



# MERCURY®

## Service Tools Guide







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## INTRODUCTION - SERVICE TOOL GUIDE

### Notice to Users of This Manual

Throughout this publication, warnings, cautions, and notices (accompanied by the International HAZARD Symbol



) are used to alert the mechanic to special instructions concerning a particular service or operation that may be hazardous if performed incorrectly or carelessly. Observe them carefully!

These safety alerts alone cannot eliminate the hazards that they signal. Strict compliance to these special instructions when performing the service, plus common sense operation, are major accident prevention measures.

#### WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

#### CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

#### NOTICE

Indicates a situation which, if not avoided, could result in engine or major component failure.

**IMPORTANT:** Identifies information essential to the successful completion of the task.

**NOTE:** Indicates information that helps in the understanding of a particular step or action.

This manual has been written and published by the Service Department of Mercury Marine to aid our dealers' mechanics and company service personnel when servicing the products described herein. We reserve the right to make changes to this manual without prior notification.

It is assumed that these personnel are familiar with marine product servicing procedures. Furthermore, it is assumed that they have been trained in the recommended service procedures of Mercury Marine power products, including the use of mechanics' common hand tools and the special Mercury Marine or recommended tools from other suppliers.

We could not possibly know of and advise the marine trade of all conceivable procedures and of the possible hazards and/or results of each method. Therefore, when using a service procedure and/or tool that is not recommended by the manufacturer, be completely satisfied that neither your personal or product safety is endangered.

All information, illustrations, and specifications contained in this manual are based on the latest product information available at the time of publication. As required, revisions to this manual will be sent to all dealers contracted by us to sell and/or service these products.

Refer to dealer service bulletins, operation maintenance and warranty manuals, and installation manuals for other pertinent information concerning the products described in this manual.

### Precautions

It should be kept in mind, while working on the product, that the electrical and ignition systems are capable of violent and damaging short circuits or severe electrical shocks. When performing any work where electrical terminals could possibly be grounded or touched by the mechanic, the battery cables should be disconnected at the battery.

Any time the intake or exhaust openings are exposed during service they should be covered to protect against accidental entrance of foreign material into the cylinders which could cause extensive internal damage when the engine is started.

During any maintenance procedure, replacement fasteners must have the same measurements and strength as those removed. Numbers on the heads of the metric bolts and on the surfaces of metric nuts indicate their strength. American bolts use radial lines for this purpose, while most American nuts do not have strength markings. Mismatched or incorrect fasteners can result in damage or malfunction, or possibly personal injury. Therefore, fasteners removed should be saved for reuse in the same locations whenever possible. Where the fasteners are not satisfactory for reuse, care should be taken to select a replacement that matches the original.

### Replacement Parts

Use of parts other than the recommended service replacement parts will void the warranty on those parts that are damaged as a result.

#### WARNING

Avoid fire or explosion hazard. Electrical, ignition, and fuel system components on Mercury Marine products comply with federal and international standards to minimize risk of fire or explosion. Do not use replacement electrical or fuel system components that do not comply with these standards. When servicing the electrical and fuel systems, properly install and tighten all components.

# INTRODUCTION - SERVICE TOOL GUIDE

## Cleanliness and Care of Product

A Mercury Marine power product is a combination of many machined, honed, polished, and lapped surfaces with tolerances measured in the ten-thousandths of an inch. When any product component is serviced, care and cleanliness are important. It should be understood that proper cleaning and protection of machined surfaces and friction areas is a part of the repair procedure. This is considered standard shop practice even if not specifically stated.

Whenever components are removed, they should be retained and marked for installation into their original locations. During the assembly process, the marked parts are quickly identified for installation into the same locations they were removed from.

Personnel should not work on or under an engine that is suspended. Engines should be secured to work stands, or lowered to the ground as soon as possible.

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Alpha, Axius, Bravo One, Bravo Two, Bravo Three, GO BOLDLY., Circle M with Waves Logo, K-planes, Mariner, MerCathode, MerCruiser, Mercury, Mercury with Waves Logo, Mercury Marine, Mercury Precision Parts, Mercury Propellers, Mercury Racing, MotorGuide, OptiMax, Quicksilver, SeaCore, Skyhook, SmartCraft, Sport-Jet, Verado, VesselView, Zero Effort, Zeus, #1 On the Water and We're Driven to Win are registered trademarks of Brunswick Corporation. Pro XS is a trademark of Brunswick Corporation. Mercury Product Protection is a registered service mark of Brunswick Corporation.

## Tool Manufacturers

Name	Address	Phone	Fax
Bob Kerr Marine Tool Company	400 Countyline Court Winter Garden, FL 34787	(407) 656-2089	N/A
Bosch Automotive Service Solutions Computer Diagnostic System (CDS)	28635 Mound Road Warren, MI 48092	(800) 345-2233	(810) 578-7375
Cole-Parmer Instrument Company	625 East Bunker Court Vernon Hills, IL 60061	(847) 549-7600	(847) 247-2929
Fluke Corporation	6920 Seaway Blvd Everett, WA 98203	(800) 443-5853	(425) 446-5116
International Dyno Corp	8365 Sunset Road NE Minneapolis, MN 55432	(763) 784-3966	N/A
Motion Pro	3171 Swetzer Road Loomis, CA 95650	(650) 594-9600	(650) 594-9610
Owatonna Tool Company (OTC) (Division of Bosch)	28635 Mound Road Warren, MI 48092	(800) 533-6127	(800) 955-8329
Robert Bosch Corporation	P.O. Box 4601 North Suburban, IL 60197	(312) 865-5200	N/A
Rinda Technologies	5112 N. Elston Ave. Chicago, IL 60630	(773) 736-6633	(773) 736-2950
Snap-On Tools	2801 80th Street Kenosha, WI 53143	(877)-762-7664	N/A
Stevens Instrument Company	111 Greenwood Avenue Waukegan, IL 60079-9375	(847) 336-9375	(847) 662-6808
Triton Products	30700 Carter St D Cleveland, OH 44139	(440) 248-5480	N/A
Wagner Special Tools	88 River Road Greenwich, CT 06836	(203) 869-9681	N/A

## MercNET

MercNET is Mercury Marines exclusive online system that will provide you access to the tools that make your business efficient and profitable. The system allows you to perform functions faster and more accurately, including:

- Create orders for parts, accessories and serialized items - **available 24/7**.
- Create and save shopping carts or shopping lists
- Check part and product availability
- View product history by serial number
- View and print invoices, credit memos and statements
- Pay your Mercury account and apply credit memos to invoices
- File Product Warranty Registrations
- File Warranty Claims - *most Warranty claims paid within 24 hours*
- File Mercury Product Protection Extended Service Plans

All MercNET systems are subject to change without notice, as we continue to improve our products based on customer input.

## Electronic Parts Catalog

The Electronic Parts Catalog (EPC) containing the Mercury Parts Catalogs and Service Bulletins is available online for subscribing EPC customers. An offline version is also available for installation using a removable storage device, with updates via download. Features of the Electronic Parts Catalog include:

- Easy access to part numbers and service bulletins
- Easy access to information by product line and serial number
- Create and import pick list to orders and claims
- Access footnotes in special comment section
- Current information available with nightly online updates
- Find part numbers quickly with hot spotting
- Add notes directly in EPC for personal use
- Multiple searches can be open simultaneously

## MercNET Training

MercNET training is available online by selecting the MercNET Training link under Handy Tools.

For additional MercNET training contact MercNET Support at 800-556-4327.

## Recommended System Requirements For MercNET and Electronic Parts Catalog

- Microsoft Windows 7 or Newer Operating System
- 1 gigahertz (GHz) or faster 32-bit (x86) or 64-bit (x64) processor
- 1 gigabyte (GB) RAM (32-bit) or 2 GB RAM (64-bit)
- 16 GB available hard disk space (32-bit) or 20 GB (64-bit)
- USB Drive
- High-Speed Internet access
- Internet Explorer 11 or greater
- Color monitor (resolution 1024x768 pixels)
- Local Printer

## MercNET/MIDAS Customer Service Contact Information

Office Hours: Monday – Friday, 7:30 a.m. to 4:30 p.m. Central Standard Time

Phone: 1-800-556-4327

Fax: 920-924-1042

E-mail: [mercnet.support@mercmarine.com](mailto:mercnet.support@mercmarine.com)



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**ALPHA STERNDRIVE**

**ALPHA STERNDRIVE TOOL APPLICATION CHART**

**Alpha Sterndrive Application Chart**

Part Number	Description	Alpha One Gen II	MC-1, R-MR Alpha One
12- 54048	Belleville Washer	X	X
91- 12037	Shift Cable Tool	X	X
91- 14311A04	Driveshaft Bearing Preload Tool	X	X
91- 17256	U-Joint Retainer Wrench	X	X
91- 18605A 2	Bearing Cup and Adapter Installation Tool	X	X
91- 31106T	Bearing Cup Driver		X
91- 31107T	Shift Shaft Busing Tool		X
91- 31108T	Oil Seal Driver	X	X
91- 31229A 7	Bearing Removal and Installation Kit	X	X
91- 33489	Bearing Driver		X
91- 33491	Needle Bearing Driver		X
91- 33492T	Needle Bearing Driver		X
91- 33493T	Bearing Cup Driver		X
91- 34379T	Bearing Cup Driver		X
91- 34569A 1	Slide Hammer	X	X
91- 36577T	Bearing Cup Driver		X
91- 37241	Universal Puller Plate	X	X
91- 37299Q 2	Grease Gun	X	X
91- 38053A05	Power Steering Test Gauge Kit	X	X
91- 38756	U-Joint Adapter	X	X
91- 38918T	Bearing Cup Driver		X
91- 38919	Puller Head		X
91- 43506T	Driveshaft Bearing Retainer Wrench	X	X
91- 43591T	Seal Driver	X	X
91- 43693A 2	Transom Cutout and Drill Fixture	X	X
91- 44110T	Seal Driver	X	X
44357Q 2	Flushing Device	X	X
91- 8M0096108	Exhaust Bellows Expander Tool	X	X
91- 46086A 1	Puller Jaws Assembly	X	X
91- 85716	Puller Bolt	X	X
91- 52915A 6	Power Trim Test Gauge Kit	X	X
91- 53459	Backlash Indicator Rod	X	X
91- 56048001	Pinion Gear Locating Tool	X	X
91- 56775T	Driveshaft Holding Tool	X	X
91- 58222A 1	Dial Indicator	X	X
91- 60523	Drive Gear Shimming Tool	X	X
91- 60526T	Driven Gear Shimming Tool	X	X
91- 61067T03	Pinion Nut Wrench	X	X
91- 61069T	Bearing Carrier Retainer Nut Wrench	X	X
91- 61077T	Propeller Shaft Adapter	X	X
91- 63209	Torch Lamp	X	X
91- 63616T	Puller Head	X	X
91- 66274	Torque Wrench lb-in.	X	X
91- 78310	Hinge Pin Tool	X	X
91- 805057A 2	Bushing Installation Tool	X	X
91- 805475A 1	Alignment Tool Assembly	X	X
91- 863373	Bell Housing Alignment Tool	X	

Part Number	Description	Alpha One Gen II	MC-1, R-MR Alpha One
91-806908A02	Power Steering Adapter Kit	X	X
91-807944T	Needle Bearing Installation Tool	X	
91-808053T	Bearing Cup Driver	X	X
91-865232	Shift Slide Stabilizer	X	X
91-815850	Forward Gear Assembly Tube	X	X
91-816242	Puller Jaws	X	X
91-816243	Guide Plate	X	X
91-816244	Reverse Gear needle Bearing Driver	X	X
91-816245	Needle Bearing Remover	X	X
91-817569T	Carrier Seal Driver	X	
91-817570T	Upper Driveshaft Housing Seal Driver	X	
91-818162	Sleeve Installation Tool	X	
91-818169T	Sleeve Removal Tool	X	
91-821571A 1	Water Pump Alignment Pins	X	
91-821709T	Trim Cylinder End Cap Tool	X	X
91- 83155	Dial Indicator Adapter Kit	X	
91-854377	Driven Gear Shimming Tool	X	
91-864497	Seal Driver	X	X
91-866107A01	Cross Bearing Removal and Installation Kit	X	
91-866763A01	Intermediate Cable Installation Tool	X	X
91- 89897	Dial Indicator Holding Tool	X	X
91- 90774	Guide/Puller Tool	X	
91- 95639	Pipe Tap		X
91-8M2001017	Alignment Bar	X	X
(2)	Cross and Bearing Vise Press	X	X
37240A1(1)	Snap Ring Pliers		X
38277A2(1)	Tab Washer Pliers		X
75104A7(1)	Shift Shaft Lever		X
879150A19(1)	Seal and Bushing Installation Tool	X	X

(1) NLA (No Longer Available)

(2) Purchase Locally

**ALPHA STERNDRIVE TOOLS**

**SHIFT CABLE REMOVE/INSTALL TOOL**



**91- 12037**

Installs and removes the intermediate shift cable into the bell housing of the transom assembly.

**INTERMEDIATE CABLE INSTALLATION AND INSERT TOOL**



**91-866763A01**

Installs and removes the new intermediate shift cable assembly into the bell housing of the transom assembly, Alpha Sterndrive.

**BEARING PRELOAD TOOL**



**91-14311A04**

Simulates a load on the driveshaft for accurate pinion height and backlash measurements.

**U-JOINT RETAINER WRENCH**



**91-17256**

Installs and torques the U-Joint retainer nut.

**BEARING ADAPTER TOOL**



**91-18605A 2**

Installs the forward gear bearing race on a standard gearcase. Presses the reverse gear bearing adapter into the gear housing on a counter-rotation gearcase.

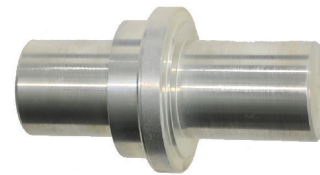
**REMOVAL/INSTALL BUSHING TOOL**



**91-31107T**

Aids in the removal and installation of the shift shaft bushing.

**OIL SEAL DRIVER**



**91-31108T**

Installs bearing carrier oil seals.

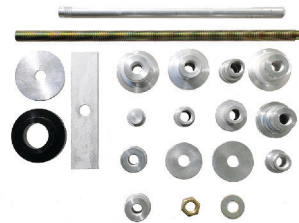
**CROSS BEARING REMOVAL AND INSTALLATION TOOL KIT**



**91-866107A01**

Removes and installs the bearing caps on the cross bearings.

**BEARING REMOVAL AND INSTALLATION TOOL**



**91-31229A 7**

Installs and removes the bearings in all gearcases.

## ALPHA STERNDRIVE

## BEARING DRIVER

**91- 33489**

Installs the small roller bearing into the gimbal housing.

## NEEDLE BEARING DRIVER

**91- 33491**

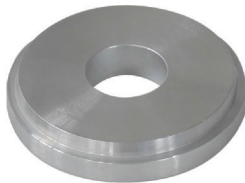
Installs the needle bearing in the forward gear. Removes and installs the seals and bearing in the gimbal housing.

## NEEDLE BEARING DRIVER

**91- 33492T**

Removes and installs the lower swivel pin bearing in the gimbal ring.

## BEARING CUP DRIVER

**91- 33493T**

Installs the upper driveshaft bearing cup into the driveshaft housing.

## BEARING CUP DRIVER

**91- 34379T**

Installs the driveshaft bearing cup into the gear housing.

## SLIDE HAMMER PULLER

**91- 34569A 1**

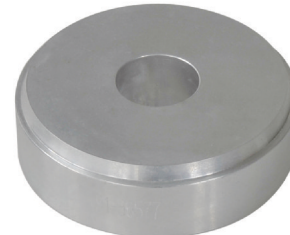
Aids in the removal of various engine components. Replacement jaws (P/N 34570) may be purchased separately.

## PULLER JAWS

**91- 816242**

Use with either the two prong or three prong puller on all drive units.

## BEARING CUP DRIVER

**91- 36577T**

Installs the forward gear bearing cup into the gear housing with a bearing cup outside diameter of 89 mm (3.500 in).

## BEARING CUP DRIVER

**91- 31106T**

Installs the driven gear bearing cup.

**UNIVERSAL PULLER PLATE**



**91- 37241**

Removes bearings from gears and the driveshaft.

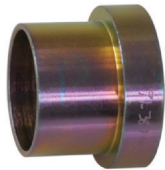
**GREASE GUN**



**91- 37299Q 2**

Pistol grip gun. Aids in the lubrication of key areas on the drive and transom. Allows easy access to grease fittings. For use with 8 oz.(227 g) tubes. Priced individually, sold @ multiples of 4 Quicksilver Branded, Clamshell Package Point of Sale Packaged.

**U-JOINT ADAPTER**



**91- 38756**

Supports the yoke when disassembling the U-Joint.

**BEARING CUP DRIVER**



**91- 38918T**

Installs the bearing cup in the top cover of the drivshaft housing.

**PULLER HEAD**



**91- 38919**

Removes the swivel pin from the gimbal rings.

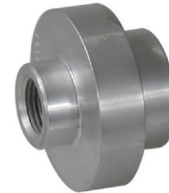
**DRIVESHAFT BEARING RETAINER WRENCH**



**91- 43506T**

Removes and installs the threaded driveshaft bearing retainer.

**SEAL DRIVER**



**91- 43591T**

Install the upper driveshaft oil seal.

**WATER PUMP SEAL TOOL**



**91- 44110T**

Outboard

## ALPHA STERNDRIVE

## EXPANDER TOOL



91-8M0096108

Aids in the removal and installation of the exhaust bellows.

## PULLER JAW ASSEMBLY



91-46086A 1

Use with P/N 85716 puller bolt.

Aids in the removal of the bearing carrier and bearing races.

## BOLT PULLER TOOL



91-85716

Aids in the removal of the bearing carrier and bearing races..  
Bolt puller used with Puller Jaws tool (P/N 46086A1).

## BACKLASH INDICATOR ROD



91-53459

Aids in checking gear backlash.

## BELLEVILLE WASHER



12-54048

Used with pinion nut wrench and a propeller nut to check the reversed gear backlash.

## PINION GEAR HEIGHT TOOL



91-56048001

Measures pinion gear height.

## DRIVESHAFT HOLDING TOOL



91-56775T

Provides a wrench surface to turn the driveshaft. Also used to hold driveshaft for pinion gear installation.

## DIAL INDICATOR TOOL



91-58222A 1

Measures distance, movement and runout. Used for the drive system assembly and engine setup.



**SHIMMING TOOL**



91- 60523

Measures the U-Joint pinion gear clearance.

**DRIVEN GEAR SHIMMING TOOL**



91- 60526T

Aids in measuring the upper driven gear clearance.

**PINION NUT WRENCH**



91- 61067T03

Holds the pinion nut when removing the pinion gear and driveshaft.

**BEARING CARRIER RETAINER NUT WRENCH**



91- 61069T

Installs and removes the bearing carrier retainer nuts.

**ADAPTOR TOOL**



91- 61077T

Provides a wrench surface to turn the propeller shaft.

**PULLER HEAD**



91- 63616T

Removes the upper swivel shaft on gimbal rings.

**TORQUE WRENCH**



91- 66274

Dial-type torque wrench that sets torque from 9 to 0-150 lb-in. .375 inch drive.

**HINGE PIN TOOL**



91- 78310

Removes and installs the hinge pins.

**BUSHING INSTALLATION TOOL**



91-805057A 2

Intalls the upper shift shaft bushings into the transom assembly.

# ALPHA STERNDRIVE

## ALIGNMENT SHAFT TOOL



**91-805475A 1**

Used to align the engine to the standard Bravo transom assembly for sterndrive installation.

For MerCruiser drives, except Vazer drives.

## BELL HOUSING ALIGNMENT TOOL



**91-863373**

Used with the alignment tool P/N 805475A1 and a feeler gauge to ensure precise alignment between the bell housing and the engine coupler.

Alpha Sterndrive

## ALIGNMENT SHAFT



**91-8M2001017**

Aids in aligning the engine to the transom assembly for sterndrive installation. Works with Vazer, Alpha and Bravo sterndrives.

## NEEDLE BEARING INSTALLATION TOOL



**91-807944T**

Aids in the installation of the needle bearing in the reverse gear of a counter-rotating gearcase.

## BEARING CUP DRIVER



**91-808053T**

Aids in the installation of a new smaller outside diameter top cover bearing.

## SHIFT SLIDE STABILIZER



**91-865232**

Holds the shift slide in the proper position as the sterndrive is installed onto the bell housing studs.

## FORWARD GEAR INSTALLATION TOOL



**91-815850**

Removes and installs the forward gear and bearing adapter assembly for counter-rotation gearcases.

## GUIDE PLATE



**91-816243**

Centers the rod used to drive in the forward gear bearing on a standard rotation gearcase and the reverse gear bearing on a counter-rotation gearcase.

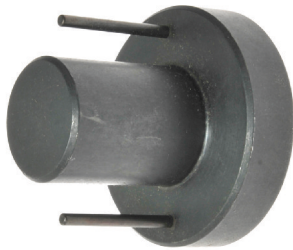
**REVERSE GEAR NEEDLE BEARING DRIVER**



**91-816244**

Installs the needle bearings into the reverse gear of a counter-rotation gearcase.

**NEEDLE BEARING REMOVAL TOOL**



**91-816245**

Removes the needle bearings from the back adapter of a counter-rotating gearcase.

**CARRIER SEAL DRIVER**



**91-817569T**

Removes and installs the bearing carrier seals. Installs seals in the driveshaft seal carrier.

**UPPER DRIVESHAFT HOUSING SEAL DRIVER**

Image not Available.

**91-817570T**

Installs the seals in the upper driveshaft housing.

**SLEEVE INSTALLATION TOOL**



**91-818162**

Installs the aluminum sleeve into the U-Joint bellows.

**SLEEVE REMOVAL TOOL**



**91-818169T**

Removes the aluminum sleeve from the U-Joint bellows.

**WATER PUMP ALIGNMENT PINS**



**91-821571A 1**

Aligns the water pump during installation.

**END CAP TOOL**

Image not Available.

**91-821709T**

Trim Cylinder End Cap Tool. Allow easy removal of the trim cylinder end caps. Required if tilt limit spacers are to be installed or if the trim in limit spacer is to be removed to allow additional trim in range.

**DIAL INDICATOR ADAPTER**



**91-83155**

Dial indicator holding fixture.

**DRIVEN GEAR SHIMMING TOOL**

Image not Available.

**91-854377**

Use to shim the driven gear on the Vazer.

## ALPHA STERNDRIVE

## SEAL DRIVER



91-864497

Installs double lip seal in driveshaft housing.

## DIAL INDICATOR HOLDING TOOL



91-89897

Secures the dial indicator to the gear housing when checking backlash.

## PIPE TAP



91-95639

Taps the bell housing for shift cable installation.

## GUIDE/PULLER TOOL

Image not  
Available.

91-90774

Presses the bearing cone assembly into the lower drivshaft.

## POWER STEERING TEST GAUGE KIT



91-38053A05

Test the power steering system pressure.

## POWER STEERING ADAPTER KIT



91-806908A02

Adaps power steering test gauge (P/N 38053A05) to test power steering control valves.

## POWER TRIM TEST GAUGE KIT



91-52915A 6

Test circuit pressures for various trim pumps.

## TORCH LAMP



91-63209

Heats surfaces to aid in the removal and installation of interference fit engine components.

## FLUSHING ATTACHMENT



44357Q 2

Will allow for running at idle speeds. Attaches to the water intakes; provides a fresh water connection when flushing the cooling system or operating the engine. Fits Mercury/Mariner 20 hp. and higher outboards, 9.9/15 hp. FourStroke (323cc) Bigfoot outboards, all Model Year 2005 and Newer 8/9.9 hp. Four Stroke outboards, 15 hp. FourStroke (351cc) outboards, all MerCruiser Sterndrives (except Bravo One Perf. & Blackhawk) and MHP Torque Master gearcases. Note: 2000 and newer V-6 outboards and MerCruiser Bravo drives with dual water pick-up also require Dual Water Pick-Up Flush Seal Kit p/n 881150Q 1.

Priced individually, sold @ multiples of 4

Quicksilver Branded, Clamshell Package Point of Sale Packaged.

**DRILL FIXTURE KIT****91-43693A 2**

Used to assist drilling of the holes for the MerCruiser transom plate mounting bolts. For MCM 3.0L to 350 Magnum (Alpha One), Bravo One, Two, Three and Blackhawk models.

**GEARCASE HEIGHT TOOL KIT**

Image not  
Available.

**91-8M0130705**

Engine and gearcase height measurement tool. Measures engine (gearcase) height in reference to the boat bottom. All engine gearcase types.



## BRAVO STERNDRIVE

### BRAVO STERNDRIVE TOOL APPLICATION CHART

#### Bravo Sterndrive Application Chart

Part Number	Description	Bravo One	Bravo Two	Bravo Three	Blackhawk
11- 24156	Hex Nut	X	X		X
12- 34961	Washer	X	X	X	X
91- 12427T	Shift Cable Adjustment Tool	X	X	X	X
91- 17256	Bearing Retainer Wrench	X	X	X	X
91- 17257T	U-Joint Carrier Retainer Tool		X		
91- 17262A 1	Shift Cable Installation Tool	X	X	X	X
91- 17273	Bushing Removal Tool	X	X	X	
91- 17275A 1	Bearing and Seal Installation Tool	X	X	X	X
91- 17301T 1	Clutch Assembly Stand	X	X	X	X
91- 17302	Shift Handle Tool	X	X		
91- 31106T	Bearing Cup Driver	X	X		
91- 31229A 7	Bering Removal and Installation Tool	X	X	X	X
91- 34569A 1	Slide Hammer Puller	X	X	X	X
91- 37241	Universal Puller Plate	X	X	X	X
91- 37299Q 2	Lube Gun	X	X	X	X
91- 38053A05	Power Steering Test Gauge Kit	X	X	X	X
91- 38756	U-Joint Adapter	X			X
91- 42840T	Driveshaft Pinion Gear Shimming Tool	X			
91- 43559T	Clamp Plate	X	X	X	
91- 43578A 1	Bushing/Bearing/Seal Driver	X	X	X	X
91- 43579	Tapered Insert Tool	X	X	X	X
91- 43693A 2	Transom Cutout and Drill Fixture	X	X	X	X
44357Q 2	Flushing Device	X	X	X	X
91- 8M0096108	Bellows Expander Tool	X	X	X	X
91- 52915A 6	Trim Pump Test Gauge Kit	X	X	X	X
91- 53459	Backlash Indicator Rod	X	X		
91- 55916	Oil Seal Driver	X	X		
91- 55918	Bearing Driver	X	X	X	
91- 58222A 1	Dial Indicator	X	X	X	X
91- 61069T	Bearing Carrier Retainer Nut Wrench	X	X	X	
91- 61077T	Propeller Shaft/Driveshaft Adapter	X	X	X	X
91- 63209	Torch Lamp	X	X	X	X
91- 63616T	Puller Head	X	X	X	X
63262(1)	Bearing Cup Driver		X		
91- 63638 1	Bearing Driver	X	X	X	X
91- 66274	Torque Wrench lb-in.	X	X	X	X
91- 8M0135998	Reference Electrode	X	X	X	X
91- 78310	Hinge Pin Tool	X	X	X	X
805347(1)	Bearing Driver / Adapter				X
805352T(1)	Bearing Driver, Outer Propeller Shaft Bearing			X	X
91- 805356	Bearing Carrier Tool			X	X
91- 805358T	Seal Driver, Outer Propeller Shaft			X	X
91- 805372	Seal Driver, Bearing Carrier Seal			X	X
91- 805374	Bearing Carrier Tool			X	X
91- 805374 1	Bearing Carrier Tool			X	

Part Number	Description	Bravo One	Bravo Two	Bravo Three	Blackhawk
91- 805382T	Bearing Retainer Tool			X	
91- 805454	Driver Handle	X		X	X
91- 805457T 1	Propeller Nut Tool			X	X
91- 805462T	Shimming Tool			X	X
91- 805470	Front Bearing Guide	X	X	X	X
91- 805473	Guide Insert Tool	X	X	X	X
91- 805474	Vertical Shaft Service Tool	X	X	X	X
91- 805475A 1	Alignment Tool Assembly	X	X	X	X
91- 863372	Bell Housing Alignment Tool	X	X	X	
91- 805481	Backlash Indicator Rod			X	X
91- 805482	Backlash Indicator Rod			X	X
805573T(1)	Holding Fixture				X
91- 806192	Spline Backlash Tool			X	X
91- 806908A02	Power Steering Adapter	X	X	X	X
91- 813653T	Seal Driver	X	X	X	
91- 816242	Puller Jaw	X	X	X	X
91- 816243	Guide Plate	X	X	X	X
91- 818162	Sleeve Installation Tool	X			
91- 818836A 1	Drill Bushing Tool Kit	X	X		
91- 821709T	Spanner Wrench	X			X
91- 83155	Dial Indicator Adapter Kit	X	X	X	
91- 8M0059911	Bearing Carrier Installation Tool	X	X	X	
91- 840965T01	Integrated Transom Alignment Tool	X	X	X	X
849996T 1	Flushing Kit	X	X	X	X
91- 862064A 1	Seal Removal Tool			X	X
91- 862546	Retention Sleeve Removal Tool	X	X	X	X
91- 863738	Driveshaft Retaining Tool			X	
91- 864220	Driver Head	X	X	X	
91- 865097T	Dial Indicator Holding Block	X	X	X	X
91- 865114T	Pinion Gear Shimming Tool	X	X	X	X
881150Q 1	Dual Water Pickup Gearcase Flush Seal Kit	X			
91- 89865	Bearing Seal And Cup Driver	X	X		
91- 89867T	Bearing Driver	X	X	X	
91- 90244A 1	Puller/Drive Assembly Tool	X	X	X	X
91- 90338A 1	Puller Bar	X	X		
91- 96512T	Gearcase Pinion Shimming Tool		X		
805451(1)	Driveshaft Bolt Tightening Tool				X
805453(1)	Driveshaft Race Tool				X
805458(1)	Vertical Guide Tool	X	X	X	X
805471T(1)	Needle Bearing Installation Tool				X
805472(1)	Needle Bearing Removal Tool				X
CG40-4(2)	Expanding Rod				
CG40A-9(2)	Collet (Use with CG40-4)				
CG40A10(2)	Collet (Use with Expanding Rod)				
CG45-4(2)	Expanding Rod (Use with CG45-15)				
CG45-15(2)	Collet (Use with CG 45-4)				

(1) NLA (No Longer Available)

(2) Order from Snap-On Tools (800)762-7664

**BRAVO STERNDRIVE TOOLS**

**HEX NUT**



**11- 24156**

.625-18 Hex nut that aids in the removal and installation of various drive components. May use with puller shaft (P/N 31229). Included in the bearing removal and installation kit (P/N 31229A7).

**WASHER**



**12- 34961**

.656 x 1.312 x .095, plain.  
Used on the threaded puller rod between the nut and plate when removing bearings.

**PRELIMINARY SHIFT ADJUSTMENT TOOL**



**91- 12427T**

Attaches over the shift cable and aids in proper shift cable adjustment at the shift plate.  
For MCM Bravo One and Bravo Two models.

**U-JOINT RETAINER WRENCH**



**91- 17256**

Installs and torques the U-Joint retainer nut.

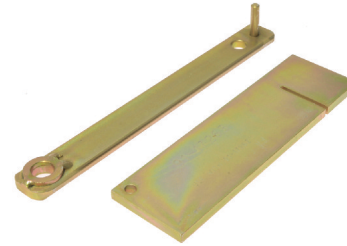
**BEARING CARRIER WRENCH**



**91- 17257T**

Spool retainer - bearing carrier.

**ADJUSTMENT TOOL**



**91- 17262A 1**

Cable shift adjustment tool. Includes Core Wire Locating Tool (P/N 17263) and Shift Cable Anchor Adjustment Tool (P/N 17262).  
Use to set the shift cable adjustments after shift cable installation.

**BUSHING REMOVAL TOOL**



**91- 17273**

Aids in the removal of the shift shaft bushing.

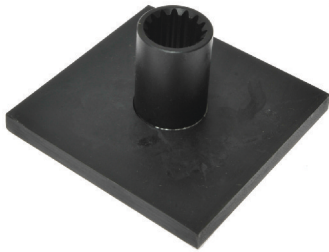
**BEARING AND SEAL DRIVER TOOL**



**91- 17275A 1**

Installation of gear housings dearing and seal.

## CLUTCH STAND TOOL



**91- 17301T 1**

Holds the clutch assemblies for servicing.

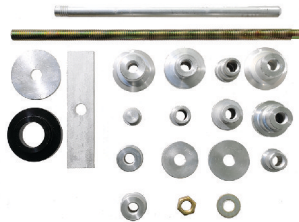
## SHIFT HANDLE TOOL



**91- 17302**

Positions and removes the shift shaft.

## BEARING REMOVAL AND INSTALLATION TOOL



**91- 31229A 7**

Installs and removes the bearings in all gearcases.

## PULLER PLATE



**91- 29310**

Aids in the removal and installation of the gimbal bearing, as well as various bearings in the gear housing. Included in the bearing removal and installation kit (P/N 31229A7).

## PULLER SHAFT



**91- 31229**

A .625 in x 18 in (15.875 mm) long threaded rod which aids in the removal and installation of various engine components. Included in the Bearing Removal and Installation Kit (P/N 31229A7).

## SLIDE HAMMER PULLER



**91- 34569A 1**

Aids in the removal of various engine components. Replacement jaws (P/N 34570) may be purchased separately.

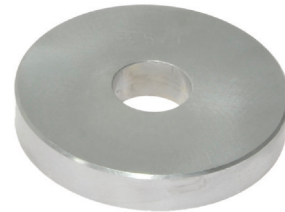
## PULLER JAWS



**91- 816242**

Use with either the two prong or three prong puller on all drive units.

## PILOT WASHER



**91- 36571T**

Used in pinion gear and pinion bearing installation.

## UNIVERSAL PULLER PLATE



**91- 37241**

Removes bearings from gears and the driveshaft.

## GREASE GUN



**91- 37299Q 2**

Pistol grip gun. Aids in the lubrication of key areas on the drive and transom. Allows easy access to grease fittings.

For use with 8 oz.(227 g) tubes.

Priced individually, sold @ multiples of 4

Quicksilver Branded, Clamshell Package Point of Sale Packaged.

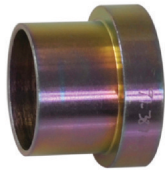
**DRIVER ROD**



**91- 37323**

Aids in the removal and installation of various bearings and bearing races.

**U-JOINT ADAPTER**



**91- 38756**

Supports the yoke when disassembling the U-Joint.

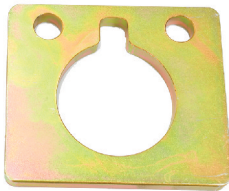
**SHIMMING TOOL**



**91- 42840T**

Driveshaft Pinion Gear Shimming Tool. Assists in determining the driveshaft pinion gear shims.  
Bravo One.

**CLAMP PLATE TOOL**



**91- 43559T**

Installs onto the gear housing while separated from the driveshaft housing and holds a perload while checking the gear backlash and bearing perload.  
Bravo I, Bravo II and Bravo III

**BUSHING / BEARING/ SEAL DRIVER**



**91- 43578A 1**

Installs the transom assembly bushings, bearings and seals.

**TAPERED INSERT TOOL**



**91- 43579**

Tapered water hose insert tool. Removes and installs the tapered insert retainer into the water inlet hose.

**EXPANDER TOOL**



**91-8M0096108**

Aids in the removal and installation of the exhaust bellows.

**PULLER JAW ASSEMBLY**



**91- 46086A 1**

Use with P/N 85716 puller bolt.  
Aids in the removal of the bearing carrier and bearing races.

## BOLT PULLER TOOL



**91- 85716**

Aids in the removal of the bearing carrier and bearing races..  
Bolt puller used with Puller Jaws tool (P/N 46086A1).

## BACKLASH INDICATOR ROD



**91- 53459**

Aids in checking gear backlash.

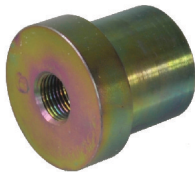
## OIL SEAL DRIVER TOOL



**91- 55916**

Installs the bearing carrier oil seals in the gear housing.  
Bravo II

## BEARING DRIVER



**91- 55918**

Aids in the removal and installation of the bearing carrier needle bearings.

## DIAL INDICATOR TOOL



**91- 58222A 1**

Measures distance, movement and runout. Used for the drive system assembly and engine setup.

## BEARING CARRIER RETAINER NUT WRENCH



**91- 61069T**

Installs and removes the bearing carrier retainer nuts.

## ADAPTOR TOOL



**91- 61077T**

Provides a wrench surface to turn the propeller shaft.

## PULLER HEAD



**91- 63616T**

Removes the upper swivel shaft on gimbal rings.



**BEARING CUP DRIVER**



**91- 63626**

Installs the bearing cup into the bearing carrier.

**BEARING DRIVER**



**91- 63638 1**

Removes and installs the lower driveshaft pinion bearing.

**TORQUE WRENCH**



**91- 66274**

Dial-type torque wrench that sets torque from 9 to 0-150 lb-in. .375 inch drive.

**BEARING CUP DRIVER**



**91- 67443T**

Installs the driveshaft bearing cup into the gear housing and the bearing cup into the bearing carrier.

**HINGE PIN TOOL**



**91- 78310**

Removes and installs the hinge pins.

**BEARING CARRIER TOOL**



**91-805356**

Aids in the installation of the bearing carrier needle bearing.

**PROPSHAFT SEAL TOOL**



**91-805358T**

Installation of outer propshaft seal.

**SEAL DRIVER TOOL**



**91-805372**

Seal installation tool. Aids in the installation of seals into the bearing carrier. Bravo Three

**BEARING CARRIER TOOL**



**91-805374**

Aids in the removal and installation of the outer propeller shaft bearing carrier. Also used with bearing retainer tool (P/N 805382T) to remove propeller shaft retainer nut. Bravo Three

## BEARING CARRIER TOOL



**91-805374 1**

Removes and installs the driveshaft bearing carrier.  
Bravo Three

## BEARING RETAINER TOOL



**91-805382T**

Removes and installs the outer propeller shaft bearing retainer.

## DRIVER HANDLE



**91-805454**

Used with front bearing guide (P/N 805470) for installation of the front bearing.

## FRONT BEARING GUIDE



**91-805470**

Guides the installation of the front bearing into the drives. Use with driver handle (P/N 805454).

## PROPELLER NUT TOOL



**91-805457T 1**

For removal and installation of inner/front propeller nut.  
Bravo Three

## SHIMMING TOOL



**91-805462T**

Aids in measuring the pinion height.

## GUIDE INSERT TOOL



**91-805473**

Inserts into the bearing cup driver (P/N 31106T) when installing the front driven gear bearing cup.

