PROJECT ADMINISTRATION DATA SHEET

Object No. D-48-614  GTRI/GX  DATE 8/01/83
Project Director: Anthony J. Bradshaw  School/Adm. Architecture
Sponsor: Division of Rehabilitation Services
Atlanta, Georgia 30334

Re Agreement: Contract No. 427-93-30657
Grant Period: From 6/29/83 To 9/30/83 (Performance) 7/15-8/3 (Reports)
Sponsor Amount:
Estimated: $  
Funded: $ 16,506  Total to Date $ 16,506
Cost Sharing Amount: $ 16,506

Project Title: "Systematic Approach for Information and Adaptive Equipment Services Delivery to DRS Field Counselors"

MINISTRATIVE DATA
OCA Contact  John W. Burdette  X4820
Sponsor Technical Contact: 2) Sponsor Admin/Contractual Matters:
Mr. Joe Patrick
Division of Rehabilitation Services
47 Trinity Avenue
10th Floor - East Tower
Atlanta, Georgia 30334
(404) 656-2480

Sense Priority Rating: N/A  Military Security Classification: N/A
(or) Company/Industrial Proprietary: N/A

STRICTIONS
Attached -- Supplemental Information Sheet for Additional Requirements.

Travel: Foreign travel must have prior approval - Contact OCA in each case. Domestic travel requires sponsor approval where total will exceed greater of $500 or 125% of approved proposal budget category.

Equipment: Title vests with None Proposed

MMENTS:


PIES TO:
Project Director  Procurement/EES Supply Services  GTRI
Research Administrative Network  Research Security Services  Library
Research Property Management  Reports Coordinator (OCA)  Project File
Research Administrative Network  Research Communications (2)  Other  I. Newton
Research Administrative Network  Research Communications (2)  Other  I. Newton

Department OCA 4:383
Date: February 6, 1984

Project No. D-48-614

School: Architecture

Subproject No.(s): NONE

Principal Director(s): Anthony J. Bradshaw

Division of Rehabilitation Services

Systematic Approach for Information and Adoptive Equipment Services Delivery to DRS Field Counselors

Alternate Completion Date: 12/15/83

(Performance) (Reports)

.Contract Closeout Actions Remaining:

☐ None

☐ Final Invoice or Final Fiscal Report

☐ Closing Documents

☐ Final Report of Inventions

☐ Govt. Property Inventory & Related Certificate

☐ Classified Material Certificate

☐ Other

Continued by Project No. N/A

ES TO:

Act Director

GTRI

Library

Act Administrative Network

Research Communications (2)

Act Property Management

Project File

Accounting

Other

Remittance/EES Supply Services

OCA 60:1028

Research Security Services
ANNEX B

MONTHLY

TITLE: Systematic Approach for Informational and Adaptive Equipment Services Delivery to DRS Field Counselors

Contract #: 427-03-30657

Mr. Joe Patrick
Division of Rehabilitation Services
47 Trinity Avenue, 10th Floor, East Tower
Atlanta GA 30334

Anthony J. Bradshaw
CRT, College of Architecture, GA Tech
Atlanta GA 30332-0156

Relative analysis of project accomplishments to include, % of completion, problems, assistance needed and a narrative to assist the Department in Program Evaluation: (use continuation pages as necessary)

Narrative: Please see attached.

[Signature]
Project/Program Manager
October 5, 1983

Report: Systematic Approach for Informational and Adaptive Equipment Services Delivery to DRS Field Counselors

To this date, project questionnaires have been generated and delivered to the Center for Rehabilitation Technology (CRT) staff. CRT has processed and mailed questionnaires to DRS district offices for distribution to field counselors. CRT has been receiving completed questionnaires from field counselors since Sept. 10 and this phase is now complete. CRT has completed informational packages corresponding to categories of needed information listed on the questionnaires. We are now processing specific individual-problem requests. CRT will start shipping informational packages back to field counselors the week of 10/17/83.

CRT has begun preliminary analysis of questionnaires to determine common group problems. CRT will follow up questionnaires analysis with telephone interviews with field counselors and targeted clients for additional information. Specific information supplied by counselors for spinal-injury clients has been good. Information obtained from counselors with deaf and blind clients has been rather vague. CRT will pursue further information on the blind and deaf equipment needs by follow-up telephone interviews with counselors.

The project is approximately 40% complete at this point, with no problems foreseen that would hinder its completion.

TB:ma
The Center for Rehabilitation Technology (CRT) at Georgia Tech is now in the process of responding to informational requests as provided by DRS counselors' returned client questionnaires. The targeted disability groups (1000-1290, 2310-2590, 3180-3182) were originally estimated to be composed of 3300 clients. During the process of programming for the questionnaires it was determined that approximately half of the cases were of a closed status. CRT therefore has worked with an active caseload of 1650.

1650 questionnaires were mailed to 130 field counselors Statewide. Of these mailed, 1104 (67%) from 85 counselors (65%) were returned. Of those responding, 54% were from the blind categories, 41% from the hearing impaired categories, and 5% from the spinal injured categories. 76 additional cases were reported as closed and 7 cases were reported as transferred.

Preliminary findings for common DOT goals within disability groups are as follows:

**Blind:**
- Homemaking: 123
- Production: 39
- Computer programmer: 33
- Sheltered work: 18
- Machine operator: 17
- Sewing machine operator: 17
- Clerical: 17
- Deaf:
- Homemaking: 54
- Production: 21
- Computer programmer: 21
- Sheltered work: 14
- Machine operator: 14
- Sewing machine operator: 14
- Clerical: 14
- Teacher: 54
- Factory worker: 21
- Mail clerk: 14
- Janitorial: 14
- Welder: 14

**Spinal Injured:**
- Computer programmer: 6
- Bookkeeping: 4
- Electronic technician: 4
- Lawyer: 4

CRT will follow-up on these clients by phone interview with their counselors and by extensively searching for aids and devices for these occupations for their particular disability.

CRT has discovered a potential problem of underemployment with many of the DOT goals. For example, of the 123 homemaking goals for the blind, 12 have college degrees. Of the 15 clerical DOT's, 5 have college degrees. There are 2 college-educated clients within the clerical classifications for the deaf. CRT intends to follow-up by phone with these cases to determine how these DOT goals were established.

During preliminary interviews with counselors, they have
indicated that no kind of equipment would help employ their clients when no jobs existed. (This is particularly true with rural Georgia counselors.) They indicated that potential employers needed additional services so the employer could be more easily convinced to hire a handicapped person. With this in mind, Anthony J. Bradshaw of CRT has discussed with Wyman Poole, the DRS placement specialists supervisor, the possibilities of offering to adapt a job or workstation for any job an employer can offer and then fill that position from a pool of qualified candidates. In this concept, CRT would offer their services, through counselors and placements specialists, to potential employers, rather to or in addition to, clients yet to be placed with only a DOT goal that determines what kind of equipment they need. CRT is continuing to refine this program concept.

Within the week, CRT will start mailing information back to the counselors. All 130 counselors will receive a 50-page booklet of information, assembled by CRT, that contains general information on aids and devices and manufacturers for the three targeted groups. Counselors that check a category of information needed on the questionnaire will receive more specific information based on disability and DOT goal. Counselors that checked a category and that supplied special circumstances information will receive the most specific information. CRT has contracted for occupational therapists from Emory University to respond to these specialized requests.

CRT has requested and received permission to extend the project end date to December 1, 1983, due to initial problems with generating the questionnaires and because of the resignation of Deborah Hayes-Sanford. Unfinished work by Ms. Hayes-Sanford will be completed by the consultant occupational therapists.

On completion of the project, CRT will submit a final report of our findings with recommendations for action and at least three Research and Development proposals for adaptive equipment needs.
Introduction

The effectiveness of rehabilitation services to the citizens of Georgia can be greatly enhanced by providing proper adaptive equipment to DRS clients to improve work performance and increase independence. The Center for Rehabilitation Technology (CRT) has provided a service to DRS on a pilot basis to identify or develop appropriate adaptive aids in response to individual vocational counselors' requests. While this service was (and is) effective in meeting individual needs, it was limited in that it did not address those needs that were shared by a number of clients. It was therefore proposed that a study be conducted to enable CRT to consolidate its services and identify and respond to problems of DRS clients throughout the State.

In conducting the study, a computer and manual search was made of existing equipment for needs given arrays of client problems in three disability groups: the blind; deaf; and the spinal injured. From this research, a document containing information on available adaptive aids relevant to each category of disability was provided to each DRS field counselor, and proposals for the design and development of two innovative new products and creation of three technical assistance programs were developed. This report is the final report on the project and is presented in the following sections:
I - Project Objectives and Tasks
II - Findings
III - Product Development Proposals
IV - Program Development Proposals
V - Action Plan
VI - Appendixes
I - Project Objectives and Tasks

Increasing client caseloads require DRS field counselors to manage their time more and more effectively. The CRT information system (TechKnowledge) provides technical information on aids and devices relating to a variety of disabilities in a quick and effective manner. The majority of requests for information and technical assistance can be responded to immediately from current data on an individual call-in basis.

When no data for a particular problem can be readily found, CRT conducts feasibility studies to determine what information is needed and whether aids or devices can be designed and fabricated to answer the need. As a rule, design and fabrication of new equipment on an individual client basis is an extremely expensive procedure. Therefore, in order to respond more efficiently to the greatest number of clients at the least cost, CRT proposed to consolidate its services. The consolidation was based on the identification of common problems by searching for existing equipment for given arrays of client problems. Note was taken of both existing solutions and of problems where no solution exists. Currently, there is no mechanism available to DRS to identify and respond to common disability needs within its caseload.

To initiate its State-wide services, CRT targeted three disability groups for evaluation. These groups are the blind (DRS disability codes 1000-1290), the deaf (DRS disability codes 2310-2590), and spinal injured (DRS disability codes 3180-3182).

The project task sequence was as follows:

1) From DRS records, the following information for each client in the three target groups was retrieved: client's name; counselor; caseload number; age; educational level; disability code; and time on caseload.
2) CRT developed survey forms for each disability group covering information from Step 1, and questions for counselors' response concerning problems and needs for each of their target group clients. These forms were generated directly by DRS computers.

3) CRT staff distributed forms to field counselors for completion. DRS counselors forwarded completed forms to CRT.

4) CRT sorted forms by disability, Directory of Occupational Titles (D.O.T.) goal, and information need.

5) CRT conducted an information search for each specific client and/or counselor need. When relevant information was found, CRT included the data in its resource manual(s), then mailed it directly to the field counselors.

6) When no appropriate adaptive equipment was found for a client's needs, CRT recorded client data and circumstances.

7) CRT then analyzed partially solved problems and problems where no information was found. From this analysis, CRT determined common group problems. CRT then contacted DRS placement specialists and counselors to determine employment opportunities and employer needs relative to the three target groups.

8) Based on the number of clients potentially served, DOT goals and placement data, CRT identified group problems and conducted feasibility studies. Based on the findings of these feasibility studies, CRT developed product proposals for the design and development of
adaptive equipment for the blind and spinal cord injured groups.

The expected result of this project would provide field counselors with quality information that would aid them in budgeting, planning, and placing their clients in response to a short questionnaire. This project establishes a cost-effective system to identify and solve common VR problems throughout the State. The project provides direct technical assistance to VR counselors while reducing the redundancy of repetitive projects and increasing the capabilities of both the CRT and the Division of Rehabilitation Services. If the results from the project prove successful and are deemed beneficial to DRS, CRT will provide effective State-wide services through technical assistance projects and DRS program funding.
II - Findings

The CRT mailed 1,658 client questionnaires to 129 DRS field counselors State-wide. The distribution by district was as follows:

<table>
<thead>
<tr>
<th>District</th>
<th>Number of Clients</th>
<th>Number of Counselors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>267</td>
<td>17</td>
</tr>
<tr>
<td>2</td>
<td>395</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>138</td>
<td>15</td>
</tr>
<tr>
<td>4</td>
<td>141</td>
<td>19</td>
</tr>
<tr>
<td>5</td>
<td>245</td>
<td>17</td>
</tr>
<tr>
<td>6</td>
<td>175</td>
<td>17</td>
</tr>
<tr>
<td>7</td>
<td>131</td>
<td>15</td>
</tr>
<tr>
<td>8</td>
<td>166</td>
<td>13</td>
</tr>
</tbody>
</table>

1658
129

Of the 1,658 questionnaires mailed, 1,104 (67 percent) were returned by 85 (66 percent) DRS counselors. The response by disability categories was: blind, 597 (54 percent); deaf, 450 (41 percent); spinal cord injured, 57 (5 percent). 76 cases were reported as closed.

Response to the question "Do you feel information on adaptive aids and devices would assist you in the potential placement of this client?" was 382 (35 percent) clients "yes" and 722 (65 percent) clients "no." The response by disability categories to this question was: blind, 21 percent "yes", 79 percent "no"; deaf, 51 percent "yes", 49 percent "no"; spinal cord injured, 46 percent "yes" and 54 percent "no."

Specific requests for information category for each disability group were as follows:
<table>
<thead>
<tr>
<th>Category</th>
<th>Number of Requests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blind</td>
<td></td>
</tr>
<tr>
<td>Housekeeping</td>
<td>3</td>
</tr>
<tr>
<td>Tools</td>
<td>28</td>
</tr>
<tr>
<td>Braille</td>
<td>27</td>
</tr>
<tr>
<td>Personal Care</td>
<td>42</td>
</tr>
<tr>
<td>Navigation Aids</td>
<td>34</td>
</tr>
<tr>
<td><strong>29 additional specific requests</strong></td>
<td></td>
</tr>
<tr>
<td>Deaf</td>
<td></td>
</tr>
<tr>
<td>Communication Devices</td>
<td>185</td>
</tr>
<tr>
<td>Security Alarms</td>
<td>137</td>
</tr>
<tr>
<td>Telephone Aids</td>
<td>150</td>
</tr>
<tr>
<td>Oral Speech Devices</td>
<td>95</td>
</tr>
<tr>
<td><strong>17 additional specific requests</strong></td>
<td></td>
</tr>
<tr>
<td>Spinal Cord Injured</td>
<td></td>
</tr>
<tr>
<td>Personal Care</td>
<td>11</td>
</tr>
<tr>
<td>Transfer</td>
<td>7</td>
</tr>
<tr>
<td>Wheelchairs</td>
<td>7</td>
</tr>
<tr>
<td>Vans, Van Modification</td>
<td>11</td>
</tr>
<tr>
<td>Work Station Design</td>
<td>19</td>
</tr>
<tr>
<td>Seating, Cushions</td>
<td>6</td>
</tr>
<tr>
<td><strong>8 additional specific requests</strong></td>
<td></td>
</tr>
</tbody>
</table>

Based on these requests by categories and specific information requests, CRT assembled an informational resource manual (see Appendix) containing commonly requested information for all three disability categories. This manual was mailed to the 129 counselors originally included in the survey. A supplemental booklet for each disability category (see Appendix) was assembled based on specific problems outlined by counselors and mailed the counselors who had requested information for a specific client problem. Very unusual problems were handled on an individual basis.
The following is a report on findings and observation for each disability category with the primary emphasis on their vocational needs and objectives.
Findings for Blind Clients

Information requests for the blind had by far the lowest client/request ratio of any of the groups. The greatest interest was in personal care and navigation aids. The blind category also had the most negative response to the question, "Do you feel adaptive aids and devices would assist you in the potential placement of this client?", with 79 percent responding "no." This was a surprising response considering the broad range of jobs that were listed as D.O.T. goals.

D.O.T. goals ranged from lawyers to taxi drivers (blind in only one eye). 98 of the jobs listed are commonly held by persons with college degrees and/or specialized training, while only 28 of the clients now hold degrees. Twelve of these degree-holders were listed as homemakers, four had non-established goals, five were goaled for clerical work, two are to be sewing machine operators, and one of these degree recipients is to be a dishwasher. Therefore, only four clients presently hold degrees for the 98 higher-education jobs listed.

Some of the counselors appeared to have unusual attitudes toward their clients' D.O.T. goals. For example, C249 has no need for any information for any of its clients and has seven female college-graduates, average age 32 years old, in clerical occupations, and others working in job categories, such as "social service," which included elementary-school educated clients.

The greatest common problem based on vocational goals and the lack of presently available equipment is the problem of utilizing commonly printed information. Attempting to at least partially solve this problem, CRT has proposed the personal, portable reading machine project (see Section III for proposal).
Findings for Deaf Clients

The deaf category had the largest need for information, with communication devices and telephone aids the areas of greatest interest. Counselors of deaf clients had a positive response to the question asking whether adaptive aids and devices could assist in placing their clients (51 percent answered "yes"). The D.O.T. for the deaf category was also highly diversified. The ability to hear was not a factor in most of the jobs selected. CRT was not able to determine a common vocational technical need by the survey nor by follow-up phone conversations with counselors.

Voice recognition technology is an emerging field that may yield devices in the near future which will translate spoken works into a phonetic graphic display. These devices will be important communication breakthroughs for the deaf in both vocational and educational applications.

CRT is not proposing a project for this category at this time.
Findings for Spinal Cord Injured Clients

Counselors with spinal cord injured clients had the largest need for information concerning workstation design, personal care, and van modifications. This category had the highest percentage of college-educated clients, coinciding with the highest percentage of jobs requiring higher education. The essence of the majority of the jobs selected is information exchange and processing. They appear to be appropriate job selections in these the jobs rely on mental capacities rather than physical abilities.

With mobility impairment, the greatest obstacles in a job environment are reach and accessibility. Workstations can be built which are custom-fitted for the remaining abilities of a spinal-cord injured person. Also, modification can be made to computer software to enhance increase performance, given the job task and the method the person uses to interface with the computer.

CRT has determined that workstation design is a common problem with many of DRS' spinal cord injured clients. A proposal for the development of an adjustable, modular workstation can be found in Section III of this report.
TABLE 1
OCCUPATIONS--SPINAL CORD INJURIES

11 Non-established
* 6 Computer Programmer
* 4 Bookkeeping **(2)
* 4 Electronic Technician
* 4 Lawyer **(2)
  3 Homemaker
* 3 Receptionist **(1)
* 2 Rehabilitation Counselor **(1)
* 1 Administrative Assistant
  1 Art Teacher
  1 Auto Parts Sales
* 1 Business Management
  1 Child Care
* 1 Clerical
* 1 Computer Operator
  1 Customer Service
* 1 Data Processing
  1 Horticulturist
* 1 Hospital Administrator
* 1 Insurance Analyst
  1 Machine Operator
* 1 Medical Secretary
  1 Micrographics Technician
  1 Psychology
  1 Psychometrist
  1 Radio & TV Repair Helper
  1 Sound Control
  1 Telephone Solicitor **(1)
  1 Truck Driver
  1 Truck Weight Recorder
  1 Youth Counselor

**( ) number of college-educated in D.O.T. category

* has a need for the proposed R&D project
TABLE 2
OCCUPATIONS--DEAF

<table>
<thead>
<tr>
<th>Number</th>
<th>Occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td>88</td>
<td>Non-Established **(2)</td>
</tr>
<tr>
<td>56</td>
<td>Clerical **(2)</td>
</tr>
<tr>
<td>21</td>
<td>Teacher</td>
</tr>
<tr>
<td>21</td>
<td>Factory</td>
</tr>
<tr>
<td>15</td>
<td>Homemaker</td>
</tr>
<tr>
<td>14</td>
<td>Mail Clerk **(1)</td>
</tr>
<tr>
<td>14</td>
<td>Janitorial</td>
</tr>
<tr>
<td>13</td>
<td>Welder</td>
</tr>
<tr>
<td>12</td>
<td>Maid</td>
</tr>
<tr>
<td>12</td>
<td>Food Service</td>
</tr>
<tr>
<td>11</td>
<td>Assembly Line</td>
</tr>
<tr>
<td>8</td>
<td>Production</td>
</tr>
<tr>
<td>8</td>
<td>Sheltered Work</td>
</tr>
<tr>
<td>8</td>
<td>Auto Body Repair</td>
</tr>
<tr>
<td>8</td>
<td>Stock Clerk</td>
</tr>
<tr>
<td>8</td>
<td>Mechanic</td>
</tr>
<tr>
<td>8</td>
<td>Computer Programmer</td>
</tr>
<tr>
<td>8</td>
<td>Sewing Machine Operator</td>
</tr>
<tr>
<td>7</td>
<td>Carpenter **(1)</td>
</tr>
<tr>
<td>7</td>
<td>Child Care</td>
</tr>
<tr>
<td>6</td>
<td>Nurses Aid</td>
</tr>
<tr>
<td>5</td>
<td>Warehouse</td>
</tr>
<tr>
<td>4</td>
<td>Data Processing</td>
</tr>
<tr>
<td>4</td>
<td>Business Administration</td>
</tr>
<tr>
<td>3</td>
<td>Maintenance</td>
</tr>
<tr>
<td>3</td>
<td>Bricklayer</td>
</tr>
<tr>
<td>3</td>
<td>Data Entry</td>
</tr>
<tr>
<td>3</td>
<td>Machine Operator</td>
</tr>
<tr>
<td>3</td>
<td>Dishwasher</td>
</tr>
<tr>
<td>3</td>
<td>Houseparent</td>
</tr>
<tr>
<td>2</td>
<td>Laborer</td>
</tr>
<tr>
<td>2</td>
<td>Groundskeeper</td>
</tr>
<tr>
<td>2</td>
<td>Social Worker</td>
</tr>
<tr>
<td>2</td>
<td>Keypunch</td>
</tr>
<tr>
<td>2</td>
<td>Teachers Aide</td>
</tr>
<tr>
<td>2</td>
<td>Cook</td>
</tr>
<tr>
<td>2</td>
<td>Bookkeeping</td>
</tr>
<tr>
<td>2</td>
<td>Drafter</td>
</tr>
<tr>
<td>2</td>
<td>Printing</td>
</tr>
<tr>
<td>1</td>
<td>Public Relations</td>
</tr>
<tr>
<td>1</td>
<td>Occupational Grouping</td>
</tr>
<tr>
<td>1</td>
<td>Work Assistant Training</td>
</tr>
<tr>
<td>1</td>
<td>Linotype</td>
</tr>
<tr>
<td>1</td>
<td>Textile Worker</td>
</tr>
<tr>
<td>1</td>
<td>Engineer</td>
</tr>
<tr>
<td>1</td>
<td>Farmer</td>
</tr>
<tr>
<td>1</td>
<td>Pharmacist</td>
</tr>
<tr>
<td>1</td>
<td>Painter</td>
</tr>
<tr>
<td>1</td>
<td>Cabinet Maker</td>
</tr>
<tr>
<td>1</td>
<td>Waitress</td>
</tr>
<tr>
<td>1</td>
<td>Radio Technician</td>
</tr>
<tr>
<td>1</td>
<td>Delivery Helper</td>
</tr>
<tr>
<td>1</td>
<td>Laundry Attendant</td>
</tr>
<tr>
<td>1</td>
<td>Wood Working</td>
</tr>
<tr>
<td>1</td>
<td>Institution Attendant</td>
</tr>
<tr>
<td>1</td>
<td>Typist</td>
</tr>
<tr>
<td>1</td>
<td>Recreation Leader</td>
</tr>
<tr>
<td>1</td>
<td>Service Station</td>
</tr>
<tr>
<td>1</td>
<td>Truck Drivers Helper</td>
</tr>
<tr>
<td>1</td>
<td>Bakery</td>
</tr>
<tr>
<td>1</td>
<td>Microphotography</td>
</tr>
<tr>
<td>1</td>
<td>Civil Engineering</td>
</tr>
<tr>
<td>1</td>
<td>Residential Wiring</td>
</tr>
<tr>
<td>1</td>
<td>CPA</td>
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<tr>
<td>1</td>
<td>Upholstery</td>
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<tr>
<td>1</td>
<td>Accountant</td>
</tr>
<tr>
<td>1</td>
<td>Diamond Setter</td>
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<tr>
<td>1</td>
<td>X-Ray Technician</td>
</tr>
<tr>
<td>1</td>
<td>Construction Worker</td>
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<tr>
<td>1</td>
<td>Personal Service</td>
</tr>
<tr>
<td>1</td>
<td>Reader</td>
</tr>
<tr>
<td>1</td>
<td>Sanitation</td>
</tr>
<tr>
<td>1</td>
<td>Display</td>
</tr>
<tr>
<td>1</td>
<td>Electrician</td>
</tr>
<tr>
<td>1</td>
<td>Seamstress</td>
</tr>
<tr>
<td>1</td>
<td>Dentist</td>
</tr>
<tr>
<td>1</td>
<td>Artist</td>
</tr>
<tr>
<td>1</td>
<td>No desire to work</td>
</tr>
</tbody>
</table>
**TABLE 3**

**OCCUPATIONS--BLIND**

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homemaking <strong>(12)</strong></td>
<td>123</td>
</tr>
<tr>
<td>Non-Established <strong>(4)</strong></td>
<td>66</td>
</tr>
<tr>
<td>Production</td>
<td>39</td>
</tr>
<tr>
<td>Computer Programmer</td>
<td>33</td>
</tr>
<tr>
<td>Sheltered Work</td>
<td>18</td>
</tr>
<tr>
<td>Machine Operator</td>
<td>18</td>
</tr>
<tr>
<td>Sewing Machine Operator <strong>(2)</strong></td>
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General Observations

The project served to clearly identify the problem areas where rehabilitation technology can support traditional rehabilitation services. The fit of rehabilitation technology in the overall rehabilitative process falls into two categories: (a) Enabling Assistance—e.g. technical assistance for the development of adaptive equipment, training aids, and independent living aids; and (b) Vocational Assistance—e.g. job site modifications, removal of architectural barriers, development of specialized workstations, and software. This process operates under the overall guidance of counseling and rehabilitation services. It is shown diagrammatically below:
The general observations listed here are given with respect to this diagram.

1) Many D.O.T. goals for the individual clients studied are inappropriate because of a poor fit between clients' education and their designated D.O.T. categories, a problem judged to be caused in part by poor evaluation procedures. Rehabilitation technology has no impact in this problem area.

2) In a number of cases studies, many had appropriate D.O.T. goals where rehabilitation technology would be of benefit in providing specific job-oriented adaptive equipment or devices to maximize clearly defined job capabilities.

3) A major problem identified was that of underemployment due to inadequate evaluation procedures and lack of specific means to create the ability to perform on jobs that might be available. One cause stems in part from the fact that no distinction is made as the quality of placement in the counselors own performance evaluations. A second cause is a general ignorance of the potential of rehabilitation technology and the application of adaptive equipment in specific job placement opportunities. And a third of the reluctance of employers to place individuals in higher level employment without safeguards for job performance, which can be enhanced by adaptive aids and technical assistance to employers.

4) A clear need on the part of vocational rehabilitation counselors and job place specialists is shown.

5) Follow-up telephone surveys of randomly selected counselors revealed the opinion that technical assistance was needed for potential employers as much as for clients to effect greater job placements. This was particularly the case in rural areas.
6) The surveys also indicated a great disparity between what is commonly considered as rehabilitation technology and adaptive equipment, and what is actually available. Counselors for the most part have an extremely limiting view of adaptive equipment, thinking primarily of glasses, braces and hearing aids, and having little knowledge of specialized workstations, job site modifications, and the like.

7) These survey results indicate a substantial need for information and information programs to acquaint counselors and placement specialists with both the potential and availability of rehabilitation technology.

Recommendations

1) Improve evaluation procedures to better match client abilities with realistic job potentials (D.O.T. goals). (This is presently being addressed by the Georgia Career Information System at Georgia State University.)

2) Make clear distinctions of level of job potential among clients with appropriate D.O.T. goals to expedite identification of those cases where rehabilitation technology might be most effective.

3) Undertake State-wide education program to fully inform vocational counselors and placement specialists of the benefits and availability of rehabilitation technology.

4) Offer technical assistance services directly to potential employers.

5) Extend CRT's TechKnowledge information service to provide direct dial-in technical assistance State-wide to vocational rehabilitation counselors and job placement specialists.
6) Identify other target disability groups and extend systematic technical assistance and informational surveys to them.

7) Amend State policy so that good-risk clients can be provided computer equipment and other specialized devices for on-job use.

8) Research the potential for establishing a non-profit foundation to assist through loan guarantees and other financial mechanisms, these good-risk clients to receive assistance in purchasing computer equipment and other specialized job-related devices.

9) Identify and contact potential manufacturers to produce and market adaptive aids and independent living products that may result from technical assistance projects.

10) Set up permanent working arrangements between CRT and the Roosevelt Warm Springs Institute for product development, testing, and evaluation of adaptive equipment.

11) Develop guidelines for purchasing or developing innovative devices.

12) Initiate the three programs proposed in Section IV of this report.
III - Product Development Proposals

1) Portable Reading Machine: "Cyclops"

A review of the D.O.T. goals for blind clients revealed many job ambitions that require higher education and/or special training. Many of the jobs that were selected require information processing and transfer. Obviously, a blind person cannot process information that is not brailled or verbally recorded. This barrier in itself will prevent many of these clients from attaining their career goals and will prevent well-educated blind persons from competitive employment. There exists a common need to convert printed material into a usable form for the blind.

Presently, the solution to this problem is the Kurzweil Reading Machine. This machine can read printed text aloud from books, magazines, etc. The current price for the Kurzweil Reader is $29,800 which is far beyond the affordable price for individual ownership. The machine is table-top size and is not portable, which is a hinderance for vocational applications. Most of the machines are owned and operated by public schools and libraries.

A reading machine has three basic sub-parts: the optical scanner which "sees" the printed material, a computer that reads what is seen by means of character recognition software, and a speech synthesizer which speaks the words. The optical scanner transmits an electronic image of each letter to the computer. The computer determines what the letter is and then transmits letter strings to the voice synthesizer, where the letters are recognized as words and the words are spoken.

A technical team with expertise in this area at Georgia Tech is of the strong opinion that, with recent developments in the technologies involved, a portable, and more reasonably priced reading machine can be developed. It is estimated that a reading
machine can be developed that will perform comparably to the Kurzweil Reader, and could be sold for $6,000-$8,000, or possibly less. The machine would be approximately the size of a portable typewriter. Personal ownership and portability of a text-reading machine would have a tremendous impact on the educational and vocational potentials of visually-impaired people.

For education of the blind, a personal, portable, reading machine would give access to common reading materials. It would allow the user independence in using educational resources at various locations. The student would not be limited in subject areas where brailled materials are not available. Also, since a user's listening speed is faster than the braille reading speed, the educational process would be accelerated.

For vocational users, a personal, portable reader would allow access to common office information such as memos, letters, invoices, etc. This function is a necessity for many of the jobs that are listed for DRS clients, such as computer programmers, clerks, and business managers. This mechanism would allow an employee to keep up to date in their career field by reading technical and professional journals (most of which are not available in braille).

A) Project Approach

CRT proposes to design and prototype a personal, portable reading machine with a two-phase project program. This proposal is for Phase A - Exploratory Prototype. In this phase, CRT proposes to test the feasibility of producing a low-cost, portable reading machine by using readily available hardware components and writing original optical character recognition software. A working prototype will be the end product of the project. With this prototype, the user would scan printed material with a hand-held scanner, using it much in the same way that an Optacon is used.
Phase B - Product Development is currently in the proposal research stage at Georgia Tech. This proposal will be submitted to the Veterans Administration for a funding request. Preliminary conversations with the V.A. have indicated a very positive possibility for funding. This phase of the program is to develop a production-capable device building on the knowledge gained in Phase A and in prior research in this area. This phase would also deal with extensive testing and refinement based on user evaluation.

B) Statement of Work for Phase A – Exploratory Prototype

1) Design and build hand-held optical scanner; test and refine.

2) Design and build character recognition processing computer; test and refine.

3) Design and build speech synthesis module; test and refine.

4) Perform human factor studies of end-user population and determine parameters for complete unit design.

5) Design and build housing and controls for electronic components; test and refine.

6) Test completed unit with blind users and evaluate.

7) Final Report.

This project can be completed in an 8-month period from initiation. Anthony J. Bradshaw of CRT will serve as project director and will manage all phases of technical development.
### BUDGET

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John Cureton
Stephen Burden
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John Bennett
Billie M. Farris

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Donna Kenney
Jerome D. Berman
Jim Clarke
Linda Graham
Liz Miller
Bob Diebhold
Louisa Calvary
Charlie Moye
Jamie Valencia
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Thomasseana Worthy
James Nobles
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Betzaine Carter
Robert Thompkins, Jr.
Charlotte Clarke
Herbert Galbreath
Leonard Stinson
Anita Halstead
Cynthia Kitchens
Danny W. Tates
Donald A. Penley
Patricia D. Dixon
Nita L. Tillman
Bradley F. Gliett
Dorothy Rudd
Sally Diamuke
Robert Griffin
April L. Holland
Gary M. Carter
Carrie E. Cooper
Carlos Evans
Charlene McClenndon
Carol Bryant
Robert A. Delcon
William Garner
Jimmie Crammon
Deborah K. Lovell
Willie L. Bivins
Barry McKinnon
Michael Bondurant
Sheila L. Jones

Dispatching
Sales-Insurance
Social Science
Medical
Electrical Engineer.
Clerical
Special Education
Dispatch/
Broadcasting
Medical
Transcription
Medical Lab Tech.
Business Management
Social Service
Teacher
Phys. Ed. Teacher
Medical
Transcription
Journalist
Receptionist
Social Worker
Secondary Ed.
Teacher
Psychology Tech.
Psychology Tech.
Secretary
Social Worker
Systems Analyst
Teacher (Volunteer)
Teacher's Aide
Counselor
Teacher's Aide
Clerical
Math Teacher
Clerical
Minister
Teacher's Aide
Radio Announcer
Teacher
O.T.
Insurance Salesman
Radio Broadcaster
Radio Broadcaster
Social Work
Counselor
Radio Broadcaster
Rehab. Counselor
Social Work Tech.
2) **New Electronic Workstation: "NEWS"**

Spinal cord injured and mobility-impaired clients have a common vocational need for workstations that are adjustable and adaptable to their specific job requirements. Mobility-impaired clients, regardless of education and training, must have an appropriate workstation to maximize the functional usage of their remaining range of motion.

