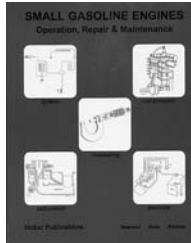


**SMALL GASOLINE ENGINES**

This manual contains small engine technology including CDI solid-state ignition, automatic chokes, no choke carburetors, and fuel pump carburetor systems. Classroom and Laboratory Exercises have been completely revised and expanded. Special emphasis related to small engine overhaul and repair has been designed into all laboratory exercises to make your small engine instructional unit more complete. Procedures for ordering small engine parts for repair have been covered throughout the total manual. The Appendix contains Safety Exam, Parts Order Form, English/Metric Equivalent Charts, Engine-Matics & Hydr-Matics Formulas and Engine Overhaul Worksheets. HOBAR



**Student Manual:** 176 pages, 1992, softcover  
 Order Number: 473.....\$12.95 each, \$10.35 (10 or more)  
**Teacher's Answer Key:**  
 Order Number: 473TK.....\$2.75

**SMALL GASOLINE ENGINES STUDENT JOB SHEETS**

This instructional packet includes 36 job sheets on small engines beginning with engine identification and specifications to torquing, disassembly, measuring all basic systems and ending with reassembly troubleshooting and tool identification. The packet includes behavioral objectives, evaluation sheets, and sources of supplemental references and related visual materials. An excellent teaching aid in lesson plan format. The copy master format allows unlimited one-site use of the product. HOBAR  
 Order Number: 383 .....\$17.95

**SMALL GASOLINE ENGINES TRANSPARENCY MASTERS**

This set of 76 Transparency Masters on small engines may be used for making transparencies for overhead projection or direct viewing by small groups or individual students. Topics include Compression, Ignition, Carburetion, Maintenance, and General Information on small engines. HOBAR  
 Order Number: 780TM.....\$15.75

**BRIGGS & STRATTON SERVICE & REPAIR INSTRUCTION MANUALS**

These quality service and repair instruction manuals serve as a guide in performing the various steps necessary to do a complete and satisfactory repair job. Covers ignition, carburetion, governors, compression, starters and alternators, lubrication, pistons, rods and rings, crankshafts, cylinder, bearings and mufflers. BRIGGS & STRATTON



**TWIN CYLINDER L-HEAD**  
 Order Number: BS271172.....\$18.95 each, \$14.21 (10 or more)  
**VANGUARD V-TWIN OHV**  
 Order Number: BS272144.....\$18.95 each, \$14.21 (10 or more)  
**VANGUARD SINGLE CYLINDER OHV**  
 Order Number: BS272147.....\$18.95 each, \$14.21 (10 or more)  
**INTEK V-TWIN OHV**  
 Order Number: BS273521.....\$18.95 each, \$14.21 (10 or more)

**SMALL GASOLINE ENGINE WORKSHEETS**

These twenty worksheet masters may be duplicated for student use and include Part ID, Procedures, Materials Needed, Skills Taught, and Evaluation. These worksheets were developed to be used with Hobar's *Small Gasoline Engines* manual #473. HOBAR

- Four Stroke Engines
- Two Stroke Engines
- The RPM Tachometer
- Compression Testing
- Valve Timing
- Service and Adjusting Valves
- Piston Displacement
- Piston Rings
- Installing the Piston Rings
- Carburetor Disassembly and Assembly
- Adjusting the Carburetor
- Magneto Coil Testing
- Servicing the Spark Plug
- Servicing the Air Cleaner
- Condenser Testing
- Small Engine Governors
- Off Season Storage
- Repair and Starting Stand
- Points Resistance Testing
- Magneto Ignition System

**Set of Twenty Small Engine Worksheets:**  
 Order Number: 670 .....\$18.90

**OVERHAULING VALVES WORKSHEETS**

This set of six individual worksheet masters were developed to teach the overhauling of small engine valves. They may be duplicated for student use and each worksheet includes Part ID, Procedures, Skills Taught, Materials Needed, and Evaluation. HOBAR

- Tools for Valve Service
- Using the Valve Refacer
- Valve Refacing Lathe
- Valve Seat Cutter
- Using Power Valve Grinder
- Adjusting the Valve Tappets

**Set of Six Valve Worksheets:**  
 Order Number: 886 .....\$5.65

**OVERHAULING THE PISTON, RINGS, CYLINDERS & ROD WORKSHEETS**

These worksheet masters that may be duplicated for students to assist instruction of small gasoline engine units. Each worksheet includes Part ID, Procedures, Skills Taught, Materials, and Evaluation. Order as a set of six worksheet masters. HOBAR

- Cylinder Ridge Reamer
- Parallel Bar Hone
- Piston Groove Cleaner
- Ring Compressor
- Ring Expander
- Plastigage

**Set of Six Overhauling Piston, Rings, Cylinders & Rod Worksheets:**  
 Order Number: 568 .....\$5.65

**Complete Set**

Contains one of each of the worksheet sets listed above in a tabbed three-ring notebook. HOBAR  
 Order Number: HWSM-SGE.....\$34.95

**SERVICE AND REPAIR INSTRUCTIONS**

This manual includes laboratory and classroom instructions on small gas engines. It puts together into one edition the material covered in *B&S Repair Instructions & General Theories of Operation*. A must for any small engine instructional program. BRIGGS & STRATTON

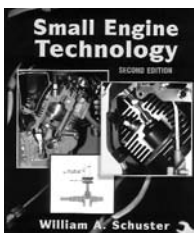
300 pages, 1999, softcover  
 Order Number: BS270962 .....\$18.95 each, \$14.21 (10 or more)



