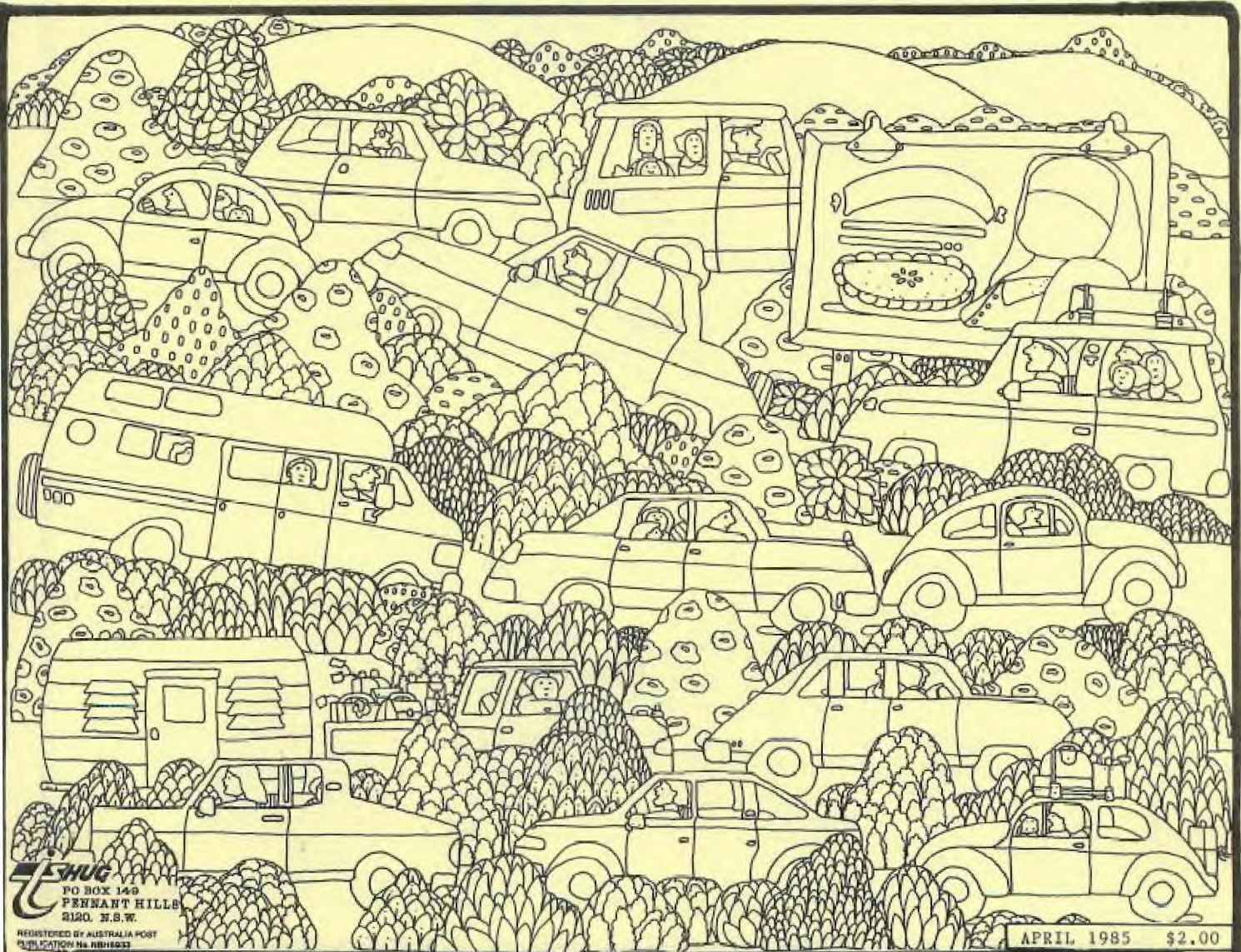
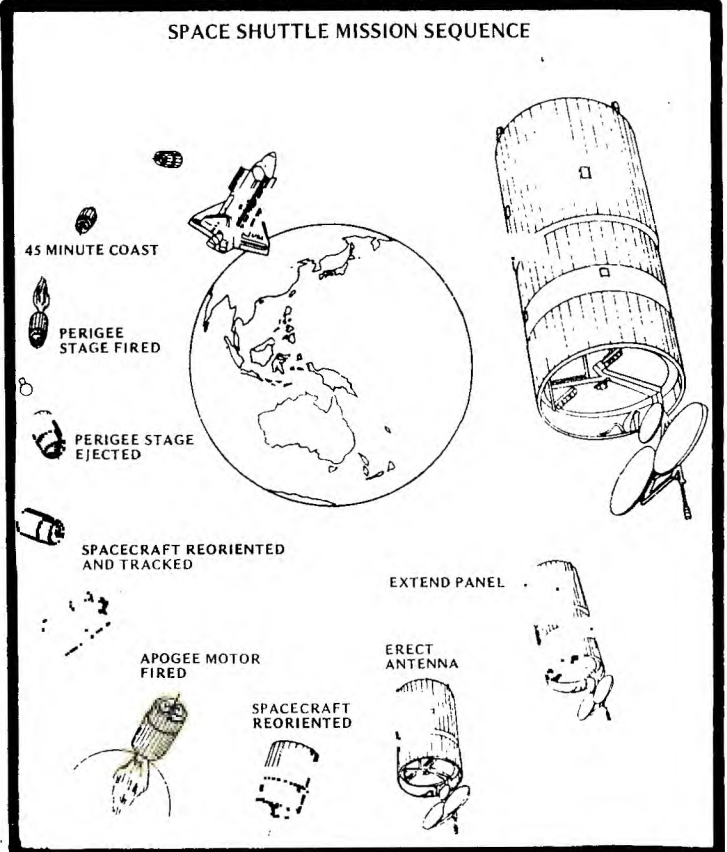


SYDNEY NEWS DIGEST



OUR NEXT MEETING WILL BE CONDUCTED ON THE SECOND SATURDAY OF 13th APRIL(2pm) at St. Johns Church HALL VICTORIA St, DARLINGHURST with
SPECIAL GUESTS from AUSSAT(Australia's National itellite System).



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Newsletter of TI Sydney Users' Group

Sydney News Digest

TI.S.H.U.G GOES FULL TIME

SEE YOU THERE 'CAUSE WE CARE

Is the new motto for the TI.S.H.U.G REGIONAL GROUPS and one that all share! TI.S.H.U.G Is not just it's HUGE Monthly GET-TO-GETHER at St.John's Church Hall in Darlinghurst, and it's not just it's MAIL-ORDER CLUB SHOP SERVICES, PROGRAMMERS CRISIS LINE, TEXPAC-BBS, and SYDNEY NEWS DIGEST...

NO! It's also the REGIONAL HOME GROUPS, and we want you to get involved, and share in the fun and learning experiences of our members who want to share their wealth of training, programming knowledge, and friendliness.

When did you last attend a REGIONAL HOME GROUP?

CONTACT JOHN ROBINSON(SECRETARY) on (02)8480956 and find out where your local home group is located, or check out the Regional Reports in your SYDNEY NEWS DIGEST.

SEE YOU THERE 'CAUSE WE CARE!

TI.S.H.U.G (Australia) CONTACT NUMBERS/ADDRESS...

(1) Each and every MONDAY, TI.S.H.U.G. Office Hours... contact Shane Anderson (8:30am-5pm) on the following number (02)56-00926.

(2) ...TEXPAC BBS 7pm-6:30am w/nights and 24hours on week-ends: 02-5600926

(3) ...PROGRAMMERS CRISIS LINE: 10am-4pm Monday Tuesday & Wednesdays and 10am to 9pm most other days...02-992229

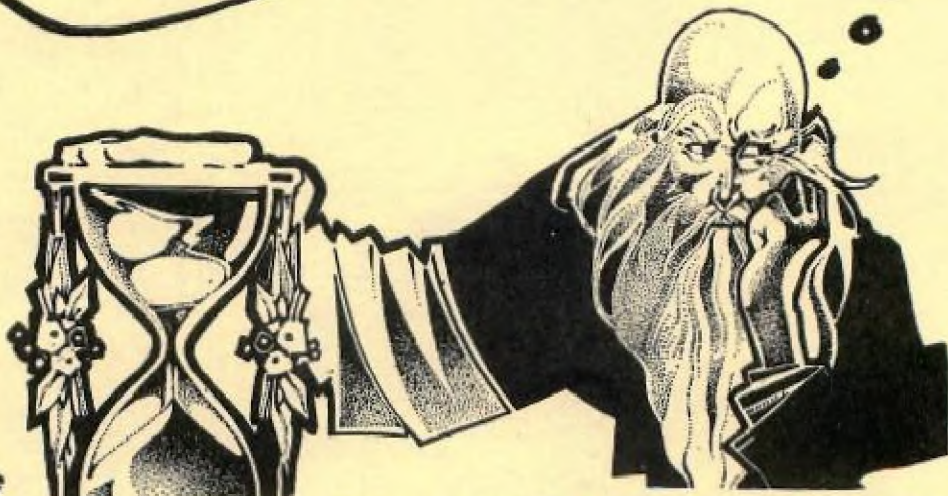
(4) ...CLUB SECRETARY: JOHN ROBINSON most evenings 7pm-9pm ... (02)8480956

(5) ...TREASURER/LIBRARIAN: TERRY PHILLIPS most evenings 7:30pm-9:30pm ... (02)7976313

Other Committee members can be reached via the above numbers.

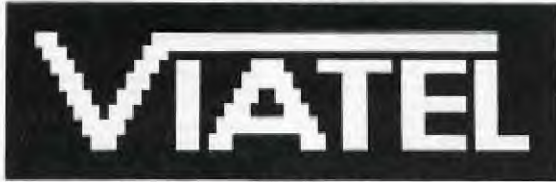
TI.S.H.U.G. (Australia) has two postal addresses...
MEMBERSHIP ADDRESS: P.O. Box 149, Pennant Hills 2120
GENERAL ADDRESS: P.O.Box 595, Marrickville, NSW 2204
Providing support to the users of the TI-99/4(A) and TI Professional through the 80's and beyond.

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so popular - it's hard to get on!
...But keep trying.

Telecom



TELECOM'S New VIDEOTEXT Service

By Robert Crago

Last month, Telecom Australia launched its VIATEL Videotext service. This article explains what Videotext is all about, what Telecom is offering with VIATEL and how it can be accessed by TI 99/4 owners.

WHAT IS VIDEOTEXT ?

Videotext is an information data bank accessible from any telephone via a modem and terminal or home computer. It was pioneered in the UK by British Telecom with the PRESTEL system. In some ways it is like a giant Australia-wide BBS.

Once connected to a Videotext service, a subscriber can call up "frames" (ie screens full) of information stored in the Videotext database. Frames are 40 columns wide by 24 lines deep and may include limited graphics. The information is put into the database by business organisations who rent space for the information they wish to make available. Typical information might include: Airline schedules, Theatre guides, News headlines, Weather reports, Holiday or Travel info or Shopping tips etc etc etc. If it catches on, the list will grow and grow as more organisations decide to make data available to the public in this way.

If you have seen a demonstration of TELETEXT as offered in Sydney by Channel 7's 7-TEXT, you will have some idea what Videotext is all about. Teletext and Videotext are closely related systems, using different media to convey the information to the public. Teletext broadcasts its information in the "gaps" in the normal TV picture transmission. Videotext uses a more conventional telephone and modem. There is one BIG difference however - VIDEOTEXT IS INTERACTIVE !!! With Videotext, you can not only call up any frame instantly, but you can key information back to the Videotext computer as well. Examples of this are Playing games, Electronic mail and the Commonwealth Banks' Home Banking Service.

This service, to be offered in April this year, will allow fully interactive banking from the home - ie calling up your account balances, moving money from of your accounts to another etc. It will be just like your own personal Autobank !