By enhancing remaining abilities, a properly designed workstation could aid with the problem of underemployment. A client could perform some jobs that previously would not have been feasible for them to do. With the increasing proportion of jobs in the information processing and services area (one source estimates 75 percent of U.S. jobs by 1990 will involve the use of a computer), physically disabled people have the potential of a greater range and choice of jobs. These jobs tend to be "thinking" jobs. Therefore, the manual aspects of office work are the problems the new workstation will attempt to solve.

With proper training, disabled people can easily perform the mental tasks required in many of these jobs. But if it takes them 10 times the normal to retrieve a file or 5 times the normal to replace a file or 3 times the normal to use a phone system, their total daily production is lessened. If they cannot make use of files, shelves, and drawers because of reach difficulties, they cannot use their allotted space effectively. These problems must be overcome if these people are to become competitive on the job market.

When developed, specialized modules would be fitted to standard office systems (such as the Herman Miller office systems). The workstation would have the outward appearance of a regular office cubicle. Modules would be selected based on job functions and tasks and the disability of the particular client. The client
could own the workstation so they would have greater job opportunities by not inflicting additional costs on potential employers and they could change jobs more easily.

A) Project Approach

For this project, CRT proposes to design and build adjustable modules for the following functions: computer use; telephone and other communications; filing and retrieving, paper handling; reference handling; and all-purpose storage.

From these modules, CRT will construct 2 complete workstations. One workstation will be for lawyer use and the other workstation will be for bookkeeping. These workstations will be complete with computers for these jobs and appropriate interfaces for the clients chosen to use them. Being modular, the workstations can be up-dated as required by the client.

CRT is currently constructing a modular workstation for a DRS client who is disabled by arthritis. This workstation will serve as a model for evaluation that will provide input for the design of the new workstations.

Several of the modules will be power operated, such as the filing system, and the reference storage system, so task time can be decreased. Control of these modules will be push-button so that they can be operated by a mouthstick. We will also explore new voice recognition systems for computer interfacing (Texas Instruments recently introduced a unit such as this) for the severely disabled. Voice recognition interfacing would allow control of a computer and communication devices with only the use of the individual's voice.

B) Statement of Work

The task sequence for this project is as follows:
1) Study human factor requirements for various types of mobility disabilities.
2) Design modules for previously listed job tasks.
3) Identify readily available adaptive equipment that will be incorporated in the workstation design.
4) Identify computer systems and interfaces that will be used.
5) Construct modules and test.
6) Construct 2 complete workstations with these modules; test.
7) Adjust workstation for clients selected to use them.
8) Write any specialized computer software for clients' use if needed.
9) Evaluate.
10) Report.

This project can be completed in a 4-month period from initiation. Anthony J. Bradshaw will serve as project director and will coordinate all aspects of the project.

If DRS determines the workstation are applicable for other clients, additional workstations can be fabricated from working drawings (supplied by CRT in this project) at local wood-working shops.
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<td>2,000</td>
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<tr>
<td>Ga. Tech Overhead</td>
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$ 27,059
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<tr>
<th>Counselor</th>
<th>Client</th>
<th>D.O.T. Goal</th>
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<tbody>
<tr>
<td>Sam Richwine</td>
<td>Elebert J. Ward</td>
<td>Bookkeeper, tax work (in home)</td>
</tr>
<tr>
<td>Sam Richwine</td>
<td>Ted D. Allison</td>
<td>Electronic Technician</td>
</tr>
<tr>
<td>Grady Allen</td>
<td>Russell Dobbins</td>
<td>Admin. Asst.</td>
</tr>
<tr>
<td>Martin Yirve</td>
<td>Stephanie Davis</td>
<td>Lawyer</td>
</tr>
<tr>
<td>Tom Tedards</td>
<td>Charles Kenner</td>
<td>Receptionist</td>
</tr>
<tr>
<td>Tom Tedards</td>
<td>Bruce Dozier</td>
<td>Receptionist</td>
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<tr>
<td>Tom Tedards</td>
<td>Larry J. Caton</td>
<td>Attorney</td>
</tr>
<tr>
<td>David Sinclair</td>
<td>Robert Rodriguez</td>
<td>Bookkeeper</td>
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<tr>
<td>David Sinclair</td>
<td>Douglas Thomas</td>
<td>Electronic Technician</td>
</tr>
<tr>
<td>Kathleen Criessler</td>
<td>Harold McCarty</td>
<td>Hospital Administrator/Insurance/Art Teacher</td>
</tr>
<tr>
<td>Ed Bailey</td>
<td>Tony Boatright</td>
<td>Lawyer/Business Mgr.</td>
</tr>
<tr>
<td>Ed Baily</td>
<td>Terry Williamson</td>
<td>Computer Programmer</td>
</tr>
<tr>
<td>Bill Ballew</td>
<td>Thomas H. Lau</td>
<td>Computer Programmer</td>
</tr>
<tr>
<td>Tom Dennis</td>
<td>Micki Weatherhead</td>
<td>Bookkeeper/Music (Sound Control)</td>
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<td>Steven Flanigan</td>
<td>Jill Friedlander</td>
<td>Receptionist</td>
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<tr>
<td>Miriam Smith</td>
<td>Mary N. Earwood</td>
<td>Medical Secretary</td>
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<tr>
<td>Howard Allen</td>
<td>Jenny Langley</td>
<td>Computer Programmer</td>
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<tr>
<td>Allen Beall</td>
<td>Robert W. Habas</td>
<td>Accts-Receiveable/Computer Programmer</td>
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<tr>
<td>Lester Walker</td>
<td>Claude Norfleet</td>
<td>Clerical</td>
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<tr>
<td>Frank Bell, Jr.</td>
<td>Brian K. Sellers</td>
<td>Micrographics Tech./Radio Dispatcher</td>
</tr>
<tr>
<td>Ed Bailey</td>
<td>Lewis Smith</td>
<td>Radio &amp; TV Repair</td>
</tr>
<tr>
<td>Walter Dance</td>
<td>Chris D. Tates</td>
<td>Computer Programmer</td>
</tr>
<tr>
<td>Fulton Cooper</td>
<td>Scott W. Parker</td>
<td>Electronics Technology</td>
</tr>
</tbody>
</table>
IV - Program Development Proposals

Based on information obtained in this project, CRT has determined that there exists a need for technical assistance in three major areas which would be supportive of various disabilities and would involve most types of employment opportunities. The first area of concern deals with clients who have potentials in the area of computer operation. This program would assist in selecting appropriate computer systems and the writing of specialized software when required. The second area involves the sheltered workshop program with the goal being to place more severely disabled people and to aid with increasing production and efficiency by appropriate design. The third area is to provide technical support for potential employers. This program would work closely with DRS placement specialists and counselors in trying to reduce employer reluctance in hiring the handicapped. These three programs are detailed in the following sections.
1) Vocational Computer Application Program - "VOCAP"

In keeping with current trends in the open job market, DRS clients need increased access to computer oriented jobs. These jobs are both typical computer jobs and jobs that were previously performed manually but can now be performed with computer assistance.

This program would assist DRS with specifying hardware systems for a potential job on an individual client basis. The equipment could be employer-owned, provided by DRS or owned by the client. CRT would analyze the potential job and then make recommendations for equipment based on the client's abilities and needs.

The second area of assistance would be to provide "friendly" customized software. This software could be for use with an employer's existing equipment or with privately or State-owned equipment. Customized "friendly" software can increase productivity by decreasing control interfacing time. Also, non-typical computer jobs could be arranged by development of specialized software with the appropriate hardware equipment. This program would be beneficial to both home and office employment situations.
2) **Sheltered Workshop Assistance Program - "WORKAP"**

Sheltered workshops as a primary employer of disabled persons are in considerable need of specialized devices and procedures for expanding production and increasing their market competitiveness. The majority of workshops have little or no access to advanced production technology or efficient means to develop adaptive equipment for their workers.

The WORKAP Program would provide technical help to individual sheltered industries to develop innovative new approaches to meet their production and employee needs. The assistance would be in the form of consulting on plant layout and production facilities, design and development of specialized devices to assist production, information services for identifying and locating existing products and equipment to improve production, and the removal of architectural barriers. WORKAP could be operated in conjunction with EMPLOY where feasible to assist client companies in working more effectively with sheltered workshops.

The potential of WORKAP is to greatly improve the efficiency and effectiveness of sheltered workshops both in competing with their markets and opening up job opportunities for a greater range of disabled persons than can be presently employed. In addition, it provides a base whereby workshop managers may increasingly develop their skills and their own operations helping to build a reservoir of able professional managers within the State.
3) **Placement Specialists/Employer Technical Assistance Program—"EMPLOY"**

Discussion with DRS placement specialists and counselors have indicated a need to increase employer participation and cooperation. CRT proposes to work with potential employers through DRS placement specialists in an attempt to obtain more job positions for DRS clients. If the employer has an opening, CRT will analyze how the job could best be performed by a disabled person. Once the employer is convinced to give jobs to DRS, qualified clients would be identified to fill the positions and CRT would work with the clients to develop appropriate workstations, adaptive equipment and other specialized devices or procedures to maximize their performance.

The opportunities of such a program are listed below:

1) Increasing the percentage and quality of placements.

2) Creating a "high-tech" approach in hiring the disabled.

3) Creating a means of accessing Ga. Tech connections (many of whom are employers) in industry.

4) Assisting employers with removal of architectural barriers in a cost-effective manner.

5) Creating a means of working jointly with the Georgia Career Information System at Ga. State University.

To facilitate this program, CRT would develop marketing tools for use by placement specialists. Brochures and other materials as needed would tie into the workstation designs, VOCAP, TechKnowledge, and adaptive equipment development programs for employers.
A CRT staff member could accompany placement specialist when calling on employers if requested.

These projects would be initiated by requests from placement specialists or DRS counselors.
V - Action Plan for Program Implementation

The implementation of "VOCAP", "WORKAP" and "EMPLOY" will require expertise from several different technical disciplines. A full-time technical staff at Georgia Tech is needed to support these programs as well as the adaptive equipment projects and a Statewide TechKnowledge information system.

The following technical personnel are needed to implement these programs:

A) information and computer-science engineer  
B) electrical engineer  
C) industrial designer  
D) occupational therapist/information specialist  
E) rehabilitation engineer (could be stationed at Warm Springs)  
F) technical services coordinator.

The staff would work on a project basis and would recruit other members of the Georgia Tech faculty and staff when additional technical support is needed.

To establish these programs, a central fund could be set up to support consulting and design/development activities. The CRT TechKnowledge information service would be expanded to include non-product data in program areas. Access to both TechKnowledge and technical program assistance would be provided using procedures similar to those now used for adaptive equipment projects with vocational rehabilitation counselors.

The appropriate funding level cannot be firmly established at this time. It is suggested that the program be initiated on a pilot basis for a one-year period. Performance and costs would be closely monitored and a realistic budget determined on the basis of actual expense.
Technical staff should be hired on a yearly basis, while project funds for each specific program would be used for materials, travel, equipment, student assistants, indirect costs and outside consultants if needed. By being under DRS contract on a full-time basis, the technical staff will be "on-call" for consultation as needed by DRS.

The technical staff can also provide technology awareness and training seminars to aid counselors in staying abreast of adaptive equipment development and usage and to demonstrate technological approaches in job placement.

A detailed organization and procedural plan can be constructed jointly by DRS and CRT should DRS pursue any or all of these proposed programs.
VI- APPENDIX
Center for Rehabilitation Technology

There's no truth in isolation

Georgia Institute of Technology
Atlanta, Georgia 30332
RESOURCE MANUAL
ON ADAPTIVE AIDS AND DEVICES
FOR VISUALLY IMPAIRED,
HEARING IMPAIRED,
AND SPINAL CORD INJURED PERSONS.

Prepared for:
Department of Rehabilitation Services,
STATE OF GEORGIA

Contract # D48614

November, 1983
November 23, 1983

TO DRS FIELD COUNSELORS

The Center for Rehabilitation Technology (CRT) at Georgia Tech is working with the Department of Rehabilitation Services to build a program to assist DRS counselors in solving informational and specialized adaptive equipment needs of their clients. The goal of this project is to find out what your information needs are and determine where there are common needs for adaptive aids and requirements for research and development in rehabilitation technology throughout the State.

The enclosed manual is part of the project and is given to you as a preliminary reference manual. This manual contains general information on adaptive aids and devices for this project's three targeted groups: the visually impaired, hearing impaired, and spinal injured. Counselors who supplied CRT with more specific information on their clients' special needs will receive further information soon.

We would appreciate your comments on the manual. We expect to upgrade it periodically and need your comments so as to make it useful to you.

The CRT, by contract with DRS, provides informational services to DRS field counselors free of charge. If you have any questions or requirements for adaptive aids and devices; removing architectural barriers; job site modifications; and so forth, call the CRT, identify yourself as a DRS field counselor and describe the problem as specifically as possible. Our information specialist will respond to your request in a few days by letter or telephone.

Our telephone number until January 1, 1984, is 894-3476. After Jan. 1, it will be 894-4960.

We appreciate working with you and especially thank those who participated in this project. We hope that we can be of service to all of you in the future.

Sincerely,

Anthony J. Bradshaw,
Technical Services Coordinator

cc: T. Gaines
D. Taylor
L. Meenach

Office of Interdisciplinary Programs
Georgia Institute of Technology
A Unit of the University System of Georgia
A Catalog of Commonly-Used Products for Blind Persons
or Those with Low-Vision

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BRAILLE

Mailing - 1) Braillegrams and Large-Print Messages. Large-print is 14-point type; braille messages are automatically translated into braille. Delivered by mail.

***Western Union Telegraph Company

2) "Free Matter for the Blind" rubber stamp. Blind persons can mail recorded or brailled letters free if such wording appears on the envelope.

***Independent Living Aids, Inc.

3) "Free Matter for the Blind and Physically Handicapped" rubber stamp.

***Dialogue Publications, Inc.

Reading - 1) Light Probe. Small, lightweight probe emits different pitches to detect the presence of print and light, and the reflectivity of a surface. Adjustable sensitivity control, e.g. for typing or detecting on/off position of light.

***American Foundation for the Blind
2) Optacon Print Reading System. Optical to Tactile Converter. Camera scans print, translates it into enlarged, vibrating representation. Requires training in Optacon method.
***Telesensory Systems, Inc.

BRAILLE Print

3) Solid Dot Magazine Cover.
Reading case to support solid dot periodicals, cord to hold magazine in place inside spine.
***Royal National Institute for the Blind

4) Variable Speed Control™ Listening Adapter. For use with Library of Congress and later-model cassett recorders. Braille markings and braille and large-print instructions. Can pitch correct sound at up to 2.5 times faster than recording.
***Variable Speed Control Corporation
Printing, Embossing, Typewriting

1) Braille Embossing Press. Rotary press; metal master plates. Maximum speed 10,000-12,000 sheets per hour; maximum size roughly 20" X 13". Custom-built to any size.

***Timson Ltd.

2) Fisburne Alphabet for the Blind.
   Dots, dashes and slashes instead of braille. Embossed characters to be felt. Letters are also used as numbers. Thermoform master as training aid.

***Fishburne Engineering

3) Marburg Braille Duplicator. Flat bed press; can be used by one person.

***Deutsche Blindenstudienanstalt

4) Stereographic Machine. Steel; motor-driven. Uses plates up to 11" X 15"; embosses up to 42 cells per line. Automatic return.

***American Printing House for the Blind


***Howe Press of Perkins School for the Blind

6) Typewriter. IBM Braille Electric. Correction key.
   Uses braille paper stock, special platen assures legibility of embossing.
   88-character keyboard, 63 cell configurations for all grades of braille code. Braille standard line spacing.

***IBM Corporation Products Division

7) Typewriter. Perkins Brailler. 6 conventional keys, one for each braille cell. Margin stops with warning bell. Comes in both manual and electric models; extension key for one-handed brailling in manual model.

***Howe Press of Perkins School for the Blind
Writing - A. Guides

1) Keitzer Check Writing Guide. Plastic template corresponds to the spaces on standard stub-end check. Available in right and left-handed models.

   Mrs. Betty Jo Keitzer

2) Letter Writing Guide. 8 1/2" X 11" sturdy plastic sheet with 13 line spaces.

   American Printing House for the Blind

3) Signature Guide. Aluminum with rubber backing. Elastic guideline permits dropping below line for script letters. Takes pencil or ball-point pen only.

   ***Independent Living Aids, Inc.
B. Notebooks, Paper

1) Embossed and Bold-Line Graph Sheets. Embossed graph sheets have dots for horizontal and vertical lines; solid line axes; letter-size and 11 1/2" X 11" sizes, and 3 different line spacings available. Bold-line graph sheets available in 3 sizes. Also, polar (circular) graph sheets available.

***American Printing House for the Blind

2) Notebooks with Punched Braille Paper Fillers. Braille notebooks to fit standard braille paper, sizes 10" X 12" to 8" X 12". Imitation leather board covers; 3 rings.

***American Printing House for the Blind

C. Slates

1) Braille Slate. Aluminum in 27 cell/4 line and 19 cell/6 line models. Plastic in 27 cell/4 line; plastic only includes standard stylus.

***Independent Living Aids, Inc.

2) Jumbo Slate. E-Z Read oversize cell and dot; 18 cell/4 line. Includes special stylus. Anti-slip tape on back.

***Howe Press of Perkins School for the Blind

3) Pocket Braille Slate Kit. Black vinyl cover pouch holds 19 cell/6 line slate and pencil stylus. Two additional pockets for braille paper. 3 5/8" X 6 1/2".

***American Foundation for the Blind

(Note: paper for slate kit sold in 100 sheet packets)
4) Slate Memo Kit.
   Paper-roll fed memo, 10" X 3". Magnetic stylus attaches if not in use. May be hung on wall or carried as well as set on desk. Paper rolls (also sold) supply approximately 168 memos.

***Independent Living Aids, Inc.

D. Styluses

1) Pencil stylus. Standard point and eraser ends. Pen shape; pocket clip.
   ***American Foundation for the Blind

2) Pencil stylus. Same as above.
   ***Independent Living Aids, Inc.

   ***American Foundation for the Blind

4) Standard stylus. Same as above.
   ***Independent Living Aids, Inc.
HOUSEKEEPING

Cleaning - Folding Dustpan. Forms funnel-like spout.
***Independent Living Aids, Inc.

Cooking - A. Draining

1) Locklid Easy-Drain Saucepan: Lid locks in place for cooking or draining. Porcelain/teflon interior, 3 Qt. size.
***Independent Living Aids, Inc.

B. Frying

1) Bacon crisper. Aluminum disc.
***American Foundation for the Blind

2) Bacon crispers. Glass or aluminum, round or square.
***Independent Living Aids, Inc.

C. Labelling

1) Canned Goods Marking Kit, and Extra Strips and Fasteners. Package includes 25 strips and bands for braille marking with stylus and slate (not included). For size #10 can and smaller.
***American Foundation for the Blind

***American Foundation for the Blind

D. Measuring

1) "E-Z Read Jigger" 4 platforms inside cup for finger-touch measurement. 2 Oz. size.
***Independent Living Aids, Inc.
2) Sugar Meter. Glass base with plastic conical top. Dispenses 1/2 teaspoon dry ingredients.

***American Foundation for the Blind

E. Slicing, Cutting, Chopping, etc.

1) Food & Onion Chopper. Glass jar with spring-action chopper.

***Independent Living Aids, Inc.

2) Magna Wonder Knife. Adjustable, detachable guide. 8 1/4" blade never needs sharpening.

***Independent Living Aids, Inc.

3) Pie Cutting Guide. Divides 9" pie into 8 equal slices.

***Independent Living Aids, Inc.

4) Slicing Guide & Roast Holder. Narrow blade knife can be inserted in groves of aluminum holder.

***Independent Living Aids, Inc.

F. Utensils, Tools, etc.

1) Oven Mitt. Flame retardent. 13" mid-forearm and 17" elbow lengths.

***American Foundation for the Blind
2) Spatula, Double. Aluminum.  
***American Foundation for the Blind

***Independent Living Aids, Inc.

BOOKS/RECORDS

A Campbell Cookbook: Easy Ways to Delicious Meals, Large-Type Edition.  
Volunteers Service for the Blind  
332 South 13th Street  
Philadelphia PA 19107.

Cooking with Betty Crocker. [both in large-type and as a recording]  
Betty Crocker Kitchens  
General Mills, Inc.  
9200 Wayzata Boulevard  
Minneapolis MN 55426.

Mealtime Manual for the Aged and Handicapped.  
Simon & Schuster  
630 Fifth Avenue  
New York NY 10019.

The New York Times Large-Type Cookbook.  
Golden Press  
New York NY

Planning Kitchens for Handicapped Homemakers.  
Publications Unit  
Institute of Rehabilitation Medicine  
New York University Medical Center  
400 East 34th Street  
New York NY 10016
Magnification - 1) Full-page magnifier. Thin plastic, notebook sized.

***Independent Living Aids, Inc.

2) Hand-held magnifier with bifocal insert. 2" X 4".

***Independent Living Aids, Inc.

3) Hand-held illuminated magnifier with bifocal insert. Uses 2 "C" batteries.

***Independent Living Aids, Inc.

4) Hands-free, around the neck magnifier with bifocal.

***Independent Living Aids, Inc.
5) Reading binoculars. Mounted in spectacle frame, inserted in lower half of plastic lenses, focused to converge at 16". Can be worn constantly.

***William Feinbloom, O.D., Ph.D.

Safety/ Locks - 1) All-Purpose Burglar Alarm. Sounds a piercing alarm when magnetic field broken. Uses 9-V battery.

***American Foundation for the Blind

2) Klik-Lok Padlock. Combination lock can be opened by feeling or hearing the clicks.

***Independent Living Aids, Inc.

3) Safety Electric Wall Plate/ Plug Ejector. Levers aid insertion and removal of plugs without touching plate itself.

***Independent Living Aids, Inc.

Sewing - 1) Aluminum clothing tags. In sets of 2 each of 14 colors, identified in braille: black, blue, brown, gray, green, pink, red, tan, white, yellow, gold, organe, purple and silver. Free with order from

***Independent Living Aids, Inc.

2) Hem clips. Indented markings.

***Independent Living Aids, Inc.
3) Hexe Needle Threader.

***Independent Living Aids, Inc.


***Independent Living Aids, Inc.
Atlases, Maps - Various atlases, keys of the continents and maps and globes.

***American Printing
House for the Blind

Cards, Greeting - Musical Greeting Cards. Tiny music box repetitions last for hundreds of plays. Occasions include: Birthdays, Anniversaries, Christmas, Valentine's, Mother's Day, Weddings. Also available pre-addressed and mailed.

***Science Products for the Blind

Games - Backgammon - Self-contained within carrying case. Concave red pieces; inner circle white pieces. Green/yellow board contrast for low-vision players. Braille dice. Tournament size.

***American Foundation for the Blind
Balls - 1) Aud-A-Ball Football; Soccerball; Volleyball. For kicking, hitting, dropping, throwing. Sound source activated by pin switch; instructions for battery replacement. Football and Soccerball have fiber wound leather casing. Volleyball for indoor use only.
***Science for the Blind Products

***Science for the Blind Products

3) Audible Ball. Vinyl cover with stippled grip finish. Large bell.
***American Foundation for the Blind

Bingo - Individual player board, raised black numbers and braille symbols, differing number patterns; bingo call numbers, 1 to 75; and master bingo call board. Includes blank markers and marker pencils.
***American Foundation for the Blind

***American Foundation for the Blind

***Howe Press of Perkins School for the Blind
3) Low-Vision playing cards. Numerals and letters replace "pips" and pictures, and are color-coded. Size 2 1/2" X 3 1/2".

***American Foundation for the Blind

Checkers - Tactually marked with sunken squares. Round black and red square checkers.

***American Foundation for the Blind

Chess - 1) Wooden board with drilled squares for pegged chessmen. Raised black squares. White chessmen have point at top.

***American Foundation for the Blind

2) Merrick chess set. Wooden board with raised black squares, drilled for pegged pieces. Comes in large and small sizes.

***Royal National Institute for the Blind
Dice - Plastic dice with raised dots. Cup included.

***American Foundation for the Blind

The Game Center - Electronic Game Center plays 8 games. Synthesized speech and other audible cues. Push-button playing format.

***Telesensory Systems, Inc.

Monopoly - Parker Brothers game with all necessary parts brailled. Can be played with sighted persons.

***American Foundation for the Blind

Scrabble - Deluxe Scrabble. Modified by manufacturer. Can be played with sighted persons.

***American Foundation for the Blind

Pets - Folding Water and Food Dish for pets. Flexible plastic can be carried in pocket.

***Science Products for the Blind
Purses - Coin Purse/Key Holder. Slots for each type change; pocket for folded money; 6-hook key holder. 2 1/2" X 3 5/8".

***Science Products for the Blind

Talking Books

Phonograph disc reproducer, plays at 33 1/3; 16 2/3; and 8 1/3 RPM. Tone-arm placement ramp. Amplifier. Diamond needle replaceable cartridge. Available accessories include headphones and pillow speaker. FREE from Division for the Blind and Physically Handicapped; Library of Congress
MEDICAL CARE

Blood Pressure - Talking Sphygmomanometer Blood Pressure Gauge. Digital and audible readouts of diastolic, systolic and pulse rates. Also beeping pulse rate. Earphone included; rechargeable battery.

***Science Products for the Blind

Glucometer - Talking glucometer, voice readout of digital display. Requires blood sample, supervision and/or training in procedure.

***Science Products for the Blind

Pill Organizer - Seven compartments within plastic container. Each marked in braille and standard alphabet for each day of the week.

***American Foundation for the Blind

Scale - Talking scale.

***Science Products for the Blind

Stethoscope - Bent needle stops at each 20 mm of pressure. Lens cover, pouch, instructions included.

***American Foundation for the Blind
Syringes - Insulin syringe. 100-Unit scale. Adjustable positive stop, automatically draws correct amount of solution into syringe. Can be sterilized without disturbing stop. Adjustment must be set by physician or nurse. CAN BE SENT ONLY TO SAME.

***Science Products for the Blind

Syringe Devices - 1) Andros IDM Insulin Dosage Monitor. For use only with Decton-Dickinson's #8409 Plastipak U-100 disposable syringes. SOLD ONLY TO PHYSICIANS OR OTHER REGISTERED HEALTH PROFESSIONALS.

***Science Products for the Blind

2) "Holdease" Needle Guide & Syringe/Vial Holder. Works with all 1 cc.; 1/2 cc. U-100 disposable syringes; Meditec "insulgage" guides; and U-40 long-type disposables. No sterilization needed; not for glass syringes or short-type disposables.

***American Foundation for the Blind

3) Monoject Syringe Magnifier. Clips onto syringe in area of dosage measurement. Fits any plastic, disposable syringe.

***Division of Sherwood Medical
Thermometer - 1) Aud-A-Mometer. Talking. Comes in Clinical Fahrenheit; Clinical Celsius; Laboratory Celsius; Darkroom Fahrenheit; and Weather Fahrenheit models. Stainless steel probe.

***Science Products for the Blind

2) Thermovoice Talking Thermometer. Alternate probes for use as clinical thermometer, indoor or outdoor temperature measurement, or cooking thermometer. Fahrenheit scale.

***American Foundation for the Blind

Uricator - Indicates blood sugar for diabetics. Battery-operated.

***Science Products for the Blind
NAVIGATION

Beacons - 1) Cricket Direction-Locator. Emits high-pitched beep. Uses 9-V battery, weighs less than one lb.

DIRECTIONS ON MANUFACTURE.

***Medical Engineering Club
Western Electric Company, Inc.

2) Sound Beacon for stationary location. Clicks; waterproof; drip guard.

***De Blindas Forenings Forsaljningsaktiebolag

3) Sound Beacon. Transportable. Volume, pitch and rate of bursts can be adjusted. Battery-operated.

DIRECTIONS ON MANUFACTURE.

***Rehabilitation Engineering Center
Smith-Kettlewell Institute

Fiberglass cane.
Lightweight, crook handle. Rubber golf grip, replaceable nylon tip. Lengths 34" to 54".

***American Foundation for the Blind

NFB Fiberglass cane.
Lightweight, durable. Sizes 49" to 63".

***National Federation of the Blind

Mahler Heavy-Duty Aluminum Folding Cane. Stands heavy compression. Rubber golf grip, flexible wrist loop. Can jam; replacement of some parts difficult. Lengths 38" to 53".

***American Foundation for the Blind

Rigid-Fold Cane.
Hard-anodized, 4 sections.

***Rigid Fold
5) W.C.I.B. Heavy-Duty Folding Cane. Aluminum, 4 sections; Gold grip, flexible wrist loop. Push-on nylon tip, precision joints.

***W.C.I.B.

Reflective Badges - Reflective Bus/Taxi Badge. Smooth bus side; raised letters on taxi side. Bottom of badge opens for hand or cane insertion; button on top. Visible from over 600 ft.

***American Foundation for the Blind

Sensors - 1) Mowat Sensor. Hand-held unit vibrates when object is detected, one to 4 meters away. Range setting controls, battery operated. To be used in conjunction with dog or cane.

***Wormald International Sensory Aids, Ltd.
2) Sonicguide. Sensors built into spectacle frame. Transmitter radiates ultrasound, which is reflected by object and translated back as sound, pitch varying with the distance of the object. Small control box for electronics. Warranty.

***Wormald International Sensory Aids, Ltd.

3) Soniguide. Master unit, speaker and power. Pulse-rate controls. Used in tracking; localizing and responding to sound; balance and posture; arm positioning; and cane travel. Warranty.

***American Printing House for the Blind
Spectacles - 1) Field-Expander Driving Spectacles for Tunnel Vision. For patients with acuity of 20/50 or better in one eye. Fitted only at NIRE or NIRE optometrists or ophthalmologists. Driver training provided also.

***The National Institute for Rehabilitation Engineering

2) Noir Sunglasses. Controls light in ultraviolet, visible and near infrared areas. Transmission-range models from 1% to 18%.

***Independent Living Aids, Inc.

***Science for the Blind Products

2) Classroom Talking Calculator with Earphone. For situations where auditory output is undesirable. ($75.00)

***Sharp

3) Graphic Aid for Mathematics. Cork, board, wires, pushpins and rubber bands form geometrical and other mathematic figures necessary for study of arithmetic to calculus.

***American Printing House for the Blind


***Canon
5) Speech Plus Calculator. Six basic functions; repeat Speech key; 24-word vocabulary. Earphones; lightweight. Designed specifically for blind users.

***American Foundation for the Blind

6) Tactual Display. Fits most devices with LED display. Figures are read by fingertip translation metal touch-points; 12 digit capacity.

***Projekt AB ALEA

7) Talking Calculator. Pocket-sized. Reads out in whole numbers or digit by digit.

***Sharp

8) Talking Clock/Calculator. Slightly bulkier than regular portable calculator.

***Sharp
Computers

1) Braille Terminal. Asynchronous, serial character embossing device; 10 characters/s speed, 26 alphabetic, 10 numerics, other symbols. Standard braille dot dimensions. EIA, TTY interfaces modes. Keyboard and acoustical coupler built in.

***Triformation Systems, Inc.

2) Embosser Model ISE-1: the Interactive Strip Embosser. Braille computer terminal. 10 characters/s speed; uses strip paper tape. Uses other data sources such as cassettes; equipment and training options.

***Triformation Systems, Inc.


***Printronix, Inc.

4) Optacon. Scanning/translation to braille. See BRAILLE page 2.

***Telesensory Systems, Inc.
5) Sensory Quill. Stylus produces raised image wherever touches paper or plastic. For both drawing and reading maps, graphics, etc. Comes in both institutional models and personal models.

***Traylor Enterprises, Inc.

6) Total Talk Full Speech Computer Terminal. Unlimited vocabulary; inflected voice. Speaks information as it is sent or received or by cursor location. Uses Hewlett-Packard 2621A Interactive Terminal. Speech synthesizer, CRT screen and control knobs in one unit. Cable-attached keyboard. Earphone jack.

***Maryland Computer Services

7) Versabraille System. Records braille on cassette tape and displays braille on 20 character line. Audio tape recorder for recording braille and sound on same tape; automatic indexing and retrieval system. Options.

***Telesensory Systems, Inc.
**Hand Tools - 1)** Audible Meter Reader. To be connected to any type of pointer-meter device. Self-contained; terminal wires on back.

**DIRECTIONS ON MANUFACTURE.**

***Rehabilitation Engineering Center
Smith-Kettlewell Institute***

2) Audicator Multi-Purpose Sensor. Light sensor; clip leads for checking electrical functions; liquid level probes. Uses 9-V battery.

***Science for the Blind***

3) Auditory Oscilloscope. Gives frequency, amplitude and temporal information. Circuitry can be internal or attached externally.

**DIRECTIONS ON MANUFACTURE.**

***Rehabilitation Engineering Center
Smith-Kettlewell Institute***

4) Drill Guide. For use on wood, metal or plastic. 13 set positions; sizes from 1/16" to 1/4". Non-slip base.

***Stanley***
5) Protractor. Raised dots at each 5°, double raised dots at each 10° and three dots at 45°, 90° and 135°. 3" radius; 6 1/2" pointer.

***American Foundation for the Blind

6) Protractor and Saw Guide. Ribets serve as single raised dots, with double raised dots at 30° and 60°, and three dots at 0°. Slightly depressed lines. Steel arm 18" long; protractor 9 1/2".