**SMALL ENGINE: CARE & REPAIR**

This book guides you through maintenance and repair projects on any small engine, without getting bogged down in complicated tables, technical jargon, or fuzzy photos. We walk you through projects ranging from changing oil to a complete valve job, and we give you just the amount of detail you need, using color photography and highly detailed colored illustrations. BRIGGS & STRATTON

127 pages, 1998, softcover  
Order Number: BS274041.....\$18.49 each, \$13.87 (10 or more)

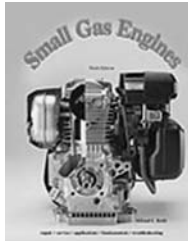
**SMALL ENGINE TECHNOLOGY, 2E**

This book bridges the gap between in-class lectures and the detailed information in manufacturers' manuals. While providing a basic background in the theory and operation of small engines, the text details the interaction of various systems to help students diagnose and repair problems. DELMAR

**Text:** 421 pages, 1999, hardcover  
Order Number: 7699-5.....\$129.95 each, \$103.96 (10 or more)

**Text:** 421 pages, 1999, softcover  
Order Number: 7778-9.....\$112.95 each, \$90.36 (10 or more)

**Instructor's Manual:**  
Order Number: 7700-2.....\$43.95

**SMALL GAS ENGINES**

This text provides practical information about the construction and operation of small two- and four-cycle gasoline engines. Detailed information about specific maintenance, lubrication, troubleshooting, service, rebuilding, and repair is presented. The text is written in clear, non-technical language and includes information that is invaluable to anyone interested in servicing

small gas engines. Features: Logical procedures for troubleshooting and repairing major systems; Information on small gas engine applications, career opportunities, and Outdoor Power Equipment and Engine Service Association (OPEESA) Technician Certification Exams; and Updated information on small engine emission control systems. GOODHEART-WILLCOX

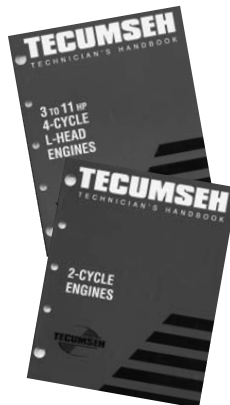
**Text:** 528 pages, 2009, hardcover  
Order Number: 970-2.....\$66.64 each, \$53.32 (10 or more)

**Workbook:** 225 pages. Organized to follow the textbook on a chapter-by-chapter basis, providing questions to help the student review the material.

Order Number: 971-4.....\$20.00 each, \$16.00 (10 or more)

**Instructor's Manual:** 175 pages. Provides numerous instructional resources that support each chapter of the textbook including teaching strategies, test masters, answer keys, introductory activities, reproducible masters, and additional resources.

Order Number: 972-6.....\$60.00

**MECHANICS HANDBOOKS FROM TECUMSEH**

These manuals include everything needed for understanding principles of operation, procedures for adjustment, repair and trouble shooting, and specifications for all sizes and types of Tecumseh engines. TECUMSEH

**PEERLESS POWER TRAIN COMPONENTS**

Order Number: T691218.....\$9.95

**4-CYCLE ENGINES: 8 to 18 hp**

Order Number: T691462.....\$9.95

**2-CYCLE ENGINES**

Order Number: T692508.....\$9.95

**4-CYCLE, LT. & MED. FRAME 3 to 11 hp**

Order Number: T692509.....\$9.95

**SERVICE AND REPAIR OF SMALL ENGINES****Step-By-Step Procedures**

Student lab manuals are easy-to-read and include step-by-step procedures on Briggs & Stratton engine repair with detailed illustrations. The eight units are: Ignition, Carburetor, Rewind Starter, Compression, Governors, Lubrication, Troubleshooting, and Maintenance. 1993. IML-MO

**Lab Manuals:** loose-leaf/drilled, set of eight

Order Number: 10-7650-S.....\$53.90

**Instructor Packet:** loose-leaf/drilled, includes instructor guide with lesson plans, motivation techniques, transparency masters, and unit tests. Also included is a set of eight student manuals.

Order Number: 10-7650-I.....\$87.80

**SMALL GAS ENGINES****CONSTRUCTION & OPERATION**

An introduction to the construction, operation, and design of the small gas engine. Demonstrates how two- and four-stroke engines operate. 27 minutes. MERIDIAN

DVD Order Number: ME26300-D.....\$69.95

**DISASSEMBLY**

The major steps of engine teardown and rebuilding are detailed in this video. Allows students to see first-hand the proper tools, parts organization, and safety procedures for engine disassembly. 19 minutes. MERIDIAN

DVD Order Number: ME26329-D.....\$69.95

**INSPECTION, MEASUREMENT, CLEANING**

Outlines the steps necessary in inspection of parts during the rebuilding of small engines. Details part damage so students can recognize items for replacement. 26 minutes. MERIDIAN

DVD Order Number: ME26298-D.....\$69.95

**REASSEMBLY**

Demonstrates the proper method of reinstalling major parts of a small gas engine. Correct torque values and tightening patterns are emphasized. 25 minutes. MERIDIAN

DVD Order Number: ME26330-D.....\$69.95

**TROUBLESHOOTING AND TUNE-UP**

A complete summary of performance and mechanical troubleshooting. Offers logical diagnosis methods, engine maintenance, and basic tune-up procedures. 35 minutes. MERIDIAN

DVD Order Number: ME26299-D.....\$69.95

**Order the series and save!**

DVD: 5 DVDs above

Order Number: ME26331-D.....\$314.75

**SMALL GAS ENGINE: MAINTENANCE**

**SMALL GAS ENGINE: ROUTINE MAINTENANCE**



Most small gas engine equipment are not used year-round and require storage at the end of the season to help protect the engine. This video explains the importance of and demonstrates how to prepare an engine for storage. Also shows how to return a small engine into service. Safety and responsibility is emphasized throughout. Supplement included. 1998. CEV

