

PERFORMANCE PRODUCTS

THE POWER OF EXPERIENCE



PERFORMANCE 2014 PRODUCTS GUIDE 2014



2014 A New Year with New Opportunities

The entire staff at **Zipper's Performance Products** would like to enthusiastically say "**Thank You!**" for the trust and support you have given our products in your business. As our industry navigates through difficult economic times, we believe an enhanced focus on quality products and customer service will help you rethink and re-tool your business for success. Today's customers understand the value of their dollar, and will pay for excellent, road-ready results. We make it easy to keep them smiling!

During the 1980's, **Zipper's Performance Products** helped revolutionize the aftermarket industry by making durability and performance the hallmark of our company. In 2000, **Zipper's Performance** was the first company to develop and market Twin Cam engine kits that included the total R&D package. Zipper's kits, for the first time, provided you with ways to increase turn-around in your shop while offering value driven results for your customers. 3 decades later, the mantra of that mission is still the same - *quality products with proven results to meet your customers' demands*.

Zipper's Performance Products has pioneered the way again! Investing heavily in research and development, we teamed up with Thunder-Heart Performance to bring exciting new technology to the industry. Products like the ThunderMax with AutoTune have radically changed the way you do business, satisfying even your most particular customers. Zipper's and Thunder-Heart are both proud to announce the much anticipated development of the ThunderMax for Throttle-By-Wire Bikes in this catalog. In addition, Zipper's has updated our Zipper's TC Engine Kits to address all types of shops (easy install!), all types of riders (street-to-strip!), at many different price points (performance value!). Check out our new Red Shift Performance Cams for fuel injected Twin Cams® in this catalog, too.

We believe these new products, together with thirty years of industry-driven results, will create new opportunities for your business in 2014. With this catalog and your business expertise, **Zipper's Performance** knows that 2014 will be an exceptional year. *Let's create new opportunities, and miles of smiles, together in 2014!*









Zipper's Muscle Kits

PERFORMANCE CAMSHAFTS



Zip Kits for 2009-2014 Touring Model Bikes

Our Zip Kits for Touring models include a pre-mapped ThunderMax EFI module and MaxFlow air cleaner kit and are offered with full or partial replacement exhaust systems. Why? All full-replacement performance systems we offer with Zip Kits are fully compatible with the 18mm full RPM-range wide-band sensors that ThunderMax® uses. In 2010, H-D® changed the size and location of the narrow-band (limited RPM-range) oxygen sensors when they added the catalytic converter to the collector area of the header. ThunderMax® can still work with 2010-up headers, but 18mm bungs will need to be added to the factory

catalyst-equipped headers. 2009 49-state standard 96 and 103 inch models are equipped with an excellent performing header pipe equipped with 18mm sensor bungs that is fully compatible with ThunderMax®. We offer Zip Kits that allow you to retain the factory header or replace it, while retaining or replacing your mufflers - you choose!



ZIP KITS FOR 2009-2014 TOURING MODELS PART NO.

Kits with Full Replacement Exhaust Systems (Rinehart True Duals)

For '09-'13 w/Rinehart Xtreme TD, 4" mufflers #217-048 #217-448 For 2014 w/Rinehart Xtreme TD. 4" mufflers #217-050 For '09-'13 w/Rinehart Classic TD. 4" mufflers For 2014 w/Rinehart Classic TD. 4" mufflers #217-450 #217-052 For '09-'13 w/Rinehart Xtreme TD, 3.5" mufflers #217-452 For 2014 w/Rinehart Xtreme TD. 3.5" mufflers

#217-054 For '09-'13 w/Rinehart Classic TD, 3.5" mufflers

#217-454 For 2014 w/Rinehart Classic TD, 3.5" mufflers

Kits with Full Replacement Exhaust Systems (2:1 Style Header)

#217-002 For '09-'13 Touring models with chrome D&D 2:1 Fat Cat #217-402 For 2014 Touring models with chrome D&D 2:1 Fat Cat #217-003 For '09-'13 Touring models with black D&D 2:1 Fat Cat #217-403 For 2014 Touring models with black D&D 2:1 Fat Cat #217-056 For '09-'13 Touring models with chrome Rinehart 2:1 #217-456 For 2014 Touring models with chrome Rinehart 2:1 #217-057 For '09-'13 Touring models with black Rinehart 2:1

Kits with Full Replacement Exhaust Systems (KW 2:2 Cross-Under Headers)

#217-028 For '09-'13 w/KW Headers & D&D 4" Top Slant mufflers #217-428 For 2014 w/KW Headers & D&D 4" Top Slant mufflers #217-030 For '09-'13 w/KW Headers & D&D 4" Back Cut mufflers For 2014 w/KW Headers & D&D 4" Back Cut mufflers #217-430 #217-032 For '09-'13 w/KW Headers & KW HP+ 3.5" Top Slant mufflers #217-432 For 2014 w/KW Headers & KW HP+ 3.5" Top Slant mufflers #217-033 For '09-'13 w/KW Headers & KW HP+ 4" Back Cut mufflers #217-433 For 2014 w/KW Headers & KW HP+ 4" Back Cut mufflers #217-034 For '09-'13 w/KW Headers & KW HP+ 3.5" Back Cut mufflers #217-434 For 2014 w/KW Headers & KW HP+ 3.5" Back Cut mufflers For '09-'13 w/KW Headers & KW HP+ 3.5" Taper mufflers #217-036

For 2014 Touring models with black Rinehart 2:1

For 2014 w/KW Headers & KW HP+ 3.5" Taper mufflers #217-044 For '09-'13 w/KW Headers & Rinehart 3.5" mufflers #217-444 For 2014 w/KW Headers & Rinehart 3.5" mufflers

#217-046 For '09-'13 w/KW Headers & Rinehart 4" mufflers

#217-446 For 2014 w/KW Headers & Rinehart 4" mufflers















ThunderMAX® w/AutoTune





RH 3.5" Mufflers

#217-457

#217-436

Zip Kits for 2009-2014 Touring Model Bikes

ZIP KITS FOR 2009-2014 TOURING MODELS

Kits with Replacement Mufflers Only (Retains Factory Header)

#217-004	For '09-'13 with D&D Top Slant slip-on 4" mufflers*
#217-404	For 2014 with D&D Top Slant slip-on 4" mufflers*
#217-006	For '09-'13 with D&D Back Cut slip-on 4" mufflers*
#217-406	For 2014 with D&D Back Cut slip-on 4" mufflers*
#217-008	For '09-'13 with KW HP+ 3.5" Top Slant mufflers*
#217-408	For 2014 with KW HP+ 3.5" Top Slant mufflers*
#217-010	For '09-'13 with KW HP+ 3.5" Back Cut mufflers*
#217-410	For 2014 with KW HP+ 3.5" Back Cut mufflers*
#217-011	For '09-'13 with KW HP+ 4" Back Cut mufflers*
#217-411	For 2014 with KW HP+ 4" Back Cut mufflers*
#217-012	For '09-'13 with KW HP+ 3.5" Tapered mufflers*

#217-412 For 2014 with KW HP+ 3.5" Tapered mufflers*

#217-014 For '09-'13 with KW HP+Lite 3.5" Top Slant mufflers* #217-414 For 2014 with KW HP+Lite 3.5" Top Slant mufflers*

#217-016 For '09-'13 with KW HP+Lite 3.5" Back Cut mufflers* For 2014 with KW HP+Lite 3.5" Back Cut mufflers* #217-416

#217-024 For '09-'13 with Rinehart 3.5" mufflers* #217-026 For '09-'13 with Rinehart 4" mufflers*

For 2014 with Rinehart 4" mufflers* #217-426

#272-200 Straight weld-in 18mm exhaust bung with cap, each #272-202 Angled weld-in 18mm exhaust bung with cap, each

#272-204 12mm sensor bung caps with gaskets, pair

*All 2010 and later Touring models retaining the catalyst headpipes must have the exhaust bungs relocated for ThunderMax® use, or replaced with a 2009-style non-catalyst headpipe.



#217-058	For '09-'13 w/KW Headers & A/C only, no mufflers
#217-458	For 2014 w/KW Headers & A/C only, no mufflers
#217-060	For '09-'13 w/KW Headers only, No A/C or mufflers
#217-460	For 2014 w/KW Headers only, No A/C or mufflers







Zip Kits for Harley® Tri Glide® Models

HUNDER Got a new 103" Tri-Glide® and wondering where the power is? It's there, you just have to apply some Zip to it! No new engine responds to simple intake, exhaust, and EFI changes like a new Harley engine with a Zip Kit installed. Just bolt-on and plug-in a new Zip Kit, and you'll experience the benefits of Zipper's pre-engineered and road-tested kits. Zip Kits include a pre-mapped ThunderMax® EFI

> module, MAXFlow air cleaner kit, and performance exhaust of choice. Want to take your Trike to another level? Add cams for an even greater HP/Torque boost.



2009-2013	2014	ZIP KITS FOR H-D® TRI-GLIDE® MODELS
#217-059	#217-459	Zip Kit w/Khrome Werks® Power Headers - No Mufflers
#217-035	#217-435	Zip Kit w/Khrome Werks® Headers, 3.5" Back Cut Mufflers
#217-037	#217-437	Zip Kit w/Khrome Werks® Headers, 3.5" Taper Mufflers
#217-039	#217-439	Zip Kit w/Khrome Werks® Headers, 4" Back Cut Mufflers
#217-045	#217-445	Zip Kit w/Khrome Werks® Headers & Rinehart® 3.5" Mufflers
#217-047	#217-447	Zip Kit w/Khrome Werks® Headers & Rinehart® 4" Mufflers
#217-025	#217-425	Zip Kit with Rinehart® 3.5" Mufflers
#217-027	#217-427	Zip Kits with Rinehart® 4" Mufflers
#217-049	#217-449	Zip Kits with Rinehart® Xtreme® 4" True Duals
#217-053	#217-453	Zip Kits with Rinehart® Xtreme® 3.5" True Duals
#517-305	#517-305	Red Shift® 525 Cams Zip Kit

Zip Kits for 2007-2014 Softail[®] & Dyna[®] Models

Our Zip Kits for Softail® and Dyna® models include a pre-mapped ThunderMax EFI module and MaxFlow air cleaner kit and can be purchased with full or partial exhaust systems. Why? All full-replacement performance systems we offer with Zip Kits are fully compatible with the 18mm full RPM-range wide-band sensors that ThunderMax® uses. In 2012, H-D® changed the size and location of the narrow-band (limited RPM-range) oxygen sensors to 12mm verses the 18mm sensors used from 2007-2011.



ThunderMax® can still work with 2012-up headers, but 18mm bungs will need to be added to the factory headers (weld-in bungs are available separately). 2007-2011 models are equipped with excellent performing header pipes equipped with 18mm sensor bungs that are fully compatible with ThunderMax®.

PART NO. ZIP KITS FOR 2007-2014 SOFTAIL® MODELS

Kits with Full Replacement Exhaust Systems (2:1 Style Header)

*

*Bob Cat systems are supplied with chrome or black headers and your choice of aluminum, black or carbon sleeved muffler bodies.

Kits with Full Replacement Exhaust Systems (2:2 Dual Systems)

Rinehart Zip Kits are available in black, call your Zipper's rep for prices.

#217-124	For '07-'14 Softail® with chrome Rinehart 2:1
#217-126	For '07-'14 Softail® with chrome Rinehart 2:2 (Flush)
#217-128	For '07-'14 Softail® with chrome Rinehart 2:2 (Stagger)
#217-130	For '07-'14 Softail® with chrome Rinehart 2:2 (Churchill)
#217-132	For '07-'14 Softail® with chrome Rinehart 2:2 (X-Back Flush)

Kits with Replacement Mufflers Only (Retains Factory Headers)

#217-114	For '07-'14 Softail® with D&D Slash Cut slip-on mufflers*
#217-116	For '07-'14 Softail® with D&D Shotgun slip-on mufflers*
#217-118	For '07-'14 Softail® w/Khrome Werks Slash slip-on mufflers*
#217-120	For '07-'14 Softail® w/Khrome Werks Taper slip-on mufflers*
#217-122	For '07-'14 Softail® with Full Boar Slash slip-on mufflers*
#272-200	Straight weld-in 18mm exhaust bung with cap, each
#272-202	Angled weld-in 18mm exhaust bung with cap, each
#272-204	12mm sensor bung caps with gaskets, pair

*All 2012 and later models retaining the factory headers must have the exhaust bungs relocated for ThunderMax® use, or replaced with 2007-2011 style headers.

PART NO. ZIP KITS FOR 2006-2014 DYNA® MODELS

Kits with Full Replacement Exhaust Systems (2:1 Style Header)

#217-212	For '06-'14 Dyna® with ch	rome D&D 2:1	Fat Cat
#217-214	For '06-'14 Dyna® with bla	ack D&D 2:1 Fa	at Cat

Kits with Full Replacement Exhaust Systems (2:2 Dual Systems)

Rinehart Zip Kits are available in black, call your Zipper's rep for prices. #217-226 For '06-'14 Dyna® with chrome Rinehart 2:1 #217-228 For '06-'14 Dyna® with chrome Rinehart 2:2 (Flu

#217-228 For '06-'14 Dyna® with chrome Rinehart 2:2 (Flush)
#217-230 For '06-'14 Dyna® with chrome Rinehart 2:2 (Stagger)
#217-232 For '06-'14 Dyna® with chrome Rinehart 2:2 (Churchill)
#217-234 For '06-'14 Dyna® with chrome Rinehart 2:2 (X-Back Flush)

Kits with Replacement Mufflers Only (Retains Factory Headers)

#217-216 For '06-'14 Dyna® with D&D Slash Cut slip-on mufflers* #217-218 For '06-'14 Dyna® with D&D Shotgun slip-on mufflers* #217-220 For '06-'14 Dyna® w/Khrome Werks Slash slip-on mufflers* #217-222 For '06-'14 Dyna® w/Khrome Werks Taper slip-on mufflers* #217-224 For '06-'14 Dyna® with Full Boar Slash slip-on mufflers* #272-200 Straight weld-in 18mm exhaust bung with cap, each #272-202 Angled weld-in 18mm exhaust bung with cap, each #272-204 12mm sensor bung caps with gaskets, pair

*All 2012 and later models retaining the factory headers must have the exhaust bungs relocated for ThunderMax® use, or replaced with 2006-2011 style headers.















Zip Kits for 2007-2014 Sportster® Models



Our Zip Kits for Sportster® models include a premapped ThunderMax® EFI module and MaxFlow air cleaner kit and can be purchased with full or partial exhaust systems. ThunderMax® wide-band oxygen



sensors are compatible with all factory headers supplied from 2007-2013. models retaining the factory header pipes must have the 12mm oxygen sensor bungs modified to accept 18mm sensors.



Part No. Zip Kits for 2007-2014 Sportster® Models

Kits with Full Replacement Exhaust Systems (2:1 Style Header)

#217-302	For '07-'13 Sportster® with chrome D&D 2:1 Fat Cat
#217-304	For '07-'13 Sportster® with black D&D 2:1 Fat Cat
#217-306	For '07-'14 Sportster® with chrome D&D 2:1 Bob Cat
#217-308	For '07-'14 Sportster® with black D&D 2:1 Bob Cat

*Bob Cat systems are supplied with chrome or black headers and your choice of aluminum, black or carbon sleeved muffler bodies



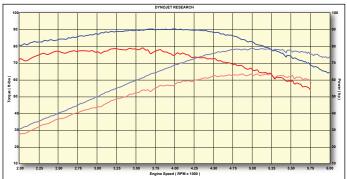
"Best Money I've Ever **Spent - Smoother.**

Stronger, Cooler Running!"

Kits with Replacement Mufflers Only (Retains Factory Headers)

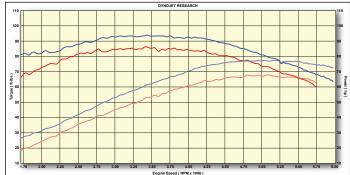
#217-310	For '07-'14* Sportster® w/chrome D&D Slash slip-on mufflers
#217-312	For '07-'14* Sportster® w/black D&D Slash slip-on mufflers
#217-314	For '07-'13 Sportster® w/chrome D&D Shotgun slip-on mufflers
#217-316	For '07-'13 Sportster® w/black D&D Shotgun slip-on mufflers
#217-318	For '07-'13 Sportster® w/Khrome Werks Slash slip-on mufflers
#217-319	For 2014* Sportster® w/chrome Khrome Werks Slash slip-on mufflers
#217-320	For '07-'13 Sportster® w/Khrome Werks Taper slip-on mufflers
#217-321	For 2014* Sportster® w/chrome Khrome Werks Taper slip-on mufflers
#217-322	For '07 -'13 Sportster® with Full Boar Slash slip-on mufflers
#217-323	For 2014* Sportster® w/black Khrome Werks Slash slip-on mufflers

*2014 models retaining the factory header pipes must have the 12mm oxygen sensor bungs modified to accept 18mm sensors.

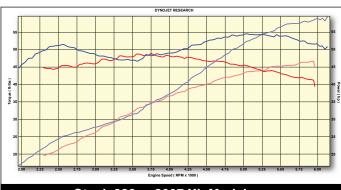


-J.M., USA

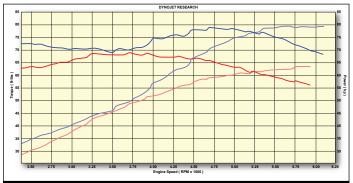
Stock 96" 2011 FL Model vs. 2011 96" with Zip Kit and Full Boar Mufflers (ThunderMax, MAXFlow A/C, '09 Headpipe w/out Cats)



Stock 103" 2012 FL Model vs. 2012 103" FL with Zip Kit and D&D Fat Cat 2-into-1 (ThunderMax, MAXFlow A/C, 2-into-1 Exhaust)



Stock 883cc 2007 XL Model vs. 2007 883 XL with Zip Kit and Khrome Werks Slip-Ons (ThunderMax, MAXFlow A/C, Slip-On Mufflers)



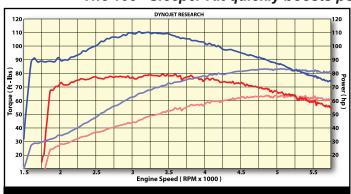
Stock 1200cc 2007 XL Model vs. 2007 1200 XL with Zip Kit and Khrome Werks Slip-Ons (ThunderMax, MAXFlow A/C, Slip-On Mufflers)

Kits for 2007-Up 96" Twin Cam[®] Engines



The Sleeper 103" Kit for 96" Engines

The 103" Sleeper Kit quickly boosts power with the addition of 7 more cubes!



2011 FLHR® w/ 103" Sleeper Kit, Red Shift® 525 Cams and Slip-On Mufflers vs. Stock 96" FLHR® and Stock Exhaust

Turn your "Sleepy" 96 Inch engine Into a "Sleeper" 103 Incher! Cylinders (supplied on an exchange basis) are precision bored and honed on torque plates from 3-3/4" to 3-7/8" and fitted with forged flat-top pistons. A complete top end and cam change gasket set included, along with Red Shift cams designed to be used with stock heads. Three versions are available, with cam profiles selected that shine in three distinct power ranges. 517-320 includes Red Shift 525 cams and is the best choice for riders who want maximum early torque (2000-4500 RPM) for excellent pulling and passing power in heavy payload applications. 517-322 includes Red Shift 527 cams; best power is developed between 2500-5000 RPM, great for medium weight payloads with a sportier mid-range and upper end over the 525. 517-324 includes Red Shift 575 cams and is the best choice for lighter bikes with best power between 2750-5750. Biggest bang for the buck! Cylinder/piston kits available separately. Adjustable pushrods included with #517-324 only.

#517-320 and 517-322 are designed to re-use the factory pushrods.

PART NO.	DESCRIPTION
#517-320B #517-320S #517-322B #517-322S	Sleeper 103 Kit for '07-up 96" BT with Red Shift 525 Cams, Black Sleeper 103 Kit for '07-up 96" BT with Red Shift 525 Cams, Silver Sleeper 103 Kit for '07-up 96" BT with Red Shift 527 Cams, Black Sleeper 103 Kit for '07-up 96" BT with Red Shift 527 Cams, Silver
#517-324B #517-324S	Sleeper 103 Kit for '07-up 96" BT with Red Shift 575 Cams, Black Sleeper 103 Kit for '07-up 96" BT with Red Shift 575 Cams, Silver



Want to stay 96", or already 103" and just want to change cams? The part numbers listed below include Red Shift cams, Torrington® cam bearings and a James cam change gasket set – everything you need for a quick cam swap!

Kit # 517-310 also includes Pro-Taper adjustable pushrods; 517-305 and 517-307 are designed to re-use factory pushrods.

PART NO.	DESCRIPTION
#517-305 #517-307 #517-310	Red Shift® 525 Cams-Only Zip Kit for '07-up Big Twins Red Shift® 527 Cams-Only Zip Kit for '07-up Big Twins Red Shift® 575 Cams-Only Zip Kit for '07-up Big Twins



Kits for 2007-Up Twin Cam[®] Engines



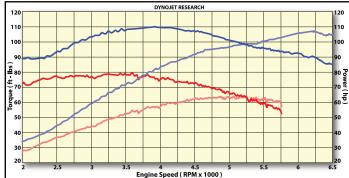
The Muscle 103" Kit

Watch Your Riding Buddies in Your Rear View Mirror with the Zipper's Muscle 103" Kit for Harley-Davidson® Twin Cam® Engines!

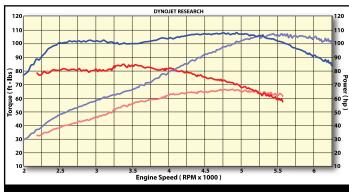
Everything you need for big power and performance gains packaged in a single part number... We've done all the engineering for you! The Zipper's Muscle 103" Kit represents years of research and development. The result is an easy to install kit that produces outstanding results while maintaining Zipper's legendary commitment to engine durability. The Zipper's Muscle 103" Kit is designed for use with high octane pump gas and transforms your stock Twin Cam® engine with a smooth, linear power curve you can feel at any twist of the throttle. This kit is a "drop on" package, and comes complete with Zipper's high flow CNC-ported heads and chambers, precision cylinder boring and honing with forged pistons, Red Shift® performance cams and dual-piston cam chain tensioners, a ThunderMax® with AutoTune and MAXFlow air cleaner assembly.

Zipper's Performance Products keeps exchange heads and cylinders in stock already modified for super quick turn-around. Parts must be in nearly perfect cosmetic condition; expect the same from us. If preferred, Zipper's Performance can process your cores directly; expect 2-3 weeks completion time.

PART NO.	DESCRIPTION
#517-313B	Muscle 103" Kit, '07-'14 Cable BT, Black
#517-313S	Muscle 103" Kit, '07-'14 Cable BT, Silver
#517-308B	Muscle 103" Kit, '08-'13 TBW Touring, Black
#517-308S	Muscle 103" Kit, '08-'13 TBW Touring, Silver



2010 TBW FLHX® w/ Mucle 103" Kit, Red Shift® 577 Cams, Stock '09 Header w/ Slip-On Mufflers vs. Stock 2010 TBW FLHX®



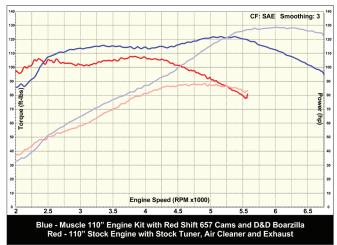
2007 FLHR® w/ Mucle 103" Kit, Red Shift® 577 Cams and D&D® Fat Cat® Exhaust vs. All Stock 2007 Cable-Throttle FLHR®

Kits for 2008-Up Twin Cam[®] Engines



Muscle 110" Kit

This kit is for the owners of Screamin' Eagle® CVO bikes or customers with a factory 110" Stage I kit. The 110" engine really comes alive with this top end and cam kit! Your 110 heads are carefully ported to increase velocity and are assembled with our Step-Lock guides, flow-enhancing valves and performance springs. After truing the cylinder head gasket surfaces, compression is raised by precisely fitting our proprietary 10.5:1 forged pistons to your 110 cylinders using torques plates. Red Shift cams, Pro-Taper pushrods and Dual Piston cam chain tensioners are included with Axtell's oil pressure bypass valve for increased life and valve train control. A pre-mapped ThunderMax® with Wave Tune AutoTune is included, allowing fast, dyno-free set-up without engine tune worries. High flow injectors are included with this kit (kit requires the separate purchase of a H-D® 58mm Screamin' Eagle® TBW throttle body).



Torque and horsepower is increased across the RPM range; where the stock engine starts to level out at just over 4,500 RPM, the Muscle 110" kit kicks into overdrive and raises horsepower by 45%! Peak horsepower climbs from the mid-80's to the high-120's with torque over 100 ft/lbs from 2,500 through 6,500 RPM, breaking the 120 ft/lb barrier along the way. Power builds smoothly and effortlessly, without sacrificing low end torque adding needed Muscle to the Bird!

These kits are available from any Zipper's Performance Products dealer, or you can send your carefully packed parts directly to Zipper's. Send cylinders and heads for modification. In-shop time is generally 2 weeks. Please pack your parts carefully!

PART NO. DE	ESCRIPTION
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#517-350 Muscle 110" kit for 2008-2014 Touring Models

Kits for 2007-Up Twin Cam[®] Engines



The Muscle 117" Kit

This kit mates 4-1/8" bore cylinders to the Twin Cam[®] engine's 4-3/8" crankshaft for 117" of Muscle!

High Flow CNC-ported heads (with 2.000" intake / 1.625" exhaust valves) and a 54mm ThunderMax® throttle body assembly satisfy the air-flow requirements of this engine. Red Shift cams deliver exceptional performance with great valve train stability. Engine management is provided by ThunderMax® with AutoTune; tuning time is reduced to a minimum. Optional replacement S&S 4-3/8" stroke crankshaft available separately.

Cylinder heads are supplied on an exchange basis. Requires case boring for the big bore cylinders and Timken conversion on the crankcase (not included in kit price). Factory crankshaft trueness must be verified.

PART NO.	DESCRIPTION
#617-307	Muscle 117" Kit, '08-'13 TBW Models, Black Finish
#617-308	Muscle 117" Kit, '08-'14 TBW Models, Silver Finish
#617-317	Muscle 117" Kit, '07-'13 Cable Big Twins, Black Finish
#617-318	Muscle 117" Kit, '07-'13 Cable Big Twins, Silver Finish
#698-351	S&S Replacement 4-3/8" Stroke TC-´A´ Crankshaft
#698-357	S&S Replacement 4-3/8" Stroke TC-´B´ Crankshaft



Optional Replacement Crankshaft Part No. #698-351, #698-357

Kits for 2007-Up Twin Cam[®] Engines



The updated Muscle 120" Kit now includes shorter duration Red

Shift 657 cams and a new ThunderMax® map calibration for more torque earlier in the power band. These changes have been made to suite touring motorcycles with 6 speed transmissions that operate at lower RPMs.

Both Muscle 120" and 124" Kits include Zipper's alloy 4-1/8" bore cylinders, precision-fitted with forged slipper pistons. Your heads are extensively modified with 2" intake and 1.630" exhaust valves, and then treated to full CNC porting and combustion chamber re-shaping for dramatic flow improvements using the latest machining technology. Hassle-free manual compression releases are installed for easy starting. Also Included in the kit are Pro-Taper chrome-moly pushrods, a full gasket kit, and a Darkhorse prepared S&S 4-1/2" stroke (120") or 4-5/8" stroke (124") crankshaft. Muscle Kits for cable-throttle bikes include a high flow 54mm (120") or 60mm (124") throttle body assembly and air cleaner. Zipper's recommends the use of a Horsepower Inc 55mm throttle body (Not Included) for Throttle-by-Wire applications. All kits include a pre-programmed ThunderMax® EFI Module with AutoTune for easy set-up and maximum performance.

We've done the hard work for you - every part is ready to install, and the end result is more of what our reputation is made from: Big Power all the way through the RPM range!

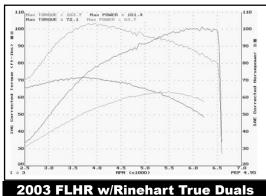
BLACK PART NO.	SILVER PART NO.	DESCRIPTION
#617-340	#617-341	Muscle 120" Kit, '08-'13 Touring Models
#617-320	#617-321	Muscle 120" Kit, 2007 Touring Models, '06-'14 Dyna® Big Twins
#617-330	#617-331	Muscle 120" Kit, '07-'14 Softail® Models
#617-344	#617-345	Muscle 124" Kit, '08-'13 Touring Models
#617-324	#617-325	Muscle 124" Kit, 2007 Touring Models, '06- '14 Dyna® Big Twins
#617-334	#617-335	Muscle 124" Kit, '07-'14 Softail® Models

Cylinder heads
are supplied on an
exchange basis.
Requires case boring
for the big bore
cylinders and Timken®
conversion on the
crankcase (not included
in kit price).

2-1 Exhaust and Red Shift® 657 Cams

Kits for '99-'06 Twin Cam[®] Engines





& Muscle 95 Kit

Twin Cam[®] Muscle 95"

Give your Twin Cam[®] 88 engine a major workout with our Muscle 95" Kit!

