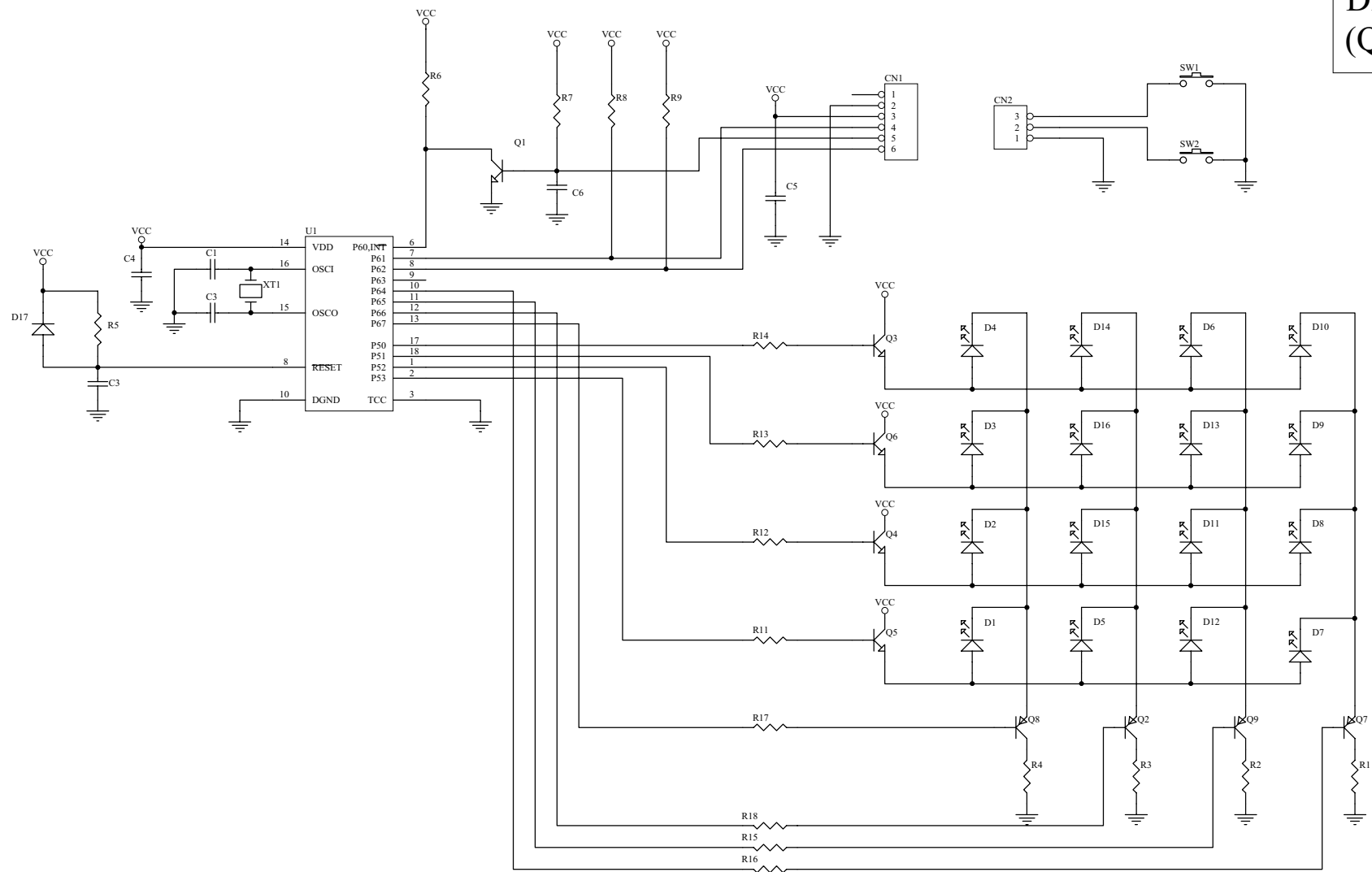
VCC:5V VDD:12V

C38 C74 C73 C47

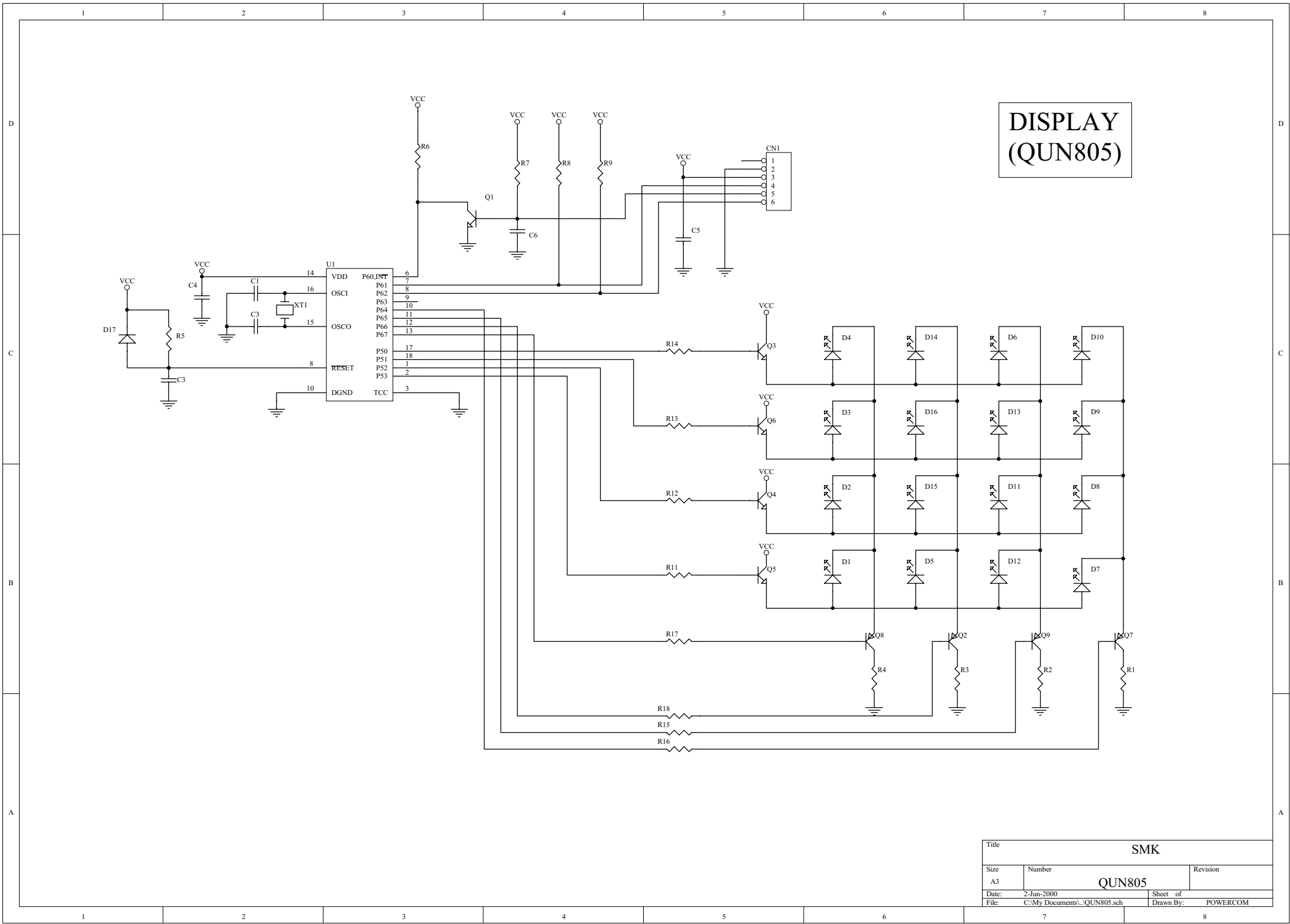
C23 C28

POWERCOM CO., LTD			
MODEL	SMK-1500A----SMK3000A		
SCH, NO	QUN807.SCH	SHEET 1 OF 1	A2
DATE	03/10/1998	REV	VER
APPROVED	CHECK	DESIGN	

