Ferranti Pegasus, Perseus and Sirius

Delivery Lists and Applications

Provenance for the information in these lists is given after the list. We will be very grateful if readers spotting errors could notify corrections to Chris Burton, via an email to lavis@essex.ac.uk.

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Ferranti Pegasus

Serial no.	*destination*	*date delivered.*	*applications*
Pegasus 1.			
1.	Ferranti Ltd. Computing Service, Portland Place, London. (This machine later went to Vickers).	March 56	general computing service
2.	Hawker Aircraft Ltd, Kingston-upon-Thames	Oct 56	aviation design calculations
3.	Admiralty Research Laboratory, Teddington	Feb 57	research work
4.	Sir W G Armstrong Whitworth Aircraft Ltd, Coventry	Nov 56	aviation design & analysis; payroll
5.	Royal Aircraft Establishment, Farnborough, Hants	May 57	
6.	Vickers-Armstrongs (Aircraft) Ltd, Weybridge; (later, to Museum of Science & Industry in Manchester)	May 57	aviation design calculations
7.	ICI Dyestuffs Division, Manchester – (first Pegasus1 with Hollerith punched cards)	Dec 57	research work; sales analysis; stock control
8.	NRDC, Northampton Polytechnic, London	June 57	research and training
9.	De Havilland Aircraft Co Ltd, Hatfield	Aug 57	research work; payroll; budgeting.
10.	British Thomson-Houston Co. Ltd. (AEI), Rugby	Aug 57	turbine design; costing
11.	British Iron & Steel Research Association, London	Nov 57	operational research work
12.	Leeds University	Oct 57	research & service work; University registration work
13.	Durham University	Oct 57	research & service work; University registration work
14.	Southampton University	March 58	Research & service work
15.	Babcock & Wilcox Ltd, London	Jan 58	research work; stock control; management accounting
16.	The United Steel Companies Ltd, Sheffield	Jan 58	operational research work
17.	Blackburn Aircraft Ltd, Brough, Yorkshire	March 58	research work; production control investigations
18.	Svenska Flygmotor AB, Trollhatten, Sweden	June 58	research work; production control
19.	MOS, Military Survey, Feltham, Middlesex	Aug 59	survey calculations
20.	Stuttgart University, Germany	June 58	research & service work
21.	Ferranti Ltd, Hollinwood, Lancs	Aug 59	transformer & technical calcs.; production control; wages; service
22.	CA Parsons & Co Ltd, Newcastle	Jan 59	transformer design work
23.	The Steel Co of Wales Ltd, Port Tablot	Feb 60	operational research work
24.	Ferranti-Packard Electric Ltd, Toronto, Canada	Dec 59	transformer design work; service work.
25.	The College of Aeronautics, Cranfield, Bedfordshire	Sept 60	aircraft design calculations

26. Aircraft Armament Experimental Establishment, Boscombe Down, Wiltshire.	Jan 62	aircraft design calculations; data analysis.

Pegasus 2.

27. Skandia Insurance Co., Stockholm, Sweden, (Then to Ferranti Ltd., West Gorton, Manchester; then to University College London. This machine is now operational in gallery 46 of the London Science Museum.	Dec. 59	originally: actuarial work; then computer design; then X-ray crystallography.
28. Ferranti Ltd, Newman Street, London.	Aug 60	general computing service work.
29. Bruce Peebles & Co Ltd, Edinburgh	Oct 60	transformer design; production control.
30. DSIR, Road Research Lab.,Harmondsworth	Jan 61	research calculations; accident record analysis.
31. London & Manchester Ass Co Ltd, London. (This machine known as 'Pluto'; it had Powers punched card equipment)	Oct 60	branch insurance work; investment work.
32. Shell Refining Co Ltd, Stanlow, Cheshire	Feb 61	refinery technical work; payroll; stock control
33. Shell Research Ltd, Thornton, Cheshire	Feb 61	technical work
34. Vickers-Armstrongs (Aircraft) Ltd, Weybridge	June 61	aircraft design calculations
35. De Havilland Aircraft Co Ltd, Hatfield. (Originally: De Havilland Propellers Ltd., Stevenage)	Sept 61	aircraft design calculations
36. Martins Bank Ltd, Liverpool	April 61	current account book-keeping.
37. The Edinburgh Computers Ltd, Edinburgh. (Formerly the Scottish Widows Fund & Standard Life Assurance Co.)	April 62	pension scheme updating; branch valuations
38. Westminster Bank Ltd, London	Nov 61	
39. National Provincial Bank Ltd, London	May 62	current account book-keeping.
40. British Railways, Eastern Region	Oct 62	train timetabling