Smooth, linear power is extracted from the TC88 with the installation of Zipper's 95" EFI engine kit. This complete performance package includes precision cylinder boring, forged big bore pistons, Zipper's CNC ported heads with oversize valves, Red Shift cams, adjustable pushrods, and all gaskets.

Kits for EFI-equipped bikes include a ThunderMax EFI control module, 50mm throttle body/manifold system with high flow air filter (99-01 models include Marelli conversion components). Kits for Carbureted bikes include a mapped ignition module and your choice of a ThunderJet equipped S&S 'G' or Mikuni 45mm carburetor.

All kits are available with gear drive cams if desired. Our EFI system includes a new **ThunderMax ECM** loaded with a dedicated base map developed by Zipper's specifically for this kit (add optional AutoTune for full time closed-loop AFR correction!). What you feel is super smooth power and drivability at any RPM due to the extra-wide torque curve and our high-resolution base map. **Twist the grip on your Twin Cam, and Unleash the Power - It's a blast to ride!**

These kits are available from any Zipper's Performance Products dealer, or you can send your carefully packed heads and cylinders directly to Zipper's. We keep exchange heads and cylinders in stock already modified for super quick turnaround. Parts must be in nearly perfect cosmetic condition; expect the same from us. Previously modified heads are not eligible for exchange.

BLACK PART NO.	SILVER PART NO.	MUSCLE 95" KITS FOR EFI-EQUIPPED BIKES
# 517-090B	# 517-090S	Muscle 95 kit, '99-'01 'A' engines (Marelli EFI)
# 517-096B	# 517-096S	Muscle 95 kit, '01 'B', '02-'05 A/B (Delphi EFI)
# 517-106B	# 517-106S	Muscle 95 kit, 2006 models (Delphi EFI)*
*2006 Muscle 95	kits utilize factory t	throttle body, 25 degree injectors must be used

BLACK PART NO.	SILVER PART NO.	MUSCLE 95" KITS FOR CARB-EQUIPPED BIKES
# 517-095B	# 517-095S	Muscle 95 kit, '99-'06 w/S&S 'G1' carb
# 517-097B	# 517-097S	Muscle 95 kit, '99-'06 w/Mikuni 45mm carb

OPTIONAL COMPONENTS			
PART NO.	DESCRIPTION		
#416-908	Gear Drive Cam Gear Set		

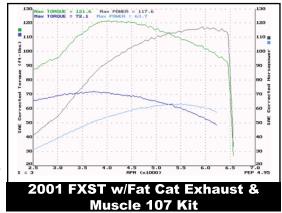
Kits for '99-'06 Twin Cam[®] Engines



Twin Cam® 107" Muscle Kit

The original Big Bore Twin Cam® kit from Zipper's!

Double the power of the stock engine and take the Twin Cam 88 engine to 107" using your stock cases and crankshaft. All-new aluminum cylinder castings have cast-in iron liners that are over 50% thicker than stock, providing ultimate cylinder stability for the special forged pistons. The pistons weigh the same as the stock TC88 pistons, so no crankshaft re-balancing is required. Heads are extensively modified with 2" intake and 1.630" exhaust valves, full CNC porting and combustion chamber machining and compression releases. Included in this complete kit are Red Shift cams, adjustable Pro-Taper moly pushrods and complete gasket set. Installation is easy: disassemble the engine, remove the crankshaft, bore the cases and clearance for cams, and reassemble using the kit components!



Kits for EFI-equipped bikes include a **ThunderMax EFI module**, 54mm throttle body/manifold w/ high flow air filter (99-01 models include Marelli conv. components). Kits for Carb. bikes include a mapped ignition module and your choice of a ThunderJet equipped S&S 'G2' or Mikuni 45mm carburetor.

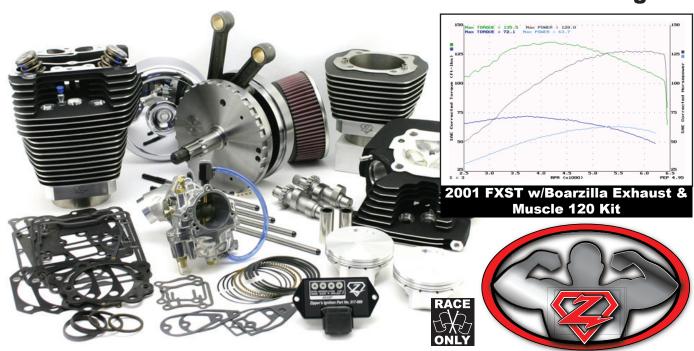
All kits are available with gear drive cams. Our EFI system includes a new ECM loaded w/a dedicated base map developed by Zipper's specifically for this kit (add optional AutoTune for full time closed-loop AFR correction!). This kit is one of our favorites in terms of balance of power, torque and rock-solid reliability. Your Twin Cam® will have even more torque and HP available to burn the tires off your Softail® or Dyna® or effortlessly pull your Tourglide® down the asphalt with authority!

Send your carefully packed heads to Zipper's. Machining required for installation. Cases require boring to accommodate the Muscle 107 cylinders, and additional clearance in the cam chest will be required for high lift cams. '03-later cases should be converted to a Timken sprocket shaft bearing. These services, or a complete engine conversion, are available through Zipper's. We keep exchange heads in stock already modified for quick turnaround. Parts must be in nearly perfect cosmetic condition. Previously modified heads are not eligible for exchange.

BLACK PART NO.	SILVER PART NO.	MUSCLE 107 KITS FOR EFI-EQUIPPED BIKES
#517-111B	#517-111S	Muscle 107 Kit, '99-'01 'A' engines (Marelli EFI)
#517-108	#517-109	Muscle 107 kit, '01 'B', '02-'05 A/B (Delphi EFI)
#517-114	#517-115	Muscle 107 kit, 2006 models (Delphi EFI)
BLACK PART NO.	SILVER PART NO.	MUSCLE 107 KITS FOR CARB-EQUIPPED BIKES
#517-107B	#517-107S	Muscle 107 Kit, '99-'06 w/S&S 'G2' carb
#517-110B	#517-110S	Muscle 107 kit, '99-'06 w/Mikuni 45mm carb

OPTIONAL COMPONENTS			
PART NO.	DESCRIPTION		
#416-908	Gear Drive Cam Gear Set		

Kits for '99-'06 Twin Cam® Engines



Twin Cam® 120/124" Muscle Kit

We've added some stroke to our successful 4-1/8" Big Bore kit for Twin Cams®!

Get Big Power all the way through the RPM range! Everything you need is supplied. This kit includes a balanced, fully assembled Darkhorse prepared S&S 4-1/2" (120") or 4-5/8" (124") stroke crankshaft that is designed to drop right into your engine cases. Our 4-1/8" bore cylinders are precision-fitted with forged pistons; cylinder heads are upgraded to 2" intake and 1.625" exhaust valves, then treated to full port and combustion chamber re-shaping using the latest CNC machining technology. Compression releases are installed to ease starting, Red Shift cams, chrome-moly pushrods, and a full gasket kit are included.

Kits for EFI-equipped bikes include a **ThunderMax EFI module with AutoTune**, 54mm throttle body/manifold system with high flow air filter. Kits for Carb bikes include a mapped ignition module and your choice of a ThunderJet equipped S&S 'G2' or Mikuni 48mm carburetor.

All kits are available with gear drive cams if desired. Our EFI system includes a new ECM loaded with a dedicated base map developed by Zipper's specifically for this kit (add optional AutoTune for full time closed-loop AFR correction!). We've done the hard work for you - every part is ready to install, and the end result is Big Power!

Send your carefully packed heads directly to Zipper's. Machining required for installation. Cases require boring to accommodate the Muscle 120 cylinders, and additional clearance in the cam chest will be required for high lift cams. '03-later cases should be converted to a Timken sprocket shaft bearing. Rocker boxes must be clearanced for larger valve springs. Heads are supplied on an exchange basis for quick turn-around, or may be purchased. These services, or a complete engine conversion, are available through Zippers. Heads must be in nearly perfect cosmetic condition. Previously modified heads are not eligible for exchange.

Muscle 120 Kits for EFI-Equipped Bikes	Black	Silver	Muscle 124 Kits for EFI-Equipped Bikes	Black	Silver
Muscle 120 kit, '99-'01 'A' engines (Marelli EFI)	#617-027	#617-028	Muscle 124 kit, '99-'01 'A' engines (Marelli EFI)	#617-048	#617-049
Muscle 120 kit, '02-'05 'A' engines (Delphi EFI)	#617-021	#617-023	Muscle 124 kit, '02-'05 'A' engines (Delphi EFI)	#617-045	#617-047
Muscle 120 kit, 2006 'A' engines (Delphi EFI)	#617-026	#617-038	Muscle 124 kit, 2006 'A' engines (Delphi EFI)	#617-066	#617-067
Muscle 120 kit, '01-'05 'B' engines (Delphi EFI)	#617-031	#617-033	Muscle 124 kit, '01-'05 'B' engines (Delphi EFI)	#617-055	#617-057
Muscle 120 kit, 2006 'B' engines (Delphi EFI)	#617-036	#617-039	Muscle 124 kit, 2006 'B' engines (Delphi EFI)	#617-068	#617-069
Muscle 120 Kits f/Carb-Equipped Bikes	Black	Silver	Muscle 124 Kits f/Carb-Equipped Bikes	Black	Silver
Muscle 120 kit, '99-'06 'A' w/S&S 'G2' carb	#617-020	#617-022	Muscle 124 kit, '99-'06 'A' w/S&S 'G3' carb	#617-025	#617-029
Muscle 120 kit, '99-'06 'A' w/Mikuni 48 carb	#617-040	#617-042	Muscle 124 kit, '99-'06 'A' w/Mikuni 48 carb	#617-043	#617-044
Muscle 120 kit, '00-'06 'B' w/S&S 'G2' carb	#617-030	#617-032	Muscle 124 kit, '00-'06 'B' w/S&S 'G3' carb	#617-035	#617-037
Muscle 120 kit, '00-'06 'B' w/Mikuni 48 carb	#617-050	#617-052	Muscle 124 kit, '00-'06 'B' w/Mikuni 48 carb	#617-053	#617-054

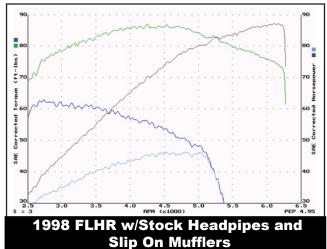
PART NO.	OPTIONAL COMPONENTS
#416-908	Gear Drive Cam Gear Set *Included with the Muscle 124" Kits

Kits for Evolution Big Twin[®] Engines



80/80 Evolution® Big Twin Kit

We created an affordable EV performance package that has become one of our most popular kits!



We call it the 80/80, because it takes your stock 48 horsepower 80 incher and pumps it up to an easy 80+ rear wheel horsepower with 90 ft/lbs of stump-pulling torque! This package is designed to give you the most for your performance dollar. The ingredients of this kit are the result of the careful selection of components and modifications that emphasize a super strong mid-range and topend power band without any catastrophic dips or flat spots.

Headwork includes Zippers CNC porting and combustion chamber truing, honed to size Zippers Step-Lock guides, multi-angle Serdi seat machining, Baisley Pro-Street Valves (1.900"/1.630"), performance spring kit and Viton valve seals. Cylinders are mounted on torque plates and precision honed for forged 10:1 pistons. Cam chest components include a Red Shift 559 cam, Torrington cam bearing, steel breather gear, shims and chrome moly adjustable pushrods. Carbureted models receive Zipper's full HPCV treatment while fuel injected kits include a fully

dressed ThunderMax 50mm throttle body and ECM (Marelli conversion) with AutoTune. Zipper's high flow air cleaner assembly is supplied, along with a top quality gasket set.

Outwardly, everything appears virtually stock. Inside, this combination of components and machine work have perfect balance, producing the most friendly power band that ever fit into this price range. It is designed to be used on stock engines that are equipped with performance pipes and programmable ignition system. If you haven't already changed your pipes and ignition, they can be added to the package. Installation is as easy as installing the top end and cam chest (checklist provided). Basic top end and cam chest disassembly and re-assembly with some minor clearancing is all that is required. Send us your heads, cylinders and CV carb for modification. Dyno tuning after installation recommended. If you have been contemplating a power boost, you owe it to yourself to check this out. Owners of motorcycles equipped with this package have only this to say: "It's Amazing!"

PART NO.	DESCRIPTION
#517-080	Zipper's 80/80 Evoltuion® Big Twin Kit (carb)
#517-082	Zipper's 80/80 Evolution® Bit Twin Kit (EFI)

PART NO.	OPTIONAL COMPONENTS
#366-207	Dyna 2000 Ingition Module (Carb)
#309-302	ThunderMax AutoTune Kit (EFI)

Kits for EFI Sportster® Engines



The Torkster 883-1200 EFI Engine Kit

A fantastic value in the power-per-dollar department!



The Torkster 883-1200 conversion is a fantastic value in the power-per-dollar department, as it adds nearly 65% more power to the 883! The Torkster is not just a bore job to increase displacement, but a highly refined cylinder, head and engine management package that promotes big gains in power and torque.

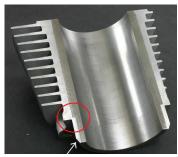
The key is in the blueprinting of the head. After cleaning, new Step-Lock guides are hand-fit to new, high-flow stainless steel valves. Next, the bowl in the port is aligned to the center of the valve using a special form tool that promotes high velocity for optimum air to fuel atomization ratios. *The result is increased fuel efficiency, and in layman's terms, a big, fat, long torque curve!*

The heads are delivered assembled with Viton® seals and a performance valve spring set; and after nearly 8 pounds of cast iron is

removed from the cylinders*, they are precisely fitted with lightweight, reverse-dome forged pistons. To provide proper fuel and ignition curves, the factory ECM is replaced with the versatile ThunderMax ECM with AutoTune, supplied with maps that ensure quick and accurate automatic AFR tuning. A Zipper's high flow air cleaner kit and complete top end gasket set is supplied. If you enjoy the feeling of strong power that really sits you back against the seat when you twist the grip, the Torkster kit is for you!

Zip Tip: 2004-up 883 Sportsters® have different primary and secondary gearing than the factory 1200's do (final 4.07 [883] vs. 3.52 [1200]. We recommend lowering the final drive gear ratio when converting an 883 to 1200 with our kits.

These kits are available from any Zipper's Performance Products dealer, or you can send your carefully packed parts directly to Zipper's. The Torkster kit requires modification to your cylinders* and heads. Your original 883 parts are modified and returned to you, ready for installation. In-shop time is generally 1-2 weeks. Please pack your parts carefully!



PART NO. DESCRIPTION

#517-197 Torkster 883-1200 kit, 2007-up* 883

*2014 model notes - If retaining the factory header pipes the factory 12mm oxygen sensor exhaust bungs must be modified to accept 18mm sensors. If using non-factory exhaust, if not equipped with 18mm oxygen sensor bungs, exhaust must be modified to accept 18mm sensors.

*Note for 2009 and Later 883 Owners – In 2009, H-D® made a change to the cylinder cast iron liner that no longer allows cylinder boring to 1200cc's. New 1200 cylinders may be required for these applications – check your cylinders at the bottom spigot for an aluminum O.D. Below the base gasket surface.

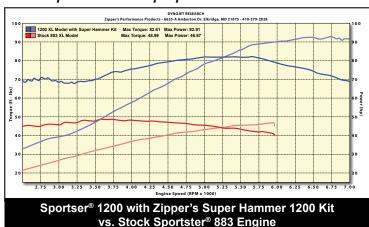
Kits for EFI Sportster® Engines



The Super-Hammer 1200 Kit for EFI Sportsters®

The most powerful and complete 1200 production hop-up available!

The Super-Hammer delivers BIG POWER without the complexity of building a big bore engine. The Super-Hammer kit requires only top end and cam chest disassembly. First to be modified are the cylinder heads with the full Zippers CNC porting treatment. After porting, the heads are fitted with Step-Lock guides, oversize valves, Viton® seals and high performance springs with titanium collars. The cylinders are torque-plate honed and precisely fitted with domed forged pistons, and Red Shift 567 cams are installed and timed on your factory cam gears. Chrome moly pushrods, a telescoping pushrod cover kit and a top quality gasket kit are supplied for reassembly. To provide proper fuel and ignition curves, the factory ECM is replaced with the ThunderMax ECM with **AutoTune**, featuring wide-band oxygen sensors for quick and accurate automatic AFR tuning.



vs. Stock Sportster® 883 Engine

We are proud to say we offer the most powerful and complete 1200 production hop-up kit available! This kit is ideal for the Sportster® owner who wants a true max output 1200, suitable for everyday durability. Excellent power throughout the entire RPM range is what this kit offers; we've applied our extensive experience in cylinder head and camshaft design to this package for Torque And Horsepower That Is Head And Shoulders Above The Rest!

Zip Tip: 2004-up 883 Sportsters® have different primary and secondary gearing than the factory 1200's do (final 4.07 [883] vs. 3.52 [1200]. We recommend lowering the final drive gear ratio when converting an 883 to 1200 with our kits.

These kits are available from any Zipper's Performance Products dealer, or you can send your carefully packed parts directly to Zipper's. Send cams, cylinders and heads for modification. In-shop time is generally 2-3 weeks. Please pack your parts carefully!

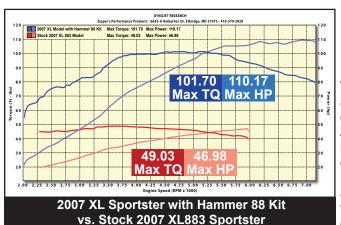
PART NO.	DESCRIPTION
#517-238	Super-Hammer kit for 2007-up* XL1200 (Except XR 1200)
#517-248	Super-Hammer kit for 2007-up* XL883
#517-258	Super-Hammer kit for 2008-up* XR1200

*2014 model notes - If retaining the factory header pipes the factory 12mm oxygen sensor exhaust bungs must be modified to accept 18mm sensors. If using non-factory exhaust, if not equipped with 18mm oxygen sensor bungs, exhaust must be modified to accept 18mm sensors.

*Note for 2009 and Later 883 Owners – In 2009, H-D® made a change to the cylinder cast iron liner that no longer allows cylinder boring to 1200cc's. New 1200 cylinders may be required for these applications - check your cylinders at the bottom spigot for an aluminum O.D. Below the base gasket surface.

Kits for EFI Sportster® Engines





Shown is a 88 CI Kit dyno graph from a late model XL engine. The engine kit is configured the same in a XR platforms, XR engines use a 50 mm TB Vs the XL which is 46 mm.

Zipper's 88" Hammer Kit for XR1200[®] Models

Our proven Hammer 88 kit is now available for owners of XR1200® model Sportsters®!

This big bore, stock stroke "square" engine kit develops an excellent balance of torque and horsepower that delivers lots of arm stretching fun. The kit is supplied with Zipper's aluminum big bore cylinders with cast-in, ductile iron liners fitted with our special 3-13/16" bore forged pistons that eliminate the need to rebalance the crankshaft, Red Shift cams, Pro-Taper moly pushrods and telescoping pushrod covers, along with CNC-ported cylinder heads equipped with oversize valves. These heads feature fully CNC-machined combustion chambers that match the pistons perfectly. Special hardware and a full gasket set are included. Rounding out this powerful package is a pre-mapped ThunderMax® EFI management module for simple plug-and-ride tuning, high flow injectors and air filter element.

We offer two versions of this kit. One with emphasis on the lower and middle ranges of power (Big Torque) and one that shines on the upper end of the RPM scale (Big Horsepower).

Installation is straightforward, requiring engine disassembly to bore the crankcases for the big bore cylinders, and case clearancing for high lift camshafts (Zipper's can provide these machining services). Rocker boxes will require extra clearance for high lift. Crankshaft requires no disassembly or rebalancing. Requires your cam set for conversion to Red Shift cams and cylinder heads for CNC porting. Turnaround averages 3 weeks. Please Advise If You Desire the Big Torque or the Big HP Version!

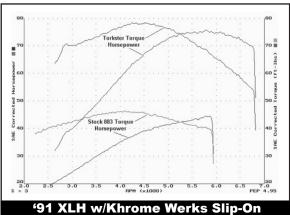
PART NO.	DESCRIPTION
#517-293T	Zipper's XR1200® Hammer 88 kit (Big Torque)
#517-293H	Zipper's XR1200® Hammer 88 kit (Big Horsepower)

Kits for Carbureted Sportster® Engines



The Torkster 883-1200 Engine Kit

The Torkster 883-1200 adds nearly 65% more power to the 883!



'91 XLH w/Khrome Werks Slip-On Mufflers & Zipper's ThunderBolt Ignition

The Torkster 883-1200 conversion is a fantastic value in the power-per-dollar department, as it adds nearly 65% more power to the 883! The Torkster is not just a bore job to increase displacement, but a highly refined cylinder and head package that promotes big gains in power and torque.

The key is in the blueprinting of the head. After cleaning, new Step-Lock guides are hand-fit to new, high-flow stainless steel valves. Next, the bowl in the port is aligned to the center of the valve using a special form tool that promotes high velocity for optimum air to fuel atomization ratios. The result is increased fuel efficiency, and in layman's terms, a big, fat, long torque curve!

The heads are delivered assembled with Viton® seals and a performance valve spring set; and after nearly 8 pounds of cast iron is removed from the cylinders, they are precisely fitted with lightweight, reverse-dome forged pistons. The factory carburetor is modified with our HPCV

carburetor service for improved throttle response and drivability, and a complete top end gasket set is supplied.

If you enjoy the feeling of strong power that really sits you back against the seat when you twist the grip, the Torkster kit is for you!

These kits are available from any Zipper's Performance Products dealer, or you can send your carefully packed parts directly to Zipper's. The Torkster 1200 kit requires modification to your cylinders and heads. The Torkster kit requires modification to your cylinders, heads and carburetor. Your original 883 parts are modified and returned to you, ready for installation. In-shop time is generally 1-2 weeks. Please pack your parts carefully!

PART NO.	DESCRIPTION
#517-196	Torkster 883-1200 kit, 2004-2006 883
#517-195	Torkster 883-1200 kit, 1991-2003 883

PART NO.	OPTIONAL COMPONENTS
#317-105	Zipper's ThunderBolt Ignition, '91-'97 XL
#399-105S	Zipper's ThunderBolt Ignition, '98-'03 XL
#309-575	Zipper's Digital Ignition Controller, '04-'06 XL
#117-095	Zipper's High-Flow Air Filter assembly

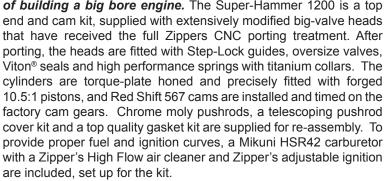
Kits for Carbureted Sportster® Engines

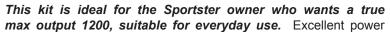


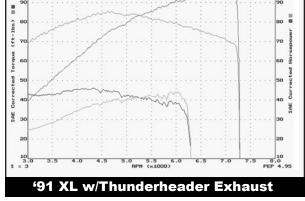
Super-Hammer 1200 Engine Kit

We are proud to say we offer the most powerful and complete 1200 product hop-up kit available!

The Super-Hammer delivers BIG POWER without the complexity of building a big bore engine. The Super-Hammer 1200 is a top end and cam kit, supplied with extensively modified big-valve heads that have received the full Zippers CNC porting treatment. After porting, the heads are fitted with Step-Lock guides, oversize valves, Viton® seals and high performance springs with titanium collars. The cylinders are torque-plate honed and precisely fitted with forged 10.5:1 pistons, and Red Shift 567 cams are installed and timed on the factory cam gears. Chrome moly pushrods, a telescoping pushrod cover kit and a top quality gasket kit are supplied for re-assembly. To provide proper fuel and ignition curves, a Mikuni HSR42 carburetor with a Zipper's High Flow air cleaner and Zipper's adjustable ignition







throughout the entire RPM range is what this kit offers; we've applied our extensive experience in cylinder head and camshaft design to this package for Torque And Horsepower That Is Head And Shoulders Above The Rest!

<u> </u>	'00-'03	'04-'06	DESCRIPTION
#517-230	#517-232	#517-236	Super-Hammer kit f/XL1200
#517-240	#517-242	#517-246	Super-Hammer kit f/XL 883

Kits can be ordered set up for full race use with high compression, titanium valves, etc. Call for information.

These kits are available from any Zipper's Performance Products dealer, or you can send your carefully packed parts directly to Zipper's. 2004-06 models: Send cams, cylinders and heads for modification. 1991-2003 models: Send cams and cylinders for modification (new Thunderstorm head castings are supplied). Kits for '91-'99 models include Powerglide lifters. In-shop time is generally 2-3 weeks. Please pack your parts carefully!

Kits for Sportster® Engines



Zipper's Hammer 88 Kit

Put a lot more Sport in your Sportster® or Tube-Frame® Buell® with this unique 88" conversion kit.

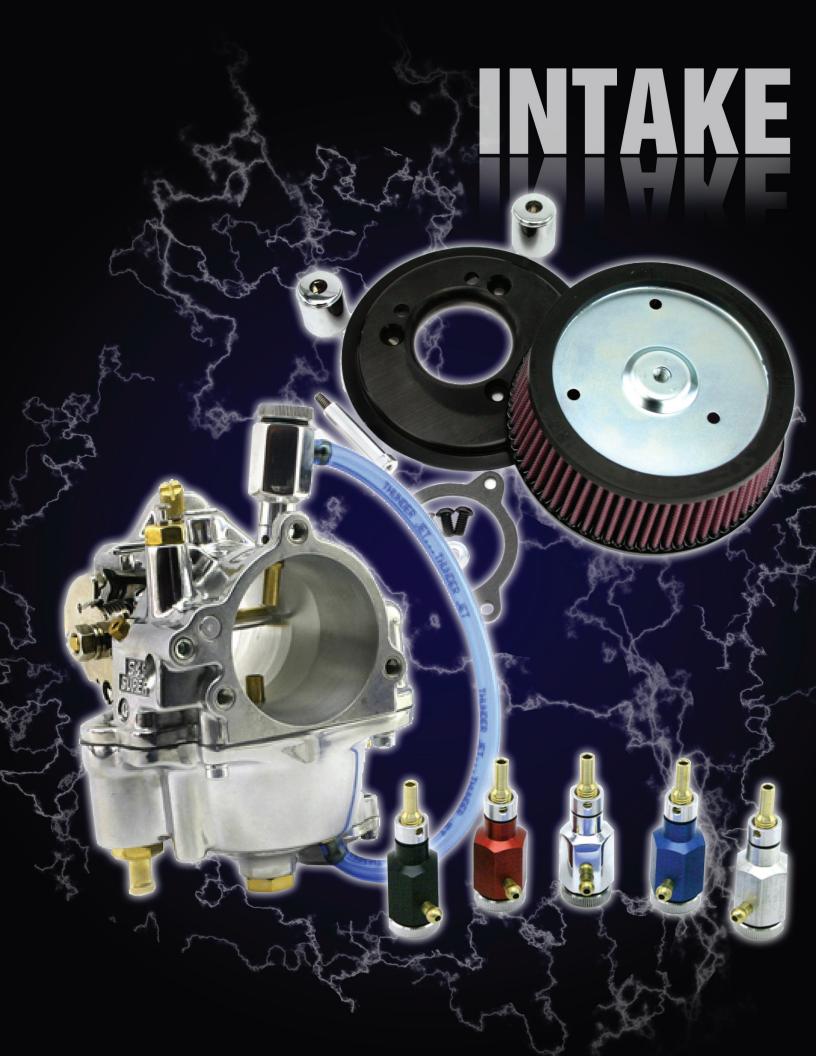
This big bore, stock stroke "square" engine kit develops an excellent balance of torque and horsepower that delivers lots of armstretching fun. We've developed special 3-13/16" bore forged pistons that weigh the same as stock, eliminating the need to rebalance the crankshaft. The kit is supplied with Zipper's aluminum big bore cylinders with cast-in, ductile iron liners, Red Shift cams, lifters, Pro-Taper moly pushrods and telescoping pushrod covers, along with CNC-ported cylinder heads equipped with oversize valves. These heads feature fully CNC-machined combustion chambers that match the pistons perfectly. Rounding out this powerful package is a pre-programmed adjustable ignition module, 45mm Mikuni carburetor, manifold, Zipper's high flow air cleaner assembly and a complete engine gasket set.

We offer two versions of this kit. One with emphasis on the lower and middle ranges of power (*Big Torque*) and one that shines on the upper end of the RPM scale (*Big Horsepower*).



