AUSTRALIAN COCO MAGAZINE

Special
Hardware
Modification
Issue!!

● PLUS ●
Features and programs that provide help and fun for Colour Computer users just starting out!

inside COCO

JUNE 88

My favorite month has always been June. The fact that my birthday is in June and I tend to get more presents in June than any other month has no bearing on my love of the month.

Anyway, that's neither here nor there. (It's June 23rd. Send all presents to me care of Goldsoft).

June is a beautiful month, because that's when I first started editing the now defunct Australian Rainbow Magazine.

June is also the start of the Winter season in Australia, and the start of the summer season in Europe.

June also presents to you, the user, the special flavour of the month, which, incidentally, is the hardest subject known to us - hardware modifications. (This particular flavour is about as plentiful as hen's teeth!)

But we've done our best, and we are proud to present what we have here for you.

About Alex and the Harddrive

Yes, it still works! After three weeks of (near) continuous operation, it works like it did when it came in the first day.

Now, don't get me wrong. I'm not complaining about it - I just hear a lot of people say "Hard drives are more trouble than they're worth" ... that statement can have SOME truth in it, especially when you have to backup your data.

Anyway, the question that remains now is "Is it worth it?". Well, yes, if you can afford to own one.

We own a 20 megabyte harddrive, and we've got every conceiveable program on it - and we've still got just under 16 megabytes left! Alternatively, a 'dcheck /d0' (checks the integrity of a disk) reports that there are 163 directories and 1573 files at the time of writing this.

The cost of such a harddisk? About $1600.00 for the 20 megabyte model, and $1300 for the 10 megabyte model.

New Releases for CoCo

There are quite a few new releases for the CoCo from Tandy, and in particular, for the CoCo 3. Most of the software items listed run under OS-9. The one to look out for is "Kings Quest III" for the CoCo 3, which will be available from August this year.

* Shanghai (Adventure)
* Home Publisher (Utility)
* Sub Battle (Game)
* Micro Mission (Game)
* Phantomgraph (??)
* Koronis Rift (Game)
* Rescue on Fractalus (??)
* Rupert Rhythm (Music)

You might say to yourself, "I've heard of some of these titles ... so that doesn't make them new!", which is a fair point to make.

But for those who haven't heard of these software items before, let it be known that I am personally going to review them all (says he hopefully).

So keep an eye out for them!

Last Notes: Real Programmers

What is a real programmer? Ask yourself that question, and then read the following quotes, to see if you fit in any one or more of these catagories.

* Real programmers don't draw flowcharts. Cavemen draw flowcharts and look how much good it did for them.
* Real programmers like vending machine popcorn. Coders pop it in the microwave oven. Real programmers use the heat from the CPU. They can tell which jobs are running from the rate of popping.
* Real Programmers don't comment their code. If it was hard to write, it should be hard to understand.
* Real programmers never work 9 to 5. If any real programmers are around at 9am, it's because they were up all night.
* Real programmers don't eat quiche. In fact, real programmers don't know how to spell quiche. They eat swiss rolls and szechuan food.
* Real programmers don't document. Documentation is for those who can't read the listings or the object code.

So there!

Alex

CONF88 BE THERE!

LETTERS

Dear Graham and gang,

I personally would be disappointed if you go ahead with not putting listings of programs in the "new" CoCo Magazine, as I cannot afford another $95 a year for CoCoOz.

I have found your publications to be a great help to me since I have been getting them. I bought a stack of back issue Rainbow and CoCo from Tandy's at Marion, Adelaide, and have been able to modify my CoCo 2 with a permanent shift and lower case modification, as described many moons ago.

Keep up the good work - I hope to meet you all again in person one day, if I ever get to the Gold Coast again.

Harry Rake,
Victor Harbour, SA.

Harry,

As you can see from last month's magazine and from this month's issue, what has happened is that we've been able to maintain the quantity of programs within the magazine AND improve the quality of CoCoOz at the same time.

For the uninitiated, CoCoOz is the tape/disk that we supply monthly which has all the programs from this magazine on it, plus the Computer Resource Database.

The changes you have made to your CoCo are fun things to do - I'm surprised we don't see more CoCo's with those changes made to them.

You're always welcome at our office here on the Gold Coast, although we sometimes have to leave you to your own devices, if we're pushing the magazine deadline.

Maybe you could come up for Conference?
Graham

*

Dear Graham & Co,

It is in great consternation that I put processor to paper in order to protest your apparent intent to scrap program listings in favour of CoCoOz tapes and disks.

I implore you ... don't do it!! I'm quite sure there are many users like me out there who simply cannot afford to subscribe to CoCoOz, though they would love to. I am not threatening, I am simply stating that if you drop listings, I will no longer purchase Australian CoCo Magazine, because a magazine without listings is virtually useless to me.

I have been a regular purchaser since I first acquired my CoCo back in 1984, and a great deal of what I know I have learnt through typing in listings from Rainbow, CoCo and Softgold.

On the whole, I feel that the quality of programs has been definitely on the increase since the split with Falsoft occurred. You are to be congratulated, as are all the magnificent programmers who contribute so that others may benefit.

I was going to ask if maybe the listings lines could be improved, as the type used for CoCo listings is difficult for me to read, but I will settle merely for having listings to read, and feel quite grateful if this letter is in any way able to dissuade you from scrapping what I see as the main reason for buying your magazine(s).

Long live CoCo!
Sandy Tadman,
Endeavour Hills, Vic.

Sandy,

How can I possibly scrap the listings when I get letters like yours!

As I see it, the magazine has three functions.

The first is to be a teaching agent for CoCo Computer owners. We attempt to show you how you can use your computer by finding articles and programs that approach particular subjects in a fresh manner.

Over a year or two in this way, we try to cover most aspects of computing, and so provide you with background information which will allow you to choose a particular strand of interest to follow up at a later time.

As a sub-function, the magazine has developed a very strong author base. Many people who write for this magazine have never written anything for the public before. But as your letter testifies, their work is so professional, you'd never know.

The magazine has continuously encouraged our readers to become authors, because when you set about the task of showing others your work, invariably you learn more yourself.

The second function is to attempt to keep you up-to-date with all the happenings in the Tandy world.

I sometimes think this is too tall an order, because the Tandy world is so complex, but if we keep you in touch with at least the CoCo news, then I guess that's okay.

The third function of the magazine is one of bringing people with similar interests together for their mutual benefit.

This is why we promote so heavily the conference, and other social events throughout the year.

Computing is fun, it's even more fun when you've got a friend to share the problems, the solutions, the midnight oil, and last, but not least, the disk crashes (hopefully not so many of those). (By the way, have you heard that song, "On a clear disk, you can seek forever"?)

So we promote Users Groups too - they are a great way to get to meet people and to learn about your computer quickly and painlessly (well, sort of!).

Andrew Rawlings from the Maroonda Group in Victoria was telling me just the other day, that his group is now running socially on Friday nights to the pictures and on Saturday afternoons to picnics.

They've had three outings so far, and each one has been a success.

Anyhow, as to the purpose of your letter, as you can see, there are still heaps of listings in this magazine, so I hope you'll still buy it!
Graham

*

Dear Graham,

I am only a beginner to computing. I am in my mid-forties and on a pension. I have a CoCo 64K ECB and have been buying the CoCo & Softgold mags since getting my computer.

I find them excellent because being on an invalid pension, I can type in the programs as I cannot afford the price on the tapes and disks.

It would be a while before I have enough experience to send any programs into your mags.

I met Alex when he was in Coffs Harbour a couple of months back. It was a good meeting, and I learnt a lot. I met quite a few very nice and helpful people.

We have a very good Tandy dealer here. They will do

[almost] anything to help you out.

They treat you as a part of their family and quite often give me a cup of coffee. We could not wish for better.

So keep up the good work with CoCo and Softgold! Hopefully I will be able to get to the conference this year with a bit of luck.

After reading in "CoCo News" of the changes, putting all of CoCo material into one mag in very good, but please don't leave out the printouts - it's the only way I can afford them!

Rodger Cosier,
Coffs Harbour, NSW.

Rodger,

I have it on good authority that Diane at Coffs Harbour will do ANYTHING to help you!

I've enclosed a photo to prove I was in her shop recently. Actually I took two photos but the second one was unprintable.

As for the coffee, I'm not surprised they give it away - and I won't be surprised if they're not still trying to give the same coffee at the turn of the century.

I would encourage you to send programs you have written for yourself, despite your feeling of newness to computing.

The fact is, none of us have a complete knowledge of the CoCo, and we can all find people who know more and less than we do. What you have to say and show could well be the final piece of information to sets somebody else on the right track.

Graham.

*

Dear Graham,

I have just read the news that Softgold is to become the magazine for IBM Compatibles, while CoCo is to be (naturally) for the CoCo.

I was interested in the list of programs in Softgold. Are these suitable for a 64k CoCo 2? This raises the problem of the CoCoOz programs. They would be of little value if most of them were for the CoCo 3, as I do not have one. I did buy a couple of disks, but there was one difficulty. I suspect that the programs for the CoCo 2 had been on a CoCo 3, as there was a command I do not have - "!".

So I got a Syntax error at that point, and did not know what to substitute. I can see the financial advantage of a yearly subscription, but there would be little advantage if I were not able to use most of the programs.

I have a 64k CoCo 2, with tape recorder and disk drive, a DMP-105 printer, the MC-10 and the CGP-115 printer. I use the colour TV as a monitor. I doubt whether I would be buying the CoCo 3.

It is possible that I might get an IBM compatible later on, but that is well into the

future. I have VIP Writer and Deskmate 2, so I have all that I need at present. I hope you can advise me as to whether it would be worth my while to subscribe to CoCoOz. At present, I doubt it.

The Rev. John A. Ford,
Junee, NSW.

John,

No, the list of programs shown in Softgold magazine is NOT for the CoCo. However, there is such a list for CoCo owners to be found in the middle of this magazine.

The basic problem in producing a magazine for CoCo users has always been first of all, how to get articles and programs, and then secondly, how one chooses which articles and programs should go in the magazine.

In the early days, when people had 4K machines and 16K machines became the rage, the magazine faced the same problem. It got worse when 32K and 64K machines became available. The problem was deepened when the CoCo 2 came along, and now that we have a CoCo 3, the problem is probably the one that creates the most discussion on a month to month basis in our production department.

In general terms, and almost by definition, mostly we only get articles from fairly keen CoCo users.

And also by definition, the keen users like to keep up-to-date with the latest equipment.

It therefore follows that at any one time, Alex usually has many more CoCo 3 programs than he has CoCo 2 in his Submissions File.

It is vital therefore, that CoCo 2 owners maintain their input to the magazine, because there are still a lot of CoCo 2's around with surprisingly large numbers of brand new users amongst them, due to second-hand purchases etc.

We try to balance the content as best we can, but when we're low on CoCo 2 content, what else can we do?

As for CoCo 3 programs on CoCoOz - they are indicated by a '3' in their filename, and also by a '*' in the contents program.

The CoCo 3 Basic is so similar to CoCo 2 Basic that, with the help of the magazine listing, it should be possible to convert quite a few of the programs back to the CoCo 2.

I'd be disappointed if any CoCo owner really thought that the purchase of an IBM style machine was going to improve his lot.

There are valid reasons for moving from a CoCo to an IBM - but not many.

They include the need to have a home-based machine, which is compatible with the machines at work, and the availability of particular purpose software (or more precisely, the lack of availability of particular purpose software for the CoCo).

However, the CoCo is still, despite the advent of clones, not only good value, but also a very powerful computer.

It is still able to address the needs of small businesses, homes, and educational institutions. When you add OS-9, the CoCo makes the others look sick.

OS-9's multi-tasking ability really does allow you to throughput work at a rate which surpasses even AT's running under MS-DOS - because AT's can only do one job at a time (under MS-DOS).

Living in Junee, you may have more problems than many of our readers in resolving some of the day-to-day hassles of computing.

Should this be the case, you are very welcome to call us when you need assistance.

Graham.

Tandy Coffs Harbour and the ever popular Di and Ross McKinon. The gentleman with the low front didn't wish to be identified - neither did the customers - shy people in Coffs Harbour!

COCO NEWS

Welcome to this month's Australian CoCo Magazine.

The theme is hardware - the things you can do with your computer once you add a bit more equipment.

I suppose most months we have programs involving printers, and they are probably the most common device we all use external to the computer.

But there are other items of hardware you can employ to get you computer to interface with the real world - we look at some of these this month.

CoCoOz

Alex worked hard last month to shoe-horn all the programs and information into the new CoCoOZ for May.

How he's going to achieve it this month I'm not sure!

Apart from all the programs in this month's magazine, the Computer Resource Database is so big, it really deserves a disk/tape of it's own!

We've heard comment that the program supplied to show the database is deficient in several ways.

We know that - the program is meant to be a simple data reader to show you the information.

But we expect that many of you will want to improve it. In fact we hope you will!

Viatel

As the article in this magazine from the person who calls himself Fruitbat (on occasion) indicates, we've changed the way we work Viatel.

We hope the changes will lead eventually to more assistance to you, our readers.

Letters

Thank you's go to the many people who have written this month to comment on the changes to our magazines.

We have published a few of these letters from the more notorious of you, as these seem to represent what most have said.

It goes without saying that we need our reader's constant suggestions to be in a position to produce a product that meets your needs.

We DO welcome critisism - so please don't think we will react badly if you feel you need to say something about the magazines that you think we wont like!

Users Groups

Having problems with your computer?

Call your User Group contact!

The Users Groups are there to help you.

We can help too - in fact another way we get the feed back we desperately need to make this magazine, is to talk to you about your computer problems on the phone - but your User Group contact is closer to you - he can make himself available to you far more easily than can we.

When you purchase a computer, you need contacts - people to help you. Your User Group contact should be your first stop for help.

Conf '88

Following the insertion of the form in last month's magazine, the applications for this year's conference have begun to arrive here.

There are lots of reasons to come to Conf '88 this year -

Expo '88 will still be on; it will be the October school holidays for NSW people; there will be more quality information for both CoCo and MS DOS users than ever before; and there is the opportunity to meet some of the people who have written the programs you use on your computer.

Conf '88 is also the time we set aside to award the prizes for the year's competitions.

It is a good thing to get together to do this. Even if the individual authors can't be at Conference, the fact that we gather in such a way and honour them, encourages them to produce more quality programs and articles for you.

Make a date to come. And please let us know - even if you are only thinking of coming.

Conference is a hard one to organise, because we never know who is coming until it's too late to tell the people who need to forward plan like Tandy (number of computers to get there), the camp organiser (number of meals to prepare), and so on.

Those Panasonic Printers

Barry Sidebottom makes a good point in his letter this month.

For CoCo owners, it is a fairly big decision to purchase a printer outside of the Tandy range these days, as all the new graphics programs are really only set up to work with a few Tandy printers.

So to CoCo owners, think before purchasing a printer outside the Tandy range - there could be compatibility problems down the line for you with software.

However, if you own a MS DOS based computer, none of this applies.

The Panasonic printer is an ideal printer for you.

Many people said how nice the magazine looked last month - that was due to Sheryl Bentick who put many extra hours into page design, and to the Panasonic printers which supplied the copy.

The Panasonic is a good quality, low cost option for MS DOS users.

Those Banners last Month!

Whilst we're on the subject of paste up, we apologise for any inconvenience caused by our belated April Fool's issue last month!

We're doing quite well - it's just over eighteen months since the last time we really boobooed on the cover - so I suppose we can be excused.

We promise not to confuse you this month!

Tandy Returns to the Leading Edge

If you read "In Brief", you'll be aware that Tandy is picking up the reigns and beginning to head for the lead in the computer world again.

As many will know, Tandy was in at the start of home computing, but somewhere along there, IBM started to get ahead, and then the clone computers took over.

But now Tandy is flexing it's considerable muscle and returning to what it used to do very well - producing leading edge products.

Kinda justifies the faith some of us old timers have had in them eh?

Home Publisher

Whilst at the Warwick User Group recently, we saw a copy of the Tandy Home Publisher program for CoCo 3's.

As we're currently working with desktop publishing systems, it was very interesting to see this product and compare it with some of the MS DOS product available at present.

And the verdict is that if you have a disk system, and a TANDY printer, then you MUST have this program.

We'll be presenting a full review in this magazine in the near future - but don't wait for that - get down to your local Tandy store and ask to see it - its really something!

This Month's Special

This month it's time to catch up on the issues of our magazines that you've missed, because for the month of June, all our magazines from September 1984 until December 1987 are available from us for just $2.00 each.

Many back issues are running low or non existent, so this will in all probability be the last time you will be able to purchase a full set of magazines from us.

The magazines concerned are Australian CoCo Magazine, September 1984 to December, 1987; and Softgold Magazine, February, 1987 to December, 1987.

In addition, if you purchase more than four back issues, you may purchase back issues of CoCoOz tape or disk, Softgold on Tape or Disk (both for CoCo), or Gold Disk (for MS DOS) up to December 1987 for just $10.00 each.

Advertisers

A magazine like this can not operate without advertisers.

Mind you, thanks to our subscribers and Tandy, we've made it though some rough spots from time to time in the past.

But advertisers are basically responsible for bringing you the magazine, and it is obvious from this month's magazine that they support us well.

If you need support from the magazine for your computer, please mention us when you purchase - not only to the advertisers we already have, but to possible advertisers.

Beerburrum

Last month I ventured to the Sunshine Coast of Queensland, which for the uninitiated is not the Gold Coast.

In fact the Sunshine Coast is some two to three hours from here.

On the way there I met Graham Patterson and his wife, who own the Tandy Dealership in Beerburrum.

Graham is a real character and super keen to boot, so if you live in the area, you can do worse than shop with him for all your electrical needs.

Sunshine TV

The same applies to Bob Lassman at Maroochydore.

Bob was at conference last year as a member of Tandy's head office team.

Since then, he has purchased the Tandy Dealership at Maroochydore.

With the experience in computing that Bob brings to the Sunshine Coast, there is no better place to take your computer for service or to resolve software problems.

Coffee & CoCo

Karen managed to spill coffee over one of our CoCo 3's this month - on the keyboard to be precise - and I thought we had problems!

But after pulling the keyboard apart - and being careful with all those springs and screws, Alex dried the membrane pad out and replaced it in it's seat.

The machine worked perfectly and has done so since.

Not bad - not every computer can recover from a drink of coffee that easily!

The Computer Resource Database

The Database was printed last month for the first time and has been voted a success by readers and advertisers alike.

Keep in mind that there is more detail to be had on our monthly disk or tape for CoCo owners - CoCoOz.

And we add to the information each month - so likely as not, if you need to know about hard or software support for the CoCo, the information will be in the Database.

Alex and members of the Warwick User Group at a recent meeting.

Join in the fun.

CONF '88

Koonjewarre, Gold Coast, Qld.

October 1st and 2nd

Conf '88 is at Koonjewarre on the Gold Coast of Queensland. The dates are 1st and 2nd October - that is, during the October school holidays.

Expo '88 will still be on at this time, so you can come up for Conf '88 and then see Expo '88.

Despite Expo '88, we've managed to hold prices to the same level as last year - quite a feat given the accommodation price rises during Expo in Queensland.

The Program:

This year, the theme is "Computers in the Family", so we're encouraging you to involve your family in the weekend.

Apart from the education themes, we'll have activities for the children, and something also for those who would prefer less computer involvement.

Koonjewarre offers some beautiful bush walks and a unique gathering of broad varieties of animal life for you to discover.

On the tutorial front, we'll have tutorials on all the usual subject areas covering both the Tandy CoCo and the MS DOS worlds.

Subjects such as OS 9 will be covered in detail, as will computer communications, Basic Basic, Advanced Basic, Pascal, C, Forth and much more.

There'll be the usual presentation dinner on the Saturday night where the winners of the prizes in the various competition categories will be announced.

And finally, there'll be an opportunity to renew friendships or make new ones; to meet some of the authors from our magazines; and to find the answer to those problems you've been experiencing all year.

Bargains!

Traditionally, advertisers from our magazines use Conf to move stock - so Conf '88 is the place to find the bargains! Bring some spending money!

Accommodation

Accommodation is in camp style rooms. Usually, there are about 10 beds to a room, but there are a few family rooms for early bookings.

Last year, those who shared the large rooms had a ball!

Rates:

Accommodated

One person	$87.00
Family of 2	$155.00
Additional family members	$52.00 ea

This price includes supper Friday evening, breakfast, lunch, dinner and supper on Saturday, and breakfast and lunch on Sunday. PLUS accommodation on Friday and Saturday nights!

Non Accommodated

	One Day	Two Days
One person	$40.00	$58.00
Saturday Evening meal	$12.00	
Additional Family Members	$31.50	$45.50ea

This price includes morning tea, lunch and afternoon tea.

Payment

You may pay the total price when booking, or pay a deposit of $20 and pay the rest off by 7th September, 1988.

Conf '88 Registration Form

Name:...

Address:..

Phone:................ Number of people:..........

I am interested in attending tutorials on the following

subjects:...

....

Please find enclosed $...............
    (Chq/Money Order/Bankcard/Visa/Mastercard)

Card No:..

Signature:..

10

11

Oink! Oink! Oink!

GRAPHICS
by Richard Vagg

CoCo3

THE FIRST LISTING of 'Pig' was designed for a disk system only. So when one ran the program on a system without a disk drive attached, the graphics would be slightly off the screen, due to the memory the disk drive takes up.

So in comes listing 2. This particular listing takes care of both types of systems.

Listing:

```
0 GOTO10
1 **PIG BY RICHARD VAGG 9/87***
  ******GRAPHICS ENTRY********
2 **MADE WITH THE HELP OF
     SCRENGEN
3 SAVE"78G:1":END'GRF
4 **RICHARD VAGG
  **9 BELAH STREET
  **FORBES NSW 2871
10 PMODE0:SCREEN1,1:PCLS1
20 FOR TT=0 TO 23
30 FORT=0 TO 3
50 READF:POKE4022+TT*32+T,255-F:
POKE4038+TT*32+T,255-F:NEXT:NEXT
110 DATA 0,32,0,0
120 DATA 0,80,0,0
130 DATA 0,80,56,0
140 DATA 0,72,68,0
150 DATA 0,43,130,0
160 DATA 0,36,5,0
170 DATA 0,96,2,0
180 DATA 0,128,2,0
190 DATA 0,128,12,0
200 DATA 0,132,80,0
210 DATA 0,78,232,0
220 DATA 0,42,167,0
230 DATA 0,68,72,128
240 DATA 0,64,8,128
250 DATA 0,66,8,128
260 DATA 0,68,7,0
270 DATA 0,74,4,128
280 DATA 0,65,8,128
290 DATA 0,32,241,0
300 DATA 0,32,6,0
310 DATA 0,16,8,0
320 DATA 0,31,248,0
330 DATA 0,32,4,0
340 DATA 0,127,254,0
345 COLOR0
350 LINE(50,50)-(205,150),PSET,B
360 LINE(45,45)-(210,155),PSET,B
400 GOTO400
```

Listing:

```
0 GOTO10
1 **PIG BY RICHARD VAGG 9/87***
  ******GRAPHICS ENTRY********
2 **MADE WITH THE HELP OF
     SCRENGEN
3 SAVE"127A":END'GRF
4 **RICHARD VAGG
  **9 BELAH STREET
  **FORBES NSW 2871
10 IF PEEK(49152)=68 THEN ST=402
2 ELSE ST=1974
15 PMODE0:SCREEN1,1:PCLS1
20 FOR TT=0 TO 23
30 FORT=0 TO 3
50 READF:POKEST+TT*32+T,255-F:PO
KEST+16+TT*32+T,255-F:NEXT:NEXT
110 DATA 0,32,0,0
120 DATA 0,80,0,0
130 DATA 0,80,56,0
140 DATA 0,72,68,0
150 DATA 0,43,130,0
160 DATA 0,36,5,0
170 DATA 0,96,2,0
180 DATA 0,128,2,0
190 DATA 0,128,12,0
200 DATA 0,132,80,0
210 DATA 0,78,232,0
220 DATA 0,42,167,0
230 DATA 0,68,72,128
240 DATA 0,64,8,128
250 DATA 0,66,8,128
260 DATA 0,68,7,0
270 DATA 0,74,4,128
280 DATA 0,65,8,128
290 DATA 0,32,241,0
300 DATA 0,32,6,0
310 DATA 0,16,8,0
320 DATA 0,31,248,0
330 DATA 0,32,4,0
340 DATA 0,127,254,0
345 COLOR0
350 LINE(50,50)-(205,150),PSET,B
360 LINE(45,45)-(210,155),PSET,B
400 GOTO400
```

TANDY'S PEOPLE

Michael Guthrie from Springwood Tandy recently spent some time in Toowoomba

Charlie Bashford — CoCo specialist at Decro in Lismore, N.S.W.

GRAPHICS
by David Dyson

WAR

CoCo3

WAR, LIKE "Alien Invaders", has a meaning somewhere, and that meaning must lie somewhere in this program. Run it and find out for yourself, what the "meaning" could be.

Listing:

```
0 GOTO10
1 'WARS ANIMATED
2 '       BY
3 '   DAVID DYSON
4 '      (C)
5 '     25/1/88
9 SAVE"179C:1":SAVE"179C:3":END'
GRF
10 POKE65497,0
11 CLEAR2000
30 FORD=4TO13:PALETTED,34:NEXT
32 PALETTE0,0:PALETTE1,34:PALETT
E2,0:PALETTE3,25:PALETTE14,32:PA
LETTE15,32
33 HSCREEN2:HCLS1
34 HDRAW"C0BM184,44R4D28G4H4E4U2
4BF8NL4D16NL4D4R4E12R16F12R12E12
R32M+8,+4D8R4U52L4H8L12G8L4H16G4
F20U8R36BG4L28D20R28U20BM268,28G
4L16G12M-44,+4D4"
35 HDRAW"BM236,44D28BR28BU12U28B
L16BD16L4BU4L4E8R8D8L16BM220,48L
4G4F4R4BU4NR4L8"
36 W$="E4R4C2NU2C0R4F4D4C2NR2C0D
4G4L4C2ND2C0L4H4U4C2NL2C0U4"
37 HDRAW"BM260,68C0"+W$+"BM280,6
8C0"+W$
38 HDRAW"BM258,66E4R32F4D12G4L32
H4U12"
39 D$="E4R8C2NU2C0R8F4D4C2NR2C0D
4G4L8C2ND2C0L8H4U4C2NL2C0U4"
40 HDRAW"BM204,68C0"+D$
41 HPAINT(248,60),3,0:HPAINT(284
,56),3,0:HPAINT(200,56),3,0:HPAI
NT(186,60),0,0:HPAINT(256,12),0,
0
42 HBUFF1,5810
43 HGET(180,0)-(308,84),1
44 HCLS1
45 HBUFF2,2000
46 HDRAW"C0BM196,44M+8,-6M+8,-2R
2E4M+12,-4R8M+28,+2R12M+8,-14R12
```

```
D24G4L79M-8,+1M-16,-1BM220,36M+8
,-4R12D4L20M+12,+4L16E4BM252,32G
4F4R36M-36,-8BM288,24M+12,+4L16E
4BM300,28L4D12R4"
47 HPAINT(208,40),14,0:HPAINT(22
0,38),0,0:HPAINT(232,34),0,0:HPA
INT(256,36),0,0:HPAINT(288,26),0
,0:HPAINT(298,36),0,0
48 HGET(196,14)-(302,46),2
50 B$="BU4F4G4H4E4"
51 HDRAW"BM240,108C4"+B$
52 HPAINT(240,108),4,4
53 HDRAW"BM232,100C5"+B$
54 HPAINT(232,100),5,5
55 HDRAW"BM224,92C6"+B$
56 HPAINT(224,92),6,6
57 HDRAW"BM216,84C7"+B$
58 HPAINT(216,84),7,7
59 HDRAW"BM208,76C8"+B$
60 HPAINT(208,76),8,8
61 HDRAW"BM200,68C9"+B$
62 HPAINT(200,68),9,9
63 HDRAW"BM192,60C10"+B$
64 HPAINT(192,60),10,10
65 HDRAW"BM184,52C11"+B$
66 HPAINT(184,52),11,11
67 HDRAW"BM176,44C12"+B$
68 HPAINT(176,44),12,12
69 HDRAW"BM168,36C13"+B$
70 HPAINT(168,36),13,13
71 HPUT(180,108)-(308,192),1,PSE
T:FORG=186TO124STEP-2:HPUT(10+G,
14)-(116+G,46),2,PSET:NEXTG:
72 FORD=4TO13:PALETTD,0:FORG=1T
O100:NEXT:PALETTD,34:NEXTD
73 HDRAW"BM120,14C15E4R4E24F4E8F
8E4F4E12F4E4F8E4F4E16F8G4F4G2F2G
2F2G2F2G2F2G2F2G16H4G8H16G12
H12G8H4G8H12M-12,+8H8U30":HPAINT
(140,14),15,15:FORD=1TO15:PLAY"T
25501L4G6GFFFEEEDDCCV-":NEXTD
74 PALETTE15,34:FOR G=170TO0STEP
-4:HPUT(10+G,108)-(138+G,192),1,
PSET:PALETTE2,0:PALETTE2,34:NEXT
G
75 FORD=1TO1000:NEXT
76 CLS:RGB:POKE65496,0:PRINT"WAS
IT GOOD!!":END
```

Cricket T-Shirts

GRAPHICS
by Hamish Purdey

CoCo3

CRICKET T-SHIRTS follows in the tradition of Footy Jumpers and several other programs designed for those people who have an appreciation for their sport/sporting club.

This particular program shows the shirts worn by the cricket teams.

They are: Australia (listing one), Sri-Lanka (listing Two), and India (listing three).

Listing:

```
10 HSCREEN 2
20 HCLS 1
30 HCOLOR 0
40 HLINE(0,80)-(320,100),PSET,BF
50 HLINE(0,70)-(320,60),PSET,BF
60 HLINE(0,110)-(320,120),PSET,B
F
70 HCIRCLE (300,10),10,3
80 HPAINT (300,10),3
90 PALETTE 10,0
100 HCOLOR 10
110 HLINE (290,15)-(295,20),PSET
:  HLINE (290,20)-(295,40),PSET
,BF
120 HPAINT (290,15),10
130 HLINE (290,15)-(290,20),PSET
140 HPAINT (291,17),10
150 HLINE(297,20)-(303,40),PSET,
BF
160 HLINE(305,20)-(310,40),PSET,
BF
170 HLINE(305,20)-(310,15),PSET:
    HLINE(310,15)-(310,20),PSET:
    HPAINT(309,17),10
175 HPRINT (1,1),"THE AUSTRALIAN
WSC T-SHIRT"
180 ON BRK GOTO 200
190 GOTO 190
200 CLS:LIST
```

Listing:

```
10 HSCREEN 2
20 HCLS1
30 HCOLOR 2
40 HLINE(0,80)-(320,100),PSET,BF
50 HLINE(0,70)-(320,60),PSET,BF
60 HLINE(0,110)-(320,120),PSET,B
F
70 HCIRCLE (300,10),10,3
80 HPAINT (300,10),3
90 PALETTE 10,0
100 HCOLOR 10
110 HLINE (290,15)-(295,20),PSE
:   HLINE (290,20)-(295,40),PSET
,BF
120 HPAINT (290,15),10
130 HLINE (290,15)-(290,20),PSET
140 HPAINT (291,17),10
150 HLINE(297,20)-(303,40),PSET,
BF
160 HLINE(305,20)-(310,40),PSET,
BF
170 HLINE(305,20)-(310,15),PSET:
    HLINE(310,15)-(310,20),PSET:
    HPAINT(309,17),10
180 ON BRK GOTO 200
190 GOTO 190
200 CLS:LIST
```

13

Shuttle

S HUTTLE IS A neat little graphics program, with the addition of animation.

It depicts the shuttle, its launch from the pad its rise through the atmosphere to its flight in space, right down to the landing and touch-down positions.

Good stuff!

The Listing:

```
5 GOTO 10
6 ' SPACE ANIMATION
7 '  BY DAVID DYSON
8 '       AGE 15
9 SAVE"179:1":SAVE"179:3":END'GR
F
10 HSCREEN2:HCLS4
11 POKE65497,0
20 PALETTE9,25:HPAINT(0,192),9,1
0
21 HBUFF 4,500:PALETTE15,34:HDRA
W"C15BM28,12R12M-4,+8M-2,-4M-2,+
4M-4,-8":HPAINT(34,14),15,15:HGE
T(28,12)-(40,24),4:HCLS9
22 FORD=1TO100:R=RND(320):S=RND(
96):HSET(R,S,8):NEXTD
23 A$="E8R4NU2R4NU2R4F8BL8NU4BL1
2NU4BR20"
24 FORD=1TO320STEP28:HDRAW"BM"+S
TR$(D)+",192C8"+A$:NEXT
25 PALETTE10,34:FORD=15TO320STEP
28:HCIRCLE(D,176),6,8:HPAINT(D,1
76),10,8:NEXT
26 FORD=12TO320STEP28:HPAINT(D,1
88),RND(8),8
27 NEXT
28 HDRAW"C8BM0,108M+12,-6R24M+36
,+6M+12,+1R12M+12,+1M244,110M296
,100M+12,-3M+4,+1M+8,-1"
29 HPAINT(128,150),10,8
30 HLINE(260,132)-(292,148),PSET
,B
34 GOTO40
35 HCOLOR10:HLINE(264,136)-(284,
144),PSET,BF:RETURN
40 HLINE(272,148)-(268,164),PSET
:HLINE(280,148)-(284,164),PSET
41 HDRAW"C8BM112,110U36R11ND36L3
U8L4G4D4BM123,80R5BM123,84R5BM12
4,108E4U24M+2,-4M+2,+4M+6,-10M+6
,+10M+2,-4M+2,+4D24F4L12E4L12F4L
12BM138,76F4D20F2L4E2L8F2L4E2U20
E4"
42 HDRAW"BM138,102U6BU4R2U4L4D4U
R2BU4NU4R2NU4L4NU4"
43 HPAINT(130,88),4,8:HPAINT(136
,94),4,8:HPAINT(136,76),4,8:HDRA
W"C8BM132,78D24BR12U24":HCOLOR9:
HLINE(124,109)-(150,121),PSET,BF
:HPUT(124,109)-(150,121),4,PSET:
HPUT(140,109)-(152,121),4,PSET:H
BUFF 1,1500:HGET(124,68)-(150,12
1),1:HCOLOR10
44 HLINE(124,109)-(154,121),PSET
,BF:HDRAW"BM264,136C8D8BR8U8R8D8
L8"
45 FORD=1TO360:NEXT:GOSUB35
46 HDRAW"C8BM276,136L8D4R8NU4D4"
47 FORD=1TO360:NEXT:GOSUB35
48 HDRAW"C8BM276,136L8D4R8D4L8U8
R8D8"
49 FORD=1TO560:NEXT:GOSUB35
50 HDRAW"C8BM268,136R8D8"
51 FORD=1TO560:NEXT:GOSUB35
52 HDRAW"C8BM272,136L8D8R8U4L8"
53 FORD=1TO560:NEXT:GOSUB35
54 HDRAW"C8BM272,136L8D4R8D4L8"
55 FORD=1TO560:NEXT:GOSUB35
56 HDRAW"C8BM272,140L8E4D8"
57 FORD=1TO570:NEXT:GOSUB35
58 HDRAW"C8BM272,136R8D4NL8D4NL8
"
59 FORD=1TO560:NEXT:GOSUB35
60 HDRAW"C8BM272,136R8D4L8D4R8"
61 FORD=1TO560:NEXT:GOSUB35
62 HDRAW"C8BM272,136D8"
63 FORD=1TO560:NEXT
64 HDRAW"BM128,104R4BR12R4"
65 PALETTE11,0
66 HPAINT(130,106),11,8:HPAINT(1
46,106),11,8
69 FORD=68TO0STEP-1:PALETTE15,32
:PALETTE15,50:PALETTE11,RND(62):
HPUT(124,D)-(150,D+53),1,PSET:NE
XTD
70 FORZX=1TO2:HCLS9:FORSDS=1TO20
0:R=RND(320):S=RND(192):HSET(R,S
,8):NEXTSDS
71 FORD=136TO0STEP-1:PALETTE15,3
2:PALETTE15,50:PALETTE11,RND(62)
:HPUT(124,D)-(150,D+53),1,PSET
72 NEXTD
73 NEXTZX:HCOLOR8
74 HCLS9:HCIRCLE(160,60),180,8,.
10,.50,0:HPAINT(0,0),8,8:FORSD=1
TO50:R=RND(320):S=RND(30):HSET(R
,S,4):NEXTSD:HCOLOR8:FORD=136TO3
0STEP-1:PALETTE15,32:PALETTE15,5
0:PALETTE11,RND(62):HPUT(124,D)-
(150,D+53),1,PSET:NEXTD
75 :HCLS8
76 FORD=1TO100:R=RND(320):S=RND(
192):HSET(R,S,4):NEXTD
77 HBUFF2,700
78 HDRAW"C4BM138,158F4D20F2L4E2L
8F2L4E2U20E4":HPAINT(138,176),4,
4:HDRAW"C8BM138,186U6BU4R2U4L4D4
R2BU4NU4R2NU4L4NU4"
79 HGET(132,156)-(144,188),2
80 FORD=156TO0STEP-1:HPUT(132,D)
-(144,D+32),2,PSET:NEXTD
81 PALETTE15,0:PALETTE14,25:PALE
TTE13,64:PALETTE12,34
82 HCLS8:HDRAW"BM0,120C14R16M68,
128M96,136M128,148M156,164M172,1
76M184,192"
83 HPAINT(0,192),14,14
84 HDRAW"C13BM0,152R4M+8,-2M+4,-
2H2M+8,-2H4R4M+6,-3M+8,+4E6R4U4E
2H4M20,120L24"
85 HPAINT(24,136),13,13
86 HDRAW"C12BM70,192M+8,-12E3R6M
+4,+1M+8,-2F4R8F8F11"
87 HPAINT(100,192),12,12
88 FORAA=1TO100:R=RND(320):S=RND
(192):IF HPOINT(R,S)=8 THEN HSET
(R,S,14):NEXTAA
89 FORD=0TO7:PALETTED,0:NEXTD
90 HDRAW"C0BM24,120U20E4F4D20L8B
R4U8":HDRAW"BM28,88C1E20R8D8G20H
8BF4E8":HDRAW"C2BM60,68M+32,-4F4
G4M-32,+4M-1,-8M+1,+4M+8,-2":HDR
AW"BM104,64C3F20D8L8H20E8"
91 D$="F8G20L8U8E20F8"
92 HDRAW"BM112,96C4"+D$
93 HDRAW"C6BM80,112D8L36H4E4R36D
4":HPAINT(60,119),6,6:HDRAW"C15L
```

GRAPHICS
by David Dyson

CoCo3

```
12U2L12R4D2NL4D2NL4R8U4"
95 HPAINT(28,108),0,0
96 HPAINT(48,76),1,1
97 HPAINT(84,68),2,2
98 HPAINT(112,80),3,3
99 HPAINT(104,112),4,4
100 HPAINT(60,119),6,6
111 HDRAW"BM24,120C15U8BM32,92E8
BM60,72M+8,-2BM100,68F8BM116,100
G8"
112 HDRAW"BM28,100ND4BR2ND4L4NU4
R4D8L4U8BM40,80E8NE4F2NE4F2NE4G8
H4BM72,68D4M+12,-2U4M-12,+2BM106
,78F8NF4E2NF4E2NF4H8G4BM104,108F
4G8NG4H2NG4H2NG4E8F4"
113 FORS=1TO6
114 READ A
115 PALETTE A,63
116 FORD=1TO500:NEXTD
117 PALETTE A,0
118 NEXTS
120 DATA 0,1,2,3,4,6
121 RGB
122 PALETTE9,25:
123 HSCREEN2:HCLS9
124 HBUFF3,700
125 HCOLOR1:HCIRCLE(0,0),20,1:HP
AINT(1,1),1,1
126 HDRAW"BM276,16C8M+6,-4R26E4R
4D12L8NG4L20NG4L8H4R8NU4M+4,-2M+
16,+2L20BU4R32D4L8M-4,-2M+4,-2"
127 HPAINT(302,14),4,8:HPAINT(31
2,10),4,8:HPAINT(296,18),4,8:HPA
INT(280,15),8,8:HPAINT(312,14),4
,8
128 HGET(272,4)-(319,24),3
129 FORD=4TO192STEP2:HPUT(272-D,
D)-(319,D+20),3,PSET:NEXT
130 HCLS9
131 FORD=4TO192STEP2:HPUT(272-D,
D)-(319-D,D+20),3,PSET:NEXT
132 HCLS9:HCOLOR7:HLINE(0,100)-(
320,192),PSET,BF
133 FORD=4 TO80STEP2:HPUT(272-D,
D)-(319-D,D+20),3,PSET:NEXT
134 FORD=200TO0STEP-1:HPUT(D,80)
-(D+46,100),3,PSET:NEXTD
1000 GOTO1000
```

FLIGHTS OF FA

Chopper

GRAPHICS
by David Dyson

CoCo3

CHOPPER ANIMATION is an animation program that draws a helicopter taking off and flying around the screen.

The Listing:

```
0 GOTO10
1 'CHOPPER ANIMATION'
2 '       BY
3 '    DAVID DYSON'
```

HERE IS MY first-ever, real program. It shows a picture of a modified Apache AM-64A or, for the layman, a helicopter. It starts off with the helicopter hovering over some mountains, and is then bombed several times.

It is hit as well with a missile in the heart of the 'copter.

In the end, it shows deep space, with a UFO appearing from the top right corner. The sound effects aren't that good, so see if you can modify it.

Thank you Frank Rees, Johanna Vagg, Jim Rogers, Graeme Pollock for that helpful advice.

Enjoy!!