**SMALL GAS ENGINE: CHECKUP**

This video discusses the techniques necessary for inspecting and measuring the journals on the crankshaft and camshaft, checking the cam gear bearing in the sump, and measuring ring gap. Also included are proper procedures for measuring the cylinder bore, how to check valve guides, main bearings and the wires, coil, and legs of the armature. Supplement included. 1997. CEV

**SMALL GAS ENGINE: CLEANUP**

This video provides the proper cleaning procedures for the following: armature, flywheel, carbon deposits, valves, ring grooves, and air cleaner. Also included are the removal of gasket residue and the steps necessary for removing a ridge from the cylinder. Supplement included. 1997. CEV

**SMALL GAS ENGINE: REPAIR**

This video provides the proper techniques for honing the cylinder, repairing valve guides, seating valves, replacing the oil seal, and washing the engine upon completion of all repairs. Supplement included. 1997. CEV

**DVD:** 4 videos above, 150 minutes, 4 sections, 4 printable resources and 11 web resources

Order Number: CEV80888 .....\$156.00

**SMALL GAS ENGINE DISASSEMBLY**

**SMALL GAS ENGINE DISASSEMBLY I**



Safety practices and proper techniques for the disassembly of a 5 horsepower, Briggs and Stratton Model 124702 engine are included on this video. Removal of the air filter, fuel tank, carburetor and linkage, muffler, blower housing, mechanical governor, and spark plug are shown. It also discusses checking the engine for proper compression. Supplement included. 1997. CEV

**SMALL GAS ENGINE DISASSEMBLY II**

This video continues the disassembly process with a discussion on checking the armature air gap settings. Removal of the cylinder head, crankcase breather, valves and springs, flywheel, and armature are presented. Also included is a discussion on how a 4-stroke cycle engine operates, how to check valve-to-tappet clearance, and the fly-wheel key. Supplement included. 1997. CEV

**SMALL GAS ENGINE DISASSEMBLY III**

The final tape for disassembly of a small gas engine begins with the procedure for checking crankshaft end play and continues with the removal of the sump, an explanation of the mechanical governor, and removal of the oil slinger, camshaft, tappets, piston, and crankshaft. It completes the disassembly procedure with the removal of the rings and connecting rod from the piston. Supplement included. 1997. CEV

**DVD:** 3 videos above, 110 minutes, 3 sections, 3 printable resources and 11 web resources

Order Number: CEV80880 .....\$117.00

**SMALL GAS ENGINE ASSEMBLY**

**SMALL GAS ENGINE ASSEMBLY I**

Safety practices and proper techniques for reassembly of a 5 horsepower, Briggs and Stratton Model 124702 engine are included on this video. It begins with the procedure for removing all gasket residue and continues with the installation of the crankshaft, checking ring gap, assembly and installation of the piston and rings, and installation of the tappets, camshaft, oil slinger, governor, and sump. It emphasizes the importance of lubricating major components during reassembly. Supplement included. 1997. CEV

**SMALL GAS ENGINE ASSEMBLY II**

Installation of the valves, checking valve-to-tappet clearance, and installation of the armature follow in part two of small gas engine assembly. Replacing the flywheel, setting the armature air gap, and installing the cylinder head are covered. Supplement included. 1997. CEV

**SMALL GAS ENGINE ASSEMBLY III**

The final tape for reassembly continues with the installation of the crankcase breather, spark plug, muffler, carburetor, and blower housing. It also checks the ignition system for proper operation and completes the reassembly procedure with the installation of the oil tube, air filter, and fuel tank. The engine is started and tested for proper operation. Supplement included. 1997. CEV

**DVD:** 3 videos above, 90 minutes, 3 sections, 3 printable resources and 11 web resources

Order Number: CEV80883 .....\$117.00

**SMALL GAS ENGINE CARBURETOR**

**SMALL GAS ENGINE CARBURETOR I**



Features the identification of parts, disassembly, cleaning, repair, and reassembly of the Vacu-Jet and Flow-Jet carburetors. It emphasizes the correct procedures for removing the needle valve assembly, cleaning the nozzle, checking the venturi, adjusting the float, and reassembling all components. Proper adjustment procedures for the needle valve are also included. Supplement included. 1997. CEV

**SMALL GAS ENGINE CARBURETOR II**

Features the identification of parts, disassembly, cleaning, repair, and reassembly of the horizontal Pulsa-Jet and vertical Pulsa-Jet carburetors. It demonstrates the proper procedures for removing and replacing the diaphragm, needle valve assembly, and throttle shaft. Checking the fuel tank for warping is also demonstrated. Supplement included.

**DVD:** 2 videos above, 90 minutes, 2 sections, 2 printable resources and 11 web resources

Order Number: CEV80886 .....\$78.00

**Order the series and save!**

Includes the 12 videos above covering routine maintenance, check-up, cleanup, repair, disassembly, assembly and carburetor on small gas engines. CEV

**DVD:** 4 DVDs, total of 440 minutes, 12 sections, 12 printable resources, and 44 web resources

Order Number: CEV SGE-DVD .....\$425.00

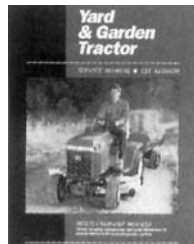
## YARD & GARDEN TRACTOR SERVICE MANUAL, SINGLE CYLINDER MODELS



Covers more than 25 manufacturers and 550 models of yard and garden tractors. It includes complete maintenance and repair information for transaxle and transmission service, brakes, engine service, and gasoline engine fundamentals. INTERTEC

