

## Southwest Technical Products Corporation

### Catalog 1967

On Jan. 1, 1967 DEMCO became a corporation under the new name you see above. As a corporation we hope to be able to offer you a wider variety of projects and more of them in complete kit form. The projects described in the following pages have all been design or tested in our labs and will work as specified if assembled properly. If you have any problems we have consultation and repair service available. Please note that this service is only available if your project uses the parts specified. We do not insist that you purchase our parts, only that they be the type called for in the article.

On a project using circuit board type construction, it is important that the parts used be not only electrically correct, but also physically the correct size. Parts with the same electrical rating of different brands are not always the same size, so check carefully before purchasing substitute parts. Smaller size parts will not cause any problems, but oversize parts will increase the danger of shorts and make your project look messy.

All circuit boards listed are etched, drilled and are ready for parts to be installed. You have no further work to do on the circuit boards. In most cases part numbers are printed on the top side of the board to identify the holes where each parts is installed. If the board is too small for this, a layout drawing is supplied. Cases are not ~~punched~~ unless so specified in the kit listing, so a drill or punch set will be needed to do the metal work on these projects. All parts supplied in our kits are new. No surplus of any kind is ever used.

We cannot hope to fully describe these projects in the limited space available in this catalog. If you think you would like to build one of these and want more details, send a stamped self-addressed envelope and we will send a reprint of the article and schematic on any project or projects you wish.

Daniel Meyer  
President



"Musette " Color Organ - Popular Electronics July 1966

A five channel color organ that can control lamps up to 150 Watt rating on each channel. This unit can be driven from the speaker terminals of any power amplifier having an output of at least 10 Watts. The ultimate in color organs, this design will be hard to improve on. Total electronics parts cost on this project will be approximately \$60.00

Circuit Board #132 \$3.50 each  
Kit of parts - send for list of items supplied- \$40.00

"Up to Date Solid State" - Popular Electronics Sept. 1966

A four transistor, one watt, amplifier designed to replace tube type amplifiers in low cost record players. Circuit has low distortion and is designed to work with crystal pickups normally used in this type player. Tone and volume controls are included.

Complete kit with punched chassis and board \$9.50

Brute 70 - Popular Electronics Feb. 1967

70 Watt RMS per channel basic amplifier with all silicon transistors in an output transformerless type circuit. High quality, low distortion, wide band amplifier for use with High Fidelity systems. Can be built for approximately \$75.

Circuit Board #134 \$2.75 each  
Kit of parts for amplifier portion - send for list \$25.00 each

Audio Leveler - Popular Electronics Feb 1967

A low distortion compressor-preamp for use with CB, business or Ham radios. Five silicon transistors with FET control stage. Operates from 12 Volts DC. Installs between microphone and radio. Provides 20 DB of compression action to keep modulation at 100% even with variations in speech level and mic position.

Complete kit with board \$9.00

IC-67 "Metal Detector" - Popular Electronics Jan. 1967

A transmitter-receiver type metal detector using integrated circuits in both transmitting and receiving sections. Equal or better sensitivity to any similar unit at any price. This detector is ideal for locating large deeply buried metal objects such as pipes and valves. This detector is not suitable for finding small objects (coins, etc)

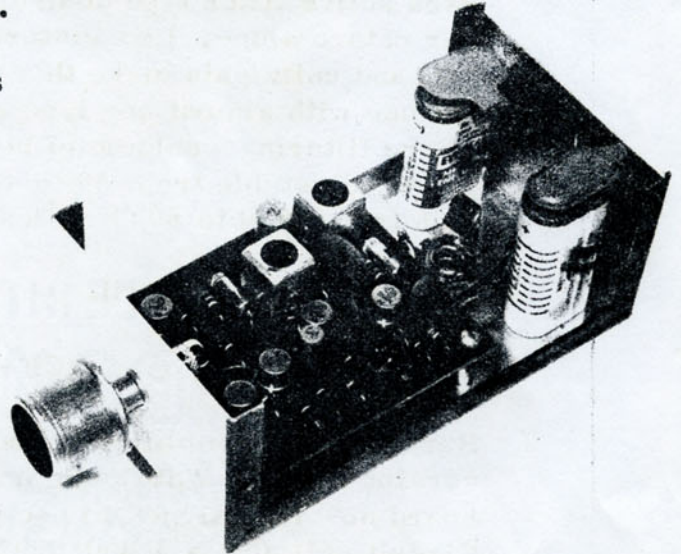
Circuit boards (2) \$2.50 set  
Complete kit of parts for transmitter and receiver \$35.00  
Includes boards but no frame parts or frame hardware