The Listing:

```
0 GOTO12
1 '**** HELICAT
2 '**** ANTONIOS KAMBOURAKIS
```

Apache AM-64A

GRAPHICS
by Antonios Kambourakis

```
68 DATA 120,52,124,56
70 DATA 44,96,56,108
72 DATA 48,96,57,105
74 DATA 76,56,124,56
76 DATA 124,56,140,56
78 DATA 140,56,160,68
80 DATA 160,68,208,68
82 DATA 208,68,208,84
84 DATA 140,96,180,92
86 DATA 180,92,248,76
88 DATA 208,68,224,36
90 DATA 224,36,244,36
92 DATA 244,36,236,68
94 DATA 236,68,248,68
96 DATA 248,68,252,72
98 DATA 252,72,248,76
100 DATA 172,68,172,92
102 DATA 172,76,160,72
104 DATA 160,72,160,92
106 DATA 236,68,236,80
108 DATA 76,56,76,80
110 DATA 160,92,172,88
112 DATA 76,80,40,80
114 DATA 73,57,73,77
116 DATA 73,77,60,77
118 DATA 60,77,60,61
120 DATA 60,61,73,57
122 DATA 57,61,57,77
124 DATA 41,77,41,69
126 DATA 41,69,57,61
128 DATA 57,77,41,77
130 DATA 40,68,40,80
132 DATA 24,69,24,92
134 DATA 40,65,53,57
136 DATA 53,57,72,56
138 DATA 40,65,40,68
140 DATA 40,68,56,60
142 DATA 56,60,68,56
144 DATA 68,56,76,56
146 DATA 128,96,144,96
148 GOTO 50
150 DATA 1,1,1,1
152 GOTO 152
154 AI=8:BI=40:CI=96:DI=40
156 EI=8:FI=40:GI=12:HI=44
158 II=12:JI=44:KI=96:LI=44
160 MI=112:NI=40:OI=192:PI=40
162 QI=44:RI=188
164 TI=192:UI=188
166 LINE(II,JI)-(KI,LI),PSET
168 LINE(AI,BI)-(CI,DI),PSET
170 LINE(EI,FI)-(GI,HI),PSET
172 LINE(MI,NI)-(OI,PI),PSET
174 LINE(MI,QI)-(RI,QI),PSET
176 LINE(TI,BI)-(UI,QI),PSET
178 COLOR1
180 LINE(II,JI)-(KI,LI),PRESET
182 LINE(AI,BI)-(CI,DI),PRESET
184 LINE(EI,FI)-(GI,HI),PRESET
186 LINE(MI,NI)-(OI,PI),PRESET
188 LINE(TI,BI)-(UI,QI),PRESET
190 LINE(MI,QI)-(RI,QI),PRESET
192 PLAY"T255L255V31CCDEDECDEV10
CDEDCEV5CDEDCE"
194 GP=GP+1
196 IF GP=10 THEN GOSUB 222
198 GOTO 154
200 CIRCLE(228,52),1
202 A$="BM228,52;U16"
204 DRAW"A0"+A$
206 GOSUB 218
208 DRAW"A1"+A$:GOSUB 218
210 DRAW"A2"+A$:GOSUB 218
212 DRAW"A3"+A$:GOSUB 218
214 RETURN
```

NTASY

```
4 '      AGE    14'
5 '        (C) 20/1/88'
9 SAVE"179A:1":SAVE"179A:3":END'
  GRF
10 WIDTH40:POKE65497,0:FORD=1TO5
   :PALETTED,25:NEXT
11 HSCREEN2:HCLS0:PALETTE0,25
12 A$="M+16,-4R4M+16,-8E4R16H4E4
   NL40ND8NR44R4F4G4NU8R12D4M+60,+4
   M+8,-12R4M-4,+12M+4,+12L4M-8,-12
   M-48,+8G12L48M-20,-8H4R29ND12R44
   E11L12D8L16U8NR16BL4L12M-16,+8R2
   8U8BD23L12G4D4L8H4F4R44L12U4E4
13 HDRAW"BM190,30S3C5"+A$:HPAINT
   (196,29),5,5:HBUFF1,6000:HGET(19
   0,0)-(309,45),1:HCLS0' TAKING OF
   F
14 HDRAW"BM190,176S3C1"+A$
15 HPAINT(196,175),1
16 HDRAW"BM190,140S3C2"+A$
17 HPAINT(196,139),2
18 HDRAW"BM190,104S3C3"+A$
19 HPAINT(196,103),3
20 HDRAW"BM190,68S3C4"+A$
21 HPAINT(196,67),4
26 ' MAKE CHOPPER INVIABLE
27 FORD=1TO5:PALETTED,25:NEXT
28 HDRAW"C7BM0,192M+50,-4M+50,+2
   M+50,-2M+50,+2M+50,-2M+50,+2M+50
   ,-2M+50,+2M+50,-2M+50,+2":HPAINT
   (128,192),7,7
29 ' MAKE CHOPPER TAKEOFF
30 FOR S=1TO4
31 PALETTE5,0
32 FORD=1TO500:NEXT
33 PALETTE5,25
34 PLAY"T255O1L4;4":NEXT
35 PALETTE5,0
36 DATA 1,2,3,4
37 HCOLOR5:FORD=180TO0STEP-8:PLA
   Y"T255Q1L4;4":HPUT(10+D,0)-(129+
   D,45),1,PSET:NEXTD
38 HCLS0:GOTO37
```

```
3 SAVE"162:1":END'GRF
12 GP=0:RD=RND(12):IF RD<=5 THEN
   12 ELSE 18
14 PLAY"T255L16001V30DDGV25DDGV2
   0DDGV15DDGV10DDGV5DDGV4DDGV3DDGV
   2DDGV1DDGV+DDG"
16 RETURN
18 ' ********************
20 ' [ HELICAT ]
22 ' BY TONY KAMBOURAKIS
24 '    1988     JANUARY 12
26 ' ********************
28 '
30 PMODE4,1:PCLS1:SCREEN1,1:COLO
   R0
32 CIRCLE(8,80),8:CIRCLE(64,112)
   ,8:CIRCLE(64,112),2
34 DRAW"BM60,104NU8BM64,104U8;BM
   80,96H4U4E4R48D12;BM84,92;U4R8D4
   L4ND4L4;BM108,88;D4R4ND4R4U4L8"
36 DRAW"BM92,78;D4U2R4U2D2;BM98,
   80;R4;BM108,78;L4D4R4;BM110,82;U
   2NR4U2R4D4;BM120,78;ND4NR4L4;BM9
   6,80;D4"
38 DRAW"BM92,56;D20R64U10;BM108,
   60NF4G4D4F4E4F4R24E4F4U12G4H4NL2
   4L4D8L20U4E4;BM112,64E4"
40 DRAW"BM96,52;E4ND4NU4R8ND4NF4
   U4R4U4L4ND4U4L8D4NR8L4D4R4NU4D4;
   BM100,44;R8"
42 DRAW"BM0,156;E24F32E12F4E32F2
   0E32F32E4F2E12F32E4F12E12"
44 PAINT(20,172)
46 GOSUB 200
48 CIRCLE(180,16),12:PAINT(180,1
   6)
50 READ A,B,C,D:IF A=1 THEN 154
52 LINE(A,B)-(C,D),PSET
54 DATA 8,72,40,68
56 DATA 12,88,16,92
58 DATA 16,92,24,92
60 DATA 24,92,44,96
62 DATA 44,96,136,96
64 DATA 76,56,84,52
66 DATA 84,52,120,52
```

15

GLIDER

GRAPHICS
by Johanna Vagg

CoCo 3

SOME TIME AGO, I made a glider that went around and around in loops. In this program, I use the same glider, only it flies from one side of the screen to the other side of the screen.

The Listing:

```
0 GOTO10
1 'GLIDER FLIGHT OF FANCY
2 'JOHANNA VAGG FORBES
3 SAVE"78":END'GRF
4 'BORDER POKE ADDED OCT 87
5 'ENTRY IN 1987 GRAPHICS COMP
6 'GLIDER DRAWN ON PMODE4 SCREEN
  WITH      THE HELP OF TOM LEHAN
E'S LINEMASTER
10 RGB:HBUFF1,6600
20 POKE65497,0
30 ON BRK GOTO850
40 HSCREEN2
60 PALETTE0,9:PALETTE1,63:POKE&H
FF9A,9
70 FORZ=1TO 46
80 READ A,B,C,D
90 HLINE(A+188,B)-(C+188,D),PSET
100 NEXT
110 HCIRCLE(200,54),10,1,.9,.86,
.07
120 HPAINT(202,52),3,1
130 HLINE(292,30)-(290,46),PSET
140 HPAINT(292,40),3,1
150 HPAINT(275,44)
160 HPAINT(260,60)
170 HPAINT(230,30)
180 HPAINT(292,26)
200 HGET(190,0)-(319,100),1
210 X=2:Y=0:W=190:U=0:Z=319:Q=10
0
220 HPUT(W-X,U+Y)-(Z-X,Q+Y),1
230 IF X=40 THEN PALETTE0,8:POKE
&HFF9A,8
240 IF X=70 THEN PALETTE0,1:POKE
&HFF9A,1
250 IF X=90 THEN PALETTE0,0:POKE
&HFF9A,0
260 IF X=120 THEN GOSUB300
270 IF X=150 THEN 270
280 X=X+2:Y=Y+1
290 GOTO220
300 FORT=1TO15
310 L=RND(300)+10:M=RND(170)+5
320 HCIRCLE(L,M),1,1
330 NEXT
340 HCIRCLE(290,30),15
350 HPAINT(290,30)
360 HPRINT(2,23),"HOW TIME FLIES
```

```
WHEN YOU'RE HAVING FUN"
370 RETURN
390 DATA 128, 98, 120, 98
400 DATA 120, 98, 48, 50
410 DATA 48, 50, 51, 48
420 DATA 51, 48, 53, 47
430 DATA 53, 47, 57, 46
440 DATA 57, 46, 62, 47
450 DATA 62, 47, 64, 48
460 DATA 64, 48, 127, 97
470 DATA 69, 51, 82, 49
480 DATA 82, 49, 100, 47
490 DATA 100, 47, 106, 45
500 DATA 106, 45, 108, 33
510 DATA 108, 33, 116, 36
520 DATA 108, 32, 101, 30
530 DATA 101, 30, 93, 21
540 DATA 93, 21, 97, 20
550 DATA 97, 20, 119, 34
560 DATA 119, 34, 116, 36
570 DATA 100, 30, 97, 40
580 DATA 97, 40, 95, 42
590 DATA 95, 42, 78, 42
600 DATA 78, 42, 65, 41
610 DATA 65, 41, 53, 40
620 DATA 54, 39, 9, 1
630 DATA 9, 1, 4, 1
640 DATA 4, 1, 38, 40
650 DATA 38, 40, 44, 40
660 DATA 44, 40, 54, 40
670 DATA 51, 41, 52, 43
680 DATA 52, 43, 50, 45
690 DATA 50, 45, 47, 47
700 DATA 47, 47, 41, 48
710 DATA 41, 48, 39, 41
720 DATA 39, 41, 37, 42
730 DATA 37, 42, 39, 49
740 DATA 39, 49, 28, 51
750 DATA 28, 51, 22, 47
760 DATA 22, 47, 28, 44
770 DATA 28, 44, 37, 41
780 DATA 21, 47, 11, 53
790 DATA 11, 53, 20, 56
800 DATA 20, 56, 29, 57
810 DATA 29, 57, 35, 57
820 DATA 35, 57, 42, 56
830 DATA 42, 56, 47, 55
840 DATA 47, 55, 51, 53
850 POKE65496,0:RGB:END
```

HEAR YE!

Conf '88 = Koonjewarra, Gold Coast, Qld = 1 & 2 October, 1988 = School Holidays = Same time as Expo '88 = Family fun PLUS computing = live on site = CoCo help = MS DOS Help = programming tutorials = games contest = bush walking = something for every— one — from family members to new users to experienced fanatics = the place to be if you want to learn about computers and have fun during the October holidays = be there!

GAME
by Frank Buttigieg

alpine skier

HERE'S A CROSS Country alpine skiing tournament held in Australia as part of the Bicentennial celebrations. The instructions are in the game, please read carefully. Use the right joystick on the first tournament to avoid the trees, but you can only use the fire button in the second tournament.

See how you go, and GOOD LUCK! P.S... I was going to send this earlier but I came up with the idea to include a Saint Bernard dog to revive the skier whenever he crashes into the bushes.

The Listing:

```
0 GOTO10
3 SAVE"178A:1":END'GAM
10 '...ALPSKI-3...By - Frank But
tigieg...(c) 14/11/'87...
30 HSCREEN2:PALETTECMP:POKE65497
,0:CLEAR500:HBUFF1,100:HBUFF2,10
0:HBUFF3,100:HBUFF4,100:HBUFF5,1
20:HBUFF6,120:ONBRKGOTO660
40 FORS=1TO6:READM$(S):NEXT:CR=1
5:PL=0
50 WIDTH40:PALETTE0,63
60 Z$=STRING$(39," "):HSCREEN0:C
LS5:GOSUB510:LOCATE10,5:PRINT"Hi
 There!...WELCOME!";
70 GOSUB790
80 HSCREEN0:POKE&HE6,2:CLS:HCLS:
HCOLOR3
85 TR$="C2BR5D10L3EL3ERU3GE3U3GE
D9;R4HUR2FH3URH3URH2D9"
90 HDRAW"BM0,1C3BR9DHDLDHGRD2HD3
L3R6BRBD2L6R3U2RUH4
100 HGET(0,0)-(8,10),1:HCLS
110 HDRAW"BM0,1C3BR9DHDLDHGRD2HD
3L3R6BRBD2L6R3U3G3"
120 HGET(0,0)-(8,10),2:HCLS
130 HDRAW"C3BM0,1BR8G6R4GR4U2LD3
LHL2DU8"
140 HGET(0,0)-(8,10),3:HCLS
150 HDRAW"C3BM0,1BR6D8L3R6BU2L7B
UU5F3D3U6RD3E3D4"
160 HGET(0,0)-(8,10),4:HCLS
164 HDRAW"C8BM0,3FU2ER2FD2L2DL2U
BR4R5F3RH3D4F2H4D3FHU2L3H2F2LD3U
2GHLUER":HPAINT(3,3),7,8:HPAINT(
8,5),7,8
165 HGET(0,0)-(12,12),5:HCLS
167 HDRAW"C8BM0,3FU2ER2FD2L2DL2U
BR4R5U2L3R3D9U3H2F2L2D2U2L3D3U2H
LD2U3H2RFGHU":HPAINT(3,3),7,8:HP
AINT(8,5),7,8
168 HGET(0,0)-(12,12),6:HCLS
170 ONBRKGOTO660:ONERRGOTO670:PL
=PL+1:IFPL>2THENPL=1
180 RESTORE:S=0:F=0:W=0:TL=0
190 WIDTH40:HSCREEN0:CLS5
200 S=S+1:TL=TL+1:IFS<>7GOTO220
210 IFS<7GOTO220ELSES=6:TL=6:IFS
=6ANDTL=6ANDF=0ANDPL=1GOTO520ELS
EIFS=6ANDTL=6ANDF=0ANDPL=2GOTO55
0ELSEIFS=6ANDTL=6ANDF>0GOTO 600E
LSEIFS=6ANDTL=6ANDW=6GOTO550ELSE
210
220 LOCATE0,0:ATTR0,1:PRINTZ$;:L
OCATE0,4:ATTR0,1:PRINTZ$;:LOCATE
16,1:ATTR4,4,U:PRINT"ALPSKI-3";:
ATTR4,4:LOCATE6,3:PRINT"by Frank
 Buttigieg (c)11/87";:LOCATE0,23
:ATTR0,1:PRINTZ$;:ATTR4,4
230 LOCATE10,6:ATTR3,2:IFPL=1THE
NPRINT" TOURNAMENT No.";PL;:ELS
EPRINT" TOURNAMENT No.";PL;
240 LOCATE9,14:ATTR4,4:PRINT"We
are now travelling";:LOCATE19,15
:PRINT"to";:LOCATE15,17:ATTR4,4,
U:PRINTM$(S);:ATTR4,4
250 LOCATE10,19:PRINT"We'll be t
here in a";:LOCATE17,21:ATTR4,4,
B:PRINT"Moment";:ATTR4,4
260 'TR$="C2U5G3BR5RHL3HR4BUL3RU
3G2E2F2L5D2"
270 POKE&HE6,2
280 CR=CR+1:PALETTECMP:PALETTE0,
61:HCLS:HLINE(310,0)-(310,191),P
SET:PALETTE2,CR
290 HCOLOR2:FORJ=0TO8:FORI=0TO1:
HLINE(I,J)-(319+I,184+J),PSET,B:
NEXTI,J:FORY=1TO25+(S*3)
300 A=RND(300)+9:IFA<35GOTO300
310 B=RND(170)+2:IFB<20GOTO310
320 IFCR=21THENCR=16
330 HDRAW"S4BM"+STR$(A)+","+STR$
(B)+TR$+TR$+"S2"+TR$+"S4":NEXT:H
COLOR4:HPRINT(14,0),M$(S)
340 Y=96
350 POKE&HE6C6,18:POKE&HE6C7,18:
HSCREEN2:P0=0:SOUND10,15
360 FORX=6TO300STEP1:HPUT(X,Y)-(
X+8,Y+10),1,PSET
370 IFPL=2GOTO400ELSE380
380 V=JOYSTK(0):V=3.2*(JOYSTK(1)
-32)
390 U=(ABS(V)*V)/130:GOTO420
400 U=0:P0=P0+.05+.31*(BUTTON(0)
=1)
410 U=P0*68
420 HPUT(X,Y)-(X+8,Y+10),2,PSET
430 Y=Y+U/75:IFHPOINT(X+9,Y+3)=2
ORHPOINT(X+9,Y)=2ORHPOINT(X+9,Y+
9)=2ORHPOINT(X,Y+1)=2ORHPOINT(X,
Y+8)=2THENPLAY"V31T255L255O1CDCE
DCC":FORC=1TO3:PLAY"T255L255V10C
D":HPUT(X,Y)-(X+8,Y+10),3,PSET:N
EXT:GOSUB850:GOSUB690:GOTO450ELS
ENEXT
440 PLAY"T12L8AFL4BDO4L2B":HPUT(
X,Y)-(X+8,Y+10),4,PSET:GOSUB690:
GOTO470
450 F=F+1:HSCREEN0:POKE&HE6,2:LO
CATE11,8:PRINT"Too BAD!...oh wel
l! ";:LOCATE5,9:PRINT"Try again
 on the next Mountain. ";:LOCAT
E0,10:ATTR4,4:PRINTZ$;:LOCATE5,1
1:PRINT"Score is";F;:IFF<2THENPR
INT"Fall";ELSEPRINT"Falls";
460 PRINT" out of";TL;:IFTL<2THE
NPRINT"RUN.";:GOTO200ELSEPRINT"R
UNS.";:LOCATE0,12:ATTR4,4:PRINTZ
$;:GOTO200
470 W=W+1:HSCREEN0:POKE&HE6,2:LO
CATE11,8:PRINT"Good on ya' Champ
.!!!";:LOCATE0,9:ATTR4,4:PRINTZ$
;:LOCATE3,10:PRINT"You made it d
own this Mountain ok!";:
480 LOCATE0,11:ATTR4,4:PRINTZ$;:
LOCATE1,12:PRINT"Score is";W;:IF
W<2THENPRINT"Win";ELSEPRINT"Wins
";
490 PRINT" &";F;:IFF<2THENPRINT"
Fall";ELSEPRINT"Falls";
500 PRINT" out of";TL;:IFTL<2THE
NPRINT"RUN.";:GOTO200ELSEPRINT"R
UNS.";:GOTO200
510 CLS5:LOCATE0,0:ATTR0,2:PRINT
Z$;:LOCATE0,4:ATTR0,2:PRINTZ$;:L
OCATE16,1:ATTR4,4,U:PRINT"ALPSKI
-3";:ATTR4,4:LOCATE6,3:PRINT"by
Frank Buttigieg (c)11/87";:LOCAT
E0,23:ATTR0,2:PRINTZ$;:ATTR4,4:R
ETURN
520 GOSUB510:LOCATE11,8:ATTR4,4,
B:PRINT"CONGRATULATIONS!!!";:LOC
ATE7,10:ATTR4,4:PRINT"You made i
t without a Fall.";:LOCATE5,12:P
RINT"You are now ready for the n
ext";:LOCATE14,14:PRINT"TOURNAME
NT";:LOCATE10,16:PRINT"use ";:AT
TR3,3:PRINT"RED BUTTON";
530 ATTR4,4:PRINT" only.";
540 GOSUB830:GOTO170
550 GOSUB510:LOCATE11,8:ATTR4,4,
B:PRINT"CONGRATULATIONS!!!";:LOC
ATE7,10:ATTR4,4:PRINT"You made i
t without a fall.";:LOCATE7,12:P
RINT"only ONE road I see for you
.";:LOCATE15,14:PRINT"The road t
o";:LOCATE9,16:PRINT"The WINTER
OLYMPICS!!!";:GOSUB720
560 LOCATE6,20:PRINT"Want anothe
r practice (Yy/Nn)?";
570 EXEC44539:A$=INKEY$:IFA$=""G
OTO570
580 IFA$="N"ORA$="n"GOTO660ELSE5
90
590 IFF=0GOTO170ELSE180:GOTO570
600 GOSUB510:IFF=6GOTO640ELSELOC
ATE8,7:PRINT"Oh well!..Not this
time.";:LOCATE13,9:PRINT"You Sco
red";:LOCATE5,11:PRINTW;:IFW<2THE
NPRINT"Win &";ELSEPRINT"Wins &";
610 PRINTF;:IFF<2THENPRINT"FALL
out of";ELSEPRINT"FALLS out of";
620 PRINTTL;:IFTL<2THENPRINT"RUN
.";ELSEPRINT"RUNS.";
630 LOCATE9,16:PRINT"But like a
true Champ,";:LOCATE9,17:PRINT"Y
ou're gonna try again.";:LOCATE1
6,18:ATTR4,4,B:PRINT"RIGHT?";:AT
TR4,4:GOTO560
640 GOSUB510:LOCATE10,6:PRINT"UM
M!!!W-E-L-L!.Yeh!?!";:LOCATE1,8:
```

```
PRINT"I guess JOYSTICKS are not
too friendly";:LOCATE8,10:PRINT"
with BEGINNERS. Are they?";:LOCA
TE2,12:PRINT"The rotten thing ma
de you FALL a lot";
650 LOCATE13,14:PRINT"Didn't it?
!?";:GOTO630
660 POKE65496,0:WIDTH80:CLS:END
670 WIDTH80:CLS:PRINT"ERROR #";E
RNO;" in LINE #";ERLIN:END
680 DATA Mt.Beauty,Mt.Buller,Mt.
Bogong,Mt.Buffalo,Falls Creek,Mt
.Kosciusko
690 PALETTE2,CR:HCOLOR4:HPRINT(1
4,23),"Hit BUTTONS"
700 IFBUTTON(0)=1 OR BUTTON(1)=1
THEN RETURN
710 GOTO690
720 P$="O1GO2CO1GEGO2L3CP80L8CP5
0L3CL4EDCO1BO2CL2DL4"
730 P1$="O1GO2CO1GECL3GP40L10CP8
0L4GO2EDCO1BAL2G"
740 P2$="O1GL3AL6BO2L4CO1AL3GL8E
P40L4EGAO2CFEL2DO1L4GL3AL6BO2L4C
O1AL3GO2L6P80CL4C"
750 P3$="L4DL3EL6CL3DO1L6BO2L2C"
760 P4$="L4O2EFEDCO1L3BL6AL3GO2T
3"+P3$
770 PLAY"V31T3L4"+P$+P1$+P2$+P3$
+P4$
780 RETURN
790 LOCATE2,6:PRINT"To the DOWN-
HILL skiing Tournament";:LOCATE0
,7:PRINT"We have 2 levels each o
n 6 different  mountains. each
of which have increased diffcul
ty level.The 1st set of mountain
sYou use the (Rt)Joystick to con
trol the Skier Left or Right"
800 PRINT", (up or down on the s
creen)...If you completed the fi
rst setwith 6 out of 6 mountains
without a FALLyou are ready for
the next challenge..."
810 PRINT"You will be put on the
same 6 Mountains,But, this time
you can only use the     RED BU
TTON...Because someone out there
I played a dirty trick on you."
820 PRINT" He placed a devise wh
ich will veer you to the RIGHT s
ide fence(Down Screen), toCounte
r-act 'that', push the button...
    WARNING:-'Don't push it too
hard!!!";
830 LOCATE15,23:ATTR3,2,B:PRINT"
ANY-KEY";
840 EXEC44539:ATTR4,4:RETURN
850 Y1=Y:FORXX=300TOX+12STEP-1
860 IFHPOINT(XX-2,Y)=2ORHPOINT(X
X-2,Y+6)=2ORHPOINT(XX-2,Y+12)=2T
HENXX=XX-26:GOTO874ELSE870
870 HPUT(XX,Y)-(XX+12,Y+12),5,PS
ET:HPUT(XX,Y)-(XX+12,Y+12),6,PSE
T:NEXTELSEIFXX<=X+12GOTO880
873 Y1=Y1+3
874 IFHPOINT(XX-2,Y1)=2ORHPOINT(
XX-2,Y1+6)=2ORHPOINT(XX-2,Y1+12)
=2THEN873ELSEIFHPOINT(XX-2,Y1)=5
ORHPOINT(XX-2,Y1+6)=2ORHPOINT(XX
-2,Y1+12)=5THEN875
875 Y1=INT(Y1):HLINE(XX+26,Y)-(X
X+38,Y1+12),PRESET,BF:IFXX<=X+12G
OTO880ELSEHDRAW"C2S4BM"+STR$(XX+
12)+","+STR$(Y1-6)+TR$+TR$+"S2"+
TR$+"S4":IFXX<=X+12GOTO880ELSE86
0
880 HPUT(X+12,Y)-(X+24,Y+12),6,P
SET:FORTT=0TO999:NEXT:HPUT(X,Y)-
(X+8,Y+10),2,PSET:FORTT=0TO999:N
EXT:HPUT(X,Y)-(X+8,Y+10),4,PSET:
RETURN
890 RETURN
```

The Listing:

```
0 GOTO10
3 SAVE"78B:1":END'GRF
10 'KIDSTUFF.. RESTORED BY JOHAN
NA
20 HBUFF1,500
25 ONBRK GOTO2000
27 POKE65497,0
30 PALETTERGB
40 HSCREEN2
50 HCLS4:HCOLOR2,4
330 HCLS4
360 HCIRCLE(160,70),30,2,1.8
370 HCIRCLE(160,90),15,2,.7,.1,.
42
380 HDRAW"BM160,70;C2S8G3E3F3"
390 HCIRCLE(147,55),4,2
400 HCIRCLE(173,55),4,2
405 HCOLOR3
410 HLINE(9,123)-(310,183),PSET,
BF
420 HLINE(9,143)-(310,143),PRESE
T
430 HLINE(9,163)-(310,163),PRESE
T
440 HLINE(72,123)-(72,143),PRESE
T
450 HLINE(232,143)-(232,163),PRE
SET
460 HLINE(182,123)-(182,143),PRE
SET
470 HLINE(122,143)-(122,163),PRE
SET
480 HCOLOR4
510 HD$="T3L4O2DL8FL4E-L8GFGAL4.
B-P8L4DL8FL4E-L8GFDO1B-L4.O2C"
520 GF$="P8L8DDFE-E-GFGAL4.B-O3L
8DDO2B-O3E-E-DCO2B-AL4.B-"
530 PLAY HD$+GF$
540 FOR M=1 TO 200:NEXT
550 PLAYHD$
580 FOR B=1TO500:NEXT
630 HCIRCLE(160,90),15,4,.7,.1,.
42
640 HCIRCLE(160,95),8,2
642 FORT=1TO900:NEXT
645 PALETTE2,63
646 POKE65496,0
647 PLAY"T255O1EFGABCAEDAGFCEDCB
GEADDABCGEADGCAEFEBCEDGAEDBCDEDG
BCEDC"
648 POKE65497,0
650 PLAY"T3O2":PLAYGF$
660 FOR B=1 TO1500:NEXT
680 PALETTE0,0
760 GOSUB 920
```

```
770 PLAY "T3L4O2CCGGAAL2G"
780 GOSUB920
790 PLAY"L4FFEEDDL2C"
800 GOSUB920
810 PLAY"L4GGFFEEL2D"
820 GOSUB920
830 PLAY"L4GGFFEEL2D"
840 GOSUB920
850 PLAY"L4CCGGAAL2G"
860 GOSUB920
870 PLAY"L4FFEEDDL2C"
880 GOSUB920
890 FOR V=1 TO8:GOSUB920:NEXT
900 FOR X=1 TO 1500:NEXT
910 GOTO1000
920 HSCREEN4:HCLS0
930 FOR S=1 TO 15
940 X=RND(600)
950 Y=RND(180)
960 HCIRCLE(X,Y),2,1
970 NEXT S
980 RETURN
1000 HSCREEN2:HCLS1
1017 HCOLOR7
1018 PALETTE7,49
1020 FOR C=1 TO 2
1025 HCIRCLE(56,150),10,7,.7
1030 HPAINT(56,150),7,7
1035 HLINE(63,145)-(75,150),PSET
1040 HLINE(63,155)-(75,150),PSET
1045 HCIRCLE(76,150),2
1050 HLINE(56,150)-(32,150),PSET
1055 HLINE(56,151)-(32,151),PSET
1060 HGET(31,145)-(91,160),1
1075 PLAY"T3O2L4E"
1080 HPUT(10,120)-(70,135),1,PSE
T
1085 PLAY "D"
1090 HPUT(5,95)-(65,110),1,PSET
1095 PLAY "C"
1100 HCLS1
1105 NEXT C
1110 SE$="T3O2L4GL8FFL4E"
1115 Y=RND(40)+40
1120 FOR A=0 TO 240  STEP20
1125 HPUT(A,Y)-(60+A,Y+15),1,PSE
T
1130 HCLS1
1135 NEXTA
1140 PLAYSE$
1145 Y=RND(50)+100
1150 FOR A=0 TO 240 STEP20
1155 HPUT(A,Y)-(60+A,Y+15),1,PSE
T
1160 HCLS1
1165 NEXT A
1170 PLAYSE$
1175 Y=RND(50)+40
1180 FOR A=0 TO 240 STEP 20
1185 HPUT(A,Y)-(60+A,Y+15),1,PSE
T
1190 HCLS1
1195 NEXTA
1200 FW$="T3O2L8GO3L4CL8CO2BABL4
O3CO2L8GG"
1205 PLAYFW$
1210 HPUT(15,140)-(75,155),1,PSE
T
```

SPELLING

EDUCATION
by J Niekamp

16K CoCo

THIS PROGRAM WAS written because my 7 year old son Colin was getting 9 out of 10 spelling words wrong at school.

I asked his teacher to send the weeks words home every Monday and I would load the words into the computer each evening and then get Colin to enter them.

Colins school results changed to 9 out of 10 correct.

On running, the program will ask if you need to enter new words.

Spelling words may be entered into lines 210 - 230 (eg. DATA ONE,TWO,THREE).

Having entered your words type and enter RUN.

The program will display a word for about 1 second. The screen will then clear and your child can then enter the word shown.

If the entry is wrong, the same word will be shown again, and if the entery was correct it will go on to the next word.

The computer will keep score for you, and when finished ask if you want to run through them again.

The display time may be increased by changing the 1500 in line 370 and 510 to a higher number.

Instructions are included in the program and it will run on a 16K Basic CoCo.

The Listing:

```
0 GOTO10
1 '***** SPELLING
2 '***** J NIEKAMP
3 SAVE"171:1":END'EDU
10 CLS(0)
20 PRINT@107,"--SPELLING--";
30 PRINT@143,"-BY-";
40 PRINT@170,"-J.H.NIEKAMP.-";
50 PRINT@418,"DO YOU WANT INSTRU
CTIONS (Y/N)";
60 A$=INKEY$
70 IF A$="Y"THEN80ELSE IF A$="N"
THEN160ELSE60
80 CLS(6)
90 PRINT@8,">INSTRUCTIONS<";
100 PRINT@32,"THIS PROGRAM WILL
DISPLAY A WORDON THE SCREEN FOR
APP.1 SEC.    (THE TIME MAY BE A
DJUSTED BY     CHANGING THE 1500
IN LINE 320). ";
110 PRINT"FOR MORE TIME INCREASE
 THE NO.   ";
120 PRINT"THE SCREEN WILL THEN C
LEAR AND  YOU MUST ENTER THE WOR
D JUST     SHOWN, IF THE ANSWER I
S WRONG    THE WORD WILL BE DISPL
AYED AGAIN";
130 PRINT"  ON RUNNING YOU WILL
BE ASKED   IF YOU NEED TO INSERT
NEW        SPELLING WORDS, IF SO
THESE MAY BE ENTERED INTO DATA L
INES 200- 240 EG.( 200 DATA ONE,
TWO,THREE)";
140 PRINT@490,"PRESS A KEY";
150 EXEC44539
160 CLS
170 PRINT@225,"DO YOU NEED TO EN
TER NEW WORDS"
180 PRINT@269,"(Y/N)"
190 I$=INKEY$
200 IF I$="Y"THEN CLS: LIST210-2
40:ELSE IF I$="N"THEN 250ELSE190
210 DATA ENTER,WORDS,HERE
220 DATA INSERT,COMAS,AS,SHOWN
230 DATA THERE,IS,NO,WORD,LIMIT
235 '-------------------------
240 TYPE RUN TO START
250 CLS
260 PRINT@134,"HELLO."
270 PRINT@163,"I'AM YOUR FRIENDL
Y COMPUTER."
280 PRINT@260,"PLEASE TELL ME YO
UR NAME";
290 PRINT@296,"";:INPUT N$
292 CLS(8)
294 PRINT@262,"HELLO, ";N$"."
296 PRINT@416,"PLEASE PRESS A KE
Y WHEN YOU ARE READY TO START, "
;
298 EXEC44539
300 CC=0:WW=0
310 DATA XXX
320 C=RND(8):CLS(C)
330 READ D$
340 IF D$="XXX"THEN632
350 PRINT@67,"CORRECT "CC;:PRINT
@85,"WRONG "WW;
355 PRINT@3,N$"S. SCORE IS,";
360 PRINT@237," "D$" ";
370 FOR T=1TO1500:NEXT:CLS(C)
380 PRINT@454,"NEED HELP? PRESS
(Y)";
390 PRINT@267,"";:INPUT A$:CLS(C
)
400 IF A$="Y"THEN 350
410 IF A$=D$ THEN420 ELSE570
420 CC=CC+1
430 R=RND(3)
440 IF R=1THEN PRINT@363,"VERY G
OOD.";
450 IF R=2THEN PRINT@363,"WELL D
ONE.";
460 IF R=3THEN PRINT@363,"EXCELL
ENT.";
470 FOR S=1TO15:SOUND100+S,1:NEX
T
480 GOTO320
490 CLS(C):PRINT@67,"CORRECT "CC
;:PRINT@85,"WRONG "WW;
495 PRINT@3,N$"S. SCORE IS, ";
500 PRINT@238," "D$" ";
510 FOR T=1TO500:NEXT:CLS(C)
520 PRINT@267,"";:INPUT A$:CLS(C
)
530 IF A$="Y"THEN 490
540 IF A$=D$ THEN320 ELSE610
550 PRINT@238," "D$" ";:INPUT A$
560 GOTO490
570 W=RND(3)
580 IF W=1 THEN PRINT@396,"WRONG
.";
590 IF W=2 THEN PRINT@398,"NO.";
600 IF W=3 THEN PRINT@392,"SORRY
! TRY AGAIN.";
610 SOUND 128,20
620 WW=WW+1
630 GOTO490
632 CLS
634 PRINT@35,"CORRECT "CC;:PRINT
@53,"WRONG "WW;
640 PRINT@420,"PRESS ANY KEY TO
DO THE"
650 PRINT@458,"WORDS AGAIN."
660 EXEC44539
670 RESTORE
680 GOTO300
φ
```

---

from previous page

```
1215 HPUT(100,90)-(160,105),1,PS
ET
1220 HPUT(50,40)-(110,55),1,PSET
1225 PLAYFW$
1230 HCLS1
1235 HCIRCLE(51,120),10,7,.7
1240 HPAINT(51,120),7,7
1245 HLINE(57,115)-(69,120),PSET
1250 HLINE(57,125)-(69,120),PSET
1255 HCIRCLE(71,120),2
1260 HLINE(36,120)-(24,125),PSET
1265 HGET(30,113)-(90,128),1
1270 HPUT(150,150)-(210,165),1,P
SET
1275 HPUT(120,40)-(180,55),1,PSE
T
1280 PLAY FW$
1285 PLAY "P8L8FL3EDL3C"
1290 PLAY "P8L8FL3EDL3C"
1295 FOR B=1 TO1000:NEXT
1325 FORT=1TO200:NEXTT:PALETTERG
B:GOTO330
2000 POKE65496,0:PALETTERGB:END
⊕
```

At Home

by Johanna Vagg

AS SOME OF you will know, I have been writing for CoCo and Softgold since September 1984. Graham and Alex have finally decided to give me some magazine space on a regular basis.

I can hear you saying that you thought I already had this, but there is a difference between contributing fairly regularly and being asked to contribute regularly.

Whatever the reasons for the request, I agreed because it means I will be able to pass on what I am learning without having to write a complete article on a specific topic.

The first tidbit I have for you concerns reversing a hi-res picture. My daughter, Monica, had an ALF iron-on transfer which she wanted on her T-shirt.

I noticed that the printing was all reversed on the transfer; if it hadn't been that way, it would have been reversed on the shirt.

Apparently there are products available for the CoCo printer, which allow the making of such transfers. With the majority of pictures it would not matter whether the image was reversed or not, but as soon as the picture has writing on it, you need to reverse it before printing.

A very short routine to accomplish this is contained in my "GRAPHIX" program which appeared in May 1987 Softgold.

"GRAPHIX" will also turn a picture upside down, or on its side. I have found this to be a very useful program, especially when combined with a program called "ZOOM". I have "ZOOMPLUS" on a number of my disks because I like working with graphics.

I have made signs and cards, and when school went back I did screen dumps in all sizes for my kids' book labels. We have 4 kids at school: Michelle is in Year 9; Monica in Year 8; Richard, Year 7; and Peter, Year 4. They all had different

requests and requirements.

I spent several hours LOADing PMODE4 screens into the computer, adding Name, Subject, and Class, and dumping it to the printer.

There have been a number of programs in the magazines which make it fairly easy to add text to PMODE screens. Mal McLauchlan's HRTITLE is one of the recent ones. It is in the October 1987 Softgold.

One I like particularly was in one of the Rainbows produced by Greg Wilson. I like this one because it 'writes' as well as prints: it uses two completely different letter sets for both upper and lowercase.

As the letters are contained in strings, the size can be varied. I used one of Bob Horne's routines in "BABYSIT2", also varying the size for different screens, even constructing pictures from punctuation marks.

These are a few examples.

There are many programs which have hi-res letters.

This is an appropriate place in this 'ramble' to thank Greg. His terms for a collection of words such as this were rave, ramble and burst. RAVE, RAMBLE and BURST as a title for my page sounded pretty good. I considered a lot of titles, but settled on 'At Home with Johanna' as the one with which I would be most comfortable ... it doesn't require any explanation.

Without Greg's confidence in me, I wouldn't be writing today.

Thanks Greg. That is not to say that Graham hasn't been 'an inspiration' (first time anyone called you by that name, Graham?), but if it hadn't been for Greg and the articles I wrote for him, Graham would never have called me.

Anyway, enough raving, and on with the show!

The Graphics program which caught my eye this year was MR MEN (September 1987 Softgold) by 12 year old Stuart Fisher. Thank you Stuart. I have already made use of some of the pictures on calendars and cards.

I hope to be able to thank some of the authors, not only for myself, but also for you.

If there is a program from which you or someone in your family has benefited, why not write to tell me about it, and I will thank the author publicly.

Authors need encouragement. I know. There have been times when I seriously contemplated 'giving up'. A word of encouragement from a reader was usually enough to keep me going.

I don't mind writing letters either, ie I will write to you if you write to me.

I have answered some 'letters to the Editor', but these often come minus the address. One gentleman replied that he never thought he would actually get a letter from me. YOU are not

likely to get a letter from me IF I don't hear from you first.

My address is:
9 Belah Street
FORBES NSW 2871

There are people I should have thanked. That's another reason for agreeing to this column, or page, or 2 pages.

I will be able to thank authors AND at the same time tell you a little about some programs which may seem a bit of a gamble to key in. For example, you think a certain program is probably what you want, which is so L-O-N-G that you would want to 'leave it till later and forget about it.'

There is a definite place for short programs in my opinion.

While I'm on the subject of small things, let me tell you about something else we did last week after school resumed.

We used Telewriter to type up timetables for our High School kids. Then we printed them in various sizes, to stick inside books etc, but mainly to carry around in pockets. We printed them in condensed type, stuck them to cardboard and covered them with self-adhesive plastic.

This is the third year for that project. I'm writing this in the middle of February, possibly for the April or May magazine.

There are a few questions in the February magazine on which I would like to comment:

1. (letter from Val Stephen): I don't think that the program CITY2 appeared in Softgold. It was on disk (and tape?) IN PART ONLY. (Ed's note: that program appeared by accident on the tape and disk version ... sorry!)

2. (letter from Neil Etheridge): Moonbase AMPHIBIA (November 1985 Australian Rainbow) is a good program, and a pageful of corrections appeared in the December 1985 issue of the Aussie Rainbow, the following month.

The program will not work with disk. I shortened it to make it fit, but the graphics are 'not right' as they have been written for tape.

Also, unless you are a good game player, you may not get past the first screen, so during 1986 I made several versions to overcome this. If anyone is interested, please feel free to contact me.

3. (letter from Graham Freak): COCORUN (April 87 CoCo and Best of CoCqOz#13) requires a PCLEAR5 before you CLOAD it. It is another tape only program. It contains the high speed poke, so if you have a CoCo 3, it will be rather slow unless you change this to POKE65497,0. Please remember to 'get rid of' either any high speed POKE's before any further CSAVEing or CLOADing.

4. To Tony Taraborelli: if the information given earlier in

this article about printing to the Hi-res screen is not enough, you could write to me, telling me a bit more about what you want; I may be able to help.

5. Most of the credit for The Talking Keyboard should go to Freda Drinkwater. I helped, and wrote the introduction to the program; she did all the hard work.

6. The New Mexican Hatdance intro, on the other hand, was not written by me. In the program I said that the program was a result of studying for the basic BASIC articles. I did not mean the ones about the PLAY command.

The studying I .did was for Part 4, about the PMODE graphics. Part 4 has not been written, but if you study the NEW HATDANCE, you will see how I achieved the animation, ie I drew on two PMODE 3 screens and switched between them. Maybe you should look at the program as basic BASIC Part 4. If this column continues, Part 4 might not eventuate.

7. Last, but by no means least, a note to tape users who try Richard's FRED program. Please deduct 2048 from the 5132 and 5164 in line 40.

During 1988 you will no doubt read my name in articles and programs by Margaret and Stephen Bell (mother and 8 year old son). You will also see their names in my articles and I guess some of you will wonder when Forbes joined Figtree as a suburb of Wollongong. Let me assure you that Forbes is still about 400 kilometres west of Sydney, while Figtree is about 90 kilometres south of Sydney.

The Bell family and I have a 'long distance' friendship. We have been working together on programs which will be useful and fun for TP-10 owners. TP stands for Thermal Printer, but we refer to it affectionately(?) as the Toilet Paper printer.

Although the paper is only as wide as toilet paper, we have managed to print pictures on it. However, the bad news is that they are block graphic pictures; the good news being that they look good AND we have written a program to help you design pictures on the screen.

This same program will then make a BASIC program (on tape or disk) for later viewing on screen, or printing on the TP-10.

If you have a DMP105 (or similar) printer you can also print the picture, but only from the original program, called NEWDRAW. The block graphics on the DMP105 can be condensed, and the result is rather good. Watch for a program called NEWDRAW, and possibly a block graphics drawing competition for the kids. Above all, enjoy you CoCo 1, 2 or 3!

SOUND OFF....eh! ON eh?

