

### Delivery lists and applications of the Elliott 800 series and 503 computers.

The Elliott 803 and 503 computers were all software-compatible. The 802 was an early version of the 803 which was quickly overtaken. The 503 was the most powerful computer of the set. At about the same time as the Elliott 803 machines started to be sold in large numbers, Elliott-Automation began producing their ARCH series of process control systems. ARCH (the *Articulated Control Hierarchy*) was designed as a modular system of standard analogue and digital sub-units sharing a common bus. The digital sections were usually standard Elliott 800 or 900 series computers. The idea was that tailor-made ARCH on-line installations could be configured to suit the particular industrial process(es) being controlled. In the delivery lists given below, a few of the machines entered as 803 computers may have been part of larger ARCH installations.

The Panellit 609 was an Elliott 803 computer packaged for process control applications and marketed via a licencing arrangement with the Panellit Corporation of Skokie, Chicago. A small number of 800 series machines in the list below may have been re-badged as Panellit 609 computers.

A word of warning about accuracy: it is now difficult to produce a definitive list of the delivery-dates, customers and applications of all 800 series Elliott computers manufactured at Borehamwood. Such source documents as are available (particularly references 1, 2 and 3 in section E3/X5) contain minor inconsistencies. The information given below is a best-guess, using additional information contained in reference 4. Further notes on known inconsistencies are given at the end of the 803 list.

#### Elliott 802.

<i>Date</i>	<i>Customer</i>	<i>Application and notes.</i>
1958 Sept	Natural Gas Pipeline Co. of America, Chicago, Illinois, USA	Process control & general computing (via Panellit Inc., Skokie, Illinois ?)
1959 Aug	Ministry of Public Works (Belgium)	Hydrodynamic investigations.
Dec	Unknown (U.S.S.R.)	Unknown.
Dec	N.C.R., Brussels (Belgium)	Computing service.
Oct	Elliott-Automation Ltd.	Service engineers training & service testing.
1960 July	Serck Radiators Ltd., Birmingham	Heat exchanger design.
1961 Jan	British Aluminium Co. Ltd., Gerrards Cross	Simulation studies, operating research & stock control.

## Elliott 803 and Elliott ARCH 8000.

It is believed that deliveries up to about the end of 1960 were of the 803 *model A* variety and those from 1961 onwards were 803Bs.

<b>Date</b>	<b>Customer</b>	<b>Application and notes.</b> (an asterisk indicates 'on-line')
1959 Nov	E.I. Du Pont de Nemours Inc., Beaumont, Texas, USA.	* Control of a nylon process.
1960	Southern Electricity Board, Southall, Middx. E.I. Du Pont de Nemours Inc., Florence, South Carolina, USA.	Consumer billing * Process control of Mylar film plant.
Jan	Westinghouse Electric Corporation, Cheswick, Pennsylvania, USA.	* Simulation studies for closed loop control systems.
Feb	Northern Illinois Gas Corporation, Bellwood, USA. E.I. Du Pont de Nemours Inc., Circleville, Ohio, U.S.A.	* Gas distribution control * Control of nylon process.
Sept	N.C.R., Frankfurt (Federal German Republic)	Computer mfg. & service bureau. Computing service
May	Boston Edison Co., Mystic Power Station, Boston, USA.	* Generating station control
May	Berlin Gas Works (Federal German Republic)	Statistical & operational research, gas billing
June	Gulf States Utilities, Nelson Station, Westlake, Louisiana, USA.	* Generating station control
July	Samuel Fox & Co. Ltd., Stockbridge Works, Sheffield.	* Billet cut-up optimization in steel works
July	U.K.A.E.A., Calder Hall, Cumbria.	* Reactor data acquisition & analysis
July	The Distillers Co. Ltd., Epsom	Chemical eng., analytical & phys. chem. problems, simulation.
Aug	Finnish Cable Works, Helsinki, (Finland)	Cable design, shipbuilding & computing centre
Aug	Information Systems Inc., Los Angeles, USA	Process control for undisclosed customer
	N.C.R., Frankfurt, (Federal German Republic)	Computing service
Sept	Kancelarske Stroje (Skoda) (Czechoslovakia)	Calculations in vehicle design
	Owens-Corning Fibreglass Co., Aiken, South Carolina, USA	* Control of fibreglass production
Sept	N.C.R., Paris (France)	Computing service
Sept	Information Systems Inc., Los Angeles (U.S.A.)	Process control for undisclosed customer (See Note 6 below).
	NCR-Elliott Computer Workshops Ltd.	Computing workshop service
Dec	Imperial Chemical Industries Ltd. (Billingham)	Off-line process control in ammonia works
	Tidewater Refinery, Delaware City (U.S.A.)	* Control of petro-chemical process (Napthalene distillation).
1961	Government Establishment (Admiralty) Elliott-Automation Ltd., Rochester	Systems development. Aircraft & guided weapons research & radar development.
	The Chemical Works Voronezh (USSR)	* Data acquisition, analysis & control in synthetic rubber plant. See also Note 7.
	Applied Ballistics Dept. Ordnance Board, London	Weapon research; fire control; trajectories.
Sept	The Lummus Co. Ltd. (London)	Scientific calculations (chemical & structural)
Sept	G. A. Harvey & Co. Ltd., London	Invoicing & payroll analysis.
	Kancelarske Stroje, Prague (Czechoslovakia)	Computing service
Oct	Brunel College of Advanced Technology Prakla G.m.b.H., Hannover, (Federal German Republic)	Teaching & research. Geophysical, surveying & prospecting calculations.
Oct	Banco Pinto de Magalhais, Oporto (Portugal)	Banking & statistical.

