

# **Customer Education**

# **BRIGGS & STRATTON SERVICE TOOLS CATALOG**



# **TABLE OF CONTENTS**

BEARING (MAIN) SERVICING	690582 Washer
19158* Main Bearing Tool Kit (obsolete)	19397 Adapter/Driver
19096* Pilot	CAM GEAR BEARING SERVICING
19094* Pilot Guide Bushing	19164 Cam Bearing Plug Gauges
19097* Pilot Guide Bushing (obsolete) 1	19383* Cam Bearing Plug Gauges
19099* Reamer - Counterbore (obsolete)	19384 Cam Bearing Plug Gauges
19101* Reamer Guide Bushing (obsolete) 1	19386 Cam Bearing Plug Gauges
19123 Cylinder Support Jack	19387* Cam Bearing Plug Gauges
19124 Bushing Driver	19421 Puller, Camshaft Bearing
19166 Plug Gauge (obsolete)	19422 Driver, Camshaft Bearing
19186* Reamer Guide Bushing	19592 Magneto Bearing Puller/Installer
19373* Pilot Guide Bushing (obsolete)	CARBURETOR SERVICING
19184* Main Bearing Tool Kit (obsolete)	19061 Screwdrivers - Carburetor Jet (small jets) 4
19096* Pilot	19062 Screwdrivers - Carburetor Jet (large jets) 4
19169* Pilot Guide Bushing	19245 Carburetor Tap Set
19170* Reamer Guide Bushing	19305* Carburetor Offset Screwdriver 4
19171* Reamer Guide Bushing	19455 Torx® E5 Socket
19173* Reamer - Finish	19445
19174* Reamer - Counterbore	19456 Tachometer Adaptor
19175* Reamer - Finish (obsolete)	19457 Digital Tachometer & Hourmeter
19178 Plug Gauge	19458* 14 mm Carburetor Socket
19179 Bushing Driver	19459 16 mm Carburetor Socket
19201* Reamer Guide Bushing	19461 Primer Bulb Removal Tool
	19462 Primer Bulb Installation Tool
19281* Reamer - Counterbore	19600 Fuel Line Removal Tool
19228* Main Bearing Tool Kit (obsolete)	19570 Screwdriver Set
19219 Plug Gauge	19608 T40 Plus Torx® Bit
19220 Pilot Guide Bushing	
19222 Reamer Guide Bushing	19607 Otoscope
19223 Pilot	19205* Ammco Hone Set For Aluminum Bore Engines 6
19224 Reamer - Counterbore	19206 Stone Set (obsolete)
19450 Bushing Driver	19207* Stone Set
19227 Cylinder Support Jack	19208* Stone Retainer Springs 6
19282* Reamer Guide Bushing "MAGNETO" 2	19209* Drive Shank
19344* Roll Pin Driver	19210* Stop
19349 Bearing Driver	19211* Ammco Hone Set For Cast Iron Bore/Sleeve Engines 6
19350 Bearing Driver	19212* Stone Set
19351 Cylinder Support	19213* Stone Set
19377* Main Bearing Plug Gauge	19214* Stone Carrier
19378* Main Bearing Plug Gauge	19215* Stone Carrier
19380 Main Bearing Plug Gauge	19216* Stone Retainer Springs 6
19450 Bearing Driver	19217* Drive Shank
19407 Main Bearing Tool Kit	19218* Extension 6
19139 Puller Nut	19303* Stone Set 6
19398 Puller Stud	19304* Stone Set 6
19318 Puller Screw	19541* Stone Set
19401 Driver	ELECTRICAL TESTING
19454 Support	19449 15 Amp Fuse
19406 Puller Nut	19571 11 Amp Fuse
19320 Driver	19602 Digital Multimeter
19408 Puller Stand Off	19528* PowerLink® Test Box
19394 Support Driver	19543* Capacity-Frequency Meter
19440 Support Driver	19468 DC AMP Shunt
19395 Pilot Nut	FLYWHEEL HOLDER/PULLER
94814 Nut	Flywheel Pullers 19069, 19165, 19203
19396 Pilot	19418 Flywheel Holder
1000011106	



# **TABLE OF CONTENTS (CONT.)**

19433 Flywheel Strap Wrench	B CE5005 Six-Inch Stainless Steel Scale
19489 Flywheel Holder	B CE5121 Air Gap Gauge
19538* Flywheel Puller - Micro Engine	
19584 Flywheel Puller - Motor Sports	STARTERS - ELECTRIC/MANUAL REWIND
19590 Rotor Puller	
19534* Flywheel Puller - PowerLink®	
IGNITION & RELATED PARTS SERVICING	19353 Universal Socket
	10/25 C Ding Installation Tool
Breaker Point Plunger Hole Servicing	10447 Deplement Drive Dine
19055 Plug Gauge	10107 Universal Cooket
19057 Bushing Driver	40E00 C Ding Democral Tool
19368 Ignition Tester	10E04 Tany® Daiver
19400 Spark Tester	TOOL VIT
19525 Polarity Indicator Key Fob	10000 Pasis Tarl Vit
89838S Spark Plug Wrench	4,0004, 0
19576S Spark Plug Wrench	19062 Carburetor Jet Screwdriver, Large Jets
OIL SEAL SERVICING	10062 Valva Caping Compressor
19423 Driver, Oil Seal	1 10000 Floridael Dullan
19424 Driver, Oil Seal	19070 Piston Ring Compressor
OUTBOARD MOTOR	10165 Elyaphool Dullon
19555* Prop Shaft Fixture	1 10000 Techameter (Travelt Circurator) 10
19557* Tapered Socket	19203 Flywheel Puller
PISTON & PISTON RINGS SERVICING	10050 Volvo Lappon 10
19070 Piston Ring Compressor	10040 Dieter Dies Europelen
19230 Piston Ring Compressor	40000 T+ 1:ti
19340 Ring Expander	10000 Tensus Weensh
19419 Piston Pin Fixture	19433 Flywheel Holder
	40440 T OL LD'
19493 Mity Vac Pressure/Vacuum Pump	10400 Tana Dandan 10
19495 Digital Crankcase Vacuum Tester	19600 Fuel Line Removal Tool
Engine Test Fittings made from the following items	705161 Alaskal Fuel Teston
499621 Dipstick	04150 Clayer® Valve Lapping Compayed 10
807985 Dipstick	CEE101 Air Con Cougo
495230 Dipstick	MC 4405 Tool Cotolog
·	VALVE/COMPRESSION SERVICING
281658 Fill Cap	
691764 Hose Connector	19138 Valve Seat Puller Kit
795163 Hand Held Tiny-Tach Diagnostic Tool	19139* Puller Nut
19598 Digital Tachometer & Hourmeter	
19463* Quick Clamp Transducer	1(11/1/14 to 1) till on Night
19385 Adjustment Gauge	
795195 Diesel Tachometer	
795193 Commercial Tachometer	
19200 Tachometer (Treysit Sirometer)	
19480 Tang Bender	
19199* Dial Caliper	
19611 Micrometer Set	
19393 Torque Wrench	
19441 Dial Indicator	
19485* Telescoping Gauge	
19487* Dial Bore Gauge	
19610 Telescoping Gauge Set	
19609 6" Digital Caliner	



# **TABLE OF CONTENTS (CONT.)**

19233 Reamer - Finish	.20 100054 Heavy Duty Shop Towels
19234 Reamer Guide	
19238 Puller Bolt	
	' '
19239 Nut	1 2
19240 Washer	
19264 9 mm Tap	· ·
19258 Valve Lapper	
19269 Valve Guide Repair Kit	
19064 Reamer - Counterbore	
19066 Reamer - Finish	·
19122 Plug Gauge	
19191 Reamer Guide	.21 100008 - Thread Repair Kit 1/4-20
19270 Washer	.21 100009 - Thread Repair Kit 5/16-18
19271 Puller Bolt	.21 100010 - Thread Repair Kit M5x.8
19272 Nut	.21 100011 - Thread Repair Kit M6x1
19273 7 mm Tap	
19367 Bushing Driver	
19302 Valve Seat Cutter Repair Kit	
19345 Reamer Guide	
19346 Valve Guide Reamer	
19347 Valve Spring Compressor	
19381 Valve Guide Plug Gauge	<u> =                                   </u>
19382 Valve Guide Plug Gauge	
19416 Valve Guide Driver	
19417 Valve Spring Compressor	
19443 Compression Test Adaptor	
19444 Valve Guide Reamer	
19446* Neway Valve Seat Cutter Kit	
19465 Valve Adjustment Set	
19478* Orifice	
19545 Leakdown Tester	
19549 Easy Turn Wrench	
19551* Seat Cutter Upgrade Kit	.23
19547 Valve Seat Cutter Kit	.23
94150 Clover® Valve Lapping Compound	.23
19566 Diesel Compression Tester	.24
19559 3/LC Diesel Leakdown Adapter	.24
MISCELLANEOUS	
19256 Brake Adjustment Gauge	.25
19333 Governor Bushing Reamer	
19420 Puller, Crankshaft Pulley	
19491 Alternator Wrench	
19442 Torqux Star Bits	
19510 - (T10)	
19511 - (T15)	
19512 - (T20)	
19513 - (T-27)	
19514 - (T30)	
19515 - (T40)	
19516 - (T45)	
19482 - (T25)	
Injector Tester	
196682GS Pressure Washer Tester Gauge	.८०