## ULTRASONICS

The following projects are excellent science, or science fair projects. They make possible demonstration of the properties of sound such as reflection, absorption, doppler shift, etc.

**Ultrasonic Sniffer** - Popular Electronics March 1963. Improved version of ultrasonic receiver. Newer type transducer now used doubles sensitivity of published version and at a lower price. May be used to listen to ultrasonic sounds produced by insects, bats, machinery, etc. May be used to receive sound transmitted by the ultrasonic transmitter. Eight transistor circuit powered by 9 Volt battery fits in 2 1/8 X 3 X 5 inch box. Circuit board 2 5/8 X 5.



Circuit Board - Phenolic base	Part no. E-112	\$2.00
Circuit board, oscillator coil and transducer	S-112	\$7.50
Complete kit of parts including headset	CS-112	\$24.50

**Ultrasonic Transmitter** - Popular Electronics Sept. 1965. Companion transmitter for above receiver. May be used with the receiver to demonstrate doppler radar, blind guidance, and allows talking on a ultrasonic beam. Five transistor circuit powered by two standard 9 Volt transistor radio batteries. Output may be modulated with a carbon microphone to transmit speech. Fits into same case type as receiver. Circuit board 2 5/8 X 3 3/8.

Circuit Board - phenolic base	Part no. E-119	\$1.50
Circuit board, coils, and transducer	T-119	9.00
Complete kit, less carbon microphone	CT-119	\$16.50

**Ultrasonic Omni-Alarm** - Popular Electronics Sept. 1965. Ultrasonic alarm system consisting of a transmitter, receiver and relay output. May be used anywhere a light beam alarm could be used. Cannot be seen, or heard and is not effected by sunlight or room lighting.

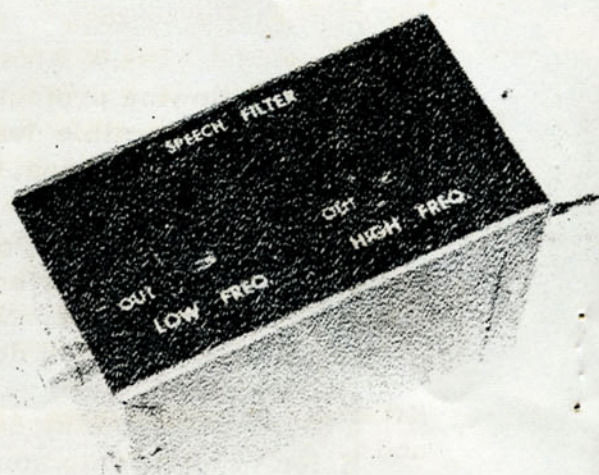
Circuit Board #128 Epoxy	\$3.50
Board, transducers and coil	A-128
	\$12.50





## AUDIO

**Adjustable Speech Filter - Popular Elect.**  
May 1964. An audio range filter that has controls to set the high and low frequency cut-off points. Three transistor circuit uses active filter type design to give 12 db per octave slope. Low distortion (less than 1%) and unity gain make this unit suitable for use with almost any type audio system where filtering would be of benefit. Low range adjustable from 50 to 400 cycles, high from 2000 to 5000 cycles.



Circuit board - Phenolic #E-101 \$1.50

Complete kit #CF-101 \$8.00

**Bargain Page Amplifier - Popular Electronics October 1964** - An improved version of the 3 Watt audio amplifier featured in the article.  $3\frac{1}{4} \times 4\frac{1}{4}$  board now is designed to use standard TO-3 case (diamond type) transistors. Circuit will give a 3 Watt output with a 4 ohm load on 12 Volt supplies and 6 Watts with an 18 Volt supply. Distortion is less than 1% up to full output and frequency response is flat from 30 to 15,000 cycles. Requires 1.0 Volt input for full output. Input impedance 1000 ohms, output impedance .5 ohms. An excellent low cost audio amplifier for small high fidelity systems, auto PA use, or any application where small size, good quality and low power drain are needed.

