

MICRO-8 NEWSLETTER
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 LOMPOC, CA 93436

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SORRY ABOUT THE DELAY BETWEEN THE LAST TWO ISSUES. I HAVE HAD MANY COMMITMENTS THE LAST TWO MONTHS PLUS A SERIOUS ILLNESS IN THE FAMILY. OTHERWISE ANOTHER ISSUE WOULD HAVE BEEN OUT WEEKS AGO.

IT CERTAINLY ISN'T BECAUSE PEOPLE HAVEN'T BEEN SENDING IN MATERIAL. THERE IS MORE MATERIAL THAN I COULD POSSIBLY CONDENSE INTO THIS ISSUE. HOPE EVERYONE CONTINUES TO SEND IN MATERIAL. WE ESPECIALLY NEED FIRM PROPOSALS FOR STANDARDIZING I/O AND FORMATS FOR CASSETTE TAPE, PAPER TAPE DEVICE INTERFACES, ETC.

I MUST ALSO APOLOGIZE ABOUT THE PRINTING QUALITY. SEVERAL THINGS HAVE COMBINED TO MAKE THE PRESENT FORMAT NECESSARY, ONLY ONE OF WHICH IS COST. I HAD NOT ANTICIPATED 270 MEMBERS. EVERY ISSUE I HAVE HAD TO MAKE THE DECISION WHETHER TO SPEND SEVERAL ADDITIONAL WEEKS TRYING TO PREPARE AND PRINT COPY OR GET WHAT IS AVAILABLE OUT TO YOU. GETTING BUG REPORTS AND NAMES AND ADDRESSES TO YOU IN A HURRY HAS SEEMED MOST IMPORTANT. I HOPE YOU HAVE BEEN CONTACTING OTHER BUILDERS IN YOUR AREA AND CORRESPONDING WITH THE ONES OUTSIDE OF YOUR AREA.

POPULAR ELECTRONIC'S PUBLICATION OF THE 8080 MICROCOMPUTER ARTICLE IN THE JAN 75 ISSUE WILL PROBABLY MAKE EVERYONE WONDER IF HE DID THE RIGHT THING IN STARTING THE MARK-8. THE KIT PRICES ARE NEARLY UNBELIEVABLE. HOWEVER IT IS STILL ABOUT TWICE THE COST OF A MARK-8 WHICH PUTS IT OUT OF THE PRICE RANGE OF MOST EXPERIMENTERS ESPECIALLY IF THEY PUT ENOUGH MEMORY ON IT TO BE ABLE TO RUN ANY DECENT SOFTWARE.

A QUESTION FOR THE MARK-8 USER GROUP PARTICIPANTS IS HOW DO WE FIT INTO THE BIG PICTURE? CERTAINLY WE NEED TO SET UP I/O STANDARDS SO THAT DEVICES CAN INTERFACE TO EITHER COMPUTER. WILL A SEPERATE GROUP FORM AROUND THAT CONFIGURATION OR DO WE STAY TOGETHER? SURE IS HARD KEEPING UP WITH ELECTRONICS NOW DAYS -- BUT IT IS SURE FUN TRYING TO.

WHAT KIND OF FUTURE DO YOU WANT FOR THE USER GROUP?

A DECISION HAS TO BE MADE BY MARK-8 USERS AS TO WHAT IS TO HAPPEN IN THE FUTURE. IN OFFERING THE NEWSLETTER SERVICE THRU THE SASE ROUTE MY OBJECTIVES WERE:

- 1) PROVIDE A NON-COMMERCIAL LOW COST MEANS FOR BUILDERS TO RECEIVE PROMPT BUG REPORTS AND SOURCES FOR PARTS.
- 2) TO ALLOW BUILDERS TO GET TOGETHER AND HELP EACH OTHER WITH PROBLEMS.
- 3) INVOLVE MYSELF IN THE ACTION SO I KNOW WHAT IS GOING ON.

THESE OBJECTIVES HAVE BEEN MET QUITE SATISFACTORILY. SEVERAL PARTICIPANTS HAVE MENTIONED THAT THE BUG REPORTS HAVE ALLOWED THEM TO GET THEIR SYSTEMS RUNNING WITH MINIMAL PROBLEMS. WE NOW HAVE A WIDE RANGE OF PARTS SUPPLIERS SUPPLYING COMPONENTS AT VERY ATTRACTIVE PRICES. PARTICIPANTS HAVE BEEN CONTACTING OTHERS AND GETTING TOGETHER ON MUTUAL PROBLEMS. I HAVE CERTAINLY BEEN KEPT INVOLVED IN THE ACTION. FOR THE FUTURE, THESE COMMENTS:

- 1) IT SEEMS ESSENTIAL TO MAKE SOME REASONABLE CHARGE FOR MEMBERSHIP SO THAT PRINTING CAN BE IMPROVED AND THE NL'S CAN BE SENT BULK MAIL.

2) AS MUCH AS I ENJOY DOING THE NEWSLETTER, IT ABSORBS AN ENORMOUS AMOUNT OF TIME. THUS IT SEEMS NECESSARY TO SET UP A WAY OF SHARING THE EDITORSHIP WITH OTHER PARTICIPANTS. THE CABRILLO COMPUTER CENTER CAN STILL SERVE AS A CLEARING HOUSE FOR INCOMING MAIL AND A DISTRIBUTION POINT FOR OUTGOING NL'S. INFORMATION SENT IN BY PARTICIPANTS CAN BE FORWARDED TO THE CURRENT EDITOR FOR THE UPCOMING ISSUE.

3) IT MAY BE DESIRABLE TO HAVE TWO RELATIVELY INDEPENDENT NEWSLETTERS OR AT LEAST SEPERATE EDITORS FOR A HARDWARE SECTION AND A SOFTWARE SECTION. STEVE DIAMOND, 311 CARL ST., SAN FRANCISCO, CA 94117 HAS EXPRESSED AN INTEREST IN ORGANIZING THE SOFTWARE END.

PLEASE JOT DOWN YOUR DESIRES AND SUGGESTIONS AS TO WHAT YOU WANT TO SEE HAPPEN IN THE FUTURE. I'LL TRY TO SUMMARIZE THEM IN NL #5 AND PUBLISH A DECISION AS TO WHAT WILL HAPPEN IN THE FUTURE. AS ONE READER POINTED OUT, "THIS THING IS THE TIP OF AN ICEBURG." I WONDER WHAT'S REALLY UNDERNEATH?

BUGS

ROBERT COOK PROVIDED US WITH AN UP-TO-DATE LIST OF BUGS. HIS MARK-8 IS RUNNING SO IT SHOULD BE ACCURATE AND COMPLETE. THERE ARE A FEW OTHER THINGS MENTIONED BY OTHER USERS THAT HAVE BEEN ADDED.

1. P. 6, PARAGRAPH 4, LAST LINE: CHANGE TO "RESISTORS R1-R4 AND R21."
2. CONNECTIONS ON THE BOTTOM OF THE BOARDS ARE IN PARALLEL. ARRANGE THE BOARDS IN ORDER SHOWN IN THE BOOK AND WIRE, THEN CUT OUT WIRES 9 THRU 16 BETWEEN INPUT MULTIPLEXER AND ADDR/MANUAL BOARDS.
3. P. 4, INPUT MULTIPLEXER PARTS LIST SHOULD READ: "C1, C3, C4 - 0.1 MF DISK, C2 - 100 MF 10 V. ELECTROLYTIC."
4. THE 8 HOLES AT THE TOP OF THE MEMORY BOARD WHERE THE OUTPUT LEADS CROSS THE GROUND LEAD SHOULD NOT!!! BE CONNECTED THRU THE BOARD.
5. INSTALL A JUMPER ON INPUT MULTIPLEXER BOARD BETWEEN IC3 PIN 14 AND +5 VOLTS.
6. ON LED BOARD, C2 GOES FROM B+ TO B+ AND SHOULD GO FROM B+ TO GROUND.
7. ON ADDRESS LATCH BOARD THERE SHOULD BE A JUMPER FROM IC1, PIN 5, TO IC2 PIN 1.
8. IC3 ON CPU BOARD HAS NO GROUND. CONNECT INSULATED WIRE FROM PIN 4 TO GROUND RAIL AND CHECK FOR CHANGE OF STATE OUTPUT ON PINS 10 AND 11. (THIS MAY APPLY ONLY TO SOME BOARD SETS.)

NOTE:

IN CONNECTING THE 41 WIRE BUS FROM BOARD TO BOARD, NOTICE THAT THE TWO SETS OF HOLES ARE NOT ALL CONNECTED AND THOSE THAT ARE CONNECTED ARE ONLY ON ONE SIDE. CHECK EACH CONNECTION TO BE SURE YOU HAVE A COMPLETE CIRCUIT.

ALL OF THE OPERATIONS INVOLVED IN MANUALLY LOADING AND READING MEMORY ARE INDEPENDENT OF THE 8008. IN ORDER TO MINIMIZE DANGER OF DAMAGE TO THE 8008, CHECK OUT ALL OF THIS CIRCUITRY BEFORE INSERTING THE 8008.

YOU MAY HAVE TO DECOUPLE THE CRYSTAL CLOCK, OTHERWISE IT MAY RUN AT 10 MHZ. R3 MAY BE TOO SMALL. (PLESKAC)

THOUGH NOT AN ERROR, IT MIGHT BE WELL TO REMIND PEOPLE TO INSTALL FRONT-TO-BACK JUMPERS ON THE MEMORY BOARD WHEN NOT USING THE "B JUMPERS 1ST BOARD ONLY. (WILLIAM SEVERENCE)

A PICTURE IN THE MANUAL SHOWS TRIMPOTS. THIS MUST BE THE FIRST PROTOTYPE THAT USED A MULTIVIBRATOR CLOCK INSTEAD OF THE CRYSTAL CLOCK.

FUTURE MAGAZINE ARTICLES - IT IS VERY HARD TO SECOND GUESS THIS ONE. THE NEXT RE WILL HAVE A WRITEUP ON SOUTHWEST TECH. PROD. VIDEO TERMINALS. PROBABLY SMITH'S TVT MODEM ARTICLE WILL APPEAR IN THE NEXT ISSUE AND MR. TITUS STILL IS WORKING ON HIS CALCULATOR INTERFACE. MR. TITUS HAD HIS INPUT BUS EXPANSION SCHEME PUBLISHED IN THE DECEMBER ISSUE. WHY DOESN'T SOMEONE DESIGN A MEMORY BOARD EXPANSION USING 4K DYNAMIC RAMS AND GET IT INTO RE? I NOTICE INTERNATIONAL ELECTRONICS UNLIMITED IS ADVERTISING A 16 BIT COMPUTER KIT. THEY SURE ARE VAGUE ABOUT IT.

COMPUTER HOBBYIST - STEVEN STALLINGS, HAL CHAMBERLIN & RICHARD SMITH PUBLISHED THEIR TRIAL ISSUE OF THE "COMPUTER HOBBYIST" AND IT'S GOOD. THE 1ST ISSUE CONTAINS PART 1 OF A WRITEUP ON AN 8008 GRAPHICS DISPLAY, A SURPLUS SUMMARY INCLUDING A RUNDOWN ON ALL THE TELETYPES AND WHAT THEY SHOULD COST, AND NOTES ON THE INSTRUCTION SET OF THE 8008. IT LOOKS LIKE THESE GUYS HAVE THINGS TO SAY AND IF THEY HAVE ENOUGH RESPONSE THEY WILL PUBLISH MONTHLY FOR 50 CENTS AN ISSUE. WRITE TO THEM AT THE COMPUTER HOBBYIST, BOX 295, CARY, NC 27511.

YOU MAY WANT TO CONTACT STEPHEN B. GRAY, AMATEUR COMPUTER SOCIETY, 260 NORTON AVE., DARIEN, CN 06820. I DON'T KNOW WHAT HE IS UP TO YET BUT HOPE TO FIND OUT SOON.

TOOLS YOU MUST HAVE - IF YOU HAVEN'T ORDERED A "SOLDAPULLT" FROM EDSYN YET, DO IT! THEIR BEST COSTS \$9.95 AND YOU SHOULD ORDER A FEW EXTRA TIPS @ \$1.50. IF YOU HAVEN'T USED ONE, I GUARANTEE THAT IT WILL BE ONE OF YOUR MOST PRIZED TOOLS IN JUST A FEW DAYS. IT MAKES IC REMOVING A CINCH. WRITE TO: EDSYN, 15954 ARMINTA ST., VAN NUYS, CA 91406

BOOKS YOU NEED - MOST EVERYONE HAS OBTAINED THE INTEL 8008 USER MANUAL. ANOTHER ONE WORTH GETTING IS THE MICROSYSTEMS INTERNATIONAL MF8008 APPLICATIONS MANUAL, BULLETIN 80007. IT CONTAINS THE INFORMATION IN INTEL'S BOOK AND ALSO INCLUDES CIRCUITS, PC BOARD DRAWINGS AND CIRCUIT DESCRIPTIONS FOR A MODULAR MICROCOMPUTER USING THE MF8008. ALSO INCLUDED IS A USER'S GUIDE AND LISTING FOR MONITOR 8, AN EDITOR, SYMBOLIC ASSEMBLER, AND DEBUGGING SYSTEM WITH THE ABILITY TO LOAD AND DUMP PROGRAMS IN SEVERAL FORMATS AS WELL AS SET AND CLEAR BREAKPOINTS. WRITE TO MICROSYSTEMS INTERNATIONAL, 450 SAN ANTONIO ROAD, PALO ALTO, CA.

THE SCELBI USER MANUAL IS VERY WELL PREPARED INTRODUCTION TO ASSEMBLY LANGUAGE PROGRAMMING FOR THE 8008 AND IS WELL WORTH THE COST OF \$10. ORDER FROM SCELBI COMPUTER CONSULTING, INC., 1322 REAR, BOSTON POST ROAD, MILFORD, CN 06460.

SEVERAL PARTICIPANTS HAVE WARNED OTHERS TO SAVE THEIR MONEY ON THE RGS USER MANUAL. IT MAY BE OF VALUE SOMEDAY WHEN THEY COMPLETE IT BUT IS ONLY WORTH A SMALL FRACTION OF THE \$25 THEY ARE CHARGING FOR IT NOW.

NO ONE HAS RECEIVED THE MARTIN RESEARCH BOOK YET AS FAR AS I KNOW. IT SHOULD BE VALUABLE AND I HOPE WE CAN GET PEOPLE TO PASS IT AROUND. THEIR ADDRESS IS MARTIN RESEARCH, LTD., 1825 S. HALSTED, CHICAGO, IL 60608.

WRITE FOR THE SEMTRONICS PC BOARD CATALOG. ENCLOSE AN SASE AND YOU WILL RECEIVE A LISTING OF ALL THE PC BOARDS AVAILABLE FOR MOST OF THE MAGAZINE ARTICLES YOU'VE SEEN AND BEEN INTERESTED IN FOR THE LAST FEW YEARS. HE HAS TVT AND MARK-8 BOARDS. PERHAPS YOU CAN GET HIM TO SUPPLY THE MARK-8 BOARDS REVERSED (I.E., TOP PATTERN ON BOTTOM AND BOTTOM ON TOP). WRITE TO SEMTRONICS, RT. 3 BOX 1, BELLAIRE, OHIO 43906. HE ALSO DOES CUSTOM ETCHING.

A LOT OF PEOPLE STILL HAVEN'T FIGURED OUT HOW TO GET DATA SHEETS ON IC DEVICES. WRITE TO THE FOLLOWING COMPANIES AND ASK FOR THE FOLLOWING BOOKS. IT WON'T HURT TO LIE A LITTLE ON YOUR ADDRESS OR HAVE IT SENT TO YOUR COMPANY. (I.E. BROWN'S COMPUTER CONSULTING SERVICE, ETC.)