BIG TQ KIT	APPLICATION	BIG HP KIT	APPLICATION
#517-280T	Hammer 88 engine kit, '91-'99 models	#517-280H	Hammer 88 engine kit, '91-'99 models
#517-282T	Hammer 88 engine kit, '00-'03 models	#517-282H	Hammer 88 engine kit, '00-'03 models
#517-286T	Hammer 88 engine kit, '04-'06 883	#517-286H	Hammer 88 engine kit, '04-'06 883
#517-288T	Hammer 88 engine kit, '04-'06 1200	#517-288H	Hammer 88 engine kit, '04-'06 1200
#517-290T	Hammer 88 engine kit, '07-'14 883	#517-290H	Hammer 88 engine kit, '07-'14 883
#517-292T	Hammer 88 engine kit, '07-'14 1200	#517-292H	Hammer 88 engine kit, '07-'14 1200
#517-293T	Hammer 88 engine kit, '08-'13 XR1200	#517-293H	Hammer 88 engine kit, '08-'13 XR1200

Installation is straightforward, requiring engine disassembly to bore the crankcases for the big bore cylinders, and case clearancing for high lift camshafts (Zipper's can provide these machining services). Rocker boxes will require extra clearance for high lift. Crankshaft requires no disassembly or rebalancing. New Thunderstorm head castings are provided for 1991-2003 models; 2004 & later XL's, your factory heads are ported. Requires your cam cores for conversion to Red Shift cams (and heads on 2004-06), or cores may be purchased outright. Please Advise If You Desire the Big Torque or the Big HP Version!



MAXimum Performance From Your EFIWhen You Ride, Where You Ride, Every Ride!

Would you like to have full control of your EFI system, freedom to make major or minor engine changes or tuning adjustments without a master's degree in electronics and computers? Here is a simple solution—ThunderMax® with Wave Tune AutoTune! The ThunderMax® is a completely new product that replaces the factory electronic control module (ECM), not an add-on box or post-fuel signal modifier. The ThunderMax® is purpose-built to deliver

uncompromising performance with advantages not possible with post-fuel or flash systems - but you don't have to be a rocket scientist to install, program or make adjustments to it.

Just how easy is it? Installation is a straightforward plug-in replacement of the factory module and oxygen sensors*1. The ThunderMax® TMax Tuner software contains hundreds

of base maps that cover most popular factory and aftermarket combinations, dyno-developed on real motorcycles. Choosing a map is a quick and easy process thanks to TMax Tuner's sorting filters; loading a map takes less than a minute. After that, you're ready to let the ThunderMax's Wide-Band AutoTune system dial in idle and warm-up settings for your engine and you're ready to ride!

During your ride, every time you ride, ThunderMax's® Wave Tune AutoTune analyzes, adjusts and anticipates the air/fuel ratio read by the wide-band oxygen sensors at warp speed during every cylinder fire and makes any necessary adjustments to the injector pulse width to achieve the desired air/fuel ratio while compensating for variations in injectors,

fuel pressure and exhaust flow. With every tank of fuel, at every temperature or elevation. That's it! All you have to do is ride.

As simple as it is to install and use, don't be fooled into thinking that this not one of the most sophisticated systems you can buy for your Harley[®]. Using the supplied Tuner software, you can adjust or monitor virtually every parameter of the system:

- Idle Speed & Rev Limit
- Closed Loop AFR Targets
- Igniting Timing

#309-362

- Accel Pump Simulation
- Start Fuel Pulse

- Decel Pop Control
- Speedometer Calibration
- Read Diagnostic Codes
- Running Statistics / Logs
- Engine Temp Alarm
- Live Engine Tuning
- Live Monitoring & Recording
- Dealer Digital Tech Compatible
- Warm-up Settings
- And More!

While this system does not require a dyno to achieve a smoother, cooler, excellent running engine, that does not mean it's not a dyno-friendly device! Experienced tuners will appreciate its live-tuning capabilities with real-time monitoring and the ability to control all of the systems tuning parameters, knowing that AutoTune will keep the final tune from deteriorating as ambient

conditions change. Advanced level software is available for technicians wishing to create a custom tune, add nitrous or install a forced-induction intake.

ThunderMax® also employs industry-leading tech support though its internal data-collection system that quickly communicates directly with the ThunderMax® support team should there ever be a need. ThunderMax® Technicians can quickly review recorded data streams, data stored within the module and information about the bike and system with just a few clicks of a mouse!



The ThunderMax® makes more sense in the long run as the system can grow and change as your engine does—just load a new map! ThunderMax® software, firmware and maps updates are accessible 24/7 with an Internet connection so you're only a mouse-click away from the latest available data. Each ThunderMax® includes an ECM, 2 wide-band oxygen sensors with harness, communication cable, software disk and comprehensive instructions. The ThunderMax® is designed and manufactured right here in the USA and backed by a 3-year warranty!

*1 ThunderMax® uses 18mm Wide-Band oxygen sensors, which unlike the factory narrow-band sensors read over the engines full rpm range for constant full-time feedback and adjustments. Certain year bike exhaust systems are equipped with 18mm sensor ports, others may have 12mm ports or none at all. Check application notes for compatibility.

ThunderMax® is not legal for sale or use on pollution-controlled vehicles; see ThunderMax 50 for California ARB approved applications.

ThunderMax® Applications

ThunderMax® for Touring & Tri Glide® Models

APPLICATION PART NO. #309-562 2014 Touring & Tri Glide® (Throttle by Wire) 2008-2013 Touring & Tri Glide® (Throttle by Wire) #309-362 #309-460 2002-2007 Touring (Cable Operated)

ThunderMax® requires 18mm exhaust sensor ports as used on 2007-2009 models. 2010-14 (12mm) Touring models must use a 2009 style exhaust or modify the 2010-2014 exhaust to accept 18mm oxygen sensors if not equipped with dual sensor ports. 2002-2006 models require exhaust with 18mm oxygen sensor ports or be modified for same.



ThunderMax® for Softail® Models

PART NO.	APPLICATION
#309-382	2012-2014 Softail® (Cable Operated) except FXSB Breakout®*2
#309-562	2014 FLSTNSE Softail® (CVO TBW)
#309-363	2011-2013 FLSTSE (CVO TBW)
#309-361	2011 Softail® (Cable Operated) Except 2011 FXCWC Rocker® C
#309-485*1	2008-2010 Softail® Rocker® and 2009 CVO FXSTSSE
#309-460	2001-2010 Softail® (Cable Operated) except Softail® Rocker®

^{*1} Includes Pigtail communication cable adapter due to limited module access.

ThunderMax® requires 18mm exhaust sensor ports as used on 2007-2011 models. 2012-14 (12mm) Softail® models must use a 2007-2011 style exhaust or modify the 2012-2014 exhaust to accept 18mm oxygen sensors if not equipped with dual sensor ports. 2001-2006 models require exhaust with 18mm oxygen sensor ports or be modified for same.



ThunderMax® for Dyna® Models

PART NO.	APPLICATION
#309-382	2012-2014 Dyna® Models
#309-485*1	2004-2011 Dyna® Models

*1 Includes Pigtail communication cable adapter due to limited module access.

ThunderMax® requires 18mm exhaust sensor ports as used on 2006-2011 models. 2012-14 (12mm) Dyna® models must use a 2007-2011 style exhaust or modify the 2012-2014 exhaust to accept 18mm oxygen sensors if not equipped with dual sensor ports. 2004-2005 models require exhaust with 18mm oxygen sensor ports or be modified for same.



ThunderMax® for Sportster® Models

PART NO.	APPLICATION
#309-382*1	2014 Sportster® XL Models
#309-485*2	2010-2013 Sportster® XL Models
#309-464*2	2008-2012 Sportster® XR1200® Models
#309-460	2007-2009 Sportster® XL Models
#309-464*2	2008-2012 Sportster® XR1200® Models

*1 2014 XL models require an exhaust system equipped with 18mm oxygen sensor bungs or be modified to accept 18mm sensors in place of the factory 12mm sensors (not required for 2007-2013

*2 Includes Pigtail communication cable adapter due to limited module access

ThunderMax® for V-Rod® Models

PART NO. APPLICATION

#309-366*1 2002-2014 V-Rod® Models

*1 #309-366 communicates via serial port. PC with serial port or USB-Serial adapter required

ThunderMax® requires 18mm exhaust sensor ports as used on 2008-2011 models. 2012-14 (12mm) V-Rod® models must use a 2008-2011 style exhaust or modify the 2012-2014 exhaust to accept 18mm oxygen sensors if not equipped with dual sensor ports. 2002-2007 models require exhaust with 18mm oxygen sensor ports or be modified for same.





^{*2} Breakout® models under development

ThunderMax® Marelli EFI Conversion Kit



Stop cussing that early EFI system, just replace it! It's no secret that the earlier Magnetti-Marelli EFI used on Evolution® and '99-'01 TC88 baggers has 'issues'—hard starting, erratic idle, harder yet to tune....if these are issues with your MM bike, this kit will solve them! We've taken our ThunderMax® EFI electronics with AutoTune, a fully-dressed, single-throat '02-'05 style throttle body and with the help of some specially made parts, developed this conversion kit for bikes with the earlier systems. This kit allows you to retain the original wiring harness and gas tank, while upgrading to the same components used in our popular high performance Muscle series EFI engine kits for Delphi®-equipped bikes.

Instant starting! Consistent idle! Superb performance! It's all here in this kit, and our expansive library of high-resolution base maps will have you up and running in no time. Included AutoTune module with wide-band

feedback transforms your motorcycle to full closed-loop automatic air/fuel ratio correction, maintaining your custom tune no matter what the ambient conditions or elevation you choose to ride in! Includes detailed installation instructions and SmartLink software. Available with stock 44mm (TC only), oversize 51mm or 54mm throttle bodies. **You'll fall in love with your bike all over again!**

PART NO. THUNDERMAX MARELLI CONVERSI

#117-344¹¹ '99-'01 TC 44mm Conversion kit w/AutoTune (88"-95")
#117-351¹¹ '99-'01 TC 51mm Conversion kit w/AutoTune (95"-103")
#117-354¹¹ '99-'01 TC 55mm Conversion kit w/AutoTune (107"-up)
#117-361¹² '95-'98 EV 51mm Conversion kit w/AutoTune (80"-up)
#117-364¹² '95-'98 EV 55mm Conversion kit w/AutoTune (107"-up)

Data port plug 12v power wire must be rewired for use with AutoTune (instructions included)

*1 - 2000 models require adding a VSS wire to the ECM harness (instructions included)

*2 - 1995-96 models require adding a ground wire to the ECM harness (instructions included)



ThunderMax[®] Zip Kit EFI System for JIMS 120/131" and SE 120R Engines



Got your eye on a JIMS/Screamin' Eagle® or 120R H-D® engine? Our Zip Kits are the quick and easy way to simplify installation and power tuning on an EFI equipped big engine!

Zipper's Performance Products has developed ThunderMax maps and performance intake systems specifically for these engines. High flow throttle body/manifolds are mated with our MaxFlow air cleaner kit, ensuring enough airflow for these engines to reach their full potential. Just install the IAC, TPS and fuel rail assembly from your original system to the ThunderMax throttle body, install the pre-mapped ThunderMax ECM and you'll be ready to go (these Zip Kits include high flow injectors:

kits for '99-'01 models include a fully dressed throttle body and our Marelli conversion components). Our high resolution ThunderMax ECM with AutoTune takes the hassle out of AFR tuning. *Just install the Zip Kit and you're ready to ride—it really is that easy!*

DECODIDATION

For 2008-up TBW Touring models — All you need is a ThunderMax, as maps are available for these engines. If an oversize throttle body is desired, Zipper's recommends using Horsepower Inc's Throttle-by-Wire Throttle Body. Visit www. HorsePowerInc.net to learn more.



PART NO.	DESCRIPTION
#117-270 #117-273	'07 FL,'06-'14 Softail® ThunderMax® Zip Kit f/H-D® SE-120R engine '06-'14 FXD® ThunderMax® Zip Kit f/H-D® SE-120R engine
#117-250 #117-251 #117-252 #117-253 #117-254	'07 FL,'06-'14 Softail® ThunderMax® Zip Kit for JIMS®120 '06-'14 Dyna® ThunderMax® Zip Kit for JIMS® 120 engine '02-'05 FL,'01-'05 Softail® ThunderMax® Zip Kit for JIMS®120 '04-'05 Dyna® ThunderMax® Zip Kit for JIMS®120 engine '99-'01 Touring FL ThunderMax® Zip Kit f/JIMS®120
#117-260 #117-261 #117-262 #117-263 #117-264	'07 FL,'06-'14 Softail® ThunderMax® Zip Kit for JIMS®131 '06-'14 FXD® ThunderMax® Zip Kit for JIMS®131 engine '02-'05 FL,'01-'05 Softail® ThunderMax® Zip Kit for JIMS®131 '04-'05 Dyna® ThunderMax® Zip Kit for JIMS®131 engine '99-'01 Touring FL ThunderMax® Zip Kit f/JIMS®131





New! The ThunderMax® XMS changes the game in the mid-level-priced tuner market for Harleys®. Developed specifically for Throttle-By-Wire Touring models with stock 96 or 103" engines, ThunderMax® XMS is designed to optimize the tune of the factory engine when equipped with the two most common bolt-on performance components - pipes and a high flow air cleaner.

Based on industry-leading ThunderMax® technology, the ThunderMax® XMS is a new product which provides many popular ThunderMax® features in a lower price range. The ThunderMax® XMS has pre-loaded maps that are accessible through the bike's onboard electronics for simple map selection that matches your exhaust. The XMS retains the factory oxygen sensors and their functions, greatly simplifying installation. The XMS is the perfect fit for riders who want a simple,

easy-to-install performance boost to complement their new exhaust system and high flow air filter.

With the ThunderMax® XMS, you get...

- · Hassle-Free Installation Without Need of a Dyno
- A Highly Detailed Tuning Map for Specific Exhaust Systems
- · Quick, Easy Installation Using Factory Oxygen Sensors No Wiring or Welding!
- Improved Overall Exhaust Sound and Engine Performance
- · Noticeably Smoother, Quicker Throttle Response
- Immediate Increase in Horsepower and Torque
- Reduced Engine Heat for a Cooler, More Comfortable Riding Experience

Another cool feature of this product - It's Upgradeable! The ThunderMax® XMS is based on the extremely versatile Thunder-Max® tuning platform; it can be upgraded to a full-function ThunderMax® at any time by simply adding the ThunderMax® Wide-Band AutoTune upgrade kit. Any future performance modifications desired including displacement, performance cams, heads, throttle bodies, injectors or any other changes that may be considered can now be handled with ease with upgraded XMS ThunderMax®.

PART NO.	DESCRIPTION (SEE ZIPPERSPERFORMANCE.COM FOR SPECIFIC BRAND EXHAUST MODELS)
#309-368D	XMS for 2008-2013 Touring models equipped with D&D® 2:1 exhaust
#309-368R	XMS for 2008-2013 Touring models equipped with Rinehart® Slip-Ons, TD or 2:1 exhaust
#309-368B	XMS for 2008-2013 Touring models equipped with Bassani® TD & 2:1 exhaust
#309-368S	XMS for 2008-2013 Touring models equipped with Samson® 2:1 exhaust
	XMS for 2008-2013 Touring models equipped with Khrome Werks® PH exhaust
#309-368V	XMS for 2008-2013 Touring models equipped with Vance & Hines® 'X' exhaust



ThunderMax[®] 50: Street Legal Performance ARB E.O. #'s D-644, K-001, K-001-1, K-001-2, K-001-3

ThunderMax® 50 provides excellent performance while meeting the emissions standards of California Air Resources Board. With its intelligent design, ThunderMax® 50 is continually tuning the engine, adjusting all points of the base map to meet the Air/Fuel targets. Wide-Band sensors provide feedback to the ThunderMax® AutoTune This proven system provides excellent performance under any riding conditions.

module for automatic AFR adjustments.

ThunderMax® 50 is the one that WORKS!

You will immediately notice an improvement in throttle response and a sharper exhaust note. As you continue to ride, you will enjoy cooler, more stabile engine temperatures with dramatic improvement in acceleration and a smoother idle.

ThunderMax® 50 is the most powerful, cost effective compliant tuning device in the industry! Features:

• Increased torque and power over the stock system

Maintains excellent fuel economy

• System properly self tunes aftermarket exhaust systems

Adjustable rev limiter

 Provides access to read vehicle diagnostic trouble codes

PART NO. THUNDERMAX 50 APPLICATIONS

Fits '02-'05 Touring, '01-'05 Softail® and '04-'05 Dyna® models
with 88" EFI Engines
Fits '06 Touring and Softail® Models with 88" EFI Engines
Fits '08-'10 Big Twins exc. TBW Touring & FXDF (Fat Bob®) models
with 96" engine

#309-378 Fits 2008 Touring Models w/ 96" Engine

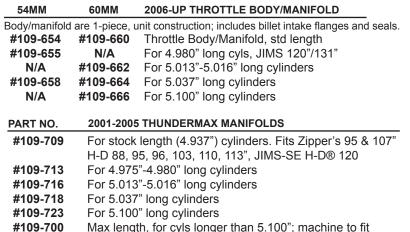




ThunderMax EFI Intake Systems

Building A Performance Big-Inch EFI Engine? These oversize CNC-machined castings replace the factory designs used on Delphi®-equipped 2001 and later models, and are designed to accept the factory electronic components so assembly is a snap. Manifold width available for most popular engine kits from 95" up to 131", with oversize (1.780" ID) intake port opening.

High flow design requires MaxFlow air filter with spread bolt pattern (see below). Our MaxFlow Air Cleaner includes a beautifully CNC-machined billet backplate, 2-3/4" deep high flow filter, breather plumbing and heavy-duty support brackets, and fits all years of ThunderMax® throttle bodies.





PART NO. '01-'05 DELPHI®-STYLE THROTTLE BODIES

Throttle body and manifold are sold separately, but must be used together. Includes intake seals; uses original 1984-2005 intake flanges (not included).

#109-154 2001-2005 54mm EFI Throttle Body only



MaxFlow Air Cleaner for ThunderMax® Throttle Bodies

Our MaxFlow Air Cleaner for ThunderMax throttle bodies includes a beautifully CNC-machined, radius inlet billet backplate, 2-3/4" deep MaxFlow filter, breather plumbing and heavy-duty support brackets. This air cleaner has the wider ThunderMax throttle body

bolt pattern and substantially raises intake airflow capabilities for impressive performance gains. Choose between two designs that accept either the stock Twin Cam® "football" cover or a traditional round EV-style covers.

PART NO.	DESCRIPTION
#117-150	Accepts stock TC-style 'football' cover (5-1/2" end diameter)
#117-154	Accepts 8" round EV-style cover (7" end diameter)
#172-112	Replacement Air Filter Element for #117-150
#162-303	Replacement Air Filter Element for #117-154

Covers for ThunderMax Air Cleaners

Customize your ThunderMax air filter with one of these custom covers.

PART NO.	COVERS FOR #117-150
#172-780 #172-781	5-1/2" round open air filter cover, chrome smooth 5-1/2" round open air filter cover, chrome scalloped
PART NO.	COVERS FOR #117-154
#150-291	(A) 8" full air filter cover, chrome
#150-400	(B) 8" full air filter cover, gloss black
#172-794	(C) 8" open cover, chrome scalloped
#172-795	(D) 8" open cover, chrome smooth (billet)
#172-770	(D) 8" open cover, chrome smooth (steel)
#172-800	(E) 8" open cover, chrome ball milled
#172-771	(F) 8" open cover, wrinkle black (steel)















Horsepower Inc Throttle Bodies

CNC machined oversize throttle bodies for all Delphi-style cable-throttle Harley-Davidson® motorcycles. Includes throttle body, manifold, intake flanges and seals. Stock bolt pattern and location, fully compatible with all factory OEM electronics and cruise

control. 51mm and 55mm throttle body sizes available with hand ported intake runner diameters for 1.660 (stock) and 1.800 dimensions.

PART NO.	2006-UP DELPHI®-STYLE THROTTLE BODIES
#127-616	'06-up HPI 51mm throttle body with 1.660" intake port
#127-618	'06-up HPI 51mm throttle body with 1.800" intake port
#127-656	'06-up HPI 55mm throttle body with 1.660" intake port
#127-658	'06-up HPI 55mm throttle body with 1.800" intake port
#127-686	'06-up HPI 58mm throttle body with 1.660" intake port
#127-688	'06-up HPI 58mm throttle body with 1.800" intake port
PART NO.	2001-2005 DELPHI®-STYLE THROTTLE BODIES
PART NO. #127-116	2001-2005 DELPHI®-STYLE THROTTLE BODIES '01-'05 HPI 51mm throttle body with 1.660" intake port
#127-116	'01-'05 HPI 51mm throttle body with 1.660" intake port
#127-116 #127-118	'01-'05 HPI 51mm throttle body with 1.660" intake port '01-'05 HPI 51mm throttle body with 1.800" intake port
#127-116 #127-118 #127-156	'01-'05 HPI 51mm throttle body with 1.660" intake port '01-'05 HPI 51mm throttle body with 1.800" intake port '01-'05 HPI 55mm throttle body with 1.660" intake port



ThunderMax N.A.D.S. Nitrous System

Give Your Performance Build Some Serious Cojones!



Developed for professional ThunderMax® EFI tuners, ThunderMax® N.A.D.S. (Nitrous Assisted Dry System) gives engine builders and racers an easy-to-install "dry" nitrous performance solution. The N.A.D.S. system is 95% pre-built and requires no secondary fuel source for a clean, simple installation (ThunderMax® ECM required.) No bulky fuel pumps, fuel lines or sandwich plates required!

The ThunderMax® N.A.D.S. kit includes a specially designed air cleaner backing plate equipped with an arming switch, nitrous solenoid, injector nozzle, and high flow air filter element. Nitrous distribution is ingeniously handled thru the ThunderMax® system for automatic control and distribution of fuel, nitrous and spark timing retard at the specific time you want the system to spray. On moderate engine builds, the additional fuel the nitrous system requires is introduced through the existing fuel injectors. For large displacement and high performance engine builds, larger injectors will be required (sold separately). Show polished nitrous bottle and brackets kits are available to mount

the 12-oz bottle to the chassis of Dyna®. Softail® and Touring models.

Nitrous timing and activation settings are fully adjustable via the ThunderMax® tuning software. Professional ThunderMax® tuners can take advantage of the ThunderMax® tuning software to easily adjust value for activation by RPM and vehicle speed. Adjustments are also available for fuel enrichment, ignition timing retard and nitrous delivery delay. These menus are designed to allow the tuner to easily set up safe limitations for the engine when using nitrous.

Important Note: Intended for Use by Professional ThunderMax® Tuners Only! Installation of this kit on any modified or larger displacement engine will require larger injectors and custom mapping. This service should only be performed by an experienced high performance tuner familiar with ThunderMax®.

PART NO.	THUNDERMAX® N.A.D.S. MAIN COMPONENT KITS	
#109-210	Main Component for Big Twins with Stock Cable-Operated Throttle Bodies	
#109-214	Main Component for '08-up Big Twins with Stock Throttle-By-Wire Throttle Bodies	
#109-213	Main Component for Big Twins w/ TMax 50, 54, or 60mm Cable-Operated Throttle Body	Made In RACE
PART NO.	THUNDERMAX® N.A.D.S. BOTTLE/BRACKET KITS	
#109-220	N.A.D.S. 2002-2008 Touring Model Bottle/Bracket Kit	ONLY
#109-222	N.A.D.S. 2009-up Touring Model Bottle/Bracket Kit	
#109-230	N.A.D.S. Softail® Model Bottle/Bracket Kit	
#109-240	N.A.D.S. Dyna® Model Bottle/Bracket Kit	
PART NO.	ADDITIONAL THUNDERMAX® N.A.D.S. 12oz NITROUS BOTTLE	
#109-250	N.A.D.S. 12oz Bottle Only	

ThunderMax® Gen III & TBW Communication Accessories (USB)



ThunderMax® Communication Cables

Replacement communication cables in standard or extended lengths for Generation III, TBW and CAN-BUS ThunderMax® with mini-USB/USB connection

6' w/90° end #309-326 15' w/straight end #372-150



ThunderMax® Gen III/TBW Pigtail Harness

#309-424 Allows a second USB port for the communication cable connection to the ThunderMax® Throttle-by-Wire and Gen III models. It is installed to the bike's wiring harness at the ECM connector; handy for motorcycle models with tight clearances around the ECM. Works with ThunderMax® part numbers 309-460 and included with # 309-485. Will not work on Gen I & II ThunderMax®, (#309-361) '11-up cable Softails® or (#309-380) '12-up Dyna® models with CAN-BUS data systems.



ThunderMax® Gen II Communication Accessories (Serial Port)



ThunderMax® Communication Cable

Replacement communication cables in standard or extended lengths for Generation I & II ThunderMax® with Mini-DIN/serial port connection.

#309-321 6 foot #309-322 12 foot



USB/Serial Port Adapter

#372-000 If your laptop or PC does not have a serial port, this inexpensive adapter will instantly add a serial port to your computer for communicating with Gen I & II ThunderMax® EFI controller (36 pin connector models only). Supports 1.0 and 2.0 USB ports, Windows 98/2000/ME/XP/Vista/7. Includes driver installation software.



ThunderMax® Gen II Pigtail Harness

#309-324 Allows a second port for the communication cable connection to Gen II ThunderMax®, serial number 114,000 or higher. It is installed to the bike's wiring harness at the 36-pin ECM connector. Handy for motorcycle models with tight clearances around the ECM such as Dyna®, Softail® Rocker® and 2002-2005 V-Rod® models. Will not work on Throttle-By-Wire or Gen III USB Models. Included with ThunderMax® systems #309-364 and #309-385.



ThunderMax® Gen II AutoTune-Data Port 'Y' Harness

#309-343 The Gen II, modular ThunderMax® AutoTune module gets its power and communicates to the ECM through the motorcycle's 4-pin factory data port plug. This 'Y' harness allows the AutoTune module to be plugged in with an additional plug remaining open for other tasks. Not applicable for TBW or CAN-BUS models.

hunderMax® Accessories



ThunderMax® Bench-Top 12 Volt Power Supply

Allows for off-motorcycle, bench-top programming of the ThunderMax® controller. Power supply includes power supply, switch box adapter, plug for ECM.

#309-328 For 73-pin TBW T-Max # **309-325** For 36-pin Gen I / Gen II T-Max



AutoTune Harness Repair Kit

#309-352 This kit includes components required to make repairs to a damaged AutoTune wire harness and connector plug. Included is a replacement connector, connector terminals, replacement wires with terminated ends and shrink tubing. Use to repair a damaged, but functioning, AutoTune module harness.



2-Bar Map Sensor for Supercharger or Turbo Applications

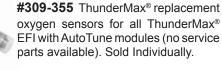
#309-315 Required when using a ThunderMax® in a boost application.







Replacement Wide **Band Oxygen Sensors**



Weld-In Oxygen Sensor Bungs with Caps

For exhaust systems without installed 02 sensor bungs. Drill pipe and weld in; choose straight or angled bung. Sold each, two required.

#272-200 Straight bung with cap, each

#272-202 Angled bung with cap, each

#272-204 12mm Bung Cap set. For '10-up Touring, '12-up Softail®, Dyna® and V-Rod® & '14-up XL/ Sportster® models with stock sensors removed

Fuel Injection Components

Injectors (Weber Pico) for '01-'05 Delphi® injected models and '08-up TBW Touring models. Sold Each.

PART NO. DESCRIPTION









4.22 gr/sec (Big Twin stock replacement)

4.81 gr/sec (V-Rod® stock replacement)
5.30 gr/sec (high flow replacement)
6.70 gr/sec (high flow replacement)



Injectors t

Injectors for '06-up Delphi® injected models with cable-actuated throttle body. *Sold Each.*

PART NO.	DESCRIPTION
#150-709	3.91 gr/sec (25° Big Twin stock replacement)
#150-654	4.89 gr/sec (high flow replacement)
#150-742	6.2 gr/sec (high flow replacement)



Fuel Pressure Checking
Gauge Fuel injection systems
rely on consistent fuel pressure
for proper operation. When fuel
pressure drops due to a clogging
filter, pinholes in the in-tank
fuel line or a faulty fuel

fuel line or a faulty fuel pump, performance suffers. This is the FIRST tool you should grab for diagnosis.

Quickly installs in-line at the fuel tank outlet and allows you to verify pressure is within spec. #772-457



Manifold Absolute Pressure (MAP) Sensor Fits '02-'07 Touring, '01-'09 Softail®, '04-'09 Dyna®, '02-'09 V-Rod® models. #150-316

Fits '07 Touring, '99-'00 and '07-up Softail®, '99-'03 and '06-up Dyna®, '04-'06 XL models. **#150-317**



Fuel Pressure Regulator

Stock replacement. Fits '02-'07 Touring, '01-'07 Softail®, '02-'09 V-Rod® models. #150-408



Fuel Rail Kit

Stock replacement. Fits '06-up Delphi® injected Big Twin models with cableactuated throttle body. #150-651



Cylinder Head Temperature Sensor Fits '99-'09 Touring, '01-'09 Softail®, '04-'09 Dyna®. #395-062



Manifold Air Temperature (MAT) Sensor Stock replacement, 1995-2005 injected models. #150-270



Wiring Harness Connector Kit 2001-2005 Delphi EFI Includes connectors and terminal ends for IAC, TPS, MAT and injectors for 2001-2005

components. Allows fitment of 2001-2005 throttle bodies to 2006-up Big Twins with cable-actuated throttle bodies. Wiring instructions included. #117-124



Manifold Air Temperature (MAT) Sensor Stock replacement, 2006up Delphi® injected models w cableactuated throttle body. #150-381



Wiring Harness Connector Kit 2006-up cable-type throttle body. Includes connectors and terminal ends for IAC, TPS, MAT and injectors for

2006-up cable-type throttle body components. Allows fitment of 2006-up cable-actuated throttle bodies to 2001-2005 bikes. Wiring instructions included. #117-125



Idle Air Control (IAC) Motor Stock replacement, 2001-2005 Delphi® injected models. #395-060



Intake flanges, 1984-2005 These are the offset type flanges that are front and rear specific (flanges stamped F & R). Sold each, order 2 for one engine.