SOUND
by Aaron West

The Listing:

```
0 GOTO 10
1 'LISTING 1
2 '#########################
3 '#      THE "PHUT"       #
4 '#  HOW TO·CREATE SOME NEW #
5 '#     SOUND EFFECTS     #
6 '#  NOVEMBER 1987 WESTSOFT #
7 '#    BY AARON WEST(10)  #
8 '#########################
9 SAVE"157-":END'GRF
10 FORX=0 TO 255
20 POKE140,X:EXEC43350
30 NEXTX
40 '##########PHUTS##########
50 'BY TYPING IN EXEC43350 (OR
60 'ANY NUMBER BETWEEN 43341 AND
70 '43361) WILL GIVE A LITTLE
80 'NOISE WHICH I CALL A "PHUT".
90 'BY POKEING NUMBERS INTO LOC-
100 'ATION 140 DECIMAL WILL CHA-
110 'NGE THE TONE OF THE "PHUT".
120 'WITH THIS YOU CAN CREATE
130 'SOME GOOD SOUND EFFECTS....
140 '
150 '??????????????????????????
160 '?   ANY QUESTIONS ABOUT  ?
170 '?  THIS PROGRAM PHONE ME ?
180 '? ON:    (066) 544328  OR ?
190 '? WRITE TO ME. HERE IS MY ?
200 '? ADDRESS:               ?
210 '?     AARON WEST         ?
220 '?     LOT 132 GRAFTON RD. ?
230 '?     CORAMBA N.S.W. 2450 ?
240 '??????????????????????????
0 GOTO 10
1 'LISTING 2
2 '%%%%%%%%%%%%%%%%%%%%%%%%%%%
3 '%      KANGAROO HOP      %
4 '%     USING "PHUTS"      %
5 '%  NOVEMBER 1987 WESTSOFT %
6 '%    BY AARON WEST(10)   %
7 '%%%%%%%%%%%%%%%%%%%%%%%%%%%
8 SAVE"157-A":END'GRF
10 FOR X=210 TO 245
20 POKE140,X:EXEC 43350
30 NEXT X
40 FOR X=1 TO 100:NEXT X
50 GOTO 10
0 GOTO 10
1 'LISTING 3
2 '$$$$$$$$$$$$$$$$$$$$$$$$$$$$
3 '$    AEROPLANE IDLEING    $
4 '$      USING "PHUTS"      $
5 '$  NOVEMBER 1987 WESTSOFT  $
6 '$    BY AARON WEST(10)    $
7 '$$$$$$$$$$$$$$$$$$$$$$$$$$$$
8 SAVE"157-B:1":END'GRF
10 P=RND(255)
20 POKE 140,P:EXEC43350
30 GOTO 10
0 GOTO 10
1 'LISTING 4
2 '==========================
3 '=     VAPORIZER GUN      =
4 '=     USING "PHUTS"      =
5 '=  NOVEMBER 1987 WESTSOFT =
6 '=    BY AARON WEST(10)   =
7 '==========================
8 SAVE"157-C":END'GRF
10 FORX=255 TO 230 STEP -1
20 POKE140,X:EXEC43350
30 NEXT
40 GOTO 10
```

A LOT OF YOU know that if you type in EXEC43350 the computer will make a little noise, which I call a "PHUT".

While I was looking at a memory map of my computer, I figured out that if you POKE numbers into location 140, you could change the tone.

The main program is listing one. The rest are examples I have thought up. Using this you could create some good sound effects.

I hope you find it useful.

PiG

GAME by Hamish Purdey

16K CoCo

THIS PROGRAM is the second that I have sent in to the magazine. The program itself is fairly self explanatory and there is a section for instructions.

This is just the computerised version of a game you might have played on paper before.

The Listing:

```
0 GOTO 20
3 SAVE"150:1":END'GAM
10 SAVE "PIG.BAS":END
15 'PIG BY HAMISH PURDEY
   12/03/88
20 CLS
21 PRINT:PRINT:PRINT TAB(15);"PI
G"
22 A$="BY HAMISH PURDEY"
23 GOSUB 25
24 GOTO 27
25 PRINT:PRINT:PRINT TAB(16-0.5*
LEN(A$));A$
26 RETURN
27 PRINT:PRINT:PRINT:PRINT:PRINT
28 A$="DO YOU NEED INSTRUCTIONS?
":GOSUB 25
29 A$=INKEY$
30 IF A$="Y" THEN 62ELSEIF A$<>"
N" THEN 29
31 CLS
32 PRINT:PRINT
33 FOR B=1 TO 2
34 PRINT "PLAYER"B;
35 INPUT P$(B)
36 NEXT B
37 A=A+1:IF A=3 THEN A=1
38 CLS
39 PRINT@320:PRINT @0,"PL.1 - ";
LEFT$(P$(1),7),"PL.2 - ";LEFT$(P
$(2),7)
40 PRINT @32,TL(1),TL(2)
41 PRINT @96,"CURRENT PLAYER - "
;LEFT$(P$(A),10)
42 PRINT @160,"SCORE FOR TURN -
";CU
43 D=RND(6):
44 PRINT@234,D
45 IF INKEY$="" THEN 43
46 IF D=1 THEN 55
47 CU=CU+D
48 PRINT @320,"<S>TOP OR <C>ONTI
NUE?
49 A$=INKEY$
50 IF A$="" THEN 49
51 IF A$="S" THEN TL(A)=TL(A)+CU
:CU=0:IF TL(1)>99 OR TL(2)>99 TH
EN END
52 IF A$="S"THEN 37
53 IF A$="C" THEN 39
54 GOTO 49
55 CLS
56 PRINT@096,"SORRY BUT YOU ROLL
ED A ONE
                 THAT MEANS THAT IT
   IS THE OTHER
                 PERSON'S GO AND YO
U LOSE THE
                 POINTS YOU HAVE GA
INED IN THIS"
57 PRINT
58 PRINT "ROUND
59 A$=INKEY$:IF A$="" THEN 59
60 CU=0
61 GOTO 37
62 'INSTRUCTIONS
63 CLS
64 PRINT "***********************
**********        PIG
   ***********************
**********"
65 PRINT"   PIG IS A GAME OF CHA
NCE     WHICH INVOLVES A CERTAI
N AMOUNT OF SKILL. YOU ARE REQUE
STED      FIRST TO TYPE IN THE NA
MES OF     THE THE TWO PARTICIPANT
S.  THEN  YOU WILL SEE THE FIRST
SCREEN    WITH A LOT OF INFORMATI
ON. A
66 PRINT"'DICE' IS SHOWN ROLLING
 AT THE   BOTTOM OF THE SCREEN, T
O STOP    THIS DICE JUST PRESS AN
Y KEY.    THE REST IS SELF-EXPLAN
ATORY
67 EXEC44539
68 RUN
```

Φ

Obstacle

THE ESSENTIAL idea of this game is to wander around the coloured rectangle carefully not trying to crash into the walls, yourself, or the other player trying to do the same thing.

Good luck ... you'll need it!

GAME by David Phillips

16K CoCo

The Listing:

```
0 GOTO10
3 SAVE"177:1":END'GAM
10 '******************************
20 '********OBSTACLE***********
30 '*****COCO VERSION 16K*******
40 '*****BY DAVID PHILIPS*******
50 '********APRIL 1988**********
60 '******************************
70 CLS:PRINT TAB(12)"obstacle":P
RINT" THE GAME OF OBSTACLE IS PL
AYED BY TWO PLAYERS WITH TWO COL
ORED LINES INSIDE A RECTANGLE."
80 PRINT" AT THE BEGINNING OF EA
CH GAME  THE COMPUTER WILL START
 BOTH    PLAYERS AT THE SAME TIM
E IN ONE OF 4 RANDOM DIRECTIONS,
UP,DOWN, LEFT OR RIGHT."
90 PRINT"  THE OBJECT IS TO GO A
S LONG AS YOU CAN WITHOUT CRASHI
NG INTO   THE WALLS,THE OTHER PL
AYER OR   YOURSELF."
100 PRINT @452,"PRESS ANY KEY TO
 CONTINUE":EXEC44539
110 CLS:PRINT:PRINT"THE FIRST PL
AYER TO CRASH LOSES.THE WINNER W
ILL BE THE ONE WHO  WINS THE BES
T OF 5 ROUNDS."
120 PRINT:PRINT" YOU CAN PLAY WI
TH JOYSTICKS  WITH THE KEYBOA
RD. CONTROL KEYS FOR LEFT PLAYER
  ARE:-           W-UP,A-LEFT,D-R
IGHT,Z-DOWN       FOR THE RIGHT P
LAYER:-           O-UP,K-LEFT,;-R
IGHT,AND ,-DOWN":PRINT:INPUT" Jo
ysticks (1)  keyboard (2)";C
130 GOSUB 470:T=0
140 CLS0:PRINT@416,"OBSTACLE"
150 PRINT"PRESS ANY KEY TO START
"
160 A$=CHR$(175):B$=CHR$(191):A=
200:B=215
170 E$=CHR$(207):S=1024:AD=RND(4
):BD=RND(4)
180 GOSUB550:GOSUB540:EXEC44539
190 CLS0:GOSUB550:GOSUB540
200 X=A:D=AD:GOSUB570
210 AR=R:A=X:X=B:D=BD:GOSUB570
220 BR=R:B=X:IF AR=1 OR BR=1 THE
N 390 ELSE GOSUB 540
230 FOR J=1 TO 12:IF C=1 THEN 34
0 ELSE RS=INKEY$
240 ' CONTROL KEYS. YOU CAN CHAN
GE THESE IF YOU WANT BUT DONT FO
RGET TO CHANGE KEYS IN INSTRUCTI
ONS!!!!
250 IF R$="W" THEN AD=1
260 IF R$="Z" THEN AD=2
270 IF R$="A" THEN AD=3
280 IF R$="D" THEN AD=4
290 IF R$="O" THEN BD=1
300 IF R$="," THEN BD=2
310 IF R$="K" THEN BD=3
320 IF R$=";" THEN BD=4
330 NEXT:GOTO 200
340 H1=JOYSTK(0):V1=JOYSTK(1):H2
=JOYSTK(2):V2=JOYSTK(3)
350 IF H1<31 THEN BD=3 ELSE IF H
1>31 THEN BD=4
360 IF V1<31 THEN BD=1 ELSE IF V
1>31 THEN BD=2
370 IF H2<31 THEN AD=3 ELSE IF H
2>31 THEN AD=4
380 IF V2<31 THEN AD=1 ELSE IF V
2>31 THEN AD=2:NEXT:GOTO 200
```

22

I HAVE RECENTLY joined the ranks of the "CoConut" Mums. A few months ago Stephen (my 8 yr.old son) bought a CoCo 2. Tandy had this SUPER DUPER sale which we couldn't resist.

No-one in our family was computerized, so it's been an exciting and delightful time as well as a frustrating one in lots of ways.

The frustration began with my lack of technical ability as I tried to get my CoCo 'going'.

"Simply plug it into your TV and begin".

Not so simple!! Lots of leads, plugs and two instruction manuals to digest in minutes as three boys waited impatiently for their mum to produce

The manual suggested that this error is often caused by trying to input a program or data file from a bad tape. But surely all our new tapes weren't at fault!

Hadn't they CLOADed in the demo CoCo earlier that afternoon?

The recommended cassette volume setting is 5(P), but it wasn't until I increased our volume to 8+ that I had success in CLOADing.

This setting works with most commercial tapes and we find that CSAVEing and CLOADing are most successful at this volume.

There is the occasional tape that needs a higher or lower setting.

As suggested in the manual, faulty tapes can also give input-output errors. Initially,

Tapes can also be badly affected by heat and magnetic fields, so treat them with care!

Some tapes have a leader - a clear section at the beginning, others are leaderless. To avoid input-output errors from taping over a leader, either manually wind past the leader or allow the tape to play for approximately. 5 secs.

You will also get input-output errors if you have any loose connections and I believe fluctuations in power levels in some areas can also cause problems.

Other causes are:
* low battery level (if applicable),
* a too low setting on the cassette adapter (ours is 6 volts) or ...

'Simply plug into your TV....'

by Margaret Bell

something exciting on the screen.

Of the three boys, two were trying to be very helpful while the third, the 18mth old just wanted to 'have a go' and pressed every key and button in sight.

I did manage to get something on the screen but my first association with my CoCo was not exciting. He showed me how clever he was at giving error messages and then promptly displaying OK messages.

Well it wasn't OK! I didn't know what to do. The manual wasn't making sense and my children were impatient. After several calls of help to the local Tandy manager, I did manage to CLOAD the couple of tapes we had bought with the computer and hence satisfy my sons, although we did discover very early that the baby liked the red BREAK key best, much to everyone's annoyance.

Error messages were my first big frustration, but on reflection, although that first afternoon was not easy, it was the beginning of a very satisfying association with my CoCo.

While not always welcome, his error messages have helped me to learn a lot about him and how to not only debug him but to program (very BASICally) as well.

I even accept his OK now. Well ... most of the time, anyway!

The first error message I encountered is probably one of the most common ones - an input-output error (IO ERROR). I had hooked everything up according to instructions but still that input-output error.

when we started typing in programs from the manual, we used ordinary audio cassette tapes - C60's & C90's but we had more pain than success with CSAVEing. Apparently shorter tapes e.g. C10's, C20's & C30's are thicker and much more reliable. I am quite happy with the ones I buy from Goldsoft (and they're a lot cheaper than Tandy).

'I did manage to get something on the screen but my first association with my CoCo was not exciting'

Good tapes can be made faulty by leaving the play button down on the cassette player after CLOADing. This causes a kink in the tape.

Not such a problem if the kink is in between programs but if that tape is re-used to CSAVE another program that seems to be when we have problems.

Something to do with a destroyed byte - getting a bit technical? ... sorry. We have a "TURN ME OFF" sign prominently displayed on the cassette player.

It's not always heeded but it's a good habit to try and develop early.

* a faulty adapter. We encountered this last week. It was not an easy one to discover.

My husband took over after I became VERY annoyed by continual input-output errors in tapes which normally CLOADed.

I had tried all my normal problem solving methods but to no avail. After much detective work he disconnected the adapter and inserted batteries into the cassette player.

TA DA! NO input-output errors. Problem - faulty adapter. Solution - buy a new one!

Cleaning the heads of the cassette player at regular intervals is another good habit to develop. The build up can be a reason for input-output errors. This is easily done with a little method on a cotton bud. Cleanse the erase head, playback/record head, and the pinch roller.

TO RECAP - if you are being bugged by an input-output error try these tips:
* rewind the tape,
* adjust the cassette volume,
* check all plugs and connections,
* check the cassette adapter (if you have one, of course),
* clean the head,
* check for faulty tape (try PEEK(129): results are that if it equals 1=bad tape, and if it equals 2=OM error),
* also try a cold start.

This simply means turn the computer off for approximately 15-20 secs. (try this first - Johanna) then on again. This clears the CoCo'S memory of any garbage that has accumulated.

If I had known about ?PEEK(129) on my first day of computing (be encouraged, we all start in the dark - strangely

though, for some it's just a bit darker than for others!), I would have saved yet another phone call.

We had successfully CLOADed one program and CLOADMed another. Very clever? - no, we read the label after an FM error.

A Machine Language program needs CLOADM. But then we tried to CLOAD the next one - without success.

This time we had read the label (we were learning slowly!) but not the accompanying instructions. We needed to PCLEAR1 before CLOADing to reserve more text memory. My CoCo was 16K then, and we don't need to PCLEAR1 now that we have 64K.

After a cold start, CoCo gives a PCLEAR4. There are 4 'pages', or one PMODE4 screen, or 6K (6144 bytes) of the memory reserved for graphics. If your program doesn't need this number of pages, (a PMODE0 screen is only one 'page' or 1536 bytes) then this can be adjusted by PCLEARing.

So with PCLEAR1 we have more memory available for our BASIC program. To PCLEAR0, type POKE25,6:NEW (for tape, not disk) This gives us the maximum memory for the program.

Sometimes a PCLEAR statement is included in a program, but apparently this could cause errors.

Other times we are told to send the statement before CLOADing or RUNning. Recently I CLOADed a program -COCORUN- from The Best of CoCoOz #13. The program CLOADed, would LIST BEFORE I typed RUN but not AFTER. CoCo's response to the RUN command was OK. The program appeared to have disappeared. I re-read the instructions - CLOAD"32E,COCO":RUN - no clues, and I had no ideas on this one!

As an aside, the instructions should read:
    CLOAD"COCORUN"
... as this is the name the program has been CSAVEd under.

After a plea of help (to Johanna Vagg, my very special computer friend and ever present standby in times of trouble!) I found I needed to PCLEAR5. This is now another 'TRY THIS' that I can add to my list when a program refuses to RUN yet displays no error message.

Many input-output errors can be avoided by a little care, others can be easily remedied with a little detective work. I hope this has or will be of use to other beginners and if Ed. agrees, this beginner has plenty more beginner's experiences to share, eg lots of other error messages I discovered when I started typing in programs, plus hints on CSAVEing and RUNning programs.

Interested Ed.?

(Ed's note: Sure!)

A·L·I·E·N·S

GRAPHICS
by Richard Vagg
CoCo 3

ALIENS IS A small graphics program that depicts two funny-looking aliens in full-colour graphics.

The Listing:

```
0 GOTO10
1 '*******ALIENS AT HOME*********
  *******RICHARD VAGG*********
  *********APRIL 1987**********
3 SAVE"149F",A:END'GRF
10 HSCREEN2
20 POKE65497,0
30 ON BRK GOTO650
40 PALETTE0,33:PALETTE3,37:PALET
TE2,55:PALETTE4,52:PALETTE5,38:P
ALETTE6,32:PALETTE8,12:PALETTE7,
63:PALETTE9,1
50 HCLS0
60 HCOLOR3,0
70 HLINE(0,80)-(319,82),PSET
80 HLINE(0,40)-(319,42),PSET
90 HPAINT(1,42),3
100 HCOLOR5
110 HLINE(0,81)-(319,83),PSET
120 HLINE(0,159)-(319,161),PSET
130 HLINE(0,160)-(319,162),PSET
140 HPAINT(1,158),5,5
150 HCOLOR6:HLINE(0,161)-(319,16
3),PSET
160 HPAINT(1,182),6,6
170 HCIRCLE(250,120),45,3,.8
180 HPAINT(250,120),8,3
190 HCIRCLE(260,115),6,7
200 HCIRCLE(240,115),6,7
210 HPAINT(240,115),7
220 HPAINT(260,115),7
230 HSET(238,116,8)
240 HSET(258,116,8)
250 HDRAW"BM245,140;C2R10;BM250,
110;C2D10G8D2R10;BM245,140;C2G2;
BM255,140;F2
260 HDRAW"BM215,120;C9U10E20R30F
20D10;BM215,120L10;BM285,120R10
270 HCIRCLE(250,120),45,9,.8,.5;
1
280 HPAINT(212,118),9,9
290 HPAINT(287,118),9,9
300 HDRAW"BM205,120;C3H5U25R3F12
;BM292,120E5U25L3G12
310 HCIRCLE(250,120),45,3,.8,.5,
1
320 HPAINT(205,108),8,3
330 HPAINT(295,100),8,3
340 HDRAW"BM260,85;C9U20E5R5D5L5
U5;BM240,85;U20H5L5D5R5U5
350 HDRAW"BM240,150;C8G20L3D3R8U
3E20;BM260,150;F20R3D3L8U3H20
360 HPAINT(238,155),8
370 HPAINT(262,155),8
380 HDRAW"BM222,175;C4L5G5R15U5L
5;BM280,175;R5F5L15U5R5
390 HPAINT(222,177),4
400 HPAINT(280,177),4
410 HCIRCLE(40,110),25,4
420 HDRAW"BM15,110;H5U10R3F5BM65
,110;E5U10L3G5
430 HPAINT(40,110),4
440 HPAINT(15,100),4
450 HPAINT(65,100),4
460 HCIRCLE(47,105),5,7
470 HCIRCLE(32,105),5,7
480 HPAINT(47,105),7
490 HPAINT(32,105),7
500 HCOLOR8
510 HSET(46,106)
520 HSET(33,106)
530 HDRAW"BM35,97;C0F5E5;BM40,10
5D5G5D2R5;BM30,120R15;BM32,132C4
F5D10L5U10H5;BM47,132F5D10L5U10H
5
540 HPAINT(32,135),4
550 HPAINT(47,135),4
560 HDRAW"BM37,147C9D5G2H2U5R5;B
M53,147D5G2H2U5R5
570 HPAINT(35,150),9
580 HPAINT(52,150),9
590 HCIRCLE(40,110),25,9,1,.5,1
600 HCIRCLE(40,110),20,9,1,.5,1
610 HDRAW"BM20,110;L5;BM60,110R5
620 HPAINT(20,105),9
630 HDRAW"BM300,155U7D2E2G2H2F2D
2E2G2BM150,150U7D2E2G2H2F2D2E2G2
;BM90,90U7D2E2G2H2F2D2E2G2
640 GOTO640
650 PALETTERGB:POKE65496,0:END
```

ALIEN INVADERS depicts the war that went on a long, long time ago in a galaxy far, far away. Graphics orientated with the touch of animation make it interesting to watch, for a while anyway.

The Listing:

```
0 GOTO10
1 '      ALIEN INVADERS
2 ' AN ANIMATION FOR THE COCO 3
3 ' BY DAVID DYSON
5 '     (C)
6 '      5/2/88
9 SAVE"179B:1":SAVE"179B:3":END'
GRF
10 POKE65497,0:FORD=9TO15:PALETT
ED,25:NEXT:PALETTE0,0:PALETTE3,2
5:HSCREEN2:PALETTE5,25:HCL85:FOR
D=1TO100:R=RND(320):G=RND(192):H
SET(R,G,0):NEXTD
11 HCOLOR9:HLINE(112,20)-(234,11
2),PSET
12 HCOLOR10:HLINE(68,52)-(220,12
6),PSET
13 HCOLOR11:HLINE(24,100)-(212,1
44),PSET
14 HCOLOR12:HLINE(8,168)-(220,16
8),PSET
15 HDRAW"C3BM200,192H4E8H8E4H8E4
H8E12R8E8H8E4F4E4F4E16F20U4E4F4E
8F4E8F8E4M+4,+8E4F4E8"
16 HDRAW"C8BM0,188M144,184M198,1
92"
17 HPAINT(50,192),8,8
18 HDRAW"C8BM0,164R8D8L8"
19 HPAINT(4,168),8,8
20 HDRAW"BM220,192U36R20E32R50"
21 HPAINT(268,192),1,8
22 HBUFF 1,5000
23 HDRAW"BM224,24F2G2R52H2E2L12H
```

```
2L2U2L4U2L12D2L4D2L2G2L12R50
24 HPAINT(248,20),7,8:HPAINT(248
,26),6,8
26 HGET(220,12)-(280,32),1
28 HDRAW"C13BM268,130M238,110M23
2,116M260,136M268,130":HPAINT(24
8,124),13,13:HDRAW"C14BM260,136M
224,124M224,124M132M252,144M
260,136":HPAINT(240,136),14,14:H
DRAW"C15BM252,144M216,140M212,14
8M244,152M252,144":HPAINT(232,14
6),15,15
29 PALETTE13,0:FORD=220TO96STEP-
4:HPUT(D,12)-(D+60,32),1
30 NEXTD
31 PALETTE9,0:PLAY"T25501L4A":PA
LETTE9,25
32 FORD=1TO20:HCIRCLE(124,20),D,
1:PLAY"T25501L4G":NEXTD:FORS=30T
01STEP-1:HCIRCLE(124,20),S,5:NEX
TS
33 PALETTE13,25:PALETTE14,0:FORD
=220TO36STEP-4:HPUT(D,40)-(D+60,
60),1:NEXTD
34 PALETTE10,0:PLAY"A":PALETTE10
,25
35 FORD=1TO30:HCIRCLE(68,52),D,1
:PLAY"G":NEXTD:FORS=30TO1STEP-1:
HCIRCLE(68,52),S,5:NEXTS
36 PALETTE14,25:PALETTE15,0:FORD
=168TO8STEP-4:HPUT(D,88)-(D+60,1
08),1:NEXTD
37 PALETTE11,0:PLAY"A":PALETTE11
,25
38 FORD=1TO30:HCIRCLE(29,100),D,
1:PLAY"G":NEXTD:FORS=30TO1STEP-1
:HCIRCLE(29,100),S,5:NEXTS
39 PALETTE12,0:PLAY"AGA":PALETTE
12,25:PALETTE3,32:HPAINT(252,160
),3,3:FORD=1TO15:PLAY"T25503L1GA
GAV-":NEXTD
40 CLS:POKE65496,0:RGB:PRINT"GOT
CHA!!!!.......":END
```

GRAPHICS
by David Dyson
CoCo3

long

SAILING

GRAPHICS
by David Dyson   CoCo3

So YOU LIKE water? And you like the idea of sailing away into the sunset? Then have a look at this!

Sailing is another entry for the graphics competition being held. So enjoy!

The Listing:

```
1 GOTO10
2 '***** SAIL: DAVID DYSON
3 SAVE"145:1":END'GRF
4 '**********3/1/88********
10 PALETTE9,60:PALETTE10,32:PALE
TTE11,32
11 HSCREEN2:HCLS2:PALETTE13,63:P
ALETTE14,25:PALETTE15,25
12 :HCIRCLE(0,80),20,1:HPAINT(2,
82),1,1:HCOLOR14:HLINE(0,80)-(32
0,192),PSET,BF:W$="M+12,-4M+12,+
4M+12,-4M+12,+4":HDRAW"BM252,108
C13"+W$:HDRAW"BM48,192C13"+W$:HD
RAW"BM48,180C13R4F12R20":HDRAW"B
M10,90S2"+W$:HDRAW"S4"
13 HDRAW"C4BM244,148M+6,+4M+2,+4
D8M-8,+12G8M-16,+4M-4,-2M-4,-2M-
2,-4U4M+36,-28BM244,148M27M-1,-4
U4H4M-4,+1D3M-1,+3M+1,+3M-4,+6D8
F4R8M+3,-8U4M-3,-8BM220,152R8D8
14 HDRAW"BM212,176L122M-16,-4M-2
8,-12M+12,-8M+12,-2M+8,-2R24M-12
,-8H12M-8,-12M-2,-16M+2,-16M+4,-
12M+16,-24E8M+16,-8M+8,-1M-8,+6G
4M-4,+8D24M+8,+20M+12,+24M+12,+2
0M+4,+8M+8,+4F8M-60,-8
15 HDRAW"BM46,160D4F16M+16,+8R14
4BM122,18D92BM122,18R4D98BM122,1
8R4M220,124L90BM208,148L58BM122,
152D4BR4U4D4BL4U4L20G12R72E12L20
BM196,148G28
16 HPAINT(216,152),8,4:HPAINT(19
2,164),8,4:HPAINT(95,80),1,4:HPA
INT(160,92),4,4:HPAINT(80,168),3
,4:HPAINT(108,156),8,4:HPAINT(12
8,183),7,4:HPAINT(236,152),8,4:H
PAINT(230,168),7,4
178 HDRAW"C8BM140,56R4D16R4U8R4D
8R8D4L8D8L4U8L8U20"
179 FORD=1TO30:R=RND(320):H=RND(
80)
180 IFHPOINT(R,H)=11THENHSET(R,H
,8):NEXT
190 HDRAW"BM252,80C7M+4,-8E8M+8,
-4M+8,-2M+8,-1M+8,-1R28D24L68":H
PAINT(288,72),7,7
191 PALETTE12,56
192 HDRAW"C12BM184,36E8M12E8R16M
+12,-8R20M+12,+8R12F12D8M-12,+8L
12H12L12G12L12H8L16G4L4H8"
193 HPAINT(244,32),12,12
194 FORD=1TO320STEP15:HCIRCLE(D,
190),15,15,.2,.0,.50:NEXTD
195 FOR D=1TO150:NEXTD:PALETTE9,
32:PALETTE10,63:PALETTE10,25:PAL
ETTE10,63:PALETTE15,25:PALETTE15
,63:PALETTE13,63:PALETTE13,25
196 FORD=1TO100:NEXTD:PALETTE9,6
3:PALETTE10,32:PALETTE13,63:PALE
TTE15,63:PALETTE13,25:PALETTE15,
25
197 GOTO195
```

---

continued from p15

```
216 GOTO 216
218 FORI=1TO100:NEXT
220 RETURN
222 ' bombs
224 QW=RND(250):WE=RND(191)
226 IF QW<10 OR QW>240THEN224
228 IF WE<10 OR WE>132THEN224
230 COLOR0
232 GOSUB 14
234 FORR=0TO RD STEP2
236 CIRCLE(QW,WE),R
238 NEXT
240 RP=RP+1
242 IF RP=20 THEN 246
244 GOTO 224
246 PLAY"T255L25501V31CCDECCCDED
DECV20CDEDCEDCDECV10CDCEDCEDCDCE
V5CDEDEDED"
248 FORI=0TO170:CIRCLE(128,96),I
:NEXT
250 XX=200:YY=20
252 CIRCLE(XX,YY),10
254 XX=XX-2:YY=YY+2
256 IF XX<=20 THEN258 ELSE252
258 '
260 COLOR1
262 FORI=170TO0STEP-1:CIRCLE(128
,96),I:NEXT
264 GOTO 264
```

25

GAME
by David Phillips

16K CoCo + printer

THE IDEA of maze is for you to find your way through it!

The Listing:

```
0 GOTO10
3 SAVE"153B":END'GAM
10 '****************************
20 '***********MAZE************
30 '******BY DAVID PHILIPS******
40 '****************************
50 CLS:PRINTTAB(13)"MAZE":PRINT:
PRINT" THIS PROGRAM WILL PRINT M
AZES    ON YOUR PRINTER. EACH MAZ
E IS    TOTALLY DIFFERENT AND THE
RE IS    ONLY ONE WAY THROUGH."
60 PRINT:PRINT:PRINT" THIS SHOUL
D KEEP THE KIDS????    OCCUPIED F
OR SOME TIME."
70 PRINT:PRINT:PRINT"PRESS ANY K
EY TO START.........."
80 IF INKEY$="" THEN80
90 CLS:INPUT" WHAT IS YOUR PRINT
ER BAUD RATE? 1)50 2)75 3)110 4)
150 5)300    6)600 7)1200 8)180
0 9)2000    10)2400 11)3600 12
)4800 13)7200 14)9600 15)SOMETHI
NG ELSE?";Q
100 IFQ<1 OR Q>15 THEN PRINT"PLE
ASE ANSWER 1 TO 15 ONLY":SOUND10
0,5:GOTO90
110 ON Q GOSUB1380,1390,1400,141
0,1420,1430,1440,1450,1460,1470,
1480,1490,1500,1510,1520
120 INPUT"HOW MANY COLUMNS DOES
YOUR        PRINTER HAVE";A
130 CLS:PRINT" WHAT IS WIDTH OF
YOUR MAZE?":PRINT" ";A/3.0769230
8;" COLUMNS MAXIMUM.":INPUTH:IN
PUT"LENGTH";V
140 IF H>5 AND V>5_THEN 160
150 PRINT"DIMENSION ERROR,REDO."
:GOTO130
160 DIM W(H,V),V(H,V)
170 PRINT#-2:PRINT#-2,"FIND YOUR
 WAY THROUGH THIS MAZE."
180 Q=0:Z=0:X=INT(RND(0)*H+1)
190 FOR I=1 TO H:IF I=X THEN210
200 PRINT#-2,".--";:GOTO220
210 PRINT#-2,".  ";
220 NEXT I
230 PRINT#-2,"."
240 C=1:W(X,1)=C:C=C+1
250 R=X:S=1:GOTO320
260 IF R<>H THEN300
270 IF S<>V THEN290
280 R=1:S=1:GOTO310
290 R=1:S=S+1:GOTO310
300 R=R+1
310 IF W(R,S)=0 THEN260
320 IF R-1=0 THEN650
330 IF W(R-1,S)<>0 THEN650
340 IF S-1=0 THEN480
350 IF W(R,S-1)<>0 THEN480
360 IF R=H THEN400
370 IF W(R+1,S)<>0 THEN400
380 GOSUB1370
390 ON X GOTO 990,1030,1070
400 IF S<>V THEN430
410 IF Z=1 THEN460
420 Q=1:GOTO450
430 IF W(R,S+1)<>0 THEN460
440 GOSUB1370
450 ON X GOTO 990,1030,1140
460 GOSUB1360
470 ON X GOTO990,1030
480 IF R=H THEN 580
490 IF W(R+1,S)<>0 THEN 580
500 IF S<>V THEN 530
510 IF Z=1 THEN 560
520 Q=1:GOTO540
530 IF W(R,S+1)<>0 THEN 560
540 GOSUB1370
550 ON X GOTO 990,1070,1140
560 GOSUB1360
570 ON X GOTO 990,1070
580 IF S<>V THEN 610
590 IF Z=1 THEN 640
600 Q=1:GOTO620
610 IF W(R,S+1)<>0 THEN 640
620 GOSUB1360
630 ON X GOTO 990,1140
640 GOTO990
650 IF S-1=0 THEN840
660 IF W(R,S-1)<>0 THEN 840
670 IF R=H THEN 770
680 IF W(R+1,S)<>0 THEN 770
690 IF S<>V THEN 720
700 IF Z=1 THEN 750
710 Q=1:GOTO730
720 IF W(R,S+1)<>0 THEN 750
730 GOSUB1370
740 ON X GOTO 1030,1070,1140
750 GOSUB1360
760 ON X GOTO 1030,1070
770 IF S<>V THEN 800
780 IF Z=1 THEN 830
790 Q=1:GOTO 810
800 IF W(R,S+1)<>0 THEN 830
810 GOSUB1360
820 ON X GOTO 1030,1140
830 GOTO 1030
840 IF R=H THEN 930
850 IF W(R+1,S)<>0 THEN 930
860 IF S<>V THEN 890
870 IF Z=1 THEN 920
880 Q=1:GOTO1040
890 IF W(R,S+1)<>0 THEN 920
900 GOSUB1360
910 ON X GOTO1070,1140
920 GOTO1070
930 IF S<>V THEN 960
940 IF Z=1 THEN 980
950 Q=1:GOTO970
960 IF W(R,S+1)<>0 THEN 980
970 GOTO1140
980 GOTO1240
990 W(R-1,S)=C
1000 C=C+1:V(R-1,S)=2:R=R-1
1010 IF C=H*V+1 THEN1250
1020 Q=0:GOTO320
1030 W(R,S-1)=C
1040 C=C+1
1050 V(R,S-1)=1:S=S-1:IFC=H*V+1T
HEN1250
1060 Q=0:GOTO320
1070 W(R+1,S)=C
1080 C=C+1:IF V(R,S)=0 THEN 1100
1090 V(R,S)=3:GOTO1110
1100 V(R,S)=2
1110 R=R+1
1120 IF C=H*V+1 THEN 1250
1130 GOTO650
1140 IF Q=1 THEN 1200
1150 W(R,S+1)=C:C=C+1:IFV(R,S)=0
 THEN1170
1160 V(R,S)=3:GOTO1180
1170 V(R,S)=1
1180 S=S+1:IF C=H*V+1 THEN 1250
1190 GOTO320
1200 Z=1
1210 IF V(R,S)=0 THEN 1230
1220 V(R,S)=3:Q=0:GOTO1240
1230 V(R,S)=1:Q=0:R=1:S=1:GOTO31
0
1240 GOTO260
1250 FOR J=1 TO V:PRINT#-2,"I";
1260 FOR I=1 TO H::IF V(I,J)<2 T
HEN 1280
1270 PRINT#-2,"   ";:GOTO1290
1280 PRINT#-2,"  I";
1290 NEXT I:PRINT#-2
1300 FOR I=1 TO H
1310 IF V(I,J)=0 OR V(I,J)=2 THE
N 1330
1320 PRINT#-2,":  ";:GOTO1340
1330 PRINT#-2,":--";
1340 NEXT I:PRINT#-2,".":NEXT J
1350 INPUT"DO YOU WANT ANOTHER M
AZE Y/N";A6:IFA$="Y"THEN130 ELSE
 END
1360 X=INT(RND(0)*2+1):RETURN
1370 X=INT(RND(0)*3+1):RETURN
1380 POKE149,4:POKE150,88:RETURN
1390 POKE149,1:POKE150,227:RETUR
N
1400 POKE149,0:POKE150,246:RETUR
N
1410 POKE149,0:POKE150,110:RETUR
N
1420 POKE149,0:POKE150,180:RETUR
N
1430 POKE149,0:POKE150,87:RETURN
1440 POKE149,0:POKE150,41:RETURN
1450 POKE149,0:POKE150,25:RETURN
1460 POKE149,0:POKE150,23:RETURN
1470 POKE149,0:POKE150,18:RETURN
1480 POKE149,0:POKE150,10:RETURN
1490 POKE149,0:POKE150,7:RETURN
1500 POKE149,0:POKE150,3:RETURN
1510 POKE149,0:POKE150,1:RETURN
1520 PRINT:PRINT"IF YOU ARE SURE
 IT'S NOT ONE OF THESE THEN CONS
ULT YOUR PRINTER MANUAL FOR THE
NESCESSARY BAUD  RATE AND POKES.
":STOP
```

BEWARE OF THE CHOMP

GAME
by David Phillips

32K ECB

Chomp is a game for one or more players. The board, where the game is played, is supposed to resemble a cookie, 'r' rows high and 'c' columns wide. In the top left of this cookie is a poison square. Chomp this and you die!

There are a few rules to the game, for example, you can't chomp a part of the cookie that has been chomped before. There are a few other rules.

Anyway, enjoy the game.

The Listing:

```
0 GOTO10
3 SAVE"121":END'GAM
10 '***************************
20 '************CHOMP***********
30 '******ANY COCO OR MICO******
40 '******BY DAVID PHILIPS******
50 '***************************
60 CLS:PRINT TAB(13)"CHOMP":PRIN
T:DIM A(10,10)
70 INPUT"    THIS IS THE GAME OF
CHOMP.     DO YOU WANT INSTRUCTI
ONS Y/N";A$:IF A$<>"Y" THEN150
80 F=1:R=5:C=7
90 PRINT:PRINT"CHOMP IS FOR ONE
OR MORE PLAYERS           humans
only.":PRINT:PRINT"HERE IS HOW A
 BOARD LOOKS. THIS ONE IS 5X7":G
OSUB190
100 FORX=1TO10000:NEXT:CLS
110 PRINT"THE BOARD IS A BIG COO
KIE,R ROWSHIGH & C COLUMNS WIDE.
IN THE TOPLEFT CORNER OF THE BOA
RD IS A    POISON SQUARE (P).THE
PLAYER WHOCHOMPS THE POISON SQUA
RE LOSES."
120 PRINT"TO TAKE A CHOMP,TYPE T
HE COLUMN/ROW OF ONE OF THE SQUA
RES.ALL OFTHE SQUARES TO THE RIG
HT OF AND BELOW THAT SQUARE (INC
LUDING IT)WILL DISSAPEAR ---chom
p!!"
130 PRINT"NO FAIR chomping ON SQ
UARES THATHAVE ALREADY BEEN chom
ped OR AREOUTSIDE THE ORIGINAL D
IMENSIONSOF THE COOKIE."
140 FORX=1TO20000:NEXT:CLS:PRINT
150 F=0:FOR I=1 TO 10:FOR J=1 TO
 10:A(I,J)=0:NEXTJ,I
160 INPUT"HOW MANY PLAYERS";P:I1
=0
170 INPUT"HOW MANY ROWS";R:IF R>
9 THEN PRINT"TOO MANY ROWS,MAX.
9":SOUND100,5:GOTO170
180 INPUT"HOW MANY COLUMNS";C:IF
C>9 THEN PRINT"TOO MANY COLUMNS
,MAX. 9":SOUND100,5:GOTO180
190 FOR I=1 TO R:FOR J=1 TO C:A(
I,J)=1:NEXTJ,I:A(1,1)=-1
200 PRINT:PRINT TAB(7);"1 2 3 4
5 6 7 8 9":FOR I=1 TO R:PRINT I;
TAB(7);:FOR J=1 TO C
210 IF A(I,J)=-1 THEN240
220 IF A(I,J)=0 THEN260
230 PRINT"* ";:GOTO250
240 PRINT"p ";
250 NEXT J
260 PRINT:NEXT I:PRINT:IF F<>0 T
HEN RETURN
280 I1=I1+1:P1=I1-INT(I1/P)*P
290 IF P1<>0 THEN310
300 P1=P
310 PRINT"PLAYER ";P1:INPUT"ENTE
R COORDINATES OF CHOMP (ROW,COLU
MN)";R1,C1
320 IF R1<1 OR R1>R THEN 360
330 IF C1<1 OR C1>C THEN 360
340 IF A(R1,C1)=0 THEN 360
350 IF A(R1,C1)=-1 THEN390
355 GOTO370
360 PRINT"NO FAIR.YOU ARE TRYING
 TO CHOMP EMPTY SPACE.":SOUND100
,5:GOTO310
370 FOR I=R1 TO R:FOR J=C1 TO C:
A(I,J)=0:NEXT J,I
380 GOTO200
390 PRINT"YOU LOSE PLAYER ";P1
400 INPUT"DO YOU WANT ANOTHER GA
ME Y/N";A$:IF A$<>"Y" THEN END
410 GOTO 150
```

φ

Go Lotto

APPLICATION
by Ross Pratt

16K CoCo

Yes, yet another lotto program. I was asked by one of my coco owner friends to write him a lotto program, as he could not get the two that were listed in the June Softgold magazine to work.

This is the result, the only extra in the program is the choice to select the number of boxes to be filled in.

If you choose 1 box for a systems entry you will be asked for the system number (7,8,9,etc).

That's all there is to it - enjoy.

The Listing:

```
1 DIMA(23):CLS5:DATA100,69,38,7,
8,9,42,75,108,141,174,175,176,14
5,114,83,52,21,22,23,56,89,122
2 FORI=1TO23:READA(I):POKEA(I)+1
024,128:POKEA(I)+1248,128:NEXT:P
RINT@199,"**LOTO NUMBERS**";
3 PRINT@425,"BY ROSS PRATT";:PRI
NT@456,"31 CAMPBELL ST.";:PRINT@
493,"COOMA";
4 SOUND218,1:SOUND227,1:SOUND232
,1:SOUND239,1:SOUND232,1:SOUND22
7,1:SOUND218,1:FORT=1TO1000:NEXT
5 FORA=1TO750:NEXT
80 CLS:PRINT@40,"SELECT NUMBERS"
:PRINT@96,"NO. OF BOXES TO BE SE
LECTED";
90 INPUTC
100 IFC=1THEN PRINT@128,"WHAT NU
MBER SYSTEM ENTRY";:INPUTB:GOTO1
30
105 B=6
110 FORX=1TO C:PRINT@138,"BOX NO
.";X
130 FORY=1TO B
140 N(Y)=RND(40):IFN(Y)=0THEN140
142 FORW=1TO B
145 IFN(Y)=N(W)ANDY<>W THEN140
147 NEXTW
150 PRINT@283+(Y*4),N(Y):NEXTY
160 PRINT@355,"PRESS ANY KEY TO
CONTINUE";
170 A$=INKEY$:IFA$=""THEN170
175 IFC=1THEN190
180 NEXTX
190 PRINT@390,"IF THESE NUMBERS
WIN":PRINT@425,"I'LL HAVE HALF"
195 END
200 SAVE"29":END'APP
```

φ

The Woop Woop Bird

POETRY
by David Phillips

16K CoCo + printer (optional)

WOOPWOOP is for the poets and those who like something to think about. I wrote it myself after the bush across from my house was bulldozed and the WOOP WOOP BIRD (a scrub pheasant whose call is sort of "woop woop woop woop") that lived there went missing.

