



COMMUNICATION

Equipment for the disabled

SIXTH EDITION January 1987

COMMUNICATION

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Equipment for the disabled

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Prices were approximate at the time of going to press. Addresses are given at the back of the book and purchasers should check prices and availability before ordering.

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FOREWORD

Equipment for the Disabled presents information on aids and equipment to disabled people, their helpers and those professionally concerned with their care. It offers guidance in the selection of equipment and recommends solutions to problems. Disabled people may need to seek professional advice before selection of some items. Most people are able to use standard equipment if it is chosen wisely so readily available everyday goods are included as well as specially designed equipment and do-it-yourself aids which can be made by a handyman. Most of the equipment shown has been used by disabled people and assessed by therapists and others.

Exclusion of a particular product does not necessarily imply that it has been found unsatisfactory; in some sections space may restrict the inclusion of similar examples of one type of equipment.

Care is taken to ensure that items described are currently available and will remain so for at least one year after publication, but manufacturers may alter or withdraw models without warning. Prices are approximate at the time of compilation; purchasers must check current prices and availability before ordering.

The books are revised in rotation and new titles are added occasionally. Publication of new editions is announced in professional journals, in the newsletters of voluntary organisations and through the extensive mailing list maintained by *Equipment for the Disabled*.

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INTRODUCTION

Most of us find communication so easy and natural that we may tend to overlook its importance. The ability to communicate is as vital to human health and development as are food and drink, air and water. We communicate not only to make known our more basic needs but also to exchange information with those around us and to express our emotions. Without the opportunity to interact with others and to exercise control over our environment, life may be uncomfortable and hazardous and we can become isolated and frustrated.

A factor common to almost all disabilities is that the ability to communicate is in some way impaired. A physically disabled person may be unable to write or to speak, to hold a book or turn its pages; a person with a sensory handicap may be unable to hear or see. While the bedridden may be able to speak, lack of mobility can inhibit contact with others.

Fortunately, there are many methods available to help improve communication for people who are disabled. There are writing and communication aids for people who are physically disabled. Environmental control systems can enable a severely disabled person to answer the door or to switch on the lights or the television. Call systems can enable help to be summoned in an emergency, even over the telephone. Magnifiers, taped and large print books can help the visually handicapped to read. Hearing aids and amplifiers can enable the hearing impaired to converse with others, use the telephone and to derive pleasure from the radio and television.

In recent years, the range of aids to communication has grown enormously. In particular, microtechnology has made it possible to enhance communication for some disabled people in ways that could not have been imagined a few years ago. Word processors can enable disabled people to write without handling paper. Computers can be used to provide access to sources of information for those who cannot handle books. New developments in telecommunications can allow the blind, the deaf-blind and those confined to their homes to communicate over great distances. Of course, an aid does not have to incorporate the latest 'high technology' and many simple devices and adaptations can be used with great effect to aid communication.

However ingenious an aid, its value for a particular disabled person will depend upon many factors. How appropriate is the aid for the person in his or her situation? How reliable is it and how easy is it to use? Most important, how motivated is the person to make use of it? Many aids that are supplied remain 'in the cupboard', unused or under-used, because they fail to meet the felt needs of the user.

Many sources of information on communication are available and these can help in the choice of an aid. The

Disabled Living Foundation can provide information on communication aids as can many organisations concerned with particular disabilities. The DHSS Communication Aid Centres can provide detailed assessment of communication needs as well as devising technical solutions. The ACE Centre in Oxford and the ACCESS Centre in Coventry provide assessment, advice and information on aids to communication in education and further education.

This book, the sixth edition of *Equipment for the Disabled-Communication*, is intended to provide a further source of information for those working with people who have communication difficulties.

Prices

Price guides are included to give a rough indication at the time of compilation. VAT, where applicable, has not been included. Some firms which supply direct to the public include carriage in their prices: direct comparison of different suppliers' prices may, therefore, be inaccurate. Current details, availability, prices and VAT should be checked with suppliers at the time of purchase.

A reader unable to obtain an answer from a manufacturer or supplier should contact the Information Officer of *Equipment for the Disabled* at Mary Marlborough Lodge, Nuffield Orthopaedic Centre, Oxford OX3 7LD.

Value Added Tax

Certain specialised goods and services that are for the domestic or personal use of a chronically sick or disabled person can be zero-rated. Those supplied to a charity can also be zero-rated if they are made available to chronically sick or disabled people. Goods include specialised beds, sanitary devices, lifts and hoists and other equipment designed solely for use by a disabled person.

Services which can be zero-rated include constructing ramps or widening doors or passages to facilitate entry to or movement within a person's home; providing, extending or adapting a bathroom, washroom or WC in a person's home where this is necessary because of his condition.

Goods and services can only be zero-rated if the supplier is registered for VAT and if the person signs a declaration that he is chronically sick or disabled.

A form of declaration is usually provided by the supplier or it may be incorporated into an order form. Examples of declaration forms suitable for use by an individual or a charity are given in the VAT leaflet 701/7/84: *Aids for handicapped persons* obtainable from local VAT offices. The completed declaration should be kept by the supplier for inspection by Customs and Excise.

Help and advice can be sought from any local VAT office (see local telephone directory under Customs and Excise).

Safety of goods

At the time of going to press a recommendation that all goods should comply with general safety requirements is contained in a White Paper which is before Parliament.

Notes concerning electrical safety

Most types of electrical equipment offered for sale must comply with the Electrical Equipment (Safety) Regulations 1975 and its amendments. These regulations are enforced by the Trading Standards department of the local authority. Intending purchasers should check with the retailer that the equipment also complies with the appropriate British Standard.

Equipment which has been tested and approved by the British Electrotechnical Approvals Board carries the BEAB trade mark which indicates that the design complies with the appropriate British Standard.

Information

Information on aids and equipment is available from many sources. The Information Service of the Disabled Living Foundation issues to subscribers bi-monthly equipment information lists and is prepared to answer enquiries on any matter affecting disabled people. Similar services are provided by the Scottish Council on Disability and by the Northern Ireland Council for the Handicapped. The Aid Centres (see below) also provide information.

Disablement Information and Advice Line (DIAL) is a countrywide network developed by volunteer disabled people for disabled people and others who require advice on any aspect of disability. Each group is autonomous and develops its own operational policy. Telephone numbers may be found in local phone books or from DIAL UK.

Aid Centres

Aid Centres, where a selection of aids for disabled people can be seen and tried out, have been set up in Belfast, Birmingham, Blackpool, Caerphilly, Edinburgh, Leeds, Leicester, Liverpool, London, Manchester, Portsmouth, Sheffield, Newcastle-upon-Tyne, Southampton, Stockport, Swindon and Wakefield. Information is available to those professionally concerned with disability and to disabled people and their relatives and friends. An appointment is usually necessary and visitors should always contact the Centre before visiting. Before going check that the purpose of the visit can be fulfilled as the Centres vary in their size, content and the type of services offered. There are two Mobile Aid Centres, one organised by the Scottish Council on Disability and the other by the Spastics Society. Addresses of the aid Centres and the Mobile Aid Centres are available from the Joint Aids Centres Committee.

REMAP

REMAP (Rehabilitation Engineering Movement Advisory Panels) is part of RADAR (Royal Association for Disability and Rehabilitation) and is a voluntary organisation having more than 80 branches across the country which specialise in designing, making and supplying individual aids when there is nothing available or can be adapted to meet the unique needs of the disabled person.

Information about the nearest Panel may be obtained from The National Organiser, REMAP.

GENERAL INFORMATION

Centres providing information about communication aids

England and Wales

There are six Communication Aids Centres in England and Wales established by the Department of Health and Social Security in co-operation with the Royal Association for Disability and Rehabilitation (RADAR)—See *Addresses* under Communication Aids Centres. These Centres provide information, advice and training for professionals, mainly speech therapists, working with people who have speech and communication impairments. Communication aids, including microcomputers and software, are displayed for professionals to see. In addition, the Centres carry out detailed assessments of individual clients. They are able to make adaptations to standard equipment and, in some cases, to devise and construct customised aids.

The Communication Aids Centres do not have funding to provide aids for the patients they see although it is sometimes possible to arrange short-term loans. In general, the Centres assess only people for whom funding for an aid has already been agreed. Referral may be from a health authority, social services department, education authority, charity or any other body able to agree expenditure for a recommended communication aid.

The Centres are at Bristol, Cardiff, Newcastle-upon-Tyne, Sandwell, London (Charing Cross Hospital) and London (Wolfson Centre). One, the Wolfson Centre, is concerned exclusively with children. The others are mostly involved with adults who have severe communication impairments.

Education

Any distinction between general communication and communication in education must be arbitrary and artificial. However, several communication aids centres do exist in which the emphasis is upon the communication difficulties of children and students.

The ACE Centre

The ACE Centre, established by the Department of Education and Science, is concerned with the use of microelectronic communication aids in education. ACE stands for Aids to Communication in Education and the Centre provides information and advice about microelectronic communication aids related to any level of learning. Surveys of communication aid hardware and software are produced and the Centre runs open days, workshops and courses for interested professionals from any discipline and parents. The ACE Centre is staffed by teachers, a speech therapist, occupational therapist and a

technical consultant. This multi-professional team provides a detailed assessment service. Referrals are accepted from many sources—local education authorities, schools, health and social services as well as parents—and commitment to funding is not required prior to assessment. The Centre does not provide equipment although a loan service is available for evaluation purposes. The ACE Centre has a full-time Northern Representative, based in Oldham, who visits children in their schools in the north of England to provide information and advice about communication aids.

The Access Centre

The Centre provides detailed assessments aimed at increasing students' access to further and higher education, training and employment opportunities. A range of equipment can be tried and demonstrated and adapted to individual needs. The assessments usually take place over a period of one to three days and a fee is charged to local authorities for this service. The Centre assists students in making funding applications and can advise colleges on students' requirements and special arrangements for examinations.

In addition to assessments, the Access Centre provides training for disabled students in information technology applications, effective study strategies and the use of equipment. The Centre also runs one-day awareness courses for trainers and provides information and advice on the use of Information Technology relevant to disabled students.

Special Education Microelectronic Resource Centres (SEMERCs)

The SEMERCs are concerned with the application of microelectronics across the whole age range, with children of all educational disabilities and throughout the curriculum. They do not have the resources to focus closely upon communication impairments but all the SEMERCs do have a range of input devices and communication aid software that may be examined by professionals on request.

Northern Ireland

Northern Ireland has a Communication Aids Centre that provides education, advice and training. The Belfast Centre also carries out assessments on individual patients and can make adaptations to standard equipment. Referral is normally from the patient's consultant and the referring agency must agree to provide funding if an aid is recommended.

Scotland

A Communication Aids Centre is expected to open shortly in Glasgow. Further information may be obtained from the Scottish Home and Health Department

Education-The CALL Centre

CALL stands for Communication Aids for Language and Learning. The Centre provides information on communication and communication aids. The library, database facilities, and video and software library are open for reference at certain times. Some items of hardware and software may also be borrowed for short-term evaluation. The CALL Centre does not provide a general assessment service but carries out case studies of specific communication-impaired learners in their own learning settings. The Centre runs workshops on specific communication-orientated topics for the staff of these establishments and these workshops may also be open to others.

Organisations concerned with Speech, Language and Communication

Action for Dysphasic Adults (ADA)
 Aid for Children with Tracheostomies (ACT)
 Association For All Speech Impaired Children (AFASIC)
 Association for Stammerers
 Blissymbolics Communication Resource Centre (UK)
 British Dyslexia Association
 Chest, Heart and Stroke Association
 Cleft Lip and Palate Association
 International Society for Augmentative and Alternative Communication (ISAAC)
 International Project on Communication Aids for the Speech-Impaired (IPCAS)

Makaton Vocabulary Development Project
 National Association of Laryngectomee Clubs
 National Head Injuries Association (HEADWAY)
 Paget-Gorman Society
 Parkinson's Disease Society
 Royal National Institute for the Deaf (RNID)
 Royal Society for Mentally Handicapped Children and Adults (MENCAP)
 Sequal
 Spastics Society
 Voluntary Organisations Communication And Language (VOCAL)

Insurance for Communication Aids

The loss of or damage to an aid or other item of special equipment can mean much more than inconvenience to a disabled person who is dependent upon it. The Sun Alliance & London Insurance Group has a special Aids Insurance Scheme for disabled people. The Scheme provides insurance cover for communication aids, microcomputers, typewriters and other special equipment. This 'All Risks' policy gives protection against fire, theft and accidental damage, including transit, anywhere in the United Kingdom, and provides the replacement costs of lost or damaged items. In view of the cover provided, the premiums under the scheme are quite low.

Further details obtainable from Sun Alliance & London Insurance Group

SPEECH AND LANGUAGE

Language is the acquired use of symbols which are not necessarily verbal but may be writing, drawing, gesture, codes, signs and sounds.

Speech is the vocal expression of language where the symbols are words.

Voice is the sound originated in the larynx used to produce speech.

Articulation is the process of producing sounds used in speech by movement of the lips, tongue and palate in co-ordination with respiration and phonation.

Disorders of articulation

Anarthria: total absence of articulation.

Dysarthria: less severe disorders where articulation is distorted by slurred, weak or explosive characteristics and the co-ordination of respiration and phonation may be affected. (Coincidentally, there may be drooling and difficulties in feeding and swallowing).

Oral dyspraxia: no muscle weakness but a partial inability to perform purposeful co-ordinated movements of the articulators caused by a parietal lobe disorder.

Disorders of voice

Aphonia: total loss of voice.

Dysphonia: partial impairment of voice.

Disorders of language

Aphasia: absence of recognition and loss of verbal expression.

Dysphasia: impairment of recognition and use of verbal expression involving difficulty with reading, writing and numbers. Verbal symptoms of dysphasia may include perseveration (repetition of words and phrases), recurrent utterances, telegraphic speech (omission of articles, prepositions, and difficulties in word-finding).

Solving problems

Problem	Suggestions
Child with no verbal communication	Use a symbol system such as Bliss or Rebus or picture communication boards or sign language, e.g. Paget-Gorman, Makaton Vocabulary; provide portable electronic communication aids for one-to-one communication
Weak voice, loss of volume	An amplifier may be prescribed
Loss of audible speech following laryngectomy	A vibrator may be prescribed

Respiratory complications	Use an alphabet board or communication chart; provide a portable electronic communication aid
Loss of speech in addition to deafness making speech re-education difficult	Use a communication chart; use simple sign language guided by speech therapist
Aphasia or dysphasia	Speech therapy and follow-up practice
Inability to communicate with a group of people because of loss of speech	Use a portable electronic communication aid with a separate display unit
Inability of hospital staff to converse with foreigner	Use an interpreter and translation charts

Speech and Language Disorders

Points to consider

- The advice and guidance of a speech therapist should be obtained wherever there are speech and language disorders.
- A person who is unable to speak should always be provided with some means of summoning aid in an emergency.
- When the ability to express speech is affected a person may be unable to form words or formulate thoughts into recognisable sentences. Where comprehension is affected, words may lose their meaning and the individual may be unable to understand his own words.
- It should be remembered that loss of speech causes immense frustration and some means of self-expression must be provided. Alternative methods of communication should be used until the person has sufficient words available to him to communicate easily.
- It is preferable, when communicating with a person who has sustained a recent loss of speech, to talk to him alone in a quiet room to avoid distractions.
- Gestures, signs, clear pictures and alphabet boards may help and their usefulness will depend on the person's comprehension.
- Drooling must be dealt with discreetly; drawing attention to dribbling may upset efforts to speak.
- A person with dysarthria will take a long time to express himself and should be allowed to repeat words and sentences to correct them if he wishes. The word game 'Scrabble' may assist in retraining word comprehension and speech.
- A person who is unable to speak should always have an alternative means of communication available. A non-verbal communicator may use more than one system, e.g. Bliss symbols and a sign language. Visual aids may assist communication.
- Any communication device selected must also be immediately understood and accepted by relatives and

friends. No aid or system can provide for all a person's communication needs which range from simple to complex. Some devices are suitable for one-to-one communication; others have a display unit for group use. Some devices incorporate a print-out facility enabling messages to be produced on paper.

- Various portable electronic communication devices are now available. Some are easily carried and the requirement for this facility should be considered before purchase.
- A computer or an electronic typewriter may provide a means of communication for a person without speech. A severely disabled person may require an alternative form of input in order to operate it.
- A portable electronic typewriter may provide a school child with a convenient method of producing written communication in the classroom.

COMMUNICATION AIDS

Communication boards

Points to consider

- Communication boards or charts are easily made up to suit individual users. Ready-made charts are also commercially available.
- Charts or boards should be structured to make finding words as easy as possible and will often include some useful phrases.
- Letter boards are frequently preferred to symbols by adult users.
- Various strategies and codes can be used. A non-speaking person who is literate but who has only a simple 'yes/no' response may be helped by a card on which a letter-grid is written on both sides (see diagram):

A	E	I	O	U	Y
B	C	D	F	G	H
J	K	L	M	N	P
R	S	T	V	W	X
Q	Z				

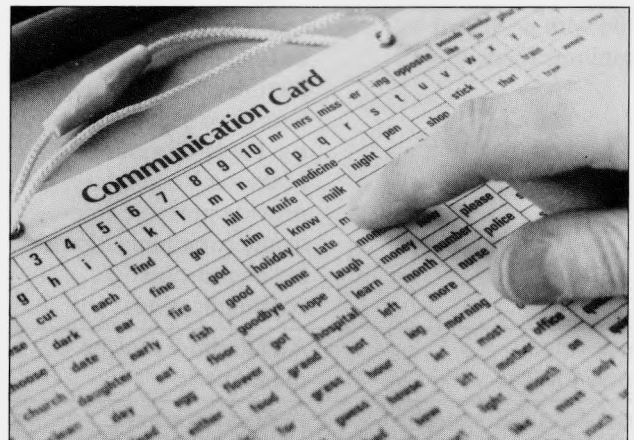
Letter-grid card

The helper reads the letters across the top line and the user indicates when the row containing the desired letter is reached. The helper then reads down that row, from the top, and the user indicates the desired letter. In this way words and messages are built up.

- It is rarely necessary for the user to spell out the whole of a word as the listener can usually guess from the context after a letter or two. This helps to speed up the communication exchange.
- Simple picture boards can offer non-speaking, physically impaired young children and others unable to interpret symbols an important means of communication.
- For some, a picture board may represent a first step towards a more complex symbol system such as Rebus, Bliss or even the written word. Pictures can be gradually faded out and symbols introduced. Others may continue to use pictures on the board and need to develop different boards for different situations.
- Photographs can sometimes precede drawings or coloured pictures. It is important to ensure that the pictures most likely to be used are placed in the easiest position on the board for the user to reach.
- Communication boards should be made as attractive as possible to help maintain the interest of the user and listener. Boards can be protected using self-adhesive transparent film or perspex or acrylic sheet.

□ ALBON COMMUNICATION CARDS

The cards each have 470 words and symbols and are available in two sizes, 300 × 285mm and 394 × 350mm. There are spaces on the cards to allow the insertion of additional words. The smaller size is also available with lower case letters. The cards are laminated between plastic so that they may be wiped clean.



Communication Card

NO	1	2	3	4	5	6	7	8	9	10	nr	mrs	miss	or	ing	opposite	stands	plural	past	yes										
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	?	+			
able	arm	birth	cheese	cut	find	go	hit	knife	medicine	night	pen	shop	stick	that	train	weak	year													
about	around	blouse	cheese	dark	each	fine	lin	milk	know	nose	pencil	should	stop	the	tree	yesterday														
address	as	best	church	data	ear	fire	god	holiday	late	minute	phone	show	story	them	try	wednesday	you													
afford	at	body	clean	daughter	early	fish	good	home	laugh	monday	not	play	show	street	then	turn	were	young												
afraid	at	book	cloth	day	egg	floor	got	hospital	hope	learn	month	nurse	please	sick	sugar	therapist	tv	what												
after	at	boy	dead	egg	flower	grand	hat	left	more	present	silly	summer	there	typewriter	what															
afternoon	at	bra	cloud	deaf	either	food	grass	hour	leg	morning	off	push	sun	they	uncle	wish														
again	away	bread	coffee	dentist	enjoy	forget	game	house	let	most	of	put	sat	think	under	when														
air	baby	bring	cold	did	enjoy	fork	had	how	lift	mother	on	quiet	sleep	sweet	think	up	where													
alone	back	broken	colour	dinner	enough	friday	hair	hurt	light	mouth	on	quiet	sleep	sweet	think	up	where													
alright	bad	brother	comb	dirty	evening	friend	hallo	ice	like	move	only	radio	so	switch	this	upset	while													
also	bag	brought	come	do	every	from	hand	idea	little	much	open	rain	soft	table	thought	us	who													
always	bank	bus	comfort	doctor	excited	fruit	hankie	if	long	music	or	read	some	tablet	through	us	why													
am	bath	bet	cook	does	eye	face	happy	ill	loud	my	other	record	sorry	talk	thursday	very	will													
an	battery	by	country	door	feather	family	game	have	is	make	near	out	right	special	taxi	time	walk	window												
and	be	can	cough	done	feather	game	have	is	make	near	out	right	special	taxi	time	walk	with	winter												
angry	bad	care	cover	down	fed-up	get	hear	rich	many	needle	page	saturday	teacher	toilet	want	woman														
animal	before	carry	cry	dress	fed-up	get	hear	rich	many	needle	page	saturday	teacher	toilet	want	woman														
answers	believe	catch	cap	drink	feed	girl	heavy	jump	me	new	paper	see	spring	teeth	towel	work	would													
any	better	chair	cinema	driver	fight	glass	here	meet	part																					
are	big	change	costard	film	here	meet	part																							
argue	bird	change	costard	film	here	meet	part																							

Obtainable from L. & R. Albon
Price guide £8
Export available

WAVES COMMUNICATION BOARD

The Board is A4 size (210 × 296mm) and made of painted steel. Words, numbers and the alphabet are printed on one side and the reverse is a plain supporting surface for writing. The words included are Cold, Drink, Food, Hot, No, On, Off, Pain, Please, Radio, Thank you, TV, WC and Yes. A number of magnetic bars and markers are provided which may be used either to indicate letters and words or to assist writing by holding the paper in place on the reverse side.



Obtainable from Wessex (Aids and Visual Equipment) Systems
Price guide £8
Export available

WAVES COMMUNICATION TALLIES

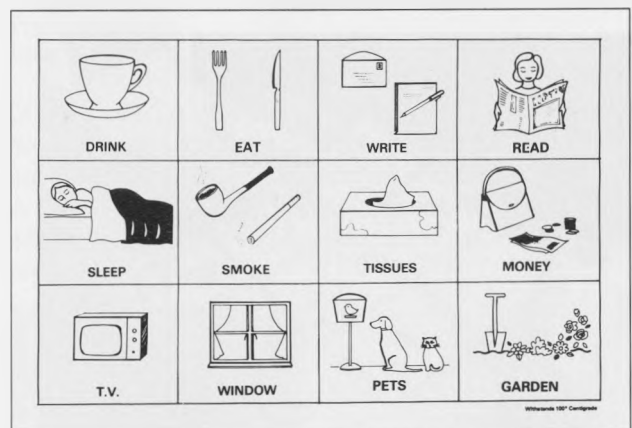
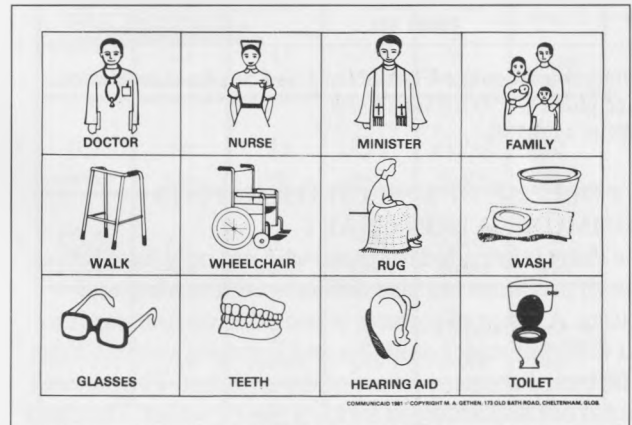
The twenty tallies are attached to a chain which may be placed around the user's wrist. Each tally has a commonly used word printed on both sides and these can be used by someone with the necessary manipulative skills to indicate elementary needs. The words included are Bedpan, Back, Body, Book, Bottle, Cold, Drink, Feet, Food, Glasses, Head, Hot, Limb, Mouth, No, Pain, Paper, Radio/TV, Thank U and Yes. The words may be covered by self-adhesive stickers and others substituted.



Obtainable from Wessex (Aids and Visual Equipment) Systems
Price guide £6
Export available

COMMUNICAID CHART/MAT

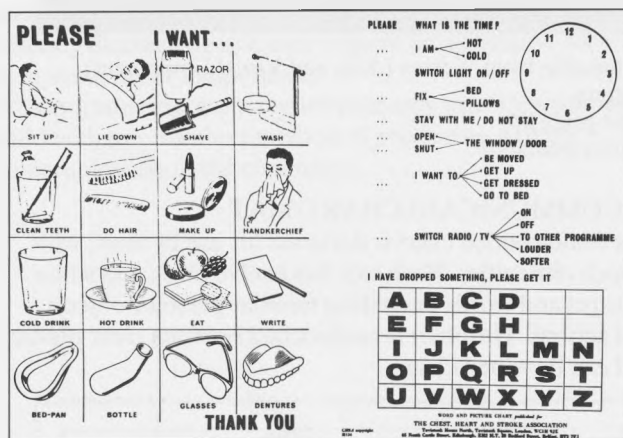
The double-sided chart is designed for use by those with speech difficulties. Each side has twelve black and white pictures and words describing familiar persons, objects and actions. The chart is sandwiched between clear plastic and can be wiped clean.



Obtainable from M. A. Gethen
Price guide £3
Export available

☐ CHEST, HEART AND STROKE ASSOCIATION COMMUNICATION CHART

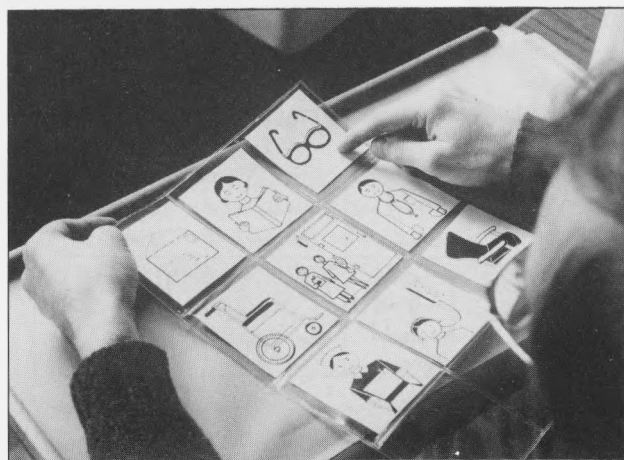
The chart has sixteen squares, each of which contains a black and white drawing and a word. The pictures show Bedpan, Bottle, Clean teeth, Cold drink, Dentures, Do hair, Eat, Glasses, Handkerchief, Hot drink, Lie down, Make up, Razor, Shave, Sit up, Wash, Write. With the additional words Please, Thank you and I want, the user can indicate basic needs. On the reverse of the Chart are the letters of the alphabet, a clock face and some useful phrases.



Obtainable from the Chest, Heart and Stroke Association
Price guide £1.50 for ten charts
Export available

☐ COLLEGE OF SPEECH THERAPISTS COMMUNICATION CHART

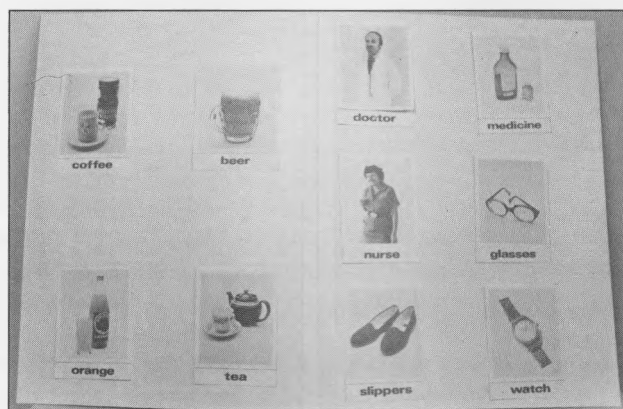
The chart is intended for those who not only have severe speech problems but also difficulty with reading and writing. A range of pictures is provided on four cards to suit different stages of illness and changing surroundings. A fifth card contains letters of the alphabet. The pictures are cut out and arranged inside a plastic wallet. The chart can be used in hospital or at home.



Obtainable from the College of Speech Therapists
Price guide £3.50
Export available

☐ PHOTOGRAPHIC COMMUNICATION CHART

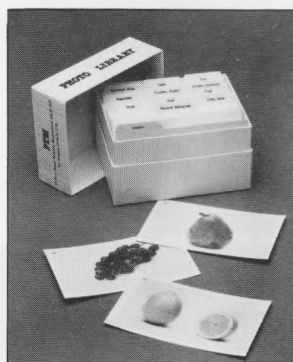
These charts are intended for adults who have severe speech and language difficulties but who are able to communicate by pointing at pictures. Six sheets, each containing nine labelled photographs, and a ring binder are provided. The photographs are 65 × 90mm in size and depict a wide range of familiar objects. Required photographs are cut from the sheets and displayed in the folder.



Obtainable from Winslow Press Ltd and Nottingham Rehab Ltd
Price guide £4
Export available

☐ PHOTO LIBRARY I AND II

Two packs of photographs are available. Each contains 150 photographs, size 125 × 75mm, showing simple domestic objects grouped in twelve categories. Photo Library I contains Clothes, Personal belongings, Toilet items, Drink, Food, Fruit, Crockery and cutlery, Vegetables and Kitchen equipment. Photo Library II contains First aid, Footwear, Gardening tools, Baby items, Electrical, Hobbies and games, Musical instruments, People, Animals, Furniture and Headwear.

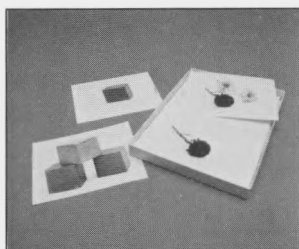


Obtainable from Winslow Press Ltd and Nottingham Rehab Ltd
Price guide £10
Export available

☐ PHOTOGRAPHIC PACKS

The range of packs contains photographs showing child-orientated objects and situations. Designed to encourage the use of language in children, the packs contain pictures of Everyday objects, Plurals, Prepositions, Sequences, Advanced sequences I, Advanced sequences II and Verbs.

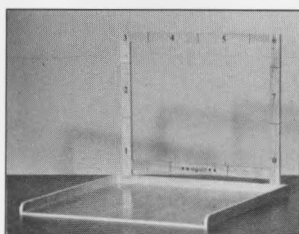
The photographs are 220 × 140mm in size and there are between forty-four and fifty pictures in each pack.



Obtainable from Winslow Press Ltd and Nottingham Rehab Ltd
Price guide £6-£8
Export available

□ E-TRAN OR EYE-TRANSFER FRAMES

Intended for those whose most reliable means of indicating is by pointing with their eyes, an E-Tran Frame consists of a frame of wood or a sheet of transparent plastic. Attached to this are letters, words, symbols or pictures. The frame is positioned between the user and the respondent and the user indicates the appropriate area by eye movements. Vocabulary may be increased by having four colour-coded choices at each position. The corners of the frame are also colour-coded and, having indicated an area, the user selects a specific item in that area by looking at the appropriate corner of the frame.



Obtainable from Learning Development Aids
Price guide £22
Export available

□ REBUS

Communication boards can also be made using rebuses. This system, derived from the American Peabody Rebus Reading Scheme, uses simple pictographic symbols. Some teachers and therapists have found that children with combined communication and learning difficulties may find rebuses easier to learn than Blissymbols. The Rebus Glossary includes some alternative rebuses linking Makaton signing (see below) and printed symbols. A common set of symbols has been devised corresponding to the nine stages of the Makaton Vocabulary.

Further information on the use of Rebus may be obtained from EARO

□ BLISSYMBOLICS COMMUNICATION SYSTEM

The Blissymbolics system is now used in many countries to provide speech and language handicapped people with a medium for expressive language. The symbols are based on concepts and, unlike the written word, are related to meaning rather than sound. Some symbols are pictographs and look like the objects they represent. Some are ideographs and convey ideas, and some are arbitrary and are used to convey words such as 'the' or 'a'.

Blissymbols are used on boards and charts. Symbol boards should be organised in a structured way and colour

coding can be used to identify different grammatical categories. There are about 100 basic symbols from which a complete language can be compiled. Blissymbols may be indicated by pointing to a board with a finger, fist or headpointer. Alternatively, more physically handicapped users can indicate symbols on electronic boards (see below) or on a computer screen (see *Computers: Software*).

Further information obtainable from the Blissymbolics Resource Centre (UK)

□ BLISSYMBOLICS CHART

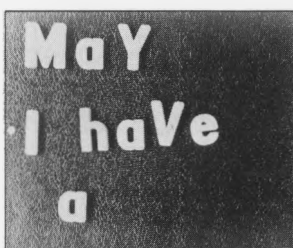
Two standard Blissymbolics charts are available. One provides a 'core' vocabulary of 160 symbols and the other of 400. The layout of the charts is structured and the symbols are grouped to make finding easier. Fluency may be further helped by the use of colour-coding. Spare spaces on the charts allow for personal symbols. Both sizes are available printed either on paper or on vinyl plastic sheet.

	a	b	c	d	e	f
1	0	1	2	3	4	5
2	hello ↻↻↻	question [?]	I, me ↓1	like ♥+!	happy ♥↑	make action ^
3	please !♥	why ?▷	you ↓2	want ♥?	angry x♥<<	mouth o
4	thanks ♥↑	how ?^	man ^	come →	afraid ♥↓?	eye o
5	I'm sorry ↓1♥↓	who ?↓	woman ^	give ↑	funny ♥↑o	legs ^

Obtainable from Learning Development Aids
Price guide £1-£3
Export available

□ MAGNETIC SPELLING BOARD AND LETTERS

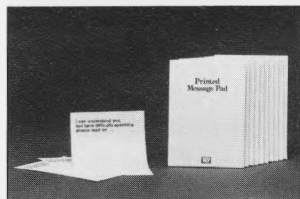
Some non-speaking people who are also unable to write may find magnetic letters useful for basic communication. A Spelling Board can be carried around; the letters will adhere to it and can be arranged into words when required.



Obtainable from Quest Educational Designs Ltd and from toyshops
Price guide £7
Export available

□ PRINTED MESSAGE PADS

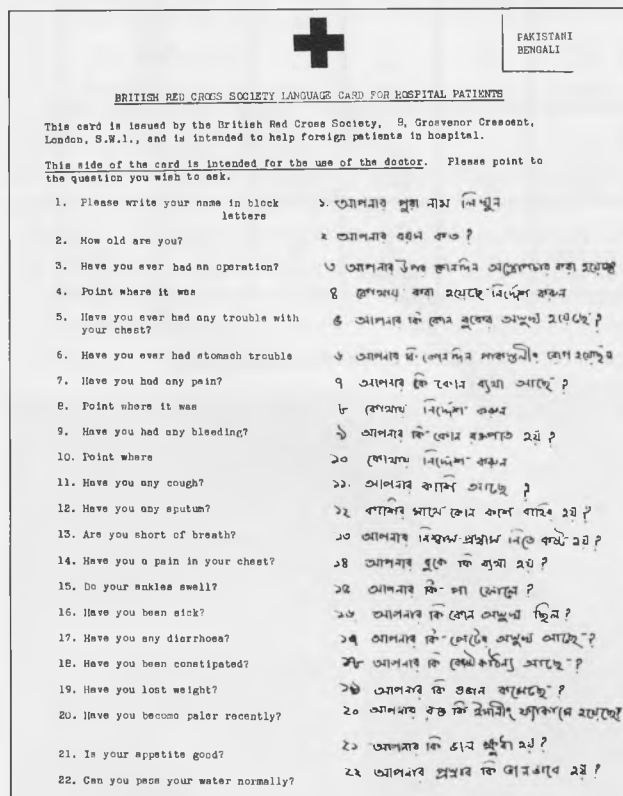
Any tear-off pad could be used for this purpose. These pads contain sheets printed with the simple message: 'I can understand you, but have difficulty speaking; please read on . . .'. The user writes his communication on the pad. When this has been read, the top sheet can be torn off and discreetly discarded.



Obtainable from Winslow Press Ltd
Price guide 55p each
Export available

□ BRITISH RED CROSS SOCIETY LANGUAGE CARDS

Language cards containing sets of questions translated into many different languages are available for use by hospital staff and patients. Standard cards are available separately or in sets of twenty-seven languages. Maternity cards – ante-natal, midwifery, infant welfare, are available separately or in sets of fifteen languages, and a further fourteen languages are available as standard cards on special request. Use of the cards requires that the patient is literate in his native language.

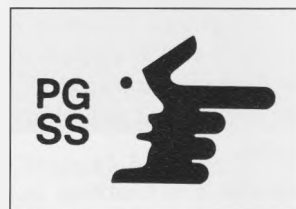


Obtainable from the British Red Cross Society
Price guide: single cards 10p each, set of twenty-seven cards £1.50
Export available

□ PAGET-GORMAN SIGNED SPEECH

A system in which spoken or written English is translated into signs with the hands. This translation is exact and includes word endings and punctuation. The system is fully grammatical, logical and easily learned. There is a vocabulary of 5,000 words although, with the use of affixes, some 65,000 words are available. A manual contains written instructions on how to sign many words. The teacher or therapist always speaks the words as they are signed. PGSS is used extensively in the education of children and adults who have receptive and expressive language defects. The system has also been used effectively with deaf children. In addition to the basic manual, other support materials are available including a parent's manual, a small vocabulary of signs in photographs and two story books or readers.

Further information obtainable from the Paget-Gorman Society



□ MAKATON VOCABULARY

In 1982, Makaton was in use in 95 per cent of schools for children with severe learning difficulties surveyed in England, Scotland and Wales. The Makaton Vocabulary is a language programme which may be used with both children and adults for basic communication and to encourage the development of language skills. Speech and signs, and sometimes symbols, are used in combination. The signs used in the United Kingdom, some 350 in all, are taken from British Sign Language. Workshops and training courses in the use of Makaton are organised throughout the United Kingdom and overseas. A range of teaching materials and a computer program are also available.

Further information is available from the Makaton Vocabulary Development Project

SPEECH ACTIVATED DEVICES

□ SPEECH APPLE

This is designed to encourage vocalisation in children. The large red apple contains a green caterpillar hidden under the stalk. When spoken to, the caterpillar slowly rises up

and sways from side to side. If the child continues to speak, the caterpillar's eyes light up but, when not spoken to, he slowly retreats into the apple. Power is provided by four A4 batteries.



Size 150mm diameter
Obtainable from Nottingham
Rehab Ltd
Price guide £12
Export available

□ FLASHING EYES TEDDY

Designed to encourage vocalisation in children, this large soft teddy bear has eyes that flash in response to sound. The lamps are powered by batteries.



Obtainable from Marconi
Hillend Enterprise
Price guide £20
Export available

□ MICRO-MIKE

A modified microphone, which is connected to the Analogue Port of the BBC Microcomputer, uses sound to affect certain computer programs. A large number of simple programs will work with the Micromike and the device may therefore be used to motivate and encourage vocalisation. Two versions are available; one hand-held, the other a desk-top model with variable sensitivity.



Size 100 × 100 × 50mm
Weight 300g
Obtainable from Magpie
Systems
Price guide: hand-held £27.
desk-top £32
Export available

□ C-SPEECH

This is a teaching aid designed to provide speech-impaired people with a visual representation of speech. A small box housing various controls is connected to a microphone and a standard television set. The display consists of two independent horizontal bands which move across the television screen. The upper band is produced in response to the therapist's utterance and serves as a reference for the subject whose own speech is represented by the lower

band. The system analyses timing, incidence and sequence of high frequency, low frequency and silent components of an utterance. A detailed *User's handbook* is provided. The system is primarily intended for use with the hearing-impaired but may also be useful with people who are affected by dyspraxia and other speech difficulties.



Size 228 × 230 × 80mm
Weight 1.5kg
Obtainable from SCI
Instruments Ltd
Price guide £280
Export available

□ VISISPEECH II

A computer-based system in which a trace of voice patterns is displayed on a TV monitor screen to provide visual feedback as an aid to speech therapy and the education of the hearing impaired. When activated by speech, three traces are produced on the screen. This display shows the pitch of the voiced sounds, the amplitude and energy produced, and the distinction between voiced and voiceless sounds. The teacher or therapist may set up a 'target' pattern to be emulated and, using the computer keyboard, may control the baseline, sensitivity, frequency scale and the rate at which the trace crosses the screen. Precise measurements may be taken at any point on the display and a print-out of the display may also be obtained. Visispeech II is designed to operate with a BBC or an Apple computer. The system may be purchased separately or complete with a computer. A training course is included in the purchase price.



Size 335 × 335 × 60mm
Obtainable from SCI
Instruments Ltd
Price guide: Visispeech II
System £900, System complete with BBC Computer
£1,600, Upgrade from original Visispeech system to
Visispeech II £400
Export available

ELECTRONICALLY PRODUCED SPEECH

Two main methods are used to produce speech electronically.

Digitised speech is produced by recording a human voice and saving it on a memory 'chip'. The individual words can

be selected by a computer and uttered one after another to form phrases and sentences. To reduce the amount of memory required, only a 'sample' of the voice is recorded. The quality of these utterances is usually acceptable but the vocabulary cannot easily be changed and is limited to what has been recorded and by the amount of memory available. Examples of the use of this type of speech are the VocaId (see *Electronic communication aids*), the Sharp Talking Clock/Calculator (see *Visually handicapped: clocks and watches*) and the telephone 'speaking clock'.

