

Product Brochure For L341

Fitting and Machining Technical Book

640 Pages

The Definitive "Book of The Trade" for Trainees In Fitting & Machining, Related Area, Qualified Tradespeople & for The Keen Home Hobbyist

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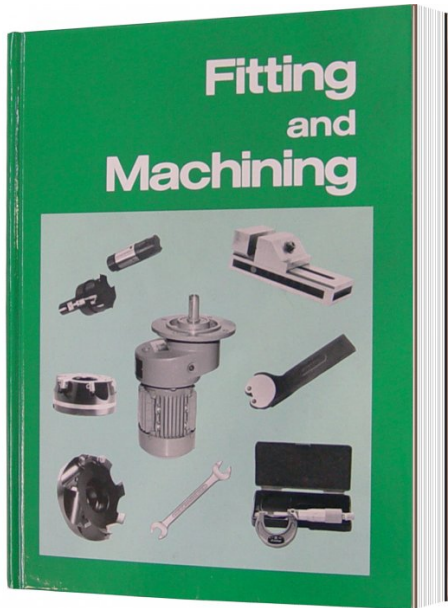
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Description

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

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- * 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; Assembly Drawings; Detail Drawings; Drawing Re-issues
 - * Types of Line-Their Application and meaning
 - * Projection; Orthographic; 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
6. Materials-plastics
- * Synthetic rubbers
 - * Applications of some common plastics
 - * Properties and uses of thermoplastics
 - * 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
 - * The Heat treatment of Non-ferrous metals; The Hardening of Non-ferrous Alloys by Heat Treatment
 - * Useful books for reference
 - * Glossary of terms
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 - * Types; Alkaline Solutions; 'Soluble' Mineral Cutting Oils; Oilless Cutting Fluids; 'Straight' Cutting Oils
 - * Using cutting fluids; Flow and Temperature; Choosing a Cutting Fluid; Method of Supply; Application; Filtering, Sterilising and Reclaiming; Care of Electrical Equipment
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 - * Applying lubricants; Methods; Frequency of Application
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- * General principles; Orthogonal Cutting; Inclined Cutting
 - * 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
 - * Cemented carbide tools; manufacture; Classification; Selection of Insert; Tool Design and Type of Clamping; Operating Conditions and Tool Life; Tool Failures and Remedies
 - * Tools made from other materials; Cemented Oxide Tools; Diamond Tools; Comparing Tool Materials
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- * Benches; Types; Construction; Position of the Bench; Tidiness
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 - * 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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 - * Pliers; General purpose; Cutting; Circlip
 - * Tinsnips; Hacksaws; Keys; Screwdrivers; Hammers; Punches; Wheel or bearing pullers; Pop riveting tools; Clamps
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- * Drills; Types; Accessories; Nomenclature; Operation
 - * Reamers; Types; Nomenclature; Tolerances; Operation Of Reamers Sharpening; Storage
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 - * Screw extractors; Tap wrenches
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 - * Types of clamps and accessories; Clamps for Machining; Machine Vices; General Purpose Clamps
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 - * 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
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 - * General information about grinding milled tooth cutters; Grinding Wheel Shapes; Milled Tooth Cutters; Form-relieved Cutters; Need for Sharp Cutters; Clearance Angles for Milled Cutters; Holding the Cutter; Methods of Grinding Clearance Angles
 - * Grinding straight-tooth milling cutters; Requirements; Holding the Cutter; Preparing the Grinding Wheel; Locating the Tooth Rest; Grinding the Teeth
 - * Grinding helical flute milling cutters; Requirements; Holding the Cutter; Preparing the Grinding Wheel; Locating the Tooth Rest; Grinding the Teeth
 - * Grinding side or end teeth on cutters; Requirements; Holding the Cutter; Setting the Workhead; Locating the Tooth Rest; Grinding the Teeth
 - * Reconditioned milled cutters; Grinding the Tooth Face and Gullet; Grinding the Clearance Angles
 - * Grinding form-relieved milling cutters; Requirements; Holding and Setting the Cutter; Grinding the Tooth Face; Sharpening Hobs; Sharpening Form-relieved End Mills
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 - * Setting up machines; Levelling; Spindle Bearing Adjustments; Slide Adjustments
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 - * Dismounting bearings; Interference Fit on Shaft; Interference Fit in Housing; Bearings Mounted on Sleeves; Inspecting Dismounted Bearings
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 - * Mounting and dismounting tools; Hydraulic Tools; Mechanical Tools
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 - * Silent chains; Toothed Belt
 - * Couplings; Compression Coupling; Flexible Coupling-disc Types; Flexible Coupling-Spider Type; Chain Coupling
 - * Universal joints
 - * Clutches; Dog-tooth Clutch; Cone-type; Expanding Shoe Type; Plate Type; Toggle Action Linkage; Centrifugal Clutches; Magnetic Clutches; Sprag Clutches; Brakes
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 - * Factors affecting the safe working load; Capacities of Two-leg Slings; Other Factors Affecting SWL
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 - * Turning over of loads
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* Australian standards