624 pages, 1992, softcover  
Order Number: YGT1-1 .....\$26.95

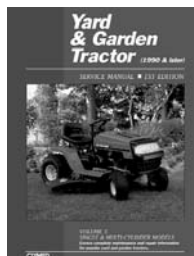
## YARD & GARDEN TRACTOR SERVICE MANUAL, MULTI-CYLINDER MODELS



Includes 20 manufacturers of tractors with multi-cylinder air-cooled and liquid-cooled engines. It includes gasoline and diesel engine fundamentals, transaxle and transmission fundamentals, brakes, off-season storage tips, and more. INTERTEC

452 pages, 1991, softcover  
Order Number: YGT2-1 .....\$26.95

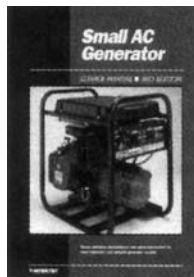
## YARD & GARDEN TRACTOR, SINGLE & MULTI-CYLINDER MODELS



Service and maintenance procedures for 1990 and later single and multi-cylinder lawn and garden tractors. Includes gasoline and diesel engine fundamentals, engine repair, and transmission repair procedures. Engine manufacturers covered are Briggs & Stratton, Honda, Kawasaki, Kohler, Onan, and Tecumseh. INTERTEC

500 pages, 2002, softcover  
Order Number: YGT3-1 .....\$26.95

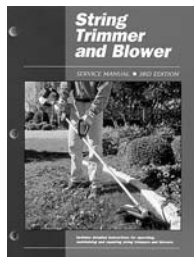
## SMALL AC GENERATOR SERVICE MANUAL, 3E



Includes electrical power plants under 8 kw and driven by air-cooled engines, stationary and portable generators weighing 300 pounds or less, generator troubleshooting and repair procedures, and engine service and operating principles. Manufacturers: Acme, Coleman, Dayton, Generac, Homelite, Honda, Kawasaki, Kohler, John Deere, McCulloch, Onan, Pincor, Robin, Suzuki, Tanaka, and Yamaha. INTERTEC

536 pages, 1991, softcover  
Order Number: GSM-3 .....\$30.95

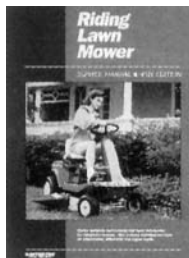
## STRING TRIMMER AND BLOWER SERVICE MANUAL, 3E



Contains information needed to operate, maintain, and repair a string trimmer and blower. Home and commercial models for over 35 popular manufacturers are included. Covering both gasoline and electric powered trimmer and blowers, this easy-to-follow manual includes detailed, comprehensive sections on operating safety, routine maintenance, adjustments, service, and repair. INTERTEC

496 pages, 1998, softcover  
Order Number: STR-3 .....\$30.95

## RIDING LAWN MOWER SERVICE MANUAL



Service and maintenance procedures for 1992 and later riding lawn mowers. Coverage includes mower service fundamentals, mower adjustments and repair, engine repair and transmission and differential repair. Engine Manufacturers covered are Briggs & Stratton, Kawasaki, Kohler, and Tecumseh. INTERTEC

440 pages, 2001, softcover  
Order Number: RLMS2-1 .....\$30.95

## WALK-BEHIND LAWN MOWER SERVICE MANUAL, 5E



This manual contains information on servicing and maintaining walk-behind lawn mowers. It covers areas of engine operating principles, troubleshooting and service procedures, self-propelled drive systems, blade brake clutches, and mower identification. Manufacturers covered are Ace, Aircap, Allis-Chalmers, Bolens, Bunton/Goodall, Craftsman, Cub Cadet, John Deere, Deutz-Allis, Dynamark, Ford, Gilson, Homelite, Honda, Husqvarna, International Harvester, Jacobsen, King

O'Lawn, Kubota, Lawn-Boy, Lawn Chief, Mastercut, Mono, MTD, Murray, Pami, J.C. Penny, Roper, Sensation, Simplicity, Snapper, Southland, Toro, Wards, White, and Yard-Man. INTERTEC

344 pages, 1997, softcover  
Order Number: WLMS-5 .....\$26.95

## ROTARY TILLER SERVICE MANUAL, 3E



Covers overhauling and servicing procedures on rotary tillers. Includes over 240 popular models and more than 30 manufacturers. It even features a drive-belt identification chart and more. Manufacturers covered are Ariens, Atlas, BCS, Clinton, John Deere, Feldman, Ford, Gilson, Haban, Hoffco, Homelite, Honda, International, Kubota, Lazy Boy, Merry, MTD, Mighty Mac, Murray, J.C. Penny, Roper, Roto Hoe, Sears, Snapper, Troy-Bilt, Wards, Wheel Horse, and White. INTERTEC

280 pages, 1989, softcover  
Order Number: RTS-3 .....\$30.95

## SMALL DIESEL ENGINE SERVICE MANUAL, 3E

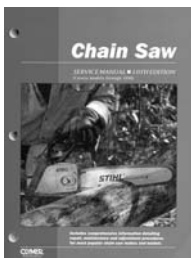


Covers more than 200 models of small air-cooled and liquid-cooled diesel engines with up to 160 cu. in. (2600cc) displacement. Includes a diesel engine fundamentals section and more. Manufacturers covered are Continental, Deutz, Farymann, Isuzu, Kirloskar, Kubota, Lister-Petter, Lombardini, MWM, Mitsubishi, Onan, Perkins, Peugeot, Slanzi, Volkswagon, Westerbeke, Wisconsin, and Yanmar. INTERTEC

