

CLEVELAND AREA TI-99/4A USER GROUPS NEWSLETTER MARCH, 1992

OFFICERS	NORTHCOAST	TI-CHIPS	MEETING DATES
CO-PRESIDENT	KEN GLADYSZEWSKI 1-357-7274	MATT ANDEL 676-9759	NORTHCOAST 1:30 P.M. TI-CHIPS 10 A.M.
CO-PRESIDENT	WALT RYDER 921-8223	GLENN BERNASEK 238-6335	EUCLIDIAN ROOM N.ROYALTON LIBRARY
TREASURER	FRANK JENKINS 283-8526	LIN SHAW 235-3912	EUCLID SQUARE MALL STATE RD & RT 82
MEMBERSHIP	MARTIN SMOLEY 1-257-1661 6149 BRYSON MENTOR, OH 44060	JOHN PARKEN 331-2830 4172 W. 217TH ST. FAIRVIEW PARK, OH 44126	THIRD SATURDAY THIRD SATURDAY MARCH 21, 1992
SECRETARY	BERNIE ZUCKERMAN 381-4088	DENNIS LIKENS 842-9627	APRIL 18, 1992
LIBRARY(DISK)	MARTIN SMOLEY 1-257-1661	MATT ANDELL 676-9759	MAY 16, 1992
(TAPE & MODS)	FRANK JENKINS 283-8526	JOHN PARKEN 331-2830	JUNE 20, 1992
(HARD COPY)	DICK ALDEN 1-352-9172		JULY 18, 1992
			AUGUST 15, 1992



From the Editor's Desk:



Newsletter editing is TOUGH. I admire Deanna more because she made it look so easy. With a great bunch of Tiers giving so much of themselves, wholeheartedly, I have articles ahead of time. What makes it tough is in the formatting and printing (about 10 sheets of paper per page of Newsletter), and not being satisfied with the result at deadline time. It will get easier in time. There is a built in process called "Learning by your mistakes", and there have been many! Most of the computer/printer failures have been, of course, operator errors. So, my TI will act much better when it's treated fairly!

Ken Gilliland, Emperor of Notung Software, has a new set of disks called "Disks of the Old West" (\$19.95). The set of four disks has many TI-ARTIST Instances, portraying famous/infamous people of the Old West, a train, Buffalos, cowboys, Indians, and much more. A section of songs from that era. One section of DV-80 files that tells stories of the villains and heroes of the time & can be printed to screen/printer. Fonts & borders also are included. You can also play Faro as they did in those days. I would like to demo this program if there is time at the next meeting. Ken also will have his TPA (The Printers Apprentice) tutorial out by March 1st and hopefully Ron Markus will have some by the next meeting, saving you some handling costs!

I received a letter to the editor from our member from Maryland, Clyde Wachter, Jr. Nina & I dropped in on him and Mary on our way home from marrying off our daughter,

Cathy. We had a wonderful time! Thank you both. Well I'll let Clyde talk now:

Thanks Deanna,

I would like to express my appreciation and thanks for a job well done. Being a CHIPS member for only a few years, the articles were very well done. Information and tid-bits given have been most helpful and trustworthy. Apparently Deanna knows the TI Computer as good as Texas Instruments.

The task of putting out a monthly Newsletter was handled very professionally I'm sure. Selection, assembly, editing, formatting and meeting a deadline took planning, hours of time and patience.

You made it something to look forward to each month and enjoyable to read. I'm sure you will be missed but I trust you will find something of interest from time to time to share with us.

Again, many thanks for all the work and info.

To Harry, I wish you the best. I will try to support you as much as I can. I know you can and will handle the job. Nina and I will see to that!

Clyde - CHIPS



TI-CHIPS Notes



by Dennis Likens

February 18, 1992. The TI-Chips meeting was called to order by Co-Chairman Glenn Bernasek. I read last months minutes from the Newsletter (thanks Harry). They were approved. TREASURY reported we are still O.K. As long as we keep this balance, we won't have to pay a service charge. The TAPE, CARTRIDGE, MEMBERSHIP report isn't doing as well as our bank account. John Parken reported our membership was 28 as of this meeting (15FEB) if no one renews. John has a letter from a person who wishes to sell off some TI hard/software. Give John a call if you need additional items. The DISK report from Matt is the disks listed in the Sept news letter are now in the groups library.

Elections were held. Here are the results:

CO-presidents - Glenn Bernasek and Dinny Stockdale
Treasurer - Lin Shaw
Memberhip - John Parken
Secretary - Dennis Likens
Tapes/Modules - John Parken
Disks library - Matt Andel

As you can see, some held on to their office by popular demand.

Welcome to Mr. Dinsmore Stockdale as a Co-president.

Harry Hoffman reported that while on his tour of the southeastern, and mid-Atlantic states, he stopped at all the Radio Shacks he could find. He found and purchased all the sound reconition chips and RS232 surge protectors he could find. If you want any, give Ken Gladyszewski a call at 1-357-7274. Harry reported that Harrison Software is putting all it's existing catalog of assembly music concerts to Public Domain. Also, Harrison Software has released another disk of utilities called Volume 2 which includes; very fast menu driver routines for quickly assigning strings and numeric values to array variables, plus a boot tracking loader for loading E/A OPT5 program files from XB, and includes demo XB programs for each utility! out called SMART CONNECT. This program can transfer files to and from a PC and TI. It has been said it's on par with PCYPER. The cost is 10.00 from HARRISON SOFTWARE 5705 40th place hyattsville md 20781.

Matt Andel, Harry Hoffman, Lin Shaw and John Parken received a certificate of recognition for the outstanding work they have done for TI-Chips in the past. Great work

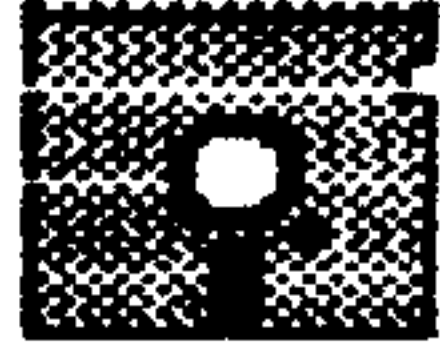
fellows (applause).

Glenn asked those members on hand about putting a CHIPS disk together this year for the LIMA conference. This disk that is a BIG hit at LIMA needs your help. Glenn needs someone to put together these disks. Glenn will supply the medium, he just needs some help. Give him a buzz if interested.

