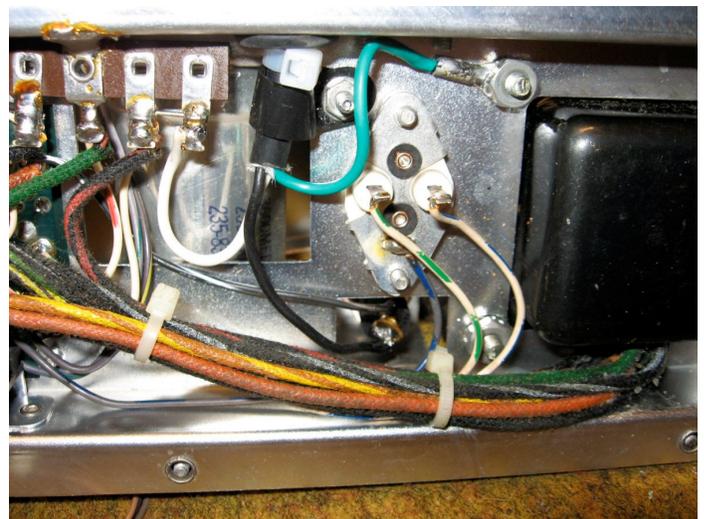
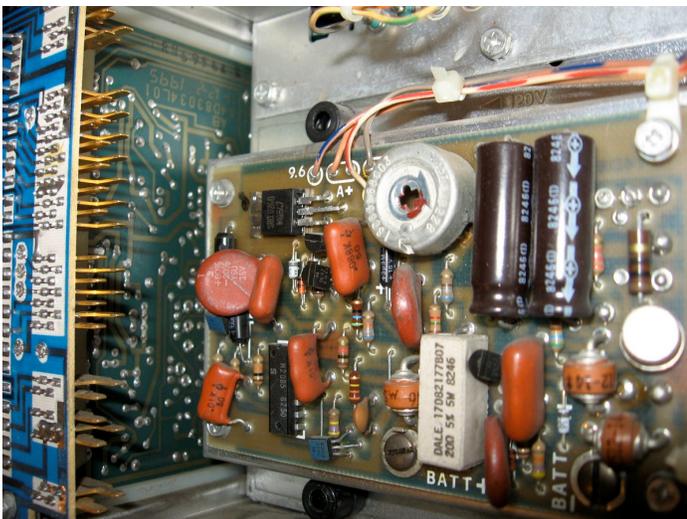
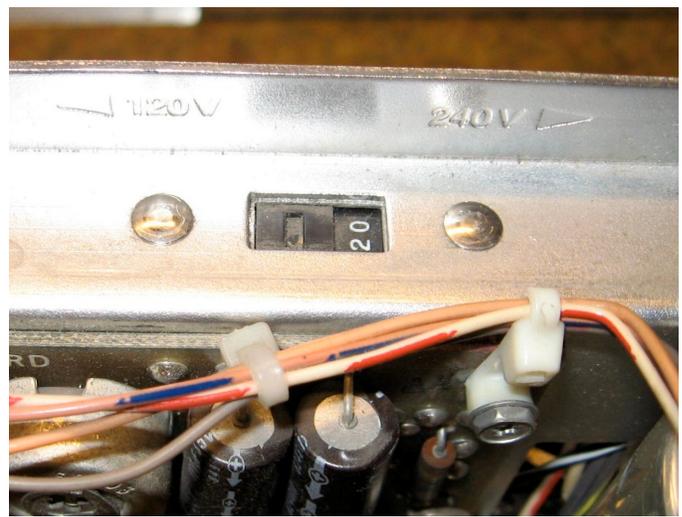


Spectra-Tac micor receiver (part-3)

by Karl Shoemaker

Power Supply:

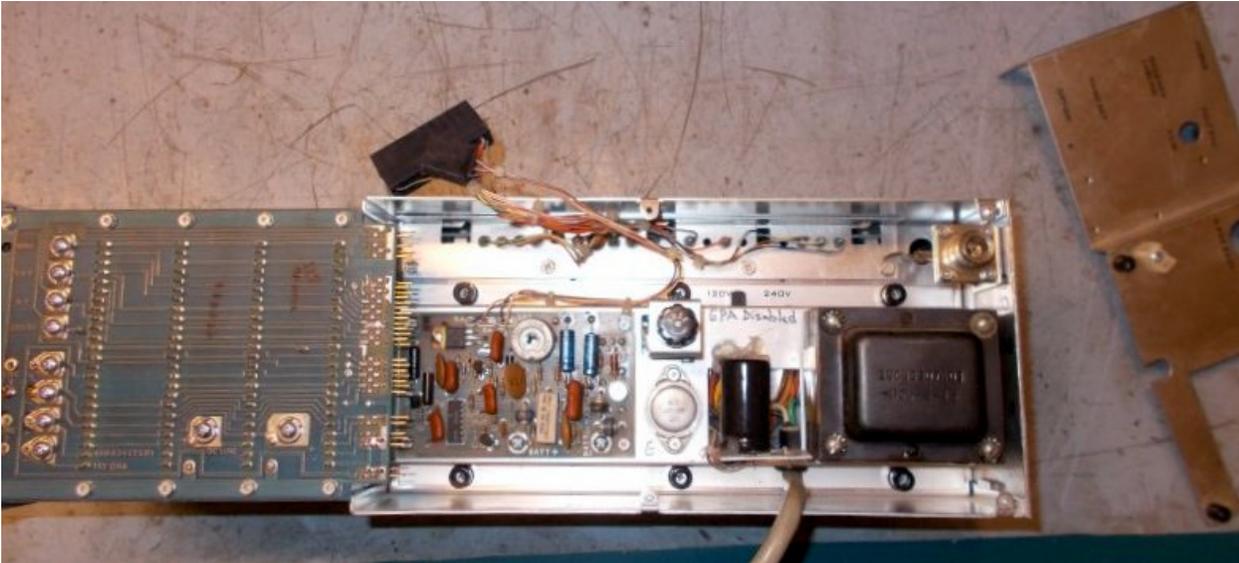
The receiver's power supply was checked out, especially for the first filter capacitor after the rectifier. Also, the stock power supply AC cord was designed as a daisy chain using a moxey type connector. This was handy for sites using several receiver units in a rack. The author felt this type connector may be a safety concern plus, SRG stations only use one receiver package, so the cords were replaced with something more common, and wired directly to the supply's input terminals. The other end either has the very common "computer" type IEC C-14 connector or the very common NEMA 5-15P AC plug.



