

SOLUS NEWS

Vol. 0, No. 0

SOL Users' Society

August 1977

Editor Stan Sokolow

1690 Woodside Rd., #219, Redwood City, CA

SOL USERS' SOCIETY HOLDS FIRST MEETING

On a hot Sunday afternoon, July 31, about 30 owners of Processor Technology SOL computers gathered in a Stanford University auditorium to organize as the SOL Users' Society (SOLUS). The meeting was arranged by Bill Burns, Ron Findlay, Dave Fylstra, and Ben Milander who had been conducting preliminary SOL users' meetings at the Homebrew Computer Club. As the SOLUS Steering Committee, these four men discussed the goals, structure, and functions which they suggested for SOLUS.

By consensus of the SOLUS members it was decided that SOLUS will have a cooperative but independent relationship with Processor Technology. The goals of the Society are (1) to facilitate communication among SOL users, (2) to provide a mechanism for exchange of SOL-compatible software, (3) to give feedback from SOL users to Processor Technology, and (4) to encourage the development and testing of SOL-compatible hardware and software products by independent sources. Membership is open to owners of SOL computers or of other computers that are configured to act like SQL's. The Society is primarily a personal computer user's group, although a commercial interest group may be formed within SOLUS.

When it came time for volunteers to step forward, almost everyone took a step backward except a few members who were promptly given assignments. Ben Milander is interim treasurer; David Fox will coordinate software exchange; and Stan Sokolow is the interim newsletter editor. It was decided not to create a formal structure for SOLUS until we all had a better idea of our needs. A \$4 donation is requested to cover newsletter and incidental expenses.

SOL SOFTWARE EXCHANGE STANDARDS

SOLUS has temporarily adopted TDK Audua C-60 cassettes as the recommended tape for interchange of CUTS format software. It was reported that a variety of audio cassettes were tested by an unnamed company for digital use, and this type was found to perform the best of those tested, even better than the higher priced TDK tape. Members of SOLUS have had good success with it, so until better data is available, this is the standard.

Standards for documentation and recording of programs were discussed. A mechanism for reproduction and distribution of tapes which is easy and inexpensive is under investigation by David Fox. You can contact him at (415) 388-1294 if you want to help him organize or have software to contribute.

AUDIO CASSETTE RECORDERS TO BE TESTED AT NEXT MEETING

At the next SOLUS meeting everyone is asked to bring the audio cassette recorder they use, several blank cassettes, and some with clean copies of programs which work. We are going to conduct a test to find out which recorders are compatible with each other. We know some cassette recorders work better than others with SOL, and hopefully we can discover which ones to stay away from. Bring your SOL-20 too, if you can. Some programs will also be exchanged. PROCESSOR TECHNOLOGY will bring engineers and test equipment to help work out cassette problems.

The next SOLUS Meeting will be Sunday, September 11 at 1:00 pm in the Physics Lecture Hall (PH 100 or 101) on the Stanford University Campus, Palo Alto, California. Informal meetings will continue to be held at the Homebrew Computer Club meetings.

NEW PRODUCTS REVIEW

Dutronics, makers of the piggy back board that converts Altairs and IMSAI's to Z-80 processors, has provided a SOL-compatible prototype to SOLUS for testing. A report will be published in SOLUS News. Preliminary findings: It seems to work fine, but not all functions have been tested yet.

An ongoing function of SOLUS will be the critical review of products that are claimed to be SOL-compatible. While we can't provide actual certification that a product performs properly, we can at least see if it seems to work in a number of SOL's and report our experiences objectively.

SOLUS PLANS FOR NATION-WIDE EXPANSION

Recognizing that SOL users are located throughout the United States and even a few are international, SOLUS plans to charter local chapters and mail-oriented regional chapters. The concept is that local and regional chapters will serve their members directly, while the founding chapter in the San Francisco Bay Area will serve its members plus a coordinator from each of the other chapters. For example, local software librarians will be able to request a master copy of a software tape from the San Francisco chapter and then make this copy available to local members by any appropriate means, such as at local meetings. In this way we will all get the most benefit with the least work.

If you would like to help coordinate a local or regional chapter, let us know and we'll put you in touch with other coordinators in your area and get you started.

SHARE YOUR EXPERIENCES

Have you learned something good or something bad about SOL? Did you find an S-100 bus product that won't work in your SOL? Do you have anything interesting to say about Processor Technology or its dealers? Let us share your experiences with other SOL users. Address your correspondence to SOLUS News, c/o Stan Sokolow at the address shown on the front of this issue. Anonymous letters will be discarded, but names can be withheld upon request.

SOLUS NEWS

Vol. 0, No. 1 SOL Users' Society September 1977
Editor Stan Sokolow 1690 Woodside Rd., #219, Redwood City, CA 94061

SOLUS TAPE CLINIC ATTENDED BY PROC TECH

The second monthly meeting of the SOL Users' Society was judged a success by all. On Sunday Sept. 11 more than a dozen SOLUS members set up their SOL-20's in a Stanford University physics lab and a number of other members came with recorders and cassettes. Lee Felsenstein and Bob Marsh, the father and Godfather of SOL, along with Pat Tuell, applications engineer for Processor Technology, brought a truckload of test equipment and a SOL-20 with Helios II disk. While Proc Tech measured the frequency response characteristics of various recorders, the SOL members busily copied each other's choicest software like hungry men devouring a hearty meal. Later Bob Marsh and Pat Tuell helped a few members solve hardware bugs.

Everyone was so pleased with the meeting that it was decided to have a repeat performance at the next one. It was scheduled for Sunday, Oct. 16 at 1:00 p.m. in the second floor labs of Stanford's Physics building. Processor Tech will again bring test equipment to measure the performance of SOL tape interfaces and cassette recorders. Members and prospective members are invited to bring their SOL's, recorders, software and blank cassettes. The SOLUS software librarian, Dave Fox of the Marin Computer Center, will make master tapes for the library too.

SOLUS SOFTWARE EXCHANGE: OPEN FOR INPUT

The Marin Computer Center, a non-profit educational organization, has volunteered to operate the SOLUS software exchange. Two categories of programs will be maintained: public-domain and proprietary. The public-domain programs will be distributed to SOLUS members at cost. The Proprietary programs will carry an additional charge for a royalty to the author. SOL tapes and North Star floppy diskettes are acceptable now, and other media will be added later.

If you have programs for public-domain that you have written or adapted from non-proprietary programs, please make two copies on a reliable cassette (TDK Audua C-60 or shorter is recommended) at 1200 baud, or on a Northstar diskette. An additional file for each program, containing the operating instructions and a description of the program, is the best way to document the programs, but paper documents are acceptable. All programs must be SOLOS/CUTER compatible. Send your diskette or tape and a description of its files to SOLUS Library, c/o Marin Computer Center, 70 Skyview Terr. #301, San Rafael, CA 94903.