Les Kee demo'd a program called CHARAFIX which was published in MICROpendium. This program by Wayne Stith is version 3. It's a utility that should reside on your TI-writer or FunnelWeb disk. It will allow you to MODIFY your CHARAL file. When you boot up you get a well layed out screen. It will load the CHARAL file from the disk you specify. You then get the HEX code. A picture of the character, and even ASCII code. While you edit, your character forms on the screen. I give this program a "NEED TO HAVE" rating.

Ron Markus of Ramcharged Computers, was recognized in the Jan issue of MICROpendium, demo'd the Son Of a Board by OPA. It costs 49.95 and can be had from Ron. This little gadget mounts in the console. Very little technical-pertise is needed. Just 1 wire to connect and mounting the board onto the 99 mother board. It really is hard to explain what this hardware can do but here it is in a nut shell. It will talk to you (needs spch syn). It has a built in disk manager type environment that will load E/A opt 5 programs (except Rock Runner). The nice thing here is it's always just a key punch away. No more loading those few dozen Disk managers that are tucked away under stacks and stacks of disks. If you would like 80col, buy the TIM. You get SOB with it. So for 179.00 you get it all. He also demo'd a new TETRIS release. This one can be played with the joystick. He also mentioned the POP cart. For 95.00, you get a cartridge with 256k of rom. A list of cartridges, such as I/B, E/A, Multiplan, TE-II, etc, can be "burned" into it's memory. You can get one that will hold up to 1mb. Thats alot stuff! For an extra \$25 you can even get SOB (see above) added.

The Raffle was won by John Parken. He picked up a book of programs from SAMS and a few other little goodies. Hope to see ya'll at the next meeting on March 21.



NORTHCOAST 99ers

by Bernie Zuckerman

The February 1992 meeting of the Northcoast TI-99/4A Users Group was called to order at 1:30 P.M. by Co-president Walt Ryder with 22 members and guests present. The minutes of the last meeting were read and accepted. The treasurer's report was presented by Frank Jenkins, treasurer. In addition to printing, postage, etc., the major expenses were \$50 for the new disks drives and \$250 for a ram disk for the groups equipment. There being no objections, the Treasurer's report was accepted and read.

Ken and Marty were appointed a committee of two to configure the new one Meg ram disk so that it can be available for future demonstrations. Howie announced that he still has several chips that he would install in members equipment. Marty spoke to Alice Trask about her Calendar program and determined that she had worked out her problems. In any case she has purchased an IBM compatible but is not ready to give up her TI and will continue to come to meetings. Perhaps she can demo her programs.

Several Hamfests have been announced. Members should call Harry early enough to announce them in the Newsletter. No later than a week after the monthly meeting. The Hamfests usually have much computer equipment on display for sale. Harry Hoffman mentioned that Marty's article on Extended Basic was in the January issue of MICROpendium and that Bruce Harrison of the Maryland Users Group has many of his music and utilities programs available to Public Domain, which was also announced in the same issue.

Walt commented on the February Newsletter and said that it was a very fitting Valentine to Deanna, who worked hard for so many years putting the Newsletter together. Deanna got a loud round of applause from the group. Ken asked that all members try to provide demos for the meetings even if they are short quick ones, something they have in their library. A request was made for a demo on

the Supercart and CHARII. Walt appointed Les Kee to prepare demos on both subjects for the future as well as others he demos at Chips. Bernie Z mentioned the auction held by Cleveland State University of excess property. He said that the month of February's auction included disk drives, monitors, and some computers. Anyone interested can submit a sealed bid after seeing the equipment at the CSU Properties Dept. The Newsletter will publish the CSU address so that you can write and get on their mailing list. The group was told that there are several school using the TI to teach youngsters and specifically to teach the learning disabled.

The regular business meeting was concluded and two demos were given. Frank Jenkins gave a short demo on his own program to calculate the amount of sales tax on any item sold, and to accumulate the total cost of several items after calculating the tax. He also demonstrated a program that calculated and accumulated the total cost of items when you know the price per pound. he also showed the menu and load program. This was followed by Marty Smoley's demo of the Newsletter Printer program written by Art Gibson but revised with the Smoley touch. He distributed sample sheets and offered disks of the program and his own default disk. The meeting came to a close at 3:15 P.M.

Editor note:

Ken assured me that, if TI-Chips wanted to exchange DEMOS, Some of North Coast's demonstrators would gladly come to North Royalton! Your turn CHIPS, Les Kee has already started!

The address for Cleveland State to bid on surplus property is:

Cleveland State University
Purchasing Services Dept.
Penn Tower, Rm. 207
1983 E. 24st.
Cleveland, OH 44115

We at NORTH COAST and TI-CHIPS were very sorry to hear that Mark Woodward passed away during the Thanksgiving holidays. Mark was very active in keeping our groups going. He belonged to the Solon Users Group, and was Newsletter Editor for all four groups for two years. When the Solon group disbanded, Mark became a member of North Coast. May the Lord be with you in TI heaven!

PAGE 3.



ANALOG AND THE TI COMPUTER

When we think of uses for a computer, our thoughts normally turn to word processing, spreadsheets, and data bases. Another equally important use is to monitor and control our surroundings, such as temperature. When trying to use a computer for this purpose, the problem that immediately arises is bringing this type of signal, which is ANALOG, into a computer which is DIGITAL. The method commonly used is to change the analog signal to a digital one, using an analog to digital conversion chip (ADC). Many home computers have a chip like this built into the joystick or game port for use with paddles; unfortunately, the TI does not!

My project got started when I discovered an 8 bit ADC chip made by TI; coincidentally that is both inexpensive (approx.\$3.00), and requires few support parts. The TCC 5488 or TLC 549 Chip is unique because it requires only two signals to control it and has serial output. These features make it a natural to be used with the TI joystick port!

The joystick port consists of two outputs, Joy A & B and five inputs: Up, Down, Left, Right, and Fire. When the computer executes a CALL JOYST command, it energizes one of the outputs and examines the directional inputs to see if a switch in the joystick is closed, connecting that output and an input. Using these outputs to control the ADC is complicated by the fact that the Joy A&&B outputs are with respect to the computer console power supply. None of these power supply signals are available in the joystick port, although they appear in various combinations on other connectors, such as video, sound, cassette, game, and system bus ports.