## BEARING CUP DRIVER



**91-31106T**

Installs the driven gear bearing cup.

**ALIGNMENT SHAFT TOOL**



**91-805475A 1**

Used to align the engine to the standard Bravo transom assembly for sterndrive installation.  
For MerCruiser drives, except Vazer drives.

**BELL HOUSING ALIGNMENT TOOL**



**91-863372**

Used with the alignment tool P/N 805475A1 and a feeler gauge to ensure precise alignment between the Bravo bell housing and the engine coupler.

**ALIGNMENT SHAFT**



**91-8M2001017**

Aids in aligning the engine to the transom assembly for sterndrive installation.  
Works with Vazer, Alpha and Bravo sterndrives.

**BACKLASH INDICATOR ROD**



**91-805481**

Indicates the inner propeller shaft backlash.

**BACKLASH INDICATOR ROD**



**91-805482**

Indicates the inner propeller shaft backlash.

**SPLINE BACKLASH TOOL**



**91-806192**

Measures the propeller shaft to gear spline backlash on V-blocks.

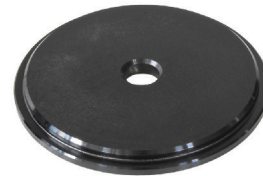
**SEAL BEARING DRIVER**



**91-813653T**

Installs the U-Joint oil seal into the bearing carrier. Also used to pilot the puller rod for the installation of the gear housing needle bearing.  
Bravo One, Two and Three.

**GUIDE PLATE**



**91-816243**

Centers the rod used to drive in the forward gear bearing on a standard rotation gearcase and the reverse gear bearing on a counter-rotation gearcase.

## SLEEVE INSTALLATION TOOL



**91-818162**

Installs the aluminum sleeve into the U-Joint bellows.

## END CAP TOOL

Image not Available.

**91-821709T**

Trim Cylinder End Cap Tool. Allow easy removal of the trim cylinder end caps. Required if tilt limit spacers are to be installed or if the trim in limit spacer is to be removed to allow additional trim in range.

## DIAL INDICATOR ADAPTER



**91-83155**

Dial indicator holding fixture.

## SHIFT CABLE DRILL BUSHING KIT



**91-818836A 1**

Aids in replacing a shift cable in bell housing to enlarge hole to .4375 inch for new cable.

Bravo Drive - S/N 0D542204 and below.

## BEARING AND SEAL INSTALL TOOL



**91-840385**

Installs the needle bearing and oil seals into the bearing carrier.

## RETAINER WRENCH TOOL KIT



**91-840393A 1**

Aids in the installation of the bearing carrier retainer with a heavy-duty propeller shaft installed on the lower unit.

## SEAL INSTALLATION TOOL



**91-8M0059911**

Protects the seal when installing the bearing carrier on 10 spline (1.25 in ) propeller shaft. Part of 840393A1 Propeller shaft Tool Kit.

## RETAINER NUT WRENCH



**91-840393**

Installs the bearing carrier retainer nut on heavy-duty propeller shafts.

## ALIGNMENT TOOL

Image not Available.

**91-840965T01**

Used to align the engines to the integrated or standard Bravo transom assembly for sterndrive installation.

**SEAL REMOVAL TOOL**



**91-862064A 1**

Aids in the removal of the bearing carrier oil seal.  
Bravo Three  
Blackhawk

**SPANNER WRENCH**

Image not  
Available.

**91-862219A 1**

Removes and installs the driveshaft U-Joint bearing retainer.

**STEEL BEARING ADAPTER SOCKET**



**91-862531**

Removes and installs the steel bearing adapter.

**SLEEVE REMOVAL TOOL**



**91-862546**

Removes the aluminum sleeve from the U-Joint bellows of the sterndrive.  
Bravo Sterndrives - S/N 0L999999 and below.

**RETAINING TOOL**



**91-805381**

Used to hold the bearings and the lower driveshaft while checking backlash on pre-2000 lower units with smaller diameter driveshaft.

**SEAL DRIVER TOOL**



**91-865050**

Aids in the removal and installation for the U-Joint oil seal of the bearing retainer nut.

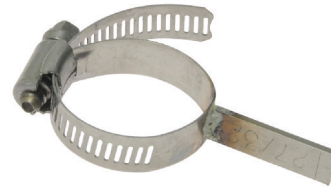
**GEAR LASH FLAG TOOL - 16/19**



**91-865116**

Aids in checking the gear lash for 16/19 tooth gears in the driveshaft housing.

**GEAR LASH FLAG TOOL - 27/37**



**91-865080**

Aids in checking the gear lash for 27/37 tooth gears in the driveshaft housing.

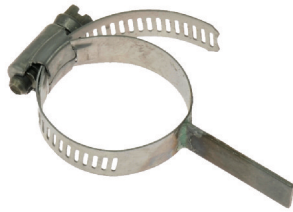
**GEAR LASH FLAG TOOL - 27/29**



**91-8M0126990**

Aids in checking the gear lash for 27/29 tooth gears in the driveshaft housing.

## GEAR LASH FLAG TOOL - 23/30



**91-865082**

Aids in checking the gear lash for 23/30 tooth gears in the driveshaft housing.

## STUB SHAFT TOOL



**91-865083**

Replaces the U-Joint assembly during the shimming process of the driveshaft housing.  
Bravo X Series

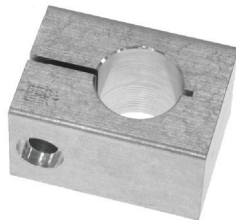
## STUB SHAFT TOOL



**91-865084**

Replaces the U-Joint assembly during the shimming process of the driveshaft housing.  
Standard Bravo

## CLAMP BLOCK AND HANDLE TOOL



**91-865085**

Used to move the stub shaft when reading the gear lash on the driveshaft housing.

## ADAPTER ROD TOOL



**91-865086**

Holds the measuring tools for shimming the driveshaft housing.

## HOLDING BLOCK

Image not Available.

**91-865097T**

Dial indicator holding block. Secures the dial indicator tool in proper location when shimming the driveshaft housing.

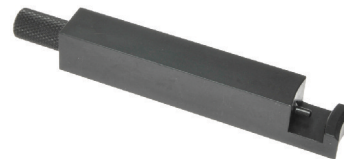
## PINION GEAR SHIMMING TOOL



**91-865114T**

Measures the pinion (drive) gear depth of the driveshaft housing.

## DRIVEN GEAR CLAMPING TOOL



**91-865115**

Prevents driven gear movement when measuring the gear lash of the driveshaft housing.

## CROSS BEARING REMOVAL AND INSTALLATION TOOL KIT



**91-866107A01**

Removes and installs the bearing caps on the cross bearings.



**TACHOMETER / MULTI METER KIT**



**91-892647A01**

Measures RPM on spark ignition (SI) engines. ohms, amperes, AC and CD voltages; records maximums and minimums simultaneously and accurately reads in high RFI environments.  
Outboard and MerCruiser

**MERCATHODE REFERENCE ELECTRODE TESTER**



**91-8M0135998**

Use with a digital multimeter to test the function of Mercathode systems. Senses an electrical current in the water when testing the Mercathode system.

**DRIVER TOOL**



**91-89865**

Cup and seal driver tool for installation of the bearing carrier seals and bearing cup.  
Bravo I

**BEARING DRIVER**



**91-89867T**

Aids in the installation of the driveshaft needle bearings.

**PULLER / DRIVE TOOL KIT**



**91-90244A 1**

Removes and installs the driveshaft housing bearings and sleeves. Kit includes Puller Jaws, Puller Guide, Puller bolt, Driver Guide and Driver Head.

**BEARING AND OUTER RACE INSTALL TOOL**

Image not Available.

**91-864220**

Aids in the installation of the needle bearing and the outer radial bearing on new style gears in the older sterndrives.  
Bravo Sterndrives - 1999 and earlier.

**BEARING INSTALL TOOL**

**91-862530**

Aids in the installation of the needle bearing and outer radial bearing.

**BEARING CARRIER TOOL**



**91-90338A 1**

Aids in the removal of the bearing carrier.  
Bravo One  
Bravo Two

**SHIMMING TOOL**



**91-96512T**

Gearcase pinion shimming tool. Aids in measuring the gearcase pinion height.

**PLUG**



**22-38609**

Aids in bleeding the in/down circuit on the remote trim pump.



## POWER STEERING TEST GAUGE KIT



**91-38053A05**

Test the power steering system pressure.

## POWER STEERING ADAPTER KIT



**91-806908A02**

Adaps power steering test gauge (P/N 38053A05) to test power steering control values.

## POWER TRIM TEST GAUGE KIT



**91-52915A 6**

Test circuit pressures for various trim pumps.

## FLUSHING ATTACHMENT



**44357Q 2**

Will allow for running at idle speeds. Attaches to the water intakes; provides a fresh water connection when flushing the cooling system or operating the engine. Fits Mercury/Mariner 20 hp. and higher outboards, 9.9/15 hp. FourStroke (323cc) Bigfoot outboards, all Model Year 2005 and Newer 8/9.9 hp. Four Stroke outboards, 15 hp. FourStroke (351cc) outboards, all MerCruiser Sterndrives (except Bravo One Perf. & Blackhawk) and MHP Torque Master gearcases. Note: 2000 and newer V-6 outboards and MerCruiser Bravo drives with dual water pick-up also require Dual Water Pick-Up Flush Seal Kit p/n 881150Q 1. Priced individually, sold @ multiples of 4. Quicksilver Branded, Clamshell Package Point of Sale Packaged.

## FLUSHING KIT



**849996T 1**

Use for flushing gearcases with low water inlets/pick up. Fits MCM Bravo I Performance & BlackHawk drives

## DUAL WATER PICKUP FLUSH SEAL KIT



**881150K 1**

Provides a front water pick-up seal for gearcases with dual water pick-ups. Fits 2000 and newer Mercury/Mariner V-6 outboards with dual water pick-ups; and 2000 and newer MerCruiser Bravo One, X, XR & XZ drives with dual water pick-ups. Priced individually, sold @ multiples of 2. Mercury Branded, Clamshell Package Point of Sale Packaged.

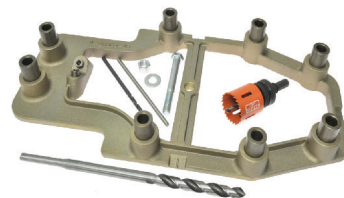
## TORCH LAMP



**91-63209**

Heats surfaces to aid in the removal and installation of interference fit engine components.

## DRILL FIXTURE KIT



**91-43693A 2**

Used to assist drilling of the holes for the MerCruiser transom plate mounting bolts. For MCM 3.0L to 350 Magnum (Alpha One), Bravo One, Two, Three and Blackhawk models.

**GEARCASE HEIGHT TOOL KIT**

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Image not  
Available.

**91-8M0130705**

Engine and gearcase height measurement tool.  
Measures engine (gearcase) height in reference to the boat bottom.  
All engine gearcase types.

## ZEUS 3000 SERIES POD DRIVE

### POD DRIVE TOOL APPLICATION CHART

Chart covers all Zeus 3000 Series Pod drives for all engine models and drives.

#### Pod Drive Tool Application Chart

Part Number	Description	Page
24789A 1	Hose Adapter	26
91-8M0135998	Reference Electrode	23, 27
802889A 1	Crankcase Oil Pump	26
91-805457T 1	Propeller Nut Tool	18, 26
91-850730Q 1	Gear Lube Pump	27
32-859717A 2	Gear Lube Hose	26
879172A19	Dust Cap Kit	27
91-892647A01	DMT 2004 Digital Multimeter	23, 27
91-8M0029055	Drive Alignment Tool	27
91-8M0045587	Gear Housing Pressure Test Plate	27
10-8M0080049	Lifting Eye	26
91-8M0138392	CDS G3 Diagnostic Tool Kit	136

### POD DRIVE TOOLS

#### LIFTING EYE - ZEUS POD



##### 10-8M0080049

Attaches to transmission.  
For installation or removal of the Zeus Transmissions.

#### PROPELLER NUT TOOL



##### 91-805457T 1

For removal and installation of inner/front propeller nut.  
Bravo Three

#### CRANKCASE OIL PUMP



##### 802889A 1

8/9.9 4-stroke outboards require additional adapter 828369  
Fits all MCM/MIE engines with threaded fitting on dipstick tube, and Mercury/  
Mariner 8/9.9 (4-stroke) outboards.  
Mercury Branded, Hanging Box Point of Sale Packaged.

#### FLUSHING ATTACHMENT



##### 24789A 1

Fits older Mercury 3.5-9.8 hp. and JET Outboards (except 20-30 hp.). Will allow for  
running at idle speeds on most models. Consult your owner's manual for proper  
operation.

#### OIL PUMP EXTRACTION TUBE



##### 32-859717A 2

.375 in O.D. tube, 19.5 in. long  
Connects to the crankcase oil pump for use on the Zeus drive and various Mercury/  
Mariner FourStroke outboards.

## GEAR LUBE PUMP



### 91-850730Q 1

For all 2-1/2 US gal (10 L) plastic oil bottles. May be used with any outboard which uses a 3/8"-16 drain/fill screw.

Fits all MerCruiser sterndrives and Mercury/Mariner Outboards except those models of Japanese origin.

Quicksilver Branded, Clamshell Package Point of Sale Packaged.

## GEAR HOUSING PRESSURE TEST PLATE

Image not Available.

### 91-8M0045587

Used to test the gear housing.

## DUST CAP KIT 879172A19

Protects the hydraulic system from contamination during disassembly. Pod Drive

## TACHOMETER / MULTI METER KIT



### 91-892647A01

Measures RPM on spark ignition (SI) engines. ohms, amperes, AC and CD voltages; records maximums and minimums simultaneously and accurately reads in high RFI environments.

Outboard and MerCruiser

## MERCATHODE REFERENCE ELECTRODE TESTER



### 91-8M0135998

Use with a digital multimeter to test the function of Mercathode systems. Senses an electrical current in the water when testing the Mercathode system.

## DRIVE ALIGNMENT TOOL

Image not Available.

### 91-8M0029055

Used with Axis, Zeus, JPS and MerCruiser electric steering to align the drives with the boat. Two pieces required for alignment.

## POD DRIVE TOOL APPLICATION CHART (GEAR HOUSING)

### Pod Drive Tool Application Chart (Gear Housing)

Part Number	Description	Page
91-27780	Puller	28
91-37241	Universal Puller Plate	14, 30
91-63209	Torch Lamp	24, 29
91-83155	Dial Indicator Adapter	20, 28
91-31229A 7	Bearing Removal and Installation Kit	14, 28
91-34569A 1	Slide Hammer	14, 28
91-36569T	Driver Head	28
91-58222A 1	Dial Indicator	16, 28
91-862064A 1	Seal Removal Tool	21, 28
91-8M0007680	Guide Plate	28
91-8M0007693	Socket	28
91-8M0007695	Socket	28
91-8M0021221	Socket	28
91-8M0030004	Splined Adapter	28
91-8M0030154	Bearing Cone Driver	28
91-8M0030292	Bearing Puller	28
91-8M0030455	Bearing Press	28
91-8M0030457	Bearing Puller	28
91-8M0030724	Quick Release Pin	28
91-8M0037221	Bearing Driver	29
91-8M0037236	Bearing Puller	29
91-8M0037237	Bearing Driver Rod	29
91-8M0037797	Guide Insert	29
91-8M0037818	Guide	29
91-8M0038263	Bearing Carrier Guide Plate Tool	29
91-8M0038271	Outer Propeller Shaft Needle Bearing Removal Tool	29
91-8M2013914	Seal Puller	28
91-8M0038271	Needle Bearing Removal Tool	29
91-8M0034342	Backlash Wrench	29
91-8M0007691	Seal Driver	29
91-8M0007689	Bearing Driver	29
91-8M0007690	Bearing Driver	29
91-8M0030213	Preload Tool	29
91-8M0007692	Seal Driver	29
91-8M0007688	Bearing Driver	29
91-8M0007682	Bearing Driver	29
91-8M0007683	Bearing Driver	29
91-8M0007681	Bearing Driver	29
91-8M0007677	Height Gage	29
91-8M0030456	Preload Tool	29
91-8M0030271	Propshaft Support Tool	29

ZEUS 3000 SERIES POD DRIVE

## POD DRIVE TOOLS (GEAR HOUSING)

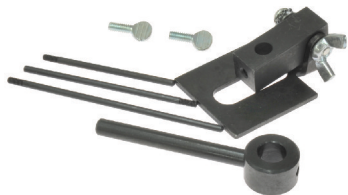
### DIAL INDICATOR TOOL



**91- 58222A 1**

Measures distance, movement and runout. Used for the drive system assembly and engine setup.

### DIAL INDICATOR ADAPTER



**91- 83155**

Dial indicator holding fixture.

### PULLER

Image not Available.

**91- 27780**

Removes gears, bearings and races.

### SLIDE HAMMER PULLER



**91- 34569A 1**

Aids in the removal of various engine components. Replacement jaws (P/N 34570) may be purchased separately.

### BEARING REMOVAL AND INSTALLATION TOOL



**91- 31229A 7**

Installs and removes the bearings in all gearcases.

### DRIVE HEAD TOOL



**91- 36569T**

Used in pinion gear and bearing installation.

### SEAL REMOVAL TOOL



**91 862064A 1**

Aids in the removal of the bearing carrier oil seal.

Bravo Three  
Blackhawk

### SEAL PULLER

Image not Available.

**91 8M2013914**

Used to remove the outer propeller shaft seal.

### GUIDE PLATE

**91 8M0007680**

Use when installing the bearing cup.

### SOCKET RETAINING NUT

**91 8M0007693**

Used to remove and install the rear gear retaining nut.

### SOCKET NOSE CONE

**91 8M0007695**

Used to remove and install the drive nose cone.

### SOCKET DRIVESHAFT RETAINING NUT

**91 8M0021221**

Used to remove and install the vertical driveshaft retaining nut.

### SPLINED ADAPTER

**91 8M0030004**

Used to torque the driveshaft pinion nut.

### BEARING CONE DRIVER

**91 8M0030154**

Aids the installation of large bearing cones.

### BEARING PULLER

**91 8M0030292**

Aids in the removal of the driveshaft bearing cup.

**91 8M0030457**

Aids in the removal of the spool bearing cup.

### BEARING PRESS

**91 8M0030455**

Used with various adapters to remove and install drive bearings and bearing seats.

### QUICK RELEASE PIN

**91 8M0030724**

Used with special socket to remove and install the drive nose cone.

**GUIDE INSERT**

91-8M0037797

Aids in the installation of the driveshaft bearing cup.

**GUIDE DRIVESHAFT BEARING**

91-8M0037818

Aids in the installation of the driveshaft bearing.

**BEARING DRIVER**

91-8M0037221

Removes and installs the lower driveshaft pinion bearing.

**BEARING CARRIER GUIDE PLATE**

91-8M0038263

Aids in the removal of the outer propeller shaft needle bearing.

**BEARING DRIVER ROD**

91-8M0037237

Aids in the removal of the spool bearing cup.

**NEEDLE BEARING REMOVAL TOOL**

91-8M0038271

Aids in the removal of the out propeller shaft needle bearing from the bearing carrier.

**BEARING PULLER**

91-8M0037236

Aids in the removal of the carrier bearing.

**BACKLASH WRENCH**

91-8M0034342

Used to manipulate shaft when checking backlash.

**SEAL DRIVER**

91-8M0007691

Aids in the installation of the outer propshaft seal.

**BEARING DRIVER**

91-8M0007689

Aids in the installation of the outer propshaft bearing.

91-8M0007690

Aids in the installation of the spool bearing.

**PRELOAD TOOL**

91-8M0030213

Aids in setting the preload on the outer propshaft.

**SEAL DRIVER**

91-8M0007692

Aids in the installation of the spool seal.

**BEARING DRIVER**

91-8M0007688

Aids in the installation of the pinion bearing cup.

91-8M0007682

Aids in the installation of the propshaft bearing cup.

91-8M0007683

Aids in the installation of the propshaft bearing cup.

91-8M0007681

Aids in the installation of the bearing cup.

**HEIGHT GAGE**

91-8M0007677

Aids in the checking of pinion gear height.

**PRELOAD TOOL**

91-8M0030456

Aids in the checking of preload of the inner propshaft.

**PROPSHAFT SUPPORT TOOL**

91-8M0030271

Aids in the assembly of the gearcase by supporting the inner propshaft.

**TORCH LAMP**



91- 63209

Heats surfaces to aid in the removal and installation of interference fit engine components.

## TR/TRS STERNDRIVE

### TR/TRS STERNDRIVE TOOL APPLICATION CHART

#### TR/TRS Sterndrive Application Chart

Part Number	Description	TR	TRS	Page
91-34569A 1	Slide Hammer Puller	X	X	28, 30
91-37241	Universal Puller Plate	X	X	14, 30
91-38053A05	Power Steering Test Gauge	X	X	24, 32
91-38756	U-Joint Adapter	X	X	15, 30
44357Q 2	Flushing Device	X	X	24, 32
91-53459	Backlash Indicator Rod	X		16, 30
91-52915A 6	Power Trim Test Gauge Kit	X	X	24, 32
91-55916	Oil Seal Driver	X		16, 30
91-55918	Bearing Driver	X	X	16, 31
91-55919	Driver Head	X	X	31
91-58222A 1	Dial Indicator	X	X	28, 31
91-63209	Torch Lamp	X	X	29, 33
91-63619T	Seal / Bearing Driver	X	X	31
91-63620A 1	Bearing Nut Wrench and Driveshaft Socket	X	X	31
91-63626	Bearing Cup Driver	X		17, 31
91-63638 1	Bearing Driver	X	X	17, 31
91-66274	Torque Wrench, 0-150 lb-in	X	X	17, 31
91-67443T	Bearing Cup Driver	X	X	17, 31
91-68891T	Bearing Driver		X	32
91-78310	Hinge Pin Tool	X	X	17, 32
91-805475A 1	Alignment Tool Assembly		X	19, 32
91-806908A02	Power Steering Test Adapter Kit	X	X	24, 32
91-816242	Puller Jaws	X	X	14, 30
91-89897	Dial Indicator Holding Tool	X	X	10, 32
38277A2(1)	Tab Washer Pliers	X	X	
55852A2(1)	Transom Cutout and Drill Fixture	X	X	
63625T(1)	Bearing Holder	X	X	
67441(1)	Gear Housing Pinion Gear Shimming Tool		X	
98171T(1)	Driveshaft Housing Gear Shimming Tool	X	X	

(1) NLA (No Longer Available)

### TR/TRS STERNDRIVE TOOLS

#### SLIDE HAMMER PULLER



##### 91-34569A 1

Aids in the removal of various engine components. Replacement jaws (P/N 34570) may be purchased separately.

#### PULLER JAWS



##### 91-816242

Use with either the two prong or three prong puller on all drive units.

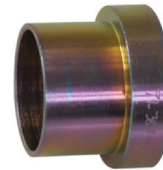
#### UNIVERSAL PULLER PLATE



##### 91-37241

Removes bearings from gears and the driveshaft.

#### U-JOINT ADAPTER



##### 91-38756

Supports the yoke when disassembling the U-Joint.

#### BACKLASH INDICATOR ROD



##### 91-53459

Aids in checking gear backlash.

#### OIL SEAL DRIVER TOOL



##### 91-55916

Installs the bearing carrier oil seals in the gear housing.  
Bravo II



**BEARING DRIVER**



91- 55918

Aids in the removal and installation of the bearing carrier needle bearings.

**DRIVER HEAD**



91- 55919

Removes bearings and seals. Installs needle bearings into the bearing carrier.

**DIAL INDICATOR TOOL**



91- 58222A 1

Measures distance, movement and runout. Used for the drive system assembly and engine setup.

**SEAL / BEARING DRIVER**



91- 63619T

Installs the driveshaft bearing cup and U-Joint oil seal in the driveshaft housing. Also installs the (TR) drive unit propeller shaft bearing cup. TR Sterndrives; TRS Sterndrives models.

**BEARING NUT WRENCH AND DRIVESHAFT SOCKET**



91- 63620A 1

Removes and installs the upper drivshaft bearing nut.

**BEARING CUP DRIVER**



91- 63626

Installs the bearing cup into the bearing carrier.

**BEARING DRIVER**



91- 63638 1

Removes and installs the lower driveshaft pinion bearing.

**TORQUE WRENCH**



91- 66274

Dial-type torque wrench that sets torque from 9 to 0-150 lb-in. .375 inch drive.

**BEARING CUP DRIVER**



91- 67443T

Installs the drivshaft bearing cup into the gear housing and the bearing cup into the bearing carrier.

## BEARING DRIVER



**91-68891T**

Removes low driveshaft bearing from the gear housing. TRS sterndrives.

## HINGE PIN TOOL



**91-78310**

Removes and installs the hinge pins.

## ALIGNMENT SHAFT TOOL



**91-805475A 1**

Used to align the engine to the standard Bravo transom assembly for sterndrive installation.

For MerCruiser drives, except Vazer drives.

## DIAL INDICATOR HOLDING TOOL



**91-89897**

Secures the dial indicator to the gear housing when checking backlash.

## POWER STEERING TEST GAUGE KIT



**91-38053A05**

Test the power steering system pressure.

## POWER STEERING ADAPTER KIT



**91-806908A02**

Adaps power steering test gauge (P/N 38053A05) to test power steering control values.

## POWER TRIM TEST GAUGE KIT



**91-52915A 6**

Test circuit pressures for various trim pumps.

## FLUSHING ATTACHMENT



**44357Q 2**

Will allow for running at idle speeds. Attaches to the water intakes; provides a fresh water connection when flushing the cooling system or operating the engine.

Fits Mercury/Mariner 20 hp. and higher outboards, 9.9/15 hp. FourStroke (323cc) Bigfoot outboards, all Model Year 2005 and Newer 8/9.9 hp. Four Stroke outboards, 15 hp. FourStroke (351cc) outboards, all MerCruiser Sterndrives (except Bravo One Perf. & Blackhawk) and MHP Torque Master gearcases.

Note: 2000 and newer V-6 outboards and MerCruiser Bravo drives with dual water pick-up also require Dual Water Pick-Up Flush Seal Kit p/n 881150Q 1.

Priced individually, sold @ multiples of 4

Quicksilver Branded, Clamshell Package Point of Sale Packaged.

## TORCH LAMP

**91- 63209**

Heats surfaces to aid in the removal and installation of interference fit engine components.

**VAZER STERNDRIVE**

**VAZER STERNDRIVE TOOL APPLICATION CHART**

**Vazer Sterndrive Application Chart**

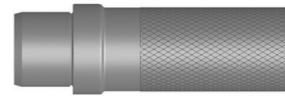
Part Number	Description	Page
12- 54048	Belleville Washer	6, 37
91- 14311A04	Driveshaft Bearing Preload Tool	3, 35
91- 17256	U-Joint Retainer Wrench	13, 35
91- 18605A 2	Bearing Cup and Adapter Installation Tool	3, 35
91- 31106T	Bearing Cup Driver	18, 36
91- 31229A 7	Bearing Removal and Installation Kit	28, 35
91- 33491	Needle Bearing Driver	4, 36
91- 33493T	Bearing Cup Driver	4
91- 34379T	Bearing Cup Driver	4, 36
91- 34569A 1	Slide Hammer	30, 36
91- 37241	Universal Puller Plate	30, 36
91- 37299Q 2	Grease Gun	14, 36
91- 38053A05	Power Steering Gauge Kit	32, 39
91- 38919	Puller Head	5, 36
91- 43506T	Driveshaft Bearing Retainer Wrench	5, 36
44357Q 2	Flushing Device	32, 40
91- 8M0096108	Exhaust Bellows Expander Tool	15, 37
91- 46086A 1	Puller Jaw Tool	15, 37
91- 85716	Puller Bolt (Used with P/N 46086A1)	
91- 52915A 6	Power Trim Test Gauge Kit	32, 40
91- 56775T	Driveshaft Holding Tool	6, 37
91- 58222A 1	Dial Indicator	31, 37
91- 60523	Drive Gear Shimming Tool	7, 37
91- 61069T	Bearing Carrier Retainer Nut Wrench	16, 37
91- 61077T	Propeller Shaft/Driveshaft Adapter	16, 38
91- 63209	Torch Lamp	33, 40
91- 63616T	Puller Head	16, 38
91- 66274	Torque Wrench (lb-in)	31, 38
91- 78310	Hinge Pin Tool	32, 38
91- 8M0053505	Backlash Indicator Rod	38
91- 806908A02	Power Steering Adapter Kit	32, 39
91- 808053T	Bearing Cup Driver	8, 38
91- 816243	Guide Plate	19, 38
91- 816242	Puller Jaws	30, 36
91- 817569T	Carrier Seal Driver	9, 39
91- 818162	Sleeve Installation Tool	20, 39
91- 818169T	Sleeve Removal Tool	9, 39
91- 83155	Dial Indicator Adapter Kit	28, 39
91- 854377	Driven Gear Shimming Tool	9, 39
91- 864497	Seal Driver	10, 39
91- 866107A01	Cross Bearing Removal / Installation Kit	22, 35
91- 866590A02	Transom Drill Fixture	40
91- 89897	Dial Indicator Holding Tool	32, 39
91- 90774	Guide/Puller Tool	10, 39
91- 8M2000895	Gimbal Ring - Hydraulic Anchor Pin Installation and Removal Tool	34
91- 8M2001017	Alignment Bar	19, 38
91- 8M2001196	Shift Slide Stabilizer	38

Part Number	Description	Page
91-8M2001723	Trim Cylinder Bushing Installation Tool	34
91-8M2005188	Trim Cylinder Oil Seal Installation Tool	34
91-8M2005644	Pinion Nut Wrench	35
91-8M2005712	Pinion Gear Shimming Tool	35
Obtain Locally	Cross and Bearing Vise Press	
38277A2(1)	Tab Washer Pliers	
879150A02(1)	Gimbal Housing - Upper Swivel Shift/Seal and Bushing Installation Tool	
8M2001720(1)	End Cap Wrench, Steering Cylinder Hydraulic/Power	
8M2004518(1)	Bushing Installation Tool	
8M2004519(1)	Seal and Bushing Installation Tool	

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**VAZER STERNDRIVE TOOLS**

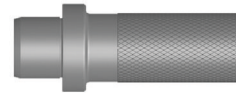
**TRIM CYLINDER BUSHING INSTALL TOOL**



**91-8M2001723**

Installs trim cylinder oil seals.

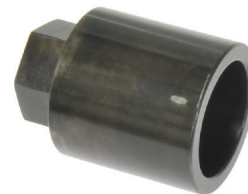
**OIL SEAL INSTALL TOOL**



**91-8M2005188**

Installs trim cylinder oil seals.

**ANCHOR PIN INSTALLATION TOOL**



**91-8M2000895**

Removes and installs hydraulic gimbal ring anchor pins.

**PINION NUT WRENCH**



**91- 8M2005644**

Holds the pinion nut from removing the driveshaft and pinion gear.

**SHIMMING TOOL**



**91- 8M2005712**

Pinion gear shimming tool.  
Measures the pinion gear height for setting the pinion gear location.

**BEARING PRELOAD TOOL**



**91- 14311A04**

Simulates a load on the driveshaft for accurate pinion height and backlash measurements.

**U-JOINT RETAINER WRENCH**



**91- 17256**

Installs and torques the U-Joint retainer nut.

**BEARING ADAPTER TOOL**



**91- 18605A 2**

Installs the forward gear bearing race on a standard gearcase. Presses the reverse gear bearing adapter into the gear housing on a counter-rotation gearcase.

**OIL SEAL DRIVER**



**91- 31108T**

Installs bearing carrier oil seals.

**CROSS BEARING REMOVAL AND INSTALLATION TOOL KIT**



**91- 866107A01**

Removes and installs the bearing caps on the cross bearings.

**BEARING REMOVAL AND INSTALLATION TOOL**



**91- 31229A 7**

Installs and removes the bearings in all gearcases.

# VAZER STERNDRIVE

## NEEDLE BEARING DRIVER



**91- 33491**

Installs the needle bearing in the forward gear. Removes and installs the seals and bearing in the gimbal housing.

## BEARING CUP DRIVER



**91- 34379T**

Installs the driveshaft bearing cup into the gear housing.

## SLIDE HAMMER PULLER



**91- 34569A 1**

Aids in the removal of various engine components. Replacement jaws (P/N 34570) may be purchased separately.

## PULLER JAWS



**91-816242**

Use with either the two prong or three prong puller on all drive units.

## BEARING CUP DRIVER



**91- 31106T**

Installs the driven gear bearing cup.

## UNIVERSAL PULLER PLATE



**91- 37241**

Removes bearings from gears and the driveshaft.

## GREASE GUN



**91- 37299Q 2**

Pistol grip gun. Aids in the lubrication of key areas on the drive and transom. Allows easy access to grease fittings.

For use with 8 oz.(227 g) tubes.

Priced individually, sold @ multiples of 4

Quicksilver Branded, Clamshell Package Point of Sale Packaged.

## PULLER HEAD



**91- 38919**

Removes the swivel pin from the gimbal rings.

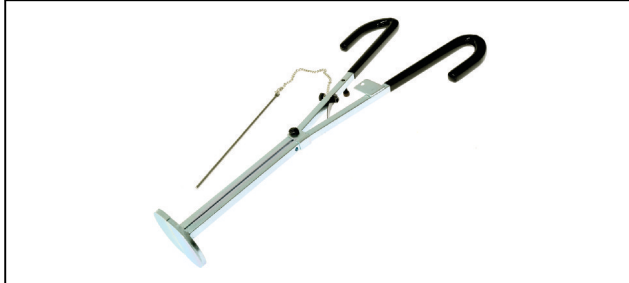
## DRIVESHAFT BEARING RETAINER WRENCH



**91- 43506T**

Removes and installs the threaded driveshaft bearing retainer.

**EXPANDER TOOL**



**91- 8M0096108**

Aids in the removal and installation of the exhaust bellows.

**PULLER JAW ASSEMBLY**



**91- 46086A 1**

Use with P/N 85716 puller bolt.

Aids in the removal of the bearing carrier and bearing races.

**BOLT PULLER TOOL**



**91- 85716**

Aids in the removal of the bearing carrier and bearing races..

Bolt puller used with Puller Jaws tool (P/N 46086A1).

**BELLEVILLE WASHER**



**12- 54048**

Used with pinion nut wrench and a propeller nut to check the reversed gear backlash.

**DRIVESHAFT HOLDING TOOL**



**91- 56775T**

Provides a wrench surface to turn the driveshaft. Also used to hold driveshaft for pinion gear installation.

**DIAL INDICATOR TOOL**



**91- 58222A 1**

Measures distance, movement and runnout. Used for the drive system assembly and engine setup.

**SHIMMING TOOL**



**91- 60523**

Measures the U-Joint pinion gear clearance.

**BEARING CARRIER RETAINER NUT WRENCH**



**91- 61069T**

Installs and removes the bearing carrier retainer nuts.



# VAZER STERNDRIVE

## ADAPTOR TOOL



**91-61077T**

Provides a wrench surface to turn the propeller shaft.

## PULLER HEAD



**91-63616T**

Removes the upper swivel shaft on gimbal rings.

## TORQUE WRENCH



**91-66274**

Dial-type torque wrench that sets torque from 9 to 0-150 lb-in. .375 inch drive.

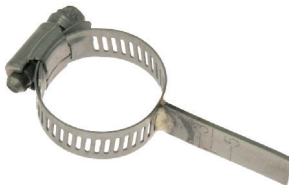
## HINGE PIN TOOL



**91-78310**

Removes and installs the hinge pins.

## BACKLASH INDICATOR ROD



**91-8M0053505**

Aids in checking gear backlash.

## ALIGNMENT SHAFT



**91-8M2001017**

Aids in aligning the engine to the transom assembly for sterndrive installation. Works with Vazer, Alpha and Bravo sterndrives.

## BEARING CUP DRIVER



**91-808053T**

Aids in the installation of a new smaller outside diameter top cover bearing.

## SHIFT SLIDE STABILIZER



**91-8M2001196**

Holds the shift shaft slide in the proper position while installing the sterndrive onto the bell housing studs.

## GUIDE PLATE



**91-816243**

Centers the rod used to drive in the forward gear bearing on a standard rotation gearcase and the reverse gear bearing on a counter-rotation gearcase.

**CARRIER SEAL DRIVER**



**91-817569T**

Removes and installs the bearing carrier seals. Installs seals in the driveshaft seal carrier.

**SLEEVE INSTALLATION TOOL**



**91-818162**

Installs the aluminum sleeve into the U-Joint bellows.

**SLEEVE REMOVAL TOOL**



**91-818169T**

Removes the aluminum sleeve from the U-Joint bellows.

**DIAL INDICATOR ADAPTER**



**91-83155**

Dial indicator holding fixture.

**DRIVEN GEAR SHIMMING TOOL**

Image not Available.

**91-854377**

Use to shim the driven gear on the Vazer.

**SEAL DRIVER**



**91-864497**

Installs double lip seal in driveshaft housing.

**DIAL INDICATOR HOLDING TOOL**



**91-89897**

Secures the dial indicator to the gear housing when checking backlash.

**GUIDE/PULLER TOOL**

Image not Available.

**91-90774**

Presses the bearing cone assembly into the lower drivshaft.

**POWER STEERING TEST GAUGE KIT**



**91-38053A05**

Test the power steering system pressure.

**POWER STEERING ADAPTER KIT**



**91-806908A02**

Adaps power steering test gauge (P/N 38053A05) to test power steering control values.

# VAZER STERNDRIVE

## POWER TRIM TEST GAUGE KIT



**91-52915A 6**

Test circuit pressures for various trim pumps.

## TORCH LAMP



**91-63209**

Heats surfaces to aid in the removal and installation of interference fit engine components.

## FLUSHING ATTACHMENT



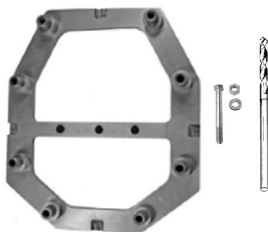
**44357Q 2**

Will allow for running at idle speeds. Attaches to the water intakes; provides a fresh water connection when flushing the cooling system or operating the engine. Fits Mercury/Mariner 20 hp. and higher outboards, 9.9/15 hp. FourStroke (323cc) Bigfoot outboards, all Model Year 2005 and Newer 8/9.9 hp. Four Stroke outboards, 15 hp. FourStroke (351cc) outboards, all MerCruiser Sterndrives (except Bravo One Perf. & Blackhawk) and MHP Torque Master gearcases. Note: 2000 and newer V-6 outboards and MerCruiser Bravo drives with dual water pick-up also require Dual Water Pick-Up Flush Seal Kit p/n 881150Q 1.

Priced individually, sold @ multiples of 4

Quicksilver Branded, Clamshell Package Point of Sale Packaged.