NOTES:

[SHL] The above information is chiefly extracted from:

B.B.Swann, *An informal history of the Ferranti computer department.* 1975. (Circulated privately, but see the National Archive for the History of Computing, catalogue number NAHC/FER/C30).

Additional information for the destinations of machines 1, 6 and 26 comes from:

S.H.Lavington, *The Pegasus Story: a history of a vintage British computer.* Published by the Science Museum, London, 2000. ISBN: 1-900747-40-5.

Additional information for the application of machine number 40 comes from John Deutsch, in an e-mail to Simon Lavington dated 5/8/2003.

Ferranti Perseus

Serial no.	*destination*	*date delivered.*	*applications*
1	AB DataCentralen (a subsidiary of the Trygg and the Fylgia Insurance Companies), Midsommarkransen, Stockholm, Sweden.	Apr 59	Life insurance, motor insurance, property insurance.
2	South Africam Mutual Life Assurance Society, Capetown, South Africa.	Ca Dec 59	Life insurance

NOTES:
[CPB] Personal knowledge of above as maintenance engineer on 1.

Ferranti Sirius

Customer	*ID; delivery date*	*Expected application*	*Notes*
Ferranti Ltd., West Gorton, Manchester	1 1959?	(Prototype)	(Also exhibited).
Ferranti Ltd., Newman Street, London.	1 Jun 1960 2 Feb 1961	General computing service work. Ditto.	Later passed to Ferranti Ltd, Melbourne, Australia.
Yarrow & Co Ltd, Scotstoun, Glasgow.	1 Oct 1961	Pipe stressing calculations. Technical & commercial work. External services.	
Ferranti Ltd, Melbourne, Australia.	1 Dec 1961 2 Jan 1962	General computing service work. Ditto	From Newman Street. Later passed to Caulfield College, Melbourne.
Cement and Concrete Association, Slough.	1 Jan 1962	Frame stressing work.	
ICI Australia & New Zealand Ltd, Melbourne, Australia.	1 Feb 1962	Scientific & technical.	
Steel Research Institute (VÚHŽ), Prague, Czechoslovakia.	1 Mar 1962	Technical work.	
Builders' Copper Tube Ltd., London.	1 Mar 1962	Invoicing etc.	
Royal College of Science & Technology, Glasgow.	1 Apr 1962	Teaching and Research	
Battersea Technical College, London.	1 (1962?)		
Heriot Watt College, Edinburgh.	1 Apr-May 1962	Teaching.	
Monash University, Melbourne, Australia.	1 July 1962	Administrative and research work.	
Davy & United Engineering Co. Ltd, Darnall, Sheffield.	1 Sep 1962	Design of steel making equipment. research & performance analysis	
Caulfield Technical College, Melbourne	1 Leased Feb1963		(From Ferranti Ltd, Melbourne). Caulfield College eventually became a part of Monash Univ.
Admiralty, Bath.	1 Mar 1963	Design & construction calculations for naval vessels.	
British Railways, London Midland Region, London.	1 Mar 62 or Apr 63	Technical work. Bonus calculations.	
Trumpy y Sirvent,	1 1963	Service centre work.	

Avda del Generalisimo, Madrid, Spain			
Pilkington Brothers, Lathom, Lancashire.	1 1963	Research.	
National Aeronautical Laboratory, Bangalore, India.	1 1963?	Research	
Blackburn College of Technology and Design	? ?		Reputedly received more than one donated machine when earlier UK Sirius customers upgraded.

There may possibly have been a few more Sirius deliveries after 1963. If so, the takeover of Ferranti's mainframe computing interests by ICT in 1963, and subsequent reorganisations, may account for our difficulty in tracing any later sales records.

