

SYDTRUG NEWS

SYDNEY TRS-80 USERS GROUP NEWSLETTER

Volume. 4 Issue. 6 February 1984

IN THIS ISSUE

This month's newsletter starts off with the completion of Geza Dujmovich's cassette modification articles, covering the modifications to the Tandy CTR-80 and CTR-80A tape decks (expanding on last months effort). Geza details how to implement a Level Meter, Audio Monitor and Remote Override facility.

For the first time we pickup an article by Don McKenzie via the Adelaide Micro-User News. Don details how to achieve a true TRS-80 type 32 character mode in the SYSTEM-80.

We again provide support for our MODEL 4 users with an article by Rowan Evans and Larry Lewis on how to modify TRSDOS 6 to allow the use of double sided drives (why doesn't TANDY like them).

Last but not least Errol Rosser supplies those of us with EPSOM printers (or clones), with a program that will allow the use of the LP7GRFX vector graphics program (April '83 80-MICRO). Errol has developed the patches required to the original source code to allow it to function with the MX-80.

GENERAL

This issue has been a joint effort between Denis Pagett and myself and before I leave it to Denis by himself, I would like to call on those of you who have promised articles (and those who haven't yet!) to give him all the support that you can.

All articles should preferably be submitted as an ASCII file on disk or tape or as a series of REM statements in a BASIC program for those of you who don't posses a word processing program.

Send your articles to :-

Denis Pagett
15 Anderson Ave.
Panania 2213.

or alternately give it to Denis at any Club meeting. All media will be returned to the contributor if required.

Thanks for your continuing support,
Your Editor,
Gary Bryce.

MEETING DATES

The dates for the forthcoming meetings for February and March appear below, all meetings commence at approximately 1:00 PM at the rear of Pattersons Florist, Chegwyn St. BOTANY.

FEBRUARY

11th Extraordinary General Meeting
18th Special Interest Group

MARCH

10th Monthly Meeting
17th Special Interest Group

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OCASSETTE CORNER

by Geza Dujmovich

Last months article proved to be a slightly too condensed version of the one which will be presented here (my fault :Ed). To save having to refer back to the last issue the circuits and other data will be represented in the original form this month.

The modifications I describe here were developed for the cassette players which were supplied with the Model I TRS-80, ie:- CTR-80 or CTR-80A, of these I have done about six or seven for myself and friends. I feel these modifications significantly add to the ease and reliability of cassette operations.

CTR-80 Modifications

I will detail the reasons for and the workings of the modifications first, and then at the end of the article I will finish off by telling you how to put it all together.

Level Meter

The level meter provides the means for the visual monitoring of Cassette-/Computer data flow, this mod wasn't detailed in the earlier SYSTEM 80 article as the later models had one already! The meter is not scaled but does provide a relative level indication function. It shows differences between level settings. ie : lets you see if the signal is low or (if you have turned the volume up too much) high and thereby lets you actually see the difference between different volume settings, or just how much pre-recorded tapes vary around in level. Capacitors Ca and Cb are small electrolytics and need be no more than 16v working, the values of 10uF and 33uF respectively were arrived at by lengthy scientific methods (Trial & Error) to give a reasonable range of readings.

The diodes from which the rectifier bridge is made can be any general purpose (ie:1N4001) small diodes. I don't advise encapsulated bridges as the forward resistance may be a bit high (these are mostly for power applications). The level meter used is a small one available from Dick Smith stores (Cat Q-2110), and is ideal in size as it will fit inside the player (not glued on externally like the butchered jobs I've seen in the deceased CISA mod.). Providing care is taken with the positioning, drilling and filing described later, you will have a neat professional looking finish.

Monitor Play

The reason the signal can't be heard as it goes from the player to the computer is that the earphone socket has been wired to cut-off the connection to the speaker when the plug is inserted. Therefore to enable the audio monitoring of Cassette/Computer signal we need to short out this cut-off switch to turn the speaker back on. However doing it that in this simple manner would introduce two disadvantages.

(a) Too much of the signal that is meant for the computer will go instead to the speaker, resulting in unreliable loads (the opposite of what we are trying to achieve).

(b) The speaker would come on at nearly "Full Blast" and it would be hard to tolerate listening to the high level buzz of the program data.

The solution is to bridge the speaker cut-off contacts, not with a short circuit, but with a 100ohm resistor (this value being obtained by similar arduous scientific methods as the level meter) which results in minimal reduction of the signal to the computer and yet giving a comfortable and very usable volume from the speaker, letting us know what if anything is there, what it sounds like, and even level variations if you have good ears.

Monitor Play (cont)

This Monitor play facility is switched by one pole of a two position two pole switch, the other pole being used to switch in the ability to monitor in a similar manner the signal being written from to the recorder from the computer.