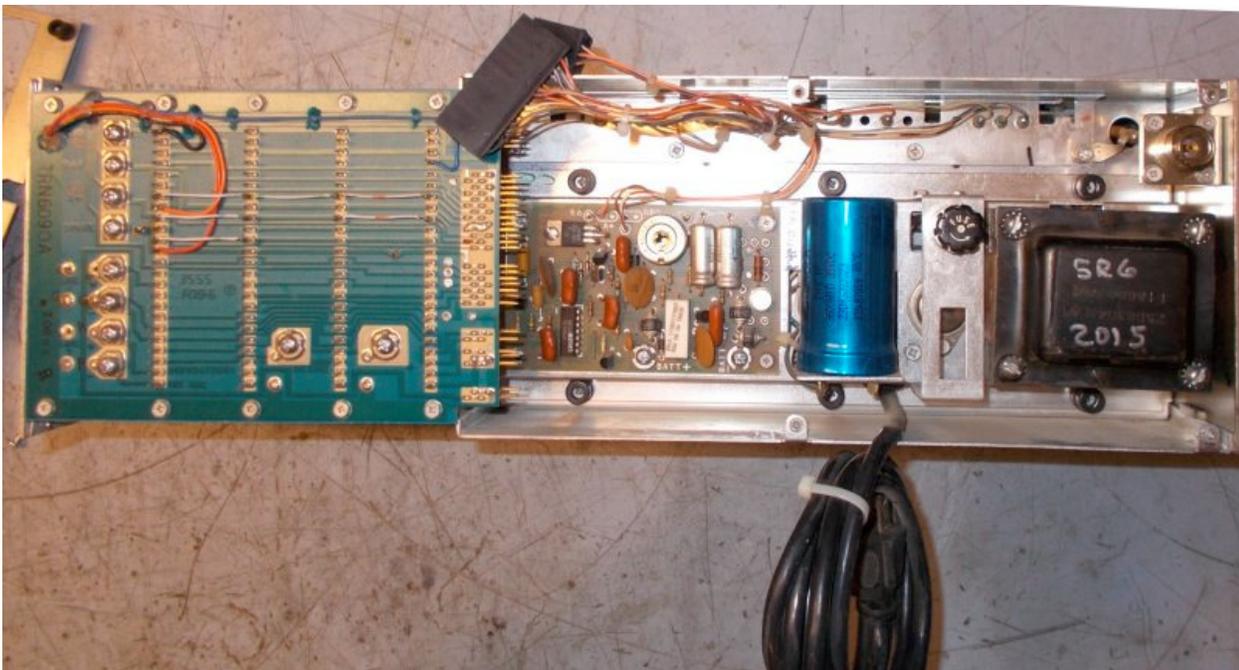
The straight blade type (old school) back plane screws were replaced with the phillups pan head type on the backplane and supply boards. Size 6-32 x 3/8" were used.

The power supply has a shield for the rear side. There are (at least) two versions of this which is OEM part number of 15D83666K01 and K03. For simplicity we will call these type 1 or type 3.

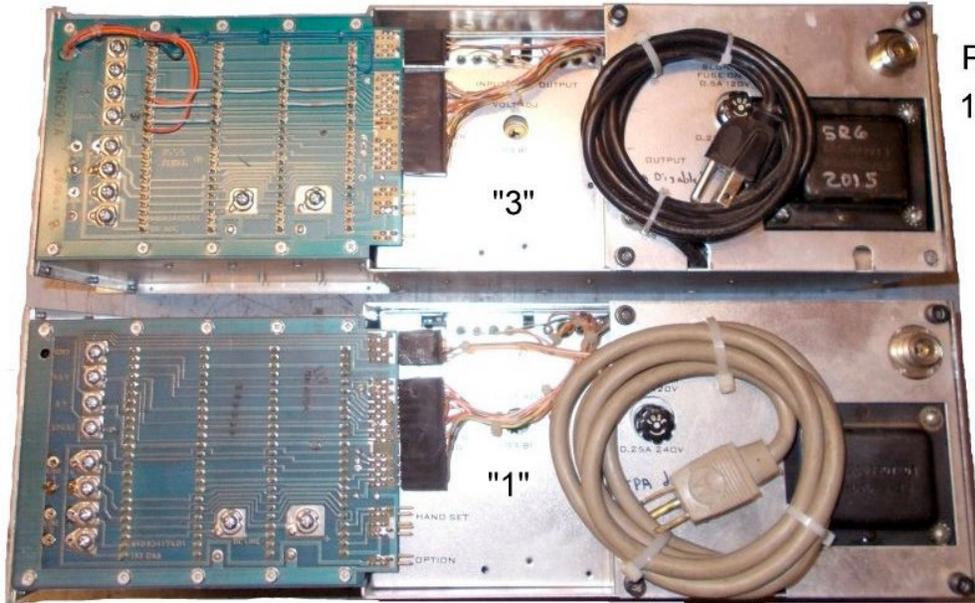
The image below shows the power supply needing type 1 shield. You can tell by the AC fuse is farther from the transformer.