The SOLUS library will copy submitted files onto master media and return the original. In addition to the satisfaction of making the software exchange possible, all contributors of acceptable programs will receive a free subscription to the SOLUS Library Catalog, which will be

published as soon as the library is open for output. Contributors of public domain programs will not have to provide any warranties except that their programs are not protected by someone else's copyright.

Authors who want the SOLUS library to distribute their programs for royalties should ask for the proprietary software agreement. Keep in mind that proprietary programs should have substantial value, detailed documentation, no known errors, and a low enough price to discourage piracy. Authors of proprietary programs will be expected to provide limited warranty service, that is, to correct errors in their documents or programs for a specified period of time.

WE WERE LATE

If the first issue of SOLUS NEWS arrived too late, we apologize. The joint mailing with the Marin Computer Center took much longer for the Postal Service than we thought. We've sent this issue much earlier, but if it still arrives too late at San Francisco Bay area addresses, let us know. Our second meeting will be a repeat of the first, so you won't lose out.

SOFTWARE NOTES

A bug has been found in SOLOS/CUTER! We'll have details in the next SOLUS NEWS. Until then watch out for trying to open a file that's already open. It works okay from BASIC/5 but in machine language it pops the stack once too often unless you do the call right. Software Technology is sending us a note on it.

Mini Micro Mart of Syracuse, N.Y. has written to us that they are trying to make their RM system totally software compatible with SOL, even though it is not an S-100 system. If they succeed, the RM system owners would be eligible for SOLUS membership, since any system which is configured like a SOL qualifies. (MMM also sells S-100 products.)

Robert Elliot Purser, who also produces a free list of S-100 Bus products and manufacturers, is compiling a list of all available software on cassettes for the SOL-20, PET, Radio Shack, and Apple II computers. If you have software to sell, trade, or give away, you can let him know at P.O. Box 466, El Dorado, CA 95623. The lists will be distributed free to anyone who sends a self-addressed envelope with postage. He is not connected with the SOLUS library.

HARDWARE NOTES

Bill Holding of the S.F. Bay SOLUS chapter informs us that his SOL-20 crashed about once per hour when used in a high radio-frequency-interference environment (the Stanford physics building). Installation of a Corcom RFI power line filter #3EF1 in place of the SOL's AC line cord connector solved the problem. The plastic lip on the filter/connector had to be filed slightly but otherwise it was a direct replacement with adequate space. If you can't get one locally, contact Moltronics, 2320 Owen, Santa Clara, CA 95051. List price is \$9.24 plus tax and postage. This filter is better than some other types because it prevents the line cord from conducting RF into the SOL enclosure.

Bill also wrote that Cromenco's D+7A board didn't work in his SOL-20 because the D+7A ready signal (S-100 bus pin 72) conflicts with SOL signals. After moving the output of IC16 pin 13 (on D+7A) to pin 3 of the S-100 bus (XReady) and cutting the trace to pin 72(PReady) on D+7A, the board worked with +1.2% accuracy easily.

A number of SOL owners have complained that certain boards plugged into the S-100 backplane overheat. Some have had excess voltage on the

"+8" supply and Processor Tech has provided step-down transformers to them. Others had voltages within tolerance and had to add additional cooling via an extra fan or cutouts in the SOL cover.

Tom D. of the Chicago area reports that his Dynabyte 16K dynamic board didn't work at address 0 because Dynabyte lacks the Phantom disable. We contacted Dynabyte directly and they said that their memory boards do work correctly in SOL. (The SOL circuitry ignores the backplane memory during the system reset jump. Proc Tech confirms this.) Dynabyte did say that versions of their 16K dynamic board earlier than revision F required an additional capacitor on the +16v. line and revision B required modification for SOL. The only combination they know to be incompatible with their board is SOL + Dynabyte + Digital Systems floppy disk, and they're working on that problem.

Next month we'll show a modification to the SOL serial port which lets it generate the 134 baud needed by IBM 2741-type selectric terminals. It was contributed by an IBM engineer in SOLUS.

WAITING FOR A REPLY?

We've been pleased by the response to the formation of SOLUS. Unfortunately our people-power isn't adequate to reply to all of the letters we've received, but we'll try to answer as many questions as possible in SOLUS News and give personal replies to selected letters. Thanks for writing.

LOCAL CHAPTERS

We presently have coordinators for local chapters in a number of areas. If you know of anyone interested in forming a local chapter, have them send a letter requesting us to publish their contact address. A list of chapter addresses will appear in the next SOLUS News. It's our policy not to publish addresses without explicit permission.

CHAPTER MEETING DATES

The S.F. Bay chapter will meet at 1:00 p.m. on the following Sundays: Oct. 16, Nov. 20, Dec. 18--all at the Stanford University physics building, second floor labs, or in the physics lecture hall. The physics building is on Via Crespini off of Serra St. on the Stanford Campus in Palo Alto, CA.

Coordinators of other chapters can have their meeting calendar published in this section.

DISCLAIMER

SOLUS is an organization of hobbyists, and as such we don't have the resources to professionally check-out all of the information we publish. The editor makes reasonable efforts to verify facts on hardware modifications, software problems, and so on, with qualified people. We can assume no liability for errors that escape our screening, but we will publish rebuttals and corrections.

LAST OF THE FREEBIES

The next issue of SOLUS News will only be sent to SOLUS members, who've paid their \$4. Use the form on the following page, or an equivalent.

LATE BULLETIN

We just received the results of an evaluation of the Dutronics DZ80-80R board, which attempts to convert SOL to a Z80 system. It worked with most of the tests performed but it couldn't write to the parallel output port. Dutronics is now aware that some changes are necessary. We'll have more details in the next issue.

SOLUS MEMBERSHIP APPLICATION

To join SOLUS, complete the form below and mail it to: SOLUS Treasurer, 1439 Kinsport Lane, San Jose, CA 95120. Please do not send cash.

I own or have ordered a SOL or SOL-compatible computer and want to join SOLUS. I'm enclosing \$4 to cover expenses.

Name _____

Address _____

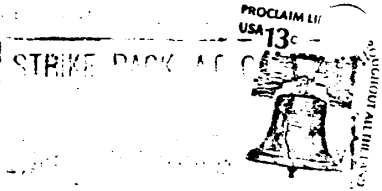
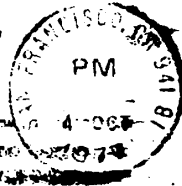
City, State, Zip _____

Telephone _____

Yes, I'd like to set up a chapter in my area. Please publish my name and address as a Local Chapter Coordinator.

No, I'm not interested in coordinating a local chapter.