TELECOM'S VIATEL

From February 28th, Telecom VIATEL videotext service became available to the general public. After obtaining the necessary equipment, filling out a simple registration form and obtaining your customer identity number, you are now a registered VIATEL user! What does it cost? Nothing Telecom does is free and VIATEL is no exception! Subscription fees are normally \$2.50 per month for non-business users but if you join soon, you can get the first 12 months for only \$12.50 as a special introductory offer. It is not necessary to pay in advance since its all charged to your telephone bill. Once you're a subscriber, just dial 01955 anywhere in Australia (so they say) and for the cost of a local call you're connected! The only other charges are 8c per minute connect time or 5c per minute after 6pm. Messgaes may be left for other VIATEL users for 5c a message. Some frames cost money to access but these are flagged before you select them.

Once you get to know your way around the frames, you should be able to extract lots of useful information for quite a low cost.

WHAT EQUIPMENT DO YOU NEED?

Unfortunately VIATEL (as with all other Videotext systems, uses 1200/75 baud modems rather than the more common 300/300 ones used by home computer buffs. Home television adaptors cost around \$400-\$550 whilst plug in cards for some home computers cost around \$200 - \$300. (None exists for the TI as far as I can tell). Sounds hopeless for the TI user right ?? NO If you have a 1200/75 modem (like the UDM 1200 used to run our BBS system) or can get your hands on one, you can get into VIATEL with a program I'm just completing. This program will adapt a TI99 to communicate with VIATEL for around \$30. If you considering buying a modem, look at those that do 1200/75 as well as 300/300 since then you can have the benefits of VIATEL as well as our own TISHUG BBS.

Hopefully by the time you read this, the program will have been demonstrated on the TISHUG stand at PC85. I will tell you more details of the info Telecom is offering with the initial release of VIATEL in a future Newsletter. STAY POSTED...



AUSSAT

Australia's National Satellite System

will be our very special guests at the next T.I.S.H.U.G activity to be conducted once again, at the St. John's Church Hall, in Victoria Street, Darlinghurst on Saturday the 13th April (2pm).

To answer some of your questions, in advance of that special meeting, we have put together a two page special with what AUSSAT is all about.

We plan to have some great prizes for those who study this information, and answer our quiz on that day.

So, remember, because of Easter Week-end, the next club activity will be on the 2nd Saturday of April.

AUSSAT, the Australian national satellite communications system, will provide a wide range of domestic services to the entire continent, its offshore islands, and Papua New Guinea. This includes direct television broadcast to home-steads and remote communities, high quality television relays between major cities, digital data transmission for both telecommunications and business use, voice applications for urban and remote areas, centralised air traffic control services, and maritime radio coverage.

Australia's national satellite company, AUSSAT Pty Ltd., in May 1982 selected Hughes Communications International, a wholly owned subsidiary of Hughes Aircraft Company, to develop the country's first satellite program. Under the contract, Hughes Space and Communications Group will build three satellites and two telemetry, tracking, command and monitoring (TTC&M) stations. Also provided are launch and operational services and ground support.

SCG's spin stabilised HS 376, an established communications satellite design, has been chosen for AUSSAT. The first two Australian satellites are scheduled for launch in July and October 1985. The third will be launched later. The satellites can be flown on either the NASA Space Shuttle, the Delta rocket, or the European Ariane rocket.

AUSSAT uses two telescoping cylindrical solar panels and a folding antenna for compactness during launch. After the satellite nears its orbital position, the antenna erects and the outer solar panel deploys, exposing the inner solar array. AUSSAT's dual polarized, three-reflector antenna system will provide seven transmit beams and three receive beams. Five transmit beams are spot beams and serve the Home-stead and Community Broadcasting Satellite Service (HACBSS) four contiguously placed over the western, central, northeast, and south-east regions of the Australian continent, and one over Papua New Guinea. The other two are national beams which use orthogonal polarizations to provide continental coverage for Fixed Satellite Service (FSS).

The AUSSAT satellite will carry 15 channels, each 45 MHz wide. Four will use high power, 30-watt travelling wave tube amplifiers (TWTAs) to provide radio and television services to Australia's remote areas; the remaining 11 channels will operate with 12-watt TWTAs. It will be possible to connect the communications channels individually to the transmit beams by ground command. This arrangement will provide traffic assignment flexibility for the system. The electrical power system uses K7 high efficiency solar cells which provide 1054 watts at beginning of life. Two nickel-cadmium batteries provide full power when the spacecraft passes through Earth's shadow.

The satellite will have a diameter of nearly 2.2 metres. Stowed for launch, its height will be 2.8 metres. In orbit, with antennas deployed and at solar panel extended, the height will increase to 6.6 metres. Its initial on-station weight will be 650 kg for a shuttle launch, or 700 kg for the Ariane launch.

The satellites, which will have a mission life of seven years, will operate at the 14/12 GHz Ku band, with an effective isotropic radiated power (EIRP) of 47 dBw for the spot beams and 36 dBw for FSS. The two operational spacecraft will be located above the equator just north of Papua New Guinea at 156°E and 164°E longitude. The third satellite, when launched, will be located at 160°E longitude. The master control station for the system will be in Sydney, and backup control equipment will be installed in Perth. Monitoring equipment will be installed at earth stations in Sydney, Perth, Brisbane, and Adelaide.

If the AUSSAT satellites are launched using the shuttle, they will be contained in a special cradle that houses the ejection system and provides a protective sun shield. The spacecraft will be spun up while in the cradle. Explosive bolt cutters will fire, allowing four springs to eject the spacecraft. A McDonnell Douglas payload assist module (PAM) will insert the spacecraft into an elliptical transfer orbit. The Ariane rocket incorporates a third stage to propel the spacecraft into the transfer orbit. All three spacecraft will be placed in near-synchronous orbit by a Thiokol Corporations Star 30 solid propellant apogee motor. Four Hughes 1124 newton thrusters, operating with monopropellant hydrazine, will provide apogee motor augmentation and on-orbit station-keeping and attitude control. The satellites will drift into final orbit 36,000 km above the equator.

HOW AUSTRALIA'S SATELLITE SYSTEM WILL WORK

The Australian satellite communications system is based upon two separate segments:

- a Space Segment which is comprised of the orbiting satellites and ground control facilities;

- an Earth Segment, consisting of communications earth stations which transmit signals to, and receive them from, the satellite.

The Space Segment

Australia's first two satellites are scheduled to be launched from Cape Canaveral on board the Space Shuttle in July and October 1985. Each satellite will be ejected from the Space Shuttle at an altitude some 250km above the earth. Special rocket motors will then lift it to a precisely chosen orbital position about 1000 km directly above the equator and at an altitude just to the east of Australia. At this height, the satellite will move at the same speed and in the same direction as the earth rotates. As each orbit will take 24 hours to complete, the satellites will always remain 'fixed' or 'stationary' when viewed from the ground.

These satellites will be based upon a spinning 'drum' design and will be 6.6m tall, 2.2m in diameter, and will weigh around 1250kg at launch.

By appropriately designing the satellite's transmitting and receiving antennas, the beam coverage area or 'footprint' can be narrowed and concentrated onto relatively small areas within the satellite's field of view.

The satellite system has been designed so that its coverage area extends over all the States, the Northern Territory, and surrounding coastal waters.

There will be a national beam and four individual 'spot' beams with one each covering Western Australia, the Northern Territory plus South Australia, Queensland, and a fourth beam covering New South Wales, Victoria and Tasmania for each satellite.

There will also be a 'spot' beam to provide internal communication services for Papua New Guinea.

Using these beams, the satellite can both transmit and receive signals in two ways: between two points like a telephone call, from a single point to any number of other points in the same way as radio and television stations broadcast their programs. (See diagram)

The typical 'life' of each satellite is expected to be at least seven years. Each satellite will be capable of receiving radio signals, changing their frequency, and retransmitting the amplified signals back to any point in the coverage area.

The satellites will be monitored by two control stations, located in Sydney and Perth, technically known as the Tracking, Telemetry, Command and Monitoring (TTC & M) Stations.

The Earth Segment

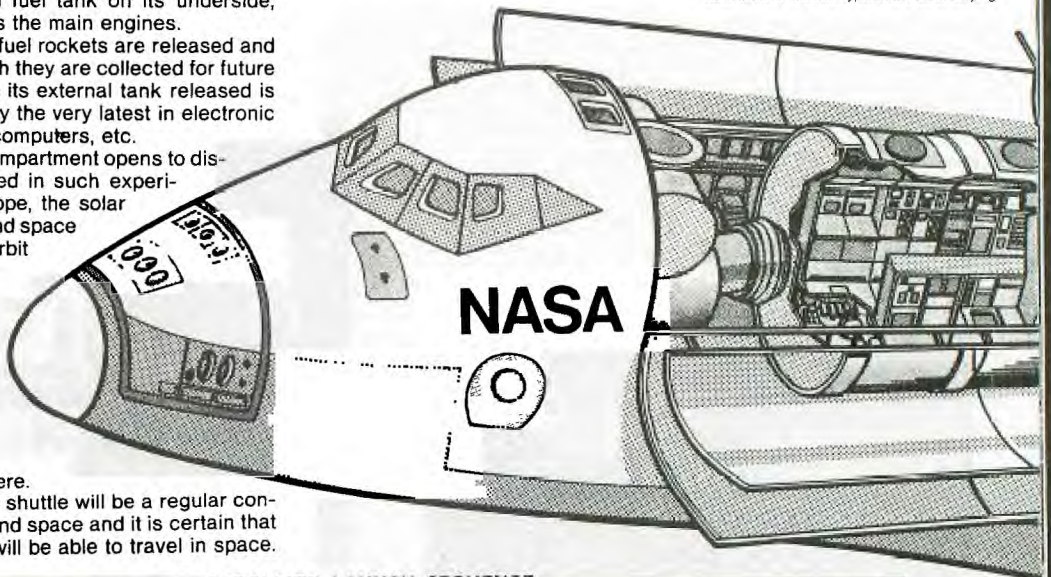
In order to use the satellite system, it is necessary to have appropriate ground equipment known as communications earth stations. These earth stations use dish-type antennas of varying

SPACE SHUTTLE

Space Shuttle – The essence of modern science and technology including electronics.

The space shuttle has two solid fuel rockets, one on either side and an external liquid fuel tank on its underside, while its main body contains the main engines. At about 50 miles, the solid fuel rockets are released and fall into the ocean from which they are collected for future use. The space shuttle with its external tank released is precisely guided into orbit by the very latest in electronic technology including microcomputers, etc. Once in its orbit, its cargo compartment opens to discharge the cargo to be used in such experiments as the space telescope, the solar power generation satellite and space colony. When the work in orbit has been completed, the space shuttle will return to earth, landing like

a glider once it reaches the lower atmosphere. In the near future the space shuttle will be a regular connection between the earth and space and it is certain that the day is near when man will be able to travel in space.



SATELLITE LAUNCH SEQUENCE

1. Shuttle takes AUSSAT Satellite to 296km orbit and launches it by controlled ejection
2. Tracking antenna extends as Satellite coasts for 45 minutes in circular orbit
3. First booster rocket (perigee stage) fires, placing Satellite in elliptical transfer orbit
4. Exhausted booster rocket ejects
5. Tracked from Ground Control Stations the Satellite is reoriented ready for next stage
6. Second booster rocket (apogee stage) fires to position Satellite into near circular (geostationary) orbit
7. Satellite then reoriented and allowed to drift to final orbit location.
8. Communications antenna erects
9. Solar "skirt" (upper panel) extends
10. Satellite arrives at final position ready for service – positioned at 36,000km above the equator, northeast of Australia

Sydney News Digest

... diameter and cost, the type chosen depends upon the particular applications which it is intended to implement via that earth station.

Some earth stations will be known as 'receive only' and will do just that - receive signals such as radio and television programs directly from the satellite. Other earth stations will also need to be able to transmit signals as well as receive signals.