This image shows the power supply needing type 3 shield. You can tell by the AC fuse is close to the transformer.



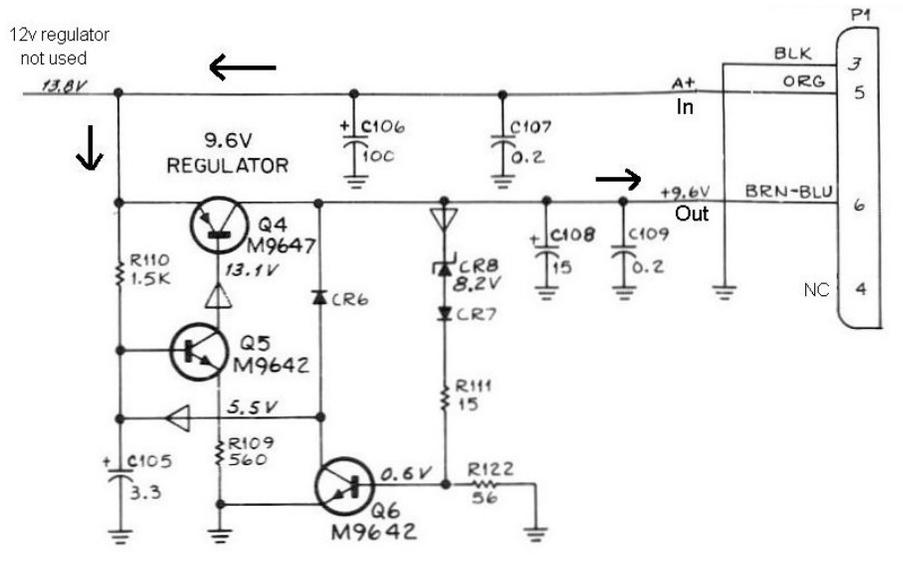
Shown here are both types (picture was taken in reverse-with type 3 on the top) with the install shield for both of them. The (not used) AC cord is secured by mounts on the shield. There are 2 holes in the vicinity that will work. You will need to drill them out with a 7/64" bit so the 6/20 x 1/2" self-tapping screws will hold a cable mount (not shown) there. Then it's simply matter of attaching a tie wrap around that and the coiled AC cord. This provides I neat but still available choice in the event you wish use the AC (OEM) power supply at a later time.