Circuit board -	Phenolic Base #EP-120	\$ 2.00
	Epoxy Fibreglass Base #EG-120	\$ 2.50

Kit of all circuit board mounted parts - Transistors resistors, capacitors, etc. Less board and case.	#CA-120	\$ 5.00
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**Universal Preamp - Publication to be announced** - A three transistor preamp circuit on a  $2\frac{1}{4} \times 2\frac{1}{4}$  circuit board. Has three feedback networks for use with microphones, magnetic phono cartridges, or tape heads. Operates on 12 to 24 Volts. Output is 2.5 Volts on 24 Volt supply. Gain 40 db with feedback connected. Feedback can be left off to give a high gain (X 1000) with less frequency response. Frequency response is 10 - 50,000 cycles with feedback, 50-10,000 cycles without. This preamp is designed to be used with audio amplifiers such as our #120. This will allow you to drive the amplifier from microphones, phono cartridges, etc. The excellent quality of this circuit makes it suitable for use as a high fidelity preamp when combined with our #124 T tone control system.

Phenolic Base Circuit Board	#E 124	\$1.50
All parts - less circuit board	#CP-124	\$4.50



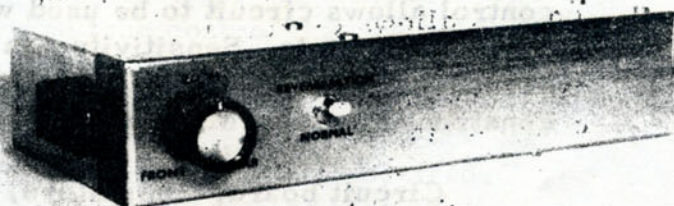
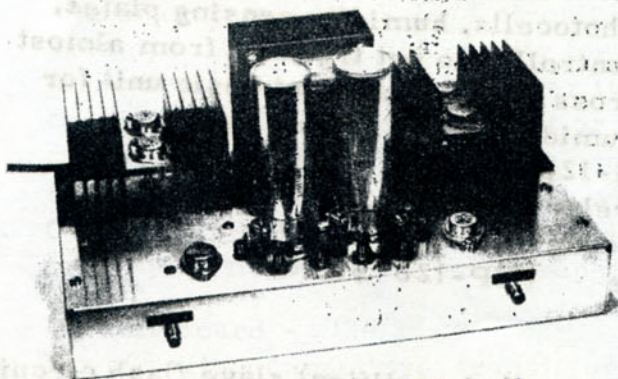
**Tone Control Amplifier** - Publication to be announced - A tone control amplifier on a 2 1/4 X 2 1/4 circuit board. Designed for use with our #124 preamp. This is a high quality feedback type tone control that features the more desirable variable turnover type response. Has two controls for Bass and Treble. Over 15 db of boost or cut can be obtained at the output of this circuit. Circuit has unity gain and low output impedance, so it can be used with a wide variety of equipment, where ever tone controls are desired. Complete preamp consisting of #124 and #124 T will have less than 1% total distortion over the audio range at full 2.0 Volts output.

Circuit Board - #124 T ..... \$ 1.50

Kit of parts - capacitors, transistors, resistors, less circuit board, and potentiometers. #CP-124T ..... \$3.25

**T 40-40 Power Amplifier** - Dual 40 Watt all transistor amplifier featured in March 1965 issue of Radio- Electronics. Has Silicon transistors in output stage and regulated power supply. Output is direct coupled to speaker and no driver or other transformers are used in the circuit. Distortion is 1% or less throughout the audio range at full 40 Watt output on both channels (80 Watt total). This is the amplifier for those who want the best for their high fidelity systems. Due to the cost and special nature of the parts used in this project we are not offering parts kits. Parts can be easily obtained from Allied Electronics, Newark Electronics, Radio Shack, etc.