The problem is solved when it is realized that only one output is energized at a time, and the differential between these outputs can be used to generate the two control signals required for the ADC chip. Getting the computer to accept data from the chip is done by lighting an LED in an optocoupler, which causes a photo transistor to turn on and act like a switch in a joystick.

The circuit (Fig.1) works as follows: With no joystick commands and hence no output signals on the Joy A & B pins - both transistors Qa and Qb are off causing both the I/O

clock and chip select (CS) pins to be held low enabling the chip. When the CALL KEY statement in step 105 is executed, Joy A goes low and Joy B remains high. Transistor Qb is turned on causing the CS pin on the channel 1 chip and others in the same bank to go high resetting these chips.

When the CALL JOYST statement in step 130 is executed Joy B goes low and Joy A remains high. Transistor Qa is turned on causing the I/O clock pin on the channel 1 chip and others in the same bank to go high with no effect. The most significant bit (MSB) of data from the previous analog conversion has been available and is now recognized by the computer. The input reflects the bit sense and is returned by the CALL JOYST routine. When this statement finishes, transistor Qa turns off and the I/O clock pin goes low causing the next bit to appear on the Data out pin. Step 140 examines the value returned and if on, increments a variable for that channel by a weighted value corresponding to the location of the bit in the ADC Serial output byte.

The circuit shown is for channels 1 & 6, but additional ADC chips may be added easily for up to a total of 6 analog channels with no digital joystick using basic. In basic we are limited to two channels per joystick because the CALL JOYST Command will only recognize a legal combination of 2 inputs at a time (up && down or left & right cannot be energized). At the same time this limitation can be overcome and the number of channels per joystick expanded to three by using a decode and an encode chip on each bank. This restriction disappears and speed is increased when assembly language is used allowing up to 10 analog channels with no digital joystick or 5 analog channels with 1 digital joystick with no need for encode and decode chips. A fellow club member is writing the assembly language routine.

In Basic, Call Joyet examines two analog channels and CALL KEY only examines one. Therefore, to keep channel 1 update time to a minimum when more than one channel is desired, they should be implemented in both HARDWARE and SOFTWARE in the following order: 1,2,(3),6,7,(8),4,9. Channels 3 & 8 need decode and encode chips in Basic.

See Fig 7 in this example for a practical application using thermisters to read multiple temperatures. Using the circuit shown, a bare console with multiple analog channels and appropriate sensors could be turned into a local weather station monitoring temperature, wind speed and direction, rainfall, and barometric pressure, etc.

The techniques employed in this project can also be used with a shift register chip (fig 2). This allows 8 or more digital inputs to be read from each of the 5 inputs in the joystick port. The basic program used with the analog chips requires only minor modification to work with shift register(s), the large amount of digital inputs could be used to build a computer based burglar alarm. An analog channel might also be used for the same purpose by using window switches to short resistors in a divider network causing a unique voltage at the input to the ADC (see fig 6).

An alternate method to control either the ADC or Shift register chip would be to use a decade counter chip to generate the CS or PL signals. This would free up one of the joystick outputs but would require using another input (fig 5).

As I've said before, if any of this is useful, you are free to use it in a project of your own. I would appreciate hearing about such projects. You can write to me at : 6440 St. Rte. 86, Concord Ohio 44077. For a more thorough discussion of analog to digital conversion see the article in the July 1991 edition of RADIO-ELECTRONICS magazine.

CAUTION !!: Due to the nature of the product, even though it appears simple, the reader assumes all responsibility! Of the figures shown, only Fig.1 has been actually Breadboarded.

HAVE A SAFE AND HAPPY SAINT PATRICK'S DAY ! !

From member Wes Richardson:



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Wesley R. Richardson - 216-543-1148

February 15, 1992

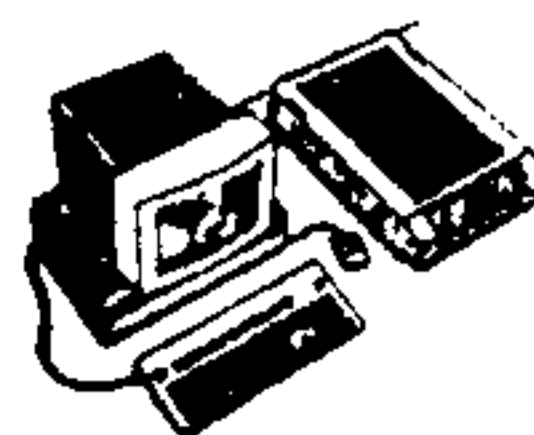
Former member Herman Pink:

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Editors Note:

Don't forget the good deals you get from Member Ron Markus!