NATIONAL SEMICONDUCTOR CORPORATION, DATA LIBRARIAN, 2900 SEMICONDUCTOR DRIVE, SANTA CLARA, CA 95051 ASK FOR:

- A) DIGITAL INTEGRATED CIRCUITS MANUAL
- B) MOS INTEGRATED CIRCUITS MANUAL
- C) LINEAR INTEGRATED CIRCUITS MANUAL
- D) INTERFACE INTEGRATED CIRCUITS MANUAL
- E) TRANSISTORS MANUAL
- F) LINEAR APPLICATIONS (COSTS \$2.50)
- G) O. E. M. PRICE SCHEDULE

FAIRCHILD SEMICONDUCTOR CORP. 464 ELLIS ST., MOUNTAIN VIEW, CA 94040

- A) TTL DATA BOOK
 - B) LINEAR INTEGRATED CIRCUITS DATA CATALOG
 - C) LINEAR IC APPLICATIONS HANDBOOK
 - D) O. E. M. PRICE SCHEDULE
- SIGNETICS, PO BOX 3004, MENLO PARK, CA 94025 ASK FOR:
- A) LINEAR IC DATA BOOK
 - B) 8000 SERIES TTL DATA BOOK
 - C) 7400 SERIES TTL DATA BOOK
 - D) MOS SERIES DATA BOOK
 - E) O. E. M. PRICE SCHEDULE

MOTOROLA SEMICONDUCTOR, 5005 E. MCDOWELL RD., PHOENIX, AZ 85008

- A) MOTOROLA SEMICONDUCTORS PRICE LIST

WEATHERFORD, 6921 SAN FERNANDO RD., GLENDALE, CA 91201

- A) DESIGNING WITH TTL PROM'S AND ROM'S

SEND DETAILED ORDER INFORMATION FOR OTHERS YOU HAVE THAT YOU HAVE FOUND USEFUL.

INFO FROM AND ABOUT SUPPLIERS - NOTE: ANYTHING YOU READ HERE IS SIMPLY INFO OBTAINED FROM PARTICIPANTS OR SUPPLIERS AND IT IS UP TO YOU TO VERIFY THE ACCURACY OF THE INFORMATION AND THE INTEGRITY OF THE COMPANIES.

MAURY GOLDBERG, CELETRON COMMUNICATIONS CORP., 1618 JAMES ST., SYRACUSE, NY 13203. SOME OF YOU RECEIVED A FLYER FROM MAURY. IT FEATURED 2102-S-2 MIL SPEC AT \$9.99 EA, 8 FOR \$75, 32 FOR \$280. HE IS WORKING WITH TECHNIQUES TO PROVIDE A 4K BOARD. HE ALSO HAS THE COM 2502 UART FOR \$9.95 AND WILL SUPPLY A DIAGRAM FOR A TTY INTERFACE FOR THE MARK-8. HE IS WILLING TO PUT TOGETHER AN IC KIT FOR THE MARK-8 IF THERE ARE ENOUGH PEOPLE INTERESTED.

KA ELECTRONIC SALES, 1220 MAJESTY DRIVE, DALLAS, TX 75247 WILL SUPPLY THE MF8008 (MICROSYSTEMS INTERNATIONAL 8008 - WORD IS THE MF8008 USUALLY RUNS MUCH FASTER THAN THE INTEL) FOR \$66.

DUE TO AN UNFORTUNATE COMBINATION OF TIMING AND LOCATION, M&R ENTERPRISES PO BOX 1011, SUNNYVALE CA 94088 WAS INDIRECTLY CONNECTED WITH ELECTRONIC COMPONENT SALES. THERE IS NO CONNECTION WHAT-SO-EVER. I MUST APOLOGIZE TO MARTIN J. SPERGEL FOR IMPLYING THAT THERE MIGHT BE SOME CONNECTION. HE HAS TALKED TO ME SEVERAL TIMES AND HAS SOME COLOSSAL BUYS FOR MARK-8 BUILDERS AND CAN COME UP WITH MORE IN THE FUTURE. IF YOU ARE STILL SUSPICIOUS, HE SUGGESTS THAT YOU CONTACT HIM FOR A BANK REFERENCE. HIS COLOSSAL BUY IS THE MF8008 FOR \$60 OR A PARTIAL KIT INCLUDING THE MF8008, 15 7400'S, AND ALL OF THE RESISTORS AND THE .1 CAPACITORS FOR THE MARK-8 FOR \$75. HE WILL SUPPLY A COMPLETE KIT OF PARTS FOR ROGER SMITH'S TTY AND CASSETTE TAPE INTERFACE FOR THE TVT FOR UNDER \$35 MINUS THE SWITCH AND PC BOARD. HE SUGGESTS THAT THOSE INTERESTED IN BUILDING IT SEND AWAY TO TECHNIQUES QUICKLY FOR THE PC BOARD OR IT WILL BE A LONG WAIT. HE HAS 100 KITS OF PARTS AVAILABLE AND IT WILL BE AFTER THE FIRST OF THE YEAR BEFORE HE WILL HAVE MORE. ALSO SEE HIS FLYER IN THE BACK OF THE NEWSLETTER FOR TVT IC'S. HE HAS 2102'S FOR \$10 AND MOLEX SOCKETS. WOULD YOU LIKE A 150 MHZ TEK SCOPE FOR AROUND \$650 OR A TV CAMERA AND REORDER VERY CHEAP? WRITE MARTIN AND SEE HOW HE IS DOING ON ACQUISITION. WRITE HIM IF YOUR INTERESTED IN A MIDI KIT INCLUDING MF8008, ALL 74-- IC'S, RESISTORS, .1 CAPS, & 8 PRIME QUALITY 1101'S. THE MIDI KIT COULD BE AROUND \$125 IF ENOUGH PEOPLE ARE INTERESTED. HE HAS 1702A PROMS FOR \$40.

A FLYER WAS SUPPLIED BY MNH-APPLIED ELECTRONICS. ADAM TRENT HAS DONE BUSINESS WITH HIM AND WAS VERY PLEASED WITH SOME ITEMS BUT WARNED THAT A TTL REJECT ASSORTMENT CONTAINED NO GOOD DEVICES. CHECK WITH DR. MICHAEL N. HAYES, THE OWNER REGARDING WHAT YOU CAN EXPECT AND ASK HIM TO SUPPLY ALL OF HIS BACK CATALOGS AT THE SAME TIME.

SOME OF THE OLD STANDBY SUPPLIERS THAT PARTICIPANTS KEEP MENTIONING ARE INTERNATIONAL ELECTRONICS UNLIMITED, POLY PACS, BILL GODBOUT, JAMES, BABYLON, SOLID STATE SALES. SOME OF THE INFO IS A LITTLE CONTRADICTORY BUT THEY ALL ARE RELIABLE AND YOU CAN EXPECT SOMEWHERE AROUND 5% FAILURES. THAT MAY NOT BE SO BAD ANYWAY BECAUSE NEW DEVICES JUST MIGHT CONTAIN THE SAME PERCENTAGE OF BAD ONES. IN ANY CASE, KEEP TRACK OF THE COMPANY YOU BOUGHT THE IC'S FROM AND TRY TO CHECK THEM BEFORE YOU SOLDER THEM IN AND MAKE THEM SEND YOU AN EXCHANGE ON THE BAD ONES. A HIGH PRIORITY INTERFACE UNIT FOR THE MARK-8 WILL BE A UNIVERSAL IC TESTER. THIS, TEAMED WITH A MINI ENVIRONMENTAL UNIT, SHOULD MAKE SURPLUS IC CHECKING A SNAP.

MANY OF YOU HAVE ALREADY HEARD THE UGLY STORY ABOUT ELECTRONIC COMPONENT SALES. A LARGE ARTICLE APPEARED IN OCT 14, 1974 ELECTRONIC NEWS. RUMOR HAS IT THAT A STANFORD STUDENT WITH 12 ALIASES PLACED THAT AD AND HAS ACCUMULATED MORE THE \$400,000 IN SMALL ORDERS, MANY FROM LARGE FIRMS. THE POST OFFICE AND FBI ARE AFTER HIM. I HAVE HEARD SEVERAL REPORTS THAT HE HAS STARTED TO DELIVER AND OR REFUND MONEY BUT THIS MAY REALLY BE BAD NEWS. IF HE DELIVERS ANYTHING, HE CAN SIT ON THE OTHER ORDERS SINCE HE DIDN'T SAY WHEN HE WOULD DELIVER. IF HE GOT TO YOU, SEND A LETTER ASKING FOR IMMEDIATE DELIVERY OR REFUND. YOU MAY BE ABLE TO SALVAGE YOUR MONEY. IT SURE MAKES ONE REALIZE HOW VULNERABLE HE IS WHEN HE SENDS HIS CASH AWAY. BETTER STICK WITH WELL RECOMMENDED SUPPLIERS UNTIL YOU CHECK THESE OTHER GUYS OUT CAREFULLY.

PEOPLE'S COMPUTER COMPANY - BOB ALBRECHT HAS ALWAYS HAD ABOUT A 5 YEAR VISIONARY JUMP ON EVERYONE ELSE REGARDING THE COMPUTER FIELD. HE WAS INTO EDUCATIONAL COMPUTING BEFORE SCHOOL'S THOUGHT THEY COULD AFFORD A COMPUTER. HE HAS BEEN BRINGING RECREATIONAL AND EDUCATIONAL COMPUTING TO THE PEOPLE FOR THE LAST THREE YEARS THRU HIS PEOPLE'S COMPUTER COMPANY. (PCC) THE BEST WAY TO FIND OUT WHAT THEY ARE DOING IS TO SUBSCRIBE TO THE PCC NEWSPAPER, 11" X 17", AT LEAST 24 PAGES AND FILLED WITH EXCITING AND ENTERTAINING INFO. BOB HAS AGREED TO MAKE THE MARK-8 USERS AN OFFER THEY JUST CAN'T REFUSE. TELL HIM YOU READ ABOUT IT IN THE NEWSLETTER AND YOU CAN GET A REGULAR \$5 YEARLY SUBSCRIPTION (STARTS WITH SEPT 74 ISSUE) OR A RENWAL FOR ONLY \$3. (5 OR MORE ISSUES A YEAR.) IT'S THE BEST \$3 YOU CAN SPEND. I RECOMMEND THAT YOU GET THE 9 BACK ISSUES FOR \$6. BOB SAYS THE \$3 DEAL EXPIRES JAN 1, 75. HE THINKS MICRO-COMPUTERS ARE THE WAVE OF THE FUTURE AND IS NEGOTIATING A DEAL WITH INTEL TO GET SOME 8080 AND 8008 SYSTEMS AND HOPES TO WRITE SOME ASSEMBLY LANGUAGE BOOKS. IF THEY ARE ANYWHERE AS GOOD AS HIS BASIC LANGUAGE BOOKS THEY WILL BECOME CLASSICS.

A SOLUTION TO THE MEMORY BOARD IC SOCKET PROBLEM - ADAM TRENT SUGGESTS USING AUGAT SOCKET PINS FOR THE MEMORY BOARD. (I TRIED IT AND IT WORKS GREAT! SEE MNH FLYER IN BACK FOR SURPLUS AUGAT BOARDS. I USED A DIAGNOSAL PLIERS TO LIFT THE PINS OUT OF THE MOUNTING BOARD. YOU DON'T EVEN HAVE TO REMOVE THE WIRE WRAP WIRE. LIFT THE PIN, GIVE IT A FEW BACKWARD TWISTS AND OUT IT COMES. THESE CAN BE TAPPED INTO THE MEMORY BOARD HOLES AND EASILY SOLDERED. THIS IS A MUST FOR AT LEAST ONE OF THE 1K MEMORY BOARDS SO YOU CAN GET THE 1101'S CHECKED OUT AND BURNED IN.)

- 1) THE PRECISION SYSTEMS POWER SUPPLY IS GREAT BUT NO CIRCUIT DIAGRAM IS PROVIDED. YOU DON'T REALLY NEED ONE BUT IT WOULD BE NICE TO KNOW WHAT ALL THAT EXTRA GARBAGE IS THERE FOR.
- 2) CELETRON ELECTRONICS, 1618 JAMES ST., SYRACUSE, NY 13202 WILL SUPPLY A LOW COST KIT DESIGNED BY STEVE CIARCIA.
- 3) FIGURE A SHOWS CIRCUITS RECOMMENDED BY NATIONAL FOR A 5 VOLT AND -9 VOLT SUPPLY.
- 4) IF YOUR REGULATOR GOES, SO DO ALL YOUR IC'S INCLUDING THE ALL IMPORTANT CPU CHIP. YOU NEED A CROWBAR! (THIS SHORTS OUT THE SUPPLY ON OVER-VOLTAGE.) TWO CIRCUITS ARE SHOWN IN FIGURE B.

TERRY RITTER, DANTCO, 2524B GLEN SPRINGS WAY, AUSTIN TX 78741, 512-441-0036 HAS PROVIDED 14 PAGES OF DETAILED INFO. SOME THINGS ARE INCLUDED HERE AND OTHERS WILL HAVE TO WAIT FOR FUTURE NL'S. HE WAS THE FIRST TO SAY HE GOT HIS MARK-8 RUNNING SEVERAL MONTHS AGO. HE IS NOW FRUSTRATED WITH THE "DISAPPEARING DATA" PROPERTY OF SEMICONDUCTOR MEMORY AND IS THINKING ABOUT STANDBY POWER SYSTEMS. 1101'S ARE SUPPOSE TO RETAIN DATA AT -2, +5 VOLTS BUT 30% OF HIS IEU ONES DO NOT. HE PROPOSES THIS TEST FOR "GOOD" 1101'S: STORE DATA, CHECK IT, GO FROM -9 TO -2 V FOR 5 MIN. THEN RETURN TO -9 V AND CHECK FOR STORED DATA ERRORS. HE SPENT 40 HOURS REMOVING BAD IC'S FROM A MEMORY BOARD. HE STRONGLY SUGGESTS MR. TITUS'S "FLATPACK" MOUNTING SCHEME. (THE AUGAT SOCKET PIN TRICK WORKS WELL TO.) HE SUGGESTS USING CIRCUIT STICK ADHESIVE IC PADS ON THE TOP OF THE MEMORY BOARDS IF YOU TRY TO SOLDER IN MOLEX SOCKET PINS. THE OUTER HOLES APPEAR OVER THE PC RUN AND ALLOW CONNECTION TO BE MADE BY SOLDERING THRU THE HOLE TO THE RUN. HE IS SERIOUSLY WORKING ON THE CASSETTE TAPE INTERFACE AND THINKS A GOOD DEAL OF THE WORK CAN BE DONE WITH SOFTWARE RATHER THAN HARDWARE.

M. PAUL FARR, 3723 JACKSTADT, SAN PEDRO, CA 90731 POWERED UP HIS MARK-8 ON 6 NOV. IT RAN PERFECTLY AFTER HE FOUND A SHORT BETWEEN PINS 1 AND 13 OF IC10 ON THE CPU BOARD. (IT APPEARS OBVIOUS THAT WE HAVE FOUND ALL OF THE ERRORS.) PAUL IS A CHEMIST FOR RALSTON PURINA - VAN CAMP DIV. AND HAS HAD ELECTRONICS AS A HOBBY FOR YEARS. HIS MARK-8 CONSISTS OF THE INITIAL 6 BOARDS HE ETCHED HIMSELF AS WELL AS AN EXTRA OUTPUT LATCH AND MEMORY BOARD. HE USED 1101'S FROM IEU WITH APPARENTLY OUTSTANDING SUCCESS. HE ETCHED THE BOARDS WITH EDGE CONNECTORS AND REVERSED THE FOIL PATTERN SIDES ON THE MEMORY BOARDS AND WISHES HE HAD DONE SO ON ALL OF THE REST OF THE BOARDS. HE IS OFFERING THE REVERSE ETCHED MEMORY BOARDS UNDRILLED AND UNTRIMMED FOR \$6.00 EA. HE IS OFFERING TO HELP ANYONE IN THE L. A., SAN PEDRO AREA AS A PERSON WHO HAS A MARK-8 RUNNING. HIS UNIT IS BEAUTIFUL AND WELL WORTH GOING OUT OF YOUR WAY TO LOOK AT.