Front # 198-032 Rear # 198-033



Stock replacement, 2006-up Delphi® injected models with cable-actuated throttle body. #395-061

Idle Air Control (IAC) Motor



Throttle Position Sensor (TPS)Stock replacement, 2001-2005 Delphi® injected models. #395-064



Intake flanges, 2006-Up Big Twins

These are the symmetrical type flanges that can be used on the front or rear head (equal distance between the mounting holes and the intake port). Sold each, order 2 for one engine. # 150-993



Throttle Position Sensor (TPS)Stock replacement, 2006-up Delphi® injected models with cable-actuated throttle body.

#395-065

Zipper's MaxFlow Air Filter Kits







Complete MaxFlow Air Filter Kits

Here's a nice power increase that's easy to install and easy on the budget! Our MaxFlow air filter kit is designed to completely replace the stock air cleaner assembly, featuring our Max Flow element. This cleanable/oilable, pleated element is over 2-3/4" deep to really let that engine breathe! Also included is a one-piece cast backing plate with internal crankcase venting and mounting hardware. Fits fuel injected and carbureted Twin Cam® engines equipped with the factory TC "football" cover. Available with satin aluminum, black or chrome plated breather ports. Bolt it on and feel the difference!

PART NO.	DESCRIPTION
#117-440	Fits '99-up Big Twin w/carb or cable operated Delphi® EFI, satin finish
#117-440C	Fits '99-up Big Twin w/carb or cable operated Delphi® EFI, chrome finish
#117-440B	Fits '99-up Big Twin w/carb or cable operated Delphi® EFI, black finish
#150-591	Cover spacer, required for '08-up FXD w/ factory teardrop cover
#172-114	Replacement MaxFlow element only for 117-440 series kits
#117-448 #117-448B #117-448C #172-130	Fits '08-'13 Big Twin w/throttle by wire EFI, satin finish Fits '08-'13 Big Twin w/throttle by wire EFI, black finish Fits '08-'13 Big Twin w/throttle by wire EFI, chrome finish Replacement MaxFlow element only for 117-448 series kits

MaxFlow 2 3/4"

Factory Stage I Height

Covers For MaxFlow Air Cleaners





Customize your MaxFlow air filter with one of these billet chrome lids (filter element exposed).

PART NO.	CHROME BILLET LIDS



#172-780 5-1/2" round open air filter cover, chrome smooth **#172-781** 5-1/2" round open air filter cover, chrome scalloped

MaxFlow Stage I Upgrade Kit For TC® Style Cover

Is your bike already equipped with a factory Stage I performance air cleaner? Raise the level another step! Our MaxFlow Stage I upgrade kit includes a specially designed, 100% washable pleated fabric filter made from multiple layers of surgical-quality cotton gauze material that traps the smallest dirt particles while providing dramatic flow increases. The element is 5/8" deeper than the factory performance filter it is designed to replace yielding over 60% more surface area than the Stage I filter. The kit includes required longer mounting hardware. 5-1/2" end diameter at cover mating surface. *Takes about 5 minutes to install - the difference is immediately noticeable!*

Note - This kit is designed to be used on Twin Cam® engines equipped with H-D® Screamin' Eagle® Stage I air cleaner and the standard Twin Cam® "football" cover, which makes 360° contact between the cover back and the rubber gasket on the filter. Do not install decorative cover inserts (due to increased weight) or use with 2006-up CVO Touring model oval covers that do not make 360° contact between the cover back and the rubber gasket.



PART NO. DESCRIPTION

#117-298 Fits '08-'13 Big Twin w/throttle by wire EFI equipped with factory Stage I A/C kit Fits '99-up Big Twin w/carb or cable operated Delphi® EFI equipped w/ factory Stage I A/C kit*

#117-297 Fits '99-'01 Big Twin w/Marelli EFI equipped with factory Stage I A/C kit (4-bolt mounting) Fits '08-'13 Big Twin w/TBW equipped with 58mm H-D® S.E. 29515-08 air filter kit

*2008-up Dyna® models using the factory teardrop cover must also order cover gasket #150-591 to correctly support cover STOCK





Zipper's HighFlow Air Filter Kits

Zipper's HighFlow Air Cleaner for 2014 'Rushmore' Models

2014 brought a lot of changes to the Touring series bikes, including a new, distinctive air cleaner cover shape. Zipper's designed a new air cleaner that retains the Rushmore cover while increasing airflow 47% over the factory system. The Rushmore cover is twice the weight of the previous 'football' cover so we felt it important to not only making a substantial flow increase, but to retain 360 degree support of the outer cover for durability and longevity purposes. Backing plate is fully CNC machined from billet with radiused entry and additional air inlet ports, finished in black for a stealthy, almost un-noticeable upgrade to the intake system. Fast and easy installation; oiled gauze HighFlow element is fully washable and re-useable, and the entire unit is USA-made!

PART NO. DESCRIPTION

#117-460 Black, fits 2014 Touring models with 'Rushmore' cover

Complete HighFlow Air Filter Kits

These kits are similar to the MaxFlow air filter kits except the filter is the standard 2-1/4" deep. This filter kit increases flow without increasing the overall width of the air cleaner for those with leg room concerns. Fits fuel injected and carbureted Twin Cam® engines equipped with the factory TC "football" cover. Available with satin aluminum, black or chrome plated breather ports.

PART NO.	DESCRIPTION
#117-442	Fits '99-up Big Twin w/carb or cable operated EFI, satin finish
#117-442B	Fits '99-up Big Twin w/carb or cable operated EFI, black finish
#117-442C	Fits '99-up Big Twin w/carb or cable operated EFI, chrome finish
#150-591	Cover spacer, required for '08-up FXD w/ factory teardrop cover
#172-116	Replacement HighFlow element only for 117-442 series kits
#117-449 #117-449B #117-449C #172-128	Fits '08-'13 Big Twin w/throttle by wire EFI, satin finish Fits '08-'13 Big Twin w/throttle by wire EFI, black finish Fits '08-'13 Big Twin w/throttle by wire EFI, chrome finish Replacement HighFlow element only for 117-449 series kits







MaxFlow Stage I AC Upgrade Kit For EV® Style Cover

These kits are very similar to the Twin Cam® MaxFlow upgrade kits listed above except they are designed with the filter tapering outward towards the air filter cover, allowing use of 8" diameter EV-style round covers. Can be used on Evolution® or Twin Cam® engines if the appropriate EV-style cover is used.

PART NO. DESCRIPTION

#162-295 Fits carb EV 80" engines equipped with H-D #29543-99 SE® air filter kit. This SE® air filter uses the newer style die-cast backplate with venturi built-in and 3 separate mounting studs. Also fits TC® with carb or cable Delphi® EFI when used with 8" round cover (purchase separately).

#162-294 Fits carb EV 80" engines equipped with H-D #29008-90A SE® (pre-'99 design) air filter kit. This SE® air filter uses the earlier style flat backplate with 3 threaded studs attached and a plastic venturi ring.

#162-297 Fits '99-'01 Marelli fuel injected TC engines equipped with H-D #29441-99 SE® air filter kit (4-bolt mounting). Requires round EV type cover (purchase separately).





Covers For MaxFlow Air Cleaners

PART NO.	COVERS FOR 7" EV-STYLE MAXFLOW		
#150-291	(A) 8" full air filter cover, chrome		
#150-400	(B) 8" full air filter cover, gloss black		
#172-794	(C) 8" open cover, chrome scalloped		
#172-795	(D) 8" open cover, chrome smooth (billet)		
#172-770	(D) 8" open cover, chrome smooth (steel)		
#172-800	(E) 8" open cover, chrome ball milled		
#172-771	(F) 8" open cover, wrinkle black (steel)		

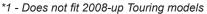


Zipper's 'External Breather' MaxFlow Air Cleaners



To make maximum power, you must Feed the Beast! Zipper's MaxFlow Flow Air Filter kits are designed to maximize available airflow and minimize intake turbulence at the entry point. We start with a fully machined, radius inlet billet backplate, and add special mounting and crankcase venting hardware that allows the installer to route breather venting externally (purchase vent filter separately). We top it off with our exclusive 2-3/4" deep-breathing MaxFlow filter element. The element is washable and re-useable. Two styles are available, designed to be used with the stock Twin Cam[®] "football" cover or any 8" round EV-style cover (not supplied). This filter is available for Twin Cam®, Evolution® Big Twin and Sportster® models, carburetor or cable EFI applications.

ľ			
	APPLICATION	F/TC COVI	ER F/8" EV COVER
	Fits '01-up*1 TC w/Dephi® EFI or '99-'06 w/CV	#117-21	2*2 #117-112*2
	Fits '93-'99 EV Big Twin w/CV carb	N/A	#117-102* ²
	Fits '95-'98 EV Big Twin w/ Magnetti-Marelli E	FI N/A	#117-105* ²
	Fits '90-'92 EV Big Twin w/CV carb (no breath	ers) N/A	#117-090
	Fits '91-'06 Sportster® w/CV carb Fits '07- up EFI Sportster® (2-1/4" element) Fits '07- up EFI Sportster® (2-3/4" element) Fits '95-'02 Buell® w/CV carb	N/A #117-09 #117-09 N/A	
	Fits '99-'06 Twin Cam® with S&S 'E' or 'G' carb	#117-23	3*4 #117-132*4
	Fits '93-'99 EV Big Twin with S&S 'E' or 'G' carl	N/A	#117-131*4
	Fits '95-'02 Buell® with S&S 'E' or 'G' carb	N/A	#117-134 ^{*4}
	Fits '99-'06 Twin Cam [®] with S&S 'D' carb	#117-23	
	Fits '93-'99 EV Big Twin with S&S 'D' carb	N/A	#117-135 ^{*4}



- *2 Single crankcase vent outlet can be routed to backplate or external breather filter (not supplied)
- *3 Accepts stock oval Sportster® outer air cleaner cover or 51/2" Round Covers

Fits '99-'06 TC® w/Mikuni HSR42 / 45 / 48 carb #117-245*4

- *4 Dual crankcase vent outlets can be routed to external breather filter (not supplied)
- *5 Includes chrome traditional round Mikuni air filter cover

Fits '93-'99 EV BT w/Mikuni HSR42 / 45 / 48 carb

Fits '91-'06 EV XL w/Mikuni HSR42 / 45 / 48 carb

Breather Filters

Two styles of breather filters are available for use with the above air cleaner kits.

Single Inlet Port: Attaches to 3/8" hose and mounts easily out of sight with common plastic wire ties (not included). Washable. Part No. 162-621

Dual Inlet Port: This breather filter is designed to attach to any engine that uses banio-style fittings on the cylinder head breather ports. It attaches to the breather fittings via formed hoses and clamps and resides nearly out of sight under the carburetor or throttle body. Part No. 117-160

Covers for Zipper's Air Filters

Accessory covers available to fit Zipper's air filter kits. 5-1/2" style covers fit air cleaner applications that accept stock Twin Cam[®] covers, while 8" round fit EV cover applications. (See Previous Page)









Single Vent Type

#117-145*4*5

#117-142*4*5

#117-142*4*5

N/A

N/A

Dual Vent Type











PART NO.

5 1/2" round open air filter cover, chrome smooth #172-780 5 1/2" round open air filter cover, chrome scalloped #172-781

COVERS FOR MAXFLOW AIR CLEANER

A. 8" round full air filter cover, chrome #150-291 B. 8" round full air filter cover, gloss black #150-400 C. 8" round open air filter cover, chrome scalloped #172-794 D. 8" round open air filter cover, chrome smooth #172-795 E. 8" round open air filter cover, chrome ball milled #172-800

V-Rod® Zip Kit and Components

While the V-Rod® is the most powerful Harley® ever produced, there's always room for more! Our Zip Kit is designed to let the V-Rod® breathe more freely, with nice power gains made without engine disassembly. This kit un-restricts the intake by precisely machining the throttle body to 58mm (5mm increase over stock), coupled with a high flow air filter element and oversize free breathing, machined aluminum velocity stacks. These modifications yield impressive airflow gains to the engine.



When used in conjunction with a performance exhaust system and a ThunderMax® EFI tuner, the Zip Kit is capable of producing 115+ rear wheel horsepower!

Send your carefully packed throttle body directly to Zipper's for machining. Carefully remove the throttle body (leave IAC and TPS installed; remove air box stud and intake rubber boots). Slight modification to the airbox plastic base required, requires airbox cover (snorkel) removal for maximum performance gains. In-shop time is generally 1-2 weeks. Please pack your parts carefully!

PART NO. DESCRIPTION

#117-505 Zip Kit for '02-up V-Rod®

Individual Components Available Below



58mm V-Rod® Throttle Body

To make more power, you must pass more air! Zipper's offers a machining service that increases the stock V-Rod® throttle body from 53mm to 58mm for a bolt-on power increase that is very effective--even in a stock application. Carefully remove the throttle body (leave IAC and TPS installed; remove air box stud and intake rubber boots) and send it to Zipper's for modification.

PART NO. DESCRIPTION

#ZM-9450 Machine supplied factory V-Rod, throttle body to 58mm



K&N Air Filter for V-Rod®

Pleated, high flow MaxFlow air filter element for use on the V-Rod®. Taller than stock for increased airflow; remove airbox cover (snorkel lid) for highest performance gains. Washable, reusable oil-type gauze material.

PART NO. DESCRIPTION

#162-112 K&N air filter element, '02-up V-Rod®



58mm Billet Velocity Stacks

Beautifully machined, offset height billet velocity stacks with 58mm inlets perfectly match our 58mm V-Rod® throttle body modification. Slight modification to the plastic airbox base required for installation. Run with MaxFlow filter for best results.

PART NO. DESCRIPTION

#172-583 3"/4" 58mm Billet Velocity stacks for V-Rod®



58mm Full-Race Velocity Stacks

4" tall 'big mouth' billet velocity stacks designed to be run open (no filter) in a racing application. 58mm inlet for use with modified throttle body.

PART NO. DESCRIPTION

#172-584 4" 58mm "Big Mouth" Race Velocity Stacks for V-Rod®



ThunderJet™ is a jet-able, externally mounted third fuel circuit that improves the performance of 2-circuit carbs such as the S&S Super. Unmodified, these carbs typically have a low speed, or intermediate, circuit that supplies fuel from idle to approximately 2500 rpm, at which point the carbs' main jet circuit becomes active, delivering more fuel to the engine. These two circuits must then supply fuel for the rest of the rpm range. The problem is: the remaining rpm range is too wide (typically 2500-6500 rpm) for only 2 circuits to handle efficiently. The tuner generally encounters problems jetting the carb to give good, crisp mid-range response and still have strong top-end power. A compromise is the result. Back the main jet down, carburetion in the mid-range is good but top-end is lacking. Increase the main, top-end improves but now the mid-range is rich; flat spots or hesitation is encountered.

The answer? ThunderJet™! The ThunderJet™ is an additional high speed fuel circuit, delivering needed fuel to the engine at higher rpms, 4500 & up. You can now use the main jet to tune for smooth, broad mid-range power and supplement the top-end with the ThunderJet™. Jets are used to control the amount of fuel sent to the engine. Join thousands of satisfied customers worldwide!. ThunderJet™ kits come with complete installation and tuning instructions and extra jets. Fits all models of S&S carburetors. Machining to the carb bowl and body is required; we can install this on your carb for a reasonable cost. This is the most cost effective horsepower per dollar you can buy!

PART NO.	THUNDERJET™ FOR S&S 'E' OR 'B'	PART NO.	THUNDERJET™ FOR S&S 'G' OR 'D'
#113-014	Red ThunderJet™ f/S&S 'E' or 'B'	#113-034	Red ThunderJet™ f/S&S 'G' or 'D'
#113-015	Blue ThunderJet™ f/S&S 'E' or 'B'	#113-035	Blue ThunderJet™ f/S&S 'G' or 'D'
#113-016	Black ThunderJet™ f/S&S 'E' or 'B'	#113-036	Black ThunderJet™ f/S&S 'G' or 'D'
#113-012	Satin Aluminum ThunderJet™ f/S&S 'E' or 'B'	#113-032	Satin ThunderJet™ f/S&S 'G' or 'D'
#113-011	Polished Aluminum ThunderJet™ f/S&S 'E' or 'B'	#113-031	Polished ThunderJet™ f/S&S 'G' or 'D'

The ThunderJet™ for Keihin CV Carbs



Owners of Harleys® fitted with Keihin CV carburetors can also reap the benefits of the ThunderJet™. The ThunderJet™ adds that much needed high speed fuel circuit to the CV, allowing the existing fuel circuits to be more fine-tuned to specific power ranges, resulting in a more balanced fuel curve. By installing the ThunderJet™ and following the tuning instructions supplied, power increases will be felt throughout the entire (extended) RPM range, and flat spots can be eliminated.

Installation of the ThunderJetTM in a CV carb requires minor machining to carb body and float bowl. A flat-backed air cleaner assembly (such as Zipper's or the Screamin' Eagle®) is required.

PART NO.	DESCRIPTION
#113-018	Red ThunderJet™ for CV Carb
#113-019	Blue ThunderJet™ for CV Carb
#113-020	Black ThunderJet™ for CV Carb
#113-021	Plain Aluminum ThunderJet™ for CV Carb
#113-022	Polished Aluminum ThunderJet™ for CV Carb

Adjustable Air Bleed Jet Pack



When installing a ThunderJet in any S&S carb, we recommend modifying the fixed-size main jet air bleed circuit to accept jets for additional tuning versatility. Instructions on how to perform this

effective modification externally on the carb body for easy access are included with this kit. Air bleed jet kit includes 4 jet sizes for most popular applications.

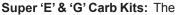
PART NO.	DESCRIPTION
	Adjustable Air Bleed Jet Pack for:
#113-017	S&S 'E' Carbs (140/150/165/175)
#113-037	S&S 'G' Carbs (175/180/190/200)

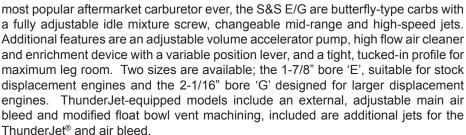
S&S Carburetors -- The Zipper's Performance Touch

We offer S&S carbs "box stock" as delivered from S&S, or specially modified with the popular and highly recommended ThunderJet® 3rd fuel circuit and an external adjustable main circuit air bleed. The ThunderJet® makes the best carb even better, permitting a wider, smoother fuel curve by adding an additional

'high-speed' fuel circuit. Why? Simply put, more circuits means more tune-ability; this is very important when tuning for max-power with today's various cam, lifter, piston and exhaust pipe combinations. Whether it's more adjustability and power you want for your hot rod or improved E.T. & M.P.H. for your racer, this is the hot set-up.

S&S "Shorty" E & G Carb Kits Stock Or Equipped With ThunderJet®





New for 2014 - Black Finish! Super E & G carburetors are now available in a deep gloss black finish. These carbs don't just look faster - they actually are! The venturi area is .100" larger than the standard-finish models for more flow. You can order a black carb-only or a complete carb kit with a supplied with a black carburetor, with or without a ThunderJet®.



SUPER 'E' CARB KIT					SUPER 'C	'CARB KIT		
STAN	DARD	W/ THUNE	DERJET™		STAN	NDARD	W/ THUN	DERJET™
ALUMINUM	BLACK	ALUMINUM	BLACK	MODEL APPLICATIONS	ALUMINUM	BLACK	ALUMINUM	BLACK
#198-320	#198-320B	#198-420	#198-420B	Super 'E' or 'G' Carb Only (No manifold, No air cleaner)	#198-321	#198-321B	#198-421	N/A
#198-350	#198-350B	#198-450	#198-450B	Twin Cam [®] kit, '99-'05 models	#198-351	#198-351B	#198-451	#198-451B
#198-360	#198-360B	#198-460	#198-460B	Twin Cam [®] kit, 2006 models	#198-361	#198-361B	#198-461	#198-461B
#198-319	#198-319B	#198-419	#198-419B	Evolution® Big Twin kit '93-'99	#198-334	#198-334B	#198-434	#198-434B
#198-307	#198-307B	#198-407	#198-407B	Evolution® Big Twin kit '84-'92	#198-327	#198-327B	#198-427	#198-427B
#198-303	#198-303B	#198-403	#198-403B	Shovel kit '79*-'84 w/ band heads	#198-323	#198-323B	#198-423	#198-423B
#198-302	#198-302B	#198-402	#198-402B	Shovel kit '66-'78, w/ o-ring heads	#198-322	#198-322B	#198-422	#198-422B
#198-370	#198-370B	#198-470	#198-470B	Evolution® Sportster® kit '04-'06	N/A	N/A	N/A	N/A
#198-309	#198-309B	#198-409	#198-409B	Evolution® Sportster® kit '91-'03	#198-329	#198-329B	#198-429	#198-429B
				(Cables Required See Below)				
#198-308	#198-308B	#198-408	#198-408B	Evolution® Sportster® kit '86-'90	#198-328	#198-328B	#198-428	#198-428B
				(Cables Required See Below)				
#198-305	#198-305B	#198-405	#198-405B	Iron XL kit '79*-'85 w/ band heads	#198-325	#198-325B	#198-425	#198-425B
#198-304	#198-304B	#198-404	#198-404B	Iron XL kit '57-'78, w/ o-ring heads	#198-324	#198-324B	#198-424	#198-424B
		+0 4070	0.4000					

^{*}Some 1979 & 1980 engines were equipped with o-ring heads – check before ordering

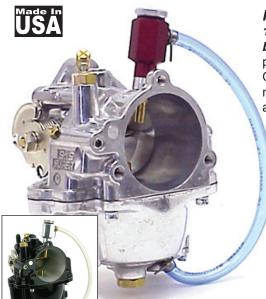
Accessories For S&S 'E' & 'G' Carbs

#162-226 K&N filter for S&S 'E' & 'G' teardrop air cleaner

#198-448 Two-cable throttle housing, grips and 38" cables for S&S carbs. Required for custom installations, and pre-'81 H-D's equipped with single cable throttle assemblies.



ThunderJet™ 'G' Carburetors for Bigger Engines



Here's A Headline That's Not Exactly News...

100, 107, 113, 120, 131, 139 cubic inches - these engines are common in bikes today. One thing is for sure - these 'Big' Engines can't live up to their potential with a production carburetor that was designed for a 'small' engine. Our reputation has been built partly by our ability to tune engines to their maximum potential; along the way we developed many carburetors with unique alterations for specific engine sizes and applications.







2-1/16" Shorty 'G' Series Carbs Modified in 3 stages: G1, G2 and G3

These Zipper's-modified 'G' series carbs are popular for performance engines with fuel delivery requirements unlike a stock engine. High compression, long duration camshafts, big-flow heads and exhausts extend the usable RPM range of a performance engine, requiring carburetion that provides more flexibility in tuning. We've applied what we've learned from our years at the race track and on the dyno to the popular 'G' series carbs and feel the selection below will help you get the most power and adjustability for your application. Kits include Zipper's High Flow air filter assembly with adjustable support brackets to accommodate engines with various cylinder heights - high performance with high value!

G1: Best used on 88" - 103" engines. Includes installation of a high volume ThunderProThunderJet, adjustable main jet air bleed and external bowl vent machining. These are the same modifications performed on the 'G' carbs supplied in kits offered on page 1.15.

G2: Use on 105" - 120" engines w/ported heads and performance exhaust. Includes all of above; also, venturi is enlarged to alter signal pulses; reducing over-fueling from main jet circuit associated with larger displacements.

G3: Use on 116" - 131" engines with ported heads and performance exhaust. All circuits are recalibrated for improved drivability with engines of these displacements. These alterations provide smooth transitions within all circuits, with great throttle response and overall performance.

Modified 'G' Carb Only, Aluminum Modified 'G' Carb Only, Black		#198-421 N/A	#198-421G2 #198-421G2B	#198-421G3 #198-421G3B	
ALUMINUM	BLACK	DESC	RIPTION		
#198-551	N/A	Twin	Cam® 'G1'	kit, 88"-103" er	ngines, w/man
#198-552	#198-552B	Twin	Cam® 'G2'	kit, 103"-120" e	engines
#198-553	#198-553B	Twin	Cam® 'G3'	kit, 120"-131" 6	engines
#198-534	N/A	Evol	ution® 'G1' l	kit, 88"-103" en	gines RACE
#198-535	#198-535B	Evol	ution® 'G2' l	kit, 103"-120" e	ngines
#198-536	#198-536B	Evol	ution® 'G3' l	kit, 116"-131" e	ngines ONLY
No manifold	supplied unless	noted.	See manifol	d listing on page	1.18 for selection

(order separately). Please specify engine size (bore and stroke) when ordering.



Zipper's MaxFlow **'E&G' Air Cleaner**

A lot of money is spent to obtain gains in airflow for increased performance. One often overlooked area is the air filter: since it's the first thing the air sees, it must keep up with the carburetor and cylinder heads' demands. We've designed this MaxFlow air filter kit to meet the requirements of our high performance engines. The backplate is CNC machined from billet with a flow-inducing radius inlet built-in, and a special pleated Max Flow filter reduces turbulence and provides superior air flow into the carb throat. The round chrome cover has classic great looks (and inspires a "sleeper" look!). Full kit includes enrichener lever, breather banjo assemblies and support brackets. Fits '93-'99 EV and Twin Cam® engines equipped with 'E' or 'G' carb.

- 5	· Production of the contract o			
PART NO.	DESCRIPTION			
#117-130	Zipper's MaxFlow A/C kit, '93- '99 EV with E or G carb			
#117-133	Zipper's MaxFlow A/C kit, TC88 with E or G carb			
#117-160	Twin Port breather filter. Attaches to head breather banjo fittings (see page 1.7 for photo); breather filter located under carb bowl.			

G3

CARBURETOR ONLY

ThunderJet™ 'D' Carburetors for Bigger Engines

Today's Engines Are Getting Bigger and Bigger!

Your special engine can now benefit from our carburetor expertise. We developed the kits listed below to fit the more popular engine combinations currently available. You can purchase a 'carburetor only' with jets to upgrade your existing system, or a complete kit supplied with Zipper's High Flow air cleaner (round style), mounting hardware and jets. Kits are not supplied with manifolds (order separately) unless noted. We stock a large variety of manifolds for different engine sizes, see manifold section for your application.





Zipper's MaxFlow 'D' Air Cleaner

The big 'D' carb was originally designed for drag racing use; an air cleaner was almost an afterthought. We've designed a MaxFlow air filter kit that feeds the big 'D' with nearly unrestricted air for big gains over any other 'D' air filter kit. The 1-piece backplate with integral radius inlet is CNC machined from billet aluminum and includes a Max Flow pleated element. Support brackets and head breather assemblies are included. A beautifully plated, classic round cover tops off this high quality unit.

PART	NO	DESCRIPTION

#117-135 Zipper's MaxFlow A/C kit, for EV w with 'D' carb

#117-137 Zipper's MaxFlow A/C kit, for TC88 w/'D' carb

#117-160 Twin Port breather filter.

Attaches to head breather banjo fittings (see page 1.7 for photo); breather filter located under carb bowl.

#198-112





2-1/4" Super 'D' Series Carbs Modified in 2 stages: D2 and D3

The 'D' series carburetors were designed for one reason: Maximum Performance. Because of this, some creature comforts are compromised for street use, but the results are more than worth it! This carburetor is 1-3/8" longer than the 'G', and has a non-adjustable enrichener and no accelerator pump. But if Maximum Performance is what you're looking for, you'll find it here!

D2: Use on 105" - 131" engines with ported heads and performance exhaust, and smaller engines (88" - 105") that have been extensively modified for high RPM use. Includes installation of twin, high volume ThunderPro ThunderJets, adjustable low speed and main jet air bleeds and external bowl vent machining. Low speed circuits are altered and a special emulsion tube is installed to help control main jet over-fueling for improved drivability with larger displacements. Provides surprisingly good drivability manners to engines that weren't designed with civility in mind!

D3: Use for Max-Output Drag Racing - The ultimate fuel system for gas powered racers! Our R&D/Racing department has developed this specially modified version of the Super 'D' for drag racing. Three special high volume ThunderPro ThunderJets are installed, along with increased float bowl venting capacity. Adjustable intermediate and main circuit air bleeds allow the tuner to adjust the fuel mixture to exactly suit the engines' needs. Maximum power can now be extracted from your engine with ease. No other low speed circuit modifications are performed as this carb is designed for drag racing full throttle use only, making it a poor choice for street use.

CARBURETOR ONLY D2 D3

Modified 'D' Carb only with jets #198-013 #198-112

CARBURETOR KITS WITH MAXFLOW AIR CLEANER

Includes carburetor, ¼" phenolic spacer block, mounting bolts, jets and Zipper's MaxFlow air cleaner assembly.