The different types of earth stations include:

Major City Earth Stations (MCES)

Earth stations will be built in each of the state capital cities, and in Darwin and Canberra. They will be single-storey brick buildings with one or two communications dish antennas. Each station will also have a radio relay tower and associated facilities.

These stations will be owned by AUSSAT Pty. Ltd. and will contain the earth-based equipment necessary to receive and transmit radio, television, business data and telephony signals from and to the satellite. They will also facilitate the transmission of these messages to the user of the satellite system.

Sites selected for Major City Earth Stations must fulfil a number of criteria, including:

- a clear 'view' to the satellite in the Northern Hemisphere, unimpeded by hills, buildings or other obstructions;
- close to potential users;
- clear of industry that could cause electronic interference to the sensitive equipment housed in these stations.

In Sydney and Perth, the Major City Earth Stations will be co-located with the TTC & M Stations described earlier.

Other Earth Stations

There are three other types of earth stations which will provide similar functions to Major City Earth Stations but will be adapted for specialised uses:

Customer Earth Stations

These are relatively simple providers of limited voice and data facilities for use by private networks which may be established by organisations not connected to the normal telephone system. Typical users could be remote mining sites, organisations such as the Royal Flying Doctor and School of the Air and private sector organisations.

Homestead and Community Broadcasting Satellite Service (HACBSS)

These will be designed to receive satellite broadcasting services at individual homesteads and small communities in outback Australia. They are receive-only stations, and should be able to operate for long periods without maintenance.

Regional Receive-only Earth Stations

These will be required to receive from the satellite television and radio programs sent to the satellite from earth stations located in the capital cities; the signals will be retransmitted locally by conventional television and radio transmitters.

Future Launches

It is currently expected that future demand for satellite capacity and other operational requirements will result in a third satellite being launched during 1988. Satellite compatibility is being maintained with the European ARIANE launcher as well as the Space Shuttle to retain maximum flexibility in selecting the launch vehicle for Australia's third satellite. That selection is likely to be made during 1985 and will be based upon the pricing and operational factors current at that time.

TECHNICAL SPECIFICATIONS

Satellite

Initially two satellites in geostationary orbit, 36,000km above equator (156°E longitude, 164°E longitude - 160°E reserved for number 3 spacecraft).

One on-ground spare.
Mass - initial in-orbit mass of each satellite 655kg.
Size - 2.2m in diameter, 6.6m high.
Service life - minimum expected to be seven years.

Launch

First two launches during July and October 1985, on NASA's Space Shuttle.

The third satellite will be launched about 1988 on either the Space Shuttle or the European Ariane rocket.

Transponder Capacity

Each satellite will have capacity of 15 transponders - 4 x 30 watts and 11 x 12 watts.

Spare transponder capacity, both 30 watt and 12 watt, will be available in each satellite in the event of performance degradation or failure of an operational transponder.

Frequency Bands

14.0 - 14.5 GHz frequency band for uplink transmission (satellite to ground).

12.25 - 12.75 GHz frequency band for downlink transmission (satellite to ground).

Coverage Areas

In uplink direction, each satellite will have two national beams each capable of receiving signals from anywhere within Australia.

In downlink direction, each will have two national beams and four spot beams covering:

- Western Australia
- Queensland
- South Australia, Northern Territory
- New South Wales, Victoria, Tasmania

Small spot beams will also cover Lord Howe and Norfolk Islands.

In addition, uplink and downlink capacity will be available in a separate Papua New Guinea spot beam.

On-Board Switching Capability

Considerable capability is provided on board the satellite to switch transponders to different beams (national or spot) by ground command, providing flexibility to meet customer requirements as they emerge.

Satellite Control

Two Tracking, Telemetry, Command and Monitoring Stations (TTC & M) will be installed at Sydney and Perth. The Sydney station will incorporate the Satellite Control and Operations Centre.

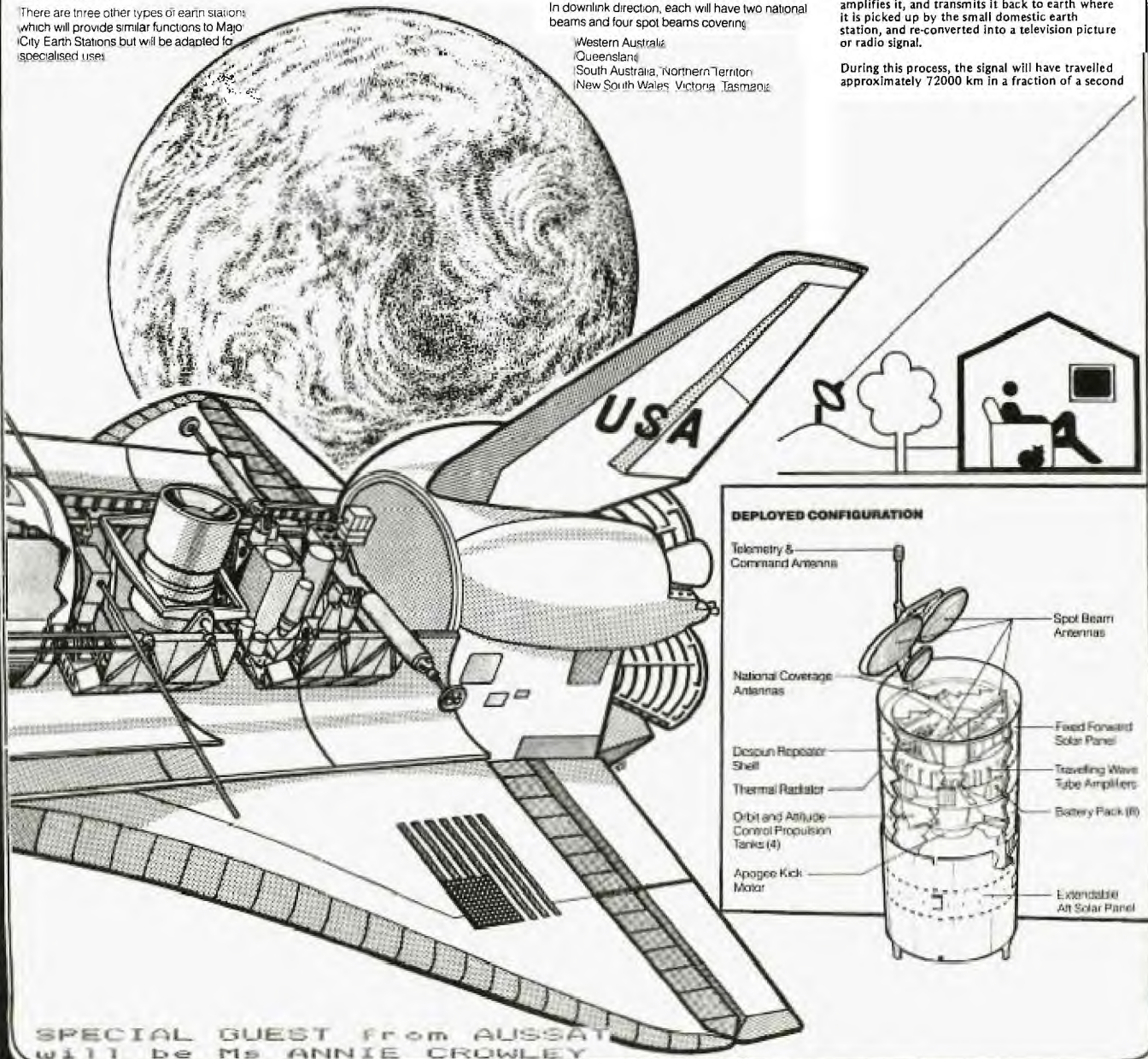
Over 300,000 Australians in outback communities and remote homesteads currently do not have radio and television reception.

When the satellites are launched in 1985, people in these areas will, for the first time, be able to receive the same ABC programs as city people, under the Homestead and Community Broadcasting Satellite Service (HACBSS).

All that will be required by each household is a dish-shaped antenna approximately 1.5 metres in diameter, a cable running from the antenna to the television set indoors, and a frequency conversion device called a 'down-converter' that sits on top of the television set. Each dish and converter is expected to cost around \$1000.

Programs produced in television and radio studios will be sent to the satellite via city-based earth stations. The satellite receives the signal, amplifies it, and transmits it back to earth where it is picked up by the small domestic earth station, and re-converted into a television picture or radio signal.

During this process, the signal will have travelled approximately 72,000 km in a fraction of a second.



Sydney News Digest

The following article was written by ROLF SCHREIBER of the T.I.S.H.U.G ILLAWARRA REGIONAL GROUP.

TAPE TO DISK FILE TRANSFERS

Transferring large programmes from cassette to disk becomes impossible if the programme is larger than 12.5K (with XB) even after a CALL FILES(1) command. Attempting to load larger files will result in an "ERROR IN DATA" message. The only way to load such large files is to disable the disk drive prior to loading from cassette. Under these circumstances files as large as 13.6K (56 sectors on disk) may be loaded.

The trick is then to switch the drive back on again with the programme still in memory. The programme can then be SAVED to disk in the normal way. The following procedure will allow you to do precisely that:

1. Select Extended Basic.
2. Type CALL INIT and press ENTER
3. Type in CALL LOAD(-31888,63,255) and press ENTER
4. Type NEW and press ENTER
5. Load the programme from cassette in the usual way using OLD CS1
6. Type CALL PEEK(-31952,A,B,C,D)::PRINT A;B; C;D and press ENTER
7. Write these values down on paper.
8. Press FCTN = to QUIT to the MAIN SCREEN
9. Select Extended Basic.
10. Type CALL INIT and press ENTER
11. Type CALL LOAD(-31952,A,B,C,D) and ENTER, using the values obtained for A,B,C,D in Step 6
12. The programme may now be LISTED and SAVED in the usual way using DSK1.filename
13. The programme is stored as an INT/VAR 254 file and can only be loaded and RUN from Extended Basic. It can no longer be SAVED to cassette.

The procedure for TI BASIC files requires the use of MINI MEMORY. After disabling the disk drive, the programme is loaded into VDP (console) memory with the OLD CS1 command and then SAVED to EXPANSION memory with the SAVE EXPMEM2 command. The console is then switched off and on again and the file loaded back into VDP memory with the OLD EXPMEM2 command. The file can then be SAVED to disk in the usual way. Please note that the MINI MEMORY MUST be in the cartridge slot with TI BASIC selected. To load the file back into memory the reverse procedure will have to be followed. The program will be too large to allow RUNNING with the disk drive on, so the drive must be disabled after the program is loaded. This releases another 1052 bytes, even after a CALL FILES(1) command. It also means that the MINI MEMORY must be attached and TI BASIC selected in order to be able to RUN these large files from DISK!

- The steps are set out below in detail:
1. Insert the MINI MEMORY module and select TI-BASIC.
 2. Type CALL LOAD(-31888,63,255) and press ENTER
 3. Type NEW and press ENTER
 4. Load the program from cassette into the computer in the usual way using OLD CS1
 5. When the program has been loaded and the cursor has re-appeared, type in SAVE EXPMEM2 (assuming that you have a 32K memory expansion attached; the method won't work without it.)
 6. QUIT the computer by pressing FCTN=
 7. Select TI-BASIC again.
 8. Type CALL FILES(1) and press ENTER
 9. Type NEW and press ENTER
 10. Type OLD EXPMEM2 and press ENTER
 11. SAVE the file to disk in the usual way.

RUNNING LARGE TI-BASIC PROGRAMS FROM DISK

To load and RUN the file from disk, follow the procedure shown below:

1. Insert the MINI MEMORY module and select TI-BASIC.
2. Type CALL FILES(1) and press ENTER

3. Type NEW and press ENTER
4. Load the file from disk in the usual way using DSK1.filename
5. SAVE the file to Expansion Memory with the SAVE EXPMEM2 command.
6. Switch off your disk drive by ENTERING CALL LOAD(-31888,63,255) followed by NEW and ENTER
7. Type in OLD EXPMEM2 and press ENTER
8. RUN the program in the usual way.