Some Sirius computers were moved from their original sites – (see Ferranti Ltd., Newman Street and Ferranti Ltd, Melbourne in the above Table). Writing in about 1973, Bernard Swann [Ref. 5] says: "At one time the Blackburn College of Technology and Design had seven Sirius computers, more than half the total sold on the UK market. Several of these have been passed to schools and are still in operation in 1973. ... Of the 10 delivered to UK customers between 1960 and 1963, six were still in use in 1971 though most had been removed from their original location".

Further comments on particular installations.
The deliveries in the above Table, and the following Notes, rely heavily on the research carried out by the late Brian Parker and by Steve Poulton and John Feist (all members of the CCS), and by Barbara Ainsworth of Melbourne. Their help is gratefully acknowledged. References are given at the end.

Ferranti Ltd., West Gorton, Manchester.
This is where Sirius was designed and manufactured. The prototype was shown for the first time at the IEE's inaugural *International Transistor Exhibition* in London from 21st to 28th May 1959 and then exhibited around the UK [Refs 7, 8 & 9].

The prototype Sirius was also used to predict the result of the UK General Election of 8th October 1959. According to [Ref. 9]: "An election forecasting demonstration was held on the night of the General Election. The early election results were successfully used by Pegasus and Sirius to predict the final state of the parties. The results were displayed to visitors and published in the Manchester Guardian and the Financial Times the following morning. A subsequent paper, "Forecasting Election Results", was published in the British Computer Journal, January issue, 1960".

Two more exhibitions of Sirius are of note: During the first week of December 1959 Sirius was installed to demonstrate its capabilities at Round Oak Steel Works in Birmingham [Ref. 9]. Ex-Ferranti employee Martin Edmunds recalled [Ref. 10]: "Sirius was installed in a shed alongside the hot saw at the end of the rolling mill where it was loaded with the current list of orders for bar lengths. As each ingot got squeezed out long and thin the length of the resulting rolled bar was input and Sirius punched out the optimum cutting list, calculated from the order

list. Despite the heat and dust and magnetic interference from the mill motors Sirius worked all week - and could have saved Round Oak its cost in a few months. However the hot saw was manually controlled by chalk marks etc. and could not cut accurately." So no sale resulted.

Following that, the computer was on display for one day (14th December) at the Grand Hotel, Birmingham [Ref. 9]: "… to supplement a talk given by Mr. Berners-Lee to the Birmingham Electrical Society. …" This is believed to be the first lecture to a large audience in which a computer has taken part and indeed it was spotlighted from the balcony.

Ferranti's London Computer Centre in Newman Street.
Newman Street was the successor to Ferranti's first Computer Centre in nearby Portman Place where a Sirius I had sat for a while in the downstairs front room in 1959. Newman Street received two Sirius deliveries, in June 1960 and February 1961.

A number of companies used Sirius at Newman Street as bureau customers. For example, in one quarter (July to September 1961) Ferranti reported [Ref. 9]: "The following have used Sirius during this quarter:- Balfour Beatty, Bata Shoe, Barnett Instruments, British Paper Research Association, British Reinforced Concrete, British Shipbuilding Res. Ass., Bracknell Development Corporation, Central Office of Information, E.J.Cook, Cement and Concrete Research Assn., Davy United, De Havilland Aircraft, Electrical Research Assn., Forestry Commission, Gamages, Goldens, Henry Hope, Hunting Surveys, Iraq Petroleum, Kodak, Kovo Czechoslovakia, J.L.Keir & Co, Lucas, Metal Box, Ministry of Aviation, Ministry of Housing and Local Government, Mott Hay & Anderson, Pilkingtons, Rendell, Parker & Tritton, A.Reyrolle & Co, R.M.Ramsden, Stressed Concrete Design, Stone & Webster, W.E.Sykes, Yarrow." Other Sirius users included architects Ove Arup, who carried out calculations of some very large, curved, prestressed concrete beams for the Sydney Opera House.

