MICRO'S GAZETTE

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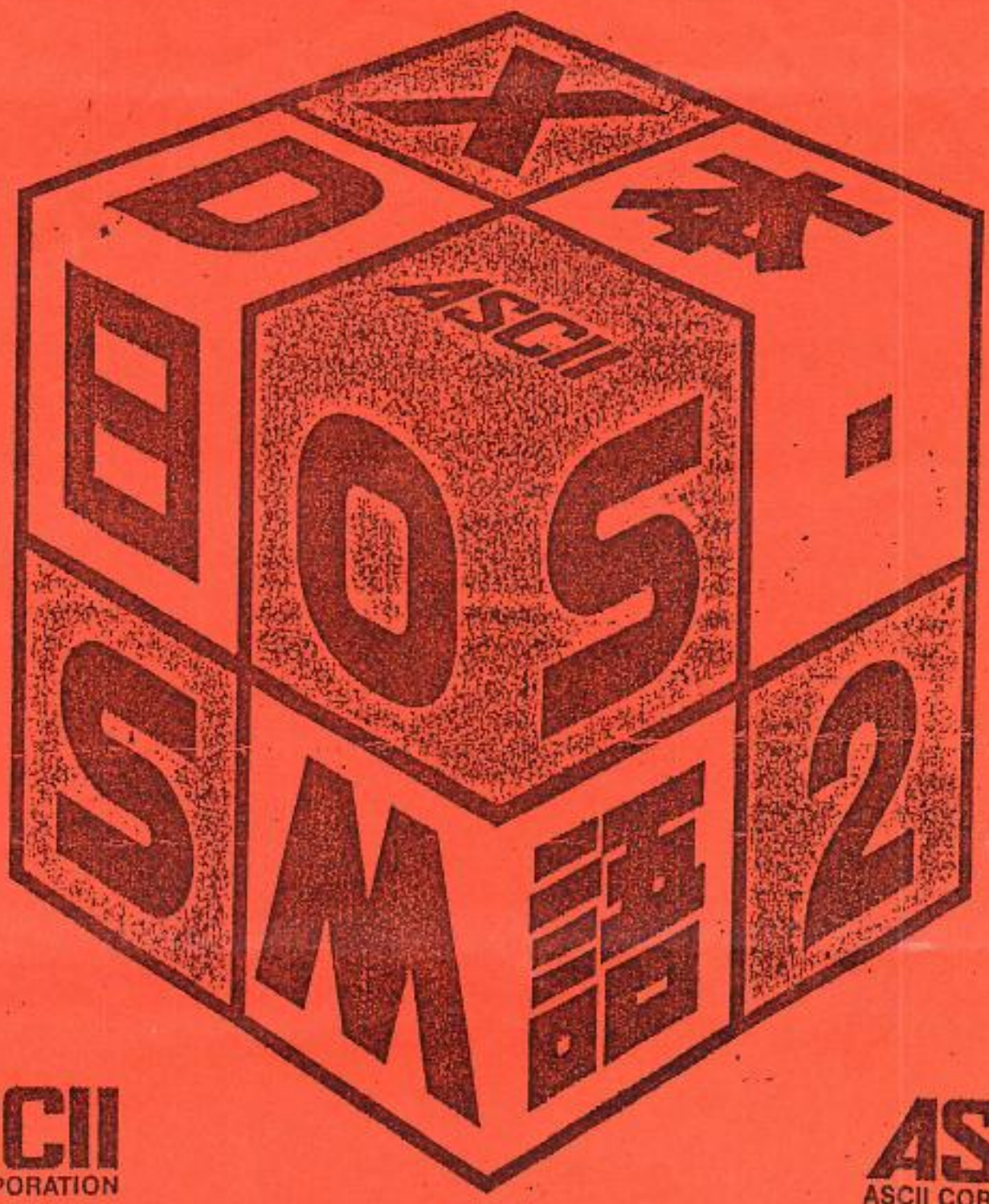
MSX AND SPECTRAVIDEO MAGAZINE



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日本語MSX-DOS2

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MICRO'S GAZETTE is produced and published with the help of the following people:

EDITOR - Mark Sands

ASSISTANT EDITOR
AND BASIC COLUMN - Craig Hursey

TECHNICAL ADVISER - Robin Young

RESIDENT HACKER - Jason Balogh

MUSIC COLUMN - Peter Nielsen

MSX COLUMN - Ross Brisbane

REVIEWS - Brian Leonard

GAME INSTRUC. - The Garrett Family
PRINTED BY - MICRO'S GAZETTE

Send all correspondence to-
MICRO'S GAZETTE
P.O. BOX 663,
ST. LEONARDS,
TAS. 7250 PH.(003) 392 775

EDITORIAL

Well, I suppose I should start this issue off by apologizing for its late arrival, however circumstances not completely in my control had taken over. Such as the fact that several weeks ago I entered into an agreement to purchase another photocopier, this machine will do reduction & enlargements as well as being equipped with a document feeder, 20 bin sorter and the capability of doing double-sided copies, just the thing to make life easier in producing our mag., by doing this however meant that I could not use my existing copier, and the new (read secondhand) copier was not working when delivered. This was not fully rectified until this week, 17-09-90, then as PETER is pretty tied up at the moment with work and involvement on a couple of local committees, I had to wait for his article (which he had promised me) to arrive. Well these are my excuses and I am sticking to them.

Since the last issue I have written to, and received a reply from, ROBIN HOEGEN in JAPAN regarding the availability of the SONY F1XD MKII MSX2 COMPUTERS and a few other items, his reply stated that MSX2 computers were no longer for sale in JAPAN new as it is now MSX2+ time, also his address has changed, anyone interested should write to, 337-3 NAKA, MATSUZAKI CHO, 410-36 JAPAN. I have ordered a SONY HB-F1XV MSX2+ and HAL SCANNER . These should arrive towards the end of this month. One other thing I found out is that AUSTRALIA POST no longer have INTERNATIONAL MONEY ORDERS, so I had to send my payment in cash, I purchased JAPANESE YEN from my local bank and insured my letter for the value of the contents when I sent it. This is ROBINS required form of payment if we cannot get MONEY ORDERS payable in YEN.

We have two USER COLUMNS in this issue, the first is an article on how to upgrade the PIONEER PX7's to 64K RAM, this was given to us by ADRIAN EYSSENS, the second is a machine code routine for copying screens to VRAM and back, this was sent in by PETER SNOWDEN.

Peter gives us a rundown on the sound command, Craig continues his Beginners Basic column plus gives us some information on DOS2. The listing is a disk based database for Telephone numbers written by Robin Young, this could be changed to suit many purposes and I can vouch for how it works as our subscribers/mail list database is a variation of this. Brian has some more program reviews and we continue to print previews from the original games.

Also, over the last few months we have been busy with moves towards upgrading SVI-738's to MSX2 standard. To this end I copied the MSX2 ROMS in my SONY and ROBIN YOUNG had a couple of EPROMS burnt in, these we mounted back in my machine to ensure that we had working copies of the ROMS, we have. We passed a copy of these ROMS in the form of disk files to a subscriber who is also interested in upgrading the SVI-738 and to this date it appears he may be on the right track towards converting them to work successfully, we still need to source the calender/clock chips, I cannot put a price on the cost of upgrading these computers yet, but I would be interested in hearing from those subscribers with SVI-738's who feel they may like to upgrade them, in order to gauge the level of interest and possible demand for upgrade kits.

I would also like to hear from CX5MII owners who would be interested in bringing their computers up to CX7 MSX2 level, to this end CRAIG is trying to get a set of ROM chips from JAPAN, if this turns out to be possible we would like to know how many sets we would need. Apart from the ROMS the CX5MII's need the same calender/clock chip as the SVI's and there are a few other minor changes needed.

Well, that's it from me for this issue, we will try to get back on the rails for the next one!

MARK SANDS

BEGINNERS BASIC

BY CRAIG HURSEY

In this issue of Micro's Gazette I will be explaining the use of INPUT statements which can be used for a number of purposes. From asking questions or for a single key entry to continue on in a program or make a decision. As there is at least one input in every program of some kind. Which range from Games to Utilities etc.

INPUT [("<PROMPT STRING>");]<list of variables>

This statement is used for input during program execution. When an INPUT statement is encountered, program execution pauses and a question mark is printed to indicate the program is waiting for data. If "<prompt string>" is included, the string is printed before the question mark. The required data is then entered at the keyboard by the user.

The data that is entered is assigned to the variable(s) given in <variable list>. The number of data items supplied must be the same as the number of variables in the list. Data items are separarted by commas. The names in the <list of variables> may be numeric or string variable names (including array variables). The type of each data item that is input must agree with the type specified by the variable name. (Strings input to an INPUT statement need not be surrounded by quotation marks.)

Responding to input with the wrong type of value (string instead of the numeric , etc.) causes the message "?Redo from start" to be printed. No assignment of input value is made until an acceptable response is given.

Example;

```
10 INPUT "A AND B";A,B
20 PRINT A+B
RUN
A AND B? 10,I0
?Redo from start
A AND B? 10,20
 30
Ok
```

Responding to INPUT with too many items causes the message "?Extra ignored" to be printed and the next statement to be executed.

Example;

```
10 INPUT"A and B";A,B
20 PRINT A*B
RUN
A and B? 10,20,30
?Extra ignored
 200
Ok
```

If in a single INPUT a space is placed it will be ignored by the program.