PLEASE NOTE THE FOLLOWING POINTS:

1. Switching the CONSOLE (only) OFF and ON again, typing 'BYE' or QUITTING by pressing FCTN= are the 3 ways to switch the disk drive back on again after it has been disabled. Any of these ways may be used.
2. DON'T access the disk drive after the CALL LOAD which disables the drive, or the computer will LOCK UP!
3. There is no need to use the CALL INIT command with the MINI MEMORY module.
4. This procedure will allow you to RUN any TI-BASIC programs from disk which previously used to crash with MEMORY FULL IN errors.
5. TI-Basic programs using data files can also be RUN if the data file is transferred to EXPMEM1 or MINIMEM prior to the disk drive being disabled. You will need to write your own BASIC program to effect the transfer.



USING JOYSTICK AND UPPER CASE TOGETHER.

by Ross Mudie.

There is a conflict of convenient operation in the TI99/4a when a program calls for either a joystick UP or return of upper case alphabetical characters from the keyboard. The ALPHA LOCK must be up for the joystick to respond to an "UP", but then the SHIFT is required for the upper case alphabetical characters.

If the program does not require lower case alphabetical characters then by executing "CALL KEY(3,K,S)" once early in the program the keyboard routines will return upper case alphabetical characters only (numbers etc will be unchanged) for the following functions:

INPUT in Basic
INPUT,LINPUT,ACCEPT,ACCEPT AT in X-Basic
KSCAN unit 00 in an assembly routine LINKed from an X-Basic program.

This feature can also be handy if your program uses ACCEPT AT(r,c)VALIDATE(UALPHA) if you wish to avoid the wrong tone when you forget to SHIFT if ALPHA LOCK is out.

To reset the computer to return lower case again in a program simply execute "CALL KEY(5,K,S)".

CALL KEY(3,K,S) and CALL KEY(5,K,S) may of course be used as required throughout a program purely to switch the keyboard mode for use by INPUT, ACCEPT AT etc, without making any use of the values in the return variables K and S.

By the way, in X-Basic if ACCEPT is used (without AT) it will allow the INPUTting of a string up to 255 characters in length from the key board. Use DISPLAY or PRINT for the prompt, eg,

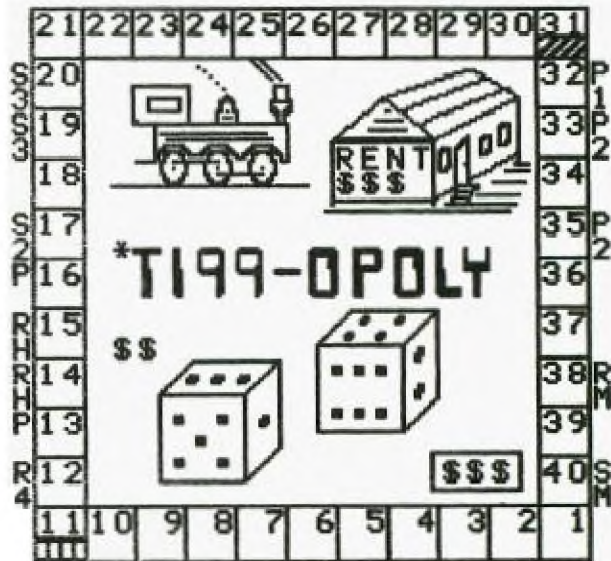
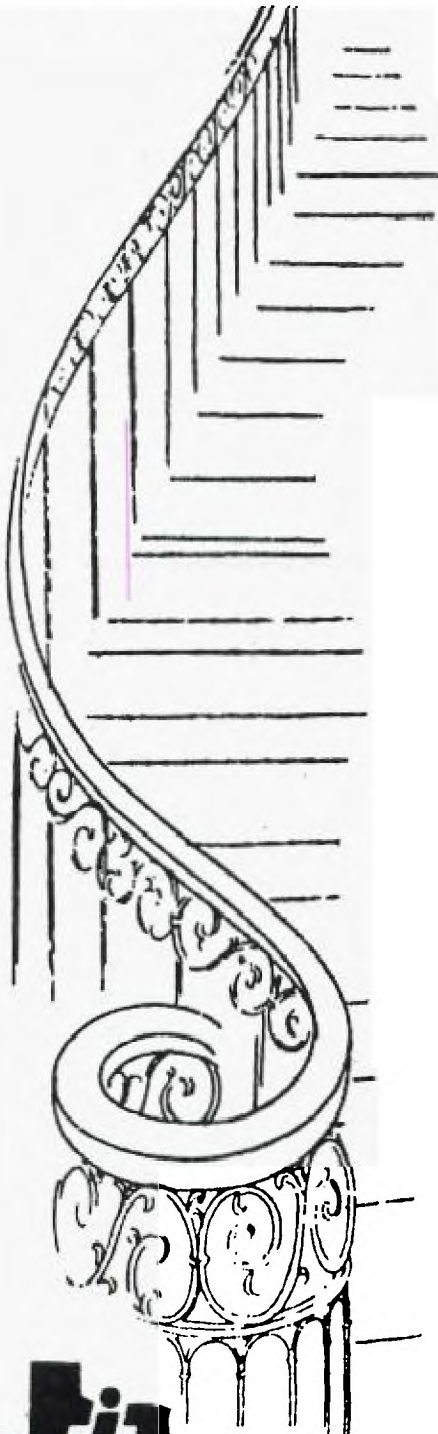
```
100 PRINT "ENTER STRING FROM KEYBD MAX 255 CHAR"  
110 ACCEPT S$  
120 PRINT "THE CHAR COUNT WAS";LEN(S$)  
130 PRINT S$
```

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Come up and see us some Time! **IMAGIC**

LOGO (Turtle) TUTORIAL with Mike Statterly



This is the fourth in the series of UNDERSTANDING LOGO. This time I will be examining some more of the commands and options which are available in TURTLE MODE.

The first and most dramatic is, of course, color. Two commands are used to control color. The first is SETCOLOR or SC. This controls the color in which the turtle draws its track. If not specified the default is black and remains so until altered. When using SC a value between 0 and 15 must be specified, or else the name of the color can be used. When using the name eg. GREEN, the name must be immediately preceded by a colon : eg. SC :GREEN. No space should be left between the colon and the name of the color or an error message will result. To see the effect try

```
TELL TURTLE
SC 2 FD 50
```

This will draw a green line. Try other colors to see what you get. A complete listing of the colors available is as follows

0 CLEAR	8 RUST
1 BLACK	9 ORANGE
2 GREEN	10 YELLOW
3 LIME	11 LEMON
4 BLUE	12 OLIVE
5 SKY	13 PURPLE
6 RED	14 GRAY
7 CYAN	15 WHITE

For a faster illustration try the following program

```
TO BOX1 :COL
CS SC :COL
REPEAT 4 [ FD 50 RT 90 ]
END
```

You can now enter the number of the colors from 0 to 15 to see the effect of changing the colors.

You can change not only the color the turtle draws but also the background color. To do this you need to specify two colors and both of these must be enclosed by square brackets [] eg. SC [2 8]

Try different combinations to see which you like best. Naturally if you specify the same color for both foreground and background you will not be able to see the track, but only a colored square.

What happens if you draw a line through a square or cross a line which has already been colored? Try it and see.

The preceding example to show the colors available can be rewritten so as to avoid having to input each color separately. Change the program as follows;

```
TO SEECOLOR :COL
CS SC :COL
REPEAT 4 [ FD 80 RT 90 ]
WAIT 120
SEECOLOR :COL + 1
END
```

Enter SEECOLOR 1 and the program will draw all the colors in turn. WAIT 120 is a delay line which causes the program to pause for two seconds (120 * 1/60 sec) to allow you see the color otherwise they change too quickly.

To see the effect of changing both foreground and background, amend SEECOLOR as follows:

```
TO SEECOLOR :COL1 :COL2
CS SC [ :COL1 :COL2 ]
REPEAT 4 [ FD 80 RT 90 ]
WAIT 120
SEECOLOR :COL1 + 1 :COL2 + 1
```

Enter different values for :COL1 and :COL2 and the program will draw a thin colored line on a different color square.

COLORBACKGROUND or CB. With this you can change the color of the whole screen. You can enter it as either CB 2 CB :GREEN, COLORBACKGROUND 2 or COLORBACKGROUND :GREEN CB 0 and CB 1 do the same thing. This is because 0 is clear and it allows you to see through the screen to the black interior of your TV.

To avoid having to input a variable in a procedure, you can pre-define it. However you must do it in a separate procedure if you want to alter the variable during the execution and then re-execute the same procedure using the new value. If you do not do this the variable will be reset to the initial value specified.

Variables are defined by using the "MAKE" command as follows:

```
MAKE "A 2
```

This sets the variable :A to a value of 2, and can be used as follows:

```
TO DRAW
MAKE "A 50
REPEAT 4 [ FD :A RT 90 ] FD 50
DRAW
END
```

There is little value in predefining a variable in this example although it would work. Of more use would be to define a variable and use it in a procedure with inputs, eg. in SEECOLOR :COL above you can set the initial value of :COL to any value and then let the procedure run on, but it must be done in a separate procedure eg.

```
TO C
MAKE "COL 1
SEECOLOR :COL
END
```

You only need enter C to get the procedure SEECOLOR to run.

Note that the variable being defined is always preceded by quotes rather than by a colon. Using the colon as normal with variables in the MAKE command will only result in an error message.

Using MAKE and colors can spruce up the use of LOGO and make it more interesting to look at. More next month.

CLASSIFIED ADD SECTION

WANT TO BUY:

RS232 & P.CODE CARDS
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Phone (w)2659266 ask for Serge, or (h)6361609 a/h

H*E*L*P !!!

I have a USCD PASCAL! and I am having trouble finding out how to use it properly. If there is anyone out there who can help me, please phone (02)699 8481 from 7pm Ask for Charles.

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Sydney News Digest

The following small program was written by Ron Alomes a member of our group here in Tasmania and is excellent for any member who has not had a go at putting any assembly language programs at all into the MINI MEMORY MODULE. Ron himself states that the program itself does not do a lot when it is "RUN" but is a good starting point for new members with MINI MEMORY and a cassette tape recorder to get off the ground with entering an assembly program. Follow the next steps with care. Place the M/M module in the console and select EASY BUG from the menu, then proceed to load the tape version of the Line by Line Assembler that came with the module, by pressing L twice and then follow the instructions, when the tape has loaded you can QUIT the EASY BUG and then re-select from the main menu MINI MEMORY after this select the "RUN" option and a prompt for program name will appear, your name to enter here is NEW and the program below will be ready to be keyed in at this stage. Pay attention to the spaces between characters, the notes on the far right are not needed for the program to run, just for your benefit.