Monitor Record

The reasons one cannot hear the signal from the computer going to the recorder are :-

- (a) The speaker is cut-off as described previously.
- (b) There is a set of contacts which switch over when the record lever is operated, cutting off the earth to the speaker and connecting it to the erasing head.

The first problem is overcome by the previous mod via the 100ohm resistor and the second by the second pole of the two pole two position switch. This switch wired to the contacts of the internal switch (S1/6) inside the recorder (mounted on the PCB) so as to re-apply the earth to the speaker when the record lever is operated.

This mod has the added feature of enabling the recorder to double as a sound effects amplifier by inserting the plug into the microphone socket, operating the record lever and monitor switch (removing the earphone plug for increased volume).

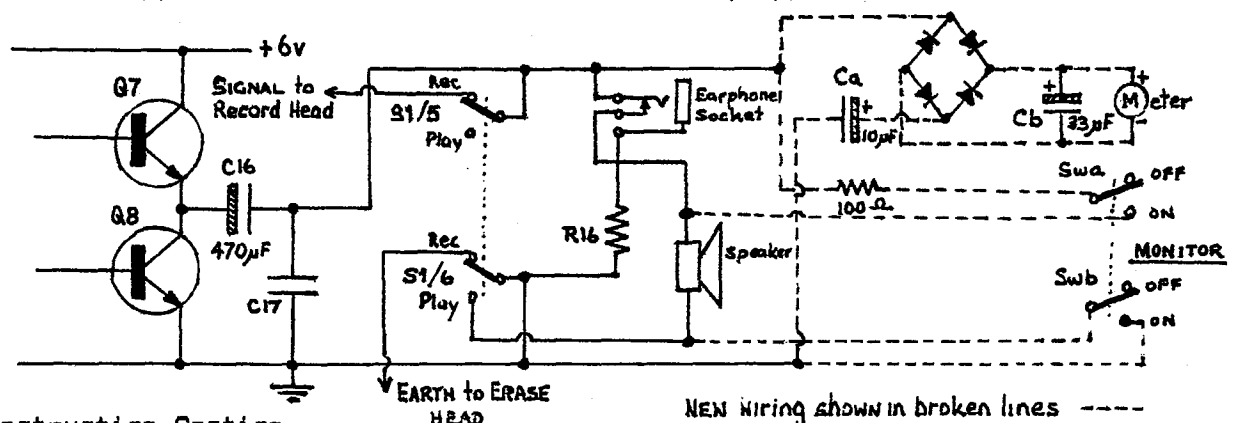
Remote Override

This is the simplest of the four mods as all that is required is one switch to apply a short circuit across the contacts in the Remote socket, which is normally opened by the remote plug and the contacts of the cassette relay in the computer.

The simplest method is to run two wires directly from the Remote socket (mounted on the PCB) away to a switch that short circuits the contacts in the socket when thrown.

Circuit

A full circuit of the modifications to the CTR-80/80A including Level Meter, Monitor Play, Monitor Record and Remote Override, appears below.



Construction Section

The actual hardware part of the mod I will leave to the individual, but I have found that if the meter is placed in the upper right hand corner of the cassette deck, there is just enough room for it and the rectifier bridge and the two capacitors soldered to the back of the meter (with just two wires leading away to be connected to the PCB) without having to hack into the battery compartment.

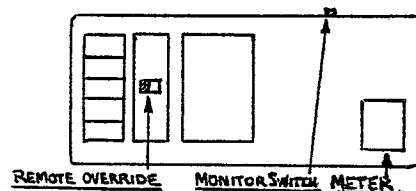
Construction (cont)

The Monitor switch is mounted on the left hand side just past the input sockets. There is plenty of room in this area for switches but we will only put the Monitor switch here as the Remote Override is better somewhere closer to the levers on the front of the deck.

There is just enough room under the front nameplate area in front of the levers (right where the CTR-80 logo is placed) to mount the override switch. Tandy have conveniently provided a place here for a switch that they must have had in mind for something but never fitted. All that needs to be done is to cut or melt (with a soldering iron) off the projections to give room for the switch that we are using.

Both the Monitor and Override switches can be any slide or toggle type of suitable small size. Remember the monitor switch must be a double pole type. I suggest using slide switches as they don't protrude as much as toggle types externally or internally into the cassette deck.

A diagram of the placement of the modifications to the cassette player case that I have made appears at the right.



Conclusion

If performed carefully, the modifications will make the cassette system more reliable and durable (at least you can hear it when it conks out), and as stated at the beginning there are at least six CTR-80's of mine and my friends so modified. My latest successful application of the mods being to a CCR-80 (the new flatter that comes with a Mod III or Mod 4) which was no extra problem other than having to cut away part of the battery compartment (your silly if you use batteries anyway as they give unreliable operation) to fit the level meter due to the lower profile of the unit.

