

The Production of the Century.

By John Dodd, Product Manager, Century Computer, Dundee Factories
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An article in the last issue of the Post described the launching of the NCR Century Series. It is anticipated that this new range of advanced computers, which has an outstanding price-performance ratio, will produce a very large demand throughout the world, and a target of at least 5,000 NCR Century systems installations has been set. To meet this demand, NCR has initiated an international manufacturing programme involving plants in the US and Europe.

This sharing of manufacturing responsibility over a number of factories is not a new policy in itself; what is new in the case of the NCR Century is the limiting of the manufacture of any one particular unit within the series to a single plant within Europe and a single plant in the US. This 'single source' policy has been generated to reduce to a minimum the difficulties caused by the custom duty barriers between countries. It has been applied in such a way that the Dundee factory will manufacture the central processors, memories and other electronic units, while the continental European factories will manufacture the major mechanical peripheral units.



The various units to be manufactured in Dundee are being phased in gradually, with the central logic bay, the main memory and the power supply bay being first to go into production in September. Together, these make up the processor and memory part of the NCR Century 100 and are analogous to the 517 central processor of the 500 Series, which is currently being made at Dundee. However, the NCR Century units are vastly more complex, requiring much more sophisticated manufacturing methods to ensure a tight control on the reliability of the finished product. New methods under consideration include automatic wire-wrap on the main connector panel, automatic testing of this panel, automatic insertion of components into printed circuit boards, and a range of sophisticated new testing procedures. The type of manufacturing and test equipment envisaged requires continuous calibration and maintenance, and will mean an increase in the number of people engaged on this and other supporting functions.

Space requirements for the production of the NCR Century Series was one of the prime reasons for the Company taking over the Gourdie factory, where a number of major improvements such as air conditioning will be installed in order to give greater control over the environment in which NCR Century units will be manufactured. Other units required for the basic system are the 655 magnetic disc unit and the 640-102/3 printer, both of which will be manufactured in our sister factory in Augsburg, Germany, and the 662 paper tape reader which will be manufactured in NCR's plant at Bulach, Switzerland. Other peripheral units such as the 633 magnetic tape handlers and the 686 punch card equipment will be made in the US.

System Responsibility

Although the Dundee Organisation will not produce all the units needed in anyone system, Dundee has been selected as the manufacturing plant having what has been termed 'total system responsibility.' This basically means having the responsibility of ensuring that each completed system, regardless of the source of the individual units, will work to a customer's satisfaction.

As the individual units of the systems cannot be tested by themselves, a complex plan has been developed for shipping units from both the US and from Europe to Dundee, where they will be put together in complete systems for checking out prior to shipping to a customer. The systems concerned will be supplied to the United Kingdom, the Commonwealth, all of Europe, Africa and the Middle East. However, once complete quality and reliability of individual units is assured, many of the units will be shipped directly from their factory of origin to the customer, with only a small quantity of peripherals remaining in Dundee in order to test out the processor and the memory.

Training

As electronic products become more complex, so the duration of the testing phase increases. Initially, a much greater proportion of the people employed on the programme will be engaged on testing rather than on assembly, and an intensive training programme has been evolved for those engaged on this function.

Already, a number of people from both Dundee and Augsburg have undergone training at Hawthorne, California, where the NCR Century Series was designed. These people have been involved in the planning for the start-up of the production programme in Europe or have been engineers gaining the basic product knowledge necessary to support the factory. A training school for NCR Century assembly and test personnel



has been running in Dundee since the beginning of the year and many of the people involved are going to Hawthorne soon for further training. Later it is envisaged that training classes will also be conducted within the factory on a continuous basis to phase people over from the older products to the new ones.

Rising Our Sights

The advent of the NCR Century Series has meant a further step, but certainly not the last, by the Dundee factory into the electronic age. Although this exciting project presents many challenges to the members of the Dundee Organisation, it offers tremendous opportunities for the Company to move up among the leaders of the world's computer league and to make an even bigger contribution to the home computer market and to the nation's export drive.