# **TABLE OF CONTENTS IN NUMERICAL ORDER**

100007 - Thread Repair Kit 10-32	.27	19166 Plug Gauge (obsolete)
100008 - Thread Repair Kit 1/4-20	.27	19169* Pilot Guide Bushing
100009 - Thread Repair Kit 5/16-18	.27	19170* Reamer Guide Bushing
100010 - Thread Repair Kit M5x.8	.27	19171* Reamer Guide Bushing
100011 - Thread Repair Kit M6x1	.27	19173* Reamer - Finish
100012 - Thread Repair Kit M8x1.25		19174* Reamer - Counterbore
100013 - Thread Repair Kit 14 mm Spark Plug		19175* Reamer - Finish (obsolete)
100024 Master Thread Repair Kit		19178 Plug Gauge
100054 Heavy Duty Shop Towels		19179 Bushing Driver
100057 Grease Gun Kit - Simple One Handed Operation		19182* Puller Nut
100058 Grease Gun Refill Kit		19184* Main Bearing Tool Kit (obsolete)
100059 High-Performance Grease		19186* Reamer Guide Bushing
100110 Grease Gun		19191 Reamer Guide
1686997SM Caliper		19199* Dial Caliper
1687102XM Flow Meter Kit		
		19200 Tachometer (Treysit Sirometer)
1687301SM Hydraulic Hose Disconnect		19200 Tachometer (Treysit Sirometer)
19055 Plug Gauge		19201* Reamer Guide Bushing
19057 Bushing Driver		19203 Flywheel Puller
19061 Carburetor Jet Screwdriver, Small Jets		19204 Bushing Driver
19061 Screwdrivers - Carburetor Jet (small jets)		19205* Ammco Hone Set For Aluminum Bore Engines 6
19062 Carburetor Jet Screwdriver, Large Jets		19206 Stone Set (obsolete)
19062 Screwdrivers - Carburetor Jet (large jets)		19207* Stone Set 6
19063 Valve Spring Compressor		19208* Stone Retainer Springs 6
19063 Valve Spring Compressor		19209* Drive Shank
19064 Reamer - Counterbore	.21	19210* Stop
19066 Reamer - Finish	.21	19211* Ammco Hone Set For Cast Iron Bore/Sleeve Engines 6
19069 Flywheel Puller	.19	19212* Stone Set
19070 Piston Ring Compressor	.12	19213* Stone Set
19070 Piston Ring Compressor		19214* Stone Carrier
19094* Pilot Guide Bushing		19215* Stone Carrier
19096* Pilot (part of 19158)		19216* Stone Retainer Springs 6
19096* Pilot (part of 19184)		19217* Drive Shank
19097* Pilot Guide Bushing (obsolete)		19218* Extension
19099* Reamer - Counterbore (obsolete)		19219 Plug Gauge
19101* Reamer Guide Bushing (obsolete)		19220 Pilot Guide Bushing
19122 Plug Gauge		19222 Reamer Guide Bushing
19123 Cylinder Support Jack		19223 Pilot
19124 Bushing Driver		19224 Reamer - Counterbore
19126 Expansion Pilot - 1/4" Valve Guide		19227 Cylinder Support Jack
19127 Expansion Pilot - 5/16" Valve Guide		19228* Main Bearing Tool Kit (obsolete)
19129* Cutter Shank		19230 Piston Ring Compressor
19130* T-Handle for Cutter Shank		19231 Reamer - Counterbore
19135 Knockout Pin		19232 Valve Guide Repair Kit
19136 Insert Driver		19233 Reamer - Finish
19137 T-Handle for Pillots		19234 Reamer Guide
19138 Valve Seat Puller Kit		19238 Puller Bolt
19139* Puller Nut		19239 Nut
19139 Puller Nut		19240 Washer
19140* Puller Nut		19244 Starter Clutch Wrench
19141* Puller Nut		19245 Carburetor Tap Set
19151 Plug Gauge		19256 Brake Adjustment Gauge
19158* Main Bearing Tool Kit (obsolete)		19258 Valve Lapper
19164 Cam Bearing Plug Gauges		19258 Valve Lapper
19165 Flywheel Puller	.19	19264 9 mm Tap



# **TABLE OF CONTENTS IN NUMERICAL ORDER**

19269 Valve Guide Repair Kit	19421 Puller, Camshaft Bearing
19270 Washer	19422 Driver, Camshaft Bearing
19271 Puller Bolt	19423 Driver, Oil Seal
19272 Nut	19424 Driver, Oil Seal
19273 7 mm Tap	19433 Flywheel Holder
19281* Reamer - Counterbore	19433 Flywheel Strap Wrench
19282* Reamer Guide Bushing "MAGNETO"2	19435 C-Ring Installation Tool
19300 Basic Tool Kit	19440 Support Driver
19302 Valve Seat Cutter Repair Kit	19441 Dial Indicator
19303* Stone Set	19442 Torqux Star Bits
19304* Stone Set	19442 Torqux Start Bits
19305* Carburetor Offset Screwdriver	19443 Compression Test Adaptor
19318 Puller Screw	19444 Valve Guide Reamer
19320 Driver	19445
19333 Governor Bushing Reamer	19446* Neway Valve Seat Cutter Kit
19340 Piston Ring Expander	19447 Replacement Drive Pins
19340 Ring Expander	19449 15 Amp Fuse
19344* Roll Pin Driver	19450 Bearing Driver
19345 Reamer Guide	19450 Bushing Driver
19346 Valve Guide Reamer	19454 Support
19347 Valve Spring Compressor	19455 Torx® E5 Socket
19349 Bearing Driver	19456* Tachometer Adaptor
19350 Bearing Driver	19456* Tachometer Adaptor
19351 Cylinder Support	19457 Digital Tachometer & Hourmeter 4
19353 Universal Socket	19458* 14 mm Carburetor Socket 4
19367 Bushing Driver	19459 16 mm Carburetor Socket 4
19368 Ignition Tester	19461 Primer Bulb Removal Tool 5
19368 Tester - Ignition	19462 Primer Bulb Installation Tool 5
19373* Pilot Guide Bushing (obsolete)	19463* Quick Clamp Transducer
19377* Main Bearing Plug Gauge	19465 Valve Adjustment Set
19378* Main Bearing Plug Gauge 2	19468 DC AMP Shunt
19380 Main Bearing Plug Gauge 2	19478* Orifice
19381 Valve Guide Plug Gauge	19480 Tang Bender
19382 Valve Guide Plug Gauge	19480 Tang Bender
19383* Cam Bearing Plug Gauges	19482 - (T25)
19384 Cam Bearing Plug Gauges	19485* Telescoping Gauge
19385 Adjustment Gauge	19487* Dial Bore Gauge
19386 Cam Bearing Plug Gauges	19489 Flywheel Holder
19387* Cam Bearing Plug Gauges	19491 Alternator Wrench
19393 Torque Wrench	19493 Mity Vac Pressure/Vacuum Pump
19394 Support Driver	19495 Digital Crankcase Vacuum Tester
19395 Pilot Nut	19497 Universal Socket
19396 Pilot	19510 - (T10)
19397 Adapter/Driver	19511 - (T15)
19398 Puller Stud	19512 - (T20)
19400 Spark Tester	19513 - (T-27)
19401 Driver	19514 - (T30)
19406 Puller Nut	19515 - (T40)
19407 Main Bearing Tool Kit	19516 - (T45)
19408 Puller Stand Off	19522 C-Ring Removal Tool
19416 Valve Guide Driver	
19417 Valve Spring Compressor	19525 Polarity Indicator Key Fob
19418 Flywheel Holder	19528 PowerLink® Test Box
19419 Piston Pin Fixture	19534* Flywheel Puller - PowerLink®
19420 Puller, Crankshaft Pulley	19538* Flywheel Puller - Micro Engine 8