Text to speech synthesis. No recorded human speech is involved. When words are typed in, the computer analyses them into phonemes and these are converted into speech according to rules stored in the speech synthesiser. The vocabulary that can be spoken is therefore unlimited and it is possible to alter the spelling of the word to improve the pronunciation. There are many exceptions to the rules of pronunciation and some of these are stored in the synthesiser. This ensures that words such as 'Mr' and 'Mrs' are pronounced correctly. The accuracy and clarity of the speech may nevertheless be erratic. This type of speech synthesis is used in the Chatterbox, Possum Communicator 100SP (see *Electronic communication aids*) and in the speech synthesiser units below.

Speech synthesis

Points to consider

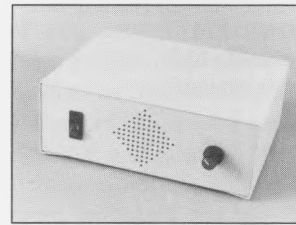
- Electronic speech may provide non-speaking users with a 'voice' which, although unnatural, can be used to augment communication.
- It is possible to store regularly used words and phrases so that the user may respond quickly.
- Communication boards require both 'user' and 'listener' to look at the board. A speech-based aid can allow communication to occur 'face to face'. This helps to hold attention and allows such unspoken aspects of communication as facial expression to become involved.
- The production of electronic speech is likely to be either much slower than that of a speaking person or much more restricted in vocabulary.
- A synthetic voice may allow a non-speaking person to communicate with someone who cannot see or read, such as a person who is blind or a child not yet able to read.
- A speech synthesiser may enable a non-speaking person to communicate over the telephone.
- While a speech synthesiser may enhance a person's ability to communicate, other means of communication are certain to be needed.

Speech synthesisers

The speech synthesisers shown below can be used in conjunction with a computer to help a non-speech user to communicate. They may also be used with portable electronic typewriters which have a built-in serial interface. If the synthesiser is portable, its use with a portable computer such as the NEC P-8201A or the Tandy Model 200 could provide a portable communication aid.

□ NAMAL TYPE AND TALK SPEECH SYNTHESISER

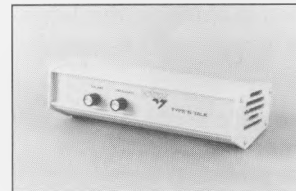
Versions of this mains-powered speech synthesiser with a built-in loudspeaker are available for either serial (RS232/RS423) or parallel connection.



Obtainable from Cambridge Microcomputer Centre
Price guide £145
Export available

□ VOTRAX TYPE 'N' TALK SPEECH SYNTHESISER

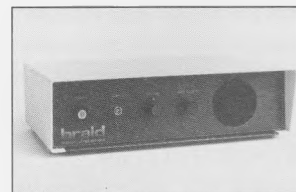
This is a mains-powered device for connection to the serial port (RS-232, RS-423) of a computer. A separate loudspeaker is required.



Obtainable from Cyber Robotics Ltd
Price guide £300
Export available

□ BRAID SPEECH SYNTHESISER

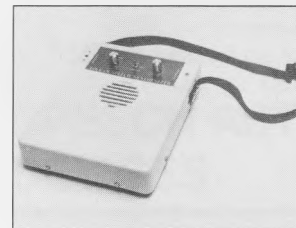
This is a mains-powered speech synthesiser with a built-in loudspeaker which is designed for connection to the serial port of a computer.



Obtainable from Toucan Communication Aids Ltd
Price guide £375
Export available

□ TOUCAN PORTABLE SPEECH SYNTHESISER

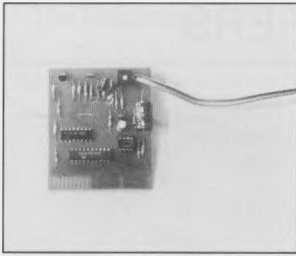
Built-in rechargeable batteries enable this speech synthesiser to be used in conjunction with a portable computer, Microwriter or a portable electronic typewriter with a serial interface. It can be used as part of a portable speech-based communication aid.



Obtainable from Toucan Communication Aids Ltd
Price guide £375
Export available

□ SAM (SOFTWARE AUTOMATIC MOUTH)

This is not a separate unit but an electronic circuit which is fitted into an Apple II+ or IIe computer (not the Apple IIc computer). With the appropriate software, it can be used to produce speech output from the computer. The program Talking MAC-Apple uses this speech output device (see *Computers: software*). An external speaker is required.



Obtainable from MGA
Microsystems Ltd
Price guide £70
Export available

SPEECH AIDS

A laryngectomee, a person whose larynx has been surgically removed, can learn to produce a voice in a different way. Arriving at the method which is best suited to each individual requires close co-operation with a speech therapist.

Oesophageal speech

Air is taken into the oesophagus, the gullet, and sounds are made as the air is expelled. No special equipment is required and both hands are free.

Artificial larynx

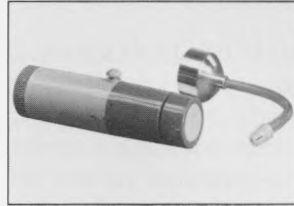
These produce a constant sound which is transmitted into the mouth. The mouth and throat are used to shape the sound in much the same way as for natural speech. The method requires precise articulation if speech is to be clearly understood. Some people use both oesophageal speech and an artificial larynx, depending upon circumstances.

Electronic: neck-type. These are hand-held, powered by a battery and shaped like a torch. The head of the device is pressed closely against the neck or cheek. Sound is transmitted into the throat or mouth. Loudness, pitch and quality can be adjusted on some models, so that a degree of rhythm and intonation may be achieved.

Electronic: intra-oral type. Sound is produced by a generator and piped through a plastic tube into the mouth. No contact with the neck is necessary so that this type may be used almost immediately after laryngectomy. Neck-type artificial larynxes may usually be converted to mouth-type by the addition of a tube although the result is usually less effective. Both hand-held and intra-oral artificial larynxes must be held and this restricts what the patient can do while talking.

□ A. & M. LARYNGOPHONE

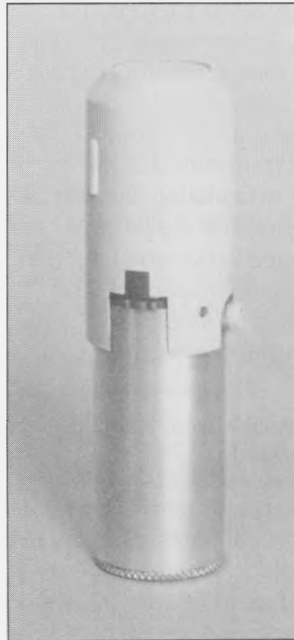
Formerly known as the Rexton Laryngophone, this aid is less expensive than others but produces an effective sound. Both volume and pitch can be controlled. Twisting the base locks the device in the off position to prevent accidental operation. The casing is plastic, light in weight and less robust and the top may become chipped. The device may be converted for oral use with the adaptor provided.



Obtainable from A. & M.
Hearing Aids Ltd
Price guide £200
Export available

□ JEDCOM ELECTRONIC ARTIFICIAL LARYNX JM011

Both the volume and tone of the sound produced can be varied although the controls are intentionally quite stiff so that they remain in position. The case, being partly of metal, is strong. The batteries are rechargeable and a battery charger and an oral adaptor are supplied. The manufacturer will provide a replacement unit on loan if the device has to be retained for repair.



Obtainable from Jedcom
Medical Products Ltd
Price guide £275
Export available

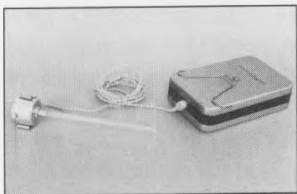
□ SERVOX

This very reliable electronic neck-type aid allows a range of adjustments to be made in volume and pitch and, in addition, fine adjustment of the intonation is possible. A guard ring around the operating button prevents the device from being turned on accidentally. After some practice, the guard ring can be unscrewed further enabling the user to increase and vary the pressure on the operating button to produce higher tones for emphasis or variation. The unit is rechargeable and is fitted with a safety neck cord. An oral connector is available.



Obtainable from Downs Surgical Ltd
Price guide £425
Export available

COOPER-RAND ELECTRONIC SPEECH AID
A small battery-powered pulse generator unit is carried in the pocket. This is connected to a tone generator which is held in the hand and a tube from this is placed in the mouth. When a push-button on the tone generator is pressed, sound is produced and is transmitted to the mouth cavity through the tube. By articulating, the user forms this sound into speech. Controls on the pulse generator allow the volume and pitch to be varied but the user has no control over intonation. As no contact with the neck is necessary, the device may be used immediately post-operatively and is also quite effective over the telephone.



Obtainable from Raymed
Price guide £275
Export available

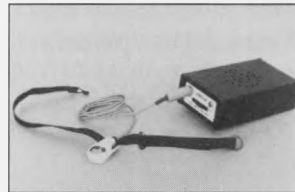
SPEECH AMPLIFIERS

Points to consider

- For those who have a very quiet or a weak voice, amplification may allow conversation with less strain and of greater length.
- An amplifier will increase the volume of the output but not its clarity. A speech therapist should be consulted to ensure that amplification is appropriate.
- In addition to the power and clarity of the amplification, the ease of operation should also be taken into account, particularly if the user has clumsy or weak finger movements.

JEDCOM VOICE AMPLIFIER

The amplifier, battery and speaker are contained in a case which can be clipped to a pocket or clothing. A small cylindrical microphone is attached around the throat with an elastic strap. The on/off switch and the volume control are combined in one knob on the amplifier. An external loudspeaker may be connected in situations where listeners may be unable to hear the sound from the integral speaker.



Obtainable from Jedcom Medical Products Ltd
Price on application
Export available

AIDS FOR STAMMERERS

EDINBURGH MASKER

Designed to alleviate stammering, the Edinburgh Masker obscures auditory feedback by generating a noise which prevents the user hearing the sound of his own voice. The noise is triggered by the user's own speech and is heard only by him. In order to encourage normal intonation, the pitch of the noise is varied with that of the user's own voice. The system consists of a throat microphone, a small control box and a set of ear tips. It can also be supplied with a manual touch switch for use by those who cannot initiate vocalisation.

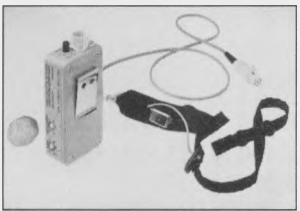
The Edinburgh Masker can be supplied directly, with the consent of the patient's doctor, or through the National Health Service on a consultant's prescription.



Obtainable from Findlay,
Irvine Ltd
Price guide £130
Export available

□ HECTOR SPEECH AID

This aid is designed to help stammerers by prompting them not to speak too quickly. It comprises a small control unit and a throat microphone. When the user's speech is too rapid, the control unit emits a tone which is adjustable to suit the level of background noise. The tone prompts the user to slow down his rate of speech and, as this is done, the tone fades away. The speech rate, sensitivity and volume are all adjustable.

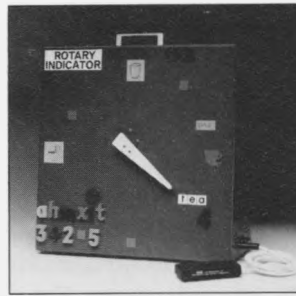


Obtainable from Peter
Graham Partnership
Price guide £150
Export available

ELECTRONIC COMMUNICATION AIDS

□ QED INDICATOR MODEL 101

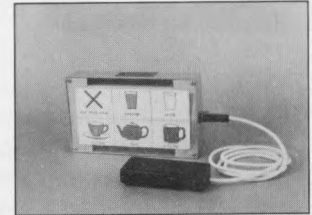
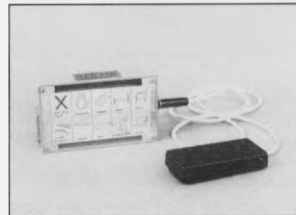
By pressing on the switch the pointer is made to rotate. Words, pictures or symbols can be written on the face of the Indicator or cut out and attached with magnets or Bluetak. Selection is made by pointing, releasing the switch to stop the pointer when it is adjacent to the appropriate item. The standard Model 101 has a fixed rotation speed of 2.5 revolutions per minute and is mains-operated. Model 101(a) has a rechargeable battery and a control which allows the speed to be varied up to five revolutions per minute.



Size 470 × 450 × 150mm
Weight 6kg
Obtainable from Quest
Educational Designs Ltd
and from Easiads Ltd
Price guide: Model 101 £90,
Model 101(a) £120
Export available

□ PERSONAL AID FOR COMMUNICATION (PAC)

Cards showing various objects or wants are attached to the front of the box. Above and below the card small indicator lamps are visible. Two versions are available, one with ten indicator lamps in a small box and the other with six lamps in a larger box. By operating a switch the user causes the lamps to illuminate in turn in a clockwise direction. Selection is made by releasing the switch when the lamp above the required area of the card is illuminated. The PAC can also be made to bleep as each lamp lights. The device is powered by a rechargeable battery and battery power is conserved by switching the power on only when the switch is operated and off automatically if a switch is not operated for one minute.



PAC 10

Size 160 × 100 × 40mm. Weight 300g

PAC 6

Size 210 × 130 × 40mm. Weight 450g

Obtainable from Quest Educational Designs Ltd and from
Easiads Ltd

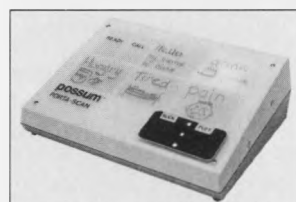
Price guide PAC 10 (ten squares) £90

PAC 6 (six squares) £95

Export available

□ POSSUM PORTA-SCAN

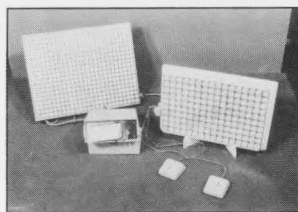
Portascan is small and portable with six back-lit panels that are illuminated in turn when a built-in switch is pressed. Words, pictures and symbols are written on the panels, five of which can be assigned to indicate basic needs and the sixth used to call for attention. The scanning speed is adjustable and alternative switches can be connected through the socket on the rear of the unit. The Porta-Scan may be used with a standard battery or optionally with a rechargeable battery.



Size 300 × 200 × 50mm
Weight 2kg
Obtainable from Possum
Controls Ltd
Price guide £100
Export available

□ CHAILEY COMMUNICATOR 160

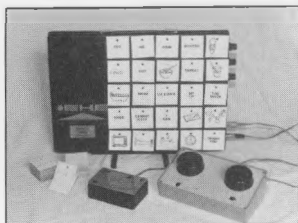
The portable communication board is constructed of plastic and powered by rechargeable batteries. The board has 160 small squares, each 25 × 25mm on which may be drawn Blissymbols, words or pictures. At the side of each square is a small, red lamp. These lamps are illuminated in turn by the use of one, two or four switches. When using only one switch, maintained pressure causes the lamps to scan first in one direction and then, on second application of maintained pressure, to scan the selected column. The use of two or four switches gives greater control over the direction of the scanning and hence faster selection. The two-switch and four-switch user can also control the rate of scanning. A 'bleep', of variable volume, may also be used to provide auditory assistance when scanning. To save battery life, the device switches itself off when not in use. The Chailey Communicator 160 can also be adapted for use as a keyboard emulator for the BBC Micro-computer.



Size 305 × 455mm
Weight 1.6kg
Obtainable from the
Rehabilitation Engineering
Unit, Chailey Heritage
Price guide £260
Export available

□ EDU-COMM

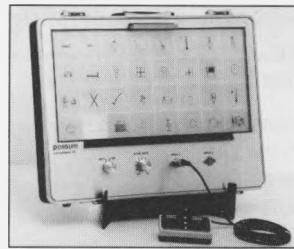
On the front panel of this portable electronic communication board are twenty-six lamps arranged in five rows of five plus one for the Start position. One hundred cards, each 55 × 55mm and printed with words and symbols, are supplied with the system. Other cards can be easily devised. A pneumatic input control is supplied but the system can also be operated by other switches. Any suitable twenty-five cards are placed on the board and, by activating one or two switches, the user can cause the lamp beneath a required card to light. The device is powered by eight built-in batteries or by a mains transformer.



Size 440 × 310 × 60mm
Weight 1.5kg
Obtainable from Easiads Ltd
Price guide £300
Export available

□ POSSUM COMMUNICATOR 32

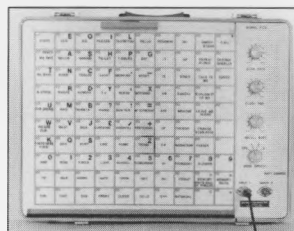
The portable switch-operated electronic communication board has thirty-two back-lit squares. Operating a switch causes the squares to be illuminated in turn and selection is made using a second switch. A 'call' square is provided and if this is selected a tone sounds to attract attention. The scan rate may be varied but not the selection mode and it is necessary to scan through all squares to make a selection. Transparent overlays are provided and these are clamped in place. Alternative overlays may be designed to suit the user. Two input sockets are provided and almost any switch fitted with the appropriate connector may be used. The device has a built-in rechargeable battery.



Size 490 × 360 × 110mm
Weight 7.5kg
Obtainable from Possum
Controls Ltd
Price £250
Export available

□ POSSUM COMMUNICATOR 100

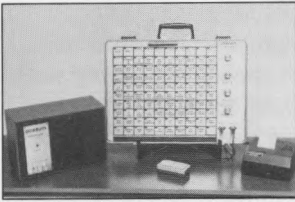
A portable switch-operated electronic communication board is powered by a built-in rechargeable battery. The front panel has 100 squares each with a small red lamp in the top left hand corner. The lamps are illuminated in turn and, using two switches, selection is made by scanning the squares horizontally and vertically at a speed set to suit the user. Squares may be selected individually or in a sequence to convey a message. In addition, four of the squares may be used to store messages consisting of a sequence of squares. These take some effort to prepare but remain in memory when the device is switched off. Squares are identified by means of transparent overlay sheets which are clamped to the front panel. Three of the overlay sheets provided are printed with words concerned with General communication, Food and Clothes. A fourth is a simple Alphabet and Symbol sheet. Alternative overlays may be made using the blank sheets provided. Almost any switches may be used and two input sockets are provided to enable two non-vocal users to communicate with each other.



Size 490 × 355 × 115mm
Weight 4kg
Obtainable from Possum
Controls Ltd
Price guide £500
Export available

□ POSSUM COMMUNICATOR 100SP

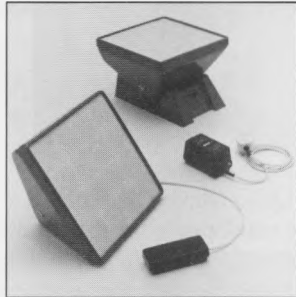
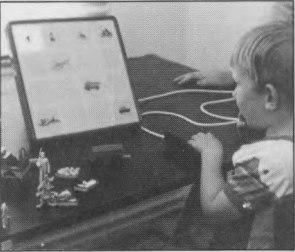
The electronic switch-operated communication board can produce either spoken or printed output. The front panel has 100 squares each with a small red lamp in the top left hand corner. Squares are selected using two switches to scan the board horizontally and vertically at a rate adjusted to suit the user. In each square, one of four 'levels' may be selected to provide characters, words or phrases. The user may build up words not on the printed overlay by selecting individual letters. Four of the squares may be used to store prepared messages, each of which may comprise the words or phrases from up to 250 squares. As the system uses synthesised speech an unlimited vocabulary is possible although at some cost in the quality of the pronunciation. Foreign language versions are available. The speech unit is mains-operated and is not portable. The printer unit prints twenty-four characters to a line on a paper roll 55mm wide.



Size 430 × 310 × 100mm
Weight 4kg
Obtainable from Possum
Controls Ltd
Price on application
Export available

□ HUGH STEEPER TEACHING AID HSR-1

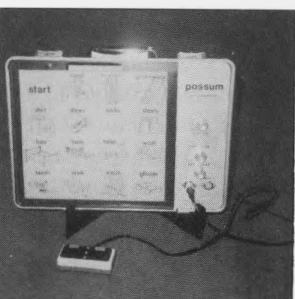
The sixteen squares which make up the display panel on the front of the box are lit from behind. Words, pictures or symbols are drawn on a transparent overlay and this is placed over the display panel. Two methods of selection are available, either the lamps illuminate automatically in turn and the user presses a switch when a desired square is reached or the lamps illuminate in turn when the switch is pressed. The number of squares used and the scanning sequence may be pre-programmed using the sixteen buttons on the back of the device. If required the user may have only two squares from which to select and progress to four, eight and eventually sixteen. The device is portable and is powered by rechargeable batteries.



Size 285 × 250 × 210mm
Weight 2.5kg
Obtainable from Hugh Steeper (Roehampton) Ltd
Price guide £300
Export available

□ POSSUM COMMUNICATOR 16/4

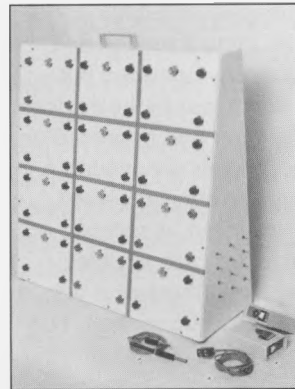
The portable switch-operated electronic communication board has sixteen back-lit panels. Transparent overlays are provided which show basic needs and these are positioned over the illuminated panels. Other overlays may be devised to suit the user. When a switch is pressed, the panels are illuminated in turn and selection is made by pressing a second switch. The scanning rate may be varied and the mode of operation changed so that, instead of sixteen small squares, four larger panels are used. Two input sockets are provided and various switches may be used. To save the built-in rechargeable battery, power is automatically cut off after two minutes if a switch is not operated.



Size 430 × 310 × 100mm
Weight 5.5kg
Obtainable from Possum
Controls Ltd
Price guide £200
Export available

□ QUEENWOOD GAZE COMMUNICATOR

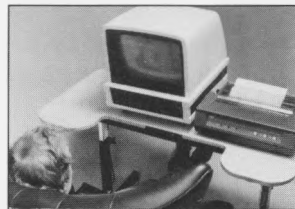
The large communication board is designed for people who can control their head movements. The front panel has twelve areas, each indicated by four coloured lamps, and pictures, words or symbols are displayed in these areas. Above each area is an infra-red detector. The user wears a small infra-red transmitter on a headband. When the head is moved to look at the picture or symbol in a particular area, the infra-red detector is activated and the lamps around that area are illuminated. No delay is built-in so that head position must be maintained in order to keep the lamps illuminated. The device is large and quite heavy. It is not really portable and is more suited as a training device for eye-tracking and head control.



Size 640 × 610 × 255mm
Weight 6.8kg
Obtainable from Queenwood
Scientific
Price guide £600
Export available

□ CEDRIC

This communication device which utilises eye-gaze is designed to be used by those with very limited movement and no speech. The user looks at a display of letters and words on a built-in video monitor screen. Low intensity red light, reflected from the retinae, is detected to determine the point on the screen at which the person is looking. Selection of words and letters is made by maintaining gaze at a particular point for a period which can be varied from 0.2 to 2.0 seconds to suit the user. Text is built up and edited on the monitor screen and the system can hold up to 1500 words. The stored dictionary has 25 pages of the most common words. The system has a serial interface for connection to a printer or computer.



Obtainable from Hugh Steeper
(Roehampton) Ltd
Price on application
Export available

□ HELPMATE

By typing on the touch-sensitive keyboard, the user can display words and phrases on a single forty character illuminated display. In addition to entering words letter-by-letter into the display, twenty-six commonly used whole words and phrases may be entered by pressing a special key followed by a letter of the alphabet. A personal list of words and phrases may be incorporated at extra cost. The device has a rechargeable battery which, once charged, lasts for approximately eight hours.



Size 350 × 190 × 100mm
Weight 2.7kg
Obtainable from Quest Educational Designs Ltd and from Peter Graham Partnership
Price guide £250, personalised word-list £25 extra
Export available

□ TOBY CHURCHILL LIGHTWRITER SL4

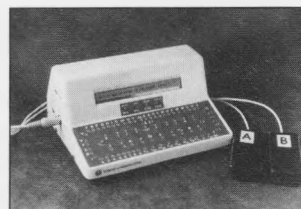
This keyboard-operated communication aid displays words on a bright LED display facing the user. Two displays can be fitted, the second facing the person being addressed. Twenty common phrases and six common words can be added whole to the display. In addition, the user can store ten words or phrases up to a total of 845 characters. The standard model is mains-operated but a rechargeable battery is available which makes the device more portable. It is then relatively heavy and best used on a table or wheelchair tray. Two keyboards are available, one with raised individual keys and the other recessed, saliva-proof and with an integral keyguard. A special printer, which fits inside the Lightwriter case, enables messages to be printed out. A speech synthesiser is obtainable and, when fitted, allows messages to be spoken. The speech is of sufficient quality for use over the telephone.



Size 330 × 330 × 75mm
Weight 2.7kg
Obtainable from Toby Churchill Ltd
Price guide: standard model £400, recessed keyboard £7, rechargeable battery £21, second display £100, speech synthesiser £300
Export available

□ TOUCAN COMMUNICATOR

The Toucan is designed to enable a severely disabled person to communicate using two switches. The switches are used to scan through an array of lamps and so choose letters which are added to the two 80 character LCD displays. One display faces the user and the other the person being addressed so that face-to-face conversation is possible. The unit is rechargeable. Up to fifty-two messages, comprising a total of 1700 characters, can be prepared to improve the communication rate. A serial interface is fitted which enables the Toucan to be used to operate a printer or computer.



Size 265 × 205 × 125mm
Weight 2.5kg
Obtainable from Toucan Communication Aids Ltd, Quest Educational Designs Ltd and Easiasid
Price guide £555
Export available

□ CANON COMMUNICATOR M

This small, portable electronic communication aid is designed for use by those without speech but having sufficient motor control to operate the small keys. Messages are produced on paper tape, 6mm wide, which emerges from the side of the machine. The keyboard has thirty-five keys, providing the letters of the alphabet, numbers, punctuation and arithmetic symbols. Two sizes of print are available; a space key is provided and letters can also be deleted. Five prepared messages, each of up to nineteen characters in length, may be stored and recalled by pressing the A, B, C, D and E keys. Those who have difficulty in using the small keyboard may be helped by the thin keyboard guard. A thicker keyboard guide and a head-pointer are available for those who cannot operate the Communicator by hand. Various mounting methods are available including an armband, a wheelchair attachment and a table stand. Power is provided by a separate rechargeable battery pack.



Size 130 × 85 × 30mm
Weight 400g (including battery pack)
Obtainable from Canon (UK) Ltd
Price guide £300
Export available

□ QED MEMOWRITER

The small portable communication aid is designed for use by those with limited strength and range of movement but with fine control. The keyboard has fifty-one touch-sensitive keys in a conventional qwerty layout. As letters and numbers are typed, text appears in upper and lower case in a twenty-four character display. Up to 240 characters can be entered before printing. In addition, twenty-six words and phrases, each up to fifty-five characters in length, may be stored in memory for later recall. When the PRINT key is pressed the text is printed on a paper roll, twenty-four characters across. The ALARM key may be pressed to summon attention. Power is provided by rechargeable batteries.

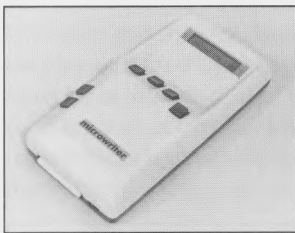


Size 225 × 145mm
Obtainable from Quest Educational Designs Ltd
Price guide £335
Export available

□ MICROWRITER

The portable word processor is operated by pressing combinations of six keys instead of using the conventional qwerty keyboard. Learning the correct combinations of these keys for the letters of the alphabet takes only a few hours although the less frequently used punctuation and editing functions require longer to learn. Text is viewed on a small display which shows fourteen characters at a time.

Up to 8,000 characters, equivalent to approximately 1,250 words or two and a half typed A4 pages, may be stored in the Microwriter's memory and may be recalled for editing, displayed on a television screen, printed on a printer or spoken by a speech synthesiser. The Microwriter can be operated by one hand only but two special versions are also available. On the Scanning Microwriter the keys are replaced by six small lamps. These are illuminated in turn and the user selects keys by activating a single switch until the required combination of lamps is lit. On the Sequential Entry Microwriter keys on a special keypad are pressed one at a time. When the required keys have been pressed a special key enters the combination into the Microwriter. A very large display is also available for use by the visually impaired (see *Electronic low vision aids*). The supplier may be able to provide adaptations such as stiffened keys or a left-handed layout to suit a particular need. Improver courses are organised by the supplier for those who have learned the basic functions.

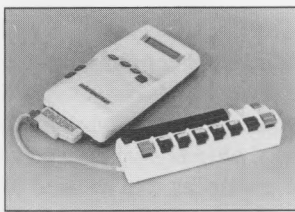


Microwriter

Size Standard Microwriter 230 × 110 × 50mm
Weight 750g
Obtainable from Foundation for Communication for the Disabled
Price guide £300,
Scanning Microwriter and Sequential Entry Microwriter prices on application
Export available



Scanning Microwriter



Sequential Entry Microwriter

□ BLISS SYMBOL PRINTER

Designed to provide people who communicate using Blissymbols with a means of producing a paper output, the printer enables messages to be sent to others or records of communications to be kept. The Blissymbols are printed on rolls of special paper and are selected by entering number codes. The source of the codes may be a number pad, the Chailey Communicator 160 or other devices.



Obtainable from Rehabilitation Engineering Unit, Chailey Heritage
Price on application
Export available

□ QED CHATTERBOX

The keyboard-operated communication device speaks words as they are typed. A text-to-speech system is used so that any word can be spoken. A twelve-character display shows the user the word being typed and allows for its correction before it is spoken. Seventy-four common sentences are stored and each can be spoken out by pressing only two keys. Built-in rechargeable batteries make the device portable although it can also be used with a mains adapter.



Size 380 × 255 × 100mm
Weight 3kg
Obtainable from Quest Educational Designs Ltd and from EasiAids Ltd
Price guide £450
Export available

□ VOCAID

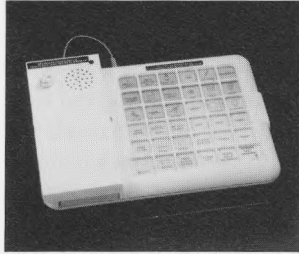
The portable, lightweight communication aid speaks words and phrases when squares are pressed. Digitised speech is used, so the vocabulary is fixed and the quality of the sounds produced is relatively good. The range of utterances is increased by changing the overlays. Each overlay provides thirty-five utterances and the Vocaids automatically detects which overlay is in use. Although the vocabulary cannot be changed, the overlays could be replaced by cards marked with rebuses, Blissymbols or pictures. A wheelchair-mounting kit, rechargeable batteries and a mains adapter are available.



Size 360 × 270 × 40mm
Weight 1.3kg
Obtainable from Quest Educational Designs Ltd
Price guide £85
Export available

□ VOCAID AMPLIFIER

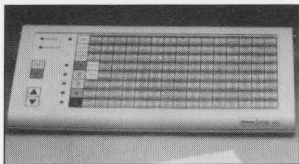
When there is background noise the speech from the Vocaïd may be difficult to discern. The Vocaïd Amplifier increases the volume of the speech output and this can be controlled using the volume control. The amplifier is battery-powered and may be attached to the Vocaïd with self-adhesive Velcro.



Size 260 × 120 × 40mm
 Weight 400g
 Obtainable from Quest
 Educational Designs Ltd
 Price guide £40
 Export available

□ PHONIC EAR VOIS 130

The portable synthesised-speech output communication aid provides the user with direct selection from a keyboard which has 128 touch-sensitive display areas. The keyboard is covered by one of the overlays provided or by a personalised overlay. Each of the 128 areas can be used to call up four words or phrases. The device is pre-programmed with 352 words, twelve prefixes and suffixes, nineteen commonly used phrases and the letters of the alphabet. In theory these can be combined to produce an unlimited range of utterances. Some dexterity is required when selecting the squares although a keyguard is also provided.



Size 420 × 210 × 80mm
 Weight 1.2kg
 Obtainable from P. C. Werth
 Ltd
 Price guide £2,600
 Export available

□ PHONIC EAR VOIS 140

This is a portable synthesised-speech output communication aid in which words are selected by entering three-figure codes. The touch-sensitive keypad has 16 keys and the device is pre-programmed with 891 words, 13 prefixes and suffixes, 19 commonly used phrases and the letters of the alphabet. In theory, an unlimited vocabulary can be obtained through the combination of these words, letters, morphemes and phrases. When codes are entered they are displayed in a small window. Utterances may be assembled in advance and spoken out when required. The volume can be controlled and a vocabulary sheet is provided to assist the user's memory. The device has a rechargeable battery which lasts for eighteen hours when fully charged.

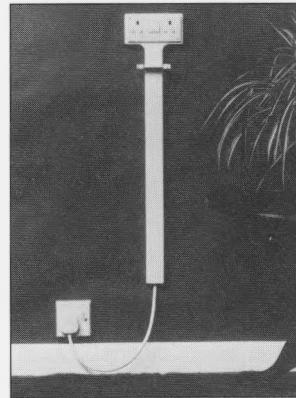


Size 225 × 210 × 90mm
 Weight 1.2kg
 Obtainable from P. C. Werth
 Ltd
 Price guide £2,600
 Export available

INDIVIDUAL CONTROLS

□ LLEWELLYN EXTENDAPLUG

People in wheelchairs or those who are unable to bend are often unable to reach certain electric power sockets and so are restricted in the appliances they can control. Extenda-plug consists of a supplementary power socket which is mounted on the wall in a position to suit the user. The built-in trunking protects the power cable which is plugged into a normal wall power socket. Single and double sockets are available with units varying in length from 600mm to 900mm.



Obtainable from F. Llewellyn
 & Co Ltd
 Price guide from £14
 Export available

□ RIPUL CONTROL SYSTEM

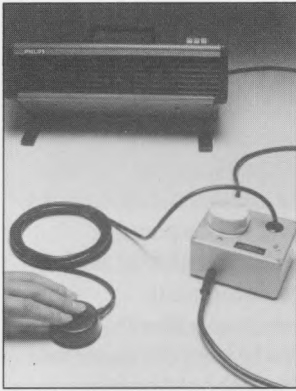
A hand-held controller is used to send an infra-red signal to a receiver which is plugged into a mains power socket. Signals are sent through the house wiring to activate special plug-in sockets into which appliances are plugged. The controller can be used to select any one of sixteen 'channels' and, if required, a number of receivers, for example table lamps, may be grouped together to respond to the same channel number. The maximum load on each socket is 13amps.



Obtainable from Quest
 Educational Designs Ltd
 Price guide: transmitter £31,
 plug-in sender £31, plug-in
 socket £35
 Export available

□ STEEPER REMOTE CONTROL SWITCH

A small bellows unit is connected by up to 4.5 metres of flexible tubing to a control box which contains a low-pressure air switch. The control box has a 13amp power socket and a cable from the control box is plugged into the electricity supply. Light pressure on the bellows unit switches the socket on the control box on and off. The bellows unit can be replaced by a mouthpiece.



Obtainable from Hugh Steeper
(Roehampton) Ltd
Price guide £35
Export available

□ RIDLEY SWITCH-A-SWITCH

Appliances are plugged into special power units which are in turn plugged into mains power sockets. By pointing a hand-held infra-red transmitter at one of these receiver/power units, the appliance connected to it may be switched on or off from distances of up to ten metres. Different power sockets around the user's house or flat may be activated by the same transmitter although these must be in line of sight of the transmitter. An alternative receiver unit controls a low-voltage output and a range of transmitters is available to suit different degrees of dexterity.



Transmitter size
100 × 50 × 25mm,
Weight 120g
Obtainable from Ridley
Electronics Ltd
Price guide: transmitter £12,
power units £34 each
Export available

GROUPED SWITCHING SYSTEMS

□ POSSUM LINK PSU2

Six toggle switches on a switch panel give the user control over four electrical appliances, an alarm, door intercom and door lock release.

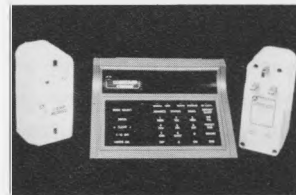
NOTE: PSU2 is not provided by DHSS but social services departments often agree to pay for its installation.



Obtainable from Possum
Controls Ltd
Price guide £400
Export available

□ SUPERSWITCH COMMAND CENTRE

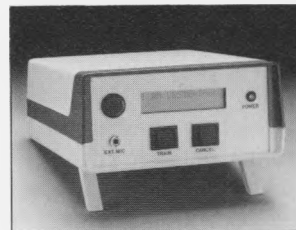
Up to sixteen electrical appliances or lamps can be remotely operated using a touch-sensitive keyboard. High-frequency coded signals are transmitted through the house wiring to 'modules' into which appliances are plugged. Lamps may be switched on to one of three levels of brightness. The Command Centre has a digital clock and the system can be programmed to switch on various lamps and appliances up to seven days ahead.



Obtainable from Chiltern
Medical Developments Ltd
Price guide: Command Centre
£100, plug-in modules £40
each
Export available

□ VOICE ACTIVATED DOMESTIC APPLIANCE SYSTEM (VADAS)

By speaking into a built-in microphone, the user can control up to sixteen household appliances. VADAS is a microprocessor-controlled voice recognition system which can be 'trained' to respond to any voice in any language or to any sound which can be reproduced faithfully. The main unit is plugged into a mains 13amp power outlet and the appliances: television, radio, lights, etc, are connected to power sockets around the house. When the control word for a particular appliance is spoken, a signal is transmitted through the house wiring and the appropriate receiver is activated. To avoid unwanted responses during normal conversation, the system can be left in a 'dormant' condition and activated when required with the command, 'wake up'.



Obtainable from Voice
Control Ltd
Price guide £375
Export available

ENVIRONMENTAL CONTROLS

The Department of Health and Social Security (DHSS) produces a booklet: *Arrangements for the provision of environmental controls and communication equipment through the DHSS*. Similar booklets are produced by the Scottish Home and Health Department, the Local Authority Social Services Division of the Welsh Office and the Department of Health and Social Services in Northern Ireland.

The DHSS places into three distinct categories the methods of assisting disabled people who cannot operate ordinary electrical switches:

- 1 Re-sited or modified individual controls
- 2 Grouped switching systems
- 3 Selector systems

Social Services may supply and instal environmental control equipment if the authority is satisfied as to individual need within the terms of Section 2 of the Chronically Sick and Disabled Persons Act 1970. Social services authorities may make a charge.

Health Services may supply or pay for the installation of environmental control equipment without charge to the user if prescribed by a hospital consultant as part of medical treatment and depending upon the exigencies of the service.

Health Authorities may obtain from the Department of Health and Social Security certain of the more complicated and expensive systems (Category 3 only) for supply on loan to patients who meet eligibility criteria.

Criteria for the provision of environmental control equipment

Criteria for environmental control equipment provision by the Department of Health & Social Security in England and Wales, the Scottish Home & Health Department in Scotland and through Social Services Departments of Health and Social Services Boards in Northern Ireland are as follows:

Those eligible to receive the apparatus are patients who are permanently so paralysed or so disabled by disease, injury or congenital defect that they are unable to carry out such simple tasks as ringing bells or switching on lights. Examples of disabilities for which equipment has been provided are rheumatoid arthritis, multiple sclerosis, poliomyelitis, spastic paresis, muscular dystrophy and various other neurological disorders. In addition to such disability they are patients who:

- are able to derive some continuing measure of independence and have the ability and will to use the apparatus
- cannot be assisted so effectively by simpler or cheaper means.

To qualify for a typewriter, both these criteria must be fulfilled plus the further condition for the typewriter control system:

- be otherwise unable to communicate satisfactorily.

Application for environmental control equipment

Application in England. Application should be made by a medical practitioner or by a consultant directly to the Environmental Control Assessor. The Environmental Control Assessor examines the patient to confirm that the criteria of eligibility are satisfied. The Assessor will select the particular system and the type of controls for the individual. The District Medical Officer subsequently recommends that the Department of Health and Social Security shall agree to provide the equipment.

Application in Wales. Applications, supported by a letter detailing the patient's condition and giving the name and address of the consultant concerned, should be made by a medical practitioner to the Welsh Office Artificial Limb and Appliance Centre. Arrangements for patient assessment, approval and supply do not materially differ from those in England.

Application in Northern Ireland. Application should be made by a medical practitioner and forwarded to the Chief Medical Officer of the Health and Social Services Board. The need is examined by the Environmental Control Assessor and, if justified, reported to the Department of Health and Social Services.

Application in Scotland. Applications should be originated by a medical practitioner. The completed application/assessment form should be sent to the Chief Administrative Medical Officer of the Health Board for the area. Where there is no consultant involvement the GP should forward the application to the Scottish Home and Health Department (SHDD) direct. If the patient appears to satisfy the eligibility criteria, the SHDD will arrange a meeting at the patient's home to confirm the eligibility, demonstrate the equipment and discuss arrangements for installing it.

□ PATIENT SELECTOR UNIT PSU3

The PSU3 is a comprehensive environmental control system which gives the user control of a wide range of equipment. Using an appropriate switch, a severely disabled person can select from an indicator panel to switch electrical appliances on and off. The user can communicate through an internal intercom system, sound an alarm and use a British Telecom loudspeaking telephone. Telephone numbers can be dialled individually and two regularly-used numbers can be dialled automatically. Provided that suitably modified appliances (which are not supplied by DHSS and will usually have to be supplied by social services departments) are used, some subsidiary controls are also possible including changing radio and television channels and volume. The range of equipment which can be operated includes a page turner, a Teletext television and Prestel and an electric tilting bed. Because of the wider range of facilities that can be controlled, the selection process is performed in two stages. Consequently this equipment will be suitable only for patients who are capable of performing this more complex selection.