The Listing:

```
10 '**************************
20 '*****THE WOOP WOOP BIRD*****
30 '*************BY*************
40 '********DAVID PHILIPS*******
50 '********JANUARY 1988********
60 '**************************
70 CLS:PRINT" THIS PROGRAMME IS
SET FOR A DMP 105 PRINTER. IF YO
U HAVE A      DIFFERENT PRINTER
YOU MAY NEED  TO CHANGE THE CONT
ROLL CODES IN THE RESPECTIVE LIN
ES."
80 PRINT:PRINT" IF YOU RUN THIS
PROGRAMME ON A  MC10 YOU WILL AL
SO HAVE TO   ! CHANGE PRINT#-2
TO LPRINT."
90 PRINT:PRINT" DO YOU WANT A PR
INTOUT. Y/N?"
100 Z$=INKEY$:IF Z$<>"N" AND Z$<
>"Y" THEN 100
110 ZZ=30:X=5:A=0:Y=20
120 IF Z$="N" THEN 140
130 PRINT#-2,CHR$(27);CHR$(31);C
HR$(27);CHR$(16);CHR$(A);CHR$(ZZ
);CHR$(15);"THE WOOP WOOP BIRD";
CHR$(27);CHR$(32);CHR$(14);CHR$(
27);CHR$(31);CHR$(27);CHR$(16);C
HR$(1);CHR$(15);CHR$(15);"THE WO
OP WOOP BIRD";CHR$(27);CHR$(32);
CHR$(14)
140 A$="Woop woop woop woop":B$=
```

"I'd here his pleasant song.":C$
="From somewhere in the bushes":
D$="I was never sure just where.
"
```
150 E$="I'd here him every morni
ng":F$="As he sang his joyfull s
ong.":G$="Telling all the world,
":H$="That a Woop Woop Bird live
d there."
160 I$="AAHHGGMM! AAHHGGMM!":J$=
"Rattle rattle,clank clank.":K$=
"What strange song was this?":L$
="The bush was dissapearing ....
"
170 M$="For a giant yellow monst
er":N$="Had come to dwell in the
re.":O$="Crashing,tearing,smokin
g,":P$="As it sang it's evil son
g."
180 Q$="The monster prowled arou
nd,":R$="Smashing down the trees
.":S$="The birds all flew into t
he air,":T$="Their homes destroy
ed by a monster,":U$="That just
plain didn't care."
190 V$="Oh run Mr. Woop Woop Bir
d,":W$="Just as fast as you can.
":X$="Run and hide from the mons
ter,":Y$="Don't let it get you t
oo."200 AA$="Now the monster and
it's song,":AB$="Have gone away
again.":AC$="Where once there w
as bush,":AD$="Alas there is no
more."
210 AE$="I listen for the Woop W
oop Bird,":AF$="And his pleasant
chanting song.":AG$="But all I
hear is silence....":AH$="The Wo
op Woop Bird has gone."
220 IF Z$="N" THEN 290
230 PRINT#-2,A$;TAB(40)A$:PRINT#
-2,B$;TAB(40)B$:PRINT#-2,C$;TAB(
40)C$:PRINT#-2,D$;TAB(40)D$:PRIN
T#-2,E$;TAB(40)E$:PRINT#-2,F$;TA
B(40)F$:PRINT#-2,G$;TAB(40)G$:PR
INT#-2,H$;TAB(40)H$
240 PRINT#-2:PRINT#-2:PRINT#-2,I
```

```
$;TAB(40)I$:PRINT#-2,J$;TAB(40)J
$:PRINT#-2,K$;TAB(40)K$:PRINT#-2
,L$;TAB(40)L$:PRINT#-2,M$;TAB(40
)M$:PRINT#-2,N$;TAB(40)N$:PRINT#
-2,O$;TAB(40)O$
250 PRINT#-2,P$;TAB(40)P$:PRINT#
-2:PRINT#-2:PRINT#-2,Q$;TAB(40)Q
$:PRINT#-2,R$;TAB(40)R$:PRINT#-2
,S$;TAB(40)S$:PRINT#-2,T$;TAB(40
)T$:PRINT#-2,U$;TAB(40)U$:PRINT#
-2,V$;TAB(40)V$
260 PRINT#-2,W$;TAB(40)W$:PRINT#
-2,X$;TAB(40)X$:PRINT#-2,Y$;TAB(
40)Y$:PRINT#-2:PRINT#-2:PRINT#-2
,AA$;TAB(40)AA$:PRINT#-2,AB$;TAB
(40)AB$:PRINT#-2,AC$;TAB(40)AC$:
PRINT#-2,AD$;TAB(40)AD$:PRINT#-2
,AE$;TAB(40)AE$:PRINT#-2,AF$;TAB
(40)AF$:PRINT#-2,AG$;
270 PRINT#-2,TAB(40)AG$:PRINT#-2
,AH$;TAB(40)AH$:PRINT#-2:PRINT#-
2,TAB(Y)"DAVID PHILIPS";TAB(Y+40
)"DAVID PHILIPS":PRINT#-2,TAB(Y)
"JANUARY 1988";TAB(Y+40)"JANUARY
1988"
280 END
290 CLS:PRINT TAB(10)"THE WOOP W
OOP BIRD":PRINT
300 PRINTA$:PRINTB$:PRINTC$:PRIN
TD$:PRINTE$:PRINTF$:PRINTG$:PRIN
TH$:GOSUB350
310 PRINTI$:PRINTJ$:PRINTK$:PRIN
TL$:PRINTM$:PRINTN$:PRINTO$:PRIN
TP$:GOSUB350
320 PRINTQ$:PRINTR$:PRINTS$:PRIN
TT$:PRINTU$:PRINTV$:PRINTW$:PRIN
TX$:PRINTY$:GOSUB350
330 PRINTAA$:PRINTAB$:PRINTAC$:P
RINTAD$:PRINTAF$:PRINTAG$:PRINTA
H$:PRINT:PRINT TAB(15)"DAVID PHI
LIPS":PRINT TAB(15)"JANUARY 1988
"
340 END
350 PRINT@451,"press any key to
continue":EXEC44539:CLS:RETURN
```

Koalas

GRAPHICS
by Richard Vagg   CoCo2

KOALAS IS A SMALL graphics program that draws two, very cute-looking koala bears simultaneously on your screen.

The Listing:

```
0 GOTO10
1 **********KOALAS***********
  ******RICHARD VAGG (11)*****
3 SAVE"163C:1":SAVE"163C:3":END'
GRF
10 T=58
11 PMODE4:SCREEN1,1:PCLS1
12 COLOR0
13 FOR N=1TOT
14 READA,B,C,D
15 LINE(A,B)-(C,D),PSET:LINE(A-1
00,B)-(C-100,D),PSET
16 NEXT
17 PAINT(150,105):PAINT(50,105)
18 GOTO18
19 DATA150,174,172,174
20 DATA172,174,172,164
21 DATA172,164,180,156
22 DATA180,156,175,124
23 DATA175,124,181,122
24 DATA181,122,180,116
25 DATA180,116,184,118
26 DATA184,118,181,112
27 DATA181,112,186,114
28 DATA186,114,184,106
29 DATA184,106,190,108
30 DATA190,108,186,100
31 DATA186,100,192,104
32 DATA192,104,188,93
33 DATA188,93,193,93
34 DATA193,93,184,84
35 DATA184,84,172,84
36 DATA172,84,167,92
37 DATA167,92,158,92
38 DATA158,92,152,96
39 DATA176,84,179,81
40 DATA179,81,173,81
41 DATA173,81,177,77
42 DATA177,77,161,84
43 DATA161,84,160,92
44 DATA152,96,146,96
45 DATA146,96,141,102
46 DATA141,102,146,118
47 DATA146,118,158,105
48 DATA158,105,152,96
49 DATA146,118,154,124
50 DATA154,124,143,139
51 DATA143,139,141,154
52 DATA141,154,160,168
53 DATA160,168,152,170
54 DATA152,170,150,174
55 DATA156,174,157,171
56 DATA156,98,158,95
57 DATA158,98,160,95
58 DATA153,116,154,118
59 DATA180,92,178,90
60 DATA178,90,173,97
61 DATA173,97,178,96
62 DATA178,96,181,94
63 DATA173,99,178,98
64 DATA162,135,160,139
65 DATA160,139,161,154
66 DATA161,154,171,158
67 DATA171,158,166,153
68 DATA166,153,172,153
69 DATA172,153,168,150
70 DATA168,150,172,148
71 DATA172,148,167,147
72 DATA167,147,172,141
73 DATA146,102,146,98
74 DATA146,98,150,98
75 DATA150,98,150,102
76 DATA150,102,146,102
```

Solitaire

GAME   CoCo3

by Richard Schmidt

THE IDA OF Solitaire is to move all cards to their respective top stacks to win. The following keypresses are legal:

* Spacebar, or joystick button to display the next card.
* Down arrow and column number (or joystick down). Shift to either side to move a card from the display area to its respective top stack.
* Left arrow (or joystick left) to move a card from the display area to its respective top stack.
* Up arrow and column number (or joystick up). Shift to either side and press button to move a card from column to column.
* Right arrow and column numbers (or joystick right), then turn to either side and press button to move a card from column to column.
* 'Q' (or both joystick buttons together) to quit and restart at anytime.
* 'Break' o return to Basic.

Good Luck!

The Listing:

```
0 GOTO5
3 SAVE"169A:1":END'GAM
5 REM "SOLITAIRE" - from "AUSTRA
LIAN RAINBOW", February, 1987
7 REM Modified for the CoCo3 and
  for Joystick use by Richard Sch
midt
10 POKE&H143,0:POKE&H13E,0' B-DO
S / CoCo3 compatability pokes
15 POKE 65497,0' High-speed poke
20 CLEAR
25 SL=1:RGB
30 DIM DECK(52),COL(7,20),C$(4),
S$(4),N$(14),YC(7),STACK(4):R=RN
D(-TIMER):R=RND(TIMER):FC=2:BC=4
:SL=1
35 ON BRK GOTO 900
40 GOSUB 870:GOTO275
45 REM Card direction routines
50 REM If Dual-button Joysticks
are not available, then change B
1=BUTTON(1) to          B1=BUTTON
(2) and connect 2 Joysticks
55 J0=JOYSTK(0):J1=JOYSTK(1):B0=
BUTTON(0):B1=BUTTON(1)
60 IF J0<15AND J1>15AND J1<45AND
  B0=0THEN N$=CHR$(8):RETURN' Lef
t arrow
65 IF J0>45AND J1>15AND J1<45AND
  B0=0THEN N$=CHR$(9):RETURN' Rig
ht arrow
70 IF J0>15AND J0<45AND J1>0AND
J1<15AND B0=0THEN N$=CHR$(94):RE
TURN' Up arrow
75 IF J0>15AND J0<45AND J1>45AND
  B0=0THEN N$=CHR$(10):RETURN' Do
wn arrow
80 IF J0>15AND J0<45AND J1>15AND
  J1<45AND B0=1AND B1=0THEN N$=CH
R$(32):RETURN' Flip card(s)
85 IF B0=1AND B1=1THEN N$="Q":RE
TURN' Quit (& restart)
90 IN$=INKEY$:IF IN$=""THEN55ELS
E N$=IN$:RETURN
95 NU=1:REM Numerical entry rout
ine
100 REM If Dual-button Joysticks
  are not available, then change
B1=BUTTON(1) to          B1=BUTTO
N(2) and connect 2 Joysticks
105 J0=JOYSTK(0):B0=BUTTON(0):B1
=BUTTON(1)
110 IF J0<15 THEN NU=NU-1:IF NU<
1THEN NU=7
115 IF J0>45 THEN NU=NU+1:IF NU>
7THEN NU=1
120 FOR X=1TO7
125 PO$=STR$(34+(X-1)*38):PX$(X)
=RIGHT$(PO$,LEN(PO$)-1)
130 IF X>1THEN145
135 IF X=NU THENHDRAW"BM"+PX$(1)
+",190;C3;XN$(14);":GOTO155
140 HDRAW"BM"+PX$(1)+",190;C2;XN
$(14);":GOTO155
145 IF X=NU THEN HDRAW"BM"+PX$(N
U)+",190;C3;XN$(NU);":GOTO155
150 HDRAW"BM"+PX$(X)+",190;C2;XN
$(X);"
155 NEXT X
160 IF B0=1AND B1=0AND NU>1THENH
DRAW"BM"+PX$(NU)+",190;C2;XN$(NU
```

```
);":N$=RIGHT$(STR$(NU),1):NU=0:R
ETURN
165 IF B0=1AND B1=0THENHDRAW"BM"
+PX$(1)+",190;C2;XN$(14);":N$=RI
GHT$(STR$(NU),1):NU=0:RETURN
170 IF B0=1AND B1=1THEN N$="Q":R
ETURN
175 IN$=INKEY$:IF IN$=""THEN105E
LSE N$=IN$:RETURN
180 HCOLOR BC:HLINE(298,9)-(270,
32),PSET,BF:HCOLOR FC:N1=INT(D/1
0):N2=D-N1*10:IF N2=1THEN N2=14
185 IF N1=1THEN N1=14
190 IF N1=0THEN195ELSE HDRAW"BM2
58,32;XN$(N1);BR4XN$(N2);":RETUR
N
195 HDRAW"BM258,32;XN$(N2);":RET
URN
200 IF CARD<14THEN RANK=CARD:SUI
T=1:RETURN
205 IF CARD<27THEN RANK=CARD-13:
SUIT=2:RETURN
210 IF CARD<40THEN RANK=CARD-26:
SUIT=3:RETURN
215 RANK=CARD-39:SUIT=4:RETURN
220 HLINE(XC,YC)-(XC+11,YC+1),PS
ET,B:RETURN
225 HCOLOR BC:HLINE(220,0)-(252,
39),PSET,BF:HCOLOR FC:RETURN
230 HCOLOR BC:HLINE(XC,YC)-(XC+3
2,YC+39),PSET,BF:HCOLOR FC:RETUR
N
235 IF SUIT=2 OR SUIT=4 THEN DC$
=";C8;" ELSE DC$=";C3;"
240 HLINE(XC,YC)-(XC+32,YC+39),P
SET,B:X1$=STR$(XC+5):X2$=RIGHT$(
X1$,LEN(X1$)-1):Y1$=STR$(YC+8):Y
2$=RIGHT$(Y1$,LEN(Y1$)-1):HDRAW"
BM"+X2$+","+Y2$+DC$+"XN$(RANK);"
:X3$=STR$(XC+24):X4$=RIGHT$(X3$,
LEN(X3$)-1):Y3$=STR$(YC+8):Y4$=R
IGHT$(Y3$,LEN(Y3$)-1)
245 HDRAW"BM"+X4$+","+Y4$+DC$+"X
S$(SUIT);":X5$=STR$(XC+17):X6$=R
IGHT$(X5$,LEN(X5$)-1):Y5$=STR$(Y
C+32):Y6$=RIGHT$(Y5$,LEN(Y5$)-1)
:HDRAW"BM"+X6$+","+Y6$+DC$+"XC$(
SUIT);C"+RIGHT$(STR$(FC),1)
250 IF SUIT=2 OR SUIT=4 THEN HPA
INT(XC+11,YC+22),8,8 ELSE HPAINT
(XC+11,YC+22),3,3
255 RETURN
260 IF COL(F,1)=0ORCOL(F,2)=0THE
N265ELSERETURN
265 HCOLOR BC:HLINE(XC,43)-(XC+3
2,44),PSET,B:HCOLOR FC:RETURN
270 XC=185:YC=1:GOSUB230:HDRAW"B
M194,20;U6F4D2U6BR5R2FD4GL2HU4E"
:FORN=1TO500:NEXT:GOSUB230:GOTO3
90 '"NO"
275 PALETTE 1,63:PALETTE 0,0:HSC
REEN4:HCLS1:HCOLOR2,1:HPRINT(20,
1),"***** SOLITAIRE *****"
280 HPRINT(2,3),"Move all cards
to their respective top Stacks t
o win."
285 HPRINT(2,5),"PRESS:-"
290 HPRINT(3,6),"Spacebar, or":H
COLOR3:HPRINT(16,6),"red":HCOLOR
2:HPRINT(20,6),"Joystick button
to display the next card."
295 HPRINT(2,7),"(Every 3rd card
 if you have won last time)."
300 HPRINT(3,8),"Down arrow and
Column number, or Joystick down,
 then to either side"
305 HPRINT(2,9),"to move a card
from the display area to a Colum
n."
310 HPRINT(3,10),"Left arrow, or
 Joystick left to move a card fr
om the display area"
315 HPRINT(2,11),"to its respect
ive top Stack."
320 HPRINT(3,12),"Up arrow and C
olumn number, or Joystick up, th
```

29

```
en to either side"
325 HPRINT(2,13),"and":HCOLOR3:H
PRINT(6,13),"red":HCOLOR2:HPRINT
(10,13),"Joystick button to move
 a card from a Column"
330 HPRINT(2,14),"to its respect
ive top Stack."
335 HPRINT(3,15),"Right arrow an
d Column numbers, or Joystick ri
ght, then to either side"
340 HPRINT(2,16),"and":HCOLOR3:H
PRINT(6,16),"red":HCOLOR2:HPRINT
(10,16),"Joystick button to move
 a card from Column to Column."
345 HPRINT(3,18),"'Q', or both J
oystick buttons together to quit
 (and restart) at any time."
350 HPRINT(3,19),"<BREAK> at any
 time to return to BASIC."
355 HPRINT(18,22),"(Deck being s
huffled)."
360 FORI=1TO4:STACK(I)=0:NEXT:FO
RI=1TO7:YC(I)=45:FORJ=1TO20:COL(
I,J)=0:NEXT:NEXT
365 FORI=1TO52:DECK(I)=I:NEXT:FO
RI=1TO51:J=RND(52):N=DECK(J):DEC
K(J)=DECK(I):DECK(I)=N:NEXT:HLIN
E(145,173)-(315,185),PRESET,BF:H
PRINT(6,22)," Press <ENTER> or":
HCOLOR3:HPRINT(24,22),"red":HCOL
OR2:HPRINT(28,22),"Joystick butt
on.":GOSUB45
370 HSCREEN2:HCOLOR FC,BC:HCLS(B
C)
375 HDRAW"BM34,190;XN$(14);":J=3
4:FORI=2TO7:J=J+38:X7$=STR$(J):X
8$=RIGHT$(X7$,LEN(X7$)-1):HDRAW
BM"+X8$+",190"+XN$(I):NEXT
380 J=0:K=24:FORI=1TO7:J=J+1:FOR
N=1TO J:K=K+1:COL(I,N)=DECK(K):
DECK(K)=-1:NEXT:NEXT:XC=-16:YC=4
5:FORI=1TO7:CARD=COL(I,I):GOSUB2
00:XC=XC+37:GOSUB235:IF I=1THEN
NEXT ELSE HLINE(XC,43)-(XC+32,44
),PSET,B:NEXT
385 CARD=DECK(SL):GOSUB200:XC=22
0:YC=0:GOSUB235:D=SL:GOSUB180
390 XC=185:YC=1:GOSUB230:IF STAC
K(1)+STACK(2)+STACK(3)+STACK(4)=
52THEN405ELSE XC=186:YC=15:GOSUB
220
395 GOSUB 55:ON INSTR("Q"+CHR$(3
2)+CHR$(10)+CHR$(9)+CHR$(94)+CHR
$(8),N$) GOTO 20,415,525,640,455
,855,395,395
400 GOTO 395
405 HDRAW"BM110,110;F4NE4D6BR10H
2U6E2R4F2D6G2NL4BR9H2U8BR8D8G2NL
3BR3BE10D7F3E2F2E3U7BR7D10BR7U10
F8D2U10":SL=3:GOSUB45:GOTO275' "
YOU WIN"
410 REM Start of 'SPACE BAR'
415 HDRAW"BM187,13;E4NL4NH4NU4NE
4NR4NF4D4":XC=220:YC=0:GOSUB230
420 IF DECK(1)=-1THEN270
425 D=D+SL:IF DECK(D)>0THEN445
430 IF SL=3 THEN D=D-1:IF DECK(D
)>0THEN445
435 IF SL=3 THEN D=D-1
440 IF DECK(D)<0THEN D=0:XC=220:
YC=0:GOSUB180:GOTO420
445 CARD=DECK(D):GOSUB200:XC=220
:YC=0:GOSUB235:GOSUB180:GOTO390
450 REM Start of 'UP ARROW'
455 HDRAW"BM190,13;U5L2E4F4L2D5L
4":XC=203:YC=15:GOSUB220
460 GOSUB95:IF N$="Q"THEN390ELSE
IF N$<"1"OR N$>"7"THEN460
465 F=VAL(N$):IF COL(F,1)=0THEN2
70
470 IF F=1THEN F=14
475 I=20:HDRAW"BM206,13;XN$(F);"
:IF F=14THEN F=1
480 I=I-1:IF COL(F,I)=0THEN480EL
SE CARD=COL(F,I):GOSUB200
485 IF RANK<>STACK(SUIT)+1THEN27
0
```

```
0
490 STACK(SUIT)=STACK(SUIT)+1:XC
=SUIT*38-4:YC=0:GOSUB230:GOSUB23
5
495 XC=F*37-16:YC=YC(F):GOSUB230
500 COL(F,I)=0:IF YC(F)>45THEN Y
C(F)=YC(F)-9
505 GOSUB260
510 IF COL(F,1)=0THEN YC=45:GOSU
B230:GOTO390
515 CARD=COL(F,I-1):GOSUB200:YC=
YC(F):GOSUB235:GOTO390
520 REM Start of 'DOWN ARROW'
525 HDRAW"BM192,13;H4R2U5R4D5R2G
4":IF DECK(1)=-1THEN270
530 CARD=DECK(D):GOSUB200:IF RAN
K<>1THEN565
535 GOSUB 225
540 STACK(SUIT)=STACK(SUIT)+1:XC
=SUIT*38-4:YC=0:GOSUB230:GOSUB23
5
545 IF D=0THEN445
550 I=D:D=D-1:CARD=DECK(D):GOSUB
200:XC=220:YC=0:GOSUB180:IF D>0T
HEN GOSUB235
555 IF DECK(I+1)=-1THEN DECK(I)=
-1:GOTO390
560 DECK(I)=DECK(I+1):I=I+1:GOTO
555
565 XC=203:YC=15:GOSUB220
570 GOSUB95:IF N$="Q"THEN390ELSE
IF N$<"1"OR N$>"7"THEN570
575 F=VAL(N$):IF F=1THEN F=14
580 HDRAW"BM206,13;XN$(F);":IF F
=14THEN F=1
585 IF RANK=13AND COL(F,1)<>0THE
N270
590 IF RANK=13 AND COL(F,1)=0THE
N GOSUB225:COL(F,1)=DECK(D):XC=F
*37-16:YC=YC(F):GOSUB545:GOTO545
595 C1=RANK:S1=SUIT:I=20
600 IF COL(F,1)=0THEN270
605 I=I-1:IF COL(F,I)=0THEN605
610 CARD=COL(F,I):GOSUB200:N=SUI
T+2:IF N>4THEN N=N-4
615 IF N=S1 OR SUIT=S1 THEN 270
620 IF C1<>RANK-1 THEN 270
625 GOSUB225
630 YC(F)=YC(F)+9:XC=F*37-16:YC=
YC(F):GOSUB230:COL(F,I+1)=DECK(D
):CARD=DECK(D):GOSUB200:GOSUB235
:GOTO545
635 REM Start of 'RIGHT ARROW'
640 HDRAW"BM187,11;U4R5U2F4G4U2L
5":XC=203:YC=15:GOSUB220
645 GOSUB95:IF N$="Q"THEN390ELSE
IF N$<"1"OR N$>"7"THEN645
650 F=VAL(N$):IF F=1THEN F=14
655 HDRAW"BM206,13;XN$(F);":IF F
=14THEN F=1
660 XC=185:YC=30:GOSUB220
665 GOSUB95:IF N$="Q"THEN390ELSE
IF N$<"1"OR N$>"7"THEN665
670 T=VAL(N$):IF T=1THEN T=14
675 HDRAW"BM189,28;XN$(T);":IF T
=14THEN T=1
680 J=20:IF COL(T,1)=0THEN790
685 J=J-1:IF COL(T,J)=0THEN685
690 CARD=COL(T,J):GOSUB200:HRANK
=RANK:HSUIT=SUIT:HYC=YC(F):HJ=J:
I=20
695 I=I-1:IF I=0THEN270
700 IF COL(F,I)=0THEN695
705 CARD=COL(F,I):GOSUB200:IF HR
ANK=RANK+1 THEN 720
710 I=I-1:IF I=0THEN270
715 HYC=HYC-9:IF HYC=36THEN270EL
SE705
720 N=SUIT+2:IF N>4THEN N=N-4
725 IF N=HSUIT OR SUIT=HSUIT THE
N 270
730 HI=I:YC(F)=HYC
735 J=J+1:COL(T,J)=COL(F,I):COL(
F,I)=0:I=I+1:IF COL(F,I)>0THEN73
5
740 I=HI:XC=F*37-16:IF COL(F,1)=
```

```
OTHEN HCOLOR BC:HLINE(XC,45)-(XC
+32,183),PSET,BF:HCOLOR FC
745 GOSUB260
750 IF HYC>45THEN YC(F)=HYC-9
755 HCOLOR BC:HLINE(XC,HYC)-(XC+
32,183),PSET,BF:HCOLOR FC:I=20
760 I=I-1:IF I=0THEN YC(F)=45:YC
=45:GOSUB230:GOTO775
765 IF COL(F,I)=0THEN760
770 CARD=COL(F,I):GOSUB200:YC=YC
(F):GOSUB235
775 J=HJ:YC(T)=YC(T)-9:XC=T*37-1
6
780 IF COL(T,J)=0THEN390
785 YC(T)=YC(T)+9:CARD=COL(T,J):
GOSUB200:YC=YC(T):GOSUB230:GOSUB
235:J=J+1:GOTO780
790 I=20:HYC=YC(F)
795 I=I-1:IF I=0THEN270
800 IF COL(F,I)=0THEN795
805 CARD=COL(F,I):GOSUB200:IF RA
NK=13 THEN 820
810 I=I-1:IF I=0THEN270
815 HYC=HYC-9:IF HYC=36THEN270EL
SE805
820 YC(T)=45:YC(F)=45:HI=I:J=0:X
C=F*37-16:HCOLOR BC:HLINE(XC,45)
-(XC+32,183),PSET,BF:HCOLOR FC:X
C=T*37-16:YC=45
825 J=J+1:COL(T,J)=COL(F,I):COL(
F,I)=0:CARD=COL(T,J):GOSUB200:GO
SUB235:I=I+1:IF COL(F,I)=0THEN83
0ELSE YC(T)=YC(T)+9:YC=YC(T):GOS
UB230:GOTO825
830 XC=F*37-16:I=HI-1:IF COL(F,1
)=0THEN YC=45:GOSUB230:GOSUB265:
GOTO390
835 IF COL(F,2)=0THEN GOSUB265
840 CARD=COL(F,I):GOSUB200:YC=YC
(F):GOSUB235
845 I=I+1:IF COL(F,I)=0THEN390EL
SE COL(F,I)=0:GOTO845
850 REM Start of 'LEFT ARROW'
855 HDRAW"BM191,13;H4E4D2R5D4L5D
2":IF DECK(1)=-1THEN270
860 CARD=DECK(D):GOSUB200:IF RAN
K=STACK(SUIT)+1THEN535ELSE270
865 REM Character sets
870 N$(0)="BUU4ER2FD4GL2H":
N$(1)="U4E2F2D2L3R3D2":
N$(2)="BU5ER2FDGL2GD2R4":
N$(3)="BR3L2HBU4ER2FDGLRFDG":
N$(4)="BR3U6G3DR4":
N$(5)="BR3L2HBU5R4L4D2R3FD2G":
N$(6)="BR3L2HU4ER2FBD2BL3R2FDG"
875 N$(7)="BU6R4DG3D2":
N$(8)="BR3L2HUEHUER2FDGL2R2FDG":
N$(9)="BUFR2EU2L3HUER2FD4":
N$(10)="R2LU5LRUBR5R2FD4GL2HU4E"
:N$(11)="UDR3U6L2R4":
N$(12)="BR1HU4ER2FD4GLBUF2":
N$(13)="U6BR4G3F3":
N$(14)="R2LU6DLRBRBD5"
880 S$(1)="U6D3R4U3D6":
S$(2)="BR3EGL2HU4ER2FBF":
S$(3)="U6R3FD4GL3":
S$(4)="BU1FR2EUHL2HUER2F"
885 C$(1)="HUH2UH2UH2UHU3EUE2R3F
2E2R3F2DFD3GDG2DG2DG2DG":
C$(2)="L3ER2HU5G3L3H2U3E2R3FEH2U
3E2R3F2D3G2FER3F2D3G2L3H3D5F2L2"
:C$(3)="H3UH2UH3E3UE2UE3F3DF2DF3
G3DG2DG3":
C$(4)="L2EU7G3L2H2U4EUE7F7DFD4G2
L2H3D7FL2"
890 RETURN
895 REM <BREAK> (& return to BAS
IC)
900 POKE 65496,0:PALETTE RGB:WID
TH32
905 PRINTTAB(7);"THANKS FOR PLAY
ING":PRINT:PRINTTAB(8);"S O L I
T A I R E":PRINT:PRINTTAB(12);"G
OODBYE":PRINT
φ
```

COMPUTER
RESOURCE
DATABASE

Goldsoft Publishing endeavours to place current data into the Computer Resource Database. However, Goldsoft Publishing makes no claims as to the accuracy of the information supplied for use in this database.

Prices quoted were current at the time of entry. Where two suppliers have differing prices, we have quoted the highest price.

The Database is a free service of Goldsoft Publishing. If you market a product for use with the computers we service in this magazine, you can forward information to:

CRD Manager
Goldsoft Publishing
PO Box 1742
Southport. Qld. 4215.

Please note that many programs have fuller descriptions on the monthly disk which partners this magazine. (See contents page for details of this disk.)

GAMES

Name:	Hardware:	Source:	Price:	Rate:
P-51 FLIGHT SIM	COCO 2	D	$ 49.95	@@@
3D ROMMEL	COCO 2	D	$ 44.95	@@@
SPEED RACER	COCO 3 64K	D	$ 49.95	***
TIME BANDIT	COCO 2	D	$ 39.95	****
CASHMAN	COCO 2 64K	D	$ 39.95	****
EXETER	COCO 3 128K	B	$ 29.95	****
ROGUE	COCO 3	B	$ 69.95	****
THEXDER	COCO 3	B	$ 49.95	****
BOUNC. BOULDERS	BOTH	B	$ 59.95	**
GANTELET	BOTH	B	$ 59.95	****
APPROACH CNTRL.	COCO 2 64K	B	$ 49.95	@@@
RET. OF JR REV.	COCO 3	B	$ 59.95	@@@
BEST OF #2.1	BOTH	C	$ 16.00	***
BEST OF #2.2	BOTH	C	$ 16.00	***
BEST OF #8	BOTH 16K	C	$ 16.00	***
BEST OF #9	BOTH 32K	C	$ 16.00	***
MEDIC	COCO 2 16K	E	$ 10.95	@@
DATA FALL	COCO 2 16K	E	$ 14.95	@@@
CITY	COCO 2 16K	E	$ 14.95	@@
BEAM RIDER	COCO 2 16K	E	$ 33.45	@@@@
DEFENSE	COCO 2 16K	E	$ 27.95	@@@
LIGHT RUNNER	COCO 2 16K	E	$ 27.95	@@@
MS GOBBLER	COCO 2 32K	E	$ 27.95	@@@
ROBOT BATTLE	COCO 2 16K	E	$ 27.95	@@@
PENGON	COCO 2 16K	E	$ 33.45	@@
STORM ARROWS	COCO 2 16K	E	$ 27.95	@@
TRAVLIN TOAD	COCO 2 32K	E	$ 27.95	@@@
CUBIX	COCO 2 32K	E	$ 27.95	@@@
DEVIOUS	COCO 2 32K	E	$ 33.45	@@@
TRAPFALL	COCO 2 16K	E	$ 27.95	@@@
MAZE ESCAPE	COCO 2 32K	E	$ 27.95	@@
ASTRO BLAST	COCO 2 32K	E	$ 27.95	@@@
DEVIL ASSAULT	COCO 2 16K	E	$ 33.45	@@@
FLYING TIGERS	COCO 2 16K	E	$ 27.95	@@@
GALAX ATTACK	COCO 2 16K	E	$ 27.95	@@@
GHOST GOBBLER	COCO 2 16K	E	$ 27.95	@@@

EDUCATIONAL

Name:	Hardware:	Source:	Price:	Rate:
GEOGRAPHY	COCO 2	B	$ 99.95	@@
EARS	BOTH	B	$ 190.00	@@@
BEST OF #1	BOTH	C	$ 16.00	***

Rating explanation :

* is used for products we have used or tested

@ is used for the reputation of a product

The number of symbols defines the opinion or reputation ie:
1 symbol is a poor rating and 5 symbols is a good rating
Lack of symbols simply means we have not commented on the product
It does not infer the product is of poor quality
A good middle of the road product has 3 symbols.

Source
explanation :

A - Tandy
B - Blaxland
C - Goldsoft
D - Paris Radio
E - Computer Hut
    Software

Name:	Hardware:	Source:	Price:	Rate:
BEST OF #6	BOTH	C	$ 16.00	***
BEST OF #10	BOTH	C	$ 16.00	***

UTILITY

Name:	Hardware:	Source:	Price:	Rate:
OS-9 LEVEL 2	COCO 3	B	$ 129.95	****
DESKMATE 3	COCO 3	B	$ 129.95	***
ADOS 3	COCO 3	B	$ 69.95	***
MULTIVUE	COCO 3	D	$ 99.95	@@@
THE WIZ	COCO 3 512K	-B	$ 140.00	@@@
DISKFIX	COCO 3	B	$ 59.95	***
ADV. DISKFIX	COCO 3	B	$ 99.95	***
PROG. UTILITY	COCO 2 64K	B	$ 39.95	@@@
SECTOR INSPEC.	COCO 2	B	$ 39.95	@@@
DEPUTY INSPECT.	COCO 2	B	$ 39.95	@@@
COCOTEX	BOTH	B	$ 79.95	****
VIP-TERMINAL	BOTH	B	$ 39.95	@@@
SBU	COCO 2	B	$ 59.95	****
UTL ROUTS, PT1	BOTH	D	$ 47.94	@@@
UTL ROUTS, PT2	BOTH	D	$ 53.94	@@@
OS9 DEVEL SYS.	COCO 3	D	$ 175.00	@@@
MULTI-VUE	COCO 3	D	$ 99.94	****
SDISK 3	COCO 3	D	$ 71.94	@@
BASIC09	COCO 3	D	$ 179.94	****
C COMPILER	BOTH	D	$ 179.94	***
HI-RES SCREEN	BOTH	D	$ 71.94	@@@
OS-9 SOLUTION	BOTH	D	$ 83.94	@@@
RAMDISK	COCO 3 512K	B	$ 39.95	@@@

BUSINESS

Name:	Hardware:	Source:	Price:	Rate:
MAILIST PRO	BOTH	B	$ 39.95	@@
COMP. CHQ BOOK	BOTH	B	$ 39.95	@@
NEWSROOM	COCO 3	B	$ 99.95	@@@
COLOR SCRIBE	COCO 3	B	$ 99.95	@@@
WORD POWER 3	COCO 3	B	$ 130.00	***
IMS	BOTH	B	$ 250.00	@@@
SCULPTOR	COCO 3 512K	D	$ 495.00	****
SCREEN STAR	COCO 3 512K	B	$ 99.95	@@
TEXT FORMATTER	COCO 3	B	$ 69.95	@@@
DYNASTAR	BOTH	D	$ 180.00	@@
TELEWRITER-64	COCO 2 64K	B	$ 84.95	****
TELEWRITER-128	COCO 3	B	$ 140.00	****
VIP-WRITER	COCO 2 64K	B	$ 98.95	@@@
VIP-DATABASE	COCO 2	B	$ 84.45	@@@
VIP-SPELLER	COCO 2	B	$ 77.95	@@@@
BEST OF #4	BOTH	C	$ 16.00	***
VIP CALC	BOTH	B	$ 84.45	@@@
BUS A/C SYSTEM	COCO 2	B	$ 112.95	@@
STYLO PACK	COCO 3	D	$ 359.94	****
STYLO III	COCO 3	D	$ 203.94	****
SCULPTOR	COCO 3 512K	D	$ 495.00	****
DYNACALC (OS9)	BOTH	D	$ 179.94	****
D'CALC (RSDOS)	COCO 2 64K	D	$ 179.94	****

GRAPHICS

Name:	Hardware:	Source:	Price:	Rate:
COLORMAX	COCO 3	B	$ 135.00	***
COCO-MAX 3	COCO 3	B	$ 150.00	****
COCOMAX II	COCO 2 64K	B	$ 100.00	****
3D GRAPHIMATOR	COCO 2 64K	B	$ 79.95	@@
BEST OF #7	BOTH	C	$ 16.00	**
PIX CONVERTOR	BOTH	D	$ 54.94	@@@

MUSICAL

Name:	Hardware:	Source:	Price:	Rate:
LYRA	BOTH	B	$ 110.00	****
" " CONVERT	BOTH	B	$ 29.95	@@@@
" " PRINT	BOTH	B	$ 59.95	@@@@
" " LIBRARY	BOTH	B	$ 69.95	@@@@
SYMPHONY 12	BOTH	B	$ 140.00	@@@@
MUSICA LIBRARY	COCO 2	B	$1 @ 59.	****
MUSICA II	COCO 2	B	$ 59.00	****

ADVENTURES

Name:	Hardware:	Source:	Price:	Rate:
NUKE LOVE BOAT	COCO 3 512K	B	$ 59.95	**
MAGIC OF ZANTH	COCO 3	B	$ 69.95	@@@
KINGS QUEST 3	COCO 3	B	$ 79.95	@@@@
CALADURIL	BOTH	B	$ 59.95	@@@@
ESCAPE: 2012	COCO 2 64K	B	$ 56.00	@@
ROBOT ODDY.	COCO 2 64K	B	$ 69.95	@@
BEST OF #5	BOTH	C	$ 16.00	***
WAR OF THE WRDS	COCO 2 64K	E	$ 50.45	@@@
BLACK SANCTUM	COCO 2 64K	E	$ 33.45	@@@
CALIXTO ISLAND	COCO 2 64K	E	$ 33.45	@@@
SEA SEARCH	COCO 2 64K	E	$ 33.45	@@@
SHENANIGANS	COCO 2 64K	E	$ 33.45	@@@
TREKBOER	COCO 2 64K	E	$ 33.45	@@@
VORTEX FACTOR	COCO 2 64K	E	$ 33.45	@@@
WARP FACTOR X	COCO 2 64K	E	$ 39.45	@@@
PRESRVE QUANDIC	COCO 2 64K	E	$ 44.95	@@@@
MARTIAN CRYPT	COCO 2 32K	E	$ 33.45	@@@
DRAGON BLADE	COCO 2 64K	E	$ 33.45	@@@
SYZYGY	COCO 2 32K	E	$ 33.45	@@@
BLACKBEARDS IS	COCO 2 32K	E	$ 33.45	@@@
DARKMOOR HOLD	COCO 2 64K	E	$ 33.45	@@@
ATLANTIS ADV	COCO 2 16K	E	$ 24.45	@@
4 MILE ISLAND	COCO 2 16K	E	$ 19.95	@@
SPORTS CAR ADV	COCO 2 16K	E	$ 14.95	@@
GRENADA INVASN	COCO 2 16K	E	$ 16.95	@@
ESPIONAGE IS.	COCO 2 32K	E	$ 19.95	@@@
KNGDM OF BASHAM	COCO 2 32K	E	$ 19.95	@@
ALCATRAZ	COCO 2 32K	E	$ 19.95	@@@
SPACE ESCAPE	COCO 2 32K	E	$ 27.95	@@@
MANSION OF DOOM	COCO 2 32K	E	$ 27.95	@@@
IS. OF FORTUNE	COCO 2 32K	E	$ 27.95	@@
BOMB SCARE	COCO 2 32K	E	$ 27.95	@@@
FUNHOUSE	COCO 2 32K	E	$ 27.95	@@@
STALAG	COCO 2 32K	E	$ 27.95	@@
DOOM AT 2100	COCO 2 32K	E	$ 27.95	@@
STONE OF ROKAN	COCO 2 32K	E	$ 27.95	@@@
TUCKER'S MINE	COCO 2 32K	E	$ 27.95	@@

Farewell Joe Tanner

Joe Tanner who has been Managing Director of Intertan (Australia) Pty Ltd for the past two years, will return to the USA on 3rd June.

At Intertan, Joe has been not only a source of great wisdom, but also a friend to us all, and we will miss his quiet friendship.

However in what is a very exciting departure from previous appointments, the next Managing Director of Intertan (Australia) Pty Ltd is to be an Australian.

Mal Williams has been with Intertan since our beginning in

first, you are committing them to you and your shop, so avoid the "yes, but" approach and take the "no problem" approach with them.

The difference is YOU, so be the best!"

Welcome New Tandy Dealers

Wellington, NSW

In November, George Blunden and his team at G & K Auto Spares in Wellington N.S.W., opened a Tandy Authorised Sales Centre in their large automotive spare parts and accessory showroom, situated on the main street of Wellington.

toy, hobby and electrical business in Bega and are adding Tandy to it.

We have been without representation in this area for some time and we know that our many customers on the far south coast will be pleased to see the Tandy sign again in their town.

We welcome Stan and Pat, who had a grand opening last month (May), and we wish both them and our other new Authorised Sales Centres much success.

10 Years With Tandy

Plans are already underway for the 10th anniversary celebrations at Nowra.

This was our first Authorised Sales Centre, and was opened in June, 1978. It is indeed fitting that our ASC of the year for 1988 is the first to make the Big 10!

See You Next Month.

INTERTAN NEWS

this country, and knows our company "from the roots up".

Mal comes to the task with a thorough understanding of not only Intertan's computer market place but also of the many other facets of our business.

We congratulate you Mal, and look forward to your term as Managing Director.

Our Customers.

Before he left, Joe Tanner spelt out to us what he expects of every Intertan employee with regard to our customers.

He said, in part:
"I know that most companies say that they are committed to their customers, that the customer always comes first, etc, but how many companies are supported in their claims by their customers?

When we make sure that a customer's purchase will do the job, that they fully understand how to use it, and that they have everything they will need to enjoy their purchase - THAT is putting the customer in the pre-eminent position!

We have to take that professional interest in the product, which results in us knowing EVERYTHING about our product.