# TABLE OF CONTENTS IN NUMERICAL ORDER

19541* Stone Set	. 6
19543* Capacity-Frequency Meter	
19545 Leakdown Tester	
19547 Valve Seat Cutter Kit	
19549 Easy Turn Wrench	
19551* Seat Cutter Upgrade Kit	
19555* Prop Shaft Fixture	
19557* Tapered Socket	
19559 3/LC Diesel Leakdown Adapter	
19566 Diesel Compression Tester	.24
19570 Screwdriver Set	. 5
19571 11 Amp Fuse	. 7
19576S Spark Plug Wrench	
19584 Flywheel Puller - Motor Sports	
19590 Rotor Puller	
19592 Magneto Bearing Puller/Installer	
19598 Digital Tachometer & Hourmeter	
19600 Fuel Line Removal Tool	
19602 Digital Multimeter	
19607 Otoscope	
19608 T40 Plus Torx® Bit	
19609 6" Digital Caliper	
19610 Telescoping Gauge Set	.16
19611 Micrometer Set	.16
19615 Repower Terminal Kit	.28
196682GS Pressure Washer Tester Gauge	
2173359SM Quick Connect Coupling	
271400 Gloss Black Spray Paint	
271402* Ice White Spray Paint	
271403 Satin Black Spray Paint.	
271675 American Red Spray Paint	
281658 Fill Cap	.13
495230 Dipstick	.13 .13
495230 Dipstick	.13 .13 .13
495230 Dipstick	.13 .13 .13 .17
495230 Dipstick	.13 .13 .13 .17 .28
495230 Dipstick	.13 .13 .13 .17 .28 . 3
495230 Dipstick	.13 .13 .13 .17 .28 . 3
495230 Dipstick	.13 .13 .17 .28 . 3 .13
495230 Dipstick	.13 .13 .17 .28 . 3 .13
495230 Dipstick	.13 .13 .17 .28 .3 .13 .28 .13
495230 Dipstick	.13 .13 .17 .28 .3 .13 .28 .13
495230 Dipstick	.13 .13 .17 .28 .3 .13 .28 .13
495230 Dipstick	.13 .13 .17 .28 .3 .13 .28 .13 .26 .14
495230 Dipstick	.13 .13 .17 .28 .3 .13 .28 .13 .26 .14 .15
495230 Dipstick	.13 .13 .17 .28 .13 .28 .13 .26 .14 .15 .14
495230 Dipstick	.13 .13 .17 .28 .13 .28 .13 .26 .14 .15 .14 .15
495230 Dipstick	.13 .13 .17 .28 .13 .28 .13 .26 .14 .15 .14 .10
495230 Dipstick	.13 .13 .17 .28 .13 .26 .14 .15 .14 .15 .19 .23
495230 Dipstick	.13 .13 .17 .28 .13 .26 .14 .15 .10 .19 .23 .3
495230 Dipstick	.13 .13 .17 .28 .13 .26 .14 .15 .14 .19 .23 .26
495230 Dipstick	.13 .13 .17 .28 .13 .28 .13 .26 .14 .15 .14 .19 .23 .26 .9
495230 Dipstick	.13 .13 .17 .28 .13 .28 .13 .26 .14 .15 .14 .19 .23 .26 .9
495230 Dipstick	.13 .13 .17 .28 .13 .26 .14 .15 .14 .15 .19 .23 .26 .9 .27

Fix-A-Thread Kits				.27
Flywheel Pullers 19069, 19165, 19203.				. 8
njector Tester				.25
MS-4185 Tool Catalog				.19
Quick Fuel Line Disconnects				.27
Valve Seat Insert and Counterbore Tools.				.20







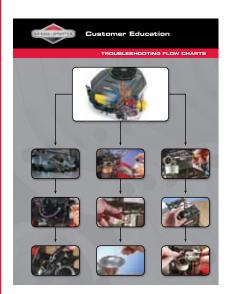
MS-0415 Engine Alternator Replacement Guide

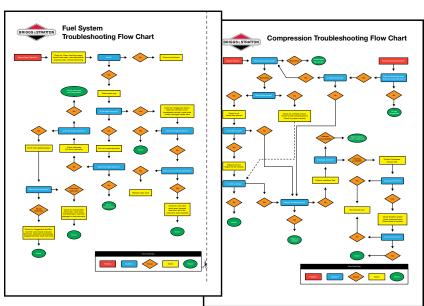
This guide offers many quick repair concepts when identifying color codes on wire harnesses and quick disconnect connections. This content also offers details regarding wiring schematics when performing engine repowers.



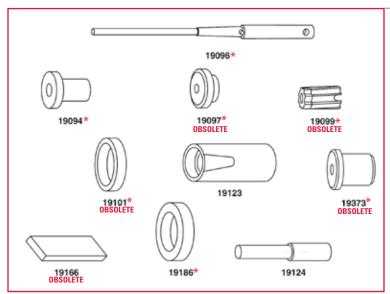
# **Troubleshooting Flow Charts - CE8117**

The CE8117 Troubleshooting pamphlet was recently expanded to include additional flow charts of engine systems. The original document offered a simple, systematic troubleshooting process. This updated version has pages of troubleshooting flow charts covering Bowl Style Carburetors, Compression Diagnostics, Fuel System, Governors and Gaseous Fuel Systems. This is a handy document to have as a troubleshooting guide or for ideas should you get stuck on a problem.





# **BEARING (MAIN) SERVICING**



#### 19158\* Main Bearing Tool Kit - OBSOLETE

For installing steel backed aluminum bearings in Engine Models 6, 8, 6B, 8B, N, 90000, 100700, 110000, 120000, 130000. THE KIT IS OBSOLETE, BUT SOME OF THE PARTS IN THE KIT ARE STILL AVAILABLE.

#### Kit includes:

19096\* Pilot

19094\* Pilot Guide Bushing

19097 Pilot Guide Bushing- **OBSOLETE** 

19099 Reamer - Counterbore - **OBSOLETE** 

19101 Reamer Guide Bushing - **OBSOLETE** 

19123 Cylinder Support Jack

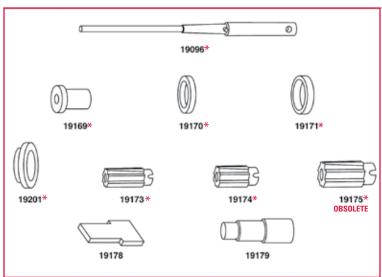
19124 Bushing Driver

19166 Plug Gauge - **OBSOLETE** 

19186\* Reamer Guide Bushing

19373 Pilot Guide Bushing - **OBSOLETE** 

**Note:** Each tool part number can also be ordered separately.



#### 19184\* Main Bearing Tool Kit - OBSOLETE

For installing steel backed aluminum bearings in Engine Models 130000 (PTO side only), 140000, 170000, 171000, 190000, 191000. THE KIT IS OBSOLETE, BUT THE PARTS IN THE KIT ARE STILL AVAILABLE.

#### Kit includes:

19096\* Pilot

19169\* Pilot Guide Bushing

19170\* Reamer Guide Bushing

19171\* Reamer Guide Bushing

19173\* Reamer - Finish

19174\* Reamer - Counterbore

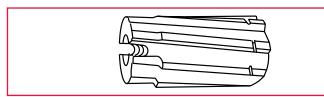
19175 Reamer - Finish- OBSOLETE

19178 Plug Gauge

19179 Bushing Driver

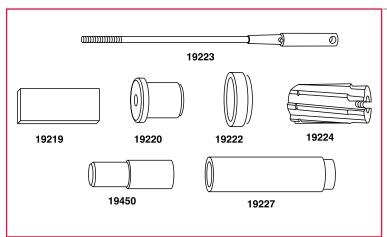
19201\* Reamer Guide Bushing

**Note:** Each tool part number can also be ordered separately.



#### 19281\* Reamer - Counterbore

For installing DU bearing in PTO bearing: Horizontal Crankshaft Models 140000, 170000, 190000. For installing DU bearing in MAG. bearing: Vertical Crankshaft Engine Models 171000, 191000.



#### 19228\* Main Bearing Tool Kit OBSOLETE

For Servicing Engine Models 220000, 250000, 280000, 400000, 420000. THE KIT IS OBSOLETE, BUT THE PARTS IN THE KIT ARE STILL AVAILABLE.

#### Kit includes:

19219\* Plug Gauge

19220\* Pilot Guide Bushing

19222\* Reamer Guide Bushing

19223\* Pilot

19224\* Reamer - Counterbore

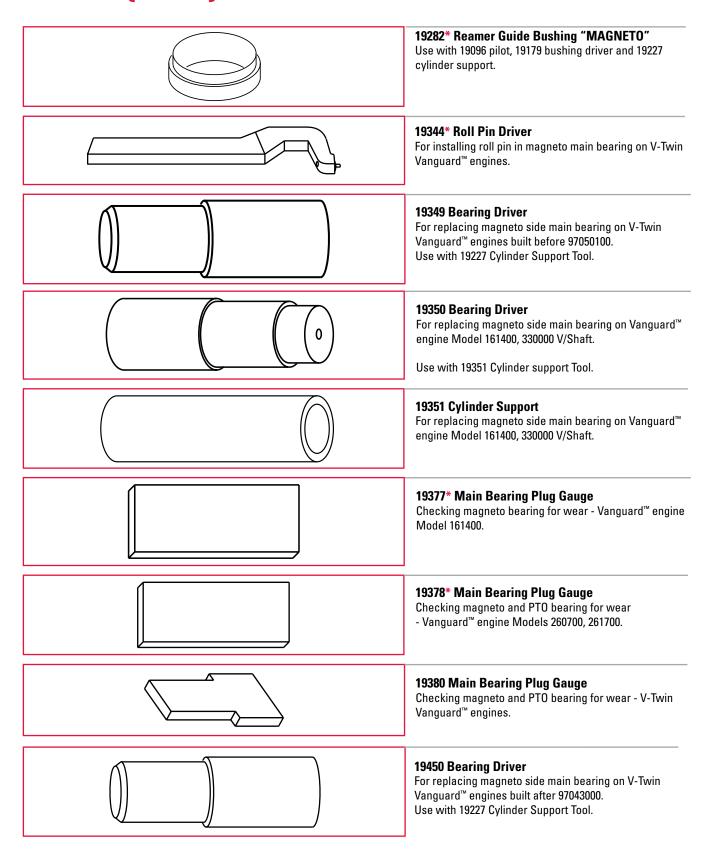
19450\* Bushing Driver

19227\* Cylinder Support Jack

**Note:** Each tool part number can also be ordered separately.

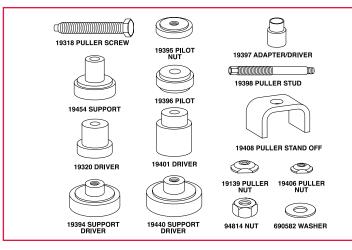


# **BEARING (MAIN) SERVICING**





# **BEARING (MAIN) SERVICING**



## 19407 Main Bearing Tool Kit

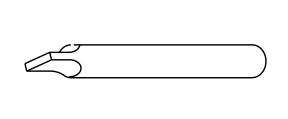
For Servicing Engine Models 85400, 115400, 185400, 245400.