Part number:
15D83666K03

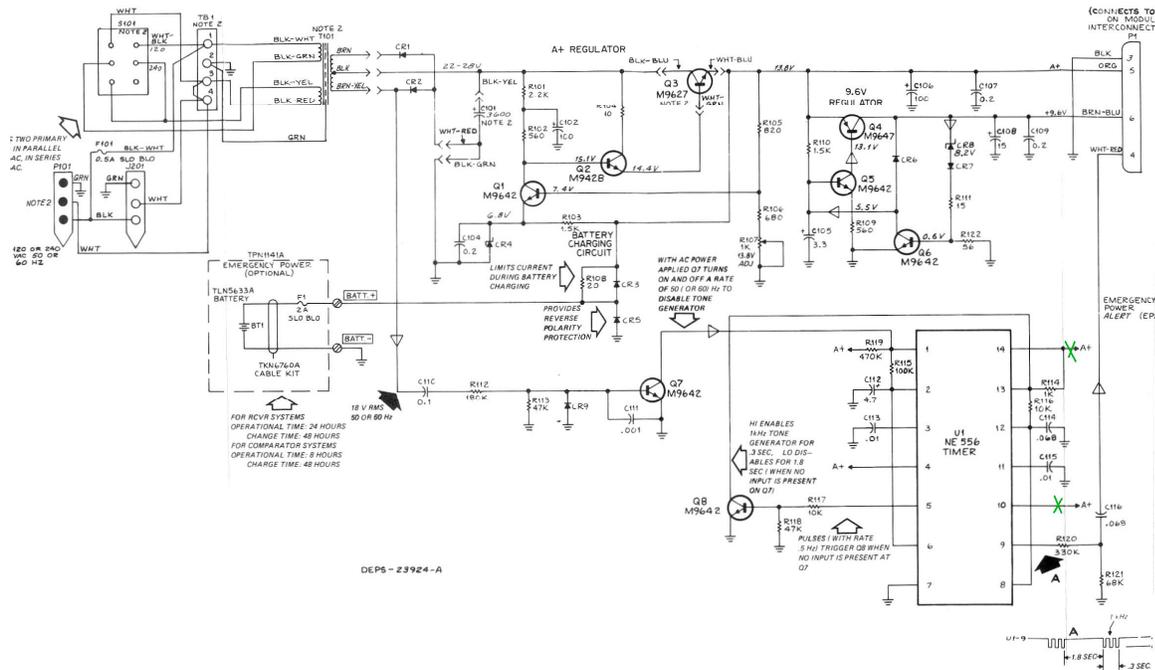
Part number:
15D83666K01

As shown below P1, terminal 5 is being used as an input. External 12v runs the receiver's 12v sections. It also back-feeds at this point to power the (OEM) 9.6 v regulator section to run receiver properly. This is similar to operating the unit with the stock battery backup.

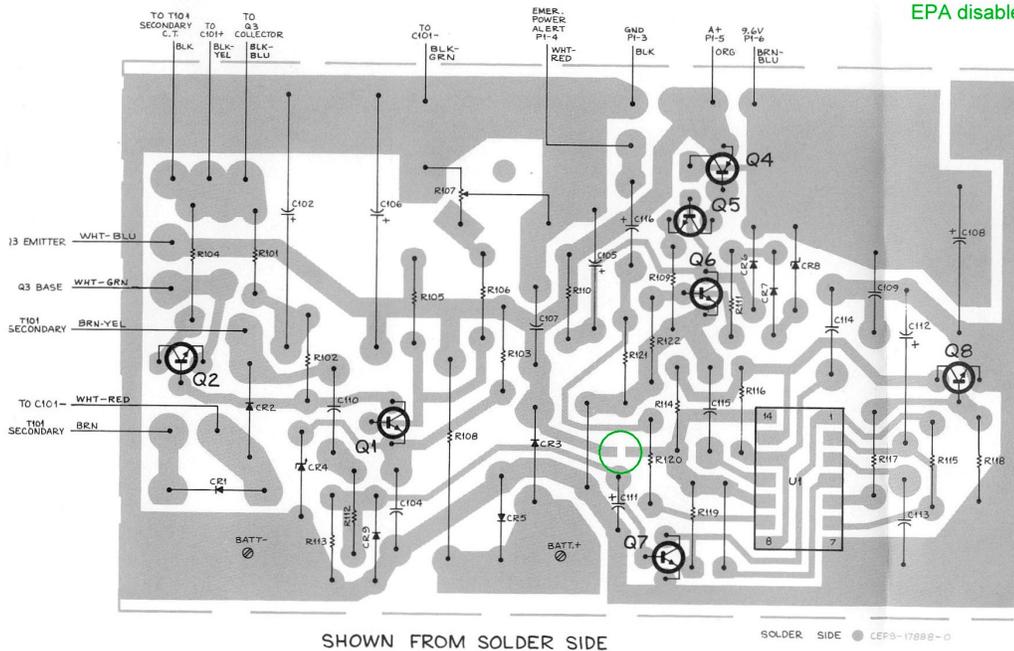


The battery input is also a charging circuit as shown on the entire diagram. When the unit is on battery (AC loss) it also enables a beeper circuit to "alert" the wireline to console (customer) that it's on battery (emergency) power hence, the name EPA, or Emergency Power Alert. For SRG's design and operation the EPA is considered just another unnecessary complication. Therefore, the beeper is disabled by removing its supply. This is done with a simple PCB run cut as shown below with the green marks on the diagram and PCB run cut. As discussed earlier, Q3 won't be affected by this back-feed at P1, pin 5; being reverse-biased.

