The Post Office Electrical Engineers' Journal

INDEX

VOLUME 71

(April 1978–January 1979)

A

Accuracy of Traffic Records, The 257
ASHTON, P. C. Modular Delivery of an Electronic Exchange 206
Associate Section National Committee Report, The 60, 136, 271
Associate Section Notes 60, 136, 211, 272
Attachment of Privately-Provided-and-Maintained Equipment to the British Post Office Network 142
Autofax: A Store-and-Forward Facsimile System 266
Automation of Traffic-Data Collection 164
AYERS, E. W. Research at Martlesham 44

B

BANNER, D. R., and TRIDGELL, R. H. A Standard Code for Radiopaging 189
BOAG, J. F. The End of the First Pulse-Code Modulation Era in the UK 2
Book Reviews .. 33, 49, 66, 100, 131, 188, 207, 220, 246, 272
BRACE, D. J., and HENSEL, P. C. Optical-Fibre Transmission Systems: The Martlesham-Kesgrave-Ipswich Optical-Fibre Cable Installation 54
BROOKS, A. W., and HARRIS, G. W. Fire Damage to Customer's PABX 59
BROWN, I. R. Novel Exchange Transfer for Southsea .. 35
BROWN, N. W., and WILLETS, D. Extension of the British Post Office Radiopaging Service 247
BROWN, R. S. A New Method of Tone Identification .. 117
BROWN, R. S., and SPIEGELHALTER, B. R. Measurement and Analysis Centres: Software Design 233
BUNN, W. National Synchronization Reference Clock .. 132
BURVILLE, P. J., and DAWSON, W. Automation of Traffic-Data Collection 164
Businessman, Teleconferencing: A Service for the 90

C

Cable Installation, Optical-Fibre Transmission Systems: The Martlesham-Kesgrave-Ipswich Optical-Fibre .. 54
Cables, Fitting PVC Ducts on In-situ 130
Cables Installed for the 8 Mbit/s and 140 Mbit/s Feasibility Trials, Optical-Fibre Transmission Systems: Properties of the Fibre 239
Cables, Techniques for Measuring the Transmission Properties of Optical-Fibre 122
CCITT R2 Signalling System, An Introduction to the .. 37
Changing in the Portsmouth Area, Number 194
Clock, National Synchronization Reference 132
COCHRANE, P. A Through-Pulse-Echo Measurement Technique 175
Code for Radiopaging, A Standard 189
Coding Desk, An Easy-View Letter 70
COLEMAN, A. E. Operators' Telephone Instruments used in the UK: Past, Present and Future 77
Collection, Automation of Traffic-Data 164
Commence Keying, Use of the PATHFINDER Exchange to Measure the Time for a Telephone Subscriber to .. 262
Computer Aid to Junction Network Planning, A 45
Conferences, Forthcoming 211, 275
COOPER, M. B. The Eighth International Symposium on Human Factors in Telecommunication, Cambridge, 1977. 20
Courses for Technicians, The *Journal's* Coverage of TEC and SCOTEC 264
Coverage of TEC and SCOTEC Courses for Technicians, The *Journal's* 264
CRANK, G. J. High-Frequency Characteristics and Measurement Techniques for Wideband Coaxial Cables .. 167

D

Data Collection, Automation of Traffic- 164
DAWSON, W., and BURVILLE, P. J. Automation of Traffic-Data Collection 164
Delivery of an Electronic Exchange, Modular 206
Depreciation, Lives of Plant and
Part 1—Depreciation 202
Part 2—Statistical Life Assessment 252
Development of the INTELSAT System, A Review of the 155
Dual Polarization Technology
Part 3—The Influence of the Propagation Path .. 95
Ducts on In-situ Cables, Fitting PVC 130
DUFOUR, I. G. A Computer Aid to Junction Network Planning 45

E

Easy-View Letter Coding Desk, An 70
Editorial 1, 69, 141, 213
8 Mbit/s and 140 Mbit/s Feasibility Trials, Optical-Fibre Transmission Systems: Properties of the Fibre Cables Installed for 239
Eighth International Symposium on Human Factors in Telecommunication, Cambridge, 1977, The 20
Electronic Exchange, Modular Delivery of an 206
End of the First Pulse-Code Modulation Era in the UK, The 2
EVANS, D., HILLS, E. G., and WICKEN, C. S. An Easy-View Letter Coding Desk 70
EVE, M., HENSEL, P. C., MALYON, D. J., NELSON, B. P., and WRIGHT, J. V. Techniques for Measuring the Transmission Properties of Optical-Fibre Cables 122
Exchange, Modular Delivery of an Electronic 206
Exchange to Measure the Time for a Telephone Subscriber to Commence Keying, Use of the PATHFINDER .. 262
Exchange Transfer for Southsea, Novel 35
Exchanges, The Regenerator 5A—A Microelectronic Project for Strowger
Part 1—Development of the Mark 1 110
Part 2—Later Designs 181
Extension of the British Post Office Radiopaging Service .. 247

F

Facsimile System, Autofax: A Store-and-Forward 266
Feasibility Trials, Optical-Fibre Transmission Systems: Properties of the Fibre Cables Installed for the 8 Mbit/s and 140 Mbit/s 239
FEDIDA, S. Viewdata: An Interactive Information Medium for the General Public 21
FERRIDAY, N. Lives of Plant and Depreciation
Part 1—Depreciation 202
Part 2—Statistical Life Assessment 252

Fibre Cables Installed for the 8 Mbit/s and 140 Mbit/s Feasibility Trials, Optical-Fibre Transmission Systems: Properties of the 239
Fibre Cables, Techniques for Measuring the Transmission Properties of Optical- 122
Fibre Transmission Systems, Optical-: The Martlesham-Kesgrave-Ipswich Optical-Fibre Cable Installation .. 54
Fire Damage to Customer's PABX 59
Fitting PVC Ducts on In-situ Cables 130
Forecasting in Practice, Telecommunications 12

G

GAUNT, D. L., and LAMB, R. T. Microprocessor Peripherals 214
Generator, A Self-Contained Trailer-Mounted 200
GOFF, A. J., SPENCER, J. E., and POTTER, D. A. A New Maintenance Aid for Repeater Stations 50

H

HALL, G. C., and MOSS, P. R. A Review of the Development of the INTELSAT System 155
HARRIS, G. W., and BROOKS, A. W. Fire Damage to Customer's PABX 59
HENSEL, P. C., and BRACE, D. J. Optical-Fibre Transmission Systems: The Martlesham-Kesgrave-Ipswich Optical-Fibre Cable Installation 54
HENSEL, P. C., EVE, M., MALYON, D. J., NELSON, B. P., and WRIGHT, J. V. Techniques for Measuring the Transmission Properties of Optical-Fibre Cables 122
High-Frequency Characteristics and Measurement Techniques for Wideband Coaxial Cables 167
Highland Telegraphs, 1870–72 195
HILLS, E. G., EVANS, D., and WICKEN, C. S. An Easy-View Letter Coding Desk 70
HOLLOWAY, S. L., and JAMISON, M. L. Measurement and Analysis Centres: Measurement Techniques and Hardware Design 148
Human Factors in Telecommunication. Cambridge, 1977, The Eighth International Symposium on 20

I

Identification, A New Method of Tone 117
Information Medium for the General Public, Viewdata: An Interactive 21
Installation, Optical-Fibre Transmission Systems: The Martlesham-Kesgrave-Ipswich Optical-Fibre Cable .. 54
Institution of Post Office Electrical Engineers 64, 138, 208, 270
INTELSAT System, A Review of the Development of the 155
Interactive Information Medium for the General Public, Viewdata: An 21
Instruments used in the UK, Operators' Telephone: Past, Present and Future 77
IRELAND, W. A. An Introduction to the CCITT R2 Signalling System 37

J

JAMISON, M. L., and HOLLOWAY, S. L. Measurement and Analysis Centres: Measurement Techniques and Hardware Design 148
Journal's Coverage of TEC and SCOTEC Courses for Technicians, The 264
Junction Network Planning, A Computer Aid to 45

K

Keybridge House Tunnel 34
Keying, Use of the PATHFINDER Exchange to Measure the Time for a Telephone Subscriber to Commence .. 262

L

LAMB, R. T., and GAUNT, D. L. Microprocessor Peripherals 214
LAWRENCE, A. R., and STAGG, B. The *Journal's* Coverage of TEC and SCOTEC Courses for Technicians 264
Letter Coding Desk, An Easy-View 70
Lives of Plant and Depreciation
Part 1—Depreciation 202
Part 2—Statistical Life Assessment 252
LOCK, P. J., and SCOTT, W. L. The Regenerator 5A—A Microelectronic Project for Strowger Exchanges
Part 1—Development of the Mark 1 110
Part 2—Later Designs 181

M

MACDONALD, D. Highland Telegraphs, 1870–72 195
MCKAY, R. P., and STEPHENS, C. R. A Self-Contained Trailer-Mounted Generator 200
MCLINTOCK, R. W., and VOGEL, E. C. 30-Channel Pulse-Code Modulation System
Part 1—Multiplex Equipment 5
Maintenance Aid for Repeater Stations, A New 50
MAKIN, F. F. Number Changing in the Portsmouth Area .. 194
MALLETT, M. H. Dual Polarization Technology
Part 3 The Influence of the Propagation Path .. 95
MALYON, D. J., EVE, M., HENSEL, P. C., NELSON, B. P., and WRIGHT, J. V. Techniques for Measuring the Transmission Properties of Optical-Fibre Cables 122
MARTIN, J. System X 221
Martlesham, Research at 44
Measure the Time for a Telephone Subscriber to Commence Keying, Use of the PATHFINDER Exchange to .. 262
Measurement and Analysis Centres
Part 2—Processor Programming and Operation .. 28
Measurement and Analysis Centres: Measurement Techniques and Hardware Design 148
Measurement and Analysis Centres: Software Design .. 233
Measurement Technique, A Through-Pulse-Echo 175
Measuring the Transmission Properties of Optical-Fibre Cables, Techniques for 122
Microelectronic Project for Strowger Exchange A The Regenerator 5A
Part 1—Development of the Mark 1 110
Part 2—Later Designs 181
Microprocessor Peripherals 214
Microprocessors, The Selection of 101
MILLS, T. E., and PARSELL, D. F. Fitting PVC Ducts on In-situ Cables 130
Modular Delivery of an Electronic Exchange 206
MOSS, P. R., and HALL, G. C. A Review of the Development of the INTELSAT System 155

N

National Synchronization Reference Clock 132
NELSON, B. P., EVE, M., HENSEL, P. C., MALYON, D. J., and WRIGHT, J. V. Techniques for Measuring the Transmission Properties of Optical-Fibre Cables 122
Network, Attachment of Privately-Provided-and-Maintained Equipment to the British Post Office 142
Network Planning, A Computer Aid to Junction 45
New Method of Tone Identification, A 117
Notes and Comments 62, 137, 210, 270
Number Changing in the Portsmouth Area 194