***American Foundation for the Blind

7) Rule. Calipher rule. Single raised dots every 1/8"; double dots at 1/2" mark and three at 1" both inside and outside of sliding jaw. Stationary jaw has double raised dot measurements on inside and outside. ***Stanley [Science Products for the Blind]

8) Rule. Rotomatic and Telescopic Click rules. Aluminum. Rotomatic Rules has tactile marking every 1/2" on one side; Telescopic also clicks at each 1/16".

***American Foundation for the Blind

9) Rulers. Plastic, wood, steel, aluminum or brass. Raised lines or dots or slots or notches to indicate measurement.

***American Foundation for the Blind
10) Rulers. Metric/English-measurement ruler: one and 1/2 centimeter markings; black plastic. English-measurement ruler: black plastic. Glue-Down Rule: brass for epoxy bonding to cutting boards, sewing machines, etc.

***American Printing House for the Blind

11) Saw Guide. Fixed element has raised dots on left and right sides; markings at 45°, 90° and 45°. Moving element has single reference dot. Can be set any 15° point between the 45°s and 90°.

***Stanley

12) Screw Starter. Handled scedriver blade with screw slot, then screw, gripping center. Withstands 15 lb. pull. 6" blade.

***American Foundation for the Blind

13) Speed Soldering Iron. Heats in 10 seconds; cools so quickly that work can be fashioned by touch while iron is cold. Nickled wire soldering element. For use on AC only.

***American Foundation for the Blind
14) Square. Combines removeable rule, outside tri-square, inside tri-square, mitre square, depth gauge and marking gauge. Single raised dots every 1/8"; double at 1/2"; and three dots at every 1". Scriber kept in bottom of handle.

***American Foundation for the Blind

15) Talking Meter.
Provides speech output for any digital multimeter with Intersil ICL 7107 component.

INSTRUCTIONS ON MANUFACTURE,

***Rehabilitation Engineering Center, Smith-Kettlewell Institute

16) Tire gauge. Standard gauge modified with notches on project pressure rod.

***Science for the Blind
Directions For:

Aligning a Handsaw: A carpenter's square is set atop the wood to be cut, and used to position the saw and guide a straight cut.

Information provided by R.A. Weisgerber, American Institutes for Research in the Behavioral Sciences.

Making a Table Saw Guide: Device shown was made of plastic water pipe, cut in different lengths from 1/2" to 8", and grooved for inch measurements with a 3-sided file. To be used to measure length or width.

Information provided by William Peters, Sterling IL, and contact person Russ Gage, Milwaukee WI.
Telephones - Tele-Tac. Reads lights on multi-line telephones. Raised pin signals busy line; bouncing pin signals hold; rising and falling pin indicates ringing line.

***Science for the Blind Products

Watches, Clocks

1) Low Vision Copal Digital Clock. 2" high numbers, white on black. Uses one D.C. 1.5 V battery. Green 'on' light. Time set by turning knob.

***Independent Living Aids, Inc.

2) Low Vision Wall Clock. Quartz. One and 1/4" numbers, white on black.

***Independent Living Aids, Inc.

3) Talking Time. Pocket-sized, with alarm, timer and stopwatch. Melody alarm; speech output for time every hour or half-hour.

***American Foundation for the Blind
4) Tick-Tac Digital Clock, and Alarm Clock model. Also comes with 10-minute buzzer.

***Science Products for the Blind

5) Travel Alarm Clock. White with 3 raised dots at 12:00; double dots and single dot markings.

***American Foundation for the Blind

B. Watches

1) Men's Quartz Electric Wrist Watch. Swiss-made; battery replacement once a year by jeweler. Gold hands and gold electroplated case; genuine brown lizard strap.

***American Foundation for the Blind


***American Foundation for the Blind
A Catalog of Commonly-Used Products for Deaf Persons or Those with Hearing Impairments

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**COMMUNICATIONS**

**Am-Com I (TTY)** - Compatible with pay phones, automatic phone answering equipment, etc. 900-character built-in memory; unlimited memory with supplementary tape recorder. Automatic TTY emergency messages for police (key 1), fire (key 2) and ambulance (key 3). Battery-operated.

***American Communication Corporation

Ampli-Sound - Transmitter broadcasts over little-used FM frequencies (no FCC licence necessary). Enables hearing-impaired persons to pick up sermons, movie soundtracks, etc., on AM pocket radio and headphones.

***Ampli-Sound

Bejed Pioneer Sound Probe -

Portable unit plugs into telephone receiver. Sound probe lamp flashes once for yes; two for no-no. Phone receiver can also be tapped for flashes response. Person using microphone must be able to speak.

***Oregon Chapter #31, Telephone Pioneers of America
Bodai Patient Communicator -

Whole word or by-letter talk line. 96-character memory. Can transmit and receive between units. Battery or line powered. Spanish to English translation with keyboard overlay.

***Sonteck Medical, Inc.

Cannon Communicator - For persons with reduced oral and/or motor skills. Requires motor control and spelling ability. 7-hour battery pack charge. Lightweight.

*Telesensory Systems, Inc.

Infrared Listening System - Amplification device. Transmitter sends infrared light containing audio signals for headset or hearing aid adapter. Home use and public address systems available.

***Sound Associates

Light Signal Devices for the Hearing Impaired -

Room system KE Notifier Series. Sensitive control (jack for phone pickup) for baby cry sound pickup; door bell pickup; heat sensor fire alarm; etc., attached to room's power cord.

***Devices for the Hearing Impaired

Lightwriter - Portable keyboard with newsstrip. Typewriter layout; removeable display.

***Toby Churchill, Ltd.
Manual Communications Module - 32-character display; backspace, clear and shift keys. Automatic line control. Power supply indicator; battery and AC operated. Compatible with TTY.

***SSI of Georgia

Manual Communications Module/Printer -

Full-size printer. 60 WPM, 48-character line capacity.

***SSI of Georgia

Pocket Phone II - Battery powered. Standard typewriter keyboard. Portable. Compatible with all TTYs and TTDs.

***C-Phone, Inc.
Porta-Tel - TDD/TTY compatible. Portable; uses house current, rechargeable or alkaline batteries. Optional carrying case. Company will finance.
***Sound Barrier, Inc.

Porta View 32 - Lightweight. AC or battery-operated. Backspace key for errors.
***Krown Research, Inc.

Sony Typecorder - Synthesized speech for phone-usage and lecturing. 40-character keyboard with correct, add and delete keys. Steno key vocabulary. Stores one page for transmission; 120 pages can be saved on cassette. Battery-operated; in attache case.
***Rehabilitation Engineering Center, Children's Hospital at Stanford
Soundcaster - AM radio broadcaster for cassette recordings. Also converts FM through car or home speakers, and amplifiers TV sound.

***Soundcasters

Superphone -

***Ultratec, Inc.

Superphone - Baudot 5-level and ASCII 8-level codes; 1024-character memory. Emergency batteries. Full-size keyboard.

***Applied Communications Corporation

System 100 Communicator - Lightweight "teletype." No wiring required. Simultaneous transmission of typed words. Printer for hard copy and pre-storage of messages.

***SSI of Georgia
Ultratec Minicom TDD - Full-size 35-key keyboard; 20-character display. Signal light for dial tone, busy and ringing. AC or battery operated. Carrying case optional.

***Weitbrecht Communications, Inc.

Vibrating Pager - Strong vibration warning from pager which is clipped to belt or clothing.

***Motorola Radio, Inc.

VIP Communicator -

Line-feed for printing TTYs; automatic carriage return; backspace key; signal light; and clear key. Repeat emergency key. Optional Talking Pocket clip-on newssline repeating words typed on VIP. Battery or AC operated.

***Automated Data Systems, Inc.
Vis-I-Con - Interactive media-based micro-processor and screen system. Programmable memory for instruction control. Uses super-8 film cassettes. Can stand alone, or function as computer terminal or host system.

***Learning Technology Institute

Vu-Phone TDD - Full-size standard keyboard; 32-character display. Portable; battery or power operated. 700-character memory, more with tape recorder.

***Plantronics
PHONE AIDS

Pone-A-Lert - Wire for 4" sensor box attaches to phone with suction cup. Can use more than 250' of wire to rooms in house, yard, etc. Comes with 40' of wire.

***Joan Cook


***Phone-TTY, Inc.

Nuvox Telephone Amplifier - Attaches to receiver. Amplifies; built-in adjustable volume control. Portable. Will not work on General or Trim Line phones.

***Hal-Hen

Nuvox Telephone Coupler - Must be used with a hearing aid. Creates inductive field for hearing aid telecoil.

***Hal-Hen
Phone Aid - Volume control for amplifier. Portable. Uses AA battery.

***Joan Cook

Talking Telephone Directory - Desk top computer with keyboard, speech box with connecting cables, visual display and printer. Responds vocally and visually with information when name is typed.

***Maryland Computer Services

Telenote - Voice graphic communication system. Written information is transmitted to one or many receiving points. Oral relay also possible.

***Talos Systems, Inc.

Telephone Amplifier - Loudspeaker broadcasts phone messages; no hands required. Suction attachment. 3' cord. Uses 9-V battery. Box roughly 2" X 4".

***Walter Drake
Telephone Attachments - Telephone Amplifier increases both incoming and outgoing voices. Volume adjustment on hand set cradle. Phone Holder Hand Clip wraps around phone hand set. Touchables fit over standard phone keyboard. Oversized numbers; large buttons.

***Maddak, Inc.

Telephone Signallers - Alarm-Alert

SEE SECURITY SIGNALLERS

Flashing Systems, Inc.
KE Series
Multi-Purpose Signaler System
Sonic Alert
Sound Lamp & Super Sound Lamp
SECURITY

A. CLOCKS

1) **Auto-Digital Vibrating Alarm Clock Kit.** Digital clock and heavy-duty bed vibrator.
   
   ***Hal-Hen

2) **Bed Vibrator.** Low voltage. Use with alarm clock, baby cry or telephone signaller.

   ***Phone-TTY, Inc.

3) **Bed Vibrator with Variable Speed Control.** Mounts under bed frame or on headboard. Red 'on' light. Plugs into "Moonbeam" clocks. Can be used as massage.

   ***

4) **Electro Alarm Clock Kit.** Portable; uses single C-type cell battery. Detachable pillow vibrator.

   ***Hal-Hen
4) **Moonbeam Clocks.** Soft flashing light panel. Buzzer alarm follows. Built-in receptacle at back of clock. Comes in dial face; dial face with top switch; and digital models.

***SSI of Georgia

5) **Portable Wake Alarm Kit.** For use with any type alarm clock. Control Center, connecting cable and pillow vibrator. Uses two standard D-cell batteries.

***Hal-Hen

6) **Wake Up Clock.** Digital timer. Includes flasher module. Two rear outlets for bed vibrator and flashing lamp.

***Phone-TTY, Inc.
C. SIGNALLERS

1) **Alarm Alert.** Also all-purpose signaller. Single or double channel control centers. Options include: pillow vibrator; microphone; induction pick-up for doorbell and telephone; extra cable; and signal relay.

***Hal-Hen

2) **Baby Cry Signaller.** Lamp or bed vibrator plug at back; can also work with Phone TTY wireless transmitter. 20' sensitivity radius. Picks up dog barking as well. Not affected by street noise or conversation.

***SSI of Georgia
3) **Flashing Systems, Inc.** Wireless baby cry signaler: plugs into nearest outlet to crib; transmits to lamp or bed vibrator plugged into similar outlet attachment. **Doorbell devices also work with outlet attachment.** Remote control receiver flashes light whether lamp is on or off; can be used in every room; walnut finish.  

***Flashing Systems, Inc.

4) **High-Intensity Doorbell.** For the hard of hearing: 88 decibels at 3'. Low-voltage; 4" size.  

***Hal-Hen

5) **KE Series.** Circuit relay devices for Baby Cry and Door Bell light(s). Extension cords must be furnished to room where transmitter located.  

***Devices for the Hearing Impaired
6) **Multi-Purpose Signaler System (SU-4)**. Magnetic pick-up coil attaches to doorbell or chiffé, with microphone for baby crying, dog barking, clock alarms, door knocks. Portable. Remote control transmitter also available.

***Applied Communications Corp.

![Image of Multi-Purpose Signaler System (SU-4)]

7) **Portable Doorbell Accessory Attachment**. For use with Electro-Alarm Clock (kit). Cable connects from clock to door. Uses own battery-power supply.

***Hal-Hen

![Image of Portable Doorbell Accessory Attachment]

8) **Sonic Alert**. Sensors pick up sounds, flash codes. No wires needed; control unit, e.g. for bedroom. Portable.

***Sound Barrier, Inc.

![Image of Sonic Alert]
9) **Sound Lamp with One Microphone.** Uses standard house current. Sound-to-light conversion for doorbell, door knocks, etc.
   ***Hal-Hen

10) **Super Sound Lamp with Two Microphones.**
    Same as Sound Lamp.
    3' and 25' microphone cord length.
   ***Hal-Hen

11) **"Talking" Exit Signs.** For use in all public buildings.
    Multi-message and single message formats. Programmed logic feature deducts and broadcasts priority message in multiple emergency situations.
   ***Exit-Us, Inc.

12) **Universal Doorbell Signaller.** On-off flash for front door; steady glow for back door. Wireless. Can be connected with other signallers.
   ***Phone TTY, Inc."
D. SIGNALLERS, PROTECTIVE

1) Panic/Pager Transmitter. Panic button automatically triggers all flashing alarms. Push again to stop. Portable. Optional alert signals in other rooms.

***Flashing Signal Systems

2) Smoke Detectors. Hard-wired (up to five detectors) requires electrician to install. Wireless can be plugged in; uses 120-V house current; can be attached to bed vibrator. Horn receiver option for broadcast of alarm into neighbor's house.

***Flashing Signal Systems


***Flashing Signal Systems
E. TYPING

1) **End-O-Line Lite.** Green light comes on at same time as end-of-carriage bell.

***Typewriting Institute for the Handicapped***
**SPEECH SYNTHESIZERS**

Echo and Echo - Echo requires Apple computer and 48 or //e disk drive. Converts text to words. Contains over 400 language and pronunciation rules. Both hardware and software required. General purpose Echo unloads host computer.

Street Electronics Corporation

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Phonic Mirror Handivoice - Sound (blowing, clicking, etc.); Pedal (hand or foot); Touch (head or hand operation); and Leaf (chin or arm movements, etc.) switches activate preprogrammed words, sounds or phrases.

***HC Electronics

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Say-It-All - Keyboard size speech synthesizer. Attaches to computers and printers with RS-232 connectors. Battery-charger. Words or phrases.

***Innocomp
**Vocaid** - 4 overlay panels contain 140 words, numbers, phases. Emergency messages for phone. Leisure overlay facilitates playing games.

***Luminaud

**Voice-Mate** - Bilingual "Yes" or "No" response unit. Answers in child's voice. Uses 9-V battery.

***TASH
A Catalog of Commonly-Used Products for Deaf-Blind Persons

I. Communications.......................... 1

II. Sensors.................................... 1

III. Miscellaneous............................ 2
Communications - 1) Tac-Com. Cigarette-pack size transmitter produces tactile vibrating signals. Can be used as doorbell/telephone signaller, for end of braillewriter alarm, etc. Battery-operated.

***Sensory Aids Evaluation & Development Center, MIT

2) Tactile Communicator. Vibrating radio paging system. Clock-radio sized transmitter; pocket-sized receiver. Five channels with priority levels; two uncoded. Call button for tapping messages. Battery-operated; battery-saving circuit.

***Helen Keller National Center

3) Tellatouch. Standard typewriter keys plus 6 braille-writer type keys. Indention at back of machine for feeling braille as it is typed. Does not produce print.

***American Foundation for the Blind

Sensors - 1) Mowat Sensor. Detects objects within a narrow range, scanning like a flashlight. Vibrates when object detected. For use with guide dog or cane.

***Wormald International Sensory Aids

2) Portable Wake Alarm Kit. Uses any type alarm clock. It contains Control Center (5-second power-on surge when alarm activated); cable and pillow vibrator.

***Hal-Hen


***Hal-Hen
Misc. - 1) Klik-Lok Padlock. Combination lock works with parallel levers. Can be opened by feeling clicks.

***Science Products for the Blind

2) "Turnabout" game. Strategy game for two players.

***Science Products for the Blind
A Catalog of Commonly-Used Products for Persons with Spinal Cord Injuries

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CUSHIONS

**Bedfoam** - 3 x 36 x 74.

***Dave Harrison Products

**Para Cushions** - Foam; seamless covering. Sheepskin and cotton covers included, or cushion only or with one kind of cover. Shifts weight to thighs.

***Preston Corp.

**ROHO Mattress** - Interconnected air cell mattress. Optional holes for urine drainage.

***ROHO

**Seat Cushions** - DC/battery operated control unit provides surface movement in air cells. All cells and air tube replaceable. Cushion ties in place.

***Huntleigh
A. Flatwear

1) Holders

a. **Comfort Utensil Holders.** Elastic band; pouch with Velcro closure allows varying utensil length. Sizes small, medium & large; 3 colors. Washable.
***Fred Sammons, Inc.

***Fred Sammons, Inc.

c. **Quad Utensil Holder.** Velcro look with thumb hole and "D" ring. Wood base angles spoon away from palm. Washable. One size fits all.
***Nelson Medical Products

d. **Quad-Quip Utensil Holder.** Velcro loop with thumb hole and "D" ring. Plastic base angles spoon away from palm. Washable. One size fits all.
***Fred Sammons, Inc.
e. **Quad-Quip Dorsal Feeding Splint.** Plastic-coated steel splint with palmar Velcro cuff. Adjustable wrist extension and angles.
***Fred Sammons, Inc.

![Image of Quad-Quip Dorsal Feeding Splint]

f. **Utensil Hand Grip.**
Spring action clip for both hand and spoon or fork.
***Theracare

![Image of Utensil Hand Grip]

g. **Wrist Supports.** Leather covered metal splints. Velcro closure. Comes with and without Plamar Clip; child, adult and large adult; and right and left-hand sizes.
***Fred Sammons, Inc.

![Image of Wrist Supports]

h. **"Your Utensil" Pocket.** Right angle; turnable. Holds most flat-handled table knives. Also sold as Palmar Clip (pictured below) with pocket.
***Fred Sammons, Inc.

![Image of "Your Utensil" Pocket]
2) Utensils

a. **Angle-Handle Utensils.** Vinyl bicycle grip.
   ***Theracare

[Image of utensils]

b. **Built-Up Handle Utensils.** Vinyl bicycle grip.
   ***Theracare

c. **Built-Up Handles** flatware. Foam padded.
   Dishwasher safe.
   ***Fashion Able

[Image of utensil]

d. **Horizontal Palm Self-Handled Utensil.** Bendable-adjustable plastic-covered hand grips. Available in teaspoon; long teaspoon; soup spoon; and fork.
   ***Fred Sammons, Inc.

[Image of utensil]

e. **Quad-Quip Meat Cutter Knife.** Plastic-coated steel cuff; rocker stainless steel blade.
   ***Fred Sammons, Inc.
e. **Swivel-Handle Utensils.** Bowls swivel in large plastic handles. Available in baby spoon; teaspoon; and soup spoon.
   
   ***Med, Inc.

f. **Vertical Palm Self-Handle Utensil.** 90° bent. Adjustable plastic-covered handle; bendable utensil.

   ***Fred Sammons, Inc.

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**B. Tablewear**

1) **Accessories**

a. **Food Guard.** Welded stainless steel. Fits 9" to 11" plate.
   
   ***Nelson Medical Products

b. **Invisible Food Guards.** Clear snap-on plastic rings. Dishwasher safe. Large & small sizes.

   ***Be Ok

c. **Little Octopus Suction Holders.** Suction cups on each side of rubber base. 3" diameter.

   ***Fred Sammons, Inc.
f. Non-Slip Place Mats. Three sizes; non-slip material also available.
   ***Med, Inc.

   ***Nelson Medical Products

2) Cups/Mugs
   a. Clip-on Glass Holder. For wheelchair; stainless steel.
      ***Nelson Medical Products

      ***Fashion Able

   c. Even-Flo Cup. Can be used while lying on back or side. Vacuum-flow stops when not drinking. Flow adjustment; lid and spout prevent spilling. Molded nylon.
      ***Fashion Able

   d. Handi-Cup. No tools required for attachment. Also holds ashtrays. Straight arm or desk-type arm, left or right hand models available.
      ***Fashion Able
d. Helping Handles. 
Epoxy putty attaches to cups, faucets, etc. 
Hardens overnight. 
Can be painted or stained. 
***The Felix Co.

e. Insulated Mug. Foam insulation. 8 oz. capacity. 
Dishwasher safe. No color choice. 
***Be OK

***Fred Sammons, Inc.

g. Wheelchair Cup Holder with Cup. Cip-on. Dishwasher safe. Cup has lid with opening. No color choice. 
***Fred Sammons, Inc.

3) Plates, Bowls

a. Hi-Lo Aluminum Dish. High side is 2"; low is 3/4". 
8" diameter. Not for use in oven or on stove. 
***Fred Sammons, Inc.

b. Hi-Wall Plate. China. White or white with band. 
Sold singly or in sets of 10. 
***Be OK
***Maddak

***Be OK

e. Scooper Bowl. Rolled over side. 4" diameter. Dishwasher safe; removable non-skid vinyl base.
***Fred Sammons, Inc.

f. Tableware. Contoured melamine oval plates (2) and offset beaker. Light blue. Sold as set with rocker knife and left and right-hand spoons, polypropylene handles.
***Theracare
C. Systems

1) Arm Rest. Tilts forward and backward, swivels for eating. Plexiglass support, rod and drilled-for-fastening metal base. Support 7 1/4" long.

***Theracare

2) Independently Controlled Feeding Apparatus. Plate, moved by plate rotation knob, rests on laminated plastic base. Spoon-arm controlled by pad, release knob, and speed adjustment. Optional stabilizing knob for free hand. Detachable plate and spoon.

***Orthopop

3) Quad-Quip Feeding Aid Kit. Two-tier base tray with adjustable vinyl pie to hold scooper bowl, partitioned melamine plate, sandwich holder, utensil holder. Base holds cups and glasses. Unassembled; non-portable.

***Fred Sammons, Inc.


***Winsford Products, Inc.
A. Bathing

1) Bath Cushions & Belts. Cushions are air-inflated rubber; belts are soft, waterproof fabric with two handgrips.
   ***Med, Inc.

2) Curved Bath Brush. 180° curve.
   ***Be OK

3) Hand-Held Shower. On-off bar in handle. 6' flexible hose. May be attached to shower or tub spout.
   ***Med, Inc.
4) **Hand Rails & Grab Bars.** In stainless steel, white or sand. Not all types in all colors.

***Med, Inc.

5) **Majic Soaper Bath Brush.** Holds bar of soap in sponge of brush.

***Med, Inc.

6) **Quad-Quip Wash Mitts.** Terry cloth with Velcro wrist closure; thumb unlockable. Available in large, small and medium sizes.

***Be OK

7) **Super Soaper.** Terry cloth sling. Thumb holes.

***Med, Inc.
B. Chairs


***Med, Inc.

2) Shower Chair/Commode for High-Level Paralysis. Height-adjustable swing-away footrests; seat 23 1/2" off floor. 24" rear wheels with toggle brakes. Cut-outs for self-care.

***Med, Inc.

3) Shower/Commode Chair. Detachable, pivoting arms. Designed for narrow doors. Foam-cushioned, urine-proof seat. Can be used over stationary toilets or as portable commode.

***Everest & Jennings
C. Grooming

1) Adjustable Extension Grooming Kit. Oval-shaped handles for single or two-hands grip. Six attachments: bath brush; long-handled bath brush; washcloth; comb; pig's bristle hair brush; nail file.

***RFSU Rehab

2) Built-Up Handle Toothbrush. Foam.

***Be OK

3) Hair Brush with Velcro Handle. Plastic teeth; washable. Locks firmly to hand.

***Be OK

4) Soft Built-Up Handle Comb & Hair Brush. Foam.

***Be OK


***Be OK
D. Hygiene

1) Accessories
      ***Nelson Medical Products

      ***Fashion Able

   c. Para Inspection Mirror. Long-handled head mirror for inspection of pressure areas. Folds.
      ***Be OK

   d. Quad-Quip Lighted Inspection Mirror. Floor-based; lamp and mirror on flexible metal tube can be angled separately. Uses 6-V battery.
      ***Be OK

   e. Rails. Stainless steel for toilet compartments.
      ***Med, Inc.

***Nelson Medical Products

Toilet Aid. Plastic. Spring clip with grasp loop.

***Be OK

Urinary Deoderant, Detergent. For daily washing of bags, tubing, etc.

***Nelson Medical Products.

2) Toilets


***Duro-Med Industries, Inc.
***Activeaid

3) Urinals

***Woodrow Wilson Rehabilitation Center

b. Drip Urinal. 5 oz. capacity. Built-in sheath.  
***Nelson Medical Products

c. External Catheter. Latex pouch; leakproof. Attaches to any type leg bag or drainage system. Reinforced funnel design prevents twisting and shut-off.  
***Medi, Inc.

***Nelson Medical Products
e. **External Catheter Instruction Kit.** Included 1 completed catheter; 1 piece tubing; 6 prophylactics; 2 reusable plastic inserts; and 6 foam straps. Detailed instructions. Assembly tool also sold for assembly with less than average hand strength.

***Nelson Medical Products***


***Fashion Able***

![](image)

g. **Femex Female External Urinary Catheter.** Catheter is bonded with adhesive; may be retained 1 to 2 days and reused after cleaning. Attaches to leg or bed bag.

***Medoc Corp.***

h. **Latex Leg Bag.** Leakproof, lightweight. Adjustable rubber straps. Bottom fitting serves as drain.

***Nelson Medical Products***

![](image)

j. **Male Urinal with Cover.** Grip handle. One qt. capacity. Both sterilizable and non-sterilizable models.

***Duro-Med Industries, Inc.***

k. **Male Urinals.** One size fits all. All-washable; snap-off sheath. Elastic waistband. One-way valve prevents fluid return.

***Duro-Med Industries, Inc.***
1. **Urinary Leg Bag.** Leakproof disposable plastic with rubber straps. Sterile.

***Medi, Inc.

m. **Urinals.** Heavy duty polyethylene with handles. Lids. Can be sterilized. In male and female models.

***Nelson Medical Products
REACHING, CARRYING, HOLDING

A. Carrying & Holding

1) Built-Up Pencil & Crayon Holder. Thumbscrew adjustment holds chalk to small art brushes. Wood. Sold singly or in sets of 6 with stand.

***Nelson Medical Products

2) Glass with Holder and Lid. Broad-base polypropylene holder with supporting lip for second-hand holding. Can be carried by handle or between handle and glass. Sealing snap-down lid with spout. Insulated glass.

***RSFU Rehab


***Ulico, Inc.

4) Jaws Clamp Tray. Horizontal and vertical clamping by squeeze lock and fingertip release. 51 sq. inch table area. Sand color.

***Ange Co.
   ***Nelson Medical Products

6) Key Holder, Deluxe Adjustable. Plastic frame with spacers for 1 to 8 keys. Adjustable tension. Leather thong loop.
   ***Be OK

7) Klick Pencil Holder. Two rollers and jaws click to grip. Screwdriver adjustment and lock.
   ***Be OK

8) Mouthstick Docking Station Kit. Platform base; non-skid cushion pad. 6" and 13" goosenecks. 2 or 3 mouthstick holder sizes.
   ***Adlib, Inc.

   ***Adlib, Inc.
10) **Quad-Quip Phone Holder.** Plastic-covered metal frame; bendable adjustable. Velcro closure fastener.  
***Be OK

11) **Sure-Grip Glass Holder.** Provides handle. Stainless steel; plastic-covered handle. Thumbscrew adjustment.  
***Be OK

For additional information on glass holders, etc., see Eating, pages 7-8.

12) **Wheelchair Beverage Holder.** Armrest upright and front bar clip-on holders. Plastic; Velcro closure for different-sized containers. Blue, brown or beige.  
***Adlib, Inc.

***Fashion Able

14) Wrap-Around Pen and Fork Holder. Leather index finger cuff and Velcro strap with thumb loop.

***Be OK
B. Reaching

1) Angle Arm Reacher. Swinging grab arm; built-in control to prevent retrieved objects from striking wrists. Tongs open to 3 3/4"; rubber-lined. Aluminum; plastic handle and trigger. Weight 12 oz. @B

***Fred Sammons, Inc.

2) Contour. Conforming rods. For doorknobs, keys, etc.

***Hugh Steeper Ltd.

3) E-Z Reach. In 20" and 30" lengths. Aluminum. Pick-up to 2 lbs. Weight 9 oz. Also available in 27" length with magnetic tips. @A

***Nelson Medical Products

4) Folding Reacher. 22" long; weight 6 oz. Magnet at end of jaw.

***Homecraft

5) Folding Reacher. 19" long. Magnet.

***Be OK

6) Giant Tongs. Chrome-plated; serrated jaws. Large hand grips. 15" long.

***Be OK
7) **Grab-All Extension Arm.** Rubberized grippers. In 29 1/2" and 42" lengths. @A
***Homecraft

8) **Hawkbill Reachers.** Wood and aluminum. Pointed rubber jaws. Plastic-coated "spur" opposite jaws pulls or pushes. In 20" and 24" lengths. @A
***Fred Sammons, Inc.

9) **Helping Hand.** Trigger clamp. 26 1/2" long; weight 5 1/4 oz.
***Theracare

10) **Hook.** 18" long.
***Nelson Medican Products

11) **Knob Turner.** Rubber cup with wood cross bar. Fits over Yale-type locks.
***

12) **Light Switch Extension.** Push rod up to turn light on, down for off. Plastic. 14 1/2" long.
***Be OK

13) **Magnetic Pick-Up.** Telescopic handle. Ball joints position in any angle. Extends to 26 3/4". @A
***Edmund Scientific
14) **Pistol Grip Reacher.** Minimal finger strength required. Rubber padded claw. Plastic-coated steel tube and handle; plastic claw. 25" long; weight 7 1/2 oz.  
***Be OK

15) **Reacher.** Designed for one-hand use. Wood shaft; metal working parts. Weight 9 oz.; reach 31".  
***Fashion Able

16) **Rehab. Reachers.** In 6 oz./26 1/2" and 8 oz. 32 1/2" models, with magnets or attachment clips for walkers, etc., or modified trigger mechanism for limited dexterity. Also folding model.  
***ConMed Equipment Corp.

17) **Rubber Doorknob Extension.** Gray.  
***Fred Sammons, Inc.

18) **Steel Doorknob Extension.** Three mounting screws. Bronze finish.  
***Fred Sammons, Inc.

19) **Tongs.** Rustproof. 15" long.  
***Fashion Able

20) **Top Shelf Reacher.** Scissors grasp. Chrome-plated with finger-like rubber grips. 21" reach.  
***G.T. Water Products, Inc.

21) **Walking Stick with Remote Pick Up.** Remote, magnetic gripper. Available in lengths 30" to 35".  
***
TRANSFER

Bath Chair Lift - Hydraulic. Fits any tub. Can be attached in minutes, removable.

***Theracare

Drualift 500 - Uses house current. Push button control; switch hangs free of 4-strap lift. Steel and aluminum track system supports 500 lbs. Ceiling or free-standing mounting.

***Tergo Corporation

LIC Lift-Transfer System - Wheeled device; hand crank lifts, lowers and transfers person being transported. Single lifting seat strap; chest and arm supports.

***Century Manufacturing Co.


***Carters (J&A) Limited

***Ballert Orthopedic Corp.

SE 400 Transfer Lift - Free-standing or ceiling mounted. Supports 400 lbs. Control box on separate line has nightlight, bump guards, can be operated by finger or chin. 4-strap support. Also comes in DL 500 model with override. Ground fault interrupter for use near water.

***Independent Transfer Equipment Corp.

Sliding Board - Maple. Ends tapered to 1/8". 8 X 30" long.

***Fashion Able
Transfer Boards - 7 1/2" X 27" wood with wood-grained plastic top, tapered ends, model. Also model with swivel hinge for non-slip use with wheelchair with removable armrests (shown).

***Nelson Medical Products

![Transfer Board Image](image)

Trapeze - Swivel trapeze is mounted on bed, comes with wall bumper. Can be locked into five positions.

***Medfurn

![Trapeze Image](image)

Trapeze Bars - Vinyl-coated clamps, wall bumper included. Adjustable upright and grab bars. Swivel clamp option, locks into five positions. Standard and heavy-duty models. Supports 250 lbs.

***Theracare

![Trapeze Bar Image](image)
A. Bags, Pouches, Etc.

1) Carry-All. 2-compartment tote with swingaway arm. Model for wheelchairs and for crutches and walkers.
   ***Harriet Carter

2) Carrying Bags. 14" X 14" bag attaches to back of wheelchair. Black or blue demin vinyl.
   ***

3) Foremost Pouch. Fits on front of all wheelchairs, adjustable for brake, wheel and armrest types. Velcro closure. Vinyl leather in black, brown and tan.
   ***Madison Pouch Co.

4) Have-A-Tray. 2-compartments; swing away motion. For wheelchairs, crutches, walkers. Blue, black and brown.
   ***Ulico, Inc.

   ***

6) Side Pouches. 6" X 13". Fits wheelchair with standard armrest. Blue denim or black vinyl.
   ***

7) Spanners. Nylon. Available in large and small back packs; side totes; and walker packs. In royal, red, tan, green and black.
   ***Spanners
B. Miscellaneous Accessories

1) Brush. Stretchable handstrap; stores on brake lever. Curvature fits solid and inflated tires. ***D.B. Products Co.

2) Castor Lock with Quad Extension. Locks in trail position for transfer. ***Med, Inc.

3) Power Drive. Power drive mounts at back of chair; batteries below seat. Portable. Manual controls include hi-lo speed switch, horn, battery meter, and telescoping arm mount. ***Damaco, Inc.