Putting the customer first means resolving their problems when something goes wrong. If they leave the shop unhappy, "YOU HAVE LOST".

When you put your customer

George has been in the auto spares business in Wellington for many years and only recently purchased larger premises where he has plenty of space for expansion - Tandy was the obvious add on.

Healesville, Vic.

Eastern Victoria now has a new Authorised Sales Centre at Rob MacDonald's Yarra Valley Video Centre at Healesville in the beautiful mountains north east of Melbourne.

Rob has a couple of Video Libraries in the area and saw the need for a Tandy store there too.

Welcome aboard Rob!

Tahmoor, NSW

Adding Tandy to their bicycle and auto accessory business is big news for Ian (Bones) and Jenny Birchall who are the owners of Bones Auto and Cycle Centre in Tahmoor, SW of Sydney.

Jenny, who runs the business is looking forward to seeing her shop well stocked with an exciting range of Tandy products - as is her daughter Belinda, who has been sweating up madly on all the new lines!

Bega, NSW

At last there is to be a new Tandy store in Bega!

Stan and Pat O'Donnell, previously residents of Gunnedah in NSW, have purchased a retail

We trust you have enjoyed this first issue of Intertan News in Goldsoft's publications. We are proud to be associated with a magazine which has worked tirelessly to assist our customers in their use of our products.

Wilfred Egert and
Sue Azzopardi
for
Intertan (Aust) Pty Ltd

BIRTHS

Congratulations to Francis and Nancy Lim, who had an addition to their family on November 28, a very vocal little boy, Adrian. Francis is Contract Manager at 2324 Mt Druitt.

The newest member of the Lim household, Adrian Francis, born 28th November 1987.

Tandy Dot Matrix Printer Sale!

- IBM® Compatible Printer
- Prints up to 120 Characters Per Second

CLEARANCE

Reg 599.00

Save $200

$399

Every computer buff needs a printer — and the sale-priced DMP-130A makes an excellent choice. It is ideal for data processing and general use. Produces 8 x 9 characters on a 20cm line. Bidirectional-prints 80 upper and lower case characters per line at 43 lines per minute. Elongated and condensed modes. Parallel and Color Computer compatible serial interfaces. 26-1280A

Dust cover for DMP-130.
26-536 .... 11.95
Replacement cartridge printer ribbon for DMP-130.
26-1236 .... 19.95
Replacement refill printer ribbon for DMP-130.
26-1238 .... 34.95

Sorry No Rainchecks

IBM® Registered Trademark of International Business Machines Corp.

Mouse and Joystick Options
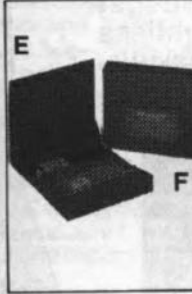
A. Serial Mouse. Ease of use with Personal DeskMate 2 and other programs that are compatible with Microsoft Mouse. 25-1040 .... **79.95**
9-Pin to 25-Pin Adapter. 26-1388 .... **19.95**
B. Color Mouse. Ideal for use with Personal DeskMate 2. Uses joystick interface. Two buttons. 26-3125 .... **99.95**
C. Deluxe Joystick. Accurate cursor control and quicker response. 26-3012 .... **49.95**

Diskettes — Save Up To $40!

D. Pk 10 Double Sided D/D 8.89cm Diskettes.
26-9518 .... **59.95**
Pk 3 Double Sided D/D 8.89cm Diskettes. 26-9519 **19.95**
E. 13.3cm 40 track single-sided diskettes. Pk of 10.
26-406 Reg 39.95 .... **Sale! 19.95**
F. 13.3cm 40 track double-sided diskettes. Pk of 10.
26-412 Reg 49.95 .... **Sale! 29.95**
G. Single-Sided Diskettes. 20.5cm certified error free. 77 tracks. 26-4904 Reg 24.95 .... **Sale! Pk 3/9.95**
H. Single-Sided Diskettes. 20.5cm unformatted, soft sectored. 77 tracks. 26-4906 Reg 99.95 **Sale! Pk 10/59.95**

WE SERVICE WHAT WE SELL!

Tandy ELECTRONICS

* TRADEMARK OF TANDY CORPORATION INTERTAN Australia Ltd. being a registered user.

Over 360 Stores Australia-Wide

APPLICATIONS

Name:	Hardware:	Source:	Price:	Rate:
DISK LABELER	BOTH	B	$ 39.95	@@
VCR TAPE ORG.	BOTH	B	$ 39.95	@@
SUPER VOICE	BOTH	B	$ 160.00	@@@
GENEOLOGY	COCO 2	B	$ 33.95	@@

HARDWARE

Name:	Hardware:	Source:	Price:	Rate:
10MB DRIVE	BOTH	B	$1299.00	@@@@
20MB DRIVE	BOTH	B	$1599.00	@@@@
512K UPGRADE	COCO 3 128K	B	$ 220.00	@@@@
DRIVE 40T DSDD	BOTH	B	$ 630.00	@@@
MONITOR	BOTH	B	$ 300.00	@@@@
I-RES INTERFACE	COCO 3	B	$ 19.95	@@@@
COCO 3 128K	BOTH	B	$ 370.00	****
MULTIPACK	BOTH	B	$ 199.95	***
DMP-106 PRINTER	BOTH	B	$ 399.00	***
AVTEK MINIMODEM	BOTH	B	$ 250.00	****
DMP-130	BOTH	B	$ 599.00	****
VIDEO DRIVER	COCO 2	B	$ 38.00	****
" " W/OUT SOUND	COCO 2	B	$ 32.00	****
NX-1000 DMP	BOTH	B	$ 525.00	@@@
CITIZEN DMP	BOTH	B	$ 599.00	@@
COCOCONNECTION	BOTH	C	$ 219.95	****
Y-CABLE	BOTH	D	$ 47.94	***
THE PROBE	BOTH	C	$ 49.95	**
ADOS 3	COCO 3	D	$ 65.94	@@@
DISTO 80COL CRD	COCO 2	D	$ 239.94	@@@
DISTO C/P	COCO 2	D	$ 119.94	@@@
DISTO: THE LOT	COCO 2	D	$ 479.94	@@@@
J&M CONTROLLER	BOTH	D	$ 299.94	@@@
PBJ-RS232 CARD	BOTH	D	$ 179.94	@@@

More details on most of the programs listed in this database can be found on this month's edition of CoCoOz, tape or disk.

HINTS

For those owners of the TP10 printer who have no doubt ound that the thermal paper is hard to find in Tandy stores, here is a soulution.

Teletype tolls of paper are thermal and are exactly twice the width of the TP10 paper and about twice the length.

Thus, by cutting the rolls in half with a band saw, you have a good supply which you will to roll onto the original spools. The cast is $15 per roll, also half price.

Jim Rogers

HMMM.   A tip for what it's worth to anyone:

When saving programs on tape and you want a nice even gap between them do this.....

First SKIPF the last program on your tape, then type:

MOTORON:FOR X=1 TO 5000:NEXT: CSAVE"your program name "

Let the pause off or set rec/play, and then press enter. Computer counts to 5000 before dumping the program, and presto, you always know how far it is to the next program. No more long unnecessary gaps or ruined programs that were saved on the end of the last one.

For the 1st program on a tape, I make X=10000 - that gives you a nice start past the bumpy bits.

Check every save IMMEDIATELY with a SKIPF. Don't just hope it was O.K.

After buying OS9 level II from Tandy, I found, to my horror, that the program had not been fixed to work on our television sets. For those who don't have a vertical hold knob, the problem cannot be resolved.

For those who do, they have to adjust their vertical hold knob everytime they enter Os9.

To resolve this problem, only ONE byte of data must be changed. This byte is at track 34, sector 1, byte number 45.

The value of this byte, if left unmodified, should be 0. To fix the problem, change this byte to a value of 8. This change applies also to those OS-9 level II games.

The technicalities of this:

The computer will only interrupt the screen 50 times a second instead of 60 (which the US uses). Simple, isn't it?

Darren Reed,
Watsonia, 3087

BEACON	COCO 2 32K	E	$ 27.95	@@
ADV. COMBO	COCO 2 32K	E	$ 44.95	@@@
PBJ CCBUS	BOTH	D	$ 287.94	@@@
PBJ PC PACK	BOTH	D	$ 167.94	@@@
PBJ WORDPAK I	COCO 2	D	$ 239.94	@@@
PBJ WPAK, RSDOS	COCO 2	D	$ 239.94	@@@
RSDOS CONTRLR.	BOTH	D	$ 239.95	@@@
WYSE 30 TRMNLS	BOTH	B	$ 999.00	@@@
ARCHER JOYSTIX	BOTH	B	$ 27.00	@@

BOOKS

Name:	Hardware:	Source:	Price:	Rate:
6809 ASSEMBLY	BOTH	B	$ 41.95	@@@
COCO 3 SECRETS	BOTH	B	$ 39.95	@@@@
300 PEEKS POKES	BOTH	B	$ 39.95	@@@
BASIC09 TOUR	BOTH	B	$ 34.95	***
DECB UNRAVELLED	BOTH	B	$ 39.95	@@@
INSIDE OS9 L2	BOTH	D	$ 79.00	****
500 PEEKS POKES	BOTH	B	$ 33.95	@@@@
COCO 3 FACTS	BOTH	B	$ 19.95	@@@
SUPER ECB	BOTH	B	$ 49.95	@@@
ECB UNRAVLED.	BOTH	B	$ 79.95	@@@
RNBOW GDE OS9L2	BOTH	D	$ 39.95	@@@
500 PEEKS POKES	BOTH	D	$ 24.95	****
US RAINBOW MAG	BOTH	D	$ 9.95	**
RAINBOW ON DISK	BOTH	D	$ 29.94	@@
UTL ROUTINES 1	BOTH	D	$ 29.95	
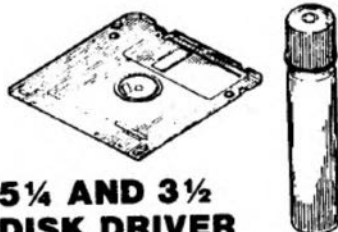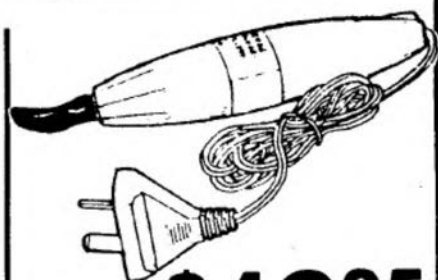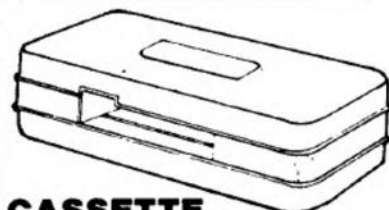
Universal Calendar

UTILITY

by Jim Jacobs

16K CB CoCo

THE PROBLEM with calendars is that there is not an exact number of days in a year, and it is worse when the weeks and the months are taken into account.

Our present day calendar was introduced by Pope Gregory in 1582 and keeps the calendar year in step with the solar year by having one extra day every four years (ie, leap years), except that the years divisible by 100 are not unless they are also divisible by four.

The solar year is 365 days, 5 hours, 48 minutes and 46 seconds, or, 365.2422 days. The Gregorian calendar gives 365 days plus 97 days each 400 years, an averge of 365.2425 days per years. So by about the year 5000 there will be an error of one day, unless by then a more sensible calendar has been adopted.

To make a calendar program, rules are required to find the first of January and to tell if the year is a leap year. These come out quite nicely in Basic.

The leap year rule is:

IF Y/4=INT(Y/4) AND Y/100<> INT(Y/100) OR Y/400=INT(Y/400) THEN "leap year."

For the first day number of the year, let the days of the week be numbered:
  0 - Sunday, 6 - Saturday.
Since each normal year is 52 weeks and one day and leap years add in an extra day, the first day can be found from:

N=C+L+INT(L/4)-INT(L/100)+ INT(L/400)

... the sum of all odd days add up to this year.

D=N-7*INT(N/7)

... removes whole weeks.

Variable names:
Y is this years number,
L is last year's number (=Y-1)
C is a correction

D is the day number of 1st Jan.

The correction can be found by checking a known year, say this one. Any multiple of seven can be added to it without affecting the result. A suitable value is one, so C+L in the formula can by replaced by Y.

The program listed displays a whole year from 1582 on the screen at once. Care must be taken with historical dates as it was not introduced in the English speaking countries until 1753 and even later in others.

Variables in the program are:

Y the year number,
W$ the week name string,
D last year number, first day number, and then month length.
K$ month initial string.

Line 20 - calculate first day and use it to adjust first month string.
Line 30 - heading.
Line 41-52 - do the months January to December. Because the display is only 32 characters wide, the name of the months and days can only be indicated by single letters.
Line 60 - accept new instructions.
Line 70-73 - change the year number by using the '<' or '>' keys, or enter a new year. Numbers less than 100 are assumed to refer to this century.
Line 80 - adjusts for leap years.
Line 90-92 - the subroutine to form and display the days of the month string and hold the initial days of the month.

The program could be expanded to give the day of the week of an input date, or it could form the basis of one to print calendars. It would be useful as a routine in destop programs.

It is most useful in finding things like the day of the week of a given date.

The Listing:

```
0 GOTO10
1 '******* UNIVERSAL CALENDAR
2 '***** JIM JACOBS
3 SAVE"167:1":END'UTL
10 PRINT@484,"UNIVERSAL CALENDAR
                 BY JIM JACOBS
8AP88":Y=1988:W$="sMTWTFS"
20 D=Y-1:D=Y+INT(D/4)-INT(D/100)
+INT(D/400):M$=RIGHTS(W$,7-D+7*I
NT(D/7))
30 PRINTY,Y:PRINT"DATE->      1
      2      3  1234567890123
4567890123456789012";
41 D=31:K$="j":GOSUB90
42 K$="f":GOSUB80
43 D=31:K$="m":GOSUB90
44 D=30:K$="a":GOSUB90
45 D=31:K$="m":GOSUB90
46 D=30:K$="j":GOSUB90
47 D=31:K$="j":GOSUB90
48 D=31:K$="a":GOSUB90
49 D=30:K$="s":GOSUB90
50 D=31:K$="o":GOSUB90
51 D=30:K$="n":GOSUB90
52 D=31:K$="d":GOSUB90
60 INPUT"^MONTH  <LAST,NEXT>ORYE
AR";Y$
70 IFY$="<"THENY=Y-1:GOTO20
71 IFY$=">"THENY=Y+1:GOTO20
72 IFY$<"0"ORY$>"9"THEN60
73 Y=VAL(Y$):IFY>99THEN20
74 Y=Y+1900:GOTO20
80 IFY/4=INT(Y/4)ANDY/100<>INT(Y
/100)ORY/400=INT(Y/400)THEND=29E
LSED=28
90 M$=M$+W$:IFLEN(M$)<D THEN90
91 PRINTLEFT$(K$+LEFTS(M$,D)+"
 ",32)
92 M$=RIGHT$(M$,LEN(M$)-D):RETUR
N
```

adder

APPLICATION

by Mick Gooch

16K CB CoCo

THIS IS a very small program that takes two figures that you type in and prints the totals of both.

Just the small program to help you out in those small moments!

The Listing:

```
0 GOTO10
1 '**** ADDER
2 '***** MICH GOOCH
3 SAVE"73:1":SAVE"73:3":END'APP
10 CLS
15 INPUT"FIG1";F1
20 INPUT"FIG2";F2
25 X=F1+F2
30 CLS
35 PRINTF1
40 PRINTF2
45 PRINTX
50 EXEC41393
55 GOTO10
```

Jessica

MUSIC
by Shane Aitken

Orchestra-90cc music pack

HERE IS MY entry for your Music competition, "Jessica's Theme". Because this is my first, as I received the pack for Christmas, I have not come to grips with stereo mapping; therefore I have not included it.

But after experimenting, 'Z2' sounded best. Let me know what you think.

Coming soon: "Didn't we almost have it all", and "Moonlight Sonata".

The Listing:

```
/ JESSICA'S THEME
/ (BREAKING IN THE COLT)
/ FROM THE MAN FROM SNOWY RIVER
/ BY BRUCE ROWLAND
/ ARRANGED FOR THE ORCHESTRA
/ 90-CC BY SHANE AITKEN

JESFF8FFF0FF /ENGLISH HORN
JBSEACC0000F /FRENCH HORN
JASCFCE6000F /STENTOR HORN
JDSEFFEA602F /TROMBONE
JCSCEE222E1F /WALDHORN
NQ=80
<7
V1YA V2YB V3YC V4YD V5YE
M
*(I58QCH9)1
P01
M
*IC;C;C;QC;C;IC
V2IA#;9;A#;Q9;A#;I9
V3I8;7#;8;Q7#;8;I7#
V4Q.$;I-6H-6
V5W-6
M
*IC;QC;C;C;I8
V2I9;QA#;9;A#;I5
V3I7#;Q8;7#;8;I3#
V4W-6
V5W-D
M
*Q.7#;Q8;6
V2I5;5;2;6;4;$;4
V3I(#)3I1;Q1
V4Q.-D;Q-6;I-D;-A
M
*H6
V2H4;I4;6;8
V3H1
V4I-8;-6;-3;-1;H1
M
*IC;C;C;QC;C;IC
V2IA#;9;A#;Q9;A#;I9
```

```
V3I8;7#;8;Q7#;8;I7#
V4Q.$;I-6H-6
V5W-D
M
*IC;QC;C;C;I8
V2I9;QA#;9;A#;I5.
V3I7#;Q8;7#;8;I3#
V4W-6
V5W-D
M
*Q.7#;Q8;6
V2I5;5;2;6;4;$;4
V3I(#)3I1;Q1
V4Q.-D;Q-6;I-D;-A
M
*H.6;S8;6;4;1
V2H4
V3W1
V4I-D;-8;-6;-3;-1;Q1;
M
*I2;-2;0;Q5;I$;3#
V2I(#)2Q2;I-2;Q1
V3Q.-7#;Q.-9;Q-6
M
*V1H.3#;I1;3#
V2H.1
V3I-6;-D;-9;-6;-4#;Q.-2
M
*I5;6;7#;Q8;I7#;8;I7#
V2Q.2;I3#;Q.3#;I1
V3Q.-2;I-1;Q.-B#;I-A
V4Q.-7#;I-8;Q.-8
M
*Q7#;H6;I5;4
V2Q5;H4
V3H.1
V4-A
M
*Q5S5;-2;1;3#;5;3#;1;-2;4;3#;2;
1
V2I-B#;S-9;-6;H.-4#
P02
M
*Q2;S2;-2;1;2;I5;S7#;9;QC
V2Q1;S1;$;$;$;I-2;S2;5;Q7#
V3I$;S-9;-6;Q-5;I-9;-5;Q-5
V4I$;S$;8;Q8;I$;S;Q-9
P03
R01
P04
M
*Q2;S2;-2;1;5;Q5;S0#;2;I9
V2Q1;S$;$;$;#;Q0#;S$;$;I2
V3I$;S-9;-6;Q-5;S-9;-7#;-5;Q.-2
P05
M
*W5'
V2Q$'I-B'-9'-7'-4'-2'0
M
*Q5'5'Q.6&'I5
V2Q$'$'Q.4'I3
V3H.3
M
*H6&'4
V2H4'2
```

```
V3Q-E'I-A'-7'-5'-3'-1&'0
M
*Q$'6&'Q.5'I4'
V2H2'H0#
V3H$'H-3
V4H$'H-5
M
*S5'4'W3
V2S$'$'I-D'-C'-9'-6'-5'-4'-2
M
*Q3'I4'3'Q2'1
V2H.1
P06
M
*W2
V2W0#
V3Q$'I-C'-9'-7#'-5'-2'-1
M
*H$'Q9'C
V2H$'Q5'7#
V3Q0#'H.2
P07
R05
P08
M
*W2
V2W0#
V3Q$'I-C'-9'-8'Q-7#'I-5
M
*H.2'Q$
V2H.0#'Q$
V3H.-2'Q$
R01
P09
NQ=C8
M
*IC;C;C;QC;C;IC
V2IA#;9;A#;Q9;A#;I9
V3I8;7#;8;Q7#;8;I7#
V5W-6
M
*IC;QC;C;C;I8
V2I9;QA#;9;A#;I5
V3I7#;Q8;7#;8;I3#
V4W-6
V5W-D
M
*Q.7#;Q8;6
V2I5;5;2;6;4;$;4
V3I(#)3I1;Q1
V4Q.-D'Q.-6'Q-1
M
*I6'8'B'D'8'B'D'
V2I4'4'6'8'4'6'8'B
V3I1
V4W-1
M
V1 U-7
V2 U-7
M
*S8'9'A#'WC
V2S$'$'$'W-D
```

THIS IS THE MUSIC to Michael Jackson's "Bad". I did it on a 64k CoCo 2, but I'm sure it would work on a 32k at least.

I had a lot of trouble making the "Who's bad" part at the end of the chorus sound right, so I decided to delete it from the program.

I hope you like it ...

MUSIC
by Clinton Moore

Orchestra-90cc

Who's Bad

```
The Listing:
/    BAD.
/    BY MICHEAL JACKSON.
/    ENTERED BY CLINTON MOORE
/    JANUARY 1988
JASFC600402B
JBS26AFFF0FE
JCSFF30000FF
JDSFE400204A
V1YA V2YB V3YB V4YB V5YC
K5&
=94
P01
M1    V5Q-8-6-5;I-5%-4
M2    V5$-8Q-6-5;I-5%-4
M3    V5Q-8-6-5;I-5%-4
P02
M4    V5$-8Q-6-5;I-5%-4
R01
P03
M5    V1H$Q$I$-1
      V3H$Q$I$-1
      V5$-8Q-6-5;I-5%-4
P05
M6    V1I1-1Q1Q.1$-2;-2
      V3I1-1Q1Q.1$-2;-2
      V4I1-1;Q-1Q.-3$-2;-2
      V5Q-8-6-5;I-5%-4
M7    V1I-1;-1Q1$I$-1
      V3I-1;-1Q1-3I$-1
      V4I-1;-1;Q-1-3I$-1
      V5I$-8Q-6-5I-5%-4
M8    V1I1-1Q1Q.1I-2
      V3I1-1Q1Q.1I-2
      V4I1-1;Q-1-3I$-2
      V5Q-8-6-5;I-5%-4
P08
M9    V1I-1;-1;Q-1;$I$-1
      V3I-1;-1;Q-1-3I$-1
      V5I$-8Q-6-5;I-5%-4
M10   V1I1-1Q1Q.1I-2
      V3I1-1Q1Q.1$-2;-2
      V4I1-1;Q-1Q.-3$-2;-2
      V5Q-8-6-5;I-5%-4
M11   V1S-1;I.-1Q1Q.1$-2;-2
      V3-1;I.-1Q1-3I$-2;-2
      V4-1;I.-1Q-1-3I$$-2;-2
      V5I$-8Q-6-5;I-5%-4
M12   V1I-1Q1Q.1I-2
      V3I-1Q11I$-2
      V4I-1Q-1-3I$-2
      V5Q-8-6-5;I-5%-4
P06
M13   V1-1;-1;Q-1I$-1Q-2
      V3I-1;-1;Q-1I-3-1Q-2
      V5I$-8Q-6-5;I-5%-4
M14   V1Q$I$-1Q-2I$8-2;-2
      V3I;I1;8I;Q1H$
      V4S-1;I-1;8-1;Q-1H$
      V5Q-8-6-5;I-5%-4
M15   V1-2-IQ$I$-1Q1
      V3S1;I1;81;Q1H$
      V48-1;I-1;8-1;Q-1H$
      V5I$-8Q-6-5;I-5%-4
M16   V3S1;I1;81;Q1H$
      V48-1;I-1;8-1;Q-1H$
      V5Q-8-6-5;I-5%-4
M17   H$Q$I$-1
      V3S1;I1;81;Q1H$
      V4S-1;I-1;8-1;Q-1H$
      V5I$-8Q-6-5;I-5%-4
R05
R08
P07
M18   V1I-1;-1;Q-1I$S-1;-1
      V3I-1;-1;Q-1I-3-1;Q-2
      V5I$-8Q-6-5;I-5%-4
M19   V1O;SO;OIO;8O;1%I1;1$8O;0
      V3IO;8O;OIO;8O1%I1;1$8-2;-2
      V4I-3SO;0IO;8O-2I-21$8S-2;-2
      V5I.-7S-5I-5-6%H-6
M20   V1IO;8O;0IO;8O1%Q$I$8$3;3
      V3IO;8O;0;IO8O1%Q1I$8$3;3
      V4I-3SO;0;IOSO-2Q-2I$$1;1
      V5I.-7S-5I-5-6%H-6
M21   V1I4S32I2SO3I3;3;$8$3;3
```

```
V2I4S32I2SO1I1;1$83;3
V3I2832I28-21I1;1$83;3
V5I.-7S-5I-5-6%H-6
M22   V1I535;5;5356
      V2I5&35;5;5356
      V3I23252356
      V4-28-28-2
      V5Q-B;-B;-B$
P09
M23   V1Q.8I6;Q.6;I6
      V2Q.8I6;Q.6;I6
      V3Q3;34;4
      V41;12;2
      V5-8-6-5;I-5%-4
M24   V1Q5I$5$356
      V2Q.5;I54356
      V3Q3;3I2356
      V4Q1;1I2356
      V5I$-8Q-6I-5-6-5-6
M25   V1Q.8I6;Q.6;I6
      V2Q.8I6;Q.6;I6
      V3Q3;34;4
      V41;12;2
      V5-8-6-5;I-5%-4
M26   V156$66356
      V256$64356
      V3Q3;3I2356
      V4Q1;1I2356
      V5I$-8Q-6I-5;8-5-4I-5-6
M27   V1Q.8I6;Q.6;I6
      V2Q.8I6;Q.6;I6
      V3Q3;34;4
      V41;12;2
      V5-8-6-5;I-5%-4
M28   V156$5Q6I$86;6
      V256$5Q.6;86;6
      V3Q3;34;4
      V41;12;2
      V5I$-8Q-6I-5-6-5-6
M29   V1I6;6;6;86;66;6;I6;6;86;6
      V2I6;6;6;86;66;6;I6;6;86;6
      V3Q3;34;4
      V41;12;2
      V5-8-6-5;I-5%-4
P14
M30   V16;6;6;86;6I
      V2I6;6;6;86;6I
      V3Q3;I.384I
      V4Q1;I.1S2I8$
      V5Q-8I.-68-5I
P15
R01
R03
R05
R08
R08
R07
R09
R14
R01
R03
P11
M32   V2S6;I6;S6;Q6H$
      V3S3;I3;83;Q3H$
      V4S1;I1;S1;Q1H$
      V5Q-8-6-5;I-5%-4
M33   V2S6;I6;S6;Q6H$
      V3S3;I3;83;Q3H$
      V4S1;I1;81;Q1H$
      V5I$-8Q-6-5;I-5%-4
M34   V2S6;I6;S6;Q6H$
      V3S3;I3;83;Q3H$
      V4S1;I1;81;Q1H$
      V5Q-8-6-5;I-5%-4
M33   V2S6;I6;S6;Q6H$
      V3S3;I3;83;Q3H$
      V4S1;I1;81;Q1H$
      V5I$-8Q-6-5;I-5%-4
R07
R09
M33   V1I6;6;6;S6;6
      V2I6;6;6;86;6
      V3Q3;I.384
      V4Q1;I.182
      V5Q-8I.-68-5
P16
```

43

```
M34  V1Q.8I6;Q.6;I6
     V2Q.8I6;Q.6;I6
     V3Q3;34;4
     V41;12;2
     V5-8-6-5;I-5%-4
M35  V156$6$356
     V256$64356
     V3Q3;3I2356
     V4Q1;1I2356
     V5$-8Q-6I-5-6-5-6
M36  V1Q.8I6;Q.6;I6
     V2Q.8I6;Q.6;I6
     V3Q3;34;4
     V41;12;2
     V5-8-6-5;I-5%-4
M37  V156$356$5
     V256$356$5
     V3Q3;324
     V41;12;2
     V5I$-8Q-6-5;I-5-6
M38  V1Q6I$5Q6I$5
     V2Q.6I5Q.6I5
     V3Q3;34;4
     V4Q1;12;2
     V5-8-6-5;I-5%-4
M39  V16;6$5Q.6;$6;6
     V26;6$5Q.6;$6;6
     V3Q3;34;4
     V41;1;12
     V5I$-8Q-6I-5-6-5-6
M40  V1I6;6;6;$6;66;6;I6;6;$6;6
     V2I6;6;6;$6;66;6;I6;6;$6;6
     V3Q3;34;4
     V41;12;2
     V5-8-6-5;I-5%-4
M41  V16;6;6;$6;6I$356
     V26;6;6;$6;6I4356
     V3Q3;3I2356
     V4Q1;1I2356
     V5$-8Q-6I-5;$-5-4I-3-2
R16
P17
M42  V1Q.8I6;Q.6;I6
     V2Q.8I6;Q.6;I6
     V3Q3;34;4
     V41;1;12
     V5-8-6-5;I-5%-4
M43  V156$5$356
     V256$54356
     V3Q3;3I2356
     V4Q1;1I2356
     V5$-8Q-6I-5-6-5-6
M44  V1Q.8I6;Q.6;I6
     V2Q.8I6;Q.6;I6
     V3Q3;34;4
     V4Q1;12;2
     V5-8-6-5;I-5%-4
M45  V156$6$356
     V256$64356
     V3Q3;3I2356
     V4Q1;1I2356
     V5I$-8Q-6I-5;$-5-4I-5-6
M46  V1Q.8I6;Q.6;I6
     V2Q.8I6;Q.6;I6
     V3Q3;34;4
     V41;1;12
     V5-8-6-5;I-5%-4
M47  V1156$5Q6I$86;6
     V2156$5Q.6$6;6
     V3Q3;34;4
     V41;12;2
     V5I$-8Q-6I-5-6-5-6
M48  V1I6;6;6;$6;66;6;I6;6;$6;6
     V2I6;6;6;$6;66;6;I6;6;$6;6
     V3Q3;34;4
     V41;1;12
     V5-8-6-5;I-5%-4
M49  V16;6;6$6;I6I$
     V26;6;6$6;I6I$
     V33;I3S3I4I$
     V41;1S1I2I$
     V5I$-8I-6S-6-5
/    END
```
44

CORRECTIONS

I typed in the program called "Border+" from Australian CoCo Magazine, April 1988.

The program was designed for a DMP 105, and I assumed that the DMP 105 was similar to the DMP 110.

I found that it is not similar enough to run "Border+", so I modified the program to enable it to run on a DMP 110.

The following modifications are to be made:

```
3000 M=17:N=29:K=128:Q=3:
     GOTO2200
3010 M=17:N=14:Q=3:K=128:
     GOTO2200
3020 M=17:N=9:Q=3:K=128:GOTO2200
3030 M=8:N=7:Q=1:K=136:GOTO2200
```

I hope that this information may be of use to other DMP 110 owners.

Peter Barendrecht.

***

I wish to draw your attention to the errors in my program "Colour Crossfire", in May's CoCo Magazine.

Firstly, it was stated the the tape version needed only 32k of memory to run with. It really needs 64k.

Secondly, some of the instructions regarding saving/ loading the programs are wrong as well. The main program of the tape version of crossfire must be saved as CFX, otherwise it won't load from the instruction/ loader program.

The disk version as published will not work without the data file generator section. Those who are conversant with the annomalies and restrictions of disk will no doubt pick up the error immediately, because the file names (T$) are too long. I didn't realise when I programmed it that disk won't accept more than 8 characters in a file name as tape does.

For those who need to know what is wrong:

* Delete line 110 - it serves no purpose (my co-author needed it, but we don't really!)
* Delete all references to OP

in lines 530 to 570 and replace it with '1'.

NB: Leave all brackets and symbols alone. If you want to use the disk version with the tape (God only knows why ...), then use '-1' instead.

* In line 530 and 550, change 'T$' to TI$'.

* In line 590, insert "GOSUB 1820:" before "PRINT T$".

* Add lines 1820 and 1830:

```
1820 IF TI$="GENKNOWL" THEN 1710
ELSEIF TI$="THEBIBLE"THEN 1720
ELSE IF TI$="GEOG" THEN1730 ELSE
IF TI$="HISTORY"THEN 1740 ELSE
IF TI$="MUSIC" THEN 1750 ELSE IF
TI$="LITKNOWL"THEN 1760

1830 IF TI$="TV"THEN 1770ELSE IF
TI$="PEOPLE" THEN 1780 ELSE IF
TI$="SPORT" THEN 1790 ELSEIF
TI$="AUST" THEN 1800 ELSE IF
TI$="SCIENCE" THEN1 1810
```

Now use these abridged titles for the catagories when saving the categories in the data file generator and change T$ to TI$ in it and as well.

If you are confused about the entire matter, then give me a call on (07) 807-2663 and I'll explain it all to you.

Also, if there is something I missed, then give me a call as well. -Ta.

Coming soon - more catagories and questions and answers for all of you who like to bust their brains. Also, start brushing up on your Greek mythology.

(Ed's note - both program and data file will appear in this month's edition of CoCoOz, due to length.)

***

We eventually found the 'Unknown' author of the program, "Trial Balance" (May CoCo, Page 21).

His name was Lindsay Bradford. Sorry 'bout that! The last five records of the submittors database died, and every other record bar Lindsay's was remembered.

CASHBOOK Part 1

OS9 BUSINESS
by Ian Lobley

Ed's note: due to popular demand, we are proud to re-publish the enhanced version of Ian Lobley's Cashbook program.

But due to the length of the programs involved, we will have to print it over a four month period. You will find the entire source listing on the CoCoOz disk for October.

WHEN THE COLOUR computer was first released by Tandy I then managed a Motel, a CoCo, disk drive and printer. We both looked around for a simple cash book program, but could not find one.

To save a beautiful friendship, I sat down one Easter weekend and wrote one for him. It was in Tandy's disk basic and it worked well.

When OS-9 was released, I re-

wrote the program in Basic09, mainly because I was interested to know how easy (or difficult) OS9 and Basic09 were.

In the early stages, I had a lot of help from Warren Brown, who until recently, moved to the United States. He was the Australian agent for Micro Ware. Warren knew everything about OS-9.

In part one of this series of articles, I hope to be able to show how the program was written and developed.

I have a twin disk drive system and used O-Pak for the screen layout. The screen width is 64 characters across, so if you haven't got O-Pak or something similar you will have to change a few procedures.

In the first article, we will set up a file for our cheque record, bank balance, start bank balance, company name and code/catagory list.

The first procedure will later run some procedures that will create these files.

If you only have a single disk system, don't give up. The program will still work under one drive.

To type up the programs, you'll need Basic09 with a memory of 20000 bytes.

For the time being, type in all the listings and save them as you go.