## TRANSOM DRILL FIXTURE KIT



**91-866590A02**

Used to assist drilling of the holes for the MerCruiser transom plate mounting bolts. For MCM 1.6L Vazer models.

**GASOLINE ENGINE**

**GASOLINE ENGINE APPLICATION TOOL CHARTS**

**Gasoline Engine Tool Application Chart**

Part Number	Description	GM	Ford	4 Cyl (3.7L)	4.5L/ 6.2L
91-12427T	Shift Cable Adjustment Tool				X
91-18078	Fuel Fitting Connector	X		X	
91-24697	Piston Ring Expander	X	X	X	X
91-35547	Engine coupler Wrench	X		X	
91-38053A05	Power Steering Gauge Kit	X	X	X	X
44357Q 2	Flushing Device	X	X	X	X
91-52024A 1	Remote Starter Switch	X	X	X	
91-52344	Flywheel Holder	X	X	X	
91-892647A01	DMT 2004 Digital Multimeter	X	X	X	X
91-63209	Torch Lamp	X	X	X	
91-63998A 1	Spark Chamber Assembly	X	X	X	
91-66273	Rocker Stopper	X			
91-66274	Torque Wrench, lb-in.	X	X	X	
91-8M0135998	Reference Electrode				X
91-803146T	Clamp Tool				X
91-805475A 1	Alignment Tool	X	X	X	X
91-806141A 1	Probe Assembly	X			
91-806794A02	Installation Jig	X			
91-806901	Fuel Pressure Tee	X		X	
91-806908A02	Power Steering Adapter	X	X	X	
91-809929	Oil Pump Pickup Installer	X			
91-809938	Oil Pump Pickup Installer	X			
91-818812A 1	Ignition Timing (EST)	X			
91-828363A 1	Tool Drill Fixture	X	X	X	
830230T(1)	Spark Air Gap Tool	X			

Part Number	Description	GM	Ford	4 Cyl (3.7L)	4.5L/ 6.2L
849996T 1	Flushing Kit				X
91-86197	Idle Mixture Socket	X			
91-863375A 1	Alignment Hook	X			
881150K 1	Dual Water Pickup Flush Gearcase Seal Kit				X
91-881833A03	Fuel Pressure Gauge Kit	X			X
91-883502	Air Line Cutter	X			X
888462A 1	Data Cable Puller				X
91-896661	Fuel Filter Removal/Install Tool				X
91-93656A 1	Pulley Pusher Installer	X	X	X	X
91-99379	Portable Timing Light	X	X	X	
91-99750A 1	DVA / Multimeter Kit	X	X	X	
84-8M0046081	CDS G3 Termination Harness	X			X
91-8M0138392	CDS G3 Diagnostic Tool Kit	X			X
BT-33-73-F(2)	Belt Tension Gauge	X	X	X	X
(2)	.875 in Oxygen Sensor Socket				X
(2)	Power-Assisted Steering Pump Pulley Remover				X
14822(1)	Oil Pump alignment Tool			X	
805918A1(1)	Fuel Shut-Off tool	X			
806141A2(1)	Probe Assembly	X			
809711(1)	ES Torx Driver	X			
815234(1)	Dyno Model 4000	X			
861540A1(1)	DDT Adapter Harness (Carb Thunderbolt V)	X	X	X	

(1) NLA (No Longer Available)

(2) Purchase Locally

**EFI/MPI Engine Tool Application Chart**

Part Number	Description	4.3L	5.0L/5.7L 350	4.5L/6.2L	6.2L	7.4L 454	502
91-18078	Fuel Fitting		X				
91-803135	Fuel Pressure Gauge Adapter	X	X		X	X	X
803999(1)	DDT Cartridge v2.0 (MEFI)	X	X		X	X	X
91-805747A 2	Timing Tool (MEFI)	X	X		X	X	X
91-806901	Fuel Pressure Tee	X	X			X	
84-822560A 2	DDT Harness (MEFI)		X (5.0L only)		X	X	X
91-881833A03	DDT Pressure Gauge Kit	X	X		X	X	X
91-99379	Portable Timing Light	X	X		X	X	X
91-99750A 1	DVA/Multimeter Kit	X	X		X	X	X
805918A1(1)	Fuel Shut-Off Tool	X	X		X	X	X

(1) NLA (No Longer Available)

# GASOLINE ENGINE

## ECM / PCM Engine Tool Application Chart

Part Number	Description	4.3L MPI	4.5L / 6.2L	5.0L MP	350 MPI Horizon	6.2L MX MPI Horizon	496 / 8.1L MPI
91-803135	Fuel Pressure Gauge Adapter	X		X	X	X	X
84-822560T12	DDT Adapter Harness (555)	X		X	X	X	X
84-822560A13	DDT Adapter Harness (555)	X		X	X	X	X
91-881833A03	Fuel Pressure Gauge Kit	X		X	X	X	X
91-99379	Portable Timing Light	X		X	X	X	X
91-99750A 1	DVA/Multimeter Kit	X		X	X	X	X
805918A1(1)	Fuel Shut-Off Tool	X		X	X	X	X
880118A 2(1)(2)	DDT Cartridge v1.2 (555)	X		X	X	X	X

(1) NLA (No Longer Available)

(2) Reference SB 2004-03R1

## GASOLINE ENGINE TOOLS

### PRELIMINARY SHIFT ADJUSTMENT TOOL

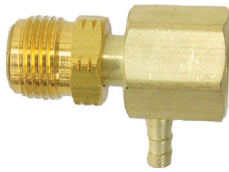


**91-12427T**

Attaches over the shift cable and aids in proper shift cable adjustment at the shift plate.

For MCM Bravo One and Bravo Two models.

### CONNECTOR TOOL



**91-18078**

For low pressure fuel pump.

### PISTON RING EXPANDER



**91-24697**

Expands piston rings for removal and installation.

## WRENCH



**91-35547**

Adapter torque wrench.  
Engine coupler.

### POWER STEERING TEST GAUGE KIT



**91-38053A05**

Test the power steering system pressure.

### POWER STEERING ADAPTER KIT



**91-806908A02**

Adaps power steering test gauge (P/N 38053A05) to test power steering control values.

**FLUSHING ATTACHMENT**



**44357Q 2**

Will allow for running at idle speeds. Attaches to the water intakes; provides a fresh water connection when flushing the cooling system or operating the engine. Fits Mercury/Mariner 20 hp. and higher outboards, 9.9/15 hp. FourStroke (323cc) Bigfoot outboards, all Model Year 2005 and Newer 8/9.9 hp. Four Stroke outboards, 15 hp. FourStroke (351cc) outboards, all MerCruiser Sterndrives (except Bravo One Perf. & Blackhawk) and MHP Torque Master gearcases. Note: 2000 and newer V-6 outboards and MerCruiser Bravo drives with dual water pick-up also require Dual Water Pick-Up Flush Seal Kit p/n 881150Q 1. Priced individually, sold @ multiples of 4. Quicksilver Branded, Clamshell Package Point of Sale Packaged.

**REMOTE SWITCH**



**91- 52024A 1**

Use for oil pump testing.

**FLYWHEEL HOLDER TOOL**



**91- 52344**

Holds and /or turns the flywheel while making engine repairs. Also used to torque the flywheel or the engine coupler. Use with teeth type flywheel.

**TACHOMETER / MULTI METER KIT**



**91-892647A01**

Measures RPM on spark ignition (SI) engines. ohms, amperes, AC and CD voltages; records maximums and minimums simultaneously and accurately reads in high RFI environments. Outboard and MerCruiser

**TORCH LAMP**



**91- 63209**

Heats surfaces to aid in the removal and installation of interference fit engine components.

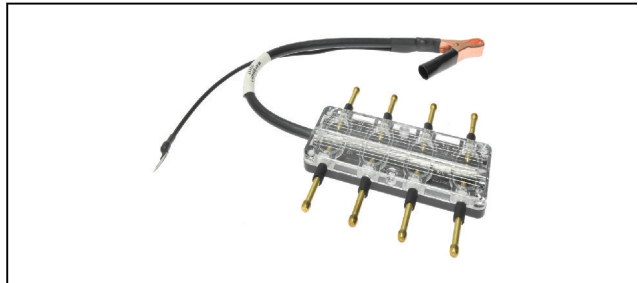
**SPARK GAP TESTER**



**91- 63998A 1**

Provides a visual indication of spark/coil efficiency.

**SPARK GAP TESTER**

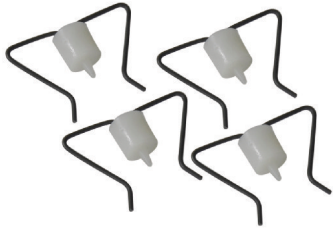


**91-850439T 1**

Provides a visual indication of spark/coil efficiency.

**GASOLINE ENGINE**

## ROCKER STOPPER



**91-66273**

Plugs the oil holes in the rocker arms to eliminate oil spray while adjusting the valve lash.

## TORQUE WRENCH



**91-66274**

Dial-type torque wrench that sets torque from 9 to 0-150 lb-in. .375 inch drive.

## FUEL PRESSURE GAUGE ADAPTER



**91-803135**

Allows an older fuel pressure gauge to attach to either GM or Mercury MerCruiser Schrader valve.

## CRIMPING TOOL



**91-803146T**

Used to clamp high pressure hose clamps. Part of clamp tool kit (P/N 803146A04)

## MERCATHODE REFERENCE ELECTRODE TESTER



**91-8M0135998**

Use with a digital multimeter to test the function of Mercathode systems. Senses an electrical current in the water when testing the Mercathode system.

## ALIGNMENT SHAFT TOOL



**91-805475A 1**

Used to align the engine to the standard Bravo transom assembly for sterndrive installation.

For MerCruiser drives, except Vazer drives.

## ALIGNMENT SHAFT



**91-8M2001017**

Aids in aligning the engine to the transom assembly for sterndrive installation.

Works with Vazer, Alpha and Bravo sterndrives.

## TIMING JUMPER PLUG

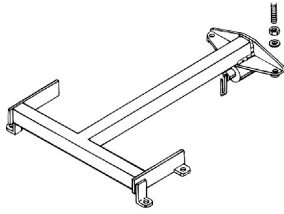


**91-805747A 2**

Lock the electronic spark trigger ignition system in base timing mode to set the initial ignition timing. Also used as a jumper lead for testing various circuits.



**ENGINE MOUNTING FIXTURE**



**91-806794A02**

Gasoline engine mount installation tool fixture.  
MerCruiser gasoline engines, except Vazer engines.

**FUEL PRESSURE TEE**



**91-806901**

The fuel pressure tee has a Schrader valve.  
Used on MerCarb, Weber or TBI Models

**OIL PUMP PICKUP TUBE INSTALLATION TOOL**



**91-809929**

Use with 5/8 in. (16 mm) pick up tubes

**OIL PUMP PICKUP TUBE INSTALLATION TOOL**



**91-809938**

Use with 3/4 in. (19 mm) pick up tubes

**IGNITION TIMING TOOL**



**91-818812A 1**

Locks the electronic spark trigger ignition system in base timing mode to set the initial ignition timing. Also used as a jumper lead for testing various circuits.  
Outboard and MerCruiser

**HARNESS DIAGNOSTIC TESTER**



**84-822560A 2**

Harness connects to DDT scan tool kit.  
Used with MEFI 1, MEFI 2, and MEFI 3 ECM models.  
MerCruiser application.

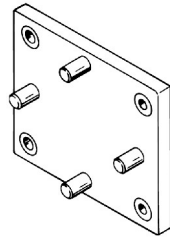
**HARNESS DIAGNOSTIC TESTER**



**84-822560A13**

Data link diagnostic tester harness between engine and Computer Diagnostic System (CDS).  
4-pin connector. No additional harness required.  
600 SCi - 662/700 SCi  
Verado 200-275 Hp  
PCM 555 models

## CONTROL DRILLING FIXTURE



**91-828363A 1**

Used to assist drilling of the holes for side mount control and panel mount control mounting bolts.

For use with the Commander 2000 side mount and the Commander 3000 panel mount controls.

## FLUSHING KIT



**849996T 1**

Use for flushing gearcases with low water inlets/pick up.

Fits MCM Bravo I Performance & BlackHawk drives

## IDLE MIXTURE SOCKET



**91-86197**

Turns the idle mixture screws on Rochester 4-barrel carburetors.

## ALIGNMENT HOOK



**91-863375A 1**

Assists during engine alignment.

## CARBURATOR ADJUSTING TOOL



**91-866201**

Turn Key Start application.

## DUAL WATER PICKUP FLUSH SEAL KIT



**881150K 1**

Provides a front water pick-up seal for gearcases with dual water pick-ups  
Fits 2000 and newer Mercury/Mariner V-6 outboards with dual water pick-ups;  
and 2000 and newer MerCruiser Bravo One, X, XR & XZ drives with dual water pick-ups.

Priced individually, sold @ multiples of 2

Mercury Branded, Clamshell Package Point of Sale Packaged.

## FUEL PRESSURE GAUGE-SINGLE



**91-881833A03**

Tests the fuel pump pressure. Can be used to relieve fuel pressure.

## AIR LINE CUTTER



**91-883502**

Prevents collapsing when cutting the air lines or the water drain system on 496-/8.1L and Mercury MerCruiser models equipped with the air-actuated water drain system.

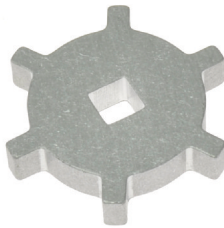
**DATA CABLE PULLER**



**888462A 1**

Attaches to end of data harness to aid in pulling harness through boat. Prevents damage to data harness.

**FUEL FILTER REMOVAL / INSTALL TOOL**



**91- 89666 1**

Aids in the removal and installation of the fuel filter cap assembly.

**PULLEY PUSHER INSTALLER**



**91- 93656A 1**

Installs the pulley onto the power steering pumps.

**TIMING LIGHT**



**91- 99379**

Used to check ignition timing.

**DVA/MULTIMETER**



**91- 99750A 1**

Tests the electrical and ignition systems. Consists of a VOA meter with built-in direct voltage adapter.

**PROBE ASSEMBLY**



**91-806141A 1**

Measures SAV-regulated emissions on early models with a test port mounted to the side of the exhaust elbow.

**DIAGNOSTIC THRUSTER SWITCHING TOOL**



**91-8M0118802**

Isolates the thrusters and thruster relays from the joystick control system to verify operation.

**DRIVE ALIGNMENT TOOL**

Image not Available.

**91-8M0029055**

Used with Axis, Zeus, JPS and MerCruiser electric steering to align the drives with the boat. Two pieces required for alignment.

# DIESEL ENGINE

## DIESEL ENGINE

### DIESEL ENGINE TOOL APPLICATION CHART

#### Diesel Engine Tool Application Chart

Part Number	Description	1.7L Engine	2.0L Engine	3.0L Engine	2.8L I4 / 4.2L I6 Engine	4.2L V8 Engine	6.7L Mech Engine	6.7L Common Rail Engine	7.3L Engine
J-35616-C(1)	Bosch Connector Test Adapter Kit		X						
44357T 2	Flushing Device		X		X				
881150K 1	Dual Water Pickup Flush Gearcase Seal Kit		X		X				
91-879150020	CMD Crankshaft Timing Tool		X						
91-24697	Piston Ring Expander	X	X	X	X	X			X
91-52344	Flywheel Holding Tool			X					
91-58222A 1	Dial Indicator		X	X	X	X			
91-8M0135998	Reference Electrode		X		X				
91-8M0120214	Graduated Timing Disc				X				
91-814827	Crankshaft Tool				X				
801333501(2)	Cylinder Head Guide Pins				X				
801333502(2)	Cylinder Liner Puller				X				
91-801333503	Crankshaft Gear Puller				X				
91-801333504	Crankshaft Gear Cover Tool				X				
91-801333508	Bearing Removal / Installation Tool				X				
91-801763590	Crankshaft Pulley Puller				X				
91-804879	Glow Plug / Injector T-Harness								X
804880(2)	Breakout Box								X
804881(2)	Oil Pressure Test Kit								X
91-805457T 1	Propeller Nut Wrench				X				
91-805475A 1	Alignment Tool		X		X				
806205A1(2)	Engine Mount Installation Tool								X
806451A1(2)	Engine Center Lifting Eye (Used with 806442T)								X
91-806442T	Lifting Eye Extension Tool (Sterndrive)								X
806563A1(2)	Cylinder Head Service Tool Kit				X				
91-807903A 1	Engine Mount Install Tool				X				
91-809494A 1	Valve Spring Compressor			X		X			
813810T(2)	Compression Tester Adapter				X				
814412T(2)	Engine Center Lifting Eye Tool(Sterndrive)				X				
91-814812A 1	Support Block				X				
91-816997A 1	SAE Dial Indicator Adapter				X				
818371(2)	Injection Pump Gear Puller				X				
818372(2)	Injection Pump Gear Puller				X				
91-854264	Injection Remover Tool								X
91-854265	Injector Installer Tool								X
854269(2)	ICP Sensor Breakout Harness								X
91-854270	Crankcase Orifice Restrictor								X
91-854271	Orifice Restrictor Adapter								X
854273A1(2)	Pro-Link Scan Tool								X
91-879150018	Front Camshaft Oil Seal Installer		X						
91-879150019	Crankshaft Front Oil Seal Installer		X						
91-879150021	Camshaft Timing Tool		X						
91-879674	Fuel Injector Puller				X				
91-881737	Compression test Adapter		X		X				
91-883844	Remover / Drive Pulley	X							
91-883845	Valve Spring Compressor Adapter	X							
91-883846	Valve Guide Remove / Installer	X							

Part Number	Description	1.7L Engine	2.0L Engine	3.0L Engine	2.8L I4 / 4.2L I6 Engine	4.2L V8 Engine	6.7L Mech Engine	6.7L Common Rail Engine	7.3L Engine
91-883847	Oil Seal with Crankshaft Installer	X							
91-883848	Oil Seal with Crankshaft Installer	X							
91-883849	Oil Jet Installer	X							
91-883850	Exhaust Valve Compressor	X							
91-883852	Compression Tester Adapter	X							
91-883853	Locking Tool	X							
91-883854	Installer-Valve Stem Seal	X							
91-883855	Installer - Oil Seal	X							
91-883856	Remover - Injector Sleeve	X							
91-883859	Alignment Tool	X							
91-883860	Installer - Oil Jet	X							
888462A 1	DataCable Puller					X			
91-889331	Timing Tool				X				
91-889331001	Flywheel TDC Pin Tool				X				
91-892647A01	DMT 2004 Digital Multimeter				X				
91-895472	Flywheel Holder Tool				X				
91-898127	Cylinder TDC Tool		X		X				
91-898154	Crankshaft Rotation Tool				X				
91-898155	Balance Shaft Installation Tool				X				
91-898156	Injection Pump Gear Puller				X				
91-898210	Crankshaft Gear Puller				X				
91-898282	Valve Lifter Tool				X				
91-898282001	Flywheel Assembly Guide Pin				X				
91-89897	Dial Indicator Holding Tool			X		X			
90265A5(2)	Crankcase Oil Pump		X		X				
91-8M0125730	4.2L TDI Alignment Tool					X			
91-8M0111327	Injection Pump Gear Puller						X	X	
91-8M0111328	Crankshaft Front Gasket Puller						X	X	
91-8M0111329	Crankshaft Rear Gasket Puller						X	X	
8M0111330(2)	Fuel Injector Puller						X		
91-8M0111331	Crankshaft Front Seal Installer						X	X	
91-8M0111332	Crankshaft Rear Seal Installer						X	X	
91-8M0133575	Crankshaft Hanger							X	
91-8M0111333	Engine Valve Remover / Installer						X	X	
91-8M0111338	Flywheel Holder						X	X	
91-8M0111339	Punch-Camshaft Bushing (Use with 8M0111344)						X	X	
91-8M0111344	Driver Handel (Use with 8M0111339)						X	X	
8M0111340(2)	Piston Ring Compressor (60-125 mm)(2.362-4.921 in)						X		
91-8M0111345	Diesel Engine Compression Tester						X		
91-8M0112718	Revolving Stand (Use with 8M0112725)						X	X	
91-8M0112725	Brackets (Use with 8M0112718)						X	X	
91-8M0112719	Oil Filter Wrench						X	X	
91-8M0112720	Flywheel Crank Handle (Use with 8M0112721)						X	X	
91-8M0112726	Gasket Remover						X	X	
91-8M0112727	Comparator Holder Base (Use with 8M0116621)						X		
91-8M0112729	Dial Gauge Holder (Use with 8M0116621)						X		
91-8M0116621	Dial Indicator 0-5 mm (0-0.196 in)						X		
91-8M0112728	Tool to Check TDC (Use with 8M0116622)						X		
91-8M0116622	Dial Indicator 0-10 mm (0-0.393 in)						X		
91-8M0114831	Engine Mount Alignment Tool		X	X	X	X			
91-8M0114832	Base Assembly 64 cm (25.2 in)					X			
91-8M0114833	Base Assembly 57 cm (22.5 in)		X	X	X				

DIESEL ENGINE

# DIESEL ENGINE

Part Number	Description	1.7L Engine	2.0L Engine	3.0L Engine	2.8L I4 / 4.2L I6 Engine	4.2L V8 Engine	6.7L Mech Engine	6.7L Common Rail Engine	7.3L Engine
91-8M0116620	Torque and Turn Gauges						X		
91-8M0133377	Injector Remover							X	
91-8M0133379	Piston Ring Pliers							X	
Not Available(3)	Crankshaft Lifting Tool						X		
Not Available(3)	Piston Ring Assembler / Dissembler Tool						X		

(1) Order Through Bosch (USA and Canada) 1-800-345-2233; (Europe) 496182 959 149; (Australia) (03) 9544-6222

(2) NLA (No Longer Available)

(3) Purchase Locally

## 1.7L DIESEL ENGINE TOOLS

### PISTON RING EXPANDER



**91-24697**

Expands piston rings for removal and installation.

### INJECTION PUMP DRIVE PULLEY PULLER



Image not Available.

**91-883844**

Removes the injection pump drive pulley.

### ADAPTER VALVE SPRING COMPRESSOR

**91-883845**

Use in combination with typical valve spring compressor to compress valve springs.

Used on 1.7L diesel engines.

### OIL SEAL INSTALLER

**91-883847**

Installs the front crankshaft oil seal with the oil seal retainer not installed.

**91-883848**

Installs the front crankshaft oil seal with the oil seal retainer installed.

### OIL JET PIPE INSTALLER

**91-883849**

Use to position and install the oil jet pipe to the cylinder block.

### VALVE COMPRESSOR

**91-883850**

Valve compressors to adjust the intake and exhaust valve clearance

### COMPRESSION TEST ADAPTER

**91-883852**

Adapts a compression tester to the 1.7L diesel engine.

### LOCKING TOOL

**91-883853**

Pretensions the exhaust camshaft sub-gear during replacement of the exhaust camshaft.

### VALVE STEM SEAL INSTALLER

**91-883854**

Installs the valve stem seal.

### OIL SEAL INSTALLER

**91-883855**

Installs the camshaft oil seal.

### INJECTOR SLEEVE REMOVER

**91-883856**

Removes the injector sleeve.

Used on 1.7L Diesel engines.

### ALIGNER

**91-883859**

Aligns the cylinder block to the oil pan upper.

Used on 1.7L Diesel engines.

### OIL JET INSTALLER

**91-883860**

Use to position and install the oil jet pipe to the cylinder block.

## 2.0L DIESEL ENGINE TOOLS

### FLUSHING ATTACHMENT



**44357T 2**

Will allow for running at idle speeds.

Fits Mercury/Mariner 20 hp. and higher outboards, 9.9/15 hp. FourStroke (323cc) Bigfoot outboards, all Model Year 2005 and Newer 8/9.9 hp. Four Stroke outboards, 15 hp. FourStroke (351cc) outboards, all MerCruiser Sterndrives (except Bravo One Perf. & Blackhawk) and MHP Torque Master gearcases. Note: 2000 and newer V-6 outboards and MerCruiser Bravo drives with dual water pick-up also require Dual Water Pick-Up Flush Seal Kit p/n 881150K 1.

Priced individually, sold @ multiples of 4

Mercury Branded, Clamshell Package Point of Sale Packaged.

### CRANKSHAFT FRONT OIL SEAL INSTALLER



Image not Available.

**91-879150019**

Installs the front crankshaft oil seal.

### CAMSHAFT FRONT OIL SEAL INSTALLER

**91-879150018**

Installs the front camshaft oil seal.

### CAMSHAFT TIMING TOOL

**91-879150021**

Engages a special slot in the camshaft to establish TDL.

**PISTON RING EXPANDER**



**91- 24697**

Expands piston rings for removal and installation.

**DIAL INDICATOR TOOL**



**91- 58222A 1**

Measures distance, movement and runnout. Used for the drive system assembly and engine setup.

**MERCATHODE REFERENCE ELECTRODE TESTER**



**91- 8M0135998**

Use with a digital multimeter to test the function of Mercathode systems. Senses an electrical current in the water when testing the Mercathode system.

**ALIGNMENT SHAFT TOOL**



**91- 805475A 1**

Used to align the engine to the standard Bravo transom assembly for sterndrive installation.  
For MerCruiser drives, except Vazer drives.

**CRANKSHAFT TIMING TOOL**

Image not Available.

**91- 879150020**

Locks crankshaft position with cylinder number 1 at TDC.

**COMPRESSION TEST ADAPTER**

**91- 881737**

Replaces a fuel injector during a cylinder pressure check.

**CYLINDER TDC TOOL**

**91- 898127**

Gauges TDC from the injector seat with the injector removed.

**ENGINE MOUNTING FIXTURE**



**91- 8M0114831**

Primary mount assembly. To be used in conjunction with Mount Fixture 22.5 in. (571 mm) p/n 8M0114832 and/or Mount Fixture 25.2 in. (640 mm) p/n 8M0114833  
For use with all Mercury high speed diesel engines

**ENGINE MOUNTING FIXTURE**



**91- 8M0114833**

Fixture mount assembly. To be used in conjunction with Primary Mount Assembly p/n 8M0114831  
For use with Mercury high speed V8 TDI diesel engines

**4.2L V8 DIESEL ENGINE TOOLS**

**PISTON RING EXPANDER**



**91- 24697**

Expands piston rings for removal and installation.



## DIAL INDICATOR HOLDING TOOL



91-89897

Secures the dial indicator to the gear housing when checking backlash.

## VALVE SPRING COMPRESSOR



91-809494A 1

Removes and installs valve springs.

## DATA CABLE PULLER



888462A 1

Attaches to end of data harness to aid in pulling harness through boat. Prevents damage to data harness.

## ALIGNMENT SHAFT



91-8M0125730

For MerCruiser drives used with the 4.2L TDI engines

## ENGINE MOUNTING FIXTURE



91-8M0114831

Primary mount assembly. To be used in conjunction with Mount Fixture 22.5 in. (571 mm) p/n 8M0114832 and/or Mount Fixture 25.2 in. (640 mm) p/n 8M0114833  
For use with all Mercury high speed diesel engines

## ENGINE MOUNTING FIXTURE



91-8M0114832

Fixture mount assembly. To be used in conjunction with Primary Mount Assembly p/n 8M0114831  
For use with all Mercury high speed diesel engines, except the V8 TDI

## 3.0L DIESEL ENGINE TOOLS

### PISTON RING EXPANDER



91-24697

Expands piston rings for removal and installation.

### FLYWHEEL HOLDER TOOL



91-52344

Holds and/or turns the flywheel while making engine repairs. Also used to torque the flywheel or the engine coupler.  
Use with teeth type flywheel.

**DIAL INDICATOR TOOL**



**91- 58222A 1**

Measures distance, movement and runnout. Used for the drive system assembly and engine setup.

**DIAL INDICATOR HOLDING TOOL**



**91- 89897**

Secures the dial indicator to the gear housing when checking backlash.

**VALVE SPRING COMPRESSOR**



**91- 809494A 1**

Removes and installs valve springs.

**ENGINE MOUNTING FIXTURE**



**91- 8M0114831**

Primary mount assembly. To be used in conjunction with Mount Fixture 22.5 in.(571 mm) p/n 8M0114832 and/or Mount Fixture 25.2 in.(640 mm) p/n 8M0114833 For use with all Mercury high speed diesel engines

**ENGINE MOUNTING FIXTURE**



**91- 8M0114833**

Fixture mount assembly. To be used in conjunction with Primary Mount Assembly p/n 8M0114831

For use with Mercury high speed V8 TDI diesel engines

**2.8L I4 / 4.2L I6 DIESEL ENGINE TOOLS**

Includes QSD Engines.

**PISTON RING EXPANDER**



**91- 24697**

Expands piston rings for removal and installation.

**DUAL WATER PICKUP FLUSH SEAL KIT**



**881150K 1**

Provides a front water pick-up seal for gearcases with dual water pick-ups Fits 2000 and newer Mercury/Mariner V-6 outboards with dual water pick-ups; and 2000 and newer MerCruiser Bravo One, X, XR & XZ drives with dual water pick-ups.

Priced individually, sold @ multiples of 2

Mercury Branded, Clamshell Package Point of Sale Packaged.

## DIAL INDICATOR TOOL



**91-58222A 1**

Measures distance, movement and runout. Used for the drive system assembly and engine setup.

## MERCATHODE REFERENCE ELECTRODE TESTER



**91-8M0135998**

Use with a digital multimeter to test the function of Mercathode systems. Senses an electrical current in the water when testing the Mercathode system.

## GRADUATED TIMING DISK

Image not Available.

**91-8M0120214**

Sets valve clearance and time, and determines the piston position. Used with the crankshaft tool (P/N 814827).

## CRANKSHAFT GEAR PULLER

**91-801333503**

Removes the crankshaft gear.

## CRANKSHAFT GEAR COVER ASSEMBLY TOOL

**91-801333504**

Protects the crankshaft gear and bearings during crankshaft removal and installation.

## FLYWHEEL HOLDER TOOL

**91-895472**

Prevents crankshaft rotation during certain service procedures. Used only with the starter removed.

## BEARING REMOVAL AND INSTALL TOOL

**91-801333508**

Removes and installs crankshaft bearings and camshaft bearings.

## PULLEY PULLER TOOL

**91-801763590**

Puller removes and the pulley from the crankshaft.

## ALIGNMENT SHAFT TOOL



**91-805475A 1**

Used to align the engine to the standard Bravo transom assembly for sterndrive installation.

For MerCruiser drives, except Vazer drives.

## PROPELLER NUT TOOL

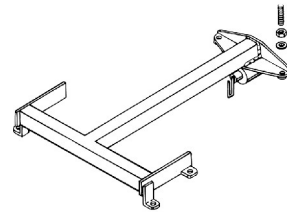


**91-805457T 1**

For removal and installation of inner/front propeller nut.

Bravo Three

## ENGINE MOUNTING FIXTURE



**91-807903A 1**

Diesel engine mount installation tool fixture.

MerCruiser 2.8 ES (s/n 88010499 and below), D3.0 L, D3.6 L; D4.2 MS / ES (s/n 88020199 and below)

## SUPPORT BLOCK

Image not Available.

**91-814812A 1**

Holds and supports a dial indicator for various measurements. Also used as a base for the dial indicator.

## CRANKSHAFT TOOL

**91-814827**

Aids in turning of the crankshaft on in-line diesel engines.

## DIAL INDICATOR ADAPTER

**91-816997A 1**

Use with metric (SAE) dial indicator to set the fuel injector pump timing.

## FUEL INJECTOR PULLER

**91-879674**

Removes the fuel injectors.

**COMPRESSION TEST ADAPTER**

91-881737

Replaces a fuel injector during a cylinder pressure check.

**CRANKSHAFT ROTATION TOOL**



91-898154

Used to rotate the crankshaft on assembled engines.

**TIMING TDC TOOL**

Image not Available.

91-889331

Engages a special drilling in the flywheel through the flywheel housing (on models so equipped) to establish top dead center (TDC) of cylinder number 1.

**FLYWHEEL TDC PIN TOOL**

91-889331001

Flywheel top dead center (TDC) pin tool. Screws into the flywheel housing to prevent crankshaft rotation during certain service procedures.

**TACHOMETER / MULTI METER KIT**



91-892647A01

Measures RPM on spark ignition (SI) engines. ohms, amperes, AC and CD voltages; records maximums and minimums simultaneously and accurately reads in high RFI environments. Outboard and MerCruiser

**FLYWHEEL HOLDER TOOL**

Image not Available.

91-895472

Prevents crankshaft rotation during certain service procedures. Used only with the starter removed.

**CYLINDER TDC TOOL**

91-898127

Gauges TDC from the injector seat with the injector removed.

**BALANCE SHAFT INSTALLATION TOOL**

91-898155

Aligns the counterweights on the balance shaft assembly prior to installation.

**INJECTION PUMP GEAR PULLER**

91-898156

Removes and holds the injection pump gear in position during injection pump removal and installation.

**CRANKSHAFT GEAR PULLER**

91-898210

Aids in the removal of the crankshaft gear.

**VALVE LIFTER TOOL**

91-898282

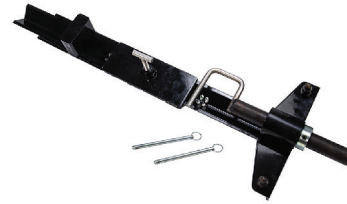
Aids in the removal, installation and alignment of the valve lifters.

**FLYWHEEL ASSEMBLY GUIDE PINS**

91-898282001

Aids in the removal and installation of the flywheel.

**ENGINE MOUNTING FIXTURE**



91-8M0114831

Primary mount assembly. To be used in conjunction with Mount Fixture 22.5 in. (571 mm) p/n 8M0114832 and/or Mount Fixture 25.2 in. (640 mm) p/n 8M0114833 For use with all Mercury high speed diesel engines

**ENGINE MOUNTING FIXTURE**



91-8M0114833

Fixture mount assembly. To be used in conjunction with Primary Mount Assembly p/n 8M0114831 For use with Mercury high speed V8 TDI diesel engines

**6.7L MECHANICAL DIESEL ENGINE TOOLS**

**INJECTION PUMP GEAR PULLER**

Image not Available.

91-8M0111327

Use to remove the injection pump gear.

**CRANKSHAFT FRONT SEAL PULLER**

91-8M0111328

Use to remove the front crankshaft seal.

**CRANKSHAFT REAR SEAL PULLER**

91-8M0111329

Use to remove the rear crankshaft seal.

**CRANKSHAFT FRONT SEAL INSTALLER**

91-8M0111331

Use to install the front crankshaft seal during the assembly process.

**CRANKSHAFT REAR SEAL INSTALLER**

91-8M0111332

Use to install the rear crankshaft seal during the assembly process.

**VALVE SPRING COMPRESSOR**

91-8M0111333

Aids in installing or removing engine valves during the assembly and disassembly process.

**FLYWHEEL HOLDER**

91-8M0111338

Use to lock the flywheel during the assembly and disassembly process.

## CAM BUSHING INSTALLER

91-8M0111339

Use in conjunction with drive handle (P/N 8M0111344) to remove and install cam bushings.

## MANDREL HANDLE

91-8M0111344

Use in conjunction with cam bushing installer (P/N 8M0111344) to remove and install cam bushings.

## ENGINE COMPRESSION TESTER

91-8M0111345

Use to check the compression on diesel engines.

## REVOLVING ENGINE STAND

91-8M0112718

Use in conjunction with brackets (P/N 8M0112725) to rotate engine.

## BRACKETS-REVOLVING ENGINE STAND

91-8M0112725

Use in conjunction with revolving engine stand (P/N 8M0112718) to rotate engine.

## OIL FILTER WRENCH

91-8M0112719

Use to remove or install an oil filter.

## CRANK HANDLE

91-8M0112720

Use in conjunction with pinion (P/N 8M0112721) to rotate engine.

## PINION

91-8M0112721

Use in conjunction with crank handle (P/N 8M0112720) to rotate engine.

## ENGINE SLING

91-8M0112722

Aids in removing or installing the engine.

## TDC LOCATING TOOL

91-8M0112723

Use to lock the engine in the top dead center (TDC) position.

## SEAL REMOVER

91-8M0112726

Use to remove front cover seal.

6.7L Diesel Engine

## DIAL INDICATOR BASE

91-8M0112727

Use in conjunction with dial indicator (P/N 8M0116621) to obtain precise measurements during the assembly process.

## DIAL INDICATOR

91-8M0116621

Gauge range is 0-5 mm (0-0.196 in.)

## DIAL INDICATOR HOLDER

91-8M0112729

Use in conjunction with dial indicator (P/N 8M0116621) to measure injection pump timing during the assembly process.

## DIAL INDICATOR ADAPTER/EXTENSION

91-8M0112728

Use in conjunction with dial indicator (P/N 8M0116622) to locate TDC during the assembly process.

## DIAL INDICATOR

91-8M0116622

Gauge range is 0-10 mm (0-0.393 in.)

## ANGLE GAUGE

91-8M0116620

Aids in locating a specific degree when incorporating a torque and turn process into the assembly process.

## 6.7L COMMON RAIL DIESEL ENGINE TOOLS

### CRANKSHAFT FRONT SEAL PULLER

Image not Available.

91-8M0111328

Use to remove the front crankshaft seal.

### CRANKSHAFT REAR SEAL PULLER

91-8M0111329

Use to remove the rear crankshaft seal.

### CRANKSHAFT FRONT SEAL INSTALLER

91-8M0111331

Use to install the front crankshaft seal during the assembly process.

### CRANKSHAFT REAR SEAL INSTALLER

91-8M0111332

Use to install the rear crankshaft seal during the assembly process.

### VALVE SPRING COMPRESSOR

91-8M0111333

Aids in installing or removing engine valves during the assembly and disassembly process.

### FLYWHEEL HOLDER

91-8M0111338

Use to lock the flywheel during the assembly and disassembly process.

### CAM BUSHING INSTALLER

91-8M0111339

Use in conjunction with drive handle (P/N 8M0111344) to remove and install cam bushings.

### MANDREL HANDLE

91-8M0111344

Use in conjunction with cam bushing installer (P/N 8M0111344) to remove and install cam bushings.

### REVOLVING ENGINE STAND

91-8M0112718

Use in conjunction with brackets (P/N 8M0112725) to rotate engine.

### BRACKETS-REVOLVING ENGINE STAND

91-8M0112725

Use in conjunction with revolving engine stand (P/N 8M0112718) to rotate engine.

### OIL FILTER WRENCH

91-8M0112719

Use to remove or install an oil filter.

### CRANK HANDLE

91-8M0112720

Use in conjunction with pinion (P/N 8M0112721) to rotate engine.

### CRANKSHAFT HANGER

91-8M0133575

Use to remove and install the crankshaft.

### PINION

91-8M0112721

Use in conjunction with crank handle (P/N 8M0112720) to rotate engine.