Example;

```
10 INPUT A
20 PRINT A
RUN
?10 10
 1010
Ok
```

X$=INPUT$(X [,FILE NUM])

This statement is used for input of characters from the keyboard or file on Disk or Tape. The number is specified by the X value. It may range from 1 to 200. If a CLEAR statement is used it will range from 1 to 255. The file number is used if you wish to read from a file on disk or Tape. This number ranges from 1 to 15. This number depends on what the maximum number of files has been set at by the MAXFILES statement. The file must be open before use of this statement. These two statements which I have mentioned will be explained in another part of Beginners Basic. See manual for a explanation for now. All characters will be stored in the variable called X$ or any other used including array variables or other strings. All characters are recognized except Control-C which will terminate the program.

An example of both methods of use;

```
10 PRINT "PLEASE TYPE IN AGE ?";
20 A$=INPUT$(2)
30 PRINT "YOUR AGE IS ";A$
40 END
RUN
PLEASE TYPE IN AGE?
YOUR AGE IS 20
```

When line 20 is executed the program waits for two keys to be pressed. After they are entered it assigns them to a variable A$. Characters are not shown on the screen while they are typed in when using this statement.

```
10 OPEN"CAS:TEST"FOR INPUT AS#1
20 A$=INPUT$(47,#1)
30 CLOSE #1
40 PRINT A$
50 END
RUN
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Ok
```

With this example it opens a file on Tape called TEST it then reads 47 characters from the file. Then it will CLOSE the file so it cannot be used, then it prints on the screen what it has read from it.These other statements I will fully explain later on.

LINE INPUT <"prompt string">;String Variable

This statement in used for line input for upto 254 characters from the keyboard and stores it in a variable.

The "prompt string" is for the comment which you want to be printed which will give the user some idea what the program wants e.g below ask's for name and address. If the no prompt string is used a ? mark will be printed on the screen:

String Variable can be String type variables or array variable which must be a string otherwise an error will occur such as "mismatch error" meaning you used a numeric variable instead of a string.

A return code is only considered as data puncuation, and assigns a keyboard input character string to a variable. When a comma is included in a character string, it is assigned as part of the string.

Example;

```
10 LINE INPUT "NAME AND ADDRESS ?";N$
20 PRINT N$
RUN
NAME AND ADDRESS ?CRAIG,14 MARINE ESP.
CRAIG,14  MARINE ESP.
Ok
```

X$=INKEY$

This statement is used to give the character of the depressed key. And stores no character if no key is pressed. It is a string variable type. The only keys it does not recognize are CTRL+STOP, SHIFT and CTRL these will not be stored as a data item. All other keys are.

Example of use in a program;

```
10 PRINT "PRESS ANY KEY"
20 A$=INKEY$:
30 IF A$="" THEN GOTO 20
40 PRINT A$
50 END
RUN
PRESS ANY KEY
A
Ok
```

When any key is pressed,the character is assigned to A$ and is displayed on the screen by line 40. In lines 20 to 30 it checks if any key is pressed if so it goes on to line 40. This statement can be used to check for certain keys.

CONT

This command restarts a program that was stopped by CTRL-C or CTRL-STOP or a STOP statement in the program. It will continue to run the program from the line after where it was stopped,unless it was one of the INPUT commands then it would start from the beginning of the line it stopped.

An example of this;

```
10 PRINT 10
20 INPUT A
30 PRINT A
RUN
10
?    (PRESSING CTRL-STOP)
Break  in line 20
Ok
CONT
?5
5
Ok
```

This concludes our third section to BEGINNERS BASIC in my next part I will go into the use & type of variables available in normal use. If you have any questions or queries please write.

SOFTWARE REVIEWS
BY BRIAN LEONARD

IF YOU HAVE AN MSX MOUSE, BY HOLDING DOWN THE LEFT HAND SIDE BUTTON BEFORE SWITCHING ON THE COMPUTER, YOU CAN TURN YOUR MOUSE INTO A JOYSTICK WITH TWO SEPARATE FIRE BUTTONS, WHICH IS GOOD FOR PLAYING GAMES SUCH AS ZANAC, GUTT BLASTER, JUST TO NAME A FEW.

NOTE: IT IS BEST TO TREAT YOUR MOUSE WITH MORE CARE THAN YOU WOULD WITH A JOY STICK.

Title: Draw & Paint By Aackosoft MSX (DISK/TAPE)

After taking time to examine this program I find it to be the best graphic picture drawing program by far. When drawing a picture as we know you can make mistakes, so when you have done a picture and it looks good you can go into the backup mode and save the picture to memory and then continue drawing, If you make a mistake you can then restore the picture back to its original state. Other commands let you turn the whole picture either horizontal or vertical. Draw circles, boxes, rays, copy a certain area, backup a picture and then load another picture on top of it. By pushing the select key you can enlarge the whole screen eight times its original size. This program will let you save to either disk or tape. By pushing <CTRL-I> when in drawing mode a list of instructions come up. There are many more features to this program than mentioned. If you enjoy creating works of art then this program is for you.

Title: Stormbringer by David Jones MSX (DISK/TAPE)

Remember Knight Tyme, well after returning from the starship USS Pisces in the 25th century magic knight finds that the otherwise quiet village of Cornhamp-on-marsh has been attacked by a despot calling himself the off-white knight. Off-white knight is the dreaded stormbringer. This game features windimation, which allows you to use the cursor keys or a joystick and by pushing the fire button will bring up the commands. This game is all graphics and there is no need for typing. This is the second part from Knight Tyme and is a great adventure game.

Title: Nemesis by Konami MSX 2, MSX 2+(DISK)

Nemesis first apeared in the arcades a few years ago, as I know most of my money went down the tube on this game. At the start of the game you are flying through space, and space ships start flying out, this is just the stage where you start to gather up your weapons. Moving through the game land starts to appear and you have to get past bases with alien ships flying at you. Going thru the game, as you gather up your powers you can choose what sort of weapons you want, like SPEED, MISSILES, DOUBLE, LASERS and ?. For each power you get you can only use it on the weapon that is lighted up, so if you have 4 powers you can select the laser. By getting a double this increases your laser by two and so on up to 4 lasers. I am not sure but this game might be available on MSX-1, but I think you require 128k to run the game.

Title: Kings valley by Konami MSX (DISK/TAPE)

The instant you start this game you will be amazed by the superb music which leaves you in no doubt that the adventure is set in the Egyptian pyramids. You control Vick in search of the treasure that is in each pyramid. The adventure starts off with 15 chambers, giving you a goal at the end. But it does not end at the goal. This game has been designed very well and I would recommend it to anyone, Graphics and sound are great.

LETTERS

EUREKA!
Dear Micro's Gazette,

When I purchased my YAMAHA CX5MII/128 music computer (second hand), I was told that MSX was not supported in AUSTRALIA & all I was really buying was a good 'synth'. And so began my quest.

This was the first time I had actually laid hands on a computer & it took all weekend to figure out how to work it, sure it came with manuals, but they are only for people who can't get things to work!!? So I spent the next two weeks digesting the three books that came with it.....How to work the CX5MII/128, How to work the FM VOICING PROGRAM, How to work the COMPOSER PROGRAM II.

I could not accept being told that software and information was not available for MSX (I didn't even know what MSX was), and I was sure that I wasn't the only person in AUSTRALIA with an MSX computer.

Yet I was determined. On my desk is what YAMAHA describes as a powerful personal computer, & I couldn't let all that power go to waste. So I had to do some real head scratching. But where? How? These thoughts occupied my consciousness for many days. When I remembered "I know a guy with a music computer, I'll just ask him".

Sure enough he still had it, under a pile of dust, the predecessor of my CX5MII/128. "I don't use it any more" he said "you know you can't get software for MSX" he added.

"OH! NO!!" My friend doesn't know, and he knows everything (except the meaning of life, the universe & everything) but he's into computers!?.....

So I thought I would try computer retailers, but the standard I found there was "HUH! MSX. WHATS THAT!!?"

Now I was getting desperate. No-one knows & I just have to know. Then one weekend after re-reading the manuals, I had a brainstorm!! "I must get in touch with other MSX owners, but where are they", I knew they weren't in the small country town in which. "They must be in the city". And how do I find them? All the computer mags in my local newsagent were for everything else but MSX. So I took home a copy of the TRADING POST & looked under Computers For Sale, but no mention of MSX. Then I looked under Musical Instruments.....BINGO!!, three CX5's for sale. "GREAT!" I thought "Other users","They must know something"

The first call I made was to an ENGLISH fellow who bought his CX5 in ENGLAND just prior to emigrating, so he couldn't help, however he did have some MSX games on tape which did not work for him. He said his CX5 only had 32K & these games required 64K (which I had), so I purchased ten tapes from him & waited anxiously for my faithful posty to deliver them.

Meanwhile my second call was to a very nice guy who didn't mind talking to me even though I wasn't going to buy his CX5. He said he got some software from a guy in ROCKHAMPTON, QLD., who had heaps, but he had lost his name & address. "OH NO! This is terrible" I said "So close, yet.....how far!?". However he said he would send me what he had on disk if I promised to send him a blank disk by return mail (how friendly and trusting MSX users are). Now I was waiting even more anxiously for my ever faithful posty. I was almost camping out by the letter box. The anticipation was sending me wild. Remember I had never used a computer before & I wasn't even sure what software was, but I knew it had to be great (like that thing we heard about as kids). C'MON POSTY!!

Sure enough old faithful delivered.....ten games on disk, all great stuff & ten games on tape. Then blessing of blessings, inside the box of tapes was a short note with the address of an MSX USER GROUP.

Now I knew I was on my way to MSX GOOD-TIMES. Over the next few months I got heaps of good programs from the group, and as time went on I realised that this was not enough, I needed more, I wanted to know so much, not just be content with running programs, I wanted to get inside my MSX, I wanted to know how it worked & why & then I wanted it to work for me. I could not get my info

from the USER GROUP because they held meetings 1000 miles away from my house.

So when I expressed my desires to the guy from the group, he asked if I knew of MICRO'S GAZETTE? "You mean there's a magazine?" I said. "Yes" he said. "Well no!!" I said (I was having real trouble containing my excitement by now). "Well where are they" I said..... & the rest is history.