ROBERT COOK, 25W178-39TH ST., NAPERVILLE, IL 60540 GOT HIS MARK-8 RUNNING ON 5 OCT. HE USED 1101'S FROM IEU AND HAS FOUND 5 BAD ONES SO FAR. HE IS BUILDING THE MODEM CIRCUIT FROM THE 4/18/74 ELECTRONICS MAG. AND WILL REPORT ON RESULTS.

LARRY PLESKAC, 938 PAULA ST., ESCONDIDO, CA 92027 ALSO GOT HIS MARK-8 RUNNING ON 5 OCT. HE SAYS HE HAD PROBLEMS WITH POLY PAC IC'S AND EXCELLENT LUCK WITH I. E. U. ZERO INSERTION FORCE IC SOCKETS CAN BE PURCHASED FROM TEXTTOOL PROD. INC., 1410 PIONEER DR., IRVING, TX 75061, 214-259-2676. ADVANCED MICRO DEVICES AM 2807 IS A DIRECT REPLACEMENT FOR A 2524. HIS CIRCUITS FOR OCTAL READOUT AND STATE DISPLAY ARE INCLUDED IN FIGURE C.

DON GOLENSKIE, BOX A-375, CAMARILLO, CA 93016 SAYS 2107-8 4K RAM'S ARE \$12 IN LOTS OF 100. IF WE COULD FIND SOMEONE TO DESIGN A PC BOARD AND REFRESH CLOCKS, ETC, 4K OF MEMORY COULD BE HAD FOR ABOUT \$120.

STEVE CIARCIA, 41 HILLTOP DR., WEST HARTFORD, CN 06107 HAS A LOT OF INTERESTING THINGS GOING. HE STOPPED BY SCALBI'S OFFICE AND TOOK A LOOK AT THEIR KITS AND PC BOARDS AND TALKED TO THE MANAGEMENT. HE WAS SO IMPRESSED WITH THEIR DESIGN AND QUALITY THAT HE BOUGHT AN UNPOPULATED BOARD SET FOR \$130 AND SHOULD HAVE HIS MACHINE RUNNING NOW. HE ALSO DESIGNED THE SCROLLING MODIFICATIONS TO THE TVT (SCROLLING MEANS ALL LINES POP UP AND THE BOTTOM LINE IS CLEARED OUT WHEN A LINE FEED OCCURS AT THE BOTTOM OF THE SCREEN). THE SCHEMATIC IS SHOWN IN FIG. B. IT IS SET UP FOR MANUAL SCROLLING NOW BUT IT WOULD BE A TRIVIAL MODIFICATION TO DETECT LINE FEEDS OR CONTROL CHARACTERS AND SCROLL. TRY THE MODS ON YOUR TVT AND SEND IN A FINISHED CIRCUIT THAT DOES IT ALL. THE 10K AND 50K POT ADJUSTMENTS ARE CRITICAL SO MAKE THEM TO TURN TRIMPOTS. STEVE WRITES, "I'VE FINALLY DEvised A WAY TO SUCCESSFULLY SCROLL, RESET THE CURSOR, AND PROVIDE AN ERASED LINE WITH ONLY A 4 CHIP ADDITION TO THE BASIC TVT. THE PRESENT SETUP WILL ALLOW SCROLLING UP OR DOWN, RESET-TING THE CURSOR TO TOP LEFT OR BOTTOM LEFT, AND WILL ADD A BLANK LINE AT THE BOTTOM. FOUR PC BOARD TAPES WILL HAVE TO BE CUT. IC1 (7408) IS INSERTED BETWEEN IC10 OF THE DERIVED TIMING BOARD AND THE OUTPUT CONNEC-TOR. IT'S PURPOSE (WITH IC2 & 3) WHEN TRIGGERED BY THE FRAME SYNC AFTER A SCROLL COMMAND IS TO DELAY THE PHASE 1 & 2 CLOCKS TO THE MEMORY. DE-PENDING ON THE SETTING OF THE 10K POT ON IC3, THE SCREEN WILL SCROLL UP OR DOWN ON COMMAND. THE TAPES ON IC4-1 AND 13 (CURSOR BOARD) MUST ALSO BE CUT. IC3-9 NORMALLY IS CONNECTED TO IC4-1 (UP) FOR THE CURSOR TO RESET TO TOP LEFT BUT WILL RESET TO BOTTOM LEFT IF CONNECTED TO IC4-13 (DOWN). WITH CURSOR CLEAR SWITCH IN THE NORMAL POSITION (AND NO SCROLL COMMAND) THE TVT OPERATES AS ALWAYS. IN THE DOWN AND SCROLL POSITIONS, THE CURSOR WILL RESET TO BOTTOM LEFT, THE TVT WILL SCROLL UP ONE LINE AND PROVIDE A BLANK BOTTOM LINE ON A SCROLL COMMAND. CHANGING SW POSI-TIONS AND IC3 TIME CONSTANT AND TRIGGERING EDGE OF IC4 WILL DO THE SAME THING IN THE OTHER DIRECTION. STEVE ALSO PROMISES TO PROVIDE US WITH A HARVARD BIPHASE CASSETTE TAPE UNIT INTERFACE THAT WILL WORK. WRITE HIM AND GIVE HIM SOME WORDS OF ENCOURAGEMENT AND THE CASSETTE TAPE PROBLEM MAY DISAPPEAR.

A CLEVER CONCEPT FOR HOBBYISTS HAS BEEN INITIATED IN DENVER. A SMALL GROUP OF DEDICATED GUYS HAVE GOTTEN TOGETHER AND ARE SHARING RESOURCES. THEY ARE THE DIGITAL GROUP, PO BOX 6528, DENVER, CO 80206 AND BETWEEN THEM THEY HAVE AN ENORMOUS RANGE OF RESOURCES. ANY-ONE NEAR THE DENVER AREA SHOULD CONTACT THEM. THEY ARE WORKING ON AN ELABORATE CASSETTE TAPE INTERFACE THEY INTEND TO SHARE WITH THE REST OF USE WHEN THEY GET IT WORKING. THEY INTEND TO DEVELOP A BASIC WHICH WILL MAKE EVERYONE OVERJOYED. THEY MENTIONED MANY OTHER THINGS THEY HAVE IN THE WORKS. PERHAPS THEY WILL GIVE US AN UPDATE OF WHAT WE CAN SHARE IN SOON. THEY HOPE TO HAVE THEIR OWN PROM PROGRAMMER SOON AND PRESENTLY HAVE ACCESS TO ONE. THEY HAVE BEEN PROVIDING ME WITH REPRINTS OF MAGAZINE ARTICLES ABOUT MICROCOMPUTERS. I'LL GIVE A BIBLIO-GRAPHY AND REVIEW WHEN ROOM PERMITS. MAYBE WE CAN GET THEM TO WRITE A NEWSLETTER EDITION.

J. M. LAMIELL, 1615 COLORADO BLVD., DENVER, CO 80220 BUILT A 16 BIT MICROPROGRAMMABLE MACHINE WITH 1K MEMORY. HE IS WILLING TO SHARE INFORMATION. HE STUDIED EE AS AN UNDERGRAD AND IS NOW A JUNIOR AT THE UNIV. OF COLO. MED. SCHOOL (IT'S AMAZING HOW MANY DOCTORS AND MED-ISTS ARE INTO HOBBY COMPUTERS!). HE IS PRESENTLY INVOLVED USING DATA GENERAL NOVAS IN MONITORING EKG'S AND IS WILLING TO SHARE EXPERIENCES WITH OTHERS.

HAROLD CRONIN, 55 B ROWE ST., CHINA LAKE, CA 93555 SUPPLIED A CASSETTE TAPE INTERFACE BROCHURE FOR A UNIT FOR A PDP-8. IT USES SOFTWARE TO GENERATE PULSES, RECORD GAPS, ETC., AND THE BROCHURE INCLUDES A LISTING OF THE READ AND WRITE ROUTINES. WRITE DIGITAL COMPUTER SYSTEMS 2154 ROYCE ST., BROOKLYN, NY 11234. Page

GREGORY HART (WA6BNV), 8948 RAMSTAD AVE., FAIR OAKS, CA 95628 PLANS TO CONSTRUCT A MORSE CODE DECODER, RITTY SPEED CONVERTOR, AND BAUDOT TO ASCII CONVERTERS.

BURTON DORF, 315 OVINGTON AVE., BROOKLYN, NY 11209 EXPRESSED INTEREST IN THE MITS TERMINAL BUT CAN'T BELIEVE THE HIGH PRICE AND WONDERED IF ENOUGH PEOPLE WERE INTERESTED. IF WE COULDN'T GET A PRICE BREAK. (THE SOUTHWEST TECH PROD. TVT'S APPEAR TO BE MUCH BETTER & CHEAPER.

RONALD E. SEIBEL, 10 B ADAMS ST., AVON PARK, FL 33825 SUGGESTS NEWSLETTER SUBSCRIPTIONS, PLATED THRU PC BOARDS, HAS A 4004 AND WANTS TO KNOW WHAT TO DO WITH IT, RECOMMENDS SOLID STATE SYSTEMS FOR A/D AND D/A CONVERTERS, AND WONDERS ABOUT THE COST OF TAPE READERS AND PUNCHES, DISC MEMORIES, OTHER MICROPROCESSORS, AND HOW MUCH PLATED THRU HOLES WOULD ADD TO THE COST OF THE PC BOARDS.

WILLIAM SCHENKER, M. D., 1515 NEWELL AVE., WALNUT CREEK, CA 94596 HAS HOOKED UP WITH DR. KEN MCGINNIS OF SAN MATEO AND THEY MAY DO SOME MEDICAL COMPUTER WORK TOGETHER. HE ALSO HEARD FROM SENIOR MED STUDENT MARK SPOHR. HE MAY BECOME INVOLVED IN SETTING UP AND PART TIME TEACHING A BIO-MEDICAL/COMPUTER MEDICINE CURRICULUM AT THE LOCAL JUNIOR COLLEGE.

DR WILLIAM LENNON, NORTHWESTERN UNIVERSITY, COMPUTER SCIENCE LAB DIRECTOR, EVANSTON, IL 60201 SAYS THEY ARE CURRENTLY CONNECTING AN 8008 PROCESS CONTROLLER AND AN INTELLEC 8080 TO THE COMPUTER NETWORK. HE WANTS TO ENCOURAGE FORMATION OF AN ACTIVE 8008 GROUP WITHIN THE DIGITAL EQUIPMENT USER GROUP. HE SUGGESTS BONUS-WIK MADE BY EASY ELECTRONIC CO., PO BOX M-33, FREMONT, CA FOR GETTING SOLDER AWAY FROM IC'S BEFORE REMOVAL.

J P BERNIER, 1005 GRENOBLE, STE FOY, QUE 10, 61V 228 WANTS TO STANDARDIZE I/O AND CASSETTE FORMAT. (EVERYONE DOES BUT NO ONE WANTS TO SAY WHAT IT WILL BE.)

LARRY PLATE, 2320 SKYLINE WAY, SANTA BARBARA, CA 93109 IS USING MOLEX SOCKETS FOR ALL IC'S AND HAS AN ELABORATE "MICRO-SOLDERING" SCHEME WORKED OUT. HE EXPRESSED CONCERN OVER HOW THE MARK-8 POSTER IS USED. (MY PURPOSE IN COMPILING IT WAS TO ALLOW ANYONE TO CONTACT ANYONE ELSE, --INCLUDING SUPPLIERS. I DON'T THINK ANYONE REALLY MINDS.)

GARY T. POST, 475 B BROOKS, LEMOORE, CA 93245 WAS IMPRESSED WITH THE TABLE OF CONTENTS FOR THE MARTIN BOOK. (ENOUGH GUYS HAVE ORDERED IT SO WE SHOULD GET IT SHARED AROUND WITH LITTLE DIFFIDULY. LET'S SEE 300 PAGES AT 5 CENTS PER PAGE ----) HE THINKS WE CAN GET SOME SUPPLIERS TO PROVIDE MEMORY CHIPS, ETC. CHEAP IF WE CAN SHOW THEM THAT WE REPRESENT A LARGE MARKET. THE MARK IV 1974 ELECTRONICS HAS A CIRCUIT TO ADD A DIAGONAL AXIS TO ANY STORE. HE SUGGESTS THUMBHEEL SWITCHES AS A WAY OF SWITCHING PORT ASSIGNMENTS AROUND. HE WANTS A STANDARD CASSETTE FORMAT. HOW CAN HE SUBSCRIBE TO "ELECTRONIC ENGINEER"? HE USED THE SAME KIND OF MOLEX CONNECTORS FOR THE MARK-8 OR FOR THE TVT AND WILL USE A FAN TO BLOW THE HEAT OUT AND HOPES THE NEXT PROJECT LIKE THE MARK-8 IS PLANNED A LOT BETTER.

ROBERT W. THOMAS, 910 SONMAN, PORTAGE, PA 15146 INCLUDED A DIAGRAM FOR AN INPUT BUS USING 74125'S THAT WOULD AVOID THE USE OF THE SPECIAL SIGNETIC IC'S. IT IS QUITE SIMILAR TO THE RGS KIT I/O IMPLEMENTATION SINCE MR. TITUS PROPOSED AND PUBLISHED AN I/O EXPANSION SCHEME THAT WILL PROBABLY BE ADOPTED BY MOST PEOPLE, HIS IS NOT INCLUDED HERE. WRITE HIM FOR A COPY IF YOU ARE INTERESTED.

C. S. BAUER, IEMS DEPT., FLA TECH UNIV., PO BOX 25000, ORLANDO, FL 32816 IS STILL LOOKING FOR ZERO INSERTION FORCE IC SOCKETS. (TRY CIRCUIT DESIGN, BOX 24, SHELTON, CN 06484 #STFC-01 AT \$3.95.)

PETER SPOERRI WANTS INFO ON ALTERNATE POWER SUPPLIES. (INCLUDED)

ANDREW W. LEPP RECEIVED EXCELLENT SERVICE FROM JAMES ELECTRONICS AND WANTS TO KNOW THE DIFFERENCE BETWEEN AN 8008 AND 8080. (ABOUT \$300 NOW, LESS LATER, ABOUT 10 TIMES AS POWERFUL, ONLY A FEW IC'S ARE NEEDED FOR A COMPUTER. WRITE TO INTEL FOR THE 8080 BOOK AND SEE THE JAN POP ELECT.)

GREG HUNTZINGER, 2332 OAKLAND ST., AURORA, CO 80010 WANTS TO BUILD A TVT FOR HIS TV STUDIO BUT WANTS TO COMMUNICATE WITH SOMEONE THAT HAS MADE THE TV MODIFICATIONS NECESSARY.

BILL MILLER IS WORKING ON A TAPE CASSETTE CONTROLLER.

MARK SPOHR, 527 LAFAYETTE AVE., CINCINNATI, OH 45220 HAS A BSEE AND IS NOW A SENIOR MED STUDENT AT UNIV. OF CINCINNATI AND IS INTERESTED IN USING THE MARK-8 FOR DIAGNOSIS, TREATMENT, DRUG DOSAGE INTERACTIONS, AND HEALTH SYSTEMS PLANNING. (SEVERAL DOCTORS HAVE GOTTEN TOGETHER THRU THE NEWSLETTER SO FAR.)

W. H. BURTNER, RR2, BX 267, VALPARAISO, IND 46383 IS HAVING TROUBLE WITH SOME OF THE "INSIDE TERMS" SUCH AS SCROLLING, FLOPPY DISK, INTELLIGENT TERMINAL, ETC. HE IS INTERESTED IN THE RGS KIT. (I'VE SEEN THEIR MANUAL AND STAY AWAY FROM IT UNTIL THEY REVISE IT COMPLETELY AND CONVERT TO PC BOARDS. IT IS NOW A WIREWRAP LIST, A SURPLUS WIRE WRAP BOARD THAT HAS TO BE UNWRAPPED AND THE COMPONENTS. IT WOULD BE HARDER TO GET WORKING THAN A MARK-8 AND THEIR I/O SYSTEM IS WEIRD.)

ANGEL BRAVO, 10333 FELSON ST., BELLFLOWER, CA 90706 UNFORTUNATELY GOT TAKEN BY ELECTRONIC COMPONENT SALES FOR \$131. IF ANYONE GETS ADDITIONAL INFO ON HOW HE CAN GET HIS MONEY BACK, PLEASE LET HIM KNOW.