The Listing:

```
PROCEDURE menu
0000         LOOP
0002            PRINT CHR$(12)
0007            PRINT TAB(15); "O S 9    CASH BOOK for the CoCo"
002E            PRINT TAB(14); "Version 1.01   86/07/30 Ian Lobley"
0057            PRINT TAB(13); "The Current Date Is ";
0074            SHELL "date"
007C            DIM choice:STRING[2]
0088            DIM balance:REAL
008F            FOR x=1 TO 2
00A1               PRINT
00A3            NEXT x
00AE            PRINT TAB(20); "<1> Input Cheques and Deposits"
00D4            PRINT TAB(20); "<2> See Cheques"
00EB            PRINT TAB(20); "<3> Search & Change"
0106            PRINT TAB(20); "<4> Print Month  <44> to > printer"
0130            PRINT TAB(20); "<5> Set New Date"
0148            PRINT TAB(20); "<6> Input More Catagories"
0169            PRINT TAB(20); "<9> Delete & Create Chq List"
018D            PRINT TAB(20); "<y> Yearly Printout"
01A8            PRINT
01AA            PRINT TAB(20); "<n> For Next Menu"
01C3            PRINT TAB(20); "<e> To E*N*D"
01D7            INPUT choice
01DC            IF choice="e" OR choice="E" THEN
01F1               END
01F3            ENDIF
01F5            IF choice="n" OR choice="N" THEN
020A               PRINT CHR$(12)
020F               PRINT "****** M E N U  No  2 ******"
022F               PRINT \ PRINT \ PRINT
0235               PRINT TAB(20); "<10> Reconcilliation of Bank statement"
0263               PRINT TAB(20); "<11> Recalculate Bank Balance"
0288               PRINT TAB(20); "<12> Correct Codes & Catagories List "
02B5               PRINT TAB(20); "<13> Change Starting Bank Balance"
```

```
02DE            PRINT
02E0            PRINT TAB(20); "<enter> to Return"
02F9            PRINT
02FB            INPUT choice
0300            IF choice="11" THEN
030E              RUN recalc
0312            ENDIF
0314            IF choice="10" THEN
0322              RUN recon
0326            ENDIF
0328            IF choice="12" THEN
0336              RUN correct_items
033A            ENDIF
033C            IF choice="13" THEN
034A              RUN change_start_bal
034E            ENDIF
0350          ENDIF
0352          IF choice="y" OR choice="Y" THEN
0367            RUN year_print
036B          ENDIF
036D          IF choice="5" THEN
037A            RUN set_date
037E          ENDIF
0380          IF choice="6" THEN
038D            RUN input_items
0391          ENDIF
0393          IF choice="$" THEN
03A0            RUN see_bank
03A4          ENDIF
03A6          IF choice="9" THEN
03B3            RUN del_chq_record
03B7          ENDIF
03B9          IF choice="44" THEN
03C7            RUN search_month_p
03CB          ENDIF
03CD          IF choice="3" THEN
03DA            RUN search_chq
03DE          ENDIF
03E0          IF choice="4" THEN
03ED            RUN search_month
03F1          ENDIF
03F3          IF choice="1" THEN
0400            RUN input_chq
0404          ENDIF
0406          IF choice="2" THEN
0413            RUN get_chq
0417          ENDIF
0419        ENDLOOP
041D        END


PROCEDURE read_bank
0000        PARAM balance:REAL
0007        DIM path:BYTE
000E        OPEN #path,"bank"
001B        GET #path,balance
0025        CLOSE #path
002B        END
PROCEDURE title
0000        DIM top_title:STRING[64]
000C        PRINT "Date";
0015        PRINT TAB(10); "Chq No";
0024        PRINT TAB(17); "Payee / Depositor";
003E        PRINT TAB(38); "Deposits";
004F        PRINT TAB(49); "Payments";
0060        PRINT TAB(60); "Item"
006C        END
```

```
PROCEDURE title2
  0000        DIM top_title:STRING[64]
  000C        top_title:="Date        Chq No         Payee              Ammount   Type Bala
nce"
  004F        PRINT top_title
  0054        END




PROCEDURE items
  0000        TYPE types_all=code:STRING[4]; name:STRING[20]
  001B        DIM path:BYTE
  0022        PARAM types(30):types_all
  0030        DIM x:INTEGER
  0037        OPEN #path,"items_list"
  004A        FOR x=1 TO 30
  005A          GET #path,types(x)
  0068        NEXT x
  0073        CLOSE #path




PROCEDURE change_chq
  0000        TYPE record=date:STRING[8]; number:INTEGER; payee:STRING[25

              ]; ammt:REAL; item:STRING[4]
  0032        PARAM chq_rec:record
  003B        DIM choice:STRING[10]
  0047        DIM new_bal:REAL
  004E        DIM old_bal:REAL
  0055        DIM path:BYTE
  005C        old_bal=0
  0064        new_bal=0
  006C        PRINT "Input change to be made "
  0088        PRINT "Either Date , Number , Payee , Ammt or Type "
  00B8        INPUT choice
  00BD        IF choice="date" OR choice="Date" THEN
  00D8          INPUT "New Date ?",chq_rec.date
  00EE        ENDIF
  00F0        IF choice="Number" OR choice="number" THEN
  010F          INPUT "New Number ? ",chq_rec.number
  0128        ENDIF
  012A        IF choice="Payee" OR choice="payee" THEN
  0147          INPUT "New Payee ? ",chq_rec.payee
  015F        ENDIF
  0161        IF choice="ammt" OR choice="Ammt" THEN
  017C          OPEN #path,"bank"
  0189          GET #path,old_bal
  0193          PRINT "Current Bank Balance ";
  01AD          PRINT USING "t35,r10.2^"; old_bal
  01C0          IF chq_rec.item<>"deps" THEN
  01D3            old_bal=old_bal+chq_rec.ammt
  01E2          ELSE old_bal=old_bal-chq_rec.ammt
  01F4          ENDIF
  01F6          PRINT "Balance w/o this transaction";
  0217          PRINT USING "t35,r10.2^"; old_bal
  022A          INPUT "New Ammount ? ",chq_rec.ammt
  0244          IF chq_rec.item<>"deps" THEN
  0257            new_bal=old_bal-chq_rec.ammt
  0266          ELSE new_bal=old_bal+chq_rec.ammt
  0278          ENDIF
  027A          PRINT "New Bank Balance ";
  0290          PRINT USING "t35,r10.2^"; new_bal
```

```
02A3          SEEK #path,0
02AC          PUT #path,new_bal
02B6          CLOSE #path
02BC        ENDIF
02BE        IF choice="Type" OR choice="type" THEN
02D9          INPUT "New Type ? ",chq_rec.item
02F0        ENDIF
02F2        END


PROCEDURE get_chq
0000        PRINT CHR$(12)
0005        TYPE record=date:STRING[8]; number:INTEGER; payee:STRING[25

              ]; ammt:REAL; item:STRING[4]
0037        DIM chq_rec:record
0040        DIM path:BYTE
0047        DIM choice:STRING[1]
0053        DIM dep_tot:REAL
005A        DIM chq_tot:REAL
0061        chq_tot:=0
0069        dep_tot:=0
0071        chq_rec.date=""
007C        chq_rec.number=0
0087        chq_rec.payee=""
0092        chq_rec.ammt=0
009E        chq_rec.item=""
00A9        RUN title
00AD        OPEN #path,"chq_record"
00C0        WHILE NOT(EOF(#path)) DO
00CB          GET #path,chq_rec
00D5          IF LEFT$(chq_rec.item,3)="dep" THEN
00EA            dep_tot=dep_tot+chq_rec:ammt
00F9          ELSE chq_tot=chq_tot+chq_rec.ammt
010B          ENDIF
010D          RUN print_chq(chq_rec)
0117        ENDWHILE
011B        PRINT \ PRINT \
0120        CLOSE #path
0126        PRINT "    TOTALS   ";
0136        PRINT USING "t38,r10.2"; dep_tot;
0149        PRINT USING "t49,r10.2"; chq_tot
015B        INPUT "<enter> to Return ",choice$
0175        END


PROCEDURE search_chq
0000        PRINT CHR$(12)
0005        TYPE record=date:STRING[8]; number:INTEGER; payee:STRING[25

              ]; ammt:REAL; item:STRING[4]
0037        DIM chq_rec:record
0040        DIM path:BYTE
0047        DIM choice:STRING[1]
0053        DIM search:INTEGER
005A        DIM count:INTEGER
0061        count=0
0068        chq_rec.date=""
0073        chq_rec.number=0
007E        chq_rec.payee=""
0089        chq_rec.ammt=0
0095        chq_rec.item=""
00A0        INPUT "What Chq No to Search for ? ",search
00C4        PRINT CHR$(12)
00C9        RUN title
00CD        OPEN #path,"chq_record"
```

```
00E0        WHILE NOT(EOF(#path)) DO
00EB          GET #path,chq_rec
00F5          count=count+1
0100          IF search=chq_rec.number THEN
0110            RUN print_chq(chq_rec)
011A            INPUT "Change <Y> or enter ",choice
0136            IF choice="y" THEN
0143              RUN change_chq(chq_rec)
014D              count=count-1
0158              SEEK #path,SIZE(chq_rec)*count
0168              PUT #path,chq_rec
0172            ENDIF
0174          ENDIF
0176        ENDWHILE
017A        CLOSE #path


PROCEDURE input_chq
0000        PRINT CHR$(12)
0005        PRINT "*** I N P U T    C H E Q U E S   $   D E P O S I T S ***"
0041        PRINT
0043        TYPE types_all=code:STRING[4]; name:STRING[20]
005E        DIM types(30):types_all
006C        TYPE record=date:STRING[8]; number:INTEGER; payee:STRING[25

            ]; ammt:REAL; item:STRING[4]
009E        DIM chq_rec:record
00A7        DIM found:BOOLEAN
00AE        DIM errnum:INTEGER
00B5        DIM path:BYTE
00BC        DIM cdate:STRING[8]
00C8        DIM choice:STRING[2]
00D4        DIM temp:STRING[6]
00E0        DIM chqno:INTEGER
00E7        DIM count:INTEGER
00EE        DIM balance:REAL
00F5        RUN items(types)
00FF        balance=0
0107        count=0
010E        chqno=0
0115        temp=""
011C        cdate=""
0123        chq_rec.date=""
012E        chq_rec.number=0
0139        chq_rec.payee=""
0144        chq_rec.ammt=0
0150        chq_rec.item=""
015B        RUN read_bank(balance)
0165        OPEN #path,"chq_record"
0178        WHILE NOT(EOF(#path)) DO
0183          GET #path,chq_rec
018D        ENDWHILE
0191        INPUT "What number month are you doing <eg 06>",choice
01C0        IF LEN(choice)<2 THEN
01CD          choice="0"+choice
01D9        ENDIF
01DB        PRINT
01DD        PRINT "Last Chq was ......"
01F4        RUN title
01F8        RUN print_chq(chq_rec)
0202        PRINT \ PRINT
0206        PRINT "Current Balance is ";
021E        PRINT USING "r12.2"; balance
022C        PRINT \ PRINT
0230        INPUT "What is next Chq No ? ",chqno
024E        PRINT CHR$(12)
0253        cdate=LEFT$(DATE$,3)+choice+"/"
0264        temp=MID$(cdate,4,2)+MID$(cdate,1,2)
```

```
027A          cdate="/"+MID$(temp,1,2)+"/"+MID$(temp,3,2)
0298          RUN title
029C          LOOP
029E            INPUT " Input DATE  or <e> to End Session  ",chq_rec.date
02CE            IF chq_rec.date="E" OR chq_rec.date="e" THEN 100
02EC            IF LEN(chq_rec.date)=1 THEN
02FC              chq_rec.date="0"+chq_rec.date
030F            ENDIF
0311            PRINT CHR$(9);
0317            PRINT "
"
0358            PRINT CHR$(9);
035E            chq_rec.date=chq_rec.date+cdate
0371            PRINT chq_rec.date;
037A            PRINT "      ";
0383            INPUT "<Enter,s,d>",choice
0396            IF choice="s" OR choice="d" THEN
03AB              chqno=chqno-1
03B6            ENDIF
03B8            chq_rec.number=chqno
03C4            IF choice="d" THEN
03D1              chq_rec.number=0
03DC              PRINT CHR$(9);
03E2              PRINT TAB(50)
03E7              PRINT CHR$(9);
03ED              PRINT chq_rec.date;
03F6              PRINT TAB(12);
03FC              PRINT "DEP";
0404            ELSE
0408              PRINT CHR$(9);
040E              PRINT TAB(50)
0413              PRINT CHR$(9);
0419              PRINT chq_rec.date;
0422              PRINT TAB(12);
0428              PRINT chq_rec.number;
0431            ENDIF
0433            PRINT "   ";
043A            INPUT " ",chq_rec.payee
0447            IF chq_rec.number=0 THEN
0456              PRINT TAB(38);
045C              PRINT CHR$(9);
0462            ELSE PRINT TAB(48);
046B              PRINT CHR$(9);
0471            ENDIF
0473            INPUT " ",chq_rec.ammt
0480            IF chq_rec.number=0 THEN
048F              PRINT TAB(37);
0495            ELSE PRINT TAB(48);
049E            ENDIF
04A0            PRINT CHR$(9);
04A6            PRINT USING "r10.2^"; chq_rec.ammt;
04B9            PRINT TAB(60);
04BF 50         INPUT " ",chq_rec.item
04CF            found=FALSE
04D5            FOR x=1 TO 30
04E7              IF chq_rec.item=types(x).code THEN
04FE                found=TRUE
0504              ENDIF
0506            NEXT x
0511            IF found=FALSE THEN
051C              RUN print_t
0520              RUN items(types)
052A              PRINT CHR$(12)
052F              RUN title
0533              RUN print_chq(chq_rec)
053D              PRINT TAB(59);
0543              PRINT CHR$(9);
0549              GOTO 50
```

```
054D          ENDIF
054F          IF LEFT$(chq_rec.item,3)<>"dep" THEN
0564             balance=balance-chq_rec.ammt
0573          ELSE balance=balance+chq_rec.ammt
0585          ENDIF
0587          PUT #path,chq_rec
0591          chqno=chqno+1
059C       ENDLOOP
05A0       CLOSE #path
05A6 100   CLOSE #path
05AF       OPEN #path,"bank"
05BC       PUT #path,balance
05C6       CLOSE #path
05CC       END


PROCEDURE create_chq
0000       PRINT "****** Creating new Chq List ******"
0027       TYPE record=date:STRING[8]; number:INTEGER; payee:STRING[25

           ]; ammt:REAL; item:STRING[4]
0059       DIM chq_rec:record
0062       DIM path:BYTE
0069       chq_rec.date=""
0074       chq_rec.number=0
007F       chq_rec.payee=""
008A       chq_rec.ammt=0
0096       chq_rec.item=""
00A1       CREATE #path,"chq_record"
00B4       PUT #path,chq_rec
00BE       CLOSE #path


PROCEDURE print_t
0000       TYPE types_all=code:STRING[4]; name:STRING[20]
001B       DIM types(30):types_all
0029       DIM choice:STRING[2]
0035       DIM x:INTEGER
003C       RUN items(types)
0046       PRINT "Check your item TYPE - List as below"
006E       PRINT
0070       FOR x=1 TO 30
0080          IF types(x).code<>" " THEN
0093             PRINT types(x).code,
009F          ENDIF
00A1       NEXT x
00AC       PRINT
00AE       PRINT "<Enter>to Continue <I> to insert new Item"
00DB       INPUT choice
00E0       IF choice="i" OR choice="I" THEN
00F5          RUN input_items
00F9       ENDIF
00FB       END


PROCEDURE print_chq
0000       TYPE record=date:STRING[8]; number:INTEGER; payee:STRING[25

           ]; ammt:REAL; item:STRING[4]
0032       PARAM chq_rec:record
003B       PRINT chq_rec.date;
```

```
0044          PRINT TAB(11); chq_rec.number;
0051          PRINT TAB(17); chq_rec.payee;
005E          IF LEFT$(chq_rec.item,3)="dep" THEN
0073            PRINT TAB(37);
0079          ELSE PRINT TAB(48);
0082          ENDIF
0084          PRINT USING "r10.2^"; chq_rec.ammt;
0097          PRINT TAB(60); chq_rec.item


PROCEDURE set_date
0000          PRINT "The Current Date is"
0017          SHELL "date"
001F          SHELL "setime"


PROCEDURE input_items
0000          PRINT CHR$(12)
0005          PRINT TAB(20); "I N P U T  \  S E E   I T E M S "
002E          PRINT  \ PRINT
0032          PRINT TAB(25); "Code"; "   "; "Name"
004B          TYPE types_all=code:STRING[4]; name:STRING[20]
0066          DIM x:INTEGER
006D          DIM choice:STRING[20]
0079          x=0
0080          DIM path:BYTE
0087          DIM types:types_all
0090          OPEN #path,"items_list"
00A3          WHILE NOT(EOF(#path)) DO
00AE 50         GET #path,types
00BB            x=x+1
00C6            PRINT TAB(25); types.code; "   ";
00D9            PRINT types.name
00E1            IF types.code=" " THEN
00F1              PRINT TAB(20); "You have space for "; 31-x; "  Items"
011D              PRINT
011F 60           INPUT "Input CODE <4 characters> <e> to END ",choice$
0150              IF choice$="e" OR choice$="E" THEN 100
0168              IF LEN(choice$)<>4 THEN 60
0178              types.code=choice$
0184              INPUT "Input Name  <20 Characters>  ",types.name
01AD              SEEK #path,(x-1)*SIZE(types)
01C0              PUT #path,types
01CA            ENDIF
01CC          GOTO 50
01D0          ENDWHILE
01D4 100      CLOSE #path
```

EDPATCH

by Gordon Thurston

This very short program is for owners of the CoCo 3 and disk Edtasm+.

It patches to reset routine to add a routine to reset the screen properly after pressing the reset button. The CoCo 3 uses three different screens, and this routine will select the proper one.

Type in and save the source code as "Edpatch". Then assemble it on tape. Go to Zbug, load the assembled version and Edtasm will be patched.

Type PD EDTASM 1600 4A7F 1600.

This will save the modified version.

When Tandy wrote the program, they put in a routine to check the sign on message, and if it's not right, it will print "bad" after the sign on. This doesn't affect the program in any way that I know of.

I tried tacking it onto the program, but it was overwritten by the source code buffer, so the easiest way around it was to use part of the space for the sign on message. Sorry about that, Tandy.

There are some surprising features to this machine. On

Invoicing System

2K CoCo, tape and printer

INVOICING IS a business program to print an invoice to a customer.

This program will hold up to 135 items and 30 customers in memory.

The program is also set up for cash sales and an item default. Change the invoice name, address, phone, etc to suit your business (lines 1800 - 1825 in the program).

Before loading the program, you must type: POKE25,6:NEW to increase the memory required for the program.

If the <BREAK> key is pressed by accident, type GOTO 100. This will go to the main menu so you don't lose anything currently in memory.

I will go through the program, step by step.

INVOICING MENU

1. 'MAKE INVOICE', will enter an invoice to a customers account. First you enter the customer's account number, then enter the invoice number or press enter and the invoice number will be the last entered number, +1.

Enter the customer o/no / job number / salesman, if required.

The screen will change for item number entry. Enter the item number to be invoiced. If the number is not in memory, the item will not come up.

Enter the quantity supplied. Enter the price or press enter and the retail price will come up.

If the customer account is a retail or a cash sale, the discount will not come up if you just press enter. If discount is required, enter the amount to be given.

If the customer account is trade, the discount will come up if enter is just pushed. If the discount is to change, enter the new amount to be given.

Continue this until finished.

If you need to enter an item not normally a stock item, you can by entering item number 9999.

BUSINESS
by James Grech

This is an item default entry. Enter the description, quantity, price and discount for the default entered.

When finished all entries, press enter to give you the total and then press <Y/N> for a printout. The computer will only allow 15 entries in each invoice.

1.1. 'MAKE CREDIT' is the same as Invoice Entry, only giving the customer a credit.

Follow it the same way as Invoice Entry.

1.2. 'ACCOUNT PAYMENT'. Enter the customer account number for payment.

2. 'LOAD FILES': This section will load data from tape. Do this first before any new entries are made.

3. 'SAVE FILES': This section will save data to tape. This must be done after any new entries made including any invoice or credit entries.

4. 'INQUIRY & EDIT MENU'

4.1. 'ITEM INQUIRY AND EDIT' This section allows you to look at or change the item detail etc. Enter the item number required. Use the up and down arrows to move the reversed line to the line required.

If changing details, move up and press enter at the line to be changed, then press enter.

Retype the new detail. Move down to the bottom of the screen to return to menu.

If the item is to be deleted, press <D> then <Y/N>.

4.2. 'CUSTOMER INQUIRY & EDIT' This section will do the same as above but for customers. Do the same procedure as above.

4.3. 'CHANGE INVOICE DATE This will allow you to change the invoice date when required.

5. 'NEW ITEM ENTRY' will allow you to enter a new item into memory.

6. 'NEW CUSTOMER ENTRY' will allow you to enter a new customer into memory. When you get to the entry for ACC TYPE <R,T> - this is for when you are entering an invoice, the discount is set to which the account is. "R" is for a retail account and "T" is for a trade account.

7. 'PRINTOUT MENU'

7.1. 'STOCK ITEM PRINTOUT' will printout to a 80chr wide printer. The stock item details of all items in memory.

7.2. 'CUSTOMER PRINTOUT' will printout to a 80chr wide printer the customers detail of all customers in memory in alphabetical order.

```
0 GOTO10
3 SAVE"155:1":END'BUS
10 '*********INVOICING*********
    ****** BY JAMES GRECH *******
    **********1988***************
15 CLEAR9100
20 DIMST$(7,135),CU$(7,30),I$(15
   ),ID$(15),M$(15),I(15),P(15),D(1
   5),T(15)
25 D=0:S=0:T=1:INV=0:CR=0
30 POKE359,57:POKE65314,32:CLS
35 PRINT@33,STRINGS$(30,"*")
40 PRINT@193,STRING$(30,"*")
45 FORY=65TO161 STEP32:PRINT@Y,"
   *";:NEXT
50 FORY=94TO190 STEP32:PRINT@Y,"
   *";:NEXT
55 PRINT@107,"INVOICING";:PRINT@
   139,"---------";
60 PRINT@164,"PROGRAM BY J GRECH
   1988";
65 PRINT@260,"PLEASE ENTER TODAY
   S DATE":PRINT@331,"";:LINEINPUT
   TDT$
70 PRINT@388,"PLEASE ENTER INVOI
   CE DATE":PRINT@459,"";:LINEINPUT
   IDT$
75 GOTO100
80 PRINT@0," COMPUTER INVOICE SY
   STEM ......":PRINT@48,"DATE ";TD
   T$
85 PRINT@65,STRINGS$(30,45):PRINT
   @129,STRINGS$(30,45):PRINT@417,ST
   RINGS$(30,45):RETURN
100 POKE65494,0:CLS:GOSUB80
105 PRINT@100,"** M A I N   M E
    N U **"
110 PRINT@163,"1)   INVOICING MEN
    U"
115 PRINT@195,"2)   LOAD FILES"
120 PRINT@227,"3)   SAVE FILES"
125 PRINT@259,"4)   INQUIRY & EDI
    T MENU"
130 PRINT@291,"5)   NEW ITEM ENTR
    Y"
135 PRINT@323,"6)   NEW CUSTOMER
    ENTRY"
140 PRINT@355,"7)   PRINTOUT MENU
    "
145 PRINT@449,"PLEASE ENTER MENU
    NUMBER..";:INPUT"";A
150 ON A GOTO 160,900,1000,1100,
    600,750,1500
155 GOTO145
160 CLS:GOSUB80
165 PRINT@105,"INVOICING MENU"
170 PRINT@195,"1)   MAKE INVOICE"
175 PRINT@227,"2)   MAKE CREDIT N
    OTE"
180 PRINT@259,"3)   ACCOUNT PAYME
    NT"
185 PRINT@291,"4)   RETURN TO MAI
    N MENU"
190 PRINT@449,"PLEASE ENTER MENU
    NUMBER..";:INPUT"";A
195 ON A GOTO205,495,520,100
200 GOTO 190
205 '
210 CLS:GOSUB80
215 Y=0:FORY=0TO25
220 TT=0:L3=0:I$="0":AA=0:CN=0
225 PRINT@105,"INVOICE ENTRY"
230 PRINT@160," CUST NO..... "
235 PRINT" NAME........ "
240 PRINT" DATE........ ";IDT$
245 IFA=2THENPRINT" CREDIT NO...
    "ELSEPRINT" INVOICE NO.. "
250 PRINT" ORDER NO.... "
255 PRINT" JOB NO...... "
260 PRINT" SALESMAN.... "
265 PRINT@448,"ENTER <1> FOR CAS
    H SALE":PRINT"ENTER <R> FOR INVO
    ICE MENU";
```

```
270 PRINT@174,"";:LINEINPUTZ$
275 FORC=1TO30:IFZ$=""THEN160ELS
    EIFZ$="1"THEN320ELSEIFZ$="R"THEN
    160ELSEIFZ$=CU$(1,C)THEN290
280 NEXTC
285 GOTO205
290 PRINT@198,CU$(2,C):N$=CU$(2,
    C)
295 IFA=2THEN510ELSEPRINT@270,""
    ;:LINEINPUTI$
300 IF I$=""THENI$=STR$(VAL(D$)+
    1):PRINT@270,""I$:D$=I$:INV=VAL(
    I$)
305 PRINT@302,"";:LINEINPUTO$
310 PRINT@334,"";:LINEINPUTJ$
315 PRINT@366,"";:LINEINPUTS$:GO
    TO335
320 N$="CASH SALE":PRINT@206,N$
325 S=S+1:PRINT@269,S:INV=S
330 GOTO305
335 FORK=1TO500:NEXT
340 CLS:PRINT@288,"CUST NO..."Z$
    :PRINT"NAME. "N$:IFA=2THENPRINT"
    CREDIT NO. "CR ELSE PRINT"INVOIC
    E NO. "INV
345 IF N$="CASH SALE" AND A=2THE
    N PRINT@352,"CASH SALE CREDIT NO
    . "S
350 IF N$="CASH SALE" AND A=1THE
    N PRINT@352,"CASH SALE NO. "S
355 PRINT@448,"ITEM NO.     QTY
         PRICE EA  DIS%";
360 Y=Y+1:IFY=16THENR$="":GOTO37
    0
365 PRINT@480,;:LINEINPUTR$
370 IFR$=""THENK=Y-1:YY=Y-1:GOTO
    470
375 FORW=1TO135
380 IFR$="9999"THENPRINT@460,"IT
    EM DEFAULT":PRINT"ITEM. ";:LINEI
    NPUTM$(Y):ID$(Y)="0":GOTO405
385 IFR$=ST$(1,W)THENM$(Y)=ST$(2
    ,W):ID$(Y)=ST$(1,W):GOTO400
390 NEXTW
395 GOTO360
400 PRINT;ST$(2,W)
405 PRINT@428,;:LINEINPUTQT$:I(Y
    )=VAL(QT$)
410 IFR$="9999"THEN425
415 IFCN=1THENST$(7,W)=STR$(VAL(
    ST$(7,W))+I(Y)):GOTO425
420 ST$(7,W)=STR$(VAL(ST$(7,W))-
    I(Y))
425 PRINT@436,;:LINEINPUTZZ$:IF
    ZZ$=""THENPRINT@438,ST$(3,W),P(Y
    )=VAL(ST$(3,W)):GOTO435
430 P(Y)=VAL(ZZ$)
435 IFCU$(6,C)="R" OR N$="CASH S
    ALE" THENPRINT@445,;:LINEINPUTZX
    $:D(Y)=VAL(ZX$):GOTO445
440 IFCU$(6,C)="T"THENPRINT@445,
    ;:LINEINPUTZX$:IFZX$=""THENPRINT
    @445,ST$(5,W):D(Y)=VAL(ST$(5,W))
    :GOTO445
445 '
450 T(Y)=P(Y)*I(Y):DIS=T(Y)*D(Y)
    /100:T(Y)=T(Y)-DIS
455 TT=TT+T(Y)
460 IFA=2THENCU$(7,C)=STR$(VAL(C
    U$(7,C))-T(Y)):GOTO360
465 CU$(7,C)=STR$(VAL(CU$(7,C))+
    T(Y)):GOTO360
470 PRINT:PRINTUSING"TOTAL $ ###
    ##.##";TT
475 PRINT"PRINT INVOICE/CREDIT
    Y/N"
480 EXEC44539:Q$=INKEY$:IFQ$="Y"
    THEN1800ELSE485
485 IF Q$="N"THEN160ELSE480
490 PRINT"DO YOU NEED A NOTHER C
    OPY  Y/N":GOTO480
495 CLS:GOSUB80:FORY=0TO15:I$="0
    ":TT=0:AA=0:CN=1
500 L3=0:PRINT@103,"CREDIT NOTE
    ENTRY"
```

```
505 GOTO230
510 PRINT@270,"";:LINEINPUTCN$:I
    FCN$=""THENCR=CR+1:PRINT@270,CR:
    GOTO305
515 CR=VAL(CN$):GOTO305
520 CLS:GOSUB80
525 PRINT@105,"ACCOUNT PAYMENT"
530 PRINT@294,"":PRINT@480,STRIN
    G$(31," ");:PRINT@160,"CUST. NO.
    ..";:LINEINPUTZ$:FORC=1TO30:IFZ$
    =""THEN160ELSEIFZ$=CU$(1,C)THEN5
    45
535 NEXTC
540 PRINT@294,"CUST NO. NOT ON F
    ILE":PRINT@449,"AVAILABLE COMMAN
    DS":PRINT@480,"<1> NEW CUST.   <
    4> INVOICE MENU";:EXEC44539:IFIN
    KEY$="4"THEN160ELSE530
545 PRINT"NAME. ";CU$(2,C)
550 PRINT"ADDRESS. ";CU$(3,C)
555 PRINT"TOWN.... ";CU$(4,C)
560 PRINT"CURRENT DUE...$ ";:CD=
    VAL(CU$(7,C)):PRINTUSING"####.#
    #";CD
565 PRINT@321,"RECEIPT NO.......
    ";:LINEINPUTRE$
570 PRINT@353,"ENTER PAYMENT AMM
    OUNT.$";:LINEINPUTPM$
575 PM=VAL(PM$)
580 CU$(7,C)=STR$(VAL(CU$(7,C))-
    PM)
585 CI=VAL(CU$(7,C)):PRINT@385,"
    NEW AMMOUNT DUE $";:PRINTUSING"#
    ####.##";CI
590 PRINT@448,"AVAILABLE COMMAND
    S"
595 PRINT"<1>NEW PAYMENT   <4>INV
    OICE MENU";:EXEC44539:IF INKEY$=
    "4"THEN160ELSE520
600 'NEW ITEM ENTRY
605 CLS
610 FORW=0TO136
615 IFW=136THEN100
620 W=W+1
625 IF ST$(1,W)=""THEN630ELSE615
630 PRINT@450,W:PRINT@465,MEM
635 PRINT@0," COMPUTER INVOICE S
    YSTEM"
640 PRINT@33,STRINGS$(30,45):PRIN
    T@97,STRINGS$(30,45):PRINT@417,ST
    RINGS$(30,45):PRINT@66,"NEW ITEM
    ENTRY":PRINT@85,TDT$
645 PRINT@129,"ITEM NO.
    :";:PRINT@138,"";:LINEINPUTST$
    (1,W):IFST$(1,W)=""THEN100
650 IFST$(1,W)="0" OR ST$(1,W)="
    9999"THENST$(1,W)="":GOTO600
655 GOSUB660:GOSUB670:GOSUB680:G
    OSUB690:GOSUB700:GOSUB710:GOTO72
    0
660 PRINT@160," ITEM. ";:LINEINP
    UTST$(2,W)
665 RETURN
670 PRINT@192," RETAIL..........
    ..$      :";:PRINT@212,"";:LINE
    INPUTST$(3,W):IFST$(3,W)=""THENS
    T$(3,W)="0"
675 RETURN
680 PRINT@224," COST............
    ..$      :";:PRINT@244,"";:LINE
    INPUTST$(4,W):IFST$(4,W)=""THENS
    T$(4,W)="0"
685 RETURN
690 PRINT@256," TRADE DIS.......
    ..% :";:PRINT@276,"";:LINEINPUT
    ST$(5,W):IFST$(5,W)=""THENST$(5,
    W)="0"
695 RETURN
700 PRINT@288," SUPPLIER.
       :";:PRINT@299,"";:LINEINPU
    TST$(6,W):IFST$(6,W)=""THENST$(6
    ,W)="0"
705 RETURN
710 PRINT@352," CURRENT NO. IN S
```

```
TOCK. ";:LINEINPUTST$(7,W):IFST$
(7,W)=""THENST$(7,W)="0"
715 RETURN
720 PRINT@449,"AVAILABLE COMMAND
S":PRINT@481,"<1>NEW ITEM    <4>
MAIN MENU";
725 EXEC44539:A$=INKEY$:IFA$="4"
THEN 100ELSE 600

750 'NEW CUSTOMER ENTRY
755 POKE65495,0:FORC=0TO31
760 IF C=31THEN100
765 C=C+1
770 IFCU$(1,C)=""THEN775ELSE760
775 CLS:GOSUB80
780 PRINT@103,"NEW CUSTOMER ENTR
Y":PRINT@450,T:PRINT@465,MEM
785 PRINT@161,"CUSTOMER NO.
   .";:PRINT@174,"";:LINEINPUT
CU$(1,C):IFCU$(1,C)=""THEN100ELS
E790
790 IFCU$(1,C)="1"THENPRINT@290,
"CUST NO. 1 IS RESERVED FOR
CASH SALES IN INVOICEING MENU":C
U$(1,C)="":GOTO870
795 GOSUB800:GOSUB805:GOSUB810:G
OSUB815:GOSUB820:GOTO830
800 PRINT@192," NAME. ";:LINEINP
UTCU$(2,C):IFCU$(2,C)=""THEN800E
LSERETURN
805 PRINT@224," ADDRESS.. ";:LIN
EINPUTCU$(3,C):IFCU$(3,C)=""THEN
805ELSE RETURN
810 PRINT@256," TOWN.....
    :";:PRINT@267,"";:LINEINPUTC
U$(4,C):IFCU$(4,C)=""THEN810ELSE
 RETURN
815 PRINT@288," POSTCODE.    :"
;:PRINT@299,"";:LINEINPUTCU$(5,C
):IFCU$(5,C)=""THEN815ELSE RETUR
N
820 PRINT@321,"ACC TYPE..<R,T>..
 ";:LINEINPUTCU$(6,C):IFCU$(6,C)
=""THEN820
825 IFCU$(6,C)="R"ORCU$(6,C)="T"
THENRETURNELSE820
830 PRINT@385,"please wait":POKE
1415,32
835 CU$(7,C)="0"
840 Z=0
845 FORI=1TO29:IF CU$(2,I)<=CU$(
2,I+1) THEN855
850 FOR J=1TO7:S$=CU$(J,I):CU$(J
,I)=CU$(J,I+1):CU$(J,I+1)=S$:Z=1
:NEXTJ
855 NEXTI
860 IF Z=1THEN840ELSE865
865 T=T+1
870 PRINT@384,"":PRINT@449,"AVAI
LABLE COMMANDS":PRINT@480,"<1> N
EW CUSTOMER  <4> MAIN MENU";
875 POKE65494,0:EXEC44539:A$=INK
EY$
880 IFA$="4"THEN100ELSE760

900 'LOAD
905 CLS:GOSUB80
910 PRINT@102,"LOAD FILES FROM T
APE"
915 PRINT@196,"1)    POSITION TAP
E"
920 PRINT@228,"2)    PRESS PLAY"
925 PRINT@260,"3)    PRESS <L> TO
 LOAD FILES"
930 PRINT@449,"AVAILABLE COMMAND
S":PRINT@480,"<4> MAIN MENU    <L
> LOAD FILES";:EXEC44539:IFINKEY
$="L"THEN935ELSE100
935 PRINT@480,STRING$(30,32);
940 PRINT@358,"FILE INPUT PROCEED
ING";
945 OPEN"I", #-1,"INV FILE"
950 FORW=1TO135:FORI=1TO7
955 IF EOF(-1) THEN 970
960 INPUT #-1,ST$(I,W)
965 NEXTI,W
970 INPUT #-1,D,S,T,INV,CR
975 FORC=1TO30:FORJ=1TO7
980 IF EOF(-1) THEN995
985 INPUT #-1,CU$(J,C)
990 NEXTJ,C
995 CLOSE #-1:GOTO100

1000 'LOAD
1005 CLS:GOSUB80:PRINT@103,"SAVE
 FILES ON TAPE"
1010 PRINT@196,"1)    POSITION TA
PE"
1015 PRINT@228,"2)    PRESS PLAY
& RECORD"
1020 PRINT@260,"3)    PRESS <S> T
O SAVE FILES"
1025 PRINT@449,"AVAILABLE COMMAN
DS"
1030 PRINT@480,"<4> MAIN MENU
<S> SAVE FILES";
1035 EXEC44539:IFINKEY$="S"THEN1
040ELSE100
1040 PRINT@480,STRING$(31,32);
1045 PRINT@358,"FILE SAVE PROCEE
DING"
1050 OPEN"O", #-1,"INV FILE"
1055 FORW=1TO135:FORI=1TO7
1060 PRINT #-1,ST$(I,W)
1065 NEXTI,W
1070 PRINT #-1,D,S,T,INV,CR
1075 FORC=1TO30:FORJ=1TO7
1080 PRINT #-1,CU$(J,C)
1085 NEXTJ,C
1090 CLOSE #-1
1095 GOTO100

1100 'EDIT MENU
1105 CLS:GOSUB80
1110 PRINT@101,"INQUIRY AND EDIT
 MENU"
1115 PRINT@195,"1)    ITEM INQUIRY
 & EDIT"
1120 PRINT@227,"2)    CUSTOMER INQ
UIRY & EDIT"
1125 PRINT@259,"3)    CHANGE INVOI
CE DATE"
1130 PRINT@291,"4)    RETURN TO MA
IN MENU"
1135 PRINT@449,"PLEASE ENTER MEN
U NUMBER..";:INPUT"";A
1140 ON A GOTO 1150,1325,1480,10
0
1145 GOTO1135
1150 CLS
1155 PRINT@0," COMPUTER INVOICE
SYSTEM......"
1160 PRINT@33,STRING$(30,45):PRI
NT@417,STRING$(30,45):PRINT@97,S
TRING$(30,45):PRINT@66,"ITEM INQ
UIRY & EDIT"
1165 PRINT@449," ":PRINT@481,"
              ";:PRI
NT@294," ":PRINT@129," ":PRINT@1
29,"ITEM NO. ";:LINEINPUTZ$
1170 FORW=1TO135
1175 IFZ$=""THEN1100ELSEIFZ$=ST$
(1,W)THEN 1190
1180 NEXTW
1185 PRINT@294,"ITEM NO. NOT ON
FILE":PRINT@449,"AVAILABLE COMMA
NDS";:PRINT@481,"<1> NEW ITEM
<4> EDIT MENU";:EXEC44539:IFINKE
Y$="4"THEN1100ELSE1165
1190 PRINT@448,"RETURN TO ITEM S
ELECTION":PRINT@480,"RETURN TO M
ENU";
1195 PRINT@161,"ITEM. "ST$(2,W)
1200 PRINT@193,"RETAIL..........
..$ ";:RT=VAL(ST$(3,W)):PRINTUSI
NG"####.##";RT
1205 PRINT@225,"COST............
..$ ";:CT=VAL(ST$(4,W)):PRINTUSI
NG"####.##";CT
1210 PRINT@257,"TRADE DIS.......

..% "ST$(5,W)
1215 PRINT@289,"SUPPLIER. "ST$(6
,W)
1220 PRINT@353,"CURRENT NO. IN S
TOCK. "ST$(7,W)
1225 D=9:X=416
1230 GOSUB1270
1235 K$=INKEY$:IFK$=""THEN1235EL
SEIF K$="D"THEN1310
1240 K=VAL(K$):IFK>10THEN1235ELS
EGOSUB1270
1245 IFK$="^"ANDD>1 THEND=D-1:K=
D:GOTO1265
1250 IFK$=CHR$(10)ANDD<11THEND=D
+1:K=D:GOTO1265
1255 IFK$=CHR$(13)THEN ON D GOTO
1280,1280,1280,1280,1280,1230,12
80,1230,1230,1150,1100
1260 IFK=0THEN1230
1265 D=K:X=160+(K-1)*32:GOTO1230
1270 FORN=1024+X TO 1055+X:IFPEE
K(N)>63THENA=-64 ELSEA=64
1275 POKEN,PEEK(N)+A:NEXT:RETURN
1280 IFD=1THENGOSUB660:GOTO1170
1285 IFD=2THENGOSUB670:GOTO1170
1290 IFD=3THENGOSUB680:GOTO1170
1295 IFD=4THENGOSUB690:GOTO1170
1300 IFD=5THENGOSUB700:GOTO1170
1305 IFD=7THENGOSUB710:GOTO1170
1310 PRINT@416,"IS THIS ITEM TO
BE DELETED   Y/N ";:EXEC44539:B$=
INKEY$:IFB$="Y"THEN1315ELSE1320
1315 FORI=1TO7:ST$(I,W)="":NEXTI
:GOTO1150
1320 PRINT@416,STRING$(32,45);:G
OTO1190
1325 CLS:GOSUB80
1330 PRINT@100,"CUSTOMER INQUIRY
 & EDIT"
1335 PRINT@161," ":PRINT@294," "
:PRINT@449," ":PRINT@481,"
            ";:PRINT@
161,"CUSTOMER NO. ";:LINEINPUTZ$
1340 FORC=1TO30
1345 IFZ$=""THEN1100ELSEIFZ$=CU$
(1,C)THEN 1360
1350 NEXTC
1355 PRINT@294,"CUST NO. NOT ON
FILE":PRINT@449,"AVAILABLE COMMA
NDS":PRINT@481,"<1> NEW CUST   <
4> EDIT MENU";:EXEC44539:IFINKEY
$="4"THEN1100ELSE1335
1360 PRINT@448,"RETURN TO CUSTOM
ER SELECTION":PRINT@480,"RETURN
TO EDIT MENU";:
1365 PRINT@192," NAME. "CU$(2,C)
1370 PRINT@224," ADDRESS.. "CU$(
3,C)
1375 PRINT@256," TOWN..... "CU$(
4,C)
1380 PRINT@288," POSTCODE. "CU$(
5,C)
1385 PRINT@320," ACCOUNT TYPE..
"CU$(6,C)
1390 PRINT@352," CURRENT DUE...$
";:CD=VAL(CU$(7,C)):PRINTUSING"#
####.##";CD
1395 D=8:X=416
1400 GOSUB1270
1405 K$=INKEY$:IFK$=""THEN1405EL
SEIFK$="D"THEN1465
1410 K=VAL(K$):IFK>10THEN1405ELS
E GOSUB1270
1415 IFK$="^"ANDD>1 THEND=D-1:K=
D:GOTO1435
1420 IFK$=CHR$(10)ANDD<10THEND=D
+1:K=D:GOTO1435
1425 IFK$=CHR$(13)THEN ON D GOTO
1440,1440,1440,1440,1440,1400,14
00,1400,1325,1100
1430 IFK=0THEN1400
1435 D=K:X=192+(K-1)*32:GOTO1400
1440 IFD=1THENGOSUB800:GOTO1340
1445 IFD=2THENGOSUB805:GOTO1340
1450 IFD=3THENGOSUB810:GOTO1340
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1455 IFD=4THENGOSUB815:GOTO1340
1460 IFD=5THENGOSUB820:GOTO1340
1465 PRINT@416,"IS THIS CUST. TO
BE DELETED Y/N";:EXEC44539:B$=I
NKEY$:IFB$="Y"THEN1470ELSE1475
1470 FORI=1TO7:CUS(I,C)="":NEXTI
1475 PRINT@416,STRING$(32,45);:G
OTO1325
1480 CLS:GOSUB80
1485 PRINT@102,"CHANGE INVOICE D
ATE"
1490 PRINT@321,"PLEASE ENTER NEW
INVOICE DATE":PRINT@193,"CURREN
T INVOICE DATE...":PRINT@235,"";
IDT$
1495 PRINT@395,"";:LINEINPUT IDT
$:GOTO1100

1500 'PRINTOUT MENU
1505 CLS:GOSUB80:PRINT@105,"PRIN
TOUT MENU"
1510 PRINT@196,"1)    STOCK ITEM
PRINTOUT"
1515 PRINT@228,"2)     CUSTOMER PR
INTOUT"
1520 PRINT@260,"4)     RETURN TO M
AIN MENU"
1525 PRINT@452,"PLEASE ENTER MEN
U NUMBER";
1530 EXEC44539:I$=INKEY$
1535 IFI$="1"THEN1555
1540 IFI$="2"THEN1685
1545 IFI$="4"THEN100
1550 GOTO 1530
1555 CLS:GOSUB80
1560 FORW=1TO135:PG$="1"
1565 PRINT@103,"STOCK ITEM PRINT
OUT":PRINT@192,"A STOCK ITEM PRI
NTOUT WILL PRINTTHE ITEM NO.;DES
CRIPTION;RETAIL;COST;TRADE DIS%;
SUPPLIER.......IN THAT ORDER OF
ALL ITEMS IN    MEMORY"
1570 PRINT@449,"AVAILABLE COMMAN
DS":PRINT@481,"<P>FOR PRINTOUT
<4>FOR MENU";
1575 EXEC44539:I$=INKEY$
1580 IF I$=""THEN1575
1585 IF I$="4"THEN1500
1590 IF I$="P"THENPT=PEEK(&HFF22
)AND1:GOTO1600
1595 GOTO1575
1600 IFPT=1THENPRINT@386,"PRINTE
R OFFLINE":GOTO1575
1605 PRINT@386,"":PRINT@480,"IS
THE COST TO BE PRINTED  Y/N";:EX
EC44539:IFINKEY$="N"THEN CE=1ELS
ECE=0
1610 GOSUB1615:GOTO1625
1615 PRINT#-2,"DATE... ";TDT$;TA
B(25);CHR$(27)CHR$(14)"STOCK ITE
M LIST"CHR$(27)CHR$(15);TAB(58);
"PAGE.. "PG$:PRINT#-2,CHR$(28)CH
R$(80)"-":PRINT#-2,"ITEM CODE
DESCRIPTION";TAB(46);"RETAIL
COST  TRADE%  SUPPLIER":PRINT#-
2,CHR$(28)CHR$(80)CHR$(45)
1620 RETURN
1625 RT=VAL(ST$(3,W)):CT=VAL(ST$
(4,W))
1630 IF CE=1THENCT=0
1635 PRINT#-2,ST$(1,W);TAB(13);S
T$(2,W);TAB(45);:PRINT#-2,USING"
####.##";RT;:PRINT#-2,TAB(53);:P
RINT#-2,USING"####.##";CT;:PRINT
#-2,TAB(63);ST$(5,W);TAB(67);ST$
(6,W)
1640 W=W+1:IFW=136THEN1665ELSE16
45
1645 IFST$(1,W)=""THEN1640
1650 IFW=50THENPG$="2":GOTO1670
1655 IFW=100THENPG$="3":GOTO1670
1660 GOTO1625
1665 PRINT#-2,CHR$(28)CHR$(31) "
*";" END OF PRINTOUT ";CHR$(28)C
HR$(32) "*":GOTO1500
1670 PRINT#-2,STRING$(12,10)
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```
1675 GOSUB1615
1680 GOTO1625
1685 CLS:GOSUB80
1690 FORC=1TO31
1695 PRINT@105,"CUSTOMER PRINTOU
T":PRINT@193,"A CUSTOMER PRINTOU
T WILL PRINT    THE CUST NO.; ACCO
UNT TYPE;      ACCOUNT NAME; ADDR
ESS; TOWN      P/CODE... IN ALHAB
ETICAL ORDER   OF ALL CUSTOMERS I
N MEMORY."
1700 PRINT@449,"AVAILABLE COMMAN
DS":PRINT@481,"<P>FOR PRINTOUT
<4>FOR MENU";
1705 EXEC44539:I$=INKEY$
1710 IF I$=""THEN1705
1715 IF I$="4"THEN1500
1720 IF I$="P"THENPT=PEEK(&HFF22
)AND1:GOTO1730
1725 GOTO1705
1730 IFPT=1THENPRINT@386,"PRINTE
R OFFLINE":GOTO1705
1735 PRINT@386,"":PRINT@480,"
                            ";:
1740 PRINT#-2,"DATE... ";TDT$;TA
B(27);CHR$(27)CHR$(14);"CUSTOMER
LIST";CHR$(27)CHR$(15);PRINT#-2
,CHR$(28)CHR$(80)CHR$(45):PRINT#
-2,"CUST N  TYPE   ACCOUNT NAME"T
AB(42)"ADDRESS"TAB(65)"TOWN
P/CODE":PRINT#-2,CHR$(28)CHR$(80
)CHR$(45)
1745 PRINT#-2,CU$(1,C);TAB(10);C
U$(6,C);TAB(14);CU$(2,C);TAB(42)
;CU$(3,C);TAB(65);CU$(4,C);TAB(7
6);CU$(5,C)
1750 C=C+1:IFC=31THEN1760
1755 IFCU$(1,C)=""THEN1750ELSE17
45
1760 PRINT#-2,CHR$(28)CHR$(31) "
*";" END OF PRINTOUT ";CHR$(28)C
HR$(32) "*":GOTO1500
1800 'INVOICE & CREDIT PRINTOUT
1805 'CHANGE THE FOLLOWING ADDR-
ESS & PHONE NO. ETC TO SUIT YOUR
SYSTEM.
1810 PRINT#-2,"P.O. BOX 1432";TA
B(55)"TELEPHONE 29 5436":PRINT#-
2,"RUBBER MAIL CENT";TAB(55)"FAX
        29 5694":PRINT#-2,"QUEENS
LAND 0453"
1815 PRINT#-2,STRING$(3,10)
1820 PRINT#-2,TAB(17)CHR$(27)CHR
$(14)"RUBBER HARDWARE SUPPLIES"C
HR$(27)CHR$(15)
1825 PRINT#-2,STRING$(2,10)TAB(3
1)"STRETCH ST. RUBBER"
1830 PRINT#-2,CHR$(10)CHR$(27)CH
R$(14)IDT$TAB(27);:IFA=2 ANDNS="
CASH SALE"THENPRINT#-2,"C/S CRED
IT":PRINT#-2,USING" ####";S:PR
INT#-2,CHR$(27)CHR$(15):GOTO1850
1835 IFA=2THENPRINT#-2,"CREDIT N
o.":PRINT#-2,USING" ####";CR:P
RINT#-2,CHR$(27)CHR$(15):GOTO185
0
1840 IFN$="CASH SALE" AND A=1THE
NPRINT#-2,"CASH SALE":PRINT#-2,
USING" ####";S:PRINT#-2,CHR$(27
)CHR$(15):GOTO1850
1845 IF A=1THENPRINT#-2,"INVOICE
";:PRINT#-2,USING"  ####";INV:
PRINT#-2,CHR$(27)CHR$(15)
1850 PRINT#-2,CHR$(10)"ITEM NUMB
ER"TAB(21)"DESCRIPTION"TAB(54)"Q
TY PRICE EA D%        NETT"
1855 PRINT#-2,STRING$(19,45)" "S
TRING$(30,45)" --- ------- --
-  -----"
1860 PRINT#-2,"":PL=15:FORY=1TOY
Y
1865 GOSUB1880
1870 NEXTY
1875 GOTO1915
1880 FORW=1TO135
1885 IFST$(2,W)=M$(Y) AND I(Y)=0
```

```
THEN1900
1890 IFST$(2,W)=M$(Y)THENGOSUB19
10
1895 PRINT#-2,ID$(Y);TAB(20);M$(
Y);TAB(49);:PRINT#-2,USING"#####
.#";I(Y);:PRINT#-2,TAB(57);:PRIN
T#-2,USING"####.##";P(Y);:PRINT
#-2,TAB(66);D(Y);TAB(71);:PRINT#
-2,USING"####.##";T(Y):RETURN
1900 NEXTW
1905 RETURN
1910 PL=PL-1:RETURN
1915 FORU=1TOPL:PRINT#-2,"":NE
XT:PRINT#-2,N$:PRINT#-2,CU$(3,C)
:PRINT#-2,CU$(4,C):PRINT#-2,CU$(
5,C);TAB(11)"A/C ";CU$(1,C)
1920 PRINT#-2,"ORDER No. ";O$;TA
B(22)"JOB No. ";J$;TAB(43)"S/MAN
. ";S$
1925 PRINT#-2,TAB(70)"---------
"
1930 PRINT#-2,TAB(60)"TOTAL
";:PRINT#-2,USING"######.##";TT
1935 PRINT#-2,TAB(70)"---------
"
1940 PRINT#-2,STRING$(4,10)
1945 GOTO490
◆
```

```
390 GOSUB 490:IF AR=1 THEN R$=CH
R$(128)
400 IF BR=1 THEN Z$=CHR$(128)
410 FOR J=1 TO 15:PRINT@A,A$;:PR
INT@B,B$;
420 FOR K=1 TO 100:NEXT
430 PRINT@A,R$;:PRINT@B,Z$;
440 FOR K=1 TO 100:NEXT K,J
450 T=T+1:IF T=5 THEN 630
460 GOTO 140
470 CLS:PRINT TAB(9)"** OBSTACLE
**":PRINT
480 INPUT"NAME OF PLAYER ON LEFT
";AN$:INPUT"NAME OF PLAYER ON RI
GHT";BN$:RETURN
490 SOUND4,4:PRINT@416," ";
500 IF AR=0 OR BR=0 THEN 520
510 DR=DR+1:PRINT"ROUND";T;" YOU
BOTH LOSE!!":RETURN
520 IF AR=0 AND BR=0 THEN DR=DR+
1:PRINT"ROUND";T;" YOU BOTH WIN!
":RETURN
530 IF AR=1 THEN R$=BN$:B1=B1+1:
ELSE R$=AN$:A1=A1+1:PRINT"ROUND"
;T;" ";R$;" WINS!":R$=A$:Z$=B$:R
ETURN
540 PRINT @A,A$;:PRINT @B,B$;:RE
TURN
550 FOR X=0 TO 31:PRINT@X,E$;:PR
INT@X+384,E$;:NEXT
560 FOR X=0 TO 384 STEP32:PRINT@
X,E$;:PRINT@X+31,E$;:NEXT:RETURN
570 IF D=1 THEN X=X-32
580 IF D=2 THEN X=X+32
590 IF D=3 THEN X=X-1
600 IF D=4 THEN X=X+1
610 R=0:IF PEEK(S+X)<>128 THEN R
=1
620 RETURN
630 CLS:PRINT" HERE ARE THE RESU
LTS:-":PRINT" DRAWN ";DR:PRINT A
N$;A1:PRINT BN$;B1
640 IF A1>B1 THEN W$=AN$ ELSE IF
B1>A1 THEN W$=BN$:PRINT"THE WIN
NER OF THE BEST OF 5 IS:  ";W$:G
OTO660
650 IF A1=B1 THEN PRINT" IT WAS
A DRAW,";A1; "ROUNDS EACH."
660 INPUT" ANOTHER GAME? Y OR N"
;Q$:IF Q$="Y" THEN T=0:A1=0:B1=0
:DR=0:GOTO 140
670 END
◆
```

THIS ARTICLE HAS in mind, some applications for the CoCoConnection. We will look at a circuit that functions as an electronic switch and can be used to control simple low voltage - permanent magnet DC motors of the kind used in toys and models.