#198-189 Twin Cam[®] 'D2' kit, no manifold Evolution[®] 'D2' kit, no manifold

No manifold supplied unless noted. See manifold listing on page 1.18 for selection (order separately). Please specify engine size (bore and stroke) when ordering.



Intake Manifolds For S&S Carbs

We stock a large variety of intake manifolds for S&S carburetors. Manifolds for EV and TC engines all have S&S's 'oversize' (1.880" O.D.) spigots on the ports that mate to the cylinder heads, and can be used on stock or oversize port heads without any adverse effects on air flow (requires #198-035 intake seals, sold separately). Twin Cam® manifolds are machined to accept factory map sensors (plug available separately); Evolution® manifolds have a vacuum nipple for a V.O.E.S. switch. Applications shown assume stock case deck height and stock to moderate-cut cylinder head deck thickness.

Stock cylinder length for: EV Sportster=4.650" EV Big Twin=5.550" Twin Cam 88/96= 4.937"

	etock dymnasi longarion. Ev operator index 2.7 Big 1 min etoco 1 min earli edite					
CYL	WIDTH	44-45MM	'E'	'G'	'D'	
LENGTH	CODE	SPIGOT	1-7/8"	2-1/16"	2-1/4"	
4.937"	410	#198-288	#198-508	#198-938	#198-968	
4.937"	405	#198-287	#198-507	#198-937	N/A	
4.980"	414	#198-289	N/A	#198-941	N/A	
5.037"	417	N/A	N/A	#198-940	N/A	
5.160"	428	#198-290	N/A	#198-939	N/A	
with 2006-up	TC heads					
CYL	WIDTH	44-45MM	'E'	'G'	'D'	
LENGTH	CODE	SPIGOT	1-7/8"	2-1/16"	2-1/4"	
4.650"	341	N/A	#198-510	#198-220	#198-260	
5.087"	374	N/A	#198-513	N/A	#198-263	
5.500"	406	#198-294	#198-517	#198-227	#198-267	
5.550"	410	#198-296	#198-518	#198-228	#198-268	
5.625"	415	N/A	N/A	#198-229	#198-269	
5.750"	426	N/A	N/A	#198-232	#198-272	
CYL	WIDTH	44-45MM	'E'	'G'	'D'	
LENGTH	CODE	SPIGOT	1-7/8"	2-1/16"	2-1/4"	
4.870"	397	"400 000	#400 E40	"400 000		
	397	#198-292	#198-516	#198-226	N/A	
4.995"	406	#198-292 #198-294	#198-516 #198-517	#198-226 #198-227	N/A #198-267	
4.995"	406	#198-294	#198-517	#198-227	#198-267	
4.995" 4.763"	406 398	#198-294 N/A	#198-517 N/A	#198-227 #198-985	#198-267 #198-995	
4.995" 4.763" 4.888"	406 398 408	#198-294 N/A N/A	#198-517 N/A N/A	#198-227 #198-985 #198-987	#198-267 #198-995 #198-997	
4.995" 4.763" 4.888" 5.013"	406 398 408 417	#198-294 N/A N/A N/A	#198-517 N/A N/A N/A	#198-227 #198-985 #198-987 #198-989	#198-267 #198-995 #198-997 #198-999	
4.995" 4.763" 4.888" 5.013"	406 398 408 417 WIDTH	#198-294 N/A N/A N/A O-RING	#198-517 N/A N/A N/A BAND	#198-227 #198-985 #198-987 #198-989 O-RING	#198-267 #198-995 #198-997 #198-999 BAND	
4.995" 4.763" 4.888" 5.013" CYL LENGTH	406 398 408 417 WIDTH CODE	#198-294 N/A N/A N/A O-RING 1-7/8" E	#198-517 N/A N/A N/A BAND 1-7/8" E	#198-227 #198-985 #198-987 #198-989 O-RING 2-1/16" G	#198-267 #198-995 #198-997 #198-999 BAND 2-1/16" G	
4.995" 4.763" 4.888" 5.013" CYL LENGTH 5.330"	406 398 408 417 WIDTH CODE	#198-294 N/A N/A N/A O-RING 1-7/8" E #198-520	#198-517 N/A N/A N/A BAND 1-7/8" E	#198-227 #198-985 #198-987 #198-989 O-RING 2-1/16" G	#198-267 #198-995 #198-997 #198-999 BAND 2-1/16" G #198-580	
4.995" 4.763" 4.888" 5.013" CYL LENGTH 5.330" 5.363"	406 398 408 417 WIDTH CODE 220 222	#198-294 N/A N/A N/A O-RING 1-7/8" E #198-520 #198-521	#198-517 N/A N/A N/A BAND 1-7/8" E #198-540 #198-541	#198-227 #198-985 #198-987 #198-989 O-RING 2-1/16" G #198-560 #198-561	#198-267 #198-995 #198-997 #198-999 BAND 2-1/16" G #198-580 #198-581	
	4.937" 4.937" 4.980" 5.037" 5.160" with 2006-up CYL LENGTH 4.650" 5.087" 5.500" 5.550" 5.625" 5.750" CYL LENGTH	4.937" 410 4.937" 405 4.980" 414 5.037" 417 5.160" 428 with 2006-up TC heads CYL WIDTH LENGTH CODE 4.650" 341 5.087" 374 5.500" 406 5.550" 410 5.625" 415 5.750" 426 CYL WIDTH LENGTH CODE	4.937" 410 #198-288 4.937" 405 #198-287 4.980" 414 #198-289 5.037" 417 N/A 5.160" 428 #198-290 with 2006-up TC heads CYL WIDTH 44-45MM LENGTH CODE SPIGOT 4.650" 341 N/A 5.087" 374 N/A 5.500" 406 #198-294 5.625" 415 N/A 5.750" 426 N/A CYL WIDTH 44-45MM LENGTH CODE SPIGOT	4.937" 410 #198-288 #198-508 4.937" 405 #198-287 #198-507 4.980" 414 #198-289 N/A 5.037" 417 N/A N/A 5.160" 428 #198-290 N/A CYL WIDTH 44-45MM 'E' LENGTH CODE SPIGOT 1-7/8" 4.650" 341 N/A #198-510 5.087" 374 N/A #198-513 5.500" 406 #198-294 #198-517 5.550" 410 #198-296 #198-518 5.625" 415 N/A N/A 5.750" 426 N/A N/A CYL WIDTH 44-45MM 'E' LENGTH CODE SPIGOT 1-7/8"	4.937" 410 #198-288 #198-508 #198-938 4.937" 405 #198-287 #198-507 #198-937 4.980" 414 #198-289 N/A #198-941 5.037" 417 N/A N/A #198-940 5.160" 428 #198-290 N/A #198-939 with 2006-up TC heads *** 'G' CYL WIDTH 44-45MM 'E' 'G' LENGTH CODE SPIGOT 1-7/8" 2-1/16" 4.650" 341 N/A #198-510 #198-220 5.087" 374 N/A #198-513 N/A 5.500" 406 #198-294 #198-517 #198-227 5.550" 410 #198-296 #198-518 #198-228 5.625" 415 N/A N/A #198-232 CYL WIDTH 44-45MM 'E' 'G' LENGTH CODE SPIGOT 1-7/8" 2-1/16"	

Intake Flanges and Seals

Intake manifold flanges and seals for all Evolution® / 1999-2005 TC, and 2006-up Twin Cam® heads. Flanges for 1984-2005 heads have offset mounting holes; 2006-up flanges are symmetrical (even spacing between the port and mounting holes, see page 1.6). The correct year flange must be matched with year of heads being used. These flanges fit standard (1.810" o.d.) and oversize (1.880" o.d.) round port intake manifolds; however, the correct seals must be used for the manifold/port size (oversize round ports use thinner seals). Flanges and standard size seals can be used as stock replacement parts for EV & TC88 engines.

PART NO. DESCRIPTION



PART NO.	DESCRIPTION
#198-032	'84-'05 Front manifold flange, each
#198-033	'84-'05 Rear manifold flange, each
#150-993	'06up F/R intake manifold flange, each
#198-036	Standard intake seal, sold each
#198-035	Oversize intake seal, sold each
#198-241	44/45mm carb seal for spigot manifold

M.A.P. Sensor Plug Kit

#117-127 This kit includes a plug, bracket and screw for plugging the manifold M.A.P. sensor port when the M.A.P. sensor is not used. Allows use of a Twin Cam® manifold on an Evolution® engine.



S&S Air Filters and Accessories S&S Air Cleaners

S&S air cleaners for stock carb or EFI and S&S E/G carbs--add the famous classic teardrop air cleaner assembly to your ride. Replacement backplates, covers and filter elements for S&S applications available separately for repairs or maintenance.

PART NO. AIR CLEANER APPLICATIONS



I AIXI IIO.	AIR GELANER AIT EIGATIONG
#198-603	For '99-'06 Twin Cam® with S&S E or G carb
#198-604	For '93-'99 BT, '91-'03 XL with S&S E or G carb
#198-609	For '84-'92 BT, '86-'90 XL with S&S E or G carb
#198-600	For Shovel or Iron XL with S&S E or G carb
#198-613	For '08-up TBW EFI Big Twin
#198-611	For '99-'06 BT w/CV carb, '02-up* BT w/EFI
#198-611	For '93-'99 EV Big Twin with CV carburetor
#198-610	For '91-'05 EV Sportster® with CV carburetor
#198-617	For '84-'92 EV BT, '86-'90 XL w/CV carb
#198-619 *Not for '08	For '66-'84 Shovel, '66-'85 Iron XL w/stock carb up Touring Models (TBW)
#198-393	Backplate only f/'93-up BT, '91-'05 XL w/E/G carb
#198-392	Backplate only f/84-'92 BT, '86-'90 XL w/E/G carl
#198-390	Backplate only for Shovel, Iron XL w/E/G carb
#198-039	Head breather 3-way tube, 'E' or 'G

S&S Breather Update Kit

#198-393

Got an older (pre-2003) \dot{E} or G carb on your EV Big Twin bike? This conversion kit contains the parts required to convert the backing plate breather bolts to the newer style, which eliminate the need to remove the breather bolt assemblies when removing the air filter backplate for jetting changes or service.

#198-376

#198-378



PART NO. DESCRIPTION

#198-486 S&S pre-2003 EV BT E/G breather bolt update kit

#198-379



Carburetor Support Brackets

A properly mounted and supported carb is mandatory - especially on race bikes! These brackets will simplify the job, assuring proper carburetion.

#198-378 S&S E & G Standard chrome cover #198-379 S&S E & G Slotted chrome cover #198-376 S&S E & G Pleated paper element

These brackets will simplify the job, assuming proper ea	
PART NO. DESCRIPTION	
#198-471 Adjustable support for all S&S carbs, r center case bolt between cylinders (i to bottom manifold bolt.	
#198-793 Support brkt f/S&S E/G carb on Iron > #198-792 Support brkt f/S&S E/G carb on '66-'8 #142-062 CV carburetor support bracket, fits '88 #142-067 CV carburetor support bracket, fits '90 Proceedings of the support brkt f/S&S E/G carb on Iron > Proceedings of the support brkt f/S&S E/G carb on Iron > Proceedings of the support brkt f/S&S E/G carb on '66-'8 Proceedings of the support brkt f/S&S E/G carb on '66-'8 Proceedings of the support bracket, fits '90 Proceedings of the support bracket, fits '90 Proceded of the support bracket, fits '90	32 Shovel 3-'03 XL

S&S Cruise Control and Throttle Cable Brackets

Now, adding an S&S carb to your bagger doesn't mean you have to give up your cruise control! These special throttle cable brackets include provisions for factory cruise control cables and quickly attach to any S&S 'E' or 'G' carb.

PART NO. DESCRIPTION

#198-367 Cruise control bracket kit, '98-'06 models

S&S Carburetor Parts		2
DESCRIPTION	PART NO.	3
1. Enrichener assembly (stand alone style).	_	
Replacement part for B/D carbs; use on		
E/G with non-stock S&S a/c assembly.	#198-084	6
2. Plunger assy, E/G enrichener (each)	#198-043	
3. Mixture screw and spring, E/G/B/D carb	#198-078	5
4. Cable brkt E/G, '90-up cables	#198-338	1
5. Cable brkt E/G, '81-'89 cables	#198-339	97
6. O-ring, carb/manifold, 'E' (each)	#198-816	
O-ring, carb/manifold, 'G' (each)	#198-815	
O-ring, carb/manifold, 'B' (each)	#198-813	8
O-ring, carb/manifold, 'D' (each)	#198-814	
7. Bellows seal, pump E/G (each)	#198-279	
3. Gasket, carb to a/c, E/G (each)	#198-381	
9. Intermediate Jet	(see page 1.21)	
10. Main discharge tube, E/G/B carb	#198-085	RAÇE
Main discharge tube, D carb	#198-185	
11. Main Jet	(see page 1.21)	11 ONLY
12. Float bowl gasket, E/G. Sold each.	#198-386	Made In
Float bowl gasket, B/D. Sold each.	#198-086	12 USA
13. Needle valve, E/G/B (standard flow)	#198-195	
Needle valve, E/G/B/D (high flow*)	#198-197	
14. Float, E/G/B/D carb	#198-187	42
15. O-ring, accel. pump nozzle (10pk)	#198-096	13
16. O-ring, drain plug/inlet seat (5pk)	#198-095	
17. Needle seat, E/G (standard flow)	#198-465	14 15 21 10
Needle seat, E/G (high flow*)	#198-466	15 21
Needle seat, B (standard flow)	#198-065	
Needle seat, B/D (high flow*)	#198-165	18
18. Float bowl (bare) E/G carb	#198-388	
Float bowl (bare) B/D carb	#198-088	16 0
19. Float bowl plug, E/G/B/D (each)	#198-092	
20. Overflow hose, E/G (each)	#198-262	16 0
21. Rebuild kit, E/G accel. pump, diaphragm,		
diaphragm spring, pushrod, check balls,		19 (20)
springs and o-rings.	#198-958	
22. Fuel line, w/ pre-formed 90° end, black (ea		
23. Insulator, fuel line (12")	#198-172	23
*Larger, higher capacity inlet seat and needle for u		
carbs (standard issue in 'D' carbs) High flow sea		

carbs (standard issue in 'D' carbs). High flow seat must be used with high flow needle #198-197 (Recommended for Racing Use Only)

S&S Rebuild Kits

Quick Disconnect

Fuel Line Coupler

Body kits include the parts needed to rebuild the carb body: o-rings, gaskets, throttle shaft, butterfly and throttle return springs. Master rebuild kits include all of the above plus mixture screw, needle/seat and new fasteners; E/G versions include full pump rebuild parts as well. Gasket and o-ring (only) sets available separately.

BODY KIT	MASTER KIT	DESCRIPTION
#198-956	#198-923	For Super 'E'
#198-957	#198-924	For Super 'G'
N/A	#198-926	For Super 'B'

#170-490 Here's a handy item for race bike use. Quickly disconnect the fuel line for fast carb removal, gas tank removal or gas check sample. High flow design, for use with 5/16" or 3/8" fuel line.





Master Kit

Clear Fuel Line

PART NO.	DESCRIPTION
#144-416	1/4" fuel line, per foot
#144-516	5/16" fuel line, per foot
#144-616	3/8" fuel line, per foot



PART NO. DESCRIPTION

#198-100 'E' gasket & o-ring set #198-102 'G' gasket & o-ring set

Replacement Jets for S&S Carbs and ThunderJets™

S&S INTERMEDIATE JETS (Sold Each)

JET SIZE	PART NO.	JET SIZE	PART NO.	JET SIZI	E PART NO.	
.025"	#198-725	.032"	#198-732	.037"	#198-737	
.0265"	#198-726	.033"	#198-733	.038"	#198-738	
.028"	#198-728	.034"	#198-734	.039"	#198-739	
.0295"	#198-729	.035"	#198-735	.040"	#198-740	1
.031"	#198-731	.036"	#198-736	:	1	-

S&S MAIN JETS (Sold Each)

Also used as main circuit air bleed jets on Super B & D carburetors.

JET SIZE	PART NO.	JET SIZE	PART NO.	JET SIZE	PART NO.
.040"	#198-840	.066"	#198-866	.090"	#198-890
.042"	#198-842	.068"	#198-868	.092"	#198-892
.044"	#198-844	.070"	#198-870	.094"	#198-894
.046"	#198-846	.072"	#198-872	.096"	#198-896
.048"	#198-848	.074"	#198-874	.098"	#198-898
.050"	#198-850	.076"	#198-876	.100"	#198-900
.052"	#198-852	.078"	#198-878	.102"	#198-902
.054"	#198-854	.080"	#198-880	.104"	#198-904
.056"	#198-856	.082"	#198-882	.106"	#198-906
.058"	#198-858	.084"	#198-884	.110"	#198-910
.060"	#198-860	.086"	#198-886	.116"	#198-916
.062"	#198-862	.088"	#198-888	.120"	#198-920
.064"	#198-864	:		:	

Jets For ThunderJets (Sold Each)

Also used as main circuit air bleed jets in modified S&S E & G carbs, and as intermediate circuit air bleed jets in modified S&S B & D carbs.

JET SIZE	PART NO.	JET SIZE	PART NO.	JET SIZE	E PART NO.
80	#113-080	115	#113-115	150	#113-150
85	#113-085	120	#113-120	155	#113-155
90	#113-090	125	#113-125	160	#113-160
95	#113-095	130	#113-130	: 165	#113-165
100	#113-100	135	#113-135	170	#113-170
105	#113-105	140	#113-140	175	#113-175
110	#113-110	145	#113-145		





S&S 'E' and 'G' Velocity Stack Conversion Kits

Eases the installation of a velocity stack on an S&S 'E' or 'G' carb-equipped Evolution® Big Twin engine. Includes velocity stack, enrichener assembly and an adjustable carburetor support bracket that mounts from the bottom manifold bolt to the center case bolt between the cylinders. Choose short (2.5") or long (4") velocity stack.

PART	NO.	DESCRIPTION

#198-484 S&S EV Big Twin 2.5" Velocity Stack Conversion Kit **#198-485** S&S EV Big Twin 4" Velocity Stack Conversion Kit

S&S Velocity Stacks & Covers (Only)

PART NO.	DESCRIPTION
#198-042	Velocity stack, Super B, Bendix, Keihin (no-CV) sm bell
#198-331	Velocity stack, Super E/G, 2-1/2" length, small bell
#198-333	Velocity stack, Super E/G, 4" length, large bell
#198-141	Velocity stack, Super D, large bel
#117-042	Naugahyde velocity stack cover, fits small bell

Jet Tools for Carburetors



THUNDERJET Tool (A) #717-100 Also fits air bleed jets on ThunderJetequipped S&S E/G carbs

S&S MAIN JET TOOL (B)

#798-452 Handy tool for unscrewing and replacing S&S main jets. Prevents damage to jets that can cause interruption of fuel flow.



Quick Change Float Bowl Screws for S&S Carbs

Tired of dropping those #\$%^&*! float bowl screws every time you make a jet change? These billet quick change bowl screws make jet changes and maintenance a snap! Machined from billet aluminum with a steel stud installed, featuring knurled knobs and a handy screwdriver slot. Great for racers, tuners, or custom builders looking for the finishing touch. Fits Super B & D only.

PART NO. DESCRIPTION

#113-070 Satin bowl screws, set of 4 **#113-071** Red anodized screws, set of 4





Spacer And Insulator Blocks

Aluminum 1" spacer blocks for S&S carbs. For installations where more clearance is needed; also allows tuner to increase manifold length; useful to control fuel "stand-off".

Phenolic 1/4" insulator blocks, same as supplied with new S&S E & G carbs. Helps insulate carburetor from engine heat.

ALUMINUM	PHENOLIC	
1" SPACER	1/4" SPACER	APPLICATION
#198-057	#198-491	Fits 1-7/8" Super B/E
#198-357	#198-492	Fits 2-1/16" Super G
#198-157	#117-257	Fits 2-1/4" Super D

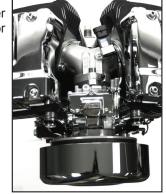
Zipper's Mikuni 45 and 48mm Carb Kits

We've designed some new hardware for mounting Mikuni's 45 and 48mm carbs on Evolution® and Twin Cam® engines. The Mikuni carbs really don't need an introduction here; they've won the hearts of many high performance enthusiasts. However, Mikuni's dual spigot mounts on the manifold and air cleaner sides can create some mounting issues in certain non-standard applications. Our billet manifold mount is designed to mount 45 and 48mm carbs to any S&S 'G' or 'D' manifold, making fitment to engines with taller cylinders as easy as choosing the proper length manifold from our catalog. This trick adapter seals leakfree to the carb via double o-rings and tucks the carb in .250"+ closer than the standard rubber adapter: it's much more stable as well.

On the other side of the carb resides another masterfully engineered part, the Zipper's high flow air cleaner. Instead of a bolt-on adapter (which adds more length), we designed an o-ring sealed flange within the billet backplate. This backplate is fully machined, with a smooth radius inlet for enhanced flow into the carb. Our 2-3/4" deep, high flow air filter element directs air smoothly to the carb inlet. Heavy-

duty support brackets ensure that you'll never be left stranded with a broken mount. Breather hardware and the traditional Mikuni chrome cover are included. 45mm kits are available with or without the billet flange mount. Order manifold separately, see page 1.18!





STANDARD POLISHED

FINISH	FINISH	APPLICATION
#117-450	#117-450P	Zipper's 45mm TC88 Mikuni kit, for use with spigot mount manifold
#117-451	#117-451P	Zipper's 45mm TC88 Mikuni kit, w/billet flange mount (no manifold)
#117-481	#117-481P	Zipper's 48mm TC88 Mikuni kit, w/billet flange mount (no manifold)
#117-453 #117-483	#117-453P #117-483P	Zipper's 45mm EV Mikuni kit, w/billet flange mount (no manifold) Zipper's 48mm EV Mikuni kit, w/billet flange mount (no manifold)



Zipper's Mikuni Air Cleaner Assembly

Includes high flow billet backplate assembly, Max Flow filter, cover, breather and mounting hardware. Works with spigot mount or flange manifold with rubber or Zipper's billet adapter.

PART NO.	DESCRIPTION	
#117-142	Fits EV w/42, 45 or	48mm carb
#117-145	Fits TC88 w/42, 45	or 48mm carb
#117-245	Fits TC models w/ s	stock TC a/c cover



Zipper's Mikuni Zipper's Mikuni

surface. Includes mounting bolts.

Manifold Adapter Air Cleaner Adapter

Two-bolt billet flange adapter for use Securely clamps to carb spigot, allows with S&S 'G' manifold. Replaces mounting of any air cleaner with a CV rubber flange adapter, o-ring sealed bolt pattern. Machined from billet and on spigot and manifold mating polished to a brilliant shine; can be rotated on the carb for custom applications.



PART NO.	DESCRIPTION

#117-140 Fits Mikuni 42/45/48 to CV a/c

Mikuni HSR **Smoothbore Carburetors**

The HSR Mikuni carburetor is a slide-type, smoothbore carburetor equipped with a roller-bearing two-piece slide for smooth and easy throttle pull. Features include a large capacity float bowl and high flowing needle-valve assembly. Tuning adjustments are made via slide needles, main and pilot jets and an adjustable accelerator pump. Three sizes are available: 42, 45 and 48mm. The 42mm is recommended for 74-95" engines, 45mm for 95-107" engines and 48mm for 107" and larger engines. Throttle spool uses stock 1990up CV cables.

42mm 'Easy' Kits: To be used w/stock CV manifold, choke cable, air cleaner (stock or performance type) and throttle cables (cables from '90-up).



PART NO.	APPLICATION
#120-207	'Easy' kit for '90-'99 EV Big Twin; includes carb, air cleaner adaptor and vented chrome cover
#120-218	'Easy' kit for '99-'06 Twin Cam® engines; includes carb & air cleaner adaptor, uses stock oval cover
#120-210	'Easy' kit for '94-'06 Sportster® 1200; includes carb & special air cleaner backplate Use stock cover with Screamin' Eagle® air filter.
#120-211	'Easy' kit for '94-'06 Sportster® 1200 & Carbed Buell; includes carb & air cleaner adaptor Use w/aftermarket performance air filter.

42 & 45mm 'Total' Kits': These kits are complete with everything needed for a total installation. Kits include carburetor, manifold, rubber mounting flange (45mm), K&N air filter, vented chrome cover, crankcase breather kit and mounting hardware. Stock throttle cable from 1990 and later models can be used. '84-'89 models will need '90-'95 style cables.

PART NO.	APPLICATION
#120-208	42mm 'Total' kit, '84-'99 EV Big Twin
#120-219	42mm 'Total' kit, '99-'06 Twin Cam®
#120-502	45mm 'Total' kit, '84-'99 EV Big Twin
#120-503	45mm 'Total' kit, '84-'99 EV BT
	(w/o manifold)
#120-504	45mm 'Total' kit, '99-'06 Twin Cam®

45 & 48mm CARBURETOR ONLY KITS: Carb only for custom applications. Requires rubber adaptor (included with 48mm) and 2-bolt, S&S 'G' style manifold (purchase separately). Aftermarket air cleaners can be used with the adaptor listed below. Standard and polished finish.

STANDARD	POLISHED	DESCRIPTION
#120-452	#120-452P	45mm carb only
#120-802	#120-802P	48mm carb w/flange

Mikuni Jet Needles

	FOR	FOR
JET NEEDLE	HSR42	HSR45/48
95 (Richer)	#108-095	#108-195
96 (Stock)	#108-096	#108-196
97 (Lean)	#108-097	#108-197
98 (Leanest)	#108-098	#108-198

Mikuni Carburetor Accessories

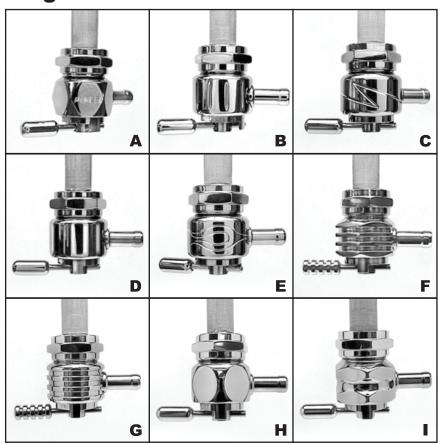


PART NO.	MIKUNI CARB ACCESSORIES
#120-204	Chrome A/C cover, standard full round
#108-083	Repl. K&N a/c element for HSR42/45/48
#108-919	HSR42/45 carb rebuild kit
#108-084 #108-085	Rubber flange adaptor, 42mm carb Rubber flange adaptor, 45mm carb
#120-800 #120-200	Rubber flange adaptor, 48mm carb Air cleaner adaptor, Mikuni to CV A/C

Mikuni Carburetor Jets

PIL	OT JETS	PART NO.	PILOT JETS	PART NO.
	15	#108-150	30	#108-300
	17.5	#108-175	32.5	#108-325
	20	#108-200	35	#108-350
48	22.5	#108-225	37.5	#108-375
HS40	25	#108-250	40	#108-400
HSR42/45/48	27.5	#108-275	42.5	#108-425
MA	IN JETS	PART NO.	MAIN JETS	PART NO.
MA	145	PART NO. #108-936	MAIN JETS 175	PART NO. #108-948
MA				
MA	145	#108-936	175	#108-948
MA HS40	145 150	#108-936 #108-938	175 180	#108-948 #108-950
	145 150 155	#108-936 #108-938 #108-940	175 180 185	#108-948 #108-950 #108-952

Pingel® Fuel Valves



Pingel® Designer Fuel Valves

Get the best performance with a true custom look! Pingel® fuel valves are now available in the new Designer Series, flawlessly chrome plated. Designer styles include diamond hex, finned or smooth round shapes; the round models are also available with vertical grooves, lightning strike or flames machined into the main body for a true custom look.

CHROME DESIGNER	1000	4000	6000
POWER-FLO™ VALVES	SERIES	SERIES	SERIES
A. Diamond style for '75-'06 tanks	#176-143	#176-443	#176-643
B. Vertical groove style for '75-'06 tanks	#176-153	#176-453	#176-653
C. Lightning bolt style for '75-'06 tanks	#176-163	#176-463	#176-663
D. Smooth round style for '75-'06 tanks	#176-173	#176-473	#176-673
E. Flamed round style for '75-'06 tanks	#176-183	#176-483	#176-683
F. Finned hex style for '75-'06 tanks	N/A	N/A	#176-690
G. Finned round style for '75-'06 tanks	N/A	N/A	#176-691
H. Oval hex style for '75-'06 tanks	N/A	N/A	#176-692
I. Wave hex style for '75-'06 tanks	N/A	N/A	#176-693

Which Fuel Valve For My Bike?

Determine the location of your fuel valve on your gas tank, and pick the valve that best suits your motorcycle. We've attempted to list which models use which style, but due to the fact that H-D® has changed the location of the petcocks over the years and aftermarket tanks tend to vary, we suggest you verify your location. All fuel valves for '75-'06 H-D® gas tanks include 22mm adapter nut; no additional adapters needed...



The same high quality construction found in Pingel® petcocks is found in the Pingel In-Line™ Super Short fuel filters. Featuring a main body machined from billet aluminum with a length of only 1-1/8", this filter has large, high flowing ports and a cleanable bronze element that will last a lifetime. These are the only filters designed to meet high flow requirements of the Pingel® Power-Flo™ fuel valves.