O

140 Mbit/s and 8 Mbit/s Feasibility Trials, Optical-Fibre Transmission Systems: Properties of the Fibre Cables Installed for 239
Operators' Telephone Instruments used in the UK: Past, Present and Future 77
Optical-Fibre Cables, Techniques for Measuring the Transmission Properties of 122
Optical-Fibre Transmission Systems: Properties of the Fibre Cables Installed for the 8 Mbit/s and 140 Mbit/s Feasibility Trials 239
Optical-Fibre Transmission Systems: The Martlesham-Kesgrave-Ipswich Optical-Fibre Cable Installation .. 54

P

PABX, Fire Damage to Customer's 59
PARSELL, D. F., and MILLS, T. E. Fitting PVC Ducts on In-situ Cables 130
PATHFINDER Exchange to Measure the Time for a Telephone Subscriber to Commence Keying, Use of the .. 262
PENDEGRASS, J. J. Keybridge House Tunnel 34
Peripherals, Microprocessor 214
PHILLIPS, J., and TURNER, W. M. Telecommunications Forecasting in Practice 12
PIERCY, M. S. Autofax: A Store and Forward Facsimile System 266
Plant and Depreciation, Lives of
Part 1—Depreciation 202
Part 2—Statistical Life Assessment 252
Polarization Technology, Dual
Part 3—The Influence of the Propagation Path .. 95
Portsmouth Area, Number Changing in the 194
Post Office Press Notices 65, 261, 273
POTTER, D. A., SPENCER, J. E., and GOFF, A. J. A New Maintenance Aid for Repeater Stations 50
Privately-Provided-and-Maintained Equipment to the British Post Office Network, Attachment of 142
Properties of the Fibre Cables Installed for the 8 Mbit/s and 140 Mbit/s Feasibility Trials, Optical-Fibre Transmission Systems: 239

Pulse-Code Modulation Era in the UK, The End of the First 2
Pulse-Code Modulation System, 30-Channel
Part 1—Multiplex Equipment 5
Part 2—2·048 Mbit/s Digital Line System 82
Part 3—Signalling Units 225
Pulse-Echo Measurement Technique, A Through- 175
PVC Ducts on In-situ Cables, Fitting 130

R

Radiopaging, A Standard Code for 189
Radiopaging Service, Extension of the British Post Office.. 247
Records, The Accuracy of Traffic 257
Reference Clock, National Synchronization 132
Regenerator 5A, The—A Microelectronic Project for Strowger Exchanges
Part 1—Development of the Mark 1 110
Part 2—Later Designs 181
Repeater Stations, A New Maintenance Aid for 50
Research at Martlesham 44
Review of the Development of the INTELSAT System, A .. 155
RICHMAN, N. J., and WHETTER, J. 30-Channel Pulse-Code Modulation System
Part 2—2·048 Mbit/s Digital Line System 82
ROWE, M. D. The Selection of Microprocessors 101
ROWLANDS, C. E. Teleconferencing: A Service for the Businessman 90

S

SAPSFORD, B. G. Measurement and Analysis Centres
Part 2—Processor Programming and Operation .. 28
SCOTEC and TEC Courses for Technicians, The *Journal's* Coverage of 264
SCOTT, W. L., and LOCK, P. J. The Regenerator 5A—A Microelectronic Project for Strowger Exchanges
Part 1—Development of the Mark 1 110
Part 2—Later Designs 181
Selection of Microprocessors, The 101
Self-Contained Trailer-Mounted Generator, A 200
Signalling System, An Introduction to the CCITT R2 .. 37
SONGHURST, D. J. The Accuracy of Traffic Records .. 257
Southsea, Novel Exchange Transfer for 35
SPENCER, J. E., POTTER, D. A., and GOFF, A. J. A New Maintenance Aid for Repeater Stations 50
SPIEGELHALTER, B. R., and BROWN, R. S. Measurement and Analysis Centres: Software Design 233
STAGG, B., and LAWRENCE, A. R. The *Journal's* Coverage of TEC and SCOTEC Courses for Technicians 264
Standard Code for Radiopaging, A 189
STEPHENS, C. R., and MCKAY, R. P. A Self-Contained Trailer-Mounted Generator 200
STERN, J. R. Optical-Fibre Transmission Systems: Properties of the Fibre Cables Installed for the 8 Mbit/s and 140 Mbit/s Feasibility Trials 239
Store-and-Forward Facsimile System, Autofax, A 266
Strowger Exchanges, The Regenerator 5A—A Microelectronic Project for
Part 1—Development of the Mark 1 110
Part 2—Later Designs 181
Subscriber to Commence Keying, Use of the PATHFINDER Exchange to Measure the Time for a Telephone .. 262
Synchronization Reference Clock, National.. 132
System X 221

T

TAMBLIN, M. P. Attachment of Privately-Provided-and-Maintained Equipment to the British Post Office Network 142
TEC and SCOTEC Courses for Technicians, The *Journal's* Coverage of 264
Technicians, The *Journal's* Coverage of the TEC and SCOTEC Courses for 264
Techniques for Measuring the Transmission Properties of Optical-Fibre Cables 122
Telecommunications Forecasting in Practice 12
Teleconferencing: A Service for the Businessman 90
Telegraphs, 1870–72, Highland 195
Telephone Instruments used in the UK, Operators': Past, Present and Future 77
Telephone Subscriber to Commence Keying, Use of the PATHFINDER Exchange to Measure the Time for a 262
30-Channel Pulse-Code Modulation System
Part 1—Multiplex Equipment 5
Part 2—2·048 Mbit/s Digital Line System 82
Part 3—Signalling Units 225
Through-Pulse-Echo Measurement Technique, A 175
Time for a Telephone Subscriber to Commence Keying, Use of the PATHFINDER Exchange to Measure the .. 262
TOMLINSON, P. N., and TUPPEN, J. Use of the PATHFINDER Exchange to Measure the Time for a Telephone Subscriber to Commence Keying 262
Tone Identification, A New Method of 117
Traffic-Data Collection, Automation of 164
Traffic Records, The Accuracy of 257
Trailer-Mounted Generator, A Self-Contained 200
Transmission Properties of Optical-Fibre Cables, Techniques for Measuring the 122
Transmission System, Optical-Fibre: Properties of the Fibre Cable Installed for the 8 Mbit/s and 140 Mbit/s Feasibility Trials.. 239
Transmission Systems, Optical-Fibre: The Martlesham-Kesgrave-Ipswich Optical-Fibre Cable Installation .. 54
Trials, Optical-Fibre Transmission Systems: Properties of the Fibre Cables Installed for the 8 Mbit/sand 140 Mbit/s Feasibility 239
TRIDGELL, R. H., and BANNER, D. R. A Standard Code for Radiopaging 189
Tunnel, Keybridge House 34
TUPPEN, J., and TOMLINSON, P. N. Use of the PATHFINDER Exchange to Measure the Time for a Telephone Subscriber to Commence Keying 262
TURNER, W. M., and PHILLIPS, J. Telecommunications Forecasting in Practice 12
TURVEY, K. J. 30-Channel Pulse-Code Modulation System
Part 3—Signalling Units 225

U

Use of the PATHFINDER Exchange to Measure the Time for a Telephone Subscriber to Commence Keying .. 262

V

Viewdata: An Interactive Information Medium for the General Public 21
VOGEL, E. C., and MCLINTOCK, R. W. 30-Channel Pulse-Code Modulation System
Part 1—Multiplex Equipment 5

W

WHETTER, J., and RICHMAN, N. J. 30-Channel Pulse-Code Modulation System
Part 2—2·048 Mbit/s Digital Line System 82
WICKEN, C. S., EVANS, D., and HILLS, E. G. An Easy-View Letter Coding desk 70
WILLETS, D., and BROWN, N. W. Extension of the British Post Office Radiopaging Service.. 247
WRIGHT, J. V., EVE, M., HENSEL, P. C., MALYON, D. J., and NELSON, B. P. Techniques for Measuring the Transmission Properties of Optical-Fibre Cables 122

VOLUME 71

Part 1 (Apr. 1978) .. .. pp. 1–68
Part 2 (July 1978) .. .. pp. 69–139
Part 3 (Oct. 1978) .. .. pp. 141–211
Part 4 (Jan. 1979) .. .. pp. 213–275

Published by *The Post Office Electrical Engineers' Journal*, 2–12 Gresham Street, London EC2V 7AG,
and printed in Great Britain by Unwin Brothers Limited, Old Woking, Surrey

The Post Office Electrical Engineers' Journal

INDEX

VOLUME 72

(April 1979–January 1980)

A

Abnormal Telephone-Exchange Congestion, Solution to .. 215
ADAMS, P. F., and WELSH, E. J. A New Digital IVF Signalling Unit 108
Alarms by Carrier 123
ALLEN, D., and PRICE, C. D. E. System X: Design and Support
Part 1—Information System 229
Amplifier for 11 GHz Digital Radio-Relay Systems, An IMPATT Diode 220
ARCHER, C. Continuous Power-Generation at the Goonhilly Satellite Communications Earth Station 166
Architecture of System X
Part 1—An Introduction to the System X Family .. 138
Part 2—The Digital Trunk Exchange 142
Associate Section National Committee Report, The 69, 134, 201, 274
Associate Section Notes 69, 135, 201, 275
Auto-Manual Centre in Non-Standard Premises, Installation of an 94
Avis, J. M. The Formation of the New National Post Office Telecommunications Museum 141

B

BECKLEY, D. J. Main Transmission Network: Planning of Digital Transmission Systems 27
BELENKIN, A. M., and BROOKS, B. M. G. Plessey Pentex Installation in the UK Network 186
Book Reviews 8, 26, 42, 80, 86, 122, 152, 159, 179, 197
BROOKS, B. M. G., and BELENKIN, A. M. Plessey Pentex Installation in the UK Network 186
BROWN, A. M. Developments in Frequency-Shift Voice-Frequency Telegraph Equipment 191
BUNDY, R. An Injection-Welded Joint Repair 190

C

Cable Systems: A Review of their Evolution and Future, Submarine 87
Carbon Microphone, The Electret: A Possible Replacement for the 15
Carrier, Alarms by 123
CARRUTHERS, P. A., BIGGS, S. L., and GORVIN, R. G. K. STEMSS: Satellite Telegraph Engineering and Management Switching System 59
CARTER, M. J. High-Voltage Power System for Telecommunication Plant: A Safety Aspect 117
CHAMBERLAIN, I. C., and KINGSWELL, L. W. Alarms by Carrier 123
CLARKE, K. E. Viewdata Abroad—The Technical Aspects 172
Components: Results of the Field Trial of the Regenerator 5 A, Reliability of Electronic 81
Computer-Aided Design
System X: Design and Support, Part 2 234
Conclusions from the Empress Digital Tandem Exchange Field Trial 9
Conferences, Forthcoming 70, 136, 203, 275
Congestion, Solution to Abnormal Telephone-Exchange .. 215
Continuous Power-Generation at the Goonhilly Satellite Communications Earth Station 166
COOPER, T. R., and HELLEUR, R. J. System X Software Engineering 240
CRUMP, N. G. A New Equipment Practice for Transmission and Other Applications: TEP-1(E) 160
DAVIES, A. P. Submarine Cable Systems: A Review of their Evolution and Future 87