Obtainable from Possum Controls Ltd
Price on application
Provided by the DHSS to those who meet the eligibility criteria.
Export available

□ BASIC ENVIRONMENTAL CONTROL SYSTEM BEC/1

The BEC/1 offers a narrower range of facilities and outlets than the PSU3 but it utilises a simple single selection process (except for some telephone functions). It is therefore more suitable for patients with limited powers of concentration or control. The system is mains-operated and is designed to operate continuously for twenty-four hours a day. A rechargeable battery enables the system to continue operating for four hours in the event of a power failure. A switch suitable for the patient is used to select from a display panel. The illumination of the display panel varies automatically to suit the room lighting. Up to five mains or battery-powered electrical appliances may be controlled. In addition, the system allows the user to communicate using an internal intercom system, an external intercom and door lock release, an alarm bell, and a British Telecom loudspeaking telephone. Numbers may be dialled individually or one of ten regularly used numbers may be selected and dialled automatically.

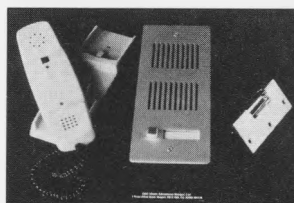


Obtainable from Hugh Steeper (Roehampton) Ltd
Price on application
Provided by the DHSS to those who meet the eligibility criteria.
Export available

- Door intercom/opening facilities can be incorporated into the BEC/1 and PSU3 Environmental control systems.

□ TELEPHONE DOOR SECURITY SYSTEM

When the door-bell rings, the occupier is able to establish direct two-way communication with the caller by lifting the handset of the internal telephone. If the caller is to be admitted, the occupier presses a button on the telephone and this operates an electric lock. The door locks again when closed and can be opened with a key in the normal way. Any number of additional telephones may be installed and an alternative, table top, telephone may be fitted.



Obtainable from Closed Door Security Systems
Price guide: supplied in kit form £69, supplied and installed £110, table top telephone £10
Export available

□ POSSUM A. I. D

An alarm, intercom and door lock are combined. The user can speak to a caller through a loudspeaker by the door and can unlock the door. An alarm button is included or an extension pull cord may be fitted and, when actuated, a loud hooting sound is emitted through the door intercom and the red button on the intercom flashes. An exterior flashing HELP sign can also be fitted.

Obtainable from Possum Controls Ltd
Price guide £220
Export available

DOOR ENTRY SYSTEMS

Points to consider

- Systems are commercially available which enable an occupant to speak to a caller without opening the door and to unlock the door by remote-control. People who are bedridden, wheelchair-bound or whose movements are slow or painful may find such a system helpful. The cost of installation and the ease of operation should be considered.
- Some systems allow a number of internal telephones to be installed so that the occupier may answer and unlock the door from different points in the house.

CALL SYSTEMS

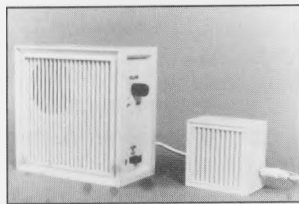
Points to consider

- A wide range of systems is available and the particular circumstances need to be taken into account. A call system is only as good as the certainty of appropriate response and the confidence that the user has that desired action will follow.
- An appropriate alarm system can alleviate anxiety on the part of the disabled person and relatives and helpers. The system chosen must be reliable and safe.
- Devices are available which will summon help within earshot. The action of the device should not be such that it causes alarm itself to the user. Some systems are designed to alert passers-by.

- Intercom systems allow room-to-room communication. A system should not be more sophisticated or more powerful than is required by the situation.
- A telephone may be installed which, when triggered, will automatically dial a number of helpers. If there are no helpers nearby, a system which automatically calls a permanently manned centre may be suitable.

□ WRENN BABY ALARM WE102

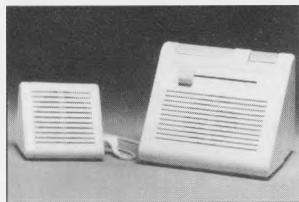
The two-way listening device may be used by a helper to monitor the situation of a disabled or sick person. The microphone unit is connected to the main unit by fifteen metres of cable. When the switch on the main unit is in the 'on' position, the helper can hear any noises in the room occupied by the person. The sound can be varied using the volume control. When the 'talk-back' switch is pressed the helper is able to respond to the caller.



Obtainable from G. & R. Wrenn Ltd
Price guide £12
Export available

□ MOTHERCARE BABY ALARM

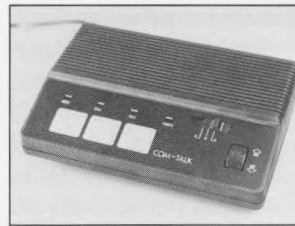
The system is in two parts connected by a cable fifteen metres in length. By pressing a switch on the main unit the helper can hear any sounds made in the area where the other unit is situated. Pressing the second switch enables the helper to speak into the unit and be heard by the person at risk. The system is powered by batteries.



Obtainable from Mothercare shops and Mothercare-by-post
Price guide £20
Export available

□ COM-TALK VOICE OPERATED WIRELESS INTERCOM CT-825

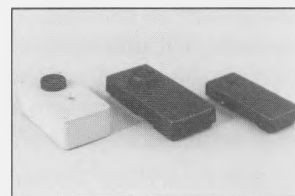
Both the receiver/transmitters are plugged into mains power sockets. In theory the system can be used between different premises provided they are on the same electricity phase. In practice conversation is likely to be effective only when both units are within the same building. When the large 'CALL' button on the front of one of the units is touched a bleeper sounds on the other unit. The user and helper can then speak to one another in turn by pressing their 'TALK' buttons. If required, both units can be set to 'AUTO' so that transmission automatically begins as soon as the user begins to make a sound. In this mode the system may be used by a person who is unable to operate a switch and the helper can respond without having to touch the unit.



Obtainable from Hadley Sales and Services
Price guide £45
Export available

□ QED BLEEPERS AND LOUD WARBLER ALARM

The lightweight, portable bleeper is designed for domestic use in the house or garden or wherever help is close at hand. The bleeper can be attached with Velcro to a wheelchair tray, chair or to the user's clothing and is activated by light pressure on the hinged plastic case. A high frequency intermittent bleep then sounds for as long as pressure is maintained. A louder version is available for use where a longer range is needed. The Loud warbler alarm is operated by a toggle or push switch and emits a tone of varying frequency which is difficult to ignore. A plug-in lever switch may be fitted and positioned so that it can be operated by a severely disabled person.



Obtainable from Quest Educational Designs Ltd
Price guide: bleeper £20, loud bleeper £25, loud warbler alarm £30
Export available

□ ENTERPRISE ENGINEERING TALKING STICK

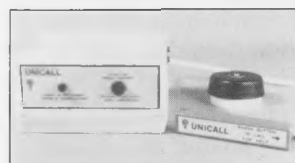
The small black box is clipped to a walking stick. Should the user fall or drop the walking stick a loud bleep will sound after approximately ten seconds and continue until the stick is returned to vertical. Power is provided by a 9v PP3 battery and fitting this requires nimble fingers. As there is no on/off switch, once the battery is installed the Talking Stick must be stored in an upright position.



Obtainable from Enterprise Engineering
Price guide £15
Export available

□ UNICALL SYSTEM

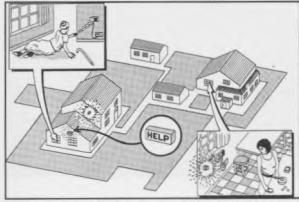
This system requires the installation of an inductive loop around the house, flat or other area being used. The small transmitter can be attached to clothing with a coat clip. When its alarm button is pressed a signal is received by the loop and this activates a bell.



Obtainable from Universal Aids Ltd
Price guide £70
Export available

□ SWITCH-A-SWITCH DISTRESS ALARM SYSTEM

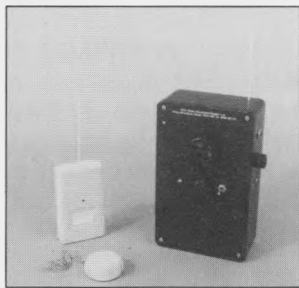
The alarm is raised by pointing a hand-held coded infra-red transmitter at an alarm point and pressing a button. The alarm point is connected by fibre-optic cable, up to one kilometre in length, to a receiving point which alerts a friend, neighbour or, in sheltered accommodation, a warden. If the button is pressed only once, the alarm is raised at the receiver and cannot be cancelled until the user has been attended to. If the button is pressed twice, indicating that help is not urgently required, the alarm will be raised but can be cancelled by the receiver.



Obtainable from Ridley Electronics Ltd
Price guide from £125 depending on components required
Export available

□ QED RADIO PORTALARM

Two small radio transmitters are available, one to be worn and the other hand-held. The pendant transmitter, BA/3, has two small switches and when these are both pressed, using thumb and forefinger, a signal is transmitted to a receiver. The hand-held version has one button. The receiver is rechargeable and can be portable although it is recommended that it be used with a mains adaptor. The switch or switches on the transmitter must be pressed for a few seconds to activate the receiver which sounds a bleeper. This bleeper can be switched off only at the receiver. A 12v outlet socket on the receiver allows an additional alarm to be activated – a loud bell or flashing light. Depending upon the surrounding structures, the system is effective to a distance of 50 to 100 metres.



Obtainable from Quest Educational Designs Ltd
Price guide £210
Export available

□ POSSUM A. I. D. See *Door entry systems*

□ ANSWERCALL CARE-PHONE UK-500
The Care-Phone is a British Telecom Approved telephone which has push-button dialling and can store up to thirty-one numbers that can be dialled automatically. It also has a remote-controlled neck pendant transmitter on which there is an emergency button. When this is pressed the base unit automatically dials up to four owner-entered telephone numbers to raise the alarm with a recorded emergency message. All four numbers are dialled in

succession even if the first to be called answers. No indication is given to receivers that others have answered the call for assistance. In the study undertaken by RICA (see below) this device was rated 'Not recommended'.



Obtainable from Call Saver, Closed Door Security Systems and Kwik-Link
Price guide £200
Export available

□ ALARM SYSTEMS

A comprehensive list of alarm systems is produced by the Information Service of the Disabled Living Foundation. The wide range of call systems listed includes simple and portable alarms, alarms with audiovisual display, habit cycle alarms, alarms for use in sheltered housing, CB radio, gas and smoke detectors and emergency identification. Information on intercoms/baby alarms is available on request.

Obtainable from the Disabled Living Foundation

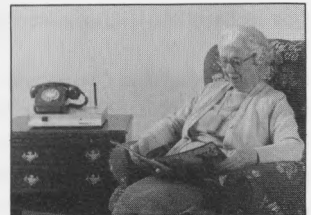
□ AUTODIALLER ALARMS WITH MONITORING SERVICE

A range of monitored autodialler systems is available. Depending upon the system, the station personnel ascertain the cause of the alarm, telephone pre-arranged helpers or alert the emergency services.

In addition to the cost of buying or renting the equipment, an annual charge is made for the monitoring service. Details of those tested by RICA are given in *Sounding the alarm* in *WHICH?*, July 1986. The following is given as an example.

□ HOMELINK 2000 EMERGENCY CALL SYSTEM

When the user operates a neck pendant or pocket transmitter, a radio signal is sent to the telephone auto-dialler. Visual and auditory signals inform the user that the alarm has been pressed and that the signal has been received. The signal continues for a pre-set time during which the alarm may be cancelled by the user. If not cancelled, the auto-dialler will call a manned centre and relay information via the telephone. The centre operator is able to talk to the user, if conscious, to establish the cause of the alarm and initiate appropriate action. If the auto-dialler is unable to make telephone contact with the manned centre after ten attempts, then a local alarm is sounded.



Obtainable from Scantronic Ltd
Price on application

TELEPHONING

Points to consider

- British Telecom (BT) has a special unit, *Action for Disabled Customers*, to consider the interests of disabled telephone users (see *Addresses*).
- New technology is providing new tools to enable people with severe physical and sensory handicaps to communicate with others.
- Information and advice about standard and specialised telephone equipment for disabled users are available from local BT Sales Offices listed at the front of The Phone Book and in Yellow Pages. They may also be contacted by dialling 100 and asking the operator for FREEFONE Telecom Sales.
- If a local authority agrees that a disabled or elderly person has a particular need for a telephone, it can provide help with the installation and rental costs. Requests for such assistance should be addressed to the local social services department.
- The Manpower Services Commission may provide special equipment for disabled people where this is required to obtain or retain suitable employment. Applications for special aids should be made to the Disablement Resettlement Officer at the local Jobcentre.
- Many devices that may help disabled people are available for sale in shops. They may only be connected to the telephone system if they are marked with a green circle to indicate that they have BT approval.
- The intensities of the bell or call sound on some telephones can be increased. The installation of one or more extension bells may alert a person with hearing loss to the telephone ringing.
- Additional sockets allow the telephone to be moved to different rooms. Having the telephone near at hand may enable a deaf person to hear the bell and may also help a person with poor mobility to reach the telephone in time to answer it.
- The range of telephones available from British Telecom and other manufacturers is very wide. By trying different telephones in a phone shop an individual may find a standard model that he can operate without difficulty.
- Some disabled users may find push-button telephones easier to operate than those with a rotary dial.

Action for Disabled Customers

British Telecom's *Action for Disabled Customers* Unit produces a guide to equipment and services for disabled customers. The book, containing information about many items of standard and special telephone equipment and how these may be of assistance to people who are disabled, is organised under four main headings: people with impaired hearing; those who have speech difficulties;

people who are blind or visually handicapped and people with impaired mobility or dexterity. Because it deals with such a wide range of disabilities, British Telecom have discarded the traditional wheelchair symbol and instead have adopted a flying dove to symbolise the liberation that appropriate telephone aids may bring.

The book may be obtained by dialling 100 and asking for FREEFONE Telecom Sales

Advisory committee on telecommunications for disabled and elderly people (DIEL)

DIEL is an independent committee, established under Section 54 of the Telecommunications Act 1984, to promote and protect the interests of disabled and elderly users of telecommunications services and equipment.

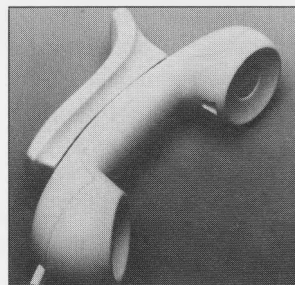
Further information obtainable from DIEL Secretariat, Office of Telecommunications

Holding the telephone

A person who cannot hold the telephone may require a phone rest or a telephone holding device. Alternatively, a lightweight headset (see below) could be tried.

BT PHONE RESTS

Telephone rests are available which attach to the handset and enable the user to support the telephone between shoulder and ear.



Obtainable from British Telecom

FLEX-A-PHONE TELEPHONE AID

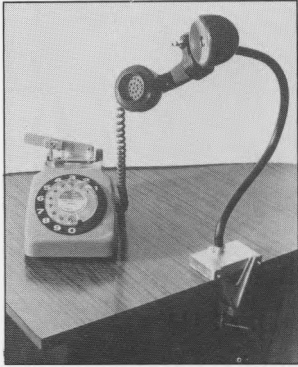
The telephone is placed on a heavy wooden base. A clamp at the end of the swan-neck holds the handset in the desired position. The telephone is activated by releasing a lever. Versions are available to fit several different styles of BT telephones.



Obtainable from Leslie Clark
Price guide £25

□ WAVES TELEPHONE HOLDER

A flexible arm holds the handset in the required position. A metal clamp, fitted to the telephone, has a magnetic lever and releasing the lever allows calls to be made or answered. Six different models are available to suit a range of BT telephones.



Obtainable from Wessex (Aids and Visual Equipment) Systems
Price guide £17-£27

□ BT LIGHTWEIGHT HEADSETS

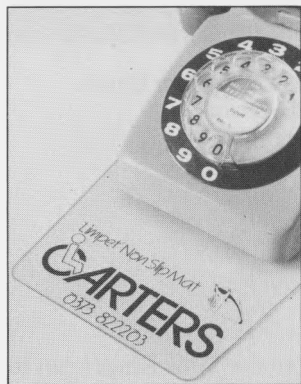
The lightweight headset clips around the ear; it may help those with use of one hand only and those who have difficulty in holding the telephone. The headset can be used with the traditional 700 type telephone or with certain BT switchboards.



Obtainable from British Telecom

□ LIMPET TELEPHONE MAT

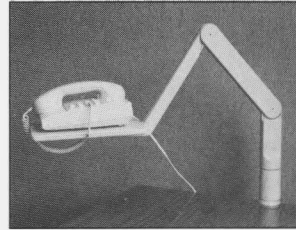
A clear plastic non-slip mat under the telephone prevents it from moving while numbers are being dialled. Those who have the use of one hand only find it useful.



Obtainable from Health and Comfort
Price guide £4
Export available

□ HANSA TELEPHONE SWIVEL ARM

The telephone swivel arm may help a person who has difficulty in reaching the telephone from a wheelchair, chair or bed. The double-jointed swivel arm can be attached to a wall or clamped or screwed to a shelf or worktop. It can be extended to 460mm and holds the telephone securely whilst a number is dialled.



Obtainable from Schaefer Shop
Price guide £45
Export available

□ DIALLING STICK

The large foam handle holds a smooth plastic stick for use when dialling on a traditional 700 type rotary dial. The stick can also be used as a typing stick by those who find difficulty pressing the keys on a typewriter or a computer keyboard (see *Typing and Computers: special keyboards and interfaces*).



Obtainable from Homecraft Supplies (Fleet St) Ltd
Price guide 75p
Export available

Loudspeaking telephones

Points to consider

- If a person has difficulty in holding the handset of a telephone during a call for any reason, a loudspeaking telephone may be helpful.
- Some telephones allow 'on-hook' dialling and the user does not have to pick up the handset to make a call.

□ BT EASIKOM

Incoming speech is amplified and a microphone enables the user to conduct a conversation without holding the handset. A volume control allows the level of the incoming speech to be adjusted.



Obtainable from British Telecom
Price guide £100
Additional rental per quarter £14

□ SERVOPHONE

The loudspeaking telephone is designed for use with the environmental control systems supplied by the Department of Health and Social Security. Users may answer the telephone and also make calls either by direct dialling or by selecting from a list of pre-determined numbers. For details of criteria for eligibility and application for environmental control equipment see *Environmental controls*.



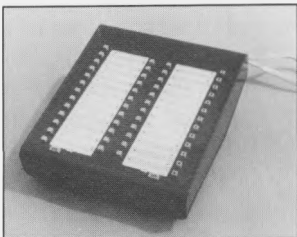
Obtainable from British Telecom and from telephone and electrical shops.
Price guide £120

Automatic dialling telephones

Some telephones can call numbers automatically when a short code is entered. Models are available that will store from 10 to 200 telephone numbers to be dialled. These devices may greatly ease the task of disabled users.

□ THE TYNE CALLMAKER

This device will store up to fifty telephone numbers. Each can be called by pressing a single key alongside a name.



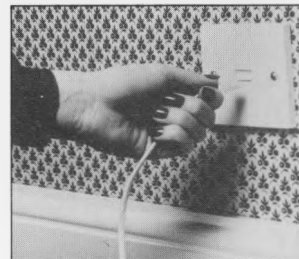
Obtainable from British Telecom
Price guide £110
Additional rental per quarter £9.50

□ CORDLESS TELEPHONES

A cordless telephone which can be carried in the pocket or on a wheelchair is practical for a person with limited mobility. Having the telephone close at hand may also help a person who is hard of hearing. Care should be taken to purchase only a model which carries the green circle mark of approval.

□ BT TELEPHONE EXTENSION SOCKETS

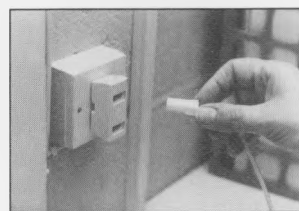
People with restricted movement may be helped by having telephone extension sockets installed in different areas of the house. Extension sockets also enable those with hearing impairments to move the telephone so that it is nearer and easier to hear. Extension sockets have gates which must be slid open in order to insert the telephone plug. Those who have difficulty with this movement may prefer the ungated **Doubler Socket** (see below).



Obtainable from British Telecom
Price guide £40 each socket

□ BT TELEPHONE DOUBLER SOCKET

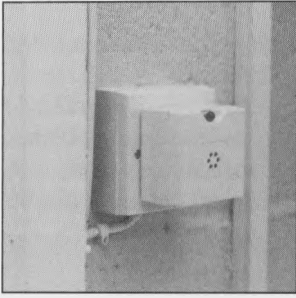
Because the socket is not covered by a gate, those with disabled hands may find it easier to plug in or remove a telephone from the Doubler socket.



Obtainable from British Telecom
Price guide £4

□ BT TONE RINGER

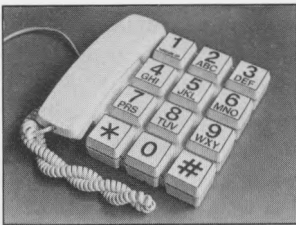
If the telephone is in another room the Tone Ringer can be plugged into a socket near the user. When the telephone rings, the device sounds and a small lamp flashes enabling a deaf person to know that a call is being made.



Obtainable from British Telecom
Price guide £7

WEECOR JUMBO BUTTON TELEPHONE MODEL 767

This British Telecom Approved push-button telephone has twelve big buttons. The numbers on the buttons are large, black and slightly raised so they may be felt as well as seen. The last number dialled may be recalled by pressing only one button. Those with limited vision or dexterity may find these features helpful. Three intensities of call sound may be selected and the telephone may be table-mounted or wall-mounted.



Obtainable from British Telecom phone shops
Price guide £70

BT PHONECARDS

Disabled people who have difficulty inserting coins into a payphone may prefer to use a Phonecard. Cards are available with 10, 20, 40 and 100 units which are paid for in advance.



Obtainable from Post Offices, phone shops and some larger newsagents
Price guide £1, £2, £4 and £10

TELEPHONING: HEARING IMPAIRED

Visual signals

Points to consider

- The Royal National Institute for the Deaf can provide information and advice on flashing light systems.
- A deaf person who requires a visual signal to indicate that the telephone is ringing will also need help in conversing on the telephone. Amplifying headsets, inductive couplers and text communication systems may help (see below).

BT LAMP SIGNALLING HANDSETS

A neon lamp in the handset flashes in time with the ringing. These are available with the traditional 700 type telephone shown and may also be fitted with the Ambassador Mark 1 push-button telephone.



Obtainable from British Telecom
Additional rental per quarter £1

BT CONQUEST HANDSET

This special handset for the BT 700 type telephone incorporates a neon flashing light to indicate when the telephone is ringing, an amplifier and a volume control. An inductive coupler can also be fitted and the user's hearing aid should be set to the 'MT' position in order that both sound and inductive signals are received.



Obtainable from British Telecom
Additional rental per quarter £1

□ MOUNTCASTLE SILENT BELL

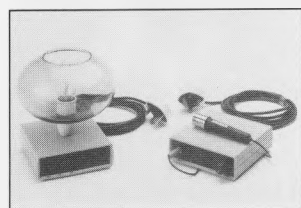
This may be connected to the telephone system so that, when the telephone rings, the house lights flash providing a clear signal for a profoundly deaf person. The necessary alterations to the house wiring should be made by a qualified electrician and those to the telephone circuit by British Telecom (see *Hearing impaired: visual doorbell systems*).



Obtainable from H. Tanner & Co Ltd
Price guide £30-£40
Export available

□ GIMA REMOTE VISUAL SIGNALLING SYSTEM

The sound of the telephone ringing is detected by a microphone and this activates a transmitter. The transmitter sends a signal through the house wiring to a receiver which may be used as an ordinary table lamp. When the lamp is off, it flashes on when the telephone rings and when on, it flashes off and then on again. An indicator on the receiver tells the user if the signal has been initiated by the doorbell or the telephone (see also *Hearing impaired: visual doorbell systems*).



Obtainable from Gima Electronics Ltd
Price guide £76
Export available

□ BT AMPLIFYING HANDSETS

Those with slight hearing loss may be helped by a handset fitted with an amplifier. The volume of incoming sound can be controlled. Amplifying handsets are available with the traditional 700 type telephone and with the Ambassador Mark 1 push-button phone. The Conquest handset has an amplifier and a flashing neon lamp. An inductive coupler may also be fitted for hearing aid users.



Obtainable from British Telecom
Price guide: £12
Additional rental per quarter 70p

□ BT WATCH RECEIVER

An additional earpiece may be fitted to the traditional 700 type telephone to enable a hearing helper to listen. The helper can then pass on the message by signing, lip-reading or writing. The Watch Receiver can also be used by a hearing impaired person to listen to incoming speech through both ears or it can be held against the microphone of a body-worn hearing aid.



Obtainable from British Telecom
Additional rental per quarter 40p

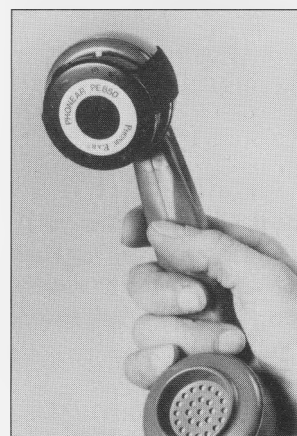
□ BT INDUCTIVE COUPLERS

The earpieces of all British Telecom Payphones are fitted with inductive couplers. These amplify the magnetic field around the earpiece and this is detected by a hearing aid switched to the Telecoil, or 'T', position. Inductive couplers do not amplify the sound from the earpiece. Inductive couplers can also be fitted to the earpiece of private telephones. If calls will be made from different telephones, a portable inductive coupler may be more appropriate.

British Telecom telephones may be fitted with inductive couplers free of charge

□ PHONEAR TELEPHONE COUPLER PE850

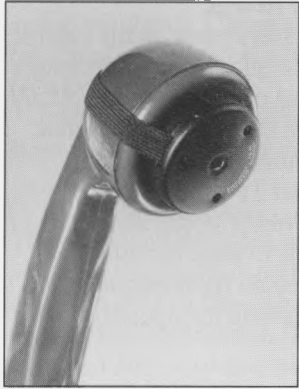
The portable inductive coupler can be carried in the pouch provided and used on any telephone. The device is held in place over the earpiece of the telephone with an elasticated strap. Powered by a Type 675 hearing aid battery, the sound from the telephone is used to generate a more powerful magnetic field which activates the hearing aid when set to 'T' position. The Phonear may also be used to enhance reception from a television or radio. A bracket is provided to attach the device to a television speaker. A lead is taken from the Phonear to a behind-ear inductor which fits alongside the user's hearing aid (see also *Hearing impaired: TV/radio amplifiers*).



Obtainable from P. C. Werth Ltd
Price guide £60
Export not available

□ **RASTRONICS TA-80 INDUCTIVE COUPLER**

The inductive coupler is similar in function and performance to the Phonar PE850 although slightly smaller. The TA-80 is supplied in a spring closure pouch which people with weak fingers or limited dexterity may find difficult to open. Power is provided by a Type 675 hearing aid battery.



Obtainable from P. C. Werth Ltd
Price guide £45
Export not available

□ **RNID TELEPHONE EXCHANGE FOR THE DEAF**

The Royal National Institute for the Deaf operates a telephone exchange to enable hearing people using an ordinary telephone to communicate with severely deaf or speech impaired people. Operators transcribe a hearing person's speech using a keyboard and this can be read on the screen of a viewdata terminal by a deaf person. A speaking subscriber may talk directly to a hearing caller. Alternatively, a non-speaking subscriber may type in a message which is then read out to the hearing person over the telephone by the operator. The system is available to deaf people living anywhere in the UK and incoming calls may be made by hearing people from other countries. To use the Exchange, a deaf person pays a once-only subscription of £5 and is then billed for the cost of calls made. These may be expensive as a deaf person more than thirty-five miles from London who wishes to call someone nearby must meet the cost of two simultaneous long-distance calls.

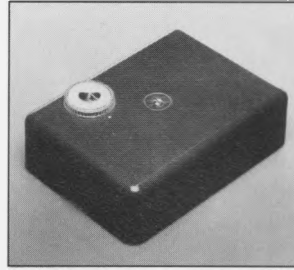
Further information obtainable from the Royal National Institute for the Deaf

TELEPHONING: SPEECH IMPAIRED

□ **BT FAINT SPEECH AMPLIFIER**

The device is designed to amplify the outgoing speech from the traditional 700type telephone for those whose

voice is too weak to be understood. The amplification is set by the BT engineer when the unit is installed although the user can make minor adjustments.



Obtainable from British Telecom

□ **CLAUDIUS CONVERSE**

This portable speech synthesis device can be made to speak up to sixty-four pre-defined phrases by pressing buttons. The device can be used to convey a message over the telephone or be used to speak directly to a respondent.



Obtainable from British Telecom
Price on application

TELEPHONING: TEXT COMMUNICATION

Points to consider

- A hearing impaired person who is able to operate a keyboard may communicate by telephone with other deaf and hearing people using text instead of sound.
- This communication may be 'one-to-one' between two subscribers, both of whom will need special equipment, or, alternatively, a disabled person may subscribe to a network system which facilitates much wider communication.

□ **CEE-PHONE**

Both parties need either a BBC Computer or a Commodore-64 Computer and a modem. The special program splits the screen so that a conversation may be held, the incoming message appearing in the upper half

and the outgoing message in the lower. This is a useful system for those who already have a computer, which may also be used as a terminal for a network system (see below) and for many other activities. Cee-Phone requires that both parties use the system simultaneously; a network system allows messages to be sent and received at the receiver's convenience.



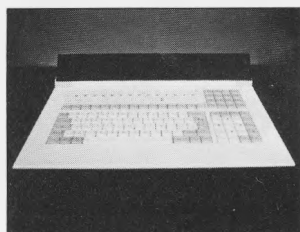
Obtainable from Clark and East Computing Services Ltd

Price guide: for BBC Computer £35, for Commodore Computer £73, modem (for either) £80, phone socket adapter £4

Export available

□ VISTEL 2

Vistel 2 is a visual telephone and telephone answering machine which enables a hearing or speech impaired person to communicate via the telephone system with someone who has a Vistel 1, Vistel 2 or a computer and modem. Outgoing messages are typed on the keyboard or, alternatively, may be prepared in advance using an in-built text editor. Auto-dialling and automatic answering facilities are built-in and incoming and outgoing messages appear on the illuminated 40-character display. Vistel 2 may also be connected to a printer. There are over 1,000 Vistel users in the UK and, by subscribing to Telecom Gold, (see below) the user may send and receive electronic mail and telex. The device is powered by mains electricity and has a back-up battery so that stored messages are not lost if power is disconnected.



Obtainable from TCS Ltd

Price guide £425

Export available

□ BRITISH TELECOM GOLD

This is an electronic mail system. Subscribers may use a 'mailbox' in which messages can be left or use the system to 'talk' directly to another subscriber. Subscribers will need either a viewdata terminal, a television with Prestel adapter or a microcomputer with a modem. Switch users, who may take some time to type out what they want to say, may build up a message first using a word processor program and send it when they are ready. Subscribers do not have to operate from their own telephone so that a deaf person with a portable terminal may communicate from any location where there is access to the telephone system.

Information on subscribing to British Telecom Gold is obtainable from Telecom Gold

□ TELECOM GOLD USER GROUP FOR THE DEAF

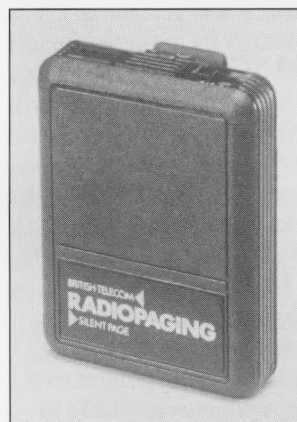
This group is organised by the RNID. Members may subscribe to British Telecom Gold at a preferential rate.

Information obtainable from the Royal National Institute for the Deaf

□ BT SILENT PAGE RADIOPAGER

Radiopagers are small radio receivers worn on the person which 'bleep' to alert the user. The Silent Page Radiopager may be switched to vibrate instead of 'bleep' so that others are not disturbed. This device can be used to alert a deaf or a deaf-blind person to a telephone call or when an urgent message has arrived in their Telecom Gold 'mailbox'. Different vibration or 'bleep' codes allow callers from up to four different locations to page the user.

Information about British Telecom Radiopaging may be obtained by dialling 100 and asking the operator for Freephone Radiopaging



Price guide: initial charge £10, quarterly rental £39, extra callers £4.50 each

□ PRESTEL

Prestel is a public viewdata service which, in addition to providing information, enables people to carry out many activities, including shopping and banking, without leaving their homes. Access to Prestel may be made using a special Prestel television set or an ordinary set with additional electronics which allow it to display Prestel characters and communicate by telephone. Alternatively, a microcomputer and modem may be used. Prestel sets may be purchased or rented; a Prestel adapter costs about £200. A keypad is provided with which the user selects information and sends messages via the telephone line. The telephone can be used in the normal way when Prestel is not in use.

Prestel is organised into 'pages' or screens of information. Several hundred independent organisations provide information via Prestel. Much of this information is aimed at business users but travel information, railway timetables, weather forecasts, film and theatre guides, hotel bookings, career and educational advice, quizzes and games are included. Some information of interest to disabled people may be found in the Medical and Health Index, about cash benefits, local information and help in

certain areas, accommodation and travel facilities, charitable organisations, communication and electronic aids, aids for the deaf, holidays, TV and radio events, sports and places to visit, educational information for students and handicapped children, research work and employment opportunities and work and training.

The cost of using Prestel depends upon the duration of each connection. The charges are lower in the evenings and at weekends. Charges are made for installation and for rental of the socket which allows the telephone line to be used for Prestel.

Information on subscribing to Prestel is obtainable from Prestel Sales or Micronet 800

QWERTYPHONE

The combined desk-top computer terminal and loud-speaking telephone can provide text communication either directly or through a network and mailbox system such as British Telecom Gold. Numbers in the stored personal directory may be dialled automatically. A built-in screen displays text in four lines of thirty-two characters. Outgoing messages can be prepared in advance and frequently-used commands saved under special function keys. Incoming messages can be stored in memory and read later or, if a printer is connected, saved on paper. The Qwertyphone has a clock, calendar and calculator and may also be used as a computer terminal.



Size 390 × 250 × 100mm
Weight 3.2kg
Obtainable from British Telecom
Price guide £450
Export available

TELEPHONING: VISUALLY HANDICAPPED

BT ENLARGED NUMERAL DIAL RING

The self-adhesive plastic ring which fits round the dial on the 700 type telephone is printed with large black letters on white.



Obtainable from British Telecom
Price guide 60p

LARGE PRINT DIALLING DISC

The self-adhesive plastic dial ring is printed with large numbers, either white on a black ring or black on white.



Obtainable from the Partially Sighted Society
Price guide 60p

BRAILLE STD CODES

The national STD codes in Braille are obtainable from the Royal National Institute for the Blind

LARGE PRINT STD CODES

A large print version of the telephone dialling code book is available giving national STD codes. Local codes are not included.

Obtainable from the Partially Sighted Society
Price guide £1.25

DIALLING INSTRUCTIONS FOR THE BLIND

Taped and written instructions describing how to dial correctly are available for blind people.

Obtainable from the Royal National Institute for the Blind

BT MODIFIED SWITCHBOARDS

Most British Telecom switchboards can be modified for operation by a visually handicapped telephonist. These adaptations may include fitting tactile indicators and braille markings and, on some switchboards, speech synthesisers.

Further information obtainable from British Telecom, price on application



HASICOM PROJECT

The Hearing and Sight Impaired Communication Project is aimed at developing ways in which deaf-blind people may communicate with other deaf-blind, blind and sighted people using the telephone network.

Further information obtainable from The Breakthrough Trust Communication Centre

RADIO AND TELEVISION

Points to consider

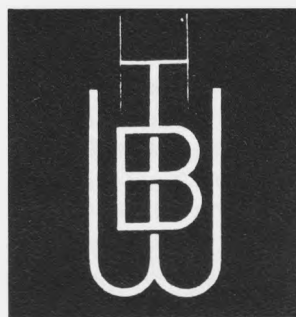
- Radio and television provide important means of contact with the outside world for people who are elderly, disabled and housebound.
- Radio and television sets are available for housebound, disabled and elderly people who cannot afford to purchase them (see below).
- It is important to check before purchase that the controls on the set are suitable for the user.
- Push buttons and slide controls are usually easier to handle than knobs.
- Many television sets now offer the option of remote control which can be of considerable help to a disabled person but the buttons on the remote-control unit are usually very small and the prospective user should check that they can manage them.
- Television and radio sets may have a socket for headphones which may enhance the reception quality for people who are hard of hearing. Other listening devices are available to enable people with hearing impairments to enjoy radio and television (see *Hearing impaired: TV/radio amplifiers*).
- A blind person may enjoy listening to television and if a television sound-only receiver is used, no television licence is required (see below).
- A number of radio and television programmes are produced for disabled people including news, information and comment about disability issues.
- Many television programmes on all four channels now include sub-titles for deaf people. Certain news bulletins are also sub-titled. Details of programmes are given in Radio and TV Times (see *Hearing impaired: television aids*).
- Both BBC and ITV provide a teletext visual information service. Special sets are required to receive this service (see *Hearing impaired: television aids*).
- It may be less costly and more convenient for a person on a fixed income or pension to rent a television set rather than purchase one. Repairs are included in the rental charge.

NOTE: Any device connected to a television receiver *must* be fitted by a qualified TV engineer.

WIRELESS FOR THE BEDRIDDEN

Television and radio sets are provided by the Society for housebound and elderly people who cannot afford to purchase them. Application should be made through a voluntary organisation or social services department.

Further information obtainable from Wireless for the Bedridden



BRITISH WIRELESS FOR THE BLIND FUND

The organisation provides radios for blind people who cannot afford to buy them. Different models are provided depending upon needs. Applications should be made through local social services departments.

RADIO AMATEUR INVALID AND BLIND CLUB

The self-help, voluntary organisation was founded to enable blind and handicapped people to pool their knowledge, skills and spare components and benefit from each other's experience. Special aids and techniques are available to help disabled radio amateurs. Members are put in touch with local helpers and the Club has links with similar clubs abroad. A magazine, *Radial*, is published every six weeks and is available on cassette for blind members.

Further information obtainable from Radio Amateur Invalid and Blind Club



TELETEXT

A visual information service is provided by the BBC (*Ceefax*) and ITV (*Oracle*). For further details see *Hearing impaired: television aids*.

PRESTEL

A visual information service is provided by British Telecom. For further details see *Telephoning: text communication*.

Sound only television receivers

RNIB TELEVISION SOUND RECEIVER

The device is specially made to receive sound only on any television channel. A loop aerial is built-in and there are sockets for an external aerial if needed, a tape-recorder and headphones. The receiver operates from a mains electricity supply.

Size 360 × 230 × 150mm

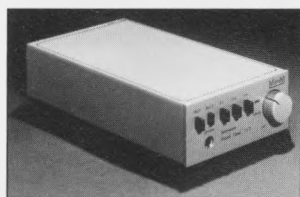
Weight 3.6kg

Obtainable from the Royal National Institute for the Blind

Price guide: £63, concession price guide £50

MINIM TELEVISION SOUND TUNER TV7

The tuner enables television sound to be received without a television receiver. A television licence is not required. Up to five channels may be selected using push buttons. A volume control is also provided and the tuner may be used with either headphones or a small speaker. The device produces a high quality output and may therefore be used as a television aid by a hearing impaired person. Headphones may be used or, if the user has a hearing aid, a neck or domestic loop system may be connected.



Size 200 × 100 × 50mm

Obtainable from Minim Electronics Ltd

Price guide £65

Export not available

TELEVISION AND RADIO AIDS FOR THE HEARING IMPAIRED

See *Hearing impaired: radio/tv amplifiers*.

READING: BOOKRESTS

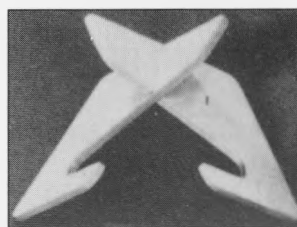
Points to consider

BS 5043: British Standard *Book holders, magnifiers and prismatic spectacles for use as reading aids in hospitals and the home.*

- A bookrest or reading stand may be necessary for a person who is unable to hold a book or for a person with painful or deformed hands.
- The situation in which the bookrest is to be used may determine the appropriate design.
- The size, ease of handling and storage of the bookrest must be convenient for the individual.
- The height, adjustment and angle of the bookrest must be suitable for use with the person's chair, wheelchair, bed or table.
- The user, or helper, should be able to carry out easily any necessary adjustments.
- The size must be appropriate for the books and magazines to be read to retain them in position.
- Some bookrests have clips or other attachments to hold books or pages in place. The user should check whether he or she can manipulate these satisfactorily in order to turn pages and add or remove reading matter.

CLASSWOOD BOOK STAND

The pieces of this simple wooden bookrest slot together. Depending upon the dexterity of the user, quite large books can be supported.



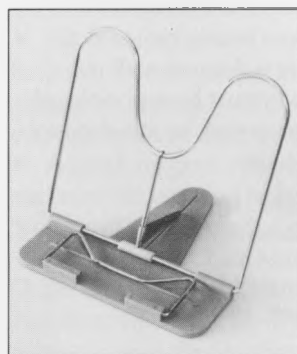
Obtainable from Classwood Ltd

Price guide £2.50

Export available

EASY READER BOOKSTAND

The lightweight plastic and metal stand is suitable for smaller books. The angle of the book rest is adjustable and the stand can be folded flat.



Folded size 175 × 210 × 12mm

Weight 150g

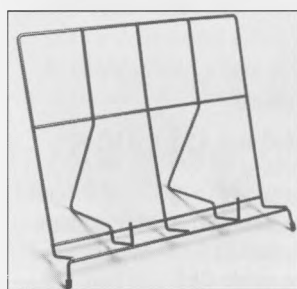
Obtainable from London Music Shop

Price guide £3.50

Export available

MUSISCA DESK READING STAND

This lightweight, desk-top music stand is suitable for books and magazines up to size A4. The angle is fixed. The steel frame is white plastic-coated.



