ENG INF

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Studio TC6 re-opens

Panoramic view of TC6 studio f10ar

Studio 6 at Television Centre (TC6) re-opened in September after a complete refurbishment. It offers a facility which is strongly competitive in the market-place - in terms of equipment, style and cost - and which underlines the BBC's commitment to its internal resource base.

John Lightfoot - Head of Studio Production Resources - told **Eng Inf:** *((This major capital investment confirms BBC management's commitment to a strong internal resource base, within the Producer Choice system. We needed fewer studios than in the past, but those we keep must still provide reliable facilities for our programme-makers. I am delighted that we are being supported with the right tools for success."*

Tim Manning - General Manager of TE & PS - addea: *((We have been pleased to be in partnership with Studio Production Resources in this collaborative venture to provide BBC programme-makers with the latest technical facilities in the refurbished TC6."*

Starting on page 3 is a description of the new facilities.

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NGINF

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This is the last issue of *Eng Inf* that I will edit, as I'm starting a new job with EBU Technical Publications in Geneva, during January 1994.

My warmest thanks go to the many contributors who have helped fill these pages with interesting and informative articles over the past six or so years.

My EID colleague, Dan Smith, is taking over for the time being and I wish him every success.

Mike Meyer

Transmitter News

The following services have opened, changed or closed since the last Issue:

New TV relays

Cromarty	Ross & Cromarty
Earl Sterndale	Derbyshire
Gorleston	Norfolk
Lochgoilhead	Argyll
Lydgate	W Yorkshire
Risca	Gwent

Addition of *Nicam* Stereo

Craigkelly	Fife
Tacolneston	Norfolk

New FM stations

Marlborough	Wilts

Radio 1 on FM

Limavady	Co. Londonderry

Radios 1 and 4 on FM

Bowmore	Islay
Cambret Hill	Dumf. & Galloway
Keelylang Hill	Orkney
Long Mountain	Powys
Port Ellen	Islay
Varteg Hill	W Glamorgan

New LR relays on FM

Marlborough	Wiltshire Sound

It's time to sync your PC!

For a number of years, the punctuality of broadcasting operations in LBH has been based on a sophisticated *Time Standard*, comprising a system of highly accurate and stable clocks. Radio Production Resources will soon be offering a pilot service to make the LBH Time Standard accessible over the *Public Switched Telephone Network* (PSTN).

Information on date and time, in coded data format, will be available to anyone with a telephone modem and PC or other computer system. It is hoped that the service will prove useful to computer systems which do not currently have access to a high-stability real-time clock. It is foreseen that such systems would dial in to LBH periodically and resynchronise themselves to the Time Standard; the frequency of dial-in would depend on the stability of the remote clock and the degree of accuracy required. Daily or weekly dial-in is anticipated for such applications.

'!\vo identical sets ofterminal equipment are provided at LBH to support the service. One set, accessible via a single *Direct Exchange Line* (DEL), will supply Universal Co-ordinated Time (UTC) information which is notionally the same as GMT. A duplicate set, accessible via a second DEL, will supply time-of-day information which takes account of GMT/BSTchanges automatically.

How accurate is it and what will it cost?

The LBH equipment will supply time information accurate at source to 3 mS. However for this accuracy to be realised at the remote end of the telephone connection, account must be taken of the delays inherent in the PSTN. The LBH equipment can be switched into a loop-back test during a dial-in call, so that the remote system can measure the round-trip delay to LBH. Provided that the delays on "go" and "return" paths are symmetrical (ie equal), the remote system can calculate the correction to be applied to time information supplied by LBH; the remote system clock can then be maintained to an accuracy of 5 mS, provided that it is capable of resolving intervals as small as this.

Unfortunately, it is not possible to guarantee symmetrical delays on a PSTN that is largely composed of digital plant. Advice has been sought from BT on the maximum asymmetry likely to be encountered in practice. When received, this will form the basis of the Accuracy Statement in the *Technical Data Sheet* to be issued for the service. In this context it should perhaps be noted that the real-time clock on a PC cannot resolve time to better than 55 mS.

Calls to the LBH equipment will be delivered via the BT *Callstream* facility which allows the BBC to recover a small sum of money from each call. Lest anyone be deterred from using the service on the grounds of cost, it should be noted that a typical call will require a connect time of less than 20 seconds. At the peak rate of 48p per full minute, it should cost no more than 16p while, at standard rate, this would fall to 12p.

How can I use the service?

At the time of going to press, the telephone access numbers had yet to be assigned by BT. However, the service should be in operation before Christmas.

Anyone wishing to use the new service, or requiring a Technical Data Sheet on it, should contact Andrea Kafizas of Radio Projects, in Room 504 Western House (LBH ext 54304). Andrea should know the telephone numbers by the time you read this, and will have details of software for an IBM-compatible PC.