Kit Includes:

19139	Puller Nut	19398	Puller Stud
19318	Puller Screw	19401	Driver
19454	Support	19406	Puller Nut
19320	Driver	19408	Puller Stand Off
19394	Support Driver	19440	Support Driver
19395	Pilot Nut	94814	Nut
19396	Pilot	690582	Washer
19397	Adapter/Driver		

**Note:** Each tool part number can also be ordered separately.

# **CAM GEAR BEARING SERVICING**



#### **Cam Bearing Plug Gauges**

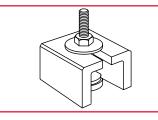
**19164** Checking cam gear bearings for wear - most engine models.

**19383\*** Checking cam gear bearings for wear - Vanguard™ engine Models 161400, 260700, 261700.

**19384** Checking cam gear bearing for wear - Mag. side V-Twin Vanguard™ engines.

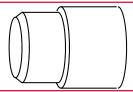
**19386** Checking cam gear bearing for wear - PTO side V-Twin Vanguard™ engines.

**19387\*** Checking cam gear bearings for wear. Engine Models 97700, 99700.



#### 19421 Puller, Camshaft Bearing

For removing camshaft bearing on Vanguard™ 3-cylinder liquid-cooled engines.



## 19422 Driver, Camshaft Bearing

For installing camshaft bearing on Vanguard™ 3-cylinder liquid-cooled engines.



# 19592 Magneto Bearing Puller/Installer

This tool is designed for Magneto main bearing removal and reinstallation of the 54 and 61 cubic inch Big Block engines. It is essentially a hand-operated press. The bearing is pulled into the block as it is staked from the inside. Installation is the reverse, as an oil groove needs to be aligned from the inside.

To use, a mandrel locks into the bearing. The bolt acts as a lead screw and pulls the mandrel and the bearing into a cup machined into a threaded fixture that straddles the bearing recess. For installation, another threaded fixture is substituted for the cup and the new bearing is pulled into position. Simply tighten all the way and the bearing will be brought to the proper recess by the design of the tool.

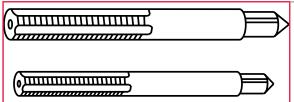
# CARBURETOR SERVICING



### **Screwdrivers - Carburetor Jet**

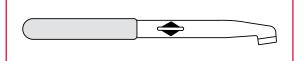
For removing most carburetor jets.

19061 Screwdriver, small jets 19062 Screwdriver, large jets



#### **19245 Carburetor Tap Set**

For cleaning threads in 2-piece flo-jet carburetor. 5/16"-32 NEF 1/4"-32 NEF



### 19305\* Carburetor Offset Screwdriver

For removing carburetor from 3 HP $^{\ddagger}$  and 5 HP $^{\ddagger}$  horizontal crankshaft engines. Offset feature allows access to lower carburetor mounting screw for quick removal.

 $\ddagger$  All power levels are stated gross HP per SAE J1940 as rated by Briggs & Stratton.



### 19455 Torx® E5 Socket

For removing and installing carburetor mounting studs on engines equipped with  $\mathsf{Torx}^{\scriptsize{\textcircled{\tiny{\$}}}}$  drive intake manifolds such as the Intek $^{\tiny{\texttt{M}}}$  V-Twin engines.



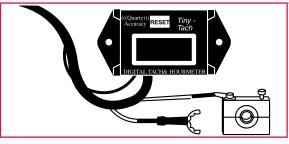
#### 19445

For installing tamper-proof screws in governor paddle for Vanguard™ 3-cylinder liquid-cooled gasoline engines.



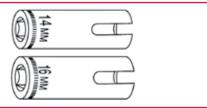
#### **19456 Tachometer Adaptor**

When attached to ignition module, permits use of Digital Tachometer, 19389 on Vanguard™ 3-cylinder liquid-cooled gasoline engines.



# 19457 Digital Tachometer & Hourmeter

For use on Vanguard™ 3-cylinder liquid-cooled diesel engines with 6 mm diameter fuel lines. This also includes a permanent transducer to be attached to the 6 mm fuel line.



### 19458\* 14 mm Carburetor Socket 19459 16 mm Carburetor Socket

Remove and install main jet housing on Intek™ V-Twin engines, Extended Life Series™ Model 44.



# CARBURETOR SERVICING



#### 19461 Primer Bulb Removal Tool

For quick and easy removal of primer bulb and retainer on engines equipped with primer bulb system.



#### 19462 Primer Bulb Installation Tool

Installs new primer bulb and retainer in a "snap."



#### 19600 Fuel Line Removal Tool

This tool is essentially a pry bar for removing fuel line from barbed fittings. The bar is carefully formed, machined, hardened and plated to ensure a long life. To use, remove fuel line clamps. Push fork at end of tool behind the end of the fuel line. Carefully leverage the tool against some existing engine component as a fulcrum and pry fuel line from fitting. Use caution to prevent damage to linkage or fuel system controls. Inspect all removed fuel lines for damage or hardening and replace as necessary.



#### 19570 Screwdriver Set

The Briggs & Stratton Power Products 7.0 kW Standby Generator comes from the factory with provisions to change the mixer jet to allow use with natural gas or liquid propane. All that's required to make the conversion is the provided jet and this 19570 screwdriver set. Not just any screwdriver will do. The blade must be thin to fit the jet slot - approximately .040" (1 mm) - but wide enough to reach across the jet. At the same time it cannot be too wide or it will shave the peaks off the threads of the jet cavity. A tall order but the 19570 screwdriver set does it all. Also makes an excellent handle for 19442 star bits.



### 19608 T40 Plus Torx® Bit

This Plus Torx® bit design is to be used for the Model 31 & 33 rod bolts. If the technician tries using a standard T40 Torx bit on these rod bolts, they will have a real potential of stripping the head of the bolt.

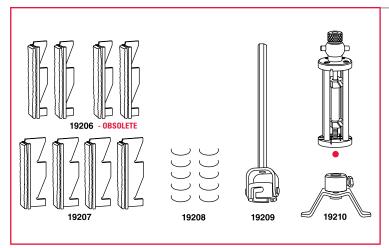


#### 19607 Otoscope

The use of the otoscope offers the technician the ability to see into small passages and jetting of carburetors. The ottoscope offers 2X minumum magnification and a push button switch to activate the bulb to ensure that the technician will not forget to turn off the light causing the battery to be drained.



# CYLINDER RESIZING



### 19205\* Ammco Hone Set For Aluminum

**Bore Engines.** THE KIT IS OBSOLETE, BUT SOME OF THE PARTS IN THE KIT ARE STILL AVAILABLE.

#### Set Includes:

19206 Stone Set, 320 grit, Range 1-7/8" to 2-3/4"

(47.6 mm to 69.9 mm) - **OBSOLETE** 

For aluminum bore engines

19207\* Stone Set, 320 grit, Range 2-3/4" to 3-5/8"

(69.8 mm to 92.0 mm)

For aluminum bore engines

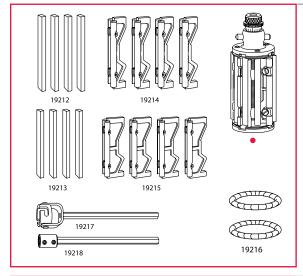
19208\* Stone Retainer Springs

19209\* Drive Shank

19210\* Stop

Carrier Not Available Separately

Note: Each tool part number can also be ordered separately.



# 19211\* Ammco Hone Set For Cast Iron Bore/Sleeve Engines

THE KIT IS OBSOLETE, BUT SOME OF THE PARTS IN THE KIT ARE STILL AVAILABLE.

#### Set Includes:

19212\* Stone Set, 60 grit for cast iron bore/sleeve engines

19213\* Stone Set, 220 grit for cast iron bore/sleeve engines

19214\* Stone Carrier, Range 2-1/2" to 3-5/16" (63.5 mm to 84.1 mm)

19215\* Stone Carrier, Range 3-5/16" to 4-1/8" (84.1 mm to 104.8 mm)

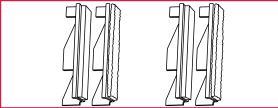
19216\* Stone Retainer Springs

19217\* Drive Shank

19218\* Extension

Carrier Not Available Separately

**Note:** Each tool part number can also be ordered separately.



#### 19303\* Stone Set

60 grit, range 1-7/8" to 2-3/4" (47.6 mm to 69.9 mm). Use with 19205 hone set.

# 19304\* Stone Set

220 grit, range 1-7/8" to 2-3/4" (47.6 mm to 69.9 mm). Use with 19205 hone set.

#### 19541\* Stone Set

320 grit, range 1-7/8" to 2-3/4" (47.6 mm to 69.9 mm). Use with 19205 hone set.