	Hawker Siddeley Group Nov Mullard Ltd., Southampton	Electrical engineering calculations, linear prog. Engineering applications, transistor design. (See Note (1) below).
Nov	Mullard Research Labs, Salfords, Surrey	Research into solid-state & vacuum physics.
Nov	Royal Radar Establishment, Malvern	Communication satellite experiments.
Nov	Richard Thomas & Baldwins Ltd., Newport Fairey Aviation Division, Westland Aircraft Ltd., Hayes, Middx	Operational research in steel making. Helicopter design.
March	General Post Office Research, Dollis Hill Brook Green Laundry	Network calculations, electronic design Laundry accounts.
April	Technical University of Helsinki (Finland)	Research & teaching.
May	Hindustan Aircraft Ltd. (India)	Aircraft design & engineering.
May	Philipp Holzmann A.G., Frankfurt, (Federal German Rep.)	Structural & civil engineering calculations.
June	Electrotechnical Institute, Warsaw, (Poland)	Electrical engineering calculations.
July	Godfrey Phillips Ltd., London	Credit notes, stock control, management reports for associated publishing companies, invoicing (for tobacco depots? See Note (3))
	NCR-Elliott Computer Workshops Ltd.	Computing service.
Sept	Koch & Mazzuckin, Hannover, (Federal German Republic)	Civil engineering calculations.
Sept	TNO/IWECO Institute, Delft, (Netherlands)	Research.
Nov	Brush Electrical Engineering Co. Ltd., Loughborough.	Electrical engineering calculations; design of motors and transformers. See Note (4).
Dec	General Post Office Goonhilly (Cornwall)	Satellite tracking. See Note (2) below.
1962	Energoticky Dispecink (Czechoslovakia) Elliott-Automation Ltd. Ministry of Defence (RAF)	Electrical network calculations. Systems development. Undisclosed. ( <i>Possibly Ministry of Aviation, for photogrammetric surveying?</i> )
	Elliott-Automation Ltd. Royal Radar Establishment, Malvern De Havilland Aircraft Co., London	Program development. Experimental applications. Design/analysis of Blue Streak space launching conversion programme; scientific & engineering service.
	United Fuel Gas Co., Charleston, W Virginia, (U.S.A.)	* Gas distribution. 1961?
	Elliott-Automation Ltd. Valentine & Sons Ltd., Dundee	* Experimental air traffic control system. Order processing, sales accounting & stock Control; payroll Accounting.
	Gluckslee Milchgesellschaft GmbH, Hamburg, (Fed. German Rep.)	
	Sunderland Technical College Rugby College of Engineering & Technology	Teaching & research.. Teaching, students' use on open-shop basis to analyse lab. results.
	U.K. Atomic Energy Authority, Experimental Est., Dounreay.	Atomic energy, stores accounting, costing, Payroll.
	N.C.R. (Netherlands)	Computing service.
	National Gas Turbine Establishment Farnborough	Performance & design calcs. on aircraft & Engines; processing aerodynamic data.
	An Foras Taluntais Agricultural Institute, Dublin, (Eire)	Analysis of field crop experiments; agricultural statistics.
April	University of Reading	Scientific research, agricultural economics & maths
	Phenix Belge Insurance Co., Antwerp, Belgium	Insurance work.
April	University of Exeter	Research in geophysics, maths, chem., econ. & botany; teaching.
	University of Leicester	Chemistry research; structural engineering, pre-stressed concrete; sociological surveys; numerical analysis.