Circuit Board - Phenolic base #E-122 ..... \$2.50 each (two needed for stereo)



#### Reverberation Amplifier -

- Build your own reverb. unit for use with your car radio or high fidelity system. Consists of a high quality 3 Watt audio amplifier and preamp plus a delay line to add simulation of natural reverberation to sound. Makes sound more warm and natural by adding the reverberation to it that would be present in a large hall or room. Five transistor circuit designed to operate on 12 Volt negative ground system. Draws .5 Amp at maximum output. Low distortion and modest power drain make this unit suitable for high fidelity system use.

Circuit Board - Fibreglass ..... #E-129 ..... \$ 2.50

Kit of parts, board and all amplifier parts plus type 4G delay line. Less case switch ..... fader control ..... #CR-129 ..... \$15.00



### High Fidelity Preamplifier and Control Center -

Radio-Electronics, October, November 1962 - A stereo high fidelity preamp with everything. Has switch type tone controls, inputs for Phono, Tuners, Tape, etc. Switches for reversing channels, changing phase of one channel, 12 db per octave active filter type scratch and rumble filters, plus many other deluxe features. Powered by 12 to 24 volts DC. Output 2.5 volts on 24 volt supply. Circuit boards 2 5/8 X 7. Due to the cost and complicated nature of this project, we do not publish schematics and instructions. We do not suggest attempting this project without getting a copy of the article.

Preamplifier circuit board - Phenolic	#EP-115	\$2.00
Filter Circuit board - Phenolic	#EP-116	\$2.00

### Popular Electronics Projects by Louis E. Garner, Jr.,

#### TV-FM Booster-Popular Electronics November 1964

A wide band one transistor booster that will work over the entire TV and FM bands. No alignment or special equipment required to build. This booster due to its wide band width and single transistor type circuit can be overloaded by strong signals anywhere in the TV or FM band. We therefore recommend that it not be used if you live nearer than 30 miles to a station, whether you are attempting to get this station or another farther off. Good for improving reception on older sets in fringe areas only.

Circuit board, coils and 2N3283 transistor	#CB-114	\$6.00
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#### Super Sensitive Relay-Popular Electronic

A two-transistor (silicon) DC amplifier and sensitive relay circuit that will trip on an input current as low as .5 microamps. Variable sensitivity control allows circuit to be used with photocells, humidity sensing plates, microphones, etc. Sensitivity can be controlled to set trip point from almost zero to as much as 50 million ohms across input. Excellent basic unit for constructing photocell alarm system, humidity (rain) alarm, etc.

Epoxy Circuit board	#EG-126	\$2.00
Circuit board, transistors, and relay	#CS-126	\$7.50
Complete set of parts including case	#CP-126	\$9.50
Humidity Sensing plate for above	#EP-126	\$1.00

#### Genie Flash-Popular Electronics-

A two transistor plus SCR (silicon controlled rectifier) slave flash circuit. Designed to be triggered by light, sound, etc. Sensitivity control allows setting of trigger level of circuit. Designed for use with inexpensive BC photoflash units, but can be used with any flash gun with suitable connectors. May be used with a light to get pictures of unwelcome guests, with a microphone to get photos of bullets, etc. A very versatile and useful circuit.

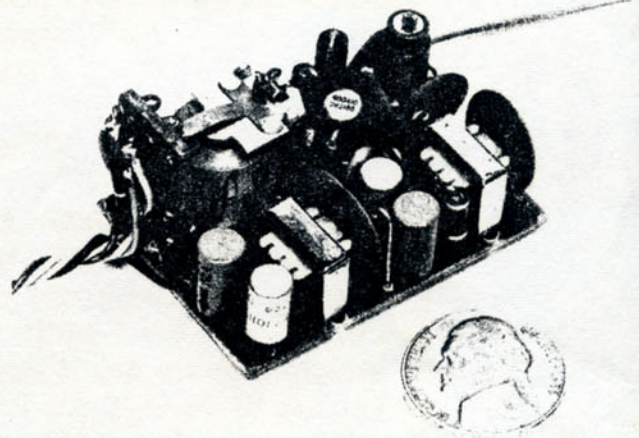
Circuit Board - Phenolic	#EP-127	\$1.50
Board, SCR and transistors	#CF-127	\$4.50