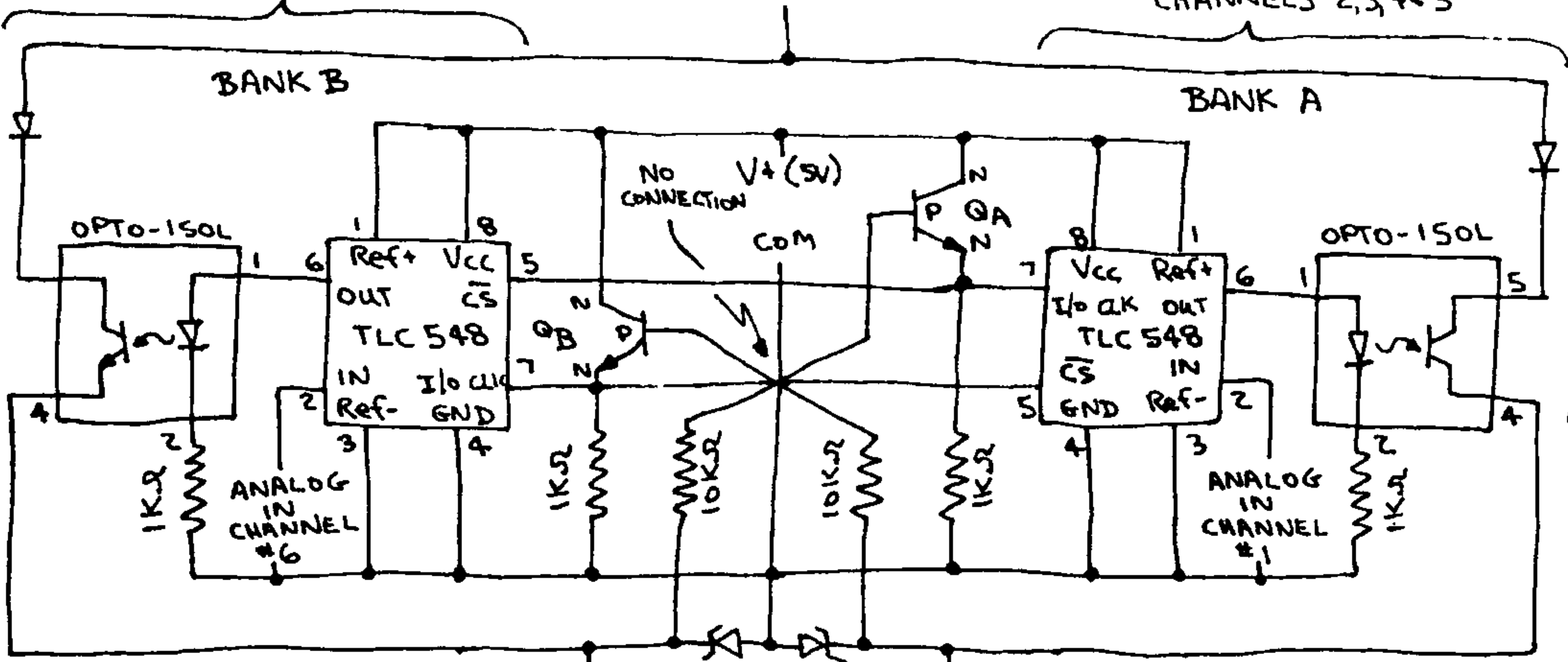
DUPLICATE FOR CHANNELS 7, 8, 9 & 10

DUPLICATE FOR CHANNELS 2, 3, 4 & 5

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KJG

ADDITIONAL CHANNELS
#7 RIGHT (9)
#10 FIRE (4)

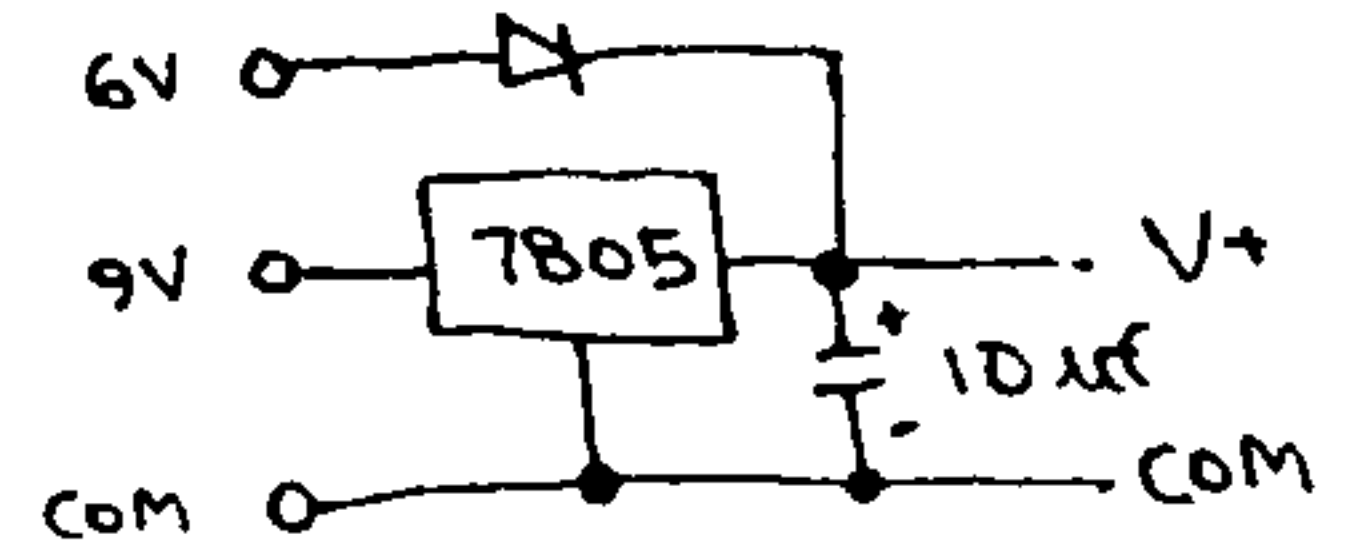
ADDITIONAL CHANNELS
#2 RIGHT (9)
#5 FIRE (4)



```

100 FOR N=0 TO 7::P(N)=(Z^N)-(Z^N) REM RESET
105 CALL KEY (1,K,S) REM RESET
110 A,B,C,D,E,F=0
120 FOR M=7 TO 0 STEP -1
130 CALL JOYST (Z,W,Z)
140 IF W=4 THEN C=C+(P(M))
150 IF Z=4 THEN D=D+(P(M))
160 NEXT M
170 FOR N=7 TO 0 STEP -1
180 CALL JOYST (1,X,Y)
190 IF X=4 THEN A=A+(P(N))
200 IF Y=4 THEN B=B+(P(N))
210 NEXT N
220 FOR M=7 TO 0 STEP -1
230 CALL KEY (Z,K,S)
240 IF K=18 THEN E=E+(P(M))
250 NEXT M
260 FOR N=7 TO 0 STEP -1
270 CALL KEY (1,K,S)
280 IF K=18 THEN F=F+(P(N))
290 NEXT N
300 PRINT A;B;C;D;E;F
310 GOTO 110
  
```

POWER SUPPLY



NOTE:

1. IF YOU USE 9 VOLT SUPPLY, YOU ONLY NEED 7805. IF YOU USE A 6 VOLT SUPPLY, YOU ONLY NEED DIODE. YOU DO NOT NEED BOTH.
2. RESISTORS NOT CRITICAL 1/4WATT 20% RECOMMENDED
1KΩ RADIO SHACK 271-1321
10KΩ RADIO SHACK 271-1335
3. TRANSISTORS - GENERAL PURPOSE NPN SWITCHING
RADIO SHACK 276-1617
4. ZENER DIODE
RADIO SHACK 276-563