4) Rocker. Rocking platform mounted by doing a "wheelie"; turnbuckle lock. Ramp system for quadraplegics. ***Woodrow Wilson Rehabilitation Center
5) **Speed-Lock Restraint System. Manual emergency release.**
Uses existing wheelchair battery. Exact positioning with automatic stops.

***Target Industries

6) **Tires.** Flatproof inner tube; Lite-Ride [solid]; and Sports-H.P. [solid and pneumatic].

***Wilson Wheel & Tire Co.

C. **Rests, Cushions, Etc.**

1) **Adapta-Belts.** Instant push release. Plastic unbreakable buckle. 1" poly-web. Washable.

***Modular Medical Corp.

2) **Armrests.** Warm to the touch; non-slip; slightly yielding. Two sizes; three colors. Guaranteed for 99 years.

***Theradyne Corp.

3) **Deluxe Adjustable Armrest.** Foam, steel and wood. Removable cordury cover. Adjustable; fits standard removable arm wheelchair. @B

***Fred Sammons, Inc.**
5) **Heel Loops.** Fits all wheelchairs. Heavy webbing.  
***Nelson Medical Products

6) **Heel Loops.** Naugahyde covered.  
***Med, Inc.

7) **Knee Separators.** Padded heavy plastic. Flexible.  
***Med, Inc.

8) **Leg Strap.** Heavy webbing; adjustable Velcro closure.  
***Nelson Medical Products

9) **Pedal Pads.** Secured with Velcro. Thick kodel.  
***Nelson Medical Products

10) **Push Kufs.** Cowhide. Crepe palm for traction. Pairs, or left or right; two sizes; thumb or thumbless.  
***Scimedics, Inc.

***Scimedics, Inc.
13) **Self-Centering Headrest.** Foam rubber padding. Attaches to back uprights of chair.

***Med, Inc.

14) **Solid Seat and Back Inserts.** Padded, vinyl covered inserts. Can be ordered to match chair upholstery.

***Med, Inc.

15) **Tiny Tot Headwings.** Attach to the back uprights of the chair.

***Med, Inc.

D. **Trays**

1) **Desks.** Strong enough to hold typewriter or sewing machine. Woodgrain high-pressure laminate. School desk, slotted top, and cutout models.

***Theracare

2) **Range of Motion Tray.** For children; allows full range of motions. Curving design. Will pass through doorways.

***Med, Inc.

***Fred Sammons, Inc.

4) Table. Walnut finish formica top. Bib front fits between wheelchair arms. Leg assembly required.

***Duro-Med Industries, Inc.


***Duro-Med Industries, Inc.


***Hausman


***


***Consumer Care Products, Inc.
Controls - 1) **Auto-Mate Controls.** One hand mechanism—push to stop, pull to start. Can be self-installed; does not interfere with foot operation of car.

***Nelson Medical Products, Inc.

2) **Automatic Back-Up Steering System.** Back-up for steering system if engine stalling, fan belts broken or slipping, etc. Warning light indicates system automatically on; manual override.

***Target Industries

3) **Drive-Master Hand Controls.** Push to stop; pull to start. Self-installation; does not interfere with foot operation of car. Optional quad handle.

***Drive-Master Corp.
4) **Command Post Console.** 'Dashboard' accessory controls and switches mounted in console box fitting beside wheelchair. **Quad Console** also available; includes remote gearshift as well as dashboard controls. **Target Industries**

5) **Extended Steering Column[s].** Manufactured by:
   a) The Braun Corporation
   b) Drive-Master Corp.
   c) Target Industries. Steel; steering column remains collapsible.

6) **Ford Factory-Fitted Hand Controls.** For Falcons and Fairlanes. Motorcycle twist-grip; optional lifting-action control requiring less strength. **Ford Motor Co.**

7) **Hand Controls and Assist Devices.** Include hand-operated clutch or brake; left hand shift lever; right hand turn signal; gear shift extensions for use with steering column extensions; and right or left hand controls system with horn button. **Wright-Way**

8) **Horizontal Steering.** Motorized articulating steering column; adaptable to all driving devices. Safety clutch; operates in any position. **Target Industries**
9) **Left-Foot Gas-Feed.** Accelerator pedal attaches to left side of driver’s floor. Adjustable.

***Wells-Engberg

10) **Parking Brake Extension.** Attaches to foot-operated parking brake. No drilling required to attach.

***Nelson Medical Products

11) **Parking Brake Handle.** Folds forward to easy entrance and exit.

***Wells-Engberg

12) **Pneumatic Hand Control.** Detachable control box. Warning lights and alarm as well as "system go" light. Can brake and accelerate at same time. Push-pull unit, raised floor pedals unit options.

***Wells-Engberg

13) **Portable Control.** Attaches to pedals. Requires strong arms and hands to use.

***Handicaps, Inc.

14) **Quad Driving Control.** Wrist support adapter for hand control system.

***Handicaps, Inc.
15) **Slim Line Controls.** Left or right hand units; brake and throttle or throttle or brake only. Optional quad grip.

***Gresham Driving Aids, Inc.

16) **Spinners.** Manufactured by:

a) **The Braun Corporation.**
   Rotate on steering wheel platform; Tufted Palm Grip with hand brace;
   V-Grip with plastic handle cylinder; standard model Spinner Knob; Tri Pin grasps hand at wrist (pictured).

b) **Gresham Driving Aids, Inc.**
   5-second removable Spinner Knob; Flat Quad Spinner;
   Amputee Ring; Upright Quad Spinner, u-shaped; and Tri-Post Spinner models.

c) **Manufacturing and Protection Services Corporation.**
   U-shaped and knob spinners.

d) **Nelson Medical Products.**
   Open-top; knob; ring; post; yoke and push-button removeable knob (pictured).
e) Wright-Way. Round; Vertical Quad; Horizontal Quad; Ring; Tri-Pin; and Quad Strap Knob (pictured) models.

17) Vacuum Brake and Gas. Adjustable, control devices—adaptable mechanism. Low operating force required; designed for individual unable to use conventional hand controls. Emergency vacuum pump for throttle and brake back-up; automatic back-up braking system.

***Target Industries

18) Zero Effort Steering. Uses standard power steering pump; requires 8 oz. effort.

***Target Industries
Lifts -


***Crow River Industries, Inc.***

2) **Braun Lift-A-Way.** For rear or side exits. Control box may be mounted or held. Free-floating bridge plate. Electric, hydraulic. Safety-stop. Fits all vans.

**Braun Lifter.** Same as above, but with manual folding/unfolding ramp.

***The Braun Corporation***


***Freewheel Vans, Inc.***


***Golden Boy Sales Corp.***

5) **Magnetic Door and Lift System.** For person who cannot use key. Securable from unauthorized use. Less vulnerable to damage by vandals.

***Target Industries***

6) **Pulsar Remote Controls.** Single-button operation. Hydraulic and electric models. Fit Ricon, ABC, Braun, Collins, Target; customer controls also available.

***Pulsar Digital Systems***


***Ricon Sales Inc.***
8) **Safety Van Lift-II.** Side of van, swing exit can be used within parking space area. Control bar/guard rail and exterior switches. Hydraulic; uses van battery. Fully and semi-automatic models. Fits all American-made vans.
   ***Total Mobility Systems & Designs, Inc.

9) **SAF-T-LIFT.**
   ***Collins Industries, Inc.

10) **Superarm Lift.** No platform. Nylon rope and adjustable rings hold wheelchair from chest-high bar. Operating switch on lift arm. Electric, non-hydraulic, uses van battery.
    ***Handicaps, Inc.

11) **Superlift.** All electric, uses van battery. Manual folding and unfolding of platform can be performed by wheelchair user. Flip-Down option to move platform from side window of van.
    ***Handicaps, Inc.

    ***Drive-Master

13) **Target T500 Dual Entry Automatic Lift.** Large platform. Exterior, on-lift and driver position controls. Automatic end-stop. Single-cylinder hydraulic system uses 12-volt van battery.
    ***Target Industries

14) **Vangator.** Platform folds in half inside stepwell. Rear or side door exit, rotating platform. Electric, non-hydraulic. Fits all vans.
    ***Crow River Industries, Inc.

    ***P & Q Lifts, Inc.
Miscellanea - 1) **Braun Chair Topper.** Fits economy or standard cars. Uses car's 12-volt battery. Lifts folded wheelchair in 30 seconds. 57" X 51" X 18" high.

***The Braun Corporation***

2) **Clearance Signs.** Van sign is vinyl with adhesive back; car sign hangs in car window.

***Fred Sammons, Inc.***

3) **Econo-Ramp.** Fits rear or side opening, any van. Lightweight, folds for storage.

***Collins Industries, Inc.***

4) **Emergency Help Sign.** "Need Aid" sign attaches to driver's window facing rear traffic.

***Handicaps, Inc.***

5) **Key Turners.** 4" or 10" lengths.

***Wright-Way***

6) **Pulsar.** Remote control activates car by frequency code. Will run car for 12 minutes; will deactivate after 15 seconds if car will not start.

***Pulsar Digital Systems***

7) **Remotostart.** Built-in burglar alarm. Works from 400' away.

***Drive-Master***
8) **Quad Key Turners.** 4" and 8" lengths.
   ***Handicaps, Inc.***

9) **Smooth Floor Covering.** Luan mahogany plywood for covering ridges in factory metal floors in vans.
   ***Drive-Master***

10) **Van Tops.** From:

   a) **Drive Master** - White fiberglass. 6'; 5' 4"; and 5' headroom sizes. Raised door openings also sold.

   b) **Target Industries** - White fiberglass top. 24" or 12" additional room. Raised door openings also available.

   c) **Viking Van Tops** - Sport; Camper and Mid-size models. Various styles.

   d) **Wright-Way** - Mini, 12", and Camper, 26", models. Raised doors also sold (shown).

11) **Wheelchair Loader.** Puts manual, folded wheelchair behind front seats of car. Uses car's battery. Also available for pick-up trucks. Pick-up loader also sold in do-it-yourself kit.
   ***Wright-Way***

***Wright-Way

The following companies do van conversion work in the Atlanta area:

Handicaps Mobility Systems, Inc.
4172 Railroad Avenue
Tucker GA
493-6870

R & R Van Lift Sales & Service
1126 Old Covington Highway SE
Conyers GA
483-0767
Seating - A) Accessories

1) **Automatic Wheelchair Lock.** Quad-operable, non-electric. Keeps wheelchair immobile in driving position.
   ***Drive-Master

2) **Drop Floor.** Lowers floor 4" full length and width of van. **Power Floor** elevator will lower driver's wheelchair area to 6" depth.
   ***Drive-Master

3) **Power Floor Elevator.** Includes center restraint device.
   ***Wright-Way

4) **Securement Systems.** 3-Point and 4-Point systems- straps attach at 3 or 4 separate points of wheelchair. Separate lap restraint belt. Includes belts and floor-mount bolt-down track. Components also sold individually.
   ***Crow River Industries, Inc.

5) **Tie-Downs.** Universal nylon strap quick-release; Ferno-Washington recessed center floor mount; Cam Lock over the center rear lock device; and Over the Center front mechanical style (pictured) models.
   ***Wright-Way
6) **Tie-Downs.** Single wheel, double wheel bars and center "T" tie-downs.

***Crow River Industries, Inc.

7) **Transfer Bar.** Behind driver and passenger seats.

***Wright-Way

8) **Upper Torso Restraint.** For both wheelchair and van seats.

***Wright-Way

9) **Wheelchair Cups.** Lower wheelchair height approximately 2". Prevent rocking.

***Wright-Way

10) **Wheelchair Seatbelt Holdown.** Long seatbelts tie through armrests. Angle iron prevents chair rocking.

***Handicaps, Inc.

11) **Wheelwells.** Lower height of wheelchair 1 1/2" to 2".

***Handicaps, Inc.
B) Seats

1) **Flip-Seat.** Seat folds up to hold wheelchair by both wheels. Has own seatbelt.
   ***Collins Industries, Inc.

2) **4-Way Power Seat.** Forward/back, up/down. Swivel option.
   ***Wright-Way

3) **Power SAF-T-Seat.** Uses van seat. Electrical track uses van's 12-volt battery. Remote control unit for forward/back movement. Optional Swivel Seat and Carrier (shown) for feet and legs.
   ***Collins Industries, Inc.

4) **Roll-Away Seat.** Track permits driving from van seat or wheelchair. Buyer must supply seat.
   ***Wright-Way
5) **6-Way Power Seat.** Single-wire connection.  
360° swivel. Independent height adjustment.  
***Target Industries

***Fred Scott & Sons
MANUFACTURERS LIST

for products listed in Catalogs of Commonly-Used Products
for Blind, Deaf, Deaf-Blind and Spinal Cord Injured Persons

A & B Home & Office Products
2305 North Fifth; Niles MI 49120
616-683-5757

ACTIVEaid, Inc.
501 East Tin Street; Redwood Falls MN 56283
800-533-5330

Adlib, Inc.
PO Box 905; Lakewood CA 90714
213-420-9448

American Communications Corp.
180 Roberts Street; East Hartford CT 06108
203-289-3491 (voice or TTY)

American Printing House for the Blind
1839 Frankfort Avenue; PO Box 6058; Louisville KY 40206
502-895-2405

Ampli-Sound - Terrad Enterprises, Inc.
One Lincoln Plaza; New York NY 10023
212-787-5452

Ange Company
1743 Yosemite Drive; Milpitas CA 95035
408-263-0359

Applied Communications Corp.
517 C Marine View Avenue; PO Box 555; Belmont CA 94002
415-592-1622 voice
415-592-1623 TTY

Automated Data Systems, Inc.
PO Box 4062; Madison WI 53711
608-257-1911

Ballert Orthopedic Corp.
2445 West Peterson Avenue; Chicago IL 60659
312-878-2445

Beneficial Designs, Inc.
5858 Empire Grade; Santa Cruz CA 95060

Be OK - Fred Sammons, Inc.
Box 32; Brookfield IL 60513
800-323-7305
The Braun Corporation
13710 49th Street North; Clearwater FL 33520
813-576-2737

Canon USA, Inc.
6380 Peachtree Industrial Boulevard; Norcross GA 30071
404-448-1430

Harriet Carter
Department 62; Plymouth Meeting PA 19462

Carters (J&A) Limited
Alfred Street; Westbury Wilts BA 133DZ, G.B.

Century Manufacturing Company
Industrial Park; Aurora NE 68818
402-694-2196

Toby Churchill, Ltd.
20 Panton Street; Cambridge, England CB 21 HP

Collins Industries, Inc. - Special Products Division
Box 58; Hutchinson KS 67501
316-663-4441

ConMed Equipment Corp.
1262 White Oak Road; Westfield NJ 07090
201-232-1205

Consumer Care Products, Inc.
6405 Paradise Lane; Sheboyan Falls WI 53085
414-467-2393

Joan Cook
3200 S.E. 14 Avenue; PO Box 21628; Ft. Lauderdale FL 33335

C-Phone, Inc.
553 Wolfner Drive; Fenton MO 63026
314-343-5883 (voice or TTY)

Crow River Industries, Inc.
1415 East Wayzata Boulevard; Wayzata MN 55391
800-328-3632
Damaco, Inc.
9612 Lurlene Avenue, Unit A; Chatsworth CA 91311
213-709-4534

Danmar Products, Inc.
2390 Winewood Avenue; Ann Arbor MI 48103
313-761-1990

D. B. Products Company
PO Box 216; Nehalem OR 97131
503-368-6735

De Blindas Forenings Forsaljning Saktiebolag
Sandsborgsvagen 56; S-12 233 Enskede; Sweden

Deutsche Blindenstudienanstalt
Am Schlag 8; 3550 Marburg (Lahn); West Germany

Devices for the Hearing Impaired
2801 Berry Street; Sioux City IA 51103

Dialogue Publications, Inc.
3100 Dak Park Avenue; Berwyn IL 60402

Walter Drake & Sons
Drake Building; Colorado Springs CO 80901

Duro-Med Industries, Inc.
138 Kansas Street; Hackensack NJ 07602
800-526-4753

Edmund Scientific
101 East Glorchester Pike; Barrington NJ 08007

Exit-Us, Inc.
Box 285; Easton CT 06612

Fashion Able
PO Box "S"; Rocky Hill NJ 08553
609-921-2563
William Feinbloom, O.D. Ph.D.
138 East 36th Street; New York NY 10016

The Felix Company - Helping Hands Division
9 Rice's Lane; Westport CT 06880

Fishburne Engineering
221 North Gordon Drive; Winston-Salem NC 27104
919-766-2928

Flashing Systems, Inc.
PO Box 6146; Silver Springs MD 20906
301-593-2755

Ford Motor Company

Freewheel Vans, Inc.
16002 West Fourth Avenue; Golden CO 80401
303-278-2972

Garelick Manufacturing Company
644 Second Street; St. Paul MN 55071
612-459-9795

Golden Boy Sales Corp.
2920 West Central; Santa Ana CA 92704
714-957-8581

Hal-Hen
36-14 11th Street; Long Island City NY 11106
212-392-6020

Handicaps, Inc.
4335 South Santa Fe Drive; Englewood CO 80110
303-781-2062

Dave Harrison Products
104 South Smythe; PO Box 1704; Bowie TX 76230
800-772-0845

Hausman
130 Union Street; Northvale NJ 07647
201-767-0255
HC Electronics
250 Camino Alto; Mill Valley CA 94941

Hein-A-Ken Corp.
532 South Maple; Thief River Falls MN 56701
218-681-7420

Homecraft
27 Trinity Road; London SW17 75F England
phone 01-672-7070/1789

Howe Press of Perkins School for the Blind
175 North Beacon Street; Watertown MA 02172

Huntleigh - c/o W. Andrew Shore
5120 Hensley Drive; Dunwoody GA 30338
404-394-9691

IBM Corp. - Office Products Division
Parson's Pond Drive; Franklin Lakes NJ 07417

Independent Living Aids, Inc.
11 Commercial Court; Plainview NJ 11803

Independent Transfer Equipment Corp.
11602 Knott Avenue; Garden Grove CA 92641
714-898-9005

Innocomp
1121 Vegas Court; Charlottesville VA 22901
804-296-4805 or 804-924-3781

Mrs. Betty Jo Keitzer
1129 Peninsula Drive; Lake Wales FL 33853
813-676-1805

Helen Keller National Center - Research Department
11 Middle Neck Road; Sands Point NY 11050
516-944-8900

Krown Research, Inc.
6300 Arizona Circle; Los Angeles CA 90045
213-641-4306
Lamison & Goodnow Manufacturing Company
   PO Box 128; Shelburne Falls MS 01370

Learning Technology Institute
   50 Culpepper Street; Warrenton VA 22186

Lumex
   100 Spence Street; Bay Shore NY 11706
   516-273-2200

Luminaud, Inc.
   7670 Acacia Avenue; Mentor OH 44060
   216-255-9082

Maddak, Inc.
   6 Industrial Road; Pequanmock NJ 07440
   201-694-0500

Madison Pouch Company
   PO Box 9294; Madison WI 53715

Maryland Computer Services
   2010 Rock Springs Road; Forest Hill MD 21050
   301-838-8888

Med, Inc. - AARO Medical Service
   1010 Laurens Road; Greenville SC 29607
   803-242-6791

Medfurn - Design Controls, Inc.
   40-70 DeLong Street; Flushing NY 11354
   800-847-4018

Medi, Inc.
   27 Maple Avenue; Holbrook MS 02343
   617-767-1232

Medical Engineering Club, Western Electric Company
   Hawthorne Works; Chicago IL 60657

Medoc
   12129 Roxie Drive; Round Rock TX 78664
Miya Epoch
1635 Crenshaw Boulevard; Torrence CA 90501
213-320-1172

Modular Medical Corp.
1558 Hutchinson River Parkway East; Bronx NY 10461
212-829-2626

Motorolla Corp. - Atlanta Service Center
South Perimeter Highway; College Park 30339
404-996-4548

National Federation of the Blind
218 Randolph Hotel Building; Fourth & Court Streets;
Des Moines IA 50309

The National Institute for Rehabilitation Engineering
238 Poplar Avenue; Pompton Lakes NJ 07442

Nelson Medical Products
5690 Sarah Avenue; Sarasota FL 33583-9510
813-924-2058

Oregon Chapter #31, Telephone Pioneers of America
421 S.W. Oak Street; Room 107; Portland OR 97204

Orthopop
PO Box 272; Aptos CA 95003
408-688-6272

Phone-TTY, Inc.
14-25 Plaza Road; Tair Lawn NJ 07410
201-796-5414 (voice or TTY)

Plantronics
345 Encinal Street; Santa Cruz CA 95060
408-426-5358 (voice)
800-538-0748 (TTY)

Preston Corp.
60 Page Road; Clifton NJ 07012
201-777-2700

Printronix, Inc.
17421 Derian Avenue; PO Box 19559; Irvine CA 92713

Projeckt AB ALEA
Henriksbergsvagen 104; S-136 67 Handen; Switzerland
PSI
125 Columbia Court; Chaska MN 55318
612-448-6987

Pulsar Digital Systems
PO Box 2706; Culver City CA 90230
213-996-0822 or 213-822-8820

Rehabilitation Engineering Center, Children's Hospital at Stanford
520 Willow Road; Palo Alto CA 94304
415-327-4800 X 345

Rehabilitation Engineering Center, Smith-Kettlewell
2232 Webster Street; San Francisco CA 94115

RFSU Rehab
Box 17006; S-10462 Stockholm 17; Sweden

Ricon Sales, Inc.
11684 Tuxford Street; Sun Valley CA 91352
213-768-5890

ROHO Research & Development, Inc.
PO Box 866; East St. Louis IL 62203
800-851-3449
Telex 44-7629

Royal National Institute of the Blind
224 Great Portland Street; London W1N 6AA, England

Fred Sammons, Inc.
see Be OK

Science Products for the Blind
Box 385; Wayne PA 19087

Scimedics, Inc.
700 North Valley Street, Suite B; Anaheim CA 92801
714-991-5340 or 213-860-1056

Fred Scott & Sons
101 Kelly Street; Elk Grove IL 60007
312-437-7666

Sensory Aids Evaluation & Development Center, MIT
77 Massachusetts Avenue; Cambridge MA 02139
Sharp
10 Keystone Place; Paramus NJ 07652

George H. Snyder
5809 N.E. 21 Avenue; Ft. Lauderdale FL 33308

Sonteck Medical, Inc.
31 Fletcher Avenue; PO Box 549; Lexington MA 02173

Sound Associates
424 West 45th Street; New York NY 10036
212-757-5679

Sound Barrier, Inc.
401-417 Fayette Avenue; Springfield IL 62704
217-753-2505 (voice or TTY)

Soundcasters - Audio-Visual Specialities
Box 811; Wheaton IL 60187
312-682-0280

Spanners
16 Boulevard East 108, Suite 306; Orange CA 92666

SSI of Georgia
1250 Womack Avenue; East Point GA 30344
404-753-3121 (voice)
404-755-0256 (TTY)

Stanley
Scott Swamp Road; Farmington CT 06032

Hugh Steeper Ltd.
237-239 Roehampton Lane; London SW15 4LB, England

Talos Systems, Inc.
7419 East Helm Drive; Scottsdale AZ 85260
602-948-6540

Target Industries
1080 Morrison Drive; Charleston SC 29403
803-723-1514
TASH - c/o Sunnybrooke Medical Centre
2075 Bayview Avenue; Toronto Ontario M4N 3M5

Telesensory Systems, Inc.
3408 Hillview Avenue; PO Box 10099; Palo Alto CA 94350
415-493-2626
Telex 348352 TSI PLA

or: 2112 Statute Lane; Vienna VA 22180
703-281-0889

Tergo Corp.
PO Box 902; Garden Grove CA 92640
714-898-9005

Theracare - Medline Industries, Inc.
1825 Shermer Road; Northbrook IL 60062

Theradyne Corp.
21730 Hanover Street; Lakeville MN 55044

Timson Ltd.
25 Haymarket; London SW1Y 4EN, England

Total Mobility Systems & Designs, Inc.
4060 Stewart Road; Eugene OR 97402
503-686-9706

Traylor Enterprises, Inc.
830 N.E. Loop 410, Suite 505; San Antonio TX 78209
512-828-0203

Triformation Systems, Inc.
3132 S.E. Jay Street; Stuart FL 33494
305-283-4817

Typewriting Institute for the Handicapped
3102 West Augusta Avenue; Phoenix AZ 85021
602-939-5344

Ulico, Inc.
1300 Venice; Dearborn MI 48124
313-336-8716

Ulbratec, Inc.
PO Box 4062; Madison WI 53711
608-273-0707 (voice or TTY)
Variable Speed Control Corp.
185 Berry Street; San Francisco CA 94107
415-495-6100

G.T. Water Products, Inc.
19438 Business Center Drive; Northridge CA 91324
213-349-8040

Weitbrecht Communications, Inc.
655 Skyway, Suite 230; San Carlos CA 94070
415-592-1622 (voice)
415-592-1623 (TTY)

Wilson Wheel & Tire Company
31131 Via Colinas, Suite 604; Westlake Village CA 91361
213-707-1780

Woodrow Wilson Rehabilitation Center
Rehabilitation Engineering Services; Fisherville VA 22939

Winsford Products, Inc.
179 Pennington-Harbourton Road; Pennington NJ 08534

Wormald International Sensory Aids, Ltd.
White Plains Office Center, Suite 110, 205 West Grand Avenue;
Bensenvillem IL 60106

Wright-Way
175 East Interstate 30; PO Box 40907; Garland TX 75040
214-271-2488
December 15, 1983

Dear DRS Counselor:

Enclosed you will find a supplemental guide on adaptive aids and devices. The CRT has put together this supplement in response to information requested on the questionnaire you returned to us during our survey. You will find many applicable products in this guide and in the manual on adaptive aids and devices supplied to you previously.

If you need further information or adaptive equipment assistance with any of your clients on an individual basis, please call the CRT office at 894-3476 (after January 1, call 404-894-4960).
**APPLIANCES**

**Mirro-Matic Pressure Cooker.** Audible [bouncing weight] pressure signal. 5, 10 and 15 lbs. pressure; safety fuse for vent-pipe clogs. Includes trivet. In 4-qt. and 6-qt. sizes. UL approved.

**Poly Perk Electric Coffee Maker.** Lock-lid top; break-proof polypropylene. Makes 2 to 4 cups. UL approved.

**Rival Crock Pot.** Audible click control. Removable crock. 5-qt. capacity; 3 settings. UL approved.

**Sunbeam Electric Multi-Cooker Frypan.** Audible click control; 8 settings. High-dome cover for roasts, etc. Pedestal legs; buffet styling; removable control. UL approved.

*All the above appliances are available from Independent Living Aids, Inc.*

11 Commercial Court
Plainview NY 11803
516-681-8288
**ORGANIZERS**

Grayline Products. Order from Grayline Housewares; 312-695-3900;
1616 Berkley Street; Elgin IL 60120.

No. 118
**GRAVY LIN LID AND TRAY RACK**
Six section rack provides convenient and accessible storage for bulky dome-shaped lids, serving trays, baking sheets, pots and pans, and cake jars, muffin tins, etc. Cushioned: 11" long, 7½" wide, 7" high.

No. 211
**GRAVY LIN CUP STACKER**
Holds up to 8 cups safely in space saving convenience. Easy to pick up and carry. Sturdy wire with cushioning.

No. 214
**GRAVY LIN REVERSIBLE TRAY STACKER**
Holds four laceable trays, or three trays and frozen foods. Trays slide freely, will not stick, cushioned. 9" long, 3½" wide, 7¾" high.

No. 301
**GRAVY LIN GLASS HOLDER**
Holds 4 glasses firmly with cushioned wire clips. Sure grip, cushioned. Fastens to inside of cupboard door or any wall (wood or steel) with screws provided. 11½" long, 4½" high.

Rubbermaid Products. Check with your local hardware or department store. No mail order available.

**Single and Twin Turntable**
A slight touch spins spices and other condiments into easy reach; turntables help organize refrigerators, too.

**Cup 'n Plate Carousel**
Top section holds dinner or salad plates; cups hang from hooks below.

**Dinnerware Rack**
Organizes saucers, dinner and salad plates and has a slide out cup hook section.

**Storage Turntable**
Revolves in base cabinets to swing kitchen supplies front and center.

**Slide-Out Drawers**
These attach to base cabinets or shelves and slide forward, bringing hard-to-reach supplies up front.
One drawer mounts above another with a slide-out drawer stacking kit. Drawers come in 12" and 16" widths.

**Instant Drawer Organizers**
Four sizes interlock to separate gadgets, sewing supplies, small tools and other goods.
UTENSILS & TOOLS

Adjustable Frozen Food Label Holders. Elastic band with metal plate for magnetic labels. 2 "D" ring adjustments.
Order from: Mrs. Bernecie Johnson
717 4th Street, Apt. 114
Des Moines IA 50309

Cooking Basket. Strains contents as they are lifted. Large wooden handle.
Order from: Homecraft
27 Trinity Road
London SW17 7SF
Phone: 01-672 7070/1789

Cutting Board with Rim. Slanted surface; 2 nails hold vegetables and meat. Northern hardwood. 12 X 16".
Order from: Fred Sammons
Box 32
Brookfield IL 60513-0032
Phone: 800-323-5547

Dycem Non-Slip Freehand Tray. Objects on surface of tray will not slide if angled, if surface is clean and dry.
Order from: Homecraft (see above)
UTENSILS & TOOLS CONT.

Flame Tamer. 8" round aluminum disc acts as double boiler; grooves hold disc; indented surfaces reduces pan slippage.
Order from: American Foundation for the Blind
15 West 16th Street
New York NY 10011
212-620-2172

Order from: Science Products for the Blind
Box 385
Wayne PA 19087

Liquid Level Indicator. Electronic device hangs over the lip of glass or cup; buzzes and vibrates when liquid nears top. Uses 9-V battery.
Order from: American Foundation for the Blind

Milk Saver. Heat-proof glass disc vibrates when liquids begin to boil.
Order from: Homecraft (see above)
Kitchen Aids: Resources for the Visually Impaired Cook

by Mary Beth Caruso

ACKNOWLEDGMENTS

For the preparation of this issue, research into the area of aids and appliances for the kitchen included exploration of resources and compilation of data from surveys of consumers and deliverers of services to the blind. The survey was designed to gather descriptions of individual experiences with devices which can make work in the kitchen possible, easy, and even fun. Thanks are extended to those who responded to the survey as well as to the review team members: Faye Berube, Nancy Campbell, Maureen Ecker, Susan Gange, and Margaret Potter. Their task was to provide a reader’s response from the different points of view of blindness rehabilitation and home economics. Their comments helped to broaden the perspective of this issue.

PREFACE

Guest writer Mary Beth Caruso is Supervisor of Rehabilitation Teachers for Region III of the Massachusetts Commission for the Blind. She holds a B.A. degree in Elementary Education/Special Education from Boston College; recently earned an M.Ed. degree in Rehabilitation Teaching for the Visually Impaired from Boston College.

Acknowledgments

This issue of AAR is available on tape in Library of Congress format. For a taped copy, send one C-90 blank cassette to the AAR Editorial Office at the address above.
Introduction

The kitchen is the one room in the house that is imbedded with rich traditions. Ethnic background, family upbringing, geographical location, and taste, both acquired and inbred, all intertwine in the methods, techniques, and equipment used in food preparation. Thousands of books have been written about cooking and all that is associated with food preparation. This issue of AAR does not attempt to cover all the techniques appropriate to various cuisines or even all the adaptive techniques and devices beneficial to visually impaired cooks. It attempts, however, to present the most commonly used aids designed for the visually impaired and some alternative uses for everyday cookware. Individual experience, creativity, and flexibility are the best resources for adapting to cooking with a vision loss. It is hoped that our presentation will inspire others to share their resources and experience.

The following text is divided into sections dealing with the various aspects of kitchen management and food preparation. A resource guide follows sections where appropriate. Each resource guide is a sampling of the types of aids explained within the text. For simplicity, many of the common use items have been selected from national mail order houses; however, most of these items are also commercially available in local retail stores. The modified or adapted aids listed are available from distributors, nationally and internationally, who specialize in aids and appliances for the visually impaired and blind individual.

KITCHEN ORGANIZATION

Methods of organization are of major importance for a visually impaired person to be safe and efficient in the kitchen. The lack of organization can result in so much frustration for the visually impaired homemaker that meal preparation becomes a dreaded task. But the proper arrangement of equipment, cabinets, and supplies to best utilize the available space can make work in the kitchen enjoyable. This arrangement should take into account the individual's own needs and abilities as well as those of other family members.

The extent and nature of the vision loss will help determine the individual's needs for special techniques and devices for organization. Blindness can restrict the person's ability to locate needed equipment, proper work areas, and supplies by interfering with or eliminating the ability to use visual reference within the kitchen environment. Many people cannot rely on visual cues to perceive how they relate to space and objects or to detect where objects are located in space. This loss imposes specific limits on the person's ability to interact with the kitchen environment in order to prepare food safely and efficiently while maintaining cleanliness. Therefore, devices or techniques which can enhance nonvisual organizational systems must be sought. While tactual methods are a major approach for locating items and determining how they relate to other items, in the kitchen environment they may not be appropriate. Because heat sources and sharp and pointed edged utensils are major components in food preparation, direct tactual methods can present problems of comfort or safety and must be supplemented by other tools, devices, and techniques that can provide solutions to the problems of performing tasks in the kitchen. Organization is the basic technique that makes the kitchen and its tools and supplies accessible to the visually impaired cook, and it consists of both techniques and special devices.

Kitchen Layout

"Organization" refers to planning steps of a task in proper sequence, to arranging materials and equipment for optimal efficiency, or to ordering items within storage areas for easy removal and replacement. In the kitchen the principle of ordering things for proper functioning can best begin with the major components of the environment — counter space, storage space, refrigerator, sink, and cooking facilities. If possible, organization should prevail in the initial setup of these kitchen areas.