# **ELECTRICAL TESTING**



# 19449 15 Amp Fuse 19571 11 Amp Fuse

Recently, our Fluke® Digital Multimeter supplier substituted a Model 73 Series III for the Model 73 Series II meter we'd been buying for years. The meter specifications were the same so the change passed our quality audit with no problem. What came as a surprise a short time later is the Series III meter uses an 11 amp fuse instead of the 15 amp used by the Series II. It is never a good idea to replace a fuse with one that is incorrectly rated for the meter and damage may result. If you have a Fluke Series II Multimeter, you need a 15 amp fuse, part number 19449. If you have a Series III Multimeter, you need an 11 amp fuse, part number 19571.



#### 19602 400 Amp AC/DC Clamp Style Digital Multi-Meter

This new Multi-Meter is feature packed and safer to use for amperage testing than standard probe style meters. It has the following capabilities for measuring:

- AC/DC Volt with a Cat III 600 Volt Safety Rating
- AC/DC Current (Amp)
- Resistance (Ohms Ω)
- Continuity & Diode Testing with audible signal
- Capacitance & Frequency (Hz) or % Duty Cycle
- Temperature °C or °F (-22 to 572°F/-30 to 300°C),

Additional features:

- Auto Off
- · Auto/Manual Ranging
- Data Hold
- Backlight
- Zero Button
- Overload protection for all ranges
- · Over range and low battery indicators

Comes complete with test leads, type K bead wire thermocouple probe, case, two AAA batteries and instruction booklet.



#### 19528\* PowerLink® Test Box

Use with 19602, 19581, 19464 Digital Multimeters for testing AC output on the PowerLink® Stators.



#### 19543\* Capacitance-Frequency Meter

Used for checking the frequency (Hz) on a running generator. Flip switch on meter to "FREQ", use plug-in, and plug into AC outlet on generator. Compatible with 50 or 60 Hz generators.

To test a capacitor, flip switch to "CAP" and touch probes to terminals on capacitor and the capacitance will be displayed. Capacitance range is 10 to 99 microfarads.



#### 19468 DC AMP Shunt

An improved version of a valuable diagnostic tool. Color coded receptacles hold digital multimeter leads securely while testing. This tool works with any digital multimeter with a milivolt scale.



# FLYWHEEL HOLDER/PULLER

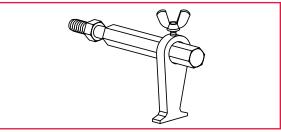


# **Flywheel Pullers**

19069 - small, hole distance 1-5/8" or 1.630" (41.275 mm)

19165 - medium, hole distance 2" or 2.010" (50.8 mm)

19203 - large, hole distance 2-13/16" or 2.820" (71.4375 mm)



# 19418 Flywheel Holder

For removing and installing flywheel on Vanguard™ 3-cylinder liquid-cooled engines.



# 19433 Flywheel Strap Wrench

For holding flywheel while removing and torquing flywheel nut on all engine models.

Note: Replacement strap is available separately. Order Part #19448.



# 19489 Flywheel Holder

For use on engines equipped with fan retainer. 280000 & 310000 single cylinder engines, Vanguard $^{\text{\tiny M}}$ V-Twin, Opposed Twin, V-Twin Intek $^{\text{\tiny M}}$ .



#### 19538\* Flywheel Puller - Micro Engine

For removing flywheels on Micro engine. Includes driver and an adapter for clutch drive engines.



# 19584 Flywheel Puller - Motor Sports

This flywheel puller is designed to work specifically with Billet aluminum motor sports flywheels only.



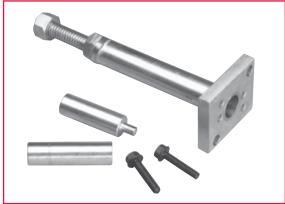
# FLYWHEEL HOLDER/PULLER



#### 19590 Rotor Puller

This tool is designed to remove the rotor from the engine crankshaft taper on the new 18/20 kW Home Generator System.

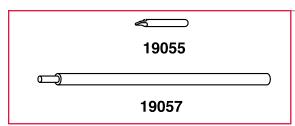
 Use repair manual 277528GS for detailed instructions on how to safely remove the rotor with this puller kit



# 19534\* Flywheel Puller - PowerLink®

Required when removing and installing flywheel on engines equipped with the PowerLink® systems. Also works on most other flywheels.

# **IGNITION & RELATED PARTS SERVICING**



# **Breaker Point Plunger Hole Servicing**

Servicing breaker point plunger hole - order separately.

19055 Plug Gauge 19057 Bushing Driver



#### 19368 Ignition Tester

Used to test all ignition coils except Vanguard  $^{\rm m}$  3 L/C gas engines. For the Vanguard  $^{\rm m}$  3 L/C gas engines, please see 19400 Spark Tester.

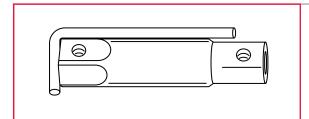


# 19400 Spark Tester

Special Åir Gap of .400" (10 mm) for use on Vanguard™ 3-cylinder liquid-cooled engines.



# **IGNITION & RELATED PARTS SERVICING**



# 89838S Spark Plug Wrench

For removing 13/16" and 3/4" hex head spark plugs. Wrench length 5-1/2" (14 cm).

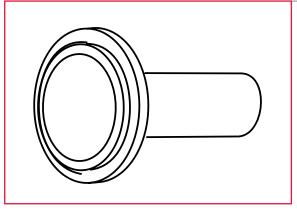


# 19576S Spark Plug Wrench

The 19576S spark plug wrench has been modified to fit a wider variety of applications. The wrench, sized to fit 13/16" spark plugs on one side and 5/8" spark plugs on the other, has been stretched from 5-1/2" to a full 8" (14 cm - 20 cm). This change was driven by the longer reach needed to access spark plugs on many overhead valve engines. To gain better torque in removing the plug, the handle is longer as well. The blister pack part number is 5402.

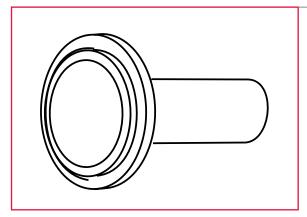


# **OIL SEAL SERVICING**



# 19423 Driver, Oil Seal

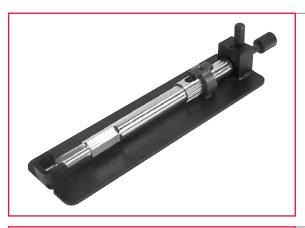
For installing timing gear cover oil seal on Vanguard  $^{\mathtt{M}}$  3-cylinder liquid-cooled engines.



# 19424 Driver, Oil Seal

For installing rear oil seal on Vanguard™ 3-cylinder liquid-cooled engines.

# **OUTBOARD MOTOR**



# 19555\* Prop Shaft Fixture

Holds propeller shaft securely for easy removal of sliding clutch roll pin. For replacement pins order 19558.



# 19557\* Tapered Socket

1-1/4" tapered hex. For removing and installing carrier nut on outboard gear case. Holds securely without damaging nut.



# **PISTON & PISTON RINGS SERVICING**



# 19070 Piston Ring Compressor

For engines 5 HP<sup>‡</sup> and below, such as Model 6, 8, 9, 10, 12, 13.



# **19230 Piston Ring Compressor**

For engines above 5 HP<sup>‡</sup>.

# **Instructions for Operating Piston Ring Compressors**

After placing rings in grooves on piston, enclose piston and rings in compressor.

Make certain rings are FULLY entered IN GROOVES.

Tighten compressor by turning handle to right until rings are compressed sufficiently to enter cylinder.

After tightening compressor the handle may be removed. The automatic friction brake holds the compressor at the desired tension. Friction brake may be adjusted by turning the screws on the side of the compressor. Turn right to increase. Turn left to reduce tension.

In loosening compressor turn handle SLOWLY to left. If loosening too rapidly tension band may be damaged.

Keep compressor clean. Dirt or grit between the tension band and compression band will damage the former.

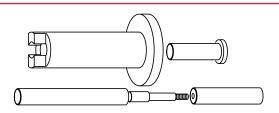
USE PLENTY OF OIL.

NOTE positioning the ring compressor on the cylinder with the 3 dimples



## 19340 Ring Expander

For removing and installing piston rings. Minimizes ring distortion and breakage. All engine models.



### **19419 Piston Pin Fixture**

For removing and installing piston pin on Vanguard™ 3-cylinder liquid-cooled gasoline engines.



 $<sup>\</sup>dagger$  All power level are stated gross torque per SAE J1940 as rated by Briggs & Stratton.  $\ddagger$  All power levels are stated gross HP per SAE J1940 as rated by Briggs & Stratton.

# PRESSURE/VACUUM TESTING



# 19493 Mity Vac Pressure/Vacuum Pump

Check carburetor inlet needles and seats for leakage. Check pressure switches.

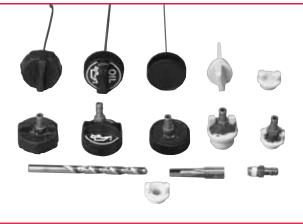
Check dash pot pull off on 3 L/C choke.



# 19495 Digital Crankcase Vacuum Tester

Extremely accurate and simple tool for measuring crankcase vacuum, or natural gas and LP fuel pressure for home generators.