	Southern Electricity Board (Newbury) University of Hull	Accounting. Economic and psychological research; mathematics; physics; timetabling; assistance to local industry
2 computers:	Richard Thomas & Baldwin Ltd., Spencer Works, Llanwern Northampton County Treasurer's Dept.	* (a) ingot/slab controller on hot-strip steel mill; * (b) finishing end scheduler in steelworks.
	Kitcat & Aitken Investment control,  Ministry of Heavy Industry (Hungary) National-Elliott Training School N.C.R., Stockholm (Sweden) British Broadcasting Corporation, London	Income & expend. anal., costing highways & bridges; school meals; service work. (stockbroking) clerical work, clearing returns & ledger control. Engineering calculations & bureau service. Engineering instruction. Computing service.
	Vickers da Costa & Co. Ltd., London	Production of day-to-day audience figs. for sound & TV progs.; engineering calculations Preparation of clearing returns & accounting; foreign currency ledgers; valuations.
	NCR-Elliott Computer Workshops Ltd. (City) British Petroleum Co. Ltd., Sunbury-on-Thames Mills Associates Crompton Parkinson Ltd., Guiseley, Yorks	Computing service work for city firms. Chemical engineering calculations, statistics Service bureau. Accounting & statistical, with sales documents directly linked to control stock at 28 depots. Aerospace research & design calculations.
	Nat. Aeronautical & Space Laboratory, Amsterdam, NL	
	Sun Oil Corporation, Marcus Hook, Pa (U.S.A.) Birmingham C.A.T. University of Wroclaw (Poland) Information Systems Inc., Los Angeles (U.S.A.) Short Bros. & Harland Ltd., Belfast Richard Thomas & Baldwins Ltd.	Petro-chemical processing. Engineering calcs. research in chemical eng. Teaching & research. (For an undisclosed customer) Analysis of flight test data. Systems development by E-A Automation Systems Ltd. for Richard Thomas & Baldwins, Pagefield House, Newport, Mon.
	J. & P. Coates Ltd., Paisley Bristol College of Science & Tech.	Dye recipe prediction; statistical work. 1961? Research in X-ray crystallography, student survey analysis; college administration. (may have been Dec 1961)
	University of Aberdeen Royal Radar Establishment, Malvern Potato Marketing Board, Oxford Thornber Bros. Ltd., Mytholmroyd, Halifax A. B. Matema, Stockholm, (Sweden) Bedford Computer Services Ltd. Signals Research & Dev. Est., Christchurch	Teaching & research. (May have been Dec 61). Scientific research. Market research. 1963? Genetic research in chicken breeding. 1961? Computing bureau; stock accounting. 1961? Computing Service. 1963? Radio propagation; research on the earth's magnetic field; satellite tracking Sales Analysis and customer records.
	Brown Brothers Ltd., London Technische Hochschule, Darmstadt (Fed. German Rep.) Kancerlarske Stroje, Prague, Czechoslovakia	Civil Engineering calculations. Electric power network calculations. See Note (5) below.
1963	Technoimport, Bucharest (Romania)  Kaiser-Engineers AEC, Hanford, Washington, USA NCR-Elliott Computer Workshops Ltd. (Greenford) NCR-Elliott Computer Workshops Ltd. (Southwark) NCR, (Berlin, Federal German Republic) NASA Plum Brook Reactor Facility, Sandusky, Ohio, USA Tidewater Oil Corp., Avon Refinery,	* Data acquisition, perf. analysis & control in steel works (the Hunedoara steelworks?) * Reactor data acquisition & analysis. Computer bureau & workshop. Computer bureau & workshop. Service bureau. * Reactor performance monitoring & control; acquisition of experimental results. Or 1962? * Plant optimization & performance