## RADIO CONTROL

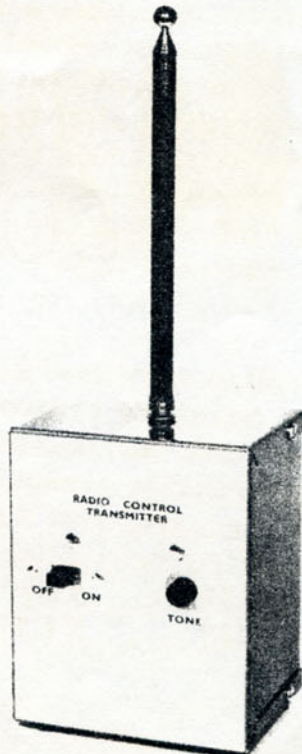
A radio control transmitter (Popular Electronics - June 1965) and receiver (Popular Electronics - April 1965) for use in cars, boats and aircraft.

**RECEIVER** - A small  $1\frac{3}{8} \times 1\frac{7}{8}$  in.  $\frac{7}{8}$  inch high superregenerative type circuit. Weighs only 1.5 ounces. Three transistor circuit with relay type output. May be used with any type actuator, escapement, magnetic, motor, etc. Operates on two pen cells or three Ni-Cad cells (2.8 to 3.6 Volts). Current drain is 4 ma. with no signal, 20 to 30 mills with signal. Tone type operation eliminates most interference problems. Relay operates only when carrier plus 600 to 800 cycle tone is received.



Complete kit of parts; circuit board, transistors, resistors and capacitors relay, coil, transformers, etc.	Kit # CR-123	\$12.45
Circuit board only - fibreglass	# E-123	2.00

**Transmitter** - Crystal controlled 100 mill watt type transmitter. No license needed to operate. Three transistor circuit. RF oscillator, RF output and tone modulation stage. Output is collector modulated for maximum possible power and range.  $1\frac{5}{8} \times 3\frac{1}{4}$  inch circuit board is designed to mount in 3 X 4 x 5 box. Powered by 9 Volt battery that will operate the circuit for a minimum of 20 hours.



Circuit board only - fibreglass #E-124	\$2.50
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Circuit board, RF coil, Oscillator coil, choke and Audio transformer #RT-125	\$5.00
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Although we do not offer a complete kit for this project, we can supply most of the parts. List of available parts included with your order.



## PARTS

### Electrolytic Capacitors

These are high quality epoxy case with epoxy end seal type capacitors. Completely sealed type construction eliminates loss of electrolyte and reduction of capacity with age. Single-ended type with both leads coming out of one end of case.

	<u>CAPACITY</u>	<u>SIZE</u>	<u>PRICE</u>
200 mfd	6 Volt	5/8 X 3/8 Dia.	.30 each
100 mfd	15 Volt		
50 mfd	25 Volt		
50 mfd	15 Volt	1/2 X 3/8 Dia.	.26 each
30 mfd	25 Volt		
10 mfd	25 Volt	3/8 X 5/16 Dia.	.23 each
30 mfd	15 Volt		
30 mfd	6 Volt	3/8 X 1/4 Dia.	.20 each
10 mfd	15 Volt		
5 mfd	15 Volt		

### Capacitors - Ceramic Disc.

.1 mfd	10 Volt	3/8 Dia.	.22 each
.05 mfd	50 Volt	1/2 Dia.	.16 each
.02 mfd	50 Volt	1/2 Dia.	.16 each
.01 mfd	50 Volt	3/8 Dia.	.15 each
.005 mfd	50 Volt	3/8 Dia.	.15 each
.001 mfd	1 Kv.	1/4 Dia.	.12 each

### Transformers-

10K Primary - 2K CT Secondary 1 1/2 inch sq. 50 mw Interstage type  
As used in radio control receiver. #TT 10-2 \$0.55 each