Thankyou Micro's Gazette, I've read a couple of back issues & it's just what I was looking for & thankyou as well to the MELBOURNE USERS GROUP.

You know this has been a real adventure of discovery & now I have the prize. Please find enclosed my subscription for six issues & now I would like to ask a few questions of your readers:

(1) Is there a REAL-TIME MUSIC COMPOSER PROGRAM for MSX?

(2) Does CX5MII mean MSX 2?

(3) Can anyone suggest some good music programs?

Also I would like to buy a second-hand printer to suit my CX5 & I would like to communicate with other CX5 owners (exchange voice data etc.).

Thanks again,
GREG GARDNER, 19 NORLEDGE ST.,
KYOGLE, N.S.W. 2474

Well GREG,

I have published your letter as received because it shows how a person determined enough can help themselves find their way in the dark, to purchase your computer with no prior knowledge of MSX, and to then proceed to track down contacts and information shows a great deal of initiative. Well done and welcome aboard as a subscriber. I would also like to thank the MELBOURNE USER GROUP for passing along our address.

Now to answer questions 1 and 2, a real time composer is available for the CX5, it is YRM301, YAMAHA MIDI RECORDER cartridge. Rod Gillet of STRINGZ MUSIC, 11 Mollison ST, KYNETON, VIC.,3444 had some advertised last issue and if you contact him he should be able to help you out.

The CX5MII is not an MSX 2 computer, although it does have the MSX 2 graphics chip, if you were to dismantle the computer you would find that the circuit board is stamped with the model nos. CX7, CX7M,YIS 604, these are all MSX 2 computers, so obviously with the right ROM chip-set and a clock chip plus a few ancillary chips it would be possible to turn a CX5MII into a MSX 2.

WELL DONE!
Dear MARK,

Enclosed you will find my subscription for a Mighty Terrific Mag. called "Micro's Gazette". You people are doing a mighty job, so don't be discouraged due to a lack of response from your subscribers, as I imagine a lot of them are probably like myself, who would love to help and support, but due to lack of knowledge and that all important grey matter, find that all we can do is just wait for each issue to come out and be thankful to those who do have the right stuff to keep this magazine going! Keep up the good work!

I have an SVI-738 and have installed a double-sided drive and ROM chip from T. CRUISE :- (1) Is there a ROM chip that I can get that recognises a double sided drive for formatting or is that in DOS?

(2) Is my computer an MSX 2 or do I have to have 128K VRAM?

(3) Apart from (2) are there any other mods to bring it up to MSX 2 standard?

(4) If no, what MSX 2 programs can I use or are compatible to my system as is?

R. Landriat, INGHAM, QLD.

Dear ROGER,

Thankyou for your re-subscription and praise, just by re-subscribing you are helping to keep this magazine going and giving others a chance to find out about us, and share in our knowledge while they can.

Now to your questions:-

(1) If you have a double sided drive and one of Tony's Disk ROMS on board your SVI-738 then when you go to format your disks you should be presented with the options of: Drive Name(A,B) then 1- Double sided 2- Single sided, by choosing either 1 or 2 decides on what your disks are formatted as.

(2) Your computer is not an MSX 2, but it does have the MSx 2 video chip and room on board to install 128k VRAM.

(3) I detailed in issue 008 the modification we believe are needed to upgrade the SVI-738 to MSX 2 standard in reply to a letter from John ST.Mart.

(4) MSX is an upward compatible standard, this means that MSX 1 programs will work on MSX 2 but not the other way around unforunately.

ADDITION

In issue 008 a letter from JOHN ST. MART was published, he requested that his full address be published in the hope that other MSX users may like to correspond with him, his full address is:- 7 ABELIA RISE, NARRE WARREN, VICTORIA, 3805 PHONE (03) 704-7580

USERS COLUMN

We have been handed information to enable the upgrading of the PIONEER PX7 computers to 64K RAM, we have upgraded two of them ourselves using this information and can vouch for the fact that it works. I will list the parts required, a small circuit diagram that was sent to us and some notes I jotted down while being told over the phone how to carry out this upgrade. If you are not familiar with the use of a soldering iron or how to handle CMOS IC'S then I would not recommend that you undertake this project.

Those who need someone to carry out these modifications can contact either ADRIAN EYSSENS, 32 CHARLOTTE ST., BLACKBURN STH., VIC, 3131 or myself and for a fee we will carry out the upgrade.

When carrying out the upgrade yourself ensure all tools are grounded to the computers chassis, static electricity can play havoc with your computers internals.

The parts required are:- 4 x 4416-15 dynamic rams, 1 x 74LS139, 1 x 74LS32 and a SPST SWITCH.

The following notes are those we followed when carrying out the upgrade ourselves.

(1) SOLDER ALL PINS BUT NO.16 OF SECOND SET OF 4416 IC'S ON TOP OF IC NOS. 15, 16, 18, 19 (these are the existing ram chips)

(2) SOLDER PINS 8, 14, 16 OF A 74LS139 ON TOP OF IC 34 (this is also a 74LS139)

JOIN PIN NOS. 13, 16 OF TOP 74LS139

JOIN PIN NO. 10 OF TOP 74LS139 TO PIN NO. 16 OF IC 18 AND IC 15

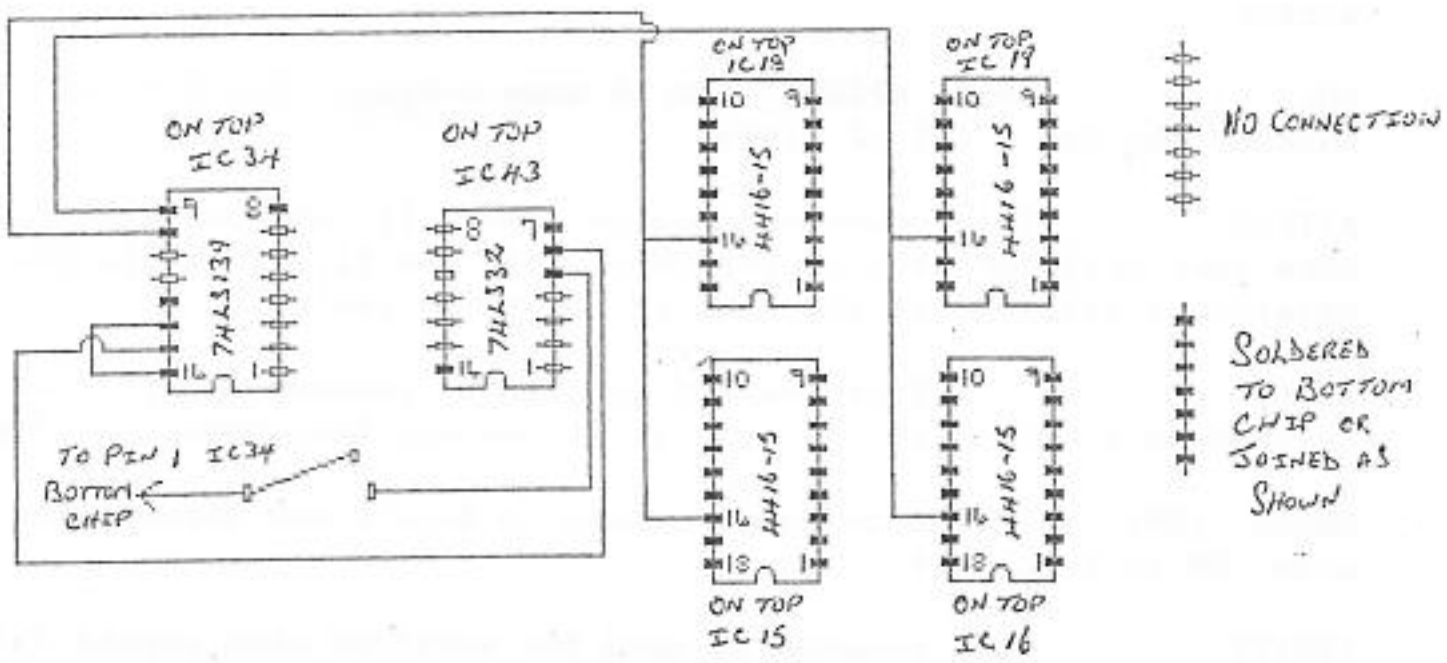
JOIN PIN NO. 9 OF TOP 74LS139 TO PIN NO. 16 OF IC 19 AND IC 16

(3) SOLDER PIN NOS. 4, 7, 14 OF A 74LS32 ON TOP OF IC 43 (this is also a 74LS32)

SOLDER PIN NO. 6 OF TOP 74LS32 TO PIN NO. 15 OF THE 74LS139 ON TOP OF IC 34

(4) PIN NO. 5 OF TOP 74LS32 IS CONNECTED BY A SPST SWITCH TO PIN NO.1 OF IC 34 (bottom 74LS32) :- switch closed = 64K RAM, switch open = 32K RAM + PBASIC

I would like to thank ADRIAN for passing on this upgrade information to us, as by sharing this knowledge benefits all MSX'ers who are limited to 32K RAM, this type of modification should also work on YAMAHA CX5's.



MSXDOS2 REVIEW

BY CRAIG HURSEY

MSX-DOS2 is a whole new version of the MSX Disk Operating System for MSX2/2+ computers. It comes in a cartridge plus two disks both single sided. These disk's contain help files on all new commands that are extended plus the utilities that are on the disk. One disk is an English version the other is a Japanese Version.

Also they have MSXDOS2.SYS and COMMAND2.COM files which are used the same as the MSXDOS 1 files on disks. The utilities on the disk are to do with copying files and sub-directories certain ways and printing full disks out. If space allows a full list of the disk will be shown in the magazine. There is also a program FIXDISK which fixes MSXDOS disk's to full MSXDOS2 format so they can use most of the commands but still work on DOS1.