7D00	060B	DATA >060B	
7D02	FF80	DATA >FF80,>0000,>0000,>0080	
7D04	0000		
7D06	0000		
7D08	0080		
7DOA	C020	MOV @>7D00,RO	VDP Ram address
7DOC	7D00		
7DOE	0201	LI R1,>7D04	CPU address where data will be placed
7D10	7D04		
7D12	0202	LI R2,>0005	Read 5 bytes
7D14	0005		
7D16	0420	BLWP @>6030	VMBR goto read
7D18	6030		
7D1A	0220	AI RO,>0008	Get new VDP address
7D1C	0008		
7D1E	C800	MOV RO,@>7D00	Save new VDP address
7D20	7D00		
7D22	0205	LI R5,>0005	Load byte counter
7D24	0005		
7D26	DOE5	MOVB @>7D03(R5),R3	Get byte to change
7D28	7D03		
7D2A	0913	SRL R3,1	Move chr right one pixel
7D2C	F0E0	SOCB @>7D03,R3	Add mask value >80
7D2E	7D03		
7D30	D943	MOVB R3,@>7D03(R5)	
7D32	7D03		
7D34	0605	DEC R5	Decrement R5
7D36	16F7	JNE >7D26	Jump if not=0
7D38	C020	MOV @>7D00,RO	Get VDP address
7D3A	7D00		
7D3C	0220	AI RO,-11	Adjust to correct address
7D3E	FFF5		
7D40	0201	LI R1,>7D02	CPU address of change chr
7D42	7D02		
7D44	0202	LI R2,>0008	N° bytes to eight
7D46	0008		
7D48	0420	BLWP @>6028	Write
7D4A	6028		
7D4C	0280	CI RO,>06D0	Last address
7D4E	06D0		
7D50	16DC	JNE >7DOA	No-go again
7D52	0200	LI RO,>060B	Start address
7D54	060B		
7D56	C800	MOV RO,@>7D00	Reload start address
7D58	7D00		
7D5A	045B	B *R11	Return

When you have entered the listing correctly at 7D5A type END and press enter twice to get back to the main menu, to give the program a name select two from that menu and then the prompt will ask your name, at this stage use NEW again and you will be back where you started, then enter as follows....

```
AORG >7FEB
TEXT 'DEF          (3 spaces) after DEF
DATA >7DOA
```

You can then get out of the EASY BUG as before, select BASIC from the menu and key in the following small basic program to see the results of your efforts

```
10 CALL CLEAR
20 CALL LINK("DEF")
30 INPUT A
40 IF A=0 THEN 70
50 PRINT CHR$(A)
60 GOTO 30
70 END
```

It is good to get input from other members within the user group and I thank Ron for his effort this month, come on all you others get up and have a go, Christmas is over.

TIPS FROM THE TIGERCUB

#19

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TIGERCUB SOFTWARE
156 Collingwood Ave.
Columbus, OH 43213

Distributed by Tigercub Software to TI-99/4A Users Groups for promotional purposes and in exchange for their newsletters. May be reprinted by non-profit users groups, with credit to Tigercub Software.

The entire contents of Tips from the Tigercub Nos. 1 through 14, with more added, are now available as a full disk of 50 programs, routines and files for just \$15.00 postpaid!

Nuts & Bolts is a diskfull of 100 (that's right, 100!) XBasic utility subprograms in MERGE format, ready for you to merge into your own programs. Contents include 13 type fonts, 14 text display routines, 12 sorts and shuffles, 9 data saving and reading routines, 9 wipes, 8 pauses, 6 music, 2 protection, etc., and now also a tutorial on using subprograms, all for just \$19.95 postpaid!

And I have about 140 other absolutely original programs in Basic and XBasic at only \$3.00 each! (plus \$1.50 per order for cassette, packing and postage, or \$3.00 for diskette, PPM) Some users groups charge their members that much for public domain programs! I will send you my descriptive catalog for a dollar, which you can then deduct from your first order.

Folks, I just can't afford to keep mailing out these Tips if you don't BUY something once in awhile! I am hearing from more and more groups who want to get on my mailing list, but I am having to cut back. I am dropping those groups which don't give any indication that their members ever get to see the Tips, and I'll have to cut further. If you do send me an order, or even ask for my catalog, mention your users group so I'll know there is someone still alive out there!

If you know of any schools in your area, especially elementary schools, that have TI-99/4As in the classroom, won't you please give me their address? I'll send them a free catalog.

Danny Michael has improved his graphics screen dump to include rotate and double size! It is in

→

Sydney News Digest

A TEMPERATURE PROBLEM IN DISK SYSTEM.
by Ross Mudie of T.I.S.H.U.G.

The disk system was failing regularly, the disk drive light comes on, the disk runs, then fails with error 56 or 66 (from BASIC or EXBASIC) or error 6 from Editor Assembler. A cleaning disk did not cure the problem.

My Expansion Box (PHP1200) has no p.c. board modules in positions 4,5,6 & 7 with the disk controller module in position 8 and a TI PHP1250 disk drive (which is a Shugart 400L) is fitted in the standard position in the expansion unit. The fan in the Expansion Unit draws the air in the back of the unit behind the printed circuit boards, p.c board modules then via holes in the front inside wall of the unit, along inside the front of the expansion unit, then out via the fan. Air flow through the disk drive is via the front opening of the drive, past the connector area of the drive. The air then passes along the left hand side of the drive and via some small holes in the end of the front air duct.

Due to inadequate airflow through the drive, especially when the door was closed, the drive was failing from over heating when the ambient temperature was high. The fact that there are no modules in positions 4 to 7 allows reasonably unimpeded airflow into the front air duct in this area, reducing air suction through the both the disk controller module which is after the empty spaces and especially the disk drive.

THE ULTIMATE CURE.

It was clear that there simply wasn't enough air flow through the disk drive on hot days and nothing could be done with the expansion unit as it was to improve the situation.

An 80mm fan was purchased (Dick Smith cat Y-8505 \$19.95) and installed on the outside back of the expansion unit in the lower part of the back wall of the disk drive area. The fan pulls air through the drive from front to rear. Whilst it would be better to filter the air through the drive, this would require blowing air through the drive from rear to front with a filter on the fan inlet. The air at the rear area of the expansion box is already warm from the other fan and blowing already warm air through the drive is simply asking for it to fail, (and it does).

The expansion unit must be fully dismantled for this fitting which requires the cutting out of a large hole for the air flow of the fan. This is not recommended for a person unfamiliar with metal work or electronics. Take special care to remove all metal filings and drillings. I found that the easiest place to pick up 240V was to cut the wires after the front panel switch and to instal a small barrier strip in place of a plastic wiring clip just behind the switch. The new fan should be individually fused since connection via the expansion unit fuse is impractical. To prove the point I also fitted a switch adjacent to the new fan, operating the system until the drive failed then turning the fan on and the system worked again in a few minutes.

Exercise care when reassembling the expansion unit as the metal shield beside the power supply will do an excellent job of cutting into your new power wire to the fan if it is not tucked down properly.

I have heard of one other case of this problem besides my own. The method of proving the point when the drive fails is to remove it from it's normal position and operate it on the table in front of the expansion box with it's cover removed.



assembly, very fast, and runs out of XBasic, E/A module or Mini Memory. He has also written an assembly Neatlist program which lists an XBasic program to a printer in single line statements, indented, expanded, etc., very useful for debugging, setting up pre-scan, etc.

These are freeware, pay if you want and whatever you want. Just send an initialized disk for either one, or two disks (or SSD or floppy) for both, in a returnable mailer with ENOUGH RETURN POSTAGE, to

Danny Michael,
Rt 9 Box 460
Florence, AL 35630.

John Hamilton of the Central Iowa Users Group will send you his 22-page booklet of "99 Tips" for the TI-99/4A, for just \$4.00. The address is

John Hamilton,
4228 E. Clinton, Des Moines IA 50317.

I have been experimenting with TI-Writer, and this issue of the Tips is being printed in 4 columns, right justified directly from the printer. Here's how -

Use TI-Writer, editor mode, in any line length you want. The first line should be .RM 27;F1;AD but don't use any other formatter codes. Don't indent paragraphs. Use some other character as a temporary substitute for any ^, @, & or \$ in the text. Don't include any program listings, yet.

Save the file as DSK1.TEXT. Print an edit copy. Then go into formatter mode. Select DSK1.TEXT to be printed, but instead of your printer spec, type DSK1.TEXT2. Your file will now be in 28-column format and right justified, and indented.

If the text is to include any program listings, run them through my 28-Column converter (see Tips #18), using the Editor option of that program.

Go back to TI-Writer editor and load DSK1.TEXT2. Merge in the program listings. Then PF to print file, but instead of a printer spec, type C DSK1.TEXT3. When it has printed to disk, LF the DSK1.TEXT3 and you will find that all control characters are gone.

Now for a bit of editing. Delete the 3 blank lines at the beginning, and the 6 blank lines that have appeared after every 60th line. Center the title by

erasing with the space bar and retyping - do NOT use FCTN 2! Also replace any temporary characters with the ^, @, & or \$.

You will print 4 columns of 60 lines per page, so the total lines in your file must be a multiple of 240. Add enough blank lines to the end of the file to reach that count.

Save that file back to disk as DSK1.TEXT3. Now go into XBasic, key in this program and RUN!

```
100 OPEN #1:"DSK1.TEXT3",INP
UT : OPEN #2:"PIO",VARIABLE
255 : PRINT #2:CHR$(15);CHR
$(27);CHR$(69);: DIM B$(240
)
110 FOR A=1 TO 2 : FOR B=1
TO 240 : LINPUT #1:B$(B);:
NEXT B
120 FOR C=1 TO 60 : PRINT #
2:TAB(10);B$(C);TAB(41);B$(C
+60);TAB(72);B$(C+120);TAB(1
03);B$(C+180);: NEXT C : PR
INT #2:CHR$(27);CHR$(97);CHR
$(8);: NEXT A : CLOSE #1 :
CLOSE #2 : END
```

The A loop is for a 2-page printout of 480 lines, of course.

You can modify this routine to print in 2 or 3 columns, adjust the margins, change the type font or size, rewrite for your own printer, etc. And the column width can be anything you want, just change that .RM 27 in the first line of the text (don't forget that the left margin is set at 0, not 1).

If you want a 2-column page, you can dup the file back to disk instead, and then print it out of TI-Writer editor. Use this routine, modified as you wish.

```
100 !Opens a file TEXT3 of 2
40 lines 35 char long and co
nverts it into a file which
can be printed out of TI-wri
ter Editor as 2 pages in 2 c
olumns
110 OPEN #1:"DSK1.TEXT3",INP
UT : OPEN #2:"DSK1.TEXT4",O
UTPUT : DIM B$(120)
120 FOR A=1 TO 2 : FOR B=1
TO 120 : LINPUT #1:B$(B);:
NEXT B
130 FOR C=1 TO 60 : PRINT #
2: " &B$(C)&RPTS(" ",38-
LEN(B$(C)))&B$(C+60);: NEXT
C : FOR D=1 TO 6 : PRINT #
2: " " : NEXT D : NEXT A :
CLOSE #1 : CLOSE #2
```

It is best to run a program to set up your printer, and leave it turned on, before printing that file out of the Editor. It is not at all easy to label control characters in the file, because they affect the line in all columns and also shift the lines out of alignment.

REGIONAL NEWS

A report of meetings and times of our Regional Home Groups around Sydney and New South Wales.

— New South Wales. —

TEXAS INSTRUMENTS

TI-99/4A



ILLAWARRA

REGIONAL REPORT

The change in meeting format has been very well accepted. Last meeting Rolf Schreiber gave a demonstration on PLATO Courseware. It is the aim of this sub-group to provide education in using the TI-99/4(A).

Next month's meeting has a topic of "THE POWER OF EXTENDED BASIC". Several members are going to concentrate on a number of sections.

NEXT MEETING: 15th April at St. Matthews Church Hall, Phillip Cres. Mangerton. CONTACT: Bob Montgomery on (042) 28 6463 for details.

Hope to see there.!!!

*
BANKSTOWN REGIONAL GROUP
*

Hi there once again from David & Paul. Our last meeting was again host to a very welcome guest speaker, Shane Ferrit. Turn out was reasonable, although we want to see more members turn up next time.

We witnessed the demonstration of some new programs written by Shane (he really does work hard), including a disk version of mini memory editor/assembler.

We are still waiting for members or prospective members for some feedback on the changing of our meeting nights to a more suitable night (say, a week night), as it seems to be the only explanation for the small turn-out at our fantastic meetings.

By the way, Paul, one of the Bankstown Regional Group co-ordinators, is looking for a P.E. Box (without cards).

Once again, for any interested persons, here is the meeting address: 15/479 Chapel Rd Bankstown, 2200. Phone 708 4293 (for David) or 70 1152 (for Paul).