Size 280 × 245 × 150mm

Weight 155g

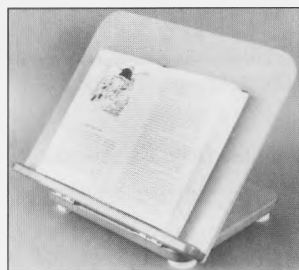
Obtainable from Musisca Ltd

Price guide £3

Export available

JONCARE NON-SLIP FOLDING BOOKREST

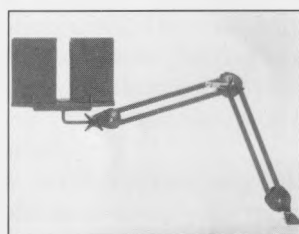
Solidly constructed of wood and set at the required angle with a large, metal wing-nut, this bookrest is suitable for books up to size A4. Books may be held with the plastic clips provided. Large, sucker feet hold the stand securely to a table or desk and it can also be used as an adjustable writing surface. The bookrest is sufficiently robust to bear a portable electronic typewriter, if necessary secured in position with a large rubber band and angled for use with a headpointer.



Folded size 380 × 310 × 80mm
Weight 2kg
Obtainable from Joncare
Price guide £33
Export available

□ BOOKHOLDER READING AID

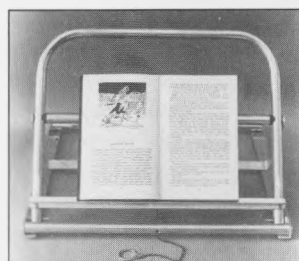
A clamp holds the base to a table or shelf and an adjustable metal arm holds the bookholder at a height and angle to suit the user. The maximum extension of the arm is 600mm so that the device may be clamped at the side of a bed or chair. The covers of the book are held in position by the plastic holders which adjust to allow for the differing thickness of each side as the pages are turned. The pages are held in place by pegs. As a result, quite thick books may be held. If the joints are tightened with the wing-nuts, the extended arm will support heavy books of A4 size without difficulty. The clamp may be attached to table and worktops up to 60mm thick.



Weight 2kg
Obtainable from Thousand and One Lamps
Price guide £65
Export not available

□ READEASY AID

This folding aluminium bookstand is suitable for thinner books or magazines up to A4 in size. The angle may be adjusted using a thin chain which locks into a hole at the front. The base has four rubber feet and a table depth of about 400mm is required for the stand.



Folded size 455 × 410 × 50mm
Weight 1kg
Obtainable from Nottingham Rehab Ltd
Price guide £15
Export available

□ NEWSPAPER READER

The folding wooden frame will hold a newspaper in a suitable position for a seated person. A bentwood hook at the base clips on to the edge of a table up to 25mm thick. The device is suitable for tabloid newspapers, up to 500 × 360mm. A wooden clip holds the newspaper in position while allowing the pages to be turned.



Open size 710 × 640 × 100mm
Weight 360g
Obtainable from Nottingham Rehab Ltd
Price guide £30
Export available

□ LUXO COPYHOLDERS

Copyholders, designed to hold material for typists and computer operators, may be useful as reading stands. The Luxo copyholders will hold an open A4 book or magazine. The base clamps to a table or shelf and the copyholder is held on an spring-balanced steel arm allowing the height and angle of the text to be adjusted to suit the user. A cursor can be attached to assist in following lines of print and this may be fitted with a bar magnifier. In the automatic version, the cursor is moved up or down by pressing on a foot control. The amount of movement can be adjusted according to the line spacing of the text.



Size: arm length approximately 800mm
Obtainable from Malt Keyboard
Price guide: short arm manual model 607 £25, arm mounted manual model 601 £27, arm mounted automatic model 1001 £79, magnifying linefinder £9
Export available

□ BROOKFIELD READING STAND

This floor-standing reading aid is fully adjustable in height and angle and can be used from either the right or left side of the user. The support for books is 380mm wide × 305mm in height and is made of clear plastic so that books may be placed face down to be read by a person lying supine; a helper will be needed to turn the pages. The clearance required by the base of the stand should be checked to ensure that it will fit under an armchair or settee.



Height adjustable from 1166 to 1244mm
Base 500mm diameter
Obtainable from James Spencer and Co Ltd
Price guide £44
Export not available

PERFORAG SIESTA

The bedside aid is designed for use by a person lying supine. The arm is supported by a vertical pole attached to a wheeled base. The reading stand, which is adjustable, is made of transparent acrylic plastic and books are placed upon it open and face-down; assistance is needed to turn the pages. The size of the reading stand folded is 340 × 25mm and open is 340 × 480mm, sufficient for an A4 magazine or book. A lightweight plastic mirror is also available and is attached to the reading stand with clips.

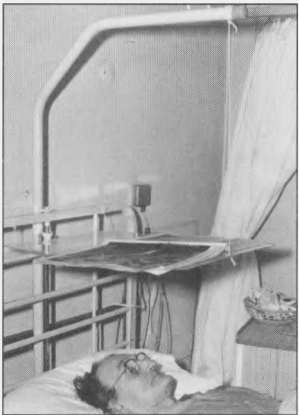


Obtainable from Perforag (Sales) Ltd
Price guide £86
Export available

PERSPEX READING FRAME

Not commercially available but can be made in a hospital department

A piece of acrylic sheet, attached to the bedhead and overhead pole of a hospital bed, may provide a suitable book or newspaper rest for a supine patient. A helper will be required to turn the pages.



READING: PAGE TURNERS

Turning pages

Points to consider

- Independent use of readily available reading material may be important for intellectual stimulation and morale.
- For a disabled person to be able to turn the pages a helper may be needed to 'open-up' the book, to keep the pages flat or to secure the book.
- In selecting a particular method of turning pages, the user's manipulative ability, motivation and tolerance will need to be considered.
- Paper clips fixed to each page of a book or magazine help the reader to separate the pages. The paper clips should be placed at different positions along the bottom edge and side of the pages.
- A small magnet can be used to 'pick up' the paper clips and turn the pages. The book or magazine may need to be 'prepared' to ensure that pages remain flat.

RUBBER THIMBLE PAGE TURNER

A rubber thimble may help those whose grip is very weak to turn a page. Paper clips may be used to separate the pages.



Rubber thimbles are obtainable from stationers and office equipment shops.

PAGE TURNER Z1583

The aid is designed to help those with some limited hand function to turn pages manually. The large handle affords a secure grip. The flat plastic blade helps separate the pages and the rubber grommet is used to turn them over.



Size 250 × 30 × 40mm
Weight 50g
Obtainable from Nottingham Rehab Ltd
Price guide £3.50
Export available

Mouth-held page turners

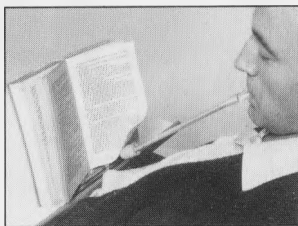
Points to consider

- A dentist should be consulted to check that the teeth and supporting bone structure are in good order.
- The user should be provided with an individually made mouthpiece consistent with comfort and ease of insertion, distributing the load evenly over the maximum number of teeth.
- The user should not habitually hold a mouthstick between unprotected upper and lower teeth for this imposes excessive load on the teeth and their supporting structure and may result in their irreparable damage.
- The facilities of a hospital dental department familiar with the problems of disabled people may be necessary.

□ MOUTH PAGE TURNER

Not commercially available but shown as an idea to be made in a hospital department

A length of 8mm aluminium tubing is fitted into a mouthpiece and a stationer's rubber thimble attached to the other end (see dental advice above). The book should be adjusted to suit the user.



Head-held page turners

Points to consider

- The user will need to be trained in the use of the device.
- A headband page turner should initially be worn only for short periods.
- Hyperextension of the neck must be avoided.
- The headband should be padded and carefully adjusted to fit the user's head.
- The angle and length of the rod should be adjusted to suit the individual user.
- The position of the book or other reading material should be adjusted carefully so as to cause the minimum of strain.
- A rubber thimble on the end of the rod helps in turning the pages.

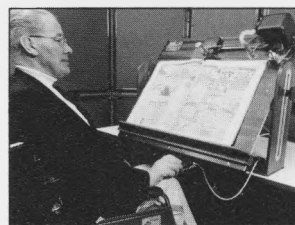
Electric page turners

Points to consider

- Could a simpler technique be used? Electric page turners are expensive but may be the only solution for a severely disabled person.
- Electric page turners can be unreliable and will not accept all types of paper.
- Before purchase any electric page turner should be thoroughly tried by the prospective user with all types of intended reading material.
- The following questions should be resolved:
 - How easy is it for a helper to set up the machine?
 - Can the machine accommodate the size and type of required reading matter?
 - Does it work; is it reliable?
 - Does it turn pages backwards as well as forwards?
 - Can the user operate it for a sustained period?
- The frustration resulting from a page turner which does not work properly may equal that caused by not being able to turn pages manually.
- New alternatives to paper books and magazines such as microfilm and microfiche may help those unable to handle conventional materials.

□ QED PAGE TURNERS AA AND AB

Two sizes of QED Page Turner are available. The smaller size, model AB, is for use with books while the larger size, model AA, can handle tabloid newspapers. Newspapers have first to be fitted into special folders provided. The problem of separating pages is overcome by using a shaped nozzle which sucks at the top sheet of paper. The suction is provided by a vacuum pump box which can be placed out of the way. The pump requires mains electricity although the working parts of the page turner use only low voltage. The page turner is clamped to the edge of a table or trolley and the height of the reading area is adjusted to suit the reader. The reading material may be at any angle between 0° and 85° to the horizontal. Momentary contact with a switch causes the top page to be drawn towards the nozzle and separated from the next. An arm then swings round and turns the page, flattening it ready for reading. A considerable amount of adjustment is possible, the turning action is effective and the reading area is clear of obstruction. Pages cannot be turned backwards.



AA



AB

Model AA, Size 810 × 610 × 200mm, Weight 9kg
Model AB, Size 710 × 580 × 200mm, Weight 7.5kg
 Pump box for use with either model, Size 330 × 200 × 180mm, Weight 7.5kg

Obtainable from Quest Educational Designs Ltd
 Price guide: model AA £660 including LA/1 Lever switch,
 model AB £640 including LA/1 Lever switch
 Export available

□ **TUTORMATIC PAGETURNER**

The device is housed inside a robust carrying case and is powered by mains electricity. Different sizes of hardback books, paperbacks and magazines can be fitted and the angle of the reading area may be adjusted for normal use or for a person lying supine. The turning action is controlled by two pneumatic switches. The pages are turned by rollers and pressed flat by pieces of clear plastic. The pages may be turned both forwards and backwards. Ensuring that only one page is turned at a time may require more sensitive switch control than many users are likely to have.



Size 610 × 520 × 160mm
 Weight 10kg
 Obtainable from Symot Ltd
 Price guide £400
 Supply may be subject to delay
 Export available

□ **GEWA PAGE TURNER BLV-6D**

With this machine, turning the pages is broken down into four distinct operations, controlled by pressing four switches in sequence or by a small joystick or by a selector mechanism. The Gewa may also be operated through the Possum PSU3 Environmental control system. Provided the sequence is followed correctly, the Gewa is generally effective. It can be angled to suit the user and may also be mounted facing downwards at an angle of up to 45° for use by those lying supine. The machine is powered by mains electricity through a separate transformer.

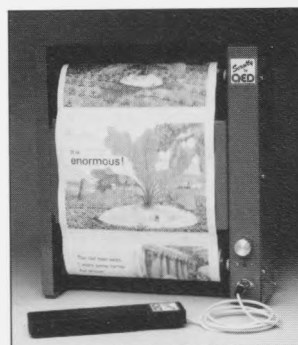


Size 500 × 600 × 150mm
 Weight 7kg
 Maximum book size:
 310 × 230 × 60mm thick
 Obtainable from Possum
 Controls Ltd
 Price guide £875, excluding
 input control
 Export available

□ **SCROLLY READING AID**

Pages from two copies of a book or magazine are pasted on to a paper scroll, 245mm wide. The scroll is fitted to the machine so that, when a switch is operated, the paper runs from one plastic roller to another. Pressing one end of the 'see-saw' switch supplied causes the paper to scroll one way and pressing the other end of the switch reverses the scrolling action. Other double switch arrangements can be used. The Scrollly may be used in either the vertical position so that the pages move up and down, or horizontally when they will move from left to right. It could also be angled for use by supine readers. As books have to

be dismembered, this device is really only suitable for situations, such as schools and homes, where a number of users will be reading the same material. The Scrollly is well-constructed and, in the appropriate setting, may provide an effective and low-cost solution to page-turning problems. The Scrollly is completely portable and is powered by a rechargeable six volt battery. Spare paper rolls and plastic rollers are available.



Size 400 × 360 × 130mm
 Weight 4.5kg
 Obtainable from Quest
 Educational Designs Ltd
 Price guide £185, including
 'see-saw' switch
 Export available

READING: TAPED AND LARGE PRINT BOOKS

Points to consider

- Books recorded on to tape for play-back on special machines are available on loan for those who are unable to read print in the normal manner.
- Special postal concessions are available to blind people.
- A special lending library service of taped books is available to hospital patients.
- Different listening devices are available including units to enable a group of people to listen together.
- Postage on cassettes may be free if the hospital has an ophthalmic or geriatric ward.
- Books, suitable for all ages, taped on to ordinary compact cassettes for play-back on standard cassette recorders are available from bookshops and large stationers.
- Some public libraries stock books recorded on ordinary cassettes for visually handicapped readers. The service is not widespread but libraries can obtain from the Library Association a list of libraries stocking cassettes.
- Typing instruction and Open University courses on cassette may be available to visually impaired people.
- Any standard cassette recorder should preferably be tried before purchase. In particular, the suitability of controls, the power supply – battery or mains, and the ease of switching from one to the other should be considered.

- A disabled music enthusiast may find a cassette recorder easier to use than a record player.
- Talking newspapers (local news recorded on to tape) enable a person who is unable to read a newspaper in the ordinary way to keep in touch with local events.
- Books in large print are available from public libraries and can also be purchased direct from publishers.
- Some publishers may allow discounts to visually handicapped individuals and organisations.
- A postal public library service is available to visually handicapped people and provides books in braille, Moon and large print.

□ READING FOR THE VISUALLY HANDICAPPED

A booklet giving details of sources of taped and large print reading material available to people with visual impairments and others who are unable to read in the normal way.

Obtainable from Development Secretary, the Library Association

A large stamped, self-addressed envelope should be enclosed.

□ CASSETTE LIBRARY FOR THE BLIND AND HANDICAPPED (CALIBRE)

Calibre is a lending library that provides taped books for anyone who cannot read in the ordinary way. The books are recorded on to standard compact cassettes and can be played on any make of cassette recorder. Membership is free to individuals who also receive a quarterly magazine on cassette. Members must provide their own cassette player and pay the return postage for each cassette borrowed. A group membership subscription is charged to hospitals, Homes, schools, etc. A person wishing to become a member must provide a medical certificate of inability to read normally.

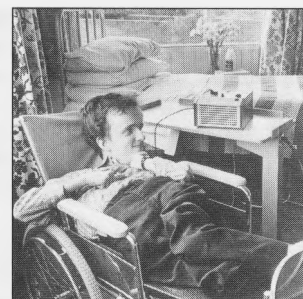
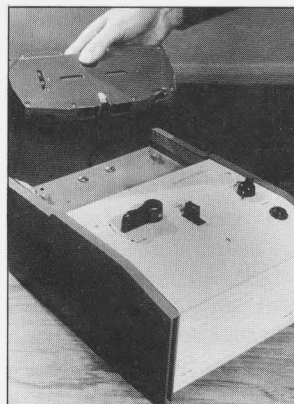


Further information obtainable from Calibre

□ NATIONAL LISTENING LIBRARY

Membership of this library of taped books is open to adults and children who can see but who because of physical or mental handicap, or other difficulties such as dyslexia, are unable to read in the normal way. The books are recorded on to Talking Book cassettes. A special Talking Book Player is provided free on loan to members and each-way postage is paid by the library. The annual membership fee is £15.

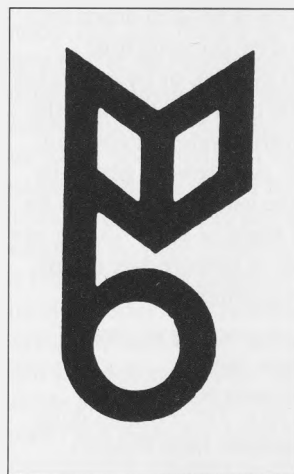
Further information obtainable from the National Listening Library



□ BRITISH LIBRARY OF TAPE RECORDINGS FOR HOSPITAL PATIENTS

This is a library of taped books for patients in hospital. The books are recorded on to ordinary compact cassettes in Library of Congress format. A special playback machine is required and this must be purchased by a subscribing hospital. The player will also playback cassettes recorded in ordinary format. An annual affiliation fee allows a hospital to operate any number of machines and to use as many books as it may require during the year. The playback machine costs £160 and the annual affiliation fee is £40.

Further information obtainable from the British Library of Tape Recordings for Hospital Patients



□ TORCH TRUST FOR THE BLIND

The Trust provides Christian reading materials in large print, braille and Moon and on tape.

Further information obtainable from the Torch Trust for the Blind

□ BRITISH TALKING BOOK SERVICE FOR THE BLIND

Anyone who is registered as blind or provides a medical certificate of defective reading vision may become a member of the Talking Book Library. The Library has approximately 5,000 titles available all recorded on to large, long-playing cassettes. Cassettes are easily inserted

into the special playback machine which is provided to each member on permanent loan. The controls can be mastered by touch and a socket is provided to allow the use of headphones. Any Library member who has difficulty in working the playback machine because of additional physical disability, such as arthritic hands, should contact the Director for advice.

Cassettes are delivered and returned under the free postal service for the blind. The Library charges an annual subscription but this is often paid by local authorities. The subscription includes the free loan and maintenance of the playback machine. Application should be made through the local social services department.

Further information obtainable from the British Talking Book Service for the Blind



□ NATIONAL LIBRARY FOR THE BLIND

Primarily, the National Library for the Blind provides braille books but some books in Moon are stocked as well as a range of classics in large print. The Library is free and aims to provide a public library service to blind people.

Further information obtainable from the National Library for the Blind

□ TALKING NEWSPAPER ASSOCIATION OF THE UNITED KINGDOM (TNAUK)

A cassette library of daily, weekly and monthly newspapers and magazines is provided for people who are unable to read in the normal way. A standard cassette player is used to listen to the tapes. Blind members pay an annual subscription of £5 for each newspaper or magazine they wish to receive. An additional amount must be paid by physically handicapped listeners as they are not eligible for free postage.

Further information obtainable from TNAUK

□ ULVERSCROFT LARGE PRINT BOOKS

A wide range of reading matter in large print with over 1,500 titles is available and about thirty new books added every month. The Fiction section includes mysteries, romances, westerns, general fiction and classics. In addition, there are non-fiction books, a song book and a Little Oxford Dictionary. Prices of the books range from £5 to £8. Many titles are stocked by public libraries.

Further information obtainable from Ulverscroft Large Print Books Ltd



□ ISIS LARGE PRINT BOOKS

A range of books is available in large print including fiction, non-fiction, biography and autobiography, dictionaries and works of reference. About one-hundred titles are published, increasing by five new large print books each month. Most books are priced from £7 to £9 although illustrated reference works are more expensive.

Further information obtainable from Isis Large Print Books

LIGHTING

Points to consider

- The ability of a person with impaired vision to carry out different activities can be greatly enhanced by more effective lighting. The amount of light required will depend upon each person's visual acuity and preferences and upon the activities to be carried out. Local lighting, giving adequate illumination but without glare, should be provided where detailed tasks are to be carried out. An adjustable reading lamp, positioned at an appropriate angle, can be used to provide a high level of light where it is required. In addition to local lighting, there should be good general lighting in the rest of the room.
- Marked differences in lighting levels between one area and another should be avoided.
- Furniture can often be re-arranged to make more effective use of daylight from windows. The use of contrasting shades and colours can be of considerable help to a person with impaired vision. Walls and ceilings should preferably be decorated in light shades to reflect as much light as possible and to provide contrast with door surrounds, furniture and other objects in the room. The use of different colours in different rooms and areas can help a visually impaired person to orientate himself. Hazardous areas such as stairs should be well-lit. The edges of stair treads and banister rails can be made more conspicuous by the use of contrasting colour.

□ LIGHTING AND LOW VISION

This booklet, prepared jointly by the Electricity Council and the Partially Sighted Society, draws attention to the ways in which the environment can aid vision and describes some of the special lighting needs of people with limited vision.

Obtainable free from the Electricity Council and the Partially Sighted Society

More technical information is given in the *Light for Low Vision Handbook* obtainable in book or cassette form from the Partially Sighted Society

Price guide £6

Export available

□ ENERGY SAVING MULTI-PURPOSE LAMP

T-88A

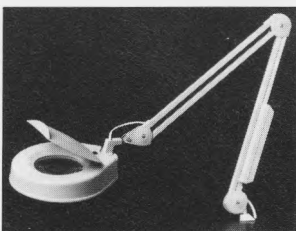
The adjustable work and reading lamp can be angled to provide high level local illumination. The lamp uses an 11 watt fluorescent tube which, while providing a light output equivalent to a 75watt light bulb, remains cool while in use. The tube provides a diffuse light source without glare. The lower temperature is more comfortable for a person working close to the lamp and also allows the lamp to be adjusted more easily when switched on. The lamp is supported by a spring-loaded arm which is clamped to the edge of a table or work-top.



Obtainable from Thousand and One Lamps Ltd
Price guide £37
Export available

□ ILLUMINATED MAGNIFIER LFM101

By providing both a light source and magnification, an illuminated magnifier may help a visually impaired person to view objects closely without obscuring the light. The lens and lamp are supported on a spring-balanced arm and this can be adjusted to any angle. Although the 120mm diameter lens does not provide very high magnification, other lenses may be fitted. Around the lens is a circular 22watt fluorescent tube which provides shadow-free illumination and remains cool when in use. The adjustable arm may be extended to a maximum length of 1150mm. The lamp base is attached to the edge of a table or shelf using a screw clamp and is suitable for tables and worktops up to 60mm thick.



Obtainable from Thousand and One Lamps Ltd
Price guide £65
Export available

□ REMEDIAN SMALL PRINT VIEWER

The large stand magnifier with a built-in lamp provides 2x magnification of a field wide enough to read an A4 page. The lens is of glass and the illumination is provided by an 8watt fluorescent tube which produces little heat.



Size 420 × 225 × 293mm
Weight 4kg
Obtainable from Remedian Instruments Ltd
Price guide £100
Export available

LOW VISION AIDS

Points to consider

- A magnifier will not solve the underlying problem and the advice of a qualified person should be sought before low vision aids are obtained. A patient may be referred to the Low vision aids section of a hospital ophthalmic department.
- The Disabled Living Foundation publishes a list of Low vision aid departments and opticians known to provide magnifiers.
- Suitable lighting is essential for a person is to make the most of his limited vision.

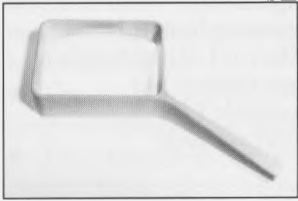
□ HI-MARK 3D FLUORESCENT MARKER

The tube contains fluorescent plastic material which is squeezed out on to the surface of the item to be labelled. Letters or symbols can be written in this way. When the material has set, its raised pattern can be 'read' with the fingers while its bright appearance may help those with partial sight.

Obtainable from the Royal National Institute for the Blind
Price guide £3.50
Export available

□ HAND MAGNIFIERS

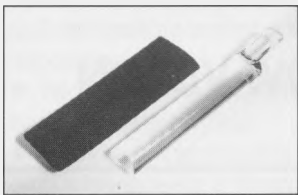
A wide range of hand, desk and stand magnifiers is available from many opticians. Magnifiers are also obtainable from Combined Optical Industries Ltd, Edward Marcus Ltd, Newbold and Bulford Ltd and Nottingham Rehab Ltd



Price guide: 100mm £5,
75mm £3, 50mm £2
Export available

□ BAR MAGNIFIERS

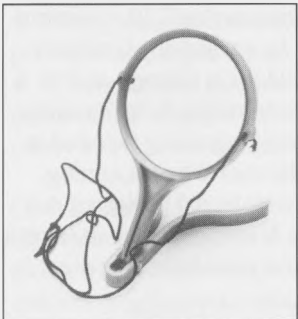
These magnifiers are designed to rest on the paper and in this position the image appears in focus and enlarged. They may help when reading lines of text or consulting timetables and telephone directories.



Suppliers include Brigstow Products, Homecraft Supplies (Fleet Street) Ltd, Newbold and Bulford Ltd and Edward Marcus Ltd
Price guide £2.50
Export available

□ THREE-IN-ONE UTILITY MAGNIFIER

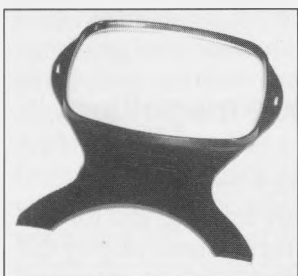
The 100mm diameter magnifier is designed to be used in a number of ways. It is lightweight and may be hand-held or worn using the cord provided or used as a stand magnifier leaving both hands free.



Size 205 × 125 × 15mm
Weight 115g
Obtainable from Homecraft Supplies (Fleet Street) Ltd and Newbold and Bulford Ltd
Price guide £7
Export available

□ EASIVIEW MAGNIFIER

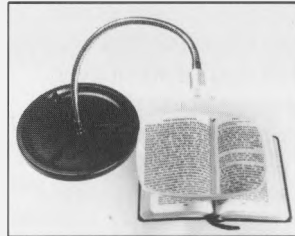
The large aspheric lens produces a clear image across the whole field of view. The lens is designed to be worn, and being made from acrylic plastic, is light in weight.



Lens 140 × 100mm
Weight 300g
Manufactured by Combined Optical Industries Ltd
Obtainable from many opticians and from Edward Marcus Ltd, Newbold and Bulford Ltd and Nottingham Rehab Ltd
Price guide £8.50
Export available from Nottingham Rehab

□ DESK MAGNIFIER

The large acrylic lens is mounted on a flexible stalk. Once adjusted to the required angle it remains in position, leaving both hands free. The heavy base has depressions which will hold pins, paper clips and other items.



Lens 145 × 100mm
Weight 1.2kg
Manufactured by Combined Optical Industries Ltd
Obtainable from many opticians and from Edward Marcus Ltd, Newbold and Bulford Ltd and Nottingham Rehab Ltd
Price guide £22
Export available

□ ILLUMINATING MAGNIFIERS

A person observing closely may obstruct his own light. Illuminating magnifiers are designed to illuminate and magnify small areas and may be useful for close work such as studying stamps. A range of illuminated magnifiers is available with magnification from 3x to 10x and including battery-powered, mains and rechargeable models.



Obtainable from Edward Marcus Ltd and Newbold and Bulford Ltd
Price guide £12
Export available

□ FRESNEL MAGNIFIERS

Fresnel magnifiers have the advantage of being lighter and very much less bulky than ordinary lenses. The magnified images they produce may be indistinct and, as they are flexible, there may be some distortion. Most are made from soft plastic and care must be taken to protect the surface from scratches.

□ WIDE SCOPE FRESNEL LENS MAGNIFIER

The large square Fresnel lens is designed to magnify over a wide area. The lens is made of rigid plastic which reduces distortion and is light in weight. Cords are provided so that the magnifier may be worn, leaving the hands free when reading.



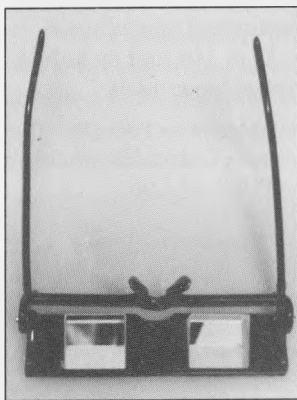
Size 285 × 285 × 2mm
Obtainable from Fresnel Precision Optics
Price guide £15
Export available

Recumbent or prismatic spectacles

Recumbent spectacles enable a person lying supine to read a book held on the chest. They may also help a person who must maintain an upright sitting posture, for example someone wearing a neck brace, to read a book lying on the lap. Careful adjustment and some practice are necessary to use them. Most models may be worn over ordinary spectacles although in prolonged use the additional weight may become uncomfortable. If a spectacle wearer is likely to need recumbent spectacles over a long period, a special pair incorporating suitable prescription lenses should be obtained.

□ BED-SPEC RECUMBENT SPECTACLES

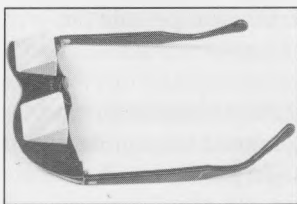
The prismatic lenses can be angled to suit the user's position. The spectacles may be obtained with the prisms reversed for use by a person severely stooped as from ankylosing spondylitis.



Obtainable from Edward
Marcus Ltd
Price guide £23
Export available

□ SUPERSCAN RECUMBENT SPECTACLES

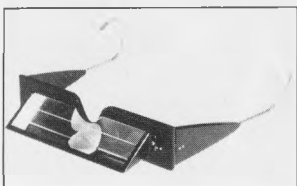
The spectacles are fitted with prismatic lenses and may be worn over ordinary reading glasses.



Obtainable from Birmingham
Optical Group Ltd
Price guide £20
Export available

□ RAYNER RECUMBENT SPECTACLES

The spectacle has a single prism mounted on a black plastic frame. It can be worn over ordinary spectacles but for prolonged use prescription lenses can be fitted into a spectacle frame.



Obtainable from optician
branches of Rayner Optical
Company Ltd
Price guide £60
Export available

□ LIGHTWEIGHT PRISMATIC MONOCULAR

The monocular is easy to hold and can be used unobtrusively in the street to read a road sign or bus number. It may also be useful in a classroom or lecture theatre. A wrist cord and soft carrying pouch are provided.

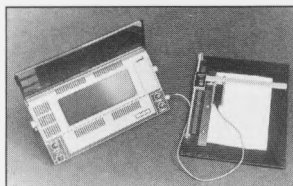


Size 88 × 50 × 40mm
Weight 145g
Obtainable from Edward
Marcus Ltd and Newbold
and Bulford Ltd
Price guide £48
Export available

ELECTRONIC LOW VISION AIDS

□ VIEWSCAN

The portable magnification system uses a small hand-held camera to scan ordinary print. Magnification can be varied in eight steps from 4x to 64x and the magnified image appears on a neon screen measuring 220 × 80mm. The brightness of the image may be varied, the user may select either orange on black or black on orange, and to have either a moving or a stationary image. Some practice is needed to remain on the line when scanning text and a guide frame is available to help the user when scanning. Power is provided by rechargeable internal batteries. An upgrade is available to enable the Viewscan to be used as a large display terminal for an Epson portable computer.



Size 395 × 210mm
Weight 4kg
Obtainable from LVA
Marketing
Price guide £2,700
Export available

Closed circuit television magnifiers

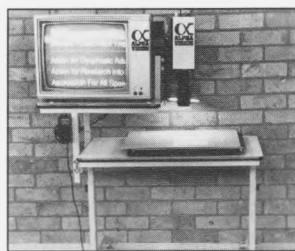
Several systems are available which employ closed circuit television to display greatly enlarged text for visually handicapped people. Other systems display the magnified output from a word processor on a monitor screen.

Points to consider

- Visual impairments are often complex and simple enlargement, however great the magnification, may not make for greater clarity.
- Viewing a television monitor screen positioned at head height is better for posture and causes less fatigue than using powerful magnifying spectacles to read on a horizontal table.
- The use of a television magnifier may be more aesthetically acceptable, particularly to a younger user.
- The Manpower Services Commission may provide a closed circuit television system if it is necessary for a visually impaired person to carry out his work. The Disablement Resettlement Officer at the local Jobcentre can advise about this.
- The magnification, brightness and contrast of the image may be adjusted by the user.
- Text should not be enlarged more than is required to make it readable, otherwise less will appear on the screen and the reading matter will have to be moved more than is necessary.
- Most closed circuit television systems leave the user's hands free for writing.
- Although it is possible for the user to write and see his own writing using a closed circuit television magnifier, there are easier, less expensive aids for this purpose (see *Visually handicapped: writing*).
- Closed circuit television enlargers have their limitations being bulky and requiring connection to mains electricity.
- Most systems employ special flicker-free monitor screens. The flicker and poor definition on a domestic television may result in fatigue.
- Many people find that a green and black monitor provides a sharper image than a black and white screen.
- Closed circuit systems are available using a colour camera and monitor but the advantage of colour may be offset by reduced definition and increased cost.

□ ALPHAVISION

The television camera is mounted vertically on a stand along with a lamp which illuminates the reading area. The camera height can be altered and a zoom lens enables the user to vary the magnification. The lens is focused manually and a switch on the camera allows the user to select either a positive (black text on a light background) or negative (light text on dark) image. Some users may find the latter more restful. The brightness and contrast are controlled on the monitor. A sliding table enables the reader to move the text both up and down and left and right using only one hand. Right and left hand models may be supplied and three versions of the system are available. The Alphavision 17 is fitted with a 430mm monitor, the Alphavision Minor has a 305mm monitor. Both may be fitted with green/black screens if required. The Alphavision trolley can be adjusted to five different heights and will accept 305, 430 or 510mm monitors. The monitor height may be adjusted separately from that of the table. The wheels may be braked when in use.



Obtainable from Alphavision Ltd
 Price guide: Alphavision 12 £930, Alphavision 17 £985, Alphavision Trolley £165
 Export available

□ ALPHAVISION TRAVELLER

The compact and lightweight system is fitted with a carrying handle for use when moving from one location to another. Although portable in size and weight, the system requires mains electricity and, as a monitor is not incorporated, this too must be transported or be available wherever the system is to be used. The Traveller incorporates a zoom lens, image enhancement and the facility for image reversal. Illumination is by means of a fluorescent lamp. Both video and UHF output are provided, enabling the system to be used with either a monitor or a standard television receiver.



Size 535 × 255 × 255mm
 Weight 6.5kg
 Obtainable from Alphavision Ltd
 Price guide £750
 Export available

□ FOCUS HORIZON

The camera, lamp and controls are all housed inside a cabinet so that there are no external cables. A 305mm monitor can either be placed on top of the camera housing or alongside to suit the user. Alternatively, a 430mm or 510mm monitor or a domestic television set may be used. With a 305mm monitor, magnification can be varied from 3x to 24x. The viewing table is A4 in size and slides easily in either direction. An additional camera may also be connected so that the user may view, for example, a typewriter or a blackboard. When the monitor is placed above the unit, the desk space occupied is only 305 × 430mm which may be a considerable advantage in a classroom or work situation.



Obtainable from Steam Storage Company Ltd
 Price guide: with 305mm monitor £1,120, with 430mm monitor £1,170, with UHF output £900, additional camera £500
 Export available

□ VISUALTEK VOYAGER VR-1

This is a compact closed circuit television system in which the monitor is positioned directly over the reading matter. The camera, fluorescent lamp and 305mm monitor are all enclosed within the case so that there is no external wiring. A zoom lens provides magnification from 3x to 45x, with either a positive or negative image, and an electronic line marker enables the user to emphasise lines of text. A green and black monitor may also be fitted. The controls for size, focus, image reversal and the electronic line marker are all grouped on the front panel. The viewing table slides in both directions and can be locked in position. The legs supporting the monitor slide into the case for storage or transport so that, although the system requires mains electricity, it is relatively portable.



Folded size 355 × 355 × 355mm
Weight 16kg
Obtainable from Visionaid Systems
Price guide £1,600
Export available

□ LARGE PRINT DISPLAY PROCESSOR

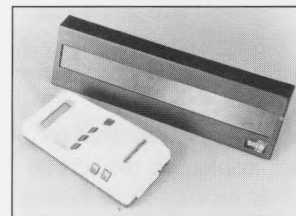
Employment and educational opportunities using computers, both for programming and applications such as word processing, may be restricted for partially sighted people by the small size of the characters in the display. Systems are available that use synthetic speech to enable a visually handicapped person to read the VDU screen (see *Visually handicapped: writing*). This device produces a greatly enlarged screen display for either an Apple II computer or an IBM PC. The system affects only the display size and does not interfere with the program running in the computer. The enlargement of the characters may be varied up to sixteen times their original size, making them approximately 140mm high on a 480mm monitor.



Obtainable from Visionaid Systems
Price guide £2,800
Export available

□ ENLARGED MICROWRITER DISPLAY

The Microwriter is a portable word processor which, instead of using a normal keyboard, is operated by pressing combinations of six keys, although other inputs are possible (see *Electronic communication aids*). On the standard microwriter, text is shown on a fifteen character liquid crystal display which many people with impaired vision read with difficulty because of its small size and low contrast. This device not only enlarges the Microwriter display but uses Light Emitting Diodes (LEDs) which greatly increase the contrast. The Display can be supplied with either red, green or yellow LEDs. Because the device is powered by mains electricity its use reduces the Microwriter's portability.



Size 420 × 130 × 70mm
Weight 1.25kg
Obtainable from Foundation for Communication for the Disabled
Price on application
Export available

WRITING

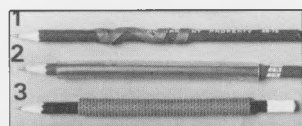
Points to consider

- Some ability to write, even in very limited ways such as signing one's name, is important functionally and psychologically.
- Writing is a complex activity requiring finely coordinated movements and stabilisation of the paper. The writer's position and limb may need to be held steady.
- Paper with lines ruled widely apart may help a person learning or relearning to write.
- The table or other writing surface must be stable and at the correct height and position relative to the user whatever his position.
- Increasing the diameter and altering the surface and shape of a pen or pencil may provide a better grip.
- Triangular-shaped crayons, pencils or pens may be easier to grip and may help to encourage the dynamic grip between thumb, index and middle fingers necessary to write correctly.
- Soft lead pencils and felt pens require less pressure than hard pencils or ballpoint pens.
- Thick wax crayons, particularly those of triangular shape, may be useful for both children and adults in the initial stages of learning or re-learning to write.

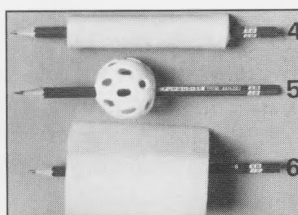
- The pen or pencil may be attached to the writing surface with a length of thin string so that it may be recovered if dropped.
- A flexor hinge splint may, with intensive training in its use, enable a well-motivated tetraplegic to write and, in some cases, gain or regain employment.
- A wide range of alternatives to writing by hand is available (see *Typing and Computers*).

□ PEN AND PENCIL GRIPS

The photographs show simple ways of modifying pens and pencils to make them easier to grip. These may help make writing possible where a person has a weak grip and reduce the strain on the hand, particularly where there are arthritic deformities.



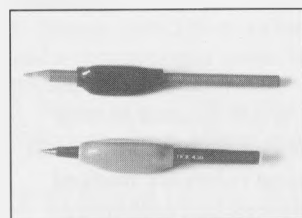
- 1 Elastic band
- 2 Polythene
- 3 Pimple rubber



- 4 Adhesive foam
- 5 Practice golf ball
- 6 Foam

□ HOMECRAFT PEN HOLDER M91

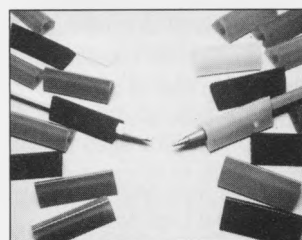
The grips are smoothly moulded in a three-sided shape in soft plastic. They are suited to pencils of about 8mm diameter.



Obtainable from Homecraft Supplies (Fleet Street) Ltd
Price guide 27p each
Export available

□ TASKMASTER PENCIL GRIPS

These triangular, plastic grips fit on to pencils and pens and help to provide a firm grip with the fingers and thumb in the correct position. Two sizes are available; Standard for pencils of normal thickness, and Jumbo for thicker, infant pencils. The grips also help prevent pens and pencils rolling off the table.

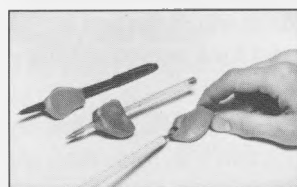


Obtainable by mail order only from Taskmaster Ltd
Price guide: Standard pencil grips T274 £2.30 for ten, Jumbo pencil grips T548 £2.82 for ten
Export available

□ GRIPKIT

Gripkit plastic can be used to mould pen and pencil grips to suit the individual user. The weight of the writing implement is increased by the amount of Gripkit used. The two component materials are mixed and moulded by hand around the item to be gripped. Hardening takes about thirty minutes after which the material cannot be re-used. Further shaping can be carried out with a saw, file or sandpaper.

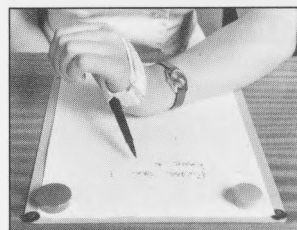
NOTE: The manufacturer's instructions concerning the protection of the skin during the moulding process should be followed. Grip-kit should not be used to form anything which might be held in the mouth.



Obtainable from Homecraft Supplies (Fleet Street) Ltd
Price guide £7 for 500g pack
Export available

□ POSEY SPOON HOLDER

The adjustable strap, fastened by Velcro, has a narrow pocket into which a spoon, pen or pencil can be inserted. It may provide a means of writing for a person who cannot use a three-point grip. The pencil used may need to be shortened.