SOLUS NEWS
Editor Stan Sokolow
1690 Woodside Rd., #219
Redwood City, CA 94061



Thomas A Digate
1366 Finley Rd, Apt 3S
Lombard, Ill 60148

SOLUS NEWS

Vol. 0, No. 2

SOL Users' Society

Oct./Nov. 1977

Editor Stan Sokolow

1690 Woodside Rd., #219, Redwood City, CA 94061

LOCAL CHAPTERS BEGIN TO FORM

In our effort to keep SOLUS members in close touch, we've asked for volunteers to coordinate chapters in their own areas. If there is no chapter in your area, why not start one yourself? Our SOLUS/INTERNATIONAL organizer will be glad to get you started. You can write to him at: SOLUS/INTERNATIONAL, 1662 Oak Avenue, Los Altos, California 94022, U.S.A. Give an address we can publish.

To join a local chapter, write to the coordinator in your area. Consult the list at the end of this issue.

SOFTWARE NOTES

The SOLUS software library will soon have on tape an assembler/editor program based on P.T.'s Package #1, a disassembler, an 8080 simulator for debugging, a Tiny BASIC, and a number of other programs in BASIC and machine language. In addition, the library has many Northstar diskette programs. See SOLUS NEWS, Vol. 0, no. 1, for details on the library. Programs for the library may be sent to: SOLUS LIBRARY, c/o David Fox, 70 Skyview Terr. #301, San Rafael, CA 94903.

Musical arrangements for the Processor Technology/Software Technology Music System are being collected and distributed for SOLUS by Gerald Wright. You can contact him in person or by mail at SOLUS MUSIC LIBRARY, c/o The Digital Deli, 80 W. El Camino Real, Mountain View, CA 94040, tel. (408) 961-2828. He now has about 20 contributed musical scores in object code on CUTS tape and North Star floppies.

As we mentioned in the last SOLUS NEWS issue, a bug was found in SOLOS and CUTER by a SOLUS member, John Wakefield. He wrote to us that attempting to open a file which is already open will cause the tape-error routine to pop the stack once too often, resulting in a wild return. Referring to the listings published in Access, you can follow the faulty path. The CALL to FOPEN pushes the PC, then control jumps to BOPEN, H is pushed, LFCB is called and returns (pushing and popping the PC). If the file was already open, the Zero flag was set, which causes a jump to TERE2, where the saved H is popped back from the stack. Then comes the bomb-out: the return address is popped into DE and the RET command pops garbage into the PC. The normal return from BOPEN is alright, and so is the jump to TERE2 from RDNFB. John phoned long-distance to Software Technology (Processor Technology's software subsidiary) and they said the bug was news to them, but they'd get back to him on it. SOLUS NEWS called and wrote S.T. and got a promise for a note which never arrived. We did get the assurance that the error can't be reached from BASIC/5 I/O statements. Until P.T. or S.T. gets on the ball, try avoiding the error or calling a dummy subroutine which calls FOPEN so that the extra pop still leaves a good return location. Thanks, John.

In case you haven't heard, P.T. delivered the missing chapters 7 and 8 for the SOL manual months ago. They've also published 3 issues of Access. If you don't have them, see your dealer.

Are you into computer chess? Yes? Then write to Computer Chess Newsletter, 1455 La Cima Rd., Santa Barbara, CA 93101. Doug Penrod, who edits that publication, needs contributed articles, book reviews, records of games played against or between computers, and so on. Price is 75¢ per issue. SOLUS would love to hear about your chess activities too.

Do you have Big Plans for your little machine? Listen to this. MVT Microcomputer Systems Inc., has announced a maxi-operating system for the 8080 and Z-80 micros which provides multi-users, multi-tasking, multi-sessioning, dynamic memory allocation, real-time support of 20-30 terminals, BASIC, disk management, password security, user accounting, and on and on. To get the operating system on IBM compatible diskette, send a paltry \$2050 to them at 21822 Sherman Way, Canoga Park, CA 91303. Or send nothing and get their 4 page flyer. If anyone out there sees this beastie in operation, tell us about it.

Want ideas for some useful software to write? Get a copy of Software Tools by B.W. Kernighan and P.J. Plauger, Addison-Wesley Publishing Co., 1976. It has the code and descriptions of programs to do sorting, editing, formatting (similar to DEC's RUNOFF), macro processing, text pattern finding, and so on. The programs are written in a high-level language and are very readable, but need to be translated into another language before they'll run on SOL.

HARDWARE NOTES

Last issue we reported that Dutronics has produced a small piggy-back board which plugs into SOL in place of the 8080 and converts it into a Z-80 processor. (The Zilog Z-80 is an enhanced microprocessor which provides more registers, indexing, block moves, bit manipulations, and other features in addition to the regular 8080 architecture.) The prototype tested by two SOLUS members worked well in some ways but wouldn't write to the parallel port. We've heard indirectly that some of these boards were sold and that they will be fixed at no charge. The new version supposedly works properly. We'll keep working on this story because the Z-80 is nice, and the piggy-back seems to be an inexpensive way to convert. (Less than \$200, and it doesn't use up a backplane slot.) If you have one, let us know how it works. A report on the new one will be in Dec.

Along the same lines, HUH Electronic Music Productions, P.O. Box 259, Fairfax, CA 94930, makes a kit that lets you plug the Cromemco Z-80 CPU board into the SOL-20 backplane and remove the SOL 8080. The kit even comes with a new label strip for your SOL which renames it the "ZOL". The kit costs \$29.95 (49.95 assembled), plus you must buy the Cromemco kit for \$295 (\$395 assembled). We heard it will run your SOL at 4 MHz if you have the 9216 rom version of SOLOS.

Speaking of Cromemco, we've received several letters about Bytesaver not working in SOL. Both the designer of the SOL and Cromemco agree that the hardware will work but software is the problem. We'll try to get more details. Anyone have the answers? Please let us know.

Bob Goodman of Dublin, CA, gave us an update on the SOL+Dynabyte+Digital Systems floppy problem reported in the last issue. He says the combination works well under heavy use in his business after these mods: all board revisions, plus 330 pf capacitors to ground on the S-100 side of each data bus line. Thanks, Bob. He also writes that he'd like multiple-tasking, particularly spooling, for his system. Anyone with this software can reach Bob thru SOLUS NEWS. (see the MVT software note in this issue.)

Short on slots? Extensys Corp. has loaned SOLUS a 64K dynamic memory board for testing. We'll report the findings. That's a lot of bytes in one slot, but since dynamics have received a lot of criticism, look at these static boards. Artec Electronics and Dynabyte, Inc., whose ads appear in the hobby magazines, both make 32K static boards for the S-100 bus. The Artec board provides more versatile address assignment and Cromemco-style bank switching, but Dynabyte's has a more conservative thermal design for the on-board regulators. We've seen several SOL's running Artec boards, but we have no personal knowledge of the static Dynabyte yet. (Dynabyte has been making 16K dynamic boards for a while, but the 32K static is new.) Also look at Cromemco's TU-ART interface. It packs 2 serial ports, 2 parallel ports, 10 interval timers, and vectored interrupts into one S-100 slot.