1600 CT Modulation Choke 300 mw. As used in radio control transmitter. May be used to modulated up to 1/2 Watt of RF output. #TC1600 \$1.00

### Headset-

Lightweight, under the chin type. Driver in one side with a sound transmission tube to other ear. 120 Ohm impedance with PL-55 connector. This is a very comfortable, good sounding headset that works beautifully with transistor circuits. Rugged nylon construction. #UCL-1 \$5.50 each

### Antenna - Telescoping type

7 section 7 inches collapsed 39 inches extended #AE-7 \$1.50



### Relays-

Miniature - 1/2 X 3/4 X 1 inch as used in radio control receiver  
100 ohm 3 to 6 Volt DC pulls in at 10 milliamps GS-100 \$3.50  
1000 ohm 9 to 18 Volts DC 5 mills to operate GS-1000 \$3.50

Printed Circuit type-DPDT 12 Volt 20 millamp coil. Contacts rated at 1 Amp resistive load. As used in Ultrasonic Alarm. #R-12 \$2.25

### Transducers-

Ultrasonic type as used on our #112 and #119. This is an excellent unit almost twice as sensitive as the type originally used on the Ultrasonic Sniffer. Mechanical construction provides 4 to 6 Kc band width without tuning coil.

40 Kc type	#E-40	\$3.50 each
25 Kc type	#E-25	\$3.50 each

Massa-Cohu TR-7 ultrasonic microphone as used on original Sniffer. Not as sensitive as above, but fine for uses where maximum possible sensitivity is not needed, or where low cost is important. #TR-7 \$1.00

Tuning Coil- 15-24 mhy with 10% tap as used in the ultrasonic projects for tuning and oscillator coil. 5/8 sq X 3/4 inch high in shielded can. #3E-027-1 \$2.00

Trimmer-Resistor- Small 1/2 inch diameter circuit board type with knob. Rated at 1/8 Watt. Available in 100, 1K, 5K, 10K, and 25K resistance. #X-201 (specify resistance) \$0.75

Transmounts-Plastic spacers that fit between TO-5 transistor can and circuit board. Gives stable mount with spacing to prevent heat damage. #8800-4 \$0.05 each

### Resistors-1/2 Watt 10% carbon resistors

Following values: 10, 47, 68, 100, 220, 330, 470, 1K, 2, 2K, 3, 3K, 4, 7K, 6, 8K, 10K, 15K, 22K, 27K, 33K, 47K, 100K, 330K, 470K.

(Specify value) #R-10 3 for \$0.25

### Transistors- We stock the following type transistors as used in our kits:

type	Voltage	Ma.	Frequency	Gain	Price
2N404	-25	200	5 mc	20 min.	\$0.45
2N1302	+25	200	5 mc	20 min.	0.50
2N2430	+35	500	1 mc	75 min.	0.57
2N2188	-30	150	30 mc	40 min.	1.20
2N3706	+40	800	50 mc	30 min.	0.52
2N3708	+30	30	150 mc	45 min.	0.48
2N3638	-30	500	100 mc	50 min.	0.50
2N3611	-30	7 Amp	500 Kcs.	35 min.	1.15

Coil Forms- Four pin circuit board type Resonite with high frequency slugs.  
.2 inch dia. form #CF-2 \$0.20 each  
.25 inch dia. form #CF-25 \$0.25 each



**PHONE: 512 • DI 4-3140**

Express

(100 lb.  
min. chg.)

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## State

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70 cents  
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006-009 . . . . .	8	299 . . . . .	6	410-412 . . . . .	6	562-567 . . . . .	6	700-705 . . . . .	4	824-834 . . . . .	6
010-039 . . . . .	7			413-414 . . . . .	5	570-571 . . . . .	5	706 . . . . .	3	835 . . . . .	7
040-049 . . . . .	8	300-312 . . . . .	5	415-418 . . . . .	6	572 . . . . .	6	707-722 . . . . .	4	836-837 . . . . .	6
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287-289 . . . . .	5	389-396 . . . . .	4	530-557 . . . . .	6	670-673 . . . . .	4	798-799 . . . . .	4	979 . . . . .	6
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