PART NO.	DESCRIPTION
#176-123	Pingel filter, chrome 3/8" in/out
#176-113	Pingel filter, chrome 5/16" in/out



Pingel® -6AN Fuel Inlet for S&S E/G Carbs

#176-355 This float needle seat for S&S E and G carbs accepts a female -6AN aircraft fitting. The perfect mate for our #176-631 Pingel® fuel valve; allows you to use high tech AN fittings with braided hose. Fits only E and G carbs with standard (black tip) float needles.

Pingel® Guzzler Fuel Valve



The Guzzler Fuel Valve can be used with gasoline, methanol or nitromethane. It is manufactured from aircraft aluminum and hardcoat anodized. Features include spring loaded ball detents for positive on/off positioning and stainless steel components. This valve flows 1-1/2 gallons per minute and is 1" square.

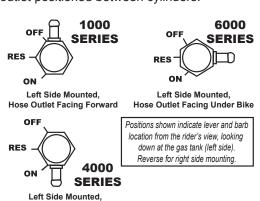
PART NO.	DESCRIPTION
J. #176-726	Guzzler with H-D 22mm inlet, 3/8" hose outlet
L. #176-716	Guzzler with 3/8"NPT inlet, 3/8" hose outlet
K. #176-713	Guzzler with 3/8"NPT inlet, #6AN hose outlet

Which Fuel Valve For My Bike?

1000 Series: Most popular style, mounts to the rearward left side of the gas tank with the hose barb facing forward, or the right front with the hose barb facing to the rear. Fits all late Big Twins except some Fat Boy® models and Sportsters® to '94.

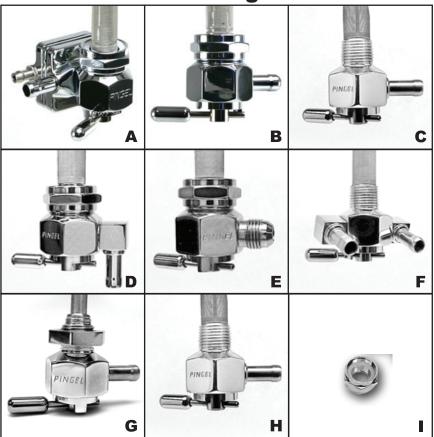
4000 Series: Mounts to the forward left side of the gas tank with the hose barb facing rearward, or the right at the rear of the tank with the hose barb facing forward. Fits some Fat Boy® models and some aftermarket tanks.

6000 Series: Mounts at the middle of the tank on either side and has the hose barb opposite of the actuating lever. Used on tanks with fuel outlet positioned between cylinders.



Hose Outlet Facing Back





Pingel® Power-Flo™ Fuel Valves

Don't starve your high performance engine with a low performance fuel valve. Stock Harley® petcocks flow marginally at best. Pingel's patented Power-Flo™ design allows the maximum amount of fuel flow on both main and reserve stations because only one extra-large inlet is used for both. A true 1/4" I.D. with no restrictions, providing smooth, high fuel flow. Power-Flo™ petcocks are machined from solid billet with stainless steel components and leak-proof o-ring seals. Most models available in chrome or polished aluminum finish, while special racing fuel valves are polished aluminum only. All fuel valves for '75-'06 H-D® gas tanks include 22mm adapter nut; no additional adapters needed. Models now available with automatic, vacuum operated shut-off.

ORIGINAL HEX POWER-FLO® FUEL VALVES	1000 SERIES	4000 SERIES	6000 SERIES	
A. Chrome w/22mm coupling nut & vacuum shut-off B. Chrome w/22mm coupling nut, for '75-'06 tanks	#176-134 #176-133	#176-434 #176-433	N/A #176-633	
Aluminum w/22mm coupling nut, for '75-'06 tanks C. Chrome w/male 3/8"NPT threads, for pre-'75 tanks	#176-135 #176-131	#176-435 #176-431	#176-635 #176-632	
Aluminum w/male 3/8"NPT threads, for pre-'75 tanks	#176-131 #176-132	#176-431 #176-432	#176-632 #176-631	
PART NO. SPECIAL APPLICATION FUEL VALV	/ES			
Down Outlet: Available only in original Hose barb is opposite of the lever, but applications that require special routing #176-623 Chrome with 22mm Coupling Nut #176-624 Chrome with 22mm Coupling Nut	t points down. Works wong.			
	-6AN Outlet: Has male -6AN threaded outlet opposite of the lever for use with stainless hose and AN fittings. Original hex design in Chrome, with 22mm Coupling Nut.			
#176-331 Chrome Finish, with 22mm Coupli				
G. #176-523 In-Line Fuel Valve: Remote mount	In-Line Fuel Valve: Remote mount, in-line fuel valve includes mounting locknut.			
H. Single Outlet Dual Outlet Race Fuel Valve: On/Off Only, No				
· · · · · · · · · · · · · · · · · · ·	Adaptor nut: 3/8" Female NPT to Female 22mm. Use to adapt 3/8" Male NPT Valves to '75- '06 H-D® and most aftermarket tanks. Chrome.			

*The appearance of these fuel valves are a trademark of Pingel Enterprise. Inc. Patents and Patents pending



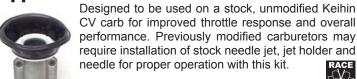
Zipper's HPCV 44mm Keihin CV Carburetors

We've taken new 44mm Keihin CV carburetors and added our HPCV modifications to them for improved performance, fuel mileage and throttle response. The 44mm works well on larger displacement engines or stock displacement engines that are modified for performance. We also offer carburetors modified with our HPCV kit and a ThunderJet® installed for increased high RPM performance. Special manifold required (see below); accepts any air filter designed for CV carbs and '90-up style cables.



PART NO.	DESCRIPTION
#150-934	44mm Keihin carb w/Zippers HPCV modification
#150-935	44mm Keihin carb w/Zippers HPCV and ThunderJet®
#150-635	44-45mm manifold f/'99-'05 Twin Cam® engines
#150-636	44-45mm manifold f/EV Big Twin engines

Zipper's HPCV Carburetor Kit

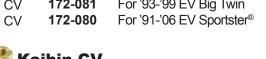


PART NO.	APPLICATION ONLY
#117-040	HPCV kit for 40mm CV
#117-044	HPCV kit for 44mm CV

External Breather Kit For CV Carbs

These universal breather kits can be used to plumb breather lines externally when using a racing style air cleaner assembly. Some fabrication may required for carburetor support with certain air cleaner assemblies.

PART NO.	APPLICATION ONLY	
172-081	For '93-'99 EV Big Twin	
172-080	For '91-'06 EV Sportster®	12





8666

JET SIZE	PART NO.	JET SIZE	PART NO.
.35	#150-035	.48	#150-048
.40	#150-040	.50	#150-050
.42	#150-042	.52	#150-052
.45	#150-045	.55	#150-055

JET TOOL FOR KEIHIN JETS

#772-011 Fits low speed jets on all Keihin Carbs, Also works great on idle mixture screw.



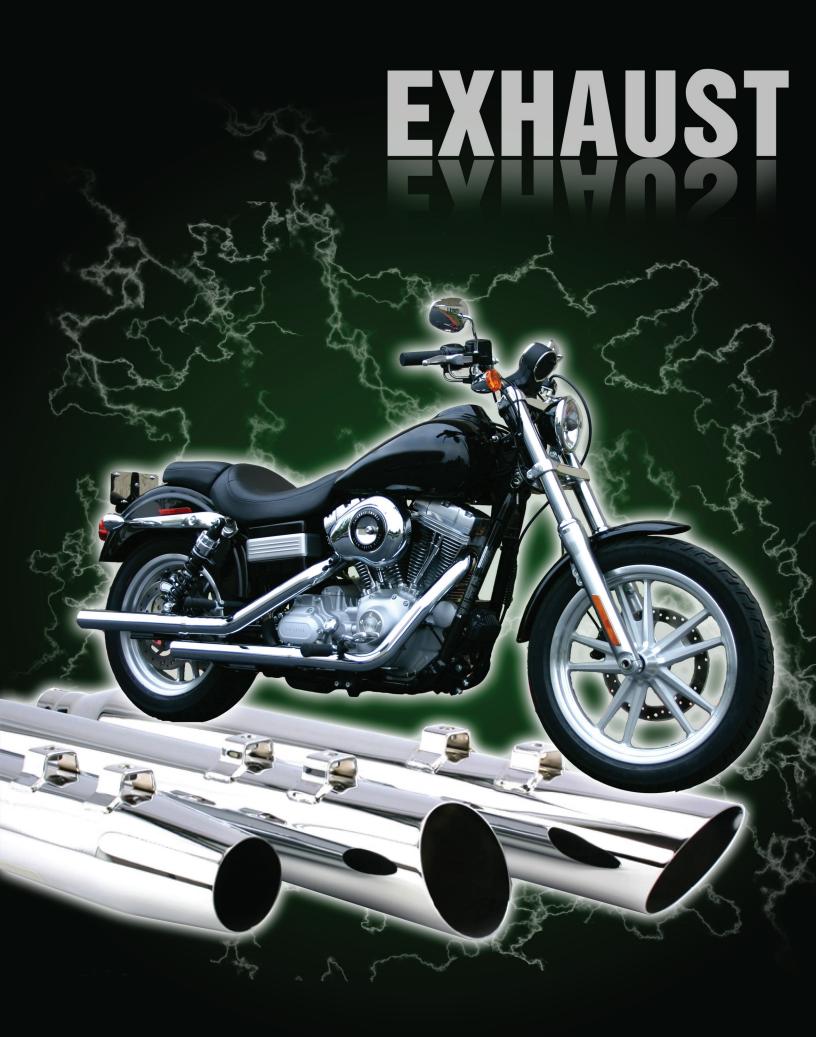
JET SIZE	PART NO.	JET SIZE	PART NO.	JET SIZE	PART NO.
1.50	#150-150	1.80	#150-180	2.10	#150-210
1.55	#150-155	1.85	#150-185	2.15	#150-215
1.60	#150-160	1.90	#150-190	2.20	#150-220
1.65	#150-165	1.95	#150-195	2.30	#150-230
1.70	#150-170	2.00	#150-200	•	
1.75	#150-175	2.05	#150-205	•	

K&N® Premium Air Filters

K&N® filters are hand-built using the finest materials available today. K&N® filter media consist of multiple layers of cotton-gauze plus one layer of synthetic fiber material sandwiched between stainless steel mesh, trapping the smallest dirt particles that ordinary cotton-gauze filters can't capture. The casing of the filter is hand-poured urethane, which offers superior performance and durability, and won't shrink or crack from prolonged heat exposure. All K&N® filters are fully washable and re-oilable, providing miles and miles of protection and performance for your engine. All K&N® filters are built to last for a lifetime – *Guaranteed!* Made in USA.

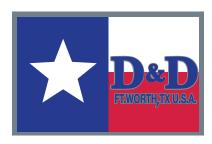


PART NO.	STOCK APPLICATIONS	PART NO.	NON-STOCK APPLICATIONS ONLY USA
#162-508	EFI: '08-'13 Touring mdls (OE#29633-08)	#162-800	SE Stage I Carb '99-'06 mdls, EFI '01-'14 FXST,
#162-608	EFI: '08-up Dyna® mdls (OE#29191-08)	'02-'07 Tou	ring, '04-'07 FXD EFI TC® (OE#29442-99, 29400020)
#162-149	EFI: '00-'10 FXST, '04-'07 FXD,	#162-818	SE Stage I '08+TBW EFI (OE#29244-08, 29400019)
	'02-'07 Touring mdls (OE#29461-99)	#162-808	SE Stage I '08-up Dyna® (OE#29385-08, 29400021)
#162-889	EFI: '99-'01 Touring mdls (Marelli EFI),	#162-910	SE '09+ CVO ventilator
	(OE#29462-99)	#162-900	SE Stage I '04-'14 Sportster® (OE#29044-04B)
#162-149	Carb: '99-'06 TC® engs, (OE#29461-99)	#162-226	S&S E/G carbs
#162-139	Carb: '90-'99 EV BT (OE#29259-91A)	#162-225	S&S B/D carbs
#162-395	EFI: '95-'98 EV BT (OE#29291-95)	#162-621	Crankcase filter, 3/8" hose (single)
#162-834	'04-'13 Sportster® (OE#29331-04)	K&N® F	ilter Service Kit
#162-138	'88-'03 Sportster® (OE#29331-96)		2-part kit includes cleaning solution that is uniquely
#162-910	K&N for All XR1200 Models		to clean the gauze media without damage, and oil that is
#162-112	'02-'14 V-Rod® (OE#29437-01)		r cleaning that traps dirt without hindering airflow.



D&D Fat Cat Exhaust Systems

During the development of our EFI systems, many hours were spent tuning engines for their best overall power curve. Many exhaust systems were used during testing, and their effect on an engine's output was noted with great interest. The D&D systems were consistently at the top of the performance list, especially when tested on larger displacement performance engines. D&D's philosophy is to trust their own R&D program, developing their product line to reflect what they learn during their countless hours of testing on the D&D dyno. But they didn't stop after they made big power, they also built systems that are engineered to fit and look great! Inspect a D&D pipe, and you'll find true craftsmanship—from the hand-ported inlets and collectors, hand-fit heat



shields with machined and welded steel clamp brackets, heavy-duty mounting supports and flawless finishes, you'll know you made the right choice for your Harley®.

D&D 2:1 Fat Cat Exhaust Systems

The Fat Cat is an excellent choice for engines with performance modifications from stock to plus-25% displacement, delivering a torque curve that is high and wide. Excellent workmanship inside and out; broad power design really shows up on the dyno. Includes full-length header heat shields to ensure great looks over the long haul.

D&D offers most of their Fat Cat pipes with two different baffle designs:

<u>Louvered</u> - Original louvered baffle design, unwrapped except where noted. Loud exhaust note and good balance of torque and horsepower.

<u>W Big Bore</u> - High flow perforated, big bore design with acoustical wrapping. Loudest exhaust note and most flow. Designed for the rider with extensive performance modifications who wants maximum high rpm output.

All models are available in brilliant chrome or high-temperature black powder coat finish.

2:1 Fat Cat For Softail® Models

Fat Cats for '00-'11 Softail® models include 18mm oxygen sensor bungs; '12-up models include 12mm oxygen sensor bungs. If your '12-up model will be using a tuner that utilizes 18mm wide-band oxygen sensors (ThunderMax®), order a '00-'11 pipe for the proper model application.

For Softail® models without saddlebags.

APPLICATION	LOUVERED	W BIG BORE
Fits '00-'11 FXST, FXCW, FLST/F/N/SB Models, chrome	#255-044	#255-041
Fits '12-up FXS, FLST/F/FB/N Models, chrome	#255-774	#255-771
Fits '00-up FXST, FXCW, FLST/F/N/SB Models, black	#255-046	#255-043
Fits '12-up FXS, FLST/F/FB/N Models, black	#255-776	#255-773

For Softail® models with saddlebags (muffler is 3" longer to exit beyond bag).

APPLICATION			LOUVERED	W BIG BORE
Fits '00-'11 FLSTC M	lodels, chrome		#255-734	#255-731
Fits '12-up FLSTC M	odels, chrome		#255-744	#255-741
Fits '00-'11 FLSTC M	lodels, black		#255-736	#255-733
Fits '12-up FLSTC M	odels, black		#255-746	#255-743

Low Cat for Softails® has upswept muffler; improves ground clearance on lowered bikes. Will not work with factory Heritage Softail® Classic saddlebags, may be an issue with aftermarket bags.

with factory fremage Solian's Classic Saddlebags, may be an issue with aftermarket bags.			
APPLICATION	LOUVERED	W BIG BORE	
Low Cat, '00-'11 FXST, FXCW, FLST/F/N/SB Models, chrome	#255-384	#255-381	
Low Cat, '12-up FXS, FLST/F/FB/N Models, chrome	#255-804	#255-801	
Low Cat, '13-up FXSB Breakout®, chrome w/12&18mm bungs	#255-828	N/A	
Low Cat, '00-'11 FXST, FXCW, FLST/F/N/SB Models, black	#255-386	#255-383	
Low Cat, '12-up FXS, FLST/F/FB/N Models, black	#255-806	#255-803	
Low Cat, '13-up FXSB Breakout®, black w/12&18mm bungs	#255-829	N/A	

For '84-'99 Evolution® models. These Fat Cats do not include oxygen sensor bungs, and can be used on 2000-up Twin Cam® models if no oxygen sensor bungs are required.

APPLICATION	LOUVERED	W BIG BORE
Fits '84-'99 FXST, FLST Models, chrome	#255-124	#255-121
Fits '84-'99 FXST, FLST Models, black	#255-126	#255-123





All models are available in brilliant chrome or high-temp black powder coat finish.

D&D Fat Cat Exhaust Systems

2:1 Fat Cat For Touring Models

All Touring model 2:1 Fat Cats are equipped with oxygen sensor bungs and are available with traditional 'back-cut' or 'slant' design muffler tip, which follows the saddlebag angle. For the traditionalist, a non-functional "Ghost" pipe is available for the left side of touring models to keep the dual exhaust look. 'Q' Louvered baffles are equipped with acoustical wrapping.



All models are available in brilliant chrome or high-temp black powder coat finish.



APPLICATION WITH BACK-CUT MUFFLER	'Q' LOUVERED	W BIG BORE
Fits '09-'14 Touring (dual O2 ports), chrome back-cut	#255-901	#255-908
Fits '09-'14 Touring (dual O2 ports), black back-cut	#255-903	#255-909
A DDI IO ATION WITH DAOK OUT MUFFLED	I OUNTEDED	DIO DODE
APPLICATION WITH BACK-CUT MUFFLER	LOUVERED	BIG BORE
Fits '07-'08 Touring Models, chrome back-cut	#255-024	#255-021
Fits '07-'08 Touring Models, black back-cut	#255-026	#255-023
Fits '95-'06 Touring Models, chrome back-cut	#255-364	#255-361
Fits '95-'06 Touring Models, black back-cut	#255-366	#255-363
LEFT SIDE 'GHOST PIPE' WITH BACK-CUT MUFFLER	CHROME	BLACK
Fits '09-'14 Touring Models, Left Side Ghost Pipe back-o	cut #255-546	#255-547
Fits '07-'08 Touring Models, Left Side Ghost Pipe back-o	cut #255-025	#255-027
Fits '95-'06 Touring Models, Left Side Ghost Pipe back-o	cut #255-365	#255-367

Slant 2:1 Fat Cat For Touring Models

All Touring model 2:1 Fat Cats are equipped with oxygen sensor bungs and are available with traditional 'back-cut' or new 'slant' design muffler tip, which follows the saddlebag angle. For the traditionalist, a non-functional "Ghost" pipe is available for the left side of touring models to keep the dual exhaust look.

APPLICATION WITH SLANT MUFFLER	'Q' LOUVERED	W BIG BORE
Fits '09-'14 Touring (dual O2 ports), chrome slant	#255-911	#255-918
Fits '09-'14 Touring (dual O2 ports), black slant	#255-913	#255-919
APPLICATION WITH SLANT MUFFLER	LOUVERED	BIG BORE
Fits '07-'08 Touring Models, chrome slant	#255-054	#255-051
Fits '07-'08 Touring Models, black slant	#255-056	#255-053
Fits '95-'06 Touring Models, chrome slant	#255-374	#255-371
Fits '95-'06 Touring Models, black slant	#255-376	#255-373
LEFT SIDE 'GHOST PIPE' WITH SLANT MUFFLER	CHROME	BLACK
Fits '09-'14 Touring Models, Left Side Ghost Pipe slant	#255-646	#255-647
Fits '07-'08 Touring Models, Left Side Ghost Pipe slant	#255-055	#255-057
Fits '95-'06 Touring Models, Left Side Ghost Pipe slant	#255-375	#255-377

All models are available in brilliant chrome or high-temp black powder coat finish.







D&D Fat Cat Exhaust Systems

2:1 Fat Cat For Dyna® Models

Fat Cats for '04-'11 Dyna® models include 18mm oxygen sensor bungs; '12-up models include 12mm oxygen sensor bungs. If your '12-up model will be using a tuner that utilizes 18mm wide-band oxygen sensors (ThunderMax®), order a 2011 pipe for the proper model application.

APPLICATION - CHROME FINISH	LOUVERED	W BIG BORE
Fits '12-up FLD Switchback®, chrome back-cut (12mm bungs)	#255-994	#255-991
Fits '12-up FLD Switchback®, chrome slant-cut (12mm bungs)	#255-944	#255-941
Fits '12-up FXDF, FXDWG, chrome (12mm bungs)	#255-934	#255-931
Fits '12-up FXDB/C (not FXDF/FXDWG), chrome (12mm bungs)	#255-884	#255-881
Fits '08-'11 FXDF,'10-'11 FXDWG, chrome (18mm bungs)	#255-984	#255-981
Fits '06-'11 FXD except '08-'11 FXDF,'10-'11 FXDWG, chrome	#255-964	#255-961
Fits '04-'05 FXD Dyna® EFI Models, chrome (18mm bungs)	#255-254	#255-251
Fits '95-'05 FXD Dyna® All Models, chrome (no EFI bungs)	#255-114	#255-111
APPLICATION - BLACK FINISH	LOUVERED	W BIG BORE
Fits '12-up FLD Switchback®, black back-cut (12mm bungs)	#255-996	#255-993
Fits '12-up FLD Switchback®, black slant-cut (12mm bungs)	#255-946	#255-943
Fito '12 up EVDE EVDMC block (12mm bungs)		
Fits '12-up FXDF, FXDWG, black (12mm bungs)	#255-936	#255-933
Fits '12-up FXDB/C (not FXDF/FXDWG), black (12mm bungs)	#255-936 #255-886	#255-933 #255-883
Fits '12-up FXDB/C (not FXDF/FXDWG), black (12mm bungs) Fits '08-'11 FXDF,'10-'11 FXDWG, black (18mm bungs)		
Fits '12-up FXDB/C (not FXDF/FXDWG), black (12mm bungs) Fits '08-'11 FXDF,'10-'11 FXDWG, black (18mm bungs) Fits '06-'11 FXD except '08-'11 FXDF,'10-'11 FXDWG, black	#255-886	#255-883
Fits '12-up FXDB/C (not FXDF/FXDWG), black (12mm bungs) Fits '08-'11 FXDF,'10-'11 FXDWG, black (18mm bungs)	#255-886 #255-986	#255-883 #255-983











2:1 Fat Cat For Sportster® Models

These Fat Cats for '04-'13 XL models fit models with mid or forward controls; 86-'03 XL models do not fit bikes with forward controls. '07-up models include oxygen sensor bungs.



APPLICATION	LOUVERED	W BIG BORE
Fits '07-'13 XL Sportster® Models, chrome	#255-164	#255-161
Fits '07-'13 XL Sportster® Models, black	#255-166	#255-163
Fits '04-'06 XL Sportster® Models, chrome	#255-154	#255-151
Fits '04-'06 XL Sportster® Models, black	#255-156	#255-153
Fits '86-'03 Sportsters® with Mid Controls, chrome	#255-144	#255-141
Fits '86-'03 Sportsters® with Mid Controls, black	#255-146	#255-143

2:1 Fat Cat For FXR® Models

APPLICATION	'Q' LOUVERED	LOUVERED
Fits '87-up FXR Models (Not FXRP), chrome	#255-488	#255-480
Fits '87-up FXR Models (Not FXRP), black	#255-489	#255-482



2:1 Fat Cat For V-Rod® Models

Great looking Fat Cat for V-Rod® boosts horsepower and low-end torque. Upswept muffler increases cornering clearance. Includes louvered baffle, exhaust bungs and full header heat shields.

APPLICATION	CHROME	BLACK
Fits '09-up VRSCF Muscle® models (Forward Controls)	#255-518	#255-520
Fits '07-up VRSC/AW, /DX Models (Forward Controls)	#255-514	#255-516
Fits '06-'07 VRSCR Street Rod® Models (Mid Controls)	#255-954	#255-956
Fits '02-'05 VRSC/A, /B Models (Forward Controls)	#255-391	#255-393



D&D 2:1 Bob Cat Exhaust Systems



D&D has expanded its popular Bob Cat 2-into-1 exhaust systems to include Dyna® and Softail® models, along with the original Sportster® and XR1200® pipes. All models are equipped with a wrapped perforated performance baffle and are available with your choice of an aluminum, black, or carbon-wrapped sleeve covering the upswept muffler. All models except the XR1200® versions offer either black or chrome stepped header pipes. The Bob Cat system delivers the power and agility like no other Harley-Davidson® that you will see or hear!

Softail® / Dyna® note: '12-up models include 12mm oxygen sensor bungs. If your '12-up model will be using a tuner that utilizes 18mm wide-band oxygen sensors (ThunderMax®), order a 2011 year pipe for the proper model application.



FOR '00-UP SOFTAIL® MODELS		ALUMINUM	BLACK	CARBON
For '00-'11 FXST with Black 18mm	Headpipes	#255-751	#255-752	#255-753
For '12-up FXST (not FXSB) with B	lack 12mm Headpipes	#255-761	#255-762	#255-763
For '13-up FXSB with Black 12mm	Headpipes	#255-821	#255-822	#255-823
For '00-'11 FXST with Chrome 18m	ım Headpipes	#255-756	#255-757	#255-758
For '12-up FXST (not FXSB) with C	Chrome 12mm Headpipes	#255-766	#255-767	#255-768
For '13-up FXSB with Chrome 12m	m Headpipes	#255-824	#255-825	#255-826



FOR '06-UP DYNA® MODELS	ALUMINUM	BLACK	CARBON
For '06-'11 Dyna® with Black Headpipes (18mm O2 Bungs)	#255-841	#255-842	#255-843
For '12-up Dyna® with Black Headpipes (12mm O2 Bungs)	#255-851	#255-852	#255-853
For '06-'11 Dyna® with Chrome Headpipes (18mm O2 Bungs)	#255-846	#255-847	#255-848
For '12-up Dyna® with Chrome Headpipes (12mm O2 Bungs)	#255-856	#255-857	#255-858



FOR '08-UP XR1200® MODELS (18MM O2 BUNGS)

With Black Headpipes, Wrapped Performance Baffle

#255-561 #255-562 #255-563









D&D 2:1 Boarzilla Exhaust Systems for High Output Engines

This 2-into-1 exhaust system is designed for large displacement, high output engines. Similar to the Fat Cat system, the Boarzilla system has larger diameter primary tubes and the muffler includes a 2-1/2" core perforated baffle. The Boarzilla is an excellent choice for engines with performance modifications and plus 25% or larger displacement. Most models delivered with oxygen sensor bungs for fuel-injected models. Includes full-length header heat shields to ensure great looks over the long haul. For the traditionalist, a non-functional "Ghost" pipe is available for the left side of touring models to keep the dual exhaust look.

Choose standard perforated big bore muffler baffle unwrapped (loudest) or acoustically wrapped ('Q'-slightly quieter), with muffler body back-cut (slash longer at the top) or slant-cut (longer at the bottom, follows saddlebag angle).

2:1 Boarzilla For Touring Models

These Boarzillas for Touring models include oxygen sensor bungs.

APPLICATION	'Q' BAFFLE	BIG BORE
Fits '09-up FL Touring Models, back-cut, chrome*	#255-708	#255-700
Fits '09-up FL Touring Models, top slant, chrome*	#255-718	#255-710
Fits '09-up FL Touring Models, back-cut, black*	#255-709	#255-702
Fits '09-up FL Touring Models, top slant, black*	#255-719	#255-712
Fits '07-'08 FL Touring Models, back-cut, chrome	#255-031	#255-030
Fits '07-'08 FL Touring Models, back-cut, black	#255-033	#255-032
Fits '95-'06 FL Touring Models, back-cut, chrome	#255-661	#255-660
Fits '95-'06 FL Touring Models, back-cut, black	#255-663	#255-662
*'09-up models include dual oxygen sensor bungs (upper 18mm, k	ower 12mm) with ca	ps

LEFT SIDE 'GHOST PIPE'	CHROME	BLACK
Fits '09-up Touring Models, back-cut Ghost Pipe	#255-546	#255-547
Fits '09-up Touring Models, top slant Ghost Pipe	#255-646	#255-647
Fits '07-'08 Touring Models, back-cut Ghost Pipe	#255-035	#255-037
Fits '95-'06 Touring Models, back-cut Ghost Pipe	#255-666	#255-668







2:1 Boarzilla For Softail[®] Models

Upswept muffler design will not fit with factory FLSTC saddlebags. These Boarzillas for '00-up Softail® models include oxygen sensor bungs; '84-'99 EV units can be used on 2000-up Twin Cam® models if no oxygen sensor bungs are required.

Note: '12-up models include 12mm oxygen sensor bungs. If your '12-up model will be using a tuner that utilizes 18mm wide-band oxygen sensors (ThunderMax®), order a 2011 year pipe for the proper model application.