DIFFERENT TYPE ADC & SHIFT REGISTER

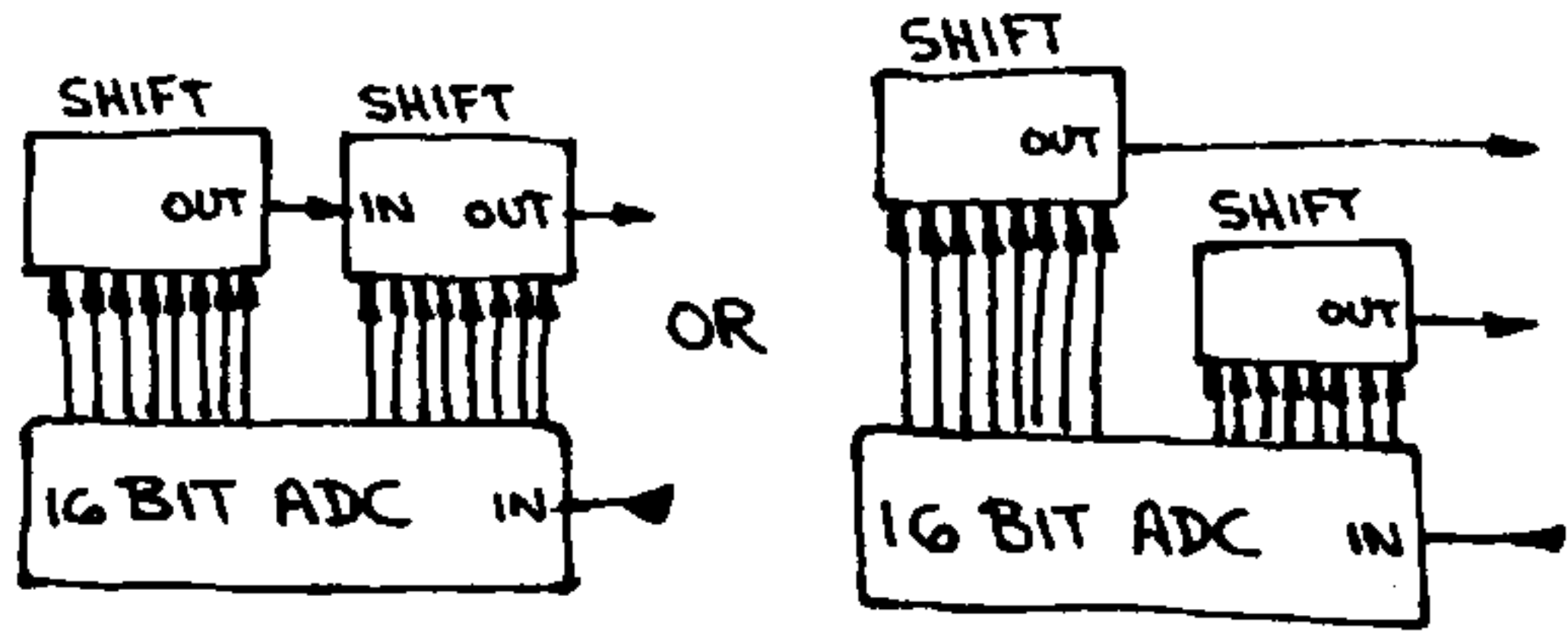


FIG 4 9 BIT RESOLUTION USING (2) 8 BIT ADC'S

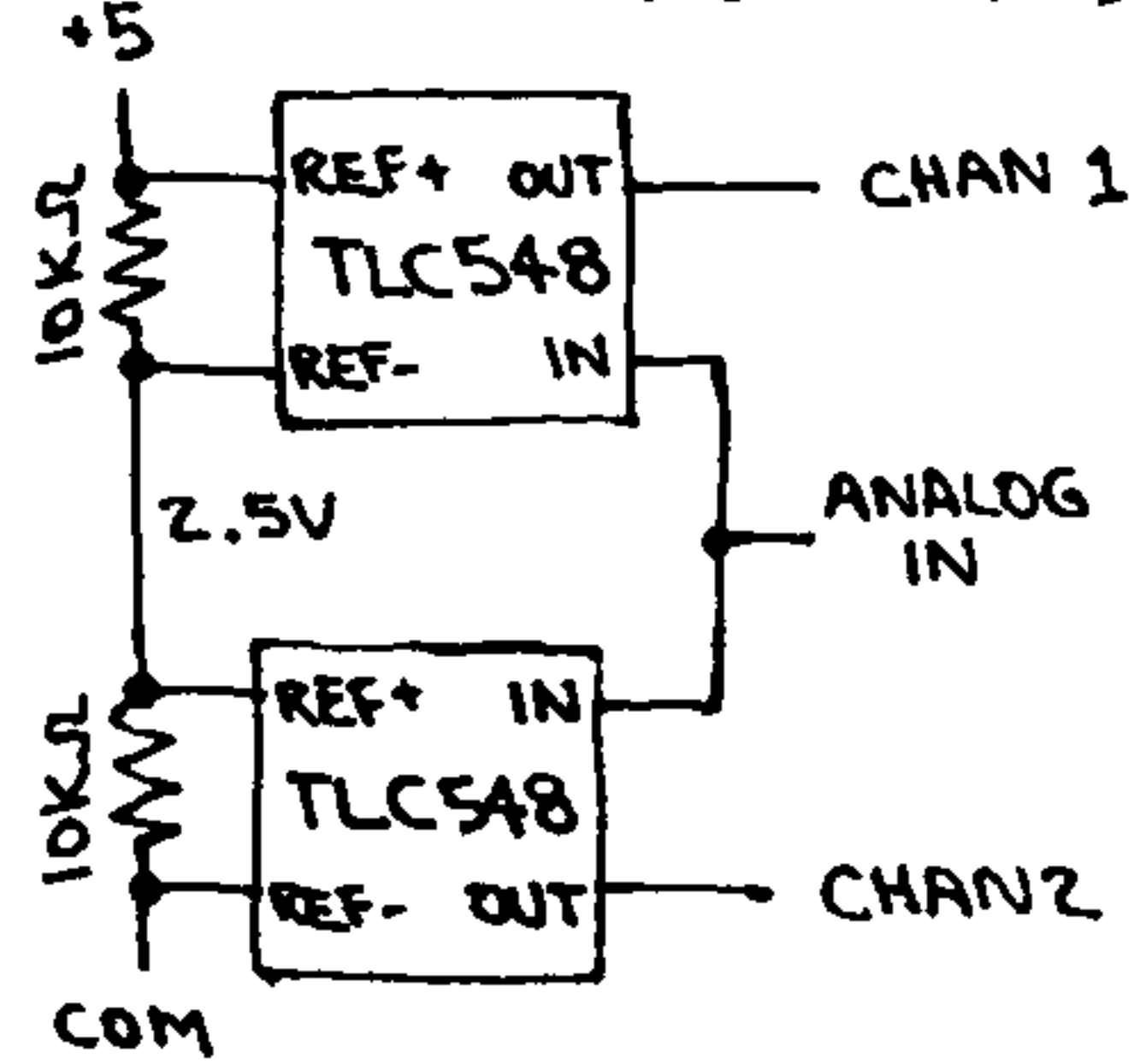


