L341 - Fitting and Machining Technical Book
640 Pages

Ex GST $90.00  Inc GST $99.00

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**Description**

Fitting and Machining by Ron Culley published by TAFE publications

The definitive "book of the trade" for trainees in fitting and machining, related area, qualified tradespeople and for the keen home hobbyist. The practical focus, clear explanations and hundreds of diagrams and photographs make Fitting and Machining the most widely accepted text in this area. A comprehensive index ensures the book is easy to use.

This book was first printed in 1957, and has been reprinted with corrections and additions some 13 times since then, the last printing being in 2008.

The contents include the following:
* Useful facts and figures:
  o Mathematical signs and common abbreviations
  o Conversion factors for common English units
  o Conversion table, mm-inch
  o Areas and related formulae of plane figures
  o Volumes
  o Geometrical propositions
  o Right-angled triangles
  o Trigonometry tables
  o Useful tapers and angles
  o Machine tapers
  o Mechanics - The Principle of Work; Levers; Pulleys and Wheels; Screws; Wedges; Pascal's Law

1. Workshop hints
   * General hints
   * Metal fret
   * Hardening and tempering a small object
   * Press fit assembly
   * Turning a sleeve bearing
   * Chatter
   * Setting to marked centre in the lathe

2. Safety in the workplace
   * Accidents; Causes; Prevention
   * Personal safety; Eyes; Ears; Manual Lifting
   * First aid

Specifications and prices are subject to change without notification
* Orderly workshop habits; Personal Cleanliness; Horseplay; Industrial Housekeeping
* Workshop safety
* Equipment safety; Hand Tools; Machinery; Electrical Equipment; Ladders; Compressed Air; Cranes
* Fire-fighting; Types of fire

3. Engineering drawing—How to read and use
* Types of drawing; General Arrangement Drawings; Detail Drawings; Drawing Re-issues
* Types of Line—Their Application and meaning
* Projection; Orthopraphic; Isometric
* Sections
* Scales
* Conventional representations, symbols and abbreviations; Representations; Symbols and Abbreviations
* Dimensions; Units used and Placement for Dimensions; Dimensions for Screw Threads; Auxiliary Dimensions; Chamfers; Dimensions Not to Scale and Breaklines; Tabular Dimensions; Use of Other Markings
* Tolerances; General Dimensions; Screw Threads; Geometric Tolerance Symbols

4. Limits—Fits and tolerances
* Types of fit; Clearance Fits; Interference Fits; Transition Fits; Summary
* Basis for Fits; Individual Measuring; When the Hole is Produced by a Fixed Tool; When Standard Sized Shafting is Used; Summary
* Tolerances; Variations in Size; Inter-changeability of Parts
* Definitions; Standard System of Limits and Fits; Tolerances; Designations of Holes, Shafts and Fits
* Selective Assembly
* Machining Tolerances; Working to Drawings; Working from Tables; Working to Tolerances
* Accuracy of Process; Surface Finish and Tolerance; Surface Finish; Relationship between Surface Finish and Tolerance; Surface Finish, Tolerance and the Machine Process; Special Cases Needing Very Good Surface Finish
* Standards of linear measurement; Direct Standards; Derived Standards
* Geometric tolerances; Selected Use; Specifications on Drawings; Applications of Geometric Tolerances

5. Materials—Metals
* Uses of common metals; Iron; Copper; Lead; Zinc; Aluminium; Nickel and Chromium; Tin
* Ferrous metals; Cast iron; Steel; Alloy steels
* Non-ferrous metals; Copper and Copper Alloys; Nickel and Chromium Alloys; Nickel-chromium Alloys; Aluminium and Aluminium Alloys; Magnesium and Magnesium Alloys; Titanium and Titanium Alloys; Zinc and Zinc Alloys
* Bearing materials; Friction and Wear; Properties of Bearing Materials; Selection of Bearing Material; Some Fitting and Machining Book By Ron Culley (L341) Common Bearing Materials

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* Properties and uses of thermosetting materials

7. Heat treatment
* Metals; Structural Changes in Iron on Heating and Cooling; Ferrous Metals in use today
* Tool steels; Schedule of Tool Steel Composition
* Heat treatment of steels; Features Determining Successful Heat Treatment
* Heat treatment of tool steels; Heating of Austenitize; Quenching, to Harden; Tempering
* Constructional steels; Group 1 steels; Group 2 Steels
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* Functions; Cooling; Lubricating; Chip Removing; Preventing Corrosion; Additional Properties
* Types; Alkaline Solutions; ‘Soluble’ Mineral Cutting Oils; Oilless Cutting Fluids; ‘Straight’ Cutting Oils
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* Applying lubricants; Methods; Frequency of Application

10. Cutting speed and feed rate
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11. Cutting tools
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* Cutting tool angles; Normal rake; Inclination; Direction of Cutting; Approach Angle and Side Cutting-edge Angle; End Relief Angle; Nose Radius; Clearance Angles
* Guide to the selection of lathe tools
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12. Benches and bench vices
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* Engineers’ vices; Types; Location of the Bench Vice; Special jaws; Care and Use of the Vice