A number of SOL owners have discovered the hard way that sense switch settings don't seem to act the same as they did on ALTAIR and IMSAI. There is no problem if you realize that when a sense switch on the SOL is in the OFF position it reads in as a "high" or "1" value. When ALTAIR/IMSAI programs call for setting the switch "UP" meaning "high" or "1", SOL users should set the switch "OFF". In other words, complement the switch settings and you'll be okay.

Dr. Kenji Sakurai, of Tokyo, asked us if anyone else has had this problem with Cromemco's analog interface (presumably the D-7A) in their SOL:

with IN port
OUT port
the output result is always FF,
while IN port
IN same port
OUT port
and IN port
MOV C,A
IN same port
OUT port

both work well. Does anyone have any idea of what is going on?

Does your SOL garbage up your ham radio or sensitive equipment by generating radio frequency interference? Curtis Electro Devices, Box 4090, Mountain View, CA 94040, sells an RFI kit consisting of a one-piece SOL cover with line-filter and feed-thru assembly for \$99.95. (They also have an S-100 board which converts SOL to an automatic CW and RTTY ham operating system.)

Do you want a cover for your SWIPC PR-40 printer? PARSEC, P.O. Box A82327, San Diego, CA 92138, sells a neat molded ABS plastic one for about \$20.

Does your SOL live in an area of heavy equipment or lighting storms? A voltage spike protector (VSP) may be a good idea. Although it can't protect against direct strikes to the nearby power lines, a VSP can reduce the hazard of lightning strikes close to power lines and of local spikes caused by electrical equipment. The GE model GESP-752 is a simple, plug-in VSP that needs no special installation.

The maxi-computers have file protect devices to prevent writing over valuable data. Did you know cassette tapes also have file protection? The small knock-out tabs on the back edge can be removed to prevent the recorder from going into record mode. When a pin in the recorder feels the upper left hole open, the record key is interlocked. Each side of the cassette can be independently protected. A small piece of tape over the hole re-enables recording.

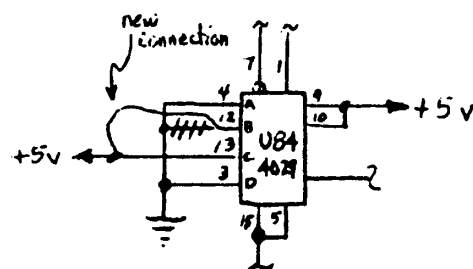
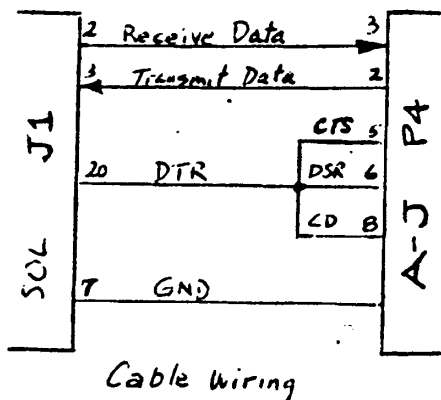
SELECTRIC OUTPUT FOR THE SOL

by I. Hartley Wurkz

There is a definite need for hardcopy output for the SOL and some have expressed an interest in the Anderson-Jacobson 841 Selectric Terminal to satisfy this need as I have done. The A-J I/O terminal can be interfaced to the SOL quite easily and can provide excellent high quality hardcopy output. The A-J 841 is equivalent to an IBM 2741 terminal in its communications protocol and the SOL must be set up to be compatible. Communications is via the SOL serial port and its specifications are as follows: baud rate = 134.5, word length = 6 bits + odd parity + one stop bit, standard EIA levels (RS-232).

The serial I/O control is set as follows: all S4 switches ON, except S4-2 OFF and S4-6 OFF.

The A-J 841 is connected to the SOL via a cable between the SOL J1 connector and the A-J. The sex of the SOL must be changed, however, since it thinks it is a terminal as does the A-J. This means that both machines output on pin 2 and receive on pin 3, thus a 1:1 cable cannot be used. The cable is wired as shown in the following sketch.



The SOL does not offer a baud rate of 134.5 baud. However, a simple modification can change the 110 baud rate to approximately 134.5 baud. The 110 baud clock is obtained by dividing the 1200 baud clock by 11 with a binary counter, U84. The counter can be made to divide by 9 if pin 12 is connected to a tieup instead of ground as in the SOL. This gives a baud rate of 133.33 which is within allowable tolerance limits. A partial schematic of the changes is given above.

Since the trace connecting pin 12 to ground is under the module, the easiest way to do this is to lift pin 12 out of its socket and wire it to +5 Volts.

Now that the SOL and the A-J are connected as described above, they will be able to transmit and receive data but will still not communicate. This is due to a language difficulty. The SOL talks ASCII while the A-J talks either BCD or Correspondence depending on the model. A software driver must be written which translates ASCII to Correspondence for output and the inverse for input. The routine is a relatively straightforward table lookup with some minor complications caused by the shift function, line turnaround, protocol, and the bits being in reverse order. The driver which I have takes 2C8 Hex bytes including tables for both input and output. The size could be considerably smaller if only output is desired and some programming inefficiencies removed. I have the driver permanently resident in PROM and select VDM or harcopy output by changing the pseudo port designation.

(Editor: The Anderson-Jacobson terminal to which Hartley refers is the unmodified model 841. A-J is also selling 841's modified to communicate in a subset of ASCII. We know the unmodified IBM 2741-type terminals are available from several manufacturers and imagine their resale value to be better than the modified A-J 841's because they can still be used as terminals by IBM users. For more information on the line protocol and character codes, see A-J Document No. 9614511,030 the operating manual for the 841.)

RUMORS

We've heard thru the grapevine the following unconfirmed tales: John Starkweather, who published his 8080-PILOT computer-aided-instruction system in Dr. Dobb's Journal, is working on a version tailored to the SOL and P.T. may be selling it. P.T. is working on a bus extender to put more slots for SOL into an external box. P.T. says Helios is being shipped to early orders, 8K BASIC is "about to be released," 16K FORTRAN is in the debuggin' stage. Someone at a University of California campus is well underway on a project to produce a standard MUMPS interpreter for 8080 systems, to be sold at a nominal charge. A graphics hardware designer is working on a high-density color graphics device for P.T. It will plug into that lonely multi-pin connector on the SOL.

MEETING DATES

San Francisco Peninsula chapter meets at Stanford University Physics Building at 1 p.m. on the third Sunday of each month.

Saskatchewan chapter meets the second Sunday of each month, but Bob is getting lonely because he is the only member in his chapter. He'd like to hear from someone, anyone, anywhere, somewhat near Saskatchewan. Bob, the problem might be this: we know we have to be a little crazy to own one of these gadgets, but your address makes us worry. Bob can be reached at the Regina Mental Health Clinic, at the address shown elsewhere in this issue.