	San Francisco, USA. King's College, (London?) Sovnarhozes, Moscow (U.S.S.R.) Associated Octel Ltd., Ellesmere Port Sovnarhozes (U.S.S.R.) Hatfield College of Technology N.C.R. (Norway) Chemical Industries (Czechoslovakia) Elliott-Automation Ltd. Royal Institute of Great Britain, London	calculations. Or 1962. Crystallographic research. Economic planning. Production planning in chemical processing. Economic planning. Teaching & research. Demonstration & computing service. Statistics & research work. Development of peripheral equipment. Crystallographic research, analysis of complex molecules. Insurance work.
	London & Hull Maritime Insurance Co. Ltd. London Newport & Monmouth Technical College Monk & Dunstone Ltd., London	Teaching. Civil & structural engineering, quantity surveying.
	Laboratory of Civil Engineering, Lisbon, Portugal Hepworths Ltd., Leeds	Civil engineering calculations. Maint. of subscription & accounts of 300 branches.
	Imperial Chemical Industries Ltd. (Manchester) Energo Projekt Belgrade (Yugoslavia)	Instrumental colour matching. Calculations for power plant & hydro-control systems.
	Ministry of Agriculture & Fisheries, Guildford Co-operative Wholesale Society, Desborough	Statistical work. Invoicing to 1, 600 stores, stock records, accounting & payroll.
	Hunting Engineering Ltd., Ampthill, Beds Lanchester College of Technology University of Durham Elliott-Automation Ltd.	Project planning. Teaching & research. Teaching & research.
	CSIRO Chem. Research Labs. (Australia)	Aircraft systems research (Military Aircraft Controls Division, Borehamwood) Research into crystallography & chemical processes, nuclear magnetic resonance, chromatography; maths, statistics.
	Royal Melbourne Inst. of Technology, jointly with E-A Pty Ltd. Melbourne, Australia	Teaching, using Elliott Autocode & Algol; exam. results, computer service & courses for local industry incl. do-it-yourself Computer Workshop.
	L. & C. Steinmuller GmbH., Gummersbach, (Fed. German Rep.) Monsanto Research S.A, Zurich. (Switzerland) C.B.K.O., Gdansk, (Poland) N.C.R. (Switzerland) Institut Blaise Pascal, Paris (France)	Structural engineering & steam boiler & reactor calculations. Scientific calculations, mainly crystallographic. Ship building & engineering calculations . Computing service.
	Institut Blaise Pascal, Paris (France) Draughtsmens & Allied Technicians Association, Richmond, Surrey.	Mathematical research. Subscription records for 72,000 trade union members; economic research; accounting, statistics
	Steel Company (Hungary) Technion Institute of Technology, Haifa, (Israel) N.C.R. (Spain) United Steel Companies Ltd., Swinden Labs Rotherham, Yorks.	Process control; data processing. Teaching & research. Computing service. Operational research.
1964	Economic Research Inst. Belgrade (Yugo.) Independent Computer Service Ltd. (Edinburgh)	Computer mfg. & service bureau. Computer mfg. & service bureau. Computing service.
2 computers	Metalurski Institute (Yugoslavia) Slovnaft (Czechoslovakia) Royal Air Force BMEWS-Fylingdales Royal Military College of Science Oxford University, Dept. of Biometry	Research. * Control of an ethylene plant. * Fighter interception control. * Processing of radar data. Teaching & research. Medical research statistics.