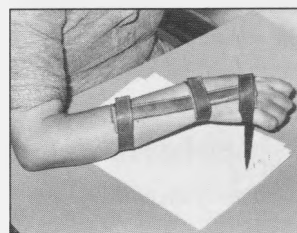


Obtainable from Camp Ltd
Price guide £4
Export available

□ STROKE MANDEVILLE WRIST EXTENSOR SPLINT TO HOLD A PEN

Not commercially available but can be made in a hospital department

When there is insufficient grip to hold a pen in the usual way, a fibre tip pen or soft lead pencil can be held in the pocket.



Pens

Points to consider

Felt pens require less pressure than ballpoint pens or pencils but they can be messy if the user has difficulty lifting the pen from the surface. Felt pens are available with hard and soft, broad and narrow tips. Choice should be made to suit individual needs and preferences. Felt pens tend to dry out and although this may be prevented by replacing the cap, a user with weak hands may be unable to remove it unaided. Some pens, for example Papermate ballpoint pens, are not gravity dependent and ink will flow regardless of the angle at which the pen is used. This may be particularly useful for a person writing lying supine.

A wide range of pens is available from large stationers, graphic design and drawing office suppliers

□ EASIWRITER

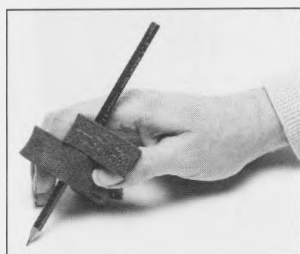
A ball-point pen is held at the correct writing angle in the large, shaped plastic grip. The base has three rollers which enable it to be moved freely in any direction. The device is gripped in the hand and writing movements made with the arm and shoulder rather than the wrist and fingers. The pen uses standard ball-point refills.



Obtainable from Nottingham
Rehab Ltd
Price guide £7
Export available

□ ULTRALITE FINGER YOKES

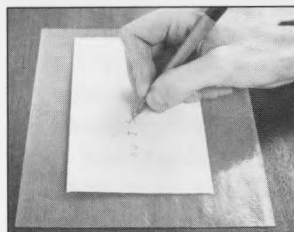
Finger yokes, which are made of BXL Plastazote foam, may be used to enhance the grip on a pen, pencil or paint brush. The index finger rests on the yoke. They may be used singly or in pairs but some users find two yokes produce too wide a grip.



Size 25 × 30 × 45mm
Weight 1g
Obtainable from Nottingham
Rehab Ltd
Price guide £2.50 for 10
Export available

□ DYCEM

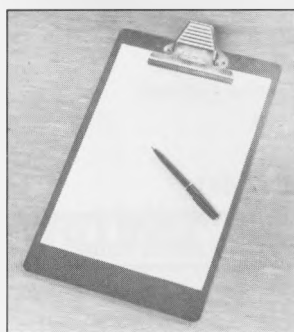
A Dycem mat, or a piece of thinner material cut from a Dycem roll, will hold paper securely on the writing surface. To retain its effectiveness, Dycem must be kept dry and free of dust. Dycem mats are available in sizes up to 360 × 250mm, in rolls 200mm and 400mm wide and as heavy duty worktops. It is available in several colours.



Obtainable from Homecraft
Supplies (Fleet Street) Ltd
and from Nottingham
Rehab Ltd
Price guide: Large Dycem mat
£6.50, 200mm × 2m roll
£8, 400mm × 9m roll £46
Export available

□ CLIPBOARD

With the writing paper held securely by the strong spring clip, the clipboard provides a portable paper holder and writing surface. A person with weak hands may need help inserting and removing the paper.



Obtainable from stationers
and office equipment
suppliers
Price guide £3

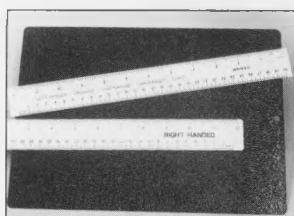
□ LEFT HAND RULERS

When using a conventional ruler, a left-handed person may experience difficulty with measuring because the left hand covers the markings. Left hand rulers are marked from the right-hand end in centimetres and millimetres and in inches.

Obtainable from Wessex (Aids and Visual Equipment)
Systems
Price guide £2
Export available

□ MAGNETIC LEFT AND RIGHT HAND RULERS

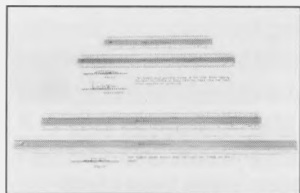
Many people who have writing difficulties are also unable to hold a ruler in position with one hand and draw a line or mark distances with the other. When used in conjunction with SES Board (see below), the magnetic rulers are held firmly in position. The rulers are marked in centimetres and millimetres and in inches and are available for left and right-handed people.



Obtainable from Wessex (Aids
and Visual Equipment)
Systems
Price guide £4
Export available

□ LINEX SUPER RULERS

Rubber strips on the underside of the rulers help prevent them from moving while in use. Two types are available. One has a single rubber strip and, when tilted, the ruler slides smoothly on an acrylic rib. The other has two rubber strips to provide a stronger grip. The rulers are available in four lengths from 200mm to 500mm.

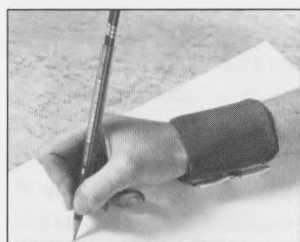


Imported by Pelltech Ltd
Obtainable from graphic design and drawing office suppliers and quality stationers
Price £2-£4
Export available

□ WEIGHTED CUFF

Not commercially available but can be made in a hospital department

A weighted cuff may help to modify gross tremor and improve control in writing and typing. The weight of the lead used is dependent upon the degree of tremor and weakness and must be individually determined.



Materials

- 1 Strong cloth 230 × 165mm, folded and sewn into a tube and a compartment made for the lead (avoiding bony prominences on the wrist)
- 2 Pieces of lead, 35 × 75mm
- 3 Velcro straps, 15mm wide

□ FLEXOR HINGE HAND SPLINT

Function

The splint is designed to increase the function of a weak or flaccid hand by providing a three-point prehension grasp between thumb and index and middle fingers.

Action

- It provides stability of the thumb and inter-phalangeal joints of the index and middle fingers in functional positions.
- It allows flexion and extension at the metacarpophalangeal joints of index and middle fingers.
- It stabilises the thumb in opposition.
- It holds the index and middle fingers together in a finger cage which allows movement at the MP joints but no movement at the IP joints.
- It allows the two fingers to move in flexion to meet the fixed opposed thumb.

The most generally useful is the wrist extensor driven splint, particularly in cervical spinal cord injuries when extension of the wrist is preserved. The splint may be worked by residual muscle power of the extensors of the wrist (not less than MRC grade 4) or it may be driven by external power.

Pre-requisites

The user must have the ability and determination to use the splint since it is conspicuous, difficult to put on and requires time for its pattern of movement to be learnt.

- A good free range of movement at the MP joints of the index and middle fingers and a wide supple thumb web are essential.

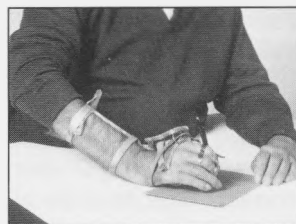
- The range of active pronation must be nearly full.

NOTE: It is important that a flexor hinge hand splint should be easy to take off since it must be removed before the wearer can propel a wheelchair.

Flexor hinge hand splints are not suitable for spastic upper limb and uncorrectable ulnar and radial deviation.

Supply and fitting

The splint is supplied in kit form. The assembly and fitting of the splint are highly skilled and individual to each patient. Training in the use of the splint should be given by the craftsman or a therapist. Where there is loss of sensation care must be taken to ensure that the tissues are not damaged by pressure.



Flexor hinge hand splint kits obtainable from M. & N. Surgical Co Ltd
Price on application

Further reading

Allen V. R. *Follow up study of wrist driven flexor hinge splint use.* Amer J. Occup Ther 1971; 25 : 420.

Writing aids for upper limb amputees

- It is often necessary to stabilise the paper in some way. This may be done by placing it on Dycem matting; by using a clipboard; by holding it in place on a steel board with magnetic strips or magnetic indicators; or by fixing it on a wooden board with drawing pins or adhesive tape.

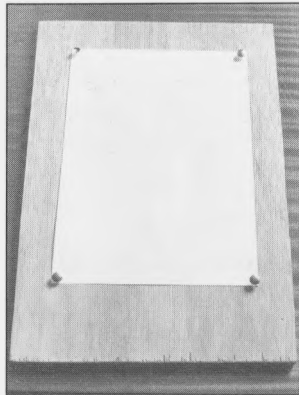
Points to consider

- The use of an inclined writing surface may be helpful.
- A pen/pencil can be held in a split-hook.
- A pen/pencil holder which can be fitted into the prosthesis is available through the local Artificial Limb and Appliance Centre. A helper may be needed to insert the pen/pencil into the holder.
- A device similar to those used by the partially-sighted (see *Visually handicapped: writing*) may assist the user to write in straight lines.

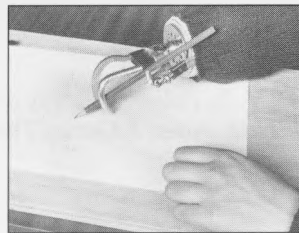
Single upper limb amputees

Points to consider

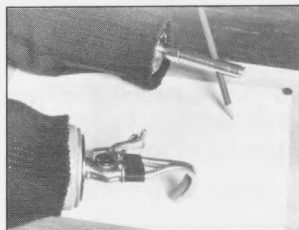
- A split-hook, with one or both ends covered by a piece of rubber, fitted to the prosthesis can be used to stabilise the paper while writing with the unaffected hand.
- A cosmetic hand fitted to the prosthesis can be used to stabilise the paper while writing with the unaffected hand.
- The non-slip material covering the cosmetic hand may tend to pick up ink and dirt easily. It can be re-covered if necessary.
- A person with an amputation of his dominant hand may prefer to write using his prosthesis rather than change to writing with his non-dominant hand. A pen/pencil may be fitted in his split-hook; it should be placed slightly medial to give the correct angle for writing. Please note that advice should be sought from the local Artificial Limb and Appliance Centre concerning the attachments available which can be fitted to a prosthesis to assist in writing/typing/clerical work. If writing proves too arduous and the user needs to write a great deal, it may be preferable for him to learn to type or operate an electronic writing aid using his prosthesis.



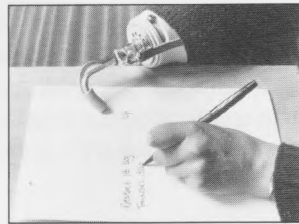
1 Paper pinned to board



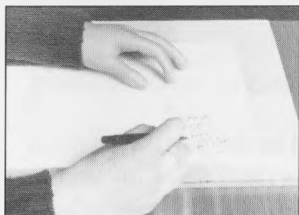
2 Pencil held in split-hook



3 Pen/pencil holder



4 Paper stabilised by split-hook



5 Paper stabilised by cosmetic hand

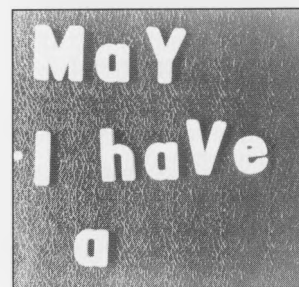
□ CHAILEY HEAD-POINTER

See photograph of Chailey Head-Pointer in *Computers: special keyboards and interfaces*. The head-pointer may be used for writing and painting. A felt pen, which requires less pressure, may be easier to use.

Obtainable from Beaumont Products
Price guide £22
Export available

□ MAGNETIC LETTERS

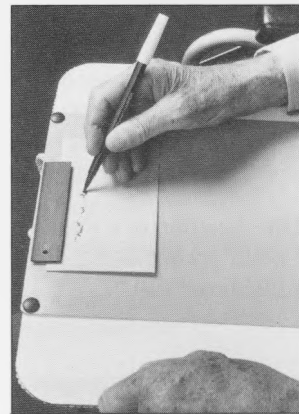
Some people unable to speak and write may use magnetic letters for basic communication. Magnetic upper and lower case letters are available with a plastic coated steel sheet. The sheet can be carried around; the letters will adhere to the steel and can be arranged into words when required.



Obtainable from Quest Educational Designs Ltd and from toyshops
Price guide: Steel sheet £5, Magnetic letters £3
Export available

□ SES BOARD

The plastic-coated steel sheet measuring 265 × 230mm can be used as a base for holding magnetic letters or as a writing surface with the paper secured by the magnetic bar provided.



Obtainable from Wessex (Aids and Visual Equipment) Systems
Price guide £7
Export available

TYPING

Points to consider

- A typewriter may provide a disabled person with an independent means of communication.
- People with a wide range of abilities can type. Some

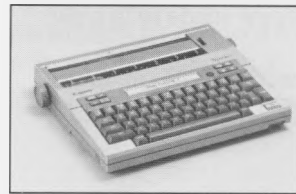
may use all their fingers and even learn to touch-type. Others may type with one hand, one finger or a toe, with a mouthstick or a headpointer and some may use an expanded keyboard or a switch-operated selector system.

- An electric or electronic typewriter requires much less effort than a manual machine and will produce an even type however it is operated.
- Inserting paper and winding it up or down are often difficult for a disabled person. Electric and electronic typewriters allow the user much greater control over the paper from the keyboard.
- Continuous stationery, either as a roll or fan-folded, once inserted into the typewriter enables a disabled person to type many pages without assistance.
- Electronic typewriters may be fitted with a liquid crystal display which shows the letters as they are typed, before they are transferred to the paper. This allows for correction and helps to produce a satisfying result.
- Some electronic typewriters have a built-in memory so that frequently used words and phrases can be typed automatically whenever they are required.
- Many electric and electronic typewriters have lift-off correcting ribbons which allow errors to be removed and a better end-result to be achieved. Some electronic typewriters with a memory can correct errors much further back in the text.
- A cartridge ribbon is usually much easier to change than those wound on to spools.
- When choosing a typewriter for one person, consideration should be given to the shape of the keyboard and the shape and size of the keys and, if a typewriter has to be moved frequently, weight and size should be considered.
- If the user will need to use a keyguard, it is important to consider if a guard can be readily obtained or made for the particular machine that is to be used and also how the guard will be attached to the typewriter.
- Lightweight, portable electronic typewriters are available.
- Some disabled people, particularly those with athetoid movements, may need a heavier, more robust machine.
- The user may be helped by placing the typewriter on a non-slip mat.
- Although 6-pitch 'jumbo' typefaces are no longer manufactured, it is possible to buy daisywheels and golf-balls which have typefaces which are larger and clearer than others.
- Some portable electronic printers are able to produce an enlarged print.

□ CANON TYPESTAR PORTABLE ELECTRONIC TYPEWRITER

Three versions of the Typestar are available. The '5' has a fifteen-character display while that on the '6' and '7' displays thirty-two characters. The viewing angle of the display may be adjusted to suit the user. All three models allow correction before printing and, in addition to normal type, are able to print in double-width bold at five characters per inch. The Typestar 6 and the Typestar 7 have built-in memories which enable frequently used

phrases to be saved or whole letters to be typed out several times with minor changes. Printing is by thermal transfer and is almost silent. The Typestar 7 has a built-in interface to allow its use as a printer for a computer. Power is provided by four 'D' size batteries or a mains adapter. A keyguard is available which can be used with all three models (see below).

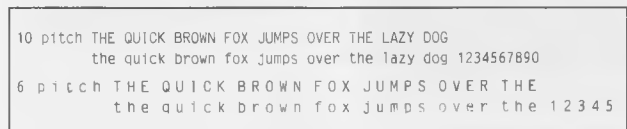


Size 310 × 270 × 50mm
 Weight 2.7kg
 Obtainable from Canon (UK) Ltd
 Price guide Typestar 5 £120, Typestar 6 £170, Typestar 7 £190.
 (These are special prices for disabled users)

□ BROTHER SUPER GRAND 2 BULLETIN DAISYWHEEL

Manual and electric typewriters with 6-pitch Bulletin typefaces are no longer manufactured. The Super Grand 2 daisywheel has large, clear upper and lower case characters and produces a result similar to the Bulletin typeface. The daisywheel may be used with any Brother electronic typewriter set to ten characters per inch. Some of these typewriters are able to type in 6-pitch. Others can be set to twelve characters per inch and, with these, a 6-pitch effect may be produced by putting a space between each letter. In addition, typewriters may be set to ordinary print or, if preferred, to bold print. The Super Grand 2 daisywheel may also be used with Brother printers to provide a large-type printout from a computer.

Obtainable from Brother typewriter dealers
 Price guide £20



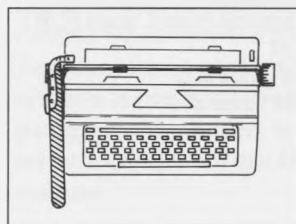
□ LARGE PRINT TYPEWRITERS

The leaflet produced by the RNIB Vocational Research Unit surveys large print typewriters and typefaces.

Obtainable free from the Royal National Institute for the Blind

□ MANUAL TYPEWRITER CARRIAGE RETURN LEVER EXTENSION

Not commercially available but can be made at home



A piece of metal or plastic tubing can be slipped over the existing lever on a manual typewriter so that it can be reached more easily.

Typewriter keyguards

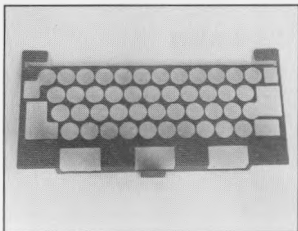
Points to consider

A keyguard is a simple and yet very effective way of making the typewriter accessible to a disabled person. A few keyguards for typewriters are commercially available (see below) but they can also be home-made to fit a particular machine.

- Keyguards can be made by punching holes in 2mm aluminium or steel sheet or by drilling holes in 4mm acrylic sheet.
- Holes of 17mm diameter have been found to suit most adult fingers.
- Measurements must be taken to suit the particular typewriter concerned.
- When deciding upon the positions of the hole centres, make allowance for the angle at which the user will be viewing the keys.
- The edges of the holes should be chamfered to prevent damage to fingers and nails.
- Keyguards may be attached to the typewriter with bolts or self-tapping screws.

□ SCM KEYGUARD

Although no longer manufactured, the SCM C2500 Typewriter with 6-pitch typeface is still used by disabled people. Some of these users and others may be helped by the keyguard. With some modification, the keyguard could be made to suit other typewriters.



Obtainable from Toby
Churchill Ltd
Price guide £18
Export available

□ CANON TYPESTAR KEYGUARD

The keyguard is strongly made of steel and nylon-coated for smoothness. Self-adhesive fixers on the keyguard and on the typewriter engage to hold the guard firmly in place when in use. When not required, the keyguard is easily removed. The legends above the function keys are also printed on the keyguard and apply to the Canon Typestar 5, 6 and 7.



Size 300 × 130 × 10mm
Weight 300g
Obtainable from Canon (UK)
Ltd
Price guide £22
Export available

□ POSSUM EXPANDED KEYBOARD TYPEWRITER

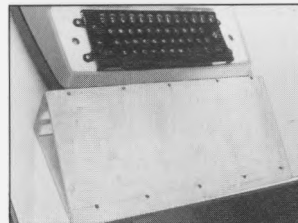
The expanded keyboard is designed to be operated by those who have gross motor difficulties but who have sufficient control to benefit from direct selection. The keys are large and well-spaced. In addition, there is a variable delay so that a key must be held down for a pre-set period before the typewriter is activated. These features help to reduce errors. The depth of the keyboard impairs the user's ability to see what is being produced on the paper. Control of the paper is also very limited so that the user cannot, for instance, wind the paper up and down or correct errors once committed to paper.



Obtainable from Possum
Controls Ltd
Price on application
Export available

□ TYPEWRITER ARMREST

Not commercially available but can be made at home
A typist with weak upper limbs may require an armrest on which the forearms can be supported. This may be either sloping or flat to suit the individual user. The details below can be modified to suit the particular typewriter.



Materials:

- 1 6mm plywood 450 × 200mm pinned to 2 and 4
- 2 9mm plywood 450 × 75mm screwed to 3
- 3 25 × 18 × 450mm softwood shaped to appropriate angle
- 4 9mm plywood 450 × 175mm screwed to 3

□ KEYBOARD WRISTREST

The rest provides wrist support and may enable those with weak arms to type or use a computer keyboard for a longer period. The rest is made of smooth plastic and is adjustable in height from 30 to 45mm. It is held in position by the weight of the typewriter or computer keyboard.



Size 470 × 220 × 30–45mm
 Weight 0.5kg
 Obtainable from Inmac (UK) Ltd
 Price guide £15
 Export available

□ DIALLING STICK

See photograph in *Telephoning: Dialling stick*
 A person who is unable to position his hand so as to put a finger through the hole in a keyguard may be helped by using a telephone dialling stick. The plastic stick has a thick handle to provide a firm grip.

Size 125 × 25mm diameter
 Weight 20g
 Obtainable from Homecraft Supplies (Fleet Street) Ltd
 Price guide 75p
 Export available

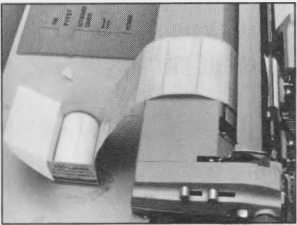
□ CHAILEY HEAD-POINTER

See photograph in *Computers: special keyboards and interfaces*

A person who has limited hand function but good head control can use a head-pointer to operate an electric or electronic typewriter.

□ SELF-ADHESIVE LABELS

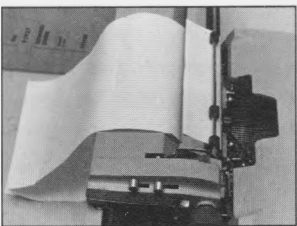
If addresses need to be typed on a number of envelopes, it may be easier for a disabled person to type the addresses on self-adhesive labels and to apply these to the envelopes. Rolls of 250 self-adhesive labels are available.



Obtainable from large stationers and business supplies shops
 Price guide £2

□ CONTINUOUS STATIONERY

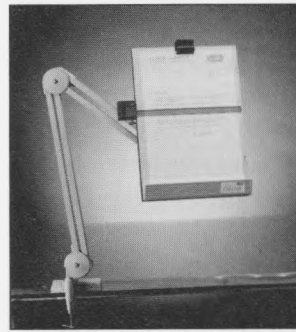
Once it has been inserted correctly into the typewriter, continuous paper may enable a severely disabled person to type many pages without help. Rolls of continuous paper are available but require a paper roll holder. Folded, perforated paper of the kind used in computer printers is easily torn off at the end of a page. It is available in A4 sized sheets and other sizes. Continuous carbonless paper is also available.



Obtainable from business and computer supplies shops
 Price guide £20 for 2,000 sheets A4

□ LUXO COPY HOLDERS

Copy holders are designed to hold material in a position where the typist can best read it. They leave the hands free and help the user to maintain a good posture. The base is clamped to the edge of the desk and the arm-mounted models are adjustable up to a length of 800mm. An automatic version is available which has a remotely-operated cursor to assist in following lines of type. The cursor may be replaced by a bar magnifier to assist those with a visual impairment.



Obtainable from Malt Keyboard
 Price guide: Short arm manual model 607 £25, Arm mounted manual model 601 £27, Arm mounted automatic model 1001 £79, Magnifying linefinder £9
 Export available

□ NESBIT EVANS CANTILEVER OVERCHAIR/BED TABLE 87000/300

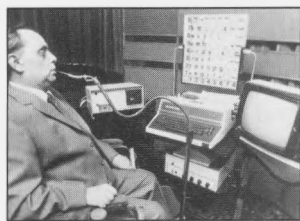
The base of this adjustable table is designed to be used either by a person in bed or in a wheelchair. The framework is constructed of nylon-coated steel and is strong enough to support a heavy electric typewriter. The table top is of wood-grain melamine and measures 910 × 402mm. The height of the working surface is adjustable from 685 to 940mm. A version with a tilting work surface is available.



Obtainable from J Nesbit Evans and Co Ltd
 Price guide £56
 Export available

□ POSSUM TEXT PROCESSOR SYSTEM

Using single or double switches, the user can select letters, characters and a range of functions on the illuminated display panel. Text can be produced directly on the typewriter or composed on the television screen prior to typing. A lexicon of 800 words is provided and these can be entered whole into the text to help increase output rate. Text can also be saved on tape. A range of graphics symbols is provided to allow the creation of drawings and patterns on the screen. Some existing Possum typewriter selector equipment can be upgraded into Text Processor systems.



Obtainable from Possum
Controls Ltd
Price on application
Export available

Eligibility criteria for supply of environmental control equipment and typewriter

See *Environmental controls*.

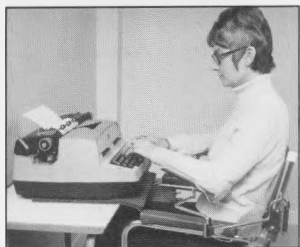
Application for environmental control equipment

See *Environmental controls*.

Mobile arm supports

Points to consider

Mobile arm supports allow the arms to be moved while supporting their weight. They support weak arms in a functional position, giving frictionless movement in a horizontal plane and so increasing the horizontal work area available. They allow some vertical movement of the forearm over the pivot and permit supination of the forearm when needed. For those whose hands are paralysed a prodder can be attached to the forearm trough to depress typewriter keys.



Mobile arm supports may be suitable for those with:

- residual control of the shoulder girdle and very weak arms and hands, e.g. motor neurone disease
- proximal weakness but use in their hands, e.g. muscular dystrophy
- painful and limited movements, e.g. rheumatoid arthritis
- a flail arm which requires support and relief from pull on the shoulder joint

Mobile arm supports are not suitable for those with:

- upper limb spasticity, e.g. hemiplegia
- gross tremor, e.g. multiple sclerosis

Mobile arm supports may be rejected by those who have:

- no specific activity for which mobile arm supports provide immediate gain
- to ask each time they want them to be set up or dismantled
- had inadequate training in their use

Prescription (UK)

On the recommendation of a doctor or a Medical Officer at a DHSS Artificial Limb and Appliance Centre, mobile arm supports are supplied by the DHSS to those who have been supplied with a wheelchair by the DHSS. All recommendations should be sent to the nearest Artificial Limb and Appliance Centre. The prescribing doctor is responsible for the initial fitting and subsequent adjustments which may be required. Considerable experience is necessary to fit, adjust and adapt the appliances correctly and the facilities of technical staff and workshops may be required.

Points concerning use

- The height of the table or work surface may need adjusting to suit the position of the hands when the arms are supported. The final position may be a compromise between altering the height or angle of the work surface and further adjustments to the arm supports.
- The activity to be undertaken may require movement in a horizontal plane (e.g. typing, page-turning) or in a vertical plane (e.g. eating).
- Adjustments may be made more easily for horizontal than vertical activities.
- The user must learn a new pattern of movement and this is usually easier in the horizontal plane.

Further reading

Crooks M. *Special typewriter keyboard charts and instruction for handicapped typists*. National Fund for Research into Crippling Diseases, (no date). (Obtainable from National Fund for Research into Crippling Diseases)
Haworth R, Dunscombe S, Nichols PJR. Mobile arm supports: an evaluation. *Rheumatol Rehabil* 1978; 17 : 240-4.

Kemphorne J. *Typewriting exercises for one-handed people*. St Albans College, 1985. (Obtainable from Library Publications, St Albans College Library)

Blind typists

A Course for Touch Typing. On cassette. Send four blank C60 cassettes to Tape Recording Service for the Blind.
Blackstone E. G. *Typewriting for personal use*. Braille. Available on loan from the Students Braille Library.
Cohoe E. *Typewriting for partially seeing and blind people*. Braille. (Obtainable on loan from the Students Braille Library)
Ellington J. *Graded steps in keyboard training*. Linden Lodge School (no date)
Pitman's College. *Teach yourself typewriting*. National Library for the Blind, 1947. (Obtainable on loan or for sale from Royal National Institute for the Blind)

COMPUTERS AS COMMUNICATION AIDS

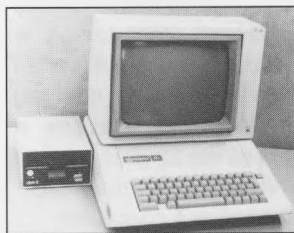
The continually increasing processing power and memory and, at the same time, diminishing size, weight and cost of microcomputers mean that very powerful means of handling information are now widely available. The capacity of computers to enhance communication has great potential benefits for those with physical and sensory disabilities who need aids to help them communicate more effectively.

Points to consider

- While the computer programs are referred to as **software**, the computer into which the software is loaded is the **hardware**.
 - Computers are only as good as the software available to use with them and the software is the most important consideration.
 - It is the software that makes computers much more flexible and adaptable than mechanical or electro-mechanical devices.
 - With very few exceptions, programs are designed to run on only one computer.
 - Some programs have been written specifically to enable disabled people to carry out certain activities using a computer.
 - There are also devices which enable severely disabled people to operate standard, unmodified software.
 - Word processor programs used with microcomputers enable those with severe disabilities to handle written communication more easily and much more effectively than can a typewriter.
 - The **memory** of a computer is measured in kilobytes, which is shortened to 'k'. The more memory a computer has, the more complex can be the programs it will run. If the computer is used as a word processor, a larger memory means that more text can be stored. About 3k of text, single spaced with margins, will fill one A4 page.
 - For longer term storage of programs and text, most computers use a **disk drive**.
 - The means by which the disabled person operates the computer, such as switches or special keyboards, are often referred to as **interfaces**.
 - A wide range of devices can be connected to a computer. These devices or **peripherals** include printers, monitors (both monochrome and colour), alternative keyboards, speech synthesisers and modems – devices which enable messages to be sent via telephone wires.
- NOTE: The prices of computers and associated equipment have fallen and this fall is likely to continue. The following prices are therefore given only as a guide.

□ APPLE II+ AND APPLE IIe COMPUTERS

The Apple computer has been widely available for some years and, as a result, a large amount of software, both standard and specially designed for use by disabled people, is available. The Apple IIe and its predecessor, the Apple II+, can be adapted for use with a wide range of peripherals by fitting extra 'cards' – small electronic circuit boards – inside. The standard Apple IIe has a memory of 64k and this can be increased, by adding extra memory cards, to 128k. The Apple computer uses a disk drive. Special keyboards and interfaces are available to enable a disabled person to operate the Apple computer and also a special word processor program, MAC-Apple (see *Computers: special keyboards and interfaces*, *Computers: using switches* and *Computers: software*).



Obtainable from Apple computer dealers
 Price guide: Apple IIe computer £600, disk drive £300, black/green monitor £100, dot-matrix printer £250, printer card £75, speech synthesiser £75

□ BBC MASTER 128 MICROCOMPUTER

The BBC computer has become very widely used in Britain, particularly in education. A considerable amount of software has been written and a large number of devices produced to enable people with physical and sensory disabilities to operate the BBC computer. The BBC Master 128 has 128k of memory. Many of the standard and 'special' programs written for the earlier BBC Model B can be run on the BBC Master 128. Peripherals are connected to the BBC computer through ports on the back and underneath. Special keyboards and interfaces are available to enable a disabled person to operate the BBC microcomputer and also a switch-operated word processor program, Beeblinc (see *Computers: special keyboards and interfaces*, *Computers: using switches* and *Computers: software*).

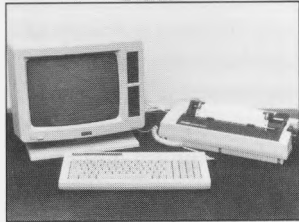


Obtainable from BBC computer dealers
 Price guide: BBC Master 128 Computer £500, Disk drive £100, 14" Colour monitor £200, Dot-matrix Printer £250, Speech Synthesiser £150

□ AMSTRAD PCW 8256

This low-cost computer system is purpose-built as a word processor. The system comprises a computer with 256k of memory, a green/black monitor, a disc drive and a printer. The word processor program displays text in ninety-six columns across the screen. The resulting text size may present difficulties for those with visual impairments but for those who have no difficulty reading the screen the system has the advantage that the layout that is seen is the same as appears on paper. The printer produces very

acceptable near-letter-quality print and also enlarged and bold characters. As the discs are small and enclosed they are less prone to damage by those with motor problems. A keyboard emulator is available to enable a disabled person to operate the Amstrad range of computers (see *Computers: using switches*).



Obtainable from office equipment suppliers and computer shops
Price guide £400
Export available

□ JONCARE VARIHEIGHT TABLE WITH COMPUTER TOP ATTACHMENT

The table is on braked castors and the working surface may be varied in height by winding a handle. Two models are available. The height of the standard model can be varied from 600 to 900mm and that of the lowline version from 300 to 750mm. The open front makes it suitable for use by those in wheelchairs. When used as a computer workstation the monitor, printer, disc drive, etc, may be housed on the shelf so leaving the working surface clear for the keyboard and for writing. The top is 750mm deep and may be up to 1200mm in width.



Obtainable from Joncare
Price guide: Variheight Table £335, Lower height model £265, Computer top attachment £50
Export available

PORTABLE COMPUTERS

Greater miniaturisation, more efficient use of power and alternatives to conventional monitors have made possible the development of portable or 'lap' computers. This is a rapidly developing area and the computers described below are likely to be superseded by others from the same and other manufacturers in the near future. This development is an example of how disabled users can benefit from commercially generated trends.

Points to consider

- Portable computers usually have a word processor program built-in.
- They may be used by a person in a wheelchair to communicate through writing.
- Power is provided by rechargeable batteries or through a mains adaptor.
- An additional built-in battery ensures that text is not lost when the computer is switched off or the battery needs charging.
- They may be used as a portable typewriter or note-taking device.
- The screen of a portable computer does not have the contrast or the definition of a conventional monitor screen and may not therefore be suitable for use where light levels are low or by those with visual difficulties.
- Some keyboards need the use of two hands or at least two fingers. These may not be suitable for 'single-finger' typists or those using a head-pointer, toe or mouth-stick.

□ NEC PC-8201A

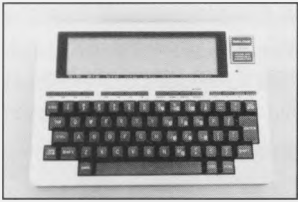
This lap computer has a full typewriter keyboard and a liquid crystal display (LCD) screen which shows eight lines of text with forty characters a line. A word processor program is built-in and up to twenty-one different files, pieces of text, can be saved under separate names. The NEC PC-8201A has 16k of memory allowing the user to store about five A4 sides of single spaced typing. Additional memory may be added but this should only be done where necessary as battery life is reduced. Another built-in program enables the computer to communicate with other devices. Text may be printed out directly or transferred to another computer for longer-term storage on disk. Alternatively, messages may be sent or received, via a modem, by telephone. Reflections from the horizontal screen may impair visibility.



Size 300 × 210 × 65mm
Weight 1.75kg
Obtainable from NEC computer dealers
Price guide £300

□ TANDY TRS-80 MODEL 100

This portable computer has an eight line by forty column LCD display and a full keyboard. The standard model has 24k of memory which would accommodate about eight single-spaced A4 pages of text. This may be expanded to 32k. A word processor and a telecommunications program are built in and an address file program which enables the user to store names and addresses and other details and retrieve them as required. Text may be transferred to another computer for storage on disk or alternatively may be printed out directly. Reflections from the horizontal screen may impair visibility.



Size 300 × 210 × 50mm
Weight 1.65kg
Obtainable from Tandy shops
Price guide with 24k of
memory £450

□ TANDY TRS-80 MODEL 200

Many people experience difficulties working with text when only eight lines are visible. In addition, the horizontal screens of the NEC PC-8201A and TRS-80 Model 100 are prone to reflections which impair visibility. The Tandy TRS-80 Model 200 overcomes these problems by providing a fold-down LCD screen which displays sixteen lines of text with forty characters on a line. The angle of the screen can be adjusted to minimise reflections. The standard memory of 24k can be upgraded to 72k which allows as many as twenty-four A4 pages of text to be filed under different file names. Formatting the text for printing out is very easy.



Closed size 300 × 210 ×
55mm
Weight 2kg
Obtainable from Tandy shops
Price guide with 24k of
memory £800

Further reading

- Behrmann M. M, ed. *Handbook of microcomputers in special education*. NFER-Nelson, 1985.
- Bowe F. G. *Personal computers and special needs*. Sylex Computer Books, 1985.
- Charleboi-Marois C. *Everybody's technology*. Charlecoms, 1985.
- Goldenberg E. P. *Special technology for special children*. University Park Press, 1979.
- Goldenberg E. P. *Computers, education and special needs*. Addison Wesley, 1984
- Hawkrige D, Vincent T, Hales G. *New information technology in the education of disabled children and adults*. Croom Helm, 1985.
- Hogg R. *Microcomputers and special educational needs: A guide to good practice*. National Council for Special Education, 1984.
- Hope M. M, ed. *The magic of the micro*. Council for Educational Technology, 1986.
- Perkins W. J, ed. *High technology aids for the disabled*. Butterworth & Co, 1983.
- Ridgeway L. and McKears S. *Computer help for disabled people*. Human Horizon series, Souvenir Press, 1985.
- Rostron A. and Sewell D. *Microtechnology in special education*. Croom Helm, 1984.
- Saunders P. *Micros for handicapped users*. Helena Press, 1984.

COMPUTERS: SPECIAL KEYBOARDS AND INTERFACES

Points to consider

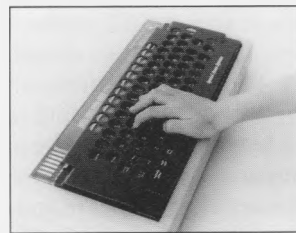
- However technically efficient a switch or other interface may be, it will only be applied if the activity it makes possible motivates the user.
- Simpler switches and devices are likely to be more effective than complex in the long term.
- An interface should be selected to exploit the user's most effective action and not to train less effective movements.
- It is important that the user's control of a key or switch should be as direct as possible.

Keyguards

People who have motor difficulties that prevent them from using a keyboard may be able to do so if the keyboard is guarded to limit their errors. Others, too weak to sustain the weight of the upper limbs can be helped to use a keyboard by resting the hand on a keyguard.

□ KEYGUARD FOR THE BBC MICROCOMPUTER

The keyguard is attached to the computer with self-adhesive fixers which enable it to be readily removed when not required. Constructed of nylon coated steel, the keyguard has holes big enough for most adult fingers and also smaller holes to reveal the three indicator lamps on the keyboard. Versions are available for the BBC B and BBC Master 128 microcomputers.



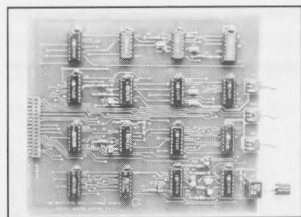
Size 370 × 130 × 12mm
Weight 500g
Obtainable from Special
Access Systems Ltd
Price guide £20
Export available

0865 56154

□ ONE KEYPRESS OK BOARD FOR THE BBC MICROCOMPUTER

Certain functions on the BBC Microcomputer, such as Shift/Break and Control/Break, can only be carried out by pressing two keys simultaneously. In addition, the computer automatically repeats a character as long as a key remains pressed. This device electronically latches the Shift and Control keys until the next key is pressed so enabling two keypress operations to be carried out with one finger, a head pointer, mouthstick or perhaps a toe.

The auto-repeat function may be switched off or varied to suit the user. In addition, the Break key may be disabled, so preventing the inadvertent loss of a program.



Obtainable from Special Access Systems Ltd
Price guide £50
Export available

□ DIALLING STICK

See photograph in *Telephoning: Dialling stick*. Some physically disabled users may find it difficult to place one finger at the angle necessary to pass through the holes in a keyguard. A telephone dialling stick, gripped in the hand, may be used instead for direct access to the computer keyboard.

Size 125 × 30 diameter

Weight 20g

Obtainable from Homecraft Supplies (Fleet Street) Ltd

Price guide 75p

Export available

□ CHAILEY HEAD-POINTER

The head-pointer may be used to operate an ordinary keyboard on a typewriter or a computer. It may also be used to draw and to turn pages. The head-pointer should be fitted and used with care to avoid discomfort and neck strain. The pointer may be used without the foam attachment and is reversible, providing two different lengths.



Size 600 × 190 × 145mm
Weight 150g
Obtainable from Beaumont Products
Price guide £24
Export available

Expanded keyboards

Those whose motor difficulties prevent them from using an ordinary keyboard, even with a keyguard, may still be able to have direct access to a computer using an expanded keyboard and so operate ordinary software and enjoy a wider range of activities.

□ POSSUM EXPANDED KEYBOARD FOR THE APPLE II COMPUTER

People with motor difficulties who are unable to use a standard Apple computer keyboard, may be able to operate ordinary software on the Apple computer using an expanded keyboard. The keyboard incorporates two built-in variable delays; one preventing activation of a key until held down for a pre-set period, the other slowing

down the auto-repeat function on the computer. When the Shift and Control keys are pressed, they are held until another key is pressed. The keyboard can therefore be operated with only one keypress.



Obtainable from Possum Controls Ltd
Price on application
Export available

□ SPECIAL TECHNOLOGY EXPANDED KEYBOARD FOR THE BBC MICROCOMPUTER

Large, well-spaced keys help reduce the risk of unintentional keypresses. In addition, there are two variable built-in delays; the first prevents a key activating until held down for a pre-set period, the second slows the auto-repeat function so that the user is able to release the key before a second and further character is entered. Shift Hold and Control Hold functions allow operation of the Keyboard with only one keypress.



Size 500 × 230 × 80mm
Weight 4kg
Obtainable from Special Technology Ltd
Price guide £235
Export available

□ POSSUM EXPANDED KEYBOARD FOR THE BBC MICROCOMPUTER

This Keyboard has large, well-spaced keys and two variable built-in delays. Keys must be held down for a pre-set period before they are activated. The second delay allows the user time to release the key before the auto-repeat is activated and there is also a separate 'repeat' key. To activate the Break key, two keys must be pressed in sequence thus avoiding accidental breaks.