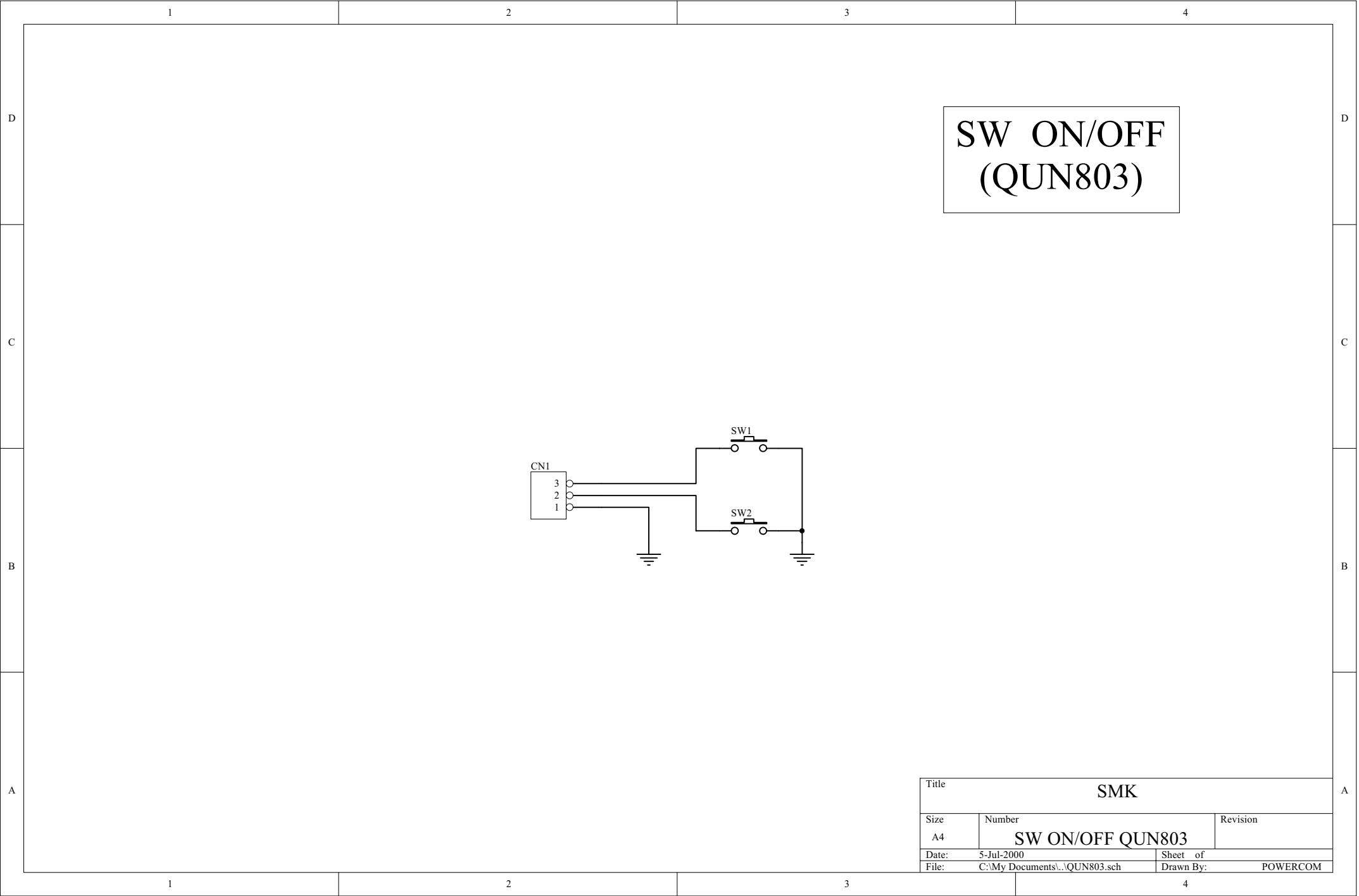
DISPLAY (QUN806)



Title			SMK	
Size	A3	Number	QUN806	
Date:	2-Jun-2000	Sheet of	1 of 1	
File:	C:\My Documents\QUN806.sch	Drawn By:	POWERCOM	



Title			SMK	
Size	Number	Revision		
A3		QUN805		
Date:	2-Jun-2000	Sheet of		
File:	C:\My Documents\QUN805.sch	Drawn By:	POWERCOM	



Title			SMK	
Size	Number		Revision	
A4	SW ON/OFF QUN803			
Date:	5-Jul-2000		Sheet of	
File:	C:\My Documents\.\QUN803.sch		Drawn By:	POWERCOM