288 pages, 1991, softcover  
Order Number: SDS-3 .....\$30.95

**CHAIN SAW SERVICE MANUAL, 10E**

This manual provides comprehensive information detailing repair, reassembly, maintenance, and adjustment procedures. Also includes repair and maintenance of carburetor, engine, saw chain, guide bar, sprockets and clutch. Coverage includes 29 brands and more than 800 models of chain saws. Manufacturers Covered: Allis-Chalmers, Alpina, Castor, Clinton, Danarm, John Deere, Dolmar, Echo, Frontier, Green Machine, Homelite, Husqvarna, Jonsered, Lombard, Massey-Ferguson, Makita, McCulloch, Olympek, Partner, Pioneer, Poulan, ProKut, RedMax, Remington, Roper, Shindaiwa, Solo, Stihl, and Tanaka. INTERTEC



612 pages, 1999, softcover  
Order Number: CSS-10.....\$26.95

**CHAIN SAW TRANSPARENCY MASTERS**

Contains 41 overhead transparency masters covering the maintenance and safe use of a chain saw. IMS-C  
Order Number: C-101M.....\$5.50

**SMALL AIR-COOLED ENGINE SERVICE MANUAL**

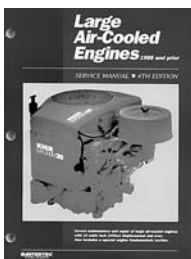
Volume 1 and volume 2 provide comprehensive service information for over 30 different manufacturers (over 500 basic model types) and hundreds of variations of air-cooled engines with under 15 cubic inch displacement (both 2- and 4-stroke). Covers these brands: Acme, Advanced Engine Products, Briggs & Stratton, Chrysler, Clinton, Cox, Continental, Craftsman, Deco-Grand, Homelite, Honda, Jacobsen, Kawasaki, Kloritz-Echo, Kohler, Lauson, Lawn Boy, McCulloch, O & R, Olympek, Onan, Power Bee, Power Products, Sachs, Sachs-Dolmar, Solo, Shindaiwa, Stihl, Tanaka, Tecumseh, Toro, West Bend, Wisconsin, Wisconsin Robin, and Yamaha. INTERTEC



**Vol. 1:** Models 1989 and prior, 17th edition, 496 pages, softcover  
Order Number: SES-17.....\$30.95  
**Vol. 2:** Models 1990-2000, 2nd edition, 328 pages, softcover  
Order Number: SES2-2.....\$30.95

**LARGE AIR-COOLED ENGINES SERVICE MANUALS**

These books cover popular larger engines with 15 cubic inch displacement and over. They include both fundamentals and servicing sections for engines, carburetors, and ignition systems. Special sections cover troubleshooting and engine power and torque. These manuals will guide you through the entire repair process with detailed explanations and hundreds of exploded views and illustrations. Covers these brands: Acme, Briggs & Stratton, Clinton, Craftsman, Honda, Kawasaki, Kohler, Onan, Tecumseh, Wisconsin, and Wisconsin Robin. INTERTEC



**Vol. 1:** Models 1988 & prior, 4th edition, 344 pages, softcover  
Order Number: LES1-4.....\$30.95  
**Vol. 2:** Models 1989-2000, 2nd edition, 488 pages, softcover  
Order Number: LES2-2.....\$30.95

**MULTIMEDIA SMALL ENGINES**



Small engine training is interactive! This three-part CD-ROM series combines video, 3D animation, text, and photos to explore the inner workings of two- and four-stroke engines. Users gain a true working knowledge of each engine type through detailed breakdowns of engine systems and components. Each CD-ROM contains a special section on safety guidelines to observe when working with small engines, a list of common tools and fasteners, and a glossary terms used in engine mechanics. 1999. SHOPWARE

**SMALL ENGINES PART I**

Part I of the small engines series looks at general theory and design of two- and four-stroke engines. Contrasts and comparisons of the two systems are addressed, along with sections on engine size, cylinder arrangement, ignition methods, and camshaft and valve design. Provides an interesting and interactive introduction to small engines.

**Windows CD-ROM:**  
Order Number: SW20494.....\$149.95

**SMALL ENGINES PART II**

Part II continues the small engines tutorial with a breakdown of engine systems, including lubrication, cooling, speed control, fuel, and air filtering. The use of video and animation sequences allows the user to gain a true understanding of how these systems work, both individually and as a group.

**Windows CD-ROM:**  
Order Number: SW20491.....\$149.95

**SMALL ENGINES PART III**

Fault diagnosis and overhaul are the focus of Part III. Sections include ignition troubleshooting, "reading" spark plugs, fuel problems, and compression testing. General overhaul procedures are outlined in detail, giving the user a practical, working knowledge of small engine basics.

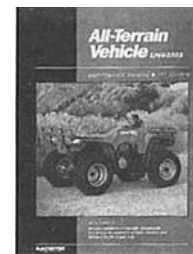
**Windows CD-ROM:**  
Order Number: SW20488.....\$149.95

**Order the series and save!**

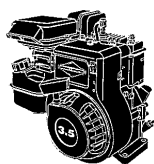
**Windows CD-ROM:**  
Order Number: SW20485.....\$399.95

**ALL-TERRAIN VEHICLE MAINTENANCE MANUAL**

These editions provide comprehensive service information that will help you maintain and increase the life of your ATV. They are the most complete, universal source of ATV specifications and maintenance data available, with coverage of Honda, Kawasaki, Polaris, Suzuki, and Yamaha, all in two books! These books feature an easy-to-follow format that details complete maintenance information for the most popular models of both 3 and 4 wheel ATV's. INTERTEC

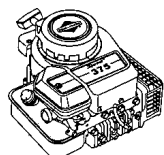


**Vol. 1:** Models 1974-1987, 2nd edition, 432 pages, softcover  
Order Number: ATV1-2.....\$32.95  
**Vol. 2:** Models 1988-1992, 1st edition, 424 pages, softcover  
Order Number: ATV2-1.....\$32.95