If the kitchen is lacking in existing countertops, butchers block tables on wheels or rolling carts can add surfaces for work space when moved from some convenient storage space (some even fold up) to the work site, then to serve and finally the clean-up area. A supplemental stationary work area can be made by cutting a board to cover half the sink or to fit snugly over an open drawer. Shelves that drop down from the wall can create a work area that can be out of the way when not in use.

For smooth functioning in food preparation, service, and clean-up, counterspace and other kitchen equipment should be arranged to support the sequence of steps involved in these tasks. The Source Book for the Disabled (Glory Hale, ed., Imprint Books, London: 1979; Bantam Edition July 1981; page 180) makes the following recommendation:

"The kitchen layout should, ideally, be based on the three-point work triangle, with the refrigerator, sink and cooking facilities arranged in that order, which follows the sequence of food preparation — food is taken from the refrigerator, washed and put in a pan at the sink and then moved to the stove for cooking. The countertops should be unbroken so that whenever possible hot or heavy items can be slid, rather than carried, from area to area. Kitchen equipment can be arranged in a U-shape, an L-shape or in a corridor shape on two parallel walls."

The illustration on the next page shows three possibilities of setting up an efficient timesaving kitchen with the refrigerator, sink, and cooking facilities being at each of the points of the triangle. Movement should be in the order of food preparation according to the dominant hand. A right-handed person should move from right to left starting at the refrigerator.
Organized Storage

Many kitchens may not be set up according to the ideal; however, major renovations are not recommended but rather a closer look at modifications in the organization and storage systems already in place. The ability to readily locate, identify, and retrieve needed materials or supplies from storage space can improve working conditions for a visually impaired cook even in a kitchen with a less than ideal layout. Work and storage space for categories of tools and materials should be designed so that the cook can automatically go to the general area in which the specific item or tool is stored. In these general areas, individual items can be arranged in even more detailed patterns of order. Such arrangements may compensate for visual loss which reduces or eradicates the ability to scan a shelf or cupboard for a desired item. To achieve the ideal of creating small patterns of order within special areas of storage, all staples for baking, for example, could be placed in the right-hand section of a shelf so that the cook would know that cornstarch is the second item in a row containing baking soda, cornstarch, confectioner’s and brown sugar. Likewise, pots and pans might be stored in a particular order with their lids stored nearby in a corresponding order. For the visually impaired cook, systems of organization are often necessarily more sophisticated than for the sighted cook.

To set up such systems, the first step is to examine the existing space and then assign priorities to the items to go into that space. Materials, equipment, and supplies should be located close to where they are first used. The frequency of their use will determine whether they should occupy prime or secondary storage space, which should be within the individual’s range of motion. Equipment used frequently, such as blenders should not have to be carried far to be plugged in. If there is space on the counter or on an easily accessible shelf near the outlet, small, often used appliances should be located there. For another example, dishes used every day should be stored on shelf space close to everyday dining areas or to the sink, but extra, seldom used place settings can be located elsewhere. Storage methods on the shelf are also important. Piling up dishes and other dinnerware is dangerous and makes searching and removal difficult.

Products called organizers are units designed to further order and separate individual objects within more defined areas. They can prove a useful resource for organizing any kitchen. Consider, for example, how the common flatware tray facilitates setting a table. The tray collects all knives, forks, and spoons in one place but holds them in separate compartments to prevent the problem of sorting through a jumbled drawer full of implements when selecting individual utensils. There are also organizing units for dishes, glassware, pots and pans, and other tools and materials used in the kitchen. Some fit on shelves while others attach underneath shelves. Some are for drawers, while others attach to the back of doors or to refrigerator shelving. They all share a common principle of design: units defining large fixed areas are divided into smaller sections for the storage of individual items or sets of items.

Dish racks that fit on the shelf and are divided into sections to hold dinner plates, saucers, and cups organize dinnerware well. But note that “piling” can be a problem even with special storage racks. If the area for dinner plates, standing on end, becomes overcrowded, dishes can fall out when one is being removed. If dishes are to be stacked on an existing shelf without a special rack, hooks can be screwed into shelving above dishes to hold cups; however, there must be enough space between the cups and whatever is on the shelf below.

Organizers that fit on the backs of doors, under shelves, and on shelves can utilize previously unused space in an organized manner. Just as dish racks make plates safely accessible, these organizers make finding an item quicker without the worry of knocking over other items. They come in a variety of sizes suited to specific uses. For use in narrow width spaces there are special holders for canned goods, which are one or two cans deep and can accommodate varying numbers of cans depending on the shelf length.
This spice rack from Copco can hold 18 jars of spices arranged alphabetically. Clear, braille labeling tape is affixed to lids allowing print to show through. Points of triangular sections can provide tactual clues to locations of rows.

Labels placed on the can tops can be located quickly since cans are not stacked on top of each other. Organizers designed for holding bottles are useful because each shelf has a protective crossbar to prevent the bottle from tipping out of the shelf. Other organizers hold wrap products such as foil, wax paper, plastic and paper bags. These come in two basic styles. One holds the boxes of wrap so that the box must be removed for the wrap to be used. If the box is returned to the holder with the cutting edge facing the back, the risk of injury to a hand when reaching for the box is reduced, whereas having boxes with saw edges stacked in a drawer or piled on a shelf increases the risk of such an accident. The second style is a dispenser, which holds the rolled wraps already removed from box and placed in the compartment with the end of the sheet extended. The wrap can be pulled out, so it unrolls off the tube, and cut with an upward motion on the serrated edge of the dispenser. Usually there is a paper towel holder on this type of organizer. These items can be purchased from mail order houses dealing in housewares or locally wherever Rubbermaid or similar products are sold.

Refrigerator shelf placement often leaves unused space underneath the shelves. Slings that hook onto the shelf above utilize this space for cans, bottles, and small food items. Baskets designed for compartmentalizing freezer packages can hold individual items (such as all frozen vegetables) within a defined space and thus eliminate searching through the freezer for a particular item.

Certain tools and small articles of cooking equipment such as potholders need to be within reach during cooking. Utensils can be hung on a pegboard near the work site. The shape of the utensil can be painted in a contrasting color to facilitate proper placement by a person with low vision. Pot holders and dish towels sewn with Velcro tabs can be attached to a strip of Velcro glued to a handy vertical surface such as the side of the refrigerator to prevent fallen potholders from ending up under the refrigerator, problem that magnetic hooks can cause since they are easily knocked off. Locating frequently used, smaller items can also be facilitated by having duplicates stored near specific work sites where they will be used.

Of course, one must also be safety conscious when arranging the kitchen. Knives should be in blocks or holders, with the blades all facing the same way, to prevent accidental injuries. Fabric items such as dish towels should not be hung where they can get caught in the oven door or fall onto the stove. Utensils hung on pegboards should not have exposed sharp edges, and the hooks should be rubber tipped. While these safety measures are reasonable precautions in any kitchen, they are especially important in the kitchen of the visually impaired cook, who may be locating desired items tactually.

Alternative containers for food items can be safer, can keep food fresher longer, and can provide more convenient access than can original packaging. Airtight canisters, jars and containers keep out bugs and make it so much easier to get at items usually contained in small-necked bottles or boxes. Wide-mouthed containers such as peanut butter jars can be used for oil, salad dressing, and other commodities which may be difficult to handle; wide-mouthed jars permit the cook to dip into or spoon out contents, and permit dispensing procedures which are more controlled, more accurate and nearer than pouring. Baby food jars are great for spices and other condiments. But, generally, plastic is safer than glass. Tupperware is one brand name that merchandises a wide assortment of plastic storage containers that permit dipping into as well as pouring out of. They stock a cereal container with a spout that solves the problem of cereal pouring out of the box all over the table. There are broad based containers that prevent items that usually come in bags (such as flour) from falling over and spilling. Once these commodities are stored in more stable containers they can be placed on trays that slide out of cupboards or on lazy susans which can spin items stored at the back to the front for easy access. Both usually have a lip on the edge to prevent the items from falling off while in motion.

Bold, black lettering on these wide-mouthed canisters stands out for cooks with low vision. Graduated sizes of canisters provide effective "labeling" for tactual location and identification.
Rubbermaid Dish Rack. Vinyl-coated steel wire that won't scratch dishes. Has several locations for separating different size dishes. Has a place to hang teacups. Available in local hardware stores, department stores, and kitchenware stores, which will have a wide selection of other organizers. Approximately $7.00.  
A Three-Shelf Unit is available to fit into hard-to-reach corners. Lillian Vernon, $4.98; Miles Kimball, $6.98; Walter Drake, $6.99.  
A Platter Rack that screws under a shelf can hold a platter securely. Measures 10 x 9-⅛". Lillian Vernon, $2.79.  

LASSWARE ORGANIZERS  
A Stemware Rack holds inverted goblets and wine glasses by the base, similar to those in restaurants and cocktail lounges. This version is protected by rustproof vinyl-coated steel. Hanging glasses thus leaves usable shelf space underneath. Lillian Vernon, $5.98.  

OT AND PAN ORGANIZERS  
Standing Tray Rack holds trays, muffin tins, cookie sheets, and even pot lids and pans standing on edge to fit into the vertical slots. Miles Kimball, $4.69; Starcrest, $3.99; Walter Drake, $5.99.  
Pot Lid Holder. Triangular unit hangs up and could also hold tins if located in a wide enough area. Measures 17" x 9". Lillian Vernon, $3.98.  
Skillet Rack has four horizontal slots to hold four skillets for easy removal and storage. Saves space by allowing the four to occupy same area of cupboard but prevents the inconvenience of removal and replacement caused by stacking. Lillian Vernon, $7.98.  

Wall-Hung Knife Rack for steak knives is available and will prevent knives from falling out. Country Cottage, cost not available.  
Wood Block Knife Holder is a heavy block with rubber feet, and has slots to hold knives vertically, points down, and handles ready for grasping. This version also has built-in knife sharpener. Lillian Vernon, $11.98.  
Cutlery Tray for Drawer, usually made of solid plastic, organizes flatware in drawers. This version is made of vinyl coated mesh that won't collect dust. Lillian Vernon, $8.98.  

WRAP ORGANIZERS  
Door-Back Unit to hold rolls of wraps for dispensing also has space for paper bag storage. Rubbermaid, $6.00.  
Vinyl-Coated Steel versions hold and dispense rolls of wrap. Miles Kimball, $4.99; Walter Drake, $4.99.
UNITS FOR ALTERNATIVE WORK AREAS

DOOR STORAGE ORGANIZERS
A Bottle Rack can be obtained in the form of a three-shelf unit that can be hung on a closet door, and it can hold canned goods as well. Measures 18” x 18” square x 4-1/2” deep. Lillian Vernon, $9.98.

Shelving Unit with Adjustable Shelves comes in heavy duty plastic, with eight adjustable shelves. Also hangs on the back of a door. Measures 72” x 18”, with a shelf depth of 4-1/4”. Joan Cook, $30.00.

REFRIGERATOR ORGANIZERS
Bottle Sling attaches to the refrigerator shelf and hangs underneath to provide horizontal space for holding tall, capped bottles on their sides. Can solve storage problem created by bottles too tall for existing shelf space. Joan Cook, $5.00.

Food Sling – Similar to bottle sling. Joan Cook, $7.00.

Can Sling holds six soda-size cans. Joan Cook, $5.00.

Large Can Sling holds 12 oz. cans. Cans are loaded from the top and are dispensed from bottom slot. Miles Kimball, $3.69; Sunset House, $2.98; Walter Drake, $4.49.

FREEZER ORGANIZERS
Freezer Basket measures 5-1/4” x 7-1/4” x 14”. Miles Kimball, $3.60.

Set of Freezer Baskets – A set of three baskets that stack and interlock. Each measures 5-1/4” x 9-1/2” x 19-1/4”. Miles Kimball, $5.89.

Ice Cube Tray Rack – Vinyl-coated steel, rustproof, holds three ice cube trays securely to prevent spills. Rubbermaid, cost not available.

MODULAR ORGANIZERS
Slip-On Shelves are to attach beneath existing cabinet shelves. A lip on the front edge of these shelves prevents items from falling. This version is not securely fastened, so heavy objects should not be stored, but lightweight items such as dish towels, plastic containers, etc., are appropriate. Lillian Vernon, $4.98; Miles Kimball, $5.29.

Stacking Storage Bins, often used for onions and potatoes, can be utilized to make other items readily accessible, since they stack so as to have both front and back open for reaching the desired item. No stacked units are lock together; wheels on the bottom unit make it mobile when needed. The four bins in this version are made of shatterproof plastic and measure 21-1/4” x 14” x 7”. Starcrest, $19.99.

UNITS FOR ALTERNATIVE WORK AREAS
Serving Carts on Wheels – In the following list, products from all three sources are portable, and the cart available from the last also folds for storage; FashionAble, $35.00; Help Yourself Aids, $72.95; Fred Sammons, $39.95.

Wall-Mounted Folding Table – This wall-mounted folding table measures 18” x 24” when extended for use and folds flush with the wall when stored. Joan Cook, $25.00.

Sink Board – For extra counter space, this rigid polyethylene cutting board fits over most standard size sinks. Lillian Vernon, $6.98.

Tray-and-Colander Unit – This unit may also fit over the sink for extra work space. For preparing vegetables and other food requiring washing or draining, the colander is a useful addition. Lillian Vernon, $4.95.

Alternative Labels
Organization of the materials or tasks involved in food preparation will often depend on having access to information commonly available only in print form. For the visually impaired cook, alternative labels for identification of appliances, settings on appliance controls, food packaging and canned goods, cleaning supplies and other household items must be considered in conjunction with kitchen layout and with planning the actual processes of food preparation. The controls of all appliances, which normally have settings imprinted with small numbers, can be labeled in tactile media so that a visually impaired person can set temperatures, cycles, speeds, and other information where appropriate. Not every setting needs to be marked but only those the person requires for particular tasks. For instance, refrigerator dials can be marked so a person can defrost the freezer and reset the dial. Some dial need not be marked since settings can be memorized and noted down according to a clock reference.

For persons with low vision, contrast can be used as a labeling method. Dark organizers used to store light colored plates can assist in their identification. Colored tape or paint applied to racks, cupboard corners, and drawer handles can identify categories of items and can aid in their quick location as well.

For other members of the household, it should be remembered that alternative labels can obscure the existing printing. Diagrams, lists of cupboards and drawers, and charts of items and areas marked (e.g., 350 degrees on the oven dial) should be shared with other persons who use the kitchen. For the visually impaired person, such lists can also serve as a reminder of the marking system and symbols if it is a medium he or she can refer to.

Attention to lighting can make existing labels and alternative large print labels more accessible to persons with low vision. Proper lighting can also turn a previously nonvisual task into one in which vision is usable. Flash lights kept in strategic locations can aid in identification of items. Gooseneck lamps with the proper clamps can be clipped onto tables or workspaces. Where lamps would be awkward, stick-on or easily attached fluorescent fixtures can go under cupboards and other desired places.

Issue No. 5 of Aids and Appliances Review is devoted to labeling materials and techniques and should be consulted for more detailed and complete information on this aspect of organizing the kitchen for use with vision loss.
Recipe Management

When rearranging the kitchen to best suit all involved, some attention should be given to recipe storage and retrieval. Braille recipes usually last longer if done on plastic coated paper or thermoformed. Thermoform paper can be washed and reused. Often-used recipes written out with a felt-tipped pen should have clear contact paper applied to protect it. Print and braille recipes can be stored in file boxes, notebooks, or in any convenient manner for the person.

Because recipes can get lost if laid down on the work surface as well as get dirty quickly, they should be affixed to the refrigerator, a cupboard, or a reading stand at a comfortable height for reading. A strip of magnetic tape can be affixed to a surface and another strip used to hold the recipe in place. A strong magnet is also useful on the refrigerator. A clip clothespin with a hook at the top, usually used to hold items drying on the shower curtain rod, can hold a recipe on a cupboard handle. Cellophane tape can be used, too. A clear acrylic cookbook holder, now popular, can also be extremely useful for low vision.

For those people who use taped recipes, a remote foot switch is useful because it leaves both hands free. After setting up the machine with the recipe tape, the foot switch need only be depressed to play the tape. It stops playing when foot pressure is lifted. For most people, placing the tape recorder in a plastic bag is adequate protection for the machine, and it is still easy to locate the buttons. Individuals with recent vision loss or new cooks may find it most effective to have recipes taped in full with list of ingredients and amounts first and then listed out again in recipe directions. Specific timing is an important concept for recipes to include. Directions like “bake until lightly browned” lose significance with vision loss. Transferring directions of often-used mixes into a usable mode (tape, braille, large print) can mean cooking without getting someone to read the back of the box. As the cook becomes more comfortable with newly learned skills, a shorter version of all recipes may be all that is required.

Food Preparation

Just as more intricately defined patterns of organization are necessary for the visually impaired cook, so planning which is more detailed and precise is required before actual food preparation begins.

In food preparation, the recipe prescribes the ingredients, their amounts, the sequence of their addition, techniques for combining them, and even the amount of time within which these techniques must be performed to achieve the right degree of doneness.

With vision, the cook can easily refer to the recipe card cookbook to confirm measures and check progress in the steps of preparation. Visual cues — browning, changing texture or consistency, rising steam or bubbles — all alert the sighted cook to end stages of cooking. Tactual methods can help compensate the visually impaired cook when these visual methods are lost. However, even with alternative devices and techniques, vision loss can still interfere with these monitoring techniques. Therefore, in addition, carefully planning the steps of preparation, performing some steps at the beginning, cleaning as food preparation progresses, and accurate timing are all techniques essential for keeping order and promoting success when the visually impaired cook prepares food.

To plan each step of the task at hand, the recipe should be read or thought through from start to finish. All of the equipment and ingredients should be gathered and arranged according to the sequence of use on a tray or cookie sheet. This way, missing ingredients will not cause disaster halfway through a recipe! Organizing the ingredients will also save time in searching and cleaning up. The same is true for doing all of the preparatory cutting, mixing, and measuring on a tray.

In particular, preparation steps such as melting butter, boiling water or greasing pans should be done before the recipe is begun. Putting a plastic glove or baggie on one’s hand for greasing the pan makes it easier to tell if all the corners are covered.) It is also easier to measure out ahead of time as many ingredients as possible. When an ingredient has been used, it should be moved to the back of the work area or put away. This helps in avoiding confusion about what has or has not yet been added. Rechecking the recipe for the correct combination of ingredients helps to avoid making any mistakes.

Clean-Up

Cleaning up as work progresses prevents major work at the completion of a task. The cook should wipe hands with a damp paper towel or cloth, not an apron, to prevent the spread of germs. The visually impaired cook using tactual methods may feel more comfortable wearing plastic gloves while handling food. A sponge nearby will also come in handy. An open milk carton with a garbage bag in it beside the work area maintains cleanliness and saves steps. Likewise, a colander for catching peelings, egg shells, and other debris during food preparation can be placed in the sink to eliminate the need for cleaning later. Wiping up spills as they occur, particularly on the floor, can prevent a hazardous situation. Should a dish or glass break, a damp paper towel is the most efficient, safe means for picking up small slivers of glass. During food preparation, dishes and utensils can be rinsed as they are used and placed in a pan of soapy water to soak before washing. For this process, a disposal cover for the electric garbage disposal is useful in preventing silverware and other small items from getting lost while still allowing the water to flow through. Cleaning up as the work of food preparation progresses saves work after dinner for any cook. But for the visually impaired cook the technique is especially important, because maintaining order is much easier than attempting to create order after pots and pans, ingredients,
and garbage have become intermingled and scattered throughout different kitchen work sites.

RESOURCES

Plastic Gloves, similar to lightweight hospital gloves, come in packs of 100. Miles Kimball, $2.39.
Disposal Covers are available commercially; Miles Kimball, $.89; Walter Drake, $1.29.

Colander with a sturdy base and handle can be used for garbage in the sink as well as for the transfer of drained ingredients. The colander pictured has lips for pouring and handles for easy grip and is made of plastic. One and two-quart models. Tupperware, $3.98; $4.29.

Measuring

Accurate measurement of ingredients will insure a certain amount of consistency each time the recipe is used. Conventionally, ingredients are measured according to volume or weight. Volume is measured in units of teaspoons, tablespoons, ounces, cups, pints, quarts, and gallons. Commonly, vision is used to “read” the tools of measure — a teaspoon of salt is detected by observing that the level of salt coincides with the edge of the teaspoon; seen through the sides of a glass measuring cup, a quarter cup of milk is measured when its level coincides with the line indicating “¼.” However, with vision loss such visual cues are no longer available so that the customary tools must be adapted or special techniques substituted in order to arrive at the desired product.

Graduated, nested cups are typically used for only dry ingredients, since their top edge, rather than a marking within the cup, indicates a full measure of that unit. To prevent spilling between measuring and adding liquid ingredients, glass cups are used because their transparency permits observing the liquid level as it arrives at the unit measure marked by a line on the cup’s side. However, with vision loss, nested measuring cups are recommended for both dry ingredients and liquid, since a full measure can be perceived tactually. Thus the guesswork in using a glass measuring cup can be eliminated. Usually there are four separate cups that fit into one another — 1 cup, 1/2 cup, 1/3 cup, 1/4 cup. Some sets also have 3/4 cup. Tupperware’s six-cup set also has a 2/3 cup. The handles can be labeled; however, by placing one cup inside the other, the size can be determined tactually.

For the visually impaired cook, techniques for accurate measurement differ very little from those recommended by sighted cooks. For dry ingredients the flat side of a knife can be used to level off a measuring cup by moving away from the handle. Dry ingredients, then liquids, then fats should be measured so the same cups can be used but should be wiped out between ingredients to ensure accurate measurement. For the highest degree of accuracy, plastic cups may prove better than metal; though metal cups are durable, they do dent, and deep dents can cause inaccuracy.

For the sake of accuracy, the visually impaired cook needs to be more conscious of spilling ingredients once measured, since balance of full cups normally depends heavily on visual cues. In home economics, the recommended measuring technique is to leave the cup on the counter for filling. But many visually impaired persons find holding the cup more suitable to prevent overfilling. Holding the measuring cup in the palm of the hand rather than grasping it by the handle can keep it level and prevent spills or a measuring cup can be placed in a shallow pan so any liquid spilled can be poured back into the container. A funnel is a versatile kitchen tool that can be utilized in such a case.

Metal measuring spoons can be bent to form a right angle between bowl and handle. The spoons can then be used, like small ladles to dip into containers. They remain level if they are slid up the container side. Measuring spoons that cannot be bent can be kept level by holding the spoon handle on top of a measuring cup handle with the cup sitting on the table. An eyedropper can be used to measure liquids and to fill measuring spoons. The spoons should be kept on a ring to aid in locating the correct size.

To prevent spills when pouring from a full milk carton into a measuring cup, the carton can be lowered into the sink so the spout is even with the cup for pouring. Many people find the plastic milk carton holders with a handle lessen cumbersome to use (Miles Kimball, $1.29, quart size $1.79, 1/2 gallon). Milk can be transferred to a covered pitcher with a handle, too.

Diet conscious consumers, people with diabetes or other conditions requiring medically restricted diets, and those who are just trying to remain slim, may weigh their food on scales similar to postage scales. People who attend Diet Workshop or similar organizations may get scales to weigh allocated food portions or ingredients precisely. The scale where the indicator arrow is exposed can be marked with a substance that can be perceived tactually.

It is important for all cooks to know abbreviations used in recipes and equivalent weights and measures. If they are hard to remember, a reference sheet should be made. For visually impaired persons the information can be brailed in large print, or taped and should be kept with the recipes for easy location. Included on this should be helpful equivalents such as 1 stick of butter equals 1/2 cup equals 6 tablespoons.
RESOURCES

This Rubbermaid pitcher holds 1 1/2 quarts, fits easily onto refrigerator shelves, and provides contrast with lighter surroundings for easier location by persons with low vision.

Right, in the photo, are the nested Tupperware measuring cups, discussed above. Metal cups and spoons are discussed in the text and "Resources" section below.

Metal Measuring Cup Set. Handles may be bent perpendicular to plane of cup to permit ladling of ingredients from wide-mouthed containers. American Foundation for the Blind, $3.75; Independent Living Aids, $3.65. Aluminum Measuring Spoons. Two sets of spoons, one set with the handles bent, can serve a myriad of uses. American Foundation for the Blind, $1.00; Independent Living Aids, $1.00.

Cutting

Like measuring, the cutting necessitated by food preparation presents special problems to visually impaired persons, and special resources or adaptive techniques are available as solutions. For any cook, the goals of cutting are safety and consistency of thickness in the item to be sliced, for this insures evenness of cooking, ease of eating, economy, or aesthetic appeal. For example, homemade cookies must be consistently thick to bake an even brown, and fresh baked bread makes better toast when the slices are the same thickness. A cutting board and bladed instruments—knives and choppers—are standard implements for the task. Safety and convenience can often be achieved by using specialized implements for cutting or chopping in tasks other than those for which they were designed. An onion chopper is an example. Basically, this device is a jar with a wood or plastic disk in the bottom and a chopper attached to a plunger which is threaded through the lid of the jar. To be chopped, an onion is placed in the bottom of the jar on the chopping disk, the lid is screwed on with the chopper positioned over the onion. Depressing the chopper rapidly and repeatedly can chop nuts as well as onions, or anything not too hard, into small pieces. Fingers are protected and small bits of food do not shoot all over the counter. A cheese slicer can be used not only for producing equally thick slices of cheese but also of other soft solids such as a roll of refrigerator cookie dough. Onion slicers consist of a dozen or so teeth mounted parallel in a handle, much like teeth on a comb. For even slicing, the teeth are designed to hold the onion steady and guide the knife; it can also be used for cutting other small items into thin, even slices.

Cutting boards serve to stabilize items to be cut while they provide a safe undersurface for the knife edge to draw against. Available in a variety of styles, those with suction feet best stabilize the board, and those with raised edges prevent food from sliding off. A board with spikes several inches long protruding from the center can impale and anchor the food for the greatest stability. But the spikes create a safety concern.

Another approach to stabilizing the food being cut is provided by roast holders and slicing guides designed somewhat like giant figures at the end of scissorlike handles. When the handles are squeezed together, the fingerlike tines grasp the item to be sliced and provide evenly spaced guides for achieving equal thickness. These are designed for roast meats but can also be used for large fruits such as grapefruit. Softer items such as bread may get pinched in the sides.

Finally, the Magna Wonder Knife is perhaps the most well-known cutting aid. It is a long, sharp knife with a guard parallel to the blade; the guard fits flush over the end of the item being cut while the knife blade cuts a one-inch slice by being positioned parallel, one inch behind the guard. The next slice is cut to the same thickness, and the next, because the guard always rests against the new end of the item with the knife blade one inch back. Commonly, the Magna Wonder Knife is used on bread and meat.
Onion-Chopper. This glass jar has a cutting surface in the bottom and a 4-blade chopper activated by pushing the handle into the lid. Available at American Foundation for the Blind, $2.50; Independent Living Aids, $2.35; and a heavy duty model is available at FashionAble, $6.50.

Cutting Boards. Available at FashionAble, $11.50. Similar models available from Fred Sammons, $12.95; and Help Yourself Aids, $22.95. Royal National Institute for the Blind sells a bread cutting box that holds a loaf in place and a knife fits in a groove for $9.50.

Magna Wonder Knife. Available in a left or right-hand version. American Foundation for the Blind, $18.00; Independent Living Aids, $17.75; Massachusetts Association for the Blind, $16.00.

Onion Slicers. Approximately twenty parallel steel prongs hold the food for thin slicing. Available at Miles Kimball, $.79; Sunset House, $1.19.
For keeping the mixing bowl stable and for making clean-up easier, there are certain kitchen tools and other materials which can provide assistance. Besides providing stability, a tray under the mixing bowl can catch any spills. When attention is given to color contrast between bowl and tray, a person with low vision can be aided in locating and monitoring this arrangement during food preparation. Other materials can also help stabilize the mixing bowl: a soft rubber jar opener, a damp dishcloth or sponge, or a piece of nonslip plastic such as dyceum. Dansk and Copco, manufacturers of high-quality, designer kitchenware, make bowls with rubber rings at the base to serve the same purpose. (Note: electric mixers should be used with caution and attention to where the beaters are in relation to hands and the spatula).

Mixing

The problems which mixing presents to the visually impaired cook stem from the difficulty of preventing ingredients from spilling or splashing during the rapid stirring action required and from the difficulty of timing the short intervals of the process without vision. With vision, the container of ingredients can be monitored to note changes in texture or consistency which signal when the procedure should be completed, and the position of the contents relative to the top of the container is apparent so that the speed of mixing or angle of container can be adjusted to prevent spills and splatters. To detect the passage of seconds or minutes within which the mixing would occur, a wrist watch or wall clock can be habitually consulted by the careful cook, a technique essential, for example, in preparing a commercially packaged cake mix with an electric mixer. Without the use of vision, adaptive techniques and equipment can assist in these procedures.

Timers are not as useful as are adaptive techniques for learning to sense when a shorter duration time period, such as that required for mixing or whipping, has elapsed. Rather, the cook can learn to sense tactually the changes of consistency approaching the butter stage and to halt the whipping. With more experience, a sense of time for this procedure can become second nature. (And a sense of time for other procedures of food preparation, besides mixing, can be learned as well: melting butter, frying an egg, and kneading bread, for instance.)

A tray, discussed above, can provide stability for mixing as well as contrast for low vision perception.

RESOURCES

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Roast Holder and Slicing Guide — Accommodates food up to 4" wide. Must be used with a narrow blade knife. Available at American Foundation for the Blind, $11.95; Independent Living Aids, $9.50.

Dyceum, blue, nonslip plastic material, can be cut into shapes or sizes needed. Its tacky surfaces adhere to both countertop and containers placed on top of the dyceum, so slipping is prevented. Comes in an 8" x 72" sheet. Help Yourself Aids, $34.40; Fred Sammons, $28.50.

Little Octopus Suction Cups are well known for holding soap in the shower. The suction cups on both sides also can anchor glasses, dishes, mixing bowls, and other items in the kitchen. They come in sets of three. Help Yourself Aids, $2.95; Fred Sammons, $1.48.
Jar Openers are flexible disks of soft rubber, often textured and approximately 6" in diameter, that are designed for gripping and unscrewing stubborn jar lids. They may also be used like dyceum (above) for stabilizing items on a countertop. Usually available in hardware stores or the kitchenware sections of supermarkets and department stores.

Timing

Since time is a major component of food preparation, a timer is an essential piece of equipment in the kitchen of the visually impaired cook. Unfortunately, timers built into the range are rarely useful for someone with limited vision, since the numbers can be difficult to see, even with normal vision. For persons with no useful vision, these timers are also difficult to mark tactually, since the numbered clock face is usually recessed behind glass. But alternative timers are available. Braille timers have raised dots that are used in setting the dial. Long-ring timers, about the size of a small dinner plate, have become fashionable kitchen equipment; large, black numerals mark the clock face, visible to persons with low vision. But note that these popular timers must be treated carefully to avoid breakage. A regular print timer can be adapted tactually, or a large cardboard ring with large print corresponding numbers can be affixed to encircle the regular dial. When an extra minute can be disastrous, as in baking cookies or using the microwave oven, the talking clock in the elapsed time mode is particularly useful because it automatically announces the time.

RESOURCES

Marktime 30-minute Timer (left in photo), and Marktime 60-minute Timer. Each has two raised dots at the 5-minute intervals. The 60-minute timer has 3 raised dots at 15, 30, and 45, and one dot at 2½ minute intervals. The 30-minute timer has one dot at each minute. The 60-minute timer is available as follows: Independent Living Aids, $12.75; American Foundation for the Blind, $12.95; Massachusetts Association for the Blind, $13.00.

Low Vision Long-Ring Timer (left in the photo) can be set on a countertop or hung on a wall. The 60-minute low vision timer is available in black numerals on yellow background at Independent Living Aids, $10.35; and American Foundation for the Blind, $10.50. It is also available in black on white at Massachusetts Association for the Blind, $10.00.

The Lux Long-Ring Timer (right in the photo) has raised lines at one-minute intervals and also raised numbers at each 5-minute interval, available at Independent Living Aids, $8.95; and American Foundation for the Blind, $9.00.

A Braille Timer has braille numerals at 5-minute intervals, available at Royal National Institute for the Blind, L65.53.

Range and Oven Cooking:

Safety Techniques and Equipment

The subject of safety techniques and kitchen equipment ranges, electric fry pans, broilers, and so on — and how to use them could provide material for a textbook. On standard volume which addresses this subject in detail is Mealtime Manual for People with Disabilities and the Aging compiled by Judith Lannefeld Klinger and published by the Campbell Soup Company. For a more complete discussion of equipment and techniques for food preparation and various heat sources, that book should be consulted. Here, we hope to present an overview of a few essential considerations.

One consideration is a method of lighting a gas range. Although most modern gas ranges have automatic pilots, many energy-conscious persons choose to have the gas company shut down the automatic pilot, a procedure which saves fuel and keeps the kitchen cooler in warm weather. For this situation, and for times when the pilot goes out by accident, equipment for lighting the gas range manually becomes important, especially for visually impaired cooks who may find this procedure more intimidating until they become familiar. Available equipment includes matches or flame igniters. Long fireplace matches are safer than kitchen matches as the distance from flame to hand is greater. Flame igniters come in three major types: flint, battery, and butane. The flint igniter is a flint and steel sparking device. When the handle is squeezed the flint and steel abrade to produce sparks. Sparks will, of course, ignite...
the gas, but these flint igniters are hard to direct and difficult to use effectively. The battery operated igniters have a flexible stem so can be directed easier. When a button is pushed, a coil glows to light the gas. The butane lighter is the most streamlined and easy to use. When the switch is flipped, a consistent, but adjustable, flame is emitted. The butane lighter can be used for candles, fireplaces, and barbecues, too.

For controlling the gas flame and cooking with it, the dial location for the lowest flame level can be labeled so it is known. This is important since the flame may blow out any lower level.