MSXDOS2 is completely compatible with MS-DOS disks so all text files can be used or modified and stored on the original disk with out affecting it's use under MS-DOS. The cartridge also has 256K RAM built on it. It is memory mapped, so to use, a knowledge of the "OUT" statement is needed and BIOS routines for it's use in Machine code or BASIC. Most MSX2/2+ programs search for extra memory and use it for storing information or parts of programs for fast retrieval. Some of these programs include X-cartridge software like SALAMANDER, NEMESIS, NEMESIS2 etc., also SONY'S HiBrid software, DYNAMIC PUBLISHER and some copy programs like MIRROR. In basic the user can have upto 16 Basic programs as long as these are not over 16K each and may switch between them. Another thing which may interest you is that if the MSXDOS2 rom is unplugged the ram can be used on a SONY 75AS MSX1 model so Salamander, Nemesis2 can be played on it these programs are 256K and load from disk. This would not work on the PIONEER or the SVI-738 X'Press. Also on MSX2/2+ more RAM disk area can be used in BASIC and MSXDOS2, upto 280K (64K is already on the computer giving memory 320K) a disk can be copied easier and quicker.

Now I will give a brief description of some of the new commands that I have used.

CHDIR (CD) This command is used to change to subdirectories on disk "CD" does the same thing but is short for convenience of use. This helps to keep disk tidy.

MKDIR (MD) This command is used to make sub-directory for use. The name must not be more than eight characters long. MD is for short.

CLS This does the same as it's BASIC counterpart which Clears the screen.

VOL This allows you to name a Disk. Which makes life easier for anybody who has a lot of disks.

ATTRIB This command is quite good. It lets you hide files on disk and make them write protect or Read/Write. If the file is write protect it cannot be deleted at all even if the disk is not write protect.

UNDEL This command is used to recover any file which may have been deleted on a DOS2 disk. As long as it has not been saved on afterwards.

RMDIR (RM) This command is used to delete sub-directories which have been made. RM is for short.

VERIFY This command is used for verifing when coping files from one disk to another, it may be turned off or on.

There are many more commands in DOS and BASIC which I have not mentioned as I have have not fully used DOS2 yet. There are approximately 65 new or extended commands available in DOS or BASIC these give you more control over Disks and Japanese characters which I have not mentioned, these are also included with DOS2, they are KANJI characters. They are included on all MSX2/2+ models from 1988 onwards. Although some don't have them like the European & English versions of MSX2. This add-on is well worth the money specially with 256K ram onboard the approximate cost in AUSTRALIA is about $400.00 all up. The manuals which come with it are Japanese but I have an English version on disk which is about 360K long. It has all BIOS routines and calls for DOS2 and memory and use of DOS2 like a proper manual. Below is a list of all the Commands & Utilities that come with it.

MSX-DOS2 COMMANDS & UTILITIES

ASSIGN, ATDIR, ATTRIB, BASIC, BUFFERS, CD, CHDIR, CHKDSK, CLS, CONCAT, COPY, DATE, DEL, DIR, DISKCOPY, ECHO, ERA, ERASE, EXIT, FIXDISK, FORMAT, HELP, KMODE, MD, MKDIR, MODE, MOVE, MVDIR, PATH, PAUSE, RAMDISK, RD, REM, REN, RENAME, RMDIR, RNDIR, SET, TIME, TYPE, UNDEL, VER, VERIFY, VOL, XCOPY, XDIR

MSX DISK BASIC VERSION 2.2

CALL CHDRV, CALL SYSTEM, FILES, CALL CHDIR, CALL MKDIR, CALL RMDIR, CALL RAMDISK, CALL AKCNV, CALL ANK ,CALL JIS, CALL KACNV, CALL KANJI, CALL KEXT, CALL KINSTR, CALL KLEN, CALL KMID, CALL KNJ, CALL KTYPE, CALL SJIS

```
Volume in drive B: is MSX-DOS 2
X-Directory of B:\

MSXDOS2.SYS          4480
COMMAND2.COM        14976
AUTOEXEC.BAT           57
REBOOT.BAT             57
\UTILS
    CHKDSK.COM       7680
    DISKCOPY.COM     7168
    FIXDISK.COM       768
    UNDEL.COM        3968
    XCOPY.COM       10112
    XDIR.COM         7168
    KMODE.COM        1024
\HELP
    ASSIGN.HLP        791
    ATDIR.HLP        1170
    ATTRIB.HLP       1688
    BASIC.HLP         768
    BUFFERS.HLP      1541
    CD.HLP           1478
    CHDIR.HLP        1478
    CHKDSK.HLP       1584
    CLS.HLP           185
    COMMAND2.HLP     2434
    CONCAT.HLP       2468
    COPY.HLP         3178
    DATE.HLP         2050
    DEL.HLP          1811
    DIR.HLP          3213
    DISKCOPY.HLP     1310
    ECHO.HLP          520
    ERA.HLP          1811
    ERASE.HLP        1811
    EXIT.HLP         1161
    FIXDISK.HLP      1978
    FORMAT.HLP       1252
    HELP.HLP         1682
    MD.HLP            947
    MKDIR.HLP         947
    MODE.HLP          426
    MOVE.HLP         1611
    MVDIR.HLP        1570
    PATH.HLP         1886
    PAUSE.HLP         860
    RAMDISK.HLP      2091
    RD.HLP           1401
    REM.HLP           397
    REN.HLP          1807
    RENAME.HLP       1807
    RMDIR.HLP        1401
    RNDIR.HLP        1681
    SET.HLP          1128
    TIME.HLP         1636
    TYPE.HLP         1292
    UNDEL.HLP        1169
    VER.HLP           636
    VERIFY.HLP        901
    VOL.HLP           690
    XCOPY.HLP        2813
    XDIR.HLP         1317
    BATCH.HLP        5896
    EDITING.HLP      3287
    ENV.HLP          6754
    ERRORS.HLP      21967
    IO.HLP           4467
    SYNTAX.HLP       6393
    KMODE.HLP         754
170K in 64 files    150K free
```