Roger McCartney
Radio Projects

The refurbishment of Studio TC6

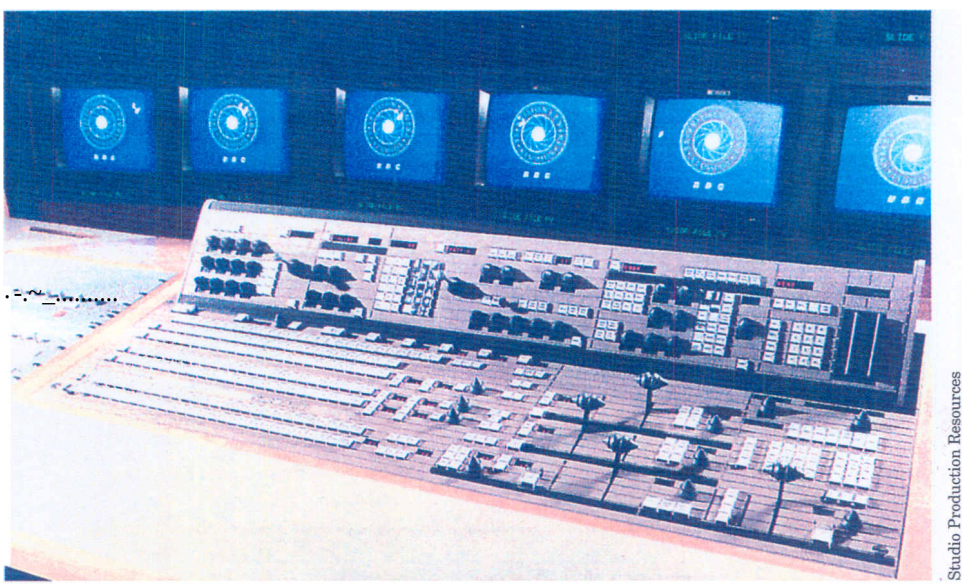
Members of the project team describe the new facilities provided in TC6 at Television Centre.

TC6 came into service in 1968 as the BBC's first large colour studio. By the Autumn of 1991, its equipment was between sixteen and twenty-three years old and it had become barely capable of meeting current production requirements. The decorative condition was poor and the whole package was generally unattractive to programme-makers.

This was at a time when the number of BBC studios in London was being radically reduced. The strategy was: (i) to reduce staff and resources to a scale that gave us viability and (ii) to improve efficiency and reduce costs. However, under Producer Choice, our studios had to become the preferred choice of programme-makers by being competitive on price, facilities and environment.

'Ib achieve this aim in TC6, it was necessary to reduce the cost of the planned refurbishment by one third and at the same time continue to provide engineering and operational staff with the proper tools to complement their skills. We were also keen to provide an environment which was smart, but not lavish, calm and comfortable to work in for long periods.

A major problem in TC6 was the difficult access to the control room suite from both the studio floor and the rest of the building. If the studio was to be made more attractive, access had to be improved, so we decided to move the control rooms to the ground floor. This was not an easy decision as the available space was small and the maximum ceiling height was limited. It has, however, brought many benefits, not least for disabled staff.



Studio Production Resources

TC6 Production Control Room: the vision mixing position

In the past, all 'Television Centre studios were equipped to handle the most complex productions, even though the demand for such complexity was rare. The majority of programmes made in our large studios are of medium complexity - Comedy, Variety and Childrens Programmes. With limited funding it was essential to target the needs of these programmes as a priority. TC6 would not be built to handle a General Election, Children in Need or other complex programmes for which TC1 and TC3 are well suited.

Nevertheless, it was important for TC6 to be seen as a market leader with the infrastructure to meet programme-makers' requirements well into the next century. This led to the choice of a serial-component digital vision system which provides a solid foundation for future developments. This innovation put extra pressure on cost reduction elsewhere in the scheme. Every part of the installation was carefully examined to eliminate all those items which were: (i) "nice to have" (but not essential), (ii) traditional (but rarely used), (iii) duplicated or (iv) customised. The aim has been to use standard products wherever possible and keep customisation to a minimum.

Operational staff have needed to adapt their techniques to use a system which is flexible enough to make a range of programmes in a professional manner.

Project Overview

The refurbishment of TC6 was managed by Wynne Griffiths of 'Television Engineering & Project Servives on behalf of Studio Production Resources. *Mter* initial planning, which started in November 1991, the studio was taken out of service on 6th July 1992 and returned to service fourteen months later. A trend-setting aspect of

TC6 Vision and Lighting Control Room with Production Control Room in the background

the project was that the customer and the implementers were involved in the project team more closely than ever before. All areas of the studio were brought up-to-date, but this did not always involve new equipment as many items were refurbished.

Asbestos in the area was removed at the beginning of the project, inevitably requiring the whole area to be cleared. The studio structural trusses were stripped, cable-ways emptied and cleaned, and the air conditioning system had various silencers removed. Miscellaneous pipes were revealed almost everywhere you looked. Finally, the whole area was cleaned and handed back to the project team for the rebuild.

The asbestos work was managed by Property Services Group. Cassella provided the analYBiB BerviceB tlnd Pectel were the removal contractors.

Control Rooms

The control rooms contain several features which represent a radical new approach in Television Centre.

The decision to build them on the ground floor actually brought about serious difficulties, due to the restricted floor to ceiling height of 2.35 metres. Also the absence of any raised floor void meant that the normally-free routeing of cables had to be strictly controlled to a small number of specific positions set into the floor screed.

The need to proceed as quickly as possible suggested a prefabricated partitioning system to form the control suite, instead of traditional double thickness masonry walls. Previously unthinkable, this idea gained acceptance through the relaxation of acoustic requirements in the Production and Lighting & Vision control rooms where the standard required was comparable to that of a good quality office. A metal-faced partition system by Clestra Hausermann - in panels on a 1200mm module, together with perforated-metal ceiling tiles on a 1200mm square module - was installed. The predominance of hard surfaces together with full-height glazing met the acoustic standard established at the outset. The only concession to absorption were the carpets, perforated ceiling tiles and a very small number of perforated wall panels. The aesthetic quality achieved with a colour scheme of subtle shades of grey and white has brought the suite right up to date.

The Sound control room, however, was built in the traditional manner with masonry walls, acoustic treatment and appropriate finishes, to achieve the more stringent acoustic standards normally associated with the operational