Positioning pots and pans on the range also involves safety considerations. Always turn the handles of pots and pans away from the edge of the range in order to prevent knocking one off or heating the handle. Pan handle holders, which are vertical rods with suction cup feet, attach to range top and provide a rigid, stable place for the handle to rest. This prevents the pan from spinning when contents are stirred. Centering of pans, both for safety and for even cooking, should be practiced on a cold unit. A hardwood spoon handle or chopsticks can be used as a hand extension to check if the pan is centered once it has been heated. For even cooking, flame tamers or even-heat guides are available to evenly distribute heat over the bottom of a pan and to prevent scorching. Those with handles and smooth surfaces can be ineffective because the unit itself can slide on the burner and bring the wooden handle into position for scorching. Many prefer the AFB version because it has grooves which grip ridges of the burner. However, the grooves are relatively slight, and it too can be easily forced to slide. The material of which pots and pans are made also influences their stability once they are positioned. Lightweight, shiny bottomed pans are slippery and move too easily on the burner. Size is also a factor. If possible, oversized pans should be used instead of small ones so that stirring, turning, and other procedures performed in the pot are less likely to create spills and splashes; if spills and splashes do occur, the greater size will cover the burner to prevent burning of contents there.

To prevent fires from splatters, the following techniques are recommended. Frying should never be left alone, as splattering can ignite and cause flash fires. It should also be noted that PAM spray can ignite as it is sprayed into the hot pan, so it should be sprayed in the sink and the pan brought over to the stove. Oil or butter can be spread evenly across the pan bottom with a basting brush or paint brush. Foods, such as chicken, should be dried off first to prevent splatters. Foods can be fried longer at lower temperatures to limit splattering. The commercially available splatter guard works, but it is so large that it is cumbersome and can easily be knocked over. It is also hard to clean. A metal colander inverted in a pan will serve the same purpose and prevent burns.

With vision loss, handling items of food within the pan can prove difficult or impossible. Balancing items as they are lifted for turning depends upon hand motion coordinated with visual information about the steadiness and position of the item resting on or in the implement used for turning. But special tools or techniques can help a great deal. Sausages, or other items that roll, can be skewed together on cake testers to facilitate turning by combining the individual sausages into a compact unit. A bacon crispier can eliminate the need for turning by causing both sides of the bacon to be cooked at the same time. The Foley food turner is designed to grasp food as it is lifted for turning. It consists of two spatula-like sections on handles attached at the top like tongs. There have been many imitations on the market — some better than others. The key is that the double turner grasps but does not “squirr” the food out as pressure is applied.

Another variation on the traditional spatula is the three-piece turner, which fans two additional spatulas on either side of a central spatula to create a larger surface for lifting and turning. This three-piece turner is terrific for lifting bigger items from a pan but is difficult to use for flipping because of its width. Tongs with a good size grip and comfortable finger holes are great for lifting corn and other items from pans. A final consideration when choosing utensils for range top cooking is the material from which they are made. Specially coated turners must be used with Silverstone and Teflon pans.
Array of spatulas and turners includes the three-piece, fanned turner (lower right) and the more widely used tong-spatula combination units together with regular spatulas and tongs.

A commonly used item for frying is an egg ring. The ring holds the liquid egg in position until it is cooked. The ring itself can provide a landmark for locating the item in the pan. The ones with handles are the safest, although a clip clothes pin can also be used for grasping the ring to remove the item from the pan. For a homemade egg ring, a smooth-edged tunafish or small pineapple can with top and bottom cut off is the right size.

The locklid saucepan aids in draining liquid off without spills or burns. The attachable pot strainers are hard to manage at first but work fine once the technique is mastered. A colander in the sink is an alternative method, but the risk of splashing is increased.

To eliminate entirely the special problems of range top cooking, many recipes can be altered so they can be cooked in the oven. For example, those which call for frying can actually be accomplished by broiling or baking in suitable containers in the oven. Oven-cooking techniques can prevent spills and splatters of hot or flammable liquid, but rules for using the oven safely should be observed. Oven mitts should always be worn. The insulated long ones are best because they are fireproof and can cover the hand and arm up to the elbow. However, the padding hinders maneuverability, and it can char and smoulder. It has been found that many people may easily put the thumb into the food, which cakes on the fabric and then may catch fire. Even with oven mitts protecting hand and arm, one should never reach into the oven. The rack should be pulled out when any pan is to be placed on it or removed.

Although oven mitts provide protection when the rack is to be grasped, wooden rack pullers are safer since they pullers are safer since they completely eliminate the need to reach into the hot oven.

Other hints for oven safety follow in the list below:
- The oven should be turned off before the door is opened.
- When one opens the oven door, one should stand to the side to avoid a blast of hot air.
- Recipes that call for a preheated oven can bake just as successfully if they are inserted into a cold oven before turning on the heat and are left to cook an extra five minutes at the end of the prescribed time.
- The top two rack positions in the oven should not be used, especially when broiling since the heating element will be very close to any splatters, which it can easily ignite.

Care should be given to the type of dishes and pans used in the oven. Time and temperature are different for glass cookware, so adjustments must be made. Casserole dishes larger than needed can prevent spills and make carrying easier but may require adjustments in the cooking time. Double pans or a cookie sheet under a dish, especially flimsy foil containers, adds support and also prevents spills from reaching the oven floor. When baking pies, one helpful tip is to keep one cup of filling out of the crust until the tip is on the oven rack. By adding it at that time, spills will be prevented. A tip for baking potatoes is to place them in a baking pan to eliminate searching the rack to locate them and accidentally rolling them off.

RESOURCES

Oven Mitts which are flame retardant and elbow length are available from three sources. American Foundation for the Blind, $3.00; Independent Living Aids, $2.95; Miles Kimball, $4.98.
Rack Pullers are long, notched sticks used for grasping the oven rack and pulling it out or pushing it back into position. Hardwood versions are best; rack pullers also come in pine, a soft wood which can smoulder at a lower temperature. Available locally from specialty shops for kitchenware such as Crate and Barrell.

Pan Handle Holders as described in text above hold the pot handle between steel rods attached with suction feet to stove top. FashionAble, $5.25; Fred Sammons, $13.95; folding version, $7.95.

Battery operated gas range lighter is available. American Foundation for the Blind, $5.95; Independent Living Aids, $5.50. Butane Gas Range Lighter is also described above. Lillian Vernon, $14.98; also available in stores supplying camping equipment. Electronic Gas Lighter operates on batteries. Its compact and streamlined case eliminates the potential of accidentally hooking the device on the burner grid. Brookstone, $11.95.

The flint-type lighter as described above is available from two sources. American Foundation for the Blind, $1.25 and Independent Living Aids, $1.20.

Splatter guards, made of closely woven mesh to trap splatters but allow heat to escape, can be used to prevent splatters when lids are otherwise not desired on the pot or pan. Independent Living Aids, $2.90; American Foundation for the Blind, $3.00; Massachusetts Association for the Blind, $2.25; Lillian Vernon, $2.49.

Serving

After preparing and cooking food, serving becomes the task, which involves apportioning, presenting, and transporting food prepared at counter or range to dining area. Meals may also be portioned out at the table, but this procedure may cause greater confusion. The visually impaired cook should learn how to arrange food attractively on a plate, and equal portions will help with this aesthetic concern as well as with economy by stretching the food so that everyone is served.

Several tools and techniques prove useful to the visually impaired cook who is to accomplish this task. A ladle is a wonderful aid for transferring soups, vegetables, stews, and other foods into bowls or onto plates, since the food is apportioned equally, cupped, and prevented from spilling. After the bulk of the container has been ladled out, the rest can be poured.

Squeeze bottles and pump bottles can be used for relishes, ketchup, salad dressing and other foods or condiments that tend to flow in globs out of their original containers when poured. These squeeze and pump bottles dispense in an easy, clean manner. To dispense sugar, sugar cubes or one-teaspoon dispensers are efficient. Toaster tongs are a safe way of rescuing toast from a toaster and placing it on a plate. (A magnet makes it possible to always have the tongs handy as they can be stuck to the toaster side.)

Pie cutting guides are commercially available for making evenly sized pieces, but for a homemade guide, tactual marks can be made on the rim of the metal pie plate by inverting it and lightly pounding a common nail into the rim's underside by just allowing the nail to dent but not pierce the metal. Raised dots are thus embossed on the plate rim's topside. To cut equal wedges, the knife blade is drawn through the pie from one dot to the dot directly opposite, thus cutting one straight line which halves the pie. To make more and smaller pieces, the knife is drawn from each dot to its opposite all along one side of the pie plate. Toothpicks placed at equal intervals along the circumference of pie or cake can serve as anchors for string that can likewise guide the knife.
Alternative Appliances

Instant beverage heaters, slow cookers, pressure cookers, toaster ovens, electric skillets, and other small electric appliances belong to a class of modern kitchen equipment designed for greater convenience in cooking. With several automatic features, these appliances contribute convenience by allowing many components of food preparation to be combined into one step or reducing dramatically the amount of time needed. For visually impaired cooks, this kind of convenience provides a more controlled environment for food preparation, which can enhance organization in the kitchen physical layout, storage space, and the planning necessary for stages of food preparation.

For combining many steps of preparation into one innovative appliance is available. Compact and efficient, the toaster oven can be used to prepare frozen dinners and dishes as well as to toast bread or bake small items such as potatoes using less energy than when prepared alone in the large space of a conventional oven. For another example, a one-dish meal can be prepared in an electric skillet, where vegetables and meat can all be cooked together at once. For preparing individual light meals and snacks, instant beverage heaters can be used to boil the small amount of water needed to transform packaged soup mix, cereals, instant coffee, cocoa, or tea into a satisfying food. These small appliances are units which accept a cup of cold water in a reservoir which is then heated by electricity to boiling point. After the sixty seconds required, the electric current shuts off automatically, and the hot water can be dispensed directly into the cup, with instant mix, placed beneath the reservoir's spout. In this unit, automatic features solve several problems that can be experienced by persons with vision loss, restricted range of motion, or memory deficits. With the automatic shut-off, there is no need to time and to monitor the process, and the dispense feature reduces problems associated with measuring and pouring a hot liquid.

The appliances discussed above share several further benefits. Using one appliance for preparing the whole meal can eliminate the need for certain techniques and devices that are particularly challenging for the visually impaired cook. Separate burners do not need to be turned on and off. Pans no longer need to be retrieved from storage and then centered on burners. The more elaborate safety procedures for using a conventional oven, with its potential blast of hot air upon being opened, do not need to be considered. Because pots and pans are not scattered to various heat sources, searching for them during food preparation is another problem eliminated by single-unit cookers. Of course, this is not to say that all safety considerations are no longer important. Indeed, most important is the care which must be taken to touch the extremely hot exteriors of these single-unit cookers when controls or handles are being sought with an exposed hand. But, if these and other crucial safety features are avoided, the convenience of these appliances can be enjoyed by anyone.

The Cake Caddy is a utensil especially designed for cutting and serving a wedge of cake. Blades join at top to form the point of a triangle while handles for grasping the wedge thus sliced extend from the other end of the blades. Independent Living Aids, $2.25.

Pie Cutting Guide made of metal provides a cutting stencil for eight slices. American Foundation for the Blind, $6.05; Independent Living Aids, $5.95; also available from Science for the Blind is a six-slice version, $3.00.

Ketchup Pump is available via mail order. Walter Drake, $1.99.

Sugar Meter is a glass cylinder base with plastic conical top designed with opening in tip to dispense 1/2 teaspoon when poured. Holds 12 ounces. Independent Living Aids, $1.65; American Foundation for the Blind, $1.75.

Toaster Tongs are made of wood to prevent electrical shock from contact with toaster element. Independent Living Aids, $3.85; Miles Kimball, $1.19.
techniques are observed, compact alternative appliances can make significant contributions to independent living with vision loss, and they can provide as well versatility and efficiency in energy use, values sought today by most consumers.

Microwave ovens, particularly, are becoming popular because of their versatility, and various features make them useful for cooks with vision loss. Taken directly from the freezer, food can be defrosted and cooked in one step. Because cooking occurs when the molecular structure of the food is changed through sound waves rather than heat, the oven remains cool; consequently there is no blast of hot air when the door is opened. Because sound instead of heat does the cooking, ovenware does not need to be heatproof, making it possible to cook in or on dishes to be used for serving the food; only metal cannot be used. For convenience, a mug full of water can be boiled in seconds for a cup of instant coffee. Instead of dials or panels of push buttons for temperature settings, the microwave ovens have a touch pad or touch panel which can be labeled more precisely than can most dials. In addition, braille overlays are available from Sears and Amana for the touch controls. Also of interest to the visually impaired cook, Panasonic is developing a talking microwave oven.

RESOURCES

INSTANT BEVERAGE HEATERS

The Sunbeam Hot-Shot is available locally as well as from distributors, specializing in products for the blind. American Foundation for the Blind, $25.00; Dialogue $18.00; Independent Living Aids, $24.00; Massachusetts Association for the Blind, $23.00.

Electric immersion heaters can heat water, premeasured when cold, in a cup or bowl. But if improperly handled, they are a potential safety hazard, particularly when the heating element is exposed. Science for the Blind, $1.95; Miles Kimball, $5.98.

ELECTRONIC LIQUID LEVEL INDICATORS

Electronic Liquid Level Indicators can solve problems associated with pouring hot liquids to measure accurately. Their audible signal indicates when desired level has been reached. Royal National Institute for the Blind, L8.93.

SINGLE-UNIT COOKERS

Electric Skillet from Sunbeam has a control with large, raised white numbers on a black background, useful for persons with low vision. American Foundation for the Blind, $38; Independent Living Aids, $36.95.

Slow Cooker from Rival has a control with audible clicks. Independent Living Aids, $37.95.

Pressure Cooker from Mirro-Matic has an audible bouncing weight to notify when the set pressure is reached. American Foundation for the Blind, $29.50; Independent Living Aids, $29.00.

CONCLUSION

The gadgets and equipment available to the visually impaired population are constantly increasing as technological advancements occur. There are multiple uses and valid reasons for much of what is available on the market. There is, however, never enough said about making do with what is at hand. Adaptations, common sense, and a little ingenuity can go far. All cooks, visually impaired or not, have to develop self-reliance and confidence in their ability to work safely and efficiently in the kitchen before they will feel comfortable enough to enjoy cooking. It is hoped that this issue of AAR will assist visually impaired cooks to move closer to this goal.
COOKBOOK RESOURCES

Key to Symbols:
BR = Braille
LP = Large Print
Tape = Tape Cassette

AMERICAN FOUNDATION FOR THE BLIND
15 West 16th Street
New York, NY 10011
BR — Mirro-Matic Electric Pressure Pan Cookbook

AMERICAN PRINTING HOUSE FOR THE BLIND
1839 Frankfort Avenue
Louisville, KY 40206
BR — Better Homes & Gardens Cookbooks

ADA READING SERVICE
12 Renhold Road
Wilden, Bedford, England
Tape — Grow and Cook Extracts
Tape — Easy Cooking for One or Two

BIWORD PUBLICATIONS
Box 20
Willmar, MN 56201
LP — Look 'N Cook

BRAILLE AND TALKING BOOK LIBRARY
81-51 Commercial Road
South Yarra 3141
Victoria, Australia
7 Tapes — In Charge of the Mess

BRAILLE COMMITTEE
Beth Shalom Sisterhood
9831 Ensley Lane
Leawood, KS 66226
LP, BR — Rival Crockpot Cookery

CAMPBELL SOUP COMPANY
Camden, NJ
LP, BR

GENERAL MILLS, INC.
9200 Wayzata Boulevard
Minneapolis, MN 55440
LP, Tape — Betty Crocker Recipes

GUILD FOR THE BLIND
180 N. Michigan Avenue
Chicago, IL 60601
BR, LP, Tape

IRISH ASSOCIATION FOR THE BLIND
8 North Great George's Street
Dublin, Ireland
BR — Pressure Cooker Cookbook

LIBRARY OF CONGRESS
Division for the Blind and Physically Handicapped
Washington, D.C. 20542
BR, Tape, Records
Books and Magazines

NATIONAL BRAILLE ASSOCIATION
Braille Book Bank
422 Clinton Avenue
Rochester, NY 14620
BR — Sharp Microwave Cookbook

ROYAL NATIONAL INSTITUTE FOR THE BLIND
224 Great Portland Street
London, W1N, 6AA, England
BR

STATE SERVICES FOR THE BLIND
Communication Center
1745 University Avenue
St. Paul, MN 55104
BR (microwave books)
Tape — Betty Crocker Cookbooks

ACTUAL TYPE SIZE
ORANGE
1 cup butter or 1
2 cup white sugar
1/2 cup brown sugar
2 tablespoons grated orange rind
INTERIOR ENVIRONMENTAL MODIFICATIONS

DOORS - Should have an opening of no less than 32".

To allow 2 persons, or a person and a guide dog, to enter or exit side-by-side, the door opening should be no less than 48".

Door frame/door color should contrast to the color of the surrounding area.

WINDOWS/GLASS DOORS - All large areas of glass should be identified by contrasting color decals at both face and chest height.

LIGHTING - Care should be taken to avoid glare and reflections. Matte surfaces can be used.

Stairs, handrails, bathroom and kitchen fixtures, etc., should be as well-lit as possible.

STAIRS - Handrails should be at least 30" higher than the stairs.

Childrens' handrails should be 24" higher than the stairs.

Tactile strips can be a tripping hazard; grooves work better.

The top and bottom steps, and the handrail, should be of a contrasting color. Landings should also be a different color.

FLOORS - Reflective or glossy flooring should be avoided.

Different floor surfaces can be used to identify different areas.

SPACES/WALLS - Expansive open spaces should be avoided. Narrow corridors may also be difficult to navigate.

Sound reflecting surfaces may help orientation.

from: Visual Impairment and Blindness, December 1977

LIGHTING
For the Visually Impaired and the Aging
Dr. Mary Catherine Beasley, Guest Editor

For countless centuries man used his eyes out of doors under the natural light that nature provided for him. He used his eyes for distant seeing, or for the performance of his simple eye tasks. The almost overnight in the reckoning of time, man became an indoor creature, living and working by artificial light and using his eyes for close seeing tasks over prolonged periods of time. This change in seeing habits has not an extra burden that is made heavier by insufficient light. Good lighting is important for everyone but especially for the visually limited.

There are three elements in the process of seeing: the eye, the task, and the light.

The eye: This remarkable organ is given us at birth. Be it small or large, blue or brown, we must accept it. We cannot change its appearance by prescription, diet, rest, and protection from infection. If eyesight is faulty, modern ophthalmic science can prescribe glasses and treatment to sharpen vision and relieve strain. Beyond this we can do little.

The task: We can do little about the seeing task itself. If one is a draftsman, he must continue drawing; if one is a seamstress, she must sew; if one is a proofreader, the type cannot readily be made larger or blacker for easier seeing.

The light: The third element in the process of seeing is the one big variable. Sight is a partnership of eyes and light. It is not just good eyes alone that determine good sight. Without light there is no sight. Even when there is light, how much and how well normal eyes can see depends on how good the light is.

The Factors Involved in Seeing

In order that an object may be seen, it must be made to appear upon the retina of the eye clearly and in detail. The clearness of an object, provided eyes are normal or properly corrected, is dependent upon four fundamental factors—brightness, contrast, time, and size.

Brightness: The brightness of an object depends upon the amount of illumination on the object and the percentage of light that reflects. A white surface, characterized by its brightness, reflects up to 90% of the light that strikes it down, a gray surface, and a gray surface more than a black one.

Contrast: The difference between the brightness of an object and the brightness of the background against which it is seen is termed contrast. Perhaps brightness and contrast might be discussed as brightness-contrast because the visibility of an object involves both the brightness of the object and the brightness of the background against which it is seen.

Time: In the process of seeing there is an element of time just as there is in taking a picture. The speed with which eyes perform a task depends largely on the amount of light available. It requires less time to see accurately under adequate illumination than under insufficient lighting. It takes more time to see a straight edge than a curved edge when the material is poorly lighted. Therefore, in order to reduce the time factor and provide faster seeing, it is necessary to increase the illumination. It also requires more time to see when the contrast is poor, as in sewing with black thread on black cloth or with white thread on white cloth. The factor of time is therefore closely related to the factors of brightness and contrast.

Size: The size of an object is probably the most generally recognized factor in seeing. It is obvious that a large object is more readily seen than a small one of the same color—a golf ball as compared with a pear, for example, or a pair of scissors with a needle. Light can aid in seeing small objects because it has the effect of magnifying them. However, here again the factor of size is closely dependent upon the level of illumination and the contrast between the object and its background. For example, a golf ball on a white background will not be seen as easily as a pearl on black velvet, even though the golf ball is larger.

These four factors—brightness, contrast, time, and size—are involved in every seeing operation. They are interdependent and so intertwined that they should always be thought of as related factors.

Amount of Light

The eye is not capable of accurately judging the amount of light on a seeing task. However, illumination can be measured accurately by the use of scientifically designed instruments, one of which is called a light-meter. Just as a ruler measures length in inches and a thermometer measures heat in degrees, a light-meter measures the amount of illumination in terms of footcandles. A footcandle is the amount of illumination received at a point on a surface which is one foot from, and perpendicular to, the rays of a standard candle. Footcandles may then be thought of as "units of light." The eye is not capable of accurately judging the amount of light on a seeing task. However, illumination can be measured accurately by the use of scientifically designed instruments, one of which is called a light-meter. Just as a ruler measures length in inches and a thermometer measures heat in degrees, a light-meter measures the amount of illumination in terms of footcandles. A footcandle is the amount of illumination received at a point on a surface which is one foot from, and perpendicular to, the rays of a standard candle. Footcandles may then be thought of as "units of light."
BRAILLE MAILING TUBES
Distribution: American Printing House for the Blind
1839 Frankfort Avenue
Louisville, KY 40206 USA
Model Number: 1-0410
Description: Braille mailing tube kit. Heavy cardboard tubes 11/4 x 1 in, designed for mailing up to 4 sheets of braille; with address mailing labels.
Price: $2.25/kit (40 tubes and 40 labels).
Model Number: 1-0411
Description: Mailing labels only.
Price: $1.10/100.

BRAILON BINDERS
Distribution: American Thermoform Corp.
8640 Slauson Avenue
Pico Rivera, CA 90660 USA
Model Number: Not available.
Description: Minimum order, 12 binders.
Price/Binder: $33.30

HAMITON PLATFORM POSTAL SCALE
Distribution: American Foundation for the Blind
15 West 16th Street
New York, NY 10011 USA
Model Number: SCM176
Description: 16-oz capacity. Platform springless scale. Adjustment screw for off-level surface. Read by placing flat of finger against stationary pointer when movable dial stops. Dimensions: 5 5/8 x 5 1/4 x 2 1/2 in. Platform: 2 1/4 x 3 1/2 in. Single raised dot at each oz interval, double raised dots at 0, 5, 10, and 15 oz.
Price: $8.95

IBM BRAILLE OUTPUT PRINTER
Distribution: IBM Corporation
Office Products Division
Parson's Pond Drive
Franklin Lakes, NJ 07417 USA
Model Number: Not available
Description: An operator interchangeable device that will convert on IBM 1403 Model II or 1403 Model N1 Printer from standard printing to braille printing in less than 10 min conversion time. This printer will produce braille output in form of either simple single-run throw-away copy or permanent text book-type copy. The IBM 1403 Model N1 Printer can produce up to 10,000 braille characters/min (366 braille lines/min). The 1403 Model II Printer can produce up to 10,400 braille characters/min (200 braille lines/min). Those interested may contact their local IBM branch office or the IBM Office Products Division for further information, demonstrations, and price quotations.

LOKEY POCKET BRAILLER
Distribution: Lokey Tool, Inc.
220 Juana Avenue
San Leandro, CA 94577 USA
Model Number: Not available
Description: Pocket size braillewriter measuring 11/4 x 1 1/4 x 10 in and weighing 8 oz. Has 6 keys, numbered 1-6 that correspond to dots of braille cell. Space bar is provided for manual spacing only. Carriage advances automatically when 1 or combination of keys are depressed. Two counter-rotating rubber rollers hold and guide braille paper, and permit horizontal- and vertical-line registers.

POCKET SLATES
Distribution: Howe Press of Perkins School for the Blind
175 North Beacon Street
Watertown, MA 02172 USA
Prices include 1 stylus. All slates now have 2 additional slots for embossing Dymo tape.
Model Number: 1
Description: 4-line, 27-cell, lightweight aluminum.
Price: $2.65
Model Number: 2
Description: 6-line, 39-cell, postcard size, lightweight aluminum.
Price: $2.65
Model Number: 11
Description: 4-line, 27-cell, nickel-plated brass, same size as Model No. 1; recommended for school use.
Price: $2.75
Model Number: 137X
Description: 4-line, 37-cell, nickel-plated brass, used without board.
Price: $3.13

SINGLE-LINE SLATE
Distribution: Howe Press of Perkins School for the Blind
175 North Beacon Street
Watertown, MA 02172 USA
Model Number: Not available
Description: Single-line, 25-cell, slate with stylus. For use with Dymo tape.
Price: $3.00

UPWARD WRITING BRAILLE SLATE
Distribution: Orbit Products Co.
811 Box 79
Villa Ridge, MO 63089 USA
Model Number: Not available
Description: Slate comes with small supply of paper and stylus.
Price: $3.00
**Audio Response Time-Sharing System**

**Distributor:**
American Systems, Inc. (ASI)

**Address:**
123 Water Street
Watertown, MA 2172 USA

**Model Number:** Not available

**Description:** Speech and teleprocessing system coupled to ASI-developed time-sharing system. Provides auditory and tactile sensory aid services to blind persons working or studying from home, school, or office. Audio-response component is large vocabulary speech unit that permits large number of remotely located users to telephone system's time-shared applications computer and operate services with verbal reply. Subscriber may also store additional information for future reference, or commands computer to provide voice, braille, and/or print copies. Costs, programs, and services are negotiable with distributor. System also used for computer-aided instruction and braille production.

**Price:** Negotiable with distributor.

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**ITOBRAIL**

**Distributor:**
Israel Electro-Optical Industry Ltd.
P.O. Box 1165
Rehovot 76110, Israel

**Model Number:** 5792

**Description:** Compact instrument that electronically reads and converts printed text materials into embossed Grade I braille on continuous paper tape at adjustable rate of speed. Self-focusing. Adjusts automatically to type font being read. Average printing speed: 120 braille characters/s. Power requirements: 220–240 V, 50 Hz or 110–115 V, 60 Hz. Available with delivery terms, available from distributor.

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**Vertical Braille Computer Program**

**Distributor:**
Bradford Computer & Systems, Inc.
220 East 42nd Street
New York, NY 10020 USA

**Model Number:** Not available

**Description:** Vertical Brailer, computer program for formatting output, prints lines vertically. Normal 132-character line requires 5 vertical pages. Program can also print horizontally, producing 40 characters/line. Braille is produced by period on print chain of 1403 printer (made by IBM) loaded with soft backing to produce embossing. Input can be from tape or disc of any length. Truncation feature prevents repetition of any character more than 3 times, eliminating long gaps. To
GAMES

Bowling - Bowling rails provide bannister guides. 9' long; canvas carrying bag included. Does not require attachment to alley floor.

Chinese Checkers - Cherry board; drilled holes. Six different-shaped pegs.

Connect Four - Contrasting color pieces for 2-person vertical strategy game. Ages 7-adult.

Cribbage - Raised scoring holes. Marked pegs. Sliding tray underneath wood board holds pieces.
Dominoes - Large black dots identify the blocks. Green flet included to provide color contrast and reduce slippage.

Ergo - Based on ancient Roman game. Black and white pieces for color contrast. Black pieces are notched. Ages 8-adult.

Hi Q Puzzle - For one player. Pegs are to be removed by jumping them.

Mastermind - Requires wits and logic, luck and skill. Print instructions included.

Othello - Flip-open magnetic board. Raised ridges hold discs in squares. Black pieces have inner ring; white ones are smooth.

Parchessi - Four differently-shaped pegs; safety spaces provided by extra holes outside pattern. Birchwood board. Dice included.
Rack-0 - Tactually marked card game. Printed numbers are not sized for low-vision players. For 2-to-4 players.

Rook - 23-variation card game. Brailled cards. Print identification is not sized for low-vision players.

Tex-Cube - Cub puzzle. Each side has a different texture.

Tic-Tac-Toe - Pegboard version. Black and white pieces for color contrast.

All sold by: American Foundation for the Blind
15 West 16th Street
New York NY 10011
PERSONAL CARE


Sold by: Independent Living Aids
11 Commercial Court
Plainview NJ 11803

Folding Magnifier. Thin compact glass folds into its own leatherette case. Distortion free.

Sold by: Independent Living Aids (see above)


Sold by: FashionAble
PO Box "S"
Rocky Hill NJ 08553
609-921-2563

Large Print Telephone Dial. Raised white numbers; self-adhesive back. Fits standard phones.

Sold by: Independent Living Aids (see above)

Weighted Base Magnifier. 30" reach.

Sold by: FashionAble (see above)
TOOLS

CARPENTRY

Audible Signal Device, Lathe Work Alignment. Signal button in four-jaw chuck. Can be positioned to indicate correct alignment or for warning of carriage travel. Product is not manufactured.

For information, contact:
Jerome Golner
Golner Precision Products
354 Cottonwood Avenue
Hartland WI 53029

Mr. Golner can also be contacted about two other lathe-working tools: the Tool Adjusting Block, to move the lathe tool holder in precise degrees, and the Triangle Lathe Set Up, to line up the compound at 0°, 30° and 90° against the lathe's chuck (pictured below).

Levels. Manual - Steel ball in a 6 1/4" trough determines is horizontal surface is level.

Electronic level emits audible tone for both horizontal and vertical leveling.

Both sold by: American Federation for the Blind
15 West 16th Street
New York NY 10011
212-620-2169
Measuring Devices. To be made.

For more information, contact Russ Gage
4820 S. 20th St.
Milwaukee WI 53221
414-281-0076

a) Dadoing device. 6" metal pieces vary in thickness, from 1/8" to 1". Grooves in each piece serve as a cross-measurement. For making precise cuts in wood or other materials.

b) Shelf & Paneling Measurement. Slide measuring device made from paneling; length can vary. 1/4" center groove in two boards with wing-nut fasteners. Together, boards are used as a 'sliding ruler.'
COMPUTERS AND RELATED DEVICES

Audio Typing Unit. Must be attached to IBM Mag Card/A or II or Memory Typewriter or Memory 100. Produces unlimited synthetic speech. Consists of audio keypad, audio console, and optional headset. Allows proofing of typed material.

Sold by: IBM Corporation
400 Parsons Pond Drive
Franklin Lakes NJ 07417
201-848-1900

(Lease also available)

Card Reader with Tactile or Voice Output. Reads IBM punch cards.

For information, contact:
J.C. Swail
Natl. Research Council M50
Dee R182 Montreal Rd.
Ottawa Ontario Canada
K1A OR8

Cathode Ray Tube Viewing System. Magnifies CRT display by approximately 20X with 2" high letters. "Retractable" assembly can be slid out of the way for access to the CRT.

Sold by:
Visualteck
1610 26th Street
Santa Monica CA 90404
213-829-6841
Kurzweil Data Entry Machine. Computer-based braille translator and braille embosser convert printed material to braille.

Sold by: Kurzweil Computer Products, Inc.
33 Cambridge Parkway
Cambridge MA 02142
617-864-4700

Kurzweil Reading Machine. Electronic voice reads material placed face-down on the glass. Can also be used with computers and CRT terminals.

Sold by: Kurzweil Computer Products, Inc.
see above

Model 2C Electronic Visual Aids. CRT viewing monitor and stand. Magnifies up to 60X. No closeup lenses needed. For ink-printed material.

Sold by: Apollo Electronic Visual Aids
6357 Arizona Circle
Los Angeles CA 90045
213-776-3343
**Orator Talking Terminal.** Software package in PROMs with keyboard and synthesizer. RS232C compatible. Can be set to pronounce whole words or spell. Capitalization, punctuation optional.

Sold by: ARTS Computer Products
80 Boylston St.
Suite 1260
Boston MA 02116
617-482-8248

**Paper Money Identifier.** Uses 2 penlite batteries. Scanning back of bill produces unique denomination tones.

Sold by: American Foundation for the Blind
15 West 16th Street
New York NY 10011

**Receptionist Mat.** Alerts receptionist or other persons to silent visitor. Attached by cable to alarm box at desk if person remains standing on mat for a few seconds—walking over the mat does not produce signal. Not for sale, still in prototype stage.

For information, contact: Smith-Kettlewell Engineering Center
2232 Webster St.
San Francisco CA 94115
415-651-1619

**Touch Fone Adaptor.**
Replaces top row of switches in 20-button phone, allows operator to determine individual line status by running fingertips across assembly.

Sold by: Telephonic Equipment
17401 Armstrong Avenue
Irvine CA 92714
714-546-7900
**ELECTRONIC/AUTO REPAIR**

**Aud-A-Meters.** In single-channel, 4-channel and professional models. May be connected to any electrically driven visual meter; auditory signal is correlated to a braille scale.

Sold by: Science Products for the Blind
Box 385
Wayne PA 19087
215-687-3731


For information contact: J.C. Swail
Nat'l Research Council M50
Dee R182 Montreal Rd.
Ottawa Ontario Canada
K1A OR8

**Impedence Bridge.** Measures AC/DC resistance, inductance, figure of merit Q of coil, capacitance, dissipation Factor D. Accuracy 3 to 20%. Cassette instructions.

Order from: Science Products for the Blind
see above
Modified Dwell Tachometer. Tests engine RPM, transmission shift points, cylinder balance, Dwell measurement. Secondary and primary testing circuit models also available.