APPLICATION - CHROME FINISH	'Q' BAFFLE	BIG BORE
Fits '12-up Softail® (except FXSB) Models, chrome (12mm bungs)	#255-787	#255-786
Fits '00-'11 Softail® (except FXSB) Models, chrome (18mm bungs)		#255-630
Fits '84-'99 Softail® (except FXSB) Models, chrome (no EFI bungs) #255-636	#255-635
APPLICATION - BLACK FINISH	'Q' BAFFLE	BIG BORE
Fits '12-up Softail® (except FXSB) Models, black (12mm bungs)	#255-789	#255-788
Fits '00-'11 Softail® (except FXSB) Models, black (18mm bungs		#255-632
Fits '84-'99 Softail® (except FXSB) Models, black (no EFI bungs	s) #255-639	#255-638



2:1 Boarzilla For Dyna® Models

Upswept muffler design improves cornering clearance but may interfere with saddlebags. Boarzillas for '06-up models include oxygen sensor bungs. *Note:* '12-up models include 12mm oxygen sensor bungs. If your '12-up model will be using a tuner that utilizes 18mm wide-band oxygen sensors (ThunderMax®), order a 2011 year pipe for the proper model application.

APPLICATION - CHROME FINISH	'Q' BAFFLE	BIG BORE
Fits '12-up FXDF, FXDWG models, chrome (12mm bungs)	#255-267	#255-266
Fits '12-up FXDB, FXDC models, chrome (12mm bungs)	#255-261	#255-260
Fits '08-'11 FXDF,'10-'11 FXDWG, chrome (18mm bungs)	#255-276	#255-274
Fits '06-'11 Dyna® except '08-'11 FXDF,'10-'11 FXDWG, chrome	e #255-278	#255-270
Fits '04-'05 EFI Dyna® models (18mm bungs), chrome	#255-308	#255-300
Fits '95-'05 Dyna® models (no EFI bungs), chrome	#255-611	#255-610
APPLICATION - BLACK FINISH	'Q' BAFFLE	BIG BORE
APPLICATION - BLACK FINISH Fits '12-'13 FXDF, FXDWG models, black (12mm bungs)	'Q' BAFFLE #255-269	BIG BORE #255-268
Fits '12-'13 FXDF, FXDWG models, black (12mm bungs)	#255-269	#255-268
Fits '12-'13 FXDF, FXDWG models, black (12mm bungs) Fits '12-'13 FXDB, FXDC models, black (12mm bungs) Fits '08-'11 FXDF, '10-'11 FXDWG, black (18mm bungs) Fits '06-'11 Dyna® except '08-'11 FXDF, '10-'11 FXDWG, black	#255-269 #255-263 #255-277	#255-268 #255-262
Fits '12-'13 FXDF, FXDWG models, black (12mm bungs) Fits '12-'13 FXDB, FXDC models, black (12mm bungs) Fits '08-'11 FXDF, '10-'11 FXDWG, black (18mm bungs)	#255-269 #255-263 #255-277	#255-268 #255-262 #255-275



D&D Touring Duals

D&D Slip-On Mufflers For Touring Models

Beautifully chromed slip-on mufflers provide more power and torque while enhancing that great Harley® sound. Designed for factory headpipes or any headpipe that is designed to accept factory mufflers. Available in chrome or black finish.





2009-up Boss Slip-Ons For Touring Models

These Boss series slip-on mufflers are designed exclusively for 2009 and later Harley-Davidson® touring models. Four inch diameter mufflers straighten out the stock pipe that comes slantedin from the factory. Supplied with all necessary hardware and inlet heat shields. Style options include standard slash back cut and slant cut, which follows the saddlebag angle. Wrapped, louvered baffle emits a bassy rumble.

APPLICATION WITH BACK-CUT MUFFLER	CHROME	BLACK
4" Boss Slash Back-Cut Muffler Set, '09-up FL w/dual exhaust	#255-486	#255-487
4" Boss Slash Back-Cut Muffler, 2010 FLHX, FLTRX w/2:1 exh	#255-572	#255-573
APPLICATION WITH SLANT MUFFLER	CHROME	BLACK
4" Boss Slant Muffler Set, '09-up FL w/dual exhaust	#255-484	#255-485
4" Boss Slant Muffler, 2010 FLHX, FLTRX w/2:1 exh	#255-570	#255-571



2007-2008 4" Slip-Ons For Touring Models

Big, beefy 4" diameter for an authoritative look. Style options include standard slash back cut, straight cut and slant cut, which follows the saddlebag angle. Wrapped, louvered baffle emits a bassy rumble.

APPLICATION	CHROME	BLACK
4" Boss Back-Cut Muffler Set, '07-'08 FL	#255-530	#255-531
4" Boss Slant Muffler Set, '07-'08 FL	#255-532	#255-533
4" Boss Straight Cut Muffler Set. '07-'08 FL	#255-534	#255-535





1995-2008 3.5" Slip-Ons For Touring Models

D&D's original 3.5" diameter slip-on Touring mufflers are equipped with unwrapped baffles, providing plenty of bark. These mufflers are available in chrome or black, in two lengths. Standard length are for models without saddlebag rails, while extended versions clear the bag rails. Choose slash back cut, straight cut or slant cut ends, which follows the saddlebag angle.

3.5" STANDARD LENGTH STYLE	CHROME	BLACK
3.5" Slash Back-Cut Muffler Set, '95-'08 FL (28-1/4")	#255-091	#255-093
3.5" Straight Cut Muffler Set, '95-'08 FL (27-1/2")	#255-083	#255-085
3.5" Slant Muffler Set, '95-'08 FL (28-1/2")	#255-087	#255-089
3.5" LONG (EXTENDED LENGTH) STYLE	CHROME	BLACK
3.5" Slash Back-Cut Muffler Set, '95-'08 FL (31")	#255-092	#255-094
3.5" Straight Cut Muffler Set, '95-'08 FL (31-1/4")	#255-084	#255-086
	// = 00 00 1	
3.5" Slant Muffler Set, '95-'08 FL (31-1/4")	#255-088	#255-090





D&D Slip-On Mufflers

D&D Slip-On Mufflers For Softail®, Dyna® And Sportster®

Fits '95-up FXD* Dyna® models

*Except '08-up FXDF and '10 FXDWG

D&D slip-on mufflers provide more power and torque while enhancing that great Harley® sound. Their slim 2-1/2" diameter flows smoothly from the headpipe heat shield's diameter to give the look of a continuous system while retaining the factory headpipe. Specially designed removable baffles give off a deep, rich rumble. Choose traditional side slash-cut or straight cut for the 'big shotgun' look. These mufflers are sold in sets, finished off in show quality chrome or black.





FOR SOFTAIL®	SLASH CHROME	SLASH BLACK	STRAIGHT CHROME	STRAIGHT BLACK
Fits '07-up FXST / FLST models	#255-580	#255-581	#255-584	#255-585
Fits '00-'06 FXST / FLST models	#255-780	#255-781	#255-784	#255-785
Fits '07-up FLSTF / FLSTD models *This part number features a back-cut 'slash even' (no	#255-182* ot a side slash) o	#255-183* design	#255-184	#255-185
Fits '00-'06 FLSTF / FLSTD models	#255-890	#255-891	#255-894	#255-895
Fits '05-'06 FLSTN models	#255-830	#255-831	#255-834	#255-835
Fits '07-up FLSTN models	#255-280	#255-281	#255-834	#255-835
Fits '00-up FLSTS Heritage Springer® (3-1/2" dual dresser-style mufflers)	#255-420	N/A	N/A	N/A
	SLASH	SLASH	STRAIGHT	STRAIGHT
FOR DYNA®	CHROME	BLACK	CHROME	BLACK
Fits '08-up FXDF & '10-up FXDWG models		#255-951	N/A	N/A
*This part number features a back-cut 'slash even' (no	ot a side slash) d	lesign		



FOR SPORTSTER®	SLASH	SLASH	STRAIGHT	STRAIGHT
	CHROME	BLACK	CHROME	BLACK
Fits 2014 XL SPORTSTER® models Fits '04-'13 XL SPORTSTER® models Fits '86-'03 XL SPORTSTER® models	#255-470	#255-471	N/A	N/A
	#255-460	#255-461	#255-464	#255-465
	#255-790	#255-791	#255-794	#255-795

#255-920

#255-921 #255-924 #255-925



D&D Slip-On Mufflers For XR1200®

These D&D slip-ons increase horsepower by as much as 7% and torque by as much as 10% on the Harley-Davidson XR1200®. Extensive dyno tests were performed using a chambered baffle system to optimize the delivery of power across the rpm range. The benefit of this dyno work delivers an enhanced performance improvement along with a drop of six pounds of weight, and a great booming exhaust note. They are designed to clear the factory XR1200® saddlebags.



	ALUMINUM	BLACK	CARBON
SLIP-ON MUFFLERS FOR XR1200®	SLEEVE	SLEEVE	SLEEVE
Fits '08-up XR1200®, with black tips	#255-554	#255-555	#255-556
Fits '08-up XR1200®, with silver tips	#255-557	#255-558	#255-559





BUB Emissions-Compliant Exhaust Options



EBUS - CONTROL OF THE PROPERTY OF THE PROPERTY

BUB® 7 CAT Mufflers for 2009-Up Touring & Tri Glide® Models

Designed to Meet California Emissions* and be 50-State EPA Sound Requirements**

Here's an Emissions and Noise-Compliant Option to Meet Your Performance Exhaust Needs! BUB 7 CAT mufflers give Harley® owners the option to replace their factory mufflers with a performance-enhancing set of slip-ons, while still meeting C.A.R.B. and EPA emissions requirements. BUB Seven CAT Mufflers are available to fit factory head pipes (1 ¾") and popular 2" aftermarket stepped headers.

Get a real performance increase with new BUB catalyst-equipped mufflers! Bub Seven CAT Slip-Ons give an impressive 11% increase in power over the factory exhaust system. With these mufflers, you'll experience the perfect balance of 50 state legal 80 db sound with a deep, rich tone (neither too loud nor too quiet). These mufflers have 4" one-piece muffler bodies with tapered inlets for easy installation and offer impressive mid-range and top end performance.

Having a compliant system is one thing, but having a choice on style to match your motorcycle means a lot to a rider. Mufflers include slash-cut tips which can be installed in the up or down position, and are available with chrome or black end caps that align perfectly with factory saddlebags.

*California Air Resource Board E.O. Numbers Available with Product Photos and for Download in the "Related Downloads" Sections

^{**}Stamped with EPA # for Noise Compliance



PART NO.	BUB 7's for 1 3/4" '09-Up Factory or Performance Headers
#229-463	BUB 7 CAT Slip-On Mufflers, All Chrome
#229-460	BUB 7 CAT Slip-On Mufflers, Chrome w/Black End Caps
PART NO.	BUB 7's for 2" '09-Up Stepped Performance Headers
PART NO. #229-503	BUB 7's for 2" '09-Up Stepped Performance Headers BUB 7 CAT Slip-On Mufflers, All Chrome
	1 11

C.A.R.B. EO Number	CAT Exhaust System Info	Year	Application Model Information
K-002/1-27-10	Complete System	2009	Harley 1584cc Road King, Road Glide, Electra Glide
K-002-1/5-12-10	Slip-On Mufflers and/or Full System	2008	Harley 1584cc FL motorcycles
K-002-2/5-12-10	Slip-On Mufflers and/or Full System	2004-06	Harley 1688cc FLH motorcycles
K-002-3/5-12-10	Slip-On Mufflers and/or Full System	2004-06	Harley 1449cc and 1549cc FLH motorcycles
K-002-4/5-12-10	Slip-On Mufflers and/or Full System	2004-06	Harley 1449cc FLH motorcycles
K-002-5/5-12-10	Slip-On Mufflers and/or Full System	2003	Harley 1449cc FLHTC, FLHT, FLHR
K-002-6/5-12-10	Slip-On Mufflers and/or Full System	2002	Harley 1449cc FLHR, FLHT, FLHTC, FLHTCS, FLTR, FLHP
K-002-7/5-13-10	Complete System	2010	Harley 1584cc FL motorcycles
K-002-8/3-10-11	Complete System	2011	Harley 1584cc Electra Glide, Road Glide Custom/Ultra,
			Road King Classic/Shrine, Street Glide, Ultra Classic Elec
			motorcycles

Rinehart® Exhaust Systems for Touring Models



for 2009-2014 Touring Models

With a passion for more power and torque, Xtreme True Duals offer more muscle and horsepower with a radical new approach. Xtreme True Duals integrate Rinehart's® exclusive anti-reversion louvers at the exhaust port, which boosts torque so the rider feels instant power with the twist of the throttle.

Xtreme True Duals are designed to keep heat off of the rider and passenger, as the rear head pipe is routed away from the leg area. This system features Rinehart's® original stepped header design to optimize exhaust flow. Choose either 3 ½" or 4" mufflers, and a combination of black or chrome headers, mufflers, and end caps. Compatible with ThunderMax® EFI Systems; includes dual 12mm and 18mm oxygen sensor ports.

APPLICATION	BLACK CAPS	CHROME CAPS	KINEHART
'09-'14 Chrome Xtreme True Duals with 4" Mufflers	#293-120	#293-120C	
'09-'14 Black Xtreme True Duals with 4" Mufflers	#293-121	#293-121C	
'09-'14 Chrome Xtreme True Duals with 3.5" Mufflers	#293-110	#293-110C	
'09-'14 Black Xtreme True Duals with 3.5" Mufflers	#293-111	#293-111C	4" Chrome End Caps



TOTAL TOURING MODELS

The design change for touring models in 2009 brought an end to the traditional look of the true duals that riders have come to love... until now. Classic Duals restore the traditional look but bring with it new technology – anti-reversion louvers – and an even sleeker look. You'll get that "old school" look of header pipes flanking both sides of the bike. Choose either 3½"

or 4" mufflers, and a combination of black or chrome headers, mufflers, and end caps. Compatible with ThunderMax EFI Systems; includes dual 12mm and 18mm oxygen sensor ports.

APPLICATION	BLACK CAPS	CHROME CAPS	
'09-'14 Chrome Classic Duals with 4" Mufflers	#293-130	#293-130C	
'09-'14 Black Classic Duals with 4" Mufflers	#293-131	#293-131C	
'09-'14 Chrome Classic Duals with 3.5" Mufflers	#293-132	#293-132C	
'09-'14 Black Classic Duals with 3.5" Mufflers	#293-133	#293-133C	4" Black End Caps



True Duals for 1995-2008 Touring Models

The Rinehart True Dual System was truly the start of a racing legacy. Created and designed with years of NASCAR and IndyCar experience, Rinehart True Duals for 1995-2008 touring models combine multi-stepped header design, anti-reversion louvers, and come with either 3 ½" or 4" mufflers.

Choose either chrome or blach headers and chrome or black one-piece heat shields with chrome or black end caps.

Compatible with ThunderMax EFI Systems: includes 18mm oxygen sensor ports.

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APPLICATION	BLACK CAPS	CHROME CAPS
'95-'08 Chrome True Duals with 4" Mufflers	#293-122	#293-122C
'95-'08 Black True Duals with 4" Mufflers	#293-123	#293-123C
'95-'08 Chrome True Duals with 3.5" Mufflers	#293-112	#293-112C
'95-'08 Black True Duals with 3.5" Mufflers	#293-113	#293-113C
'95-'08 Black True Duals with 3.5" Mufflers	#293-113	#293-113C



Rinehart® Exhaust Systems for Touring Models



TOURING 2-Into-1 for 1995-2014 Touring Models

The latest redesign to add muscle to an already superior system, Rinehart's 2-into-1 system gives you power and performance above all the competition. Newly designed stepped headers coupled with anti-reversion technology and a patented, stepped baffle makes your Harley® perform to its

maximum capabilities. This sleek, new design ensures solid response without compromising torque or horsepower. Includes 4" end cap and heat shields. Choose a combination of black or chrome header, muffler, and end cap. Compatible with ThunderMax EFI Systems; includes dual 12mm and 18mm oxygen sensor ports.

APPLICATION	BLACK CAP	CHROME CAP
'09-'14 Chrome Rinehart Touring 2-into-1 System	#293-210	#293-210C
'09-'14 Black Rinehart Touring 2-into-1 System	#293-211	#296-211C
'95-'08 Chrome Rinehart Touring 2-into-1 System	#293-214	#293-214C
'95-'08 Black Rinehart Touring 2-into-1 System	#293-215	#293-215C





Combined with Rinehart's Xtreme True Duals, the new Rinehart Trike Conversion Kit allows Tri Glide® owners installation of Rinehart's proven performance technology on their Trike. Xtreme True Duals are designed to keep heat off of the rider's and passenger's legs and include exclusive anti-reversion louvers for more horsepower and torque. Choose either 3 ½" or 4" mufflers, and a combination of black or chrome headers, mufflers, and end caps. Compatible with ThunderMax EFI Systems; includes dual 12mm and 18mm oxygen sensor ports.

6	ensor ports.		
	APPLICATION	BLACK CAPS	CHROME CAPS
	Trike Conversion Kit (Purchase True Duals Seperately, Chrome Only,) N/A	#293-027
	'09-'14 Chrome Xtreme True Duals with 4" Mufflers	#293-120	#293-120C
	'09-'14 Black Xtreme True Duals with 4" Mufflers	#293-121	#293-121C
	'09-'14 Chrome Xtreme True Duals with 3.5" Mufflers	#293-110	#293-110C
	'09-'14 Black Xtreme True Duals with 3.5" Mufflers	#293-111	#293-111C







Slip-On Mufflers

Rinehart Racing mufflers are known worldwide for their distinctive sound and appearance. Rinehart Slip-Ons feature Rinehart's popular race-proven muffler and baffle design in an easy to install package. Choose either 3 ½" or 4" mufflers, and finish the look with either a black or chrome set of billet end caps. Compatible with factory head pipes.

APPLICATION	BLACK CAPS	CHROME CAPS
'95-'09 3.5" Chrome Slip-On Mufflers	#293-510	#293-510C
'95-'09 3.5" Black Slip-On Mufflers	#293-511	#293-511C
'95-'14 4" Chrome Slip-On Mufflers	#293-512	#293-512C
'95-'14 4" Black Slip-On Mufflers	#293-513	#293-513C

4" Chrome End Caps	

REPLACEMENT END CAPS	PART NO.
Replacement 3.5" Chrome End Cap, Sold Ea.	#293-117
Replacement 3.5" Black End Cap, Sold Ea.	#293-118
Replacement 4" Chrome End Cap, Sold Ea.	#293-124
Replacement 4" Black End Cap, Sold Ea.	#293-125

_	
	3.5" Black End Caps



Rinehart[®] Exhaust Systems for Softail[®] Models



TOTAL TOTAL COST BACKS for 1986-2014 Softails®

Rinehart Cross Backs feature a one-of-a-kind design that screams performance. Manufactured in the USA, Cross Backs feature the most aggressive design available from Rinehart. These pipes offer big horsepower, torque gains, and a double stepped header design for stronger scavenging effect in exhaust flow. Includes 2.5" full coverage heat shields. Customize with

your choice of chrome or black shields and chrome or black end caps. Includes both 12mm and 18mm oxygen sensor ports; 18mm ports are compatible with ThunderMax EFI Systems.

#293-410

BLACK CAPS CHROME CAPS

#293-410C

#293-412C N/A

'86-'14 Black Cross Backs w/Chrome Heat Shields N/A '86-'14 Black Cross Backs Flush w/Black Heat Shields #293-4	•
#293-220	
	Pro Rir
	pe



Proven Technology and Unparalleled Performance -Rinehart's 2-into-1 exhaust systems give you power and performance in a classic, proven, single muffler design. Each 2-into-1 uses the Rinehart stepped header design with antireversion technology and a stepped baffle. Customize with your choice of chrome or black end caps. Includes both 12mm and

18mm oxygen sensor ports; 18mm ports are compatible with ThunderMax EFI Systems.

APPLICATION
'86-'14 Chrome 2-into-1 System
'86-'14 Black 2-into-1 System

'86-'14 Chrome Cross Backs Flush

APPLICATION

BLACK CAPS CHROME CAPS #293-220 #293-220C #293-221 #293-221C





TEHART 2-Into-2 Flush for 1986-2014 Softails®

Rinehart's 2-into-2 Flush exhaust systems are designed for classic styling and performance with a shorter pipe length. Each 2-into-2 Flush system combines Rinehart's stepped header design and anti-reversion louver technology with a sleek, onepiece heat shield. Customize with your choice of chrome or black 2.5" end caps. Includes both 12mm and 18mm oxygen sensor

ports; 18mm ports are compatible with ThunderMax EFI Systems.

APPLICATION	BLACK CAPS	CHROME CAPS
'86-'14 Chrome 2-into-2 Flush System	#293-310	#293-310C
'86-'14 Black 2-into-2 Flush System	#293-312	#293-312C





The Churchill 2-Into-2 Systems for 1986-2014 Softails®

Churchill 2-into-2 exhaust systems are designed for classic appeal and performance with long, flush pipe. Each 2-into-2 system combines Rinehart's stepped header design and antireversion louver technology with a sleek, one-piece heat shield. Customize with your choice of chrome or black 2.5" end caps. Includes both 12mm and 18mm oxygen sensor ports: 18mm ports are compatible with ThunderMax EFI Systems.

APPLICATION	BLACK CAPS	CHROME CAPS
'86-'14 Chrome Churchill 2-into-1	#293-318	#293-318C
'86-'14 Black Churchill 2-into-1	#293-319	#293-319C



Rinehart® Exhaust Systems for Dyna® Models



TEHART Cross Backs for 2006-2014 Dynas®

A mind-bending combination of power and design! For riders interested in lots of power packaged within a creative design that wraps around the bike, Cross Backs are Rinehart's most powerful and twisted design. Featuring double stepped-headers and a 2.5" muffler, Cross Backs have a custom look that produces max torque and HP numbers. Customize with your choice of chrome or

black end caps. For Dyna® Models with Forward Controls Only. Includes both 12mm and 18mm oxygen sensor ports; 18mm ports are compatible with ThunderMax EFI Systems.

FOR DYNAS®	W/FOR	WARE	C	TNC	ROLS	ONLY	BLACK	CAPS	CHROM	IE CAPS

'06-'14 Chrome Cross Backs Flush #293-420 #293-420C
'06-'14 Black Cross Backs w/Chrome Heat Shields N/A #293-422C





TOT 2006-2014 Dynas[®]

It's time to make your Dyna® perform with a 2-into-1 exhaust upgrade! Rinehart's 2-into-1 exhaust systems give you power and performance in a classic, proven, single muffler design. Each 2-into-1 uses the Rinehart stepped header design with anti-reversion technology and a stepped baffle. Customize with a 4" billet end cap in either chrome or

black. Includes both 12mm and 18mm oxygen sensor ports; 18mm ports are compatible with ThunderMax EFI Systems.

APPLICATION	BLACK CAPS	CHROME CAPS
'06-'14 Chrome 2-into-1 System	#293-230	#293-230C

'06-'14 Black 2-into-1 System #293-231 #293-231C





FINEHART 2-Into-2 Flush Systems for 2006-2014 Dynas®

Rinehart's 2-into-2 Flush exhaust systems are designed for classic styling and performance with a shorter pipe length. Each 2-into-2 Flush system combines Rinehart's stepped header design and anti-reversion louver technology with a sleek, one-piece heat shield. Customize with your choice of chrome or black 2.5" end caps. *Includes both 12mm and 18mm oxygen sensor ports; 18mm ports are compatible with ThunderMax EFI Systems.*

APPLICATION BLACK CAPS CHROME CAPS

 '06-'14 Chrome 2-into-2 Flush System
 #293-320
 #293-320C

 '06-'14 Black 2-into-2 Flush System
 #293-322
 #293-322C



Product Image Coming Soon!

TANKEHART Churchill 2-Into-2 Systems for 2006-2014 Dynas®

Churchill 2-into-2 exhaust systems are designed for classic appeal and performance with long, flush pipes. Each 2-into-2 system combines Rinehart's stepped header design and anti-reversion louver technology with a sleek, one-piece heat shield.

Customize with your choice of chrome or black 2.5" end caps. *Includes both 12mm and 18mm oxygen sensor ports; 18mm ports are compatible with ThunderMax EFI Systems.*

APPLICATION	BLACK CAPS	CHROME CAPS
'06-'14 Chrome Churchill 2-into-1 System	#293-328	#293-328C
'06-'14 Black Churchill 2-into-1 System	#293-329	#293-329C



Khrome Werks® Performance Mufflers

Khrome Werks® Cross-Under Power Headers





These 2:2 bagger headers are similar to the factory 2009 and later head pipes in that the left pipe crosses under the swing arm behind the transmission—for a dramatic reduction in heat usually transferred to the rider! Their free-flowing design provides significant increases in horsepower and torque over OEM systems on '99-'08 models. Features 1¾" 16 gauge mandrel bent, interconnected headers and 220° full coverage heat shields. True Dual look, but with a hidden inter-connect chamber for improved low end torque and maximum top end horsepower with balanced flow and sound. '99-'08 systems include two upper 18mm O2 sensor ports while late systems include both upper 18mm and lower 12mm sensor bungs with plugs. Mufflers not included; use with any Khrome Werks or other bagger muffler set. NOTE: Installation on 2010-up models eliminates the factory-installed catalytic converter from the system. Does not include exhaust gaskets, order separately.

CHROME	BLACK	DESCRIPTION
#242-065	#242-085	For '09-'14 Touring models
#242-060 #242-066	#242-080 N/A	For '99-'08 Touring models Tri-Glide® exhaust adapter set



4" Khrome Werks HP-Plus® Touring & Performance Mufflers

These unique 4" HP-Plus® mufflers for Touring models from Khrome Werks are designed to produce excellent power while allowing the user control over their "rumble level". All new absorptive type baffles emit a deep, mellow exhaust tone that is adjustable by simply changing an insert held into the baffle by two bolts. The interchangeable baffle inserts delineate the performance or touring noise level options; and the ingenious design of the insert allows you to change the insert in minutes with hand tools (no hammers!). Horsepower and torque gains over stock mufflers with both versions are achieved in part by an internal expansion chamber in the baffle core. The main steel baffle core is machine wrapped with first a stainless steel wool then a high temperature fiberglass blanket for acoustic longevity assurance. The performance insert is designed to enhance top end power while retaining good low end torque and a mid-level sound output, while the touring insert trades minimal top end output for mile after mile of an enjoyable, radio-friendly, lower rumbling exhaust note. The one-piece, 16 gage steel tubing muffler shell is finished in either highly polished, duplex nickel chrome or a high temperature, Jet Hot® black ceramic coating. Made in USA; both versions are SAEJ2825 compliant. See the video on our web site that demonstrates the ease of insert change and sound level output.



PART NO. DESCRIPTION

#242-700	Chrome '95-'14 4" HP-Plus® back-cut mufflers with touring baffle inserts, pair
#242-705	Chrome '95-'14 4" HP-Plus® back-cut mufflers with performance baffle inserts, pair
#242-780	Black '95-'14 4" HP-Plus® back-cut mufflers with performance baffle inserts, pair
#242-704	Replacement touring baffle inserts, pair
#242-708	Replacement performance baffle inserts, pair

3.5" Khrome Werks HP-Plus[®] and HP-Plus Lite Touring Mufflers

HP-Plus® - Increased horsepower and torque with a distinctive deep, throaty, but quieter, sound due to a new HP-Plus® patented dual chamber absorptive baffle. The large, short front absorptive chamber mutes de-acceleration popping, while the long rear absorptive chamber features an HP-Plus® resonator. Both chambers are wrapped with a laminated muffler packing consisting of a thin layer of stainless steel under a ultra high temperature basalt wool. Overall decibel level is reduced while still retaining the high quality, deep, Khrome Werks signature sound.

HP-Plus® Lite - Feature a less restrictive baffle core than the HP-Plus® Touring mufflers; a full length, straight through perforated tube with KW's HP-Plus® resonator are utilized for improved top end output -- Big Look, Big Power, Big Sound. *These KW mufflers exceed 50 state sound levels.*



PART NO.	HP-PLUS® 3.5" MUFFLER SETS
242-295	'95-'14 3.5" HP-Plus® back-cut Touring mufflers, pair
242-290	'95-'14 3.5" HP-Plus® top slant Touring mufflers, pair
242-285	'95-'14 3.5" HP-Plus® taper tip Touring mufflers, pair
PART NO.	HP-PLUS® LITE 3.5" MUFFLER SETS
242-280	'95-'14 3.5", Back cut Touring Lite HP-Plus® muffler set
242-270	'95-'14 3.5", Top slant Touring Lite HP-Plus® muffler set

3" Khrome Werks HP-Plus® Touring Lite Mufflers

Completely redesigned in 2010, KW's 3" HP-Plus® mufflers feature an upgraded baffle design and acoustical wrap materials. Originally fiberglass wrapped, the redesigned baffle is machined wrapped with a laminated muffler packing consisting of a thin layer of stainless steel under high temperature basalt wool. This dual layer packing covers the complete length of the baffle, minimizing muffler body discoloration and absorbing the annoying higher frequencies. New one-piece shell eliminates the possibility of leaks and transition screws loosening or stripping. Fits Touring Harleys® equipped with stock or aftermarket "True Dual" head pipes. Utilizes factory mounting hardware and clamps. Sold in pairs. These KW mufflers exceed 50 state sound levels.