Other chapters haven't let us know their meeting dates yet.

LOCAL CHAPTER ADDRESSES

Barstow, CA: James Ruckstuhl, P.O. Box 1271, Barstow, CA 92311
 Livermore, CA: George Bush, 442 Fontonett Ave., Livermore, CA 94550
 San Francisco Peninsula, CA: Bill Burns, c/o SOLUS, 1439 Kinsport Ln, San Jose, CA 95120
 Sonoma County, CA: Earl Herr, 17 Spring Hill Dr., Cazadero, CA 95421
 Colorado Springs, CO: Larry Leranthe, 1120 S. Chelton Rd., #417, Colorado Springs, CO 80910
 Atlanta, GA: George Reeves, 5002 Crowe Dr., Smyrna, GA 30080
 Chicago, IL: Tom Digata, 1366 S. Finley Rd., Apt. 3S, Lombard, IL 60148
 Gurnee, IL: Vic Wiseman, 7960 Grand Oaks Ct., Gurnee, IL 60031
 Evansville, IN: Robert Heerdink, P.O. Box 3835, Evansville, IN 47737
 Princeton, NJ: Rod Montgomery, 52 Birch Ave., Princeton, NJ 08540
 Austin, TX: Ron Parsons, 9001 Laurel Grove Dr., Austin, TX 78758

Dallas/Ft. Worth, TX: Ron Jones, P.O. Box T, Sherman, TX 75090
 Bellingham, WA: Sehome Computer Club, 2700 College Pky, Bellingham, WA 98225
 Okanogan, WA: Joe Thomason, Box 628, Okanogan, WA 98840
 Saskatchewan, CANADA: Bob Stek, Regina Mental Health Clinic, 1942 Hamilton St.,
 Regina, Saskatchewan, CANADA S4V 0B7

SOLUS DUES ESTABLISHED

At the November SOLUS meeting it was decided to establish annual dues rates for SOLUS membership in three categories. Experience with the publishing of SOLUS NEWS has given us better figures on the cost of operation. Beginning January 1, 1978, dues will be as follows:

Regular members -- \$10 in U.S.A., Canada, Mexico
 \$15 (U.S. dollars) from other countries
 Dealer members -- \$25
 Manufacturer members-- \$50

Regular membership is for individuals. Dealer membership is open to computer retailers and entitles them to listing in the SOLUS NEWS when they join, listing in the annual directory of member dealers, subscription to SOLUS NEWS, and access to the SOLUS Library for demonstration software. Manufacturer membership is open to hardware and software manufacturers and entitles them to subscription and listings in the SOLUS NEWS and the annual directory, and to the opportunity to submit their products to SOLUS for testing in a number of SOL machines with reporting of the results.

Membership will be on a calendar year basis. New members who join mid-year will receive back issues rather than having their dues pro-rated. All of our 1977 members who have paid the suggested donation of \$4 can send a stamped self-addressed envelope to SOLUS NEWS and request the back issues they are missing. We began with vol. 0, no. 0 and will have one more issue in 1977.

With the additional funds we will be able to improve the quantity and typographic quality of SOLUS NEWS.

BITS AND PIECES FROM LETTERS TO SOLUS

The Econoram II was very erratic writing until I discovered that SOL does not implement the protect line on the PC board and that it was floating. Tying this line low solved the problem. The Econoram III works fine.

--Rod Hallen, Oct. 28, 1977

Just what is the difference between SOLUS NEWS and ACCESS as published by Processor Technology? Is this a duplication of effort?

--Joe Maguire, Oct. 25, 1977

(Editor: ACCESS is a public relations paper published by P.T. that was supposed to be mailed every 6 weeks, but the last issue was June, 1977. SOLUS NEWS is published by the users with volunteer labor. It has no axe to grind and therefore we feel it has a more objective posture.)

I recently purchased a Digital Group impact printer (the \$500 one) and I have been unable to get it to operate properly with my SOL-20. It is primarily a software problem as the software driver is for the Z80. Does anyone have an 8080 driver for this printer?

--Joe Maguire, Oct. 25, 1977

Do you know anyone who has had experience with an IMSAI 32K board in a SOL-20? I have that combination and have had nothing but grief. (The 32K board is an unmodified Rev. 1 version.)

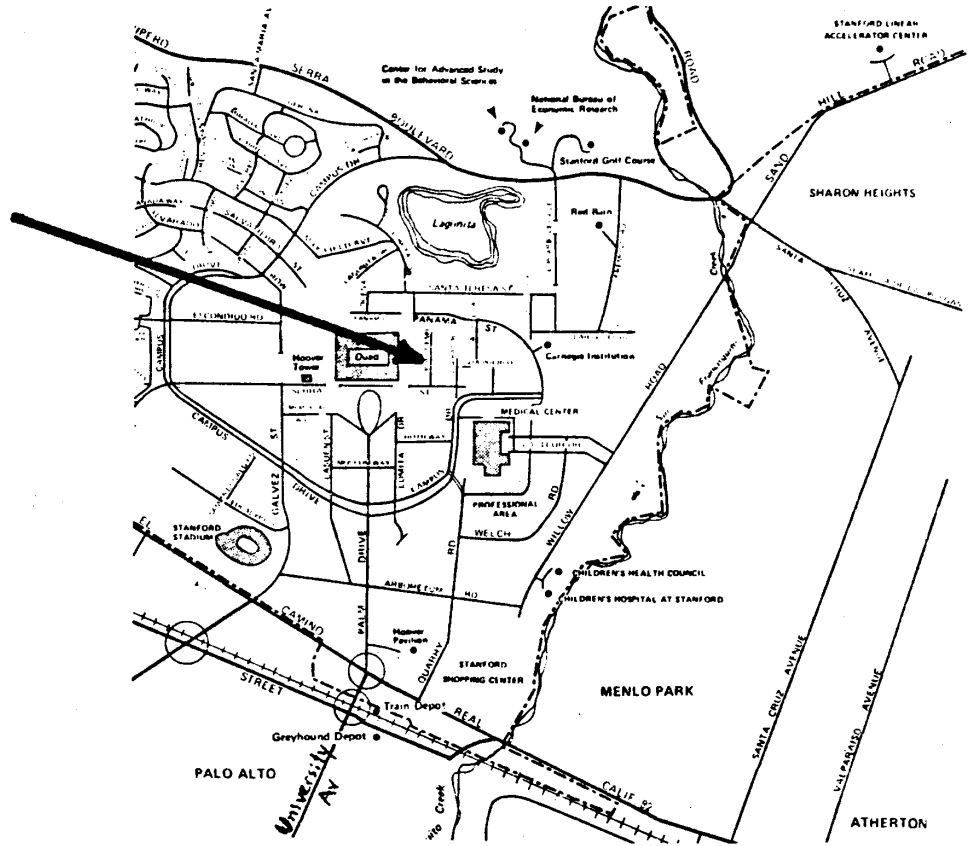
--N. Clark Pate, Oct. 30, 1977

(Editor: Send replies to SOLUS NEWS. When writing us about your hardware problems or suggestions, please be specific as to revision levels of your machine and of the additional boards involved.)