LISTINGS

```
10 'TELEDATA.BAS BY ROBIN YOUNG 09/06/90
20 CLEAR4500
25 SCREEN0,1,1,1,0:WIDTH40:COLOR15,1:KEY
OFF
30 MAXFILES=2
40 DEFINTA-Z:DEFSNGA,N,W,X:DEFSTRA,N,P,Z
41 '************************************
*
42 'TO INCREASE TELEDATA.BAS BEYOND 500
REDIMENTION ARRAYS IN LINE 49 TO CAPACIT
Y REQUIRED
43 'TO ALTER PRINTOUT HEADER CHANGE LINE
 5500
44 'TO ALTER TELEDATA FIELD  NAMES CHANG
E LINES 205 TO 250
48 '************************************
**
49 DIMAA(500),AB(500)
50 POKE&HFCAB,255
60 OUT&HAA,&B00011010
70 KEY1,"FILES"+CHR$(13)
80 KEY2,"LOAD"+CHR$(34)+CHR$(65)+CHR$(58
)
90 KEY3,"SAVE"+CHR$(34)+CHR$(65)+CHR$(58
)
100 KEY4,"LIST"+CHR$(13)
110 KEY5,"RUN"+CHR$(13)
190 ONERRORGOTO7000
200 PA="RECORD NO.   :"
205 PB="NAME         :"
210 PC="STREET       :"
215 PD="SUBURB       :"
220 PE="TOWN/CITY    :"
225 PF="STATE        :"
230 PG="POST CODE    :"
235 PH="POSTAL ADDR.:"
240 PI="PHONE NO'S. :"
242 PJ="FAX NO.      :"
245 PK="BUSS. TYPE   :"
250 PL="CONTACT NAME:"
260 PN="     "
265 PO="file NO."
270 'OPENTELEDATARECORDSMAX256BYTESPERRE
CORD
275 OPEN"A:TELEDATA.DAT"AS#1LEN=256
280 FINO=LOF(1)/256
285 FIELD#1,4 AS NA,33 AS NB,25 AS NC,20
 AS ND,20 AS NE,3 AS NF,4 AS NG,45 AS NH
,20 AS NI,10 AS NJ,50 AS NK,20 AS NL
290 CLOSE
310 PRINT"TELEDATA BASE  BY ROBIN YOUNG
09/06/90"
320 PRINT;STRING$(40,"-"):PRINT"MAIN MEN
U"SPC(8)"NO. ON FILE:"FINO
330 PRINTSTRING$(40,"-");PN"1:  ADD NEW
RECORD"
340 PRINTPN"2:  DISPLAY RECORD"
350 PRINTPN"3:  ALTER RECORD"
360 PRINTPN"4:  SEARCH ON NAME"
370 PRINTPN"5:  SEARCH ON SUBURB"
380 PRINTPN"6:  SEARCH ON TOWN/CITY"
390 PRINTPN"7:  SEARCH ON BUSINESS"
400 PRINTPN"8:  SEARCH ON CONTACT NAME"
410 PRINTPN"9:  PRINT RECORDS"
420 PRINTSTRING$(40,"-")
430 LOCATE0,21:PRINTCHR$(5):PRINT"
    CHOICE";:ZA=INPUT$(1):X=VAL(ZA)
440 ONXGOTO500,900,1400,1700,2800,3000,3
200,3400,5000
500 'NEWRECORD
530 CLS:PRINT:PRINT"ADD NEW RECORD * TO
ABORT"
540 PRINTSTRING$(40,"-");PA;FINO+1:AA=ST
R$(FINO+1)
550 LOCATE0,4:PRINTPB;:LINEINPUTAB:IFAB=
"*"THEN20ELSE560
560 PRINTPC;:LINEINPUTAC:PRINTPD;:LINEIN
PUTAD:PRINTPE;:LINEINPUTAE:PRINTPF;:LINE
INPUTAF:PRINTPG;:LINEINPUTAG:PRINTPH;:LI
NEINPUTAH:PRINTPI;:LINEINPUTAI:PRINTPJ;:
LINEINPUTAJ:PRINTPK;:LINEINPUTAK:PRINT:P
RINTPL;:LINEINPUTAL
570 LOCATE0,22:PRINT"Press S to save * t
o correct";:ZB=INPUT$(1)
580 IFZB="S"THEN600
590 IFZB="*"THEN550ELSE570
600 GOSUB1100
610 LOCATE0,22:PRINT"Press C for next fi
le S/B for main menu";:ZQ=INPUT$(1)
620 IFZQ=CHR$(32)THEN20
630 IFZQ="C"THEN640ELSE610
640 FINO=FINO+1:GOTO530
900 'TOVIEWRECORD
910 GOSUB1200
920 CLOSE:LOCATE0,22:PRINT"Press C for n
ext file S/B for main menu";:ZD=INPUT$(1
)
930 IFZD=CHR$(32)THEN20
940 IFZD="C"THEN900ELSE920
1100 'PUTTOTELEDATAFILE
1110 OPEN"A:TELEDATA.DAT"AS#1LEN=256
1120 RN=VAL(AA)
1130 LSETNA=AA:LSETNB=AB:LSETNC=AC:LSETN
D=AD:LSETNE=AE:LSETNF=AF:LSETNG=AG:LSETN
H=AH:LSETNI=AI:LSETNJ=AJ:LSETNK=AK:LSETN
L=AL
1140 PUT#1,RN
1150 CLOSE:RETURN
1200 'VIEWTELEDATARECORD
1210 CLS:PRINT:PRINT"VIEW TELEDATA RECOR
DS * TO ABORT"TAB(50);:PRINTPA;:LINEINPU
TZC
1220 PRINTSTRING$(40,"-")
1225 IFZC=""THEN1210
1230 IFZC="*"THEN20ELSE1235
1235 OPEN"A:TELEDATA.DAT"AS#1LEN=256
1240 RN=VAL(ZC):IF RN<1 OR RN>FINO THEN1
210
1250 GET#1,RN
1260 LOCATE0,4:PRINTPA;NA:PRINTPB;NB:PRI
NTPC;NC:PRINTPD;ND:PRINTPE;NE:PRINTPF;NF
:PRINTPG;NG:PRINTPH;NH:PRINTPI;NI:PRINTP
J;NJ:PRINTPK;NK:PRINTPL;NL
1270 RETURN
1400 'ALTERCOMPLETERECORD
1410 CLS:PRINT:PRINT"ALTER RECORD * TO A
BORT"TAB(50);:PRINTPA;:LINEINPUTZC
1420 LOCATE0,2:PRINTSTRING$(40,"-")
1430 IFZC="*"THEN20ELSE1440
1440 GOSUB1235
1450 CLOSE:LOCATE13,4:LINEINPUTAA:IFAA=
*"THEN20
1460 LOCATE13,5:LINEINPUTAB
1470 IFAB="*"THEN20ELSE1480
1480 LOCATE13,7:LINEINPUTAC
1490 LOCATE13,8:LINEINPUTAD
1500 LOCATE13,9:LINEINPUTAE
1510 LOCATE13,10:LINEINPUTAF
1520 LOCATE13,11:LINEINPUTAG
1530 LOCATE13,12:LINEINPUTAH
1540 LOCATE13,14:LINEINPUTAI
1550 LOCATE13,15:LINEINPUTAJ
1560 LOCATE13,16:LINEINPUTAK
1570 LOCATE13,18:LINEINPUTAL
1620 LOCATE0,22:PRINT"Press S to save *
to corr. BSC to abort";:ZB=INPUT$(1)
1630 IFZB="*"THEN1450
1635 IFZB=CHR$(27)THEN20
1640 IFZB="S"THEN1650ELSE1620
1650 GOSUB1100
1670 LOCATE0,22:PRINT"Press C for anoth
r file S/B for main menu";:ZE=INPUT$(1)
1680 IFZE=CHR$(32)THEN20
1690 IFZE="C"THEN1400ELSE1670
1700 'SEARCHONSURNAME
1710 CLS:PRINT"SEARCH ON NAME * TO ABOR
":PRINT"NAME :";:LINEINPUTZH:PRINTSTRIN
$(40,"-")
1730 IFZH="*"THEN20ELSE1740
1740 OPEN"A:TELEDATA.DAT"AS#1LEN=256
1750 RN=1:FORI=1TOFINO+1
1760 IFI=FINO+1THEN1860
1770 GET#1,RN:LOCATE25,1:PRINTPO;RN
1780 ONINSTR(NB,ZH)GOTO1840
1790 RN=I+1:NEXTI
1800 CLOSE:LOCATE0,22:PRINT"Press C to c
ont. S/B for menu";:ZI=INPUT$(1)
1810 IFZI=CHR$(32)THEN20
1820 IFZI="C"THEN1830ELSE1800
1830 CLS:PRINT"SEARCH ON SURNAME * TO AB
ORT":PRINT"NAME :"ZH:PRINTSTRING$(40,"-"
):OPEN"A:TELEDATA.DAT"AS#1LEN=256:GOTO17
90
1840 GOSUB1260
1850 GOTO1800
1860 CLOSE:LOCATE0,22:PRINT"End of file
press S/B for menu";:ZJ=INPUT$(1)
```

```
1870 IFZJ=CHR$(32)THEN20ELSE1860
2800 'SEARCHONSUBURB
2810 CLS:PRINT"SEARCH ON SUBURB * TO ABO
RT":PRINT"SUBURB :";:LINEINPUTZH
2820 LOCATE0,2:PRINTSTRING$(40,"-")
2830 IFZH="*"THEN20ELSE2840
2840 OPEN"A:TELEDATA.DAT"AS#1LEN=256
2850 RN=1:FORI=1 TO FINO+1
2860 IFI=FINO+1THEN2960
2870 GET#1,RN:LOCATE25,1:PRINTPO;RN
2880 ONINSTR(ND,ZH)GOTO2940
2890 RN=I+1:NEXTI
2900 CLOSE:LOCATE,22:PRINT"Press C to co
ntinue S/B for menu";:ZI$=INPUT$(1)
2910 IFZI=CHR$(32)THEN20
2920 IFZI="C"THEN2930ELSE2900
2930 CLS:PRINT"SEARCH ON SUBURB * TO ABO
RT":PRINT"SUBURB :";ZH:LOCATE0,2:PRINTST
RING$(40,"-"):OPEN"A:TELEDATA.DAT"AS#1LE
N=256:GOTO2890
2940 GOSUB1260
2950 GOTO2900
2960 CLOSE:LOCATE0,15:PRINT"End of file
press S/B for menu";:ZJ=INPUT$(1)
2970 IFZJ=CHR$(32)THEN20ELSE2960
3000 'SEARCHONTOWN/CITY
3010 CLS:PRINT"SEARCH ON TOWN * TO ABORT
":PRINT"CITY :";:LINEINPUTZH:PRINTSTRING
$(40,"-")
3030 IFZH="*"THEN20ELSE3040
3040 OPEN"A:TELEDATA.DAT"AS#1LEN=256
3050 RN=1:FORI=1 TO FINO+1
3060 IFI=FINO+1THEN3160ELSEGET#1,RN:LOCA
TE25,1:PRINTPO;RN
3080 ONINSTR(NE,ZH)GOTO3140
3090 RN=I+1:NEXTI
3100 CLOSE:LOCATE0,22:PRINT"Press C to c
ontinue S/B for menu";:ZI$=INPUT$(1)
3110 IFZI=CHR$(32)THEN20
3120 IFZI="C"THEN3130ELSE3100
3130 CLS:PRINT"SEARCH ON TOWN/CITY * TO
ABORT":PRINT"CITY :";ZH:PRINTSTRING$(40,
"-"):OPEN"A:TELEDATA.DAT"AS#1LEN=256:GOT
03090
3140 GOSUB1260:GOTO3100
3160 CLOSE:LOCATE0,15:PRINT"End of file
press S/B for menu";:ZJ=INPUT$(1)
3170 IFZJ=CHR$(32)THEN20ELSE3160
3200 'SEARCHONBUSINESS
3210 CLS:PRINT"SEARCH ON BUSINESS * TO A
BORT":PRINTPK;:LINEINPUTZH:PRINTSTRING$(
40,"-")
3230 IFZH="*"THEN20ELSE3240
3240 OPEN"A:TELEDATA.DAT"AS#1LEN=256
3250 RN=1:FORI=1 TO FINO+1:LOCATE25,1:PR
INTPO;RN
3260 IFI=FINO+1THEN3360ELSEGET#1,RN
3265 FORE=1 TO 50
3280 IFINSTR(E,NK,ZH)>0THEN3340
3285 NEXTE
3290 RN=I+1:NEXTI
3300 CLOSE:LOCATE0,22:PRINT"Press C to c
ontinue S/B for menu";:ZI$=INPUT$(1)
3310 IFZI=CHR$(32)THEN20
3320 IFZI="C"THEN3330ELSE3300
3330 CLS:PRINT"SEARCH ON BUSINESS * TO A
BORT":PRINTPK;ZH:PRINTSTRING$(40,"-"):OP
EN"A:TELEDATA.DAT"AS#1LEN=256:GOTO3290
3340 GOSUB1260:GOTO3300
3360 CLOSE:LOCATE0,15:PRINT"End of file
press S/B for menu";:ZJ=INPUT$(1)
3370 IFZJ=CHR$(32)THEN20ELSE3360
3400 FORI=1TO300
3405 'SEARCHONCONTACT
3410 CLS:PRINT"SEARCH ON CONTACT * TO AB
ORT":PRINTPL;:LINEINPUTZH:PRINTSTRING$(4
0,"-")
3430 IFZH="*"THEN20ELSE3440
3440 OPEN"A:TELEDATA.DAT"AS#1LEN=256
3450 RN=1:FORI=1 TO FINO+1
3460 IFI=FINO+1THEN3560ELSEGET#1,RN:LOCA
TE25,1:PRINTPO;RN
3470 FORE=1 TO 20
3480 IFINSTR(E,NL,ZH)>0THEN3540
3485 NEXTE
3490 RN=I+1:NEXTI
3500 CLOSE:LOCATE0,22:PRINT"Press C to c
ontinue S/B for menu";:ZI$=INPUT$(1)
3510 IFZI=CHR$(32)THEN20
3520 IFZI="C"THEN3530ELSE3500
3530 CLS:PRINT"SEARCH ON CONTACT NAME *
TO ABORT":PRINTPL;ZH:PRINTSTRING$(40,"-"
):OPEN"A:TELEDATA.DAT"AS#1LEN=256:GOTO34
90
3540 GOSUB1260:GOTO3500
3560 CLOSE:LOCATE0,15:PRINT"End of file
press S/B for menu";:ZJ=INPUT$(1)
3570 IFZJ=CHR$(32)THEN20ELSE3560
5000 'UPDATETELEDATAPRINTINGFILE
5010 CLS:PRINT:PRINT"Press Y/N to update
 printing file";:ZK=INPUT$(1)
5020 IFZK="N"THEN5240
5025 IFZK=CHR$(32)THEN5040
5030 IFZK="Y"THEN5040ELSE5010
5040 OPEN"A:TELEDATA.DAT"AS#1LEN=256
5050 E=E+1
5060 FORI=1 TO FINO+1:RN=I
5070 IFI=FINO+1THEN5120
5080 GET#1,RN:LOCATE10,8:PRINT"RECORD NO
.";:PRINTRN
5100 YQ=VAL(NA):AA(E)=STR$(YQ):AB(E)=NB
5110 E=E+1:NEXTI
5120 CLOSE:LOCATE0,20:PRINT"Press S to s
ort ESC to abort";:ZL=INPUT$(1)
5125 IFZL=CHR$(27)THEN20
5130 IFZL="S"THEN5140ELSE5120
5140 FORM=1 TO E-2:FORO=M+1 TO E-1:LOCAT
E15,15:PRINTM;:PRINTO
5150 IFAB(M)<=AB(O)THEN5170
5160 SWAP AB(M),AB(O):SWAPAA(M),AA(O)
5170 NEXT:NEXT
5180 LOCATE5,20:PRINT"      SORT COMPLET
E Save Y/N";:ZM=INPUT$(1)
5190 IFZM="Y"THEN5210
5195 IFZM="N"THEN5240ELSE5180
5210 OPEN"A:TELEPORD.BAS"FOROUTPUTAS#2
5220 FORG=1TOE-1:PRINT#2,AA(G):NEXTG
5230 CLOSE
5240 'TELEDATAPRINTINGPROGRAM
5250 CLS:LOCATE5,1:PRINT"PRINT TELEDAT
RECORDS"
5290 OPEN"A:TELEPORD.BAS"FORINPUTAS#2
5300 FORE=1 TO 5000:LINEINPUT#2,AA(E)
5310 IF EOF(2)THEN5320ELSENEXTE
5315 CLOSE
5320 GOSUB5500
5330 OPEN"A:TELEDATA.DAT"AS#1LEN=256
5335 G=1:H=56
5340 FORE=G TO H
5350 F=VAL(AA(E))
5360 IFAA(E)=""THENLPRINTCHR$(27);"N"
TO20
5370 RN=F
5380 GET#1,RN
5390 CLS:LOCATE5,1:PRINT"PRINTING  IN
OGRESS":LOCATE0,2:PRINTSTRING$(40,"-"
OSUB1260
5400 GOSUB5420
5410 NEXTE
5412 GOSUB5550:GOSUB5500:GOTO5340
5420 LPRINTCHR$(27)"Q";TAB(1)NB;TAB(
H;TAB(81)NL;TAB(101)NI;TAB(121)NJ;TAB
0)NA
5430 RETURN
5500 LPRINTCHR$(27);"P";TAB(50)"TELEI
  R. & M. A. YOUNG"
5510 LPRINT;STRING$(95,"-")
5520 LPRINTCHR$(27);"Q";TAB(1)"NAME":
(36)"POSTAL ADDRESS";TAB(81)"CONTACT'
B(101)"PHONE NO'S";TAB(121)"FAX NO.":
(129)"FILE NO."
5530 LPRINT;STRING$(136,"_")
5540 RETURN
5550 G=G+56:H=H+56
5560 CLS:LOCATE5,10:PRINT"PUT ANOTHEI
EET OF PAPER IN PRINTER"
5570 LOCATE5,20:PRINT"PRESS S/BAR WHI
EADY";:ZR=INPUT$(1)
5580 IFZR=CHR$(32)THENRETURNELSE5570
7000 'ERRORROUTINES
7110 IFERR=68THENCLS:LOCATE0,10:PRINT
SC WRITE PROTECTED!!! MOVE TAB PRESS
 TO CONTINUE";:ZL=INPUT$(1):IFZL=CHR$
)THENRESUMEELSE7110
7120 CLS:LOCATE5,23:PRINT"LINE";ERL;"
:ERROR ERR:END
```