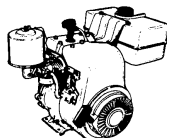


**SMALL GAS ENGINES**

**Briggs & Stratton Engine**  
4 cycle, horizontal shaft, 3.5 hp., float-style carburetor. Type 0016-EI.  
Order Number: 93202 .....\$348.00



**Briggs & Stratton Engine**  
4 cycle, vertical shaft, 4 hp., no choke, bulb primer. Type 0015-EI.  
Order Number: 9M902 .....\$223.00



**Tecumseh Engine**  
Model H30, 4 cycle, horizontal shaft, 3.0 hp, CD electronic ignition, full adjust carburetor, cast iron cylinder sleeves.  
Order Number: 203102 .....\$247.54



**SMALL GASOLINE ENGINE REPAIR AND STARTING STAND**

This heavy-duty small engine repair and starting stand is available to enhance any small engine program. Constructed of heavy-duty channel iron, pipe, and flat plate. Includes an adapter for vertical shaft engines. Can be rotated 360° for ease of working on engine. Stand is 12" high and can be bolted or C-clamped to table or bench.

Order Number: SES-1 .....\$69.50

**Flat Plate Accessory**

Allows stand to be used for horizontal shaft engines.  
Order Number: FPA-1 .....\$19.95

**NEWAY VALVE SEAT CUTTER KITS**



The same accurate and precision kit that is used throughout the air-cooled industry now has a tool with a 15 degree top angle and a 60 degree bottom angle to repair engines as the factory recommends.

**Master Lawn and Garden Kit:**

- (1) 31 degree and 46 degree head, 1-5/16" diameter
- (1) 15 degree and 60 degree head, 1-5/16" diameter
- (1) 1/4", .251", 5/16", .313", 8 mm, and 9/32" pilots
- (1) 8mm pilot
- T-Wrench, Pilot Puller Pin, 5/64" and 3/32" Hex Keys, and Cleaning Brush in a Fitted Tool Case

Order Number: LG2000 .....\$295.00

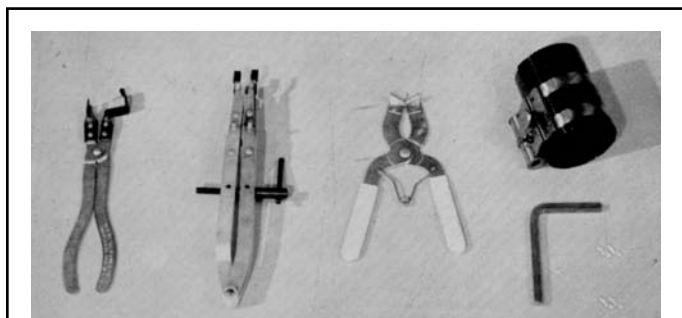
**Standard Lawn and Garden Kit**—Includes all parts in the Master Lawn and Garden Kit (LG2000) except the 15 degree and 60 degree cutters.  
Order Number: H-102W .....\$195.00

**BASIC TOOL KIT**

This basic tool kit has everything for basic disassembly, adjustment, and assembly of small engines.

Kit contains an 11 piece 3/8" drive, 6-point socket set; 3 piece 3/8" drive 6-point spark plug socket set; 7 piece double open-end wrench set; 6-1/2" long-nose pliers; 4" and 6" standard screwdrivers; #2 Philips screwdriver; 1/4" and 7/16" nut drivers; round and flat feeler gage set; and a spark plug tester. These tools come complete in a 6" x 6-1/2"x 19" steel tool box with a handy tray.

Order Number: TK-73 .....\$192.50



**SPECIALTY TOOL KIT**

This specialty tool kit is a must for working on small engines. One set is recommended for each 2 or 3 engines in the small engine unit. These tools will easily fit into the bottom of the tool box containing the Basic Tool Kit (TK-73).

**Kit includes:**

- Condenser Spring Compressor**  
Order Number: K362 .....\$4.95
- Valve Spring Compressor**  
Order Number: Z-131 .....\$18.60
- Piston Ring Spreader**  
Order Number: L-33500 .....\$6.95
- Piston Ring Compressor**  
Order Number: Z-218 .....\$7.50

**Order the kit and save!**

Order Number: STK-73 .....\$33.00

**STARTER CLUTCH WRENCH AND FLYWHEEL HOLDER**



**Flywheel Holder**—This flywheel holder is a must for working on Briggs & Stratton Engines. Will fit all Briggs & Stratton engines up to 140,000 series.

Order Number: 19167 .....\$34.00



**Starter Clutch Wrench**—1/2" drive, use with socket or torque wrench. B & S engines.  
Order Number: 19244 .....\$12.28

**Order the set and save!**

Order Number: SCFH-1 .....\$41.65

**SMALL GAS ENGINES INSTRUCTIONAL KIT**

*Save time and money...purchase this instructional kit!*

**Manuals & Worksheets**

- 10-7650-1 *Step-By-Step Procedures for Service and Repair of Small Engines, Instructional Packet*
- 473 *Small Gasoline Engines, Textbook*
- 473TK *Answer Key for Small Gasoline Engines, Textbook*
- BS270962 *Briggs and Stratton Service and Repair Instructions, Service Manual*
- 169 *Micrometers, Calipers and Gages, Manual*
- HWSM-SGE *Small Gas Engines, 32 Worksheet Masters*

**Engine**

- 93202 Briggs and Stratton 3.5 H.P. Engine.