### PISTON RING PLIERS

91-8M0133379

Expands the piston rings for removal and installation.

### SEAL REMOVER

91-8M0112726

Use to remove front cover seal.

6.7L Diesel Engine

### INJECTOR REMOVER TOOL

91-8M0133377

Use to remove the fuel injector from the cylinder head.

**7.3L DIESEL ENGINE TOOLS****PISTON RING EXPANDER****91-24697**

Expands piston rings for removal and installation.

**LIFTING EYE EXTENSION**Image not  
Available.**91-806442T**

Extension used with lifting eye tool.

**INJECTOR REMOVER TOOL****91-854264**Use to remove the injector from the cylinder head.  
For D7.3L D-Tronic engine.**INJECTOR INSTALLER TOOL****91-854265**Use to install the injector into the cylinder head.  
For D7.3L D-Tronic engine.**CRANKCASE ORIFICE RESTRICTOR****91-854270**Use to measure crankcase pressure  
For D7.3L IDI and D7.3L D-Tronic engines.**ORIFICE RESTRICTOR ADAPTER****91-854271**

Required on all D7.3L D-Tronic engines.





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## TWO STROKE MODELS

### MAINTENANCE TOOL APPLICATION CHART

#### Two Stroke Maintenance Tool Application Chart

Part Number	Description	2.5/3.3	4/5 /102 cc	6-15	20/25 / 20Jet	30/40/ 2 cyl	40-60 30/40 Jet	75-125 65/80 Jet	135-200	150-200EFI	200-250 EFI 3.0L Work
44357Q 2	Flushing Device		X		X	X	X	X	X	X	X
888462A 1	Data Cable Puller									X	X
17-8M0026068	Stainless Steel Tilt Pin							X	X	X	X
12612T 2	Flushing Device		X								
91- 37299Q 2	Grease Gun	X	X	X	X	X	X	X	X	X	X
91- 66274	Torque Wrench, lb. in.	X	X	X	X	X	X	X	X	X	X
91- 90455 1	Lifting Eye					X	X	X	X	X	X
91- 98234A 2	Transom Drill Fixture					X	X	X	X	X	X
EEPV303B (Snap-On)(1)	Compression Tester	X	X	X	X	X	X	X	X	X	X
EEPV309A (Snap-On)(1)	Cylinder Leakage Tester	X	X	X	X	X	X	X	X	X	X

(1) Order from Snap-On Tools (800)762-7664

### MAINTENANCE TOOLS

#### FLUSHING ATTACHMENT



##### 44357Q 2

Will allow for running at idle speeds. Attaches to the water intakes; provides a fresh water connection when flushing the cooling system or operating the engine. Fits Mercury/Mariner 20 hp. and higher outboards, 9.9/15 hp. FourStroke (323cc) Bigfoot outboards, all Model Year 2005 and Newer 8/9.9 hp. Four Stroke outboards, 15 hp. FourStroke (351cc) outboards, all MerCruiser Sterndrives (except Bravo One Perf. & Blackhawk) and MHP Torque Master gearcases. Note: 2000 and newer V-6 outboards and MerCruiser Bravo drives with dual water pick-up also require Dual Water Pick-Up Flush Seal Kit p/n 881150Q 1. Priced individually, sold @ multiples of 4. Quicksilver Branded, Clamshell Package Point of Sale Packaged.

#### DATA CABLE PULLER



##### 888462A 1

Attaches to end of data harness to aid in pulling harness through boat. Prevents damage to data harness.

#### STAINLESS STEEL TILT PIN



##### 17-8M0026068

Limits the down trim angle of the power trim equipped engines. Aids in determining the trim out angle on non-power trim engines.

#### FLUSHING ATTACHMENT



##### 12612T 2

Fits Mercury/Mariner 4-15 hp. 2 cycle outboard, the 4/5/6 hp. FourStroke, and the 8/9.9/15 hp. FourStroke (323cc) with standard gearcase. Will allow for running at idle speeds. Priced individually, sold @ multiples of 5. Mercury Branded, Clamshell Package Point of Sale Packaged.

**GREASE GUN**



**91- 37299Q 2**

Pistol grip gun. Aids in the lubrication of key areas on the drive and transom. Allows easy access to grease fittings. For use with 8 oz.(227 g) tubes. Priced individually, sold @ multiples of 4 Quicksilver Branded, Clamshell Package Point of Sale Packaged.

**TRANSOM DRILLING FIXTURE**



**91- 98234A 2**

Used to assist drilling of the holes for the outboard engine transom bracket mounting bolts. Mercury/Mariner 30/40 hp. & above (2 cycle), 25 hp. Bigfoot & above (4-Stroke), and Force 40 hp. & above (1993 and newer).

**TORQUE WRENCH**



**91- 66274**

Dial-type torque wrench that sets torque from 9 to 0-150 lb-in. .375 inch drive.

**OUTBOARD ENGINE LIFTING EYE**



**91- 90455 1**

Threads into the flywheel to remove the power head assembly from the driveshaft housing, or to lift entire engine for removal/installation. Fits most 2 cycle Mercury/Mariner Outboards from the 30/40 (2 cyl.) on up.

**FUEL SYSTEM TOOL APPLICATION CHART**

**Two Stroke Fuel System Tool Application Chart**

Part Number	Description	2.5/3.3	4/5 /102 cc	6-15	20/25 / 20Jet	30/40/ 2 cyl	40-60 30/40 Jet	75-125 65/80 Jet	135-200	150-200EFI	200-250 EFI 3.0L Work
22-849606	Schrader Valve Tee									X	X
91-804063	Tubing Clamp								X	X	X
91-833169A 1	Injector Test Harness									X	
91-881833A03	Fuel Pressure Gauge							X	X	X	X
91-889236	Vacuamate Caruretor Tuner	X	X	X	X	X	X	X	X		
FT8950	Leakage Tester									X	X

# TWO STROKE MODELS

## FUEL SYSTEM TOOLS

### FUEL PRESSURE TEE FITTING



**22-849606**

Aids in checking fuel pressure when using a fuel pressure gauge with a screw on one-way valve connector.

### TUBE CLAMP TOOL

Image not Available.

**91-804063**

Compresses a fuel or vacuum hose for troubleshooting the fuel system or synchronizing a multiple carburetor engine.

### INJECTOR TEST HARNESS

**91-833169A 1**

Connects between the injector harness and the engine harness to verify voltage supplied to injectors and perform injector resistance tests.

### FUEL PRESSURE GAUGE-SINGLE



**91-881833A03**

Tests the fuel pump pressure. Can be used to relieve fuel pressure.

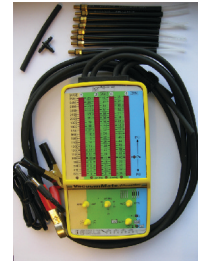
## LEAKAGE TESTER KIT



**FT8950**

Checks gear housing for leakage prior to filling with gear lubricant. Also used to pressurize the oil injection system.

## VACUUMMATE



**91-889236**

3-in-1 Multi-function tool. Water and shock-resistant. Intake synchroniser / Dynamic fault analyser (valve diagnostics)/ Tachometer. Allweather, can be used outdoors, even floats if dropped into the water.

This Marine model has rechargeable batteries for greater ease of use. Delivered with the VacuumMate in a nylon case are the unique flexi-rigid 4xM6, 4xM5 & T-piece adapters and a 12V power / charge cable

## POWERHEAD TOOL APPLICATION CHART

### Two Stroke Powerhead Tool Application Chart

Part Number	Description	2.5/3.3	4/5 /102 cc	6-15	20/25 / 20Jet	30/40/ 2 cyl	40-60 30/40 Jet	75-125 65/80 Jet	135-200	150-200EFI	200-250 EFI 3.0L Work
91-13662T 1	Powerhead Stand		X								
91-25821T 1	Powerhead Stand				X		X				
91-30591T 1	Powerhead Stand									X	X
91-812549T	Powerhead Stand							X	X	X	X
91-827001A 1	Powerhead Stand					X	X				
91-13663T 1	Piston Pin Tool		X								
91-24161	Protector Cap		X					X	X	X	X
91-24697	Piston Ring Expander	X	X	X	X	X	X	X	X	X	X
91-24937T01	Flywheel Holder Strap	X	X	X							
91-52344	Flywheel Holding Tool			X	X	X	X	X	X	X	X
91-83163M	Flywheel Holder	X		X	X						

Part Number	Description	2.5/3.3	4/5 /102 cc	6-15	20/25 / 20Jet	30/40/ 2 cyl	40-60 30/40 Jet	75-125 65/80 Jet	135-200	150-200EFI	200-250 EFI 3.0L Work
91- 29287	Compression Tester	X	X	X	X	X	X	X	X	X	X
91- 34569A 1	Slide Hammer	X	X	X	X	X	X	X	X	X	X
91- 52952T 1	Lockring Removal Tool					X	X	X	X	X	X
91- 93004A 2	Lockring Installation Tool										X
91- 77109A 3	Lockring Installation Tool					X	X	X	X	X	
91- 58222A 1	Dial Indicator	X	X	X	X	X	X	X	X	X	X
91- 63209	Torch Lamp	X	X	X	X	X	X	X	X	X	X
91- 66274	Torque Wrench lb.in.	X	X	X	X	X	X	X	X	X	X
91- 74607A 3	Piston Pin Tool					X	X	X	X	X	
91- 76160A 2	Piston Pin Tool				X						
91- 92973A 1	Piston Pin Tool										X
91- 79250A 2	Water Pressure Gauge			X	X	X	X	X	X	X	X
91- 818773T	Piston Ring Compressor									X	
91- 823237T	Piston Ring Compressor										X
91- 83164M	Flywheel Puller/Lifting Ring	X		X	X	X					
91- 849154T 1	Flywheel Puller					X	X	X	X	X	X
91- 90455 1	Lifting Eye					X	X	X	X	X	X
91- 83165T	Bearing Puller Tool		X								
91- 83166M	Bearing Mandrel Kit		X								
SRP4(1)	Lock-Ring Pliers							X	X	X	X

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**POWERHEAD TOOLS**

**POWERHEAD STAND**

Image not Available.

**91- 13662T 1**

Used to secure and rotate the powerhead during disassembly and assembly.

**91- 25821T 1**

Used to secure and rotate the powerhead during disassembly and assembly.

**POWERHEAD STAND**



**91- 30591T 1**

Used to secure and rotate the powerhead during disassembly and assembly.

**POWERHEAD STAND**

Image not Available.

**91- 812549T**

Used to secure and rotate the powerhead during disassembly and assembly.

**91- 827001A 1**

Used to secure and rotate the powerhead during disassembly and assembly.

**PISTON PIN TOOL**

**91- 13663T 1**

Aids in the removal and installation of the piston pins.

**PISTON RING EXPANDER**



**91- 24697**

Expands piston rings for removal and installation.

**PISTON PIN TOOL**

Image not Available.

**91- 76160A 2**

Aids in the removal and installation of the piston pin.

**91- 92973A 1**

Aids in the removal and installation of the piston pins.

**LOCKRING INSTALL TOOL**

**91- 93004A 2**

Installs the lockring to secure the piston wrist pin in the piston.

**PISTON RING COMPRESSOR**

**91- 818773T**

3.50 diameter.  
Compresses piston rings into piston ring grooves to ease piston rod assembly into cylinder block.

## TWO STROKE MODELS

91-823237T

3.625 diameter.  
Compresses piston rings into piston ring grooves to ease piston rod assembly into cylinder block.

### LOCKRING REMOVAL TOOL

91-52952T 1

Removes the lockrings securing the piston wrist pin.

### FLYWHEEL HOLDER STRAP



91-24937T01

Holds the flywheel on manual start engines when removing the flywheel nut.

### COMPRESSION TESTER



91-29287

Measures engine cylinder compression.

### SLIDE HAMMER PULLER



91-34569A 1

Aids in the removal of various engine components. Replacement jaws (P/N 34570) may be purchased separately.

### DIAL INDICATOR TOOL



91-58222A 1

Measures distance, movement and runout. Used for the drive system assembly and engine setup.

### TORCH LAMP



91-63209

Heats surfaces to aid in the removal and installation of interference fit engine components.

### TORQUE WRENCH



91-66274

Dial-type torque wrench that sets torque from 9 to 0-150 lb-in. .375 inch drive.

### PISTON PIN TOOL

Image not Available.

91-74607A 3

Aids in the removal and installation of the piston wrist pin.

### LOCKRING INSTALLATION TOOL

91-77109A 3

Installs the lockrings to secure the piston wrist pin in the piston.

### WATER PRESSURE GAUGE



91-79250A 2

Aids in checking the engine water pressure.

### OUTBOARD ENGINE LIFTING EYE



91-90455 1

Threads into the flywheel to remove the power head assembly from the driveshaft housing, or to lift entire engine for removal/installation.

Fits most 2 cycle Mercury/Mariner Outboards from the 30/40 (2 cyl.) on up.

**FLYWHEEL HOLDER**



**91- 83163M**

Holds and/or turns the flywheel while making engine repairs. Used to torque the flywheel or the engine coupler.

**OUTBOARD ENGINE LIFTING EYE/FLYWHEEL PULLER**



**91- 83164M**

Threads into flywheel for lifting powerhead/engine. Also used as a flywheel puller to remove flywheel from engine.

Fits numerous outboard products including the 40/45/50/60 (4 cyl. - 4-Stroke) and the 75/90/115 FourStroke (s/n 1B366822 and below) outboard engines.

**BEARING PULLER ASSEMBLY**



**91- 83165T**

Removes bearings, races and bearing carriers.

**BEARING MANDREL KIT**



**91- 83166M**

Aids in the removal and installation of bearings and gearing races.

**FLYWHEEL HOLDER TOOL**



**91- 52344**

Holds and /or turns the flywheel while making engine repairs. Also used to torque the flywheel or the engine coupler.

Use with teeth type flywheel.

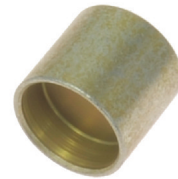
**FLYWHEEL PULLER**



**91-849154T 1**

Removes the flywheel from the crankshaft.

**PROTECTOR CAP**



**91- 24161**

Protects the crankshaft when removing the flywheel. Use with flywheel puller (P/N 849154T1).



# TWO STROKE MODELS

## MID-SECTION TOOL APPLICATION CHART

### Two Stroke Mid-Section Tool Application Chart

Part Number	Description	2.5/3.3	6-15	20/25 / 20Jet	30/40/ 2 cyl	40-60 30/40 Jet	75-125 65/80 Jet	135-200	150-200EFI	200-250 EFI 3.0L Work
91- 11230 1	Alignment Tool							X	X	X
91- 27780	Puller	X								
91- 34569A 1	Slide Hammer	X								
91- 37241	Universal Puller Plate	X								
91- 44486A 1	Trim Rod Removal Tool							X	X	X
91- 44487T 1	Trim Rod Guide Removal Tool							X	X	X
91- 52915A 6	Power Trim Test Gauge Kit				X	X	X	X	X	X
91- 63209	Torch Lamp	X	X	X	X	X	X	X	X	X
91- 74951	Spanner Wrench				X	X	X	X	X	X
91- 822778A 1	Adapter Fitting				X	X	X			
91- 822778A 2	Adapter Fitting			X				X	X	X
91- 822778A 3	Adapter Fitting				X	X	X	X	X	X
91- 875215A 1	Driveshaft Bushing Install Tool						X			
91- 892647A01	DMT 2004 Digital Multimeter		X	X	X	X	X	X	X	X
91- 99750A 1	DVA/Multimeter Kit		X	X	X	X	X	X	X	X
Snap-On CG40-4(1)	Expanding Rod	X								
Snap-On CG41-11(1)	Expanding Rod				X	X	X			
Snap-On CG41-14(1)	Collet				X	X	X			
Snap-On SRP2(1)	Lockring Pliers	X	X	X	X	X	X	X	X	X
Snap-On SRP4(1)	Lockring Pliers					X	X			X

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## MID-SECTION TOOLS

### ALIGNMENT TOOL

Image not Available.

#### 91- 11230 1

Aligns the tilt ram with housing to aid installation of the pivot pin.

### PULLER

#### 91- 27780

Removes gears, bearings and races.

### SLIDE HAMMER PULLER



#### 91- 34569A 1

Aids in the removal of various engine components. Replacement jaws (P/N 34570) may be purchased separately.

### UNIVERSAL PULLER PLATE



#### 91- 37241

Removes bearings from gears and the driveshaft.

### TRIM ROD REMOVAL TOOL

Image not Available.

#### 91- 44486A 1

Aids in the removal of the trim rod from the trim cylinders.

### TRIM ROD GUIDE REMOVAL TOOL

#### 91- 44487T 1

Aids in the removal of the trim rod from the trim cylinders.

**POWER TRIM TEST GAUGE KIT**



**91- 52915A 6**

Test circuit pressures for various trim pumps.

**TORCH LAMP**



**91- 63209**

Heats surfaces to aid in the removal and installation of interference fit engine components.

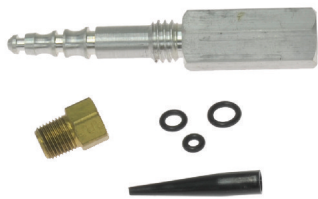
**SPANNER WRENCH**



**91- 74951**

Removes and installs trim cylinder end caps.

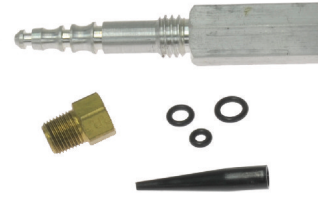
**ADAPTER FITTING**



**91 822778A 1**

Measures the internal pressure in the up mode for a single cylinder trim system.

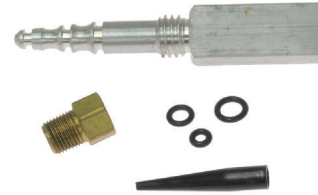
**ADAPTER FITTING**



**91-822778A 2**

Install in place of the manual release valve to measure the internal pressure of the power trim pump in the up mode.

**ADAPTER FITTING**



**91-822778A 3**

Install in place of the manual release valve to measure the internal pressure of the power trim pump in the down mode.

**BUSHING INSTALL TOOL**

Image not Available.

**91-875215A 1**

Installation tool that aids in the installation of driveshaft bushings.

**TACHOMETER / MULTI METER KIT**



**91-892647A01**

Measures RPM on spark ignition (SI) engines. ohms, amperes, AC and CD voltages; records maximums and minimums simultaneously and accurately reads in high RFI environments.  
Outboard and MerCruiser

# TWO STROKE MODELS

## DVA/MULTIMETER



### 91- 99750A 1

Tests the electrical and ignition systems. Consists of a VOA meter with built-in direct voltage adapter.

## LOWER UNIT / GEAR HOUSING TOOL APPLICATION CHART

### Two Stroke Lower Unit/Gear Housing Application Chart

Part Number	Description	2.5/3.3	4/5 /102 cc	6-15	20/25 / 20Jet	30/40/ 2 cyl	40-60 30/40 Jet	75-125 65/80 Jet	135-200	150-200EFI	200-250 EFI 3.0L Work
12- 34961	Washer				X	X	X				
12- 37429	Load Washer	X									
12- 54048	Belleville Washer										X
44- 93003	Propeller Shaft Tool								X	X	X
91- 12349A05	Pinion Gear Locating Tool					X	X	X	X	X	X
91- 13658T	Mandrel			X							
91- 13945	Bearing Install Driver					X	X				
91- 13949	Oil Seal Driver					X	X				
91- 14308T02	Bearing Race Driver						X	X			
91- 14309T02	Bearing Installation Puller						X	X			
91- 14310T 1	Wear Sleeve Driver						X	X	X	X	X
91- 14311A04	Bearing Preload Tool						X	X	X	X	X
91- 15755T	Needle Bearing Driver						X	X	X	X	X
91- 18605A 2	Bearing Cup/Adapter Install Tool								X	X	X
91- 19660 1	Backlash Indicator						X	X			
91- 27780	Puller	X	X		X	X	X				
91- 31106T	Bearing Cup Driver						X	X	X	X	X
91- 31107T	Shift Shaft Bushing Tool								X	X	
91- 31108T	Oil Seal Driver						X	X	X	X	X
91- 31229A 7	Bearing Removal / Install Kit	X			X	X	X		X	X	X
91- 33491	Needle Bearing Driver										X
91- 34569A 1	Slide Hammer	X		X	X	X	X	X	X	X	X
91- 36569T	Driver Head						X	X			X
91- 36571T	Pilot Washer				X	X	X		X	X	X
91- 37241	Universal Puller Plate	X		X	X	X	X	X	X	X	X
91- 37312T	Driveshaft Bearing Driver Head	X				X	X				
91- 37323	Driver Rod	X				X	X	X	X	X	X
91- 37350T	Pilot Mandrel						X	X			
91- 38628T	Puller/Driver Head	X							X	X	X
91- 43506T	Driveshaft Bearing Retainer Wrench						X		X	X	X
91- 46086A 1	Puller Jaws Assembly						X	X	X	X	X
91- 53459	Backlash Indicator Rod										X
91- 55919	Driver Head					X	X		X	X	
91- 56775T	Driveshaft Holding Tool						X	X			X
91- 58222A 1	Dial Indicator						X	X	X	X	X

TWO STROKE MODELS

## TWO STROKE MODELS

Part Number	Description	2.5/3.3	4/5 /102 cc	6-15	20/25 / 20Jet	30/40/ 2 cyl	40-60 30/40 Jet	75-125 65/80 Jet	135-200	150-200EFI	200-250 EFI 3.0L Work
91- 61067A04	Pinion Nut Wrench										X
91- 61069T	Bearing Carrier Retainer Nut Wrench								X	X	X
91- 61077T	Propeller Shaft/Driveshaft Adapter										X
91- 66274	Torque Wrench lb.in.										X
91- 74776T	Pinion Height Tool									X	X
91-8M0053505	Backlash Indicator Rod						X	X	X	X	X
91-804776A 1	Driveshaft Holding Tool							X			
91-815850	Forward Gear Assembly Tube								X	X	X
91-816242	Puller Jaws										X
91-816243	Guide Plate										X
91-816244	Reverse Gear Needle Bearing Driver										X
91-816245	Needle Bearing Removal Tool										X
91-816292	Needle Bearing Driver										X
91-817005	Forward Gear Bearing Installer							X			
91-817006	Water Pump Base Seal Installer							X			
91-817007T	Bearing Carrier Seal Installer					X	X				
91-817008A 2	Pinion Gear Location Tool							X			
91-817009T	Forward Gear Bearing Race Driver Cup							X			
91-817011T	Needle Bearing Installer					X	X				
91-817057A02	Bearing Preload Tool Update Kit							X			
91-817058A 1	Lower Driveshaft Bearing Driver Assembly							X			
91-817070	Driveshaft Holding Tool						X	X			
91-817569T	Carrier Seal Driver										X
91-821571A 1	Water Pump Alignment Pins										X
91-824785T 1	Seal / Bushing Installer			X							
91-825200A 1	Spring Hook					X	X				
826872(2)	Forward Gear Bearing Installer					X	X				
91- 83155	Dial Indicator						X	X			X
91- 83165T	Bearing Puller		X	X		X	X				
91-8M0059911	Bearing Carrier Install Tool										X
91-840393	Bearing Carrier Retainer Nut Wrench										X
91-856875A 1	Bearing Driver							X			
91- 86642	Cross Pin Tool								X	X	
91- 86943T	Guide Plate								X	X	X
91- 87120T	Bearing Cup Driver										X
91-877321A 1	Bearing Driver							X			X
91- 89897	Dial Indicator Holding Tool								X	X	X
91- 90094	Driveshaft Holding Tool								X	X	
91- 92788T	Pinion Bearing Driver								X	X	X
FT8950	Leakage Tester Kit			X	X	X	X				X
CG40-4 (Snap-On)(1)	Expanding Rod	X		X							
CG41-11(Snap-On)(1)	Expanding Rod	X									

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(2) NLA (No Longer Available)

# TWO STROKE MODELS

## LOWER UNIT / GEAR HOUSING TOOLS

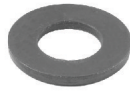
### WASHER



12- 34961

.656 x 1.312 x .095, plain.  
Used on the threaded puller rod between the nut and plate when removing bearings.

### BELLEVILLE WASHER



12- 54048

Used with pinion nut wrench and a propeller nut to check the reversed gear backlash.

### PROPSHAFT



44- 93003

Acts as a dummy propeller shaft when taking forward gear backlash measurements for count rotation gearcases.

### PINION GEAR LOCATING TOOL

Image not Available.

91- 12349A05

Measures pinion gear height.

### MANDREL

91- 13658T

Aids in the installation of bushings, bearings and races into the gearcase.

### BEARING INSTALL DRIVER

91- 13945

Installs reverse gear needle bearing into propeller shaft carrier.

### OIL SEAL DRIVER

91- 13949

Installs oil seals into water pump base.

### BEARING RACE DRIVER

91- 14308T02

Removes pinion bearing race.

### BEARING INSTALLATION PULLER

91- 14309T02

Installs pinion bearing into gearcase.

### WEAR SLEEVE DRIVER

91- 14310T 1

Installs wear sleeve onto driveshaft.

### BEARING PRELOAD TOOL



91- 14311A04

Simulates a load on the driveshaft for accurate pinion height and backlash measurements.

### NEEDLE BEARING DRIVER

Image not Available.

91- 15755T

Installs needle bearings into bearing carriers.

### BEARING ADAPTER TOOL



91- 18605A 2

Installs the forward gear bearing race on a standard gearcase. Presses the reverse gear bearing adapter into the gear housing on a counter-rotation gearcase.

### BACKLASH INDICATOR TOOL

Image not Available.

91- 19660 1

Measures gear backlash.

### PULLER

91- 27780

Removes gears, bearings and races.

**BEARING CUP DRIVER**



**91- 31106T**

Installs the driven gear bearing cup.

**REMOVAL/INSTALL BUSHING TOOL**



**91- 31107T**

Aids in the removal and installation of the shift shaft bushing.

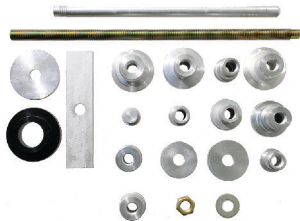
**OIL SEAL DRIVER**



**91- 31108T**

Installs bearing carrier oil seals.

**BEARING REMOVAL AND INSTALLATION TOOL**



**91- 31229A 7**

Installs and removes the bearings in all gearcases.

**NEEDLE BEARING DRIVER**



**91- 33491**

Installs the needle bearing in the forward gear. Removes and installs the seals and bearing in the gimbal housing.

**SLIDE HAMMER PULLER**



**91- 34569A 1**

Aids in the removal of various engine components. Replacement jaws (P/N 34570) may be purchased separately.

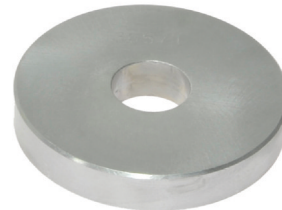
**DRIVE HEAD TOOL**



**91- 36569T**

Used in pinion gear and bearing installation.

**PILOT WASHER**



**91- 36571T**

Used in pinion gear and pinion bearing installation.

# TWO STROKE MODELS

## UNIVERSAL PULLER PLATE



91- 37241

Removes bearings from gears and the driveshaft.

## DRIVESHAFT BEARING DRIVER

Image not Available.

91- 37312T

Removes bearings from gears and bearing carrier.

## DRIVER ROD



91- 37323

Aids in the removal and installation of various bearings and bearing races.

## PILOT MANDREL

Image not Available.

91- 37350T

Presses on inner race of forward gear roller bearing.

## PULLER/DRIVER HEAD

91- 38628T

Used in pinion gear and pinion bearing installation.

## DRIVESHAFT BEARING RETAINER WRENCH



91- 43506T

Removes and installs the threaded driveshaft bearing retainer.

## PULLER JAW ASSEMBLY



91- 46086A 1

Use with P/N 85716 puller bolt.

Aids in the removal of the bearing carrier and bearing races.

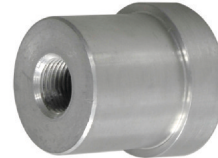
## BACKLASH INDICATOR ROD



91- 53459

Aids in checking gear backlash.

## DRIVER HEAD



91- 55919

Removes bearings and seals. Installs needle bearings into the bearing carrier.

## DRIVESHAFT HOLDING TOOL



91- 56775T

Provides a wrench surface to turn the driveshaft. Also used to hold driveshaft for pinion gear installation.



**DIAL INDICATOR TOOL**



**91- 58222A 1**

Measures distance, movement and runout. Used for the drive system assembly and engine setup.

**PINION NUT WRENCH**



**91- 61067A04**

Holds the pinion nut when removing the pinion gear and driveshaft. Use with Belleville washer and propeller nut to check the reverse gear lash.

**BEARING CARRIER RETAINER NUT WRENCH**



**91- 61069T**

Installs and removes the bearing carrier retainer nuts.

**ADAPTOR TOOL**



**91- 61077T**

Provides a wrench surface to turn the propeller shaft.

**TORQUE WRENCH**



**91- 66274**

Dial-type torque wrench that sets torque from 9 to 0-150 lb-in. .375 inch drive.

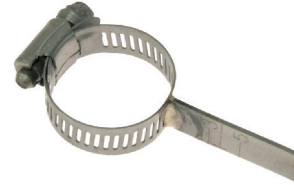
**PINION HEIGHT TOOL**

Image not Available.

**91- 74776T**

Checks pinion gear height.

**BACKLASH INDICATOR ROD**



**91-8M0053505**

Aids in checking gear backlash.

**DRIVESHAFT HOLDING TOOL**



**91-804776A 1**

Holds driveshaft while removing or torquing the pinion nut.

**FORWARD GEAR INSTALLATION TOOL**



**91-815850**

Removes and installs the forward gear and bearing adapter assembly for counter-rotation gearcases.

**PULLER JAWS**



**91-816242**

Use with either the two prong or three prong puller on all drive units.

## TWO STROKE MODELS

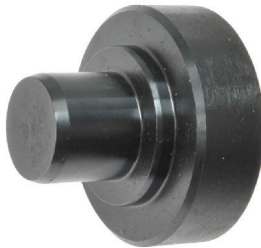
### GUIDE PLATE



**91-816243**

Centers the rod used to drive in the forward gear bearing on a standard rotation gearcase and the reverse gear bearing on a counter-rotation gearcase.

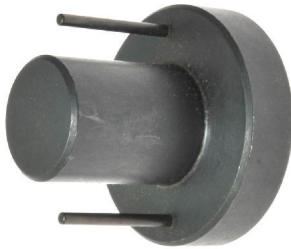
### REVERSE GEAR NEEDLE BEARING DRIVER



**91-816244**

Installs the needle bearings into the reverse gear of a counter-rotation gearcase.

### NEEDLE BEARING REMOVAL TOOL



**91-816245**

Removes the needle bearings from the back adapter of a counter-rotating gearcase.

### NEEDLE BEARING DRIVER

Image not  
Available.

**91-816292**

Installs the needle bearing onto the forward gear.

### FORWARD GEAR BEARING INSTALLER

**91-817005**

Aids in the installation of the forward gear needle bearing.

### WATER PUMP BASE SEAL INSTALLER

**91-817006**

Installs upper and lower water pump base seals.

### BEARING CARRIER SEAL INSTALLER

**91-817007T**

Installs upper and lower bearing carrier seals.

### PINION GEAR LOCATION TOOL

**91-817008A 2**

Checks gearcase pinion gear height.

### FORWARD GEAR BEARING RACE DRIVER CUP

**91-817009T**

Aids in the installation of forward gear bearing race.

### NEEDLE BEARING INSTALLER

**91-817011T**

Installs needle bearing in the bearing carrier.

### BEARING PRELOAD TOOL UPDATE KIT

**91-817057A02**

Additional kit to update Bearing Reload Tool (P/N 14311A1).

### LOWER DRIVESHAFT BEARING DRIVER

**91-817058A 1**

Removes and installs lower driveshaft bearing.

### DRIVESHAFT HOLDING TOOL

**91-817070**

Holds driveshaft while removing pinion nut.

### CARRIER SEAL DRIVER



**91-817569T**

Removes and installs the bearing carrier seals. Installs seals in the driveshaft seal carrier.

### WATER PUMP ALIGNMENT PINS



**91-821571A 1**

Aligns the water pump during installation.

### SEAL/BUSHING INSTALLER

Image not  
Available.

**91-824785T 1**

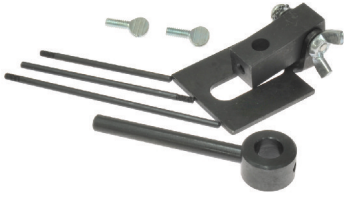
Aids in the installation of the bushing into the bearing carrier.

### SPRING HOOK

**91-825200A 1**

Aids in the removal of the pinion bearing race from the gearcase. Use with driver. Use with driver (P/N 13779).

**DIAL INDICATOR ADAPTER**



**91- 83155**

Dial indicator holding fixture.

**BEARING PULLER ASSEMBLY**



**91- 83165T**

Removes bearings, races and bearing carriers.

**SEAL INSTALLATION TOOL**



**91- 8M0059911**

Protects the seal when installing the bearing carrier on 10 spline (1.25 in ) propeller shaft. Part of 840393A1 Propeller shaft Tool Kit.

**RETAINER NUT WRENCH**



**91- 840393**

Installs the bearing carrier retainer nut on heavy-duty propeller shafts.

**BEARING DRIVER**

Image not Available.

**91- 856875A 1**

Installs propeller shaft needle bearing into 3 jaw or 6 jaw forward gear.

**CROSS PIN TOOL**



**91- 86642**

Installation of cross pin.  
Outboard

**GUIDE PLATE**

Image not Available.

**91- 86943T**

Guides the forward gear bearing during installation.

**BEARING CUP DRIVER**

**91- 87120T**

Installs the forward gear bearing cup.

**BEARING DRIVER**

**91- 877321A 1**

Installs propeller shaft needle bearing into 6 jaw forward gear.

**DIAL INDICATOR HOLDING TOOL**



**91- 89897**

Secures the dial indicator to the gear housing when checking backlash.

**DRIVESHAFT HOLD TOOL**



**91- 90094**

Using to hold bearing nut for driveshaft.

**PINION BEARING DRIVER**

Image not Available.

**91- 92788T**

Aids in the removal and installation of the pinion bearing.

## LEAKAGE TESTER KIT



### FT8950

Checks gear housing for leakage prior to filling with gear lubricant. Also used to pressurize the oil injection system.



FOURSTROKE MODELS

FOURSTROKE MODELS

MAINTENANCE TOOL APPLICATION CHART

FourStroke Maintenance Tool Application Chart

Part Number	Description	4/5/6	8/9,9.9	BigFoot	9.9-15	28	BigFoot	25/30	EFI	30/40	EFI	40-60	EFI	50/60	75/80	75/80	EFI	115	EFI	75-115	EFI	1.7L	150	225	EFI	
44357Q.2	Flushing Device		X		X					X		X		X		X		X		X		X		X		X
Z2-86306A01	Adapter Bushing													X		X		X		X						
17-8M0026068	Stainless Steel Tilt Pin									X		X		X		X		X		X						
Z2-89772	Connedor		X											X		X		X		X						
91-29287	Compression Tester	X	X		X		X		X		X		X		X		X		X		X		X		X	
91-37299Q.2	Grease Gun	X	X		X		X		X		X		X		X		X		X		X		X		X	
91-52024A.1	Remote Starter Switch		X		X		X		X		X		X		X		X		X		X		X		X	
91-79250A.2	Water Pressure Gauge		X		X		X		X		X		X		X		X		X		X		X		X	
91-802653002	Oil Filler Wrench		X		X		X		X		X		X		X		X		X		X		X		X	
91-889277002	Oil Filler Wrench																									X
91-889277001	Oil Filler Wrench																									X
91-83164M	Flywheel Puller/Lifting Ring		X		X		X		X		X		X		X		X		X		X		X		X	
91-881834A.1	Dual Fuel/Air Pressure Gauge Kit				X		X		X		X		X		X		X		X		X		X		X	
91-883705T01	Lifting Strap																									X
91-895343T02	Flywheel Puller/Lifting Ring																									X
90265A.5	Crankcase Oil Pump						X		X		X		X		X		X		X		X		X		X	
91-98234A.2	Transom Drill Fixture														X		X		X		X		X		X	
91-99750A.1	DVA Multimeter Kit	X	X		X		X		X		X		X		X		X		X		X		X		X	
EEPV303B (Snap-On)(1)	Compression Tester	X	X		X		X		X		X		X		X		X		X		X		X		X	
EEPV309A (Snap-On)(1)	Cylinder Leakage Tester	X	X		X		X		X		X		X		X		X		X		X		X		X	

(1) Order from Snap-On Tools (800)762-7664

**MAINTENANCE TOOLS**

**UNIVERSAL TOOL**

Image not Available.

**91-880177**

Scrench Tool (10mm) Wrench.  
Included in Tool Kit (Literature Bag) for the customer.

**FLUSHING ATTACHMENT**



**44357Q 2**

Will allow for running at idle speeds. Attaches to the water intakes; provides a fresh water connection when flushing the cooling system or operating the engine.  
Fits Mercury/Mariner 20 hp. and higher outboards, 9.9/15 hp. FourStroke (323cc) Bigfoot outboards, all Model Year 2005 and Newer 8/9.9 hp. Four Stroke outboards, 15 hp. FourStroke (351cc) outboards, all MerCruiser Sterndrives (except Bravo One Perf. & Blackhawk) and MHP Torque Master gearcases.  
Note: 2000 and newer V-6 outboards and MerCruiser Bravo drives with dual water pick-up also require Dual Water Pick-Up Flush Seal Kit p/n 881150Q 1.  
Priced individually, sold @ multiples of 4  
Quicksilver Branded, Clamshell Package Point of Sale Packaged.

**STAINLESS STEEL TILT PIN**



**17-8M0026068**

Limits the down trim angle of the power trim equipped engines. Aids in determining the trim out angle on non-power trim engines.

**ADAPTER FITTING**



**22-86306A01**

14 mm male to 1/8-27 female, Brass  
Gasket included

**CONNECTOR**



**22-89772**

(.125-.27)(.250 Thru Diameter)  
Priced individually, sold @ multiples of 2

**GREASE GUN**



**91-37299Q 2**

Pistol grip gun. Aids in the lubrication of key areas on the drive and transom. Allows easy access to grease fittings.  
For use with 8 oz. (227 g) tubes.  
Priced individually, sold @ multiples of 4  
Quicksilver Branded, Clamshell Package Point of Sale Packaged.

**REMOTE SWITCH**



**91-52024A 1**

Use for oil pump testing.

**COMPRESSION TESTER**



**91-29287**

Measures engine cylinder compression.