D

DAVIES, E., and HARRIS, L. R. F. System X and the Evolving UK Telecommunications Network 2
DC Power Supplies to Telecommunications Equipment: Distribution, Earthing and Protection Against Induced Transient Voltages
Part 1—Past and Present Arrangements 175
Part 2—A New Method 247
Development of an 11 GHz Digital Radio-Relay System
Part 1—Design Considerations 102
Part 2—System Configuration and Parameters .. 153
Developments in Frequency-Shift Voice-Frequency Telegraph Equipment 191
DICKINSON, J. P. Solution to Abnormal Telephone-Exchange Congestion 215
Digital Local Networks 206
Digital Network, Filter Specification in a 96
Digital IVF Signalling Unit, A New 108
Digital Radio-Relay System, Development of an 11 GHz
Part 1—Design Considerations 102
Part 2—System Configuration and Parameters .. 153
Digital Radio-Relay Systems, An IMPATT Diode Amplifier for 11 GHz 220
Digital Recording on Magnetic Tape and the Recorder Tape No. 3A 180
Digital Tandem Exchange Field Trial, Conclusions from the Empress 9
Digital Transmission Systems, Main Transmission Network: Planning of 27
Diode Amplifier for 11 GHz Digital Radio-Relay Systems, An IMPATT 220
Director, The MOST
Part 1—System Outline, Technology and Call Routing 266
Distribution, Earthing and Protection Against Induced Transient Voltages, DC Power Supplies to Telecommunications Equipment:
Part 1—Past and Present Arrangements 175
Part 2—A New Method 247

E

Earthing and Protection Against Induced Transient Voltages, DC Power Supplies to Telecommunications Equipment: Distribution,
Part 1—Past and Present Arrangements 175
Part 2—A New Method 247
Earth Stations, Use of a Single-Channel-per-Carrier Terminal Equipment at Satellite System 54
Electret: A Possible Replacement for the Carbon Microphone, The 15
Electronic Components: Results of the Field Trial of the Regenerator 5A, Reliability of 81
11 GHz Digital Radio-Relay System, Development of an
Part 1—Design Considerations 102
Part 2—System Configuration and Parameters .. 153

11 GHz, Digital Radio-Relay Systems. An IMPATT Diode Amplifier for 220
Empress Digital Tandem Exchange Field Trial, Conclusions from the 9
Engineering in the British Post Office—A Look Ahead .. 73
Equipment Practice for Transmission and Other Applications: TEP-1(E) 160
Evolving U.K. Telecommunications Network, System X and the 2
Experimental Packet-Switched Service, Operational Experience and Evolution of the British Post Office .. 43

F

55-Channel Unit. A New Mobile Unit for the Radiophone Service: Development of a 50
Formation of the New National Post Office Telecommunications Museum 141
FOULKES, S. A., and KEANE, A. J. Use of Single-Channel-per-Carrier Terminal Equipment at Satellite System Earth Stations 54
Frequency-Shift Voice-Frequency Telegraph Equipment. Developments in 191

G

Generator for the Simulation of Interference Caused by Secondary Lightning Effects, An Impulse 118
Goonhilly Satellite Communications Earth Station, Continuous Power-Generation at the 166
Greater Manchester Police Authority, A New Telecommunications System for the 66
GRIFFITHS, J. M. Digital Local Networks 206
GRUNWELL, K. H., and WALTON, D. The MOST Director
Part 1—System Outline, Technology and Call Routing 258

H

HALL, R. S., and SNAITH, M. J. Jitter Specification in a Digital Network 96
HARRIS, L. R. F., and DAVIS, E. System X and the Evolving U.K. Telecommunications Network 2
HAWKINS, J. W. The Mayfield Incident 131
HELLEUR, R. J., and COOPER, T. R. System X Software Engineering 240
HENDERSON, J. C., and PILGRIM, M. An IMPATT Diode Amplifier for 11 GHz Digital Radio-Relay Systems .. 220
HENDERSON, J. P. A Standard Control for Thyristor Rectifiers 36
High-Voltage Power System for Telecommunication Plant: A Safety Aspect 117
HORTH, P. J., and REYNOLDS, R. A. System X: Design and Support
Part 2—Computer-Aided Design 234

I

IMPATT Diode Amplifier for 11 GHz Digital Radio-Relay Systems, An 220
Impulse Generator for the Simulation of Interference Caused by Secondary Lightning Effects, An 118
Induced Transient Voltages. DC Power Supplies to Telecommunications Equipment: Distribution, Earthing and Protection Against
Part 1—Past and Present Arrangements 175
Part 2—A New Method 247
Injection-Welded Joint Repair, An 190
Installation of an Auto-Manual Centre in Non-Standard Premises 94
Institution of Post Office Electrical Engineers 67, 133, 198, 273
INTELPOST 216
Introduction of a Pentex Exchange into the Public Network, The 133

J

JARVIS, E. G., and SCOTT, R. P. I. Development of an 11 GHz Digital Radio-Relay System
Part 1—Design Considerations 102
Part 2—System Configuration and Parameters .. 153
Jitter Specification in a Digital Network 96
Joint Repair, An Injection-Welded 190
JONES, W. G. T., and KERSWELL, B. R. Conclusions from the Empress Digital Tandem Exchange Field Trial .. 9
JONES, W. G. T., KIRTLAND, J. P., and MOORE, B. W. Principles of System X 75

K

KEANE, A. J., and FOULKES, S. A. Use of Single-Channel-per-Carrier Terminal Equipment at Satellite System Earth Stations 54
KERSWELL, B. R., and JONES, W. G. T. Conclusions from the Empress Digital Tandem Exchange Field Trial .. 9
KINGSWELL, L. W., and CHAMBERLAIN, I. C. Alarms by Carrier 123
KIRTLAND, J. P., MOORE, B. W., and JONES, W. G. T. Principles of System X 75

L

Laser Development and Production, Semiconductor .. 19
Lightning Effects, An Impulse Generator for the Simulation of Interference Caused by Secondary 118
Local Network, Digital 206
Logging Device, A Microprocessor-Controlled Teletraffic .. 149

M

Magnetic Tape and the Recorder Tape No. 3A. Digital Recording on 180
Main Transmission Network: Optimization of Planning Methods 251
Main Transmission Network: Planning of Digital Transmission Systems 27
Management Switching System, STEMSS: Satellite Telegraph Engineering and 59
Manchester Police Authority, A New Telecommunications System for the Greater 66
MARLOW-MANN, P. D. G. Operational Experience and Evaluation of the British Post Office Experimental Packet-Switched Service 43
MATTY, G. P. The Introduction of a Pentex Exchange into the Public Network 133
Mayfield Incident, The 131
Microphone, The Electret: A Possible Replacement for the Carbon 15
Microprocessor-Controlled Teletraffic Logging Device, A 149
MILFORD, C., and WILLIAMS, J. B. Installation of an Auto-Manual Centre in Non-Standard Premises 94
Mobile Unit for the Radiophone Service: Development of a 55-Channel Unit, A New 50
MOORE, B. W., JONES, W. G. T., and KIRTLAND, J. P. Principles of System X 75
MORGAN, A. J., and WALKER, R. R. The Electret: A Possible Replacement for the Carbon Microphone 15
MORRIS, R. C. Use of Vehicles in the Telecommunications Business 258
MOST Director, The
Part 1—System Outline, Technology and Call Routing 266
Multiplex Systems, Telegraph Time-Division 212
Museum, The Formation of the New National Post Office Telecommunications 141
Museum in the South-Eastern Telecommunications Region, Telecommunications 197

N

National Post Office Telecommunications Museum, The Formation of the New 141
New Digital 1 VF Signalling Unit, A 108
Notes and Comments 68, 200, 273

O

1VF Signalling Unit, A New Digital 108
Operation Experience and Evaluation of the British Post Office Experimental Packet-Switched Service 43
Optimization of Planning Methods, Main Transmission Network 251

P

Packet-Switched Service, Operational Experience and Evaluation of the British Post Office Experimental .. 43
Pentex Exchange into the Public Network, The Introduction of a 133
Pentex Installation in the UK Network, Plessey 186
PIGOTT, A. C. Main Transmission Network: Optimization of Planning Methods 251
PILGRIM, M., and HENDERSON J. C. An IMPATT Diode Amplifier for 11 GHz Digital Radio-Relay Systems 220
Planning Methods, Main Transmission Network: Optimization of 251
Planning of Digital Transmission Systems, Main Transmission Network: 27
Plessey Pentex Installation in the UK Network 186
Police Authority, A New Telecommunications System for the Greater Manchester 66
Post Office Press Notices 66, 250
Power-Generation at the Goonhilly Satellite Communications Earth Station, Continuous 166
Power Supplies to Telecommunications Equipment: Distribution, Earthing and Protection Against Induced Transient Voltages, DC
Part 1—Past and Present Arrangements 175
Part 2—A New Method 247
Power System for Telecommunication Plant: A Safety Aspect, High-Voltage 117
PRICE, C. D. E., and ALLEN, D. System X: Design and Support
Part 1—Information System 229
Principles of System X 75

Protection Against Induced Transient Voltages. DC Power Supplies to Telecommunications Equipment: Distribution, Earthing and
Part 1—Past and Present Arrangements 175
Part 2—A New Method 247

R

Radiophone Service: Development of a 55-Channel Unit, A New Mobile Unit for the 50
Radio-Relay System, Development of an 11 GHz Digital
Part 1—Design Considerations 102
Part 2—System Configuration and Parameters .. 153
Radio-Relay Systems, An IMPATT Diode Amplifier for 11 GHz Digital 220
Recorder Tape No. 3A, Digital Recording on Magnetic Tape and the 180
Regenerator 5A, Reliability of Electronic Compartments: Results of the Field Trial of the 81
Reliability of Electronic Components: Results of the Field Trial of the Regenerator 5A 81
Repair, An Injection-Welded Joint 190
Review of their Evolution and Future, Submarine Cable Systems: A 87
REYNOLDS, F. H., and STEVENS, J. W. Reliability of Electronic Components: Results of the Field Trial of the Regenerator 5A 81
REYNOLDS, R. A., and HORTH, P. J. System X: Design and Support
Part 2—Computer-Aided Design 234

