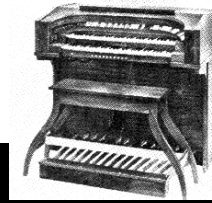


# ORGAN NOTES



## FOR SCHOBER ORPHANS AND FRIENDS

Issue # 107/108

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**Schober Organ Orphans' Page:** <http://www.users.cloud9.net/~pastark/schober.html>

### OVERTURE

#### **Disclaimer:**

***We accept no responsibility for any unfavorable consequences resulting from following our advice***

I hope you all had a bearable winter! Here in Vermont we had a record breaking snowfall and an overall rather rough winter. Up to last week there was not an inch of ground visible! This last week, however, most of the snow melted and only some remnants remain in the woods and some piles that were created by snowplowing are still six feet high but going fast.

I hope to get a lot of work done on my house so that I can again devote more time to Organ Notes. I am combining two issues again due to time limitations. Also, if your "subscription" has lapsed, I am not sending out renewal notices; I'll notify you in a future mailing.

This issue has a chart that shows the Schober part numbers for transistors and IC's and their generic equivalents and/or possible replacements. In the next issue I will do the same for other solid state parts such as diodes and voltage regulators which Schober renumbered to its own secret system numbers. Also, either in the next issue or the one following, I'll have pictorial instructions on how to make a Schober LDR 04LDR-1. I have described this before (ON51 and ON52) but this time there will be photos and diagrams.

### Transistors and Transistor Replacements

The transistor was invented at Bell Laboratories in December 1947 (not in 1948 as is often stated) by John Bardeen and Walter Brattain. The first transistors were the point-contact type. Bell Labs kept their discovery quiet until June 1948. William Shockley, the theorist who was leading the research, knew at once that this was not what he was seeking—at the time he was trying to create a solid-state device similar to what we now call a junction field-effect transistor. In September 1951 Bell held a transistor symposium, and licensed their technology for both types of transistor. This was the start of the transistor industry.

In 1955 Raytheon introduced its CK722 transistor for the experimenter. It sold for \$7.60, which at that time was very expensive. A 12AX7 vacuum tube cost approximately \$0.80! When Schober switched to transistorized circuits, PNP

germanium transistors were feasible as far as price and availability goes. The problem with them was that they could be "noisy", which was a detriment in audio applications. Schober tested its batches of 046127 transistors and marked the quieter ones red. They are referred to by Schober as 046127R and used in those circuits where noise is a problem. Later Schober switched to silicon transistors, which were at first much more expensive than germanium transistors. The silicones were NOT a direct replacement and required new circuit designs. The original 046127 was actually a Philco T-6127 or generic 2N404. Often Schober would put a "04" in front of a generic or manufacturers number to create its own parts numbers. It seems that the Philco transistors were not used for too long, but the 046127 part number remained when Schober started to use the generic 2N404 in place of the Philco T-6127. Of course, this renumbering scheme was intended to be sure that needed replacement parts would be purchased from Schober ... at a good mark-up in price.

Transistors became dirt cheap, but now those the functions of which are better served with newer silicon transistors, are becoming expensive as they are no longer profitable to produce. Common silicon transistors used in Schober organs now sell for pennies a piece, the older germanium used in older Schober circuits are becoming prohibitively expensive. The 2N2147 power transistor used in the Schober TR-2 amplifier sold for about \$1.50 a few years ago and then they were discontinued. NTE still manufactures a replacement (#121) for it, but its cost is around \$20! Many of the more common silicon transistors can be found in electronic parts catalogs for pennies a piece, so get the generic whenever possible. In extreme cases you may have to go to NTE and pay a premium.

NTE products (most semiconductor devices such as transistors and IC's) can be obtained through Parts Express; (800) 338-0531, web: [parts-express.com](http://parts-express.com)

Generic transistors, IC's, etc., can be obtained from Mouser Electronics; (800) 346-6873, web; [www.mouser.com](http://www.mouser.com) (2N3904 @ \$0.10)

Jameco Electronics is another source: (800) 831-4242, web; [www.Jameco.com](http://www.Jameco.com)

For cheap prices, try Hosfelt Electronics (surplus). If they have it, it will be reasonably priced. (800) 524-5414, web; [www.hosfelt.com](http://www.hosfelt.com)

The charts on pages 3 and 4 were compiled by researching Schober documents. Where there are no direct generic replacements listed, the "other" replacements were suggested by various members.

## Ads

**Disclaimer:**  
***Any deals, making of payments, receipt of payments or verifications are strictly your responsibility.***

### **SCHOBER CONSOLETTTE I (tube)**

Available in Illinois.