FIG 5 ALTERNATE RESETTING SCHEME

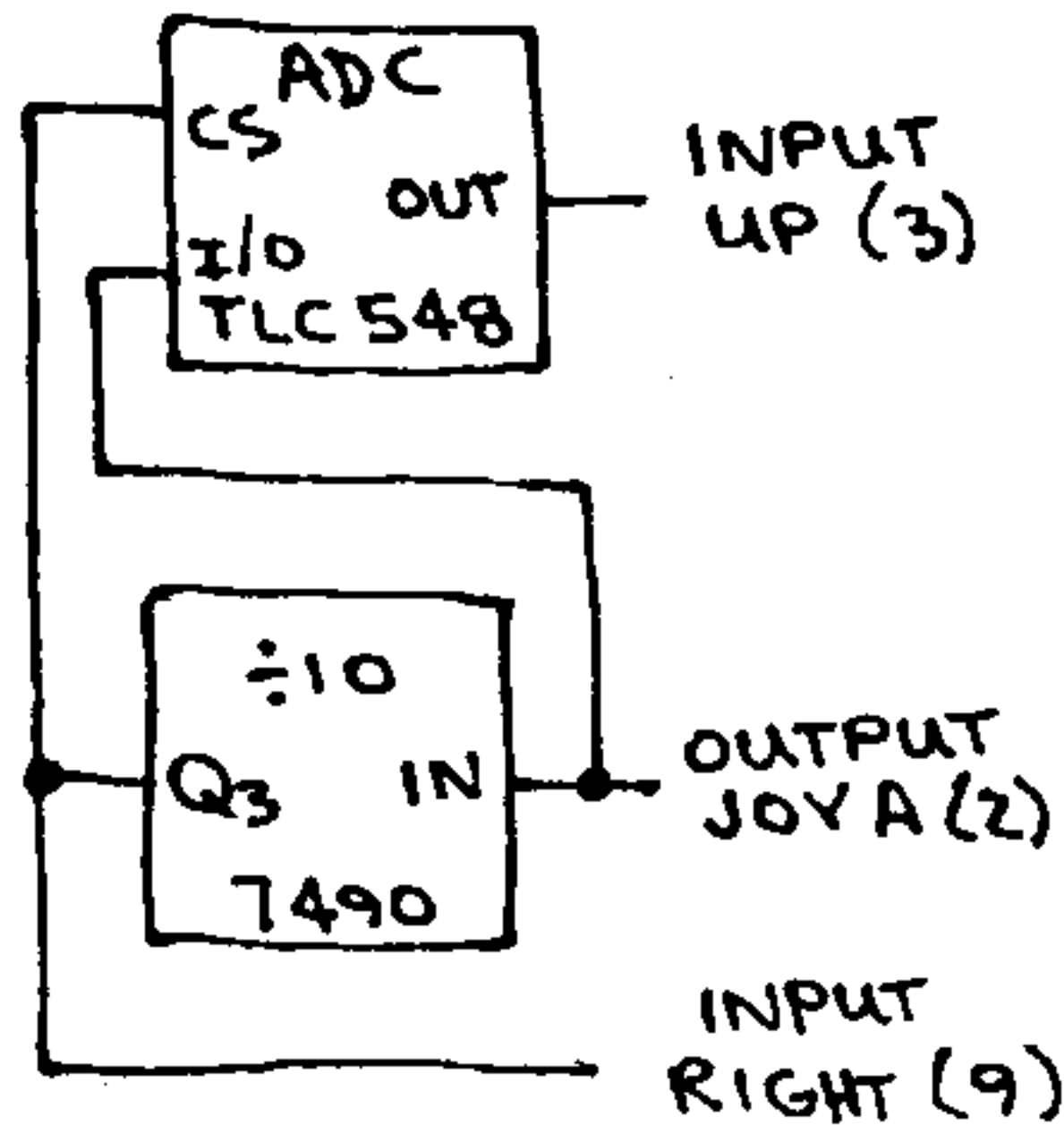
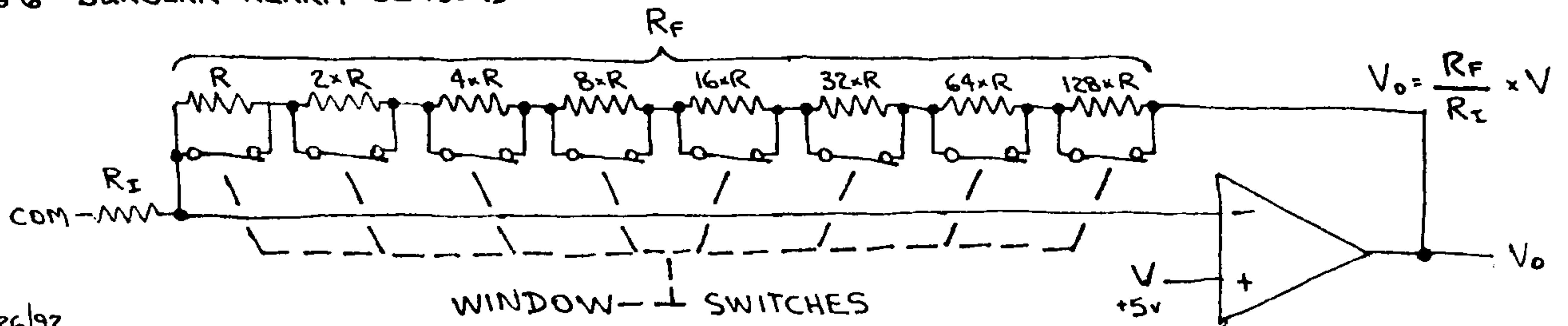
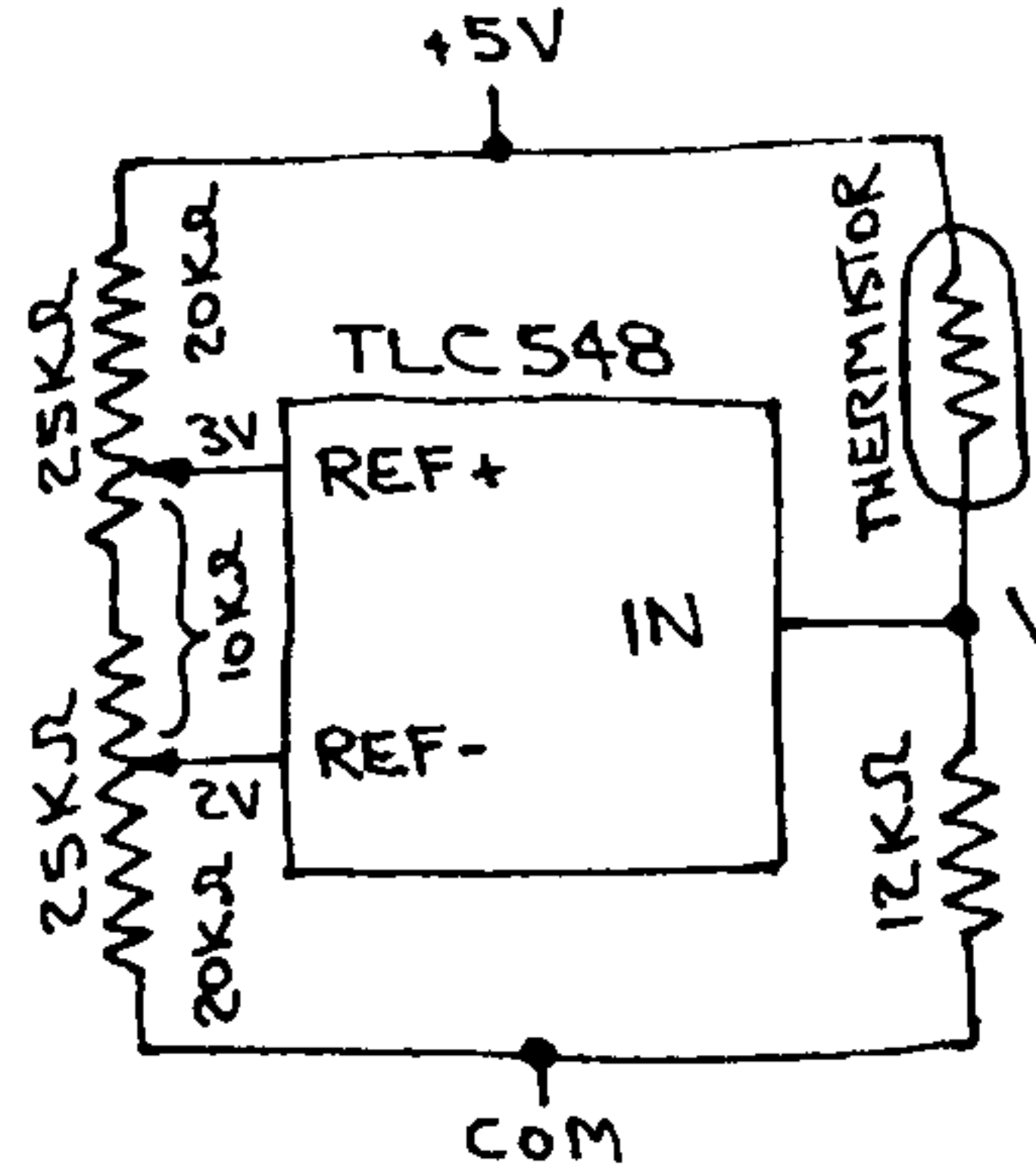


