British Aerospace order Redifon R 850 System

British Aerospace has ordered an R850 distributed data processing system to be installed at their Preston factory.

The prime function of the R850 will be to prepare wire data for design and production; to monitor electrical standards for the Tornado aircraft and used in a development capacity for a computer aid application. All this data input information will be run on the Company's IBM 30/32 mainframe.

Jim Salisbury, Electrical Planning Manager, commented: "Redifon was chosen because of our past experience with their equipment in terms of reliability and the simplicity of their systems."

Configuration: Central processor with 128KB memory, 33MB disk, 9-track 800bpi 45ips tape drive, 10 terminals, 300lpm printer, two IBM communications boards, paper tape reader and paper tape punch.

Contract value: £99,000.

DISTRIBUTED PROCESSING IN DATA ENTRY CLOTHING

Distributed processing and user-friendliness have been major features of computing development for some time now. Both are universally recognised as desirable objectives. Both, however, are typically costly to achieve, requiring the establishment of complex communications networks and investment in large chunks of sophisticated software.

Ingenuity, however, can get round those objections, as is shown by the experience of British Aerospace Dynamics Group in Bristol. The organisation, which makes weapons systems for the armed forces, found, as many others have found, that mainframe computing does not provide an ideal solution to the needs of the production control department. So it wanted a new system that would retain access to mainframe power, but provide rapid response to complex planning enquiries and at the same time give the production control department control over its own operations — in short, a user-friendly distributed processing approach. To achieve this, the division settled on an inexpensive and highly unusual solution: Rediffusion Computers' data entry system. Unlikely or not, it has been found to fill the need perfectly.

The division's chief production controller, Dave Hilliar, gives the credit for this imaginative step to the head of order and data control, Alan Jones, who transferred to Dynamics Group from the Commercial division in 1977 with a brief to identify areas where computer technology could be advantageously employed. Jones describes the problem which then faced the production control department as follows: "When we manufacture an item, any item, we need to procure materials, organise the production of made-in parts, place orders with sub-contractors, reserve components and sub-assemblies already in store, and so on. Addressing each of these requirements we have a different mainframe system. Monitoring progress, capacity scheduling, MRP and so on are all operating in the background. But the production control department also deals with problems that require answers very quickly. We need to know the answers to detailed questions like, 'What is going on at the moment? Have we

Alan Jones pictured alongside a Tracked Rapier

ordered everything we need for this job? Have we got the manpower available for this assembly?' and so on.

Hilliar takes up the tale. "To answer those sort of questions, we need access to six or seven mainframe databases — the information could be scattered across several of them. If we go through the computer department, our first problem is to define precisely what we mean, in their terms. They then provide us with great big reports from all the relevant files. Well, personally, I've no time for any report over five pages long. What we need is something that gives us more or les precisely what we want, in a form w can easily understand." The origina link between the production control department and the division's mainframe facilities was by IBM 029 card punches located in the management services department. They were used to punch the input

data necessary for the processing runs, and this naturally imposed a considerable delay between enquiry and result.

What we need is something that gives us more or less precisely what we want, in a form we can easily understand.

For example, to use the MRP system, the planners would code the input details onto special forms and send them to the management services department for punching. The cards, on average 500 of them per job, would be returned to the planners, who would then check each

one against the forms to ensure that they had been correctly punched. This was necessary as even one error would make the results worthless. After that had been done (and any errors found corrected), the cards would be read into the mainframe and the job executed. The elapsed time for the whole process was typically 10 to 12 days.

The 029s were replaced with IBM 3278 VDUs, but even on-line communication did not prove ideal.

The response time for the involved file accessing and processing work required was frequently greater than 10 seconds per screen transmission and, as Jones says, "this made it difficult to apply the planning approach at any speed."

The answer to the problem appeared to be a minicomputer, with communications to the mainframe, but with local processing capacity and storage, and software capable of handling the production control department's requirements.

After a long look at the market, British Aerospace came to the conclusion that none of the minicomputer systems available filled all the requirements. Jones then, recalling earlier experience with a Seecheck system on the Concorde project, thought it could well be suitable. As he put it, "The system is built round a minicomputer; it's got an architecture powerful enough to support 32 people entering data at high speed at the same time; and the software is very flexible and very adaptable." So he persuaded his colleagues that the system should be evaluated. They were impressed, and an order was placed.

The system chosen started with a 2.5MB fixed disk and was later updated with a 33MB disk, a 300lpm printer and it runs under version 7E of the operating system. It is connected by 9600 baud 2780 protocol line to the division's IBM 3033 mainframe system located elsewhere on the corporation's Bristol site, and through that system by leased line to a second 3033 situated in Stevenage.