	Royal Corps, of Signals	Teaching & Research.
	N.C.R. (South Africa)	Computing service.
	P .U. T .C.O. (South Africa)	Public utilities work.
	Inst. Eduardo Torroja de la Construccion y del Cemento (Spain)	Civil engineering.
	Ministry of Public Works (Belgium)	Civil engineering.
	Joseph Lucas Ltd.	Elec. & mech. engineering, physics & chem..
	University College of N. Wales (Bangor)	Education & research.
	Elliott-Automation Ltd.	Medical research & automation.
	Swiss Bank Corporation, London	Central stock share & securities work.
	Crittall Manufacturing Co. Ltd., Braintree, Essex	Stock control.
	Optische Industrie (Netherlands)	Research.
	S. Bradford & Sons Ltd.	Production control & sales invoicing records.
	Scottish Stock Exchange	Accounting of stocks & shares.
	Godfrey Davis Ltd.	Stock control. car hire records & accounts.
	RVO/TNO Physisch Laboratorium (Netherlands)	Research.
	Mathematical Institute (Yugoslavia)	Calcs for power plant & water regulation.
	Portsmouth Technical College	Education & research.
	Joseph Lucas Ltd.	Elec. & mech. engineering, physics & chem..
	Richard Sharrock Ltd.	Invoicing, stock control & payroll.
	G.I.R.E.C. (Belgium)	Undisclosed.
	Ove Arup & Partners Consuting Engineers	Civil engineering calculations.
	Imperial College of Science & Technology	Optical instrument design and research. Or 1962.
	N. Corah (St. Margaret) Ltd.	Invoicing, stock control.
	Ilford Borough Council	Municipal accounting.
	London Hospital	Medical research.
1965	Ministry of Posts & Telegraphs (India)	Telecommunication calculations.
	Government Establishment	Undisclosed.
	Edinburgh Medical Automation Centre	Medical computing service.
	Technical University of Helsinki (Finland)	Research & teaching.
	Overseas customer	Undisclosed.
	R.A.F. Locking	Technical apprentice training.
	R.A.F. Locking	Technical apprentice training.
	John Dalton College	Research.
	Liverpool College of Technology	Education & research.
	Oulu University (Finland)	Research & teaching.
	Albright & Wilson Ltd., (Oldbury)	Chemical engineering, & research.
	Ministry of Technology (Warren Spring Lab.)	Scientific & general engineering calculations.
	S. Smith & Sons Ltd.	Design and production control, engineering development.
	Chesterfield Corporation	Municipal accounting.
	E.M.I. Electronics Ltd.	Electronics research.
	General Borough of Dewsbury	Municipal accounting.
	Cater Bros Ltd.	Invoicing, stock control & payroll.
	Bath City Council	Municipal accounts rating, payroll.
	Amsterdam Ballast Co. (Netherlands)	Commercial applications.
	Bond Worth Ltd.	Stock control order, processing & payroll.
	Buxted Chicken Co. Ltd.	Research & accounts.
	Chelsea College of Advanced Technology	Education & research.
	East Surrey Water Board	Consumer billing.
	R.A.F. Locking	Systems development.
1966	Ministry of Defence (R.A.F.)	Undisclosed.
	Belfast College of Technology	Education & research.
	Tampere University (Finland)	Research & teaching.
	Ministry of Chemical Industry (U.S.S.R.)	* Control of ammonia plant.
	Thomson Newspapers	* Computer typesetting.
	Undisclosed Customer (Pakistan)	Undisclosed.
	Tillotsons Corrugated Cases Ltd.	Stock control.

Royal Navy Armament Depot  
Mills Associates  
Overseas Customer

Spare parts control.  
Service bureau.  
Undisclosed .

\* an asterisk in the above list indicates that the computer was used for on-line control.