Contact:

John Cerny

[j.k.cerny@sbcglobal.net](mailto:j.k.cerny@sbcglobal.net)

### **SCHOBER RECITAL:**

Available, contact:

J. Dean Kernahan

10831 W. Lurie Lane

Peoria, AZ 85345

Phone: (623) [876-9877](tel:876-9877)

Email: [ctajdk@juno.com](mailto:ctajdk@juno.com)

### **SCHOBER RECITAL**

A recital with two speakers is available in Omaha, NE—should be moved by May.

Contact:

Anita Koppert

7350 Graceland Dr., Apt. 2305

Omaha, NE 6813

### **WANTED:**

A tube Reverbatape RV-1—not to use, just for my Schober Museum.

AK (Editor)

### **SCHOBER:**

Available for free in Fairbanks, Alaska! Not sure of model, but I think it's a Recital or possibly a Theatre???

Janice Adams

Fairbanks, AK

Email: [JammerA@aol.com](mailto:JammerA@aol.com)

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### TRANSISTOR TABLE

Schober	Type	Generic	NTE replacement	Other replacements	Comment
046127	PNP Ge	2N404 Philco T-6127	102	2N1307 *2N4403(Si)	*Not all applications w/o circ. changes.
045000 421000	PNP Si		159 159	2N3906, 2N4403,	045000/421000 same according to Schober
045500 421250	NPN Si		123AP	2N3904, NTE85 2N4401	045500/421250 same according to Schober
042102 004100	NPN Si	2N2102 2N4100	128 123AP		042102/004100 same according to Schober
0440411 2N3055	NPN Si	40411 2N3055	181 130		0440411/2N3055 same according to Schober
042147	PNP Ge	2N2147	121		
042148	PNP Ge	2N2148	121	2N2147	
04178	PNP Ge	2N178	104		
04277	PNP Ge	2N277	330		
044036	PNP Si	2N4036	129		
045036	NPN Si	2N5036	@390	NTE130	@minor mechanical Difference
0440409	NPN Si	40409	128		
0440410	PNP Si	40410	129		

### IC TABLE

Schober #	Generic	NTE	Type	Comment
172101	74107	4107	TLC Logic Master/Slave Flip Flop	
172201	931159 74154	74154	4-16 Line Decoder/ Demultiplexer	
172532	2532 AM2847	- -	Quadruple 80-bit MOS Static Shift Register	Both obsolete
174024	4024	4024B	Binary Counter	
177400	7400	7400	Quad 2-input NAND gate	
177402	7402	7402	Quad 2-input NOR gate	
177404	7404	7404	Hex INVERTER	

*Continued on next page.*

**IC TABLE (continued)**

<b>Schober #</b>	<b>Generic</b>	<b>NTE</b>	<b>Type</b>	<b>Comment</b>
177407	7407	7407	Hex BUFFER/DRIVER with open collectors	
177408	7408	7408	Quad 2-input AND gate	
177410	7410	7410	Triple 3-input NAND gates	
177420	7420	7420	Dual 4-input NAND gates	
177430	7430	7430	8-input NAND gate	
177440	7440	7440	Dual 4-input NAND BUFFER	
177450	7450	7450	Dual 2-wide 2-input AND-OR-Invert gate	
177453	7453	7453	4-Wide 2 input AND-OR-INVERT gate	
177490	7490	7490	Decade counter, BCD outputs	
177492	7492	7492	Divide-by-12 counter	
177493	7493	7493A	4-bit Binary counter	
177495	7495	7495	4-bit Left-Right Shift Register	
444038	8038CCPD	-		
444350 TCA350/S10110	TCA350Y (rectangular shape)	-	Analog Shift Register. 8 pin DIP	The TCA350 is round, leads could be modified. Cannot find anything on S10110
444458	MC1458 1026	778A	Linear dual OP AMP	
444537	S7537 555CV*	955M	Randomizer Oscillator (Timer)	*use 555CV, the plain 555 is not random but can be used.
1750240	50240, MK50240, S50240	-	Top Octave Generator	
1774107	74107	74107	Dual JK Master-Slave Flip-Flop	Schober 172101
1774121	74121	74121	Monostable Multivibrator	
1774123	74123	74123	Dual Retriggerable Monostable Multivibrator	
1774150	74150	74150	16-line to 1-line Data Selector Multiplexer	
1774154	74154 931159	74154	4-line to 16-line Decoder/Demultiplexer	Schober 172201
4440305	MN3005	-	Shift Register Analog Delay	