TERRY G. HARRIS, 417 NORTHWESTERN DR., GRAND FORKS, ND 58201 WOULD LIKE TO BUILD AN 8080 SYSTEM BUT IS STOPPED BY THE PRESENT COST. HE PROVIDED A REPRINT FROM COMPUTER DESIGN, OCT 74 PAGE 112 THRU 117 THAT IS WORTH LOOKING UP ON A CASSETTE TAPE SYSTEM. HE APPARENTLY HAS ACCESS TO A PDP-8 BECAUSE HE WANTS THE PDP-8 CROSS ASSEMBLER. (DEC HAS AN ELABORATE PDP-8 SUPPORT PACKAGE FOR THEIR 8008 MP'S MODULE SERIES.)

WILLIAM SEVERENCE, MAIN ST., CENTER LOVELL, ME 04016 SAYS POLY PADS IS EXCELLENT AND WATCH OUT FOR BAD IC'S FROM IEU. HE BOUGHT THE PRECISION SYSTEMS POWER SUPPLY FOR \$48 AND SAYS IT'S GREAT BUT WOULD LIKE A SCHEMATIC. HE RECOMMENDS THE SCCLB1-8H USER MANUAL. HIS FSK MODEM CIRCUIT IS IN FIGURE 14, PARTS 1 AND 2.

JOHN M. CALHOUN, 1947 CENTER ST., BERKLEY, CA 94704 OF EDUCATIONAL TESTING SERVICES SAYS ALTAI ELECTRONIC'S WAREHOUSE BURNED DOWN (THEY ARE STILL ADVERTISING?), HE KNOWS BILL GOUBOUT AND HE IS AN ALL-AROUND GOOD GUY AND HAS EVERYTHING FOR THE MARK-8. HE IS INTERESTED IN 8080'S AS SOON AS THEY GET CHEAPER AND IS INTERESTED IN A CARD READER AND PUNCH NO MATTER HOW SLOW, CLUMSY, ETC. AS IT WOULD PROVIDE A STANDARD MEANS OF DATA INTERCHANGE. Page

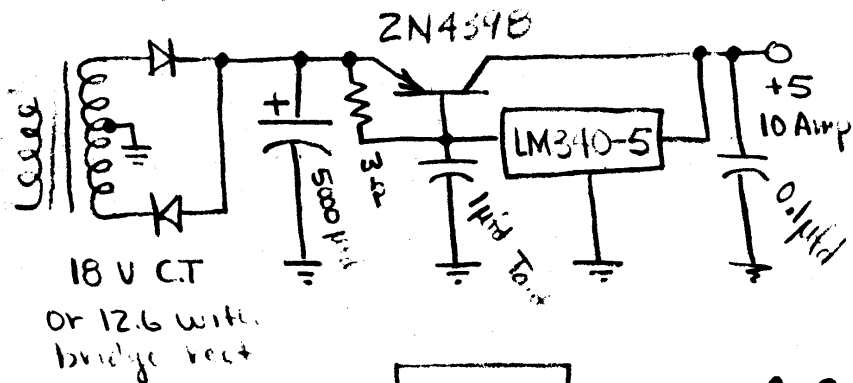
MORRIS KRUEGER, 37 EIGHTH AVE., BROOKLYN, NY 11217 IS QUITE CONCERNED WITH GETTING ACCURATE INFORMATION SO HE CAN GET A UNIT WITH PERIPHERALS RUNNING AS EASILY AS POSSIBLE. (I THINK ALL OF THE BUGS HAVE BEEN FOUND AS SEVERAL UNITS ARE NOW RUNNING SUCCESSFULLY.) HE HOPES TO USE A TVT, CASSETTE TAPE, AND PAPER TAPE READER AND PUNCH.

DAVE BOWLES, 4501 GLEN HAVEN RD., SOQUEL, CA 95073 SAYS HE ORDERED AN 8008 FROM KA ELECTRONICS FOR \$66 AND HAS EXPERIENCED 5% FAILURES FROM JEU SO TEST THEM BEFORE SOLDERING THEM IN. HE HAD THE SAME TROUBLE WITH SOLDER BRIDGES ON THE MEMORY BOARDS THAT EVERYONE ELSE IS HAVING. HE WOULD LIKE TO PROPOSE A USER GROUP CONFERENCE. (HOPE YOU GET TOGETHER WITH OTHER BUILDERS IN YOUR AREA BY WAY OF THE ROSTER.) HE WANTS A CHEAP 8080 (THAT'S SEVERAL MONTHS AWAY) OR A 8008-1 (WORD HAS IT THAT MOST OF THE MICROSYSTEM INTERNATIONAL MF8008'S RUN AT 800 KC).

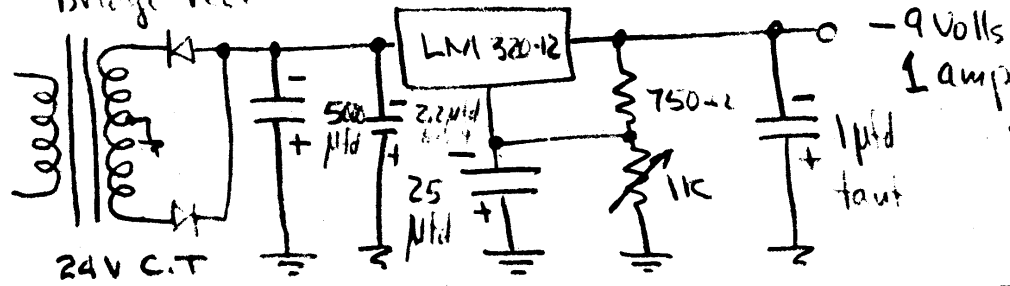
MERRY CHRISTMAS EVERYONE. HOPE SANTA BRINGS YOU AN 8080 AND 16K OF 2102'S. HOPE YOU FIND THE INFO HERE READABLE AND USEFUL. I AM SICK AND TIRED OF WRITING, TYPING, DUPLICATING, FOLDING, STAMPING, ETC. NOW ITS TIME TO GET MY 8008 SYSTEMS AND TVT RUNNING. THANKS FOR YOUR PATIENCE.

SINCERELY,
HAL SINGER

Figure A. National Linear Technology Circuits



See page 1-41
National Linear
IC Data Book



See Page 1-30
National Linear
IC Data Book

Figure B Crowbar Circuits

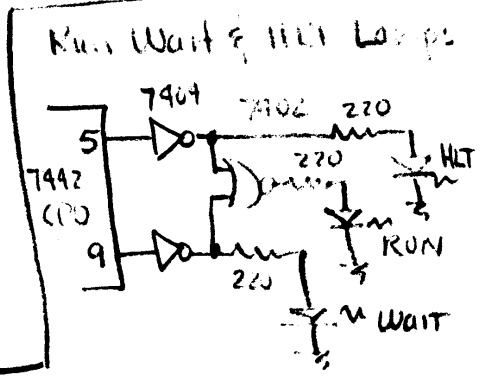
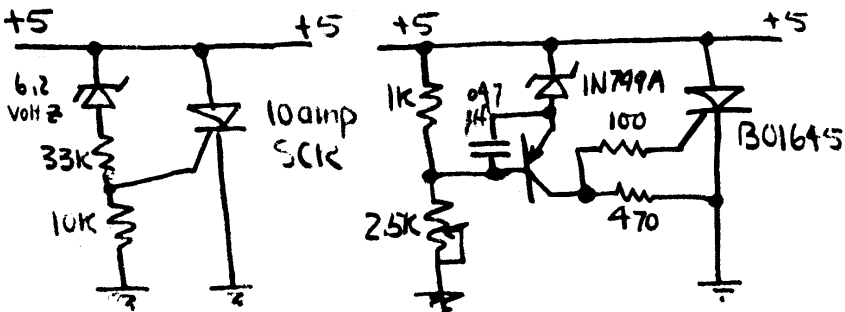
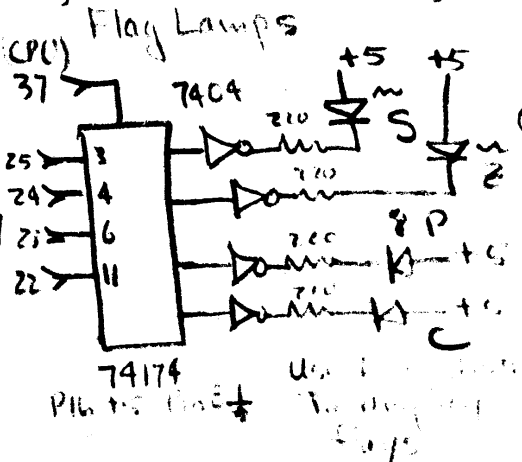
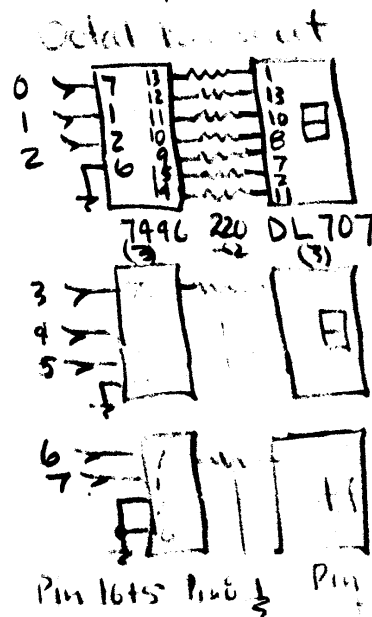
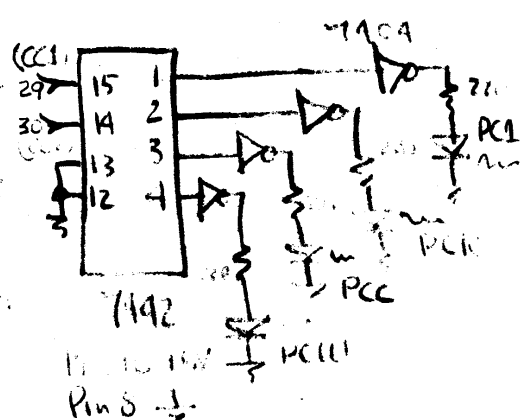


Figure C Larry Plastead's Display Circuits



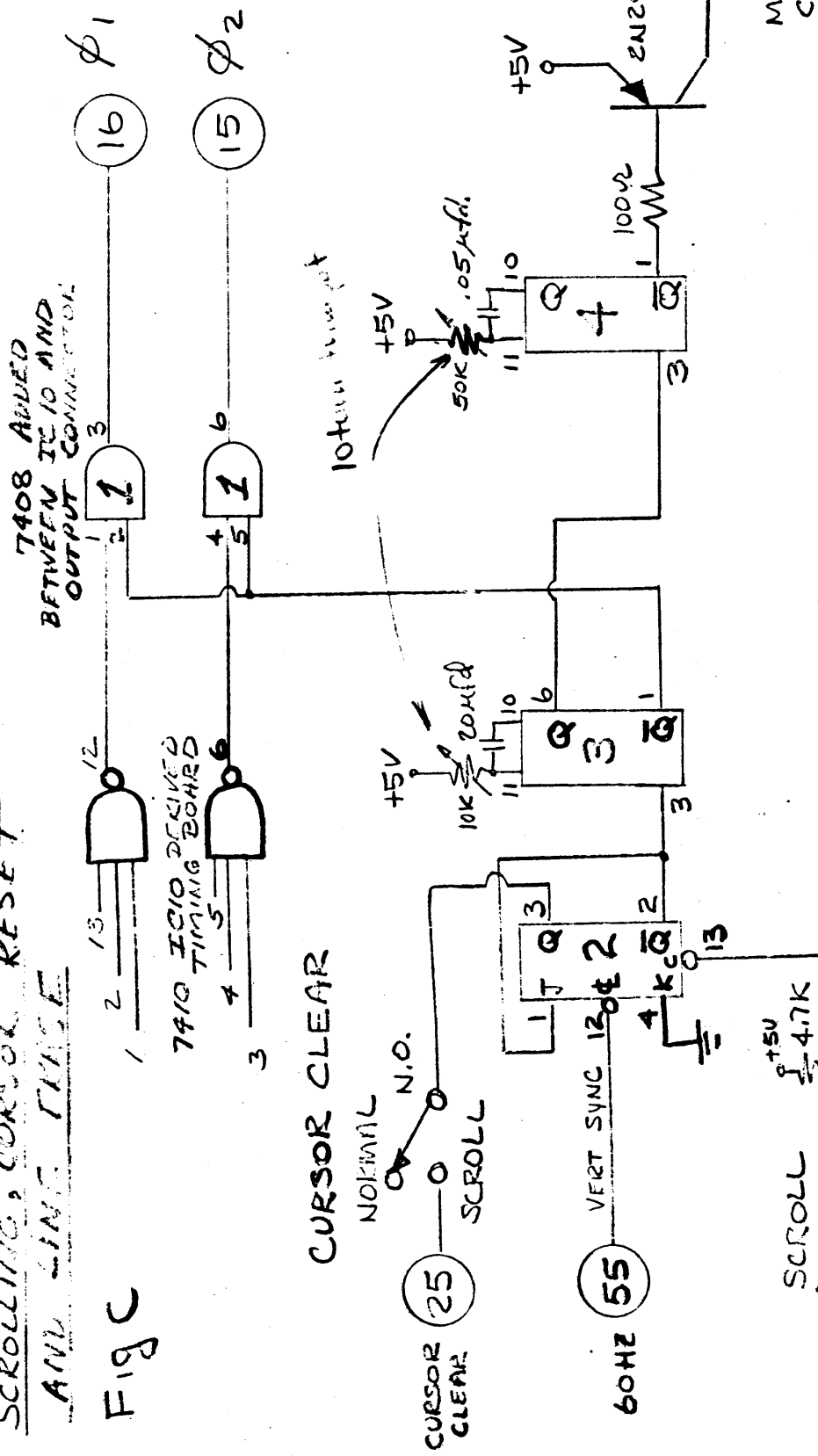
Cycle Display



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SCROLLING, CURSOR RESET AND LINE TRACE