The circuit is shown in figure one and can control two motors, one forward and one reverse.

The circuit also features opto-isolators to provide electrical isolation between the Colour Computer and the external devices we want to control.

These protect the computer from noise spikes that could prove troublesome when coupled onto the computer's power supply lines.

In the example, I will be using the CoCo's joysticks as a means of controlling the direction of the motor.

Circuit Description

The circuit features an electronic switch formed by the PNP and NPN power transistor combination of Q2 and Q4.

Similarly another switch is formed by the combination of Q6 and Q8.

The direction of current flow and hence motor direction being determined by which transistor is turned "on" as shown in figure 2.

As can be seen current can flow through the motor coils in the forward direction Q2 or Q6 is turned "on" and in the reverse direction when Q4 or Q8is turned "on".

If both transistors Q2 and Q4 or Q6 and Q8 are turned "off", then the motor remains "off".

If, however, both transistors Q2 and Q4 or Q6 and Q8 are turned "on" a short circuit would exist between the positive power supply line (+Ve) and the negative power supply line (-Ve) and the power transistors would be destroyed.

Fortunately, this situation is avoided by using the decoder IC U1 which ensures that only one transistor, Q2/Q6 or Q4/Q8, can conduct for the various logic conditions at its inputs.

As was mentioned previously, the opto-isolators are used to provide electrical isolation between the computer and the transistor switches. These are turned "on", whenever their cathodes are bought to a logic 0 (0.4V) via output lines 1 and 2 from the decoder IC U1.

This in turn, causes Q1/Q5, or Q3/Q7, to turn "on", pulling their respective collectors close to 0 Volts and allowing the power transistors Q2/Q6 or Q4/Q8 to switch on and connect the motor to either the positive or negative supply voltage.

TIP31C and TIP32C power transistors are used for Q2/Q6 and Q4/Q8 and provide for currents up to 2 Amps at voltages up to 12 Volts DC to be switched.

The voltage drop across these transistors when "on" will vary from 0.2 Volts to 1.5 Volts depending on upon the amount of current drawn. Hence for currents greater than 1 Amp, it may be necessary to use heatsinks on these transistors to ensure that they don't overheat and become damaged.

The diodes D1-D4 protect the power transistors from the back emf generated by the motor coils in the short period when the motors stop rotating.

Connection to the CoCoConnection

The circuit can connect to any one of the four ports on the CoCoConnection. However, in the following example, I have connected the unit to Port 2B terminals T8-T5 which correspond to lines PB0-PB4 and to the 5 Volt and 0 Volt terminals on Port 3. Figure 3 shows the appropriate connections.

Connection to External Device

I used a small battery powered toy car to test the operation of the circuit as follows. I removed the two "C" sized batteries from the battery compartment of the car and using two dual "C" size battery holders, wired up a +/- 3 Volt power supply and connected it to the circuit as shown in figure 4.

Care was taken not to connect the 0 Volt connection from the battery power supply to the 0 Volt connection from the CoCoConnection.

These two lines must be kept separate to maintain the electrical isolation between computer and the external devices.

A 3 meter length of flat ribbon cable was used to connect the motor 1 output from the circuit to the "+" terminal of the car battery compartment and the 0 Volt line from the power supply was connected to the "-" terminal of the battery compartment.

Control Software

The software required to control the car motor via the electronic switch unit is relatively straightforward and involves the following steps:

1. Initialization of Port 2B lines as outputs.

2. Read right joystick port.

3. Set motor direction as follows, depending upon joystick reading:
   - if joystick value < 26 then set motor to reverse direction.

Table 1

respective output states for the various logic inputs to U1.

Logic Inputs U1		Power Transistors		Motor Direction
PB1/PB2	PB0/PB3	Q2/Q6	Q4/Q8	M1/M2
logic 1	logic 1	off	off	stop
logic 1	logic 0	on	off	forward
logic 0	logic 1	off	on	reverse
logic 0	logic 0	off	off	stop

HARDWARE MODIFICATION
by Geoff Fiala

CoCo Connection
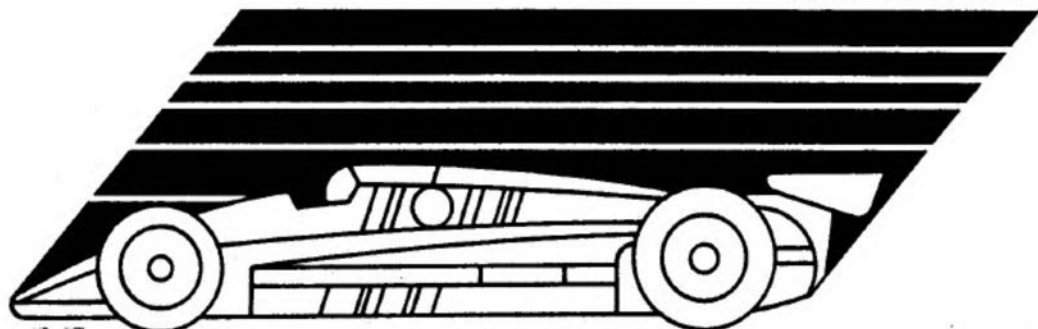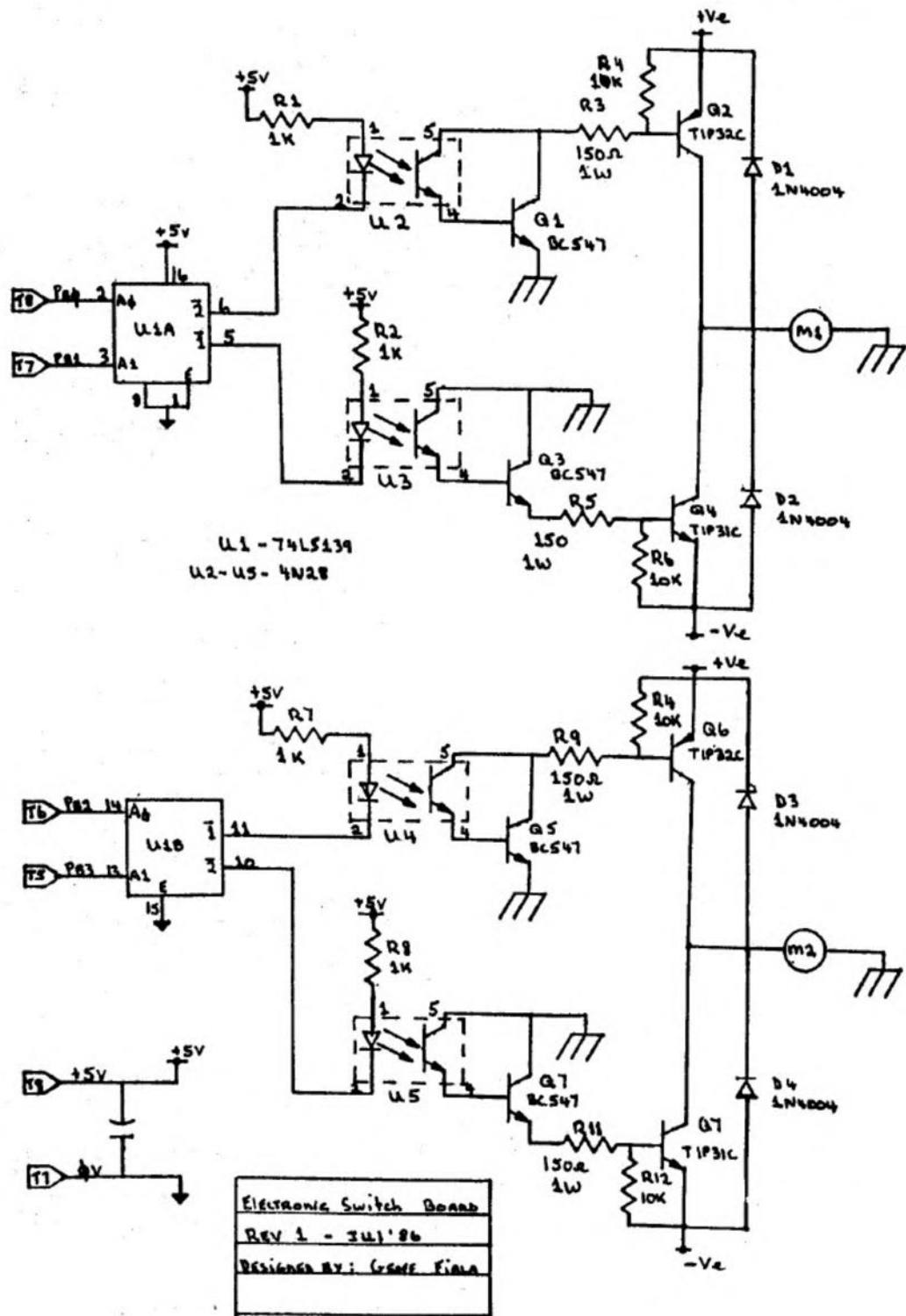
Figure 1. Motor Control Circuit

- if joystick value > 35 then set motor to forward direction.
- if joystick value > 26 and <35 then stop motor.

4. Go to step 2 above.

The values returned from the joystick equate to pushing the joystick forward to move the car forward. Centering the joystick will stop the car. Pulling the joystick back will move the car in the reverse direction.

As was shown in table 1, the direction of the motor is controlled by programming logic conditions on lines PB0-PB3 of Port 2B. This equates to POKEing the correct decimal byte value corresponding to the logic conditions at the address location of Port 2B, ie ...

POKE addr,value

... where 'addr' equals Port 2B's address, and 'value' equals the logic states.

The decimal value to be POKEd can be worked out using the following:
- Each bit position in the byte

value is numbered 0 to 7 and is assigned a weight equal to a power of 2 as shown below:

Bit Position	Weight:
D7 = PB7 = 2**7	= 128
D6 = PB6 = 2**6	= 64
D5 = PB5 = 2**5	= 32
D4 = PB4 = 2**4	= 16
D3 = PB3 = 2**3	= 8
D2 = PB2 = 2**2	= 4
D1 = PB1 = 2**1	= 2
D0 = PB0 = 2**0	= 1

If the relevant bit position is to be set to a logic 1 then its weight is to include and if the bit position is to be set to a logic 0, then a weight of zero is included for that position.

The total byte value is then the sum of weights of the bit positions.

In this example, if we want to set the motor in the reverse direction, then PB0 is to be set to a logic 1 and all the other bits to logic 0. The byte value would then be ...

```
Pb:  7 6 5 4 3 2 1 0
Lv:  0 0 0 0 0 0 0 1
Wv:  0+0+0+0+0+0+0+1
```

Decimal byte value: 1

Pb= PB7, PB6, etc and so on.
Lv= Logic Value.
Wv= Weight Value.

... and the direction would be set by:

POKE addr,1

Similarly, if we want to set the motor in the forward direction, then PB1 is to be set to a logic 1 and all other bits to a logic 0.

```
Pb:  7 6 5 4 3 2 1 0
Lv:  0 0 0 0 0 0 1 0
Wv:  0+0+0+0+0+0+1+0
```

Decimal byte value: 2

Pb= PB7, PB6, etc and so on.
Lv= Logic Value.
Wv= Weight Value.

POKE addr,2

Similarly the byte values for other motor states can be worked out.

The example above illustrates a simple use of the circuit.

Further uses could be:
- controlling robot motors,
- model train layouts for controlling power to various parts of a track layout,
- ... or various accessories around the train layout (is this correct, Graham?).

These applications may require a number of these units to be connected to 2 or more ports on the CoCoConnection.

The Listing:

```
10 REM MOTOR CONTROL PROGRAM
```


Fig 2. Switch Equivalent of Motor Driver
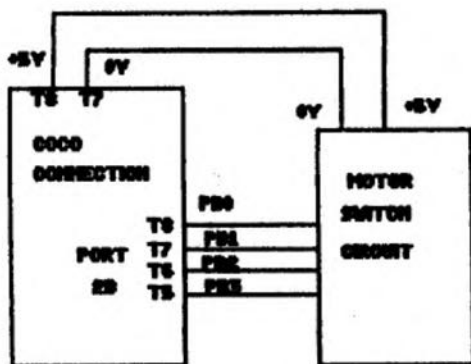
FIG 3 CONNECTION TO COCO CONNECTION
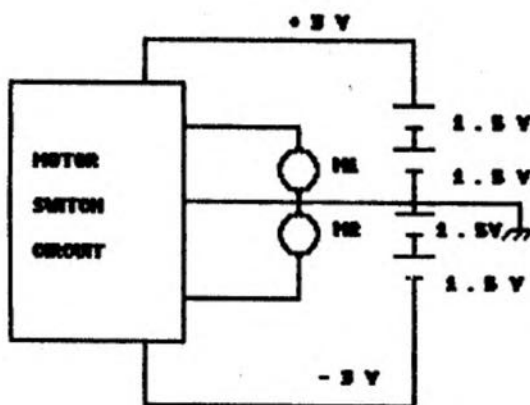
FIG 4. POWER SUPPLY AND MOTOR CONNECTION

```
FOR ELECTRONIC SWITCH CIRCUIT
20 REM WRITTEN BY GEOFF FIALA
30 REM INITIALIZE PORT 2B AS
OUTPUTS.
40 A=&HFF80+6: REM PORT 2B
50 POKE A+1,4:POKE A,255:POKE
A+1,0:POKE A,0:POKE A,255:POKE
A+1,52
60 POKE A,0
70 REM READ RIGHT JOYSTICK
80 B=JOYSTK(0)
90 IF B<26THEN D=1ELSE IF B>35
THEN D=2ELSE D=0
100 POKE A,D: REM SET DIRECTION
110 GOTO80
```

A Power Supply for Slimline Drives

HARDWARE MODIFICATION
by L Thurbon

THIS HARDWARE design is my own, including the circuit diagram, PCB artwork, and component overlay.

I hope the readers of Australian CoCo will find it of interest and assistance in building their own disk drive units.
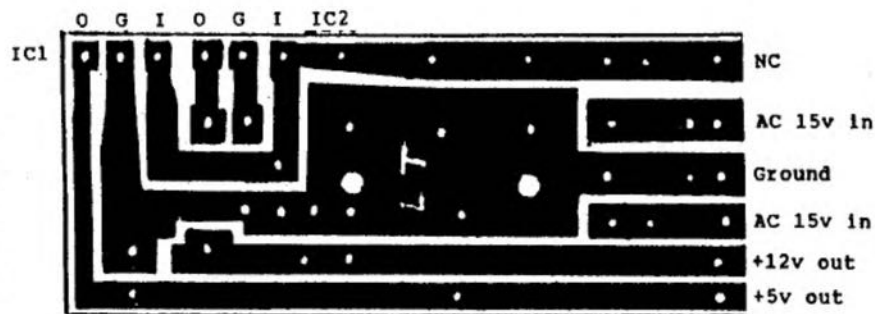
Division 2:
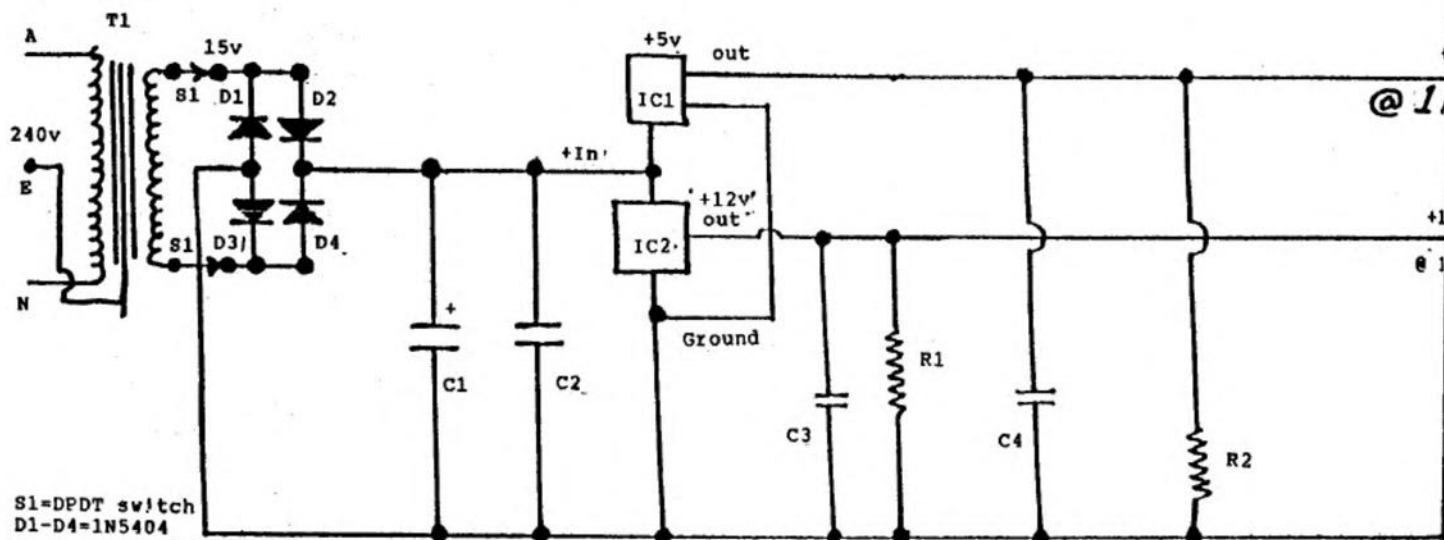
S1=DPDT switch
D1-D4=1N5404
C1=3 x 2200uf 25v electrolytics (PCB)
C2,C3,C4=0.1 ceramic discs.
2 heavy wire links for IC2

IC1=LM 7805   IC2=LM7812
R1=330 ohm 1w 5%   R2=680 ohm 1w 5%
T1=15v RMS @ 2 amp continuous transformer

Case to 220

In   Out
   G
LM 78XX
uA 78XX
MC 78XX

Flat aluminium bent into a 'U' shape (use heat sink grease).

50mm

2mm thick

48mm

95mm
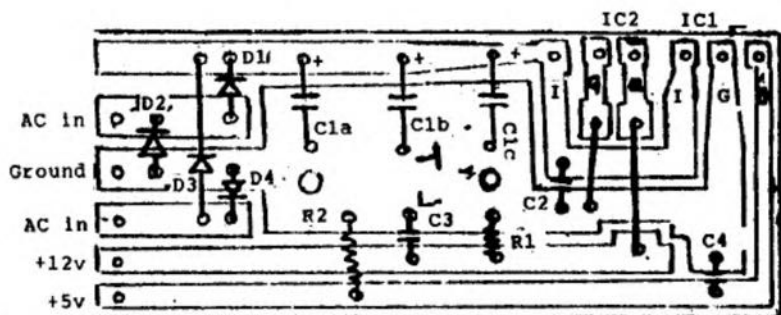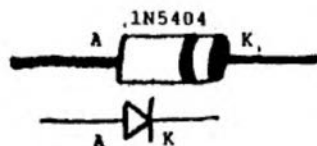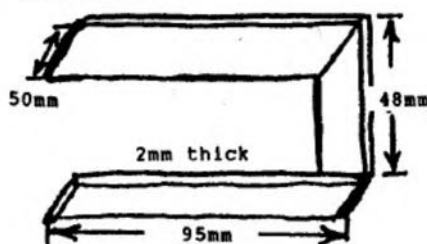
The circuit board will fit inside the heat sink foil, side down. The 2 IC regulators will bolt through the heat sink and the rear of the box and the circuit board will bolt down (with spacers) through the bottom of the box ewith two screws through the center of the board.

You will need to install 2 links from output of IC2 to output and from ground of IC2 to ground line. IC1 and IC2 must have a heatsink. Recommended ... size/shape.

CoCo3 Problem

HARDWARE MODIFICATION
by Phillip Dart

CoCo3

$\mathbb{A}$FTER PURCHASING my CoCo 3 in December, I was annoyed to find that, when my disk drive was plugged in, the text screen was sometimes offset by half a character upon power-up. I'm sure there are many of you who have experienced this bug.

After a while, I found that this could be avoided by holding the rest button down while turning the computer on, and releasing it again afterwards.

A week later, however, I decided to try and fix this annoying problem permanently. So, I sat down with my CoCo and my box of bits and pieces and began experimenting.

After about an hour or so, I found a simple method of doing it - and it only costs 30 cents, providing you have access to a soldering iron and a few tools!

In effect, what it does is hold the rest button down for a tiny fraction of a second upon power-up.

Tools and Parts Required

* a uf electrolytic capacitor (preferably axial type: tantalum or polyester capacitors may be used, but they tend to be more expensive).
* soldering iron and solder.
* phillips head screwdriver.
* a sharp knife.

Instructions

Cut a small hole in the label on the disk controller so as to access the screw holding the case together. Remove this screw and put it in a safe place.

Unclip the top half of the case to expose the circuit board. Now, cut the capacitor's leads to the required length and carefully solder it into position as shown in the diagram, taking care with polarity.

Finally, replace the top case and insert the screw.

Finished! Providing you did everything correctly, your offset-screen problem should be gone forever!

If, for any reason at all, you are unable to carry out this modification, and you live anywhere around Ferntree Gully, come along to our user group and I'll do it for you. We meet at the Upper Ferntree Gully fire station on the first Thursday of each month at about 7pm.

Last Notes

I have the Tandy FD-500 disk drive. I don't know whether or not this modification is suitable for other types of drives, or even if they suffer the same problem.

Solder capacitor here
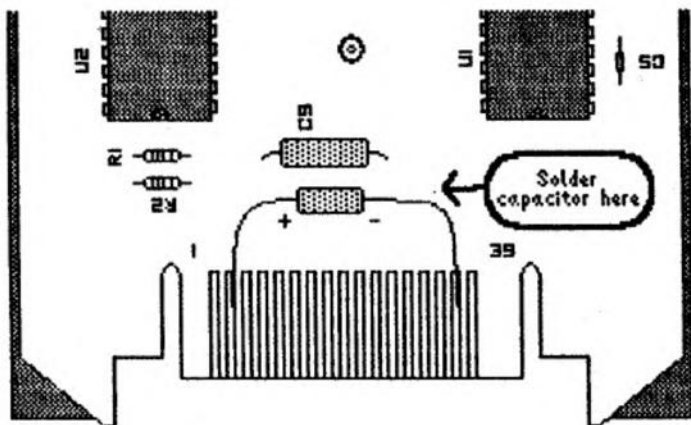
CONF 88

Koonjewarre, Gold Coast, Qld.

October 1st and 2nd

Join in the fun.

HAVE YOU ever become fed-up with your CoCo saying "6.24E+18", "15.3398472E-31" or "?OV ERROR"? If so, turn down your pacemaker and read on! This article is for you!

I've written a small Basic routine that will expand any number produced in the Basic Interpreter. When Basic encounters a number consisting of 10 or more digits, it stores this number using standard (or scientific) notation.

Scientific notation is a widely accepted method used by scientists to write very large (or very small) numbers. Its main advantage is the amount of space saved in its use.

The Colour Computer utilizes this method when a number exceeds 9 digits in length in order to save memory. But it is quite difficult to conceptualize numbers written in this form.

The "Exponential Translator" (see listing 1) will convert numbers written using exponential notation into a form everybody can understand. I shan't go into all the details of how the routine does this (not in the article, anyway), but I have included comment lines for anyone interested in finding out how the routine works.

(0.0000000001) to 2E-10 (0.0000000002) with a stepping rate of 5E-15 (0.000000000000005). As you can see, the exponential translator can handle very small numbers as well.

How about negative numbers? Press "CLEAR" again.

What happens when the computer tries to count from 2.765 to -8E-10 (0.0000000008) with a stepping rate of -9.554E-13 (0.0000000009554)? You should have a screen full of 2.765's.

This is because Basic cannot handle such small numbers and rounds them off to 0.

Now what about interfacing? The routine requires a "CLEAR 256" somewhere in your Basic program before it is executed. You can see that this has been done in listing 2. Before entering the routine, the number that you wish to expand must be stored in the variable NU.

I advise that you don't try to by-pass the first line if your number is already in string form because if your number is in hexadecimal or contains non-numeric characters, an ?FC error is likely to occur. This means that if you have a number stored as a string in NU$, you should convert it into a numeric variable before calling the

```
120 IF NE=-1 THEN NU$="-"+NU$:'
TRANSFER SIGN FROM NU TO NU$
130 RETURN:' EXIT ROUTINE. EXCHA
NGE THIS LINE FOR THE NEXT LINE
IN YOUR PROGRAMME.
140 ' ************************************
**
150 ' VARIABLES USED IN THE EXPO
NENTIAL TRANSLATOR
160 NU$ - STRING FORM OF NU
170 ' EP - POSITION OF EXPONENT
TO THE BASE 10 IN NU$
180 ' EX - VALUE OF EXPONENT OF
NU TO THE BASE 10
190 ' DE - POSITION OF DECIMAL P
OINT IN NU
200 ' ************************************
**
```

The Listing:

```
0 GOTO2
1 SAVE"176AA:1":SAVE"176AB:3":EN
D'UTL
2 ' *****************************
4 ' EXPONENTIAL TRANSLATION ROUT
INE
5 ' FOR EXAMPLE
6 ' BY A G HART
8 ' *****************************
10 CLEAR 256
20 CLS:PRINT"EXPONENTIAL TRANSLA
TION ROUTINE":PRINT TAB(11),"FOR
EXAMPLE":PRINTSTRING$(32,131);
30 ST=1E+10:EN=2E+10:SP=100:GOSU
B 220
40 SP=50:GOSUB 220
50 SP=250:GOSUB 220
```

In The Land Of Mathematics

UTILITY
by Andrew Hart

I shall now briefly discuss the routine's drawbacks and ways of interfacing it to your Basic program.

Enter "For Example" (listing 2) into the computer and run it. This program does nothing spectacular. However, it does demonstrate the usefulness of the Exponential Translator.

First of all, the program will count from 1E+10 (1,000,000,000) to 2E+10 (2,000,000,000) in 100's. The computer will fill the screen with the numbers and wait for you to hit any key. Press clear when you have seen enough. Next, the program will repeat the count, but this time using 50 as a stepping rate. Note that the count has suddenly become inaccurate.

This is a fault in Basic due to the interpreter rounding off numbers when they become too small or too large (another memory saving technique of the almighty Basic Interpreter). The astute programmer will therefore notice that adding 50 to 1E+10 will result in 1E+10. Try it if you don't believe me.

The third loop is the same as the previous two, except the stepping rate which is set to 250.

So far, all of the loops have been counting using large numbers. "What about very small numbers?", do I hear you ask?

Press "CLEAR". The program will now count from 1E-10

exponential translator ie. NU=VAL(NU$).

The Listing:

```
0 GOTO2
1 SAVE"176A:1":SAVE"176A:3":END'
UTL
2 ' *****************************
4 ' EXPONENTIAL TRANSLATION ROUT
INE
6 ' BY A G HART
8 ' *****************************
10 NU$=MID$(STR$(NU),2):' ENTRY
POINT TO ROUTINE. NOTE: NU$ CONT
AINS THE NUMBER TO BE EXPANDED.
20 NE=SGN(NU):' SAVE SIGN OF NU
IN NE
30 EP=INSTR(NU$,"E"):' LOCATE PO
SITION OF EXPONENT IN NU$
40 IF EP=0 THEN 120:' IS NUMBER
ALREADY EXPANDED?
50 EX=VAL(RIGHT$(NU$,LEN(NU$)-EP
)):' CALCULATE EXPONENT
60 DE=INSTR(NU$,"."):IF DE=0 AND
 EX<0 THEN DE=EP:' LOCATE POSITI
ON OF DECIMAL POINT IN NU$
70 NU$=LEFT$(NU$,EP-1):' ISOLATE
 NUMBER FROM EXPONENT
80 IF DE<>0 THEN NU$=LEFT$(NU$,D
E-1)+RIGHT$(NU$,LEN(NU$)-DE):' R
EMOVE DECIMAL POINT FROM NU$
90 IF EX<0 THEN NU$=STRING$(-EX,
48)+NU$ ELSE NU$=NU$+STRING$(EX,
48):DE=DE-EX*(DE<>0):' MOVE DECI
MAL POINT
100 IF DE<>0 THEN NU$=LEFT$(NU$,
DE-1)+"."+RIGHT$(NU$,LEN(NU$)-DE
+1):' REPLACE DECIMAL POINT
110 IF VAL(MID$(NU$,DE+1))=0 THE
N NU$=LEFT$(NU$,DE-1):' OMIT EXC
ESS ZEROS AFTER DECIMAL POINT
```

```
60 ST=1E-10:EN=2E-10:SP=5E-15:GO
SUB 220
70 ST=2.765:EN=-8E-10:SP=-9.554E
-13:GOSUB 220
80 END
90 NU$=MID$(STR$(NU),2)
100 NE=SGN(NU)
110 EP=INSTR(NU$,"E")
120 IF EP=0 THEN 200
130 EX=VAL(RIGHT$(NU$,LEN(NU$)-E
P))
140 DE=INSTR(NU$,"."):IF DE=0 AN
D EX<0 THEN DE=EP
150 NU$=LEFT$(NU$,EP-1)
160 IF DE<>0 THEN NU$=LEFT$(NU$,
DE-1)+MID$(NU$,DE+1)
170 IF EX<0 THEN NU$=STRING$(-EX
,48)+NU$ ELSE NU$=NU$+STRING$(EX
,48):DE=DE-EX*(DE<>0)
180 IF DE<>0 THEN NU$=LEFT$(NU$,
DE-1)+"."+RIGHT$(NU$,LEN(NU$)-DE
+1)
190 IF VAL(MID$(NU$,DE+1))=0 THE
N NU$=LEFT$(NU$,DE-1)
200 IF NE=-1 THEN NU$="-"+NU$
210 RETURN
220 PRINT"COUNTING":PRINT"FROM":
NU=ST:GOSUB 90:PRINTNU$
230 PRINT"TO":NU=EN:GOSUB 90:PRI
NTNU$
240 PRINT"WITH A STEPPING RATE O
F":NU=SP:GOSUB 90:PRINTNU$
250 PRINTSTRING$(32,131);"HIT AN
Y KEY WHEN READY.":EXEC 44539
260 A=0
270 FOR T=ST TO EN STEP SP:IF PE
EK(339)=191 THEN T=EN:GOTO 300 E
LSE IF PEEK(345)=247 THEN 300
280 NU=T:GOSUB 90:PRINT NU$
290 A=A+1:IF A/15=INT(A/15) THEN
 EXEC 44539
300 NEXT T:CLS:RETURN
```

STRUCTURED PROGRAMMING

by John Redmond

LAST MONTH, WE started to put together an orderly library of assembly routines which will be generally useful - and which can be accessed by an assembly program, or one written in a high-level language.

We placed a deal of emphasis on a highly-disciplined way of passing parameters between functions, and we decided that there are advantages in using the two stacks provided by the 6809 hardware.

Now, as promised, a rather formidable routine (EXPECT) and, before I start the discussion, I want to tell you that it was one of the trickiest utilities that I have ever had to get going - even when I coded it in Forth. Part of the reason why it is so tricky is because it is a human interface function, and every possible stupid action by a human must be anticipated.

EXPECT requires two parameters on the stack - an address and a number. It will then sit and wait for a human to use the keyboard. Each character, in turn, will be accepted and placed into memory at the address and the address will then be incremented by one. The number determines how many characters are EXPECTed at the starting address.

Simple? No it is not! What if the program is expecting 200 characters and you want to input only nine?

Then you press <ENTER> and you are out of the function! What if you press the wrong key? Then you must be able to backspace! But what if you press backspace before you input any other characters? Then you must NOT backspace! And wouldn't it be nice to be able to restart the whole line with SHIFT <BACKSPACE>, just like Basic?

The EXPECT routine must be able to handle all these unpredictables. And there is one more thing: we might want to use the memory area several times in the course of a program. Perhaps we input forty characters last time, but this time it is only ten. The first ten of the old characters will have been over-written, but we certainly don't want the other thirty hanging around when they are not wanted. The simplest approach is to fill the memory area (buffer) with ASCII spaces

(32) before we start getting any new characters in.

In fact this is very easy, and some Forth utility words are a good way to start the code for this month.

The basic utility is FILL, which requires three parameters: address, length and byte (char) value. It will use these to fill an area of memory (starting at address) for a number of bytes (length) using the byte value passed to it.

```
FILL   D X Y PULU
2 ,U LDX  (get len again and set flags)
BEGIN  0= NOT
WHILE  ,Y R+ STB  -1 ,X LEAX  REPEAT
RTS
```

So simple and so useful. Two standard Forth words use FILL:

```
BLANK  # 32 LDD  D PSHU  FILL JSR  RTS

ERASE  CLRA CLRB D PSHU  FILL JSR  RTS
```

Each of these words expects just an address and a length and will fill a memory area with ASCII spaces or zeros, respectively. To further extend the illustration, Forth uses a word, PAGE, to clear the screen. If we are using the 32-column screen (512 bytes, starting at 1536), we would code in Forth:

```
: PAGE  1536 512 BLANK etc. ;
```

Of course, we are not using Forth here, but we are learning lessons from Forth. We can now see some of the components of EXPECT, and note that the parameters expected by EXPECT are the same as those for BLANK; so early in the EXPECT code we

must duplicate both of these and use BLANK:

```
0 ,U LDD   2 ,U LDX  D X PSHU
BLANK JSR
```

Now the easy part is over, and we must go through a loop, several times over, until we have taken the full number of characters - or we have opted out of the process with a carriage return (<ENTER>). Within the loop, we must accept a character (with KEY) and process it (which will usually include echoing it to the screen with EMIT) until we are told to stop.

The categories of characters are:

1. Printable (not less than 32);
2. Backspace (8);
3. Line cancel (21).
4. Carriage return (13);
5. Any other control characters.

Each of these is processed differently by DOCHAR, which expects FOUR parameters (max count, count so far, updated address and character):

```
ROUTINE BSPACE X Y PULU
# 32 LDB ,X -R STB -1 ,Y LEAY
# 8 LDD D X Y PSHU EMIT JSR RTS

ROUTINE BSPACES ,U R++ LDX
 BEGIN 0= NOT
 WHILE X PSHS BSPACE JSR
 X PULS -1 ,X LEAX REPEAT RTS

DOCHAR D PULU (get char)
 # 32 CMPB < NOT
  IF X Y PULU ,X R+ STB 1 ,Y LEAY
  D X Y PSHU EMIT JSR
  4 ,U LDD 2 ,U SUBD D PSHU
  RTS THEN
 # 8 CMPB 0=
  IF 2 ,U LDD 0= NOT
  IF BSPACE JSR THEN
   # -1 LDD D PSHU RTS THEN
 # 21 CMPB 0=
  IF 2 ,U LDD D PSHU BSPACES JSR
  # -1 LDD D PSHU RTS THEN
 # 13 CMPB 0=
  IF D PSHU EMIT JSR
  CLRB CLRB D PSHU RTS THEN
  (get to here if not printable)
 # -1 LDD D PSHU RTS

EXPECT ,U R++ LDX Y PULU
 0= IF X PSHU ( return 0 count)
  RTS (and exit) THEN
 CLRA CLRB D X PSHU (counts)
 Y PSHU (address)
 BEGIN KEY GOSUB DOCHAR GOSUB
 ,U R++ LDD 0= UNTIL
 D X Y PULU X PSHU (count) RTS
```

Now, I did warn that this function would be complex, but it (or something like it) is absolutely essential for good buffered keyboard I/O, so we have to face up to it! Notice that I have considered the job too complicated for clean inline code and have split most of the work off into the unfortunate function DOCHAR and, even then, some of the work is hived off into lower functions.

In situations like this, I don't draw up flow charts: rather, I verbalize the task.

"Check whether a non-zero count of characters is required. If not, get out. Otherwise, enter a loop: get a character and process it and continue doing this until until a zero is returned on the stack."

The processing of the character (by DOCHAR) works by the following checks:

1. if the character is printable, add it to the buffer, echo it to the screen, place on the stack the difference between the number of characters and the maximum (this will be zero if all collected), and return.
2. if the character is a back arrow (8) and characters have been collected, back up and return -1 (not finished).
3. if the character is a ⟨shift⟩ back arrow (21), empty the buffer, emit a backspace for each character that was there and return -1.
4. if the character is ⟨enter⟩ (13), emit it and return 0 (have finished).;
5. if the character has not been processed in one of the above groups, it is thrown away and -1 is returned.

I have left the decision making as to whether to end the loop to the components of DOCHAR. Whichever key is pressed, DOCHAR returns the verdict to EXPECT. The final job for EXPECT is to remove the rubbish from the stack, and return a single value to the calling function or program. This is the number of characters actually collected (the SPAN in Forth). It may be important - or it might simply be dropped from the stack - but it CANNOT be allowed to stay there. Forth has taught us that!

The unstructured exits from EXPECT and DOCHAR simplify the source code. I prefer to use them if there are several sequential comparisons to be made, or if a large block of code would otherwise be bracketed with IF .. THEN. A matter of taste, but it might offend some purists of structured code.

I am conscious that it has been rather heavy going this month, but EXPECT is a pearl. Incorporated into an assembly program, it will provide a facility that is usually absent. It is a vast improvement on the more common character-wise input, which so often comes a cropper when an incorrect key is touched. Moreover, when a string is held in memory, we can start to do things with it: move it, compare it, add it to another string, or convert it to a number.

Next month, we will round off the string functions and start to look at what is involved in the basic arithmetic utilities. These will be necessary for the string-to-number conversion and vice-versa. Programming is fun!

⊕

continued from p13

```
10 HSCREEN 2
20 HCLS2
30 HCOLOR 1
40 HLINE(0,80)-(320,100),PSET,BF
50 HLINE(0,70)-(320,60),PSET,BF
60 HLINE(0,110)-(320,120),PSET,BF
70 HCIRCLE (300,10),10,3
80 HPAINT (300,10),3
90 PALETTE 10,0
100 HCOLOR 10
110 HLINE (290,15)-(295,20),PSET
    : HLINE (290,20)-(295,40),PSET
    ,BF
120 HPAINT (290,15),10
130 HLINE (290,15)-(290,20),PSET
140 HPAINT (291,17),10
150 HLINE(297,20)-(303,40),PSET,
BF
160 HLINE(305,20)-(310,40),PSET,
BF
170 HLINE(305,20)-(310,15),PSET:
    HLINE(310,15)-(310,20),PSET:
    HPAINT(309,17),10
180 ON BRK GOTO 200
190 GOTO 190
200 CLS:LIST
```

⊕

Adventures in Assembly

UTILITY
by Andrew Hart

HELLO EVERYONE. This one's written in assembly. By the way, in case anyone is interested, I wrote this little program using "Superpatched Edtasm+" (I use a disk-based version of the editor) and, believe it or not, "Supervoice". Now down to business.

It doesn't do much, but I was just thrilled when it worked! It's my first assembly language program, so please excuse any sloppy programming. This is what my masterpiece does:

The progam copies the contents of all the 6809's registers into memory locations ranging from 3584 (&HE00 hexadecimal) to 3599 (&HE0F hexadecimal).