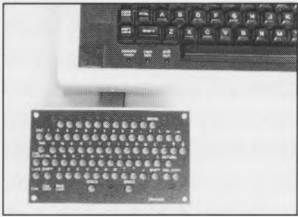


Obtainable from Possum Controls Ltd
Price on application
Export available

□ ELECTRAID MINI KEYBOARD FOR BBC MICROCOMPUTER

The keyboard is designed to enable those who retain fine motor control but who have limited strength or movement to operate the BBC Microcomputer. The width is approxi-

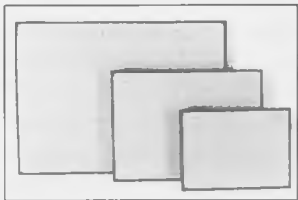
mately half that of the standard keyboard. In addition to duplicating all the computer keys, shift and control hold facilities are incorporated to allow two-key functions to be carried out using only one finger.



Size 160 × 95 × 60mm
Weight 400g
Obtainable from
JWF Electraid Ltd
Price guide £185
Export available

□ CONCEPT KEYBOARD

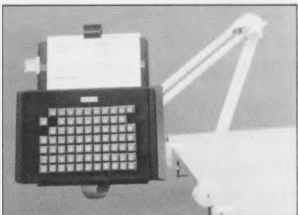
This is a flat, touch-sensitive keyboard with 128 or 256 areas that are activated by light pressure. Areas of this keyboard, of different shapes and sizes, may be programmed to affect a computer differently. The keyboard is covered by a paper overlay which may be decorated with words, symbols and pictures corresponding to the programmed areas. Depending on the program used, pressing these areas may cause, a whole word to appear on the screen or the computer to speak out a word. (See *Computers: software*). Concept Keyboards are available to take overlays in three sizes—A4, A3 and A2.
A4, Size: 315 × 235 × 25mm, Weight: 1.3kg
A3, Size: 440 × 320 × 25mm, Weight: 2.1kg
A2, Size: 612 × 440 × 25mm, Weight: 3.4kg



Obtainable from AB
European Marketing
Price guide: A4 £100, A3
£160, A2 £190
Export available

□ MALTRON ERGONOMIC KEYBOARD FOR THE BBC MICROCOMPUTER

The conventional 'qwerty' keyboard layout may inhibit a person who can only press one key at a time with a head pointer or a mouthstick. The keys on the Ergonomic Keyboard are arranged so that those most frequently used are nearest the centre and those used least are on the periphery. This reduces the amount of head movement required. In addition, the Keyboard is slightly concave so that, by rotating the head, all the keys are within reach. The shift and control keys latch electronically to allow two keypress functions to be carried out.

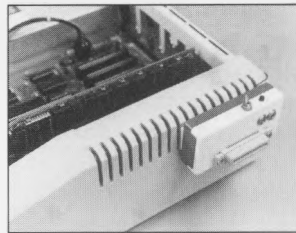


Obtainable from PCD Maltron
Ltd
Price guide: For BBC 'B' and
B+ £175, for BBC Master
128 £225
Export available

COMPUTERS: USING SWITCHES

□ ADAPTIVE FIRMWARE CARD FOR APPLE II COMPUTER

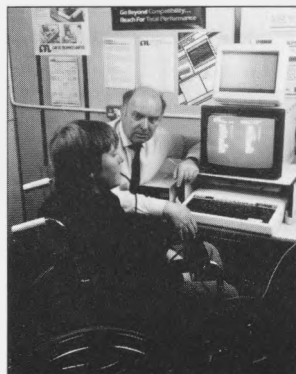
This is a special electronic circuit that fits inside the Apple II+ or IIe computer and which provides access to ordinary computer software for people with varying degrees of physical disability. It may be operated by single or double switches, or by special keyboards. A standard computer program is first loaded into the computer. When a switch is pressed, a matrix of letters and symbols appears occupying a narrow strip at the bottom of the monitor screen. The layout of this matrix may be changed to suit the user. The matrix is scanned with a cursor and a selection made. The letter, number or symbol selected then affects the program as if a key on the keyboard had been pressed. The user is therefore able to carry out a wide range of activities including playing computer games such as Scrabble and chess. If the running of a particular program is too fast for the user the speed of the program can be changed.



Obtainable from AC
Interactive Ltd
Price guide £435
Export available

□ CLWYD TECHNICS KEYMASTER

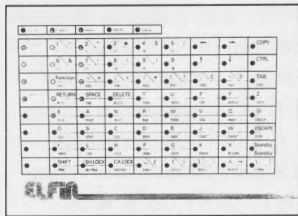
The Keymaster enables single and double switch users to operate ordinary programs on the BBC Computer. The device fits inside the BBC Computer. Instead of using the keyboard, the user looks at a matrix of letters, numbers and symbols displayed on a separate black and white monitor. This matrix is scanned using a single switch, double switch, joystick or sound-operated unit and letters or symbols are selected. The Computer responds to these as if a key on the keyboard had been pressed and the ordinary keyboard remains active when the Keymaster is connected. It is necessary to buy separate versions for single switch, double switch, joystick or speech unit operation.



Obtainable from Clwyd
Technics Ltd
Price guide including monitor
£320
Export available

□ ELFIN BEEB CONTROL KEYBOARD EMULATOR

The Beeb Control may enable those who cannot use an expanded keyboard but are able to activate one or two switches to operate ordinary software on the BBC computer. The keyboard is represented by a matrix of letters, numbers and symbols. In the corner of each square on the matrix is a small red lamp. Using one or two switches, these lamps are scanned to select characters from the matrix. The speed of scanning can be controlled as can the volume of the 'bleep' that accompanies the scanning. In addition to selecting letters for activities such as word processing, the device can be used for programming. 'Keys' can be held to allow two, and even three, key operations such as Shift/Break and Control/Break.



Size 420 × 320 × 80mm
Weight 1.6kg
Obtainable from Elfin Systems
Price guide £500
Export available

□ POSSUM SCANNING CONTROL FOR BBC MICROCOMPUTER

The Scanning Control enables single and double switch users to operate ordinary software on the BBC Computer. A matrix of squares represents the computer keyboard. In the corner of each square is a small red lamp. The user scans the board using these lamps and selects a 'key'. This selection is received by the computer as if a key had been pressed. The letters are scanned in alphabetical order which, because of the differing frequency of letter use, is not the most efficient scanning layout for switch users. Single and double inputs can be used and one of four modes of operation can be chosen to suit the user. The scanning speed can be varied. There is a separate repeat function and a call tone can be selected to attract attention. Control and Shift functions can be operated by selecting two 'keys' in sequence. The device is supplied with three overlays for the display; one for use as a conventional keyboard, one for programming and a simplified layout for younger users.



Size 490 × 360 × 110mm
Weight 5kg
Obtainable from Possum Controls Ltd
Price on application
Export available

□ POSSUM SCANNING CONTROL FOR APPLE COMPUTER

A similar device to the BBC Scanning Control for use with the Apple II computer. Single, double and eight-way switches may be used and there are four input modes from

which to choose. The scanning speed may be varied. As with the BBC Scanning Control, the letters are set out in alphabetical order and this is not an efficient layout for scanning purposes.



Size 490 × 360 × 110mm
Weight 5kg
Obtainable from Possum Controls Ltd
Price on application
Export available

□ POSSUM SCANNING SPECTRUM COMPUTER

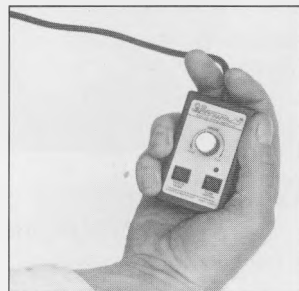
The Scanning Spectrum contains the computer. The scanning speed may be varied to suit the user. The squares to be scanned are set out in the standard qwerty keyboard pattern and, while this may be superficially attractive, it is not the most efficient layout for scanning. All standard Spectrum software can be operated although games may be difficult to run and an able-bodied helper is needed to operate the switches on the cassette recorder.



Obtainable from Possum Controls Ltd
Price on application
Export available

□ SLOMO SPEED CONTROLLER

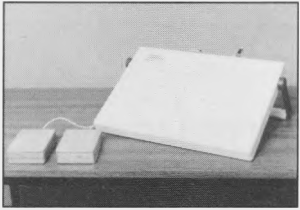
The speed at which some computer programs operate may be such that a disabled person is unable to respond quickly enough to use them successfully. The Slomo can be used to slow down the operation of a program, or if required, stop it completely. This may be particularly useful when playing a computer game. The device slows the operation of the entire program so that some ordinarily slow parts may become tedious. Versions are available for use with the BBC Computer, the Commodore 64 and the Spectrum.



Obtainable from Nidd Valley Micro Products
Price guide £15
Export available

□ TOUCAN LEARNING TRAY

In effect, this is a scanning Concept Keyboard. The A3 size scanning matrix system with user defined overlays may be used for computer input or as a communication aid. It connects to the User Port of the BBC Microcomputer and can enable single or two switch users to operate any Concept Keyboard software, such as Prompt 3, without modification. The matrix has 128 cells, in 16 columns and 8 rows, that can be defined to suit the user. The scanning rate may be adjusted and an optional audible bleep is incorporated to assist scanning. The unit may also be used as a 'stand-alone' communication aid. Housed in a splash-proof case, the device is powered by batteries.



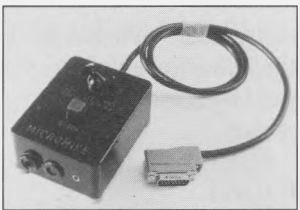
Size 485 × 316 × 32mm

Weight 750g

Obtainable from Toucan (Communication Aids) Ltd
Price guide £350

□ MICROMIKE

A modified microphone is connected to the Analogue Port of the BBC Computer and the sound detected by the microphone is used to affect the computer program. A large number of simple programs will work with the Micromike and the device may therefore be used to motivate and encourage vocalisation. In addition, some children with limited motor control, may find the Micromike a valuable tool. Two versions of the device are available; one hand-held, the other a desk-top model with variable sensitivity.



Size 100 × 80 × 50mm

Weight 300g

Obtainable from Maggie Systems

Price guide: hand-held £27,
desk-top £32

Export available

□ PHOTONIC WAND

An optical head-pointer which may suit those whose strength or control over their limbs is limited but who have reasonable head control. The user wears an electronic sensor which may be attached to the side arm of a pair of spectacles, a head-band or even a mouth-stick. A cursor on the screen moves in response to movements of the head. The computer is activated by 'holding' the cursor at a position on the screen for a pre-set period. The user may be positioned up to two metres from the screen at which point very fine control but little movement is required. The nearer the user is to the screen, the greater the movement needed but the less the control. Several computer programs are included with the Wand. These

allow the user to paint pictures on the screen, play music or write using a simple word processor program. The Photonic Wand may be used to operate the BBC Bliss program (see *Computers: software*) and a keyboard emulator program is also available which allows the user to operate many standard computer programs.



Obtainable from The Photonic Wand Company
Price guide £105
Export available

□ QUINKEY

The dummy Microwriter keyboard enables the user to operate the BBC Computer using only the six keys. The user has to learn the Microwriter codes although this does not usually take very long and the Foundation provide training courses for more advanced users. People with certain physical and sensory disabilities find the Microwriter keyboard easier to use than a standard keyboard and these people may find operating a computer in this way easier. Up to four Quinkeys can be connected to one BBC Computer and a number of programs are available to help practice its use.



Size 230 × 110 × 50mm

Weight 750g

Obtainable from Foundation for Communication for the Disabled

Price guide £300
Export available

□ TWINKLE EYE CONTROL

A switch system which is activated by changes of electrical potential received by two electrodes positioned lateral to the eyes when the gaze is directed to the left and to the right. The electrodes are connected to a small box, which may be worn around the neck, and this in turn is connected to a BBC or Apple computer. The system is opto-isolated for safety. After some practice, moving the eyes quickly one way activates the first switch and moving them the other activates the second switch. The system can be used with the Beeblinc and MAC-Apple switch-operated word processors (see *Computers: software*).



Size control box 136 × 190 × 70mm

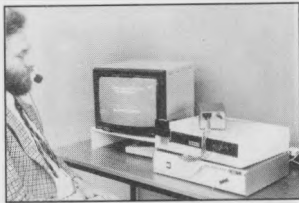
Weight 800g

Obtainable from Icom Design Ltd

Price guide £430
Export available

□ VOICE RECOGNITION SYSTEM FOR THE BBC MICROCOMPUTER

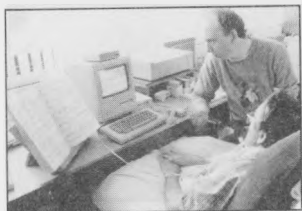
For a physically handicapped person, operating a micro-computer using switches and an auxiliary keyboard emulator, the time taken to select a character may be many seconds and perhaps longer. The Voice recognition system for the BBC microcomputer listens to previously trained words or short phrases spoken by a particular person. The computer works normally and standard software can be run using the voice or the keyboard without modification. As the words used by a particular person operating the system are stored on disk, a very large vocabulary may be used. Provided the user is able to reliably reproduce words, phrases or other sounds, the communication rate using voice input can be much faster than that achieved using scanning systems.



Obtainable from Dr R. M. Stephens
Price guide £1,500 plus cost of microcomputer system
Export available

□ HEADSTART WORKSTATION

Using a mouse, tracker ball or a specially designed ultra-sonic headset, the user can operate any standard program on the Macintosh computer. These include word processor programs, databases, business spreadsheets and drawing. To type, letters are selected from a 'keyboard' which appears on the computer screen. The system has been designed to enable a person with a spinal injury, who may have only head movement or very limited upper limb control, to have access to the wide range of activities offered by the computer and so perhaps continue in employment. The system needed would vary according to the needs of the individual.



Obtainable from BIT 32
Price guide £3,500
Export available

□ SEQUAL KEYBOARD EMULATOR FOR THE AMSTRAD COMPUTER

The Keyboard Emulator may allow a disabled person to operate an Amstrad computer using single or double switches. Keys are represented by squares on a character display board. Each square has a small lamp in the corner and the user scans the board, first horizontally and then vertically to select a character. The scanning rate may be varied to suit the user and an audible bleep may be selected. Two-key operations involving the Shift and Control keys are also possible. The Emulator provides access to the range of Amstrad computers – the CPC464, 664, 6128 and, in particular, the word processing facilities

of the PCW8256. Games and other standard software may be operated although a model with a disk drive would be necessary for independent use.



Size 150 × 150 × 50mm
Obtainable from Courtenay Technical Services
Price guide £300
Export available

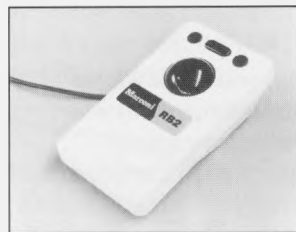
COMPUTERS: SWITCHES

Almost all switches, whatever the advanced technology they may be used to control, represent different approaches to the problem of joining two wires together and completing a circuit. With the help of a technician or medical physics department quite effective switches may be constructed at low cost to suit a particular user or situation. Most of the necessary components are available from the large-scale distributors such as Radiospares, Farnell and Maplin.

Ready-made switches

A wide and increasing range of ready-made switches is available. Many are similar and the following is only a selection. The manufacturers should be consulted for details of their full range of switches.

□ MARCONI RB2 TRACKER BALL



Obtainable from Technomatic Ltd
Price guide £52
Export available

□ QED SOUND OPERATED SWITCH LA/3



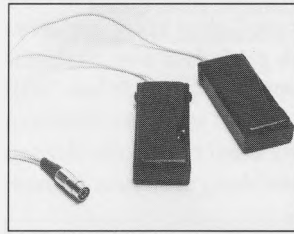
Obtainable from Quest Educational Designs Ltd
Price guide £55
Export available

□ POSSUM TONGUE SWITCH



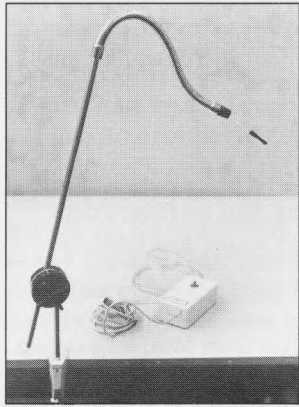
Obtainable from Possum Controls Ltd
Price on application
Export available

□ TOUCAN LEVER SWITCH



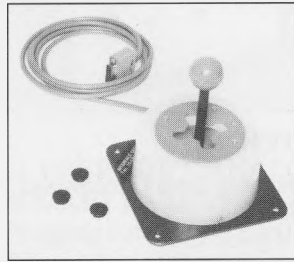
Obtainable from Toucan (Communication Aids) Ltd
Price guide £18
Export available

□ GEWA SUCK-PUFF SWITCH



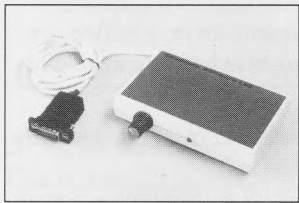
Obtainable from Possum Controls Ltd
Price on application
Export available

□ INTERFACE DESIGNS 1-4 WAY JOYSTICK SWITCH



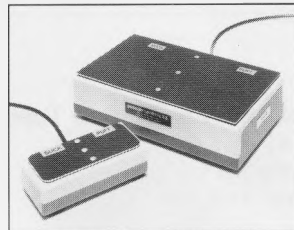
Obtainable from Interface Designs
Price guide £40
Export available

□ SYNDICATE SOFTWARE PROXIMITY SWITCH



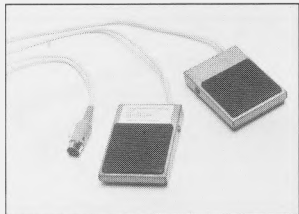
Obtainable from Syndicate Software Ltd
Price guide £30
Export available

□ POSSUM DOUBLE PLATE SWITCHES



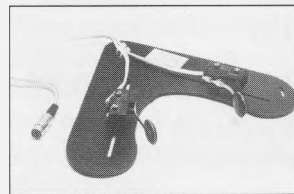
Obtainable from Possum Controls Ltd
Price on application
Export available

□ TOUCAN FOOT SWITCHES



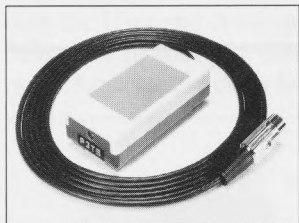
Obtainable from Toucan (Communication Aids) Ltd
Price guide £22
Export available

□ TOUCAN CHIN SWITCH



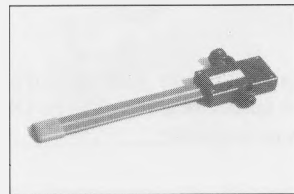
Obtainable from Toucan (Communication Aids) Ltd
Price guide £46
Export available

□ POSSUM TOUCH SWITCH



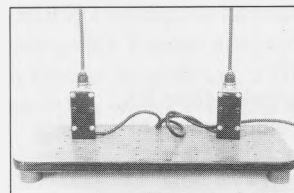
Obtainable from Possum Controls Ltd
Price on application
Export available

□ ZYGO LEAF SWITCH



Obtainable from Aremco Ltd
Price guide £45
Export available

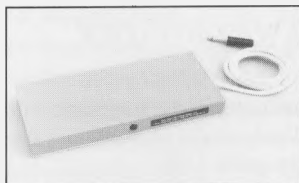
□ POSSUM SPIRAL WOBBLE SWITCHES



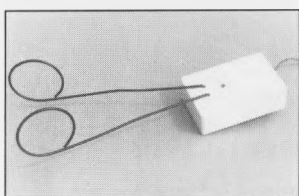
Obtainable from Possum Controls Ltd
Price on application
Export available

QED SEE-SAW SWITCH

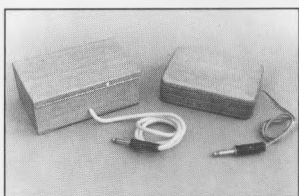
Obtainable from Quest
Educational Designs Ltd
Price guide £16
Export available

 QED PLATFORM SWITCH

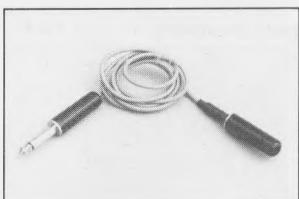
Obtainable from Quest
Educational Designs Ltd
Price guide £23
Export available

 QUEENWOOD CHIN SWITCH

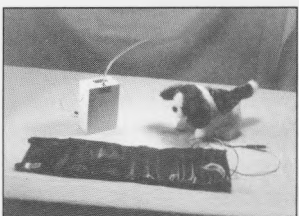
Obtainable from Queenwood
Scientific
Price guide £30
Export available

 WOODEN SWITCH

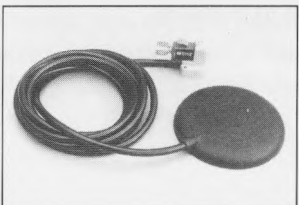
Obtainable from Activity Toys
Ltd
Price guide £6
Export available

 QUEENWOOD TILT SWITCH

Obtainable from Queenwood
Scientific
Price guide £10
Export available

 PRESSURE PAD SWITCH

Obtainable from Activity Toys
Price guide: Small £4; Large £8
Export available

 AIR OPERATED SWITCH

Obtainable from RS
Components Ltd
Price guide £6
Export available

COMPUTERS: MOUNTING SWITCHES

Points to Consider

- Switches should be positioned securely and in such a way that the user can operate them reliably.
- If a switch moves when operated, sporadic activation may occur which will be very frustrating.
- A person's ability to operate a switch may vary during the course of a day and from one day to another because of change in mood, posture and pain and power, amplitude and control of movements.

 SELF-ADHESIVE VELCRO

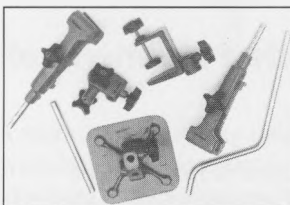
Lightweight switches can be secured using pieces of self-adhesive Velcro. A strip of 'hooks' may be fixed to the switch and a strip of the smoother 'loops' to a table or wheelchair tray.

Size 20mm × 5m roll

Obtainable from RS Components, (or from Magpie Systems)
Price guide: hooks £3.60 per roll, loops £3.60 roll, £1 for 300mm of hooks and loops

 ORANGE AIDS SYSTEM

This range of clamps and fixings enables switches and other devices to be mounted on furniture or wheelchairs in convenient positions. Mounting brackets are available for portable typewriters and for a Microwriter.



Obtainable from Orange Aids
Ltd
Price on application
Export available

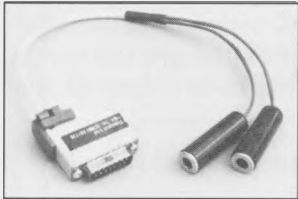
COMPUTERS: CONNECTING SWITCHES

Points to Consider

- Switches or other interfaces can be connected to a computer by means of an interface box.
- Most switches are fitted with 6mm jack plugs. Where there is more than one user and different switches, an interface box which provides for alternative connectors is useful.

QED SWITCH CONNECTOR

This simple connection aid is sufficient where only one person is to use a particular computer. One end of the wire is fitted with a 15-way 'D' type connector which fits the Analogue Port of the BBC Microcomputer. The other end is fitted with two 6mm jack sockets, allowing single or double switches to be connected.



Obtainable from Quest Educational Designs Ltd
Price guide £8
Export available

ACCESS-1 AND ACCESS-2

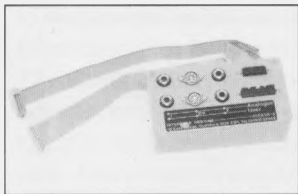
These versatile interface boxes allow switches fitted with three or four types of connector to be used, separately or together, to operate a computer program. Access-1 has two 6mm jack sockets, two 3.5mm jack sockets and a 7-pin DIN socket. Access-2 has the same sockets plus a 15-way socket for connecting the Interface Designs 1 to 4-way Joystick. The boxes can be supplied with a connector for either the User Port or the Analogue Port on the BBC microcomputer or for the Apple II+ or IIe computer.



Size 150 × 80 × 55mm
Weight 200g
Obtainable from Interface Designs
Price guide: Access-1 £15,
Access-2 £20
Export available

ACCESS-3

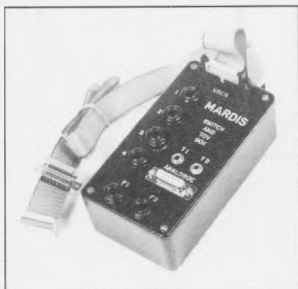
This is a useful interface box for the BBC Microcomputer offering four 6mm jack sockets, two 7-pin DIN sockets and, in addition, extension sockets for the User and Analogue Ports.



Size 150 × 80 × 55mm
Weight 250g
Obtainable from Interface Designs
Price guide £30
Export available

MARDIS SWITCH AND TOY BOX

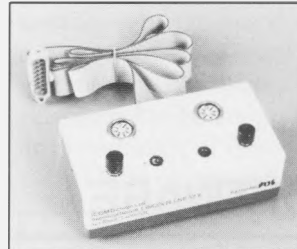
This interface box is provided with extension sockets for both the User and Analogue Ports of the BBC micro-computer. In addition, there are six 6mm jack sockets and two 3.5mm jack sockets for switch connection.



Size 150 × 80 × 55mm
Weight 275g
Obtainable from MARDIS
Price guide £35
Export available

ICOM SWITCH CONNECTION UNIT

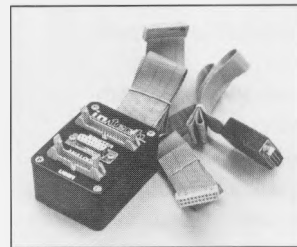
This device can be used to connect single or double switches, fitted with 7 pin DIN plugs wired to DHSS standard, to a computer. Versions are available for the BBC and the Apple computers. Adaptors can be supplied to enable switches fitted with 6mm stereo jack plugs to be used. Each socket has a switch status indicator light and a manual over-ride push button.



Size 120 × 65 × 55mm
Weight 200g
Obtainable from Icom Design Ltd
Price guide £42
Export available

USER PORT, ANALOGUE PORT AND PRINTER SOCKET EXTENSION BOX

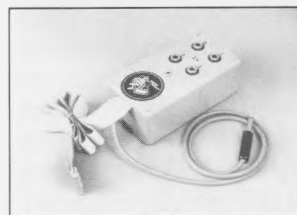
Plugging connectors into the Analogue or User Ports or Printer Port of the BBC microcomputer can be disruptive. This simple box extends these ports, making them easily accessible.



Size 80 × 60 × 50mm
Weight 175g
Obtainable from Bromborough Intech Centre Ltd
Price guide £25
Export available

MICREX USER PORT EXTENSION UNIT

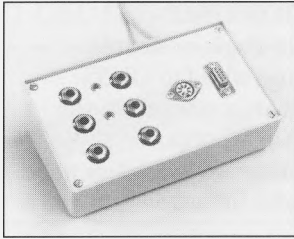
When connected to the User Port of the BBC micro-computer, this device enables external switch inputs and outputs to be used. The unit has one switched output and four 6mm jack sockets for input switches. A program is supplied to enable switches to be used to control toys and other devices.



Size 150 × 80 × 55mm
Weight 200g
Obtainable from Micrex and from Quest Educational Designs Ltd
Price guide £25
Export available

ELECTRAID SWITCH INTERFACE BOX FOR APPLE II

Six 6mm jack sockets are provided to allow single and double switches to be connected to the Apple II+ or IIe computer. Lamps are provided to indicate when a switch is closed. In addition, a DIN socket is provided for switches wired to DHSS standard.



Obtainable from JWF
Electraid Ltd
Price guide £35
Export available

COMPUTERS: SOFTWARE

Points to consider

- For a physically handicapped person, using a word processor program with a microcomputer may be easier than typing.
- Word processor programs are available for most computers.
- Some special word processors are available with features designed to assist disabled users.
- It is important that the user tries the word processor program before a computer is acquired to ensure that it is suited to his abilities. For instance, some word processors require that two keys be pressed at the same time in order to edit text and some disabled people may find this impossible.
- Software can assist a disabled person in carrying out a wide range of other activities including accounts, telecommunication and the storage, retrieval and handling of information.
- A wide range of recreational software is available.

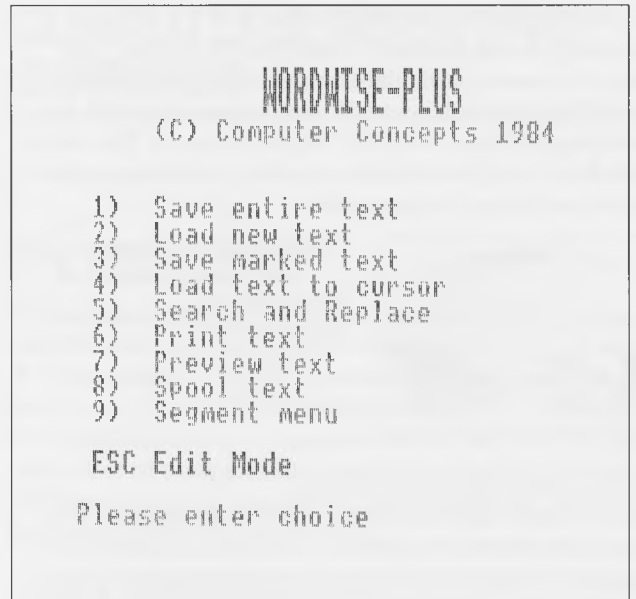
□ COMMUNICATION AID PROGRAMS FOR THE BBC MICROCOMPUTER

This evaluative survey of software which may aid communication includes approximately twenty-five to thirty programs. Most are designed to assist people with motor disabilities but some are for those with sensory handicaps. The survey is up-dated periodically.

Obtainable from the ACE Centre
Price guide £4

□ WORDWISE AND WORDWISE PLUS

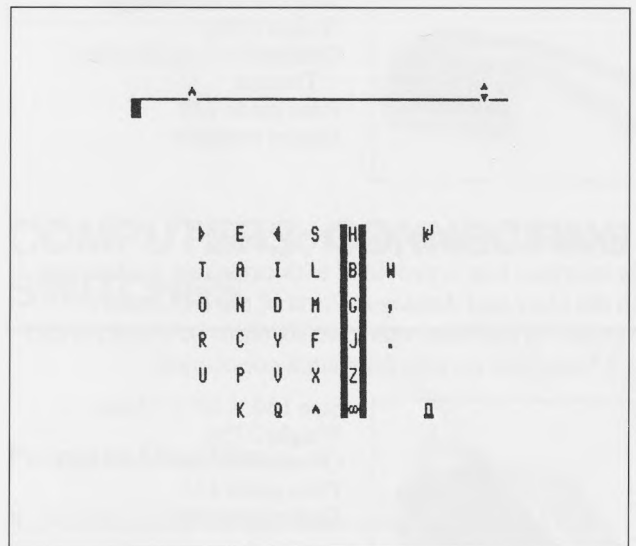
This word processor program is written specially for the BBC microcomputer. It will display in both forty and eighty columns although only append and edit in the forty column mode. Text can be saved to either disk or tape and printed out. Although not as powerful as a full commercial word processor, Wordwise Plus is a good general purpose program suitable for both children and adults and encompassing all the basic requirements of word processing. Editing is simple and fast with good use made of the BBC cursor and function keys.



Obtainable from Computer Concepts
Price guide £57
Export available

□ MAC-APPLE

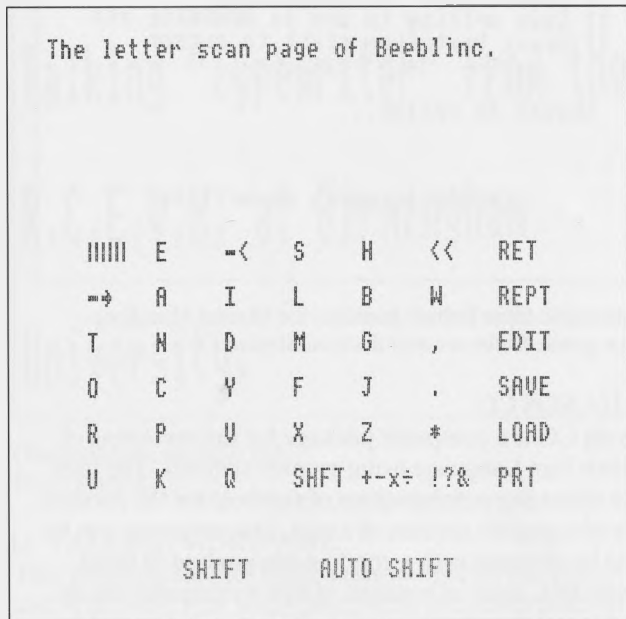
The Mac-Apple program enables a switch or keyboard user to use standard word processing facilities on an Apple computer. A choice of eleven different selection methods is provided so that the program may be adapted closely to the individual user. Single or double switches, an 8-way switch and the Apple keyboard may all be used. Switch users select from a matrix of letters, numbers, punctuation marks and special commands displayed on the computer screen. This matrix may be designed to suit individual needs. Text can be printed and spoken out and it is also possible to use the system as an emulator for running other computer programs. To increase output speed, the user can define and choose from wordlists each of which can contain about 1,500 words or phrases. Drawing and calculator facilities are also provided.



Obtainable from the ACE Centre
Price guide £10
Export available

□ BEEBLINC

Beeblinc, like Mac-Apple, is a word processor program specifically designed for single or double switch users. The program runs on the BBC microcomputer. Four selection methods are available and selection is made from a matrix of letters, numbers and symbols. The matrix may be designed to suit the user. Text may be entered letter by letter or, to increase speed, whole words may be selected from customised word-lists. Text is displayed on the screen and may be edited and printed. The program can also be used as an emulator for running other programs.



Obtainable from Icom Design Ltd
Price guide £22

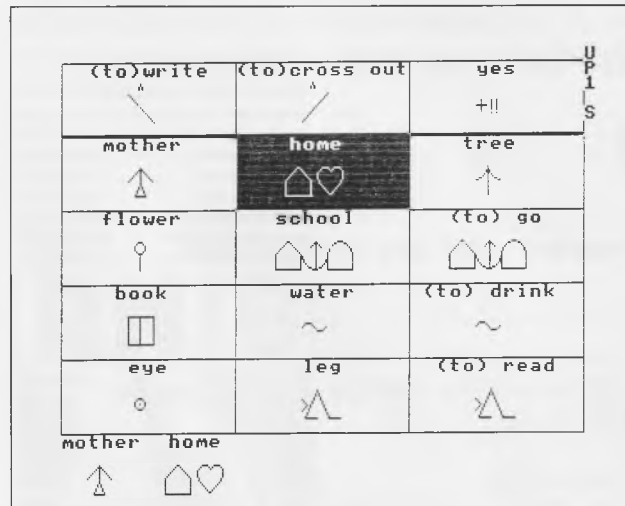
□ BLISSAPPLE

Blissapple is designed to enable Bliss users to produce a printed output (for letter writing, story telling, classroom work, etc.). Switch users, who may be unable to indicate Blissymbols by pointing, may be able to use the program to display and print out symbols. The symbols are selected from the computer memory by entering code numbers. The numbers may be memorised or displayed, with the appropriate symbols, on a chart nearby. Blissapple is likely to be of most use to the more advanced Blissymbol user. The program requires an Apple computer

Obtainable from the ACE Centre
Price guide £35

□ BBC BLISS PROGRAM

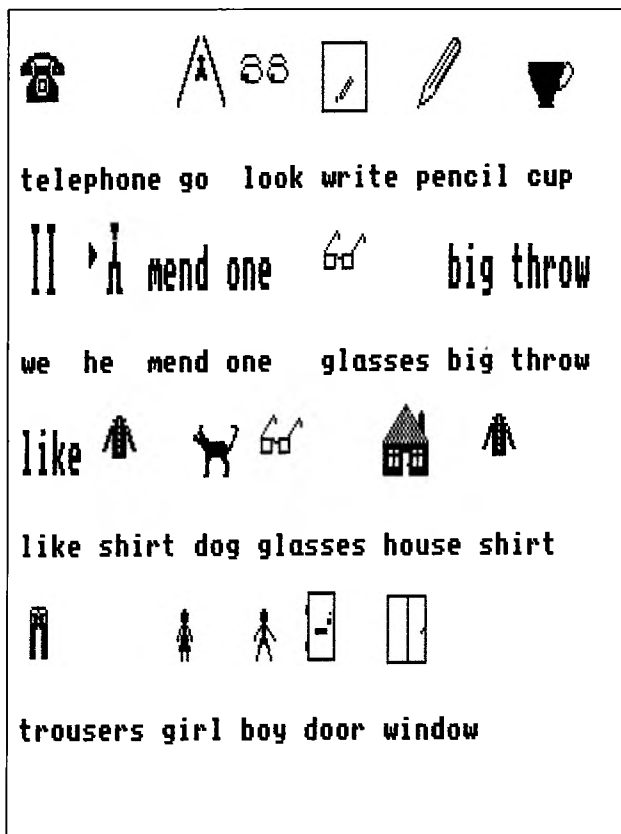
This program allows Blissymbol messages to be easily built up on the computer screen. The symbols may be selected using switches to scan a display, by touching areas of a Concept Keyboard or by using a Photonic Wand (see *Computers: special keyboards and interfaces* and *Computers: using switches*). The program may be personalised to the user's particular needs. Messages produced by the user can be printed out to provide a permanent copy. In addition if a speech synthesiser is connected to the system, each word of the message can be spoken as it is produced. A symbol creation program allows any Blissymbol to be designed and added to the display so that any vocabulary of symbols can be made available to the user. The program runs on the BBC microcomputer.



Obtainable from Micro Express Ltd
Price guide £30

□ CATCHUP

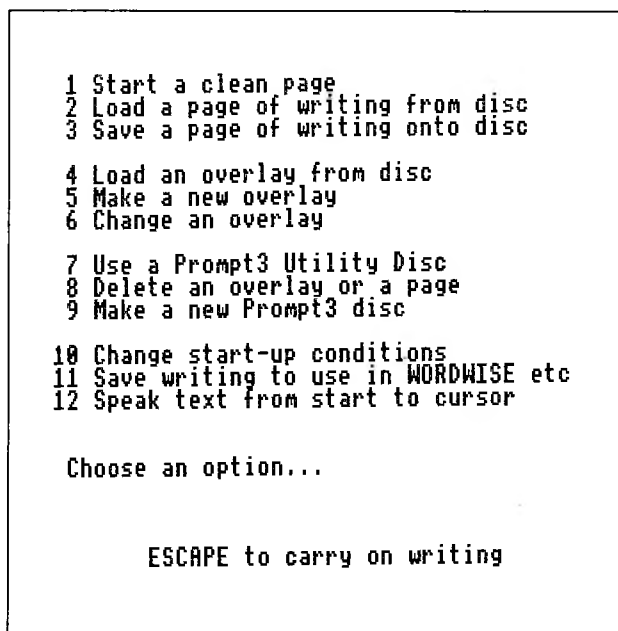
The Catchup scheme was designed to help deaf children and those with specific speech and language disorders during the initial stages of reading and through to general language development. Using the BBC microcomputer, the system is operated from a Concept Keyboard and many words within the resident vocabulary have an associated symbol. The symbols are pictorial and not expressly related to any existing augmentative communication system. Both words and symbols can be re-defined or added and stored for future use on a disk. At its simplest level it can be used to match words and symbols. Thereafter phrases, questions and answers and even simple word or symbol processing can be achieved.



Obtainable from School of Education Research Unit
Price guide £35

□ PROMPT 3

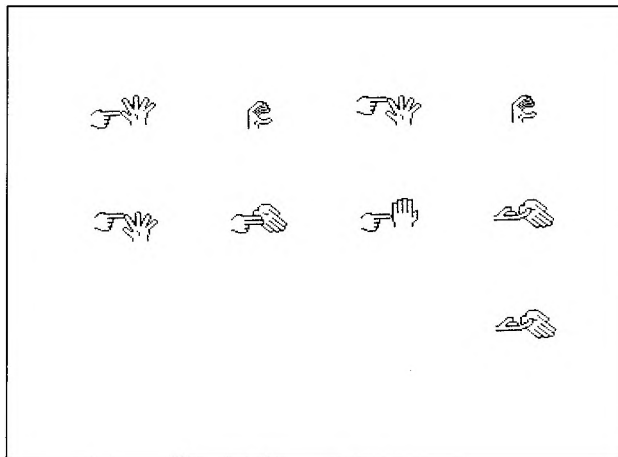
Prompt 3 is a supportive introductory word processing program. It has been designed to help children to express themselves in writing. A Concept Keyboard provides users with an easy way to enter new or unusual words and phrases into their text. Some children might use the Concept Keyboard with an overlay sheet containing a limited vocabulary and some edit functions. Sentences are constructed by pressing words on the overlay. Alternatively, the Concept Keyboard may be used in parallel with the normal qwerty keyboard. Both normal and double-height letters may be displayed on the computer screen and printed on the printer. The program runs on the BBC microcomputer.



Obtainable from British Institute for Mental Handicap
Price guide: Software and documentation £7

□ HANDS CG

Hands CG is a computer package for the recording of British Sign Language using graphic symbols. The user may select any combinations of symbols for the production of a graphic version of a sign. The programs can be used by children with a good understanding of hand-drawn BSL signs as a means of sign writing and can be used to produce news, stories and letters to be read by other BSL users. The program requires a BBC microcomputer.



Obtainable from Nottingham ITEC
Price guide £75

□ TALKING TYPEWRITER

This simple program converts the BBC microcomputer into a talking typewriter offering a variety of options for the visually impaired user including colour, size of character, inter-line spacing, data collection and speech.

This is the text form for the
Talking "Typewriter" from the
R.C.E.V.H. at Birmingham
University.

Obtainable from RCEVH
Price guide £3

□ TALKING WORDWISE

This program enables blind users to operate the Wordwise and Wordwise Plus word processing programs described above. The user may write and read what is displayed on the computer screen with the help of synthetic speech. The program requires a BBC microcomputer with Wordwise or Wordwise Plus and a speech synthesiser.