FIG C

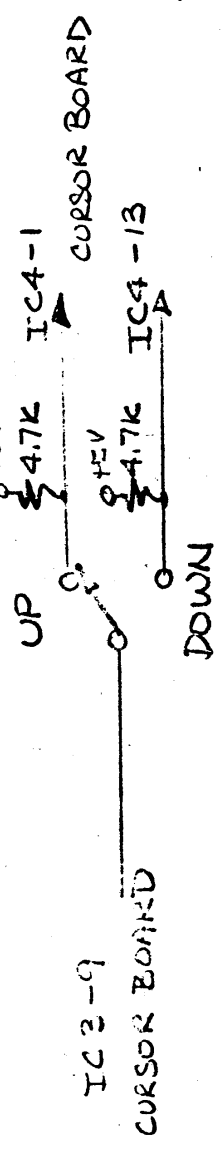


ADDED IC'S

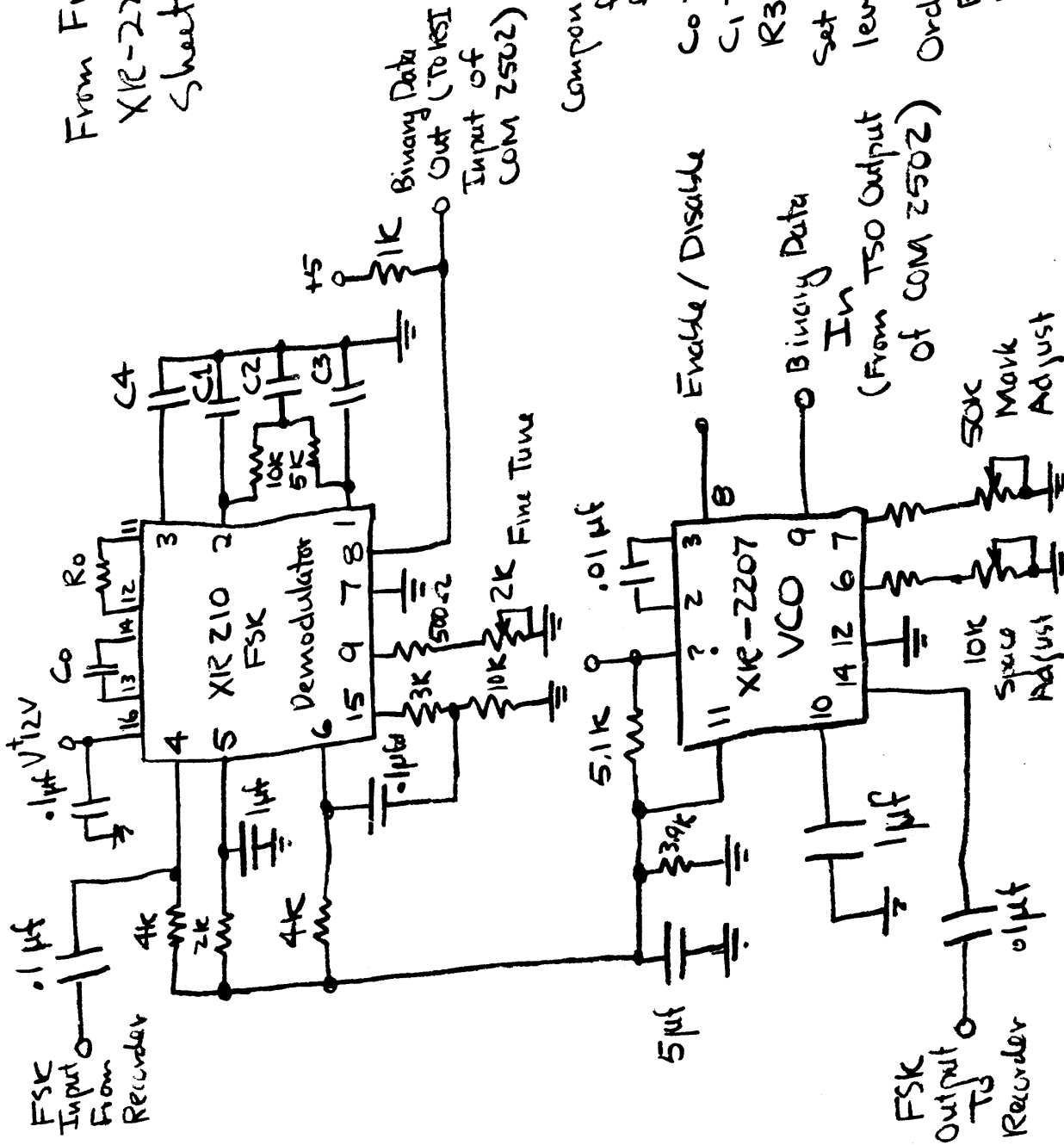
| | | |
|------|-------|--------|
| IC 1 | 7408 | VCC |
| IC 2 | 74107 | PIN 14 |
| IC 3 | 74121 | QND |
| IC 4 | 74121 | PIN 7 |

Steve Cirincia

CURSOR RESET



From Fig 20 FSK
XR-2207 VCO Data
Sheet



Components for 300 Band
 $f_{space} = 1070 \text{ Hz}$
 $f_{mark} = 1270 \text{ Hz}$
 $C_0 = .22 \mu\text{f}$ $R_0 = 5.1 \text{ k}\Omega$
 $C_1 = C_2 = .047 \mu\text{f}$ $C_3 = .033 \mu\text{f}$
 $R_3 = 91 \text{ k}\Omega$ $R_4 = 470 \text{ k}\Omega$
 set fspace first with low level on data input.

Order IC's from
 EEP Corp
 10180 W Jefferson Blvd
 Culver City, CA
 90230

213/838-1912

XR-210 \$10.- XR-2207 = ?

Fig D Severence's FSK MODEM
 Page 2

ADDITIONS TO ROSTER AS OF DECEMBER 5, 1974

DOUG ARNOLD, HAWK PRODUCTIONS, #9 COLONIAL VILLAGE, BROOKINGS, SD 57006

A. C. ACTON, BOX 31, MIDLAND, MI 48640 IS INTERESTED IN INDUSTRIAL MINI-COMPUTER APPLICATIONS INVOLVING INSTRUMENTATION, PROCESS MONITORING, SERVO CONTROL, AND WANTS TO INTERFACE A TVT, BAUDOT TTY, PLOTTER, AND SERVO ACTUATORS.

BOB ALBRECHT, PEOPLE'S COMPUTER CO., PO BOX 310, MENLO PARK, CA 94025
SEE FRONT OF NEWSLETTER FOR DETAILED INFO ABOUT BOB'S COMPANY.

HARRY E. ALLEN, 428 S. SPRING AVE., LAGRANGE, IL 60525

D. BERGGREN, 9207 SW 43RD AVE., PORTLAND, OR 97219 HAS REDESIGNED THE MARK-8 AND IS MAKING HIS OWN BOARDS. HE IS USING 1103 MEMORY (MAYBE HE CAN EXPLAIN REFRESH, SHARE HIS CIRCUITS, & DESIGN A 4K MEMORY CHIP BOARD WITH REFRESH?). HE WILL USE THE MARK-8 TO CONTROL AN ELABORATE EXISTING BURGLAR ALARM SYSTEM, FOR TEMP. AND HUMIDITY CONTROL IN HIS GREENHOUSE, FOR A LAWN SPRINKLER SYSTEM, & FOR BOOKKEEPING. HE PLANS TO ADD A MODIFIED TVT, CORE MEMORY, CASSETTE TAPE, AND MODEMS. HE WANTS A PRINTER OTHER THAN A TTY CAUSE TTY'S ARE TOO UNRELIABLE (SLOW, UGLY, AND NOISY THEY ARE BUT UNRELIABLE THEY AREN'T, TALK TO SOME USERS AND THEY WILL VERIFY EXCELLENT LONG TERM RELIABILITY.) ANYONE HAVE OTHER SUGGESTIONS FOR LOW COST PRINTERS?

CARL BOMGARDNER, 26 HOUSTON AVE., MIDDLETOWN, NY 10940

PABLO E. CABAN, 188 GREEN ST., BROOKLYN, NY 11222

JOHN CATTERALL, ELECTRONIC ASSOCIATES, 822 SOUTH N ST., LAKE WORTH, FL 33460 WILL USE THE MARK-8 FOR DESIGN OF MATV/CATV SYSTEMS, FOR TRANSISTOR CROSS REFERENCING, STOCK CONTROL, INVENTORY, & PRICING. HE PRESENTLY HAS AN RCA 70-15 AND AN RCA 70-35 HE IS BRINGING ON LINE.

LARRY D. CHANDLER, 550 SNELLING AVE., NORTH, APT. 203, ST PAUL, MN 55104 IS A DIGITAL SYSTEMS DESIGNER INVOLVED IN MINICOMPUTER PROGRAMMING.

NEVILLE H. CHANDLER, 210 ROSE ST., METUCHEN, NJ 08840

KENNETH E. CHARLTON, PROGRAMMING METHODS, GTE INFORMATION SYSTEMS, 1121 SAN ANTONIO RD., PALO ALTO, CA 94303

SPENCER C. CHERRY, 3444 E. INDIANOLA, PHOENIX, AZ 85018

PROF. ROBERT G. CHILDRESS, PO BOX 5004, TENNESSEE TECH, COOKEVILLE, TN 38501

DAVID W. CLARK, PO BOX 22, BROWNSTOWN, PA 17508

MARK A. CONDIC, 410 WOODS LANE, APT. 6A, DOWNERS GROVE, IL 60515

ROBERT CONTRI, 204 E. WILDWOOD, VILLA PARK, IL 60181

HAROLD E. CRONIN, 55B ROWE ST., CHINA LAKE, CA 93555

RICK L. CUMMINGS, 900 PARKER ST., FORT WORTH, TX 76112

ANDY DAVENPORT, 363 W. SAN JOSE AVE., CLAREMONT, CA 91711

Page 6

W. E. DAVIES, 24121 MARATHON, MISSION VIEJO, CA 92675

C. G. DEGRUIT, 155 W. 81 ST., #4J, NY, NY 10024 IS INTERESTED IN STORING AND RETRIEVING DATA ON A TAPE, RECORD, AND STAMP COLLECTION AND WANTS A GOOD CASSETTE CIRCUIT.

DOUG DRYE, 3202 WINCHESTER DR., GREENSBORO, NC 27406

GEORGE H. ENDS, SYSTEMS ANALYST, SCIENCE APPLICATIONS, INC., 2400 W. VALLEY PARKWAY, SF. 42, ESCONDIDO, CA 92025 WILL ADD PROVISIONS FOR TIME SHARING THE MARK-8 WITH HIS COMPANY'S DECSYSTEM-10 COMPUTER. HE IS WORKING ON A SYMBOLIC COMPILER AND WANTS TO KNOW ABOUT PRESENTLY DEFINED STANDARDS. (ARE THERE ANY?)

PAUL E. BEICK, 1105 MALA DR., LAYTON, UT 84041

GEORGE FISCHER, 72 SOUTH RAILROAD AVE., STATEN, ISLAND, NY 10305 WANTS TO KNOW IF THE USER GROUP IS OPEN TO BUILDERS OF OTHER 8008 SYSTEMS SUCH AS THE SCOLBI, RGS, EXPERIMENTERS LIBRARY MINI (WHAT'S THIS), MP PUBLISHINGS, AND HAP 1600. (YES) HIS INTEREST IS SOFTWARE AND IN PARTICULAR HE WANTS TO PROGRAM GAMES TO RUN ON 8008 MINI'S. HE ALSO MENTIONED THE AMATEUR COMPUTER SOCIETY.

R. S. FORMAN, 1142 MYLOR CT., EUGENE, OR 97402

DAVID E. FULTON, 378 PARK AVE., RUTHERFORD, NJ 07070

P. GERSTLE, 1271 AIKINS WAY, BOULDER, CO 80303

GILCHRIST, 7385 WEST CENTRAL, WICHITA, KS 67212

S. C. GILMORE, 2914 PERKINS LN., REDONDO BEACH, CA 90278

C. C. GINN, 3733 MINOT, FORT WORTH, TX 76133

PHIL GLAZER, ACE ELECTRIC SERVICE, 40 BROADWAY, AVE., TRENTON, NJ 08618

WILLARD E. GRANGER, 201 GREENWELL DR., HAMPTON, VA 23666

K. H. GRIFFITHS, MARINE SCIENCE INST., 700 STRAND, GALVESTON, TX 77550 PLANS TO USE THE SYSTEM IN SOME OCEANOGRAPHIC INSTRUMENTS.

LEE C. HANSON, 51 CES, BOX 648, APO SAN FRANCISCO, CA 96366 HAS HIS COMPUTER COMPLETE BUT IS AWAITING THE POWER SUPPLY.

BRO. R. W. HARRIS, MONSIGNOR FARRELL HIGH SCHOOL, 2900 AMBOY RD., STATEN ISLAND, NY 10306 PLANS TO USE THE MARK-8 AS A TEACHING TOOL FOR ASSEMBLY LANGUAGE AND USE IT AS A DATA CONCENTRATOR TO USE THEIR TWO LOCAL TTY TERMINALS DURING SLOW HOURS. HE IS WRITING AN ASSEMBLER THAT WILL RUN ON THE TIMESHARE TERMINAL AND OUTPUT OBJECT CODE ON PUNCHED TAPE.

HARVEY HEINZ, 9730 TOWNLINE DIVERSION, SURREY B.C. CANADA, V3S 4N7 IS GOING TO UNDERTAKE CONSTRUCTION OF A LOW COST MARK SENSE CARD READER AND WILL USE HIS MARK-8 FOR GAMES. HE PRESENTLY BUILDS INDIVIDUAL GAME MACHINES.

LARRY HENNE, 707 POTTER DR., COLORADO SPRINGS, CO 80909

DAVID HIGGINS, KHIG/STERED 105, PO BOX 1106, PARAGOULD, AR 72450 WOULD LIKE FOR US TO GET PL/M AND COMMIT IT TO PROM. (GOOD IDEA, EXCEPT PL/M IS A HUGE FORTRAN IV PROGRAM THAT RUNS ON A BIG MACHINE THAT CAN HANDLE FORTRAN IV.)

DR. RUDOLF HIRSCHMANN, 1345 S. BEVERLY GLEN, #1, L.A., CA 90024 IS ESPECIALLY INTERESTED IN GETTING A TEXT EDITOR PROGRAM FOR THE MARK-8 AND WOULD LIKE A MODEM CIRCUIT FOR CONNECTING IT TO THE UNIVERSITY COMPUTER.

PROF. PIERRE M. HONNELL, WASHINGTON UNIV., EE DEPT., SAINT LOUIS, MO 63130 IS PRESENTLY INVOLVED IN COMPLETION OF THE MATRIC COMPUTER, AN ANALYTIC MACHINE FOR SOLUTION OF MATRIC EQUATION SYSTEMS AND HOPES TO TIE IN A DIGITAL MACHINE AS SOON AS POSSIBLE.

MARK A. HUTCHINSON, RT. #4 BOX 306, JACKSON, OH 45640

JOE T. HUFFMAN, 1010 WASHBURN ST., CORONA, CA 91720

STEVE INGOGLIA, 1163 ROSEMARY ST., DENVER, CO 80220

LARRY S. JACOBSON, DEPT. OF PSYCHOLOGY, COLORADO STATE UNIV., FORT COLLINS, CO 80523 IS A GRAD STUDENT IN EXPERIMENTAL PSYCHOLOGY AND WILL USE THE MARK-8 TO AUTOMATE A DISCRIMINATION APPARATUS FOR USE WITH PRE-SCHOOL AGED CHILDREN.

GARY E. JOHNEY, PSC BOX 6967, APO, SAN FRANCISCO, CA 96237 PLANS TO ADD LOW COST SHIFT REGISTER MEMORY (I'M WORKING ON THE SAME IDEA, GARY, SINCE I HAVE LOTS OF 1K S.R. I GOT VERY CHEAP.)

HARRY E. V. JOST, 111 WAVERLY ST., SHILLINGTON, PA 19607

T. N. KASPER, 2030 GREGORY ST., SAN DIEGO, CA 92104
DONALD R. KELLEY, FACILITY ENGINEER, FORT MCNAIR, WASH. D.C. 20319

RODNEY KOELLING, 1500 SPARKMAN DR., 12H, HUNTSVILLE, AL 35805

GARY W. KRAMER, RESEARCH ASSISTANT, DEPT. OF CHEM., PURDUE UNIV., WEST LAFAYETTE, IN 47907
A. KULESZA, 3014 N. HAUSSEN CT., CHICAGO, IL 60618

DALE J. LAMOTHE, 53 BONN-BADGODESBERG, KLOSTERBERGSTRASSE 13, MUFFENDORF WEST GERMANY WILL ADD A MODEM TO PERMIT COPYING RADIO TTY SIGNALS AND IS BUILDING AN ELABORATE PUSH BUTTON ASSEMBLY TO ALLOW DIRECT INSTRUCTION ENTRY THAT USES 15 IC'S AND 100 DIODES.

BARRY LAW, 1503 N. HAYDEN ISLAND DR., PORTLAND, OR 97217

KEN LEBEIRO, OAKTON COMMUNITY COLLEGE, 7900 NORTH NAGLE, MORTON GROVE,
IL 60053

BILL LEWIS, 6620 NE COTIER, KANSAS CITY, MO 64119

SOL LIBES, UNION COUNTY TECHNICAL INSTITUTE, 1776 RARITAN RD., SCOTCH
PLAINS, NJ 07076

GEOFFREY D. LOWE, 3615 N. PINE GROVE, APT. 3W, CHICAGO, IL 60613

JIMMY LOGOTHETIS, 107 6TH ST., BROOKLAWN, NJ 08030

LUM LOO, 709 QUINTARD, ANNISTON, AL 36201

CLINT MCDOWELL, ELECTRONICS DEPT. CHAIRMAN, DIABLO VALLEY COLLEGE,
PLEASANT HILL, CA 94523

L. MCFAWN, 2063 TRIUMPH DR., FAIRBORN, OH 45324

JEROLD R. MCGONEGLE, 5320 MOULTRIE RD., SPRINGVALE, VA 22151 EXPECTS
TO USE HIS MARK-8 & TVT FOR A COMPUTER FOOTBALL GAME.