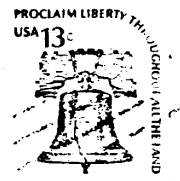
PREVIEW

The next issue will have a modification to the SOL keyboard PCB to bring it up in upper case after a reset and another modification to lower the backplane power supply to +8v instead of the +10v which is more common.

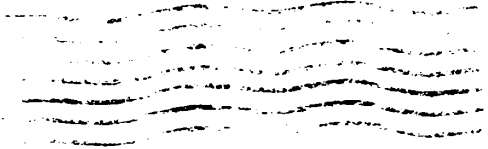
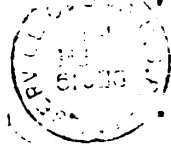
San Francisco Peninsula chapter of SOLUS meets at the Stanford Physics building located here.



SOLUS NEWS
Editor: Stan Sokolow
1690 Woodside Rd., #219
Redwood City, CA 94061



Thomas A. Digate
 1366 Finley Rd.
 Apt. 35
 Lombard, Illinois
 60148



SOLUS NEWS

Vol. 0, No. 3

SOL Users' Society

December 1977

Editorial Office: c/o Stan Sokolow, 1690 Woodside Rd., Redwood City, CA 94061

WHO ARE WE, AND WHERE ARE WE GOING?

As this year draws to an end, I feel it's appropriate to review our course. The SOL Users' Society (SOLUS) was formed by a handful of SOL computer owners in the San Francisco Bay area of California. Under their formative leadership SOLUS opened membership to owners of SOL and SOL-compatible computers, and established the following goals: (1) To facilitate communication among its members, (2) To provide a mechanism for the exchange of SOL-compatible software, (3) To give feedback from SOLUS members to Processor Technology and other manufacturers, and (4) To encourage the development and testing of SOL-compatible hardware and software products by independent sources. We want to maintain a cooperative but independent relationship with Processor Technology and other manufacturers. No SOLUS "officers" work for Processor Technology. (I use "officers" loosely, since we've had no elections yet.)

Recognizing that a manufacturer's publications are understandably biased, we produce our own newsletter, the SOLUS NEWS. Processor Tech's ACCESS is a public relations vehicle and as such can't be expected to print criticisms of P.T. products or to give mention to competitors' products. Moreover, the publication schedule of ACCESS has been far below their promise.

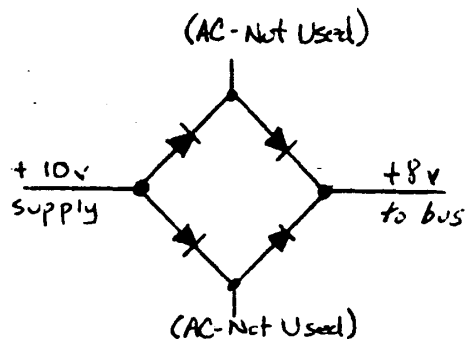
Local SOLUS chapters continue to form, and this grass roots level of organization is essential to the future of SOLUS. We have members throughout the United States and Canada, and from as far away as Japan and Australia. Processor Tech is distributing our information flyer in new SOL shipments and announcing our existence in ACCESS. The SOLUS Library will collect and distribute programs and musical arrangements through the local chapters. A large, active network of users gives us more clout in dealing with consumer protection matters. We hope that local chapters will take a more active role in the operation of SOLUS in the future.

In coming issues of SOLUS NEWS, we would like to print more material from local chapters. We have received some excellent contributions from individuals and a few local newsletters. Please take this invitation to become a contributing editor for your area. If you are publishing a local SOL newsletter, we invite you to incorporate your newsletter into SOLUS NEWS, under your own by-line. Send your (preferably camera-ready) copy to the editor at the SOLUS NEWS address.

One last word. There is a tremendous need for more software tools, programs which have widespread utility, such as compilers, word processors, sorting packages, preprocessors, and so on. There's enough challenging work to keep us all busy without duplication of effort. Yet, we've already seen a number of similar revisions of Software Package #1, done by independent workers. We should try to coordinate with others interested in similar software while we're still in the planning stage. Let's not all reinvent the same wheel. Send your software ideas or desires to SOLUS NEWS so that everyone interested in similar programs can get in touch.

HARDWARE NOTES

SOL power supplies commonly put excessive voltage on the +8v. line of the S-100 bus. Capt. Joe Maguire had the cleanest fix: Unwind about six turns from the heavy 8v. secondary winding of the power transformer. It's the outermost winding. Ron Parsons used a 10-amp full-wave bridge rectifier as shown below to drop the voltage about 2v., from 10v. to 8v., using the fact that a forward-biased diode has a voltage drop of 0.7 to 1.0v. The rectifier mounts on the chassis and can be connected with solderless terminals. Unlike a resistor, the diode voltage drop is independent of load current. Processor Tech has provided step-down transformers for those SOL's whose voltage is out



of the range specified in the manual. If the voltage is not brought down close to 8v. somehow, the on-board regulators overheat and will shorten the life of the board.

How many times have you been frustrated by the fact that the SOL keyboard comes up in lower case (or resets to lower case on system reset) and SOLOS says "?" to your first command because you didn't switch to upper case? We've received several fixes, from Carl Wall, Jay Bell, and Ron Parsons, but Ron's seems easiest because the others require a trace cut under an IC. Ron's fix requires that the connections between U15-5 and U15-6 be interchanged, leaving U15-7 as is.

keyboard trace on top of the U15-5 right e trace leaving U15-5, and U15-5, mpers between U24-11 goes to U10, what's all. It doesn't affect the Local mode power-up state.

Last minute change: See Ron Parsons' article later in this issue for a better explanation.

(The material by Ron Parsons was excerpted from his articles in PRINT-OUT, copyright Central Texas Computer Association, contributed to us by Ron.)

Mark Garetz informed us that several SOL's he was assembling had the +12 and -12v. wires reversed on the DC power cable. The manual was right and the cables wrong. Caution!

El Lord writes that his SOL-20 would not write into his two TDL Z-16 memory boards without a small change. He suggests removing capacitor C5 (220 pf) on the TDL board and either leaving it out or replacing it with a 50 pf one. He's tried both successfully. He likes the boards otherwise--cool running and low power. He also writes that his Super-scope C-104 recorder and Ampex 20/20+ C-60 tapes have worked without problems.

SOL rev. D boards won't work properly with interrupts unless an undocumented change is made which P.T. incorporated in the rev. E board. This change hasn't yet been reported in ACCESS. We'll try to get P.T. to put it in the next ACCESS so we can have an official version of the mod.