EPA disabled



EPA disabled



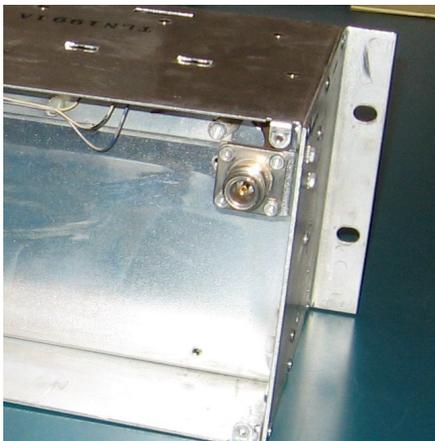
The board's layout (solder side) shows where the modification to disable the EPA by cutting a run to the left of the IC as indicated in the green circle.



A future possibility is to install a chassis mounted NEMA-C14 connector where the old molex type was. This may be dependent on the version of the rear cover to allow the larger jack to be. For now, the AC cord is neatly coiled and tied up on the rear chassis as shown here.

Some (remote) stations do not use the OEM built-in power supply such as an off-grid site with 12 volts available or in the case of most SRG remotes. These sites already have a 12v supply (to run the downlink transmitter) therefore, it simplifies the installation to run both units on the same supply.

The stock supply is still needed in either case. When running the unit with an external 12v source is connected to the third screw terminal down that's labeled (A+) on the PCB silkscreen. This point is more or less an input-output.



Not relevant, but the image on the left shows the antenna port (and bracket for it) mounted on the newly arranged side bracket. It's the hardest to get the holes in the correct position for this bracket.

Parts list: For all types of receivers:

Micor front end parts list for conversion to "M" (142-150.8 MHz)

21-82133G29 C108 18 pf ** (SRG used 21-82133G58, 27pf, in some builds)

21-82610C44 C109 47 pf ** (SRG used 21-83406D44, 47 pf, in some builds)

21-84494B03 C110 80 pf

21-82133G14 C113 7.5 pf

21-82133G14 C116 7.5 pf

24-84070C01 L101 (w/tap)

24-84070C03 L102

24-84070C03 L103

24-84070C03 L104

1-80713B52 L105 (w/tapped black wire)

Change R107 to 82K (SRG builds declined)

Change R122 to 10K (SRG builds declined)

Change R123 to 15K; (SRG builds declined)

Reverse CR102 and CR104 (because of high side injection, now) (SRG builds declined)

Notes: On the front end coils this range, the windings are closer and more of them (about 7 windings). On C109 there is some differences on the value should be used, in some of the older manuals. Keep that in mind when making the LO multiplier stages to work with a fundamental crystal around 17 MHz.

* In the case of the (old) "Omak Rx" a 10-ohm was used for the monitor function. (replaced now.)

** Some manuals disagree with this value

Jumper chart:

JU201 IN

JU202 OUT

JU203 OUT

JU204 OUT

For Spectra-Tac type receiver: (partial list)

4 of the 3/8" (.375") round standoff for mounting the cor board on Spectra-Tac card ME# 534-3479.

For Service module:

Some 1/4" heat shrink, to insulate the hi side of monitor audio

Some 3/8" ? heat shrink for the cabling exit point (7/32" hole) through the back plain PCB.

Some hot glue to secure wires and the speaker.

Some labor to drill 1/8" holes for the speaker grill.

2 clamps for the back-plain screws for wire management.

2 4-40 screws & nuts, to hold the service module

1 box, plastic 100mm, x 60mm x 22mm ?

1 speaker, 63 ohm (later will be 8 or 16 ohm).