Check crankcase vacuum with engine running at top no load speed.



#### **Engine Test Fittings**

What you need now is a quick and easy way to firmly attach these tools to an engine's crankcase. All you need to do is gather an assortment of various engine fill caps and dipsticks and an equal number of 691764 barbed fuel fittings. Listed below is an assortment of dipstick and oil fill cap part numbers.

First, if using a dipstick remove it from the cap. Determine the best location to drill a hole using a letter "Q" drill bit. Since you're working with plastic, it may also be possible to use a 21/64" or 5/16" bit too. Next, tap the hole with a 1/8" NPT tap, install the barb, epoxy in place and you're finished.

#### Part Number

- 1 499621 Dipstick
- 2 807985 Dipstick
- 3 495230 Dipstick
- 4 715588 Dipstick
- 5 281658 Fill Cap
- 6 691764 Hose Connector



# **SPEED - SIZE - TORQUE - MEASURING**



### 795163\* Hand-Held Tiny-Tach Diagnostic Tool

Part number 795163 is a pulse operated, hand-held tachometer designed more as a diagnostic tool than other Tiny-Tachs. This tach is set up as a wireless device but comes equipped with a plug in wired antenna for those occasions where a stable rpm reading is hard to get. It features an auto off feature to extend battery life. Accuracy is +/- 10 rpm and the display is updated every ½ second. Besides the standard rpm display, the tach can be programmed to display MAX rpm reached during each session. This is a nice, handheld wireless tachometer!



## 19598 Digital Tachometer & Hourmeter

Meter displays rpm while engine is running. When engine is stopped, meter displays elapsed time. The maximum speed is 20,000 rpm and it updates 1-2 times per second.



# 19463\* Quick Clamp Transducer

Use with 19457 Digital Tachometer and Hourmeter. Quick clamp design with spring loaded post terminal for easy installation and removal.



#### 19385 Adjustment Gauge

For adjusting secondary governor spring, V-Twin Vanguard™ engines. It is required for adjusting the governing on M29, M30, M35, M38 engines for generator applications, which can be challenging. On many of the applications the govenor lever area is obscured by the exhaust system or that application, so trying to measure the distance between the govenor arm and the control bracket without the gage would be very difficult to impossible.



#### 795195 Diesel Tachometer

This tachometer uses the trigger module from the 3/LC gas engine as a sensor to monitor crankshaft motion. Most diesel engines sold since 2007 are equipped with this sensor. If not, it will have to be added. Order 825009 for the trigger module and 820013 for an attachment screw. The tachometer is powered by the pulses from the trigger module so it does not require an external battery. Besides a tachometer function, this unit also has 2 service countdown circuits, a max rpm circuit and a timer function that can be used to time specific jobs.



# SPEED - SIZE - TORQUE - MEASURING



#### **795193 Commercial Tachometer**

Part number 795193 is a new commercial Tiny-Tach that has the same 20K rpm limit and refresh rate as the improved version mentioned previously. According to Tiny-Tach, the... "Commercial Gas Model can be used as a complete Service Tracking device for any spark ignited engine. It is programmable for different firing orders as well as for tracking two different service intervals."

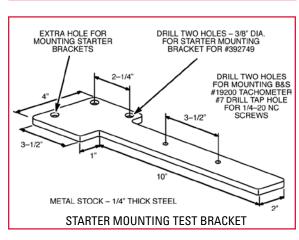
This is way more than a tachometer. See features below.

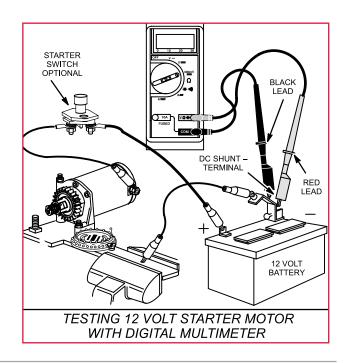
- This unit captures total time in hours and minutes up to 200 hours and hours only thereafter
- . Displays anytime the engine is running, up to 20,000 rpm
- Displays maximum rpm recorded. Resetable
- Job length of time. A resetable timer displayed in hours and minutes up to 200 hours
- · Programmable "time till service" counter 0 to 50 hours
- Programmable "time till service" counter 0 to 250 hours



# 19200 Tachometer (Treysit Sirometer)

This sirometer measures from 800 to 25,000 revolutions per minute (rpm). It can be used for measuring engine rpm and by making this bracket measuring starter motor rpm as stated in the repair manuals.







#### 19480 Tang Bender

For all engines. Used for setting top no load and governed idle speeds.



# **SPEED - SIZE - TORQUE - MEASURING**



# 19199\* Dial Caliper

Range: 0" to 6" (0 to 152.4 mm) and reads to .001"



#### 19611 Micrometer Set

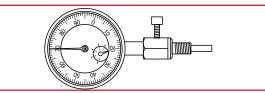
1" to 3" micrometer set in blow-molded case.

- · Stainless steel thimble and barrel in brushed satin finish
- Frame finished in industrial Hammertone paint
- Ratchet stop to aid measurement consistency
- 10 thousandths vernier scale
- Lock lever to lock spindle in position
- · Carbide faced anvil and spindle
- Standards included



# 19393 Torque Wrench - 3/8" Drive

Range: 0 to 300 Inch Pound (0 to 346.8 Kgcm) (0 to 34.0 Nm)



# **19441 Dial Indicator**

For timing injector pump on Vanguard™ 3-cylinder liquid-cooled diesel engines.



## 19485\* Telescoping Gauge

Twelve inch (304 mm) length handle will reach the bottom of any cylinder bore.

Range: 2"- 3 1/2" (51-81 mm).



#### 19487\* Dial Bore Gauge

Fast, accurate method of checking cylinder bore size, taper and out of round. Range: 1.960"- 6.185".



# 19610 Telescoping Gauge Set

6 gauges

Range from 5/16" to 6.0"



# STARTERS - ELECTRIC/MANUAL REWIND



### 19609 6" Digital Caliper

- Measures steps, internal, external and depth measurements
- Large, easy to see numerals
- · Reads in inches or millimeters
- Packaged in hard case with extra battery



#### **CE5005 Six-Inch Stainless Steel Scale**

This tool is almost a requirement for the shirt pocket of any technician. Made of flexible stainless steel, this 6-inch scale is equipped with a T-square/pocket clip that functions as a depth gauge. One side of the scale is metric and displays millimeters. The other side is graduated in inches and displays 64ths. The reverse side features a handy decimal equivalent chart.



# **CE5121 Air Gap Gauge**

Disguised as a flexible 6-inch polymer ruler, this tool's hidden purpose is a reusable, armature air gap gauge. To use, back the armature out to its widest clearance and snug it down. Line the flywheel magnet up with the armature, insert the gauge between the two and loosen the armature screws. The magnet will pull the armature down to the gauge. Tighten and torque the screws and remove the gauge. Sized at .010 to .012 inch, this setting can be used for all Briggs & Stratton engines.



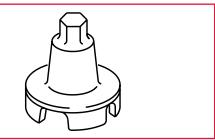
#### 19456\* Tachometer Adaptor

When attached to ignition module, permits use of Digital Tachometer, 19389 on Vanguard™ 3-cylinder liquid-cooled gasoline engines.

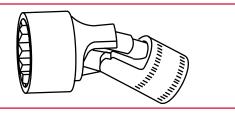


# 5054K Starter Repair Kit

For replacing rewind spring and starter ropes. For use on engines equipped with ratchet style starter clutches.



#### 19244 Starter Clutch Wrench



# 19353 Universal Socket

13 mm, 12 point, 1/4" Drive. For removing electric starter mounting screws. All V-Twin Vanguard™ engines.

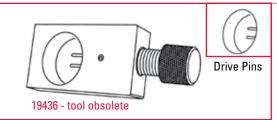


# **STARTERS - ELECTRIC/MANUAL REWIND**



# **19435 C-Ring Installation Tool**

Installing new C-ring on starter motor when replacing starter motor drive.



# **19447 Replacement Drive Pins**

For old style C-ring removal tool - part number 19436 (obsolete).



# 19497 Universal Socket

12 mm 6 point, 1/4" drive socket for removing and installing starter motors on current Vanguard™ V-Twin engines, and 3/LC diesel injection pumps.



# 19522 C-Ring Removal Tool

For removing C-ring on starter motor when replacing starter motor drive. All models.

Replaces 19436.

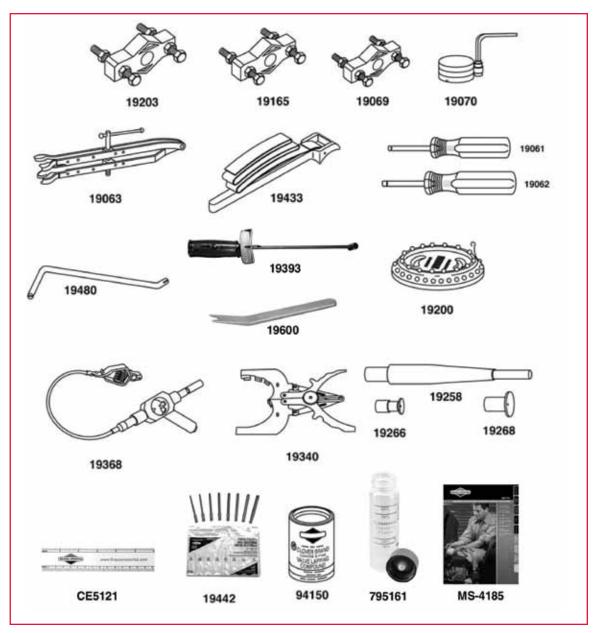


# 19524 Torx® Driver

Designed to help remove the tamper-proof fasteners of the Touch-N-Mow starter system.