SOFTWARE NOTES

North Star users, here's a patch to North Star DOS that puts output onto the serial port as well as VDM. In the North Star DOS patched for VDM there is this code:

```
A00D    C3 07 A9
A907    CD 19 C0      VDM.
```

The patch is:

```
A00D    C3 20 A9
A920    CD 4A C0    C3 07 A9      Serial+VDM.
```

This patch was contributed by George Haller and suggested to him by Joe Howell.

The following changes to the Music System program allow the use of the GAMEPACK switch unit on the parallel port instead of the hard-to-reach sense switches: enter hex "FD" in addresses 0638, 067E, 06B6, 08BF. For a similar change to ALS-8 put "FD" at bytes F6A0, F66A.--Contributed by Bruce Barron.

When writing assembly language programs be sure to use the HL register feature described on page 15 of your SOLOS/CUTER manual. This is very, very important because it allows your program to run in anyone's machine regardless of where their SOLOS/CUTER operating system is loaded. The SOLOS jump table begins at C000. CUTER can begin anywhere. Never use absolute addresses to the jump table. For example, don't jump to C007 to open a file. Instead, compute the jump addresses at the start of your program using the contents of HL and the offsets relative to the beginning of the jump table. (For example, to open a file jump to 0007+ initial contents of HL.) Following this rule is essential for our software library to reach its full potential.

One other point. The start of memory space should be reserved for the restart vectors. Vectored interrupts in the 8080 always go to fixed locations there. If you ORG your programs at 0000, users with vectored interrupt may not be able to run your programs easily. We suggest ORG 0100H, since this leaves room for the restarts and is compatible with the widely-used disk operating system CP/M (copyright Digital Research).

Ed Lord has a Micropolis disk mod 1053 II (630K) on his SOL-20 and has the following comments. The extended BASIC is powerful but cumbersome, requiring 24K to load and 21K to run. It doesn't support any peripherals so the cassettes and his line printer are dead while using. There is no command to leave BASIC and return to SOLOS, which is necessary to get a hex dump or load a new program from cassette. When BASIC is initialized it wipes out any program in memory. BASIC has no edit feature, lines to be changed must be retyped in full. The Micropolis bootstrap ROM is addressed at F400 to F7FF, which conflicts with ALS-8.

Rod Montgomery praises two programs he has bought. The Electric Pencil by Michael Shrayer of Los Angeles is a word processor which comes in a SOLOS/CUTER version, among others. It uses the cassette tapes for storage and the video screen for creation and editing of documents. The standard version (\$100) provides output formatted for any conventional ASC II printer and an optional (\$150) version also uses special features of the Diablo Hyterm. It's available through computer stores. The other program is the Dynamic Debugging System (DDS) from the Computer Mart of New Jersey. It uses the video screen to display current CPU status, including register contents, the next few instructions at the PC location in disassembled form, the top few stack locations, the contents of an operator-chosen area of memory in hex, ASCII, or disassembled, and so on. DDS maintains control as it executes the user program an instruction at a time and can run continuously checking for various conditions such as stack overflow, wild subroutine returns, etc.

John Zimmerman donated a copy of the form he created to catalog the contents of his cassette tapes. It is reproduced in this issue for your convenience. Use it as a master on your copy machine.

Is anyone interested in implementing the multiprogramming operating system kernel documented in Dr. Dobb's Journal, No. 18? If so, contact SOLUS NEWS to get involved in a coordinated effort.

Are you trying to figure out what happened to the "8080 Relocatable Assembler" supposedly on page 20 of the November ACCESS? We've heard that the typographer used the wrong line of the assembly listing as the article title! The article should have been entitled "Modified SOLOS Routine," which is the program actually shown.

We've found a SOLOS-compatible assembler that has the ultimate solution to the problem of scarce RAM bytes: it assembles from source file on 300 baud tapes "on the fly." That is, it processes each source line in the brief moment after the end-of-line character is read, and reads the tape again without missing a character of the next line. Two passes are required. Thus it can assemble source programs too large to fit in your RAM. We'll get a copy into the SOLUS Library.

PRODUCT NOTES

MISER is a stand-alone assembly language development program for the SOL. The name is derived from the fact that it packs the source code and thus uses only half as much RAM as similar systems, such as ALS-8 or SCS-1. It provides an assembler, document formatter, dump program, and other features. Operating instructions and source listings come with the 10K object code cassette for \$14.95 from DAIR Computer Systems, 870 Garland Drive, Palo Alto, CA 94303. We hope to have a review of this product in a future issue.

HELIOS-II, PTC's dual floppy disk system, is catching up on back orders as fast as the drives come from the supplier. We hear that a 4-disk system is soon to be available. We expect to have a review of Helios in an upcoming issue. Readers with comments on Helios are requested to send us opinions.

Educational Data Systems of Virginia, Inc., (P.O. Box 2115, Newport News, VA 23602) is advertising a simple light pen for \$37.50 that supposedly will work on SOL or any other VDM-type system. We will review this product also. Again, opinions are solicited. (A light pen is a device which, when touched to the video screen, allows the processor to

determine at what point on the screen it is aimed.

CONSUMER RIGHTS

Page 3--S.F. EXAMINER ☆ Thurs., Dec. 8, 1977

Your rights on mail-order merchandise

By Jane Gregory
Chicago Sun-Times

Shopping by mail has its charms, but what about foulups in delivery? Avoiding the crush in a store is small comfort if you don't receive the merchandise.

The Federal Trade Commission

says the consumer has rights when he shops by mail. Here's are some of the points you are covered on:

- If the seller finds that your merchandise can't be shipped within the stated time or 30 days, the company must notify you of the delay and offer you the chance to get your money back. If you don't take advantage of the postage-paid reply card to get your money back, the seller can assume you agree to the delay.
- If you ask for your money back, the seller must mail your refund to you within seven work-

- If an ad or brochure says the manufacturer will "rush" your order to you within a week, for example, your order must be shipped within that time.

days after you cancel. If you charged the item, the seller has one billing cycle to correct the account. (There are some mail-order services where this rule does not apply: photo finishing, magazine subscriptions — other than the first issue), seeds and growing plants, C.O.D. orders and credit orders where the buyer's account is not charged before shipment of merchandise.)

- If the shipping delay is for more than 30 days beyond the

- If the seller doesn't give a date for shipment, you can expect that your merchandise will be shipped within 30 days.
- If the seller does not ship your goods within the stated time or within 30 days, you have the right to cancel the order.

original shipping date, you have to give your consent to the delay. Otherwise, it means cancellation and the seller must return your money.

- If you get something you didn't order, don't worry about it. You can keep it as a gift. You don't have to pay for unsolicited merchandise, and it is illegal for the person or firm sending it to pressure you to pay for it or to ask for its return.