Bye bye for now, David and Paul.

TI.S.L.U.G SUTHERLAND REPORT
For those of you who live in the Southerland/Engadine area, please contact LORRAINE ASKBROOKE on(02) 5204932. Our Regional group holds its meeting on the last Saturday of each month. The next one is 27th April at 2pm at 163 Cooriengah Heights Rd, Engadine. So, if you live in this area, we need your support by simply being there, and sharing with each other, the many aspects of computing.

MARRICKVILLE/GLEBE REPORT
The next meeting will once again be held at the home of Mike Slattery, 43 Boyce St, Glebe on the 2nd Tuesday of the month at 8pm. For more details phone (02) 6920559 after 8:30pm most nights.

SOME OF THE REGIONAL GROUPS ARE SMALL IN SIZE BUT WARM IN FRIENDLYNESS...SUPPORT YOUR REGIONAL GROUPS WITH YOUR ATTENDANCE, OR ELSE YOU WILL FIND THEM NO LONGER AROUND TO GIVE YOU THEIR SUPPORT. REGIONAL GROUPS ARE HOME GROUPS OF TI.S.H.U.G AND AN OPPORTUNITY FOR YOU TO GET-TOGETHER AND SHARE TOGETHER. CONTACT YOUR LOCAL REGIONAL GROUP NOW, AND LET THEM KNOW YOU'LL BE THERE AT THEIR NEXT MEETING.

CENTRAL COAST REPORT
Music Co-Ordinator Russell Welham is the leader of this group and he can be contacted on (043) 924000. The next meeting will be conducted on the 3rd Saturday (20th April) 1:30pm to 4:30pm at the home of Mrs Cummins, 48 Manoa Rd, Budgewoi. For further details with phone her on (043) 909648 or Russell on the above number. See you there...cause we care.



LIVERPOOL REGIONAL REPORT

Meeting of 8th March '85
This meeting was held at the premises of Mr Cyril Bohlsen of Northmead, once again was a meeting providing some considerable interest to many of the sixteen persons present. Cyril recently acquired a "CORCOMP" expansion system, 32k and RS232, which was put thru it's paces and passed with flying colours. Cyril designed and built his own power supply, and disk drive compartment as a stand-alone and it really proved the value of the Chinon drive he obtained through Rob Peverall.

The theme for this meeting was "STRUCTURED PROGRAMMING" presented by Ross Hardy, the information provided was well received.

INTERESTED IN ASSEMBLY LANGUAGE? Many of the members of our group are interested in acquiring, even if only cursory, the fundamentals of Assembly programming, to that end we enticed Peter Skarpetis to provide tutition for a class of 10 to 15 persons, on Wednesday evening at Moorebank. He is intended to hold 10 weekly classes of 1.5 to 2 hours duration. To cover travelling expenses and provide a little income to cover Peter's Uni studies a fee of \$3.50 will be charged. Any person interested; please contact either STAN PUCKLE on (046) 256 157 or HANS ZECEVIC 600 8716 a/h.

We would be interested in hearing from any individual who might have access to a hall or the like, hopefully free of charge, to contact either of us, we were thinking of the BANKSTOWN/STRATHFIELD area.

FORTHCOMING MEETING

APRIL 19th, STEVEN CARR, AIRDS. THEME: Programming hints.

MAY 10th, DAVID BALL, 622 9280 SEVEN HILLS. THEME: SUBROUTINE COLLAGE.
JUNE, Moorebank, JULY, St. CLAIR.

ALL TI.S.H.U.G MEMBERS WELCOME. See you there—cause we care!

Just received a letter from Joshua Velling, who writes: I have moved to BATHURST, and want to start up a Regional Group here. If there are any members who live around BATHURST, drop me a line via the club address, and they will pass it on to me.
SEE YOU THERE 'CAUSE WE CARE

Sydney News Digest

SHORT REVIEW OF NEW HARDWARE FROM T.I.S.H.U.G.

One of our enterprising members, Peter Schubert, has created another hardware device. You may remember that unique MODEM ON-A-CARD that's placed into the P.E.BOX, and the 32K card KIT he has co-designed and made available for members who like to solder their own hardware. Well, now he has come up with a STAND-ALONE 32k box that you don't need a Peripheral Box to connect into. You simply plug it onto the side of your TI. Here are some of the technical details...

*****NEW ACCESSORY FOR CONSOLE*****

Designed and constructed by TISHUG member Peter Schubert...TEXPAC BBS Username:PETESAKE with a totally new 32K MEMORY EXPANSION, Using CMOS STATIC MEMORY CHIPS (considered to be the best available) this free-standing unit measures approx 200 x 100 mm and can be powered from Console alone or DC pluggak (100mA) A special purchase arrangement for TISHUG MEMBERS supplies us with limited stocks of the 6264 memory chips at less than HALF PRICE THE 32K BOX allows the use of any existing accessories and future ones that will soon be made TESTED AND GAURANTEED FOR \$200* Pluggak version \$15 extra if require. If you are interested (and who wouldn't be), Phone PETESAKE on 02 358 5602 AH *only while special offer is available.

His next project is the stand-alone MODEM that will also just simply plug into your TI-99/4(A) Home computer, so you won't need to get all those other peripherals to enable you to logg on to the TEXPAC BBS. With the advent on Telecom's VIATEL system being introduced to Australias Home computer users, another member of our group, has written a special TERMINAL EMULATOR that lets you use the UDM-1200 modem at 1200/75 baud rate, so that you can connect up to VIATEL. See the article in this issue of the SND for details of this system. The author of the TI-VIATEL Terminal program is Robert Crago, who also wrote out TEXPAC protocol software.

CONSOLE WRITER - A REVIEW

This software package from Navarone Industries Industries will be keenly sought by those unable to expand into a full system. The Console Writer, as its name suggests is a word processor in module form that does not require the 32K expansion system to operate. Nor does it require a disk drive for storage and retrieval as this can be done quickly with a cassette recorder. Before you rush out and buy one of these a word of warning. They WILL NOT operate with the later models of the TI computer - the one with the 1983 copyright title screen. To run it on this model you will also need a Grombuster also available from Navarone Industries.

On inserting the module and selecting Console Writer you are confronted with the master menu screen. There are 6 choices each described in this review.

1. Set Screen Color - allows you to set background and foreground colors also the enhanced line bar and text color. Virtually any combination within the limits of available colors can be selected. I particularly like the black on green with white letters in a blue enhanced line.
2. Set Up Printer - the default option is P10 but other device names such as RS232 and AXIOM are available.
3. Get Document File - loads a document previously saved to tape or disk.

(CONTINUED ON JENNY'S YOUNGER SET PAGE) →



YOU ARE INVITED TO ATTEND A SPECIAL
T.I.S.H.U.G TOUR...
Please read on for all the details:-

=====

T.I.S.H.U.G TOUR OF XIDEX FACTORY

=====

- 1) USER GROUP TOURS CAN BE ARRANGED AND THE OFFER HAS BEEN EXTENDED TO US.
- 2) BEST TIMES FOR THE MANAGEMENT ARE ON MONDAY TUESDAY OR WEDNESDAY EVENINGS.
- 3) STARTING TIME 7.00PM AT GLADESVILLE.
- 4) DURATION OF VISIT IN THE RANGE 1-1 1/2 HOURS.
- 5) SUGGESTED SIZE OF GROUP 12-14 PERSONS. DONT DESPAIR - WE CAN HAVE MORE THAN ONE GROUP VISIT.
- 6) MEMBERS WISHING TO PURCHASE ON THE EVENING CAN DO SO.
- 7) 2 WEEKS PRIOR NOTICE IS PREFERRED BUT SHORT NOTICE CAN SOMETIMES BE ARRANGED
- 8) VISIT INCLUDES INTRODUCTION TO THE INS AND OUTS OF FLOPPY DISKS (NO DOUBT WITH SOME FAVOURABLE COMMENTS ABOUT XIDEX) AND A TOUR OF THE FACTORY.
- 9) WHITE COAT AND CAPS SUPPLIED BY XIDEX.
- 10) I THINK IT SOUNDS GREAT AND HOPE WE CAN GET A GROUP TOGETHER VERY QUICKLY WITH MORE TO FOLLOW.
- 11) A COUPLE OF COMMENTS THAT MAY ASSIST IN ATTRACTING ATTENTION :- THE NOTED JAPANESE DISK MANUFACTURER DYSAN IS A WHOLLY OWNED SUBSIDIARY OF XIDEX? Y/N.
XIDEX DISKS ARE MANUFACTURED IN AUSTRALIA? Y/N. ANSI STANDARDS REQUIRE ONLY 20% SIGNASTRENGTH TO REMAIN ON THE DISK AFTER INITIAL WRITE? Y/N.
(THE CORRECT ANSWER TO ALL THE ABOVE IS YES).

If you are interested in joining with us for a group tour...please write to T.I.S.H.U.G TOUR EVENING, P.O. BOX 595, MARRICKVILLE. N.S.W. 2205 and we will contact you with all the details. Please supply us with a contactable telephone number both work and home for this purpose. Members of the TEXPAC-BBS have just recently come back from one of these tours and have mentioned how interesting it was. Now you have this same opportunity, but you must act now.

Sydney News Digest

Jenny's YOUNGER SET under 18's page

Welcome to another under 18's column. Last month, I mentioned a new competition, in which I asked you to design a cartoon with a funny caption. I have received a few entries so far, but I must remind you that I must receive no less than 10 entries, or else this contest will not be judged. The prize is an ATARI-SOFT module for the TI called POLE POSITION. This prize is valued at around \$60 Australian and provides you with real 3D Car racing like the game seen in the ARCADE centres. The deadline for entries will be Saturday 4th May and the winner will be announced in the June issue of this SND. So, come on kids, start drawing those cartoons at get them to me C/- JENNY'S YOUNGER SET, P.O.BOX 595 Marrickville. N.S.W. 2204.

There is another contest being run, called the GRAPHX contest. See else where in this Newsdigest for details.

One of the entries for the cartoon contest, is from this Younger Set member...

DEAR JENNY,
MY NAME IS SHANE MARTIN. I AM 13 YEARS OLD. I HOPE YOU LIKE MY DRAWING AND HERE ARE SOME OF MY HIGHEST SCORES:
Star Trek: 869,600 Parsec: 469,500 Munchman: 39,330 TI Invaders: 14,800 Buckrogers: 188,395. THESE SCORES CAN BE VARIFIED BY MY MUM OR MY BROTHER. I HOPE THAT I CAN WRITE TO YOU AGAIN.
YOURS SINCERELY,
SHANE MARTIN of GOSFORD.

Thank you Shane. Nice to hear from you, and I look forward to hearing more from you.

Here's a letter from Ben at Keiraville NSW...

DEAR JENNY,
HI I'M BEN SALON AND I LIVE IN WOLLONGONG. I GOT TO THE TENTH FLOOR IN TUNNELS OF DOOM AND FOUGHT 55 DIFFERENT KINDS OF MONSTERS. MY HIT POINTS WERE 120 AND MY EXPERIENCE WAS 59,724. I HAD 21,378 GOLD PIECES AND RECOVERED BOTH THE KING AND THE RAINBOW ORB. THE DIFFERENT KINDS OF MONSTERS WERE...
Metazoids, Gremlins, Wolves, Vampire Bats, Shamblers, Spiders, Goblins, Evil Manes, Korbolds, Dark Slimes, Oozes, Dust Devils, Wrights, Skeletons, Zombies, Lemures, Cursed Ones, Orges, Lizards, Smoggs, Gnolls, Wild Dogs, Rats, Giant Rats, Imps, Snakes, Land Crabs, Demons, Pit Fiends, Dragons, Metaloids, Trolls, Serpents, Devourers, Hobgoblins, Orcs, Whiplashes, Pixies, Minotaurs, Buz Bombs, Hill Giants, Elementals, Scorpions, Will-O-Wisps, Frost Giants, Wynerns, Doman Kings, Tarantulars, Ghouls, Giant Wasps, Dragon Lords, Dragons, Vampires.
Have a happy 1985,
from Ben.