S

Safety Aspect, High-Voltage Power System for Telecommunication Plant: A 117
Satellite Communications Earth Station, Continuous Power-Generation at the Goonhilly 166
Satellite System Earth Stations, Use of Single-Channel-per-Carrier Terminal Equipment at 54
Satellite Telegraph Engineering and Management Switching System, STEMSS: 59
SCOTT, R. P. I., and JARVIS, E. G. Development of an 11 GHz Digital Radio-Relay System
Part 1—Design Considerations 102
Part 2—System Configuration and Parameters .. 153
Secondary Lightning Effects, An Impulse Generator for the Simulation of Interference Caused by 118
Semiconductor Laser Development and Production .. 19
SHELDON, M. I. B. An Impulse Generator for the Simulation of Interference Caused by Secondary Lightning Effects 118
Signalling Unit, A New Digital IVF 108
Simulation of Interference Caused by Secondary Lightning Effects, An Impulse Generator for the 118
Single-Channel-per Carrier Terminal Equipment at Satellite System Earth Stations, Use of 54
SMITH, J. D. A Microprocessor-Controlled Teletraffic Logging Device 149
SMITH, J. M. Telecommunications Museum in the South-Eastern Telecommunications Region 197
SNAITH, M. J., and HALL, R. D. Jitter Specification in a Digital Network 96
Software Engineering, System X 240
Solution to Abnormal Telephone-Exchange Congestion .. 215
South-Eastern Telecommunications Region, Telecommunications Museum in the 197
SPENCE, K. L. INTELPOST 216
Standard Control System for Thyristor Rectifiers, A .. 36
STEMSS: Satellite Telegraph Engineering and Management Switching System 59
STEVENS, J. W., and REYNOLDS, F. H. Reliability of Electronic Components: Results of the Field Trial of the Regenerator 5A 81
Submarine Cable Systems: A Review of their Evolution and Future 87
System X, Architecture of
Part 1—An Introduction to the System X Family .. 138
Part 2—The Digital Trunk Exchange 142
System X and the Evolving U.K. Telecommunications Network 2
System X: Design and Support
Part 1—Information System 229
Part 2—Computer-Aided Design 234
System X Principals of 75
System X Software Engineering 240

T

Tandem Exchange Field Trial, Conclusions from the Empress Digital 9
Tape and the Recorder Tape No. 3A, Digital Recording on Magnetic 180
Technical Aspects, Viewdata Abroad—The 172
TELECOM 79 227
TELECOM '79, The Third World Telecommunications Exhibition: 128
Telecommunications Museum in the South-Eastern Telecommunications Region 197
Telecommunications Network, System X and the Evolving U.K. 2
Telecommunications System for the Greater Manchester Police Authority, A New 66
Telegraph Engineering and Management Switching System, STEMSS: Satellite 59
Telegraph Equipment, Developments in Frequency-Shift Voice-Frequency 191
Telegraph Time-Division Multiplex Systems.. 212
Telephone-Exchange Congestion, Solution to Abnormal .. 215
Teletraffic Logging Device, A Microprocessor-Controlled 149
TEP-I(E), A New Equipment Practice for Transmission and Other Applications: 160
Terminal Equipment at Satellite System Earth Stations, Use of Single-Channel-per-Carrier 54
Third World-Telecommunications Exhibition: TELECOM 79, The 128
Thyristor Rectifiers, A Standard Control System for .. 36
Time-Division Multiplex Systems, Telegraph 212
TIPPLER, J. Architecture of System X
Part 1—An Introduction to the System X Family .. 138
Transmission Network: Optimization of Planning Methods, Main 251
Transmission Systems, Main Transmission Network: Planning of Digital 27

U

Use of Vehicles in the Telecommunications Business .. 258

V

VANNER, N. J. Architecture of System X
Part 2—The Digital Trunk Exchange 142
Vehicles in the Telecommunications Business, Use of .. 258
Viewdata Abroad—The Technical Aspects 172
Voice-Frequency Telegraph Equipment, Developments in Frequency-Shift 191

W

WALKER, R. R., and MORGAN, A. J. The Electret: A Possible Replacement for the Carbon Microphone 15
WALTON, D., and GRUNWELL, K. H. The MOST Director
Part 1—System Outline, Technology and Call Routing 258
WELSH, E. J., and ADAMS, P. F. A New Digital IVF Signalling Unit 108
WESTAWAY, H. E. Digital Recording on Magnetic Tape and the Recorder Tape No. 3A 180
WHYTE, J. S. Engineering in the British Post Office—A Look Ahead 73
WILKINSON, D. H. A New Telecommunications System for the Greater Manchester Police Authority 66
WILLIAMS, J. B., and MILFORD, C. Installation of an Auto-Manual Centre in Non-Standard Premises 94
WILLINGTON, D. J. Telegraph Time-Division Multiplex Systems 212
WILLSON, D. TELECOM 79 227
WILSON, P. C. DC Power Supplies to Telecommunications Equipment: Distribution, Earthing and Protection Against Induced Transient Voltages
Part 1—Past and Present Arrangements 175
Part 2—A New Method 247
WOOD, D. G. A New Mobile Unit for the Radiophone Service Development of a 55-Channel Unit 50

VOLUME 72

Part 1 (Apr. 1979) .. .. pp. 1–70
Part 2 (July 1979) .. .. pp. 72–136
Part 3 (Oct. 1979) .. .. pp. 137–203
Part 4 (Jan. 1980) .. .. pp. 205–275

Published by *The Post Office Electrical Engineers' Journal*, 2–12 Gresham Street, London EC2 7AG, and printed in Great Britain by Unwin Brothers Limited, Old Woking, Surrey

The Post Office Electrical Engineers' Journal

INDEX

VOLUME 73

(April 1980–January 1981)

A

ADAMS, F. L. An Improved Pseudo-Random Digital Sequence Error-Detector 186
Administrative Radio Conference, Geneva 1979, World .. 125
ALVEY, J. (profile) 67
America, Britain Shows the Flag in South 188
AMES, J. R. W., ELSDEN, M. J., HILL, M. W., and TRUDGETT, P. A. UXD5: A Small Digital-Switching Telephone Exchange for Rural Communities 241
Analysis Centres: Operational Activities and Achievements, Measurement and 43
Architecture of System X
Part 3—Local Exchanges.. 27
Part 4—The Local Administration Centre 36
Associate Section National Committee Report, The 70, 134, 205
Associate Section Notes 70, 134, 206, 272
AUGUST, R. W. An Experimental Solar-Collection System for Domestic Hot Water 35
Automatic Voice-Response From Telephone Exchanges: Voicedata 252

B

BACK, R. E. G. (profile) 65
BALLINGER, D. R., and WALKER, P. J. The CCITT No. 6 Common-Channel Signalling System 235
BALLINGER, R. W. The 60 MHz Frequency-Division Multiplex Network 190
BELTON, R. C. System X: Subsystems
Part 3—Processor Utility Subsystem 158
BENTON, P. F. (profile) 64
Birth of a Business, British Telecom— 184
Book Reviews 26, 53, 114, 126, 153, 201, 215, 234, 240, 262, 267
BOULTER, R. A. System X: Subsystems
Part 2—The Network Synchronization Subsystem .. 88
BRAKES, D. Record-Breaking Thrustbore 222
BRASSIL, T. G. Monarch 120: A Central Installation-Workshop Facility 176
BRIDLE, P. S., and SMITH, G. R. Terminating External Cables on Exchange Main Distribution Frames 115
Britain Shows the Flag in South America 188
British Telecom—Birth of a Business 184
British Telecom Laboratories on Show 248
BURVILLE, P. J., and DAWSON, W. Traffic Measurement Installations for Collecting Data for Long-Term Traffic Studies 119
BUSHELL, P. L., and CLEMITSON, M. Prestel Comes to Wales 246
Business, British Telecom—Birth of a 184

C

Cables During Construction of a New Road, An Unusual Method of Supporting Underground 198
Cables on Exchange Main Distribution Frames, Terminating External 115
Cable Systems, Optical-Fibre Submarine 250
Cable Tunnel, Cardiff 177
Cardiff Cable Tunnel 177
Cardiff Telephone Exchange, The Total-Energy Installation at the 92
CCITT No. 6 Common-Channel Signalling System, The .. 235
Centres: Operational Activities and Achievements, Measurement and Analysis 43
Character Coding for Text Communication
Part 1—Background to Character Coding 154
Part 2—The Development of Practical Standards .. 263
Circuits, Pattern Definition for the Manufacture of Large-Scale Integrated 208
CLARK, D. The Hollow Pole 254
CLARK, D. V. Britain Shows the Flag in South America .. 188
CLEMITSON, M., and BUSHELL, P. L. Prestel Comes to Wales 246
CLOW, D. G. Margins of Safety in Design 229
Coaxial Network, High Speed Digital Transmission in the British Post Office 145
COCHRANE, P., and CRANK, G. J. High-Speed Digital Transmission in the British Post Office Coaxial Network 145
Coding for Text Communication, Character
Part 1—Background to Character Coding 154
Part 2—The Development of Practical Standards .. 263
COLLIER, Q. G., and SHEEKEY, B. System X: Design and Support
Part 4—Development Documentation Scheme .. 100
Common-Channel Signalling System, The CCITT No. 6 235
Communications, Facsimile 195
Communities, UXD5: A Small Digital-Switching Telephone Exchange for Rural 241
Conference, Geneva 1979, World Administrative Radio .. 125
Conference, The Second International Telecommunications Energy 42
Conferences, Forthcoming 71, 81, 176, 273
Console for the Monarch 120 Digital PABX, The Operator's 138
Construction of a New Road, An Unusual Method of Supporting Underground Cables During the 198
Control, Telephone News Service Using Microprocessor .. 123
CRANK, G. J., and COCHRANE, P. High-Speed Digital Transmission in the British Post Office Coaxial Network 145
CRUMP, C. (profile) 130

D

Data for Long-Term Studies, Traffic Measurement Installations for Collecting 119
DAVIES, R., and HODSOLL, A. G. Restoration of a Flooded TXE2 Telephone Exchange 127
Design and Support, System X:
Part 3—Software Development Facilities 47
Part 4—Development Documentation Scheme .. 100
Part 5—Exchange Control and the Documentation Database. 104
Part 6—Design Rules 268
Design, Margins of Safety in 229
Detector, An Improved Pseudo-Random Digital Sequence Error- 186
Determining the End-to-End Grade of Service in a Network—Some New Results 109
Digital Network, Telephony Transmission Standards in the Evolving 74
Digital PABX, Monarch 120—A New 14
Digital PABX, The Operator's Console for the Monarch 120 138
Digital Sequence Error-Detector, An Improved Pseudo-Random 186
Digital-Switching Telephone Exchange for Rural Communities, UXD5: A Small 241