## FOURSTROKE MODELS

### WATER PRESSURE GAUGE



**91-79250A 2**

Aids in checking the engine water pressure.

### DUAL FUEL/AIR PRESSURE GAUGE KIT



**91-881834A 1**

Tests fuel and air pressure. The dual gauges allow the viewing of both pressures simultaneously.

### LIFTING STRAP



**91-883705T01**

An engine lifting strap for handling of the 225 EFI FourStroke outboard.

### OIL FILTER WRENCH



**91-802653Q02**

This is a formed metal tool for strength and durability.

Fits replaceable screw-on type canister oil filters wherever found on current Mercury/Mariner FourStroke outboards 9.9 thru 60 hp., the 75-115 hp. s/n 1B366822 & below, and the 75-115 hp. s/n 2B094996 and above..

Priced individually, sold @ multiples of 2

Quicksilver Branded, Clamshell Package Point of Sale Packaged.

### OIL FILTER WRENCH



**91-889277002**

Made of metal. Requires a 3/8" drive.

Fits the Mercury 35-822626T 7 screw-on type canister oil filter found on the V-225 hp. FourStroke outboard.

### OIL FILTER WRENCH



**91-889277Q01**

Metal wrench, requires a 3/8 in. drive ratchet.

Fits the (877761\_) oil filter found on the 75-115 EFI FourStroke outboard (serial number 1B366823-2B094995) and the 150 hp. EFI FourStroke outboard.

Quicksilver Branded, Clamshell Package Point of Sale Packaged.

### OUTBOARD ENGINE LIFTING EYE/FLYWHEEL PULLER



**91-83164M**

Threads into flywheel for lifting powerhead/engine. Also used as a flywheel puller to remove flywheel from engine.

Fits numerous outboard products including the 40/45/50/60 (4 cyl. - 4-Stroke) and the 75/90/115 FourStroke (s/n 1B366822 and below) outboard engines.

### LIFTING EYE/FLYWHEEL PULLER



**91-895343T02**

A combination tool utilized for both lifting the engine and for pulling the flywheel.

Fits the 75-115 hp. FourStroke outboards (s/n 1B366823 and above), 135-300 hp. Verado outboards and the F150 EFI FourStroke outboard.

**CRANKCASE OIL PUMP**



**90265A 5**

Includes adapter which reaches bottom of sump. The adapter is not used with the V-225 EFI FourStroke application.

Fits Mercury/Mariner 25 & 30 hp. FourStroke outboards (MY2005 & prior) and all 40-115 hp. FourStroke outboards, the V-225 EFI FourStroke outboard and the 4 & 6 cylinder Verado outboards.

**DVA/MULTIMETER**



**91- 99750A 1**

Tests the electrical and ignition systems. Consists of a VOA meter with built-in direct voltage adapter.

**TRANSOM DRILLING FIXTURE**



**91- 98234A 2**

Used to assist drilling of the holes for the outboard engine transom bracket mounting bolts.

Mercury/Mariner 30/40 hp. & above (2 cycle), 25 hp. Bigfoot & above (4-Stroke), and Force 40 hp. & above (1993 and newer).

**FUEL SYSTEM TOOL APPLICATION CHART**

**FourStroke Fuel System Tool Application Chart**

Part Number	Description	25 BigFoot	25/30 EFI	30/40 EFI	40-60 EFI	50/60	75/90	75/90 EFI	115 EFI	75-115 EFI 1.7L	150	225 EFI
99056A 1	Malfunction Indicator Lamp								X			X
91-822560A 5	Adapter Harness			X	X					X		
84-822560A13	Adapter Harness									X		
84-822560T12	Adapter Harness			X	X					X		
84-825003A 1	Extension Cable	X		X	X	X				X		
91-803146A04	Hose clamp Tool Kit	X	X	X	X	X				X		X
91-8M0075272	Fuel Pressure Gauge Adapter							X				
881828(2)	Tamper-Proof Screw Torx Bit Set						X					
91-881833A03	Fuel Pressure Gauge Kit		X	X	X			X	X	X		X
91-881834A 1	Dual Fuel/Air Pressure Gauge Kit		X	X	X			X	X	X		X
91-884793A 1	Diagnostic Lamp								X			
91-892647A01	DMT 2004 Digital Multimeter	X	X	X	X	X	X	X	X	X		X
892651A01(3)	Digital Pressure Meter		X	X	X			X	X	X		X
Order through SPX(1)	Computer Diagnostic System (CDS)	X	X	X	X	X		X	X	X		

(1) Order Through Bosch (USA and Canada) 1-800-345-2233; (Europe) 496182 959 149; (Australia) (03) 9544-6222

(2) NLA (No Longer Available)

(3) NLA (No Longer Available - Reference SB MC 2014-03)

# FOURSTROKE MODELS

## FUEL SYSTEM TOOLS

### MALFUNCTION INDICATOR LAMP

Image not Available.

**99056A 1**

Aids in engine diagnostics by displaying basic engine fault codes.

### DIAGNOSTIC TEST ADAPTER HARNESS



**91-822560A 5**

Data link adapter harness between engine and Computer Diagnostic system (CDS) or Digital Diagnostic Terminal (DDT).

1994 1/2 and up - 2.5L EFI (with 824003 ECM only)  
 1994 1/2 - ProMax/Super Max/Super Magnum  
 1997 and up DFI/Optmax Outboards

### HARNESS DIAGNOSTIC TESTER



**84-822560A13**

Data link diagnostic tester harness between engine and Computer Diagnostic System (CDS).

4-pin connector. No additional harness required.

600 SCi - 662/700 SCi  
 Verado 200-275 Hp  
 PCM 555 models

### ADAPTER HARNESS



**84-822560T12**

Adapts the 2 pin Digital Diagnostic Terminal harness (822560A5) to the flat 4 pin connector on the engine.

Verado 200-275 Hp  
 PCM 555 Models

### ADAPTER HARNESS



**84-825003A 1**

Data link extension harness (3.05m (10 ft)) between 2 pin digital diagnostic terminal harness to the 4 pin connector on the engine.

### HOSE CLAMP KIT



**91-803146A04**

Various clamps and the crimping tool in a convenient plastic tray container. Kit is originally furnished with 15 each of the 12.8mm, 14.0mm, 15.3mm, 16.2mm clamps and 5 each of the 25.6mm and 28.6mm diameter stainless steel clamps.

Aids in the installation of high pressure hose clamps.

### FUEL PRESSURE GAUGE ADAPTER



**91-8M0075272**

Connects the fuel pressure gauge to the fuel rail when checking fuel pressure.

### FUEL PRESSURE GAUGE-SINGLE



**91-881833A03**

Tests the fuel pump pressure. Can be used to relieve fuel pressure.

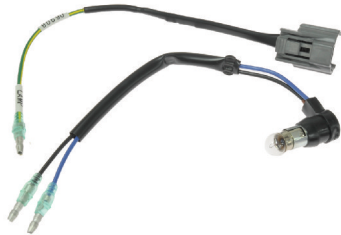
**DUAL FUEL/AIR PRESSURE GAUGE KIT**



**91-881834A 1**

Tests fuel and air pressure. The dual gauges allow the viewing of both pressures simultaneously.

**DIAGNOSTIC LAMP**



**91-884793A 1**

Aids in engine diagnostics by displaying basic engine fault codes.

**TACHOMETER / MULTI METER KIT**



**91-892647A01**

Measures RPM on spark ignition (SI) engines. ohms, amperes, AC and CD voltages; records maximums and minimums simultaneously and accurately reads in high RFI environments.  
Outboard and MerCruiser

FOURSTROKE MODELS

POWERHEAD TOOL APPLICATION CHART

FourStroke Powerhead Tool Application Chart

Part Number	Description	4/5/6	8/9/9	9.9	BigFoot	9.9-15	25	BigFoot	25/50	EFI	30/40	EFI	40-60	EFI	50/60	75/90	75/90	EFI	115	EFI	17.1L	150	225	EFI	
91-896911A01	Cam Brake																								
91-8M0044311	Crankshaft Retainer																								
91-888863	Test Harness-Crank Position Sensor																								
8M0042904	Rod Guide Dowel																								
22-883147	Adapter Fitting																								
91-13662T 1	Powerhead Stand																								
91-888868	Piston Vice Attachment Tool																								
91-24697	Piston Ring Expander																								
91-803146A04	Hose Clamp Tool Kit																								
91-804770A 1	Crankshaft Holder																								
91-804774001	Valve Guide Installer/Remover																								
91-804775	Valve Guide Reamer																								
91-888866	Valve Guide Reamer Tool																								
91-888865	Valve Guide Install Tool																								
91-888864	Valve Guide Remover/Install Tool																								
91-809494A 1	Valve Spring Compressor																								
91-809495001	Valve Guide Driver																								
91-809496A 1	Valve Guide Driver Bushing																								
91-809646A 1	1.625 In. Socket																								
91-809905001	13 mm Torque Adapter																								
91-827001A 1	Powerhead Stand																								
91-83163M	Flywheel Holder																								
91-83164M	Flywheel Puller/Lifting Ring																								
91-83165T	Bearing Puller Assembly																								
91-881833A03	Fuel Pressure Gauge Kit																								
91-881834A 1	Dual Fuel/Air Pressure Gauge Kit																								
91-888860	Test Harness-Oil Pressure Sensor																								
91-881847T	46 mm Socket																								
91-883705T01	Lifting Strap																								
91-895191	Crankshaft Holding Tool																								
91-895192	Piston Ring Compressor																								
FT2997	Piston Ring Compressor																								
91-802653Q02	Oil Filter Wrench																								
91-889277002	Oil Filter Wrench																								
91-889277Q01	Oil Filter Wrench																								

Part Number	Description	4/5/6	8/9/9	9.9	BigFoot	9.9-15	25	BigFoot	25/50	EFI	30/40	EFI	40-60	EFI	50/60	75/90	75/90	EFI	75/90	EFI	115	EFI	75-115	EFI	1.7L	150	225	EFI	
892651A01(1)	Digital Pressure Meter															X								X					
	Ring Compressor(2)															X									X				

(1) NLA (No Longer Available) See SMC 14-03

(2) Purchase Locally

## FOURSTROKE MODELS

### POWERHEAD TOOLS

#### CAM BRAKE



**91-896911A01**

Prevents the intake and exhaust cam from turning while removing or installing cam retaining bolts.

#### CRANKSHAFT RETAINER



**91-8M0044311**

Secures crankshaft to cylinder block while rotating block to install the cylinder head.

#### ROD GUIDE DOWEL

Image not  
Available.

**8M0042904**

Prevents cylinder bore and crankshaft from damage while installing or removing connecting rod assembly.

#### ADAPTER FITTING

**22-883147**

Adapts British Standard Pipe Thred (BSPT) to National Pipe Thread Fitting (NPTF) when checking oil pressure.

#### PISTON RING EXPANDER



**91-24697**

Expands piston rings for removal and installation.

### OIL FILTER WRENCH



**91-802653Q02**

This is a formed metal tool for strength and durability.

Fits replaceable screw-on type canister oil filters wherever found on current Mercury/Mariner FourStroke outboards 9.9 thru 60 hp., the 75-115 hp. s/n 1B366822 & below, and the 75-115 hp. s/n 2B094996 and above..

Priced individually, sold @ multiples of 2

Quicksilver Branded, Clamshell Package Point of Sale Packaged.

### HOSE CLAMP KIT



**91-803146A04**

Various clamps and the crimping tool in a convenient plastic tray container. Kit is originally furnished with 15 each of the 12.8mm, 14.0mm, 15.3mm, 16.2mm clamps and 5 each of the 25.6mm and 28.6mm diameter stainless steel clamps.

Aids in the installation of high pressure hose clamps.

### CRANKSHAFT HOLDER

Image not  
Available.

**91-804770A 1**

Holds crankshaft while servicing the powerhead.

### VALVE GUIDE REMOVE/INSTALL TOOL

**91-804774001**

Removes and installs valve guides.

### VALVE GUIDE REMOVER/INSTALL TOOL

**91-888864**

Allows removal of valve guides.

### VALVE GUIDE INSTALL TOOL

**91-888865**

Allows installation of valve guides.

### VALVE GUIDE REAMER

**91-804775**

Use to ream valve guides out to proper size.

### VALVE GUIDE REAMER TOOL

**91-888866**

Allows new valve guides to be reamed to size.



**VALVE SPRING COMPRESSOR**



**91-809494A 1**

Removes and installs valve springs.

**VALVE GUIDE DRIVER**



**91-809495001**

Removes and installs valve guides.

**VALVE GUIDE DRIVER BUSHING**

**91-809496A 1**

Limits depth of valve guide installation.

**SOCKET TIMING GEAR NUT**

**91-809646A 1**

Socket (1.625 Inch). Aids in the removal of the crankshaft timing gear nut.

**WRENCH TORQUE ADAPTER**



**91-809905001**

Aids in the removal and installation of powerhead nuts and torquing nuts to specification.

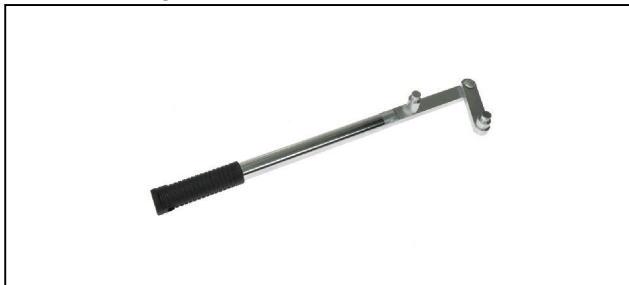
**POWERHEAD STAND**



**91-827001A 1**

Used to secure and rotate the powerhead during disassembly and assembly.

**FLYWHEEL HOLDER**



**91-83163M**

Holds and/or turns the flywheel while making engine repairs. Used to torque the flywheel or the engine coupler.

**OUTBOARD ENGINE LIFTING EYE/FLYWHEEL PULLER**

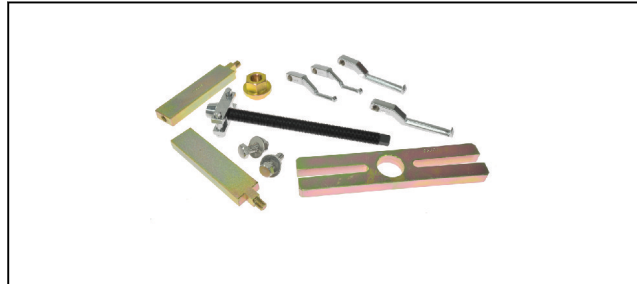


**91-83164M**

Threads into flywheel for lifting powerhead/engine. Also used as a flywheel puller to remove flywheel from engine.

Fits numerous outboard products including the 40/45/50/60 (4 cyl. - 4-Stroke) and the 75/90/115 FourStroke (s/n 1B366822 and below) outboard engines.

**BEARING PULLER ASSEMBLY**



**91-83165T**

Removes bearings, races and bearing carriers.

**FUEL PRESSURE GAUGE-SINGLE**



**91-881833A03**

Tests the fuel pump pressure. Can be used to relieve fuel pressure.

**DUAL FUEL/AIR PRESSURE GAUGE KIT**



**91-881834A 1**

Tests fuel and air pressure. The dual gauges allow the viewing of both pressures simultaneously.

## FOURSTROKE MODELS

### TEST HARNESS - OIL PRESSURE SENSOR

Image not  
Available.

**91-888860**

Allows testing of the oil pressure sensor.

### SOCKET (46 MM)

**91-881847T**

Socket (46 mm). Aids in the removal and torquing of the flywheel.

### LIFTING STRAP



**91-883705T01**

An engine lifting strap for handling of the 225 EFI FourStroke outboard.

### OIL FILTER WRENCH



**91-889277002**

Made of metal. Requires a 3/8" drive.

Fits the Mercury 35-822626T 7 screw-on type canister oil filter found on the V-225 hp. FourStroke outboard.

### OIL FILTER WRENCH



**91-889277Q01**

Metal wrench, requires a 3/8 in. drive ratchet.

Fits the (877761\_) oil filter found on the 75-115 EFI FourStroke outboard (serial number 1B366823-2B094995) and the 150 hp. EFI FourStroke outboard.

Quicksilver Branded, Clamshell Package Point of Sale Packaged.

### CRANKSHAFT HOLDING TOOL



**91-895191**

Holds crankshaft while servicing the powerhead.

### TEST HARNESS - CRANK POSITION SENSOR

Image not  
Available.

**91-888863**

Allows testing of the crank position sensor.

### PISTON RING COMPRESSOR TOOL

**91-895192**

Compresses piston rings for easy piston installation.

**FT2997**

Compresses the piston rings to ease piston installation.

### PISTON VICE ATTACHMENT TOOL

**91-888868**

Aids in removal and installation of piston pins.

**MID-SECTION TOOL APPLICATION CHART**

**FourStroke Mid-Section Tool Application Chart**

Part Number	Description	8/9,9,9.9 BigFoot	9,9-15	25 BigFoot	25/30 EFI	30/40 EFI	40-60 EFI	50/60	75/80	75/90 EFI	115 EFI	7.5-115 EFI 1.7L	135-150	225 EFI
91-52915A 6	Power Trim Test Gauge Kit					X	X	X	X	X	X	X	X	X
91-63209	Torch Lamp				X	X	X	X	X	X	X	X	X	X
91-74951	Spanner Wrench			X		X	X	X	X	X	X	X	X	X
91-821709T	Trim Cylinder End Cap Tool			X		X	X	X	X	X	X	X	X	X
91-888861A01	Power Trim Pressure Tool					X	X	X	X	X	X	X	X	X
91-8M0094300	Cylinder End Screw Wrench					X	X	X	X	X	X	X	X	X
91-888869	Tilt Rod Wrench					X	X	X	X	X	X	X	X	X
91-822778A 1	Adapter Fitting			X		X	X	X	X	X	X	X	X	X
91-822778A 2	Adapter Fitting			X		X	X	X	X	X	X	X	X	X
91-822778A 3	Adapter Fitting			X		X	X	X	X	X	X	X	X	X
91-875215A 1	Driveshaft Bushing Install Tool					X	X	X	X	X	X	X	X	X
91-8M0054662	Pressure Adapter Fitting-Down					X	X	X	X	X	X	X	X	X
91-8M0061797	Pressure Adapter Fitting-Up					X	X	X	X	X	X	X	X	X
91-8M0083568	Upper Trim Beaming Install and Removal Tool					X	X	X	X	X	X	X	X	X
91-892647A01	DMT 2004 Digital Multimeter	X	X	X	X	X	X	X	X	X	X	X	X	X
91-99750A 1	DVA Multimeter Kit			X		X	X	X	X	X	X	X	X	X
CG41-11 (Snap-On)	Expanding Rod			X		X	X	X	X	X	X	X	X	X
CG41-14	Collet					X	X	X	X	X	X	X	X	X
SPR-2(Snap-On)(1)	Lock Ring Pliers			X		X	X	X	X	X	X	X	X	X
SR(L (Snap-On)(1)	Lock Ring Pliers					X	X	X	X	X	X	X	X	X

(1) Order from Snap-On Tools (800)762-7664

## FOURSTROKE MODELS

### MID-SECTION TOOLS

#### POWER TRIM TEST GAUGE KIT



91-52915A 6

Test circuit pressures for various trim pumps.

#### TORCH LAMP



91-63209

Heats surfaces to aid in the removal and installation of interference fit engine components.

#### END CAP TOOL

Image not Available.

91-821709T

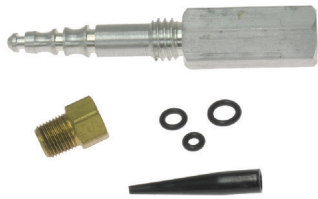
Trim Cylinder End Cap Tool. Allow easy removal of the trim cylinder end caps. Required if tilt limit spacers are to be installed or if the trim in limit spacer is to be removed to allow additional trim in range.

#### WRENCH TOOL - CYLINDER END SCREW

91-8M0094300

Aids in removal of power tilt cylinder end cap.

#### ADAPTER FITTING



91-822778A 1

Measures the internal pressure in the up mode for a single cylinder trim system.

#### POWER TRIM PRESSURE TOOL KIT

Image not Available.

91-888861A01

Allows peak pressure testing of the power trim system.

#### TILT ROD WRENCH TOOL

91-888869

Aids in removal and installation of power tilt ram.

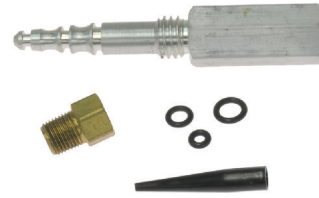
#### ADAPTER FITTING



91-822778A 2

Install in place of the manual release valve to measure the internal pressure of the power trim pump in the up mode.

#### ADAPTER FITTING



91-822778A 3

Install in place of the manual release valve to measure the internal pressure of the power trim pump in the down mode.

#### PRESSURE ADAPTER FITTING - DOWN

Image not Available.

91-8M0054662

Install in place of the manual release valve to measure the down pressure in the power trim system.

#### PRESSURE ADAPTER FITTING - UP

91-8M0061797

Install in place of the manual release valve to measure the up pressure in the power trim system.

#### O-RING SET

25-8M0062937

Replacement O-Ring set for Up and Down Pressure Adapter Fittings P/N 8M0054662 and P/N 8M0061797.

#### UPPER TRIM BEARING INSTALL AND REMOVAL TOOL

91-8M0083568

Installs and removes the upper trim cylinder bearings.

#### BUSHING INSTALL TOOL

91-875215A 1

Installation tool that aids in the installation of driveshaft bushings.

**TACHOMETER / MULTI METER KIT**



**91-892647A01**

Measures RPM on spark ignition (SI) engines. ohms, amperes, AC and CD voltages; records maximums and minimums simultaneously and accurately reads in high RFI environments.

Outboard and MerCruiser

**DVA/MULTIMETER**



**91-99750A 1**

Tests the electrical and ignition systems. Consists of a VOA meter with built-in direct voltage adapter.

FOURSTROKE MODELS

LOWER UNIT / GEAR HOUSING TOOL APPLICATION CHART

FourStroke Gear Housing Tool Application Chart

Part Number	Description	4/5/6	8/9.9 9.9 BigFoot	9.9-15	25 BigFoot	25/50 EFI	30/40 EFI	40-60 EFI	50/60	75/90	75/90 EFI	115 EFI	75-115 EFI 1.7L	135-150	225 EFI
12-34961	Washer				X			X	X	X	X	X	X		
91-12349A05	Pinion Gear Locating Tool						X	X	X	X	X	X	X		
91-13658T	Mandrel			X											
91-13945	Bearing Installation Driver						X	X	X	X	X	X	X		
91-14308T02	Bearing Race Driver				X		X	X	X	X	X	X	X		
91-14309T02	Bearing Installation Puller				X		X	X	X	X	X	X	X		
91-13949	Oil Seal Driver				X		X	X	X	X	X	X	X		
91-14310T 1	Wear Sleeve Driver				X		X	X	X	X	X	X	X		
91-14311A04	Bearing Preload Tool				X		X	X	X	X	X	X	X		
91-15755T	Needle Bearing Driver				X		X	X	X	X	X	X	X		
91-19660 1	Backlash Indicator				X		X	X	X	X	X	X	X		
91-27780	Puller	X		X	X		X	X	X						
91-29310	Puller Plate														X
91-31106T	Bearing Cup Driver				X		X	X	X	X	X	X	X		
91-31108T	Oil Seal Driver				X		X	X	X	X	X	X	X		
91-31229A 7	Bearing Removal/Install Kit		X	X	X		X	X	X	X	X	X	X		
91-34569A 1	Slide Hammer		X	X	X		X	X	X	X	X	X	X	X	X
91-36569T	Driver Head				X		X	X	X	X	X	X	X		
91-36571T	Pilot Washer		X	X	X		X	X	X	X	X	X	X		
91-37241	Universal Puller Plate		X	X	X		X	X	X	X	X	X	X	X	X
91-37312T	Driveshaft Bearing Driver Head				X		X	X	X						
91-37323	Driver Rod				X		X	X	X	X	X	X	X	X	X
91-37350T	Pilot Mandrel				X		X	X	X	X	X	X	X		
91-43506T	Driveshaft Bearing Retainer Wrench						X	X	X	X	X	X	X		
91-46086A 1	Puller Jaws Assembly				X		X	X	X	X	X	X	X	X	X
91-56775T	Driveshaft Holding Tool				X		X	X	X	X	X	X	X		
91-58222A 1	Dial Indicator		X	X	X		X	X	X	X	X	X	X	X	X
91-63209	Torch Lamp		X	X	X		X	X	X	X	X	X	X		
91-8M0053505	Backlash Indicator Rod				X		X	X	X	X	X	X	X		
91-803133 12	Backlash Indicator Arm		X	X	X		X	X	X	X	X	X	X		
91-804762	Driveshaft Holding Tool		X	X	X		X	X	X	X	X	X	X		
91-804766A 1	Driveshaft Holding Tool				X		X	X	X	X	X	X	X		
91-817005	Forward Gear Bearing Installer				X		X	X	X	X	X	X	X		
91-817006	Water Pump Base Seal Installer				X		X	X	X	X	X	X	X		
91-817007T	Bearing Carrier Seal Installer			X	X		X	X	X	X	X	X	X		
91-817008A 2	Pinion Gear Location Tool				X		X	X	X	X	X	X	X		
91-817009T	Forward Gear Bearing				X		X	X	X	X	X	X	X		

Part Number	Description	4/5/6	8/9,9 9.9 BigFoot	9.9+15	25 BigFoot	25/30 EFI	30/40 EFI	40-60 EFI	50/60	75/90	75/90 EFI	115 EFI	75-115 EFI 1.7L	135-150	225 EFI
91-817011T	Needle Bearing Installer				X		X	X	X						
91-817057A02	Bearing Preload Tool Update Kit						X	X	X						
91-817058A 1	Driveshaft Bearing Drive-Lower						X	X	X						
91-817070	Driveshaft Holding Tool						X	X	X	X					
91-824785T 1	Seal/Bushing Installer		X												
91-825198	Mandrel-Oil Seal					X	X								X
91-825200A 1	Spring Hook				X										
826872	Driver				X										
91-83155	Dial Indicator Adapter		X			X	X	X	X	X	X	X	X	X	X
91-83164M	Flywheel Puller/Lifting Ring														X
91-83165T	Bearing Puller	X	X	X		X	X	X	X	X	X	X	X	X	X
91-8M0039811	Mandrel-Right Hand Rotation													X	
91-8M0060057	Mandrel-Left Hand Rotation													X	
91-8M0045643	Beveled Cross Pin Tool													X	
91-8M0057704	Actuator Assembly Tool													X	
91-8M0045644	Pin Stop Install Tool													X	
91-8M0045645	Actuator Assembly Tool													X	
91-8M0089163	Pinion Height Tool													X	
91-8M0089165	Pinion Height Tool Upgrade Kit													X	
91-8M0057767	Bearing Cup/Adapter Tool													X	
91-8M0057768	Bearing Cup/Adapter Tool Upgrade													X	
91-8M0062360	Bearing Driver													X	
91-83166M	Bearing Mandrel Kit		X			X									
91-853996 6	Spring Pin Removal Tool		X												
91-853996 8	Spring Pin Driver		X												
91-853996 12	Pinion Nut Tool					X									
91-853996 14	Driveshaft Holding Tool					X									
91-856875A 1	Bearing Driver						X	X	X	X	X	X	X	X	X
91-86642 1	Slotted Cross Pin Toll								X	X	X	X	X	X	X
91-875215A 1	Driveshaft Busing Install Tool								X	X	X	X	X	X	X
91-877321A 1	Bearing Driver						X	X	X	X	X	X	X	X	X
91-877840A 1	Driveshaft Holding Tool						X	X	X	X	X	X	X	X	X
91-888870	DriverRod														X
91-888875T	Pinion Height Gage														X
888877 (2)	Shift Rod														X
91-888878	Backlash Indicator Tool														X
91-888879	Prop Shaft Adapter														X
91-888800T	Spanner Wrench														X
91-888881	Mandrel BC Oil Seal														X
91-888882	Driver Rod														X



FOURSTROKE MODELS

Part Number	Description	4/5/6	8/9.9 9.9 BigFoot	9.9-15	25 BigFoot	25/30 EFI	30/40 EFI	40-60 EFI	50/60	75/90	75/90 EFI	115 EFI	75-115 EFI 1.7L	135-150	225 EFI
91-888883	Driver Rod with Stop														X
91-888884	Mandrel Bearing/Oil Seal														X
91-888885	Bearing Depth Plate														X
888886 (2)	Mandrel Prop Shaft Bearing														X
91-888887	Driver Rod														X
91-888888	Mandrel BC Reverse Gear														X
91-888889	Driveshaft Holding Tool														X
91-888890	Mandrel Gearcase Needle Bearing														X
91-888891	Mandrel Bearing Reverse Gear														X
91-888892	Mandrel Bearing/Oil Seals														X
888893 (2)	Mandrel Roller Bearing						X								X
91-888894	Mandrel Bearing/Seals														X
91-889586	Shimming Plate														X
91-889587	Driveshaft Holding Tool												X		
91-895195	Pinion Bearing Tool		X												
91-895195T01	Bearing Install Tool		X												
91-8M0116860	Backlash Preload Tool		X												
91-895218	Pinion Height Tool						X								
FT8950	Leakage Tester Kit			X	X										X
CG40-4 (Step-On)(1)	Expanding Rod		X	X											
CG40A-6(1)	Collet		X	X											

(1) Order from Step-On Tools (800)762-7664

(2) NLA (No Longer Available)

**LOWER UNIT / GEAR HOUSING TOOLS**

**WASHER**



**12- 34961**

.656 x 1.312 x .095, plain.  
Used on the threaded puller rod between the nut and plate when removing bearings.

**MANDREL**

Image not Available.

**91- 13658T**

Aids in the installatin of bushings, bearings and races into the gearcase.

**BEARING INSTALL DRIVER**

**91- 13945**

Installs reverse gear needle bearing into propeller shaft carrier.

**OIL SEAL DRIVER**

**91- 13949**

Installs oil seals into wate pump base.

**BEARING RACE DRIVER**

**91- 14308T02**

Removes pinion bearing race.

**BEARING INSTALLATION PULLER**

**91- 14309T02**

Installs pinion bearing into gearcase.

**WEAR SLEEVE DRIVER**

**91- 14310T 1**

Installs wear sleeve onto driveshaft.

**BEARING PRELOAD TOOL**



**91- 14311A04**

Simulates a load on the driveshaft for acurate pinion height and backlash measurements.

**NEEDLE BEARING DRIVER**

Image not Available.

**91- 15755T**

Installs needle bearings into bearing carriers.

**BACKLASH INDICATOR TOOL**

**91- 19660 1**

Measures gear backlash.

**PULLER**

**91- 27780**

Removes gears, bearings and races.

**PULLER PLATE**



**91- 29310**

Aids in the removal and installation of the gimbal bearing, as well as various bearings in the gear housing. Included in the bearing removal and installation kit (P/N 31229A7).

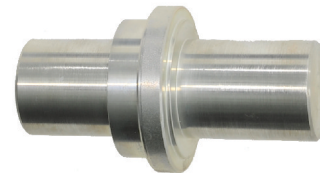
**BEARING CUP DRIVER**



**91- 31106T**

Installs the driven gear bearing cup.

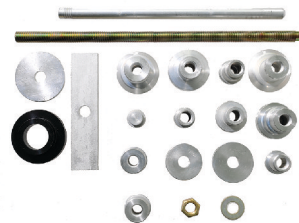
**OIL SEAL DRIVER**



**91- 31108T**

Installs bearing carier oil seals.

**BEARING REMOVAL AND INSTALLATION TOOL**



**91- 31229A 7**

Installs and removes the bearings in all gearcases.

**FOURSTROKE MODELS**

**SLIDE HAMMER PULLER**



**91- 34569A 1**

Aids in the removal of various engine components. Replacement jaws (P/N 34570) may be purchased separately.

**DRIVE HEAD TOOL**



**91- 36569T**

Used in pinion gear and bearing installation.

**PILOT WASHER**



**91- 36571T**

Used in pinion gear and pinion bearing installation.

**UNIVERSAL PULLER PLATE**



**91- 37241**

Removes bearings from gears and the driveshaft.

**DRIVESHAFT BEARING DRIVER**



Image not Available.

**91- 37312T**

Removes bearings from gears and bearing carrier.

**DRIVER ROD**



**91- 37323**

Aids in the removal and installation of various bearings and bearing races.

**PILOT MANDREL**



Image not Available.

**91- 37350T**

Presses on inner race of forward gear roller bearing.

**DRIVESHAFT BEARING RETAINER WRENCH**



**91- 43506T**

Removes and installs the threaded driveshaft bearing retainer.

**PULLER JAW ASSEMBLY**



**91- 46086A 1**

Use with P/N 85716 puller bolt.

Aids in the removal of the bearing carrier and bearing races.

**DRIVESHAFT HOLDING TOOL**



**91- 56775T**

Provides a wrench surface to turn the driveshaft. Also used to hold driveshaft for pinion gear installation.

**DIAL INDICATOR TOOL**



**91- 58222A 1**

Measures distance, movement and runnout. Used for the drive system assembly and engine setup.

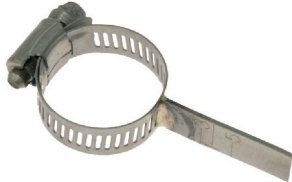
**TORCH LAMP**



**91- 63209**

Heats surfaces to aid in the removal and installation of interference fit engine componenets.

**BACKLASH INDICATOR ROD**



**91- 8M0053505**

Aids in checking gear backlash.

**BACKLASH INDICATOR ARM**



**91- 803133 12**

Aids in determining the forward gear backlash. Used with a dial indicator.

**DIRVESHAFT HOLDING SOCKET**

Image not Available.

**91- 804762**

Holds the driveshaft while removing or installing the pinion gear nut.

**DRIVESHAFT HOLDING TOOL**



**91- 804776A 1**

Holds driveshaft while removing or torquing the pinion nut.

**FORWARD GEAR BEARING INSTALLER**

Image not Available.

**91- 817005**

Aids in the installation of the forward gear needle bearing.

**WATER PUMP BASE SEAL INSTALLER**

**91- 817006**

Installs upper and lower water pump base seals.

**BEARING CARRIER SEAL INSTALLER**

**91- 817007T**

Installs upper and lower bearing carrier seals.

**PINION GEAR LOCATION TOOL**

**91- 817008A 2**

Checks gearcase pinion gear height.

**FORWARD GEAR BEARING RACE DRIVER CUP**

**91- 817009T**

Aids in the installation of forward gear bearing race.

**NEEDLE BEARING INSTALLER**

**91- 817011T**

Installs needle bearing in the bearing carrier.

**BEARING PRELOAD TOOL UPDATE KIT**

**91- 817057A02**

Additional kit to update Baering Reload Tool (P/N 14311A1).

**LOWER DRIVESHAFT BEARING DRIVER**

**91- 817058A 1**

Removes and installs lower driveshaft bearing.

**DRIVESHAFT HOLDING TOOL**

**91- 817070**

Holds driveshaft while removing pinion nut.

**SEAL/BUSHING INSTALLER**

**91- 824785T 1**

Aids in the installation of the bushing into the bearing carrrier.

**MANDREL**

**91- 825198**

Adis in the installation of the bearing carrier oil seals.

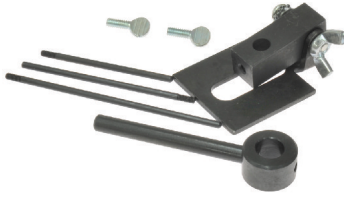
**SPRING HOOK**

**91- 825200A 1**

Aids in the removal of the pinion bearing race from the gearcase. Use with driver Use with driver (P/N 13779).

## FOURSTROKE MODELS

### DIAL INDICATOR ADAPTER



91-83155

Dial indicator holding fixture.

### OUTBOARD ENGINE LIFTING EYE/FLYWHEEL PULLER



91-83164M

Threads into flywheel for lifting powerhead/engine. Also used as a flywheel puller to remove flywheel from engine.

Fits numerous outboard products including the 40/45/50/60 (4 cyl. - 4-Stroke) and the 75/90/115 FourStroke (s/n 1B366822 and below) outboard engines.

### BEARING PULLER ASSEMBLY



91-83165T

Removes bearings, races and bearing carriers.

### BEARING MANDREL KIT



91-83166M

Aids in the removal and installation of bearings and gearing races.

### SPRING PIN REMOVAL TOOL

Image not Available.

91-853996 6

Aids in the removal of the spring pins.

### SPRING PIN DRIVER

91-853996 8

Aids in the installation of the shift cam spring pin.

### PINION NUT TOOL

91-853996 12

Removes the pinion nut; aids in the installation of the driveshaft bearing.

### DRIVESHAFT HOLDING TOOL



91-853996 14

Holds the driveshaft while removing or installing the pinion gear nut.

### BEARING DRIVER

Image not Available.

91-856875A 1

Installs propeller shaft needle bearing into 3 jaw or 6 jaw forward gear.

### SLOTTED CROSS PIN TOOL

91-86642 1

Assists in clutch assembly and disassembly.

### BUSHING INSTALL TOOL

91-875215A 1

Installation tool that aids in the installation of driveshaft bushings.

### BEARING DRIVER

91-877321A 1

Installs propeller shaft needle bearing into 6 jaw forward gear.

### DRIVESHAFT HOLDING TOOL

91-877840A 1

Holds driveshaft while removing pinion nut.

### DRIVER ROD

91-888870

Aids in the removal and installation of bearings. Used with various mandrels. (Stamped 06605)

### PINION HEIGHT GAUGE

91-888875T

Measures the gear housing length when installing pinion gear shims.

### BACKLASH INDICATOR TOOL

91-888878

Aids in checking gear backlash.

### PROPELLER SHAFT ADAPTER

91-888879

Attaches to the propeller shaft for use with a slide hammer.

### SPANNER WRENCH

91-888880T

Removes and installs the bearing carrier retainer nut. (Stamped 06578)

### MANDREL

91-888881

Aids in the removal of the bearing carrier oil seals. Also used to install bearings into the reverse gear assembly. (Stamped #06653)

**DRIVER ROD**

91-888882

Aids in the removal and installation of bearings. Used with various mandrels. (Stamped 06652)

91-888883

Driver Rod with stop. Aids in setting the bearing depth. Used with a mandrel. (Stamped 06604)

**MANDREL**

91-888884

Aids in the removal and installation of various bearings and oil seals in the bearing carrier. (Stamped 06610)

**BEARING DEPTH PLATE**

91-888885

Shimming gauge for reverse gear assembly. (Stamped 06603)

**DRIVER ROD**

91-888887

Aids in the removal and installation of bearings. Used with various mandrels. (Stamped 06606)

**MANDREL**

91-888888

Aids in the installation of the reverse gear into the bearing carrier. (Stamped 06622)

**DRIVESHAFT HOLDING TOOL**

91-888889

Provides a wrench surface to rotate the driveshaft. Also used to hold the driveshaft for pinion gear installation.