FIG 6 BURGLAR ALARM SENSORS



1/26/92
KJG

FIG 7 CIRCUIT MODIFICATIONS FOR TEMPERATURE SENSING THERMISTOR



THERMISTOR IS RADIO SHACK # 271-110

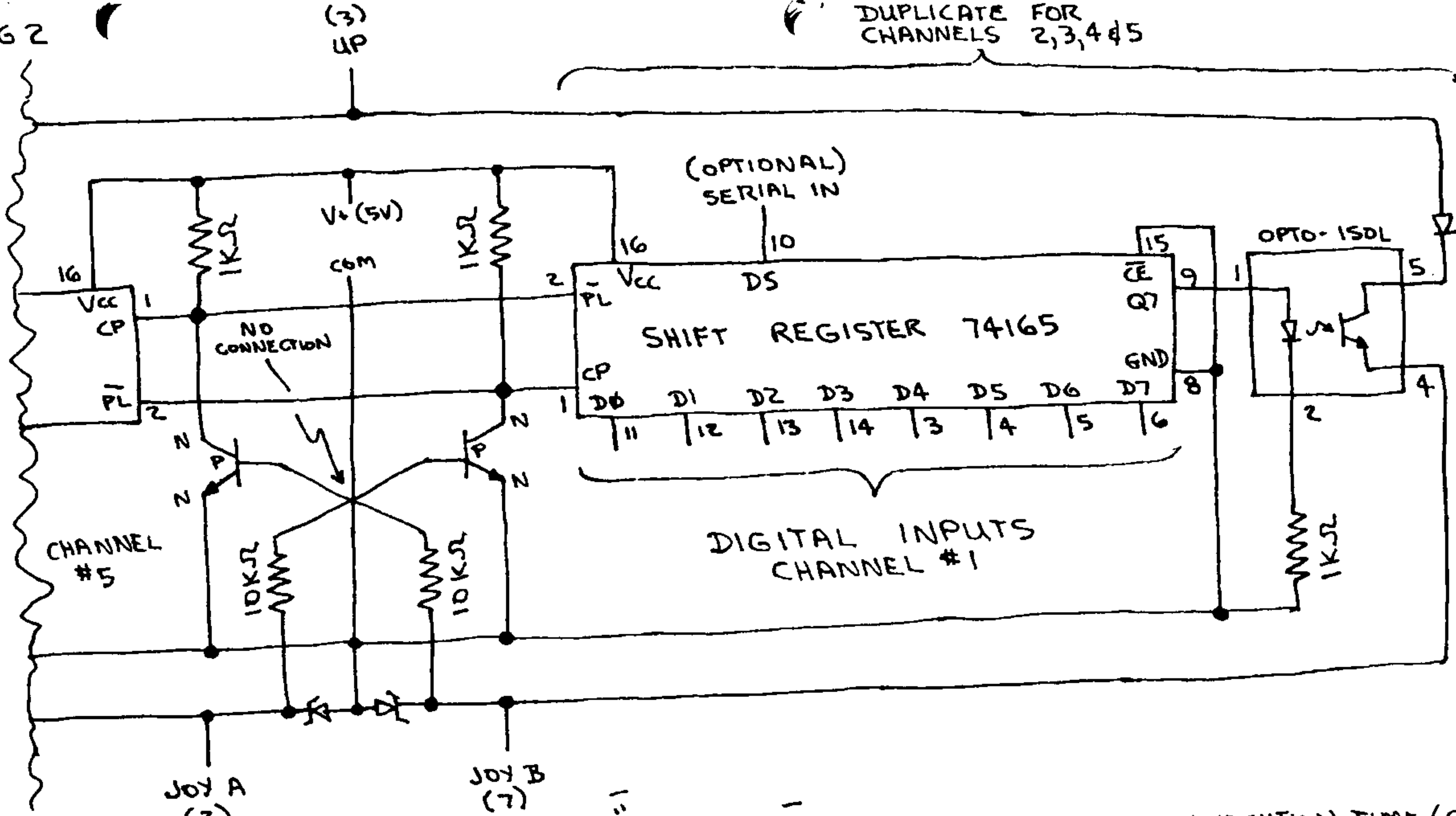
CHANGE PROGRAM AS FOLLOWS:
 100 FOR N=0 TO 7 :: P(N)=(2*AN)*.141
 :: NEXT N REM .141 IS CALIB FACTOR
 110 A,B,C,D,E,F = 50
 REM 50 IS OFFSET VALUE
 VALUES IN LINE 300 ARE ACTUAL TEMP