DAVE MALLERY, 1701 AGUA FRIA, SANTA FE, NM 87501 HAS BEEN A PROGRAM-
MER FOR EIGHT YEARS.

PHIL MORK, 12 WOODLAND RD., WESTON, MA 02193 PROVIDED SOME CIRCUITS FOR
PERIPHERALS HE IS BUILDING. FIGURE 1 SHOWS A SCHEMATIC OF HIS MODEM
CIRCUIT, FIGURE 2 SHOWS HIS INTERRUPT EXPANSION SCHEME, FIGURE 3 SHOWS
HOW TO CONTROL AC LOADS FROM THE MARK-8, FIGURE 4 SHOWS HIS SCOPE DRIVER
CIRCUIT, FIGURE 5 SHOWS HOW HE WILL CONNECT A ROM FOR OFTEN USED
ROUTINES, FIGURE 6 SHOWS HIS CONTROL OUTPUT PORT ASSIGNMENTS AND A
SAMPLE LOADER PROGRAM THAT CAN BE PUT IN ROM, FIGURE 7 SHOWS HOW HE
WIRED HIS SWITCHES SO THAT YOU CAN'T JAM UNLESS YOU ARE IN SINGLE STEP,
AND FIGURE 8 SHOWS HIS TVT/MODEM SELECTOR CIRCUIT. HE USED A 5MHZ
CRYSTAL FROM POLY PACS AND DIVIDED BY 5 INSTEAD OF 4 USING A 7490.
(THANKS FOR ALL THE INFO, PHILIP.)

ROBERT A. MAYER, RD #1, MILLMONT, PA 17845

JIM MEHL, PO BOX 632, LOS GATOS, CA 95030 WILL USE HIS MARK-8 AS AN
INTELLIGENT TERMINAL WITH LOCAL EDITING CAPABILITIES, FOR PERSONAL
ACCOUNTING AND RECORD KEEPING, AND AS A CONTROLLER FOR ELECTRONIC
GAMES.

AL J. MEIER, PSC4, BOX 10106, KEESLER AFB, MS 39534

ROBERT MIRAR, PO BOX 2028, CHAPEL HILL, NC 27514

RALPH H. MOLTZAU, 1568 MOLINA ST., HONOLULU, HI 96818

DON MORGAN, 226 N. PARK DR., SEYMOUR, IN 47274

G. SCOTT MORRIS, PLEIADES, 964 CREST ROAD., DEL MAR, CA 92014 HAS HIS
OWN PDP-8/S AND TTY.

DON N. MORRISON, C/O ALBERTA RESEARCH, 11315 17 AVE., EDMONTON,
ALBERTA, CANADA T6G 2C2

THOMAS NEWMAN, 2230 SWEETWATER DR., SAN LEANDRO, CA 94578 PLANS TO INTERFACE A CRT, KEYBOARD, CASSETTE TAPE, PAPER TAPE READER, AND A NOVA 1200 AND WOULD LIKE A FORTRAN CROSS ASSEMBLER. HIS MARK-8 USES A /4126 TRI-STATE BUS.

E. N. NOREN, 111-11033-127 ST. EDMONTON, ALBERTA, CANADA.

HAROLD L. NOVICK, ATTORNEY AT LAW, 2810 HENDERSON CT., WHEATON, MARYLAND ORDERED FROM ELECTRONIC COMPONENT SALES AND MOST OF HIS ORDER WAS FILLED BUT A REFUND WAS SENT INSTEAD OF THE 8008. HE RECOMMENDS THAT YOU AVOID DEALING WITH THEM. (I WONDER IF 'ATTORNEY AT LAW' HAD SOMETHING TO DO WITH GETTING THE ORDER?)

MOGENS PELLE, BIRKHOJTERASSERNE 416C, 3520 FARUM, DENMARK INTENDS TO USE HIS MARK-8 FOR ON LINE CONTROL OF EXPERIMENTS.

DEAN B. PETERSON, JR., 801 SANS SOUCI DR., APT. 201, RALEIGH, NC 27609

SSG JACKIE W. PIERCE, 460-84-4884, 178 SIG. CO., APO NY, 09102 IS USING A PE 'SCOPE WRITER' WITH THE SOUTHWEST TECH. PRODUCTS (STP) KEYBOARD, IS DOING SOME RESEARCH ON CASSETTE TAPE DATA RECORDING AND WANTS TO STANDARDIZE THE CASSETTE FORMAT AMONG MARK-8 USERS SO TAPES CAN BE TRADED. HE PROMISES TO FURNISH A CIRCUIT OF THE MODEM. HE IS ALSO WORKING ON A PENCIL MARK 3X5 FILING CARD READER. EACH SIDE OF A CARD WOULD ACCOMMODATE ABOUT 35 8-BIT WORDS AND THEIR SYNCH BITS. THE CARD WOULD BE READ BY MOVING THE SENSOR ARM ACROSS THE CARD BY HAND. (THIS IS EXCITING! KEEP WORKING ON IT JACKIE AND LET US KNOW HOW IT WORKS OUT.) HE EXPECTS TO USE HIS MARK-8 FOR CONTROL OF EXPERIMENTS, DATA ACQUISITION, INFORMATION FILING ON CASSETTES, TEACHING AID, HOUSE SECURITY DEVICE, AND FOR HOUSEHOLD CONTROL FUNCTIONS.

NICK PINE, MS 08, GTE/IS, EAST PARK DRIVE, MT. LAUREL, NJ 08057

FRANK RACO, 1100 E. RENTON ST., CARSON, CA 90745

ROBERT REILING, 193 THOMPSON SQ., MOUNTAIN VIEW, CA 94043

R. D. REINEBECK, 899 FAIRFIELD RD., NORTH VANCOUVER, B. C., CANADA

GEORGE W. ROMPOT, 216 COLLIER DR., SPRINGFIELD, IL 62704 HOPES TO WRITE PROGRAMS THAT WILL SIMULATE OTHER MINI-COMPUTERS AND IS EMPLOYED AS AN IBM 370/155 SYSTEMS PROGRAMMER FOR AN INSURANCE COMPANY.

R. O. RODGERS, 14428 SAN ARDO RD., LA MIRADA, CA 90638 TALKED TO A MICRO SYSTEMS INT. SALES REP. AND THEY CONSIDER THE MARTIN RESEARCH BOOK "MICRO COMPUTER DESIGN" THE BEST ONE AVAILABLE. MARTIN'S PRICE FOR THE BOOK AND THE MF8008 IS NOW \$120.

W. MICHAEL SCHAFER, 27 N. MIDLOTHIAN, MUNDELEIN, IL 60060

BENJAMIN SHAW, 1731 BONAIRE WAY, NEWPORT BEACH, CA 92660 THINKS THAT HE CAN OBTAIN LOTS OF 8008 SOFTWARE THAT HE CAN SHARE WITH OTHER USERS.

DAVID SCHULTZ, 122 MONTE VISTA, LOST ALAMOS, NM 87544 HOPES TO ADD OCTAL KEYBOARD ENTRY, OCTAL LED READOUT, AND HOPES TO BUILD A SPEECH SYNTHESIZER AND AUDIO RECOGNIZER EVENTUALLY.

MICHAEL SEMANCZUK, 40 WILLOW ST., ELMWOOD PARK, NJ 07407 PLANS TO INTERFACE HIS MARK-8 TO A LARGER COMPUTER AT WORK TO AID IN DEBUGGING.

DAVID W. SHORTHILL, 15567-12TH AVE., N.E., SEATTLE, WA 98155

SOLID STATE MUSIC, JOHN R. BURGOON, 1222 CAROLYN DR., SANTA CLARA, CA 95050 IS INTO THE DESIGN OF COMPUTERIZED CONTROL OF ELECTRONIC ORGANS AND WANTS TO COMMUNICATE WITH OTHERS WITH SIMILAR INTERESTS. SEE FLYER IN BACK LISTING MARK-8 PARTS HIS COMPANY CAN SUPPLY BUILDERS.

CHARLES SOOLEY, 28 KILMANAGH COURT, BRAMPTON, ONTARIO CANADA L6W 1A7

J. SOUDRIETTE, DRAWER 7267, NORFOLK, VA 23509

KEN STAMBAUGH, 5009 GUIDE MERIDIAN RD., BELLINGHAM, WA 98225

NORMAN F. STANLEY, PO BOX 723, ROCKLAND, ME 04841 IS WORRIED ABOUT THE RELIABILITY OF DISCOUNT PRICED 8008'S. (RUMOR HAS IT THAT AT LEAST A COUPLE OF COMPANIES WERE OR WERE SELLING HIGH TEMP. FALLOUTS. M&R AND KA ELECTRONICS BOTH SAY THEY ARE SELLING FIRST RUN GUARANTEED MF8008'S. YOU'LL HAVE TO INQUIRE ABOUT WHAT OTHERS ARE SUPPLYING.)

JAMES A. STARK, M.D., 485-34TH ST., OAKLAND, CA 94609 WANTS TO KNOW IF ANYONE IS INTERESTED IN AN 8008 ASSEMBLY PROGRAM THAT RUNS IN "RUSH" ON THE INTERNATIONAL TIME SHARE SYSTEM.

F. STAUBER, 183 WOODVILLE, TORONTO, CANADA M4J 2R4 WILL USE HIS MARK-8 FOR SPEED, DRIFT, AND HEADING CALCULATIONS FOR AIRPLANES AND TO RECEIVE AND SEND MORSE CODE. HE IS A GOVERNMENT COMPUTER SUPERVISOR FOR A 370/158.

ROBERT SUDING, (WOLMD), 370 SOUTH QUEEN ST., LAKEWOOD, CO 80226 HAS HAD HIS MARK-8 RUNNING FOR 2 MONTHS NOW WITH 512 BYTES OF MEMORY SOON TO BE EXPANDED TO 1K. HE HAS ADDED OCTAL KEYBOARD DATA ENTRY AND READOUT. HE WILL SOON HAVE A NEW LED BOARD BUILT WITH LED OCTAL READOUTS. HE IS MODIFYING THE TVT TO USE A MCM6571 UPPER & LOWER CASE CHARACTER GENERATOR.

ROBERT SWARTZ, 195 IVY LANE, HIGHLAND PARK, IL 60035

TIM TOPOLE, 2742 N. CALIFORNIA, CHICAGO, IL 60647 WILL BE INTERFACING A SUPER BEE CRT AND A FLOPPY DISK.

ADAM TRENT, NASA/STDN, ASCENSION, BOX A, PATRICK AFB, FL 32925 IS FINISHING THE MARK-8 AND IS ABOUT TO START ON THE TVT AND WANTS TO KNOW WHERE TO GET USED TTY'S, DATA SHEETS FOR THE 8263'S AND 8267'S (WRITE FOR THE DATA BOOKS DESCRIBED EARLIER). HE SUGGESTED THE AUGAT SOCKET PIN SOLUTION TO THE MEMORY BOARDS. HE PROVIDED INFO ON MNH APPLIED ELECTRONICS AND TRIED AN ORDER OF ICA, ICC, AND ICD IC'S AND FOUND THEM ALL GOOD BUT AN ORDER OF 7400 REJECTS PRODUCED NO GOOD UNITS. ADAM IS ON A REMOTE ISLAND IN THE SOUTH ATLANTIC AND WANTS TO HEAR FROM PEOPLE REGARDING WHAT THEY INTEND TO DO WITH THEIR MARK-8'S.

JON TERNER, 301 OCEAN AVE #8, SANTA MONICA, CA 90402

JON TYLER, 5625 JOHN R. RD., TROY MI 48084 IS MAKING HIS OWN PC BOARDS. HE MADE IS OWN CAMERA FROM A MESHNA \$11 LENS. HE IS MOST INTERESTED IN WORD PROCESSING AND TYPESETTING APPLICATIONS.

JORGE VILLEGAS, AP. AEREO 55161, MEDELLIN, COLUMBIA, S. A. IS INTERESTED IN A TVT AND WOULD LIKE TO BUY AN ASSEMBLED UNIT. (PERHAPS THE NEW SOUTHWEST TECHNICAL PRODUCTS KIT IS WHAT YOU ARE LOOKING FOR.)

WILLIAM A. WALDE, 28 TUTTLE DR., ACTON, MA 01720 RECEIVED HIS PC BOARDS IN SEPT. WITH REFERENCE NUMBER 2009 (DOES THAT MEAN OVER 2000 BOARD SETS HAVE BEEN SOLD?). HE SAID BILL GODBOUT ELECTRONICS, BOX 2673, OAKLAND AIRPORT, CA 94614 SAID HIS \$50 8008 IS AN INTEL UNIT TESTED AT 1 MHZ AND GUARANTEED. WILLIAM CAUTIONS YOU ON ORDERING 8263 AND 8267'S FROM A SIGNETICS DISTRIBUTOR. USE THE RIGHT NUMBER OR YOU MAY GET A MILITARY GRADE CERAMIC FLATPACK AT \$32.10. (N8263N & N8267B ARE RIGHT) HE SUSPECTS THE MOLEX CONNECTOR PART # IS WRONG AND WANTS TO KNOW IF 1101, 1101A, AND 1101A1'S CAN BE MIXED ON THE SAME BOARD. HE OBTAINED A CIRCULAR FLORESCENT LAMP WITH A MAGNIFYING GLASS IN THE CENTER TO AID IN INSPECTING AND SOLDERING THE BOARDS. HE IS AN ASSEMBLY LANGUAGE PROGRAMMER ON BIG IBM, XDS, AND BURROUGHS MACHINES. HE RECENTLY BUILT THE PE MARCH 74 LOGIC PROBE AND WAS VERY PLEASED WITH THE RESULTS.

JERRY WALKER, 761 CLAYTON, SAN FRANCISCO, CA 94117

J. W. WARD, 7236 CIRRUS WAY, CANOGA PARK, CA 91304

STEVE WASH, 7277 BLUFF ACRES DR., GREENWOOD, IN 46142 SUGGESTS THE FIG. 9 CIRCUIT SO THAT THE OUTPUT PORT LED'S WILL DISPLAY CONTENTS OF ANY OUTPUT PORT.

GREGG WEBER, 1000 PLAZA DR., APT. 311-C, STATE COLLEGE, PA 16801

ROGER S. WELLS, 18AMS BOX 13258, APO SAN FRANCISCO, CA 96367 IS GOING TO INTERFACE AN ELECTRIC TYPEWRITER.

J. SCOTT WILLIAMS, PO BOX 932, BELLINGHAM, WA 98225

PETER WOLFE, 42409 HIGHLAND DR., PO BOX 139, YARROWS, B. C. CANADA VOX 2A0 IS A STUDENT AT B. C. INSTITUTE OF TECHNOLOGY MAJORING IN ELECT/ELECTRONIC TECHNOLOGY.

CARL K. ZETTNER (W5HFG), 108 MOSS DRIVE, SAN ANTONIO, TX 78213 IS A EDP CONSULTANT AND A RADIO AMATEUR AND WILL USE THE MARK-8 FOR CONTROLLING HIS AMATEUR RADIO TTY STATION. HE POINTS OUT THAT THE DATAPoint 2200 HAS THE SAME INSTRUCTION SET WITH ONLY FOUR EXCEPTIONS SO DATAPoint SOFTWARE MAY BE USEABLE WITH MINOR MODIFICATIONS.