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- * Press toolmaking; Use of Press Tools; Basic Press-working Operations; Types of Die; The Blanking Die; Action of Blanking and Piercing Dies
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- * 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

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- * Types of spring; Spring materials

56. Fluid power-industrial pneumatics

- * Air and related laws; Pressure Measurement; The Gas Laws
- * Compressed air production; Air-production Unit; Graphic Representation; Air Production Components
- * Compressed air systems; Basic Circuit Components; Circuit Development Techniques

57. Fluid power-hydraulics

- * History
- * Features of hydraulic systems; Properties of Fluids; Advantages of Hydraulic Power; Problems and Limitations; Units and Formulae
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- * What is numerical control
- * General features; Basic Components; Coordinate Systems and Machine Motions; Absolute and Incremental Positioning
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- * Computer assisted programming; CAD/CAM; Computer Integrated Manufacture

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- * Power sources; Mains Supply; High-frequency Electricity Supply; Compressed Air
- * Drills; Attachments
- * Grinders; The Angle Grinder; Straight Grinder; Die Grinder
- * Power hammers; Nibblers and shears; Circular saws; Jigsaws; Power wrenches

61. Preventive maintenance and care of machines and tools

- * Preventive machine maintenance; Maintenance Roster and Chart; Preventing Damage
- * Preventive tool maintenance; Importance of Trained Operators
- * Machine care and usage; Checking Machines; Checking Tools

62. Report writing

- * The memo; Production of Memos
- * Writing short reports; Report Layout; A Sample Report
- * Standard forms and work tickets

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- * Gear tooth vernier method; Setting the Gear Tooth Vernier; Reading the Table; Using the Gear Tooth Vernier
- * Span measurement; Advantages of Span Measurement; Calculating Span Measurements; Backlash

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- * Generating processes; The Rack Cutter Process; Pinion Cutter Process; The Hobbing Process
- * Types of hobbing machines; The Vertical-type Hobbing Machine; The Horizontal-type Hobbing Machine
- * Hobbing a spur gear; Selecting, Mounting, and Setting the Hob; Preparing and Mounting the Blank; Index Change Gears; Cutting the Teeth
- * 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

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Recommended Accessories

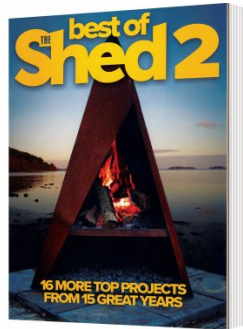
CATM

Engineering, Workshop, Tools,
 Metal & Wood Machinery
 Catalogue



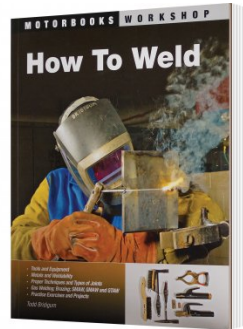
L3459

The Best Of The Shed 2



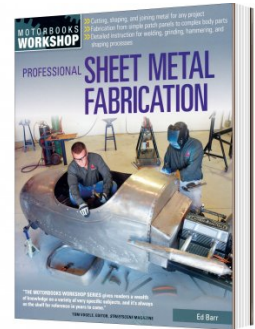
L3456

How to Weld Book



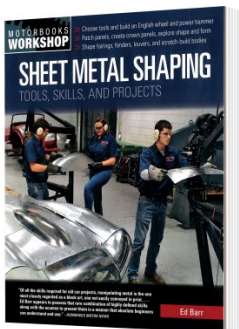
L3455

Professional Sheet Metal
 Fabrication Book



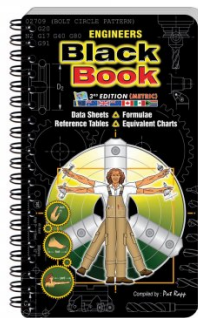
L3457

Sheet Metal Shaping Book -
 Tools, Skills & Projects



L343

Engineers Black Book - 3rd
 Edition



L344

Fastener Black Book - 1st
 Edition