Digital Transmission in the British Post Office Coaxial Network, High-Speed .. 145
Director, The MOST
Part 2—Store Loading, Maintenance and Traffic Metering .. 8
Distribution Frames. Terminating External Cables on Exchange Main .. 115
Domestic Hot Water. An Experimental Solar-Collection System for .. 35
DUNCAN, J. C. An Unusual Method of Supporting Underground Cables During Construction .. 198

E

Electronic Exchange Systems UXE7 and UXE8, Small Exchange Modernization: New .. 82
ELMORE, J. A. System X: Subsystems
Part 6—Software Subsystems .. 223
ELSDEN, M. J., HILL, M. W., TRUDGETT, P. A., and AMES, J. R. W. UXD5: A Small Digital-Switching Telephone Exchange for Rural Communities .. 241
End-to-End Grade of Service in a Network—Some New Results, Determining .. 109
Energy Conference, The Second International Telecommunications .. 42
Energy Installation at the Cardiff Telephone Exchange, The Total- .. 92
Equipment Practice for Exchange Switching Equipment and Other Applications: Tep—1H, A New .. 171
Error-Detector, An Improved Pseudo-Random Digital Sequence .. 186
Exchange for Rural Communities, UXD5: A Small Digital-Switching Telephone .. 241
Exchange Main Distribution Frames, Terminating External Cables on .. 115
Exchange Modernization: New Electronic Exchange Systems UXE7 and UXE8, Small .. 82
Exchange, Regional Planning for Woodbridge System X .. 183
Exchange, Restoration of a Flooded TXE2 Telephone .. 127
Exchange Switching Equipment and Other Applications: Tep—1H, A New Equipment Practice for .. 171
Exchange, The Total-Energy Installation at the Cardiff Telephone .. 92
Exchanges: Voicedata, Voice Response From Telephone .. 252
Exchange Systems UXE7 and UXE8, Small Exchange Modernization: New Electronic .. 82
Experimental Solar-Collection System for Domestic Hot Water, An .. 35
External Cables on Exchange Main Distribution Frames, Terminating .. 115

F

Facsimile Communications .. 195
Fibre Submarine Cable Systems, Optical- .. 250
FINUCANE, A. M. F. (profile) .. 131
Flooded TXE2 Telephone Exchange, Restoration of a .. 127
Flooding, Protection Against Thames .. 185
FOXELL, C. A. P. (profile) .. 67
FOXTON, M. G. System X: Subsystems
Part 5—The Subscribers' Switching Subsystem .. 216
Frequency-Division Multiplex Network, The 60 MHz .. 190

G

GARRETT, W. F. Teleprinter No. 23: A New Teleprinter for the Telex Service .. 54
Geneva 1979, World Administrative Radio Conference .. 125
Grade of Service in a Network—Some New Results, Determining End-to-End .. 109
GRUNWELL, K. H., and WALTON, D. The MOST Director
Part 2—Store Loading, Maintenance and Traffic Metering .. 8

H

HARPER, J. M. (profile) .. 64
HARPER, R. Protection Against Thames Flooding .. 185
HARRIS, L. R. F. (profile) .. 66
HARRISON, K. R. Telephony Transmission Standards in the Evolving Digital Network .. 74
HARVEY, C. Determining the End-to End Grade of Service in a Network–Some New Results .. 109
HARVEY, D. G. W. A New Equipment Practice for Exchange Switching Equipment and Other Applications: Tep–1H .. 171
Headquarters, Reorganization of Telecommunications .. 63
HESLOP, C. J., HINES, R. E., and WOODWARD, J. W. Pattern Definition for the Manufacture of Large-Scale Intergrated Circuits .. 208
High-Speed Digital Transmission in the British Post Office Coaxial Network .. 145
HILDREW, I. R. Regional Planning for Woodbridge System X Exchange .. 183
HILL, M. W., TRUDGETT, P. A., AMES, J. R. W., and ELSDEN, M. J. UXD5: A Small Digital-Switching Telephone Exchange for Rural Communities .. 241
HINES, R. E., WOODWARD, J. W., and HESLOP, C. J. Pattern Definition for the Manufacture of Large-Scale Intergrated Circuits .. 208
HODGSON, J. (profile) .. 65
HODSOLL, A. G., and DAVIES, R. Restoration of a Flooded TXE2 Telephone Exchange .. 127
Hollow Pole, The .. 254
HOOPER, R. (profile) .. 200
HOWELLS, J. L. (profile) .. 130

I

Improved Pseudo-Random Digital Sequence Error-Detector, An .. 186
Installations for Collecting Data for Long-Term Studies, Traffic Measurement .. 119
Installation-Workshop Facility, Monarch 120: A Central .. 176
Institution of Post Office Electrical Engineers 68, 132, 202, 271
Integrated Circuits, Pattern Definition for the Manufacture of Large-Scale .. 208
Intelligent Telephone, The .. 251
International Telecommunications Energy Conference, The Second .. 42

J

JAMES, N. A. Cardiff Cable Tunnel .. 177
JOHNSON, N. G. The Total-Energy Installation at the Cardiff Telephone Exchange .. 92

K

KEMBER, W. P. (profile) .. 64

L

Laboratories on Show, British Telecom Research .. 248
Large-Scale Integrated Circuits, Pattern Definition for the Manufacture of .. 208
LASHMAR, J. C., and POULTNEY, A. E. Small Exchange Modernization: New Electronic Exchange Systems UXE7 and UXE8 .. 82
LAWSON, F. (profile) .. 66
LILLIE, S. (profile) .. 200
LONG, P. A. (profile) .. 131
LOOME, S. R. System X: Design and Support
Part 3—Software Development Facilities .. 47

M

MCDONAGH, M. British Telecom: Birth of a Business .. 184
Main Distribution Frames, Terminating External Cables on Exchange .. 115
Manufacture of Large-Scale Integrated Circuits, Pattern Definition for the .. 208
Margins of Safety in Design .. 229
MARTIN, W. G. (profile) .. 131
MAURER, C. J. (profile) .. 201
MAY, C. A. (profile) .. 66
Measurement and Analysis Centres: Operational Activities and Achievements .. 43
Measurement Installations for Collecting Data for Long-Term Studies, Traffic .. 119
Method of Supporting Underground Cables During Construction of a New Road, An Unusual .. 198
Microprocessor Control, Telephone News Service Using .. 123
MILWAY, N. R. P., and SHEEKEY, B. System X: Design and Support
Part 5—Change Control and the Documentation Database .. 104
Modernization: New Electronic Exchange Systems UXE7 and UXE8, Small Exchange .. 82
Monarch 120: A Central Installation-Workshop Facility 176
Monarch 120—A New Digital PABX .. 14
Monarch 120 Digital PABX, The Operator's Console for 138
MORRIS, M. (profile) .. 67
MOST Director, The
Part 2—Store Loading, Maintenance and Traffic Metering .. 8
Multiplex Network, The 60 MHz Frequency-Division .. 190
Museum Taunton: Britain's Oldest Telecommunications Museum, The Post Office Telecommunications .. 62

N

Network, High Speed Digital Transmission in the British Post Office Coaxial .. 145
Network—Some New Results, Determining End-to-End Grade of Service in a .. 109
Network, Telephony Transmission Standards in the Evolving Digital .. 74
Network, The 60 MHz Frequency Division Multiplex Network .. 190
New Equipment Practice for Exchange Switching Equipment and Other Applications: Tep—1H .. 171

News Service Using Microprocessor Control, Telephone .. 123
No. 6 Common-Channel Signalling System, The CCITT .. 235
Notes and Comments 69, 206, 272

O

OLIVER, G. P. Architecture of System X.
Part 3—Local Exchanges 27
Operator's Console for the Monarch 120 Digital PABX, The 132
Optical-Fibre Submarine Cable Systems 250

P

PABX, Monarch 120—A New Digital 14
PABX, The Operator's Console for the Monarch 120 Digital 138
Pattern Definition for the Manufacture of Large-Scale Intergrated Circuits 208
PHOENIX, A. Telephone News Service Using Microprocessor Control 123
Planning for Woodbridge System X Exchange, Regional .. 183
POCOCK, G. J. (profile) 65
Pole, The Hollow 254
PORTER, D. W. (profile) 200
Post Office Press Notices .. 71, 129, 135, 194, 228, 257, 273
Post Office Telecommunications Museum Taunton: Britain's Oldest Telecommunications Museum 62
POTTER, A. R. Monarch 120–A New Digital PABX .. 14
POULTNEY, A. E., and LASHMAR, J. C. Small Exchange Modernization: New Electronic Exchange Systems UXE7 and UXE8 82
POVEY, P. J. The Post Office Telecommunications Museum, Taunton: Britain's Oldest Telecommunications Museum 62
Practice for Exchange Switching Equipment and Other Applications: Tep—1H, A New Equipment 171
Prestel Comes to Wales 246
PRICHARD, T. W. System X: Subsystems
Part 4—Common-Channel Signalling and the Message Transmission Subsystem 165
Profiles of Senior Staff 64, 130, 200
Protection Against Thames Flooding 185
Pseudo-Random Digital Sequence Error-Detector, An Improved 186

R

Radio Conference, Geneva 1979, World Administrative .. 125
Random Digital Sequence Error-Detector, An Improved Pseudo- 186
Record-Breaking Thrustbore 222
Regional Planning for Woodbridge System X Exchange .. 183
Reorganization of Telecommunications Headquarters .. 63
Research Laboratories on Show, British Telecom 248
Restoration of a Flooded TXE2 Telephone Exchange .. 127
RISBRIDGER, J. N. A. System X: Subsystems
Part 1—The Digital Switching Subsystem 19
Road, An Unusual Method of Supporting Underground Cables During the Construction of a New 198
Role of the Switching Systems Test Facility, System X: The 258
Rural Communities, UXD5: A Small Digital-Switching Telephone Exchange for 241