SYSTEM 80 MODS

from Adelaide Micro-User News

This modification was provided by Don McKenzie who swears by it as the only correct modification for the System-80 32 character mode, apparently as yet unpublished.

Modification to produce TRS-80 type 32 character mode on SYSTEM-80 type computers...

Components required - Nil

All wiring is done on the interface card in the keyboard.

Cut	Z29/11	Connect	Z29/11	to ground
Cut	Z29/2	Connect	Z29/2	to Z29/3
Cut	Z29/14	Connect	Z29/14	to Z29/13
Cut	Z29/5	Connect	Z29/5	to Z29/6
Cut	Z37/14	Connect	Z37/14	to Z37/13
Cut	Z37/11	Connect	Z37/11	to Z37/10

Remove R3 4.7K ohm resistor (near Q10).

Remove R29 4.7K ohm resistor (Z7 area).

SYSTEM-80 MODS (cont)

Model signal

Connect	Z6/6	to Z7/4
Connect	Z7/4	to Z37/1
Connect	Z6/5	to Z5/7

Optional Mods

Isolate S1 (video cut switch) and Page switch. This will give you two spare switches.

Don McKenzie
29 Ellesmere Cres.,
Tullamarine 3043
Phone (03) 338-6286

MODEL 4 BITS

By Rowan Evans
& L.A. & H.M. Lewis Computer Services Pty Ltd.

The following program when assembled (using EDAS :ed) will allow the Model 4 to use double sided drives when in Model 4 mode under TRSDOS 6.0.

The procedure is to assemble and run the program and then SYSGEN the disk. From then on this copy will correctly access the back side of those double sided drives that you thought were wasted after you bought your Model 4.

```

; Program to turn off bits 0 & 5 of LFLAG$
; SVC for TRSDOS (LDOS) 6.x
;
; Version 1.0.0                                Utility program for LDOS 6-1
COM      'Copyright L.A. & H.M. Lewis Computer Services Pty Ltd.
@FLAG$   EQU      101
@EXIT     EQU      22
@DSPLY    EQU      10
MSG        DEFM    'Twoside Activator program <LDOS 6-1>', 0DH
ORG        3000H
START     LD        HL, MSG
          LD        A, @DSPLY
          RST       28H                ; SVC
          LD        A, @FLAG$
          RST       28H
          LD        A, (IY+'L'-'A')
          RES       5, A                ; Sides
          RES       0, A                ; Step Rate
          LD        (IY+'L'-'A'), A
          LD        A, @EXIT
          RST       28H
          END       START

```

If you have any Model IV or LDOS problems, write to the Editor who will forward them on to me and I will do my best to answer them and have them published for everybody's benefit.

LP VII GRAPHICS to EPSOM

by Errol Rosser (02) 709 7646

For all readers who wish to use the LP7GRFX vector graphics routine from the " Graphics on the Lineprinter VII " in 80-Micro's April 1983 issue, here are the modifications to the source listing 'LP7GRFX/SRC' to use it on MX-80 type printers.

Delete the lines :- 8150 ; 8170 ; 8210 to 8240 ; and 8580 to 9040 .

Change these lines to read as :-

```

3100      LD      A,0
5100 PRT2    LD      A,27      ; 'ESC'
5300      JP      PRC
6110      LD      A,27      ; 'ESC'
6150      JP      PRC
8070      PUSH    BC
8080      LD      A,27      ; 'ESC'
8090      CALL    PRC
8100      LD      A,75      ; 'K' Set single
8110      CALL    PRC      ; density graphics
8120      POP     BC
    
```

Insert these lines :-

```

5250      LD      A,64      ; '@' Initialize printer
6141      LD      A,65      ; 'A' Set line feed
6142      CALL    PRC
6143      LD      A,7       ; to 7/72 inch (7 dots high )
8121      PUSH    BC
8122      LD      A,C       ; Low byte
8123      CALL    PRC
8124      POP     BC
8125      LD      A,B       ; High Byte
8126      CALL    PRC
8127      INC     HL
8452      XOR     255      ; Invert Bits
8454      AND     7        ; Mask for 1st 3 bits
8456      DEC     A        ; Correct bit value
    
```

NOTE :

(1) The source code is set up for 32K and can be altered by changing the following lines :-

```

300      DEFW     XXXXH-1   ; new MEM size-1
400      ORG      XXXXH     ; new start address
    
```

and change the BASIC program to reflect the new DEFUSR start addresses.

(2) For SYSTEM-80 owners change lines :-

```

8330 PRC1    IN      A,(OFDH) ; read printer status
8370      OUT     (OFDH),A    ; send to byte printer
    
```

(3) Some scale ratios fail to print correctly. You may have to alter them to find ones that do print correctly.

Later I intend to include modifications to allow Double Strike printing, Double Density graphics, short line logic, and correct the maths routines to print correctly for all scales.

For all enquiries contact me on (02) 709 7646.