**MANDREL**

91-888890

Aids in the removal of the driveshaft needle bearings in the gearcase. (Stamped 06636)

91-888891

Aids in the installation of the reverse gear bearing. (Stamped 06658)

91-888892

Aids in the installation of bearings and oil seals into the bearing carrier and gearcase. (Stamped 06628)

91-888894

Aids in the removal and installation of various bearings and seals. (Stamped 06657)

**MANDREL - RIGHT HAND ROTATION**

91-8M0039811

Install needle bearing into forward gear.

**MANDREL - LEFT HAND ROTATION**

91-8M0060057

Install reverse gear bearing in left-hand rotation gearcase.

**BEVELED CROSS PIN TOOL**

91-8M0045643

Aids in the installation of the sliding clutch cross pin.

**PIN STOP INSTALL TOOL**

91-8M0045644

Part of tool assembly P/N 8M0057704. Aids in the installation of the shift actuator rod.

**ACTUATOR ASSEMBLY TOOL**

91-8M0045645

Part of tool assembly P/N 8M0057704. Aids in the installation of the shift actuator rod.

91-8M0057704

Aids in the installation of the shift actuator rod.

**PINION HEIGHT TOOL KIT**

91-8M0089163

Measures pinion gear height.

**PINION HEIGHT TOOL UPGRADE KIT**

91-8M0089165

Upgrades previous pinion gear locating tool kit P/N 8M0057712 to current P/N 8M0089163 components.

**BEARING CUP/ADAPTER INSTALL TOOL**

91-8M0057767

Installs the forward gear bearing race on the standard right-hand gear case. Presses the reverse gear bearing adapter into the gear housing on the counter left-hand gear case.

**BEARING CUP/ADAPTER TOOL UPGRADE KIT**

91-8M0057768

Install in place of the manual release valve to measure the down pressure in the power trim system.

**BEARING DRIVER TOOL**

91-8M0062360

Removes pinion bearing from gear housing.

**SHIMMING PLATE**

91-889586

Fixture used to shim the forward gear. (Stamped 06701)

**DRIVESHAFT HOLDING TOOL**



91-88958T

Holds driveshaft during pinion nut removal. Used on Verado models.

**PINION BEARING TOOL**

Image not Available.

91-895195

Guides the removal and installation of the pinion bearing.

**BEARING INSTALLATION TOOL**

91-895195T01

Aids in the installation of bearings into the gearcase.

**BACKLASH PRELOAD TOOL**

91-8M0116860

Prevents forward gear movement when checking the forward gear backlash.

**PINION HEIGHT TOOL**

91-895218

Aids in determining the pinion gear height.

**LEAKAGE TESTER KIT**



FT8950

Checks gear housing for leakage prior to filling with gear lubricant. Also used to pressurize the oil injection system.

## GEARCASE HEIGHT TOOL KIT

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Image not  
Available.

### 91-8M0130705

Engine and gearcase height measurement tool.  
Measures engine (gearcase) height in reference to the boat bottom.  
All engine gearcase types.



OPTIMAX MODELS

MAINTENANCE TOOL APPLICATION CHART

OptiMax Model Maintenance Tool Application Chart

Part Number	Description	75/90/115 OptiMax DFI	135 thru 175 OptiMax DFI	200 OptiMax Jet Drive	200/225 OptiMax DFI	225/250 Pro EX OptiMax
44357Q 2	Flushing Devise	X	X		X	X
881150K 1	Dual Water Pickup Flush Gearcase Seal Kit				X	X
91- 37299Q 2	Grease Gun	X	X	X	X	X
91- 90455 1	Lifting Eye	X			X	X
91- 98234A 2	Transom Drill Fixture		X			X

MAINTENANCE TOOLS

FLUSHING ATTACHMENT



44357Q 2

Will allow for running at idle speeds. Attaches to the water intakes; provides a fresh water connection when flushing the cooling system or operating the engine. Fits Mercury/Mariner 20 hp. and higher outboards, 9.9/15 hp. FourStroke (323cc) Bigfoot outboards, all Model Year 2005 and Newer 8/9.9 hp. Four Stroke outboards, 15 hp. FourStroke (351cc) outboards, all MerCruiser Sterndrives (except Bravo One Perf. & Blackhawk) and MHP Torque Master gearcases. Note: 2000 and newer V-6 outboards and MerCruiser Bravo drives with dual water pick-up also require Dual Water Pick-Up Flush Seal Kit p/n 881150Q 1. Priced individually, sold @ multiples of 4 Quicksilver Branded, Clamshell Package Point of Sale Packaged.

DUAL WATER PICKUP FLUSH SEAL KIT



881150K 1

Provides a front water pick-up seal for gearcases with dual water pick-ups. Fits 2000 and newer Mercury/Mariner V-6 outboards with dual water pick-ups; and 2000 and newer MerCruiser Bravo One, X, XR & XZ drives with dual water pick-ups. Priced individually, sold @ multiples of 2 Mercury Branded, Clamshell Package Point of Sale Packaged.

GREASE GUN



91- 37299Q 2

Pistol grip gun. Aids in the lubrication of key areas on the drive and transom. Allows easy access to grease fittings. For use with 8 oz. (227 g) tubes. Priced individually, sold @ multiples of 4 Quicksilver Branded, Clamshell Package Point of Sale Packaged.

OUTBOARD ENGINE LIFTING EYE



91- 90455 1

Threads into the flywheel to remove the power head assembly from the driveshaft housing, or to lift entire engine for removal/installation. Fits most 2 cycle Mercury/Mariner Outboards from the 30/40 (2 cyl.) on up.

# OPTIMAX MODELS

## TRANSOM DRILLING FIXTURE



### 91- 98234A 2

Used to assist drilling of the holes for the outboard engine transom bracket mounting bolts.

Mercury/Mariner 30/40 hp. & above (2 cycle), 25 hp. Bigfoot & above (4-Stroke), and Force 40 hp. & above (1993 and newer).

## FUEL SYSTEM TOOL APPLICATION CHART

### OptiMax Fuel System Tool Application Chart

Part Number	Description	75/90/115 OptiMax DFI	115/135/150/175 OptiMax DFI	200 OptiMax Jet Drive	200/225 OptiMax DFI	225/250 Pro EX OptiMax
22-849606	Schrader Valve Tree	X	X	X	X	X
91-803146A04	Hose Clamp Tool Kit	X	X	X	X	X
91-804063	Tubing Clamp	X	X	X	X	X
91-851980 2	Seal/Teflon Ring Sizing Tool	X	X	X	X	X
91-851980 3	Seal/Teflon Ring Install Tool	X	X	X	X	X
91-881833A03	Fuel Pressure Gauge Kit	X	X	X	X	
91-881834A 1	Dual Fuel/Air Pressure Gauge	X	X	X	X	X
91-883521	Direct Injector Removal Tool	X	X	X	X	X
91-889431	Air Regulator Install Tool	X		X	X	X
91-892647A01	DMT 2004 Digital Multimeter	X	X	X	X	X
892651A01 (2)	Digital Pressure Meter	X	X	X	X	X
91-99750A 1	DVA/Multimeter Kit	X	X	X	X	
FT8950	Leakage Tester Kit	X	X	X	X	X
(1)CDS	Computer Diagnostic System (CDS)	X	X	X	X	X

(1) Order Through Bosch (USA and Canada) 1-800-345-2233; (Europe) 496182 959 149; (Australia (03) 9544-6222

(2) NLA (No Longer Available - Reference SB MC 2014-03)

## FUEL SYSTEM TOOLS

### FUEL PRESSURE TEE FITTING



### 22-849606

Aids in checking fuel pressure when using a fuel pressure gauge with a screw on one-way valve connector.

## HOSE CLAMP KIT



### 91-803146A04

Various clamps and the crimping tool in a convenient plastic tray container. Kit is originally furnished with 15 each of the 12.8mm, 14.0mm, 15.3mm, 16.2mm clamps and 5 each of the 25.6mm and 28.6mm diameter stainless steel clamps.

Aids in the installation of high pressure hose clamps.

**TUBE CLAMP TOOL**

Image not Available.

**91-804063**

Compresses a fuel or vacuum hose for troubleshooting the fuel system or synchronizing a multiple carburetor engine.

**SEAL RING SIZING TOOL**



**91-851980 2**

Compresses the Teflon seal on direct injectors after seal installation.

**SEAL/TEFLON RING INSTALLATION TOOL**

Image not Available.

**91-851980 3**

Aids in the installation of Teflon seals on direct injectors.

**FUEL PRESSURE GAUGE KIT**

**91-881883A03**

Test the fuel pump pressure. Can be used to relieve fuel pressure.

**DUAL FUEL/AIR PRESSURE GAUGE KIT**



**91-881834A 1**

Tests fuel and air pressure. The dual gauges allow the viewing of both pressures simultaneously.

**DIRECT INJECTOR REMOVAL TOOL**

Image not Available.

**91-883521**

Aids in the removal of direct injectors from the fuel rail.

**AIR REGULATOR INSTALLATION TOOL**

**91-889431**

Compresses the air regulator spring to allow installation of assembly screws.

**TACHOMETER / MULTI METER KIT**



**91-892647A01**

Measures RPM on spark ignition (SI) engines. ohms, amperes, AC and CD voltages; records maximums and minimums simultaneously and accurately reads in high RFI environments. Outboard and MerCruiser

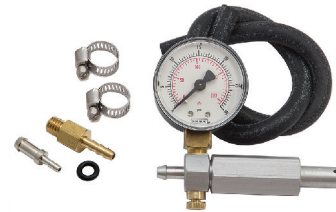
**DVA/MULTIMETER**



**91-99750A 1**

Tests the electrical and ignition systems. Consists of a VOA meter with built-in direct voltage adapter.

**LEAKAGE TESTER KIT**



**FT8950**

Checks gear housing for leakage prior to filling with gear lubricant. Also used to pressurize the oil injection system.

## POWERHEAD TOOL APPLICATION CHART

### OptiMax Powerhead Tool Application Chart

Part Number	Description	75/90/115 OptiMax DFI	115/135/150/175 OptiMax DFI	200 OptiMax Jet Drive	200/225 OptiMax DFI	225/250 Pro EX OptiMax
91-24161	Protector Cap				X	
91-24697	Piston Ring Expander	X	X	X	X	X
91-30591T 1	Powerhead Stand		X	X	X	X
91-812549T	Powerhead Stand	X				
91-37241	Universal Puller Plate	X	X	X	X	X
91-52024A 1	Remote Starter Switch	X	X	X	X	X
91-52344	Flywheel Holding Tool	X	X	X	X	X
91-52952T 1	Lockring Removal Tool	X	X	X	X	X
91-74607A 3	Piston Pin Tool		X	X		
91-77109A 3	Lockring Installation Tool		X	X		
91-79250A 2	Water Pressure Gauge	X	X	X	X	X
91-818773T	Piston Ring Compressor		X	X		
91-823237T	Piston Ring Compressor	X			X	X
91-849154T 1	Flywheel Puller	X	X	X	X	X
91-883521	Direct Injector Removal Tool	X				
91-90455 1	Lifting Eye	X	X	X	X	X
91-92973A 1	Piston Pin Tool	X	X		X	X
91-93004A 2	Lockring Installation Tool	X			X	X
EEPV309A (Snap-On)(1)	Cylinder Leakage Tester	X	X	X	X	X

(1) Order from Snap-On Tools (800)762-7664

OPTIMAX MODELS

## POWERHEAD TOOLS

### PISTON RING EXPANDER



**91-24697**

Expands piston rings for removal and installation.

### POWERHEAD STAND



**91-30591T 1**

Used to secure and rotate the powerhead during disassembly and assembly.

### UNIVERSAL PULLER PLATE



**91-37241**

Removes bearings from gears and the driveshaft.

### REMOTE SWITCH



**91-52024A 1**

Use for oil pump testing.

**FLYWHEEL HOLDER TOOL**



91- 52344

Holds and /or turns the flywheel while making engine repairs. Also used to torque the flywheel or the engine coupler.  
Use with teeth type flywheel.

**LOCKRING REMOVAL TOOL**

Image not Available.

91- 52952T 1

Removes the lockrings securing the piston wrist pin.

**PISTON PIN TOOL**

91- 74607A 3

Aids in the removal and installation of the piston wrist pin.

**LOCKRING INSTALLATION TOOL**

91- 77109A 3

Installs the lockrings to secure the piston wrist pin in the piston.

**WATER PRESSURE GAUGE**



91- 79250A 2

Aids in checking the engine water pressure.

**POWERHEAD STAND**

Image not Available.

91- 812549T

Used to secure and rotate the powerhead during disassembly and assembly.

**PISTON RING COMPRESSOR**

91- 818773T

3.50 diameter.  
Compresses piston rings into piston ring grooves to ease piston rod assembly into cylinder block.

91- 823237T

3.625 diameter.  
Compresses piston rings into piston ring grooves to ease piston rod assembly into cylinder block.

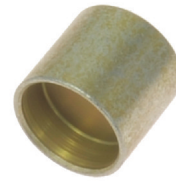
**FLYWHEEL PULLER**



91- 849154T 1

Removes the flywheel from the crankshaft.

**PROTECTOR CAP**



91- 24161

Protects the crankshaft when removing the flywheel. Use with flywheel puller (P/N 849154T1).

**DIRECT INJECTOR REMOVAL TOOL**

Image not Available.

91- 883521

Aids in the removal of direct injectors from the fuel rail.

**OUTBOARD ENGINE LIFTING EYE**



91- 90455 1

Threads into the flywheel to remove the power head assembly from the driveshaft housing, or to lift entire engine for removal/installation.  
Fits most 2 cycle Mercury/Mariner Outboards from the 30/40 (2 cyl.) on up.

**PISTON PIN TOOL**

Image not Available.

91- 92973A 1

Aids in the removal and installation of the piston pins.

**LOCKRING INSTALL TOOL**

91- 93004A 2

Installs the lockring to secure the piston wrist pin in the piston.

# OPTIMAX MODELS

## MID-SECTION TOOL APPLICATION CHART

### OptiMax Mid-Section Tool Application Chart

Part Number	Description	75/90/115 OptiMax DFI	115/135/150/ 175 OptiMax DFI	200/225 OptiMax DFI	225/250 Pro EX OptiMax
91-11230 1	Alignment Tool		X	X	X
91-44486A 1	Trim Rod Removal Tool		X	X	X
91-44487T 1	Trim Rod Guide Removal Tool		X	X	X
91-52915A 6	Power Trim Test Gauge Kit	X	X	X	X
91-63209	Torch Lamp	X	X	X	X
91-74951	Spanner Wrench	X	X	X	X
91-822778A 1	Adapter Fitting	X			
91-822778A 2	Adapter Fitting		X	X	X
91-822778A 3	Adapter Fitting	X	X	X	X
91-875215A 1	Driveshaft Bushing Installer Tool	X			
91-892647A01	DMT 2-4 Digital Multimeter				X
91-99750A 1	DVA/Multimeter Tester	X	X	X	
CG41-11	Expanding Rod	X			
CG41-12	Collet	X			
SRP-4(1)	Lockring Pliers	X	X	X	

(1) Order from Snap-On Tools (800)762-7664

## MID-SECTION TOOLS

### ALIGNMENT TOOL

Image not Available.

#### 91-11230 1

Aligns the tilt ram with housing to aid installation of the pivot pin.

### TRIM ROD REMOVAL TOOL

#### 91-44486A 1

Aids in the removal of the trim rod from the trim cylinders.

### TRIM ROD GUIDE REMOVAL TOOL

#### 91-44487T 1

Aids in the removal of the trim rod from the trim cylinders.

### POWER TRIM TEST GAUGE KIT



#### 91-52915A 6

Test circuit pressures for various trim pumps.

### TORCH LAMP



#### 91-63209

Heats surfaces to aid in the removal and installation of interference fit engine components.

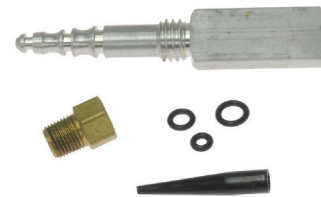
### SPANNER WRENCH



#### 91-74951

Removes and installs trim cylinder end caps.

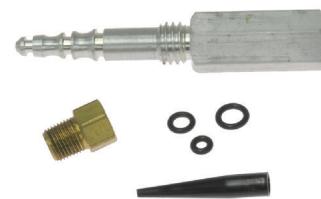
### ADAPTER FITTING



#### 91-822778A 1

Measures the internal pressure in the up mode for a single cylinder trim system.

### ADAPTER FITTING



#### 91-822778A 2

Install in place of the manual release valve to measure the internal pressure of the power trim pump in the up mode.

**ADAPTER FITTING**



**91-822778A 3**

Install in place of the manual release valve to measure the internal pressure of the power trim pump in the down mode.

**BUSHING INSTALL TOOL**

Image not Available.

**91-875215A 1**

Installation tool that aids in the installation of driveshaft bushings.

**TACHOMETER / MULTI METER KIT**



**91-892647A01**

Measures RPM on spark ignition (SI) engines. ohms, amperes, AC and CD voltages; records maximums and minimums simultaneously and accurately reads in high RFI environments.  
Outboard and MerCruiser

**DVA/MULTIMETER**



**91-99750A 1**

Tests the electrical and ignition systems. Consists of a VOA meter with built-in direct voltage adapter.

OPTIMAX MODELS

**LOWER UNIT / GEAR HOUSING TOOL APPLICATION CHART**

**OptiMax Lower Unit/Gear Housing Tool Application Chart**

Part Number	Description	75/90/115 OptiMax DFI	115/135/150/175 OptiMax DFI	200 OptiMax Jet Drive	200/225 OptiMax DFI	225/250 Pro EX OptiMax
12-34961	Washer					X
12-37429	Load Washer		X		X	
12-54048	Belleville Washer				X	
44-93003	Propeller Shaft Tool		X		X	
91-12349A05	Pinion Gear Locating Tool	X	X		X	X
91-13945	Bearing Installation Driver	X				
91-13949	Oil Seal Driver	X				
91-14308T02	Bearing Race Driver	X				
91-14309T02	Bearing Installation Puller	X				
91-14310T 1	Wear Sleeve Driver	X				
91-14311A04	Bearing Preload Tool	X	X		X	X
91-15755T	Needle Bearing Driver	X	X		X	X
91-18605A 2	Bearing Cup/Adapter Installation Tool		X		X	X
91-19660 1	Backlash Indicator	X				
91-31106T	Bearing Cup Driver	X	X		X	



# OPTIMAX MODELS

Part Number	Description	75/90/115 OptiMax DFI	115/135/150/175 OptiMax DFI	200 OptiMax Jet Drive	200/225 OptiMax DFI	225/250 Pro EX OptiMax
91-31107T	Shift Shaft Busing Tool		X			
91-31108T	Oil Seal Driver	X	X		X	
91-31229A 7	Bearing Removal /Installation Kit	X	X		X	X
91-33491	Needle Bearing Driver					X
91-34569A 1	Slide Hammer	X	X	X	X	X
91-36569T	Driver Head	X			X	X
91-36571T	Pilot Washer		X		X	X
91-37241	Universal Puller Plate	X	X		X	X
91-37323	Driver Rod	X	X		X	X
91-37350T	Pilot Mandrel	X				
91-38628T	Puller/Driver Head		X		X	X
91-43506T	Driveshaft Bearing Retainer Wrench		X		X	X
91-46086A 1	Puller Jaws Assembly	X	X		X	X
91-53459	Backlash Indicator Rod			X	X	X
91-56775T	Driveshaft Holding Tool	X			X	X
91-58222A 1	Dial Indicator	X	X	X	X	X
91-61067A04	Pinion Nut Wrench				X	X
91-61069T	Bearing Carrier Retainer Nut Wrench		X		X	
91-61077T	Propeller Shaft/Driveshaft Adapter				X	
91-66274	Torque Wrench lb. in.				X	
91-74776T	Pinion Height Tool		X			
91-8M0053505	Backlash Indicator Rod	X	X		X	
91-809957A 1	Jet Pump Tool Kit			X		
91-815850	Forward Gear Assembly Tube		X		X	
91-816242	Puller Jaws				X	
91-816243	Guide Plate				X	
91-816244	Reverse Gear Needle Bearing Driver				X	
91-816245	Needle Bearing Removal Tool				X	
91-816292	Needle Bearing Driver					X
91-817569T	Carrier Seal Driver				X	X
91-821571A 1	Water Pump Alignment Pins				X	X
91-83155	Dial Indicator Adapter	X		X	X	X
91-83165T	Bearing Puller Assembly			X		
91-8M0059911	Bearing Carrier Installation Tool					X
91-840393	Bearing Carrier Retainer Nut Wrench					X
91-856875A 1	Bearing Driver	X				
91-86642	Cross Pin Tool		X			
91-86642 2	Cross Pin (T-Handle) Installation Tool					X
91-86943T	Guide Plate		X		X	
91-87120T	Bearing Cup Driver					X
91-877321A 1	Bearing Driver	X			X	
91-89897	Dial Indicator Holding Tool		X		X	
91-90094	Driveshaft Holding Tool		X			
91-92788T	Pinion Bearing Driver		X		X	
FT8950	Leakage Test Kit				X	X

OPTIMAX MODELS

**LOWER UNIT / GEAR HOUSING TOOLS**

**WASHER**



**12- 34961**

.656 x 1.312 x .095, plain.  
Used on the threaded puller rod between the nut and plate when removing bearings.

**LOAD WASHER**

Image not Available.

**12- 37429**

Creates a load on the forward gear when taking forward gear backlash measurements for the counter rotation gearcases.

**BELLEVILLE WASHER**



**12- 54048**

Used with pinion nut wrench and a propeller nut to check the reversed gear backlash.

**PROPSHAFT**



**44- 93003**

Acts as a dummy propeller shaft when taking forward gear backlash measurements for count rotation gearcases.

**PINION GEAR LOCATING TOOL**

Image not Available.

**91- 12349A05**

Measures pinion gear height.

**BEARING INSTALL DRIVER**

**91- 13945**

Installs reverse gear needle bearing into propeller shaft carrier.

**OIL SEAL DRIVER**

**91- 13949**

Installs oil seals into wate pump base.

**BEARING RACE DRIVER**

**91- 14308T02**

Removes pinion bearing race.

**BEARING INSTALLATION PULLER**

**91- 14309T02**

Installs pinion bearing into gearcase.

**WEAR SLEEVE DRIVER**

**91- 14310T 1**

Installs wear sleeve onto driveshaft.

**BEARING PRELOAD TOOL**



**91- 14311A04**

Simulates a load on the driveshaft for accurate pinion height and backlash measurements.

**NEEDLE BEARING DRIVER**

Image not Available.

**91- 15755T**

Installs needle bearings into bearing carriers.

**BEARING ADAPTER TOOL**



**91- 18605A 2**

Installs the forward gear bearing race on a standard gearcase. Presses the reverse gear bearing adapter into the gear housing on a counter-rotation gearcase.

**BACKLASH INDICATOR TOOL**

Image not Available.

**91- 19660 1**

Measures gear backlash.

## BEARING CUP DRIVER



**91- 31106T**

Installs the driven gear bearing cup.

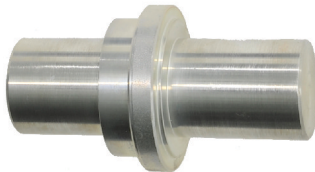
## REMOVAL/INSTALL BUSHING TOOL



**91- 31107T**

Aids in the removal and installation of the shift shaft bushing.

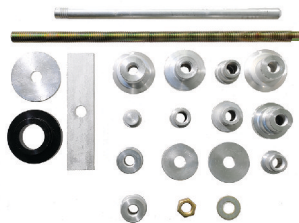
## OIL SEAL DRIVER



**91- 31108T**

Installs bearing carrier oil seals.

## BEARING REMOVAL AND INSTALLATION TOOL



**91- 31229A 7**

Installs and removes the bearings in all gearcases.

## NEEDLE BEARING DRIVER



**91- 33491**

Installs the needle bearing in the foward gear. Removes and installs the seals and bearing in the gimbal housing.

## SLIDE HAMMER PULLER



**91- 34569A 1**

Aids in the removal of various engine components. Replacement jaws (P/N 34570) may be purchased separately.

## DRIVE HEAD TOOL



**91- 36569T**

Used in pinion gear and bearing installation.

## PILOT WASHER



**91- 36571T**

Used in pinion gear and pinion bearing installation.

**UNIVERSAL PULLER PLATE**



**91- 37241**

Removes bearings from gears and the driveshaft.

**DRIVER ROD**



**91- 37323**

Aids in the removal and installation of various bearings and bearing races.

**PILOT MANDREL**



Image not Available.

**91- 37350T**

Presses on inner race of forward gear roller bearing.

**PULLER/DRIVER HEAD**

**91- 38628T**

Used in pinion gear and pinion bearing installation.

**DRIVESHAFT BEARING RETAINER WRENCH**



**91- 43506T**

Removes and installs the threaded driveshaft bearing retainer.

**PULLER JAW ASSEMBLY**



**91- 46086A 1**

Use with P/N 85716 puller bolt.

Aids in the removal of the bearing carrier and bearing races.

**BACKLASH INDICATOR ROD**



**91- 53459**

Aids in checking gear backlash.

**DRIVESHAFT HOLDING TOOL**



**91- 56775T**

Provides a wrench surface to turn the driveshaft. Also used to hold driveshaft for pinion gear installation.

**DIAL INDICATOR TOOL**



**91- 58222A 1**

Measures distance, movement and runout. Used for the drive system assembly and engine setup.

OPTIMAX MODELS

## PINION NUT WRENCH



91-61067A04

Holds the pinion nut when removing the pinion gear and driveshaft. Use with Belleville washer and propeller nut to check the reverse gear lash.

## BEARING CARRIER RETAINER NUT WRENCH



91-61069T

Installs and removes the bearing carrier retainer nuts.

## ADAPTOR TOOL



91-61077T

Provides a wrench surface to turn the propeller shaft.

## TORQUE WRENCH



91-66274

Dial-type torque wrench that sets torque from 9 to 0-150 lb-in. .375 inch drive.

## PINION HEIGHT TOOL

Image not Available.

91-74776T

Checks pinion gear height.

## BACKLASH INDICATOR ROD



91-8M0053505

Aids in checking gear backlash.

## JET PUMP TOOL KIT

Image not Available.

91-809957A 1

Removes and installs bearings and seals in the jet drive.

## FORWARD GEAR INSTALLATION TOOL



91-815850

Removes and installs the forward gear and bearing adapter assembly for counter-rotation gearcases.

## PULLER JAWS



91-816242

Use with either the two prong or three prong puller on all drive units.

## GUIDE PLATE



91-816243

Centers the rod used to drive in the forward gear bearing on a standard rotation gearcase and the reverse gear bearing on a counter-rotation gearcase.

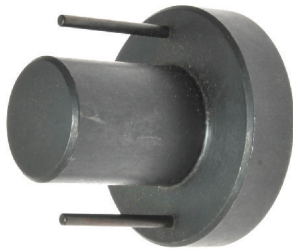
**REVERSE GEAR NEEDLE BEARING DRIVER**



91-816244

Installs the needle bearings into the reverse gear of a counter-rotation gearcase.

**NEEDLE BEARING REMOVAL TOOL**



91-816245

Removes the needle bearings from the back adapter of a counter-rotating gearcase.

**NEEDLE BEARING DRIVER**

Image not Available.

91-816292

Installs the needle bearing onto the forward gear.

**CARRIER SEAL DRIVER**



91-817569T

Removes and installs the bearing carrier seals. Installs seals in the driveshaft seal carrier.

**WATER PUMP ALIGNMENT PINS**



91-821571A 1

Aligns the water pump during installation.

**DIAL INDICATOR ADAPTER**



91-83155

Dial indicator holding fixture.

**BEARING PULLER ASSEMBLY**



91-83165T

Removes bearings, races and bearing carriers.

**SEAL INSTALLATION TOOL**



91-8M0059911

Protects the seal when installing the bearing carrier on 10 spline (1.25 in ) propeller shaft. Part of 840393A1 Propeller shaft Tool Kit.

**RETAINER NUT WRENCH**



91-840393

Installs the bearing carrier retainer nut on heavy-duty propeller shafts.

**BEARING DRIVER**

Image not Available.

91-856875A 1

Installs propeller shaft needle bearing into 3 jaw or 6 jaw forward gear.

## CROSS PIN TOOL



**91- 86642**

Installation of cross pin.  
Outboard

## CROSS PIN INSTALLATION TOOL

Image not  
Available.

**91- 86642 2**

Cross Pin (T-Handle) Installation tool. Assists in the assembly/disassembly of the clutch cross pin.

## GUIDE PLATE

**91- 86943T**

Guides the forward gear bearing during installation.

## BEARING CUP DRIVER

**91- 87120T**

Installs the forward gear bearing cup.

## BEARING DRIVER

**91-877321A 1**

Installs propeller shaft needle bearing into 6 jaw forward gear.

## DIAL INDICATOR HOLDING TOOL



**91- 89897**

Secures the dial indicator to the gear housing when checking backlash.

## DRIVESHAFT HOLD TOOL



**91- 90094**

Using to hold bearing nut for driveshaft.

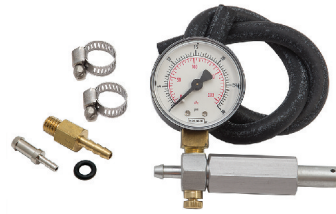
## PINION BEARING DRIVER

Image not  
Available.

**91- 92788T**

Aids in the removal and installation of the pinion bearing.

## LEAKAGE TESTER KIT



**FT8950**

Checks gear housing for leakage prior to filling with gear lubricant. Also used to pressurize the oil injection system.

## GEARCASE HEIGHT TOOL KIT

Image not  
Available.

**91-8M0130705**

Engine and gearcase height measurement tool.  
Measures engine (gearcase) height in reference to the boat bottom.  
All engine gearcase types.



**VERADO L4 AND L6 MODELS**

**MAINTENANCE TOOL APPLICATION CHART**

**Verado Maintenance Tool Application Chart**

Part Number	Description	135/150/175 Verado 4-Stroke (4 cyl)	200 thru 400 Verado 4-Stroke (6 cyl)
44357Q 2	Flushing Device	X	X
881150K 1	Dual Water Pick-Up Flush Gearcase Seal Kit	X	X
888462A 1	Data Cable Puller	X	X
91-889277Q03	Oil Filer Wrench	X	X
91-892866A01	Oil Drain Funnel		X
91-895343T02	Flywheel Puller / Lifting Ring	X	X
90265A 5	Crankcase Oil Pump	X	X
91-98234A 2	Transom Drilling Fixture	X	X
EEPV303B(1)	Compression Tester with Adapter	X	X
EEPV309A(1)	Cylinder Leakage Test	X	X

(1) Order from Snap-On Tools (800)762-7664

**MAINTENANCE TOOLS**

**FLUSHING ATTACHMENT**



**44357Q 2**

Will allow for running at idle speeds. Attaches to the water intakes; provides a fresh water connection when flushing the cooling system or operating the engine. Fits Mercury/Mariner 20 hp. and higher outboards, 9.9/15 hp. FourStroke (323cc) Bigfoot outboards, all Model Year 2005 and Newer 8/9.9 hp. Four Stroke outboards, 15 hp. FourStroke (351cc) outboards, all MerCruiser Sterndrives (except Bravo One Perf. & Blackhawk) and MHP Torque Master gearcases. Note: 2000 and newer V-6 outboards and MerCruiser Bravo drives with dual water pick-up also require Dual Water Pick-Up Flush Seal Kit p/n 881150Q 1. Priced individually, sold @ multiples of 4  
Quicksilver Branded, Clamshell Package Point of Sale Packaged.

**DUAL WATER PICKUP FLUSH SEAL KIT**



**881150K 1**

Provides a front water pick-up seal for gearcases with dual water pick-ups  
Fits 2000 and newer Mercury/Mariner V-6 outboards with dual water pick-ups; and 2000 and newer MerCruiser Bravo One, X, XR & XZ drives with dual water pick-ups.  
Priced individually, sold @ multiples of 2  
Mercury Branded, Clamshell Package Point of Sale Packaged.

**DATA CABLE PULLER**



**888462A 1**

Attaches to end of data harness to aid in pulling harness through boat. Prevents damage to data harness.

**OIL FILTER WRENCH**



**91-889277Q03**

Metal wrench, requires a .375 in. drive ratchet.  
Removes the 896546 series and 883701 series production oil filters found on the early Verado 135-275 hp. FourStroke outboards.  
Quicksilver Branded, Clamshell Package Point of Sale Packaged.

# VERADO L4 AND L6 MODELS

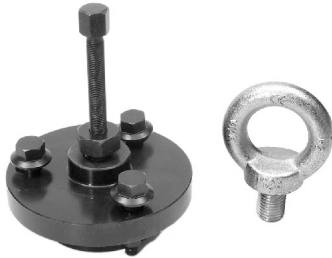
## OIL DRAIN FUNNEL KIT



### 91-892866A01

Helps to direct draining crankcase oil past the cavitation plate. Fits the XL version of the L6 Verado outboard.

## LIFTING EYE/FLYWHEEL PULLER



### 91-895343T02

A combination tool utilized for both lifting the engine and for pulling the flywheel. Fits the 75-115 hp. FourStroke outboards (s/n 1B366823 and above), 135-300 hp. Verado outboards and the F150 EFI FourStroke outboard.

## CRANKCASE OIL PUMP



### 90265A 5

Includes adapter which reaches bottom of sump. The adapter is not used with the V-225 EFI FourStroke application.

Fits Mercury/Mariner 25 & 30 hp. FourStroke outboards (MY2005 & prior) and all 40-115 hp. FourStroke outboards, the V-225 EFI FourStroke outboard and the 4 & 6 cylinder Verado outboards.

## TRANSOM DRILLING FIXTURE



### 91-98234A 2

Used to assist drilling of the holes for the outboard engine transom bracket mounting bolts.

Mercury/Mariner 30/40 hp. & above (2 cycle), 25 hp. Bigfoot & above (4-Stroke), and Force 40 hp. & above (1993 and newer).

## FUEL SYSTEM TOOL APPLICATION CHARTS

### Verado Fuel System Tool Application Chart

Part Number	Description	135/150/175 Verado 4-Stroke (4 cyl)	200 thru 400 Hp Verado 4-Stroke (6 cyl)
91-822560A 5	Adapter harness	X	X
84-822560A13	Adapter harness	X	X
84-822560T12	2 to 4 Pin Harness Adapter	X	X
84-825003A 1	Extension Cable	X	X
91-803146A04	Hose Clamp Tool Kit	X	X
91-881833A03	Fuel Pressure Gauge Kit	X	X
889283A01	Fuel Priming Tool Kit	X	X
91-896661	Fuel Filter Tool	X	X
91-881834A 1	Dual Fuel / Air Pressure Gauge Kit	X	X
91-892647A01	DMT 2004 Digital Multimeter	X	X
892651A01 (2)	Digital Pressure Meter	X	X
Order Through SPX(1)	Computer Diagnostic System (CDS)	X	X

(1) Order Through Bosch (USA and Canada) 1-800-345-2233; (Europe) 496182 959 149; (Australia) (03) 9544-6222

(2) NLA (No Longer Available - Reference SB MC 2014-03)

## FUEL SYSTEM TOOLS

### DIAGNOSTIC TEST ADAPTER HARNESS



### 91-822560A 5

Data link adapter harness between engine and Computer Diagnostic system (CDS) or Digital Diagnostic Terminal (DDT).

1994 1/2 and up - 2.5L EFI (with 824003 ECM only)

1994 1/2 - ProMax/Super Max/Super Magnum

1997 and up DFI/Optmax Outboards

### HARNESS DIAGNOSTIC TESTER



### 84-822560A13

Data link diagnostic tester harness between engine and Computer Diagnostic System (CDS).

4-pin connector. No additional harness required.

600 SCi - 662/700 SCi

Verado 200-275 Hp

PCM 555 models

**ADAPTER HARNESS**



**84-822560T12**

Adapts the 2 pin Digital Diagnostic Terminal harness (822560A5) to the flat 4 pin connector on the engine.  
Verado 200-275 Hp  
PCM 555 Models

**ADAPTER HARNESS**



**84-825003A 1**

Data link extension harness (3.05m (10 ft)) between 2 pin digital diagnostic terminal harness to the 4 pin connector on the engine.

**HOSE CLAMP KIT**



**91-803146A04**

Various clamps and the crimping tool in a convenient plastic tray container. Kit is originally furnished with 15 each of the 12.8mm, 14.0mm, 15.3mm, 16.2mm clamps and 5 each of the 25.6mm and 28.6mm diameter stainless steel clamps.  
Aids in the installation of high pressure hose clamps.

**FUEL PRESSURE GAUGE-SINGLE**



**91-881833A03**

Tests the fuel pump pressure. Can be used to relieve fuel pressure.

**DUAL FUEL/AIR PRESSURE GAUGE KIT**



**91-881834A 1**

Tests fuel and air pressure. The dual gauges allow the viewing of both pressures simultaneously.

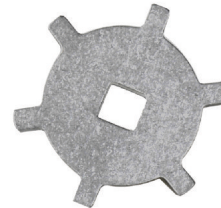
**TACHOMETER / MULTI METER KIT**



**91-892647A01**

Measures RPM on spark ignition (SI) engines. ohms, amperes, AC and CD voltages; records maximums and minimums simultaneously and accurately reads in high RFI environments.  
Outboard and MerCruiser

**FUEL FILTER TOOL**



**91-896661**

Aids in the removal and installation of the fuel filter cap assembly.

**FUEL PRIMING KIT - VERADO**

Image not Available.

**889283A01**

This kit is used to prime the FSM fuel pump to prevent damage created from running the fuel pump dry.  
Verado engines

# VERADO L4 AND L6 MODELS

## POWERHEAD TOOL APPLICATION CHART

### Verado Powerhead Tool Application Chart

Part Number	Description	135/150/175 Verado 4-Stroke (4 cyl)	200 thru 400 Hp Verado 4-Stroke (6 cyl)
91-896911A01	Cam Brake	X	X
91-8M0044311	Crankshaft Retainer	X	X
N/A	Crankshaft Seal Installation Tool	X	X
N/A (1)	Ring Compressor	X	X
8M0042904	Rod Guide Dowel	X	X
91-52344	Flywheel Holding Tool	X	X
91-58222A 1	Dial Indicator	X	X
91-803146A04	Hose Clamp Tool Kit	X	X
91-809494A 1	Valve Spring Compressor	X	X
91-809905001	Torque Adapter (13 mm)	X	X
91-881833A03	Fuel Pressure Gauge Kit	X	X
91-881834A 1	Dual Fuel / Air Pressure Gauge Kit	X	X
892651A01 (2)	Digital Pressure Meter	X	X
91-895343T02	Flywheel Puller / Lifting Ring	X	X

(1) Purchase Locally

(2) NLA (No Longer Available - Reference SB MC 2014-03)

## POWERHEAD TOOLS

### CAM BRAKE



**91-896911A01**

Prevents the intake and exhaust cam from turning while removing or installing cam retaining bolts.