USERS COLUMN

This program was designed to copy all or a portion of the graphics screen (VIDEO RAM) to user ram and back again.

It can be used to copy a portion of screen 2 to another location on screen 2. The program will also work on screen 0 by changing some of the program variables. It will copy a full screen of text VERY quickly.

Information required to use the program involves knowing VRAM locations for screen 0 - 2.

EG. Screen 0 VRAM location 0 - 1023
Screen 1 VRAM location 6144 - 6911
Screen 2 VRAM bit pattern 0 - 6143 and color data 8192 - 14335

Note: When copying a full screen in the graphics mode the color data needs to be copied too. This means 12k of memory is used (maybe too much).

Here is an example of how to use the program in Screen 0:

1) Poke machine code in at D000H
2) Put some text on Screen 0
3) Set program variables -

```
Poke D100H, 00H
                ) Starting address in user ram D200H
Poke D101H, D2H

Poke D102H, 00H
                ) Starting in VRAM + read instruction
Poke D103H, 00H

Poke D104H, 40   Columns to read

Poke D105H, 23   Lines to read
```

4) Execute machine code EG. Z = USR(0)
5) Clear screen (CLS)
6) Reset program variables same as above, except Poke D103H, 40H. This changes program to write VRAM
7) Execute machine code again

Original text should now be restored to the screen. Many text screens can be stored in user ram and called at will, with some imagination this program could have many uses EG. Pull down menus or Artistic programs.

VARIABLES USED IN THIS ROUTINE

"BRAM"	LOCATION D100H(LS) & D101H(MS)	: ADDRESS OF BUFFER IN USER RAM
"VRAM"	LOCATION D102H(LS) & D103H(MS)	: STARTING ADDRESS OF VRAM
"CCNT"	LOCATION D104H	: NUMBER OF BYTES TO WRITE BEFORE OFFSET IS ADDED TO VRAM ADDRESS
"LCNT"	LOCATION D105H	: NUMBER OF TIMES OFFSET IS ADDED

* This instruction is shown for use in MODE 0 only.
To use this routine in MODE 2, change to " 11 00 01 "
This is how the offset is set.

```
LOCATION        CODE            ASSEMBLER           COMMENTS

D000            F3              DI                  DISABLE Z80 INTERRUPTS
                ED 5B 00 D1     LD DE,(BRAM)        GET BUFFER ADDRESS IN DE REG.
                3A 02 D1        LD A,(VRAM)         GET LSB OF VRAM ADDRESS IN ACC
                D3 99           OUT 99H,A           WRITE TO VDP
                3A 03 D1        LD A,(VRAM+1)       GET MSB OF VRAM ADDRESS IN ACC
                D3 99           OUT 99H,A           WRITE TO VDP
                2A 02 D1        LD HL,(VRAM)        GET VRAM ADDRESS IN HL

D012 SKPLOOP    3A 04 D1        LD A,(CCNT)         GET CCNT IN ACC
                F5              PUSH A              PRESERVE ON STACK

D016 SKPLOOP1   CB 74           BIT 6,H             TEST BIT 6 OF H REGISTER
                CA 21 D0        JP Z,READ           IF BIT 6 IS "0" JUMP TO READ ROUT

     WRITE      1A              LD A,(DE)           GET BYTE FROM BUFFER
                D3 98           OUT 98H,A           WRITE TO VDP
                C3 24 D0        JP CONT             JUMP TO CONT ROUTINE

D021 READ       DB 98           IN 98H,A            READ VDP
                12              LD (DE),A           STORE IN BUFFER

D024 CONT       13              INC DE              NEXT BUFFER LOCATION
                F1              POP A               GET CCNT FROM STACK
                FE 00           CP 0                IS IT ZERO?
                3D              DEC A               CCNT = CCNT-1
                F5              PUSH A              PRESERVE ON STACK
                C2 16 D0        JP NZ,SKPLOOP1      LOOP IF >0

                F1              POP A               ADJUST STACK POINTER
                D5              PUSH DE             PRESERVE DE
*               11 28 00        LD DE,0028H         VALUE TO ADD IN DE (OFFSET)
                19              ADD HL,DE           HL=HL+DE
                D1              POP DE              GET DE BACK FROM STACK
                7D              LD A,L              GET L IN A
                D3 99           OUT 99H,A           WRITE ADDR(MS) TO VDP
                7C              LD A,H              GET H IN A
                D3 99           OUT 99H,A           WRITE ADDR(MS) TO VDP
                3A 05 D1        LD,A(LCNT)          GET LCNT
                3D              DEC A               DECREMENT
                FE 00           CP 0                IS IT ZERO?
                32 05 D1        LD (LCNT),A         STORE LCNT
                C2 12 D0        JP NZ,SKPLOOP       NO, REPEAT LOOP

                FB              EI                  ENABLE INTERRUPTS
                C9              RET                 RETURN FROM CALL
```