13. Fasteners

14. Screw threads
* Uses
  * Screw thread terms
  * Common V-thread forms; ISO metric; Whitworth; British Association; Unified; V-thread calculations; Screw Thread Table
  * Square-thread forms; Acme-thread forms; Trapezoidal-thread forms; Buttress-thread forms; Worm-thread forms

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  * Spanners; Types
  * Wrenches; Pipe wrenches
  * Pliers; General purpose; Cutting; Circlip
  * Tinsnips; Hacksaws; Keys; Screwdrivers; Hammers; Punches; Wheel or bearing pullers; Pop riveting tools; Clamps

16. Drills and reamers
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  * Reamers; Types; Nomenclature; Tolerances; Operation Of Reamers Sharpening; Storage

17. Threading tools
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  * Dies; Adjustable Button Dies; Die Nuts; Using a Die

18. Work-holding methods
  * Holding workpieces on machines
  * Clamping principles; Clamping Devices; Application of Force; Height of Packing; Position of Clamps; Thickness of Clamps; Use of Washers; Number of Clamps and Stops
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  * Dividers; Hermaphrodite calipers; Trammels
  * Surface gauges; Types; Setting; Using; Uses
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  * Micrometers; Outside Micrometer Calipers; Inside Micrometer Calipers; Micrometer Depth Gauge; Screwthread Micrometers; Care of a Micrometer
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  * Calipers: Taking a Measurement
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  * Protractors; Vernier Protractors
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20. Introduction to precision measurement
  * Systems of measurement
  * Errors in workshop measurement; Common Sources of Error
  * Comparative measurement; Use of a Dial Gauge; Use of a Floating Carriage Micrometer
  * The use of gauge blocks; Composition of Gauge Sets; How to Use Gauge Blocks; Accuracy; Accessories; Using an Optical Flat to Test Flatness of Gauge Blocks
  * Use of length bars
  * Use of balls, rollers and discs in precision measurement; Checking External Tapers; Checking Internal Tapers; Checking Small Internal Tapers; Checking Dovetail Slides; Checking Taper Angles
  * Use of sine bars in precision movement; Construction; Principle and Application; Accuracy of Sine Bars; Sine Centres
  * Use of spirit levels in precision measurement; Construction and Use; Reading a Level
  * Use of clinometers in precision movement; Mechanical Clinometers; Optical Clinometers
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  * Purpose of marking out
  * Types of line; Datum Lines; Centre Lines; Outlines
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  * Marking-out procedure; Inspection Before Marking Out; Preparing the Work
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23. Cut-off machines
  * Power hacksaws; Reciprocating Hacksaw; Automatic Bar-Feed Reciprocating Hacksaw
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  * The friction saw
  * The cold circular saw; The Blade

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Specifications and prices are subject to change without notification
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27. Capstan and turret lathes
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  * Cutting methods; Single Cutting Operations; Multiple Cutting Operations; Combined Cutting Operations
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28. Lathe operations-Turning
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  * Faceplate work; Methods of Holding Work
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* General features; Size; Additional Features; Types
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* The knee-type mill; Plain Milling Machine; Universal Machine; Vertical Machine

Specifications and prices are subject to change without notification
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* Methods of milling; Normal or Up-Cut; Climb or Down-Cut; Application to End Milling
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44. Tool and cutter grinding
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* Die-making for plastics and die-casting; Basic Principles of Compression and Injection Moulding; Simple Compression Moulding Dies; Simple Injection Moulding Dies
* Pressure die-casting; Hot Chamber; Simple Dies
* Tool and gauge making; Mass Production and Inter-changeability; Tools and Gauges used in Mass Production; Basic Principles of Limit Gauge Design; Work Tolerance and Gauge Tolerance; Determining Limit Gauge Tolerance; Basic Skills

55. Springs and their uses
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* Air and related laws; Pressure Measurement; The Gas Laws
* Compressed air production; Air-production Unit; Graphic Representation; Air Production Components
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57. Fluid power-hydraulics
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* Manual programming; Preparing the Program; Program Verification; Machine Operation
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* Preventive tool maintenance; Importance of Trained Operators
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63. Measurement of gear teeth
* Gear tooth vernier method; Setting the Gear Tooth Vernier; Reading the Table; Using the Gear Tooth Vernier
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64. Gear cutting by generating processes
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* Types of hobbing machines; The Vertical-type Hobbing Machine; The Horizontal-type Hobbing Machine
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* Hobbing a worm wheel by in-feed method; Types of Worm Wheel; Preparation of Worm Wheel Blanks; Selection of the Hob; Hobbing the Worm Wheel; Laminations of the In-feed Method
* Ready-find Index

Specifications and prices are subject to change without notification
Recommended Accessories

CATM
Engineering, Metal & Wood Machinery Catalogue

L345
Handy Workshop Tips & Techniques - 1st Edition

L3455
Professional Sheet Metal Fabrication Book

L343
Engineers Black Book - 3rd Edition

L344
Fastener Black Book - 1st Edition