Ferranti's Melbourne Computing Centre.
In addition to the London bureau, Ferranti opened a second bureau in The Queen's Road, Melbourne, in 1961. The first Sirius to be sent to the Centre was the prototype (or *Sirius I*) that had been in Newman Street and used for exhibitions. It had 1000 words of nickel delay line storage. This machine was sold to Caulfield Technical College in 1964. Meanwhile, the Centre took delivery of a *Sirius II* in January 1962.

Yarrow & Co Ltd., Scotstoun, Glasgow.
The Yarrow shipbuilding firm was the first customer to buy a Sirius computer. Yarrow's Admiralty Research Department (YARD) had been using Ferranti's bureau service (probably running on a Pegasus computer) for some time. Starting in the spring of 1960, Ferranti focussed on selling a Sirius to Yarrow. The order was finally received towards the end of that year.

Cement and Concrete Research Association, Slough.
They eventually placed an order for a 4000 word Sirius in the final quarter of 1960. It was delivered in January 1962, a year later than planned.

Imperial Chemical Industries of Australia & New Zealand (ICIANZ).
This was a subsidiary of the UK company ICI. Their Central Research Laboratory at Ascot Vale, Melbourne, ordered a Sirius during the first quarter of 1961 [Ref. 9]. It arrived in February 1962. By 1966, the end was in sight for this Sirius when ICIANZ announced the arrival of an IBM System 360 to take over the ever increasing workload which had already expanded across an IBM 1440, and a KDF9 at Sydney University. However, it was not really

the end for this Sirius computer. In May 1967, ICIANZ [Ref. 13] donated their Sirius to Monash University. This machine might have eventually found its way to the Museum of Victoria in Melbourne.

VÚHŽ (Steel Research Institute), Prague.
KOVO (a holding company?) ordered a Sirius for VÚHŽ (Czech Steel Research Institute) in the first quarter of 1961 [Ref. 9]. The machine was installed by Brian Parker. The contract included four maintenance visits over the first year. Brian Parker did the first three. Peter Owen did the final one while Brian was in Australia.

Lubomir Blazek wrote [Ref. 14]: "In 1961 we purchased Sirius. In July 1961 it was decided that two of us should attend a machine code programming course in Newman Street, London. We spent three months in England visiting several steel research and mathematical centers (BISRA, Davy and United in Sheffield, Prof. K.D.Tocher etc). At VÚHŽ the applications were mainly in statistical analysis (regression analysis etc)".

Milan Miessler recalled [Ref. 15]: "The computer worked well in the original office in Vysocany [Prague] until (roughly) 1972. By that time VÚHŽ [had] moved their headquarters to Ostrava-Dobra and an order came from there to move the computer there as they did not have any other computer on site. ... It was apparently loaded on a lorry and driven some 500 km to Dobra. And there, despite all efforts to revive it, they did not succeed and so the machine was scrapped...".,

Builders' Copper Tube Ltd., London.
Builders' Copper Tube ordered a Sirius during the second quarter of 1961 [9] for invoicing and stock control. It was delivered in March 1962.

The Royal College of Science and Technology, Glasgow.
This Sirius was ordered during the first quarter of 1961, conditional on Ferranti using some of the time [Ref. 9], and delivered in April 1962. The computer had been a gift to the Royal College, at a cost of £25,000, by Colvilles Ltd., the iron and steel producers with extensive operations in Lanarkshire and elsewhere in the West of Scotland. The Royal College became part of the University of Strathclyde in 1964.

Battersea Technical College, London.
This order was also dependant on Ferranti taking some machine time. It seems to have been placed in the first quarter of 1961 [Ref. 9]. Battersea Technical College became the University of Surrey in 1965.

Heriot-Watt College, Edinburgh
The Heriot-Watt order was placed during the second quarter of 1961 conditional on Ferranti taking machine time [9]. Ferranti's quarterly report for the following quarter noted that the North of Scotland Hydro Electric Board would be using some of the time on the Heriot-Watt Sirius. It was delivered April/May 1962 and installed in the basement of the Chambers Street building under the joint control of the Departments of Mathematics and Electrical Engineering. Heriot Watt College became Heriot Watt University in 1966.