**Tools and Supplies**

One each of the following tools or tool sets:

- MC-1 Micrometer, 0-1 inch
- FG-35 Flat Feeler Gage
- FG-6 Spark Plug Gage
- FG-5 Spark Plug Wire Gage
- S86-383 Torque Wrench
- GENMG6001 Vernier Caliper
- TK-73 Basic tool kit
- STK-73 4 small engine specialty tools
- SCFH-1 1 Starter Clutch Wrench and 1 Flywheel Holder
- L-16000 Cylinder Hone
- AM-3880 Honing Oil
- H102W Small Valve Seat Cutter Kit
- SES-1 Small Engine Stand
- FPA-1 Flat Plate Accessory
- AJ-8 Adjustable Jaw Wrench 8"
- TM-1 Tachometer
- 19200 Vibration Tachometer
- 70102 Safety Glasses, 5 pairs



**DVDs**

- CEV-SGE-SET Includes 12 live-action, videos covering disassembly, assembly, checkup, and repair of small gas engines.

This complete kit includes the curriculum, audio-visual aids, worksheets, tools, and supplies needed to successfully teach a small gas engines unit.

**Kit with DVDs:**

- Order Number: SGEIKIT-D .....\$1,987.50

All tools and instructional materials included in this kit are available as individual items in this catalog. Check the catalog index for the pages that contain the complete descriptions and prices for individual items.

**MOWER BLADE BALANCER**

This fast, easy-to-use device stops blade vibration and adds life to your mower.

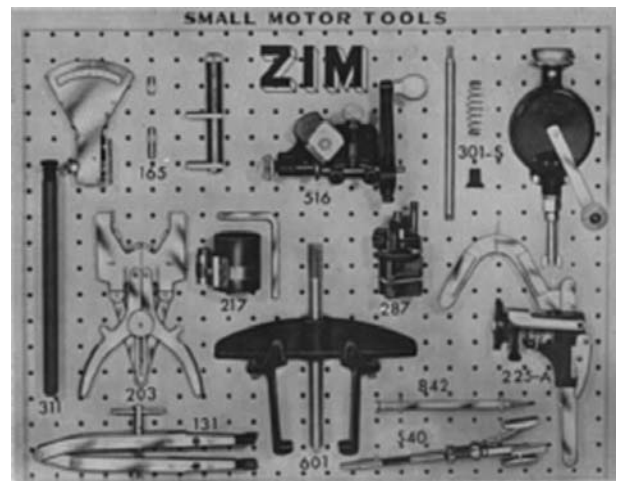
- Order Number: MBB-1 .....\$4.95



**CALIBRATED IGNITION TESTER**

Checks for spark without removing spark plugs from engine.

- Order number: KD-2756 .....\$10.60



**SMALL ENGINE TOOL ASSORTMENT WITH BOARD**

HOBAR offers this complete quality line of small engine tools. These tools may be purchased individually or as sets. Upgrade your small engine instructional program by adding these quality tools today.

With the purchase of the complete tool assortment, the 19" X 25" display board is included.

- Order Number: Z-SD-2 .....\$295.00

**INDIVIDUAL SMALL ENGINE TOOLS**

- Cylinder Gage**—Range 1-3/4" to 3-1/4"  
Order Number: Z-165.....\$90.50
- Valve Refacer**—Carboloy Cutter, 45 degree or 30 degree  
Order Number: Z-516.....\$19.95
- Valve Grinder Cutters**—for Z-516  
Order Number: Z-515.....\$7.98
- Hand Valve Grinder**  
Order Number: Z-301S .....\$14.95
- Cup Valve Grinder**—3/4" dia. cup  
Order Number: Z-311.....\$2.25
- Piston Ring Expander**—Cap. 1-1/4" to 2-1/4"  
Order Number: Z-203.....\$9.95
- Piston Ring Compressor**—Cap. 1-3/4" to 3-1/2"  
Order Number: Z-217.....\$7.50
- Cylinder Ridge Reamer**—Range 2" to 3"  
Order Number: Z-287.....\$41.25
- Valve Spring Compressor**  
Order Number: Z-131.....\$18.60
- Gear Puller**—up to 6" dia. 3" arms  
Order Number: Z-601.....\$29.95
- Magnetic Key Inserter**  
Order Number: Z-842.....\$6.95
- Piston Groove Cleaner**—Cap. 2" to 3"  
Order Number: Z-225A .....\$19.95
- Cylinder Hone**—Range 3/4" to 2-3/4"  
Order Number: Z-540.....\$25.95
- Cylinder Hones**—for Z-540  
Order Number: Z-541.....\$8.25

**SPARK PLUG GAP AND FEELER GAUGE SET**

- 12 blades, .010-.26" and 6 wires, .025-.045"
- Order number: KD164 .....\$8.60





**Piston Ring Expander** – Cap. 2” to 4”  
Order Number: Z-201 .....\$15.50



**Piston Groove Cleaner** – up to 5-1/2”  
Order Number: Z-221 .....\$9.95



**Piston Ring Compressor** – Cap. 2-1/8” to 5”  
Order Number: Z-218 .....\$7.50

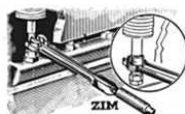


**Small Engine “C” Clamp Lifter** – For all air or water cooled 4-cycle engines with 3/4” to 1-1/16” spring diameters. Includes large and small jaws for 3/4” to 1 1/16” springs.  
Order Number: L-23300 .....\$19.95