# 19300 Basic Tool Kit



# **KIT INCLUDES:**

19061	Carburetor Jet Screwdriver, Small Jets	19368	Tester - Ignition
19062	Carburetor Jet Screwdriver, Large Jets	19393	Torque Wrench
19063	Valve Spring Compressor	19433	Flywheel Holder¹
19069	Flywheel Puller - small, hole distance 1-5/8"	19442	Torqux Start Bits <sup>3</sup> in handy pouch
19070	Piston Ring Compressor (5 HP <sup>±</sup> & below)	19480	Tang Bender
19165	Flywheel Puller - medium, hole distance 2"	19600	Fuel Line Removal Tool
19200	Tachometer (Treysit Sirometer)	795161	Alcohol Fuel Tester
19203	Flywheel Puller - large, hole distance 2-13/16	94150	Clover® Valve Lapping Compound
19258	Valve Lapper <sup>2</sup> (includes 19266 & 19268)	CE5121	Air Gap Gauge .010" (.254 mm)
19340	Piston Ring Expander	MS-4185	Master Parts Catalog
	<b>5 1</b> • • • • • • • • • • • • • • • • • • •		

Note: Each tool part number can also be ordered separately.

<sup>1</sup>For replacement strap, order 19489



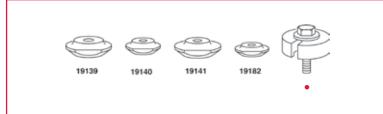
<sup>&</sup>lt;sup>2</sup>To order replacement suction cups, specify: 19266 - 3/4" (19.1 mm) 19268 - 1-1/4" (31.8 mm)

<sup>&</sup>lt;sup>3</sup>To order replacement bits, specify: 19510 (T-10) - 19511 (T-15) - 19512 (T-20) - 19482 (T25) -19513 (T-27) - 19514 (T-30) - 19515 (T-40) - 19516 (T-45)

<sup>†</sup> All power level are stated gross torque per SAE J1940 as rated by Briggs & Stratton. ‡ All power levels are stated gross HP per SAE J1940 as rated by Briggs & Stratton.



# **19063 Valve Spring Compressor**



#### 19138\* Valve Seat Puller Kit

Kit includes:

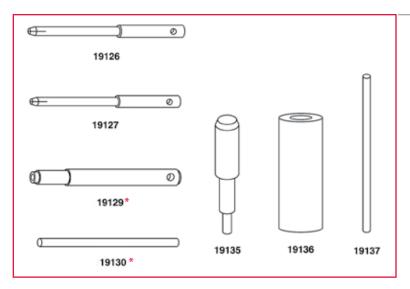
19139\* Puller Nut

19140\* Puller Nut

19141\* Puller Nut

19182\* Puller Nut

• Note: Not available separately



#### **Valve Seat Insert and Counterbore Tools**

Counterbore tools used on cast iron engine models 5, 6, N, 8, 9, 14, 19, 20, 23, 240000, 300000, 320000.

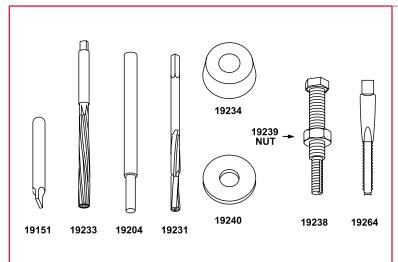
Order these tool part numbers separately.

19126 Expansion Pilot - 1/4" Valve Guide 19127 Expansion Pilot - 5/16" Valve Guide

19129\* Cutter Shank

19130\* T-Handle for Cutter Shank

19135 Knockout Pin
19136 Insert Driver
19137 T-Handle for Pilots



# 19232 Valve Guide Repair Kit

For servicing 5/16" valve guides.

Kit Includes:

19151 Plug Gauge 19204 **Bushing Driver** Reamer - Counterbore 19231 19233 Reamer - Finish 19234 Reamer Guide 19238 Puller Bolt 19239 Nut 19240 Washer

19240 vvasner 19264 9 mm Tap

**Note:** Each tool part number can also be ordered separately.

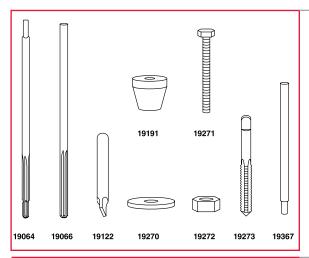


# 19258 Valve Lapper

(Includes 19266 and 19268)

To order replacement suction cups, specify: 19266 - 3/4" (19.1 mm) 19268 - 1-1/4" (31.8mm).





### 19269 Valve Guide Repair Kit

For servicing 1/4" valve guides.

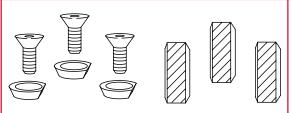
Kit Includes:

19064 Reamer - Counterbore
19066 Reamer - Finish
19122 Plug Gauge
19191 Reamer Guide

19270 Washer 19271 Puller Bolt 19272 Nut

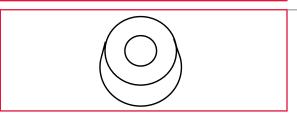
19273 7 mm Tap19367 Bushing Driver

Note: Each tool part number can also be ordered separately.



### 19302 Valve Seat Cutter Repair Kit

- 3 blades use on either side of cutter head
- 3 set screws
- 3 wedges



#### 19345 Reamer Guide

For guiding the 19346 reamer while finish reaming valve guide bushing in Vanguard™ engines.



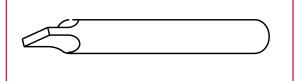
#### 19346 Valve Guide Reamer

For finish reaming single cylinder Vanguard<sup>™</sup> engine Models 104700, 161400, 260700, 261700 valve guide bushing after installation.



### **19347 Valve Spring Compressor**

For compressing valve springs, most Vanguard™ engine models.



#### 19381 Valve Guide Plug Gauge

Checking valve guides for wear - Models 20, 21, 31, 33, Vanguard™ engine Models 104700, 161400, 260700, 261700 and single cylinder 0HV Model 280000.

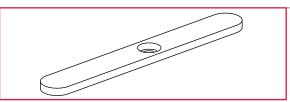


Checking valve guides for wear - Vanguard<sup>™</sup>V-Twin engines. Also single cylinder Vanguard<sup>™</sup> engine Models 85400, 115400, 185400, 235400 and 245400.



#### 19416 Valve Guide Driver

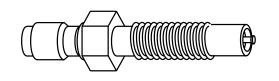
For installing valve guide bushings on Vanguard™ 3-cylinder liquid-cooled engines.



# 19417 Valve Spring Compressor

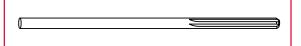
For removing and installing valves on Vanguard  $^{\mathtt{m}}$  3-cylinder liquid-cooled engines.





#### **19443 Compression Test Adaptor**

For testing compression on Vanguard™ 3-cylinder liquid-cooled diesel engines.



#### 19444 Valve Guide Reamer

For finish reaming Vanguard™ V-Twin valve guides after installation. Also used for cleaning valve guides on Vanguard™ 3-cylinder liquid-cooled engines. Use with 19345 Reamer Guide.



## 19446\* Neway Valve Seat Cutter Kit

For reconditioning 30° and 45° angle valve seats on Vanguard  $^{\rm m}$  3-cylinder liquid-cooled engines.

Includes 15° cutter for top cutting 30° angle seats.

Includes 6.0 and 6.02 mm pilots.



# 19465 Valve Adjustment Set

For adjusting valves on Vanguard™ and Intek™ V-Twin engines. Offset 13 mm wrench with 5 mm hex and T-40 Torx® drivers.



#### 19478\* Orifice

Calibrated specifically for use with the older 19475 Leakdown Tester on 3/LC engines.



### 19545 Leakdown Tester

Used to test the sealing capabilities of the compression components of all engines. Comes with crankshaft clamp and case.





# 19549 Easy Turn Wrench

Spring loaded body maintains an even pressure when cutting valve seats. Rotating handle allows continuous turning for faster seat cutting and minimizing chatter.



# 19551\* Seat Cutter Upgrade Kit

This kit will upgrade the basic 19237 seat cutter kit to the level of the 19547 master seat cutter kit.



# 19547 Master Seat Cutter Kit

This kit will service all older and existing Briggs & Stratton® engines.



# 94150 Clover® Valve Lapping Compound

4 oz. (113 g) duplex can contains coarse (120 grit) and fine (280 grit) compound.