Monash University, Melbourne
The Monash University Sirius is described in an article by Barbara Ainsworth [Ref. 16]. It was a 4000 word system, ordered by the University and delivered in 1962. It was installed in the

main block of the Clayton Campus and was used by Dr Cliff Bellamy to set up a service for the university, one of the first in Australia.

On the 11th May 2005 a “Museum of Computing History” was opened at the Caulfield campus of Monash University. It includes a Sirius computer system on static display.

Davy & United Engineering, Sheffield
This Sirius, delivered in September 1962, was ordered for “design of steel making equipment, research and performance analysis”.

Caulfield Technical College, Melbourne.
Caulfield originally leased the “1000-word prototype” from Ferranti’s Melbourne Computer Centre in 1963 before buying it the following year. Caulfield Technical College later changed its name to Caulfield Technical Institute, then became part of the Chisholm Technical Institute and finally (in 1990) a campus of Monash University. So Monash University would have inherited Caulfield’s Sirius if it still existed at the time. No definite trace of it has yet been found but, as at 2019, a complete Sirius computer is on display at the Museum of Computing History, Monash University, Caulfield Campus.

Admiralty, Bath.
The order for the Admiralty Sirius was delayed “awaiting Treasury approval” in mid 1961. It was eventually ordered in the first quarter of 1962 and delivered in March 1963 to perform “design & construction calculations for naval vessels.” This Sirius still exists intact, though not necessarily in working order. It is owned by the London Science Museum but stored away from public access at Wroughton, near Swindon.

British Railways, London
The date of actual delivery of this Sirius has not yet been pinned down with certainty. It differs in contemporary sources, variously quoted as March 62 or April 63.

Trumpy y Sirvent, Avda del Generalisimo, Madrid, Spain
This firm (judging by adverts in Spanish which have not yet been accurately translated) sold and serviced knitting machines.

Pilkington Brothers, Lathom.
Brian Parker, a former Ferranti field engineer, looked after this machine. In an e-mail of 22nd October 2004 Brian wrote: “This Sirius was installed at [Pilkington’s] research labs at Lathom, near Ormskirk. This was another of 'my' customers. One of their jobs was to optimise the cutting up of the float glass as it came out of the continuous process. I was very proud of the reliability of this system. They regularly ran jobs unattended, overnight. At one point, it achieved a MTBF of about 8 weeks, very good for a Sirius!” This machine was used until about 1970, when it was replaced by an ICL 1900 series computer.

National Aeronautical Laboratory, Bangalore.
A Sirius computer was ordered for National Aeronautical Laboratory, Bangalore, India by the International Civil Aviation Organisation, Montreal, Canada, and funded by an international grant. In [Ref. 28] Dr Srinivasan writes: “Because SIRIUS at NAL was the only computer available for the public, the user community consisted of not only scientists from NAL but also from Indian Institute of Science (IISc), DRDO labs, and public sector organizations”.

References

("MSI" refers to the Ferranti Archive at the Museum of Science and Industry, Liverpool Road, Manchester M3 4FP.)

1. Brochure DC42, "An introduction to the Ferranti Sirius Computer", Ferranti Ltd.

2. "List of Ferranti Computer Installations", Ferranti, February 1961. MSI ref: 1996.10/6/17/20/23.

3. "Ferranti Computers Installed", Ferranti, January 1962. MSI refs: 1996.10/6/17/20/1 and 1996.10/6/17/20/24.

4. Appendix A in the "Blue Book", a report re the viability of the sale of the Ferranti Computer Department to I.C.T. including sales of Ferranti Computers 1959-1962. Undated (probably end 1963). MSI ref: 1996.10/2/2/283.

5. "List of Computer Sales" appended to "The Ferranti Computer Department" (A History), Bernard Swann 1964. (Issued privately). MSI refs: 1996.10/6/17/12/1 (1949-1963) and 1996.10/6/17/46/7 (1964).

6. "Computer contracts and orders outstanding on October 1st 1963" from a folder of correspondence with A.Lawton, Ferranti's Chief Accountant re the Assets of the Computer Department and its sale to I C T. MSI ref: 1996.10/2/2/288.