S

Safety in Design, Margins of 229
SAPSFORD, B. G. Measurement and Analysis Centres: Operational Activities and Achievements 43
SAUNDERS, A. G. Thick-Film Technology: An Introduction 2
Second International Telecommunications Energy Conference, The 42
Senior Staff, Profiles of 64, 130, 200
SHEEKEY, B., and COLLIER, Q. G. System X: Design and Support
Part 4—Development Documentation Scheme .. 100
SHEEKEY, B., and MILWAY, N. R. P. System X: Design and Support
Part 5—Development Documentation Database .. 104
Signalling System, The CCITT No. 6 Common-Channel .. 235
SIMPSON, W. G. (profile) 131
60 MHz Frequency Division Multiplex Network, The .. 190
Slow-Scan Television 253
Small Exchange Modernization: New Electronic Exchange Systems UXE7 and UXE8 82
SMITH, G. R., and BRIDLE, P. S. Terminating External Cables on Exchange Main Distribution Frames 115
Solar-Collection System for Domestic Hot Water, An Experimental 35
South America, Britain Shows the Flag in 188
SPURGIN, D. A. The Second International Telecommunications Energy Conference 42
Staff, Profiles of Senior 64, 130, 200
Standards in the Evolving Digital Network, Telephony Transmission 74
Studies, Traffic Measurement Installations for Collecting Data for Long-Term Traffic 119
Submarine Cable Systems, Optical-Fibre 250
Subsystems, System X:
Part 1—The Digital Switching Subsystem 19
Part 2—The Network Synchronization Subsystem .. 88
Part 3—Processor Utility Subsystem 158
Part 4—Common-Channel Signalling and the Message Transmission Subsystem 165
Part 5—The Subscribers' Switching Subsystem .. 216
Part 6—Software Subsystems 223
Supporting Underground Cables During Construction of a New Road, An Unusual Method of 198
SWAFFIELD, J. L. System X: Design and Support
Part 6-Design Rules 268
SWALLOW, S. (profile) 200
Switching Equipment and Other Applications: Tep—1H, A New Equipment Practice for Exchange 171
Switching Systems Test Facility, System X: The Role of the 258
Switching Telephone Exchange for Rural Communities, UXD5: A Small Digital- 241
Systems, Optical-Fibre Submarine Cable 250
Systems UXE7 and UXE8, Small Exchange Modernization: New Electronic Exchange 82
System X, Architecture of
Part 3—Local Exchanges 27
Part 4—The Local Administration Centre 36
System X: Design and Support
Part 3—Software Development Facilities 47
Part 4—Development Documentation Scheme .. 100
Part 5—Exchange Control and the Documentation Database 104
Part 6—Design Rules 268
System X Exchange, Regional Planning for Woodbridge .. 183
System X: Subsystems
Part 1—The Digital Switching Subsystem 19
Part 2—The Network Synchronization Subsystem .. 88
Part 3—Processor Utility Subsystem 158
Part 4—Common-Channel Signalling and the Message Transmission Subsystem 165
Part 5—The Subscribers' Switching Subsystem .. 216
Part 6—Software Subsystems 223
System X: The Role of the Switching Systems Test Facility 258

T

Taunton: Britain's Oldest Telecommunications Museum, The Post Office Telecommunications Museum 62
Technology: An Introduction, Thick Film 2
Telecom— Birth of a Business, British 184
Telecommunications Museum Taunton: Britain's Oldest Telecommunications Museum, The Post Office .. 62
Telecom Research Laboratories on Show, British 248
Telephone Exchange for Rural Communities, UXD5: A Small Digital-Switching 241
Telephone Exchanges: Voicedata, Voice-Response From .. 252
Telephone News Service Using Microprocessor Control .. 123
Telephone, The Intelligent 251
Telephony Transmission Standards in the Evolving Digital Network 74
Teleprinter No. 23: A New Teleprinter for the Telex Service 54
Telex Service, Teleprinter No. 23: A New Teleprinter for the 54
Television, Slow-Scan 253
Tep—1H, A New Equipment Practice for Exchange Switching Equipment and Other Applications: 171
Terminating External Cables on Exchange Main Distribution Frames 115
Test Facility, System X: The Role of the Switching Systems 258
Text Communication, Character Coding for
Part 1—Background to Character Coding 154
Part 2—The Development of Practical Standards .. 263
Thames Flooding, Protection Against 185
Thick Film Technology: An Introduction 2
THOMAS, A. System X: The Role of the Switching Systems Test Facility 258
THOMAS, J. F. P. (profile) 67
Thrustbore, Record-Breaking 222
TOMLINSON, H. (profile) 66
Total-Energy Installation at the Cardiff Telephone Exchange, The 92
Traffic Measurement Installations for Collecting Data for Long-Term Traffic Studies 119
Traffic Studies, Traffic Measurement Installations for Collecting Data for Long-Term 119
Transmission in the British Post Office Coaxial Network, High Speed Digital 145
Transmission Standards in the Evolving Digital Network, Telephony 74

TRUDGETT, P. A., AMES, J. R. W., ELSDEN, M. J., and HILL, M. W. UXD5: A Small Digital-Switching Telephone Exchange for Rural Communities 241
TUDGE, D. J. (profile) 201
Tunnel, Cardiff Cable 177
TXE2 Telephone Exchange, Restoration of a Flooded .. 127

U

Underground Cables During Construction of a New Road, An Unusual Method of Supporting 198
Unusual Method of Supporting Underground Cables During Construction of a New Road, An 198
UXD5: A Small Digital-Switching Telephone Exchange for Rural Communities
Part 1—General Description and Operational Facilities 241
UXE7 and UXE8, Small Exchange Modernization: New Electronic Exchange Systems 82
UXE8, Small Exchange Modernization: New Electronic Exchange Systems UXE7 and 82

V

VALLANCE, I. D. T. (profile) 130
Voicedata, Automatic Voice-Response From Telephone Exchanges: 252
Voice-Response From Telephone Exchanges: Voicedata .. 252

W

Wales, Prestel Comes to 246
WALDI, A. A. Architecture of System X.
Part 4—The Local Administration Centre 36
WALKER, P. J., and BALLINGER, D. R. The CCITT No. 6 Common-Channel Signalling System 235
WALTON, D., and GRUNWELL, K. H. The MOST Director
Part 2—Store Loading, Maintenance and Traffic Metering 8
Water, An Experimental Solar-Collection System for Domestic Hot 35
WHALL, A. J. Character Coding for Text Communication
Part 1–Background to Character Coding
Part 2–The Development of Practical Standards 154, 263
WHYTE, J. S. (profile) 64
WILLETT, G. The Operator's Console for the Monarch 120 Digital PABX 138
WITHERS, D. J. World Administrative Radio Conference, Geneva 1979 125
Woodbridge System X Exchange, Regional Planning for .. 183
WOODWARD, J. W., HISLOP, C. J., and HINES, R. E. Pattern Definition for the Manufacture of Large-Scale Integrated Circuits 208
Workshop-Facility, Monarch 120: A Central Installation- 176
World Administrative Radio Conference, Geneva 1979 .. 125
WRATTEN, D. P. (profile) 65
WRAY, D. (profile) 130

VOLUME 73

Part 1 (Apr. 1980) .. .. pp. 1–71
Part 2 (July 1980) .. .. pp. 71–135
Part 3 (Oct. 1980) .. .. pp. 137–206
Part 4 (Jan. 1981) .. .. pp. 207–274

Published by *The Post Office Electrical Engineers' Journal*, 2–12 Gresham Street, London EC2 7AG
and printed in Great Britain by Unwin Brothers Limited, Old Woking, Surrey

The Post Office Electrical Engineers' Journal

INDEX

VOLUME 74

(April 1981–January 1982)

A

Aluminium Conductors, Wire Wrapping of 328
Ambassador Electronic Plan System, The Development and Production of the 352
Ambassador Range of Telephones and Production of the Basic Instrument, The Development of the 70
Ambassador Range of Telephones—Development of the Keypad and Signalling Circuitry, The 314
AMBLE: Automatic Memory-Board Loading Equipment .. 118
AMES, J. R. W., ELSDEN, M. J., HILL, M. W., and TRUDGETT, P. A. UXD5: A Small Digital-Switching Telephone Exchange for Rural Communities
Part 2—System Software and Operation 12
Ancillary Postal Equipment, Parcel Sorting Systems and .. 271
ANDREAE, P. M., and BARRINGTON, P. J. System X: The Traffic Generator and Monitor 17
ANDREWS, M. J. Frequency-Division Multiplex Line and Terminal Equipment 260
ARCHER, G., and WRIGHT, T. C. 8·448 Mbit/s Digital Line Systems on Carrier Cables 335
Architecture, The Evolution of Switching Systems 187
ASCE and the Junction Network, The New 139
Assessment of Telephone Sets, A Computer-Based System for the Design, Measurement and 25
Associate Section Notes 67, 144
Audio Transmission 263
Automatic Memory-Board Loading Equipment, AMBLE: 118

B

BARRINGTON, P. J., and ANDREAE, P. M. System X: The Traffic Generator and Monitor 17
BEARDMORE, A. F. Postal Engineering: Foreword (IPOEE 75th Anniversary Issue) 267
BERG, I. W. S. The Post Office Railway 280
BOAG, J. F. (profile) 375
Book Reviews 16, 39, 121, 141, 368, 371, 376
BOOTH, A. J. (profile) 142
British Post Office External Students' Scheme for Technical Education, The 56
British Telecom Plug, Socket, Cordage and Line Jack Units, New 308
British Telecom Press Notices 369, 375, 376
BROOKFIELD, J. T., and TRIMBLE, M. K. A Standard Range of DC Power Supplies for PBXs 34
BROWN, G. D., and CHATTERTON, D. K. A. Changing the PMBX1A for a PMBI 1A at County Hall, Truro .. 370
Building Engineering Services in the Postal Business .. 277
BURTON, P. A., and PRITCHARD, D. A. The Development and Production of the Ambassador Electronic Plan System 352
BURTON, P. A., and PRITCHARD, D. A. The Development of the Ambassador Range of Telephones and Production of the Basic Instrument 70
BURTON, P. A. New British Telecom Plug, Socket, Cordage and Line Jack Units 308
BROADHEAD, W. R. Prestel: The First Year of Public Service 129

C

Cables, 8·448 Mbit/s Digital Line Systems on Carrier .. 335
CAIRO: Computer Analysis of Incident Recorder Output for TXK4 86
CANTAT 1 Reaches Design Life: A Pioneer of Long-Life Thermionic Valves 44
Carrier Cables, 8·448 Mbit/s Digital Line Systems on .. 335
Change and Development March 1931—March 1956—March 1981 234
Changing the PMBX1A for a PMBX1 1A at County Hall, Truro 370
Channel-Associated Signalling Technology, Developments in 213
CHATTERTON, D. K. A., and BROWN, G. D. Changing the PMBX1A for a PMBX1 1A at County Hall, Truro .. 370
CHILD, A. N., and HEDGES, D. J. The Ambassador Range of Telephones—Development of the Keypad and Signalling Circuitry 314
CHISHOLME, J. A. Microwave Radio-Relay Systems .. 257
Circuitry, The Ambassador Range of Telephones—Development of the Keypad and Signalling 314
CJP3: A Computer Aid to Junction-Network Planning .. 29
CLOW, D. G., and STENSON, D. W. External Plant 223
CLOW, D. G. The Soil as an Engineering Material
Part 1—Soil Properties 122
Part 2—Applications 345
Common-Channel Signalling, Progress Towards 210
Communications for Shipping, INMARSAT—A New Era of Satellite 322
Communications Networks, Packet-Switched Data .. 216
Communities, UXD5: A Small Digital-Switching Telephone Exchange for Rural
Part 2—System Software and Operation 12
Computer-Aided Design and Engineering of System X Exchanges 8
Computer Aid to Junction-Network Planning, CJP3: A .. 29
Computer Analysis of Incident Recorder Output for TXK4, CAIRO: 86
Computer-Based System for the Design, Measurement and Assessment of Telephone Sets, A 25
Conductors, Wire Wrapping of Aluminium 328
Conference, The International Telecommunications Energy 55
Conferences, Forthcoming 374
Control Technology for Telephone Switching, Developments in 194
Cordage and Line Jack Units, New British Telecom Plug, Socket 308
CRUMP, N. G. Transmission Equipment Practice 265