### CRANKSHAFT RETAINER



**91-8M0044311**

Secures crankshaft to cylinder block while rotating block to install the cylinder head.

### ROD GUIDE DOWEL

Image not Available.

**8M0042904**

Prevents cylinder bore and crankshaft from damage while installing or removing connecting rod assembly.

### FLYWHEEL HOLDER TOOL



**91-52344**

Holds and /or turns the flywheel while making engine repairs. Also used to torque the flywheel or the engine coupler. Use with teeth type flywheel.

### DIAL INDICATOR TOOL



**91-58222A 1**

Measures distance, movement and runout. Used for the drive system assembly and engine setup.

### HOSE CLAMP KIT



**91-803146A04**

Various clamps and the crimping tool in a convenient plastic tray container. Kit is originally furnished with 15 each of the 12.8mm, 14.0mm, 15.3mm, 16.2mm clamps and 5 each of the 25.6mm and 28.6mm diameter stainless steel clamps.

Aids in the installation of high pressure hose clamps.

## VALVE SPRING COMPRESSOR



**91-809494A 1**

Removes and installs valve springs.

## WRENCH TORQUE ADAPTER



**91-809905001**

Aids in the removal and installation of powerhead nuts and torquing nuts to specification.

## FUEL PRESSURE GAUGE-SINGLE



**91-881833A03**

Tests the fuel pump pressure. Can be used to relieve fuel pressure.

## DUAL FUEL/AIR PRESSURE GAUGE KIT



**91-881834A 1**

Tests fuel and air pressure. The dual gauges allow the viewing of both pressures simultaneously.

## LIFTING EYE/FLYWHEEL PULLER



**91-895343T02**

A combination tool utilized for both lifting the engine and for pulling the flywheel. Fits the 75-115 hp. FourStroke outboards (s/n 1B366823 and above), 135-300 hp. Verado outboards and the F150 EFI FourStroke outboard.

## MID-SECTION TOOL APPLICATION CHART

### Verado Mid-Section Tool Application Chart

Part Number	Description	135/150/175 Verado (L4)	200/225/250/275 Verado (L6)
91-11230 1	Alignment Tool	X	
91-34569A 1	Slide Hammer		X
91-44486A 1	Trim Rod Removal Tool	X	
91-44487T 1	Trim Rod Guide Removal Tool	X	
91-8M0105203	Trim Cylinder End Cap Tool		X
91-52915A 6	Power Trim Test Gauge Kit	X	X
91-74951	Spanner Wrench	X	
91-821709T	Trim Cylinder End Cap Tool	X	X
91-822778A 2	Adapter Fitting	X	
91-822778A 3	Adapter Fitting	X	
91-822778004	Power Trim Adapter Fitting		X
91-897957T	Spanner Nut Socket	X	
91-892647A01	DMT 2004 Digital Multimeter	X	X
91-899015A01	Upper Mount Alignment Tool	X	
SRP-4(1)	Lockring Pliers	X	
SPX P/N MM-46225(2)	Breakout Box	X	X

(1) Order from Snap-On Tools (800)762-7664

(2) Order Through Bosch (USA and Canada) 1-800-345-2233; (Europe) 496182 959 149; (Australia) (03) 9544-6222

## MID-SECTION TOOLS

### ALIGNMENT TOOL

Image not Available.

**91-11230 1**

Aligns the tilt ram with housing to aid installation of the pivot pin.

### SLIDE HAMMER PULLER



**91-34569A 1**

Aids in the removal of various engine components. Replacement jaws (P/N 34570) may be purchased separately.



## TRIM ROD REMOVAL TOOL

Image not Available.

**91- 44486A 1**

Aids in the removal of the trim rod from the trim cylinders.

## TRIM ROD GUIDE REMOVAL TOOL

**91- 44487T 1**

Aids in the removal of the trim rod from the trim cylinders.

## POWER TRIM TEST GAUGE KIT



**91- 52915A 6**

Test circuit pressures for various trim pumps.

## SPANNER WRENCH



**91- 74951**

Removes and installs trim cylinder end caps.

## END CAP TOOL

Image not Available.

**91-821709T**

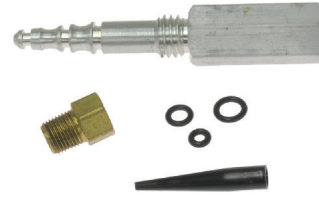
Trim Cylinder End Cap Tool.  
Allow easy removal of the trim cylinder end caps. Required if tilt limit spacers are to be installed or if the trim in limit spacer is to be removed to allow additional trim in range.

## TRIM CYLINDER END CAP TOOL

**91-8M0105203**

Used to remove the end cap of the power trim cylinder.

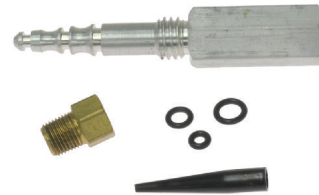
## ADAPTER FITTING



**91- 822778A 2**

Install in place of the manual release valve to measure the internal pressure of the power trim pump in the up mode.

## ADAPTER FITTING



**91- 822778A 3**

Install in place of the manual release valve to measure the internal pressure of the power trim pump in the down mode.

## POWER TRIM ADAPTER FITTING

Image not Available.

**91- 822778004**

Replaces power trim manual release valve when testing power trim circuits.

## SPANNER NUT SOCKET

**91- 897957T**

Aids in the removal and installation of the upper mount spanner nut.

## TACHOMETER / MULTI METER KIT



**91- 892647A01**

Measures RPM on spark ignition (SI) engines. ohms, amperes, AC and CD voltages; records maximums and minimums simultaneously and accurately reads in high RFI environments.

Outboard and MerCruiser

## UPPER MOUNT ALIGNMENT TOOL

Image not Available.

**91- 899015A01**

Aligns upper mount for assembly with the swivel pin assembly.

**LOWER UNIT / GEAR HOUSING TOOL APPLICATION CHART**

**Verado Gear Housing Tool Application Chart**

Part Number	Description	135/150/175 Verado (L4)	200 thru 400 Hp Verado (L6)
91-12349A05	Pinion Gear Locating Tool	X	X
91-31229A 7	Bearing removal and Installation Kit	X	X
91-34569A 1	Slide Hammer	X	X
91-36569T	Driver Head	X	X
91-36571T	Pilot Washer	X	X
91-37241	Universal Puller Plate	X	X
91-37323	Driver Rod	X	X
91-38628T	Puller/Driver Head	X	X
91-43506T	Driveshaft Bearing Retainer Wrench	X	X
91-46086A 1	Puller Jaws Assembly	X	X
91-56048001	Pinion Gear Locating Tool	X	X
91-58222A 1	Dial Indicator	X	X
91-61067T03	Pinion Nut Wrench	X	X
91-61069T	Bearing Carrier Retainer Nut Wrench	X	X
91-61077T	Propeller Shaft / Driveshaft Adapter	X	X
91-8M0053505	Backlash Indicator Rod	X	X
91-816243	Guide Plate	X	X
91-816245	Needle Bearing Removal Tool	X	
91-83155	Dial Indicator Adapter	X	X
91-83165T	Bearing Puller Assembly	X	X
91-885592T	Bearing Cup Driver	X	X
91-888414T01	Bearing Cup Driver / Oil Seal Installer Tool	X	X
91-889844T	Oil Seal Driver	X	X
91-8M0053084	Seal Driver Guide	X	X
91-889958T	Driveshaft Holding Tool	X	X
91-892866A01	Oil Drain Funnel		X
91-89897	Dial Indicator Holding Tool	X	X
FT8950	Leakage Tester Kit	X	X
91-805382T01	Extension Dial Indicator Tool		X
91-8M0046443	Pinion Height Gage		X
91-8M0046348	Bearing Driver Inion Removal Tool		X
91-8M0036288	Pinion Nut Holder Tool		X
91-8M0046632	Socket-Carrier Retainer Nut		X
91-8M0046360	Pinion Bearing Driver Tool		X
91-8M0050615	Shift Shaft Holder Tool		X
91-8M0035594	Propeller Shaft Holder Tool		X
91-8M0052590	Driveshaft Bearing Driver Tool-Upper		X

**LOWER UNIT / GEAR HOUSING TOOLS**

**PINION GEAR LOCATING TOOL**

Image not Available.

**91- 12349A05**

Measures pinion gear height.

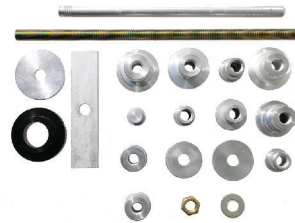
**PINION NUT HOLDER TOOL**



**91-8M0036288**

Aids in the removal of the pinion nut.

**BEARING REMOVAL AND INSTALLATION TOOL**



**91- 31229A 7**

Installs and removes the bearings in all gearcases.

**SLIDE HAMMER PULLER**



**91- 34569A 1**

Aids in the removal of various engine components. Replacement jaws (P/N 34570) may be purchased separately.

**DRIVE HEAD TOOL**



**91- 36569T**

Used in pinion gear and bearing installation.

**PILOT WASHER**



**91- 36571T**

Used in pinion gear and pinion bearing installation.



# VERADO L4 AND L6 MODELS

## UNIVERSAL PULLER PLATE



91- 37241

Removes bearings from gears and the driveshaft.

## DRIVER ROD



91- 37323

Aids in the removal and installation of various bearings and bearing races.

## PULLER/DRIVER HEAD

Image not Available.

91- 38628T

Used in pinion gear and pinion bearing installation.

## DRIVESHAFT BEARING RETAINER WRENCH



91- 43506T

Removes and installs the threaded driveshaft bearing retainer.

## PULLER JAW ASSEMBLY



91- 46086A 1

Use with P/N 85716 puller bolt.

Aids in the removal of the bearing carrier and bearing races.

## PINION GEAR HEIGHT TOOL



91- 56048001

Measures pinion gear height.

## DIAL INDICATOR TOOL



91- 58222A 1

Measures distance, movement and runout. Used for the drive system assembly and engine setup.

## PINION NUT WRENCH



91- 61067T03

Holds the pinion nut when removing the pinion gear and driveshaft.

## BEARING CARRIER RETAINER NUT WRENCH



91- 61069T

Installs and removes the bearing carrier retainer nuts.

**SOCKET-CARRIER RETAINER NUT TOOL**



91-8M0046632

Removes the bearing carrier retainer nut.

**BEARING DRIVER TOOL**

Image not Available.

91-8M0046360

Pinion bearing driver install tool. Aids in the installation of the pinion nut.

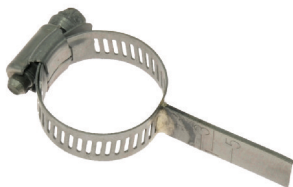
**ADAPTOR TOOL**



91-61077T

Provides a wrench surface to turn the propeller shaft.

**BACKLASH INDICATOR ROD**



91-8M0053505

Aids in checking gear backlash.

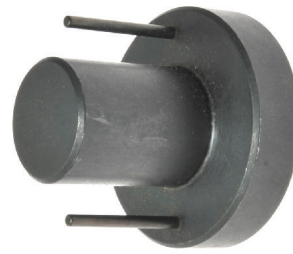
**GUIDE PLATE**



91-816243

Centers the rod used to drive in the forward gear bearing on a standard rotation gearcase and the reverse gear bearing on a counter-rotation gearcase.

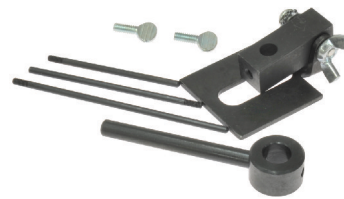
**NEEDLE BEARING REMOVAL TOOL**



91-816245

Removes the needle bearings from the back adapter of a counter-rotating gearcase.

**DIAL INDICATOR ADAPTER**



91-83155

Dial indicator holding fixture.

**BEARING PULLER ASSEMBLY**



91-83165T

Removes bearings, races and bearing carriers.

**BEARING CUP DRIVER**

Image not Available.

91-885592T

Installs reverse gear bearing cup.

**BEARING CUP DRIVER / OIL SEAL INSTALLER TOOL**



91-888414T01

Installs bearing carrier cup and seal.

## BEARING DRIVER PINION REMOVAL TOOL

Image not Available.

**91-8M0046348**

Aids in the removal of the pinion nut.

## OIL SEAL DRIVER



**91-889844T**

Installs seals in driveshaft seal carrier.

## SEAL DRIVER GUIDE



**91-8M0053084**

Aids in the installation of bearing carrier seals.

## DRIVESHAFT HOLDING TOOL



**91-889958T**

Holds driveshaft during pinion nut removal.  
Used on Verado models.

## DRIVER TOOL

Image not Available.

**91-8M0052590**

Upper driveshaft bearing driver tool.  
Used to properly install the upper driveshaft bearing

## SHIFT SHAFT HOLDER TOOL

**91-8M0050615**

Used to rotate the shift shaft .

## PROPELLER SHAFT HOLDER TOOL

**91-8M0035594**

Holds the propshaft in the center of the housing.

## OIL DRAIN FUNNEL KIT



**91-892866A01**

Helps to direct draining crankcase oil past the cavitation plate.  
Fits the XL version of the L6 Verado outboard.

## DIAL INDICATOR HOLDING TOOL



**91-89897**

Secures the dial indicator to the gear housing when checking backlash.

## LEAKAGE TESTER KIT



**FT8950**

Checks gear housing for leakage prior to filling with gear lubricant. Also used to pressurize the oil injection system.

## GEARCASE HEIGHT TOOL KIT

Image not Available.

**91-8M0130705**

Engine and gearcase height measurement tool.  
Measures engine (gearcase) height in reference to the boat bottom.  
All engine gearcase types.

**POWER STEERING TOOL APPLICATION CHART**

**Power Steering Tool Application Chart**

Part Number	Description	135/150/175 Verado 4-Stroke (4 cyl)	200 thru 400 Hp Verado 4-Stroke (6 cyl)
N/A	Power Steering cylinder End Cap Spanner Wrench		X
64-826525A 1	Steering Helm Fill Adapter	X	
91-895040K01	Power Steering Module Primer Kit	X	X
91-8M0078614	Wrench Power Steer Cylinder End Cap Spanner		X

**POWER STEERING TOOLS**

**BOTTLE FILLER KIT**



**64-826525A 1**

For filling and bleeding of the hydraulic system.

**POWER STEERING PRIMER MODULE**



**91-895040K01**

Used to prep the Power Steering system. Module allows pump to be run without starting engine. Allows bleeding and testing of power Steering system out of the water.

Verado Engines 200-300 HP- Optional on 135-200 HP

**END CAP WRENCH**



**91-8M0078614**

Removes the power steering cylinder end cap.

## SPORT JET PUMP MODELS

### SPORT JET PUMP TOOL APPLICATION CHART

#### Sport Jet Pump Tool Application Chart

Part Number	Description	90/120	95XR/ 120XR	120XR/175XR/ 210M/240M/200 OptiMax	250 OptiMax
22-820573	Flushing Adapter	X	X		
91-14311A04	Bearing Pre-Load Tool	X	X	X	X
91-34569A 1	Slide Hammer	X	X	X	X
91-53459	Backlash Indicator Rod	X	X	X	X
91-58222A 1	Dial Indicator	X	X	X	X
91-83155	Dial Indicator Adapter	X	X	X	X
91-83165T	Bearing Puller Assembly	X	X	X	X
820552 1(1)	Bearing Installer	X	X		
820554(1)	Seal Installer	X	X		
820555(1)	Seal Installer	X	X		
820556(1)	Bearing Cup Installer	X	X		
820557(1)	Bearing Installer	X	X		
820558(1)	Bushing Installer	X	X		
820559(1)	Seal Installer	X	X		
820657(1)	Impeller Shaft Wrench	X	X		
824827A1(1)	Pinion shaft Pre-load Kit	X	X		
91-824869A 1	Thread Extending Kit	X	X	X	X
827871A1 (1)	Impeller Shaft Pre-load Kit	X	X		
91-824871A 2	Impeller Shaft Pre-load Kit			X	X
824888(1)	Bushing Installer	X	X		
91-824890T	Pinion Gear Height Location Tool	X			
824892(1)	Driver Handle	X	X	X	X
827983T(1)	Bearing Installer	X	X		
830103(1)	Impeller Shaft Seal Protector		X		
91-831897	Pinion Gear Height Location Tool		X	X	
91-832016T	Bearing Installer		X	X	
91-832017	Bearing Installer		X	X	X
91-832018	Bearing Cup Installer		X	X	X
832019T(1)	Seal Installer		X	X	
91-832093A 1	Impeller Shaft Wrench		X	X	X
91-850233	Seal Protector		X	X	X
91-850297	Impeller Nut Socket		X	X	X
91-850831	Bushing Installer		X	X	X
91-882758	Pinion Gear Height Location Tool				X

(1) NLA (No Longer Available)

### SPORT JET TOOLS

#### FLUSHING KIT



##### 22-820573

Dealer kit, flushes engine while the engine is running. This kit is not for permanent installation. It is intended as a dealer service tool aid.

Fits Sport-Jet 90/95/120 engines.

#### BEARING PRELOAD TOOL



##### 91-14311A04

Simulates a load on the driveshaft for accurate pinion height and backlash measurements.

#### SLIDE HAMMER PULLER



##### 91-34569A 1

Aids in the removal of various engine components. Replacement jaws (P/N 34570) may be purchased separately.

#### BACKLASH INDICATOR ROD



##### 91-53459

Aids in checking gear backlash.

**DIAL INDICATOR TOOL****91-58222A 1**

Measures distance, movement and runnout. Used for the drive system assembly and engine setup.

**DIAL INDICATOR ADAPTER****91-83155**

Dial indicator holding fixture.

**BEARING PULLER ASSEMBLY****91-83165T**

Removes bearings, races and bearing carriers.

**THREAD EXTENDER KIT**

Image not  
Available.

**91-824869A 1**

Extends the reach for the dial indicator kit when checking gear lash.

**PULLER BAR****91-824870**

Aids in pulling the drive housing seals out.

**IMPELLER SHAFT PRE-LOAD KIT****91-824871A 2**

Applies a pre-load to the impeller shaft when checking gear lash.  
120XR/175XR/210M/240M/200 OptiMax  
250 OptiMax

**IMPELLER NUT WRENCH****91-824872T 1**

Aids in the removal, installation and torquing of the impeller nut.

**PINION GEAR HEIGHT TOOL****91-824890T**

Aids in determining the exact pinion gear height location.

**PINION GEAR HEIGHT LOCATION TOOL****91-831897**

Aids in determining the exact pinion gear height location.

**BEARING INSTALL TOOL****91-832016T**

Installs the bearings and seals into the pinion shaft housing.

**91-832017**

Installs a ball bearing into the drive housing.

**BEARING CUP INSTALL TOOL****91-832018**

Installs the bearing cup in to the pinion shaft housing and drive housing cover.

**IMPELLER SHAFT WRENCH****91-832093A 1**

Secures the impeller shaft when removing or installing the impeller nut.

**SEAL PROTECTOR****91-850233**

Protects the impeller shaft seal during installation.

**IMPELLER NUT SOCKET****91-850297**

Aids in the removal, installation and torquing of the impeller nut.

**BUSHING INSTALL TOOL****91-850831**

Installs the stator bushings and seals.

**PINION GEAR HEIGHT TOOL****91-882758**

Aids in determining the exact pinion gear height location.





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# SMARTCRAFT / DIGITAL THROTTLE SHIFT TOOL APPLICATION CHART

## SMARTCRAFT / DIGITAL THROTTLE SHIFT TOOL APPLICATION CHART

### SmartCraft/DTS Tool Application Chart

Part Number	Description	150-250 EFI 2- Stroke V6	40-60 4- Stroke EFI	75-115 4- Stroke EFI (1.7L)	75-115 OptiMax	135-175 OptiMax	200-225 OptiMax	200-225 OptiMax (DTS)	135-175 Verado	200-275 Verado	250-300 4-Stroke
888462A 1	Data Cabel Puller	X	X	X	X	X	X	X	X	X	X
84-822560T12	2-4 Pin Adapter				X				X	X	
84-825003A 1	Extension Cable	X	X	X	X	X	X	X	X	X	X
889243A01 (1)	Gauge Sweep Kit	X	X	X	X	X	X	X	X	X	X
84-892452T01	10 Pin Adapter							X	X	X	X
84-892663	Diagnostic Cable -CAN 1							X	X	X	X
91-803146A04	Hose Clamp Tool Kit			X	X	X	X	X	X	X	X
889675A01	12 Volt Connector Tool							X	X	X	X
91-892647A01	DMT 2004 Digital Multimeter	X	X	X	X	X	X	X	X	X	X
892651A01 (3)	Digital Pressure Meter	X	X	X	X	X	X	X	X	X	X
91-896352A01	Depinning Tool	X	X	X	X	X	X	X	X	X	X
91-898254	Module MX Breakout Box							X	X	X	X
SPX (2)	Computer Diagnostic System	X	X	X	X	X	X	X	X	X	X
MM-46225 (2)	Beakout Box	X	X	X	X	X	X	X	X	X	X
MM-46523 (2)	Tamper-Proof Screw Torx Bit Set									X	X

(1) NLA (No Longer Available)

(2) Order Through Bosch (USA and Canada) 1-800-345-2233; (Europe) 496182 959 149; (Australia (03) 9544-6222

(3) NLA (Reference Service Bulletin SB MC 2014-03)

**SMARTCRAFT / DIGITAL THROTTLE AND SHIFT TOOLS**

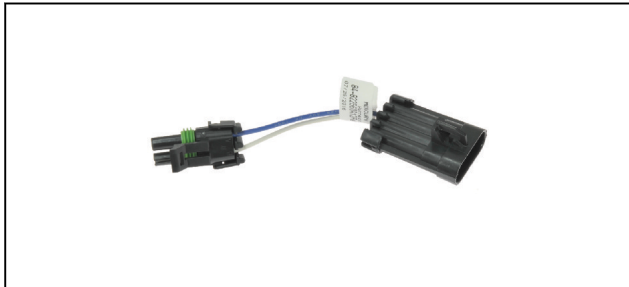
**DATA CABLE PULLER**



**888462A 1**

Attaches to end of data harness to aid in pulling harness through boat. Prevents damage to data harness.

**ADAPTER HARNESS**



**84-822560T12**

Adapts the 2 pin Digital Diagnostic Terminal harness (822560A5) to the flat 4 pin connector on the engine.

Verado 200-275 Hp  
PCM 555 Models

**ADAPTER HARNESS**



**84-825003A 1**

Data link extension harness (3.05m (10 ft)) between 2 pin digital diagnostic terminal harness to the 4 pin connector on the engine.

**ADAPTER-10 PIN**



**84-892452T01**

Male to male 10 pin adapter cable. Allows connection between CAN 1 communication cable and Command Module harness in applications where a junction box is used.

**CAN 1 DIAGNOSTIC CABLE**



**84-892663**

CAN 1 diagnostic cable connects into a junction box or male to male adapter cable for Command Modulr configuration. Not for use with DDT, cable compatible with CDS only.

**HOSE CLAMP KIT**



**91-803146A04**

Various clamps and the crimping tool in a convenient plastic tray container. Kit is originally furnished with 15 each of the 12.8mm, 14.0mm, 15.3mm, 16.2mm clamps and 5 each of the 25.6mm and 28.6mm diameter stainless steel clamps.

Aids in the installation of high pressure hose clamps.

**SHUNT TOOL**



**889675A01**

14 pin.

**TACHOMETER / MULTI METER KIT**



**91-892647A01**

Measures RPM on spark ignition (SI) engines. ohms, amperes, AC and CD voltages; records maximums and minimums simultaneously and accurately reads in high RFI environments.

Outboard and MerCruiser

**SMARTCRAFT / DIGITAL THROTTLE AND SHIFT TOOLS**

## 14 PIN DEPINNING TOOL



**91-896352A01**

Used to remove pins on 14 pin DTS and non-DTS harnesses.

## BREAK-OUT BOX FOR M CHI



**91-898254**

Used for DTS installs and trouble shooting. Connects between the command module and the command module harness. Test harness circuits and the input/output voltage at the command module.

All DTS installations

# COMPUTER DIAGNOSTIC SYSTEM ADAPTER CABLE APPLICATION CHART

## COMPUTER DIAGNOSTIC SYSTEM ADAPTER CABLE APPLICATION CHART

Some below items are to be ordered directly from Bosch.

For additional information, pricing or to order CDS, Breakout Box and Terminal Test Probe Kit, Contact:  
Bosch Corporation (USA and Canada) 1-800-345-2233; (Europe) 496182 959 149; (Australia) (03) 9544-6222

\* Computer Diagnostic System (CDS) monitors all electrical system for proper function, diagnostics and calibration purposes.

\* MM-46225 Breakout Box connects to Propulsion control Module (PCM) to test engine circuits and components without probing wires. May be used with CDS.

\* MM-46523 Terminal Test Probe adapts test meter leads to harness connections without damaging harness terminals. May be used with CDS.

### CDS Adapter Cable Application Chart

Model	Serial Number	Processor	Cable P/N	Cable P/N
V-175 EFI (2.5L)	0T4090000-0T800999	PCM555	91-822560A 5	
V-175 EFI (2.5L)	0T801000 -1B226999	PCM03	91-822560A 5	
V-175 EFI (2.5L)	1B227000 and Up	PCM03	84-822560A13	
V-200 EFI (2.5L)	0T4090000-0T800999		91-822560A 5	
V-200 EFI (2.5L)	0T801000 -1B226999		91-822560A 5	
V-200 EFI (2.5L)	1B227000 and Up		84-822560A13	
225 Carburetor (3.0L)	0D280813 - 0G129221	Nippondenso	84-822560A 1	
225 Carburetor (3.0L)	0G129222 - 0T800999	Nippondenso	84-822560A 6	84-822560A 7
225/350 EFI (3.0L)	0G129222 - 0T408999	Nippondenso	84-822560A 6	84-822560A 7
3.0L EFI SeaPro /Marathon /200/225/250 EFI (3.0L)	0T409000 - 0T800999	PCM555	91-822560A 5	
3.0L EFI SeaPro /Marathon /200/225/250 EFI (3.0L)	0T8010000 - 1B226999	PCM555	91-822560A 5	
3.0L EFI SeaPro /Marathon /200/225/250 EFI (3.0L)	1B227000 and Up	PCM555	84-822560A13	
250XB EFI (3.0L)	0G980600 - 0T800999		84-822560A 6	
75/90/115 DFI (1.5L)	0T801000 - 1B226999	PCM03	91-822560A 5	
75/90/115 (1.5L)	1B227000 and Up		84-822560A13	
V-135/150/175 DFI (2.5L)	0G590000 - 0T178499	Non-555 OptiMax	91-822560A 5	
V-135/150/175 DFI (2.5L)	0T178500 - 0T800999	PCM555	91-822560A 5	
V-135/150/175 DFI (2.5L)	0T801000 - 1B226999	PCM03	91-822560A 5	
V-135/150/175 DFI (2.5L)	1B227000 and Up	PCM03	84-822560A13	
200/225 DFI (3.0L)	0G590000 - 0T178499	Non-555 OptiMax	91-822560A 5	
200/225 DFI (3.0L)	0T178500 - 0T800999	PCM555	91-822560A 5	
200/225 DFI (3.0L)	0T801000 - 1B226999	PCM03	91-822560A 5	
200/225 DFI (3.0L)	0T801000 and Up	PCM03	84-822560A13	
200/225 DFI (3.0L) DTS	0T590000 - 0T800999	PCM555DTS	91-822560A 5	
200/225 DFI (3.0L) DTS	0T8010000 - 1B226999	PCM03	84-822560A13	
200/225 DFI (3.0L) DTS	0T801000 and Up	PCM03	84-822560A13	
-	-	-	-	-
25 (4-Stroke)	All Applications	Motorola	84-822560A 7	84-822560A10
25/30 EFI (4-Stroke) Model Year 2006	0R106999	Kokusan	84-822560A 7	84-899150T01
30 EFI (4-Stroke)	0T409000 - 1B226999	PCM555	91-822560A 5	
30/40 (3 Cyl.) (4-Stroke)	All Applications	Motorola	84-822560A 7	84-822560A10
40 EFI (3 Cyl.) (4-Stroke)	All Applications	PCM555	91-822560A 5	
40/50/60 (4 Cyl.) (4-Stroke)	All Applications	Motorola	84-822560A 7	84-822560A10
40/50/60 EFI (4 Cyl.) (4-Stroke)	All Applications	PCM555	91-822560A 5	
75/90/115 EFI (4-Stroke)	All Applications	Mitsubishi	84-822560A14	
75/90/115 EFI (1.7L) (4-Stroke) (2)	1B227000 and Up	ECM07	84-822560A 1	84-822560A13
135-175 Verado (2)	1B227000 and Up	PCM03/07	84-822560A 1	
225-275 Verado (2)	0T980000 and Up	PCM03/07	84-822560A 1	
225 EFI (4-Stroke)	0T653945 and Up	Mitsubishi	84-822560A14	
200/240/250 Jet	All Applications	PCM555	91-822560A 5	
DTX Command Module			84-892663	

COMPUTER DIAGNOSTIC SYSTEM ADAPTER  
CABLE APPLICATION CHART

# COMPUTER DIAGNOSTIC SYSTEM ADAPTER CABLE APPLICATION CHART

Model	Serial Number	Processor	Cable P/N	Cable P/N
MM-46225 (Breakout Box) (1)	All Applications			
MM-46523 (Terminal Test Probe Kit) (1)	All Applications			
Computer Diagnostic System (CDS) (1)	All Applications			

(1) Order Through Bosch (USA and Canada) 1-800-345-2233; (Europe) 496182 959 149; (Australia) (03) 9544-6222

(2) When used with 2 to 4 Pin Adapter Harness (822560T12)

## CDS G3 ADAPTER CABLE KIT APPLICATION CHART

See Mercury Electronic Parts Catalog for kit break down.

### CDS G3 Application Chart

Model Description	Serial Number	Cable Kit
<b>Outboard CDS G3 Models</b>		
15-20 HP	0R833820 & above	8M0137534
25/30 Hp	0R106999 & above	8M0137534
30-40 HP (3 cyl) Four Stroke EFI Engines	0T409000 & above	8M0138392
40-60 HP (4 cyl) Four Stroke EFI Engines	All	8M0138392
75-125 Optimax Engines	All	8M0138392
75-115 HP Four Stroke EFI Engines	1B366823 & above	8M0138392
150 HP - 250HP Two Stroke EFI Engines	0T409000 & above	8M0138392
150 HP Four Stroke Engines	All	8M0138392
V6 Optimax Engines	0T178500 & above	8M0138392
Verado Engines	All	8M0138392
Joystick Piloting for Outboard	All	8M0138392
<b>Racing Outboard CDS G3 Models</b>		
Mercury Racing DSI Optimax Engines	All	8M0138392
<b>MerCruiser CDS G3 Models</b>		
MerCruiser Axis Systems and Joystick Piloting System	All	8M0138392
MerCruiser ECT Engines	All	8M0138392
MerCruiser Non-ECT Engines 4.5L,6.2L,8.2L	All	8M0138392
MerCruiser MPI Engines 3.0L,4.3L,4.5L,5.0L,5.7L,6.2L,8.1L	0M300000 & above	8M0138392
<b>Mercury Racing Sterndrive</b>		
Mercury Racing Sterndrive 520,540,565,110,1350,1650	All	8M0138392
<b>Diesel CDS G3 Models</b>		
Mercury Diesel DTS and Zeus Pod Systems	All	8M0138392



**COMPUTER DIAGNOSTIC SYSTEM KITS AND ADAPTER CABLES**

**COMPUTER DIAGNOSTIC SYSTEM KITS AND ADAPTER CABLES**

**CDS G3 KIT**



**91-8M0138392**

Interfaces CDS G3 software to SmartCraft network. CDS G3 Kit, includes : CAN Interface Harness - Harness CAN P/CAN H - Adapter Harness G3 - License Key card for G3 and download instructions. Diagnostics Kit for 10 Pin Smartcraft Vessels.

**G3 LICENSE KEY**



**8M0138391**

G3 license key. Included in CDS G3 Kit (P/N 8M0138392).

**DIESEL DIAGNOSTIC TOOL KIT**

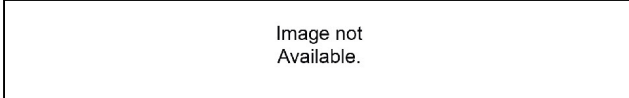


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**91-8M0133211**

Diagnostic kit contains cables, license and support information.

**SMARTCRAFT INTERFACE CABLE**



**91-898289T81**

SmartCraft diagnostic interface cable to be used with CDS G3 and 10 pin Smartcraft Vessels. Included in CDS G3 Kit (P/N 8M0138392).

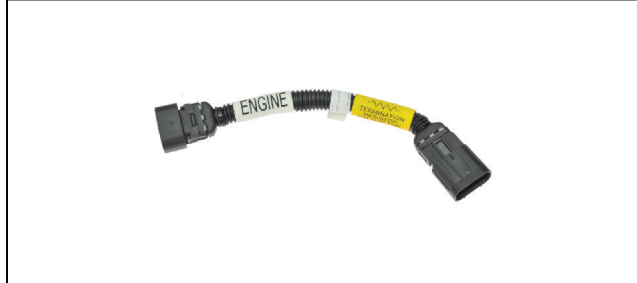
**ADAPTER HARNESS CAN P/CAN H**



**84-898289T83**

Adapter Harness to be used with 898289T81 (CAN Interface Harness). Included in CDS G3 Kit (P/N 8M0138392).

**ADAPTER HARNESS G3**



**84-8M0046081**

Harness resistor cable for 10 pin CAN. To be used with CAN Interface Harness and Harness – CAN P/CAN H. Included in CDS G3 Kit (P/N 8M0138392).

**SERIAL INTERFACE CABLE KIT-CDS G3**



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**8M0137534**

Connects G3 to engine. Computer Diagnostic System (CDS)

**SERIAL CABLE-CDS G3**

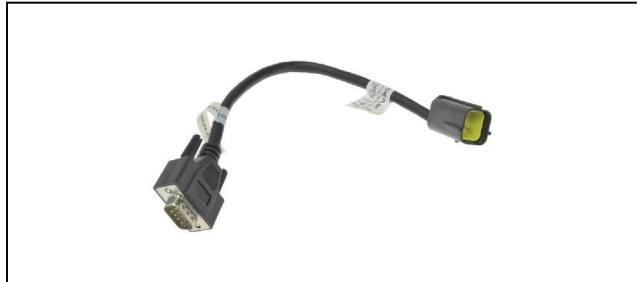


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**84-8M0137535**

Connects G3 to engine. Computer Diagnostic System (CDS)

**SERIAL ADAPTER HARNESS-CDS G3**



**84-8M0137536**

Connects G3 to engine. Computer Diagnostic System (CDS)

**ADAPTER HARNESS-CDS G3**

Image not Available.

**84-8M0137537**

Connects G3 to engine. Data link harness between the engine and the Computer Diagnostic System (CDS).  
15/20 Hp

**ADAPTER HARNESS-CDS G3**

Image not Available.

**84-899150T01**

Connects G3 to engine. Data link harness between the engine and the Computer Diagnostic System (CDS).  
20/30 Hp

**HARNESS DIAGNOSTIC TESTER**



**84-822560A13**

Data link diagnostic tester harness between engine and Computer Diagnostic System (CDS).  
4-pin connector. No additional harness required.  
600 SCi - 662/700 SCi  
Verado 200-275 Hp  
PCM 555 models

**ADAPTER HARNESS**

Image not Available.

**84-822560A 1**

CDS adapter harness.  
Outboard and Jet Drive -1994 30.L Carb Engines

**ADAPTER HARNESS**



**84-822560T12**

Adapts the 2 pin Digital Diagnostic Terminal harness (822560A5) to the flat 4 pin connector on the engine.  
Verado 200-275 Hp  
PCM 555 Models

**DIAGNOSTIC TEST ADAPTER HARNESS**



**91-822560A 5**

Data link adapter harness between engine and Computer Diagnostic system (CDS) or Digital Diagnostic Terminal (DDT).  
1994 1/2 and up - 2.5L EFI (with 824003 ECM only)  
1994 1/2 - ProMax/Super Max/Super Magnum  
1997 and up DFI/Optmax Outboards

**ADAPTER HARNESS**



**84-822560A 6**

Data link harness between the engine and the Computer Diagnostic System (CDS). Use with 822560A7 or 822560A3.  
1995 - 2001 3.0L EFI and Carb Outboards

**ADAPTER HARNESS**



**84-822560A 7**

Data link harness between the engine and the Computer Diagnostic System (CDS). (Use with P/N 822560A6)  
1995 - 2001 3.0L EFI and Carb Outboards

**EXTENSION HARNESS**

Image not Available.

**84-822560T11**

2 pin (4.57m) (15 ft). Use with 822560A5.

**ADAPTER HARNESS**

**84-822560A 8**

Use with 11350A ECM only. (Use with P/N 822560A7).  
All high performance 2.0L/2.5L EFI Outboards.

# COMPUTER DIAGNOSTIC SYSTEM KITS AND ADAPTER CABLES

## ADAPTER HARNESS



**84-822560A14**

Data link harness between the engine and the Computer Diagnostic System (CDS). (10 feet). Cable compatible with CDS only. 225 EFI FourStroke

## CAN 1 DIAGNOSTIC CABLE



**84-892663**

CAN 1 diagnostic cable connects into a junction box or male to male adapter cable for Command Modulr configuration. Not for use with DDT, cable compatible with CDS only.

## ADAPTER HARNESS



**84-825003A 1**

Data link extension harness (3.05m (10 ft) between 2 pin digital diagnostic terminal harness to the 4 pin connector on the engine.

## CDS SOFTWARE - VERSION 10.01



**90-8M0126020**

CDS Version 10.01 will only be available on a USB flash drive. CDS version 10.01 does not include a Media ID or license. This is a software update only. Reference Service Bulletin OB 2017-07 or OEM 2017-06 for more information.

## HARNESS DIAGNOSTIC TESTER



**84-822560A13**

Data link diagnostic tester harness between engine and Computer Diagnostic System (CDS). 4-pin connector. No additional harness required. 600 SCi - 662/700 SCi Verado 200-275 Hp PCM 555 models

## HARNESS DIAGNOSTIC TESTER



**84-822560A 2**

Harness connects to DDT scan tool kit. Used with MEFI 1, MEFI 2, and MEFI 3 ECM models. MerCruiser application.