Wow! What a pile of monsters! Great to hear from you, now, send in your cartoon. You might be a lucky winner.

As you may have read, at the start of this SND, we'll be having some guests from AUSSAT with some great surprises at the next club meeting. This will be a good chance for you to win some more prizes. All you have to do, is study all that information about the Space



Shuttle and Satellites etc, then we will pick 6 members to be on our QUESTIONS & ANSWERS PANEL. If you have the most correct answers, you will be a big winner.

It's up to you...you have only a short time to study those two pages, so get cracking.

Here is a small program to try out, from Anthony Shaw. He demonstrates how to have scrolling STARS from right to left. An ideal routine for any space games you may be working on.

```
10 REM BY ANTHONY SHAW
11 B=1
100 CALL CLEAR
110 CALL SCREEN(2)
120 RANDOMIZE
130 CALL CHAR(136,"1")
140 X=1+(RND*256)
145 B=B+8
150 A=A+1:: IF A>28 THEN 190
160 CALL SPRITE(#A,136,16,B,X,0,-8)
180 GOTO 140
190 GOTO 190
```

*See you next month
Jenny*

CARRIED FORWARD FROM PREVIOUS PAGE:
Review ...

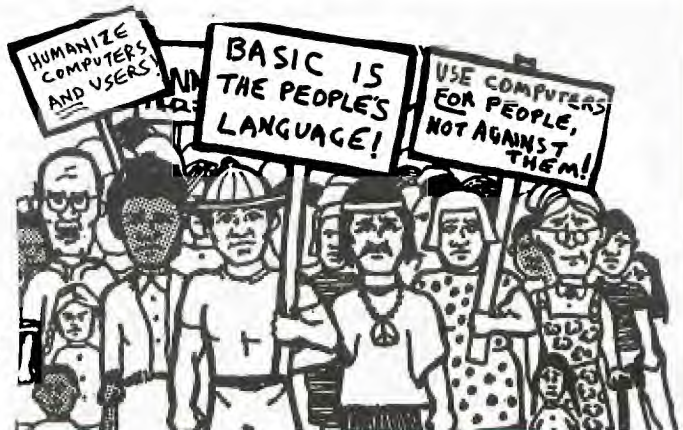
4. Edit Document - your working mode where you enter text. Full 80 character display is available in 3 windows similar to TI Writer. Columns are numbered along the top of the screen so you always know exactly where you are when composing your document. Also available is true lower case something that even TI Writer did not have in its original release. 110 lines of 80 character per line text can be entered before filling the memory. Full editing is supplied by use of the various function and cursor keys. e.g. Function 7 deletes a line and Function 8 inserts a line.

5. Save Document File - saves your document to either disk or tape. Files saved to disk are saved in DIS/VAR 80 format and are therefore compatible with TI Writer. I don't know in what format they are saved to tape but they are saved and loaded fairly quickly. A word of warning here. When saving to tape make sure that the tape leader is moved forward out of the way as the saving process starts immediately Enter is pressed.

6. Print Document - prints the document to the previously selected printer device name.

All up I think you will be very impressed with Console Writer. Perhaps its one drawback is that it does not wordwrap at the end of a line so you have to be reasonably alert to this or you can have half finished words on one line and the next few letters on the next line.

See the TISHUG SHOP column elsewhere in this issue for price and availability.



Secretary's Notebook with J.R.

Hi! Just before starting this article I finished the necessary planning for the P085 show. I would like to thank the following members for contributing some of their time to make the event a success:

Chris Potts	Fred Smith
Fred Morris	Chris Ryan
Ian Docherty	Sladimir Jabrzanski
Steven Carr	Paul Gunning
Daniel Harris	Terry Phillips
Bob Bunbury	Shannon Nash
Terry Johnsen	Norman Woolven
Glenn McCreadie	Peter Watts
Chris Roenne	Shane Andersen

Here's some advance news about a special function being planned for the Queen's Holiday weekend this June. TISHUG has joined the User Group Association, which is a new organisation formed from the twenty two Computer Clubs in the Sydney Metropolitan area. The UGA has planned a three day exhibition from June 8-10th at the Strathfield Girl's High School in Albert Road Strathfield. TISHUG will be holding a series of workshop tutorials over the three day period. The aims of the UGA are:

1. To increase memberships in the individual clubs by making the public more aware of these organisations.
2. Share common interests with other user's groups.
3. Establish a Central Buying Unit, which will enable members to purchase items such as disks, disk drives, printers, consumables etc. common to all makes of computer, at reduced costs.
4. Publish a User Group magazine, which will provide a forum for ideas, a showcase for new and updated hardware, software and news material.
5. Establish a place in the country to hold weekend computer camps.

We need a Logo for the UGA. If you would like to submit a design then either send it to me or contact Harry Richards, of the Kaypro User's Group on 7131585 after 7pm. The prize for the winning entry has yet to be determined, but there will be an appropriate reward. At the March General meeting the Auction of various items was conducted successfully by Peter Varga. We hope all those attending enjoyed themselves. A vote was taken on the two motions published in the January/February newsletter. The first was defeated and the second concerning the financial year was carried. Please alter your constitution as shown on page nine of the January/February newsletter.

At the February committee meeting it was decided to publish a new Bumper Book the profits going to the club to assist in the financing of the professional help we are now paying for. The committee would like to know how many members would be want TISHUG to import the INFOCOM Adventure software. Please drop me a line, or leave a message on the BBS.

Now to my review of the book entitled "LEARNING T199/4A HOME COMPUTER ASSEMBLY LANGUAGE PROGRAMMING", which is published by Wordware Publishing, Inc. Plano Texas. The copy sent to us by surface mail took over 5 months to arrive. The 330 page book is divided up into twenty chapters. The purpose of the book is to help you learn the basic concepts of TMS9900 assembly language. You will learn the instruction set and structure of assembly language programs. You can obtain a clear insight to the inner secrets of this powerful computer. I find the appendix A in the back of the book a most useful resource. The appendix gives a one page summary on each instruction. Each page lists the Mnemonic and Addressing Modes, the results of the instruction. A summary of the operation performed, the Status Bits affected, an example of the instruction and the machine code developed.

The difficulties encountered reading the Editor/Assembler manual to a large extent disappear after reading this book. An absolute beginner will find the text easy to understand. The chapter on the structure of data I found a trifle slow and boring, but this was no doubt to my scientific background and being familiar with HEX and BINARY notation.

The chapter on the anatomy of Assembly Language statements is a rerun of the Editor/Assembler manual but where the book really shines is with the treatment of the eight addressing formats used in TMS9900 assembly language. I recommend the book highly and your committee has voted to import 20 copies. The selling price has yet to be determined in view of the volatility of the US dollar at the moment. I expect the cost to be under \$30.

Turning now to my experiences with TI-WRITER and the C.Itoh Model 1550 dot matrix printer. This is the 15.5 inch version of the 8510 model. The comments that follow apply equally to both of these printers. To our North American readers the printer is known as a PROWRITER in the US and Canadian markets. The manual with this excellent printer is written in Japanese English and is very difficult to follow.

After taking delivery of the printer the first thing I had to figure out was the Decimal Codes for entering into the Transliterate Command .TL (See page 107) of the TI-WRITER manual. The syntax of this very useful formatting command is .TL X:Y,Z where X is the ASCII code for the character to be redefined, Y and Z the decimal codes for the printer. First I will summarise the Y and Z values:

FUNCTION	Y	Z
Pica print	27	78
Elite print	27	69
Proportionalprint	27	80
Compressed print	27	81
Enlarged print	14	
Cancel Enlarged	15	
Underlined start	27	88
Underlined stop	27	89
Bold start	27	33
Bold stop	27	34
1/6th in.Line Feed	27	65
1/8th in.Line Feed	27	66
Reverse Line Feed	27	114
Forward Line Feed	27	102

The value for X depends on which ASCII character you want to choose. I find for example < and > useful for turning the underline on and off as the & will not give a true underline. The ASCII code for < is 60 and for > is 62. Refer Appendix III-1 for the complete listing of ASCII codes. At the top of the document you would type .TL 60:27,88 and .TL 62:27,89. You must be sure not to use these characters anywhere in the document unless you want to turn the underline on and off. When formatting the document I find it easier to print the file to DSK1.xxxx instead of to the printer. You can load this file in to the Editor and print using the PF command. You can edit the document as required but make sure you put the cursor in the fixed mode! You can strip the line feeds using the Find String function. Use the keystrokes detailed in page 146 of the Manual. If you don't want to do this then suppress the line feed by using the code PIO,LF instead of PIO. Now for a quick tip to ensure you can print out TELL files on line properly formatted. Enable the line feed by closing SW1-6 and fix carriage return by closing SW1-8.

For those of you thinking of purchasing this printer second hand and requiring a TI compatible cable the pin configuration is as follows:

PIO pin	1	2	3	4	5	6	7	8	9	10	11	16
C.Itoh	1	2	3	4	5	6	7	8	9	11	19	17

Now to my mail....: Alan Rodgers from Mittagong writes: I was using minimem at the fatal moment and during its dying seconds the screen displayed the menu including 4. REVIEW/MODULE LIBRARY. Alan I suspect you have dirty contacts on your module and port. These should be cleaned as detailed in the SOTEX magazine. Alan goes on to mention the "TURBOTAPE" for the VIC and Commodore 64. He asks is a similar utility available for our computer. I have not heard of one but no doubt it is possible to develop the appropriate software. I guess the problem is whether or not there is a market for this product. I have my doubts as so many owners are upgrading their machine with disk drives.



with our

TECHNICAL CO-ORDINATOR

ROBERT P.

As there has been so much interest in building power supplies for disk drives I have a power supply circuit this month.

Also if anyone is still interested in the CHINON disk drives it may be possible to get some of these drives for \$250 (inc. tax) in one off quantities (these drives sell in SOFTEX for \$300 and will rise to approx. \$250 + tax). Anyone interested contact me as soon as possible.

Technical manuals are available for \$15 at club meetings or from the club Librarian (please add \$3.50 postage & handling).

If anyone has a technical problem or wishes to contribute technical articles then contact me (ROBERT) on -

602-4168 between 5.00-8.30 PM

PLEASE STICK TO THESE TIMES)

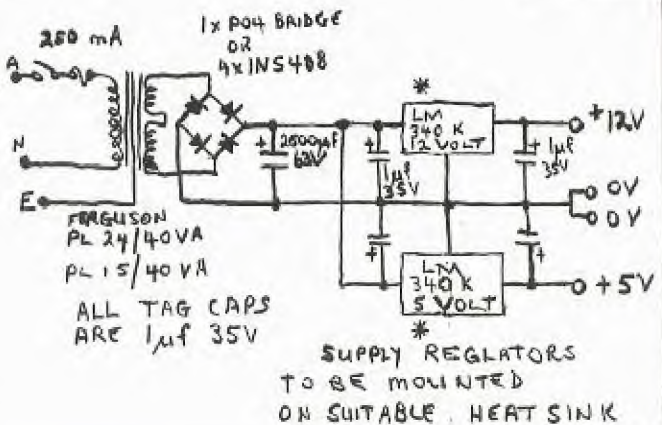
or send a letter to

TECHO TIME

P.O. BOX 595

MARRACKVILLE 2204

ANYONE WISHING TO OBTAIN INFORMATION, PLEASE SEND A SELF-ADDRESSED ENVELOPE (WITH SUFFICIENT POSTAGE STAMPS) TO THE ABOVE ADDRESS.



MORE INTERNATIONAL SHOPPING:

TENEX COMPUTER EXPRESS... The following listing has been provided by TENEX COMPUTER EXPRESS. P.O.Box 6578 South Bend, IN. U.S.A. 46660 Phone:0011-1-219-259-7051.