Sold by: Science Products for the Blind

Modified Gauges. Snap-on brand. Company will also modify gauges of your choice. Standard models include:
- Air-Conditioner analyzer (Auto)
- Compression gauges
- Gauge with kit of adapters
- Vacuum/Fuel Pump gauge.

Sold by: Science Products for the Blind

Modified Ignition Analyzer. Tests coil resistance; battery voltage; voltage regulator; pick-up coil; spark plugs and wires; cranking circuit; ballast resistor.

Sold by: Science Products for the Blind

Tac-Torque. Snap-on brand. 100" and 100 and 200 lb. models available. Personal wrenches also modified if possible.

Sold by: Science Products for the Blind

Talking Digital Multimeter. Independent meter. Measures AC and DC, .001mA to 10A, .1 ohm to 2 megohms.

Sold by: Science Products for the Blind

Talking Voltmeter. On demand or continuous spoken output. Can be used with existing meter or varying voltage. Overrange alarms and PEAK memory.

Sold by: Sensory Interface Equipment, Inc.
4442 Kasson Road
Syracuse NY 13215
315-469-7182
MISCELLANEOUS

Ham Transmitter/Tuner. Can be used on all ham equipment. Pitch indicator and braille calibrated voltage standard for more precise measurements. Schematics only.
Available from: Smith-Kettlewell
see above

Sold by: American Foundation for the Blind
see above

Voxcom Kit. Self-contained unit records and plays back talking labels, files, records, recipes, messages, etc. on 50 pretaped cards. Card is inserted into machine. Batteries included.
Sold by: CAL Distributors
2002 Forest Hill Drive
Silver Spring MD 20903
301-434-7748
Bernina Sewing Machine. Model 830H has features for easier operation by visually impaired persons: slot (no eyes) threading; width, length, needle position and buttonhole dials on knob with large projections. Tactile markings on stitch selection lever. Large knob feed-dog mechanism.

Sold by: Fritz Gegauf Limited
Seestrasse
8266 Stechborn
Switzerland
(054) 8 29 21

Magnifier for Sewing Machine. Flexible plastic attaches to side of sewing machine; helps guide thread into needle.

Sold by: American Foundation for the Blind see above

From: Independent Living Aids
11 Commercial Court
Plainview NJ 11803

INFILA AUTOMATIC NEEDLE THREADER
384222—$1.95
Automatically threads large needles or thin needles. Simple push button operation for single or double threading.

YARN THREADER
861222—$60
Exclusive "self threading" feature for quick and easy operation.
WATCHES, CLOCKS

James Remind-O-Timer. 24-hour multiple time switch with 48 movable pins, with pins controlling each hour marked by single raised dot. Clock dial markings of three dots for 3, 6 and 9 A.M. and P.M. Capacity of up to 1000 watts. AC current only.

Sold by: American Foundation for the Blind
15 West 16th Street
New York NY 10011

Large Digit, Long-Ring Timer. 3/4" black numbers on yellow background. One-hour maximum timer. Hangs or sits on counter.

Sold by: American Foundation for the Blind

Low-Vision Watches. Quartz battery-operated. Black dial with large white numbers at 3, 6, 9 and 12 (see picture). Available in men's and women's models, with leather or gold-finish expansion bands.

Sold by: Independent Living Aids
11 Commercial Court
Plainview NJ 11803

Also, Low-Vision Travel Alarm (pictured below).

Lux Variable-Ring 60-Minute Timer. Duration of ring varies with time set, but adjustable for long at any setting. Raised mark for each minute; raised print numbers and mark every 5 minutes.

Sold by: American Foundation for the Blind (see above)
Marktime Timers. In 60-second and 60-minute models. Raised dots at 5-second or 2 1/2-minute intervals, triple dots at 15, 30 and 45 minute or second points.

Sold by: American Foundation for the Blind (see above)

Pocket Watch. Quartz battery-operated. Hexagon, gold finished case. No winding necessary. Triple dots at 12; double dots at 3, 6 and 9; single dots at other hours.

Sold by: Independent Living Aids (see above)

Sharp Talking Clock. Alarm (Verner's "Heiden Roslein") is preceded by 10 and 5-minute announcements. Time is announced 7 times per day. Also contains up-to-12 hour timer. Uses mercury battery.

Sold by: Zygo Industries, Inc.
PO Box 1000
Portland OR 97207
503-297-4724

Talking Alarm Clock Radio. Panasonic. Calls out time automatically at intervals from 1 minute to 60 minutes. Voice and music chirp alarm. Power back up system. Silver case.

Sold by: American Foundation for the Blind

Talking Chimes Clock. Dual alarms; announces time, day and month at a touch; announces alarm times. Battery back-up. Westminster chimes; voice, chimes or combination times can be set for every quarter of the hour.

Sold by: Comfortably Yours
52 West Hunter Avenue
Maywood NJ 07607
201-368-0400
Talking Desk Top Alarm Clock. "Voice" button announces time. 30 or 60-minute automatic time call. Dual alarms. Battery back-up. Sold by: Independent Living Aids see above

Timemaster Electric Time Switch. Turns appliances and lights off and on during 24-hour period. Not capable of exact minute settings; not for use with air conditioners. Raised dot dial. Appliance plugs into table model unit. Sold by: American Foundation for the Blind (see above)

Timex Speak-Easy. Time announcement on demand; voice or beep alarm. Dual alarms. Battery back-up. Snooz feature gives 3 calls. Sold by: Timex Clock Company Watersbury CT

Voice Master Talking Watch. Visual display includes seconds. Time announcement of hour and minute and A.M. or P.M. Automatic announcements on hour or half hour; time; alarm and alarm repeat. Travel pouch, desk stand included. Sold by: Zygo Industries, Inc. PO Box 1000 Portland OR 97207 503-297-4724
CUSHION TYPES

from "Cushion and Pad Fitting Procedure for the Wheelchair Confined Person," E. Edberg, R.P.T.; N. Hervey; J. Rogers, M.S.
Rancho Los Amigos Hospital Annual Progress Report No. 4 - 1975

Active Seat Cushions - Air volume force is used to support the body. Alternating pressure pads (APP) alternately load and unload areas of potential tissue trauma. However, an alarm (visual or audible) must provide a warning of diminished pressure or flow for the cushion to be really safe. High pressure support should not be used for extended periods of time.

Air Cushions - See the above. Air cushions do not alternate pressures like active cushions, but they still require alarms. Hammocking may result in tissue breakdown. Seating instability can also occur.

Foam Cushions - Synthetic plastic or rubber foams have minimal viscosity. Polyurethane foam can be cut and built up to match individual needs. However, this material will lose elasticity.

Gel Cushions - Silicone, vinyl and other gels are usually covered in a latex-type cover. The pad will return to its original shape when pressure is removed; it equalizes pressure, but does not by itself control pressure distribution. The pads tend to be heavy.

Particle-Filled Cushions - "Bean bag" pads will distribute pressure as long as the supporting particles can be mobile. If the particle material is non-compressible and small, and lightweight, stability and pressure control may be limited.

Solid-Formed Cushions - Cushions are molded. Problems occur when a person's body changes- growing, weighing more, or atrophying. Also, the person must remain seated in the pattern of the mold.

Visco-Elastic Cushions - These pads provide reduced shear as long as the containing envelope is not too restrictive. Like foam, the material results in equal pressure distribution, but its more stable. It is also heavier.

Water Cushions - See air cushions. Water cushions are heavier than air ones; there is a potential for more difficulty in handling and more severe hammocking.

Note: foam may also be used as a baffle to add stability to gels, air, etc.
CUSHIONS


Sold by: Be OK
Fred Sammons, Inc.
Box 32
Brookfield IL 60513
Phone 800-323-7305

Cushion - Eggcrate construction. Covers back and seat of wheelchair, or available in seat only. Also sold as mattress. Flame retardant.

Sold by: FashionAble
PO Box "S"
Rocky Hill NJ 08553
609-921-2563

Cushions - Sold in various styles: see below. Order through local Sears.

Cushions for comfort and support
(1) Inflatable Rubber Cushion. Soft to firm support.
CONSTRUCTION: Rubber. 16 oz. canister. About 3 inches thick when inflated.
ORDER INFO:
KH 1085—Shipping weight 1 lb. 4 oz. ........ $16.99
(2) Flotation Cushion. More comfortable sitting due to even weight distribution.
CONSTRUCTION: 1-inch polyurethane foam with back rest cover. Have your local dealer add water or remove foam in use. Cushion measures 18 x 16 x 3 in high.
ORDER INFO:
KH 1089—Shipping weight 1 lb. 6 oz. ........ $10.99
(3) Pressure Dress Support. For inner support while seating, sitting, or standing.
CONSTRUCTION: Black vinyl exterior; interior is nylon or plastic. Available in three sizes.
ORDER INFO:
KH 1087—Shipping weight 2 lb. 6 oz. ........ $18.99


Sold by: Invacare Corp.
1200 Taylor Street
PO Box 4028
Elyria OH 44036
216-365-9321
X-C-2000 - Liquid powder core; varying density foams. Nonslip chair contact surface; top and sides are sheepskin. Will not go flat.
Sold by: Anderson Industries, Inc.

SEATS

Aronson Prone Stander. Pads and foot rest may be interchanged, are adjustable. Vinyl. Coated foot rests. Holds up to 200 lbs. For children.
Sold by: Modular Medical Corp.
1558 Hutchinson River Pkwy. E.
Bronx NY 10461
212-829-2626

Bath/Shower Benches. Seats and back of high-density polyethylene; steel frame. Non-slip rubber tips. Varying sizes.
Sold by: Orthopedic Splintz, Inc.
147 Albany Avenue
Lindhurst NY 11757
576-226-1811

Bath/Transfer Tub Seats. Varying styles, including padded and extra-long extension legs. Plastic seat and back; sand-colored frame.
Sold by: Lumex, Inc.
100 Spence St.
Bay Shore NY 11706
516-273-2200
Headwings. With and without neckrest, or Velcro straps for head positioning.
Sold by: Modular Medical Corp. (see above)

Sold by: Collins Industries, Inc.
PO Box 58
Hutchinson KS 67501
316-663-4441

Sold by: Skil-Care Corp.

Straps/Belts. Varying styles. Sold by: Modular Medical Corp. (see above)

Supports/Straps. Varying styles. Sold by: Fred Sammons (see above)
Toilet Seats and Frame. Raised, cushioned locking models of seats.
Sold by: Lumex, Inc. (see above)

Tub Transfer Bench with Open Front Seat. Padded. Inside tub legs with suction cups.
Sold by: Lumex, Inc. (see above)
ENVIRONMENTAL CONTROLS

Anshin Phone. Dials numbers - red for emergencies, green for family or friends - automatically when phone is set on it. Also amplifies voices.

Sold by: Japan Sun Info. Center
4-2-23 Shinjuku-ku
Tokyo Japan

Dial Turner. Cuff attachment. For information, contact:
Japan Sun Info. Center (see above)

Dycem. Non slip plastic.
Blue color only. Available in square and rectangular pads and by the yard.
Sold by: Fred Sammons
Box 32
Brookfield IL 6513
800-323-7305

Easy Grasp Pencil. Large part of holder fits into palm of hand.
Sold by: Northern Wisconsin Center for the Developmentally Disabled
Box 340
Chippewa Falls WI 54729
719-723-5542
**Klick Pencil Holder.** Click signals jaws and rollers have gripped pencil. Pliable metal frame. Fits utensil holder.

Sold by: Fred Sammons (see above)

**Magazines and Bookholders.** Attach to furniture or equipment. Hand or mouthstick may turn pages.

Sold by: C. Beil Designs
5435 N. Artesian Avenue
Chicago IL 60625

or: Fred Sammons (see above)

**One-Handed Writing Board.** Locks paper in place for writing. Rubber feet hold board steady. Right or left hand models.

Sold by: Fred Sammons (see above)

**Prentke Romich Products.** Address: RD 2, Box 191
Shreve OH 44676
216-567-2906

**Buzzel.** This device is useful as a call or alarm system. The buzzer plugs directly into an ECU power receptacle. When the channel is turned on the Buzzel is activated.

**Functional Goal:** Independent means to alert another person within the immediate area.

**Justification:** Safety within hospital, home, school or work setting.
As a result of severe physical impairment, many people are unable to perform tasks normally suited to able-bodied people. When operation of electrical devices is desired, frequently the device or the method of operation can be adapted to fit the capabilities of the physically handicapped.

What is an Environmental Control Unit (ECU)?

An ECU permits the severely handicapped individual control electrical devices in the home, hospital or work setting without assistance. Lights, radio, television, intercom, or signal, electric bed, for example, may be operated independently. The objective of the ECU is to use technology to facilitate the operator's control over the environment, to promote independence and to improve the quality of life.

The components comprising an environmental control system are: the control switch, the main control unit and the devices to be controlled. Each must be ordered separately, pending on the needs and capabilities of the user.

PRC manufactures three environmental control systems, CU-1, ECU-2 and ECU-3. The comparative chart on page 3 compares PRC's ECUs. When selecting an ECU, these questions may be helpful:

1. How many AC appliances will be controlled?
2. Does user want on/off control of radio and TV only or tuning capabilities as well? (consider AFR and TCS)
3. Is wireless control of appliances desired? (consider ECU-3)
5. Is control of an ECU from DU-IT Wheelchair System desired? (consider Infrared Remote Receiver/Infrared Remote Transmitter, IRR/IRT available from DU-IT, see page 12).
6. Is telephone directory storage desired? (consider ECU-3)
7. Is separate input display important? (consider ECU-1 or ECU-3). This approach permits the main control box and connecting wires to be placed out of view of the user.

How does an Environmental Control System work?

Since the primary ECU user group is high level spinal cord-injured quadriplegics, the systems have been designed to accommodate their capabilities and needs. The general approach requires two user actions: one to select the function to be performed, the other to operate that function.

The user action is communicated to the system via a control interface: usually a dual control switch such as the Rocking Lever, Tongue Switch or Pneumatic Switch. These require physical movement or blowing and sucking on a tube. Consistency and reliability of the potential user actions will determine the appropriate interface.

Generally the ECU has a display that shows the user what has been selected. This may take the form of a panel of indicator lamps, each corresponding to a particular function or channel. Only one lamp is lighted, indicating the selected function. To select a desired function, the user activates the SELECT portion of the control interface; for example, sucking on the Pneumatic Switch tube.

Once the user has selected the desired function, operation is via the other portion of the control interface; for example, blowing on the Pneumatic Switch tube.

How is an Environmental Control System selected?

The decision to use an environmental control system lies primarily with the handicapped individual. Selection should depend upon the appliances desired to be controlled and the environment and position from which they will be controlled. Frequently, a system is controlled from two positions: the bed and the wheelchair. Selection and placement should keep these positions in mind.

Once the individual's needs are known, the appropriate control switch is selected. (See General Catalog, Electronic Aids for the Severely Handicapped). The specific environmental control unit is then selected with consideration for the current as well as future appliances to be accommodated. The chart on page 3 compares PRC's ECUs. When selecting an ECU, these questions may be helpful:

1. How many AC appliances will be controlled?
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6. Is telephone directory storage desired? (consider ECU-3)
7. Is separate input display important? (consider ECU-1 or ECU-3). This approach permits the main control box and connecting wires to be placed out of view of the user.

Where can an Environmental Control System be used?

An Environmental Control System is appropriate in settings where an individual has the need to exert control over the environment. Frequently, environmental control systems are utilized in hospitals, rehabilitation settings, nursing homes, private residences, as well as within educational and work settings.
## Comparison of ECU Features

<table>
<thead>
<tr>
<th></th>
<th>AC Power Receptacles</th>
<th>Latching Control Receptacles</th>
<th>Momentary Control Receptacles</th>
<th>Standard Component</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ECU-1</strong></td>
<td>4</td>
<td>2</td>
<td>6</td>
<td></td>
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<td>Main Control Unit</td>
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<tr>
<td>Wireless control</td>
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<tr>
<td>of 8 BSR AC</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td></td>
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<tr>
<td>power modules,</td>
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<tr>
<td>including lamp</td>
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<tr>
<td>dimming</td>
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</tbody>
</table>

### Definitions

- **AC Power Receptacle:** ECU receptacles providing switched 120 volt AC for the power of television, radio, stereo, lamp, etc.
- **Latching Control* Receptacle:** ECU receptacle that is turned on with one switch closure and turned off with a second switch closure. Used in conjunction with radio, call signal, nurse call, tape player, and battery powered items.
- **Momentary Control* Receptacle:** ECU receptacle that is only activated when control switch is activated. Used in conjunction with intercom, radio, bed control and television channel selector, for example.

*Control Receptacles provide both a contact closure and switched 12 volt DC.

### Study

The June 1979 issue of the “Archives of Physical Medicine and Rehabilitation” includes a report of a formal 44 month clinical evaluation of 13 commercial electronic assistive devices: Environmental and Typewriter Control Systems for High-Level Quadriplegic Patients: Evaluation and Prescription. If a copy is not available for your reference, request a free reprint of the article from PRC. Conclusions as they appear are shown here.

**Conclusions**

This 44-month study has yielded a volume of data regarding the suitability of various aspects of electronic assistive devices for use by individuals with high-level quadriplegia. Clinical evaluation of 13 devices by 52 traumatic C-2 to C-5, 6 level patients has revealed that the Prentke Romich ECU-1 and ADT-5A are acceptable for home use at present.

**Common features to all Environmental Control Units:**
- Dimensions of main control unit: 17” W x 4” H x 11” D.
- Adjustable scanning speed.
- Control switch must be ordered separately.
- Built-in telephone capabilities, requiring ADT-5C including operation during a power failure.
- Permit on/off operation of varying numbers of commercially available appliances and devices.
- Dependent upon 120 volt AC power. No special power required.
- Adjustable beep accompanies scanning steps.

### Resources

For additional information, the following resources are recommended:

- **Environmental Control Systems & Vocational Aids for High-Level Quadriplegia.** Rehabilitation Monograph No. 55, Institute of Rehabilitation Medicine, New York University Medical Center, 400 East 34th Street, New York, NY 10016.
This unit was designed to permit independence in feeding. By operating a control switch, these functions are available to the severely handicapped user: plate rotation (for food selection), spoon in, out, up, down (to lift food from plate to mouth). The plate turntable can accommodate plates or bowls of various sizes and the spoon is standard flatware. Plate, spoon and spoon stop may be easily removed for washing.

Control of the feeder is determined by the physical capabilities of the user. For the individual with spinal cord injury, or only limited physical movement available, the Interface is recommended. For someone with gross motor movements, for example, hand, arm, or foot, a separate activation for each spoon movement may be desired. In this case, the two control options are:

1. Arm Slot Control (ASC-5)
2. Joystick (JS-4) with a separate single or dual control switch.

By using the Interface (FFI-1) along with the Feeder and single control switch, the individual may activate the switch once to sequence through all of the spoon movements. The Interface and control switch (See General Catalog) must be ordered separately. Activating and maintaining the control switch will cause the plate to rotate. Releasing the switch will stop the rotation and initiate the spoon cycle to result in an elevated spoon with food ready to be eaten.

Currently under development is the Viewpoint Feeder Interface (VFI). This interface in conjunction with the Feeder and Viewpoint Optical Indicator permits operation of the feeder by slight head movement. The VOI, worn on the head, is directed toward the desired function on the VFI for control of the feeder. (See Expressive Communication Aids catalog).
The QSR X-10 Command Console allows remote control of the "on/off" functions of various electrical appliances, including the dim/bright feature of lights. By depressing the push button (either manually or with a mouthstick or headstick) on the Command Console Keyboard, command signals are transmitted over existing household wiring to the appropriate module.

1. **Wireless Lamp Dimmer Module** turns on/off and dims/brightens any incandescent lamp. (Maximum: 100 watts)

2. **Wireless Appliance Module** turns on/off various appliances, (e.g., TV, window fan, stereo, radio, etc.) (Maximum 15 amperes)

3. **Wireless Wall Module** turns on/off as well as dims/brightens any incandescent lamp normally operated via a wall switch. (Maximum 400 watts)

---

**Positive Features:**
- Simple operation
- Compact size
- Portable
- Relatively low cost
- Audio Visual feedback

**Negative Features:**
- Limited function
- AC power control only

---

**FM Wireless Intercom**

The FM Wireless Intercom is a standard consumer intercom that has been modified to be operated with a dual control switch. The system consists of a master station and two remote stations which are for able-bodied users. One side of the dual control switch selects the remote station channel. The other side switches the master station between TALK and LISTEN. Installation is particularly convenient as units need only be plugged into 120 volt AC power receptacles at the desired locations. Due to the AC power requirement, this system is not recommended for outside use.

Can be used in 2 manners:
1. As an accessory to ECU (Dual Adapter Cable (AC-2) is required. Requires two momentary control receptacles on ECU main control unit.
2. As a separate unit. Dual control switch must be ordered separately.

**Functional Goal:** Independence in communicating with distant locations within a house.

**Justification:** General communication, safety, security.
BSR-ECS-4 enables disabled individuals to operate the "on/off" functions only of up to four electrical devices. Shown with wireless modules.

BSR-ECS-8 enables disabled individual to operate "on/off", all on, dim and bright features of lights and other electrical appliances. Shown are the BSR-ECS-8, BSRA-1 Adapter, Tongue Switch (TS-2).

To Order BSR-ECS-4 or BSR-ECS-8, specify appropriate dual control switch, BSRA-1 Adapter, and quantity and type of wireless modules desired.
Call Signal

This call system is useful in a home or other environment where call tone call must be a distance away from ECU. The call signal has a 25 foot cord that plugs directly into an ECU control receptacle. May be used indoors and outdoors.

**Functional Goal:** Independent means to seek assistance from an individual who may be some distance away from the ECU user.

**Justification:** Safety.

Remote Receptacle

This device permits on and off operation of electrical appliances located some distance from the ECU control box. The RR-2, a small box with a power cord and a 115 volt AC receptacle, has a twenty-five (25) foot low voltage cord which plugs into one of the momentary control receptacles on the ECU. Current capacity is 15 amperes. The Remote Receptacle is recommended as a safer alternative to extension cords. The Remote Receptacle is to be considered for high current loads, such as an air conditioner.

---

*One control switch can operate many devices.*
**Intercom**

The Intercom System has been designed to be operated with a single control switch. The system consists of a master station, 2 remote stations for able-bodied persons and 100 feet of cable. Each remote station can be accessed independently. When a remote station has been turned on, the able-bodied remote station user can control the conversation. Can be used in two manners:

1. As an accessory to ECU (Single Adapter Cable (AC-1) is required.
2. As a separate unit. Single control switch must be ordered separately.

Functional Goal: Independence in communicating with 2 distant locations within a house, or from inside a house to an outside door.

Justification: General communication; safety, security.

Note: This Intercom insures greater privacy than the FMWI Intercom. It is more suited to outside use than the FMWI. Specify if one remote station is intended for outdoor use.

---

**Television Channel Selector**

The Television Channel Selector attaches to most standard black and white or color televisions and permits the user to select any VHF or UHF station and to turn the TV on and off. Installation is comparable to connecting a television antenna to a television set.

Can be used in 2 manners:

1. As an accessory to ECU (Dual Adapter Cable (AC-2) must be ordered separately.) Requires 2 momentary control receptacles on ECU main control unit.
2. As a separate unit. Dual control switch must be ordered separately.

Simple test to determine whether a specific TV is suitable for use with TCS-2:

Tune in local station on channel 3 or 4, unplug TV, wait a few minutes, plug back in. TV should come on with same station tuned. Remote control televisions that fail this test may be controlled through an ECU following a PRC modification of the handheld transmitter. Contact PRC Director of Client Services regarding specific details.

Functional Goal: Independence in on/off operation and channel selection of TV.

Justification: Vocational and educational purposes; independent pursuit of leisure time interests.
The Automatic Dialing Telephone, an accessory that can be used with all three ECU models, permits the user to answer incoming calls independently and dial outgoing numbers, even in the event of a power failure. When used with the ECU-3, up to 10 telephone numbers including the last number dialed may be stored and automatically recalled from memory. The ADT is provided with a handset mounted on a gooseneck with a bracket clamp. For private conversations this assembly can be positioned beside the user's head. A more convenient approach is to use the small condenser microphone and the internal speaker, providing speakerphone performance. The microphone may be mounted on the Pneumatic Switch or handset gooseneck or on the Tongue Switch box.

1. When used as an accessory with ECU, order Adapter Cable (AC-ADT).
2. As a separate unit, order any dual control switch.

Functional Goal:
Independence in all aspects of telephone management.

Justification:
- Safety (to summon assistance, call fire and/or police department).
- General communication (for personal, business and educational purposes).

Standard Components:
- Automatic Dialing Telephone (ADT-5C)
- Battery Charger (BCPS)
- Handset
- Gooseneck
- Microphone
- Telephone line connection cable and adapter

The ADT may be plugged into modular or 4-prong jacks.
Bed Control

Most electric beds have detachable, hand-held or siderail trots which can be replaced by a PRC bed control. The 1 and BC-3 provide for the standard control to be connected for use by others (nursing, housekeeping, etc.)

can be operated in 2 manners:

As a separate unit, with the use of an appropriate control switch and Dual Control Switch Power Adapter (P.C.W.

An accessory to any ECU

Annual total. Independent on managing extra 1,2 or actions of electric bed (e.g., head, foot, bed height)

iritation; improved respiratory status; pressure relief;

can be operated in 2 manners:

Bed Control (BC-1) Independent operation of all electric bed functions, however, only in a fixed sequence (head up, head down, foot up, foot down, bed up, bed down). Requires 1 momentary control receptacle on ECU.

Bed Control (BC-2) Independent operation of ONE electric bed function through use of a dual control switch (e.g., head up and down). Bed control BC-2 will only provide for electric beds using a low voltage control to minimize electrical safety hazard.

Bed Control (BC-3) Independent operation of all electric bed functions in a random fashion. Requires momentary control receptacles on ECU.

To order a bed control, specify the manufacturer and model number of the electric bed.

Bed Controls

This chart indicates which PRC bed control is appropriate for several commonly used electric beds.

<table>
<thead>
<tr>
<th>Electric Bed Manufacturer</th>
<th>Three Models of PRC Bed Controls</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BC-1</td>
<td>BC-2</td>
<td>BC-3</td>
<td></td>
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<tr>
<td>Borg Warner</td>
<td>All Models</td>
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<td>Craftmatic</td>
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<td>Goodman</td>
<td>252, 352</td>
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<td>Hard Manufacturing</td>
<td>Models 1694</td>
<td>Model 2000</td>
<td>Models 1694, 2000, 5088, 5188, 5289, 5389</td>
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<td>Interoyal</td>
<td>Fred Bed*</td>
<td>Fred Bed*</td>
<td>Models 2676, 2680</td>
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<tr>
<td>Smith-Davis</td>
<td>Models 2676, 2680</td>
<td>Models 2676, 2680</td>
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<tr>
<td>Thompson Blair</td>
<td>Model 82, 83</td>
<td>Model 82, 83</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Fred Bed requires modification of standard BC-1, BC-3. Please contact us for quotation.
Sosten. Remote trigger can dial telephone, each up to five times, and deliver pre-recorded help messages. Also can be scheduled for up to 5 message reminders.

Sold by: S.L. Communications
80 West 2100 South
Salt Lake City Utah 84115

TASH Products.
(See above)

Power Strip

A prewired strip of 6 AC power outlets which allows up to 6 appliances to be powered from a single wall outlet. Safer and more convenient than running multiple extension cords. Protective push-to-reset circuit breaker. An indicator light lets you know when the built-in On/Off switch is in the On position. Has 6 ft. cord and 3 prong grounded plug. Rated at 15 A at 115V AC. CSA Approved.

SPECIFICATIONS:
Size: 18" x 21" x 2". Weight: 3 lbs.

Extension Cables

Many types are available in various lengths to extend the cables of ABILITY Switches, microphones or telephones. A few popular types and sizes are shown below. Please contact us for your requirements.

<table>
<thead>
<tr>
<th>Description</th>
<th>Length</th>
<th>Order #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual ABILITY Switch Cables</td>
<td>6'</td>
<td>4335</td>
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<tr>
<td></td>
<td>12'</td>
<td>4336</td>
</tr>
<tr>
<td>Microphone Cables</td>
<td>6'</td>
<td>4322</td>
</tr>
<tr>
<td></td>
<td>12'</td>
<td>4322</td>
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<tr>
<td>Telephone Modular Cables</td>
<td>6'</td>
<td>4345</td>
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<tr>
<td></td>
<td>12'</td>
<td>4346</td>
</tr>
<tr>
<td>4-Prong Adaptor Telephone</td>
<td>6'</td>
<td>4326</td>
</tr>
</tbody>
</table>

AC Adapter

Used to operate:
2100 TELCO Automatic Dialing Telephone
2500 COM-BOARD
6400 Relay Power Unit
or other technical aids requiring 12V DC power. Not suitable for operation of ROTO TABLE Motor Drive Unit. Adapter has quick change plug and jack to correct polarity. TASH Equipment requires centre pin to be positive. Rated at 400 mA. CSA Approved.

SPECIFICATIONS:
Size: 2" x 24" x 2". Weight: 1 lb.
**Enco-5 System**

4125

Allows the user to switch on or off, up to five electrical appliances. May be operated with any Single or Dual ABILITY Switch. Items controlled may include a radio, TV, lights, cassette recorder, fan or other 115V AC appliances. These items are plugged into the back panel outlets of the ENC0-5 Unit. Adjustable audio and visual feedback allows for operation by those with hearing or visual impairments.

A terminal strip on the back panel allows for connection of up to 4 low voltage items, up to 30V DC such as:
- Call Alert or Nurse Call
- Electric Bed with optional 8600 Power Relay Unit
- Page Turner
- Power Source 12V DC and 24V DC, 500 mA max.

A TELCO Automatic Dialing Telephones may be connected to the ENCO-5 Unit when used in conjunction with a Dual ABILITY Switch. Appliances with a total power rating up to 1600 watts can be operated through the ENCO-5 Unit. Powered by 115V AC. CSA Approved.

**SPECIFICATIONS:**

Size: 13" x 8" x 4"

Weight: 11 lbs.

Adapted from a design by the Biomedical Engineering Unit at Queens University, Kingston, Ontario.

**Ultra-4 System**

4130

Allows the user to remotely turn on or off, up to four electrical appliances within one room. Two battery-operated transmitters are available. The small, hand-held transmitter is intended for use by those who have usual hand and finger control. The larger transmitter is intended for use by those with limited hand and finger dexterity. Transmitter may also be operated with a mouth stick. The 1/2" buttons require only 150 grams force to operate. Suitable for gooseneck mounting on a bedrail or headboard.

A 1 3/4 volt AA battery powers each transmitter and should provide a full year of service. The four coloured buttons on the transmitters correspond to the four colour-coded receivers. Receivers are plugged into electrical outlets. Lamps, televisions, radios or other appliances rated to up 500 watts are switched on and plugged into the receiver. When the user presses any of the coloured buttons on the transmitter the corresponding colour coded receiver turns the appliance on or off.

Additional receivers may be used to operate appliances in other rooms using the same transmitter. CSA and UL Approved.

**Description**

<table>
<thead>
<tr>
<th>Order #</th>
<th>Description</th>
<th>Small Transmitter</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>4120</td>
<td>ULTRA-4 System consisting of one Small Transmitter and 4 Receivers</td>
<td>4 1/2&quot; x 4 1/2&quot; x 1&quot;</td>
<td>1 lb.</td>
</tr>
<tr>
<td>4125</td>
<td>ULTRA-4 System consisting of one Large Transmitter and 4 Receivers</td>
<td>4 1/2&quot; x 4 1/2&quot; x 1&quot;</td>
<td>1 lb.</td>
</tr>
<tr>
<td>4141</td>
<td>Additional ULTRA-4 Receiver</td>
<td></td>
<td>3/4 lb.</td>
</tr>
<tr>
<td>4140</td>
<td>Small ULTRA-4 Transmitter</td>
<td></td>
<td>3/4 lb.</td>
</tr>
<tr>
<td>4145</td>
<td>Large ULTRA-4 Transmitter</td>
<td></td>
<td>3/4 lb.</td>
</tr>
</tbody>
</table>

**SPECIFICATIONS:**

Small Transmitter 4 1/2" x 4 1/2" x 1"

Large Transmitter 4 1/2" x 4 1/2" x 1"

Receivers 2 1/4" x 4 1/2" x 1/4"

Adapted from a design by the Biomedical Engineering Unit at Queens University, Kingston, Ontario.
Tosc-2 TV Channel Selector

Required for channel selection when operating a television set through a TOSC-2 System. Connects directly to any colour or black and white television set. May be used with cable or outside TV antennae. Will turn television on or off and change up to 100 channels. Remote hand held transmitter supplied and allows for independent operation of television set. Powered by 115V AC. CSA Approved.

SPECIFICATIONS:
Size: 10¾" x 6¾" x 3" Weight: 4½ lbs.

Tosc-2 Tape Recorder

Compact, low profile design. Has many features for recording and playing back conversations, radio programs, telephone conversations, or playing prerecorded tapes and music through the TOSC-2 System. Uses standard cassettes up to 120 minutes in length. A #4321 Tape Recorder 3 ft. Cable is required and supplied when connecting the tape recorder to a TOSC-2 System. Powered by 115V AC. CSA Approved.

SPECIFICATIONS:
Size: 9¾" x 12¾" x 3½" Weight: 9½ lbs.

Pillow Speakers

An alternative to using the TOSC-2 System Speaker or TELCO Automatic Dialing Telephone built in Speaker. Allows for more private listening and telephone conversations.

<table>
<thead>
<tr>
<th>Description</th>
<th>Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillow Speaker without Volume Control</td>
<td>4312</td>
</tr>
<tr>
<td>Pillow Speaker with Volume Control</td>
<td>4313</td>
</tr>
</tbody>
</table>

SPECIFICATIONS:
Cable length: 5'
Size: 3½" x 3" x 1" Weight: ½ lbs.