## ADAPTER HARNESS



**84-822560A10**

Data link harness between the engine and the Computer Diagnostic System (CDS). (Use with 822560A7 only). 25-40 Hp Fourstroke Outboards.

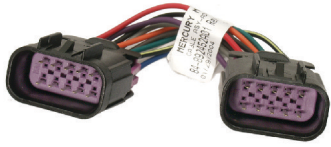
## ADAPTER HARNESS



**84-875232T 1**

This harness allows the DDT to be connected under the dash at the 5 pin tachometer harness outlet. 2000 Digital OptMax Outboards only.

## ADAPTER-10 PIN



**84-892452T01**

Male to male 10 pin adapter cable. Allows connection between CAN 1 communication cable and Command Module harness in applications where a junction box is used.



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# ELECTRICAL TOOL APPLICATION CHARTS

## ELECTRICAL TOOL APPLICATION CHARTS

### TWO STROKE ELECTRICAL TOOL APPLICATION CHART

#### Two Stroke Electrical Tool Application Chart

Part Number	Description	2.5/3.3	4/5 /102 cc	6-15	20/25 / 20Jet	30/40/ 2 cyl	40-60 30/40 Jet	75-125 65/80 Jet	135-200	150-200EFI	200-250 EFI 3.0L Work
91- 822560A 5	Adapter harness								X	X	X
84- 822560T12	2-4 Pin Adapter								X	X	X
84- 825207A 2	TPS/CDM Test Harness					X	X	X	X		
91- 24161	Protector Cap				X	X	X	X	X	X	X
91- 52024A 1	Remote Starter Switch			X	X	X	X	X	X	X	X
91- 58222A 1	Dial Indicator		X	X	X	X	X	X	X	X	X
91- 63998A 1	Spark Gap Tester	X	X	X	X	X	X	X	X	X	X
91- 850439T 1	Spark Gap Tester			X	X	X	X	X	X		
91- 877870A 1	Spark Plug Extension Harness	X	X	X	X	X	X	X	X	X	X
91- 802650 1	Clamp-on Current Probe			X	X	X	X	X	X	X	X
91- 818812A 1	Ignition Timing Cable					X					
91- 853883 1	Timing Decal						X	X	X	X	X
91- 853883 3	Timing Decal							X	X	X	X
91- 99379	Timing Light		X	X	X	X	X	X	X		
91- 859199	Throttle Position Sensor (TPS) Test Harness									X	
881828(1)	Tamper-Proof Screw Torx Bit Set									X	X
91- 89045 1	Direct Voltage Adapter		X	X	X	X	X	X	X		
91- 892647A01	DMT 2004 Digital Multimeter	X	X	X	X	X	X	X	X	X	X
99750A 1	DVA/Multimeter Kit	X	X	X	X	X	X	X	X	X	X

(1) NLA (No Longer Available)

ELECTRICAL TOOL APPLICATION CHARTS



**FOURSTROKE ELECTRICAL TOOL APPLICATION CHART**

**FourStroke Electrical Tool Application Chart**

Part Number	Description	4/5/6	8/9/9.9/9.9 BigFoot	9.9-15	2.5 BigFoot	29/30 EFI	30/40 EFI	40-60 EFI	50/60	75/90	75/90 EFI	115 EFI	75-115 EFI 1.7L	150	225 EFI
91-822560A 5	Adapter Harness				X		X	X	X						
84-822560A13	Adapter Harness												X		
91-888862	Rectifier Test Harness														X
84-825003A 1	Extension Cable				X		X	X	X				X		X
91-58222A 1	Dial Indicator	X	X	X	X	X	X	X	X	X	X	X	X	X	X
91-802650 1	Clamp On Current Probe	X	X	X	X	X	X	X	X	X	X	X	X	X	X
91-809871 2	New Style Vacuumate Carburetor Turner									X	X	X	X	X	X
91-850439T 1	Spark Gap Tester	X	X	X	X	X	X	X	X	X	X	X	X	X	X
91-875216	Brush Holder									X	X	X			
91-881824001	Malfunction Indicator Lamp									X	X	X			X
91-881824004	Stator Coil Harness									X	X	X			
91-881825	Crank Position Sensor Test Harness												X		
91-881826	ECM (Coil Primary) Test Harness												X		
91-881827	Throttle Position Sensor Test Harness												X		
881828(2)	Tamper Proof Screw Torx Bit Set						X	X	X	X	X	X	X	X	X
91-89045 1	Direct Voltage Adapter	X	X	X	X	X	X	X	X	X	X	X	X	X	X
91-892647A01	DMT 2004 Digital Multimeter	X	X	X	X	X	X	X	X	X	X	X	X	X	X
91-99379	Timing Light	X	X	X	X	X	X	X	X	X	X	X	X	X	X
91-895190	Flywheel Remover	X	X	X	X	X	X	X	X	X	X	X	X	X	X
91-895191	Crankshaft Holding Tool	X	X	X	X	X	X	X	X	X	X	X	X	X	X
91-895343T02	Flywheel Puller/Lifting Ring												X		
91-83163M	Flywheel Holder						X	X	X	X	X	X	X	X	X
91-83164M	Flywheel Puller/Lifting Ring	X	X	X	X	X	X	X	X	X	X	X	X	X	X
91-52344	Flywheel Holding Tool													X	
91-24937T01	Flywheel Holder Strap	X	X	X	X	X	X	X	X	X	X	X	X	X	X
91-895343T02	Flywheel Puller/Lifting Ring												X		
91-99750A 1	DVA Multimeter Kit	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CDS(1)	Computer Diagnostic System				X	X	X	X	X	X	X	X	X	X	X

(1) Order Through Bosch (USA and Canada) 1-800-345-2233; (Europe) 496 182 959 149; (Australia) (03) 9544-6222  
 NLA (No Longer Available)

# ELECTRICAL TOOL APPLICATION CHARTS

## OPTIMAX MODEL ELECTRICAL TOOL APPLICATION

### OptiMax Electrical Tool Application Chart

Part Number	Description	75/90/115 OptiMax DFI	115/135/150/175 OptiMax DFI	200 OptiMax Jet Drive	200/225 OptiMax DFI	225/250 Pro XS OptiMax
91-822560A 5	Adapter Harness	X	X	X	X	X
84-822560T12	2 to 4 Pin Harness Adapter	X	X		X	X
84-825003A 1	Extension Cable	X	X	X	X	X
91-24161	Protector Cap	X	X	X	X	X
91-52344	Flywheel Holding Tool	X	X	X	X	X
91-802650 1	Clamp-On Current Probe	X	X	X	X	X
91-849154T 1	Flywheel Puller	X	X	X	X	X
91-850439T 1	Spark Gap tester	X	X	X	X	
91-892647A01	DMT 2004 Digital Multimeter	X	X	X	X	X
91-99379	Timing Light	X	X	X	X	
91-99750A 1	DVA/Multimeter	X	X	X	X	
CDS(1)	Computer Diagnostic System(CDS)					

(1) Order Through Bosch (USA and Canada) 1-800-345-2233; (Europe) 496182 959 149; (Australia) (03) 9544-6222

## VERADO MODEL ELECTRICAL TOOL APPLICATION

### Verado FourStroke Electrical Tool Application Chart

Part Number	Description	135/150/175 (L4)	200/225/250/275 (L6)	175 thru 250 (V6)	200 thru 300 (V8)
84-822560A13	Adapter Harness	X	X		
84-825003A 1	Extension Cable	X	X		
91-52344	Flywheel Holding Tool		X		
91-803146A04	Hose Clamp Tool Kit	X	X		
91-892647A01	DMT 2004 Digital Multimeter	X	X		
91-895343T02	Flywheel Puller/Lifting Ring	X	X		
CDS(1)	Computer Diagnostic System	X	X		

(1) Order Through Bosch (USA and Canada) 1-800-345-2233; (Europe) 496182 959 149; (Australia) (03) 9544-6222

## ELECTRICAL

## CRIMPING TOOL



91-808696

Crimps the electrical connector to the wire.

## DIRECT VOLTAGE ADAPTER



91-89045 1

Direct voltage adapter tool.

## AMPERE PROBE TOOL



91-802650 1

All applications.

## TRANSOM MOUNTED IGNITION KEYSWITCH



15000A14

Includes a push-to-choke function and a warning horn. Has a 6 ft. (182 cm) cable length. Has the 14 pin engine connector.

Fits many varying outboards and applications beginning in Model Year 2006 where a keyswitch with warning horn and choke (enricher) function is desired. Outboards require a remote control engine harness be used in conjunction with this switch in order for it to function. Warning horn feature is not present on all model outboards.

## TRANSOM MOUNTED IGNITION KEYSWITCH



15000A 7

Includes a push-to-choke function and a warning horn. Has a 6 ft. (182 cm) cable length. Has an 8 pin engine connector.

Fits many varying outboards and applications through Model Year 2005 where a keyswitch with warning horn and choke (enricher) function is desired. Outboards require a remote control engine harness be used in conjunction with this switch in order for it to function. Warning horn feature is not present on all model outboards.

## REMOTE SWITCH



91-52024A 1

Use for oil pump testing.

## MERCATHODE REFERENCE ELECTRODE TESTER



91-8M0135998

Use with a digital multimeter to test the function of Mercathode systems. Senses an electrical current in the water when testing the Mercathode system.

## ELECTRICAL HARDWARE KIT



86-813937A 2

Contains a broad selection of the electrical connectors used on Mercury/Mariner/Force and MerCruiser products.

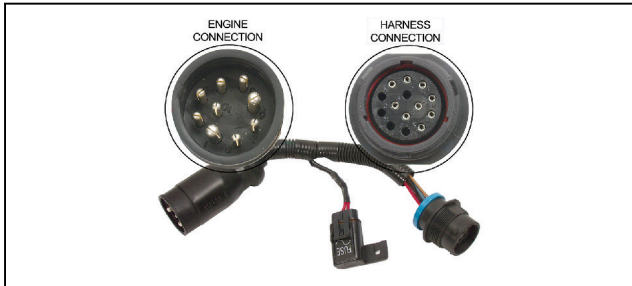
## IGNITION TIMING TOOL



**91-818812A 1**

Locks the electronic spark trigger ignition system in base timing mode to set the initial ignition timing. Also used as a jumper lead for testing various circuits. Outboard and MerCruiser

## ADAPTER - NON DTS 10 PIN TO 14 PIN



**84-892444T02**

Adapter that allows you to connect engines that have the older 10 pin engine harness to the newer 14 pin helm harness. MCM/MIE engines that have the 10 pin engine harness.

## TACHOMETER / MULTI METER KIT



**91-892647A01**

Measures RPM on spark ignition (SI) engines. ohms, amperes, AC and CD voltages; records maximums and minimums simultaneously and accurately reads in high RFI environments. Outboard and MerCruiser

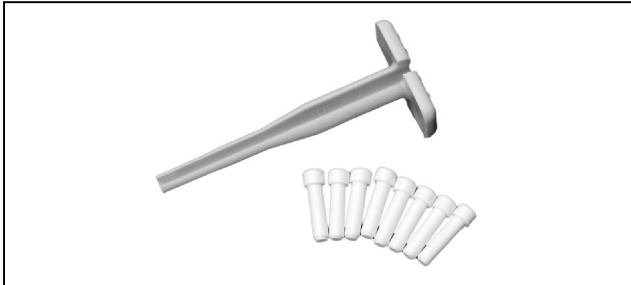
## DVA/MULTIMETER



**91-99750A 1**

Tests the electrical and ignition systems. Consists of a VOA meter with built-in direct voltage adapter.

## 14 PIN DEPINNING TOOL



**91-896352A01**

Used to remove pins on 14 pin DTS and non-DTS harnesses.

## KEY SWITCH W/ HARNESS - NON DTS 14 PIN



**84-896537K02**

2 ft. harness (896537A02) with new 14 pin connector for the engine and additional connectors that allow easy quick connect solutions to the rigging process. Included in this kit is also the new 3 position water-proof high quality keyswitch. (897716) 2006 and newer Non DTS Outboards from 25 Hp to 250 HP- 14 Pin Connectors All MCM / MIE engines equipped with 14 pin connectors

**TWO STROKE ELECTRICAL TOOLS**

**DIAGNOSTIC TEST ADAPTER HARNESS**



**91-822560A 5**

Data link adapter harness between engine and Computer Diagnostic system (CDS) or Digital Diagnostic Terminal (DDT).  
 1994 1/2 and up - 2.5L EFI (with 824003 ECM only)  
 1994 1/2 - ProMax/Super Max/Super Magnum  
 1997 and up DFI/Optmax Outboards

**ADAPTER HARNESS**



**84-822560T12**

Adapts the 2 pin Digital Diagnostic Terminal harness (822560A5) to the flat 4 pin connector on the engine.  
 Verado 200-275 Hp  
 PCM 555 Models

**TEST HARNESS-TPS/CDM**

Image not Available.

**84-825207A 2**

Test harness used for capacitor discharge module and throttle position sensor. Aids in testing primary ignition voltage and performing various resistance checks.

**REMOTE SWITCH**



**91-52024A 1**

Use for oil pump testing.

**FLYWHEEL HOLDER TOOL**



**91-52344**

Holds and /or turns the flywheel while making engine repairs. Also used to torque the flywheel or the engine coupler.  
 Use with teeth type flywheel.

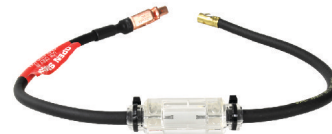
**DIAL INDICATOR TOOL**



**91-58222A 1**

Measures distance, movement and runout. Used for the drive system assembly and engine setup.

**SPARK GAP TESTER**



**91-63998A 1**

Provides a visual indication of spark/coil efficiency.

**AMPERE PROBE TOOL**

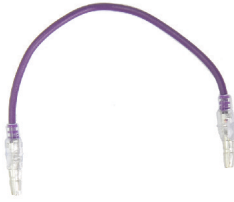


**91-802650 1**

All applications.

# TWO STROKE ELECTRICAL TOOLS

## IGNITION TIMING TOOL



**91-818812A 1**

Locks the electronic spark trigger ignition system in base timing mode to set the initial ignition timing. Also used as a jumper lead for testing various circuits. Outboard and MerCruiser

## FLYWHEEL HOLDER



**91-83163M**

Holds and/or turns the flywheel while making engine repairs. Used to torque the flywheel or the engine coupler.

## FLYWHEEL PULLER



**91-849154T 1**

Removes the flywheel from the crankshaft.

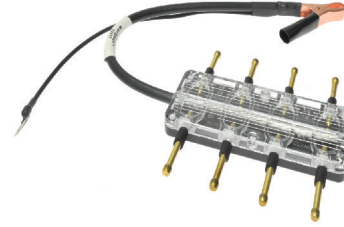
## PROTECTOR CAP



**91-24161**

Protects the crankshaft when removing the flywheel. Use with flywheel puller (P/N 849154T1).

## SPARK GAP TESTER



**91-850439T 1**

Provides a visual indication of spark/coil efficiency.

## SPARK PLUG EXTENSION TEST HARNESS

Image not Available.

**91-877870A 1**

Connects between the spark plug leads and Spark Gap Tester to provide additional length to the spark plug leads when testing ignition spark. Use with 850439T1 Spark Gap Tester.

## TIMING DECAL

**91-853883 1**

Aids in troubleshooting ignition timing on three cylinder engines by determining the timing of individual cylinders.

**91-853883 3**

Aids in troubleshooting ignition timing on six cylinder engines by determining the timing of individual cylinders.

## THROTTLE POSITION SENSOR TEST HARNESS



**91-859199**

Test harness links between the throttle position sensor and the main engine harness to check the throttle position sensor signal.

## DIRECT VOLTAGE ADAPTER



**91-89045 1**

Direct voltage adapter tool.

**TACHOMETER / MULTI METER KIT**



**91-892647A01**

Measures RPM on spark ignition (SI) engines. ohms, amperes, AC and CD voltages; records maximums and minimums simultaneously and accurately reads in high RFI environments.  
Outboard and MerCruiser

**TIMING LIGHT**



**91-99379**

Used to check ignition timing.

**DVA/MULTIMETER**



**91-99750A 1**

Tests the electrical and ignition systems. Consists of a VOA meter with built-in direct voltage adapter.



**FOURSTROKE ELECTRICAL AND IGNITION TOOLS**

**FOURSTROKE ELECTRICAL AND IGNITION TOOLS**

**DIAGNOSTIC TEST ADAPTER HARNESS**



**91-822560A 5**

Data link adapter harness between engine and Computer Diagnostic system (CDS) or Digital Diagnostic Terminal (DDT).  
 1994 1/2 and up - 2.5L EFI (with 824003 ECM only)  
 1994 1/2 - ProMax/Super Max/Super Magnum  
 1997 and up DFI/Optmax Outboards

**HARNESS DIAGNOSTIC TESTER**



**84-822560A13**

Data link diagnostic tester harness between engine and Computer Diagnostic System (CDS).  
 4-pin connector. No additional harness required.  
 600 SCi - 662/700 SCi  
 Verado 200-275 Hp  
 PCM 555 models

**RECTIFIER TEST HARNESS**

Image not Available.

**91-888862**

Allows testing of the voltage regulator/rectifier.

**ADAPTER HARNESS**



**84-825003A 1**

Data link extension harness (3.05m (10 ft) between 2 pin digital diagnostic terminal harness to the 4 pin connector on the engine.

**FLYWHEEL HOLDER STRAP**



**91-24937T01**

Holds the flywheel on manual start engines when removing the flywheel nut.

**FLYWHEEL HOLDER TOOL**



**91-52344**

Holds and /or turns the flywheel while making engine repairs. Also used to torque the flywheel or the engine coupler.  
 Use with teeth type flywheel.

**DIAL INDICATOR TOOL**



**91-58222A 1**

Measures distance, movement and runout. Used for the drive system assembly and engine setup.

**AMPERE PROBE TOOL**



**91-802650 1**

All applications.

**VACUUMATE CARBURETOR TUNER**

Image not Available.

**91-809871 2**

Allows the technician to balance the carburetors.

## FLYWHEEL HOLDER



**91-83163M**

Holds and/or turns the flywheel while making engine repairs. Used to torque the flywheel or the engine coupler.

## OUTBOARD ENGINE LIFTING EYE/FLYWHEEL PULLER

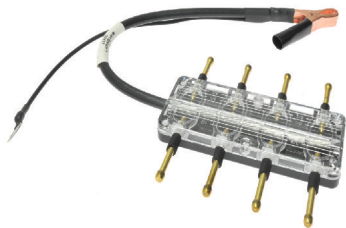


**91-83164M**

Threads into flywheel for lifting powerhead/engine. Also used as a flywheel puller to remove flywheel from engine.

Fits numerous outboard products including the 40/45/50/60 (4 cyl. - 4-Stroke) and the 75/90/115 FourStroke (s/n 1B366822 and below) outboard engines.

## SPARK GAP TESTER



**91-850439T 1**

Provides a visual indication of spark/coil efficiency.

## BRUSH HOLDER

Image not Available.

**91-875216**

Holds the starter motor brushes in place when installing the armature.

## MALFUNCTION INDICATOR LAMP

**91-881824001**

Aids in engine diagnostics by displaying basic engine fault codes.

## STATOR COIL HARNESS

**91-881824004**

Links between the stator coil or the voltage regulator/rectifier and the main engine harness to check peak voltage.

## CRANK POSITION SENSOR TEST HARNESS

**91-881825**

Links between the crank position sensor and the main engine harness to check the crank position sensor signal.

## ECM TEST HARNESS

**91-881826**

Electronic Control Module (ECM) (Coil Primary) Test Harness. Links between the ignition coil and the main engine harness to measure the peak voltage going from the ECM to the Ignition coil.

## THROTTLE POSITION SENSOR TEST HARNESS

**91-881827**

Links between the throttle position sensor and the main engine harness to check the throttle position sensor signal.

## DIRECT VOLTAGE ADAPTER



**91-89045 1**

Direct voltage adapter tool.

## TACHOMETER / MULTI METER KIT



**91-892647A01**

Measures RPM on spark ignition (SI) engines. ohms, amperes, AC and CD voltages; records maximums and minimums simultaneously and accurately reads in high RFI environments.

Outboard and MerCruiser

## FLYWHEEL REMOVER TOOL

Image not Available.

**91-895190**

Aids in the removal of the flywheel.

## CRANKSHAFT HOLDING TOOL



**91-895191**

Holds crankshaft while servicing the powerhead.

# FOURSTROKE ELECTRICAL AND IGNITION TOOLS

## LIFTING EYE/FLYWHEEL PULLER



**91-895343T02**

A combination tool utilized for both lifting the engine and for pulling the flywheel. Fits the 75-115 hp. FourStroke outboards (s/n 1B366823 and above), 135-300 hp. Verado outboards and the F150 EFI FourStroke outboard.

## TIMING LIGHT



**91-99379**

Used to check ignition timing.

## DVA/MULTIMETER



**91-99750A 1**

Tests the electrical and ignition systems. Consists of a VOA meter with built-in direct voltage adapter.

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# LUBRICANT / SEALANT / ADHESIVE CHART

## LUBRICANT / SEALANT / ADHESIVE CHART

### Lubricant/Sealant/Adhesive Chart

Part Number	Tube Ref No.	Description	Page
92-8M0071836	4	Grease/Lubricate	155
92-823506 1	6	Diellectric Grease	155
92-809819	7	Loctite 271 Threadlocker	161
92-809822	9	Loctite 567 PST Pipe Sealant	159
(1)	10	Loctite 277	
92-12564 2	12	Loctite Master Gasket Kit	161
92-858021K01	14	2-Cycle Premium Outboard Oil	157
92-34227Q02	19	Perfect Seal	159
92-25711 3	25	Liquide Neoprene	160
92-86166Q 1	27	Bellows Adhesive	160
92-809833	33	Lictite 680 Retaining Compound	161
92-802859Q 1	34	Special Lubricant 101	155
(1)	36	P80 Rubber Lubricant	
92-8M0071842	42	U-Joint and Gimbal Bearing Grease	156
(1)	44	Hi-Pressure Grease	
92-809818	51	Loctite 222 Threadlocker	161
(1)	62	Cyanacrylate Adhesive	
92-809821	66	Loctite 242 Threadlocker	161
(1)	67	Loctite 290	
(1)	68	Loctite 609	
(1)	74	Loctite 405	
92-8M0078627	79	25W40 Marine Oil - 4 cyl	157
92-8M0069603	80	SAE 5W30 Engine Oil 1 L	157
92-8M0069602	80	SAE 5W30 Engine Oil 4 L	157
92-858024Q01		15W40 4-Cycle Diesel Engine Oil	
92-858058K01	82	Premium Gear Lubricant 1 qt	156
(1)	86	Loctite 262	
92-858064K01	87	High Performance Gear Lube	156
92-8M0071842	91	Grease	156
92-8M0071838	94	Anti-corrosion Grease	155
92-802859A 1	95	2-4 C with PTFE	155
92-8M0071842	98	High Performance X-Grease	156
(1)	99	Isopropyl Alcohol	
92-8M0078625	110	4-Stroke 10W30 Outboard Oil	156
(1)	113	Loctite Moly Paste(Molybdenum Disulfide Grease)	
92-858074K01	114	Power Trim and Steering Fluid	156
92-858026K01	115	Premium Plus 2-Cycle TC-W3 Outboard Oil	157
92-809825	116	RTV 587 Ultra Blue Silicone Sealer	159
92-809824	117	Loctite 7649 Primer N	161
92-858081K03	119	Storage Seal Rust Inhibitor	159
92-802878 55	120	Corrosion Guard	159
92-877770K 1	122	Extended Life Antifreeze/Coolant	158
(2)	123	Marine Engine Coolant	
92-8M0047932	124	Fuel System Treatment and Stabilizer	158
92-8M0119689	125	Hear Transfer Compound	159
(2)	126	Liquid Gasket	
92-862258	127	T442 Sealant	160
92-809826	128	Loctite 5900 Ultra Black RTV Silicone Sealant	160
92-809828 1	129	Loctite Gasket Remover	160
92-65150 1	130	Sealer Kit Two Part Epoxy	160
(1)	131	Loctite 5920 Ultra copper Hi Temp RTV Silicone	

Part Number	Tube Ref No.	Description	Page
(2)	132	Alpha 2000 HD with Moly	
(1)	133	CT-C30A Lubricating Grease	
(1)	134	Loctite 380	
92-858005K02	135	Three Bond 1217F	160
(1)	136	Lubriplate SPO 255	
92-8M0121751	137	Three Bond Adhesive 5512	162
92-858077K01	138	Synthetic Power Steering Fluid	156
92-8M0078629	139	Synthetic Blend 4-Stroke Outboard Oil 25W40	

(1) Purchase Locally

(2) NA (Not Available)

LUBRICANTS

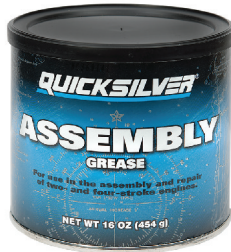
SILICONE DIELECTRIC COMPOUND



92-823506 1

Protects and displaces moisture from spark plug boots, coils, and electrical switches.  
227 g (8 oz) tube  
Quicksilver Branded

ASSEMBLY GREASE



92-8M0071836

Use to protect newly repaired or rebuilt engines. Will not contaminate engine lubricants and dissolves completely after initial engine startup.

Recommended for engine components that are susceptible to wear at startup such as:

- \* Bearings
- \* Camshaft lobes
- \* Lifters
- \* Rocker arms
- \* Wrist pins

For use in the assembly and repair of two and four stroke engines.

Priced individually, sold @ multiples of 4

454 g (16 oz)

Quicksilver Branded

2-4-C MARINE LUBRICANT



92-802859Q 1

Designed to withstand extreme friction in all marine applications including steering systems, cable linkages and trailer wheel bearings.

Priced individually, sold @ multiples of 12

227 g (8 oz) tube

Quicksilver Branded

2-4-C MARINE LUBRICANT WITH PTFE



92-802859A 1

For use in the following marine equipment applications.

- \*Steering systems/cable linkages
- \*Throttle and shift cables and linkages
- \*Remote controls
- \*Prop shafts
- \*Swivel pins
- \*Tilt lock mechanisms/tilt tube
- \*Hinge pins
- \*Boat trailer wheel bearings

Priced individually, sold @ multiples of 12

227 g (8 oz) tube

Mercury Branded

EXTREME GREASE



92-8M0071838

For use in the following applications:

- \*Steering systems/cable linkages and linkages
- \*Drive shaft splines
- \*Gimbal bearings
- \*U-joints
- \*Suspension systems
- \*Chassis
- \*Ball joints
- \*disc brakes and ABS applications
- \*Trailer wheel bearings

Priced individually, sold @ multiples of 6

227 g (8 oz) tube

Quicksilver Branded

## EXTREME GREASE



**92-8M0071842**

For use in the following applications:  
 \* Steering systems/cable linkages  
 \* Throttle and shift cables and linkages  
 \* Drive shaft splines  
 \* Gimbal bearings  
 \* U-Joints  
 \* Suspension systems  
 \* Chassis  
 \* Ball joints  
 \* Disc brakes and ABS applications  
 \* Trailer wheel bearings

Priced individually, sold @ multiples of 4  
 (14 oz) cartridge  
 Mercury Branded

## POWER TRIM AND STEERING FLUID



**92-858074K01**

A universal hydraulic fluid designed to mix with all hydraulic fluids, protect seals and hoses, and prevent foaming, oxidation and corrosion.  
 Recommended for all outboard and sterndrive applications except electric power steering systems (use Synthetic Power Steering Fluid SAE 0W30) and non-power hydraulic steering systems (use Hydraulic Helm Steering Fluid)

Recommended for all applications that require a Type F Transmission Fluid  
 Priced individually, sold @ multiples of 12  
 237 ml (8 fl oz) plastic bottle  
 Mercury Branded

## SYNTHETIC POWER STEERING FLUID SAE 0W-30



**92-858077K01**

Recommended for electric power steering systems such as Verado, JPO and Axius Gen II. Recommended for transmission and steering and actuator systems for Zeus drives  
 Priced individually, sold @ multiples of 6  
 946 ml (32 fl oz) plastic bottle  
 Mercury Branded

## SAE 80W90 GEAR LUBE



**92-858058K01**

For use in all outboard lower units and jet pumps below 75 hp.  
 Priced individually, sold @ multiples of 6  
 946 ml (32 fl oz) plastic bottle  
 Mercury Branded

## SAE 90 GEAR LUBE



**92-858064K01**

For use in all outboard lower units, jet pumps, and Sport Jets and all Mercury MerCruiser sterndrives.  
 Priced individually, sold @ multiples of 6  
 946 ml (32 fl oz) plastic bottle  
 Mercury Branded, Point of Sale Packaged.

## 10W30 MARINE OIL



**92-8M0078625**

Superior corrosion protection. Most recommended OEM marine engine Oil.  
 For use in 4-cycle outboard engines.  
 Priced individually, sold @ multiples of 6  
 946 ml (32 fl oz) plastic bottle  
 Mercury Branded



**25W40 MARINE OIL**



**92-8M0078627**

Superior corrosion protection. Most recommended OEM marine engine oil. For use in 4-cycle outboard, sterndrive and inboard engines. Priced individually, sold @ multiples of 6  
946 mL (32 fl oz) plastic bottle  
Mercury Branded

**25W40 MARINE OIL**



**92-8M0078628**

Superior corrosion protection. Most recommended OEM marine engine oil. For use in 4-cycle outboard, sterndrive and inboard engines. Priced individually, sold @ multiples of 3  
3.78 L (1 US gal) plastic bottle  
Mercury Branded

**PREMIUM TCW3 OIL**



**92-858021K01**

This all weather formula provides protection in temperatures down to -13° F (-25° C). Priced individually, sold @ multiples of 6  
946 mL (32 fl oz) plastic bottle  
Mercury Branded

**PREMIUM PLUS TCW3 OIL**



**92-858026K01**

Extreme protection. Exceptional marine formulation for high horsepower and heavy-duty applications. Priced individually, sold @ multiples of 6  
946 mL (32 fl oz) plastic bottle  
Mercury Branded

**5W30 FULL SYNTHETIC TDI ENGINE OIL**



**92-8M0069603**

Meets Volkswagen VW 504.00/507.00 and ACEA C3. Most recommended marine oil brand. For use in Turbocharged Direct Injection (TDI) diesel engines. Priced individually, sold @ multiples of 6  
1L (33.8 oz) plastic bottle  
Quicksilver Branded

**5W30 FULL SYNTHETIC TDI ENGINE OIL**



**92-8M0069602**

Full Synthetic TDI Engine Oil (5W30) For use in Turbocharged Direct Injection (TDI) diesel engines. Priced individually, sold @ multiples of 3  
4 L (1.06 gal) plastic bottle  
Quicksilver Branded

## 15W40 DIESEL ENGINE OIL



**92-858042K01**

Superior performance in marine diesel applications.  
 Priced individually, sold @ multiples of 3  
 4 L (1.06 US gal) plastic bottle  
 Mercury Branded

## MERCURY EXTENDED LIFE COOLANT/ANTIFREEZE



**92-877770K 1**

Provides extended life protection for closed cooling systems. This 5 year, 1000 hour protection is ethylene glycol based and pre-diluted 50/50 with de-ionized water. It is silicate and phosphate free and will not cause gelling. Provides freeze protection down to -34 deg. F and boiling protection to 265 deg. F. It is also compatible with conventional anti-freeze, but dilution will reduce extended life benefits.

Meets ASTM D-3306, ATSM D-4340

For use in all MCM/MIE gasoline engines with closed cooling systems.  
 Also recommended for the following applications:

- ANFOR R 15-601
- BS 6580 (British standard)
- Chrysler MS7170
- Chrysler MS9769
- Ford ESE-M97B44-A
- Ford WSS-M97B44-D
- Ford WSS-M97B51-A1
- FVV HEFT R443 (Germany)
- GM 1825M
- GM 6277M (DEX-COOL® specification)
- JASO M325 (Japan)
- JIS K 2234 (Japan)
- SAE J1034
- Mercedes Benz DBL 7700

Priced individually, sold @ multiples of 4

3.78 L (1 US gal) plastic bottle

Mercury Branded

## QUICKSTOR FUEL STABILIZER



**92 8M0047932**

For all grades of gas and ethanol blends.  
 Priced individually, sold @ multiples of 12

355 mL (12 oz.) plastic bottle

Mercury Branded

SEALANTS

LOCTITE 567 PST PIPE SEALANT



92-809822

Excellent high pressure and high temperature pipe and fitting sealant. Eliminates galling of stainless steel during assembly. For any threaded fitting/sensor in water or oil.

50 ml (1.69 fl oz) tube

PERFECT SEAL SEALING COMPOUND



92-34227Q02

Used in general sealant applications.

473 ml (16 fl oz) can

Quicksilver Branded

LOCTITE 587 ULTRA BLUE RTV SILICONE SEALANT



92-809825

Low odor, non-corrosive, low volatility sealant and high temperature gasket compound. Makes reliable form-in-place gaskets. Temp. range is 75 deg.F (24 deg.C) to 500 deg.F (260 deg.C)

85 g (3 oz) tube

STORAGE SEAL FOGGING OIL



92-858081K03

Mercury Storage Seal forms a protective barrier that prevents rust on internal metal surfaces. It also keeps cylinders lubricated to prevent cylinder or piston damage when starting your engine after storage.

Use in all 2- and 4-cycle carbureted and fuel-injected gasoline engines including cars, trucks, motorcycles, ATVs, snowmobiles, marine engines, lawn mowers, chain saws, string trimmers and snow blowers. Safe for catalyzed engines.

Priced individually, sold @ multiples of 12

340 g (12 oz) spray can

Mercury Branded

CORROSION GUARD



92-802878 55

Corrosion Guard is a rust inhibitor that forms a water resistant barrier on non-painted and painted surfaces.

Use to prevent rust from forming on out drives, lower units and power trim motors and components or other metal surfaces. Can also be used to prevent further paint damage in areas where undercutting and blistering have occurred. Do not spray on surfaces coated with antifouling or biocide paint. Do not spray on drive belts.

Priced individually, sold @ multiples of 6

312 g (11 oz) spray can

Mercury Branded

HEAT TRANSFER COMPOUND



92-8M0119689

Helps transfer heat from the electric fuel pump to the mounting plate and cooler on all MCM cool fuel systems, also helps transfer heat from ignition modules to the distributor bodies.

9.5 g (.33 oz) tube

# SEALANTS

## RTV SILICONE RUBBER



92-862258

Navistar Int'l Truck & Engine SEALANT-T442

184 g (4.7 oz) tube

## THREEBOND LIQUID GASKET



92-858005K02

This silicone-based liquid gasket fills gaps on a flange surface and thus completely prevent leaks. When cured, it forms an excellent rubber-like elastic body offering excellent resistance to vibration and shock. It also has an excellent resistance to heat and effectively seals joints that are subjected to high temperature.

Recommended for sealing powerheads and adapter plate gaskets

75 g (2.65 oz) tube

## LOCTITE 5900 BLACK RTV SILICONE SEALANT



92-809826

Slightly heavier body than 587 Blue, which helps resist blowout during assembly. Makes reliable form-in-place gaskets. Temp. range is 75 deg.F (24 deg.C) to 625 deg.F (329 deg.C)

371 g (13 oz) tube

## LOCTITE GASKET REMOVER



92-809828 1

Removes baked-on gaskets, gasket cements, form-in-place gaskets, carbon deposits, oil, grease and paint. Use extreme caution around painted surfaces. Non-corrosive to aluminum.

Priced individually, sold @ multiples of 10

532 ml (18 fl oz.) spray can

## EXHAUST TUBE SEALER KIT



92-65150 1

A 2-part mixture that is specifically designed to retain the inner exhaust jacket cover bolts. This is heavy duty thread locker adhesive.

Sealer kit for exhaust tube on older in-line 4 & 6 cyl. engines (pre-1988). These bolts are located next to the exhaust ports and experience extreme temperature variations. With the block being aluminum and the bolt being steel, they need to use this sealer to keep the bolts from coming loose.

Quicksilver Branded, Box Point of Sale Packaged.

## BELLOWS ADHESIVE



92-86166Q 1

Securely seals universal and exhaust bellows.

For all MCM sterndrives.

42.5 g (1.5 oz) tube

Quicksilver Branded, Box Point of Sale Packaged.

## LIQUID NEOPRENE



92-25711 3

Insulate and seal electrical connections.

237 ml (8 fl oz.) can

ADHESIVES

**LOCTITE 271- HIGH STRENGTH THREAD LOCKER**



92-809819

Used in extreme duty applications where permanent lock is critical.  
10 ml (.34 fl oz) plastic bottle

**LOCTITE® 518™ GASKET ELIMINATOR® FLANGE SEALANT**



92-12564 2

Forms a flexible, solvent-resistant seal that will not tear or decay. Seals to 300 F (149 C) and fills gaps to .05 in (1.27mm). Can be used on flexible metal assemblies, including aluminum surfaces. Easy disassembly for cleaning. Ideal for on-the-spot and emergency repairs or when a conventional gasket is out of stock. Gaskets and sealing: Suited best for small gap applications and rigid metal-to-metal assemblies  
25 ml (0.8 oz) cartridge

**LOCTITE 680 RETAINING COMPOUND**



92-809833

Retains gears, pulleys, flywheels, rotors and shafts. Excellent for replacement of bearings in worn housings or keys in worn keyways.  
10 ml (.34 fl oz) plastic bottle

**LOCTITE® 222MS® THREADLOCKER**



92-809818

Ideal for fastener diameters of 1/4 in. (6mm) and smaller, long engagement length fasteners and components requiring occasional adjustment. Threadlocking: Best suited for metals that rust and the parts are not pre-assembled. Low strength formula for easy removal.  
10 ml (.3 oz) plastic bottle

**LOCTITE 242 - MEDIUM STRENGTH THREAD LOCKER**



92-809821

Medium strength for general purpose. Ideal for all nut and bolt combinations. Used where future disassembly or adjustment is possible.  
10 ml (.34 fl oz) plastic bottle

**LOCTITE PRIMER N**



92-809824

Excellent general purpose surface preparation and curing catalyst. Reduces fixture time for most sealants to 5 to 30 minutes; full cure is 24 hours. Used with locking, retaining, pipe and gasketing compounds.  
129 g (4.5 oz) spray can

LOCTITE 5512 ADHESIVE SEALANT



92-8M0121751

High elongation and tensile strength gives this product the best of both worlds: good adhesion to many substrates and good impact and peel resistance  
Recommended for use as adapter plate adhesive  
300 ml (10.1 oz) tube

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