**Notes on the Elliott 803 deliveries.**

*Note (1).* Reference 2 gives two 803s for Mullard Ltd. in 1961: one at their Research Labs at Salfords, Surrey; the other at Southampton. Reference 1 gives only one Mullard installation.

*Note (2).* The first live Telstar transmission from Goonhilly took place on July 11<sup>th</sup> 1962. Reference 2 gives 1961 for the 803 installation at Goonhilly; reference 1 gives 1963.

*Note (3).* Godfrey Phillips Ltd., London: reference 1 mentions tobacco as the applications-area; reference 2 mentions publishing.

*Note (4).* Brush Electrical is only given in reference 2.

*Note (5).* Reference 2 gives this extra Stroje installation in 1962.

*Note (6)* Reference 5 gives four (not one) computers delivered to Information Systems Inc for 'undisclosed customers'.

*Note (7)* There are at least three extra Elliott 803 sales, to undisclosed Russian organisations, not mentioned in the above list. They followed Elliott-Automation's presence at various trade exhibitions behind the Iron Curtain. At the conclusion of many of these exhibitions, equipment was 'sold' off the stand. This was standard practice for several British companies, being a mutually-beneficial way of circumventing bureaucracy and trade restrictions. More information is given in reference 4.

**Deliveries of Elliott 503 computers.**

<b>Date</b>	<b>Customer</b>	<b>Application and notes.</b>
1963	Elliott-Automation Ltd.	Service Bureau.
	N.C.R.	Service Bureau.
1964	Elliott-Automation Ltd.	Service Bureau.
	United Steel Co. Ltd.	Operational research production scheduling.
	ABW/TNO (Netherlands)	Government computing centre for industry.
	The Hydro-University Computing Centre (Australia)	Scientific computing bureau. (See Note (1)).
	Rijkswaterstaat, The Hague, (Netherlands)	Land reclamation calculations.
	N.A.T.O. (Italy)	Undisclosed.
	Army Operational Research Establishment	Operational research.
	Aircraft & Armaments Experimental Establishment	Evaluation of aircraft performance.
	Bristol University	Crystallography & general research.
	N.C.R. (Federal German Republic)	Service Bureau.
1965	Soviet Academy of Science (U.S.S.R.)	General scientific computing.
	Gosplan (U.S.S.R.)	System simulation studies.

	Short Bros. & Harland Ltd.	Analysis of flight test data.
	State Computing Centre (Finland)	Government computing centre.
	Dept. of Scientific & Industrial Res. (N. Zealand)	Meteorological analysis records & highway design.
	Rocket Propulsion Establishment	Analysis of rocket firing & design of rocket motors.
	Mullard Ltd.	Electronics & physics research.
	General Post Office	Operational & communications research.
	Elliott-Automation Ltd.	Research & development.
	Battersea College of Advanced Technology (Became University of Surrey in Sept. 1966)	Education & research.
	Technion Institute of Technology (Israel)	Teaching & research.
	Prakla G.m.b.H. (Federal German Republic)	Geophysical, surveying & prospecting calculations.
	Institute for Data Processing (German Democratic Rep.)	Economic planning & scientific research.
1966	Kancelarske Stroje (Czechoslovakia)	Computing centre for economic planning.
	Rescona (Netherlands)	Civil & structural engineering.
	Undisclosed (Overseas)	Undisclosed.
	Elliott-Automation Ltd.	Systems development.
	Elliott-Automation Ltd.	Radar research.
	EMI Electronics Ltd.	Research.
	Satchwell Controls Ltd.	Data Processing, planning & research.

**Notes on the Elliott 503 deliveries.**

*Note 1.* This delivery was to 'the University of Tasmania and the Hydro-Electric Commission, Tasmania'. It was almost certainly the first sale of an Elliott 503 to an external customer. The original tender document was dated 18<sup>th</sup> January 1962. The Elliott 503 was installed at the Hydro-University Computing Centre (HUCC), Hobart, Tasmania, in January 1964 and is believed to have become fully operational in June/July of that year. The 503 operated at HUCC until 1977.