Power Relay Unit

Allows user to operate an electric bed, door opener, drape puller or other 115V AC equipment. Operated with any Single or Dual ABILITY Switch. May be connected to TOSC-2 or ENCO-5 Environmental Control System to operate an electric bed, door opener or drape puller or other 115V AC equipment. Powered by an AC Adapter provided.

Relay contact ratings are:
- 13A at 120 VAC resistive
- 7.5A at 120 VAC inductive
- 1/3 HP Motor at 120 VAC

SPECIFICATIONS:
Size: 7" x 4½" x 3½" Weight: 4 lbs.

Beeper Box

Allows user to attract attention by using a single ABILITY Switch. Touch sensitive electronic switches cannot be used. When activated either one or several beeps are produced. Can be set for high or low tones. Powered by 9V battery.

SPECIFICATIONS:
Size: 5½" x 3½" x 1½" Weight: ½ lb.
**AM/FM Radio with Tuning Motor** 4301

Consists of #4302 AM/FM Radio and #4309 Radio Tuning Motor. Tuning dial knob of radio is grooved to accept "0" ring drive. May be operated through TOSC-2 or ENCO-5 Systems.

**SPECIFICATIONS:**
Size: 8½" x 11" x 4" Weight: 4 lbs.

---

**AM/FM Radio** 4302

A compact radio that may be used with any Environmental Control System. Has earphone jack for connection to TOSC-2 System. Delivers a full range of sound. Lighted tuning dial, tone control, built-in antennae, terminals for external FM antennae. Pressed-wood cabinet with walnut vinyl veneer. May be used with #4309 Radio Tuning Motor. Powered by 115V AC. CSA Approved.

**SPECIFICATIONS:**
Size: 6" x 11" x 4" Weight: 3 lbs.

---

**Radio Tuning Motor** 4309

Designed to turn tuning or volume control knobs on a radio in two directions at low speed. Dark brown metal case. Mounted to appliance with adhesive tape supplied. "0" ring or length of "0" ring material to operate appliance is supplied. Powered by 12V DC, available from the TOSC-2 System Distribution Panel or optional #4328 AC Adapter.

**SPECIFICATIONS:**
Size: 4½" x 3-3/4" x 2½" Weight: 1 lb.

---

**Telephone Digital Readout** 4307

Provides visual readout of telephone number digits when dialing a number using a TOSC-2 System. Plugs into and is powered by the TOSC-2 Main Unit.

---

**Distribution Panel** 4110

The distribution panel is supplied with the TOSC-2 System and allows for easy installation and connection of the following:
- Additional ABILITY Switches
- Intercom Speaker
- Call Alert
- Nurse Call
- Electric Door Lock
- Telephone line
- Radio Tuning Motor
- Remote Audio feedback
- 3 low voltage items - up to 30V DC such as:
  - Electric Bed with optional #6400 Power Relay Unit
  - Page Turner
  - ENCO-5 Environmental Control System for operating 5 additional appliances
- Power source 12V DC, 500 mA max.

**SPECIFICATIONS:**
- Cable length: 6'
- Size: 8" x 6" x 2½" Weight: 4 lbs.
Type with One Hand. Reference book. Publisher reports individuals 30 words per minute. User proceeds to regular typing book.

Sold by: Fred Sammons (see above)


Sold by: Fred Sammons (see above)
PERSONAL CARE

Dressing -

Nelson Medical Products. Order from: 5690 Sarah Avenue
Sarasota FL 33583-9510
813-924-2058

NO-STOOP SHOEHORN. Helpful to the handicapped and those who find it hard to stoop.
*8092 18" long 8.25

FOOT-SHOE INSERTION AID. A plastic device to slip over the shoe counter before putting on the shoe. Allows the foot to slip into the shoe without white horn or bending the counter. Aids slips on easily after the foot is in place.
*8292 8" long 7/8" dia. 4.95

ELASTIC SHOE LACES. Perfect shoes to be slipped on or off without tying or untying.
*82828 White, Pair 11.50
*8292 Black, Pair 11.50
*8292 Brown, Pair 11.50

VELCRO fastener...

The PRESS-TO-CLOSE, WASHABLE FASTENER for clothing, accessories, includes both hook and loop.
*8115B White 3/4" wide 2.25 FL
*8115B Black 3/4" wide 2.25 FL
*8225B White 1" wide 3.15 FL
*8225B Black 1" wide 3.15 FL

LARGE HANDLE ZIPPER PULL. For those who have difficulty in holding onto zipper tabs. Wooden shaft, C-hook.
*6772 Wood handle 1/2" dia. 11.75
LARGE HANDLE ZIPPER PULL. As above, but with large rubber-covered handle.
*8673 Rubber handle 1" dia. 12.50

STOCKING AID. Enables a person with little or no movement in legs or hands to easily put on stockings.
*8285 9.00

ZIPPER PULL RING. For those unable to pull regular zipper tabs. This "1" long ring with hole, hooks into regular tab, making pulling and unzipping easier.
*9271 25.00
CUFF AND COLLAR BUTTON EXTENDER
No need to button or unbutton shirt cuffs when wearing the insert. A hole is slip through easily. Collars are increased by 1.5 cm. Extender is constructed of durable rustproof metal.
BK-2158 Cuff and Collar Button Extender, Pkg. of 1

INSERT-A-FOOT™ SHOE AID
This is a smooth plastic device that is slipped over the shoe counter before inserting the foot. The Insert-A-Foot™ allows the foot to slip into the shoe without a shoehorn and without bending the counter. Slips out easily after the foot is in place.
BK-2071 Insert-A-Foot™ Shoe Aid

TOTAL HIP SOCK AID
An economical way for surgery patients to get their socks or stockings on. Normal hand function permits fastening the garter clips and manipulating the socks. Garters are positioned so they release by a simple downward push. Plastic cover over strong wood shaft, 36" in diameter, 36" in length. Supplied as a pair.
BK-2142 Total Hip Sock Aid, Pair

DELUXE TOTAL HIP SOCK AID
Similar to the BK-2142 but with extra features. The circular hand guard provides grip. The plastic-covered end hose has a combination push-pull design for better function. 36" in length. Supplied as a pair.
BK-2145 Deluxe Total Hip Sock Aid, Pair

LEG LIFTER
A reinforced webbing loop with an aluminum insert extends your reach 26" to assist in lifting one leg at a time or off the bed or wheelchair. The loop is simply placed around the cast or foot with the leg in the extended position. Useful to persons in leg casts or those who need procedures where abduction or quadriiceps contraction is contraindicated.
BK-5132 Leg Lifter
RING ZIPPER PULL
For those who find it difficult to pull regular zipper tabs. This 1" ring with snap hook goes into regular tabs and makes zipping and unzipping easier. THREE per package.
SK-2138 Ring Zipper Pull, Pkg. of 3

QUAD-QUIP® SOCK AID MITTS
Special mitts to assist a quadriplegic individual in putting on loose-fitting loosey-goosey socks. The rubber-lined material grips the sock and draws it over the foot. Velcro® adjustment at fingers and wrist. Ordered by a Massachusetts rehabilitation unit.
BK-2083 Quad-Quip® Sock Aid Mitt, Pair

QUAD-QUIP® BUTTONER-ZIPPER PULL
A combination hook and zipper pull in one unit. Bendable metal pull with plastic covering contours to fit the hand. Stainless steel loops. Ordered by an Arkansas rehabilitation center.
BK-2779 Quad-Quip® Buttoner-Zipper Pull

QUAD-QUIP® TRousER PULL
An aid to assist a quad or limited range-of-motion individual in putting on the trousers. A plastic hook is slipped into the back loops, the hands are slipped through the webbing loops and the trousers are placed over the feet. By pulling and rolling from side to side, it is possible to pull the trousers up. The webbing loops stay in a round position so the arm is easily slipped from one loop to the next. Ordered by a Massachusetts rehabilitation center.
BK-2100 Quad-Quip® Trouser Pull, Pair

Eating, Drinking

Bilateral Glass Holder. Steel handled glass holder with plastic coating. Clamp at top adjusts to fit any glass. Order from: Fred Sammons (see above)

Built-Up Handle Utensils. Plastic core and foam padding. Will not absorb moisture. Stainless steel utensils. Order from: Fred Sammons (see above)
Pedestal Cup. Melaware. Holds 8 oz. Allows person to slip slip thumb and index finger under cup when finger grasp is weak or absent.
Order from: Fred Sammons (see above)

Sip'N'Straw Glass with Lid.
Covered, boilable plastic glass with drinking slots on either side, punchout for straw. Unbreakable. Lids also sold in packages of 10.
Order from: Fred Sammons (see above)

Teapot/Kettle Pourer Stand. Wooden. Allows tea to be poured without lifting heavy kettle or pot.
Sold by: Hugh Steeper (Roehampton Ltd.)
237-239 Roehampton Lane
London SW15 4LB
England
Phone: 01-788-8165

Miscellaneous -
Dycem Telephone Pad. In red, blue and green.
Order from: Hugh Steeper (see above)

Order from: Fred Sammons (see above)
Prism Glasses. Angles vision for reading or watching TV while lying in bed. Shows half page instead of 2-to-3 lines. Can be worn with corrective glasses.

Order from: Fred Sammons (see above)

Reclining Viewer. For reading or watching TV. Will fit over glasses. Mirror reflects the light, can be easily cleaned with soap and water.

Order from: Fred Sammons (see above)

Reacher and Dressing Stick. Economy model. Plastic coated push-pull hook on end end, small C hook on the other. Wood shaft. 27" long.

Order from: Fred Sammons (see above)

Suction Brush. Nylon bristles in durable plastic. Two suction cups.

Order from: Fred Sammons (see above)

Tap Turners. Three models as shown. Bottom model has braille coding, is all plastic. Top two are plastic handled, steel turners.

Order from: Hugh Steeper (see above)
TRANSFER

Bath Lift. Operates on water pressure only. Seat lowers to 3" in tub. Easy to install; portable. Carries up to 200 lbs. Fiberglass seat; aluminum cylinder.

Sold by: FashionAble
PO Box "S"
Rocky Hill NJ 08553
609-921-2563


Sold by: Everest & Jennings, Inc.
c/o Ted Hoyer & Co., Inc.
PO Box 2744
2222 Minnesota St.
Oshkosh WI 54903

Clamp-On Bath Lift. Gray enamel or chrome finish. In models for tubs to 18" high or 30" high. Cannot be used on fiberglass tubs.

Sold by: Everest & Jennings, Inc. (see above)

Sold by: J.E. Nolan & Co., Inc.
PO Box 43201
Louisville KY 40243
502-425-0883

Portable Bath Lift. Water powered. Fits all tubs.

Sold by: Chec Portable Bath Lift, Inc.
PO Box 5
Boonloin NJ 07005
Van Modifications

Braun Corporation Products -

Overhead Transfer Bar aids handicapped person in transferring.

Custom Designed Power Channels automatically lower the wheelchair occupant to a comfortable height for better visibility. Also available are driving channels which the wheelchair rolls into for favorable visibility.

Durable Constructed Power Pan moves the wheelchair vertically via a mini-elevator. No transfer is necessary. No horizontal movement. (Individual wheel cups can also be installed in a variety of floor locations for permanent positioning of wheelchair while in transit.)

Cam Lock is universally positionable for anchoring of most any wheelchair.
Rear Wheel Tie Down is available in either a manual or automatic model. Fastens wheelchair safely to the wall.

Over the Center Tie Down locks both sides of the wheelchair securely to the floor.

Automatic Electric Tie Down increases driving stability and protects against rolling and tipping.

Track Tie Downs offer the greatest degree of positive securement and adapts to practically all motorized and manual wheelchairs. Ideal for mass-transit travel due to the track versatility.

Address: 13710 49th St. North Clearwater FL 33520 813-576-2737

Detachable Bench Seat allows for removal of unnecessary able-bodied seating.

Detachable Pedestal Seat enables wheelchair to occupy driver's seating position. Detachable seat stores in rear of vehicle.
Gresham Driving Aids - Holders for ignition and/or ignition and door keys.
Address: PO Box 405A
30800 Wixon Road
Wixon MI 48096

Nelson Medical Products - 5690 Sarah Avenue
Sarasota FL 33583-9510
813-924-2058

NOTE: Auto dealers wishing to install mechanical controls can order these from Wells-Engberg Co, Inc.
PO Box 6388
Rockford IL 61125
815-397-6208

(same price list enclosed)
NEW PRICES IN EFFECT JUNE 1, 1983

**COMPLETE SETS**

<table>
<thead>
<tr>
<th>Quantities</th>
<th>List</th>
<th>Unit Price</th>
<th>Total Net</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>252.00</td>
<td>180.00</td>
<td>180.00</td>
</tr>
<tr>
<td>(2)</td>
<td>504.00</td>
<td>168.00</td>
<td>336.00</td>
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<tr>
<td>(3)</td>
<td>756.00</td>
<td>156.00</td>
<td>468.00</td>
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<tr>
<td>(6)</td>
<td>1512.00</td>
<td>156.00</td>
<td>936.00</td>
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<tr>
<td>(10)</td>
<td>2520.00</td>
<td>144.00</td>
<td>1440.00</td>
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**BRAKE AND ACCELERATOR**

<table>
<thead>
<tr>
<th>Quantities</th>
<th>List</th>
<th>Unit Price</th>
<th>Total Net</th>
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</thead>
<tbody>
<tr>
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<td>228.00</td>
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<tr>
<td>(2)</td>
<td>456.00</td>
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<tr>
<td>(3)</td>
<td>684.00</td>
<td>141.05</td>
<td>423.15</td>
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<tr>
<td>(6)</td>
<td>1368.00</td>
<td>141.05</td>
<td>846.30</td>
</tr>
</tbody>
</table>

Add $3.50 for each control ordered for shipping and handling. 3 or more controls ordered will be shipped prepaid.

20% Discounts on all others for all quantities:

<table>
<thead>
<tr>
<th>Item</th>
<th>List</th>
<th>Discount</th>
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</thead>
<tbody>
<tr>
<td>Left-foot gas feed</td>
<td>$56.00</td>
<td>$44.80</td>
</tr>
<tr>
<td>Parking Brake handle</td>
<td>45.00</td>
<td>36.00</td>
</tr>
<tr>
<td>Spinner Knob</td>
<td>44.00</td>
<td>35.20</td>
</tr>
</tbody>
</table>

Add $1.75 for shipping and handling for each driving aid. Any combination of 3 driving aids will be shipped prepaid.
REVISED PARTS PRICE LIST EFFECTIVE JUNE 1, 1983

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>91</td>
<td>Brake tube assembly</td>
<td>$16.41</td>
</tr>
<tr>
<td>BCA</td>
<td>Brake channel assembly</td>
<td>$24.10</td>
</tr>
<tr>
<td>111</td>
<td>Channels with nuts &amp; bolts</td>
<td>$10.09</td>
</tr>
<tr>
<td>1256</td>
<td>&quot;U&quot; bolt with washer &amp; nuts</td>
<td>$3.78</td>
</tr>
<tr>
<td>93</td>
<td>Ball-joint lower</td>
<td>$8.71</td>
</tr>
<tr>
<td>121</td>
<td>Threaded rod and nuts</td>
<td>$1.52</td>
</tr>
<tr>
<td>ATA</td>
<td>Accelerator tube assembly</td>
<td>$18.17</td>
</tr>
<tr>
<td>92</td>
<td>Accelerator tube</td>
<td>$13.35</td>
</tr>
<tr>
<td>SR-107</td>
<td>Ball-joint, upper</td>
<td>$4.82</td>
</tr>
<tr>
<td>ACS</td>
<td>Accelerator slotted clamp assembly</td>
<td>$10.57</td>
</tr>
<tr>
<td>112</td>
<td>Clamp, screws &amp; nuts</td>
<td>$6.78</td>
</tr>
<tr>
<td>DS-106</td>
<td>Ball-joint</td>
<td>$2.27</td>
</tr>
<tr>
<td>122</td>
<td>Threaded rod &amp; nuts</td>
<td>$1.52</td>
</tr>
<tr>
<td>TPS</td>
<td>GM &amp; TPS Mounting assembly</td>
<td>$53.52</td>
</tr>
<tr>
<td>103</td>
<td>Pivot arm</td>
<td>$20.88</td>
</tr>
<tr>
<td>117</td>
<td>Pivot arm channel w/bolt, nut, washer</td>
<td>$11.37</td>
</tr>
<tr>
<td>116</td>
<td>Upper &quot;V&quot; Bracket</td>
<td>$4.82</td>
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<tr>
<td>116</td>
<td>Lower &quot;V&quot; Bracket</td>
<td>$4.82</td>
</tr>
<tr>
<td>23</td>
<td>Aero-Seal worm clamps (pair)</td>
<td>$6.18</td>
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<tr>
<td>17</td>
<td>Threaded studs, nuts &amp; washers</td>
<td>$1.88</td>
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<tr>
<td>84</td>
<td>Pivot screw, nylon washers, nut</td>
<td>$3.57</td>
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<tr>
<td>LBA</td>
<td>Leverage bar assembly</td>
<td>$9.45</td>
</tr>
<tr>
<td>66</td>
<td>Leverage bar &amp; screw</td>
<td>$8.22</td>
</tr>
<tr>
<td>118</td>
<td>Rubber tip only</td>
<td>$1.23</td>
</tr>
<tr>
<td>119</td>
<td>Black vinyl hand grip</td>
<td>$2.91</td>
</tr>
<tr>
<td>12</td>
<td>Dimmer switch harness</td>
<td>$20.20</td>
</tr>
<tr>
<td>MA</td>
<td>Main arm w/twist grip assemb &amp; link</td>
<td>$99.39</td>
</tr>
<tr>
<td>76</td>
<td>Main arm only</td>
<td>$63.81</td>
</tr>
<tr>
<td>127</td>
<td>Twist grip only</td>
<td>$27.34</td>
</tr>
<tr>
<td>15</td>
<td>Link with pin</td>
<td>$8.24</td>
</tr>
<tr>
<td>128</td>
<td>Shield, right hand</td>
<td>$10.31</td>
</tr>
<tr>
<td>129</td>
<td>Shield, left hand</td>
<td>$10.31</td>
</tr>
</tbody>
</table>

Wells-Engberg Company, Inc.
P.O. Box 6388
Rockford, Illinois 61125
Phone - 815-397-6208
June 1983 prices:

- Parking brake handle: $45.00
- Spinner Knobs: 44.00
- LF Gas pedals: 56.00
- LH Gear shift lever: 34.00

Special Mountings:
- Ford plate mounting: 9.00
- Omni & Horizon Mtg.: 33.00
- Ford Escort & Mercury Lynx Mtg.: 17.00
- Toyota Mtg. Bracket: 17.00
- GM mounting assy.: 53.52
- Ford EXP - 1983: 18.00
<table>
<thead>
<tr>
<th>Control Type</th>
<th>OEM prices 10 or more per year</th>
<th>Wholesale Prices</th>
<th>Retail Prices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard control</td>
<td>1375.00</td>
<td>1575.00</td>
<td>2535.00</td>
</tr>
<tr>
<td>Push-Pull control</td>
<td>1375.00</td>
<td>1575.00</td>
<td>2535.00</td>
</tr>
<tr>
<td>Control box-push-pull for Dealers who wish to demonstrate both</td>
<td>427.39</td>
<td>512.86</td>
<td>615.44</td>
</tr>
<tr>
<td>Foot Pedal Control</td>
<td>1975.00</td>
<td>2175.00</td>
<td>2895.00</td>
</tr>
</tbody>
</table>
WHEELCHAIRS


3N Series Model Illustrated
Adult Model No. P8AU250-26R-777

A.D.L. "Tall" sizes have higher back and deeper seat to accommodate taller individuals. Available in Adult and Narrow Adult sizes.

3P Series Model Illustrated
Adult Model No. P8AU250-26R-777

Address: 3233 E. Mission Oaks Blvd.
Camarillo CA 93010
213-479-4141
Body Positioner. Installs on fixed or detachable arm wheelchairs. Foam padded. Flame resistant Naugahyde cover. Does not require repositioning after detaching for transfers. Velcro straps.

Sold by: Everest & Jenning (see above)


Sold by: Invacare Corporation
PO Box 4028
1200 Taylor St.
Elyria OH 44036
216-365-9321

Narro-Matic. Reduces wheelchair width by a maximum of 4". Locks in place. Fits left or right arm. Chrome plated.

Sold by: Modular Medical Corp. (see above)
Postura. Seating system. Inclinable seat; abduction wedge to help prevent knee locking; padded side cushions and legrest cradle with elevation adjustment; three-position armrests; lateral and headrest supports.  
Sold by: Everest & Jennings (see above)

Reclining Features. 15-position available on 7 models of manufacturer's wheelchair line. Locking wedge and offset wheels and casters. Flared back; extension headrest.  
Sold by: Gandron, Inc.  
Lugbill Road  
Archbold OH 43502  
419-445-6060

Sifoam Truck Supports. High and low trunk supports. Lightweight, washable. Also serve as safety belts.  
Sold by: Sicimedics, Inc.  
700 N. Valley St. Suite B  
Anaheim CA 92801  
714-991-5340
SEAT WIDTH

OBJECTIVE
Seat width is the first and most important measurement. The objective is to distribute the person's weight over the widest possible surface, allowing sufficient clearance on each side to facilitate transfers and prevent the individual from rubbing against the side panels; yet keeping the overall width of the wheelchair as narrow as practical to minimize problems with doorways, bathrooms, and other entrance ways.

MEASUREMENT REQ'D:
Across hips or thighs, whichever is wider.
Add 2" (5 cm) to this measurement.
Minimum clearance, 1" each side (2.5 cm)

SEAT DEPTH

OBJECTIVE
To distribute the weight along the buttocks and thighs to minimize undue pressure over the ischium.
Another objective is to prevent circulatory difficulties and skin irritation from occurring in the popliteal areas.

MEASUREMENT REQ'D:
From behind calf to back of buttocks.
Subtract 2" to 3" (5 cm to 7.5 cm) from this measurement to obtain correct seat depth.

LEG LENGTH

OBJECTIVE
This measurement and the next one, seat height, must be evaluated together.

MEASUREMENT REQ'D:
From the heel of the foot, or shoe, if the individual will be wearing shoes when in the chair, to just under the thigh.

SEAT HEIGHT

OBJECTIVE
To assist in evenly distributing the person's weight and to obtain correct trunkal support.
Another objective is to prevent circulatory difficulties and skin irritation from occurring in the popliteal areas.

MEASUREMENT REQ'D:
From floor to seat platform.
Will patient be using a cushion?
Safe clearance is a minimum of 2" (5 cm).

ARM HEIGHT

OBJECTIVE
To assist the individual in maintaining correct posture and balance. It also provides the person with comfortable support for the arms and shoulders.

MEASUREMENT REQ'D:
Normal position of arms
Wheelchair arm height, 1" (2.5 cm) higher than patient's measurement.
Will patient be using a cushion?

BACK HEIGHT

OBJECTIVE
The trend today is for back height to be as low as possible. Back height will depend to a large degree on the level of disability.
It should provide the individual with support consistent with his/her physical needs and activity capabilities. Correct back height and back style will help to maintain proper posture and trunkal support.

MEASUREMENT REQ'D:
From seat platform to under extended arm. Will patient be using a cushion? Subtract 4" (10 cm).

FOAM CUSHIONS FOR BACK AND/ OR SEAT — CLOTH OR LEATHERETTE COVERED

<table>
<thead>
<tr>
<th>BACK CUSHIONS</th>
<th>SEAT CUSHIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>Cloth</td>
</tr>
<tr>
<td>1 x 12 x 16</td>
<td>☐</td>
</tr>
<tr>
<td>2 x 12 x 16</td>
<td>☐</td>
</tr>
<tr>
<td>1 x 14 x 16</td>
<td>☐</td>
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<tr>
<td>2 x 14 x 16</td>
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<td>1 x 16 x 16</td>
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<tr>
<td>2 x 16 x 16</td>
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</tr>
</tbody>
</table>

NOTE: OTHER CUSHION SIZES AVAILABLE
### WHEELCHAIR SELECTION CHART

**Wheelchair Specialists:**
- Using either the "Premier," "Universal" or "Traveler" column, review all major component areas of the wheelchair.
- After selecting the correct feature variations, place an "X" in the space provided.
- When all selections have been made, transfer the CODE designator to the chart at the bottom of the page.
- When the chart has been filled in, it will automatically display the correct sequence of alpha-numeric designators used in the Everest & Jennings Wheelchair model numbers. Refer to Price List for Basic Wheelchair Prices.

#### IC WHEELCHAIR TYPE
- **REMIER** model
- **UNIVERSAL** model
- **RAVELER** model

#### TER SIZE
<table>
<thead>
<tr>
<th>Diameter (12.5 cm)</th>
<th>TT, PST, PSP only</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### TRAVELER SIZE (Basic)
<table>
<thead>
<tr>
<th>Inches Seat x Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>A</td>
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<tr>
<td>A</td>
</tr>
</tbody>
</table>

#### DIAL CONSTRUCTION
- **Light Duty Lightweight** (Standard)
- **Heavy Duty Lightweight** (Standard)
- **Seating Height** (Standard)
- **Seat Height** (Standard)
- **Back Height** (Standard)

#### ORTSMAN
- **Indoor**
- **Outdoor**

#### STYLE
- **Detachable**
- **Standard**
- **Special**
- **Chin**
- **Upper**
- **Lower**

#### DRIVE (OTHER THAN STANDARD)
- **One-Arm Drive, Right arm**
- **One-Arm Drive, Left arm**
- **Power Drive, 12 volt, Micro-Switch**
- **Right hand control**
- **Left hand control**
- **Chin control (See Accessories)**
- **Power Drive, 24 volt, Proportional**
- **Indoor**
- **Right hand control**
- **Left hand control**
- **Chin control (See Accessories)**

#### BACK (OTHER THAN STANDARD)
- **Sectional-Detachable**
- **Specify height above seat:**
  - 121/2" (31.75 cm)
  - 141/2" (36.83 cm)
  - 161/2" (41.91 cm)
  - 181/2" (46.99 cm)
  - 201/2" (52.07 cm)
- **Semi-Reclining (30 degree recline)**
- **Full Reclining (30 degree recline)**
- **Hinged Back**

#### HEAVY DUTY CONSTRUCTION
- **14" wide seat (35.56 cm)**
- **16" wide seat (40.64 cm)**
- **18" wide seat (45.72 cm)**
- **(The following require Offset or Detachable Arms)**
- **19" wide seat (48.26 cm)**
- **20" wide seat (50.80 cm)**
- **21" wide seat (53.34 cm)**
- **22" wide seat (55.88 cm)**
- **24" wide seat (60.96 cm)**

#### FRONT RIGGING
- **No Front Rigging - No brackets**
- **Tiny Tot (1 piece footrest)**
- **Footrest with permanent hanger**
- **Footrest, Swinging-Detachable (Pin)**
- **Footrest, Swinging-Detachable (Cam)**
- **Footrest (Elev), Swinging-Det. (Pin)**
- **Footrest (Elev), Swinging-Det. (Cam)**
- **Footrest (Elev), Low Pivot**

#### CUSTOM MODIFICATIONS - "PREMIER" ONLY
- **Seat Width**
- **Seat Depth**
- **Seat Height**
- **Front Rigging**
- **Min.**
- **Max.**

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**PAGE THREE**
WORKSTATIONS

Device Control. For mounting hardware, device-control switches, other aids on wheelchair lap tray. Lockable balljoint clamp used. Appliance top holder can be mounted to either desk top or wheelchair. For construction plans, contact:

Northwestern University
Rehabilitation Engineering Program
345 East Superior St., Room 1441
Chicago IL 60611
312-649-8560

Ergomea Table. Laminated, magnetic oak top. Push-button table control. Blue steel frame. Also available with double-action brake wheels. Can be custom-made.

Order from: Ergomea Danmark
4683 Rønnede
Denmark
Phone: 009 45 (03) 71 18 00
Is-Able Table. Height and tilt adjustable. Laminated wood top. Pencil stop edge and side rims. Steel base.

Sold by: Rol-Fol Table, Inc.
14876 Raymer St.
Van Nuys CA 91405
213-873-2741

Kard Veyer. Delivers records at work level. No raising or lowering of the work surface.

Sold by: Kardex Systems, Inc.
Marietta OH 45790
800-848-9767
Mar-Line Desks. Carrels; study, project and utility tables; reading stand. Reading stand and carrel have florescent illumination; study table is height adjustable.

Sold by: Mar-Line Displays  
199 Irving Avenue  
Port Chester NY 10973  
914-939-7852


Sold by: Ergomea Danmark  
(see above)
Quad-Quip Rotary Bookstand.  
Mouthstick usable lock.  
Holds books in place; clear vinyl straps for pages.  
Wire bookholders can be placed on top to hold additional materials.  
Walnut stain.  
Sold by: Fred Sammons  
Box 32  
Brookfield IL 60513  
800-323-7305

Sharp Memowriter Mounting Bracket and Assembly. See below.  
Sold by: Zygo Industries, Inc.  
PO Box 1008  
Portland OR 97207  
503-297-1724

ZYGO-DESIGNED MOUNTING OPTIONS

AF-37 MOUNTING BRACKET
In order to preserve the manufacturer's Warranty on the SHARP Memowriter, the bracket was designed to not invade the integrity of the unit.
Three (3) expandable cones slide into the recesses of the Memowriter. Corresponding screws are inserted into the cones and tightened, one at a time, starting with the longest one. Use a small screwdriver and try not to overtighten.

AF-37-A MOUNTING ASSEMBLY (Wheelchair)
This assembly is one option for supporting the Memowriter from the front arm of a wheelchair. It contains a pushbutton disconnect fixture* to enable the unit to be removed for transport, security, or to be used in other mountings.

AF-37-B MOUNTING ASSEMBLY (Display Stand)
This is the same basic assembly as in the AF-37-A above, except the clamp is replaced by a 6" diameter weighted base.

*IMPORTANT: The above pre-assembled mountings are offered by popular demand. However, essentially any innovative, flexible mounting scheme can be custom-designed from the parts provided in the ZYGO AF-10-K ADAPTIVE FIXTURES KIT (see Catalog and Price List).

Slant Board. Base, birch work surface, non-glare plexiglass surface cover, adjustment arm, and removable pencil edge. Accessories available include: hand/wrist positioning strap, knobs/washers, hand positioning cones.  
Sold by: Consumer Care Products, Inc.  
6405 Paradise Lane  
Sheboygan Falls WI 53085  
414-467-2393
Table. Styles vary: single student table has white leather pattern top; 4-student tables have maple or white leather pattern. Easy-to-grasp height adjustment handle. Burlap side panels.

Sold by: Fleetwood
Zeeland MI 49464
616-772-4693

Twin-Turntable Desk.
Two revolving surfaces. Can be moved with hand or mouthstick.

Sold by:
Extensions for Independence
PO Box 3754
Downer CA 90242
Telephone Arms. Steel and chrome flexible rod. Clamps to desk or table. 20", 25" or 29" lengths.

Sold by: Sparr Telephone Arm Company
PO Box 143
Allamuchy NJ 07820

Telephone Extension and Stand. Extension arm is 29"; clamps on. Stand has rubber feet on steel base, handset clamp and line interrupter.

Sold by: Maddack, Inc.
Penquannock NJ 07440
201-694-0900
COMMUNICATIONS

Printing Communicator - Controlled by three touch switches; skin contact only required. Vertical and horizontal sweep touches, then print control. Blank space activated by print switch when light in home location. Note: joystick input available. Morse code option.

Sold by: R/M Systems, Inc.
22903 Fern Avenue
Torrance CA 90505
Phone 213-530-5146

Synthetic Speech Device - Accepts material in serial ASCII RS232 interface.

Sold by: J.C. Swail
National Research Council M-50
Dee R182 Montreal Road
Ottawa Ontario, Canada KIA OR8
Talking Pictures - 110 cards, one side pictures of, for example, shoes, water, bathroom, and the other side words, in English and Spanish, German, French, Italian. Heavy-duty vinyl envelopes hold 20 commonly-used cards. Stickers kit and board kit also available.

Sold by: Trace Research and Development Center
314 Waisman Center
1500 Highland Avenue
Madison WI 53706
608-262-6966

Voice Mate - Answers "yes" or "no" in a child's voice. Volume control; uses 9-V battery.

Sold by: TASH, Inc.
c/o Sunnybrook Medical Centre
2075 Bayview Avenue
Toronto Ontario M4N 3M5
416-486-3569

Zygo Sharp Memowriter - Typewriter keyboard; print or non-print options. Automatic power off; 600 character memory. Uses Ni-Cad battery; AC adapter. Calculator functions.

Sold by: Zygo Industries, Inc.
PO Box 1008
Portland OR 97207
503-297-1724
Apnea/Respiration Monitor - Under mattress pad sensor/ flashing light. Detects changes in respiratory movement. Also auditory alarm. Requires no wires, chest bands or gels. Lamps have 1,000,000-hour life expectancy.

Sold by: Electronic Monitors, Inc.
PO Box 1087
Eules TX 76039
817-283-0859
TELEPHONE AIDS

**Telenote** - Attaches to telephones; enable user to send and receive written information. Simultaneous oral communication is possible. UL listed.

Sold by: TALOS Systems, Inc.
7419 East Helm Drive
Scottsdale AZ 85260
phone 602-948-6540

**Teletrym** - TTY with hard copy roll printer; built-in coupler without acoustical cups; automatic answering; keyboard dialing; built-in ring detector with buzz option also; and re-dial features.

Sold by: Micon Industries
252 Oak Street
Oakland CA 94607
415-763-6033

**Telephone Machine** -
Transmits sounds through the vibrations of bones in the head. For persons who have difficulty in speaking.

For information, contact: Japan Sun Info Center
4.2.23 Shinjuku-ku
Tokyo Japan