The registers are stored in the following memory locations:

Mem. loc:	Register:
3584 / E00	all - A
3585 / E01	all - B
3586 / E02	all - DP
3587 / E03	all - CC
3588 / E04	msb - D
3589 / E05	lsb - D
3590 / E06	msb - S
3591 / E07	lsb - S
3592 / E08	msb - U
3593 / E09	lsb - U
3594 / E0A	msb - X
3595 / E0B	lsb - X
3596 / E0C	msb - Y
3597 / E0D	lsb - Y
3598 / E0E	msb - PC
3599 / E0F	lsb - PC

You can then use a Basic program, such as the one I have supplied in listing three to display the contents of these memory locations.

I suggest entering listing one into an editor/assembler and after assembly, loading the program before you wish to examine the registers.

When the time comes, execute the program. I have put it at location &HE20, but the routine may be posiioned anywhere convenient to you by changing the value after "ORG" in line 100.

It is my suspicion that when running a program, like listing 3, it becomes unaccurate as some of the registers are changed during its' execution. Also, I don't think that the M/L routine returns a valid value from the PC register.

Happy Programming
Assembly Bugs!

If you don't have an editior/assembler, run listing 2. This will poke the appropriate machine code into memory.

To change the location of the M/L routine, change the value of "ST" in line 10.

Type "EXEC" at the "OK" prompt

M/L Listing:

```
00090      ORG $E20
00100 GO   STA $E00
00110      STB $E01
00120      EXG A,DP
00130      STA $E02
00140      EXG A,DP
00150      EXG A,CC
00160      STA $E03
00170      EXG A,CC
00180      STD $E04
00190      STS $E06
00200      STU $E08
00210      STX $E0A
00220      STY $E0C
00230      EXG X,PC
00240      STX $E0E
00250      EXG X,PC
00260      RTS
00270      END GO
```

Listing 2:

```
0 GOTO2
1 SAVE"176BC:1":SAVE"176BC:3":EN
D'UTL
2 ' ****************************
4 ' REGISTER
6 ' COPYRIGHT 1988 - A G HART
8 ' ****************************
10 ST=&HE20
20 FOR I=0 TO 44:READ V:POKE ST+
I,V:NEXT I
30 DATA 183,14,0,247,14,1,30,139
,183,14
40 DATA 2,30,139,30,138,183,14,3
```

to run the routine. You may also type "EXEC ST" if you don't intend to alter the contents of "ST".

Note: Future Ideas

I have, in the preliminary stages, a program that will convert an M/L program, which has been loaded into memory, into a Basic program consisting of data statements with the appropriate poking routine. WAIT FOR IT!!

```
,30,138
50 DATA 253,14,4,16,255,14,6,255
,14,8
60 DATA 191,14,10,16,191,14,12,3
0,21,191
70 DATA 14,14,30,21,57
```

Listing 3:

```
0 GOTO2
1 SAVE"176BA:1":SAVE"176BA:3":EN
D'UTL
2 ' ****************************
4 ' REGISTER DISPLAY
6 ' COPYRIGHT 1988 - A G HART
8 ' ****************************
10 CLS:PRINT TAB(8);"REGISTER DI
SPLAY":PRINT"    COPYRIGHT 1988
- A G HART":PRINTSTRING$(32,131)
;
20 FOR T=0 TO 44:READ A:POKE&HE2
0+T,A:NEXTT
30 EXEC &HE20
40 FOR T=1 TO 10:READ R$
50 IF T<5 THEN R=PEEK(&HDFF+R) E
LSE R=PEEK(&HE04+(T-5)*2)*256+PE
EK(&HE05+(T-5)*2)
60 PRINT R$;" =";R:NEXT T
70 PRINTSTRING$(32,140);:END
80 DATA 183,14,0,247,14,1,30,139
,183,14
90 DATA 2,30,139,30,138,183,14,3
,30,138
100 DATA 253,14,4,16,255,14,6,25
5,14,8
110 DATA 191,14,10,16,191,14,12,
30,21,191
120 DATA 14,14,30,21,57
130 DATA A,B,DP,CC,D,S,U,X,Y,PC
```

DIGITIZER

UTILITY
by Graham Pollock

64K ECB CoCo

"DIGI" IS A program that allows you to DIGITIZE any sound. You can digitize your favourite music or you can be vain (like me) and digitize your own voice.

When you first RUN "DIGI", you are asked for a delay time between 1 and 20. The smaller the value, the better the reproduction will be, but you will get a shorter recording.

You should then choose option 1 (DIGITIZE SOUND) with your recording ready on tape. Pressing ENTER will begin digitizing the sound coming in from the cassette.

Once your sound has been digitized, you can play the sound, save the file to tape or disk or change the delay time. This has the effect of changing the speed of the replay (option 2).

Of course you can reload digitized files from tape or disk. I suggest you incorporate the delay time as part of your filename so you know the replay speed.

A good recording or a microphone connected directly to the cassette port will give better results.

This program is based loosely on Frank Rees' MC-10 version.

(If you are interested in a cassette based RAMDISK for your CoCo, send $10.00 to me, c/o

Grahame Pollock,
24 Kent St,
Minto, 2566)

Listing:

```
1 CLS:PRINT"DIGITIZE FOR THE COC
O        BY GRAHAME POLLOCK"
2 GOTO10
3 SAVE"152:1":END'UTL
10 PK=116
20 X=256*PEEK(PK)+PEEK(PK+1):X=X
-&H6F
30 FORZ=X TO X+&H5E
40 READ A$:A=VAL("&H"+A$):POKE Z
,A
50 NEXT Z
75 CLEAR100,X
80 POKE&HFE,PEEK(&H25):POKE&HFF,
0:POKE&HFC,PEEK(&H1B)+1:POKE&HFD
,PEEK(&H1C)
90 INPUT"DELAY TIME(1-20)";DT
100 PK=116:X=256*PEEK(PK)+PEEK(P
K+1):X=X-&H6F
110 POKEX+&H29,DT:POKEX+&H4D,DT
125 CLS
130 PRINT"1. DIGITIZE SOUND
        2. PLAY SOUND
        3. LOAD FILE
        4. SAVE FILE
        5. CHANGE DELAY FROM";
DT
140 I$=INKEY$:IF I$=""THEN 140
150 I=VAL(I$):ON I GOTO 160,180,
190,200,90
155 GOTO125
160 CLS:AUDIOON:MOTORON:INPUT"PR
ESS PLAY AND ENTER";E$
170 EXECX+&H39:MOTOROFF:GOTO125
180 CLS:PRINT@198,"COMPUTER SPEA
KING":EXECX:GOTO125
190 GOSUB500:IF DT$="D"THEN LOAD
M F$:GOTO125ELSEPRINT"PRESS PLAY
":CLOADM F$:GOTO125
200 GOSUB500:IF DT$="D" THEN 210
ELSEINPUT"PRESS RECORD";E$
210 ST=256*PEEK(&HFC)+PEEK(&HFD)
:EN=256*PEEK(&HFE)+PEEK(&HFF)
220 IF DT$="D" THEN SAVEM F$,ST,
EN,X ELSE CSAVEM F$,ST,EN,X
230 GOTO125
240 DATA B6,FF,1,84,F7,B7,FF,1,B
6,FF,3,84,F7,B7,FF,3,B6,FF,23,8A
,08,B7,FF,23,9E,FC,C6,8,A6,84,34
,4,1F,89,C4,FC,F7,FF,20,49,C6,4,
5A,26,FD,35,4,5A,26,EC,30,1,9C,F
E,26,E2,39
250 DATA 9E,FC,4F,C6,8,34,4,F6,F
F,20,1C,FE,C5,1,27,2,1A,1,49,C6,
4,5A,26,FD,35,4,5A,26,E8,30,1,A7
,84,9C,FE,26,DD,39
500 INPUT"FILENAME";F$
505 INPUT"dISK OR tAPE";DT$
510 RETURN
```

T1000TX

GRAPHICS
by Johanna Vagg
CoCo3

TX1000 WAS A program that was originally from Shane Pinnell, who spent his time here in the office creating graphics programs on the Tandy MS DOS (also known as MS-BOMB, Messy Dos, etc and so on) machine.

Listing:

```
0 GOTO10
1 'TX1000 CONVERTED BY JOHANNA
FROM A PROGRAM BY SHANE PINNELL
3 SAVE"163E:1":SAVE"163E:3":END'
GRF
10 PMODE4:SCREEN1,1:PCLS0
11 LINE(36,20)-(116,84),PSET,B
12 LINE(40,24)-(112,80),PSET,B:P
AINT(38,24)
13 LINE(28,88)-(124,120),PSET,B:
LINE(88,92)-(116,103),PSET,B
14 LINE(88,99)-(116,99),PSET:LIN
E(88,106)-(116,117),PSET,B
15 CIRCLE(108,95),2:LINE(110,95)
-(113,95),PSET:CIRCLE(108,110),2
16 LINE(110,110)-(113,110),PSET:
PAINT(40,95)
17 DRAW"BM24,128M128,128M132,152
M20,152M24,128"
18 FORA=30 TO 45 STEP 4:LINE(A,1
31)-(A+1,133),PSET,BF
19 LINE(A+20,131)-(A+21,133),PSE
T,BF
20 LINE(A+40,131)-(A+41,133),PSE
T,BF
21 LINE(A+80,131)-(A+81,133),PSE
T,BF:NEXT
22 FORA=30 TO 124 STEP4:LINE(A,1
36)-(A+1,138),PSET,BF
23 LINE(A,141)-(A+1,143),PSET,BF
:NEXT
24 LINE(55,146)-(85,146),PSET:LI
NE(55,147)-(85,147),PSET
25 GOTO25
```

This program, being the fourth of the ten-part series of programs, will display the temperature chart on the hi-resolution screen on the CoCo 3.

You will have to have the data file created by parts one and two of my series which appeared in the early editions of Softgold magazine.

More instructions are included inside.

Have fun!

The Listing:

```
0 GOTO10
1 ****CO3TEMP/BAS**************
2 ****BY HARRY HOFFMANN********
3 ****CROWS NEST***************
4 ****NO COPYRIGHT*************
5 SAVE
5 SAVE"87":END'APP
6 END
10 CLEAR5000
20 CMP:WIDTH32
30 ' ************************
   ** SPECIAL CLS POKE **
   **  CLS 0 TO 255    **
   ************************

40 FOR I=43288 TO 43302:POKE I,1
8:NEXT I
50 ON BRK GOTO 710
60 A$=CHR$(128)
70 CLS229:GOSUB720
80 PRINT@233,A$"exclusively"A$;
90 PRINT@455,A$"for"A$"coco"A$"3
"A$"users";
100 POKE1024+465,51
110 GOSUB130:GOSUB740:GOTO920
120 ' ************************
    ** TITLESONG BY HARRY   **
    ** HOFFMANN CROWS NEST  **
    ************************

130 FORX=1TO3:PLAY "SO3V30L4CV20
L8CV10CL8V30CL1
6V20DV10L8V30EL16V20EV10EL4V30CL
8V16CV10CL4V30FL8V20FV10FL4V30EL
8V20EV10EL4.V30DL8.V20DV10D":NEX
T
140 FORX=1TO3:PLAY"V30'3GV20L16G
V10G":NEXT:PLAY"V30L4 L8.V20GV1
0GV30L8FV20L16FV10FV30L4EV20L8EV
10EL4V30DL8V20DV10DL2V30GL4V20GV
10G"
150 PLAY"V30L8GV20L16GV10GV30L4.
GV20L8.GV10GV30L8FV20L16FV10FV30
L4EV20L8EV10EL4V30DL8V20DV10DL1V
30CL4V20CV15CL2V10CV5C"
160 RETURN
170 A$=CHR$(128)
180 DIM D$(75)
190 CLS201:GOSUB720
200 PRINT@130," PLEASE INPUT DAT
E (MM/YY)   ";:PRINT@194,"";:INPU
T DT$:PRINT@222,STRING$(2,PEEK(1
024));
210 DT=VAL(LEFT$(DT$,2))
220 IF DT<1 OR DT>12 THEN GOTO24
0
230 IF LEN(DT$)<>5 THEN 240 ELSE
250
240 PRINT@457,A$"illegal"A$"inpu
t"A$;:FOR DL=0TO1000:NEXT:GOTO19
0
250 PRINT@290," IS THE DATE CORR
ECT - "DT$;
260 I$=INKEY$:IF I$=""THEN PLAY"
T255A":GOTO260
270 IF I$="N"THEN190
280 IF I$<>"Y"THEN260
290 F$=LEFT$(DT$,2)+"*"+RIGHT$(D
T$,2)+"TEM"
300 '** CHECK-DISC-FOR-FILE ROUT
INE** THANKS TO BILL TOTTINGHAM
FOR THIS ONE ** RAINBOW APRIL/19
86, PAGE 18-20 **
310 FOR X=3TO11
320 DSKI$ 0,17,X,E$,B$
330 C$=E$:GOSUB400
340 IF D$(F)=F$ THEN 460
350 C$=B$:GOSUB400
360 IF D$(F)=F$ THEN 460
370 IF LEFT$(E$,8)=F$ THEN 460
380 NEXTX
390 CLS154:GOSUB720:PRINT@226,"
FILE ";F$;" DOESN'T EXIST";:GOTO
630
400 FORM=1TO128STEP32
410 F=F+1
420 D$(F)=MID$(C$,M,8)
430 IF D$(F)=F$ THEN RETURN
440 NEXTM
450 RETURN
460 OPEN"I",#1,F$
470 HSCREEN4:HCLS5:HCOLOR2,1:Q=6
:Y=-5
480 FORX=21TO1STEP-2
490 HPRINT(1,X),Y:HPRINT(70,X),Y
500 READDS$:HPRINT(76,X),DS$:Y=Y
+5:NEXT
510 HCOLOR2,1:HLINE(50,0)-(50,19
2),PSET:HLINE(0,180)-(650,180),P
SET
520 Y=1:FORX=6TO66STEP2:HPRINT(X
,40),Y:Y=Y+1:NEXT
530 HLINE(555,0)-(555,192),PSET:
HPRINT(19,0),"TEMPERATURE FOR":H
PRINT(35,0),DT$
540 HPRINT(70,40),"_DAY":HPRINT(
2,40)," C":D=64
550 IF EOF(1)=-1 THEN620
560 INPUT#1,L:IF L<-5 THEN L=-5
570 INPUT#1,R:IF R>40 THEN R=40
580 RR=180-(R+5)*3.4:LL=180-(L+5
)*3.4:HLINE(D-8,RR)-(D+4,LL),PSE
T,BF
590 HPRINT(Q,INT(18-R/2.4)),R:HP
RINT(Q,INT(19-R/2.4)),L:Q=Q+2:D=
D+16
600 IF D>555THEN GOTO610 ELSE GO
TO550
610 DATA E,R,U,T,A,R,E,P,M,E,T
620 CLOSE#1
630 EXEC44539:HSCREEN0
640 CLS153
650 GOSUB720
660 PRINT@98," [V] VEW ANOTHER F
ILE        ";
670 PRINT@162," [Q] QUIT
          ";
680 I$=INKEY$:IF I$=""THEN PLAY"
C":GOTO680
690 IF I$="V"THEN EXEC44326:GOTO
170:'** ERRASE ALL VARIABLES AND
 STRINGS** MUST BE RE(DIM)ED AND
/OR RENAMED**
700 IF I$<>"Q"THEN SOUND150,15:G
OTO680
710 CLS138:GOSUB720:GOTO730
720 PRINT@33,A$"temperature"A$"b
y"A$"harry"A$"hoffmann";:RETURN
730 PRINT@235,A$"finish"A$;:PRIN
T@416,"";:GOSUB130:END
740 WIDTH40
750 CLS2
760 ATTR3,4
770 FORX=0TO39STEP2
780 LOCATEX+1,0
790 LOCATEX,1
800 LOCATEX,23
810 LOCATEX+1,22
820 PRINT"";
830 NEXT
840 FORX=3TO21STEP2
850 LOCATE0,X
860 LOCATE1,X-1
870 LOCATE39,X-1
880 LOCATE38,X
890 PRINT"";
900 NEXT
910 RETURN
920 LOCATE 5,5:ATTR3,7:PRINT" TH
IS PROGARM WAS DESIGNED TO";
930 LOCATE5,7:PRINT" DRAW A  TE
MPERATURE GRAPH,";
940 LOCATE5,9:PRINT" USING  THE
FILES CREATED BY";
950 LOCATE5,11:PRINT" THE  PROGR
AMS ";:ATTR2,5:PRINT"[3TEM-PRI.B
AS]";:ATTR3,7
960 LOCATE5,13:PRINT" AND
";:ATTR2,5:PRINT"[3TEM-DAT.B
AS]";:ATTR3,7
970 LOCATE5,15:PRINT" PUBLISHED
IN  LAST   MONTHS";
980 LOCATE5,17:PRINT" COCO OR SO
FTGOLD. ";:ATTR2,4:PRINT" ANY
KEY";:ATTR3,4:PRINT"   ";
990 EXEC44539:WIDTH32:GOTO170
1000 ***************************
1010 ** THIS PROGRAM HAS BEEN **
1020 ** CREATED BY            **
1030 ** HARRY HOFFMANN        **
1040 ** CROWS NEST CARAVAN PK **
1050 ** CROWS NEST QLD 4355   **
1060 ***************************
```
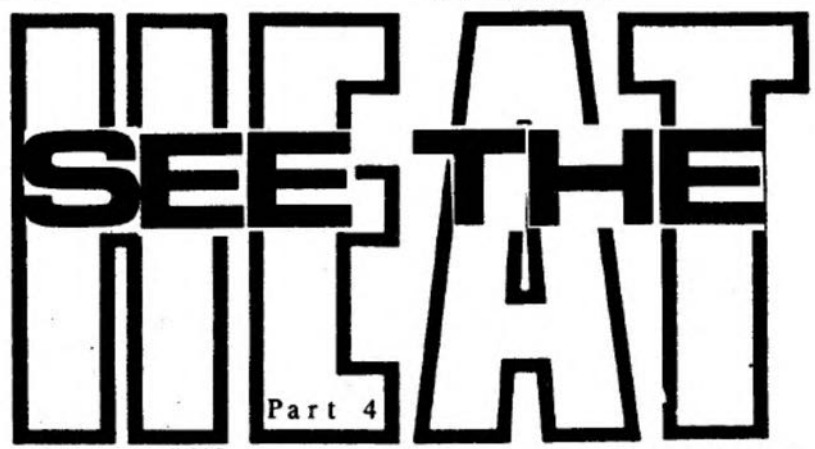
SEE THE HEAT

Part 4

APPLICATION
by Harry Hoffman

CoCo3

Φ

GOLDLINK
#82
The Tandy Users Board
TUE 03 MAY 1988 22:03
Member   705471278
ViaTw 6429025A

> G I know of your fix, but hesitate
to recommend it to anyone. It would fix
them with less trouble than my method,
BUT may result in a number of other
faults if not done "just right". One of
the least of which would be a smashed
computer case.

Jeff
(Gentle with computers)

GOLDLINK
#82
The Tandy Users Board
WED 04 MAY 1988 21:48
Member   755188158
ViaTw 6429029A

Jeff. You are right as always, but I
figure the advantage of my method is
that it also assists with frustration!

G

3 Clubroom 5 Mbrs Msg 6 Via Msg 28c
<< 8   8 Menu   7 Your MB
                              9 >>

GOLDLINK
#82
The Tandy Users Board
TUE 10 MAY 1988 20:09
Visitor   835489510
ViaOn 6429020A

> A while ago, I saw some POKEs in AUST
COCO (I think) to enable me to view th
HSCREENs without destroying the conten
ts. Does anyone know what they are?

Richard.

3 Clubroom 5 Mbrs Msg 6 Via Msg 28c
           8 Menu   7 Your MB
                              9 >>

GOLDLINK
#82
The Tandy Users Board
WED 11 MAY 1988 19:41
Member   862883668
ViaTw 6429029A

> Graham:-Why do you pretend to fix the
GIME chip,when all you do is vent your
frustrations? Why not get a 10lb slege
hammer, and stop pretending. I know I h
ave.
    ...Ben

3 Clubroom 5 Mbrs Msg 6 Via Msg 28c
<< 8   8 Menu   7 Your MB
                              9 >>

GOLDLINK
#82
The Tandy Users Board
THU 19 MAY 1988 18:23
Member   705471278
ViaOn 6429021A

> Very Disillusioned:- If you have any
questions we will try to answer them,
what else can we do for you? There isn't
the room here, I haven't the time or the
money to put up much. Why don't you Join
a users group, subscribe to CoCo Magazin
e, find an experienced user in your area

3 Clubroom 5 Mbrs Msg 6 Via Msg 28c
           8 Menu   7 Your MB Jeff
                              9 >>

GOLDLINK
#82
The Tandy Users Board
THU 19 MAY 1988 00:14
Visitor   927757758
ViaTw 64298210A

> these messages have been on here for
along time doesn'T anybody else have any
thing to say or anything of use to a new
user like me. I thought this is the pla
ce to get any or all the information a n
ew user might need. I.E pokes for the co
co3 or helpful tips which will help in t
he production of programs which the the
owners the mags might print.
         - (very disalusioned)
              V.A)

GOLDLINK
#82
The Tandy Users Board
WED 25 MAY 1988 21:44
Member   705471278
ViaOn 64298213A

> Frustrated, I just downloaded 3ROBOT.
BAS with no errors and no problems. The
garbage" on the screen is normal, and
is the actual program. I find that with
Cocotex I get line noise, but with
Supertex I get no line noise. If you have a
marginal line to the exchange you will
get errors on downloading, which will
abort the save. I also found ag old Auto
multimodem gave me heaps of line noise
t when I changed modems I had less.

The Tandy Users Board
WED 25 MAY 1988 23:19
Member   487126388
ViaTw ... Electronics

> Jeff
Thankyou for your reply I have Just t
ried to download 3ROBOT using the ver
sion 3.8 when I tried to save using DO
WNLOAD I get an UNDER DEVELOPMENT mess
e and no save. Which version of DOW
Which version of COCOTEX do you use an
d have you any suggestions.
Frustrated.

3 Clubroom 5 Mbrs Msg 6 Via Msg 28c
<< 8   8 Menu   7 Your MB
                              9 >>

#82
The Tandy Users Board
WED 25 MAY 1988 13:28
Member   407126300

Tandy Electronics

) I have just had my COCOTEX updated to SUPERTEX but find I am unable to download any software programs from Goldlink. I have a 128k COCO3 and a AVTEK MINI MODEM11. When I try to save a program using T'SOFT the drive runs but I get all different characters on the screen then a message of UNSUCCESSFUL TRY AGAIN along the bottom of the screen. Can anyone help me please.

#82
The Tandy Users Board
THU 26 MAY 1988 20:59
Member   705471270

ViaOn 6429022A

Tandy Electronics

) Sorry if you misunderstood my last message. Supertex is the one that downloads, Cocotex won't download. It seems to give much less download that your Supertex somehow has changed the line noise is marginal (IE you get some line noise while viewing normal screens you will have problems while trying to download. Try it with another modem to

Jeff

GOLDLINK
#83
The OS9 Users Board
SAT 30 APR 1988 19:32
Member   755100150

Viate 6429031A

OS9

Has anyone done much with Basic 09 graphics yet?

Graham

3 Clubroom 5 Mbrs Msg 6 Vis Msg 30c
((8   0 Menu   7 Your MB   9))

GOLDLINK
#83
The OS9 Users Board
FRI 06 MAY 1988 23:40
Member   275997270

ViaTu 6429034

OS9

) I JUST BOUGHT A NEW DRIVE 0 40 TRACK DOUBLE SIDED. HOW DO I MAKE A DOUBLE SIDED BOOTABLE SYSTEM DISK. I WAS TOLD THAT I NEED A PROGRAM CALLED SDISK3 TO BOOT FROM A DOUBLE SIDED SYSTEM DISK. THANKS
MICK

Clubroom 5 Mbrs Msg 6 Vis Msg 30c
8 Menu   7 Your MB   9))

GOLDLINK
#83
The OS9 Users Board
TUE 10 MAY 1988
Viatier   8354975...

OS9
6429036A

Who's selling the "RAINBOW" series of books for OS9? (RAINBOW TOUR GUIDE TO.. Tandy? or Blackland? or Parts?

3 Clubroom 5 Mbrs Msg 6 Vis Msg 30c
((8   0 Menu   7 Your MB   9))

GOLDLINK
#83
The OS9 Users Board
SUN 01 MAY 1988 20:18
Visitor   636219350

ViaTu 6429033A

OS9

) TO JEFF HAVE YOU SEEM THE COPY PROGRAM FOR THE COCO3 IT USES THE 512K AND IT TAKE ONE TURN OVER OF THE DISK .IT TAKES EXACTLY 1 MINUTE TO DO THE FOLLOWING IT WILL READ FORMAT AND WRITE TO A DISK IN THAT ONE MINUTE. I THOUGHT THAT YOU M IGHT WANT TO THAT.

3 Clubroom 5 Mbrs Msg 6 Vis Msg 30c
((8.   0 Menu   7 Your MB   9))

GOLDLINK
#83
The OS9 Users Board
SUN 22 MAY 1988 20:34
Member   705471270

ViaOn 6429038A

OS9

) Art, I found that Multi-Vue ran so slowly (even off hard disk) as to be almost useless. I may try it again (off ramdisk) and see if it's faster, but I can see a problem there, as I would have to fill the ramdisk every time I DOSed. Maybe Tandy will come up with a machine that runs it at a decent speed.

Jeff
(Impatient)

VIEWS ON VIATEL

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DR COCO

Having problems with your CoCo in any way, shape, size or form?

Then send a letter to your friendly Doctor. He'll attempt to answer your letter within 2 months. Please note that we cannot answer personal letters. If you want a fast answer, keep your question short and concise.

Questions of technical and programming natures will be answered.

And yes, Dr CoCo is a real person who doesn't work for Goldsoft.

To send a letter to the Doctor, write to:

Dr CoCo,
C/o Goldsoft,
PO Box 1742,
Southport, Qld. 4215.

Dear Dr CoCo,

I'm trying to get hold of a picture digitizer, preferably model number DS691 for the CoCo 2, with 64k.

Can you help me find one?

I have a CoCo 2, 64k; a disk drive and a multipack.
Jay Hall,
Pakenham, VIC

Jay,

Yes, I can help you!

Apparently there's a mob in the USA called Microworks. They sell the unit for US$100.

But be warned! Their TV system is different to ours and you MIGHT have a few problems using th unit over here.

So when you order the unit, ask for the DS69 (that's the catalogue number) and any modifications that need to be made so that it is compatible with the PAL television system.

Their address is:

PO Box 1110
Del Mar, California
92014, USA.

Also, for trivial reasons, there is a CoCo 3 pack out as well. The model number for that is DS69B.

Dear Dr CoCo,

I have a CoCo 3 with a CCR-82 tapedeck. I took your advise and got myself the DMP-105. I also have Colour Scripsit II word processor, but I can't find a screen dump program for the DMP-105 at the Tandy store near me.

Could you tell me where I could get one from and what is the best screen dump program for the DMP-105, ie on ROM pack or on tape?
Sebastian Juraszek,
Liverpool, NSW

Sebastian,

Yes, there was a package for the dumping of graphics screens to the DMP-105. Unfortunately, the package has been discontinued, and the only likely way of getting it would be to ask around the stores and see if they have one avaiable.

Or see Martha's Trading Post.

*

Dear Dr CoCo,

I have a TRS-80 extended colour basic model 2 computer [CoCo 2], and recently last year I received a machine language program from a friend. I would like to know how to LIST it.

To load and run it, you CLOADM to load it and you type EXEC to run it.

Also, I was wondering if I could modify a program, so that it will run on a 16k computer. The game is called "Operation Barbarossa" (Australian CoCo Magazine, 1986). I only want a part of it. I think the problem is the DIM statement. Anyway, I've been trying to modify it to print text on a graphics (PMODE 4) screen without using over four thousand bytes of memory (CLEAR 4000).

Could you tell me how to save a program in ASCII (so I can send in a submission)?
Jason Rankin,
Ballarat, VIC.

Jason,

One cannot LIST machine language programs. You can only LIST Basic programs, because machine language is written entirely different to Basic programs.

Converting programs to run under 16K when the original program ran under a 32k machine is not an easy job. In your particular case, it would be simpler to upgrade your CoCo to a 64k machine, than to modify the program to such an extent that it becomes a "spaghetti job", or, it becomes hard to follow how the program runs.

To save a program in ASCII is done the following way: just close the extension, add a comma and an "A". Like this:

CSAVE"PROGRAM

... becomes ...

CSAVE"PROGRAM",A

If you have a computer problem, let the doctor take a look at it!

MARTHAS TRADING POST

Well possums!! I've just been doing a few turns on my broomstick and I couldn't help but notice all that electronic trash you mere mortals seem to be hanging on to. Just like a lot of little bower birds, aren't we!! Ummmm!!

If any of you darling little possums would like to swap that junk for cash then why not place your ad here.

We'll run your ad for three months -- and remember possums, let us know if your junk sells so we can adjust our records -- and you never know, you just might be able to make enough money to purchase a super turbo charged "stick" like mine.

And possums -- do it -- now!

Martha.

*** For Sale ***

(apr '88)

$1150 (ono): Includes ...
* Tandy model 4 with deskmate
* TRSDOS 6.2 with Basic Interpretor
* 128K RAM & 2 drives @ 184K each
* TRSDOS/Basic/Deskmate Instructions
* Tandy TRP100 printer

Also included are ...
TRSDOS/Basic master disk, Deskmate operation disks, MuMath/MuSimp disks (invaluable formulae to HSC level and higher), 5 spare ribbons for printer, 1 AC/DC adapter for printer, 1 printer cable, AC adapter for printer.
The whole, as new, is ready packed in its original carton and ready for transport anywhere in Australia.

Phone Jim Lilleyman on (046) 26-6147.

***

(apr '88)

Hardware:
$150: 64K ECB CoCo 2 with white colour slashes, manuals and 2 joysticks.
$ 90: Speech/sound cartridge as new with manual and demo program.
$ 60: TP-10 printer, with 2 rolls of printer paper. Printer cables and manuals included. Still in original box.
$ 45: CCR-81 cassette recorder with cables.
$ 40: Orchestra 90-CC, plugs straight into cartridge port. Excellent value. In Stereo.

Games:
$ 20: Zaxxon
$ 15: Ice Castles, Galagon, Draconian
$ 10: Trapfall, Glaxxons, Color Baseball, Stellar Lifeline, Starblazers.
$ 5: Crosswords

Software Sets:
$ 20: Edtasm+ - Editor and assembler with ZBUG.
$ 15: Electronic book. Great fun. Software is included.

Books and Magazines:
$ 15: 6809 Assembly language programming by Lance A Leventhal.
$ 5: Assembly language programming by William Barden, Jr.
$ 5: Colour Computer Graphics by William Barden Jr.
$ 1.50 each: Hot CoCo, Aussie Rainbow, Aussie CoCo, Softgold.

Heaps more available, all prices negotiable. The lot for only $500.

Phone John on (03) 557-5563 or write to PO Box 45, Moorabbin, 3189.

***

(jun '88)

$100: CoCoMax drawing system for CoCo 1/2. Includes interface, mouse, disk, manual and Y-cable.
$ 60: TI Silent 700 portable terminal with built-in modem. Includes carton of paper.
$ 40: Teletype, model TG7B (military version of TTY 15), complete with supporting electronicsa for amatuer RTTY, in good condition. Also paper tape reader, unknown condition.

Call Peter Edwards on (03) 873-5249.

***

(jun '88)

$120 (ono): Tandy program packs (as new in boxes): Bust out, Poltergeist, Castle Guard, Clowns & Balloons, Shooting Gallery, Pinball, and Monster Maze. 7 in all, cost $320 new.
$ 50: CCR-81 cassette recorder, as new in box.

Ring Bob after 5pm on 03-337-7054.

***

$175: OS-9 level 2 development system package. Original software pack from Tandy.

Phone Barry Sidebottom on 03-744-6281.

---

reset, the computer goes to 32k of RAM and 32k of ROM. The trouble is that this isn't the same ROM that you see with a normal program. By putting a short program in, I was able to save the portion of the ROM that I wanted to look at. That's where the picture of the three programmers are hidden. To see them, press the ALT and CTRL keys together and press the reset button. This does a very handy cold start and give a pretty pictures. A second reset will take you back to Basic.

The screen should have been reset properly in the reset routines. This is why it isn't compatible with the older programs (one reason, anyway).
Other problems found are:
* it dies when clearing memory below about 17000, and if the wrong palette numbers are used, it destroys the Basic program.
* with a disk drive, the screen doesn't reset properly on a cold start. A reset puts it right. Apparently there's a cure for that at Tandy.
Ed's note: this is NOT on the tape or disk CoCoOz monthly.

Program:

```
00100 ****************************
00110 ***** EDPATCH ************
00120 * BY GORDON THURSTON *****
00130 ****************************
00140      ORG  $2505
00150      LBSR $165C
00160      ORG  $165B
00170      FCB  0
00180      CLR  $FFDF
00190      JSR  $E019
00200      LBSR $1698
00210      RTS
00220      END
```

Gordon Thurston

user contacts

special interest groups

Australian Capital Territory:
Canberra North .... John Burger 062 58 3924
Canberra South .... Les Thurbon 062 80 9226

New South Wales:
Sydney:
Bankstown .... Pat Dorsett 02 646 3919
Blacktown .... Keith Gallagher 02-627-4627
Carlingford .... Ross McKay 02 662 1951
Chatswood .... Bill O'Donnell 02 419 6081
Colyton .... Herman Frederickson 02 623 6379
Fairfield .... Arth Pittard 02 72 2881
Gladesville .... Mark Rothwell 02 817 4627
Hills District ...... Arthur Slade 02 674 5620
Hornsby .... Athalie Smart 02 848 8830
Ingleburn .... Stephen Ridgeway 02 605 7382
Keithhurst .... Tom Stuart 02 654 2178
Leichhardt .... Steven Chicos 02 560 6207
  or .... Gorge Echegaray 02 560 1969
Macquarie Fields .. Barry Darnton 02 618 1969
Minto .... Graham Pollock 02 603 5028
Sutherland .... Ian Annabel 02 528 3391
Sydney East .... Jacky Cockinos 02 344 9111
Albury .... Ron Duncan 060 43 1031
Armidale .... Doug Barber 067 72 7647
Blaxland .... Bruce Sullivan 047 39 3903
Broken Hill .... Terry Moonan 080 88 2302
Camden .... Sean Murdoch 047 74 8291
Coffs Harbour .... Bob Kenny 066 51 2205
Cooma .... Ross Pratt 064 52 3065
Cooranbong .... George Savage 047 77 1054
Cootamundra .... Cheryle Willis 069 42 2264
Deniliquin ...... Wayne Patterson 058 81 3014
Dubbo .... Graeme Clarke 068 89 6549
Forbes .... Johanna Vagg 068 52 2943
Gosford .... Peter Siefert 043 34 1036
Grafton .... Peter Lindsay 066 42 2503
Guyra .... Michael J. Hartmann 067 79 7547

Junee .... Paul Maloney 069 24 1860
Kempsey .... Rick Fuller 065- 62-7222
Leeton .... Brett Wallace 069- 53-2081
Lismore .... Bob Hillard 066 24 3089
Lithgow .... David Berger 063 52 2282
Maitland .... Bill Snow 049 66 2557
Moree .... Alf Bate 067 52 2465
Nambucca Heads ...... Wendy Peterson 065 68 6723
Narromine .... Graeme Clarke 068 89 6549
Newcastle .... Lyn Dawson 049 49 8144
Nowra .... Roy Lopez 044 46 5449
Orange .... David Kemp 063 62 3270
Parkes .... David Small 068 62 2682
Port MacQuarie ...... Ron Lalor 065 62 2682
Springwood .... Jim Hopplitt 047 54 1474
Tahmoor .... Gary Sylvester 046 81 9318
Upper Hunter .... Terry Gravolin 065 45 1698
Uralla .... Frank Mudford 067 78 4391
Wagga Wagga .... Ces Jenkinson 069 25 2263
Wyong .... John Wallace 043 90 0312

Northern Territory:
Darwin .... Brenton Prior 089 81 7766

Queensland:
Brisbane:
Birkdale .... Colin North 07 824 2128
Cannon Hill ...... Rosemary Litzov 07 395 0863
Clayfield .... Jack Fricker 07 262 8869
Collingwood Park ... Andrew Simpson 07 288 5206
Ipswich .... Mick Murphy 07 271 1777
Pine Rivers .... Barry Clarke 07 204 2806
South Side .... Alan Allsop 07 349 1831
Kenmore .... Bob Devries 07 372 7816
Scarborough .... Peter Mat 07 203 6723
Airlie Beach .... Glen Evans 079 46 1264
Biggenden .... Alan Henham 071 27 1272
Bowen .... Terry Cotton C/O 071 86 2220
Bundaberg .... Ron Simpkin 071 71 5301
Cairns .... Jeff Larson 070 54 7127
Dalby .... Merrick Tahsky 074 62 3228
Gladstone .... Carol Cathcart 079 78 3594
Gold Coast ...... Graham Morphett 075 39 6177
Gympie .... Bert Lloyd 071 821 9100
Hervey Bay .... Lesley Horwood 071 22 4989
Mackay .... Len Maloney x782 079 51 1133
Maryborough .... John Effer 071 23 1369
Mt. Isa .... Jack Rae 077 43 3486
Murgon .... Peter Angel 071 68 1626
Rockhampton ..... Keiran Simpson 079 28 6162
Sunshine Coast ...... Bob Lassman 071 43 1611
Tara .... Debbie Dorfield 074 65 3177
Toowoomba ..... Len Gersekowski 076 35 8264
Townsville .... John O'Callaghan 077 73 2064

South Australia:
Adelaide:
Port Noarlunga .... Rob Dalzell 08 386 1647
Seacomb Heights ...... Glenn Davis 08 296 7477
City .... John Haines 08 278 3560
Port Lincoln .... Bill Boardman 086 82 2385
Port Pirie .... Vic Krauerhase 086 32 1230
Whyalla .... Malcolm Patrick 086 45 7637

Tasmania:
Devonport .... Jeff Best 004 24 6759
Hobart .... Bob Delbourgo 002 25 3896
Kingston .... Win de Pult 002 29 4950
Launceston .... Bill Bower 003 44 1584
Smithton .... Harry Chrisafis 004 52 1590
Wynyard .... Andrew Wyllie 004 35 1839

Victoria:
Melbourne:
Melbourne CCC .... Les Leishman 03 484 0822
Dandenong .... David Borrocks 03 707 5870
Doncaster .... Justin Lipton 03 857 5149
Frankston .... Bob Hatter 03 783 9748
Narre Warren .... Leigh Eames 03 704 6680
North Eastern .... Peter Wood 03 435 2018
M'ton Penninsula ..... Gordon Chase 059 71 1553
Melton .... Mario Gerada 03 743 1323
Pakenham .... Jay Hall 059 41 1398
Ringwood .... Ivor Davies 03 758 4496
Sunbury .... Jack Salt 03 744 1355
Sunshine .... Ian Buttriss 03 314 8242
Upr. Ferntree Gully ... Rory Doyle 03 758 2671
Bairnsdale .... Colin Lehmann 051 57 1545
Ballarat .... Mark Bevelander 053 32 6733
Daylesford .... Danny Hadji 054 24 8329
Geelong .... David Collee 052 43 2128
Maffra .... Max Huckerby 051 45 4315
Moe .... Joseph Hester 051 27 7817
Mornington .... Michael Monck 03 789 7997
Morwell .... Jeff Sheen 051 33 9904
Shepparton .... Ross Farrar 058 25 1007
Smythesdale .... Tony Patterson 053 42 8815
Swan Hill .... Barrie Gerrand 050 32 2838
Tongala .... Tony Hillis 058 59 2251
Traralgon .... Leigh Dawes 051 74 5552
Wonthaggi .... Lois O'Meara 056 72 1593

Western Australia:
Perth:
City .... Iain MacLeod 09 448 2136
Girravheen .... Hank Willemsew 09 342 7639
Kalgoorlie .... Terry Burnett 090. 21.5212

Overseas: Canada
Ontario .... Richard Hobson 416 293 2346
Toronto .... Franz Lichtenberg 416 845 2889

Teacher's Interest Group
Brisbane .... Bob Horne 07 281 8151

Business:
Brisbiz .... Brian Bere-Streeter 07 349 4696

OS-9 Groups:
Queensland:
Brisbane Non-Smokers ... John Poxon 07 208 7820
Clayfield .... Jack Fricker 07 262 8869
New South Wales:
Bankstown .... Carl Stern 02 646 3619
Carlingford .... Rosko Mackay 02 624 3353
Gladesville .... Mark Rothwell 02 817 4627
Sydney East .... Jacky Cockinos 02 344 9111
Cooma .... Ross Pratt 064 52 3065
Victoria:
Latrobe Valley ..... George Francis 051 34 5175
Western Australia:
Kalgoorlie .... Terry Burnett 090 21 5212

MC-10 Contacts:
Lismore .... Bob Hillard 066 24 3089
Sydney .... Graham Pollock 02 603 5028

Tandy 1000/MS-DOS:
Queensland:
North side .... Brian Dougan 07 30 2072
South side .... Barry Cawley 07 390 7946
Gold Coast .... Bruce Kerr 075 39 6177
New South Wales:
Gladesville .... Mark Rothwell 02 817 4627
Sydney West .... Roger Ruthen 047 39 3903
Wyong .... John Wallace 043 90 0312
South Australia:
Port Lincoln .... Bill Boardman 086 82 2385
Victoria:
Latrobe Valley .... Peter Foley 051 74 5791
Melbourne .... Tony Lloyd 03 882 4664

Forth:
Sydney .... John Redmond 02 85 3751

Christian Users' Group:
Moe .... Raymond L. Isaac 051 27 2695

MSX:
Franskton .... Alan Hassell 03 786 6290

Model Railway Club:
Beenleigh .... David Phillips 07 807 2663

Bulletin Boards
300 Baud

Infocenter 02 344 9511
Tandy Access 02 625 8071
The CoCoConnection 02 618 3591

VideoText Systems

Viatel 01955
Mousetex 059 42 5528
VTX 4000 .... 03 741 3295

Tandy Information on Viatel (01955)

Goldlink *6428
Tandy *642618

Some Tandy Users On Viatel (01955)

Allan Beale : 726353300   Fred Bisseling: 848232630
Jack Fricker: 726288690   John Grigsby : 945872030
Stuart Hall : 939765790   Bob Kenny   : 665122050
Jeff Larsen : 705471270   G. Levis   : 954811900
Iain MacLeod: 544821360   Chris. Nagle : 689523360
R. Pankhurst: 280717870   Ross Pratt   : 648230650
R. Schmahl : 298151500   Arthur Slade : 262289400
D. O'Toole : 755100150   Ron Wright   : 352924510

Key: Stop between numbers (eg 123.45.1234) means ring in business hours and hyphen between numbers (eg 123-45-1234) mean ring anytime (within reason.)