Obtainable from RCEVH
Price guide £3

□ TALKING WORDPROCESSOR

This is a simple word processing program for the visually impaired with spoken output of characters and words and commands. All the characters are spoken during typing. Movement of the text cursor allows letters, words or sentences to be spoken so that the contents of the screen may be read. Complete text files can be saved, retrieved, edited and printed. Special printing features are also available. The program uses the BBC microcomputer.

Obtainable from Sensory Information Systems
Price guide £35

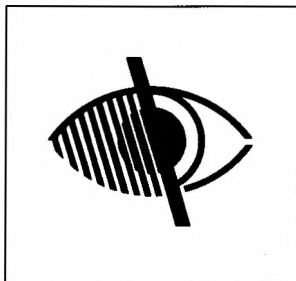
VISUALLY HANDICAPPED: ORGANISATIONS

Royal National Institute for the Blind (RNIB)

The RNIB produces a comprehensive illustrated catalogue of apparatus which has been developed or adapted for use by the visually handicapped and is available at concession prices to any registered blind person. The RNIB provides information and advice to blind people and publishes a wide range of literature in both print and braille. The RNIB Resource Centre has a display of aids for the visually handicapped ranging from the simple and practical to those applying the latest technology.

**Partially Sighted Society**

The Society represents the interests of partially sighted people of any age, provides information and advice on aspects of living and working with impaired vision, produces publications and gives local support through its branches. The Society has a national Low Vision Advice Centre in Exeter, supplies certain large print materials and aids at reduced cost and provides an enlargement service for printed material.



In Touch

In Touch is a programme of news, comment and information for visually handicapped people broadcast weekly on BBC Radio 4. In addition to the programme, the *In Touch* team produces a free quarterly bulletin summarising the information broadcast. The bulletin is also available in braille from the Scottish Braille Press. There is an off-air 'phone in' to give blind listeners a chance to pass on comments, suggestions or queries to the *In Touch* team.

Details of broadcasts and phone-in times are given in *Radio Times*.

IN TOUCH – AIDS AND SERVICES FOR BLIND AND PARTIALLY SIGHTED PEOPLE

The comprehensive handbook, compiled by the *In Touch* radio programme team, contains about 300 pages of useful information for visually handicapped people and their helpers.

Obtainable from BBC Publications
Price £3

Association for the Education and Welfare of the Visually Handicapped

This association of professional people represents all aspects of work with the visually handicapped, holds regular national and regional meetings and conferences and publishes a Journal and news Bulletin and other literature. It fosters research into the needs of the visually handicapped, conducts recognised examinations and awards diplomas.

Association of Visually Handicapped Office Workers

The self-help organisation works for the benefit of blind and partially sighted people in office occupations. Occasional meetings, schools and exhibitions are arranged and members receive a quarterly cassette magazine of general information and news. A year book is published in print and braille.

British Wireless for the Blind Fund

The charitable fund provides registered blind people with a radio set on permanent loan. Either a mains or battery radio set can be supplied; both have long, medium and VHF wavebands. Alternatively, a small personal set is available for blind people who are bedridden or confined to a wheelchair. The fund will provide replacement batteries and, where necessary, ear phones. Applications should be made through the authorised local agent which is usually the local social services department or a voluntary agency. The fund does not provide radios for partially sighted people.

Optical Information Council

The Council provides impartial information on eyecare services and products through a public relations programme. A range of free leaflets, booklets and posters on aspects of eyecare is available.

National Federation of the Blind

The Federation is organised by and for blind people to campaign for improvements in aids, services and allowances for the blind. A major aim is for blind people to receive dignified support in order that they can be integrated into society. There are local branches of the Federation throughout the UK.

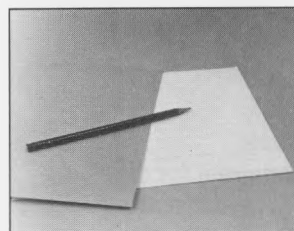
Further information obtainable from the National Federation of the Blind

VISUALLY HANDICAPPED: WRITING AIDS

Various devices are available to help a visually impaired person write in a straight line or in the appropriate place on a cheque or pension book.

RAISED LINE NOTE PAPER

Sheets of good quality cartridge paper, size 254 × 203mm, embossed with twelve lines per page to guide the ball-point pen or pencil. The sheets may be folded easily but, since the paper is a little stiff, it may be difficult to fit several sheets into an envelope. Supplied in packets of fifty sheets.



Weight of fifty sheets 425g
Obtainable from the Royal National Institute for the Blind
Price guide: £1.61, concession price 54p
Export available

CORRESPONDENCE TABLETS

A plastic sheet, size 298 × 211mm and embossed with fifteen lines, is placed under a sheet of ordinary A4 paper and held in position with paper clips. The lines can be detected through the paper and used to guide the user's pen. A smaller sheet, size 116 × 90mm, is inserted in an envelope when writing the address.

Obtainable from the Royal National Institute for the Blind
Price guide: £1.26, concession price Free
Export available

□ SCRIPT WRITING AID

A sheet of rubber is placed under the paper when writing in longhand. The slight impression made by a pencil or ball-point pen may be felt so that a blind person can detect the position of the last word written. It can be used with the Millard or Portland frames.

Size 292mm × 203mm

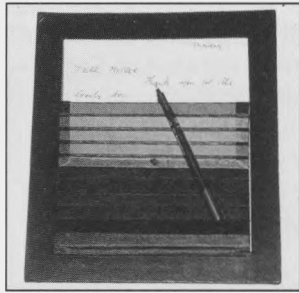
Weight 85g

Obtainable free from the Royal National Institute for the Blind

Export available

□ VENETIAN WRITING FRAME

The cloth-covered, strawboard frame is placed over a sheet of paper. The lines of writing are guided by a sheath which rests on the paper. As each line is completed, a section of the sheath is turned down. Paper up to 254 × 203mm may be used.



Size 267 × 305mm

Weight 255g

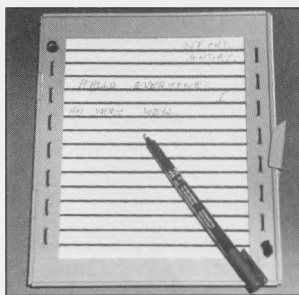
Obtainable from the Royal National Institute for the Blind

Price guide: £2.42, concession price 81p

Export available

□ MILLARD METAL FRAME

This metal frame is designed to assist blind and partially sighted people writing in longhand. Paper is placed under the top portion and held in position by a clip on the right-hand side. Elastic strands fitted across the frame serve as a guide to the pen or pencil but allow sufficient movement for the formation of upward and downward strokes. Up to fifteen lines may be written on a page.



Size 248 × 203mm

Weight 312g

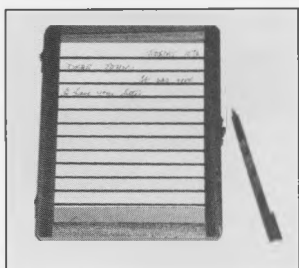
Obtainable from the Royal National Institute for the Blind

Price guide: £3.14, concession price £1.05

Export available

□ PORTLAND FRAME

This frame is similar in design to the Millard frame but is made of wood. The paper is held in position by two small pins on the base of the frame. Up to twelve lines may be written on a page.



Size 248 × 197mm

Weight 510g

Obtainable from the Royal National Institute for the Blind

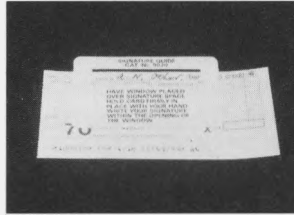
Price guide: £12, concession price £4

Export available

□ SIGNATURE GUIDES

The RNIB will produce signature guides for visually impaired people to suit any document that may need to be regularly signed.

Further information obtainable from the Royal National Institute for the Blind Resource Centre



□ SIGNATURE GUIDES FOR PENSION AND ALLOWANCE BOOKS

These masks are designed to fit over official UK pension and allowance books. The user signs in a space in the mask which corresponds with the signature position in the books. Two types are available, one suitable for pension books and the other for Invalidity Benefit, Maternity Benefit, Family Allowance, Industrial Disablement, Industrial Death and Widow's Allowance books.

Size 178 × 76mm and 165 × 89mm

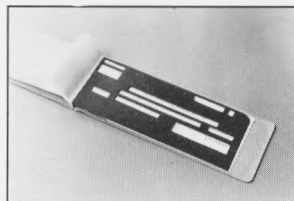
Obtainable from the Royal National Institute for the Blind

Price guide: 72p, concession price free

Export available

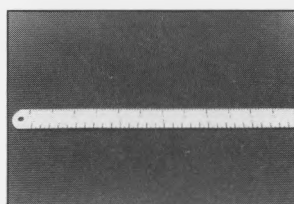
□ CHEQUE BOOK SIGNATURE GUIDES

Blind customers of the big four UK banks may obtain cheque book signature guides free of charge. The RNIB will make up signature guides to suit cheques from other banks. A signed cancelled cheque, complete with the counterfoil, must be supplied.



□ RULE WITH RAISED MARKINGS

This plastic ruler is marked with raised lines. One edge is marked in inches and tenths and the other in centimetres and half centimetres. Millimetres are indicated by small raised dots. Six small rubber discs on the underside help prevent the ruler from slipping.



Size 305 × 32mm

Weight 43g

Obtainable from the Royal National Institute for the Blind

Price guide: £1.61, concession price 54p

Export available

Further Reading

- Ford M., Heshel T. *In Touch*. BBC Publications, 1982.
 Gill J. *International survey of aids for the visually handicapped*. Royal National Institute for the Blind, 1986.
 Gill J. *International survey of aids for the partially sighted*. Royal National Institute for the Blind, 1986.
 Marshall G. *Aids to vision*. Exhall Grange school, 1978.

Braille

The system of embossed characters, invented by Louis Braille in 1824, provides the main reading medium available for blind people. Each braille character is produced using combinations of dots from a three-by-two matrix and there are sixty-three characters in all. In addition to the letters of the alphabet, braille has eight punctuation signs and twenty-seven symbols for the commonly used letter combinations. There are two grades of braille. In Grade One, each word is spelt in full, whereas in Grade Two, contractions represent the more frequently used combinations of letters and words. These allow speedier reading and writing and also reduce the paper space required.

Points to consider

- Braille may be learned at any age, both by those born blind and by those whose blindness is acquired later in life.
- A wide and increasing range of braille reading material is available at all levels.
- Although braille fluency is desirable for the wide range of reading opportunities it opens up, even a limited knowledge can be useful for many day-to-day activities such as finding telephone dialling codes, reading labels or playing games.
- Learning to read braille requires the development of considerable sensitivity in the tips of the fingers.
- Some people may lack the patience and determination required to develop braille skills.
- Only about one blind person in five can read braille.

Braille publications

A wide range of books and magazines in braille is available. The **National Library for the Blind** has over 350,000 volumes which may be borrowed free of charge by any blind person. **RNIB** publications include children's books, textbooks, vocational works and reference books. The **Scottish Braille Press** also produces a wide range of material including several periodicals and a novel each month. The *Radio Times* in braille is distributed free each week by the RNIB to blind people requiring it.

The translation of reading matter into braille has, in the past, depended on there being sufficient readers to make it worth producing. The availability of new technology capable of translating directly from text into braille is likely to greatly increase the range of braille reading matter available.

Learning Braille

Blind children may learn braille at an early age while at school. In some areas, the social services department or local voluntary associations for the blind may provide classes in braille. In others, braille courses may be offered as part of the local community education programme. If a sufficient number of people wish to learn, then the local education authority has an obligation to provide a course. Details of braille courses available may be obtained from the local public library. Alternatively, a person may follow a home study course using braille material and taped lessons. A leaflet, *Beginning Braille* is available from the RNIB and lists a range of braille home tuition courses and materials. The leaflet is also available as a Talking Book from the RNIB Talking Book Service.

Writing Braille

Braille is written by hand using a style and frame. The style is used to indent the paper so that the raised dots are read on the other side. This means that braille must be written on the reverse side of the paper from right to left. Styles are available from the RNIB; most cost less than £1 or are free to those eligible. A range of **braille writing frames** is available from pocket frames for writing notes and post-cards to those for use with paper up to 254 × 340mm. The frames cost from £1 to £24, or, for those eligible are free or cost up to £8.

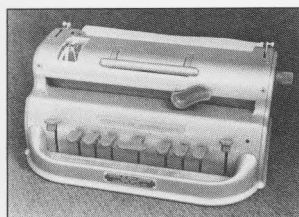
Braille Machines

In braille writing machines, the six possible dots which make up each braille character are indented by pressing six keys. A space key is also provided. Some machines indent the paper downwards as in hand braille writing; others indent upwards so that the braille may be read without removing the paper from the machine. Several braille writing machines are available.

Obtainable from the Royal National Institute for the Blind
 Price guide: £115-£325, concession price guide £40-£110

□ PERKINS BRAILLER

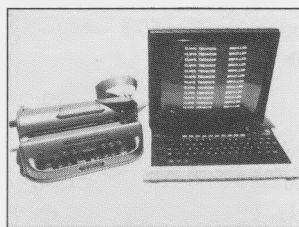
The upwards writing braille writing machine allows text to be read without first removing the paper. In addition to the six keys used for making the braille characters, a space key, back space key and carriage return lever are provided. The paper is roller-fed and line spacing is achieved by pressing a special key. Paper up to 292mm wide may be used, allowing up to forty-two characters per line. The machine produces braille which is slightly larger than the standard characters and a 'Jumbo Cell' model is available which produces larger braille dots for those who find difficulty with the standard braille indentations. The Perkins Brailler, which has a metal case and plastic key tops, can also be modified to operate as a terminal for a microcomputer or printer (see below, *Microbrailleur* and *Braille 'n' Print*).



Size 387 × 235 × 146mm
 Weight without case 4.5kg
 Obtainable from the Royal
 National Institute for the
 Blind
 Price guide: £303, concession
 price £101
 Export available from Howe
 Press

□ MICROBRAILLER

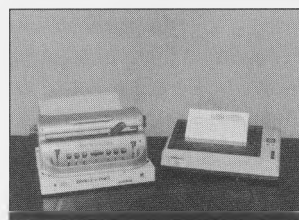
The electronic circuit enables the Perkins Braillewriter to communicate with the BBC Microcomputer. As the keys on the Braillewriter are pressed the appropriate character is sent to the computer and appears on the screen. The Microbraillewriter enables the user to receive a braille copy and the sighted person a printed copy of the same text. This is useful when a blind child goes to an ordinary school where the teacher does not read braille. When used in conjunction with a speech synthesiser, the device can be used for self-teaching of braille.



Obtainable from Clwyd
 Techics Ltd
 Price guide £75
 Export available

□ BRAILLE 'N' PRINT

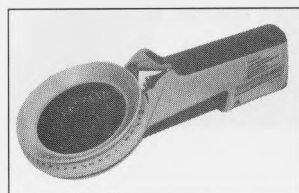
The device converts the keystrokes from the Perkins Braillewriter (see above) into ordinary text. Grade 1 and fully contracted Grade 2 braille are translated into English and printed out on a printer. Both braille and English copies of the same text are produced simultaneously enabling a blind person to use the system to check his output. In an educational setting, a teacher who does not read braille is able to check a student's braille output.



Obtainable from John
 Bradburn (Computer
 Systems) Ltd
 Price guide £650
 Export available

□ BRAILLE LABELLING MACHINE

This machine enables a sighted person who does not know braille to produce self-adhesive braille labels. These might be used for labelling, for example, tins of food or cassette tapes. A letter is selected by rotating the disc. Squeezing the handle embosses the corresponding braille character on the tape.



Obtainable from John
 Bradburn (Computer
 Systems) Ltd
 Price guide £55
 Export available

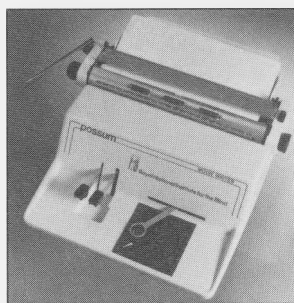
□ MOON

A system of embossed simplified Roman letters invented in 1847 by Dr William Moon. Because of the familiarity of many of the letter shapes, some people, particularly those who have become blind later in life, find it easier to learn Moon than braille. Like braille, Moon has two grades; Grade One being mainly uncontracted and Grade Two having some forty-five contractions. Unlike braille, Moon cannot be written by hand and this has limited its use as a medium of communication. The Moon branch of the RNIB produces Moon materials and Moon books can be borrowed from the National Library for the Blind. The introduction of the Possum Moonwriter has made it possible for other organisations and individuals to produce Moon materials for themselves.



□ POSSUM MOONWRITER

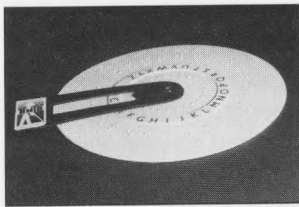
The Moonwriter enables anyone, blind or sighted, to produce Moon embossed writing. The Moon characters are drawn freehand by the user and the machine transmits the hand and finger movements via a metal finger ring, lever and stylus onto the paper. The Moonwriter is provided with an instruction manual.



Obtainable only from the
 Royal National Institute for
 the Blind
 Price guide £109
 Export available

□ TALKING DISC

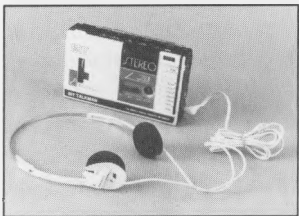
The plastic device is designed to enable sighted people to communicate with those who are deaf-blind. The disc is embossed with braille and Moon characters and printed in black with letters of the alphabet. The sighted user rotates the disc to show a letter in the space in the handle. The deaf-blind person reads the braille or Moon character in the same space. Conversely, a non-verbal, deaf-blind person sets the appropriate character in the space and the corresponding letter can be read by the sighted.



Size 146mm diameter
Weight 55g
Obtainable from the Royal
National Institute for the
Blind
Price guide: £2.10, or free of
charge to those eligible
Export available

□ BIT TALKMAN

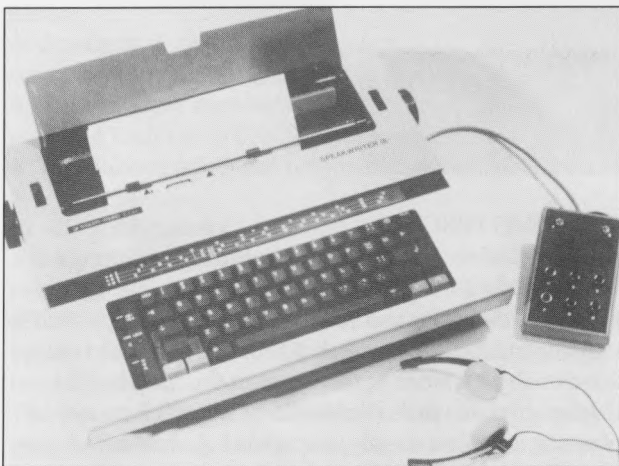
A personal cassette recorder with FM radio is useful for note-taking by a blind user. The Talkman has variable speed in the four track (mono) mode which operates in both record and playback and conforms to the Library of Congress format. The variable speed allows the user to scan through a recording to find a particular point on the tape. Stereo headphones are included although speakers may also be used. A microphone, with a tone indexing facility to help retrieval, is also available. Power is provided by rechargeable batteries.



Size 140 × 90 × 35mm
Weight 450g
Obtainable from Sensory
Information Systems
Price guide £180
Export not available

□ SPEAKWRITER III

The modified electronic typewriter with a text-to-speech synthesiser voices every typewriter key and command. Margin and tab locations are identified and controls allow the last word of the current line, the whole of the current line, or the last word or the whole of the previous line to be spoken out. An additional memory option enables the device to read back a whole page. Personal headphones may be connected and the printer wheels are interchangeable to allow a larger print. Although heavy, the Speakwriter can be carried around by an adult.



Size 430 × 360 × 180mm
Weight 8.5kg
Obtainable from John Bradburn (Computer Systems) Ltd
Price guide £1,300
Export available

□ VINCENT WORKSTATION

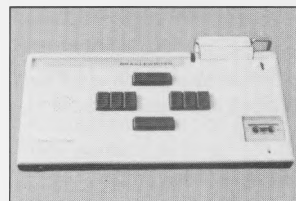
This is a hardware and software configuration developed for blind users. The hardware depends upon the needs of the user but may comprise a BBC Microcomputer with a disk drive, monitor, speech synthesiser, printer, Perkins Braille with Microbrailer adaptation (see above), and a Concept Keyboard. The software includes *Introduction to Braille*, *Grade II Braille Test*, *Talking Basic*, *Talking Dictionary*, *Talking Typewriter* and *Touch and Speak*.



Hardware obtainable as a unit from Sensory Information Systems or as separate items from computer dealers. Microbrailer obtainable from Clwyd Technics. Software obtainable from ESM
Price guide: BBC Micro-computer £500, disc drive £100, monitor £200, printer £200, speech synthesiser £150, perkins Braille £100, microbrailer £75
Export available

□ BRAILLEWRITER

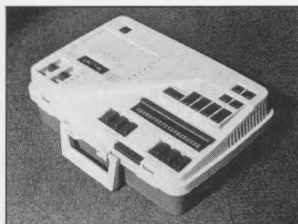
Braillewriter is a portable electronic note-taking device for braille users. Text can be entered using the six braille keys in Grade 1 or Grade 2 braille. The speech synthesiser is used to recall text which can then be edited. Up to 10,000 characters can be stored in memory and, when required, these can be stored on microcassette if fitted. If a printer is included a print copy of the braille can be produced.



Obtainable from Visionaid Systems
Price guide £1,000, £1,175 with printer, £1,375 with printer and cassette storage
Export available

□ VERSABRAILLE

This is a portable word processor/computer terminal with a 20 character 'soft' braille display. The braille in a soft braille display is not produced on paper but instead is usually created by small rods, one at each dot position. As a result, it can constantly change like a liquid crystal display (LCD) on a calculator. Material is entered on a braille keyboard and stored in memory as pages and chapters. These can be read back through the soft braille display and, when required, stored on compact cassettes (Versabraille 1) or on discs (Versabraille 2). The device can be connected to a computer, a braille embosser, a computer printer or a modem which enables its user to communicate through the telephone system. Power is provided by internal rechargeable batteries.



Weight 4.5kg
Obtainable from Sensory
Information Systems
Price guide £5,750
Export not available

□ OPTACON

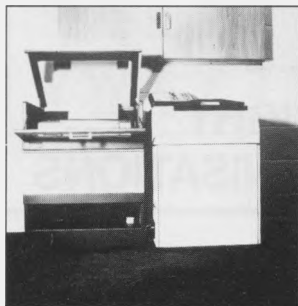
The portable reading machine converts the image of normal print into a tactile form. The forefinger of one hand is placed in the machine and a hand-held camera is passed over the text with the other hand. Small pins are raised under the finger to correspond with the image detected by the camera. In theory, anything could be read in this way although in practice the idiosyncracies of handwriting largely limit the use of the Optacon to printed text. Adapters are available to enable a user to read the image on a computer screen. Training in the use of the Optacon can be undertaken at the RNIB Commercial College.



Weight 1.8kg
Obtainable from Sensory Information Systems Ltd
Price guide £3,650
Export not available

□ KURZWEIL READING MACHINE SERIES 400

A page of ordinary text is scanned by the machine and the contents read aloud through a speech synthesiser. The device is capable of interpreting a very wide range of text styles and page formats. This task requires considerable technical sophistication and complexity and the resulting machine is expensive. Approximately fifteen Kurzweil Reading Machines have been installed in the UK, mainly in central libraries. The machine can be used, in conjunction with other devices, to convert print directly into Grade 2 braille or to act as a speech output for other computers.



Obtainable from John
Bradburn (Computer
Systems) Ltd
Price guide £24,000
Export available

□ FRANK AUDIODATA KEYBOARD

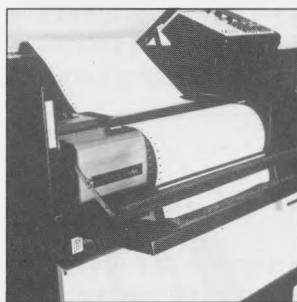
The special keyboard enables a blind person to operate a standard IBM Personal Computer. In addition to the standard IBM keys, the Keyboard has two slide controls, one on the left side and the other beneath the space bar, and a built-in speech synthesiser. Anything displayed on the screen can be read aloud by moving the slide controls. Individual words or whole lines can be spoken or spelt and, as the device does not affect the program running in the computer, the user can operate any IBM software. Speech rate and volume can be controlled and there is a socket to enable the device to be used with headphones.



Obtainable from Sensory
Information Systems Ltd
Price guide £2,750
Export not available

□ INDEX BRAILLE PRINTER

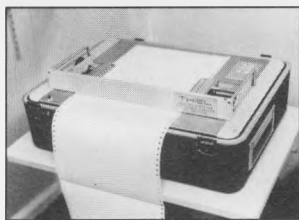
When used as a terminal for a computer, Grade 1 braille text may be embossed on continuous fan-fold paper at approximately twenty characters a second. A 30k memory allows text to be stored prior to printing so that the user may continue work on the computer. The memory also allows a large number of braille copies to be made. Up to forty characters may be embossed on a line and variable needle pressure enables different qualities of paper to be used. A braille keyboard is included with the printer and this can be used to emboss braille directly on to the paper. Grade 1 braille may also be transcribed to print if an ordinary printer is connected via one of the serial ports.



Size: printer 500 × 290 ×
165mm, keyboard
265 × 135 × 30mm
Weight: printer 12kg,
keyboard 1kg
Obtainable from John
Bradburn (Computer
Systems) Ltd
Price guide £4,500
Export available

□ THEIL BRAILLE EMBOSSING TERMINAL
BETA X-3

The high-speed braille embosser, when used as an output from a computer, produces Grade 1 and Grade 2 braille at 130 characters a second on tractor-fed fan-fold paper. In addition to text, computer graphics such as pictures, diagrams, charts and graphs can be produced in tactile form. In addition to its use as a computer terminal, the machine may be connected to an optional qwerty keyboard and will provide direct type to braille transcription.



Obtainable from Clark and Smith Manufacturing Co Ltd
Price guide £11,250
Export available

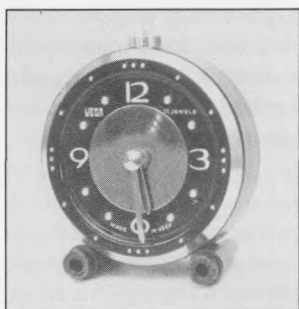


Size 155 × 75 × 20mm
Weight 250g
Obtainable only from Central Business Machines Ltd
Price guide to visually handicapped people £51
Export available

VISUALLY HANDICAPPED: CLOCKS AND WATCHES

□ RNIB

The RNIB sells a wide range of wrist watches, pocket watches, stop watches, timers and clocks for use by visually handicapped people. In general, these either have no glass covering the face or have a hinged cover. The position of the hands is indicated by raised dots alongside the numerals.



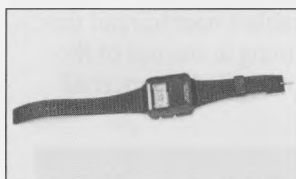
Obtainable from the Royal National Institute for the Blind
Price guide: clocks £7-£48, watches £5-£32
Concession price guide: clocks £5-£32, watches £5-£17

□ SHARP TALKING CLOCK/CALCULATOR EL640

Digitised human speech provides a very clear voice for this calculator. The speech can be turned off and the device used as a normal calculator with LCD characters. If the speech is turned on, all numbers are spoken as they are entered. Answers to calculations are given in full, for example, 'twenty one thousand, three hundred, forty five point seven', and not 'two, one, three, four, five, point seven'. A clock is incorporated and, when not used for calculations, the time is continuously displayed. Pressing the 'Time' button causes the current time to be spoken or the device can be set to speak the time either every five minutes or on the hour. Once the date is set, the calculator will work out the day and announce, for example, that 'Today is Wednesday, January 14, 1987'. An alarm can be set and when this operates, a loud tone is followed by an announcement of the time. Power is provided by four batteries or by a rechargeable battery pack.

□ LCD TALKING VOXWATCH

This digital watch has a small bar beneath the face and when this is pressed a synthetic voice announces the time. An alarm may also be set for any time or set to announce the time every five minutes. When the alarm time is reached, the watch states the time and plays a tune.



Obtainable from Tandy shops
Price guide £38

□ VOXCLOCK TALKING CLOCK

The clock face is replaced by a small speaker. When a button is pressed the time is announced in a digitised human voice. When the alarm is set, the clock announces the time five minutes before sounding and then plays a tune. The clock can also be set to count down the time at ten minute intervals. Power is provided by three 'AA' batteries.



Size 75 × 75 × 60mm
Obtainable from Tandy shops
Price guide £35

HEARING AND SIGHT IMPAIRED: ORGANISATIONS

Organisations

Breakthrough Trust

National Deaf-Blind and Rubella Association-SENSE

National Deaf-Blind Helpers' League
 Royal National Institute for the Blind
 Royal National Institute for the Deaf

Hasicom project

The project aims to develop information technology to enhance the communication of Hearing And Sight Impaired people. Such developments include the use of braille to access the British Telecom Gold electronic mailing system and so communicate with other deaf/blind, blind and sighted people at some distance.

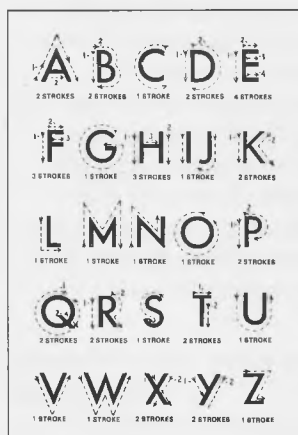
Further information obtainable from the Breakthrough Trust Communication Centre

HEARING AND SIGHT IMPAIRED: COMMUNICATION

Communicating with a deaf-blind person

Points to consider

- It is important that hospital staff and others should have direct communication with a deaf-blind person. It is essential that a deaf-blind patient should be fully informed about his treatment and any procedures carried out.
- Any approach to a deaf-blind person should be gentle. Without the warning of approach normally provided by hearing and vision, sudden contact may result in nervous shock. It is essential that the person should indicate his presence before attempting to communicate.
- It may be possible to communicate directly with a deaf-blind person using finger spelling.
- Alternatively, communication may be established by using the forefinger to trace block letters on the deaf-blind person's palm. The letters should be boldly traced directly on top of each other.



HEARING IMPAIRED: ORGANISATIONS

Royal National Institute for the Deaf

The Royal National Institute for the Deaf (RNID) is a national organisation which works to improve the lives of all deaf, deaf/blind and hard of hearing people. The RNID Information Service produces a wide range of booklets and leaflets, some of which are free, dealing with medical, technical and social aspects of deafness. The Institution also has a library which is concerned with all aspects of deafness and language and speech disorders. The RNID's bi-monthly magazine, *Hearing*, is of interest to the deaf and hard of hearing and also to the professionals who work with them.

Further details obtainable from the Royal National Institute for the Deaf



Organisations concerned with the hearing impaired

Breakthrough Trust
 British Association for the Hard of Hearing
 British Deaf Association
 British Deaf Sports Council
 British Tinnitus Association
 Friends of the Young Deaf
 Link Centre for Deafened People
 National Centre for Cued Speech for the Deaf
 National Council of Social Workers with the Deaf
 National Deaf-Blind and Rubella Association–SENSE
 National Deaf-Blind Helpers' League
 National Deaf Children's Society
 Paget-Gorman Society
 Royal Association in Aid of the Deaf and Dumb
 Scottish Association for the Deaf
 Signed English
 Wales Council for the Deaf

HEARING IMPAIRED: COMMUNICATION

Communicating with a deaf person

Points to consider

- Shouting does not help a deaf person to understand. Shouting contorts the face, may be painfully loud and causes embarrassment. A deaf person is most likely to understand when the speaker is facing him and speaks in a clear voice, slightly slower than usual but with normal rhythm.
- Addressing a deaf person when the speaker has not attracted his attention first is likely to lead to misunderstanding and frustration.
- Many deaf people have some ability to lip-read even though they have not been formally trained. A deaf person can understand best if able to both lip-read and listen. For good lip reading, adequate light is essential.
- When addressing a deaf person, the speaker should not smoke, eat or in any other way obscure his face. Many words appear similar to a person who is lip-reading. The speaker should therefore use plain language wherever possible.
- Unless the deaf person has very poor sight, the speaker will be better understood at a distance of five to six feet rather than only two or three feet away.
- If the deaf person does not understand, it is better to re-phrase the sentence rather than to repeat it.

- If necessary, the speaker may write down what is being said. Once a context has been established, spoken communication may be improved.
- Finger spelling may be used to help establish context and to clarify key words.
- If a person has a hearing aid, ensure that it is being worn and is switched on.

NHS hearing aids

A wide range of hearing aids, including body-worn and behind-the-ear models, is available on free loan through the National Health Service. If help and advice are needed, the person should first consult his general practitioner who will, if necessary, refer him to the local hospital's Ear, Nose and Throat department for examination. If a hearing aid is recommended by the consultant, a referral will be made to a hearing aid centre where the appliance will be fitted and supplied. NHS hearing aids are serviced, maintained and supplied with batteries free of charge.

□ FM RADIO HEARING AIDS

In certain situations, ordinary hearing aids have disadvantages. For example, in a noisy area such as a school classroom, not only the voice of the teacher but the background noise will be amplified. Outdoors, beyond a certain distance, an ordinary hearing aid is ineffective and the wearer will probably be too far away to lip-read. FM radio hearing aids overcome these problems because the signal is delivered directly to the ear and, with the hearing aid switched to the 'T' position, the problem of background noise is eliminated. Radio hearing aids have a range of up to 100 metres and can be effective outdoors even when the wearer cannot see the person speaking.

Two types of radio hearing aid system are available and in both the speaker wears a transmitter. One is a complete hearing aid system. The sound of the speaker's voice is transmitted to a body worn receiver and conveyed to the ears by wires. The receiver is somewhat bulky and must be exposed so that its microphone can detect sound directly when required. In the other system, the sound of the speaker's voice is transmitted to a body-worn receiver and is then conveyed to the wearer's own hearing aid, either directly or by means of an inductive neck loop. As the receiver has no microphone it can be concealed. If the hearing aid is set to the 'MT' position, the wearer can hear both the speaker by radio and other sounds directly. FM radio hearing aids are not normally available under the NHS.

Obtainable from Connevans, Jessop-Ralph, Alfred Peters and P. C. Werth
 Price guide £900–£1,500
 Export available

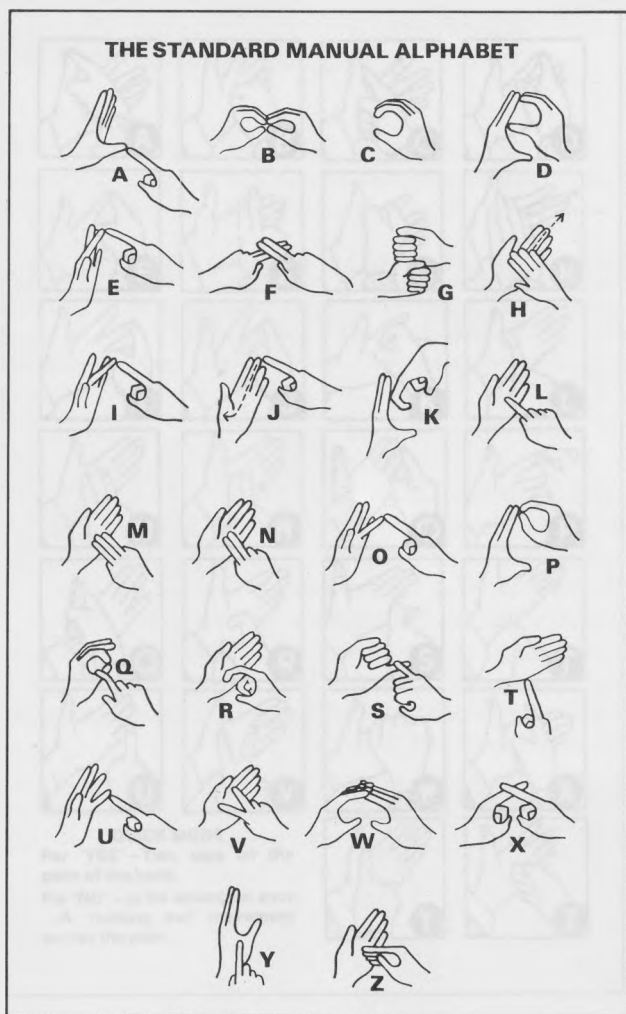
British Sign Language

British Sign Language (BSL) is the customary language of the deaf in Britain. It has evolved over time and continues to change and develop, having its own syntax and grammar appropriate to a visual rather than an auditory

language. Body and face movements are used in conjunction with hand signs. The signs are not written down and the usual way to learn BSL is by attending classes and actually using the language with a deaf user. Information about local BSL classes may be obtained from public libraries.

Finger spelling

Words are spelled out using an alphabet composed of different finger and hand positions. It is readily learned as some of the signs are shaped like letters and others, such as the five vowels, are easy to remember. A knowledge of finger spelling is very useful. It enables a non-signer to communicate, albeit slowly, with a deaf person (providing that person is literate and can finger spell) and it enables a signer to spell out words when a sign is not known.



Signed English

Signed English uses finger spelling, some special signs and the signs of British Sign Language but, unlike BSL, it follows the grammatical structures of English. Signed English is used as part of the 'total communication' approach to teaching deaf children language and, as such, the Signed and spoken English are always used together.

Further information obtainable from Signed English

Cued speech

This is not a signing system but rather a method of manually supporting the teaching of speech and language. Cued speech helps the understanding of spoken language by accompanying speech with signs. Eight hand shapes are used in four positions near the mouth and the combinations of hand shape, position and lip movements represent the different sounds being spoken. This helps the deaf learner to understand the distinctions between sounds that are different but which look alike on the lips.

Further information obtainable from the National Centre for Cued Speech for the Deaf

Paget-Gorman Signed Speech

See *Communication aids*.

This signing system has been used with success with some profoundly deaf children.

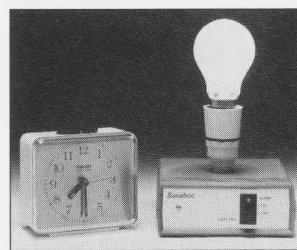
Communicating with a deaf-blind person

See *Hearing and sight impaired*

HEARING IMPAIRED: ALARM CLOCKS

SARABEC BEDSIDE LIGHT ALARM FL1

When the quartz alarm clock sounds, the lamp on the unit begins to flash. The lamp may be switched to the 'on' position and used as a bedside reading light. The unit is powered by mains electricity.

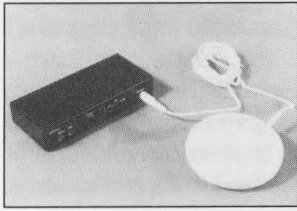


Price guide £37
Obtainable from Sarabec
Electronics Ltd
Export available

RNID SENTINEL

Sound is detected by either an internal or remote microphone. The Sentinel can either be set to respond only to alarm type sounds such as a telephone, door bell or alarm clock, or to respond to all sounds above a level set by the user. The Sentinel may be placed beside an ordinary alarm clock and, when the alarm time is reached, will cause either the vibrator to vibrate or a beacon to flash. Alternatively, it may be used to alert a deaf person to the

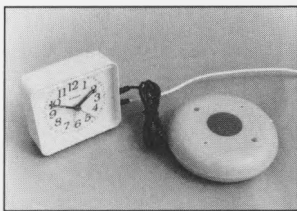
ringing of a telephone or doorbell or a baby crying. The device is powered by four AA type batteries and is completely portable.



Obtainable from Summit ACS
Price guide £50
Export available

□ VIBRALARM CLOCK

A circular vibrator is placed under the pillow and connected, by cable to an alarm clock. At the pre-set alarm time, the vibrator begins to vibrate and will continue to do so until the cancel button on the clock is pressed. The clock is connected to the mains electricity supply by means of a low-voltage power supply unit. The vibrator operates at only eight volts.



Vibrator size 125mm diameter
× 37mm
Obtainable from Alfred Peters
Price guide £31
Export available
Vibrator alarm clocks are also
obtainable from Connevans
Ltd, Niagara Therapy (Manu-
facturing) Ltd and Universal
Aids Ltd

HEARING IMPAIRED: DOOR BELLS

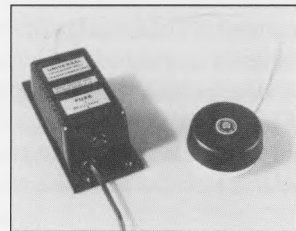
Points to consider

- A person with a hearing impairment often cannot hear the door bell ring and, if they are alone in the house, a caller may be unable to attract attention.
- For those who have some useful hearing, it may be possible to overcome this
 - by choosing a different bell with a more distinctive tone
 - by installing a number of bells around the house
 - by fitting a louder bell.
- Many hardware shops have a range of door bells which they will demonstrate. The Friedland range includes a 75mm diameter bell which is louder than most. Instructions for connecting more than one bell are included.
- If an audible bell cannot be heard, then a visual doorbell system may be installed in addition to or in place of

the existing bell. Several different types of visual systems are available. In addition to the cost of the device itself, other factors to be considered are the mobility of the user, the installation cost, and the amount of additional visible wiring that may be necessary.

□ LOUD BELL AND MAINS TRANSFORMER

The loud door bell is powered by mains electricity through a transformer. The services of a qualified electrician are not essential for the installation of these bells.