D

DANIELS, E. E. Telex Switching and Signalling 219
DANN, A. T. System X: Subsystems
Part 8—Maintenance Control Subsystem 45
Data Communications Networks, Packet-Switched 216
DAVEY, D. V. (profile) 142
DC Power Supplies for PBXs, A Standard Range of .. 34
Design and Engineering of System X Exchanges, Computer-Aided 8
Design, Measurement and Assessment of Telephone Sets, A Computer-Based System for the 25
Design, Teletraffic Aspects of Processor Utility 364
Determination of Large Reflector Profiles by Microwave Wavefront Reconstruction 106
Development and Production of the Ambassador Electronic Plan System, The 352

Development March 1931—March 1956—March 1981, Change and 234
Development of the Ambassador Range of Telephones and Production of the Basic Instrument, The 70
Development of the Keypad and Signalling Circuitry, The Ambassador Range of Telephones— 314
Developments in Channel-Associated Signalling Technology 213
Developments in Control Technology for Telephone Switching 194
Developments in Signalling Systems Since 1956 199
Developments in Switching Systems Technology 203
DICK, D. N. (profile) 375
Digitalization of the Junction and Main Networks 254
Digital Line Systems on Carrier Cables, 8·448 Mbit/s .. 335
Digital PABX for Exeter Telephone Area Office, New .. 64
Digital-Switching Telephone Exchange for Rural Communities, UXD5: A Small
Part 2—System Software and Operation 12
Digital Transmission in the Junction Network, Provision of 92
DIVER, K. J., and SWAN, D. W. Computer-Aided Design and Engineering of System X Exchanges 8
DUDDY, R. M., and HAYNES, R. G. New Digital PABX for Exeter Telephone Area Office 64
DUFOUR, I. G. Provision of Digital Transmission in the Junction Network 92
DUNCAN, J. C. Victorian Telecommunications: An Historical Discovery 52

E

EBX8000 Stored-Program Control PABX 134
Education, The British Post Office External Students' Scheme for Technical 56
EDWARDS, D. J. Determination of Large Reflector Profiles by Microwave Wavefront Reconstruction 106
8·448 Mbit/s Digital Line Systems on Carrier Cables .. 335
Electronic Exchange System UXE8, The First Installation of the 64
Electronic Plan System, The Development and Production of the Ambassador 352
ELLIS, J. G., and WEBB, P. K. A Computer-Based System for the Design, Measurement and Assessment of Telephone Sets 25
ELSDEN, M. J., HILL, M. W., TRUDGETT, P. A., and AMES, J. R. W. UXD5: A Small Digital-Switching Telephone Exchange for Rural Communities
Part 2—System Software and Operation 12
ELSON, R. W. AMBLE: Automatic Memory-Board Loading Equipment 118
Energy Conference, The International Telecommunications 55
Engineering of System X Exchanges, Computer-Aided Design and 8
Engineering Services in the Postal Business, Building .. 277
Equipment, Frequency-Division Multiplex Line and Terminal 260
Equipment, Parcel Sorting Systems and Ancillary Postal Equipment 271
Equipment Practice, Transmission 265
Evolution of Switching Systems Architecture, The 187
Evolution of the Inland Telecommunications Network, The 162
Exchange for Rural Communities, UXD5: A Small Digital-Switching Telephone
Part 2—System Software and Operation 12
Exchanges, Computer-Aided Design and Engineering of System X 8
Exchange System UXE8, The First Installation of the Electronic 64
Exchanges, Telephone Instruments, Payphones and Private Branch 235
Exchange, The First TXE4A 137
Exeter Telephone Area Office, New Digital PABX for .. 64
External Plant 223
External Students' Scheme for Technical Education, The British Post Office 56

F

Facilities, Monarch 120—Maintenance 99
FINDEN, R. E. Building Engineering Services in the Postal Business 277
First Installation of the Electronic Exchange System UXE8, The 64
First TXE4A Exchange, The 137
FORD, M. L. (profile) 142
Foreword (Postal Engineering, 75th Anniversary Issue) .. 267
Foreword (to the IPOEE 75th Anniversary Issue) 147
FOUNTAIN, V. A. E. EBX8000 Stored-Program Control PABX 134
FRAME, P. B. Developments in Channel-Associated Signalling Technology 213
Frequency-Division Multiplex Line and Terminal Equipment 260
Future: The Next Twenty-Five Years, The 298

G

GOODISON, H. Parcel Sorting Systems and Ancillary Postal Equipment 271
GRINDROD, T. D., and TALLYN, K. G. Problems with a River Crossing 54

H

HARVEY, C. Teletraffic Aspects of Processor Utility Design 364
HARRIS, L. R. F., and MARTIN, J. The Evolution of Switching Systems Architecture 187
HAYNES, R. G., and DUDDY, R. M. New Digital PABX for Exeter Telephone Area Office 64
HEDGES, D. J., and CHILD, A. N. The Ambassador Range of Telephones—Development of the Keypad and Signalling Circuitry 314
HILLEN, C. F. J. Telephone Instruments, Payphones and Private Branch Exchanges 235
HILL, M. W., TRUDGETT, P. A., AMES, J. R. W., and ELSDEN, M. J. UXD5: A Small Digital-Switching Telephone Exchange for Rural Communities
Part 2—System Software and Operation 12
HILLS, A. The New ASCE and the Junction Network .. 139
HINES, H. E. Wire Wrapping of Aluminium Conductors .. 328
Historical Discovery, Victorian Telecommunications: An .. 52
Historical Overview, Transmission: An 249
HOWARD, R. H. Power Supplies For Small Telecommunications Centres
Part 1—DC Power Plants Nos. 235 and 236 113
HUGHES, C. J., and LONGDEN, T. E. Developments in Switching Systems Technology 203

I

Incident Recorder Output for TXK4, CAIRO: Computer Analysis of 86
Incoming Type 8 Register-Translators at Manchester Dalton, Replacement of 369
Information Technology Year 1982 351
Inland Telecommunications Network, The Evolution of the 162
INMARSAT—A New Era of Satellite Communications for Shipping 322
Installation of the Electronic Exchange System UXE8, The First 64
Institution of Post Office Electrical Engineers 65, 143, 303, 372
Institution of Post Office Electrical Engineers: Local Centre Chairmen and Honorary Local Secretaries 1981–82 .. 149
Institution of Post Office Electrical Engineers: London Centre—Past and Present, The 59
Institution of Post Office Electrical Engineers 1906–1981, The 148
Institution of Post Office Electrical Engineers, Seventy-Five Years of the 150
Instruments, Payphones and Private Branch Exchanges, Telephone 235
Instrument, The Development of the Ambassador Range of Telephones and Production of the Basic 70
International Services, A Review of the 172
International Telecommunications Energy Conference, The 55

J

Jack Units, New British Telecom Plug, Socket, Cordage and Line 308
Junction and Main Networks, Digitalization of the 254
Junction-Network Planning, CJP3: A Computer Aid to .. 29
Junction Network, Provision of Digital Transmission in the 92
Junction Network, The New ASCE and the 139

K

KELLY, P. T. F. Packet-Switched Data Communications Networks 216
Keypad and Signalling Circuitry, The Ambassador Range of Telephones—Development of the 314
KIRTLAND, J. P., and LONGDEN, T. E. Developments in Control Technology for Telephone Switching 194
KNIGHT, A. V., and WRAY, D. Telecommunications and Society: The Past Twenty-Five Years 156

L

LAWRENCE, L. H., and RITCHIE, D. A. The First TXE4A Exchange 137
Letter-Post Mechanization: 75 Years of Progress 267
Line and Terminal Equipment, Frequency-Division Multiplex 260
Line Jack Units, New British Telecom Plug, Socket, Cordage and 308
Line Systems on Carrier Cables, 8·448 Mbit/s Digital .. 335
Loading Equipment, AMBLE: Automatic Memory-Board .. 118

London Centre—Past and Present, The Institution of Post Office Electrical Engineers: 59
LONERGAN, J. L. Audio Transmission 263
LONGDEN, T. E., and HUGHES, C. J. Developments in Switching Systems Technology 203
LONGDEN, T. E., and KIRTLAND, J. P. Developments in Control Technology for Telephone Switching 194

M

Main Networks, Digitalization of the Junction and .. 254
Maintenance Facilities, Monarch 120— 99
Manchester Dalton, Replacement of Incoming Type 8 Register-Translators at 369
MARTIN, J., and TIPPLER, J. Developments in Signalling Systems Since 1956 199
MARTIN, J., and HARRIS, L. R. F. The Evolution of Switching Systems Architecture 187
MAURER, C. J. A Review of the International Services .. 172
MEALING, A. W. Power Supplies For Small Telecommunications Centres
Part 2—AC Power Plant No. 440 359
Measurement and Assessment of Telephone Sets, A Computer-Based System for the Design, ... 25
Mechanization: 75 years of Progress, Letter-Post 267
Memory-Board Loading Equipment, AMBLE: Automatic.. 118
Microwave Radio-Relay Systems 257
Microwave Wavefront Reconstruction, Determination of Large Reflector Profiles by 106
Monarch 120—Maintenance Facilities 99
Monarch 120--The System Software 81
Monitor, System X: The Traffic Generator and 17
MOORE, B. W. Progress Towards Common-Channel Signalling 210
MORRIS, R. C., and STEWART, J. M. CAIRO: Computer Analysis of Incident Recorder Output for TXK4 .. 86
Multiplex Line and Terminal Equipment, Frequency-Division 260

N

Network Planning, CJP3: A Computer Aid to Junction- 29
Network, Provision of Digital Transmission in the Junction 92
Networks, Digitalization of the Junction and Main .. 254
Networks, Packet-Switched Data Communications .. 216
Network, The Evolution of the Inland Telecommunications 162
Network, The New ASCE and the Junction 139
New ASCE and the Junction Network, The 139
New Digital PABX for Exeter Telephone Area Office .. 64
Notes and Comments 67, 145, 303, 373