1 DPDT switch (later will be a volume / power switch.

2 pin jacks, green and black

2 LED, green T1 3/4

1 LED, green blinking, T1 3/4

2 resistor, 1K

1 resistor 10K

For mobile type receivers

- 1 19' rack panel #2; Bud radio # PA-1102-WH
- 6 standoffs, 1/4" hex body, 8-32 female threads
- 6 machine screws PPH 8-32, 1/2"
- 6 machine screws PPH 8-32, 1/4"
- 1 COR/AF board Ver. 5.3
- 2 25K LT pots w/switch
- 1 n.o. push button
- 1 LED, red
- 2 10K resistor
- 2 1K resistor
- 1 4.7 K resistor
- mics wire for hookup around 22 gu, various colors, black, red, yellow, etc
- some heat shrink to wrap the above wires as a harness
- 1 terminal block 140-14 (14 position)
- 1 matching transformer, 1K CT / 8 ohm, Radio Shack 273-1380 (use the 500 ohm tap).

Parts list (supplement)

QTY	Description	Value	Feature 1	Feature 2	Feature 3	Part number
1	Capacitor	18 pf	5 %	Mica, maybe		21-82133G29
1	Capacitor	47 pf	5 %	Mica, maybe		21-82610C44
1	Capacitor	80 pf	5 %	Mica, maybe		21-84494B03
2	Capacitor	7.5 pf	5 %	Mica, maybe		21-82133G14
1	Coil		L101		W/ tap	24-84070C01
3	Coil		L102,3,4			24-84070C03
1	Coil		L105		W/black wire tap	1-80713B52
1	Resistor	82 K	R107			
1	Resistor	10 K	R122			
1	Resistor	15 K	R123			
1	Heat shrink	1/4"	Natural			
1	Heat shrink	3/8	Natural			
1	Capacitor	.1 uf	5 or 10%	MLCC	Radial LS .100"	
1	Hot Glue					
10	Labor			1 amp		
1	Clamp	1/4"				
1	Box, project	100x60x22mm				
1	Screw	4-40 machine	Ph pan hd	Zinc		
1	Nut	4-40 machine		Zinc		
1	Speaker	8 or 16 ohm				
2	Pin jack	GRN and BLK				
2	L.E.D.	Green		T 1 3/4		
1				T 1 3/4		
2	Resistor	1 K	1/4w, 5%			291-1K-RC
1	Resistor	10 K	1/4w, 5%			291-10K-RC
1	Wire, jumper					
1	Wire, hookup	Red	Stranded	AWG 22	About 6"	
1	Resistor	Black	Stranded	AWG 22	About 6"	
1	Resistor	Blue	Stranded	AWG 22	About 6"	
1	Resistor	Violet	Stranded	AWG 22	About 6"	
1	Resistor	Slate (gray)	Stranded	AWG 22	About 6"	
1	Knob	1/8" shaft				290125 JE
1	Wrench	.058"	Hex key			

1	Board, cor					FAR circuits
1	Resistor	10 Kohm	1/4w, 5%			
1	Resistor	100 ohm	1/4w, 5%			
1	Resistor	10 K	1/4w, 5%			
1	L.E.D.	Red	Diffused	T 1 3/4		
1	L.E.D.	Green	Diffused	1/4w, 5%		34761
1	Resistor	Green	Diffused	1/4w, 5%	Binking	
1	Capacitor	100 pf	5 or 10%	MLCC	Radial LS .100"	
1	Capacitor	.01 uf	5 or 10%	MLCC	Radial LS .100"	
1	Capacitor	10 uf	5 or 10%	MLCC	Radial LS .100"	
1	Capacitor	100 uf	5 or 10%	MLCC	Radial LS .100"	
1	Potentiometer	25 Kohm	5 or 10%	W/ switch	SPST	CT2206-ND
1	Capacitor	.1 uf	5 or 10%	MLCC	Radial LS .100"	
1	I.C.	LM386-4				

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