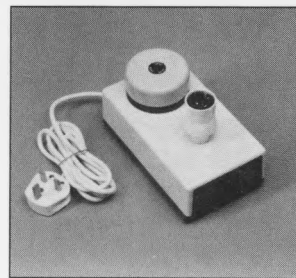


Obtainable from Universal
Aids Ltd and Alfred Peters
Price guide £12
Export available

HEARING IMPAIRED: VISUAL DOOR BELL SYSTEMS

□ LOUD DOOR BELL AND FLASHING LIGHT

This combines a loud door bell with a flashing mains lamp. When the bell-push is pressed, the bell rings and the lamp is illuminated. After the bell-push is released, the lamp remains on for 20–30 seconds to help alert the occupier. The unit plugs into a mains power socket and extension lamp units may be obtained. The remaining installation work involves low-voltage wiring and does not require the services of a qualified electrician.

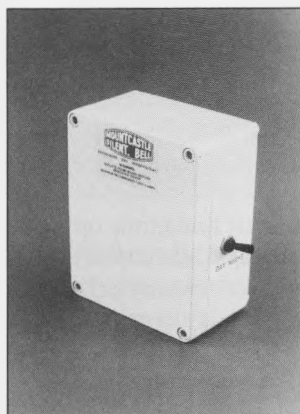


Obtainable from Marconi
Hillend Enterprise
Price guide £33
Export available

□ MOUNTCASTLE SILENT BELL

When the bell-push is pressed, the system flashes the house-lights on and off when switched for Day use. When the selector switch is in the Night position those lights that are in use are flashed off and on again. A range of models is available depending upon the wiring available in the house. The device may also be connected to the telephone system so that the house lights flash in rhythm with the

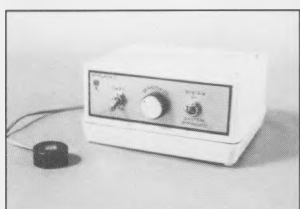
ringing of the telephone. A Mountcastle Silent Bell should be obtained and the local British Telecom sales office asked to fit a Relay Switch 3201NL, quoting instruction reference TI/D7/C3010. The installation of this system *must* be carried out by a qualified electrician.



Obtainable from H. Tanner and Co Ltd
Price guide £31-£46
Export available

UNIFLASH 2

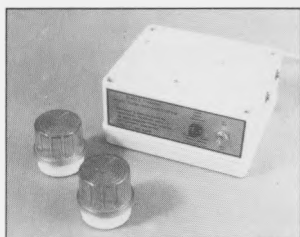
When the bell-push is pressed, the system switches on the household lights during the day and dims them at night. In each case, there is a holding period of a few seconds to ensure that the occupier is alerted. The changeover from night to day is automatically controlled by a light sensor. This equipment *must* be installed by a qualified electrician.



Obtainable from Universal Aids Ltd
Price guide £33
Export available

SINGLE CHANNEL FLASHING LIGHT DOOR WARNING SYSTEM

The unit flashes up to four low voltage lamps for approximately thirty seconds when the bell-push is pressed. A standard door bell may also be connected and this will ring only while the bell-push is pressed. Low-voltage wiring is needed between the base unit and the lamps but the services of a qualified electrician are not essential.



Obtainable from Universal Aids Ltd
Price guide £24
Export available

TWIN CHANNEL FLASHING LIGHT DOOR WARNING SYSTEM

Designed for use where there are two entrance doors, this system flashes the low-voltage indicator lamps if the caller is at one door and illuminates them steadily if the caller is at the other. Low-voltage wiring is necessary between the two doors, the control unit and the lamps but it is not essential for a qualified electrician to carry out this work.



Obtainable from Universal Aids Ltd
Price guide £29
Export available

GIMA REMOTE VISUAL SIGNALLING SYSTEM (RVSS)

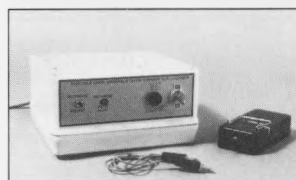
Originally designed by the RNID Technical Department, this system uses the mains house wiring as the carrier for a signal from a transmitter to a receiver which converts the signal to a flashing light. The system is multi-purpose and uses microphones to detect the sound of the door bell, the telephone ringing or a baby crying. The sound triggers the transmitter which sends a signal through the house wiring to the receiver which flashes a lamp. Small lamps on the receiver unit also indicate the source of the signal. Any number of receiver units may be installed: no expertise is required.



Obtainable from Gima Electronics Ltd
Price £76
Export available

PORTABLE VIBRATING DOOR WARNING SYSTEM

This is a personal, non-visual system which could be used by those who are both hearing and visually impaired. When the bell-push is pressed, a signal is transmitted via an induction loop to a rechargeable pocket receiver which then vibrates until cancelled by the wearer. The system requires the installation of an induction loop but this need not be carried out by a qualified electrician.



Obtainable from Universal Aids Ltd
Price guide £55
Export available

HEARING IMPAIRED: TELEVISION AIDS

Television synopses

Deaf people can appreciate television plays better if they already have some idea of the plot. The BBC produces synopses of forthcoming programmes, usually of plays, drama series and serials, for viewers who are deaf and partially hearing. The synopses are published free of charge every month and deaf or partially hearing people who wish to receive them should contact the Information Service at the Royal National Institute for the Deaf.

See Hear

This regular BBC television programme contains many items and reports of particular interest to people who are hearing impaired. The wide range of topics includes aids, services, education, employment and entertainment as they affect the deaf and hard of hearing. The programme is accompanied by both sign and sub-titles.

Details of programme times are given in *Radio Times*

Teletext

The BBC, ITV and Channel 4 all provide a visual information teletext service. *CEEFAX* on BBC and *ORACLE* on ITV and Channel 4 provide, between them, hundreds of pages of regularly up-dated information including news, sport, weather and many other items of general and special interest. This information is presented in an entirely visual form and is equally accessible to the hearing and the hearing impaired. To receive teletext information it is necessary to have a television set with a teletext de-coder. A hand-set is provided and numbered buttons are used to select pages. A teletext receiver is necessary to display the sub-titles provided with some television programmes (see below). Teletext television sets cost approximately £50 more than equivalent standard models. A 500mm colour television with teletext and remote control costs from £300.

Further details obtainable from television dealers

No Need To Shout!

This magazine for the deaf and hard of hearing appears on *CEEFAX* pages 291 and 292 on BBC2. Page 291 provides news, information and entertainment designed to be of interest to hearing impaired people. On page 292, *No Need To Shout!* provides opportunities for deaf people to express their views and to send greetings to others. Viewers may send their views to the magazine by post or by calling 01-576 1503 using Vistel. Page 292 also lists those BBC programmes that carry sub-titles.

Television sub-titles

A teletext television is necessary in order to receive the sub-titles for the deaf that are provided with some programmes on both BBC and ITV. Each week, teletext sub-titles are provided for programmes on BBC1 and BBC2 for a total of about thirty hours. Programmes on ITV and Channel 4 are sub-titled for about twenty-five hours a week. Some 'live' programmes are also sub-titled using the Palantype system. When sub-titled television programmes are recorded on a domestic video recorder the sub-titles will be lost.

The *News Headlines* every weekday lunchtime on BBC1 carry sub-titles and sub-titles also accompany the *Early Evening News* on BBC. *News Review*, a weekly summary of the news on BBC2 on Sunday evenings, is also captioned. It is not necessary to have a teletext receiver to receive the sub-titles for these programmes.

HEARING IMPAIRED: TELEVISION/RADIO AMPLIFIERS

Points to consider

- A person who is hard of hearing may be helped to enjoy television programmes more if the sound is amplified.
- A personal amplifier allows a hearing impaired person to receive the volume necessary for him without the television volume being set at an uncomfortable level for others.
- Many television sets have a sound output socket. This can be connected to headphones or to a listening aid, the latter allowing control over the volume received.
- A personal inductive loop system allows a hearing aid user to receive sound from the television or radio through his own hearing aid.

Microphone-based tv/radio aids

A microphone, placed near the speaker of the television or radio, is connected to the control unit/amplifier. A stetoclip or ear-piece is connected to the amplifier. The television volume may be adjusted to suit those with normal hearing; the sound received by the hard of hearing person is adjusted at the control box/amplifier. The microphone is not permanently fixed to the television and anyone may speak into it to aid conversation. Some

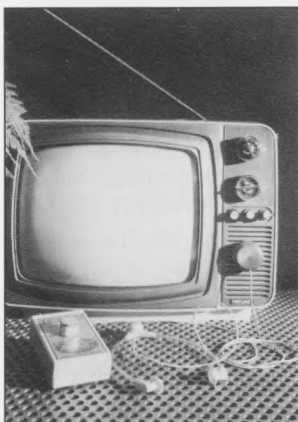
systems allow for more than one stetoclip or ear-piece to be connected. Others transmit the sound from the microphone to the individual by means of an infra-red signal. This avoids the danger of trailing wires and allows the listener, or listeners, to move around unimpeded.



□ DIXONS MICROPHONE HEARING UNIT/ CONVERSER

Obtainable from R. W. Dixon and Co and from P. C. Werth Ltd
Price guide £77
Export not available

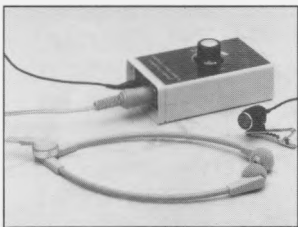
□ PORTSHEL TELE-AID



Obtainable from Portland Training College for the Disabled
Price guide £35
Export available

□ SARABEC PERSONAL SOUND AMPLIFIER/ LOOP LISTENER PS2

In addition to use as a TV aid, the amplifier may also be used as a loop listener where an inductive loop system is installed, for example in theatres, churches or cinemas. The microphone is then not connected and the amplifier is placed in a pocket with only the stetoclip connected.



Size 112 × 62 × 50mm
Obtainable from Sarabec Electronics Ltd
Price guide £31
Export available

□ PHONEAR PE-850 TELEPHONE COUPLER

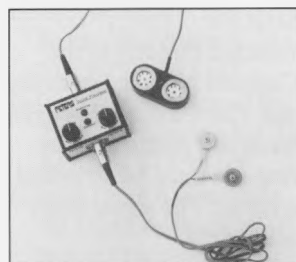
A personal inductive coupler may be used by a hearing aid user to improve reception from a telephone and from the radio and television. The Phonear is attached with Blu-tak to the television speaker and a wire is taken to a post auricular inductor which fits alongside the user's hearing aid. The Phonear may also be connected to a neck loop – an induction loop worn around the neck. The hearing aid is set to 'T' and level of sound is set by the volume control on the aid. The Phonear is powered by a Type 675 hearing-aid battery.



Obtainable from P. C. Werth Ltd
Price guide £58
Export not available
Manufactured by Phonic Ear in USA

□ PETERS SOUND PROCESSOR

A small twin microphone unit is attached to the speaker of the television or radio and connected to an amplifier/control unit. Sound is taken from this unit to either a stetoclip or to two ear-pieces. The volume reaching each ear can be individually controlled. The control unit is rechargeable.



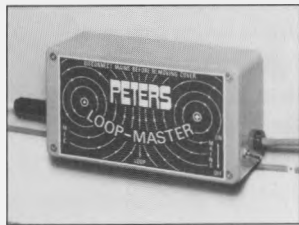
Size 75 × 50 × 37mm
Obtainable from Alfred Peters
Price guide £76
Export available

Home induction loop systems

A home induction loop system allows the hearing-aid user to receive sound from the television through his hearing aid. A microphone is attached to the speaker on the television or radio and connected to an amplifier mounted on the wall. A length of wire loops round the room and its ends are connected to the amplifier. The loop may be tucked under the edge of the carpet or fastened along the skirting. If stapled at ceiling level, the magnetic field will be detectable upstairs as well as down. With the user's hearing aid set in the 'T' position, the television can be heard at any point within the loop. A person wishing to converse with the user may do so by detaching and speaking into the microphone. The user will not be distracted by environmental noise since sounds are not heard directly when the hearing aid is set to 'T'. Since the doorbell or telephone will also not be heard an alternative means of alerting the user to these may be required. Any number of hearing aid wearers within the loop may use the system.

PETERS LOOPMASTER AP-150

This home induction loop system is suitable for rooms with a perimeter of up to thirty-two metres.



Obtainable from Alfred Peters
Price guide £71
Export available

SARABEC HOME LOOP SYSTEM

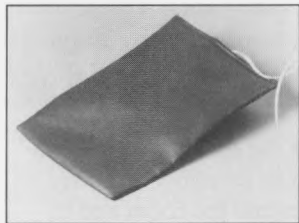
This home induction loop system is suitable for rooms with a perimeter of up to twenty-five metres. A microphone is provided and this is clipped to the speaker of the television or radio.



Obtainable from Sarabec Electronics Ltd
Price guide £48
Export available
Home Loop Systems are also obtainable from Connevans Ltd, R. W. Dixon and Co, Portland Training College for the Disabled and Universal Aids Ltd

MIRATON HEARING CUSHION

The wire from the Cushion is connected directly to the television sound socket and the Cushion is placed over the back of a chair near the user's head. The Cushion contains an inductive loop and the signal from this is detected by the hearing-aid wearer. The hearing-aid must be switched to 'T' and the user must be within range. The signal from the television may need amplification.



Size 280 × 210mm
Obtainable from P. C. Werth Ltd
Price guide £20
Export not available

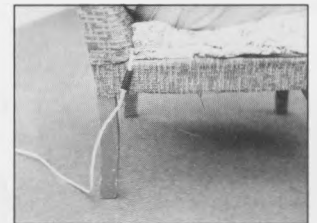
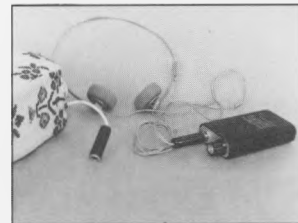
ISOLATING TRANSFORMERS

NOTE: If the television set does not have a sound socket, either an **isolating transformer** *must* be installed by a qualified electrician or a microphone/amplifier system must be used.

Isolating transformers obtainable from R. W. Dixon & Co
Price guide £20
Export available

TRIUMPH LOOP CUSHION

An inductive loop is contained within an upholstered cushion. The cushion is placed on the hearing-aid wearer's chair and connected by wire to an amplifier. A microphone is attached to the speaker of the television and this, too, is connected to the amplifier. The user's hearing-aid, switched to the 'T' position, detects the signal from the loop and converts this to sound. A person who does not wear a hearing aid may use an induction receiver and headphones.



Size 480 × 460 × 85mm
Obtainable from Triumph Communications Ltd
Price guide £120
Export available

SEEL EASI-COM S101

The small, battery-powered device is designed to amplify conversation for non-hearing aid users. An amplifier with a built-in microphone is connected by two metres of cable to a padded headphone. The amplifier may be placed on the table in front of the speaker or held in the hand. The device provides enhanced high frequency amplification to improve reception. Two levels of amplification may be selected.



Obtainable from Data-Med
Price guide £110
Export available

A

- A. & M. Hearing Aids Ltd 9
Kelvin Way, Crawley, Sussex RH10 2LS.
Tel. 0293 26976
- AB European Marketing Division 55
Forest Farm Industrial Estate, Whitchurch, Cardiff
CF4 7YS. Tel. 0222 616826
- AC Intractive Ltd 55
Freeport, 17 Dale St, Leamington Spa, Warwicks
CV32 5DR. Tel. 0926 22912
- Access Centre vi, ix
Hereward College of Further Education, Bramston
Crescent, Tile Hill Lane, Coventry CV4 9SW.
Tel. 0203 461231
- ACE Centre vi, ix, 62, 63
Ormerod School, Waynflete Rd, Headington, Oxford
OX3 8DD. Tel. 0865 63508
- Action for Disabled Customers (ADC) 22
British Telecom, Room B5049, British Telecom
Centre, 81 Newgate St, London EC1A 7AJ.
Tel. 01-356 4917
- Action for Dysphasic Adults (ADA) x
Northcote House, 37a Royal St, London SE1 7LL.
Tel. 01-251 9572
- Activity Toys 60
103 Dockfield Rd, Shipley, West Yorks BD17 7AR.
Tel. 0274 594173
- Aid for Children with Tracheostomies (ACT) x
Mrs S. P. Davies, Secretary, 11 Priory Rd, Market
Bosworth, Nuneaton, Warwicks CV13 0PB.
Tel. 0455 290718
- L. & R. Albon 3
58 Purbeck Rd, Hornchurch, Essex RM11 1NA.
Tel. 04024 43169
- Alphavision Ltd 41
61 Beechtree Avenue, Marlow Bottom, Bucks
SL7 3NH. Tel. 06284 71370
- Aremco Ltd 59
Grove House, Lenham, Kent ME17 2PX.
Tel. 0622 858502
- Association for the Education and Welfare of the Visually
Handicapped 66
St John's School House, Hadzor, Near Droitwich,
Worcs WR9 7DR. Tel. 0905 773070
- Association for all Speech Impaired Children
(AFASIC) x
347 Central Market, Smithfield, London EC1 9NH.
Tel. 01-236 3632
- Association for Stammerers x
c/o Finsbury Centre, Pine St, London EC1 0JH.
Tel. 01-837 0031
- Association of Visually Handicapped Office
Workers 66
24 Farnborough Close, Wembley, Middx HA9 9UP.
Tel. 01-908 4842
- Beaumont Products 46, 54
The Spastics Society, Outbridge, Nr Sheffield
S30 3FX. Tel. 074286 2764
- Birmingham Optical Group Ltd 40
118/120 Clifton Rd, Birmingham B12 8SH.
Tel. 021-440 6666
- BIT 32 58
32 North John St, Liverpool L2 9QJ.
Tel. 051-227 3232
- Blissymbolics Resource Centre UK x, 1, 2, 5
The South Glamorgan Institute of Higher Education,
Western Avenue, Llandaff, Cardiff, South Glamorgan
CF5 2YB. Tel. 0222 551770
- John Bradburn (Computer Systems) Ltd 69, 70, 71
St James Rd, Northampton N5 5JW. Tel. 0604 55142
- Breakthrough Trust 72, 74
Charles W. Gillett Centre, Selly Oak Colleges,
Birmingham B29 6LE. Tel. 021-472 6447
- Breakthrough Trust Communications Centre 29, 73
14 Victoria, Bingham, Nottingham NG1 8EG.
Tel. 0949 37053
- Bristow Products 39
'Broad Park', Trewiston Lane, St Minver, Wadebridge,
Cornwall PL27 6PZ. Tel. 020886 3487
- Bristol Communication Aids Centre ix
Speech Therapy Department, Frenchay Hospital,
Frenchay, Bristol BS16 1LE. Tel. 0272 565656
- Bristol Semerc ix
Bristol Polytechnic, Redland Hill, Bristol BS6 6UZ.
Tel. 0272 733141
- British Association of the Hard of Hearing 74
7/11 Armstrong Rd, London W3 7JL.
Tel. 01-743 1110
- British Deaf Association 74
38 Victoria Place, Carlisle CA1 1HU.
Tel. 0228 48844
- British Deaf Sports Council
38 Victoria Place, Carlisle CA1 1HU.
Tel. 0228 48844
- British Dyslexia Association x
Church Lane, Peppard, Oxon RG9 5JN.
Tel. 04917 699
- British Institute for Mental Handicap (BIMH) 64
Wolverhampton Rd, Kidderminster, Worcester
DY10 3PP. Tel. 0562 850251
- British Library of Tape Recordings for Hospital
Patients 36
12 Lant St, London SE1 1QR. Tel. 01-407 9417
- British Red Cross Society 6
9 Grosvenor Crescent, London SW1X 7EJ.
Tel. 01-235 5454
- British Talking Book Service for the Blind 37, 68
Mount Pleasant, Wembley, Middx HA0 1RR.
Tel. 01-903 6666
- British Telecom 22, 23, 24, 25, 26, 27, 28, 29, 30
See local telephone directory.
- British Tinnitus Association 74
The Royal National Institute for the Deaf, 105 Gower
St, London WC1E 6AH. Tel. 01-387 8033
- British Wireless for the Blind Fund 30, 66
226 Great Portland St, London W1N 6AA.
Tel. 01-388 1266

B

- BBC Publications 66
Broadcasting House, London W1A 1AA.
Tel. 01-580 4468

Bromborough Intech Centre Ltd 61
Old Hall Industrial Estate, Bromborough, Wirral,
Merseyside L62 3NX. Tel. 051-334 2771

C

Calibre 36
Aylesbury, Bucks HP20 1HU. Tel. 0296 32339

Call Centre x
University of Edinburgh, 4 Buccleuch Place,
Edinburgh EH8 9LW. Tel. 031-667 1438

Call Saver 21
3 Caledonian Rd, Kings Cross, London N1 9DX.
Tel. 01-278 5187

Cambridge Microcomputer Centre 8
153 East Rd, Cambridge CB1 1DD. Tel. 0223 355404

Camp Ltd 43
Northgate House, Staples Gardens, Winchester, Hants
SO23 8ST. Tel. 0962 55248

Canon UK Ltd 14, 47, 48
Personal Products Division, Canon House, Manor Rd,
Wallington, Surrey SM6 0AJ. Tel. 01-773 3173

Cardiff Communication Aids Centre ix
Rookwood Hospital, Llandaff, Cardiff CF5 2YN.
Tel. 0222 566281

Central Business Machines Ltd 72
82 Great Eastern St, London EC2. Tel. 01-729 5588

Charing Cross Hospital Communication Aids Centre ix
Speech Therapy Department, Charing Cross Hospital,
Fulham Palace Rd, London W6 8RF.
Tel. 01-748 2040

Chest, Heart and Stroke Association x, 4
Tavistock House North, Tavistock Square, London
WC1N 9JE. Tel. 01-387 3012

Chiltern Medical Developments Ltd 17
Chiltern House, Wedgewood Rd, Bicester, Oxon
OX8 7UL. Tel. 0869 246470

Leslie Clark 22
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AB5 8UH. Tel. 065181 428

Clark & East Computing Services Ltd 28
161 Bells Hill, Barnet, Herts EN5 2SY.
Tel. 01-441 7301

Clarke & Smith MFG Co Ltd 72
Melbourne House, Melbourne Rd, Wallington, Surrey
SM6 8SD. Tel. 01-669 4411

Classwood Ltd 31
Cobham Rd, Pershore, Worcester WR10 2DE.
Tel. 0386 554444

Cleft Lip and Palate Association x
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NE3 3DQ. Tel. 091-285 9396

Closed Door Security Systems 19, 21
146 Audley Rd, Newcastle-upon-Tyne NE3 1QX.
Tel. 091-284 0393

Clwyd Technics Ltd 55, 69, 70
Antelope Industrial Estate, Rhydymwyn, Mold, Clwyd
CH7 5JH. Tel. 035283 751

College of Speech Therapists 4
Harold Poster House, 6 Lechmere Rd, London
NW2 5BU. Tel. 01-459 8521

Combined Optical Industries Ltd 39
200 Bath Rd, Slough, Berks SL1 4DW.
Tel. 0753 75011

Computer Concepts 62
Gaddesden Place, Hemel Hempstead, Herts HP2 6EX.
Tel. 0442 63933

Communication Aids Centres: ix

Bristol
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Frenchay, Bristol BS16 1LE. Tel. 0272 565656

Cardiff
Rookwood Hospital, Llandaff, Cardiff CF5 2YN.
Tel. 0222 566281

Northern Ireland
Musgrave Park Hospital, Stockman's Lane, Belfast
BT9 7JB. Tel. 0232 669501 ext 561

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Tel. 01-748 2040

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Institute of Child Health, The Wolfson Centre,
Mecklenburgh Square, London WC1N 2AP.
Tel. 01-837 7618

Newcastle-Upon-Tyne
Dene Centre, Castle Farm Rd, Newcastle-upon-Tyne
NE3 1PH. Tel. 091-284 0480

Sandwell
Boulton Rd, West Bromwich, West Midlands
B70 6NN. Tel. 021-553 0908

Connevans Ltd 74, 80
1-3 Norbury Rd, Reigate, Surrey RH2 9BY.
Tel. 07372 47571

Courteney Technical Services 58
14 Southfield Drive, Sutton Courtenay, Oxon
OX14 4AY. Tel. 0235 848587

Cyber Robotics Ltd 8
Tilling Drive, Walton, Stone, Staffs ST15 0SA.
Tel. 0785 812121

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Dial UK viii
Victoria Buildings, 117 High St, Clay Cross, Derby
S45 9DZ. Tel. 0246 864498

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39 Thorburn Rd, Edinburgh EH13 0BH.
Tel. 031-441 3185

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Room 421, Disablement Services Branch 1, 14 Russell
Square, London WC1B 5EP.
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Holborn Viaduct, London EC1N 2HQ.
Tel. 01-822 1690

Disabled Living Foundation viii, 21, 38
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Tel. 01-289 6111

R. W. Dixon & Co 79, 80
The Old Auction Rooms, Beacon Rd, Crowborough,
East Sussex TN6 1AS. Tel. 08926 4397

Downs Surgical Plc 10
 Church Path, Mitcham, Surrey CR4 3UE.
 Tel. 01-648 6291
 Dyslexia Institute (Information Centre)
 133 Gresham Rd, Staines, Middx PW18 2AJ.
 Tel. 0784 59498

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Earo 1, 2, 5
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 CB7 3DA. Tel. 0353 3486
 ESM Software 70
 Duke St, Wisbech, Cambs PE13 2AE.
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 48 Mill Green Rd, Mitcham, Surrey CR4 4HY.
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 Electricity Council 38
 30 Millbank, London SW1P 4RD. Tel. 01-834 2333
 Elfin Systems 56
 Byard Rd, Gloucester GL2 6DF. Tel. 0452 411533
 Enterprise Engineering 20
 157 Ermine Way, Amington, Royston, Herts
 SG8 0AU. Tel. 0223 207281
 Exhall Grange School 68
 Wheelwright Lane, Coventry CV7 9HP.
 Tel. 0203 304200

F

Farnell Electronic Components Ltd 58
 Canal Rd, Leeds LS12 2TU. Tel. 0532 636311
 Findlay, Irvine Ltd 11
 Bog Rd, Penicuik, EH26 9BU. Tel. 0968 72111
 Foundation for Communication for the Disabled 15, 42,
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 31 Southampton Row, London WC1B 5HJ.
 Tel. 01-405 1019
 Fresnel Precision Optics 39
 9 Bank Plain, Norwich NR2 4SL. Tel. 0603 21035
 Friends of the Young Deaf 74
 Communication Centre, East Court Mansion, College
 Lane, East Grinstead, Sussex RH19 3LT.
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 Tel. 0763 45477
 Peter Graham Partnership 11, 14
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 Tel. 03727 23220

H

Hadley Sales Services 20
 112 Gilbert Rd, Smethwick, Warley, West Midlands
 B66 4PZ. Tel. 021-558 3585

Health and Comfort 23
 Alfred St, Westbury, Wilts BA13 3DZ.
 Tel. 0373 826697
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 Massachusetts 02172, USA
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 Tel. 0522 688511
 Inmac (UK) Ltd 49
 11th Floor, Cory House, Bracknell, Berks RG12 1EW.
 Tel. 0734 7140
 Interface Designs 59, 61
 12 East Meads, Onslow Village, Guildford, Surrey
 GU2 5SP. Tel. 0483 32909
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 Communication (ISAAC) x
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 Rd, West Bromwich, West Midlands B70 6NN.
 Tel. 021-553 0908
 Isis Large Print Books 37
 55 St Thomas' St, Oxford OX1 1JG. Tel. 0865 250333

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JWF Electraid 55, 62
 Old Exchange, New St, Aylesbury, Bucks HP20 2PB.
 Tel. 0296 87309
 Jedcom Medical Products Ltd 9, 10
 1 The Avenue, Barnet, Herts EN5 4EN.
 Tel. 01-441 0367
 Jessop Ralph Ltd 74
 Unit 5, Long St, London E2 8HN. Tel. 01-739 3232
 Joint Aids Centres Committee viii
 c/o TRAIDS, BRCS, 76 Clarendon Park Rd, Leicester
 LE2 3AD. Tel. 0533 700747/8
 Joncare 32, 52
 Radley Rd Industrial Estate, Abingdon, Oxon
 OX14 3RY. Tel. 0235 28120

K

Kwik-Link Ltd 21
 62 Kenilworth Rd, Edgware, Middlesex HA8 8XD.
 Tel. 01-958 5476

L

- LDA Learning Development Aids 5
Duke St, Wisbech, Cambridgeshire PE13 2AE.
Tel. 0945 63441
- LVA Marketing Ltd 40
7 Musters Rd, West Bridgford, Nottingham NG2 7PP.
Tel. 0602 820600
- Liberator (Electronic Aids) Ltd
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- Library Association 36
7 Ridgmount St, London WC1E 7AE.
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- Linden Lodge School 50
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Tel. 01-788 0107
- Link Centre for Deafened People 74
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Tel. 0323 638230
- F. Llewellyn & Co Ltd 16
Carlton St, Liverpool L3 7ED. Tel. 051-236 5311
- London Music Shop 31
39-45 Coldharbour Lane, London SE5 9NR.
Tel. 01-737 2468

M

- MGA Microsystems Ltd 9
140 High St, Tenterden, Kent TN30 6HT.
Tel. 05806 4278
- M. & N. Surgical Co Ltd 45
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Tel. 0895 36656
- Magpie Systems 7, 57, 60
51 Guernsey Close, Widnes, Cheshire WA8 0YH.
Tel. 051-423 1973
- Makaton Vocabulary Development Project x, 1, 6
31 Firwood Drive, Camberley, Surrey GU15 3QD.
Tel. 0276 61390
- Malt Keyboard Ltd 32, 49
262 Woodstock Rd, Oxford OX2 7NW.
Tel. 0865 510043
- PCD Maltron Ltd 55
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Tel. 01-398 3265
- Manchester Semerc ix
Manchester Polytechnic, Hathersage Rd, Manchester
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- Maplin Electronic Supplies 58
PO Box 3, Rayleigh, Essex SS6 8LR.
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- Marconi Hillend Enterprise 7, 76
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- Edward Marcus Ltd 39, 40
Moor House, 7 Moorfields, London EC2Y 9AE.
Tel. 01-638 0521
- Mardis (Microprocessor Assistance for the
Disabled) 61
Room 22, Enginnering Building, Lancaster University,
Bailrigg, Lancaster LA1 4YW.
Tel. 0524 65201 ext 4993

- Micrex 61
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- Micro Express Ltd 63
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Tel. 0533 375757
- Micronet 800 29
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Tel. 06286 63724
- Mothercare-by-Post 20
Cherry Tree Rd, Watford, Herts WD2 5SH.
Tel. 0923 33577
- Motor Neurone Disease Association
16 Derngate, Northampton NN1 1UE.
Tel. 0604 22269/250505
- Musisca Ltd 31
27 Fore St, Topsham, Exeter, Devon EX3 0HD.
Tel. 039287 5855

N

- National Association of Laryngectomee Clubs x
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- National Centre for Cued Speech for the Deaf 74, 75
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- National Council of Social Workers with the Deaf 74
c/o Miss F. T. McHugh, Sensory Handicap Section,
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Oldham OL1 1DW. Tel. 061-678 4791
- National Deaf-Blind and Rubella Association—
SENCE 72, 74
311 Gray's Inn Rd, London WC1X 8PT.
Tel. 01-278 1000/1005
- National Deaf-Blind Helpers' League 73, 74
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PE4 6UP. Tel. 0733 73511
- National Deaf Children's Society 74
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- National Federation of the Blind 66
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- National Fund for Research into Crippling Disease 50
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RH12 2DA. Tel. 0403 64101
- National Head Injuries Association (HEADWAY) x
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Tel. 0602 622382
- National Library for the Blind 37, 50, 68, 69
Cromwell Rd, Bredbury, Stockport SK6 2SG.
Tel. 061-494 0217
- National Listening Library 36
12 Lant St, London SE1 1QR. Tel. 01-407 9417
- J. Nesbit Evans & Co 49
Wednesbury, West Midlands WS10 7BL.
Tel. 021-556 1511

Newbold & Bulford Ltd 39, 40
 Carlton Park, Saxmundham, Suffolk IP17 1NL.
 Tel. 0728 2933

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Newcastle-Upon-Tyne Semerc ix
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Niagara Therapy Manufacturing Ltd 76
 Colomendy Industrial Estate, Rhyl Rd, Denbigh
 LL16 5TS. Tel. 074571 3666

Nidd Valley Micro Products 56
 Stepping Stones House, Thistle Hill, Knaresborough,
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Northern Ireland Chest, Heart & Stroke Association
 28 Bedford St, Belfast BT2 7EJ. Tel. 0232 220184

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 BT9 7JB. Tel. 0232 669501 ext 561

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 Tel. 0232 640011

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Northern Ireland Branch-National Deaf Children's
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 Blind 66
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 G5, Glasshouse St, Nottingham NG1 3LP.
 Tel. 0602 584647

Nottingham Rehab Ltd 4, 5, 7, 32, 33, 39, 44
 17 Ludlow Hill Rd, Melton Rd, West Bridgford,
 Nottingham NG2 6HD. Tel. 0602 234251

O

Optical Information Council 66
 Temple Chambers, Temple Avenue, London
 EC4Y 0DT. Tel. 01-353 3556

Orange Aids Ltd 60
 PO Box 5, Twickenham, Middlesex TW2 6RZ.
 Tel. 01-892 1850

P

Paget-Gorman Society x, 1, 6, 74, 75
 3 Gypsy Lane, Headington, Oxford OX3 7PT.
 Tel. 0865 61908

Parkinson's Disease Society x
 36 Portland Place, London W1N 3DG.
 Tel. 01-323 1174

Partially Sighted Society 29, 38, 65
 Queens Road, Doncaster, S. Yorks DN1 2NX.
 Tel. 0302 68998

Pelltech Ltd 45
 6 Church Green, Witney, Oxford OX8 6AW.
 Tel. 0993 72014

Perforag Sales Ltd 33
 Greaves Way, Leighton Buzzard, Beds LU7 8UD.
 Tel. 0525 376743

Alfred Peters 74, 76, 79, 80
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 Tel. 0377 42397

Photonic Wand Company 57
 12 Orchard Croft, Guilden Sutton, Chester, Cheshire
 CH3 7SL. Tel. 0244 300002

Portland Training College for the Disabled 79, 80
 Harlow Wood, Nottingham Rd, Mansfield, Notts
 NG18 4TJ. Tel. 0623 792141

Possum Controls Ltd 11, 12, 13, 17, 19, 35, 48, 50, 54,
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 Middlegreen Trading Estate, Middlegreen Rd, Langley,
 Slough, Berks SL3 6DF. Tel. 0753 79234

Prestel Sales 29, 30
 Telephone House, Temple Avenue, London
 EC4Y 0HL, FREEPHONE Prestel Sales

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Queenwood Scientific 13, 60
 1 The Paddock, Stubbington, Fareham, Hants
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Quest Educational Designs Ltd 5, 11, 14, 15, 16, 20,
 21, 34, 35, 46, 58, 60, 61
 1 Prince Alfred St, Gosport, Hants PO12 1QH.
 Tel. 0705 581179

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RCEVH (Research Centre for the Education of the
 Visually Handicapped) 65
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 B29 7JE. Tel. 021-471 1303

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 25 Mortimer St, London W1N 8AB. Tel. 01-
 637 5400

RICA (Research Institute for Consumer Affairs) 21
 14 Buckingham St, London WC2N 6DS.
 Tel. 01-930 3360

RS Components Ltd 60
 PO Box 99, Corby, Northants NN17 9RS.
 Tel. 0536 201201

Radio Amateur Invalid and Blind Club 30
 9 Rannoch Court, Adelaide Rd, Surbiton, Surrey
 KT6 4TE. Tel. 01-390 2803

Raymed Ltd 10
 Viaduct Rd, Leeds LS4 2BR. Tel. 0532 430028

Rayner Optical Company Ltd 40
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 Tel. 0273 778331

Redbridge Semerc ix
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 Melbourne Rd, Ilford IG1 4HT. Tel. 01-478 6363

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 Chailey Heritage, Near Lewes, East Sussex BN8 4EF.
 Tel. 082572 2112

- Remedian Instruments Ltd 38
3 Over Links Drive, Poole, Dorset BH14 9QU.
Tel. 0202 418297
- Ridley Electronics Ltd 17, 21
206 Wightman Rd, Hornsey, London N8 0BU.
Tel. 01-340 9501
- Royal Association in Aid of the Deaf and Dumb 74
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- Royal Association for Disability and Rehabilitation (RADAR) viii, ix
25 Mortimer St, London W1N 8AB.
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- Royal National Institute for the Blind 29, 31, 38, 47, 50, 65, 66, 67, 68, 69, 70, 72, 73
224 Great Portland St, London W1N 6AA.
Tel. 01-388 1266
- Royal National Institute for the Deaf x, 25, 27, 28, 73, 78
105 Gower St, London WC1E 6AH.
Tel. 01-387 8033
or
9a Clairmont Gardens, Glasgow G3 7LW.
Tel. 041-332 0343
- Royal Society for Mentally Handicapped Children and Adults (MENCAP) x
117-123 Goldon Lane, London EC1Y 0RT.
Tel. 01-253 9433

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- SCI Instruments Ltd 7
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- Manchester**
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M13 0JA. Tel. 061-225 9054
- Newcastle-Upon-Tyne**
Newcastle Polytechnic, Coach Lane Campus,
Newcastle-upon-Tyne NE7 7XA. Tel. 0912 665057
- Redbridge**
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Melbourne Rd, Ilford IG1 4HT. Tel. 01-478 6363
- Sensory Information Systems 65, 70, 71
2b England's Lane, London NW3 4TG.
Tel. 01-586 4128
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178 Milton Trading Estate, Abingdon, Oxon
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- Spastics Society viii, x
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- Special Access Systems Ltd 53, 54
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School of Biological Sciences, Portsmouth Polytechnic,
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Tel. 0705 827681
- Students Braille Library 50
Braille House, 338-346 Goswell Rd, London
EC1 7JE. Tel. 01-837 9921
- Summit ACS 76
74 Wheellys Rd, Edgbaston, Birmingham B15 2LN.
Tel. 021-440 8078
- Sun Alliance & London Insurance Group x
Rickford House, 12 Rickford Hill, Aylesbury, Bucks
HP20 2RZ. Tel. 0296 24688
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22a Reading Rd, Henley-on-Thames, Oxon RG9 1AG.
Tel. 0491 572663

Syndicate Software 59
6 De Vitre St, Lancaster LA1 1QU. Tel. 0524 33498

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TCS Ltd 28
Technology Drive, Bridgend Science Park, Bridgend
CF31 3RE. Tel. 0656 645313

Talking Books for the Handicapped 36
National Listening Library, 12 Lant St, London
SE1 1QR. Tel. 01-407 9417

Talking Newspaper Association of the United Kingdom
(TNAUK) 37
68a High St, Heathfield, East Sussex TN21 8JB.
Tel. 04352 6102

Tandy Corporation 53, 72
Tameway Tower, Bridge St, Walsall, West Midlands
WS1 1LA. Tel. 0922 648181

H. Tanner and Company Ltd 26, 77
153 West St, Bedminster, Bristol BS3 3PN.
Tel. 0272 661571/667303

Tape Recording Service for the Blind 50
48 Fairfax Rd, Farnborough, Hants GU4 8JP.
Tel. 0252 547943

Taskmaster Ltd 43
Morris Rd, Clarendon Park, Leicester LE2 6BR.
Tel. 0533 704286

Technomatic Ltd 58
17 Burnley Rd, London NW10 1ED.
Tel. 01-208 1177

Telecom Gold 28, 73
60/68 St Thomas' St, London SE1 3QU.
Tel. 01-403 6777

Thousand and One Lamps Ltd 32, 38
4 Barmeston Rd, London SE6 3BN. Tel. 01-698 7238

Toby Churchill Ltd 14, 48
20 Panton St, Cambridge CB2 1HP. Tel. 0223 316117

Torch Trust for the Blind 36
Torch House, Hallaton, Market Harborough, Leics
LE16 8UJ. Tel. 085889 301

Toucan Communication Aids Ltd 8, 14, 57, 59
Unit 3, Quakers Coppice, Crewe Gates Industrial
Estate, Crewe, Cheshire CW1 1FA. Tel. 0270 588039

Triumph Communications Ltd 80The Dairy Farm
House, Gainsborough Rd, Langford,
Newark, Notts NG23 7RP. Tel. 0636 704751

U

Ulverscroft Large Print Books 37
The Green, Bradgate Rd, Anstey, Leicester LE7 7FW.
Tel. 053721 4325

Universal Aids Ltd 20, 76, 77, 80
8-14 Wellington Rd South, Stockport, Cheshire
SK1 3SU. Tel. 061-480 9228

V

Visionaid Systems 42, 70
25 Easthorpe St, Ruddington, Nottingham NG11 6LB.
Tel. 0602 847879

Voice Control Ltd 17
7 The Quay, St Ives, Cambridge PE17 4AR.
Tel. 0480 301852

Voluntary Organisations Communication and Language
(VOCAL) x
336 Brixton Rd, London SW9 7AA. Tel. 01-274 4029

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Wales Council for the Blind
12 The Bulwark, Brecon, Powys LD3 7AD.
Tel. 0874 4576

Wales Council for the Deaf 74
Caerbragdy Industrial Estate, Bedwas Rd, Caerphilly,
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Artificial Limb and Appliance Centre, Rookwood
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Audiology House, 45 Nightingale Lane, London
SW12 8SU. Tel. 01-675 5151

Wessex (Aids & Visual Equipment) Systems 3, 23, 44,
46
Corscombe, Near Dorchester, Dorset DT2 0NU.
Tel. 093589 248

Winslow Press 4, 5, 6
48-50 High St, Winslow, Bucks MK18 3AP.
Tel. 029671 3776

Wireless for the Bedridden 30
81b Corbets Tey Rd, Upminster, Essex RM14 2AJ.
Tel. 04022 50051

Wolfson Centre Communication Aids Centre ix
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Tel. 01-837 7618

G. & R. Wrenn Ltd 20
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Tel. 0268 20541

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