USER NOTES

"BRAM" Location must be set so as not to interfere with system firmware.
Adequate ram must be declared from basic before calling this routine.

```
eg. 10 CLEAR 1024,&HD200 -- DECLARES 1KB OF RAM FROM LOCATION D200H
    20 POKE &HD100,&H00  --
    30 POKE &HD101,&HD2  -- SETS "BRAM" TO D200H
```

"VRAM" The lower 14 bits of this address determine the VRAM starting address.
The two MS bits determine the operation. (READ or WRITE)
The two MSB's should only be set to either 00 (READ) or 01 (WRITE).

```
        eg. 40 POKE &HD102,&H00
            50 POKE &HD103,&H40 -- SETS "VRAM" TO 1H. THE ROUTINE WILL WRITE
                                   TO VIDEO RAM.

ALTERNATIVE 50 POKE &HD103,&H00 -- SETS "VRAM" TO 0H. THE ROUTINE WILL READ
                                   FROM VIDEO RAM.
```

"CCNT" This can be set from 0-40(MODE 0) or 0-255(MODE 2).

"LCNT" This can be set from 0-23.

```
        eg. 60 POKE &HD104,10 -- "COLUMNS"
            70 POKE &HD105,10 -- "LINES"
```

This example will set the routine to RD or WRT (depending on line 50), an area of 10 x 10 characters in MODE 0.

CALLING FROM BASIC

```
5 DEFUSR0=&HD000:REM USR0 ADDRESS ASSIGNMENT
.
.
.
.      REM LINES SHOWN IN EXAMPLES ABOVE
.
.
.
80 Z=USR0(0):REM CALL USER SUBROUTINE. (DUMMY ARGUMENTS)
```

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MSX MUSIC

BY PETER NIELSEN

This issues column should be of practical use to all MSXer's as I will be talking about the SOUND command, and its uses for program effects.

The MSX computer was designed with a PSG (Programmable Sound Generator) as standard equipment, thus enhancing its capabilities and its usefulness to the owner. You have to purchase an optional extra to get music on some other brands of computer. The PSG is a AY-3-8912 integrated circuit that contains 3 sound generators (channels) and 14 control registers. It was developed in the late 1970's but it is still the most popular sound chip around and is used in a lot of arcade games machines. The reasons for its success are its flexibility and the ability to produce 3 channels of sound and one noise channel simultaneously. Because it is a microprocessor in itself it does not halt the main Z80 processor when it is producing sound. Together with a seperate video processor, the PSG allows MSX machines to run a lot faster than the 3.9MHz clock would indicate. Yamaha simply expanded on this idea in their CX5 models by providing a synthesizer module in slot 3 (60 pin side slot).

The coarse frequency or pitch of the sound emitted by channel A (whether it is high or deep), is set by SOUND1 (0=highest to 15=lowest), and its fine frequency is set by SOUND0 (0= highest to 255= lowest). SOUND0 will give all the pitches between adjacent settings of SOUND1, thus providing a wide range of frequencies (16 X 256 = 4096) on each channel. My aged and sound-blasted musicians ears cannot hear any sound higher than SOUND1,0:SOUND0,10, but any of you who are younger than the geriatric age of 50 may be able to discern the notes.

Channel B is set by SOUND3 and SOUND2 and channel C is set by SOUND5 and SOUND4. Odd numbers provide the coarse setting and even numbers set the fine adjustment. The format for these commands is SOUND (register) , (setting).

Once a SOUND command is issued the PSG will continue to emit that sound until instructed to either turn off or lower the volume to 0. SOUND8, SOUND9 and SOUND10 sets the volume for each channel (0=silence and 15 = full volume). SOUND7 controls the on/off status of the channel and will be discused later in this article.

The following program will give a short demonstration of the effects of changing SOUND1 and SOUND0 from minimum to maximum. Please note that SOUND8,15 is set first, to turn channel A to full volume and SOUND8,0 at the end reduces the volume to zero.

```
10 REM "SOUND1.BAS"
20 KEYOFF:CLS:SOUND8,15
30 FOR Z=0 TO 15
40 FOR Y=0 TO 255
50 LOCATE11,11,0:PRINT"SOUND ";Z;Y
60 SOUND1, (Z):SOUND0, (Y)
70 REM FOR X=1 TO 10:NEXTX
80 NEXTY:NEXTZ
90 CLS:SOUND8,0
```

As you will no doubt have noticed during the running of this program, that the frequency of the sound drops very quickly and then takes ages to get to the lowest note. This is because the computer is calculating in a linear fashion (straight line), and the human ear hears on a logrithmic curve. This logrithmic curve applies to both frequency and volume, thus the volume change steps from SOUND8,0 to SOUND8,15 do not appear to be even steps to your ear.

SOUND6 is the noise channel and emits white noise which can be modified by altering the resonant frequency (0-32). SOUND6,0 is a hiss and SOUND6,32 is a roar. The following short progam will demonstrate this for you.

```
10 REM "SOUND2.BAS"
20 KEYOFF:CLS:SOUND8,15:SOUND7,55
30 FOR Z=0 TO 31
40 LOCATE11,11,0:PRINT"NOISE ";Z
50 SOUND6, (Z)
60 FOR X=1 TO 500:NEXTX
70 NEXTZ
80 CLS:SOUND8,0
```

SOUND7 is the mixer register and can be set by entering the correct number calculated on a bit basis. As bit 6 and 7 are not used we wil only talk about the remaining six bits.

Value	32	16	8	4	2	1
Register 7						
BIT	5	4	3	2	1	0
noise on channel	C	B	A			
tone on channel				C	B	A

The register is in reverse format i.e. 0=ON and 1=OFF and so SOUND7,63 will turn all sound off and SOUND7,0 will turn all sound on. One way of getting the setting is to calculate the number you require and subtract it from 63. e.g. Channel B for tone = value of 2. 63-2=61 therefor SOUND7,61 will achieve what you want. At least I found it easier to calculate it that way. (beats trying to think backwards). Just remember that there is really only one noise channel which is controlled by SOUND6 and the same noise can be heard through channels A,B & C depending on the SOUND7 setting.

An envelope (in a sound situation) is a setting that allows the volume to rise and/or fall over a given time span and SOUND13 sets the envelope shape (rise or fall or both) for all channels. SOUND13 can be set from 0 to 15, but as some envelopes have been duplicated there is really only a choice of 8. All envelopes start at either full or zero volume.

These are the envelopes available:-

13	Rise/time to full
0,1,2,3 & 9	Fall/time to zero
4,5,6,7 & 15	Rise/time - cut to zero
11	Fall/time - jump to full
12	Envelope 4 repeated
8	Envelope 11 repeated
14	Rise/time - Fall/time
10	Fall/time - Rise/time

The time setting is achieved by setting SOUND11 and SOUND12 (both can be set from 0 to 255). These two registers work together (same as 0 & 1) with SOUND12 being the coarse setting and SOUND11 being the fine setting. The actual time is SOUND12 x 256 + SOUND11 and a setting of 255 to both equals a time of 9 seconds.

By using an envelope, we can now control the continuous sound that we had in the first program, and turn it into something a little more useful. But first we must tell the PSG that we want it to use the envelope. This is done by setting the volume register to 16 on the channel we wish the envelope to apply to. Setting 8,16 will apply the envelope to channel A. The same envelope can apply to one or all channels as you desire, but remember that you only have one envelope. The following program demonstrates the envelopes from 0 to 14.

```
 10 REM "SOUND3.BAS"
 20 KEYOFF:CLS:SOUND1,3
 30 SOUND12,30
 40 SOUND8,16
 50 FOR Z=0 TO 14
 60 LOCATE11,11,0:PRINT"ENVELOPE ";Z
 70 SOUND13, (Z):SOUND1,2
 80 FOR X=1 TO 3000:NEXTX
 90 NEXTZ
100 CLS:SOUND8,0
```

I hope by now that you have a basic understanding of how the PSG operates. All you need is some time spent experimenting with the registers and the combinations that are possible. The following are some sound effects that you may find useful, particularly if they are set up as sub-routines and called at the appropriate time in a program.

```
 10 REM  FLYING SAUCER ?
 20 SOUND1,1
 30 SOUND7,62
 40 SOUND8,16
 50 SOUND11,179
 60 SOUND12,45
 70 SOUND13,14
```

You will notice that the sound continues even though the program has stopped, and it will continue until a control stop, stop, beep or play is executed.

Now add 80 FORX=0TO255:SOUND0,X:NEXTX
100 GOTO 80

AND YOU GET ??????

ADD 90 FORX=255TO0STEP-1:SOUND0,X:NEXTX

and whatever it is, it doesn't know where it's at !!!