SOLID STATE MUSIC
JOHN R. BURGOON JR.
1222 CAROLYN DRIVE
SANTA CLARA, CA 95050
PHONE 296-7330

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FOR THOSE THAT MIGHT BE INTERESTED, MY COMPANY HAS AVAILABLE THE FOLLOWING MARK 8 COMPONENTS:

| | |
|--|-----------|
| .1 MF 25 V ERIE DISC CAPACITORS | 17/\$1.50 |
| 100 MF 25 V SPRAGUE TE1211 ELECTROLYTICS | 1/\$.40 |
| 1K OHM 1/4 WATT 5% RESISTORS | 16/\$1.10 |
| 1.8 K OHM 1/4 WATT 5% RESISTORS | 1/\$.05 |
| 33 PF DISC | 1/\$.10 |
| 7400 TTL | 14/\$2.50 |
| 7402 TTL | 2/\$.40 |
| 74L04 TTL | 3/\$1.20 |
| 7404 TTL | 13/\$3.00 |
| 7474 TTL | 2/\$.90 |
| 7410 TTL | 2/\$.45 |
| 7420 TTL | 1/\$.25 |
| 7442 TTL | 5/\$4.50 |
| 74123 TTL | 2/\$1.80 |
| 74193 TTL | 4/\$5.00 |
| 7475 TTL | 8/\$5.50 |
| 7476 TTL | 3/\$1.35 |
| 2501/1101 MOS 256X1 STATIC RAM | 8/\$16.00 |
| 8008 CPU (APPROX 3 WKS DELIVERY) | 1/\$60.00 |
| MV5023 TYPE DIFFUSED RED OR CLEAR RED | 33/\$8.00 |

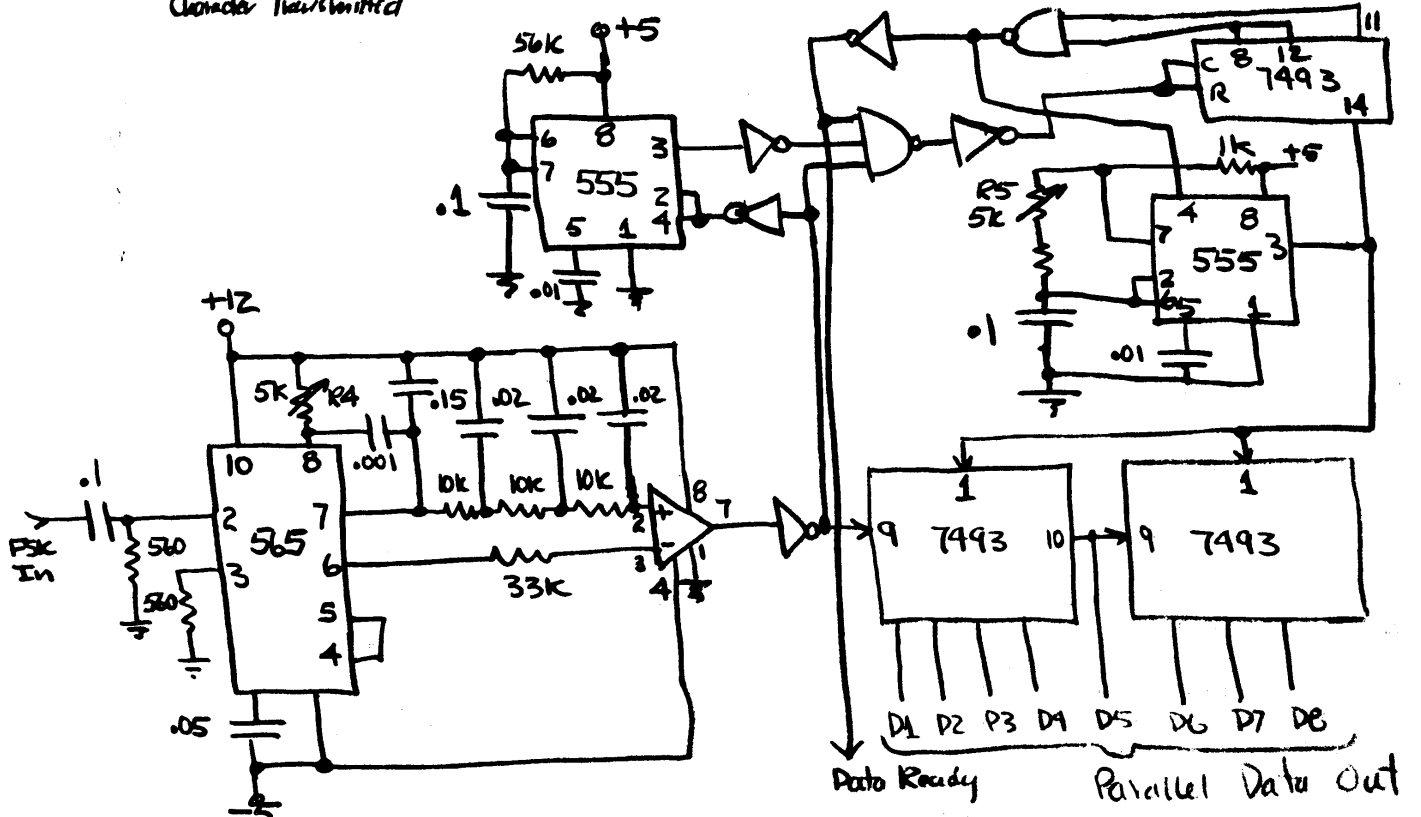
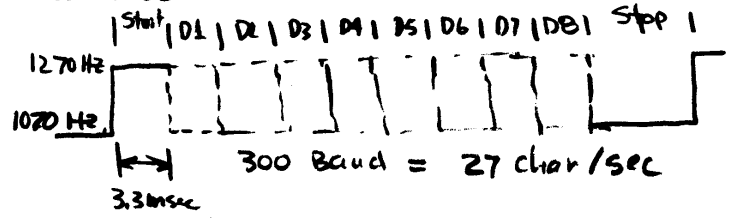
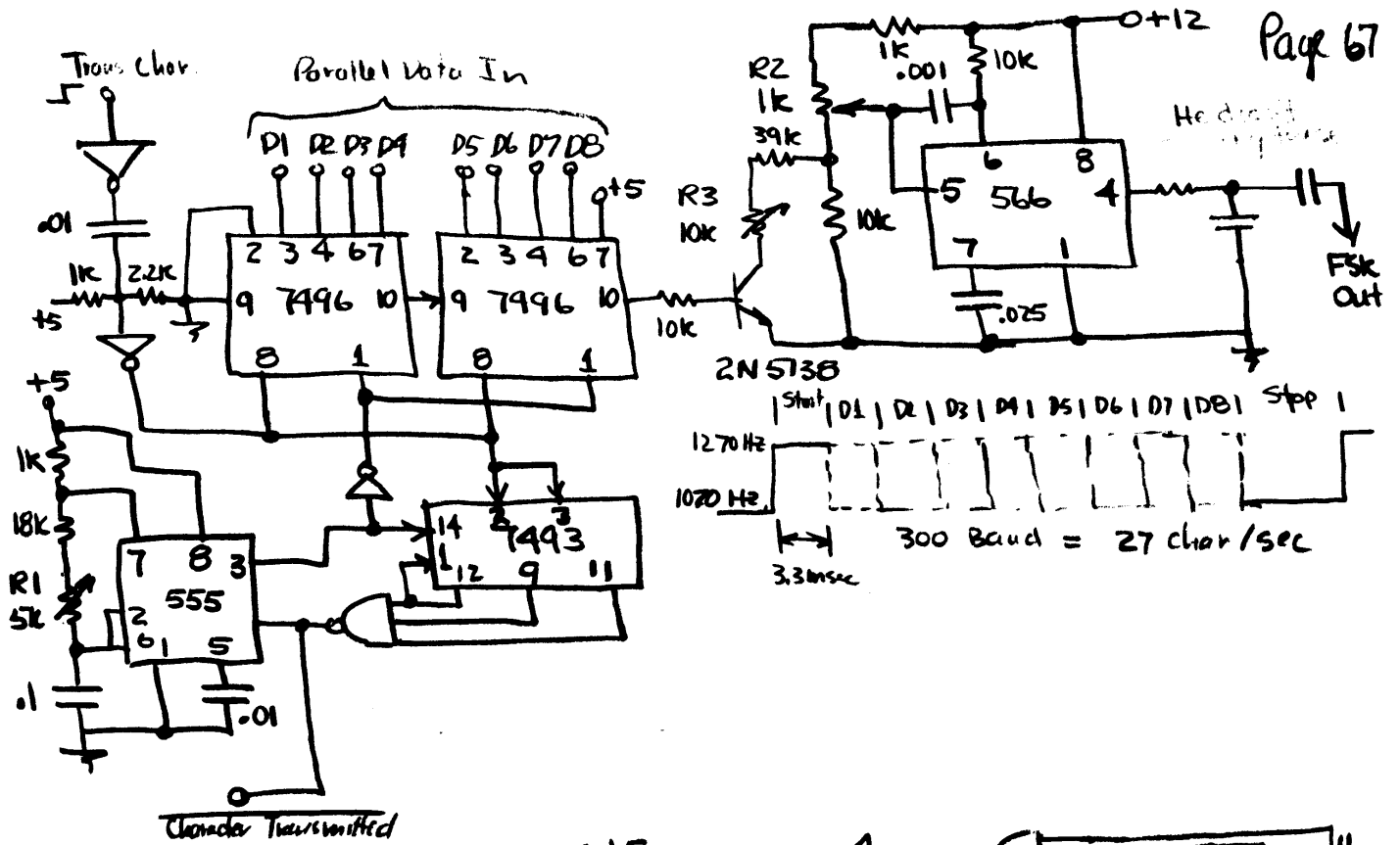
STATE PREFERENCE, THESE WILL BE MATCHED FOR APPROX. SAME LUMINENCE
18 PIN IC SOCKET FOR 8008 1/\$1.25

THE ABOVE ARE AVAILABLE IN REASONABLE QUANTITIES AT THIS TIME. DO NOT SEND MONEY FOR 8008'S AT THIS TIME. IF INTERESTED, SEND SELF-ADDR. ENVELOPE AND I WILL ADVISE WHEN AVAILABLE. ALL THE ABOVE ARE TESTED AND GUARANTEED. CALIF. RESIDENTS ADD 6% SALES TAX. I WILL MAIL 1ST CLASS WITHIN 24 HOURS UNLESS I GET SWAMPED. IF INTERESTED SEND FOR COMPLETE LIST & PRICES ON RTL, DTL, TTL, ECL, CMOS, NMOS, PMOS, DIODES TRANSISTORS, ETC. I SPECIALIZE IN SELLING TO ACADEMIC INSTITUTIONS. CAL POLY, BRIGHAM YOUNG, ETC. MY BANK REFERENCE IS: WELLS FARGO, EL CAMINO, SANTA CLARA - COMMERCIAL, 1ST NATIONAL BANK OF SAN JOSE - PERSONAL. SEND CHECKS OR MONEY ORDERS TO ABOVE ADDRESS.

I HAVE A LARGE STOCK OF MEMORIES: 2602, 93410, 8223, 8225, 7489, 82S07 (74206), 1103, ETC. AND THE TOUGH TVT ICS - 8288, 2524, 4024, ETC. ALSO CLARE-PENDAR ASCII ENCODED KEYBOARDS, COMPUTER TYPE, LIKE NEW, TESTED, \$40 - POSTAGE PAID.

10% DISCOUNT ON ORDERS OVER \$100.00.

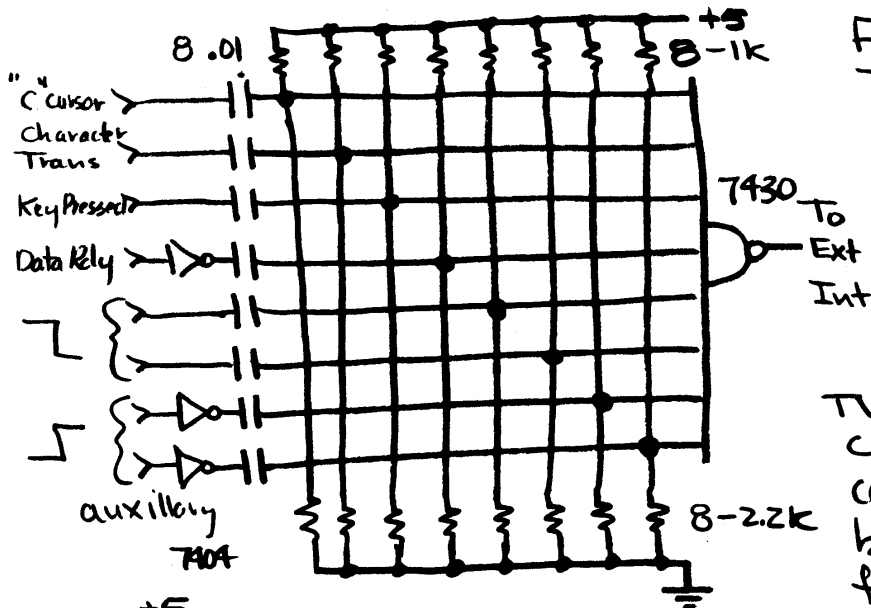
PC BOARDS FOR THE 8008 MINI USING 32K BIT MEMORY BOARDS FOR THE 2602 1024 BIT STATIC RAMS ARE ON THE DRAWING BOARD AND WILL BE AVAILABLE AFTER NOVEMBER. THEY WILL USE EDGE CONNECTORS. NOT MOLEX CONNECTORS.



- Caps In μ F
- Res. In Ω
- R1 Trans baud adj
- R2 Trans Low freq
- R3 Trans High freq
- R4 Rec freq Adj
- R5 Rec Baud Adj

Figure 1 Phil Mork's Modem Circuit

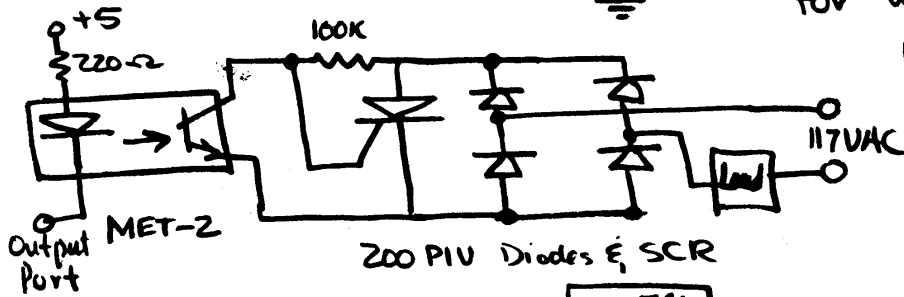
Figure 2 Phil Mork's Interrupt Exp Circuit



Ties together the Modem, Keyboard, TVT, and 4 other optional inputs - 2 pos going, 2 neg.

TVT is connected (test point C, Cursor board) to tell computer that character has been loaded and is ready for another.