7. Ferranti Journal Vol.17 No.3, Autumn 1959.

8. Ferranti Journal Vol.18 No.1, Spring 1960.

9. "Computer Department Quarterly Reports (Sales Dept)". MSI refs: 1996.10/6/17/4, 1996.10/6/17/11, 1996.10/6/17/12.

10. Email from Martin Edmunds to Steve Poulton, 29 December 2008.

11. Email from Richard St.John Cross to Steve Poulton, 19 Feb 2004.

12. Ferranti Sirius simulator, available to download from the Computer Conservation Society's website. Follow the 'Software' link.

13. News items in "ICIANZ CIRCLE", the staff newspaper of ICI Australia & New Zealand Ltd (now ORICA) located at ORICA Library and Archives, 1 Williams St, Melbourne. (Courtesy of Barbara Ainsworth and Chris Avram, Monash University):
- "Electronic wizard joins ICIANZ", 14 April 1961.
- "A wizard arrives at CRL", 2 March 1962.
- "The wizard's apprentice", 13 April 1962.
- "Feed it the facts and it plans biggest jobs in detail", 21 February 1964.
- "A million dollar baby arrives", 12 August 1966.
- "ICIANZ Sirius computer for Monash University", 21 April 1967.

14. Email from Lubomir Blazek to Steve Poulton, 15 September 2011.

15. Email from Milan Miessler to Brian Parker, 10 January 2004. (Copy held by Steve Poulton).

16. “The Ferranti Sirius at Monash University”, Barbara Ainsworth, CCS journal ‘Resurrection’, No.44, Autumn 2008.

17. Monash University Sirius. Proposal for Equipment and Services to be supplied by Ferranti Ltd., Barry de Ferranti, Melbourne, September 1961. (Courtesy of Richard Cross).

18. Richard St John Cross document sent to John Feist, 19 February 2004.

19. History of Monash Caulfield Computing: http://www.csse.monash.edu.au/New/about/theschool/history/caulfield.html accessed March 2016.

20. An internal Pilkington Report: IT160, “Sirius Computer - Proposed Analysis of Data Logger Output - C.H 3 Float Unit”, T.K.Harrison, January 1963. (Courtesy of Dr. Jack Brettle, Head of the Science Support Group, Pilkington European Technical Centre.)

21. 'Instant Arithmetic!' A 10 minute black & white film with soundtrack made by Mr S.E.Fargher at British Rail in 1963. A videotaped copy has been given to the Ferranti Archive at the Museum of Science and Industry in Manchester (not currently catalogued). The film is showing at Monash University’s Museum of Computing History, Caulfield Campus, Melbourne, Australia. It has been shown at a Manchester CCS meeting attended by Mr Fargher.

22. (There is a related Steve Poulton document entitled *Ferranti Sirius Versions*).

23. Acta Cryst. (1964). 17, 760. “Crystallographic angles for mercury, bismuth, antimony and arsenic”. D.J.Bacon, T.Heckscher and A.G.Crocker. Department of Physics, Battersea College of Technology, SW11.

24. Applied Optics, Vol 4, Issue 7, pp.823-829 (1965). “The Application of the Wavefront Shearing Optical Interferometer to Diffusion Measurements”, W.J.Thomas and E.McK.Nicholl.

25. Email to Steve Poulton from Tilly Blyth (London Science Museum), October 2004.

26. Acta Cryst. (1968). B24, 1242 “The effects of wrong scale factor on the phases and the electron density computed by the anomalous dispersion method.”, A.K.Singh, Material Sciences Division, National Aeronautical Laboratory, Bangalore-17, India.

27. “The structure of strong shock waves using the Fokker-Planck model.” K.S.Viswanathan, G.S.Dwarakanath & V.V.Shanbhag, National Aeronautical Laboratory, Bangalore-17, India. 1971.

28. Ferranti (ICT) SIRIUS Computer at NAL, Bangalore (1963-1970) R Srinivasan CSI Communications, Sept. 2012, pages 33 – 34.

29. “A Survey of the Capabilities and Facilities of the Computer Department of Ferranti Ltd”, Engineering Publications Department, Ferranti, West Gorton, April 1963.