O

OLIVER, W. M. The First Installation of the Electronic Exchange System UXE8 64

P

Packet-Switched Data Communications Networks 216
PABX, EBX8000 Stored-Program Control 134
PABX for Exeter Telephone Area Office, New Digital .. 64
Parcel Sorting Systems and Ancillary Postal Equipment .. 271
PARK, I. D. C. Monarch 120--The System Software .. 81
Payphones and Private Branch Exchanges, Telephone Instruments 235
PBXs, A Standard Range of DC Power Supplies for .. 34
PHILLIPS, K. H. C. Letter-Post Mechanization: 75 Years of Progress 267
Planning, CJP3: A Computer Aid to Junction-Network .. 29
Plan System, The Development and Production of the Ambassador Electronic 352
Plant, External 223
Plug, Socket, Cordage and Line Jack Units, New British Telecom 308
PMBX1A for a PMBX11A at County Hall, Truro, Changing the 370
POSKETT, P. I. INMARSAT—A New Era of Satellite Communications for Shipping 322
Postal Business, Building Engineering Services in the .. 277
Postal Engineering: Foreword (IPOEE 75th Aniversary Issue) 267
Postal Equipment, Parcel Sorting Systems and Ancillary .. 271
Post Office Electrical Engineers: London Centre—Past and Present, The Institution of 59
Post Office External Students' Scheme for Technical Education, The British 56
Post Office Press Notices 11, 51, 68, 91, 98, 105, 117, 128, 133
Post Office Railway, The 280
Power Supplies for PBXs, A Standard Range of DC .. 34
Power Supplies For Small Telecommunications Centres
Part 1—DC Power Plant Nos. 235 and 236 113
Part 2—AC Power Plant No. 440 359
Private Branch Exchanges, Telephone Instruments, Payphones and 235
PRITCHARD, D. A., and BURTON, P. A. The Development and Production of the Ambassador Electronic Plan System 352
PRITCHARD, D. A., and BURTON, P. A. The Development of the Ambassador Range of Telephones and Production of the Basic Instrument 70
Press Notices, British Telecom 369, 375, 376
Press Notices, Post Office 11, 51, 68, 91, 98, 105, 117, 128, 133
Prestel: The First Year of Public Service 129
Problems with a River Crossing 54
Processor Utility Design, Teletraffic Aspects of 364
Production of the Ambassador Electronic Plan System, The Development and 352
Production of the Basic Instrument, The Development of the Ambassador Range of Telephones and 70
Profiles of Senior Staff 142, 374, 375
Progress Towards Common-Channel Signalling 210
Provision of Digital Transmission in the Junction Network 92
PUTT, A. C., and SMITHETT, R. G. CJP3: A Computer Aid to Junction-Network Planning 29

R

Radio-Relay Systems, Microwave 257
Railway, The Post Office 280
Reflector Profiles by Microwave Wavefront Reconstruction, Determination of Large 106
Register-Translators at Manchester Dalton, Replacement of Incoming Type 8 369
Replacement of Incoming Type 8 Register-Translators at Manchester Dalton 369
Research 282
Review of the International Services, A. 172
River Crossing, Problems with a 54
RITCHIE, D. A., and LAWRENCE, L. H. The First TXE4A Exchange 137
Rural Communities, UXD5: A Small Digital-Switching Telephone Exchange for
Part 2—System Software and Operation 12

S

Satellite Communications for Shipping, INMARSAT—A New Era of.. 322
SCHICKNER, M. J. Digitalization of the Junction and Main Networks 254
Senior Staff, Profiles of 142, 374, 375
75 Years of Progress, Letter-Post Mechanization: 267
Seventy-Five Years of the Institution of Post Office Electrical Engineers 150
Shipping, INMARSAT—A New Era of Satellite Communications for 322
SHORT, P. J. System X: Testing of Slide-in-Units 40
Signalling Circuitry, The Ambassador Range of Telephones —Development of the Keypad and 314
Signalling, Progress Towards Common-Channel 210
Signalling Systems Since 1956, Developments in 199
Signalling Technology, Developments in Channel-Associated 213
Signalling, Telex Switching and 219
SIMPSON, W. G. Transmission: An Historical Overview .. 249
SKELLAND, J. H. Replacement of Incoming Type 8 Register-Translators at Manchester Dalton 369
Slide-in-Units, System X: Testing of 40
Small Digital-Switching Telephone Exchange for Rural Communities, UXD5: A
Part 2—System Software and Operation 12
SMITHETT, R. G., and PUTT, A. C. CJP3: A Computer Aid to Junction-Network Planning 29
SMITH, G. R. System X: Subsystems
Part 7—The Signalling Interworking and Analogue Line Terminating Subsystems 2
Society: The Past Twenty-Five Years, Telecommunications and 156
Socket, Cordage and Line Jack Units, New British Telecom Plug 308
Software, Monarch 120—The System 81
Soil as an Engineering Material, The
Part 1—Soil Properties 122
Part 2—Applications 345
Sorting Systems and Ancillary Postal Equipment, Parcel .. 271
Staff, Profiles of Senior 142, 374
Standard Range of DC Power Supplies for PBXs, A .. 34
STENSON, D. W., and CLOW, D. G. External Plant .. 223
STEWART, J. M., and MORRIS, R. C. CAIRO: Computer Analysis of Incident Recorder Output for TXK4 .. 86
STOATE, K. W. The Institution of Post Office Electrical Engineers: London Centre—Past and Present 59
Stored-Program Control PABX, EBX8000 134
Students' Scheme for Technical Education, The British Post Office External 56

Subsystems, System X
Part 7—The Signalling Inter-working and Analogue Line Terminating Subsystems 2
Part 8—Maintenance Control Subsystem 45
SWAN, D. W., and DIVER, K. J. Computer-Aided Design and Engineering of System X Exchanges 8
Switching and Signalling, Telex 219
Switching, Developments in Control Technology for Telephone 194
Switching Systems Architecture, The Evolution of 187
Switching Systems Technology, Developments in 203
Switching Telephone Exchange for Rural Communities, UXD5: A Small Digital-
Part 2—System Software and Operation 12
System for the Design, Measurement and Assessment of Telephone Sets, A Computer-Based 25
Systems and Ancillary Postal Equipment, Parcel Sorting .. 271
Systems Architecture, The Evolution of Switching 187
Systems, Microwave Radio-Relay 257
System Software, Monarch 120—The 81
Systems on Carrier Cables, 8·448 Mbit/s Digital Line .. 335
Systems Since 1956, Developments in Signalling 199
Systems Technology, Developments in Switching 203
System, The Development and Production of the Ambassador Electronic Plan 352
System X Exchanges, Computer-Aided Design and Engineering of 8
System X: Subsystems
Part 7—The Signalling Inter-working and Analogue Terminating Subsystems 2
Part 8—Maintenance Control Subsystem 45
System X: Testing of Slide-in-Units 40
System X: The Traffic Generator and Monitor 17

T

TALLYN, K. G., and GRINDROD, T. D. Problems with a River Crossing 54
Technical Education, The British Post Office External Students' Scheme for 56
Technology, Developments in Channel-Associated Signalling 213
Technology, Developments in Switching Systems 203
Technology for Telephone Switching, Developments in Control 194
Telecommunications and Society: The Past Twenty-Five Years 156
Telecommunications Centres, Power Supplies For Small
Part 1—DC Power Plant Nos. 235 and 236 113
Part 2—AC Power Plant No. 440 359
Telecommunications Energy Conference, The International 55
Telecommunications Network, The Evolution of the Inland 162
Telecommunications, Victorian: An Historical Discovery .. 52
Telephone Exchange for Rural Communities, UXD5: A Small Digital-Switching
Part 2—System Software and Operation 12
Telephone Instruments, Payphones and Private Branch Exchanges 235
Telephones and Production of the Basic Instruments, The Development of the Ambassador Range of 70
Telephone Sets, A Computer-Based System for the Design, Measurement and Assessment of 25
Telephones—Development of the Keypad and Signalling Circuitry, The Ambassador Range of 314
Telephone Switching, Developments in Control Technology for 194
Teletraffic Aspects of Processor Utility Design 364
Telex Switching and Signalling 219
Terminal Equipment, Frequency-Division Multiplex Line and 260
Testing of Slide-in-Units, System X 40
Thermionic Valves, CANTAT 1 Reaches Design Life: A Pioneer of Long-Life 44
TILLMAN, J. R. Research 282
TIPPLER, J. (profile) 374
TIPPLER, J., and MARTIN, J. Developments in Signalling Systems Since 1956 199
Traffic Generator and Monitor, System X: The 17
Transmission: An Historical Overview 249
Transmission, Audio 263
Transmission Equipment Practice 265
Transmission in the Junction Network, Provision of Digital 92
TRIMBLE, M. K., and BROOKFIELD, J. T. A Standard Range of DC Power Supplies for PBXs 34
TRUDGETT, P. A., AMES, J. R. W., ELSDEN, M. J., and HILL, M. W. UXD5: A Small Digital-Switching Telephone Exchange for Rural Communities
Part 2—System Software and Operation 12
Truro, Changing the PMBX1A for a PMBX11A at County Hall 370
Twenty-Five Years, Telecommunications and Society: The Past 156
Twenty-Five Years, The Future: The Next 298
TXE4A Exchange, The First 137
TXK4, CAIRO: Computer Analysis of Incident Recorder Output for 86
Type 8 Register Translators at Manchester Dalton, Replacement of Incoming 369

U

Utility Design, Teletraffic Aspects of Processor 364
UXD5: A Small Digital-Switching Telephone Exchange for Rural Communities
Part 2—System Software and Operation 12
UXE8, The First Installation of the Electronic Exchange System 64

V

Valves, CANTAT 1 Reaches Design Life: A Pioneer of Long-Life Thermionic 44
Victorian Telecommunications: An Historical Discovery .. 52

W

WALTERS, R. E. Monarch 120—Maintenance Facilities .. 99
WARD, K. E. The Evolution of the Inland Telecommunications Network 162
Wavefront Reconstruction, Determination of Large Reflector Profiles by Microwave 106
WEBB, P. K., and ELLIS, J. G. A Computer-Based System for the Design, Measurement and Assessment of Telephone Sets 25
WHERRY, A. B. Seventy-Five Years of the Institution of Post Office Electrical Engineers 150
WHYTE, J. S. Foreword (to the IPOEE 75th Anniversary Issue) 147
WHYTE, J. S. The Future: The Next Twenty-Five Years .. 298
Wire Wrapping of Aluminium Conductors 328
Wrapping of Aluminium Conductors, Wire 328
WRAY, D., and KNIGHT, A. V. Telecommunications and Society: The Past Twenty-Five Years 156
WRIGHT, T. C., and ARCHER, G. 8·448 Mbit/s. Digital Line Systems on Carrier Cables 335

Y

YOUNG, D. C. The British Post Office External Students' Scheme for Technical Education 56

VOLUME 74

Part 1 (Apr. 1981) .. .. pp. 1–68
Part 2 (July 1981) .. .. pp. 69–145
Part 3 (Oct. 1981) .. .. pp. 147–305
Part 4 (Jan. 1982) .. .. pp. 307–378

Published by *The Post Office Electrical Engineers' Journal*, 2–12 Gresham Street, London EC2 7AG
and printed in Great Britain by Unwin Brothers Limited, Old Woking, Surrey