### 19566 Diesel Compression Tester

The 19566 3/LC Diesel Compression Tester includes:

- 1. High pressure hose
- 2. Parker "ST series 1" mini quick disconnect fitting
- 3. 19443 glow plug adapter
- 4. Pneumatic gauge protector
- 5. Injection molded storage case

**NOTE:** Do not try to use an automotive type gasoline engine compression gauge on a diesel engine. They don't normally have the range necessary for diesel engines and there may be an issue with the hose bursting. Normal compression for the Briggs & Stratton 3/LC diesel engine is as high as 500 psi (35 bar). The 19566 3/LC Diesel Compression Tester is capable of reading 1000 psi (70 bar).





### 19559 3/LC Diesel Leakdown Adapter

This adapter kit allows the 19545 Leakdown Tester to be used to diagnose compression problems with the 3/LC diesel engine line. This kit includes the following:

- A quick disconnect fitting that attaches to the high pressure supply side of the leakdown tester.
- A hose equipped with a mini quick disconnect fitting that attaches to the low pressure side.
- A 19443 diesel compression test adapter that screws into the glow plug hole.

**NOTE**: Remove the Shrader Valve from the 19443 adapter when performing leakdown testing.

Once the adapter parts are installed, the tester is used in the normal fashion.

- 1. Standard "M" style fitting with orifice drilled in end of fitting
- 2. Standard "M" style quick release fitting
- 3. Adapter properly attached to the leakdown tester
- 4. Parker "ST series 1" mini quick disconnect





### 19256 Brake Adjustment Gauge

For adjusting band brakes.



#### 19333 Governor Bushing Reamer

For finish reaming 1/4" (6.35 mm) governor shaft bushing, after installation. 3 HP\* to 16 HP\* single cylinder mechanical governor engines.



### 19420 Puller, Crankshaft Pulley

For removing crankshaft pulley on Vanguard™ 3-cylinder liquid-cooled engines.



## 19491 Alternator Wrench

For use on 3/LC engines. Holds alternator pulley nut when removing and installing alternator pulley. Also handy when rotating crankshaft when adjusting valve clearance.



# **19442 Torqux Star Bits**

To remove and install Torx® screws. In handy pouch. T-10, T-15, T-20, T-25, T-27, T-30, T-40, T-45 Bit length 3.75 inches.

These Torqux star bits are not to be used with pneumatic hand tools. Replacement bits:

 19510 - (T10)
 19482 - (T25)

 19511 - (T15)
 19514 - (T30)

 19512 - (T20)
 19515 - (T40)

 19513 - (T-27)
 19516 - (T45)



# **Injector Tester**

If you service and repair diesel engines on a regular basis, a diesel injector tester is a "must have" tool. This tester from US Diesel in Fort Worth, Texas is what we use so we know its tough enough for everyday use. This tool is part number U470/600B and is supplied with a 12 mm and 14 mm injector line. We've tried 4 or 5 different testers. The US Diesel tester is by far the best value and is better made than some that cost twice as much. When you talk to Mark tell him we sent you!

www.usdiesel.com Mark Hagood

1-817-485-6422



<sup>†</sup> All power level are stated gross torque per SAE J1940 as rated by Briggs & Stratton.

<sup>‡</sup> All power levels are stated gross HP per SAE J1940 as rated by Briggs & Stratton.



#### 196682GS Pressure Washer Tester Gauge

This new pressure gauge is installed between the pump head and high-pressure hose to check pump output pressure. It has a M22 X M22 connection that will allow quick installation on hoses with those fittings. With the gauge installed in this position, gauge readings will be approximately 200 psi (13-14 bar) lower than the rated pump pressure due to pressure loss across the unloader.



#### 795161 Alcohol Fuel Tester

Briggs & Stratton introduced a tester to determine the alcohol content in gasoline almost three decades ago. At that point, we were concerned about the damage fuel containing more than 10% alcohol could do to fuel systems. Fuel in some parts of the world is being marketed with 75 to 85 percent alcohol. Because this fuel is not suitable for use in our engines, you may need to have a method to determine what the actual content is. Designed to measure a percentage of volume somewhere in the 20% range, the old tester is not quite up to the task. This paved the way for introduction of the 795161 tester, marked with a calibration line at 10%, 20%, 70% and another at 85%. This provides the technician with visual cues as to the alcohol content.

Fill tester with water to the fill line first. Then add the gasoline needed to be tested all the way to the top. Read the side of testor where it shows the gasoline and water separation point.



#### **100054 Heavy Duty Shop Towels**

These all-purpose wipers are great for keeping the work bench and shop clean.



#### **Aerosol Spray Paint for Engines**

Fast drying, lacquer base, gasoline and heat resistant, 13 ounce (369g) spray can

Available colors, order separately:

271400 - Gloss Black

271402\* - Ice White

271403 - Satin Black

271675 - American Red



#### 100110 Grease Gun

Well crafted from quality materials and chrome-plated to extend its life, these use the standard Briggs & Stratton 14 oz (379g) long grease tubes. A short stroke lever-action makes it easy to use in tight spaces.

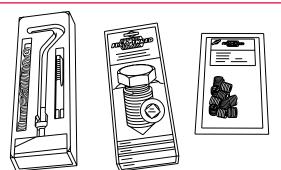
14 oz grease tube part number -100059





### 100059 High-Performance Grease

14 oz. (397g) Cartridge. Moly/graphite provides maximum antiwear protection. Ideal for industrial, automotive, & outdoor power equipment.



#### **Fix-A-Thread Kits**

For repairing damaged and stripped threads. 100024 - Master Thread Repair Kit includes:

100007 Thread Repair Kit 10-32

100008 Thread Repair Kit 1/4-20

100009 Thread Repair Kit 5/16-18

100010 Thread Repair Kit M5x.8

100011 Thread Repair Kit M6x1

100012 Thread Repair Kit M8x1.25

100013 Thread Repair Kit 14 mm Spark Plug

**Thread Insert Refills** 

4185 - 10-32 Refill-10



### **Quick Fuel Line Disconnects**

These fuel line quick disconnects allow the fuel line to be separated without fuel leakage. When servicing or testing equipment that frequently needs to have the engine or fuel tank separated from the equipment, these fittings offer you a spill-proof method. The male end is part number 192695GS and the female end is part number 189117GS. Both are available as a Briggs & Stratton Power Products part number.



#### 100057 Grease Gun Kit - Simple One-Handed Operation

Contains steel grease gun, application tube & one 3 oz. grease cartridge.



# 100058 Grease Gun Refill Kit

Grease Refill Cartridges for Grease Gun Kit 100057.



#### CE5004 Pen Light

Featuring a black ink refill on one side and an LED flashlight on the other, you're ready to peer into poorly lighted spaces such as carburetor jets or fuel tanks and record your findings on a shop ticket. Flashlight uses 3, LR41 button cells that are included.



### 1687301SM Hydraulic Hose Disconnect

For use on Conquest and Prestige power steering.



#### 1686997SM Caliper

Takes the guess work out of leveling mower decks. Calibrated from 1.5" to 3.25".



#### 1687102SM Flow Meter Kit

For testing and troubleshooting hydraulic systems.



#### 2173359SM Quick Connect Coupling

Use this as an add on to flow meter 1687102SM to allow flow meter to plug into hydraulic.

Requires use of a Male Pipe X Male JIC adaptor.



#### 7060601YP Drive Disc Adjustment Tool

Used to adjust the drive disc on the rear engine rider.



# 5022853SM Spanner Wrench

Use this tool to adjust the rear shocks on select models.



#### 19615 Repower Terminal Kit

This Engine Repower Terminal Kit will equip you to handle almost any electrical connector or terminal service work on nearly any air-cooled engine equipment repower that comes your way. The generous selection of connectors and terminals provides you with the necessary components to perform equipment repower by removing the old worn out non-Briggs and Stratton engine and replacing it with a new modern Briggs and Stratton engine. This Engine Repower Kit is designed to work on virtually all pieces of equipment manufactured globally.





Part # 274041

# **SMALL ENGINE CARE & REPAIR BOOK**

For the novice – a step-by-step guide to small engine care and repair. The full color book is 128 pages and includes over 300 color photos and easy-to-follow instructions. Concepts are introduced that apply to virtually every small engine, making this appealing to a very broad audience. It offers consumers a step-by-step guide for saving money through preventive maintenance and do-it-yourself repair. Includes a troubleshooting section to easily diagnose common small engine problems. Features introductory projects that require no prior knowledge, as well as advanced projects for the experienced repair person. Utilizes the Briggs & Stratton name which is recognized worldwide as the small engine leader.

# **ANTIQUE REPAIR MANUAL**

A must for the collector and old engine enthusiast. Covers repair procedures and specifications for all Briggs & Stratton cast iron and aluminum engines manufactured from 1919 to 1981.



Part # CE8069



Part # CE8020

# **SMALL ENGINES TEXTBOOK**

Recently released by American Technical Publications of Homewood, Illinois, the Briggs & Stratton written textbook, *Small Engines*, is already destined to become the definitive work within the industry. This comprehensive hardbound volume boasts 322 pages and 321 illustrations.

All OEM engine manufacturers produce repair manuals which supply the "how-to" of most repair jobs. Few industry or outside publications provide much in the way of "why." **Small Engines** concentrates on the theory of operation relating to all major engine systems. Both air cooled and water cooled engines are covered.

**Small Engines** is supported by a Student Workbook CE8021 containing review questions on three different levels addressing the skills and acquired knowledge of beginners, intermediate students and those with advanced abilities.



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