°F	°C	R	V
86	30	8K	3.0
77	25	10K	2.75
68	20	12K	2.5
59	15	14.7K	2.25
50	10	18K	2.0

↑ CALCULATED ↓

$$^{\circ}\text{F} = (^{\circ}\text{C} \times 1.8) + 32$$

$$V = \frac{12}{12+R} \times 5$$



```

105 CALL KEY (1,K,S)
120 FOR M=7 TO 0 STEP -1
130 CALL JOYST (Z,W,E)
140 IF W=4 THEN G(1,M)=1
    ELSE G(1,M)=0
150 IF Z=4 THEN G(2,M)=1
    ELSE G(2,M)=0
160 NEXT M
170 FOR N=7 TO 0 STEP -1
180 CALL JOYST (1,X,Y)
190 IF X=4 THEN G(6,N)=1
    ELSE G(6,N)=0
200 IF Y=4 THEN G(7,N)=1
    ELSE G(7,N)=0
210 NEXT N
220 FOR M=7 TO 0 STEP -1
230 CALL KEY (2,K,S)
240 IF K=18 THEN G(5,M)=1
    ELSE G(5,M)=0
250 NEXT M
260 FOR N=7 TO 0 STEP -1
270 CALL KEY (1,K,S)
280 IF K=18 THEN G(6,N)=1
    ELSE G(6,N)=0
290 NEXT N
310 GOTO 120
    
```

PROGRAM EXECUTION TIME (SEC)

CHAN.	1 & 2	+6 & 7	+4	+9
BASIC	.75	1.5	2.25	3.0
EXBAS.	.50	1.0	1.50	2.0

ASSEM. CALLED FROM EX. BAS.
ALL 10 CH. EVERY .15 SEC
NOTE: EACH CHANNEL UPDATED
ONCE PER PROGRAM SCAN

PROPOSING A BOLD STEP

By Glenn Bernasek

TI-CHIPS Cleveland, Ohio

What I am about to say will most likely get me into hot water with some members of the TI-99/4A user group community. However, I also share the conclusion that the primary reason our TI community membership is continuing to decline is that many of the TI-99/4A owners have or will become MS-DOS (IBM or IBM clone) system users. Therefore I am respectfully proposing that the TI-CHIPS consider the possibility of adding some form of support for members who have become MS-DOS users. (This could be as simple as subscribing to national MS-DOS public domain libraries and user group newsletters.) There, I've said it! I can now expect tons of "Are you nuts?" mail!

I may indeed be "nuts", but there are reasons behind my madness. First and foremost is the preservation of the sharing and caring character of our membership. I know we all feel very deeply about this.

Next is the question of compatibility. Texas Instruments, in example of their foresight, designed a home computer which would be fairly compatible with MS-DOS

system hardware. This means that, as PC-TRANSFER so clearly demonstrates, the TI-99/4A can communicate with the MS-DOS world! Therefore the accommodation for MS-DOS users wouldn't be that difficult.

Finally there is the matter of survival and growth. I am convinced that if the TI-CHIPS decide to add support for the MS-DOS users, we not only will insure the survival of our TI-99/4A user group, but we will also afford our membership the opportunity for growth.

This is not a recommendation to the CHIPS to replace our TI-99/4A with MS-DOS support, but rather to expand our horizons to include the MS-DOS world. Remember, the true purist is somebody who eventually will discover that he has become a MAJORITY OF ONE.

Give it a thought. This might be the right time to take that bold step to expand our services, support and resources.

Editor's note: I thought it only fair to include this excerpt, so the other side of the coin could be shown! My apologies to Glenn.

Excerpt from the Rocky Mt. 99'ers Newsletter, Jan.1992

TI-World News, Nov 1991 - Compiled by Jim Peterson

SNUG has also amended their constitution to include "PC and compatibles". This may mean that their Newsletter will soon be of little interest to TI users. I have observed that when a TI group opens its doors to other computers; Sun Coast, Brevard, Broward, etc., their

Newsletters soon drop any mention of the TI. Florida used to be a major center of TI activity, but only the Miami group seems to be very active these days. The Daytona group only survives as an informal get-together, and several others have been swallowed up by Big Blue.

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Have a Safe and Merry
Saint Patrick's Day

Contents:

- 1. Editor's Notes
- 2. Chip's Minutes
- 3. North Coast Minutes
- 4-8 Ken Glodzowski-Hardware
Hacker
on Analog to Digital uses
- 5. Some Things for Sale

- 8. Glenn Bernosek
Commentary

More stuff for sale