VISACARD and MASTERCARD are welcome...

They carry a huge range of Hardware and Software for the Texas Instrument 99/4A Home Computer...including JOYSTICKS, POWER SPIKE REDUCERS, DISK-CASSETTE & MODULE STORAGE BOXES, DUST COVERS, CABLES, PRINTERS MODEMS, PAPER, DISKETTES, DRIVES, RECORDERS, MONITORS not to mention the incredible range of 3rd PARTY SOFTWARE like...

*SUPER EXTENDED BASIC *And software from great software producers like...

AMERICAN SOFTWARE .. FUTURA .. KEAN COMPUTING .. PARKER BROTHERS .. REPUBLIC SOFTWARE .. NORTON SOFTWARE .. ATARISOFT .. MOONBEAM SOFTWARE .. EXTENDED SOFTWARE .. PEWTERWARE .. CHALLENGER .. MAPLEAF .. INFOCOM .. NOT POLYOPTICS .. MICROCOMPUTER GAMES .. MICRO PAL .. KIDWARE .. MicroEd .. PSI LAB. Each and everyone of these software houses make at least half-a-dozen different and challenging programs just for your 99/4A computer.

Write away for their 50 PAGE cattledog and be stunned by the support. And when you write away, tell them you are a member of T.I.S.H.U.G.

UNISOURCE Electronics In.

This is the other BIG distribution centre for TI HARDWARE & Software in the U.S.A. They can be reached on 0011-1-806-7458834 (I.S.D).

AMERICAN SOFTWARE DESIGN Co.

P.O.Box 46, Cottage Grove, MN 55016 (I.S.D.):0011-1-612-4590557



My offer to order bulk supplies from Jim Peterson has had to be withdrawn as I received only one order. This came from Al Lawrence a member of the Newcastle Regional Group.

Jim O'Sullivan writes that he has "discovered" the following:- The XB cartridge contains 12K of ROM. The first 4K is loaded into >6000-6FFF and the second and third 4K share >7000-7FFF. The system switches between them by writing a 1 to >7000 or >7FFF. You can do this by using the XB debugger and M 7000,1 M 7FFF,1 and using Mcccc to examine memory.

Secondly, if you want to disassemble the disk DER you can do so with the help of the XB debugger as follows:

- (a) Load the XB-debugger
- (b) Write a 1 (or is it 0) to CPU address >1100
- (c) Use the debugger to move the block to somewhere else in memory
- (d) Write a 0 (or is it 1) to the CPU address >1100. This will remove the disk DER
- (e) Return to XB (Q the debugger)
- (f) Load and Run a disassembler.

Note absolute memory addresses will be incorrect but should be easy to fix.

This procedure could be used to disassemble any peripheral DER- the only difference being in the CPU address.

Wade Bowmer writes from Bangor: How is sound produced from machine language? How does one write to the 9910 sound generator from M, or even XB with CALL LOAD. Next month I will try and answer this question, I will also review the INTERNATIONAL COMPUTER COMMENTARIES and COMPUTERISATION QUARTERLY. Brian Graham will tell you how to fix a bug in PERSEUS on the DISK 1985/2 club software. There will also be some more tips from Jim Peterson of Tigercub Software.

Running out of memory,

John Robinson.
Hon. Secretary



The Communicators



Its been a while since we had our Communicators column in the SND, but here we are again. You will have already noticed in this publication, mention of the proposed self-supporting mini modem which is planned for members without any expansion boxes, also an article by the author of our BBS software, Robert Crago, on the very powerful VIATEL. It makes very interesting reading, and with Roberts assistance, you'll be able to hook your TI-99/4(A) to the VIATEL System if you have a 1200/75 baud modem. If not, you'll miss out.

Last month, we conducted yet another TEXPAC-BBS PARTY. The idea of this, was to introduce the members who use the BBS, to each other in a social setting. We had it catered for by Camilla, who did a brilliant job of fattening us up with tasty goodies, plus demonstrations were shown of how the BBS works, and previews of new software to be made available through the club. The only snag about the BBS PARTY, was that I had to get stuck into producing this SND, the next day, when I could have enjoyed a nice sleep-in. But life wasn't meant to be easy...and the work must go on.

Here is a listing of the new programs you can download from the Bulletin Board Service(BBS). These have been on the BBS since the 10th of March(day after the Party), and should remain on, for a few more weeks, to ensure all modem users get the opportunity to pick up these free programs over the phone line.

 INFORMATION of Down-loadable
 software as of 10/3/85
 on the TEXPAC-BBS.

program name	size	program type
ALPHAMUNCH	18	EDUCATION/FUN
BIORHYTHM	31	SCIENTIFIC
DUNGEON	40	TEXT ADVENTURE
FRENCH	20	EDUCATION
GUNSMOTE	30	GAME(WESTERN)
PHOENIX	23	GAME(SPACE)
RESISTCODE	18	EDUCATION/TECH
SINGCOMP	31	TE#2/SPEECH
SOFTSELLX	14	SHOP AID
SUPAMIND	17	MIND GAME
TRIFECTA	13	TE#2/SPEECH

Here we go with another complete collection of new software. I hope that you like them.

There are 4 programmes which could be classified as EDUCATIONAL. 3 GAMES. And the others are assorted...

With SINGCOMP using your TE#2 and SPEECH SYNTHESIZER, you will actually be able to make your TI sing. You can use it as a tool to construct other songs etc.

ALPHAMUNCH, FRENCH, SOFTSELLX and TRIFECTA are entries in this months Software Competition...so you are getting a sneak preview.



I have noticed that some people believe that if you have a modem, your phone bill will sky-rocket. Let me assure you...just because you have a strange device connected to your phone-line, doesn't mean extra charges by Telecom. To use a modem on local Bulletin Board Services, costs you the same as if you simply phoned a friend just up the street. The only difference is, you can make NEW friends with your modem, plus enjoy all of the many new technical & inovative things now available to people who invest in this worth-while device. One of our members, hardly knew how to write, le along use a keyboard. Now, since he has been on the TEXPACBBS, both his spelling, and typing has improved a hundred-fold, as he CHATS to System Operators and other users with his modem.

Global Communications with Modem is fast becoming a big interest to all with modems. So I thought that I would briefly clue you in on contact to do just that.

To communicate with such centres in the U.S.A as The Source and DIALOG/Insearch...you need an account with MIDAS Marketing. It should cost you nothing to apply for Midas access but it helps if you know which Service you want them to link you to.

Write or phone for details to... MIDAS MARKETING.
 G.P.O. Box 7000 Sydney 2001. Tele:(02)230 5000 or
 Telex:AA20591.

Once you have opened your Midas Account then you can apply for other services.
 Like: DIALOG/INsearch. P.O.Box K16. Haymarket. NSW 2000 or phone (02)2122867. This is the Sydney office for a huge computer-base in the U.S.A. They will send you out a large folder of valuable details relating to all the goodies available from them.

THE SOURCE: Contact Humphrey Lindley at P.O.Box 77. ZILLMERE. QLD. 4034.
 or phone him on (07)2636161 anytime up to 9pm. He uses that system and can provide you with further details. Or contact SEAHORSE COMPUTERS (in the Sydney Phone book).

SDC Information Service./ ORBIT SEARCH SERVICE.
 ATT:Katie Blake (Manager).
 P.O.Box 439. Milsons Point. 2061.

I.P.SHARP Associates / APL TIME-SHARING NETWORK.
 8th Floor. Carlton Centre. 55 Elizabeth Street. Sydney.
 Phone(02)232 6366.

Each of the above addresses can link you to their systems via Satellite to the U.S.A through MIDAS.

SUBJECT:TERMINAL EMULATOR ON DISK

This is just the product the thing as a very powerful alternative to your Terminal Emulator Cartridge.

It's called the TE-1200* and sold through SOFTMAIL Inc. P.O.Box 745 ROCKWELL. TEXAS U.S.A. 75087.

The disk is priced at \$49.95 (U.S). Some of it's features:both 300 and 1200 baud transmission. No more having to stop and dump to disk by screen...this one automatically put all communication to disk and can be retrieved at the press of a button.

TE-1200* Does not facilitate speech or graphics. You will need 32K memory/ Disk system/RS232 and Editor Assembler cartridge.

Sydney News Digest

SUPER COMPETITION ...

all the latest news about the
GRAPHX Contest.



Here is the very latest news concerning the new GRAPHX contest: This event will consist of 3 areas for Judging by RON DAVIS (Author) & SHANE ANDERSEN...

- (1)....* BEST CLIPBOARD ANIMATION,
- (2)....* BEST SCREEN PICTURE, and
- (3)....* BEST PRINTABLE PICTURE.

The contest will commence from Saturday 2nd February and will go through to 1st of June. So there is plenty of time for you to buy your copy of GRAPHX and get to work and create a masterpiece.

You can submit as many entries as you like ON DISK, however, when those disks are submitted, they will become property of T.I.S.H.U.G. instead of an Entry Fee.

THE PRIZES: If you are a lucky winner of one of the 3 sections...you will WIN

- (1)....* A complete collection of all entries submitted, and
- (2)....* The very latest GRAPHX UTILITY disk to be marketed by June'85. This GRAPHX UTILITY will feature BANNER PRINTING & EXTRA HUGE PICTURES etc from your GRAPHX program. A sample of this will be show at the FULL DAY TUTORIAL WORKSHOP on Saturday 2nd February. This is one program you will want to get for your GRAPHX program.

Join in the fun...and get your entries in A.S.A.P. to

T.I.S.H.U.G. GRAPHX CONTEST.
P.O. BOX 595. MARRICKVILLE.
N.S.W. 2204.

This competition is for any Australian member of T.I.S.H.U.G...and the Judges decision of winners will be final.

If you still haven't obtained your GRAPHX program...it is available from either RON DAVIS (02)7139506 or COMPUTER WAVE P/LTD. 325 George St. Sydney N.S.W. 2000 at a charge of only \$50.00.

There are three versions...*EXTENDED BASIC. *EDITOR/ASSEMBLER and *MINI MEMORY. The latter has a few more Clipboards. You'll require 32k of memory...Disk system. If you wish to submit the SCREEN/PRINTER entry...you will also require RS232/PIO and DOT MATRIX PRINTER.

Good Luck.
Lets see how creative you can be.

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|| HIGH QUALITY MODEM FOR P.E.BOX ||
.....

Now you can talk to the World with this new Modem ON A CARD. A Direct connect Modem that fits neatly out-of-sight in your Peripheral Expansion Box.

Built for extra-long life and reliable performance. This Modem uses SPECIAL QUALITY COMPONENTS (I.E.Metal Oxide film resistors and Tantalum Capacitors used through-out). Commercially built modems costing much more, do not use these quality companants unless built to Government **Specs.**

By using the latest technology Modem Chip(I believe this is the ONLY Modem on the market using this chip) and simple design which has now been well proven by our own T.I.S.H.U.G. TEXPAC-BBS Communicators.

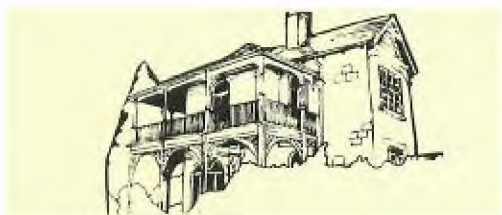
I have been able to keep the price to well that of most others.

So before you buy, compare the quality and price. These modems are built entirely by me, so supplies are very limited.

PHONE:(Username:PETESAKE) on 0213585602 a/h.
TI Users in Queensland, contact HUMPHREY LINDLEY (07)2636161.

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****> C O M M I N G S O O N <****
Stand-a-lone MODEM which does not need RS232 for under \$200. Don't miss your next SND for further details.



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AS STANDARD ON GRAPHX
gothic AND Hollow

