

TABLE OF CONTENTS

CHAPTER 1. TRANSFORMERS AND INDUCTORS	3
Broad Classifications	Pentode Transformer-Coupled Amplifiers
Specifications and Standards	Carrier Transformers
Specification MIL-T-27A	Low-Voltage Pulse Transformers
Specification MIL-C-15305A	Transient Performance
Specification MIL-T-981(Ships)	High-Voltage Pulse Transformers
Specification MIL-T-210381(Ships)	Radar Usage
Industry Standards	Transmission Characteristics of High-Voltage Pulse Transformers
Power Transformers	Hybrid Transformers
Transformer Ratings	Double-Tuned Transformers
Power Frequencies and Power Systems	Nonlinear Transformers and Inductors
Transformer Size and Weight	Bistable Transformers
Transformer Insulation Systems	Logic Transformers
Transformer Heating and Relation to Insulation Life	Transformers for Transistors
Size as a Function of Insulation	Inductors for Communication Circuits
Factors Affecting Winding Temperature Rise	Transformer Cores
Temperature Rise Measurements	Cores for Power Transformers
Equivalent Circuits of Power Transformers	Typical Power Transformer Core Materials
Vector Diagrams	Core-Types
Transformer Regulation	Preferred Laminations and Cores
Transformer Efficiency	Cores for Magnetic Amplifiers
Rectifier Transformers and Ratings	Cores for Communication Transformers
High Voltage Problems	Cores for Pulse Transformers
Autotransformers	Effects of Superimposed Direct Current
Power Inductors	Transformer Modulation
Rectifier Filter Inductors	Transformer Shielding
Charging Inductors	Electrostatic Shielding
Magnetic Amplifiers	Electromagnetic Shielding
Saturable Reactors	Environmental Conditions that Affect Transformer Operation and Life
Self-Saturation and Feedback	Environmental Conditions
Military Uses	Application Notes
Specifications	Power Transformers and Inductors
Regulating Transformers	Communication Transformers
Ferroresonant Regulators and Transformers	Trends in Development of Transformers
Specification	Miniaturization
Communication Transformers	Maximum Ambient Temperatures
Equivalent Circuits of Communication Transformers	Reliability
Interpretation of Equivalent Networks	Improved Mechanical Construction
Transmission Gyration	Use of Transistors and Semiconductor Diodes
Efficiency of Communication Transformers	References
Types of Communication Transformers	Bibliography
Audio Transformers	Design Manuals for Transformers
 CHAPTER 2. CONNECTORS: Jacks, Plugs, Sockets	 61
Connector Functions	Current Trends
Connector Types	Factors Affecting Selection of Connectors

Number of Contacts
 Current Rating
 Voltage
 Grounding Provision
 Contact Design
 Contact Resistance
 Undesired Coupling (Crosstalk)
 Mechanical Strength
 Dielectric Materials
 Polarization
 Sealing
 Operating Temperature
 Connector Types
 Power and Signal or Control Connectors
 D-C, Low-Frequency A-C, Audio, and R-F
 Connectors
 Military Specifications
 Nonmilitary Specifications and Standards
 AN Connectors
 AN Finish
 Class A Connectors
 Class B Connectors
 Sealed Types
 Class E Connectors
 Class K Connectors
 Sealed Receptacles
 Shell Material
 Receptacle Mounting

Accessories
 Special Connectors
 Potted Connectors
 Waterproof Connectors
 Internal Connectors
 Audio Connectors
 Nonstandard Connectors
 Miniature Connectors
 Printed Circuit Connectors
 Rack and Panel Connectors
 Umbilical Connectors
 Environmental Effects on Connectors
 Altitude Effects
 Radiation Effects
 Moisture Precautions
 Temperature
 Current Carrying Ability
 R-F Connectors
 Pulse Connectors
 Armed Services Listings
 Electron Tube Sockets
 Octal Sockets
 Miniature Sockets
 Subminiature Sockets
 Small and Medium Sockets
 Military Specifications
 Effects of Environment on Sockets
 Mounting Considerations

CHAPTER 3. WIRE AND CABLE 99

Definitions
 Wire and Cable Constituents
 Conductor
 Insulation
 Temperature
 Pressure or Altitude
 Moisture or Other Atmospheric Contaminants
 Shields
 Electrical Considerations
 Current Rating
 Voltage Rating
 Capacitance
 Sheath Currents
 Grounding
 Insulation Resistance Values
 Galvanic Action (Electrolysis)

Mechanical Considerations
 Diameters
 Flexibility
 Tensile Strength
 Working Space
 Military Specifications
 Other Specifications
 Do's and Don'ts
 General Information
 Selecting Connectors and Hardware
 Ease of Use
 Harness Lacing
 Lacing Cord
 Developments and Trends
 References
 Bibliography

CHAPTER 4. TERMINALS: Lugs, Insulators, Terminal Boards, Headers 119

Wire Terminals
 Insulation-Supporting-Sleeve Terminals
 Specifications
 MIL-T-7928C(ASG), Terminals; Lug and
 Splice, Crimp Style, Copper
 MIL-T-7099B, Terminals; Lug, Crimp Style,
 for Aluminum Aircraft Cable
 Crimping Tools
 Other Solderless Terminal Specifications

MIL-T-15659, Terminals; Lug, Solder Type,
 Copper
 Terminal Selection
 Terminal Boards
 Specifications
 MIL-T-16784A(Ships), Terminal Boards
 Feedthrough Terminals
 Headers
 Standoff Terminals
 Bibliography

CHAPTER 5. TUBE SHIELDS 129

Electrostatic Shielding
Mechanical Clamping
Heat Removal
Thermal Problems in Electron Tubes
Subminiature Shields
Miniature Shields

Heat-Dissipating Shields
Octal Tube Shields
Do's and Don'ts of Tube Shield Application
References
Bibliography

CHAPTER 6. HARDWARE: Knobs, Dials, Indicating Lights, Flexible Shafting, Fasteners . . 147

Control Knobs
Types of Knobs
Spacing on Control Panel
Torque
Knob Shape
Knob-to-Pointer Movement Ratios
Military Specifications
Military Standards
Dials
Scale-Type Indicators
Counter-Type Indicators
Indicating-Light Assemblies
Description
Military Specification
Incandescent Lamps
Physical Characteristics
Electrical Properties
Specifications
Glow Lamps
Spectral Characteristics

Physical Characteristics
Electrical Properties
Military Specification
Air Force Test Requirements
Application Notes
Illuminated Plates, Panels, and Knobs
Flexible Shafting
Application of the Flexible Shaft
Selecting the Shaft
Military Specification
Fasteners
Self-Locking Nuts
Military Specifications
Fractional-Turn Fasteners
Snap Slides
Captive Screws and Nuts
Mounting Clamps
References
Bibliography