Figure 3 Phil Mork's Power Controller



200 PIV Diodes & SCR

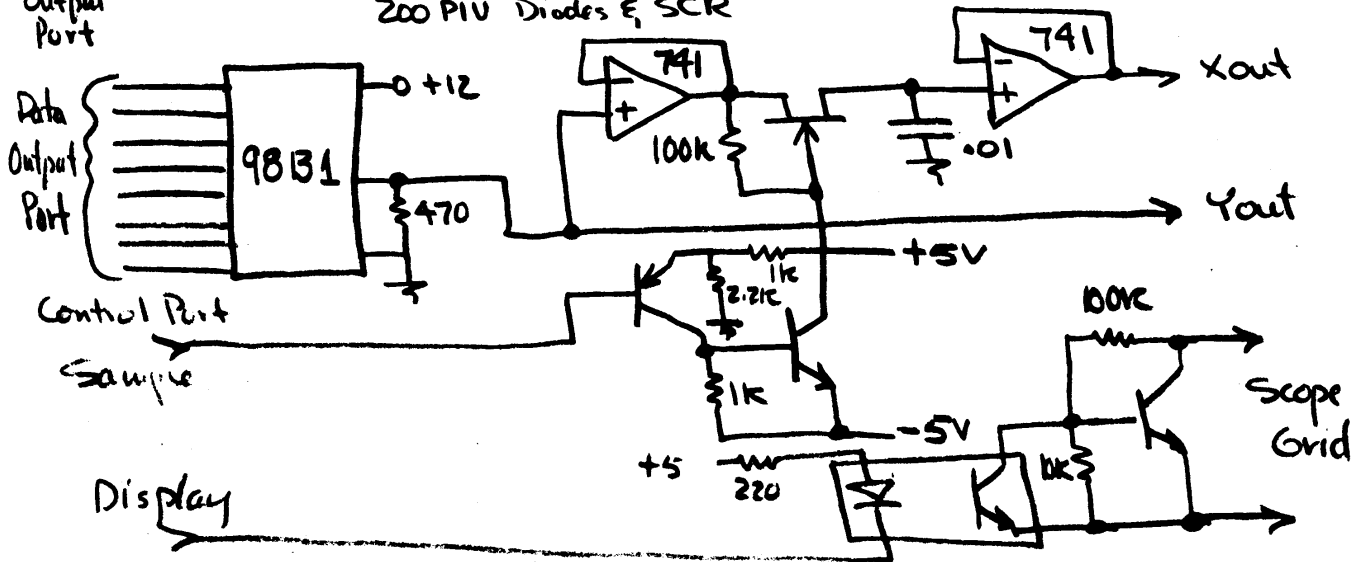


Figure 4 Phil Mork's Oscilloscope Driver Circuit (Sample & Hold)

X is analog version of data last time sample was high
 Y is " " " " " "

Sample & Hold is control port bits
 range 24 to 25

Fig. 5 Phil Mork's ROM Interface

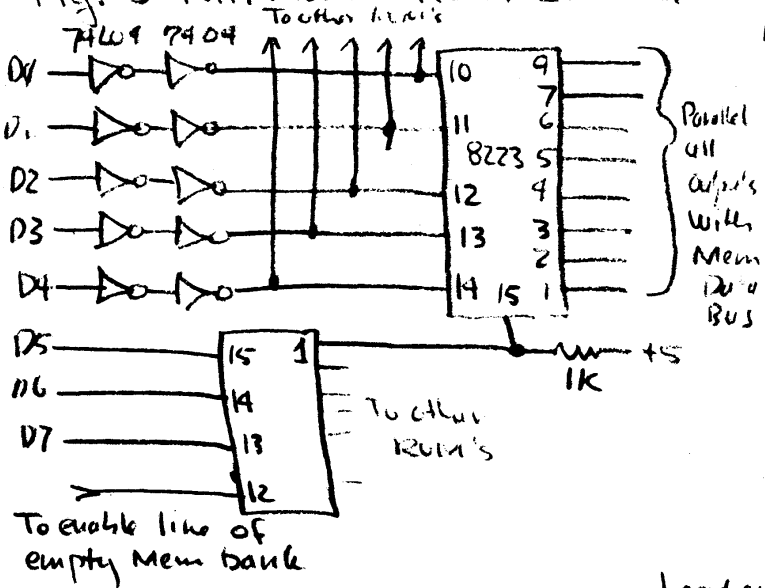
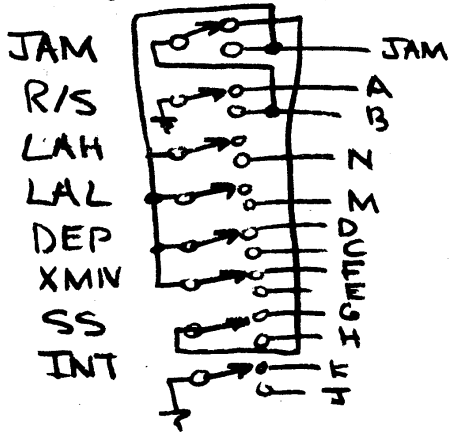


Fig 6 Phil Mork's Control Port Assignment & Loader Program

- Bit 1 } Input Select.
 2 }
 3 keybd Modem
 4 TUT Modem
 5 Sample } for scope
 6 Display }
 7 } cassette tape
 8 } movement control

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Fig 7 Phil Mork's Front Panel Switch Mods



Loader Program

- | | |
|------------------------|---------|
| 1 LAI | 11 CALL |
| 2 (Setup Control Port) | 12 { 17 |
| 3 Out A | 13 { 17 |
| 4 LHI | 14 JMP |
| 5 (High Start Addr) | 15 { 8 |
| 6 LLI | 16 { 8 |
| 7 (Low Start Addr) | 17 INL |
| 8 HLT | 18 RFB |
| 9 INP A | 19 INH |
| 10 LMA | 20 RET |

To Load from cassette JAM { 1 } Go to run and turn on cassette

Figure 9 Steve Wash's Output Port Display Circuit

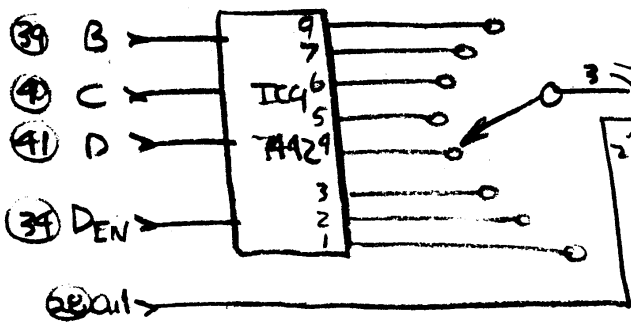
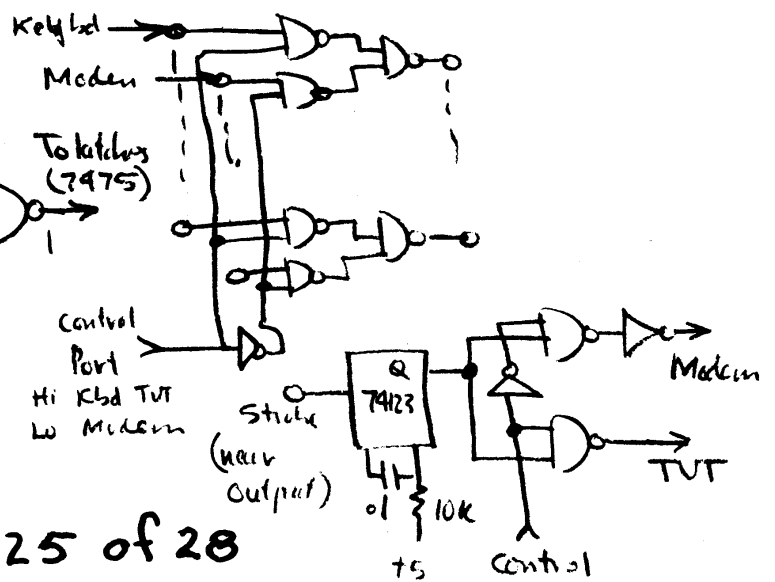
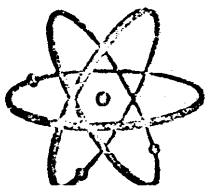


Fig 8 Phil Mork's Keybd-TUT/Modem Selector. Circuit





M & R ENTERPRISES

P. O. BOX 1011
SUNNYVALE, CALIF. 94088

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| | | <u>HOW MANY</u> | <u>TOTAL</u> |
|---|----------|-----------------|--------------|
| 1 each 8008 CPU | \$60.00 | _____ | _____ |
| 1 each 8008 CPU including all the resistors (5%), 1 disc capacitors and 7400's for the Mark-8 (Mini-Kit)..... | 75.00 | _____ | _____ |
| 1101 | ea 5.00 | _____ | _____ |
| 2102 | ea 10.00 | _____ | _____ |
| 1 ea 2513, 1 ea 2518, 6 ea 2524 (for the TVT) | 42.50 | _____ | _____ |

MAIL TO: M & R ENTERPRISES
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94088

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Calif. Sales Tax (6%)
if applicable _____

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Order shipped within 48 hours upon receipt. Price includes first class postage in Continental U.S.

TERMS: Orders over \$150 cashier checks ONLY.

All IC's brand new from factory.

MNH - Applied Electronics
P.O. Box 1208
Landover, Maryland 20785
301-273-4095

1900 BAUD
MODEMS

+5, +12, -12
POWER SUPPLIES

CATALOG #7 November 1974

This catalog offers some high-speed TTL or EIA MODEMS and some MOS, TTL, computer power supplies which we recently acquired. At this time we are sold out of mag. tape units and Chalco paper tape units, however, other items in catalogs 2 through 6 remain in effect. Catalog #3 is now cancelled in total. The schematic for the Ampex diode arrays in catalog #6 was incorrect; the correct diagrams appear in this catalog #7. The Augat DIP-14 IC boards are still available, but we failed to mention that they are powered on pins 1 and 8. The powering pins can be easily changed, however.

We hope you find some items of interest in this catalog. Send us a self-addressed, stamped envelope (SASE) for a free copy of any of our catalogs. Also, please be sure to include postage and insurance money with your order. We have a minimum order of \$5.

We greatly appreciate your past patronage.

MNH - Applied Electronics

Cat. #DCTAU MODEM System - 1900 BAUD

This is a complete, controlled, TTL, Modulator/Demodulator system for interfacing your computer or TTL system to a standard telephone line. This Terminal Adapter Unit (TAU) will allow asynchronous EIA or TTL data transmission and receipt at up to 1900 BAUD (characters per second). The unit is in a 5.2" X 2.7" X 13.2" metal case with front panel; it weighs 11 lbs. and contains 159 integrated circuits (74 series + 741 op amps) on 4 PC cards. Documentation for the system includes card schematic diagrams and a detailed set of specifications and signal descriptions for the MODEM card. The unit is powered and controlled through 3 - 25 pin D-connectors in the rear. There are 8 LED's on the front panel which indicate the status of the TAU in its data transmission and receipt modes. Powering for the system must be provided externally by +5v. at about 2 amps, regulated and +12v. and -12v. at about 150 ma each, regulated. These TAU's are only slightly used, but may in some cases require minor repairs. The systems originally cost nearly \$1000 and were used in a nationwide hotel reservation system, so they are ideal for computer-telephone communications. This is a beautiful system for tying your computer into the phone system (with proper circuitry), but it will require someone with TTL and Modem knowledge to connect properly. Please be sure to include postage and insurance when ordering DCTAU. Shipping wgt is 20 lbs.

Complete - MODEM System and Documentation - ~~\$4500~~ / \$35.00

DCTAU

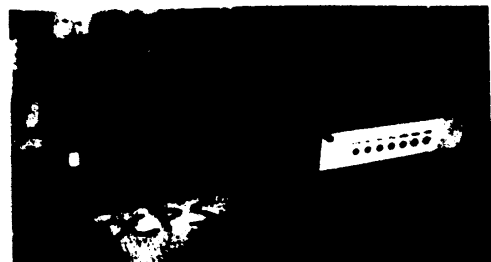
NOTE: These units can also be used for interfacing your computer to a standard audio tape recorder.

Cat. #DCPS - +5, +12, -12 - Power Supply

This is a new or slightly used small power supply ideal for TTL or MOS systems. It actually contains three separate, highly regulated supplies at +5 volts at 5 amps, +12 volts and -12 volts at about 2.5 amps each. Each supply can be remote sensed, and a large SCR crowbar protection circuit is provided. A copy of the schematic diagram is furnished with each supply. The unit is 11" X 6.5" X 5.8", weighs 15 lbs., and contains 22 transistors, 15 diodes, 58 resistors, 15 capacitors, along with other components. Input is 115v. 60 Hz. line voltage. Power supplies are adjustable as below with internal pots:

| Volts | Current | | Adjustment range (volts) |
|-------|---------|------|--------------------------|
| | Volts | Amps | |
| +5 | 5 | 5 | 4.5 to 7.0 |
| +12 | 2.5 | 2.5 | 10 to 14 |
| -12 | 2.5 | 2.5 | -10 to -14 |

These supplies seem to us to be ideal for MOS/LSI and TTL computer circuitry. Also they can be used to power the MODEM units above, part of the CES magnetic tape units sold previously by us, and many other systems. (over)



DCPS

DCTAU

Cat. #DCPS - +5, +12, -12 - Power Supply (Cont'd)

Shipping weight is 25 lbs. The unit comes in a sturdy cadmium plated steel case which can be opened for easy maintenance. Complete Power Supply and Schematic: ~~\$45.00~~ \$35.00 DCPS

Cat. #ICV - 7400 SERIES TTL REJECTS

ICV1 - These are bulk 7400 Series Reject IC's in DIP-14 and DIP-16 packages. All are bent leads, most are marked and dated. There are quite a few bad IC's in these lots, but there are also a large number of usable devices. Shipping weight is 4 lbs.

1000 - 7400 Series TTL Rejects for \$15.00 ICV1

ICV2 - These are sorted versions of the above reject IC's.

ICV2.1 - 7400 at 2¢ ea. ICV2.3 - 7410 at 2¢ ea. ICV2.5 - 7474 at 4¢ ea.

NOTE: These units in ICV1 and ICV2 are rejects and are not guaranteed by us. U-test-'em!!

Cat. #ICU - Bulk TTL IC'S

As advertised in Cat. #5 - mixed good/reject/etc. IC's. 1000 IC's in a bag, with spec. sheets. Shipping weight 3 lbs. per bag. New price is ~~\$2.00~~ \$10.00 per bag of 1000.

Cat. #ICT - 74S181 ARITHMETIC UNITS - HIGH SPEED

These are guaranteed, good units, ceramic DIP-24 packages. \$2.50 each ICT

Cat. #ICV - SLA-7 - LED READOUT - OPGOA - RED

These are guaranteed, good units. 7 SEGMENT, RED, SIMILAR TO MAN-1 \$2.50 each ICV

Cat. #DCAG - COMPUTER KEY SWITCHES

New, chrome plated key switches with 2 keys. These are 11/16" in diameter and 1 1/2" long. Weight is 1 oz. New. ~~\$2.50~~ \$1.50 each DCAG

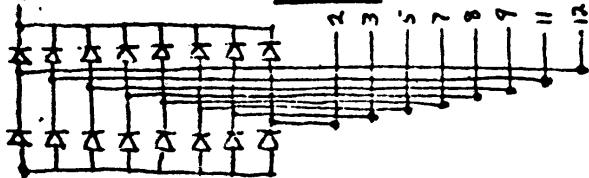
Cat. #DCCC - #30 COMPUTER WIRE - KYNAR BLUE - SILVER PLATE - see Cat. #5.

1000 ft. for \$10. ; 5000 ft. for \$40. ; 20,000 ft. for \$140. DCCC

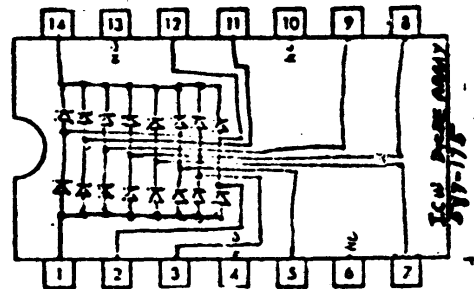
Cat. #ICW - DIODE ARRAYS - ANNEX 587-175

These are new, tested, guaranteed units in ceramic DIP-14 packages. They contain 14 diodes in a highly usable array (see diagram). These units are very useful for memory plane diode decoders, multiplexer arrays for calculators, LED display dropping diodes, logic enhancement arrays, and many other uses. These units are a steal at 5¢ each, guaranteed good.

5¢ EACH



FUNCTIONAL DIAGRAM - ICW



DIP-14 BASIC DIAGRAM

ICW Arrays at 5¢ each ICW

~~Cat. #DCAM - KEYBOARDS - NON ENCODED~~

~~These are used for... Shipping weight is 15 lbs. ~~\$17.00~~~~

Cat. #DCAI - AUGAT WIRE WRAP BOARDS

These are used PG5-30 boards in groups of 1, 2, 3, 4, 5, or 6 units, each having 30 - DIP-14, gold plated, wire wrap, IC locations. The boards are wrapped and in excellent condition. Weight is 1/2 lb. per section. Powered on pins 1 and 8.

~~\$4~~ per section of 30 ; ~~\$25~~ \$20 for board of 180 locations

Cat. #ICC, ICD, ICA, etc. - High speed TTL IC's are still available from Cat. #5 at 5¢ for gates and 9¢ for flip flops and are guaranteed good. Spec sheets included.