It allows you the flexibility to do anything

Despite the fact that the Rediffusion minicomputer was originally designed for high speed data entry, its function at British Aerospace is very much as a data processing system in its own right. Jones says, "We're not only using it as
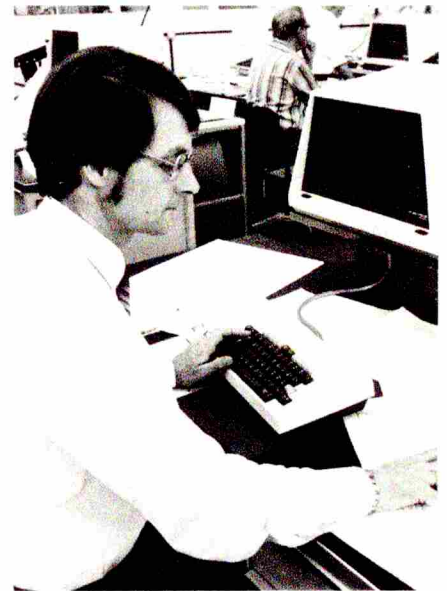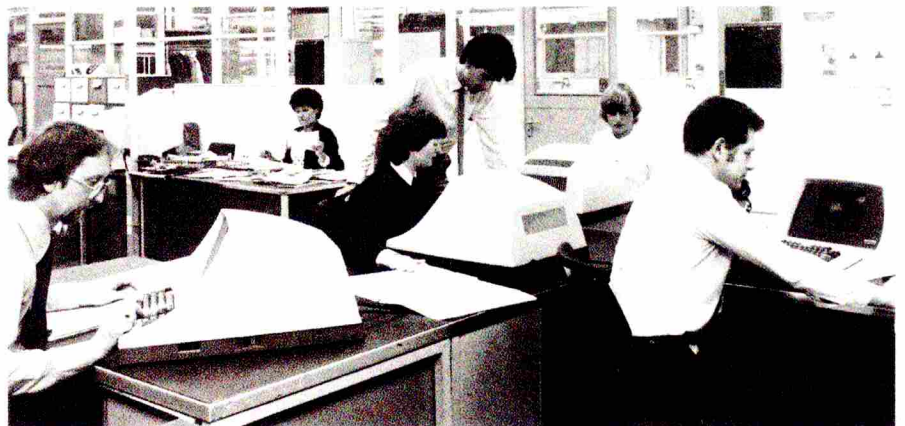

Picture shows Paul Skinner — section leader, who was responsible for setting up the planning application with Alan Jones — head of control

The desk is free of the VDU as a special clamping device was designed by the engineers at British Aerospace — Dynamics Group, Bristol, which has now been patented by the company. With the positioning of the VDU at eye level, this makes checking records easier and leaves plenty of room for working on large drawings.

a data entry system but we also use it for compiling input JCLs, for combing large files and massaging them. Of the 13 workstations, only three are used by professional data prep operators; the other 10 are used by users with specific application for massaging large amounts of data."

This is possible because of the way the Rediffusion software has been designed. Hilliar's view is that, "It allows you the flexibility to do anything — not necessarily the most economic way, but you reach your objective more quickly. It overcomes the delays imposed by the use of a mainframe and the systems analysis process, which is a big disadvantage in our kind of application."

Jones adds, "It's very adaptable — for every question that's come to us, we've been able to think up a solution. The only constraint is the size of the disk."

The production data control department at British Aerospace — Dynamics Group, has six Rediffusion VDUs and is supervised by Peter Bromley pictured standing.

And Jones' colleague Peter Bromley says, "The length of time from concept to end result is very short. And the system is easy to program for anybody with only a small amount of computing experience. We've trained four of the users here to write programs relating to their own problems." As well as the greater satisfaction and improved morale that comes from having the system under the user's control, the key-to-disk system has provided a greatly improved response to queries. For example, the MRP system referred to earlier has had its turnround time reduced from a minimum of 10 days to less than a day. Another example is provided by the planning processes system.

the computer department. In that way both we and they can be confident that our request is reasonable and feasible."