The following listing is from the Yamaha MSX Basic Manual if you feel like trying it out.

```
 50 FOR X=0 TO 13:SOUND X,0:NEXT 'clear all regs
100 SOUND 7,62:SOUND 8,15:SOUND 9,16:SOUND 10,16
110 SOUND 12,16:FOR X=48 TO 170:A=5^5^5 '25ms delay
120 SOUND 0,X:NEXT:SOUND 8,0 'falling bomb effect
125 '
130 SOUND 0,0:SOUND 6,15:SOUND 7,7:SOUND 12,16
140 FOR X=8 TO 10:SOUND X,16:NEXT
150 SOUND 13,0:FOR X=1 TO 500:NEXT 'explosion effect
155 '
160 SOUND 1,1:SOUND 7,46:SOUND 8,15:SOUND 9,9
170 FOR X=80 TO 33 STEP-1:POKE 0,X:NEXT
180 X=TAN(1):X=TAN(1) '2 x 175ms delay
190 FOR X=55 TO 40 STEP-1
200 POKE 0,X:A=5^5:NEXT '12ms delay
210 FOR X=40 TO 100:POKE 0,X:NEXT
220 SOUND 8,0:SOUND 9,0 'whistle effect
230 END 'a STOP would BEEP and turn off all sounds here
```

If any one has any sound effects they can share with others, SEND THEM IN and we will publish them. In the next issue I will discuss the PLAY command . In the meantime, have fun !!! That's what computers are all about, isn't it ???

GAMES INSTRUCTIONS

MIGHTY KONG HAS CAPTURED THE BEAUTIFULL GIRL-WATCH HIM MAKE OFF WITH HER AND GO TO THE TOP OF THE BUILDING.
NOW PLAY THE ROLE OF MARIO THE CARPENTER, AS HE PURSUES THE ATTEMPT TO RESCUE THE DAMSEL.

LOADING
1. PLACE CASSETTE IN THE RECORDER.
2. TYPE LOAD"CAS:",R
3. PRESS PLAY ON YOUR RECORDER AND THE GAME WILL LOAD AUTOMATICALLY.

CONTROLS

THE GAME IS CONTROLLED BY THE JOYSTICK OR BY KEYBOARD WHICH IS FULLY REDEFINABLE.

	JOYSTICK AS NORMAL.
KEYBOARD	Q - UP
	Z - DOWN
	I - LEFT
	P - RIGHT
	SPACEBAR - JUMP

A MENU IS PRESENTED ONCE THE GAME IS LOADED; OPTIONS ARE IMPLEMENTED BY PRESSING THE CORRESPONDING NUMBER:TO BEGIN GAME WHEN DESISIONS ARE MADE PRESS"O".IN TWO PLAYER MODE TAKE TURNS AT THE C.P.U

STATUS AND SCORING

ON SCREEN SCORING SHOWS CURRENT SCORE (TOP LEFT), BONUS POINTS (TOP RIGHT) WHICH ARE COLLECTED UPON COMPLETION OF EACH SCREEN AND THE NUMBER OF LIVES REMAINING. ALSO DISPLAYED ARE THE LEVEL INDICATOR AND THE NUMBER OF PLAYERS.

EACH BARREL JUMPED	100 POINTS
2 BARRELS AT ONCE	300 POINTS
PICK UP HAMMER (TO CRUSH BARRELS)	300,500 OR 800 POINTS
EACH PIE JUMPED	200 POINTS
EACH OBJECT COLLECTED	300 POINTS

POINTS ARE ALSO COLLECTED FOR CRUSHING PIES WITH THE HAMMER. ON SCREEN 3 EXTRA POINTS ARE AWARDED FOR COLLECTING THE OBJECTS AND FINISHING THE LEVEL AND ON SCREEN 4 FOR KNOCKING OUT THE RIVETS. AS THE LEVEL INCREASES THE BONUSES AND SCORES FOR COLLECTING OBJECTS ALSO INCREASE.AN EXTRA MAN IS AWARDED AT 10,000 POINTS (UP TO A MAXIMUM OF 4).

GAME PLAY

"HELP!"HELP!" CRIES THE MAIDEN AS SHE IS DRAGGED UP A LABYRINTH OF STRUCTURAL BEAMS BY DONKEY KONG."SNORT". "SNORT". FOREBODING MUSIC WARNS OF THE EVENTUAL DOOM THAT AWAITS THE POOR GIRL, LEST SHE SOMEHOW BE RESCUED. "BUT WAIT! FEAR NOT, FAIR MAIDEN. LITTLE MARIO, THE CARPENTER, IS IN HOT PURSUIT OF YOU AT THIS VERY MOMENT".
THROWING FATE TO THE WIND, RISKING LIFE AND LIMB, OR WORSE, LITTLE MARIO TRIES DESPERATELY TO CLIMB THE MIGHTY FORTRESS OF STEEL, TO SAVE THE LOVELY LADY FROM THE EVIL MR. DONKEY KONG. LITTLE MARIO MUST DODGE ALL MANNER OF OBSTACLES-FIREBALLS, PLUMMETING BEAMS AND A BARRAGE OF EXPLODING BARRELS FIRED AT HIM BY DONKEY KONG. AMIDST THE BEAUTIFUL GIRLS CONSTANT PLEAS FOR HELP, YOUR CHALLENGE IS TO MANOUVRE LITLE MARIO UP THE STEEL STRUCTURE, WHILE HELPING HIM TO AVOID THE RAPID-FIRE SUCCESSION OF HAZZARDS THAT COME HIS WAY.

AS LITTLE MARIO GALLANTLY BATTLES HIS WAY UP THE BARRIERS, HE IS TAUNTED AND TEASED BY DONKEY KONG, WHO BRAZENLY STRUTS BACK AND FORTH, BEATING HIS CHEST IN JOYFUL EXUBERANCE AT THE PROSPECT OF HAVING A BEAUTIFUL GIRL ALL TO HIMSELF. IT IS YOUR JOB TO GET LITTLE MARIO TO THE TOP. FOR IT IS THERE, AND ONLY THERE, THAT HE CAN SEND THE MIGHTY DONKEY KONG TO HIS MORTAL DOOM. LEAVING LITTLE MARIO AND THE BEAUTIFUL GIRL TO LIVE HAPPILY EVER AFTER. "SIGH."SIGH".

HINTS AND TIPS

1. WHEN CLIMBING LADDERS IF YOU RAISE YOUR HAND JUST ABOVE THE LEVEL OF THE LADDER THEN BARRELS WILL NOT DESCEND.
2.DONT WALK OFF THE PLATFORMS AS THIS RESULTS IN YOU LOSING A LIFE
3.WHEN JUMPING IF YOU FALL TOO FAR YOU WILL ALSO LOSE A LIFE.

GOOD LUCK

GUNFRIGHT

GUNFRIGHT LAWBOOK
1.YOUR SUPER SLUNG SIX SHOT SLINGER WILL RE-LOAD AS SOON AS THE CHAMBER IS EMPTY.
2.PRICES OF BULLETS MAY VARY DURING YOUR TERM OF OFFICE AT BLACK ROCK, YOU WILL HAVE TO PAY THE GOING RATE AT THE TIME OF RELOADING.
3.DURING GUN FIGHTING SHOULD ANY OF THE TOWNSFOLK BE SHOT BY YOU OR THE BADDIES THEN THE SHERIFF WILL HAVE TO PAY THE CONSEQUENCES.
4.SALARY MUST BE COLLECTED TO PROVIDE FUNDS TO BUY MORE AMMO.
5.BANDITS MAY BE SHOT ON SIGHT, BUT HARDENED CRIMINALS AND GUNFIGHTERS WILL WANT TO FIGHT THE FAST DRAW WAY.
6.THE TOWNSFOLK WILL POINT THE WAY TO THE NEAREST BADDIE.
7.SHERIFF'S HORSE PANTO MUST BE USED TO MAKE CHASE FOR ANY FAST MOVING HORSE MOUNTED BANDITS.
8.REWARDS CAN BE COLLECTED FOR ANY BADDIES SUCCESSFULLY CAUGHT DURING GUNFIGHTING.
9.SPECIAL BONUSES ARE AVAILABLE FOR COMPLETE GANGS BROUGHT TO JUSTICE.
10.WHEN IN FAST DRAW COMBAT BEWARE OF HARDENED AND FAST DRAW CRIMINALS THE LIKES OF QUICK DRAW McDRAW, FASTEST GUN IN THE WEST.
11.READ YOUR TELRGRAM WIRES AND STAY IN TOUCH WITH THE REST OF THE TOWN.

GUNFRIGHT KEYBOARD CONTROLS

GUNFIGHT MODE
LEFT SHERIFF QUICKDRAW WILL ROTATE LEFT USING Z,C,B OR M KEYS.
RIGHT """""" """""""""" WILL ROTATE RIGHT USING THE X,V, OR N KEYS.
WALK SHERIFF QUICKDRAW WILL WALK FORWARD USING THE A,S,D AND F KEYS.
DRAW/FIRE SHERIFF QUICKDRAW WILL DRAW/FIRE USING THE Q,W,E,R OR T KEYS.
PAUSE THE WHOLE GAME CAN BE PAUSED AT ANY TIME USING CAPS SHIFT KEY.
CHANGE VIEW YOU CAN CHANGE THE ANGLE OF VIEW USING THE Z AND SYMBOL SHIFT KEYS.

FAST DRAW MODE
LEFT SHERIFF QUICKDRAW WILL MOVE LEFT USING Z,C,B,M KEYS
RIGHT """""" """""""""" WILL MOVE RIGHT USING X,V,N KEYS.
UP """""" """""""""" WILL MOVE UP USING Q,W,E,R ROW ETC.
DOWN """""" """""""""" WILL MOVE DOWN USING A,S,D,F ROW ETC.
FIRE """""" """""""""" WILL FIRE USING THE 19 KEYS.
PAUSE THE GAME CAN BE PAUSED ANY TIME USING THE CAPS SHIFT OR THE BREAK SPACE KEYS.
JOYSTICK CONTROLS
YOUR GUNFIGHTER CAN BE FULLY CONTROLLED BY USING THE JOYSTICK BY REPLACING THE LEFT,RIGHT,FORWARD AND FIRE CONTROLS.

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