BOOK REVIEW

Microcomputer Troubleshooting Manual by Pat Rankin, published by Micro-Info Associates, P.O. Box 849, Castroville, CA 95012, August 1977, \$5.00 (plus 6% tax in CA), 15 pp+.

The author is a professional computer technician and technical writer as well as a computer hobbyist, so he speaks from experience. In his Manual he gives the novice a scheme for getting newly assembled equipment to work, and for repairing a system which used to work. He covers tools to get do's and don'ts, common problems, where to start looking, localizing the problem, and so on. If you assembled your own SOL, you probably picked up some of this material along the way, but there are many tidbits not found in my SOL assembly manual, such as the use of a Freon spray to locate heat-sensitive failures or where to start looking if your SOL quits. Oriented toward the more conventional systems with single-function boards (CPU, cassette interface, RAM, etc.), the Manual doesn't get down to specific brands such as ALTAIR, IMSAI, SOL, etc.. However, it gives the hobbyist a good introduction to troubleshooting without getting bogged down in deep technical discussions or expensive test equipment. It may save your machine an expensive trip to the computer doctor someday. We only wish the manual were longer.

LETTERS

Does anyone have a source listing for ALS-8? A change notice #1 B that came with my software is very confusing and appears unnecessary since the garbage starting at DF80 takes care of most problems. Has anyone modified ALS-8 to be more compatible with SOL? Compared with other software, I am most disappointed with ALS-8. PTC held it up for 9 months and did very minimal work in upgrading for SOL.

--Bruce Barron

ANSI GETS THE MUMPS

The American National Standards Institute (ANSI) has adopted the MUMPS language as the third standard computer language, following the FORTRAN and COBOL languages which have been in wide use for many years. This is of great significance to us small computer owners. MUMPS is a compact, interpreted language designed for small computers, with explicit standards to allow portability of programs among dissimilar machines. It has built-in provisions for multi-user access to a shared disk database. It provides features superior to most extended business BASIC's. It has a national users group and program library. And best of all, standard programs require approximately 4K bytes of RAM per user, plus system overhead. The problem with BASIC is that it comes in so many different dialects, and the common subset of BASIC is very limited. MUMPS is like a standardized, very-extended BASIC. MUMPS implementations for the 8080, 6800, and LSI-11 are in progress. We'll have more MUMPS news in future issues. If you want to know more, contact the MUMPS Users Group, D-130, P.O. Box 208, Bedford MA 01730. The Standard MUMPS Pocket Guide (pre-ANSI adoption) is a good introduction for \$1. The 1978 Mumps Users Group meeting will be in San Francisco, June 7-9, and will have introductory as well as advanced sessions.

SOLUS LOCAL CHAPTERS

The San Francisco Bay chapter of SOLUS will meet on the third Sunday of each month in 1978. Meetings are held at 1 p.m. in the Stanford Physics building.

The Austin, Texas, chapter meets as a subgroup of the Central Texas Computer Association on the fourth Friday of each month at 7:30 p.m. in the Farm & Home Savings, 1400 Lavaca, Austin, TX.

Other chapters are encouraged to send their meeting schedules to SOLUS NEWS for publication here. A complete list of the present local chapters was published in the last issue.

TO JOIN

SOLUS is open to any individual who has a SOL computer or any computer that is capable of running the SOLOS/CUTER operating system and reading SOL compatible tapes. To join SOLUS, receive SOLUS NEWS, and have access to the SOLUS library of software, send \$10 (\$15 outside of U.S.A., Canada, Mexico) to SOLUS, P.O. Box 23471, San Jose, CA 95153. Dealers and manufacturers of SOL compatible software or hardware should contact us for details on special memberships and special services for vendors. Memberships run on a calendar year basis. New members will receive back-issues from the current year.

SOLUS members who joined in 1977 by paying \$4 are entitled to all of the back issues they are missing. We began with Vol. 0, No. 0. Send a stamped, self-addressed envelope with sufficient postage for 1½ ounces to the SOLUS NEWS editorial office at the address shown on the front of this issue.

MORE LETTERS

Thank you so much for putting my question (about Cromemco's D+7A board) in SOLUS NEWS. Soon after I wrote, I received an instructive letter from Mr. Palsson of Processor Technology who advised me to disconnect PRDY line from pin 72 of the D+7A and to hook it to pin 3 XRDY. It took care of the problems I experienced. The board is running well.

--Kenji Sakurai, M.D., FACS (Tokyo, Japan)

I'm having trouble installing a factory-assembled MERLIN video interface on either my SOL or Altair computers. The board works fine with the Merlin ROM monitor in an Altair, but this monitor competes with SOLOS in a SOL.... If I remove the Merlin ROM and plug in the board, the SOLOS becomes inoperable so that Merlin can not be initialized. In my Altair my own monitor functions only if the Merlin DMA (and hence display) is disabled; this suggests that the problem lies with the DMA and SOL. Has anyone found how to use the Merlin graphics with SOL?

--James E. Randall (Bloomington, Indiana)

Another Sol Keyboard Fix

By Ron Parsons
Austin, TX

Two Sol keyboard fixes were recently published in Processor Tech's Access Newsletter. Unfortunately, one suggested fix required that a socket be removed and a trace under it be cut to ensure that the Local mode be off after power-up. The other left Local on. The fix described below requires that only three traces be cut (all easily accessible on the top of the printed circuit board) and three jumpers be placed on the back of the board. After this modification, Upper-Case will be on and Local off after power-on and after a restart. A second fix is described to change the Sol restart from Upper-Case/Repeat to Control/Repeat. This permits one-handed restarting although slightly increasing the danger of an accidental restart. It also eliminates the need to reset Upper-Case after a restart.

To change the power-on and restart case to Upper-Case, the connections to U15-5 and U15-6 must be interchanged leaving U15-2 connected to U15-6, and U15-4 and U15-10 connected to the Sol restart line. To do this cut the trace on the top of the keyboard between U24-11 and a feedthrough about a quarter inch away. Also cut the trace leaving U15-5 right next to the socket. Finally, cut the trace located between U15-4 and a feedthrough 1/8" below. On the back of the board, solder jumpers between U24-11 and U15-5, between U15-4 and U24-8, and between U15-6 and a feedthrough about a quarter inch below U24-6 (the trace connected to this feedthrough goes to U18). This completes the power-on and restart modification. It does not affect the Local power-up mode.

To change the restart to Control/Repeat, cut the trace coming from under U27 between pins 2 and 3 (this trace goes to U27-9). There is an error in the 11-8-76 version of the Sol keyboard schematic - the gate in U27 containing pins 10 and 11 should be labeled so the output is pin 8 and the upper input is pin 9. On the back of the board, solder a jumper from U27-9 to U12-6. Now you can restart with one hand while you copy information from the screen with the other hand. Try that without this modification! If you can do it, your hands are bigger than mine.