**Small Gear and Terminal Puller** – up to 1-1/2”  
Order Number: Z-604 .....\$9.95

**Small Gear and Terminal Puller** – up to 3”  
Order Number: Z-606 .....\$12.25



**Split Valve Spring Keeper**  
Order Number: Z-820 .....\$6.95



**Tele-Magnet**—Range 18” to 28”  
Order Number: L-31000 .....\$11.50



**Oil Filter Wrench**  
Order Number: Z-990 .....\$7.95



**Swivel Jaw Hose Clamp Pliers** – 8-1/2”  
Order Number: Z-970 .....\$10.75



**Gear and Wheel Puller** – Reversible jaws, up to 6”, reach 3-1/4”  
Order Number: Z-630 .....\$45.95

**K-D BRAND SNAP RING PLIERS**



**Internal Snap Ring Pliers** – Includes tip assortment.  
Order Number: ISR .....\$36.95

**External Snap Ring Pliers** – Includes tip assortment.  
Order Number: ESR.....\$40.95



**Snap Ring Pliers Set** – Includes ISR & ESR.  
Order Number: IESR-1 .....\$69.50



**Piston Ringer** – up to 4” rings  
Order Number: L-33500 .....\$6.95



**Cylinder Surface Hone** – 2”-7”  
Order Number: L-23500 .....\$27.95



**Dual Cup Valve Grinder**  
Order Number: CVG-1.....\$6.95



**Gasket Scraper**  
Order Number: GS-1 .....\$9.00



**Thin Straight Nose Pliers** – 6”, cushion grip  
Order Number: TNP-1 .....\$18.00



**Diagonal Cutter** – 6”, cushion grip  
Order Number: DC-6 .....\$22.00



**Long Nose Pliers** – 6”, cushion grip  
Order Number: LNP-1 .....\$23.00



**Grooved Joint Pliers** – 10”, cushion grip  
Order Number: GJP-10 .....\$19.50



**Flat Feeler Gage** – 32 straight blades ranging in size, .0015-.035” including .010” brassblade  
Order Number: FG-35 .....\$5.95



**Mini Feeler Gage** – 16 blades, .010-.035”  
Order Number: FG-2 .....\$5.95



**Spark Plug Gage** – 6 wires, .030-.040”  
Order Number: FG-6 .....\$3.25



**Spark Plug Gage** – 8 wires, .015-.040”  
Order Number: FG-5 .....\$6.35

**LISLE SMALL ENGINE CYLINDER HONE**

Stones are 3-1/2" long. Range from 1-3/4" to 2.6". Comes complete with three medium grit stones for cast iron cylinders

Order Number: L-16000 SET .....\$255.00



**HONING OIL**

Always use Honing Oil when surfacing cylinders. Assures better finish, faster cutting, and longer stone life. One quart can.

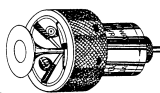
Order Number: AM-3880 .....\$18.40



**GIZMATIC**

The most efficient tool for refacing valves by hand. Features a crank style lever which turns the blades against the stationary valve face. This crank provides the operator with enough leverage to make the job effortless, while a second lever allows the operator to control the feed rate of the blades. It features soft jawed V-blocks which hold the valve stem securely in a vise while the cone, either 45 or 30, automatically centers itself on the valve face. NEWAY

Order Number: GIZ-3 .....\$355.00



**SOFT PLASTIC FACE HAMMERS**

**8 ounce Plastic Face Hammer**

Order Number: S57-594 .....\$29.25

**16 ounce Plastic Face Hammer**

Order Number: S57-595 .....\$32.75



**HEX WRENCH SETS**

Hex Keys are heat treated alloy steel.

**Folding 9 Key** – Folded length is 3-1/2" Sizes: .050", 1/16", 5/64", 3/32", 7/64", 1/8", 9/64", 5/32", 3/16".

Order Number: L-42000 .....\$8.45

**Folding Metric 7 Key** – Folded length is 3-3/4". Sizes: 1.5mm, 2mm, 2.5mm, 3mm, 4mm, 5mm, 6mm.

Order Number: L-42020 .....\$7.45

**12 Key** – Includes handy storage case. Sizes: .050", 1/16", 5/64", 3/32", 7/64", 1/8", 9/64", 5/32", 3/16", 7/32", 1/4", 5/16".

Order Number: L-42150 .....\$7.45

**9 Key Metric** – Includes handy storage case. Sizes: 1.5mm, 2mm, 2.5mm, 3mm, 4mm, 5mm, 6mm, 8mm, 10mm.

Order Number: L-42300 .....\$8.25



**COMPRESSION TESTER**

Heavy-duty quality, 0-300 lbs. and 0-21 Kg/sq cm. English-metric calibration. Fits 14mm and 18mm spark plug holes. Push-in type.

Order Number: KAL-2502 .....\$30.25



**TACHOMETER**

0-4,000 rpm's

Order Number: TM-1 .....\$127.00



**VIBRATION TACHOMETER**

0-50,000 RPM

Order Number: 19200 .....\$22.50



**IMPACT WRENCH KIT**

3/8" drive, 7 drivers

Order Number: L-29200 .....\$35.95



**NUT DRIVER KIT**

7 drivers, 3/16"-1/2"

Order Number: ND-SET-7 .....\$65.00

7 drivers, 5mm-11mm

Order Number: MND-SET-7 .....\$26.95



**MECHANIC'S GUIDE TO PRECISION MEASURING TOOLS**

Multimeters, micrometers, calipers, compression testers, dial indicators, feeder gauges ... which tool is right for the job? As a professional mechanic, shade tree wrencher, or restorer, you are concerned about your car's performance. With the idea of affordability for the home mechanic, this book explains what precision tools you'll need and how to use them to attain the highest performance from your vehicle.

From alignment gauges to Vernier micrometers, all of the tools you may ever require to measure gaps, spans, angles, radii, pitches, forces, pressures, and flows with the resolution and accuracy of a professional are carefully described, demonstrated, and illustrated with more than 130 photos and diagrams. MOTOR BOOKS

123 pages, 1999, softcover

Order Number: HSO-5455 .... \$19.95 each, \$15.96 (10 or more)