The moral of this interesting case history is threefold. Don't be too hidebound by prevailing ideas — ease of use and control by the user don't necessarily require either an ever more complex mainframe, or a host of micros. Don't pay too much attention to marketing labels — just because a system is called a data entry machine doesn't mean it can't perform a different function equally well. And don't think there's no scope for ingenuity in computing today. The early shirtsleeved programmer fixing a bug with a soldering iron may have disappeared forever, but the spirit

Horizon Holidays, voted Tour Operator of the Year by the travel trade in 1981 and consistent leader consumer surveys conducted by magazines such as 'Holiday Which has developed its VISTA (Videotex Information System for Travel Agen — **Information Management Augu 1981**) into an on-line booking syster In this follow-up report, **Information Management** talks to Trevor Haddleton, a board director of the Horizon group and its holidays and retail companies. Haddleton, has bee the driving force behind all Horizon's computerisation programme and is also chairman of the Holiday System Group, a body set up by 40 companies in the travel business to develop standards. One result of the group's efforts has been the publication of a report containing standard videotex frames for agents' data entry procedures. Standard formats for printing and ticketing, the problems o electronic funds transfer and linking to microcomputers are topics that are currently exercising the group's attention.
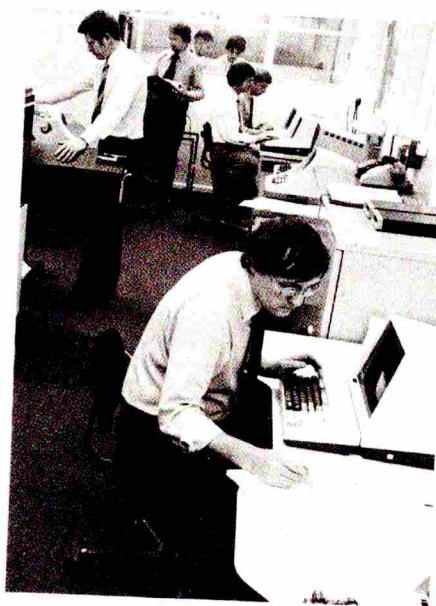

Twenty-five Rediffusion Mark III VDUs are installed in the production planning department at British Aerospace — Dynamics Group, Bristol.

There are 50,000 planning processes, each relating to a different type of weapons system manufactured by the division. Previously, it took a day to retrieve one planning process record from the mainframe at Stevenage, update it with new information as required and return it. Now the whole procedure takes less than an hour.

In another application, a file of some 80,000 records previously held on the mainframe is now stored on the key-to-disk system itself. The production control department previously received a big printout of this file each week and had to search through it each time they wanted any information from it — a situation that arises 40 to 50 times a week. Now a simple request to the system operator is all that is required — the precise answer comes back in 10 minutes. The need for the printout has been done away with completely.
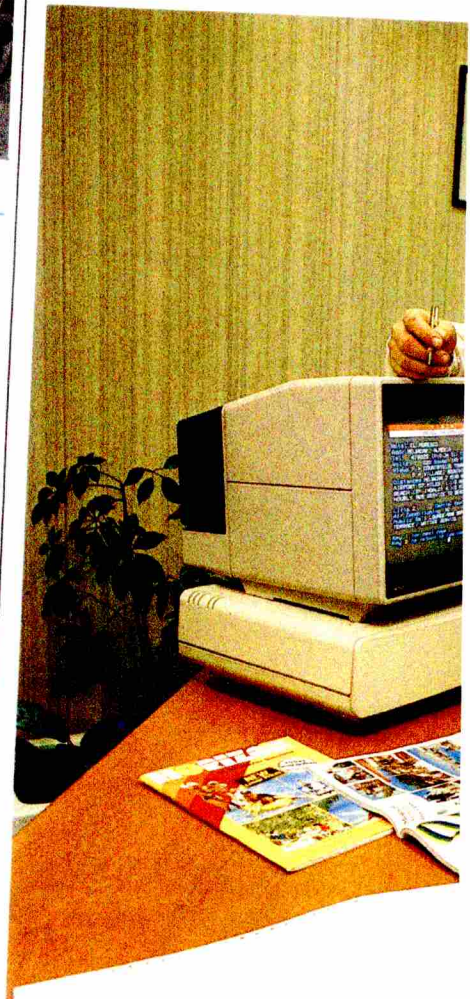
The key-to-disk system has also proved useful as a testbed for developing mainframe systems. As Jones says, "Even with our experience of computing we can't define our requirements right first time. With the Rediffusion system we can develop our ideas on the screen and test them out before we approach

which animated him and drove computing to its present level of development is still producing valuable dividends in the new microchip world.

Picture shows the production systems computer room at British Aerospace — Dynamics Group, Bristol, which houses two new Rediffusion R2830 Telecentre central processors

A typical page of hotel information is displayed on the Rediffusion Teleputer/3 which travel agents can access by using VISTA (Horizon's Videotex Information System for Travel Agents).