PART NO.	DESCRIPTION
#242-255	'95-'14 3", Ribbed, back-slant Touring Lite HP-Plus® muffler set
#242-252	'95-'14 3", Back-slant Touring Lite HP-Plus® muffler set
#242-250	'95-'14 3", Taper tip Touring Lite HP-Plus® muffler set

Khrome Werks® Performance Headers

Khrome Werks® 3" HP-Plus® Slip-On Mufflers





Pump up the performance and sound of your new Harley® with these beefy 3" diameter Slash Cut and Tapered slip-on mufflers from Khrome Werks! New 3" version HP-Plus® Mufflers, with a patented steel construction baffle, now feature more high temperature fiberglass/ceramic packing, providing significant gains in horsepower and torque with a distinctive, deep throaty sound. All models utilize factory brackets, clamps, and mounts. Sold in pairs. Made in the USA. U.S. Patent 5,173,576. These KW mufflers exceed 50 state sound levels. *Note: XL model features "Slash Down" style*

TAPERED	SLASH	DESCRIPTION
#242-541	#242-531	Fits '95-up Dyna® models (not '08 FXDF,'10FXDWG)
N/A	#242-631	Fits '08-up Dyna® FXDF, '10 FXDWG
#242-540	#242-530	Fits '04-'13 Sportster® (XL) models
#242-495	#242-395	Fits 2014 Sportsters® (Chrome)
N/A	#242-895	Fits 2014 Sportsters® (Black)
#242-542	#242-532	Fits '00-'06 Softail® (FXST, FLST) models
#242-545	#242-535	Fits '07-up Softail® (FXST, FLST) models
#242-543	#242-533	Fits '00-'06 Fat Boy®, Deuce® (FLSTF, FXSTD)
#242-546	#242-536	Fits '07-up Fat Boy®, Deuce® (FLSTF, FXSTD)
#242-547	#242-534	Fits '05-'06 Softail®, Deluxe® (FLSTN) models
#242-547	#242-537	Fits '07-up Softail®, Deluxe® (FLSTN) models

Full Boar Performance Slip-On Mufflers

USA-made Full Boar mufflers offer improved performance at an attractive price point! Full Boar's performance exhaust experience goes back 40+ years to 1968. Their baffles are wrapped in high temperature fiberglass matting to disperse heat and retain sound, and the 16-gauge steel body is treated to a state-of-the-art hexavalent chrome plating process for a gleaming 1.3mil thick chrome finish. Full Boar mufflers can be purchased for Touring models with three different baffle options to match the performance or sound level you are after – or, you can purchase the mufflers and baffles separately and mix/match the baffles to suit your taste. Full Boar Mufflers will make your bike sound the way a Harley® should—deep and throaty. You will feel the "seat of the pants performance" as soon as you crank and ride the motorcycle. If you are looking for increased power and great sound at a great price, then Full Boar motorcycle mufflers are for you! Sold in sets.



BACK-CUT S	LANT	STRAIGHT	3.5" DIAMETER TOURING APPLICATIONS
#257-300 #2	257-400	#257-500	'95-up FL Full Boar slip-ons (no baffles)
#257-317 #2	257-417	#257-517	'95-up FL Full Boar slip-ons w/1.75" baffles
#257-320 #2	257-420	#257-520	'95-up FL Full Boar slip-ons w/2.00" baffles
#257-325 #2	257-425	#257-525	'95-up FL Full Boar slip-ons w/2.50" baffles
PART NO. E	BAFFLES	ONLY	<u></u>
#257-117 E	Each, 1.75	5" baffle for F	ull Boar Touring muffler
#257-120 E	Each, 2.00	0" baffle for F	ull Boar Touring muffler
#257-125 E	Each, 2.50	0" baffle for F	ull Boar Touring muffler
PART NO. 3	" SOFTA	IL®, DYNA®	& SPORTSTER® APPLICATIONS
#257-610 '(07-up Sof	ftail® Full Boa	r slash slip-on mufflers
#257-630 '9	95-up Dyı	na® Full Boar	slash slip-on mufflers
#257-650 '(04-'13 Sp	ortster® Full E	Boar slash slip-on mufflers







Exhaust Accessories

Exhaust Gaskets and Mounting Hardware

Ensure your new pipes are installed leak-free with new gaskets and flange hardware—leaks at the head affect engine tuning and are a decel-pop enabler. For all Evolution® and Twin Cam® model engines.



a rwiii caiii	model engines.
PART NO.	DESCRIPTION
#256-831	A. Pair, James flat gaskets with circlips & flange nuts
#256-832	B. Pair, James cone gaskets with circlips & flange nuts
#256-200	C. Each, James flat-style steel mesh gasket only
#256-202	C. 10pk, James flat-style steel mesh gaskets only
#256-210	D. Each, James cone-style steel mesh gasket only
#256-212	D. 5pk, James cone-style steel mesh gaskets only
#255-101	E. Pair, Cometic/D&D .240" thick steel mesh gaskets
#232-540	F. Pair Cometic/D&D stainless rib Extreme Performance gaskets
#041-267	G. Set/4 Diamond Engineering stainless studs & 12 point nuts
#041-243	H. Set/4 Diamond Engineering stainless 12pt flange nuts only
#230-164	 Set/4 Zinc-plated steel serrated exhaust flange nuts
#250-715	J. Set/4 Zinc-plated exhaust studs EV&TC engines

Weld-In Oxygen Sensor Bungs

For exhaust systems without installed oxygen sensor bungs. Drill pipe and weld in; choose straight or angled bung. Sold each, two required.

PART NO.	DESCRIPTION
#272-200	18mm Straight bung with cap, ea
#272-202	18mm Angled bung with cap, ea
#272-203	18mm Bung Caps only, set /2
#272-204	12mm Bung Caps with gaskets, set/2 -







#272-204 12mm Bung Caps with gaskets, set/2 - For 2010 Touring models with stock sensors removed

Dual Exhaust Pop Stopper

Here's a simple, quick fix for annoying decel popping on pre-2009 Touring model bikes with stock headpipes and low restriction, straight-through style mufflers. By nature of its crossover design, the left side pipe becomes a source for exhaust reversion (inbound fresh air) due to the natural in-out pulses of the exhaust pressure wave. This can affect the oxygen sensor readings and causing the system to change the mixture which can result in decel popping. This simple devise reduces the inbound flow from the left pipe and stops fresh air from reaching the sensor. Remove the left side muffler; install the Pop Stopper in the headpipe at the muffler joint. Adding this product will have little to no effect on power output.



#272-205

PART NO.	DESCRIPTION

#272-205 Pop Stopper, for pre-2008 Touring models



CPP Exhaust Pipe Wrap

This is an old racer's trick that has gained popularity lately for both style and function applications. Some riders just like the look, but there are performance (retains the most heat in your exhaust system) and comfort (reduces the most amount of radiant heat) benefits as well. Charcoal black color; sold in a 50 foot roll. Figure you'll need approximately 40" of wrap per foot of 1-7/8" diameter straight pipe (more for bends).

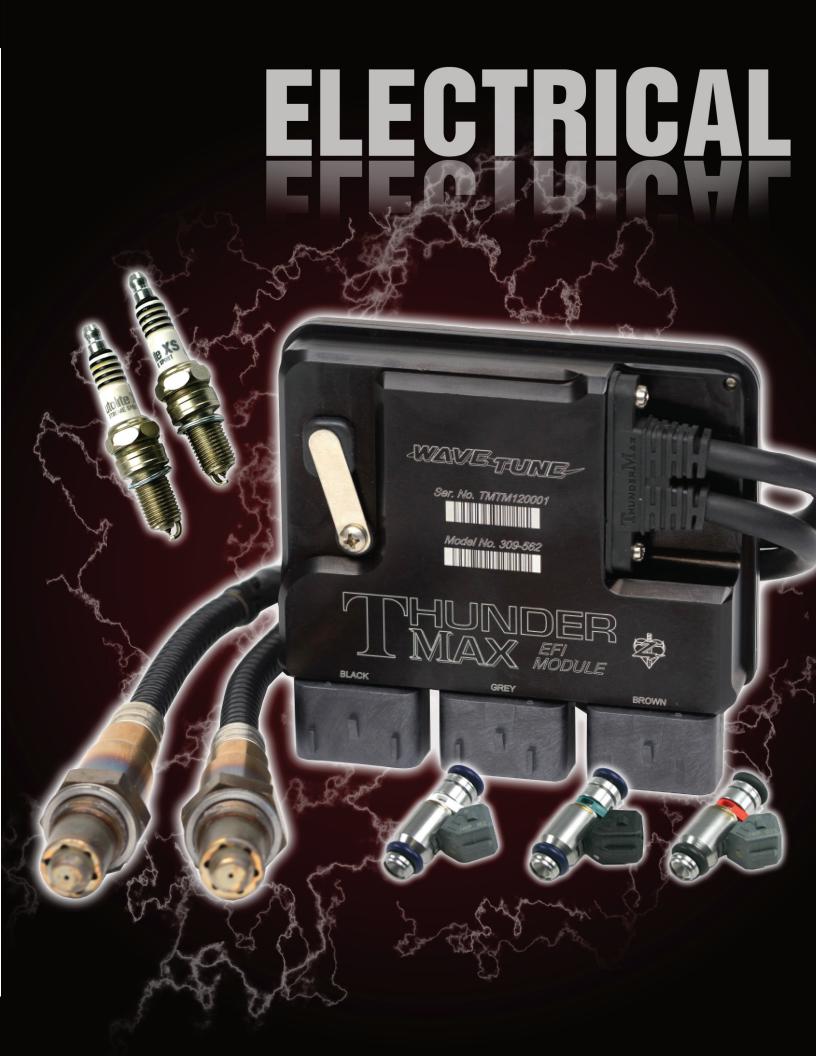
PART NO.	DESCRIPTION
#272-242	50ft roll of charcoal black exhaust wrap
#272-246	PK/4 8" stainless steel tie wraps
#272-247	PK/4 14" stainless steel tie wraps

Mandrel-Bent Exhaust Tubing

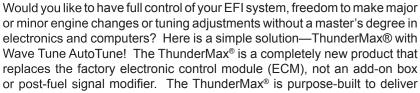
For the racer or exhaust fabricator, Zippers is stocking mandrel-bent sections of 18 ga. exhaust tubing ("J" bends) & straight tubing in 2", 2-1/8", 2-1/4", 2-3/8" & 2-1/2" sizes. Cut and weld to fabricate the special exhaust that you need - but can't buy. "J" bend legs are 10" on the short side, 20" on the long. I.D. of radius listed below. Straight sections sold in three foot lengths.

SIZE	RADIUS ID	P/N J-BEND	SIZE	RADIUS ID	P/N J-BEND
1 3/4" Tubing	4"	#222-175	2-1/4" Tubing	3-3/4"	#222-220
1 7/8" Tubing	4"	#222-187	2-3/8" Tubing	3.5"	#222-230
2" Tubing	4"	#222-200	2-1/2" Tubing	3.5"	#222-250
2-1/8" Tubing	4"	#222-210	3" Tubing		N/A





MAXimum Performance From Your EFI When You Ride, Where You Ride, Every Ride!



uncompromising performance with advantages not possible with post-fuel or flash systems - but you don't have to be a rocket scientist to install, program or make adjustments to it.

Just how easy is it? Installation is a straightforward plug-in replacement of the factory module and oxygen sensors*1. The ThunderMax® TMax Tuner software contains hundreds

of base maps that cover most popular factory and aftermarket combinations, dyno-developed on real motorcycles. Choosing a map is a quick and easy process thanks to TMax Tuner's sorting filters; loading a map takes less than a minute. After that, you're ready to let the ThunderMax's Wide-Band AutoTune system dial in idle and warm-up settings for your engine and you're ready to ride!

During your ride, every time you ride, ThunderMax's® Wave Tune AutoTune analyzes, adjusts and anticipates the air/fuel ratio read by the wide-band oxygen sensors at warp speed during every cylinder fire and makes any necessary adjustments to the injector pulse width to

achieve the desired air/fuel ratio while compensating for variations in injectors, fuel pressure and exhaust flow. With every tank of fuel, at every temperature or elevation. That's it! All you have to do is ride.

As simple as it is to install and use, don't be fooled into thinking that this not one of the most sophisticated systems you can buy for your Harley[®]. Using the supplied Tuner software, you can adjust or monitor virtually every parameter of the system:

- Idle Speed & Rev Limit
- Closed Loop AFR Targets
- Igniting Timing

#309-362

- Accel Pump Simulation
- Start Fuel Pulse

- Decel Pop Control
- Speedometer Calibration
- Read Diagnostic Codes
- Running Statistics / Logs
- Engine Temp Alarm
- Live Engine Tuning
- Live Monitoring & Recording
- Dealer Digital Tech Compatible
- Warm-up Settings
- And More!

While this system does not require a dyno to achieve a smoother, cooler, excellent running engine, that does not mean it's not a dyno-friendly device! Experienced tuners will appreciate its live-tuning capabilities with real-time monitoring and the ability to control all of the systems tuning parameters, knowing that AutoTune will keep the final tune from deteriorating as ambient

conditions change. Advanced level software is available for technicians wishing to create a custom tune, add nitrous or install a forced-induction intake.

ThunderMax® also employs industry-leading tech support though its internal data-collection system that quickly communicates directly with the ThunderMax® support team should there ever be a need. ThunderMax® Technicians can quickly review recorded data streams, data stored within the module and information about the bike and system with just a few clicks of a mouse!



The ThunderMax® makes more sense in the long run as the system can grow and change as your engine does—just load a new map! ThunderMax® software, firmware and maps updates are accessible 24/7 with an Internet connection so you're only a mouse-click away from the latest available data. Each ThunderMax® includes an ECM, 2 wide-band oxygen sensors with harness, communication cable, software disk and comprehensive instructions. The ThunderMax® is designed and manufactured right here in the USA and backed by a 3-year warranty!

*1 ThunderMax® uses 18mm Wide-Band oxygen sensors, which unlike the factory narrow-band sensors read over the engines full rpm range for constant full-time feedback and adjustments. Certain year bike exhaust systems are equipped with 18mm sensor ports, others may have 12mm ports or none at all. Check application notes for compatibility.

ThunderMax® is not legal for sale or use on pollution-controlled vehicles; see ThunderMax 50 for California ARB approved applications.

ThunderMax® Applications

ThunderMax® for Touring & Tri Glide® Models

PART NO.	APPLICATION
#309-562	2014 Touring & Tri Glide® (Throttle by Wire)
#309-362	2008-2013 Touring & Tri Glide® (Throttle by Wire)
#309-460	2002-2007 Touring (Cable Operated)

ThunderMax® requires 18mm exhaust sensor ports as used on 2007-2009 models. 2010-14 (12mm) Touring models must use a 2009 style exhaust or modify the 2010-2014 exhaust to accept 18mm oxygen sensors if not equipped with dual sensor ports. 2002-2006 models require exhaust with 18mm oxygen sensor ports or be modified for same.



ThunderMax® for Softail® Models

PART NO.	APPLICATION
#309-382	2012-2014 Softail® (Cable Operated) except FXSB Breakout®*2
#309-562	2014 FLSTNSE Softail® (CVO TBW)
#309-363	2011-2013 FLSTSE (CVO TBW)
#309-361	2011 Softail® (Cable Operated) Except 2011 FXCWC Rocker® C
#309-485*1	2008-2010 Softail® Rocker® and 2009 CVO FXSTSSE
#309-460	2001-2010 Softail® (Cable Operated) except Softail® Rocker®

^{*1} Includes Pigtail communication cable adapter due to limited module access.

ThunderMax® requires 18mm exhaust sensor ports as used on 2007-2011 models. 2012-14 (12mm) Softail® models must use a 2007-2011 style exhaust or modify the 2012-2014 exhaust to accept 18mm oxygen sensors if not equipped with dual sensor ports. 2001-2006 models require exhaust with 18mm oxygen sensor ports or be modified for same.



ThunderMax® for Dyna® Models

PART NO.	APPLICATION
#309-382	2012-2014 Dyna® Models
#309-485*1	2004-2011 Dyna® Models

*1 Includes Pigtail communication cable adapter due to limited module access.

ThunderMax® requires 18mm exhaust sensor ports as used on 2006-2011 models. 2012-14 (12mm) Dyna® models must use a 2007-2011 style exhaust or modify the 2012-2014 exhaust to accept 18mm oxygen sensors if not equipped with dual sensor ports. 2004-2005 models require exhaust with 18mm oxygen sensor ports or be modified for same.



ThunderMax® for Sportster® Models

PART NO.	APPLICATION
#309-382*1	2014 Sportster® XL Models
#309-485*2	2010-2013 Sportster® XL Models
#309-464*2	2008-2012 Sportster® XR1200® Models
#309-460	2007-2009 Sportster® XL Models

*1 2014 XL models require an exhaust system equipped with 18mm oxygen sensor bungs or be modified to accept 18mm sensors in place of the factory 12mm sensors (not required for 2007-2013 XL/XR models).

*2 Includes Pigtail communication cable adapter due to limited module access



ThunderMax® for V-Rod® Models

APPLICATION PART NO.

#309-366*1 2002-2014 V-Rod® Models

*1 #309-366 communicates via serial port. PC with serial port or USB-Serial adapter required

ThunderMax® requires 18mm exhaust sensor ports as used on 2008-2011 models. 2012-14 (12mm) V-Rod® models must use a 2008-2011 style exhaust or modify the 2012-2014 exhaust to accept 18mm oxygen sensors if not equipped with dual sensor ports. 2002-2007 models require exhaust with 18mm oxygen sensor ports or be modified for same.



^{*2} Breakout® models under development

ThunderMax® Marelli EFI Conversion Kit



Stop cussing that early EFI system, just replace it! It's no secret that the earlier Magnetti-Marelli EFI used on Evolution® and '99-'01 TC88 baggers has 'issues'—hard starting, erratic idle, harder yet to tune....if these are issues with your MM bike, this kit will solve them! We've taken our ThunderMax® EFI electronics with AutoTune, a fully-dressed, single-throat '02-'05 style throttle body and with the help of some specially made parts, developed this conversion kit for bikes with the earlier systems. This kit allows you to retain the original wiring harness and gas tank, while upgrading to the same components used in our popular high performance Muscle series EFI engine kits for Delphi®-equipped bikes.

Instant starting! Consistent idle! Superb performance! It's all here in this kit, and our expansive library of high-resolution base maps will have you up and running in no time. Included AutoTune module with wide-band

feedback transforms your motorcycle to full closed-loop automatic air/fuel ratio correction, maintaining your custom tune no matter what the ambient conditions or elevation you choose to ride in! Includes detailed installation instructions and SmartLink software. Available with stock 44mm (TC only), oversize 51mm or 54mm throttle bodies. **You'll fall in love with your bike all over again!**

PART NO.	THUNDERMAX MARELLI CONVERSION KIT

#117-344¹¹ '99-'01 TC 44mm Conversion kit w/AutoTune (88"-95")
#117-351¹¹ '99-'01 TC 51mm Conversion kit w/AutoTune (95"-103")
#117-354¹¹ '99-'01 TC 55mm Conversion kit w/AutoTune (107"-up)
#117-361¹² '95-'98 EV 51mm Conversion kit w/AutoTune (80"-up)
#117-364¹² '99-'01 TC 51mm Conversion kit w/AutoTune (107"-up)

Data port plug 12v power wire must be rewired for use with AutoTune (instructions included)

*1 - 2000 models require adding a VSS wire to the ECM harness (instructions included)

*2 - 1995-96 models require adding a ground wire to the ECM harness (instructions included)



ThunderMax® Zip Kit EFI System for JIMS 120/131" and SE 120R Engines



Got your eye on a JIMS/Screamin' Eagle® or 120R H-D® engine? Our Zip Kits are the quick and easy way to simplify installation and power tuning on an EFI equipped big engine!

Zipper's Performance Products has developed ThunderMax maps and performance intake systems specifically for these engines. High flow throttle body/manifolds are mated with our MaxFlow air cleaner kit, ensuring enough airflow for these engines to reach their full potential. Just install the IAC, TPS and fuel rail assembly from your original system to the ThunderMax throttle body, install the pre-mapped ThunderMax ECM and you'll be ready to go (these Zip Kits include high flow injectors;

kits for '99-'01 models include a fully dressed throttle body and our Marelli conversion components). Our high resolution ThunderMax ECM with AutoTune takes the hassle out of AFR tuning. *Just install the Zip Kit and you're ready to ride—it really is that easy!*

For 2008-up TBW Touring models – All you need is a ThunderMax # 309-362, as maps are available for these engines. If an oversize throttle body is desired, Zipper's recommends using Horsepower Inc's Throttle-by-Wire Throttle Body. Visit www. HorsePowerInc.net to learn more.



PART NO. #117-270 #117-273	'07 FL,'06-'14 Softail® ThunderMax® Zip Kit f/H-D® SE-120R engine '06-'14 FXD® ThunderMax® Zip Kit f/H-D® SE-120R engine
#117-250 #117-251 #117-252 #117-253 #117-254	'07 FL,'06-'14 Softail® ThunderMax® Zip Kit for JIMS®120 '06-'14 Dyna® ThunderMax® Zip Kit for JIMS® 120 engine '02-'05 FL,'01-'05 Softail® ThunderMax® Zip Kit for JIMS®120 '04-'05 Dyna® ThunderMax® Zip Kit for JIMS®120 engine '99-'01 Touring FL ThunderMax® Zip Kit f/JIMS®120
#117-260 #117-261 #117-262 #117-263 #117-264	'07 FL,'06-'14 Softail [®] ThunderMax [®] Zip Kit for JIMS [®] 131 '06-'14 FXD [®] ThunderMax [®] Zip Kit for JIMS [®] 131 engine '02-'05 FL,'01-'05 Softail [®] ThunderMax [®] Zip Kit for JIMS [®] 131 '04-'05 Dyna [®] ThunderMax [®] Zip Kit for JIMS [®] 131 engine '99-'01 Touring FL ThunderMax [®] Zip Kit f/JIMS [®] 131





New! The ThunderMax® XMS changes the game in the mid-level-priced tuner market for Harleys[®]. Developed specifically for Throttle-By-Wire Touring models with stock 96 or 103" engines. ThunderMax® XMS is designed to optimize the tune of the factory engine when equipped with the two most common bolt-on performance components - pipes and a high flow air cleaner.

Based on industry-leading ThunderMax® technology, the ThunderMax® XMS is a new product which provides many popular ThunderMax® features in a lower price range. The ThunderMax® XMS has pre-loaded maps that are accessible through the bike's onboard electronics for simple map selection that matches your exhaust. The XMS retains the factory oxygen sensors and their functions, greatly simplifying installation. The XMS is the perfect fit for riders who want a simple,

easy-to-install performance boost to complement their new exhaust system and high flow air filter.

With the ThunderMax® XMS, you get...

- · Hassle-Free Installation Without Need of a Dyno
- · A Highly Detailed Tuning Map for Specific Exhaust Systems
- Quick, Easy Installation Using Factory Oxygen Sensors No Wiring or Welding!
- Improved Overall Exhaust Sound and Engine Performance
- Noticeably Smoother, Quicker Throttle Response
- Immediate Increase in Horsepower and Torque
- · Reduced Engine Heat for a Cooler, More Comfortable Riding Experience

Another cool feature of this product - It's Upgradeable! The ThunderMax® XMS is based on the extremely versatile Thunder-Max® tuning platform; it can be upgraded to a full-function ThunderMax® at any time by simply adding the ThunderMax® Wide-Band AutoTune upgrade kit. Any future performance modifications desired including displacement, performance cams, heads, throttle bodies, injectors or any other changes that may be considered can now be handled with ease with upgraded XMS ThunderMax®.

PART NO.	DESCRIPTION (SEE ZIPPERSPERFORMANCE.COM FOR SPECIFIC BRAND EXHAUST MODELS)
#309-368D	XMS for 2008-2013 Touring models equipped with D&D® 2:1 exhaust
#309-368R	XMS for 2008-2013 Touring models equipped with Rinehart® Slip-Ons, TD or 2:1 exhaust
#309-368B	XMS for 2008-2013 Touring models equipped with Bassani® TD & 2:1 exhaust
#309-368S	XMS for 2008-2013 Touring models equipped with Samson® 2:1 exhaust
#309-368K	XMS for 2008-2013 Touring models equipped with Khrome Werks® PH exhaust
#309-368V	XMS for 2008-2013 Touring models equipped with Vance & Hines® 'X' exhaust



ThunderMax® 50: Street Legal Performance ARB E.O. #'s D-644, K-001, K-001-1, K-001-2, K-001-3

ThunderMax® 50 provides excellent performance while meeting the emissions standards of California Air Resources Board. With its intelligent design, ThunderMax® 50 is continually tuning the engine, adjusting all points of the base map to meet the Air/Fuel targets. Wide-Band sensors provide feedback to the ThunderMax® AutoTune module for automatic AFR adjustments. This proven system provides excellent performance under any riding conditions.

ThunderMax® 50 is the one that WORKS!

You will immediately notice an improvement in throttle response and a sharper exhaust note. As you continue to ride, you will enjoy cooler, more stabile engine temperatures with dramatic improvement in acceleration and a smoother idle.

ThunderMax® 50 is the most powerful, cost effective compliant tuning device in the industry!

Increased torque and power over the stock system

Maintains excellent fuel economy

• System properly self tunes aftermarket exhaust systems

Adjustable rev limiter

 Provides access to read vehicle diagnostic trouble codes

THINDEDMAY SO ADDITIONS

PART NO.	THUNDERMAX 50 APPLICATIONS	
#309-370	Fits '02-'05 Touring, '01-'05 Softail® and '04-'05 Dyna® models	
	with 88" EFI Engines	
#309-373	Fits '06 Touring and Softail® Models with 88" EFI Engines	
#309-375	Fits '08-'10 Big Twins exc. TBW Touring & FXDF (Fat Bob®) models	7
	with 96" engine	П
#309-378	Fits 2008 Touring Models w/ 96" Engine	



ThunderMax® Gen III & TBW Communication Accessories (USB)



ThunderMax® Communication Cables

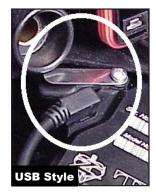
Replacement communication cables in standard or extended lengths for Generation III, TBW and CAN-BUS ThunderMax® with mini-USB/USB connection

6' w/90° end #309-326 15' w/straight end #372-150



ThunderMax® Gen III/TBW Pigtail Harness

#309-424 Allows a second USB port for the communication cable connection to the ThunderMax® Throttle-by-Wire and Gen III models. It is installed to the bike's wiring harness at the ECM connector; handy for motorcycle models with tight clearances around the ECM. Works with ThunderMax® part numbers 309-460 and included with # 309-485. Will not work on Gen I & II ThunderMax®, (#309-361) '11-up cable Softails® or (#309-380) '12-up Dyna® models with CAN-BUS data systems.



hunderMax® Gen II Communication Accessories (Serial Port)



ThunderMax® Communication Cable

Replacement communication cables in standard or extended lengths for Generation I & II ThunderMax® with Mini-DIN/serial port connection.

#309-322 12 foot #309-321 6 foot



USB/Serial Port Adapter

#372-000 If your laptop or PC does not have a serial port, this inexpensive adapter will instantly add a serial port to your computer for communicating with Gen I & II ThunderMax® EFI controller (36 pin connector models only). Supports 1.0 and 2.0 USB ports, Windows 98/2000/ME/XP/Vista/7. Includes driver installation software.



ThunderMax® Gen II Pigtail Harness

#309-324 Allows a second port for the communication cable connection to Gen II ThunderMax®, serial number 114,000 or higher. It is installed to the bike's wiring harness at the 36-pin ECM connector. Handy for motorcycle models with tight clearances around the ECM such as Dyna®, Softail® Rocker® and 2002-2005 V-Rod® models. Will not work on Throttle-By-Wire or Gen III Models. Included with ThunderMax® systems #309-364 and #309-385.



ThunderMax® Gen II AutoTune-Data Port 'Y' Harness

#309-343 The Gen II, modular ThunderMax® AutoTune module gets its power and communicates to the ECM through the motorcycle's 4-pin factory data port plug. This 'Y' harness allows the AutoTune module to be plugged in with an additional plug remaining open for other tasks. Not applicable for TBW or CAN-BUS models.

hunderMax® Accessories



ThunderMax[®] Bench-Top 12 Volt Power Supply

Allows for off-motorcycle, bench-top programming of the ThunderMax® controller. Power supply includes power supply, switch box adapter, plug for ECM.

309-325 For 36-pin Gen I / Gen II T-Max #309-328 For 73-pin TBW T-Max



AutoTune Harness Repair Kit

#309-352 This kit includes components required to make repairs to a damaged AutoTune wire harness and connector plug. Included is a replacement connector, connector terminals, replacement wires with terminated ends and shrink tubing. Use to repair a damaged, but functioning, AutoTune module harness.



2-Bar Map Sensor for Supercharger or Turbo Applications

#309-315 Required when using a ThunderMax® in a boost application.





Replacement Wide Band Oxygen Sensors

#309-355 ThunderMax® replacement oxygen sensors for all ThunderMax® EFI with AutoTune modules (no service parts available). Sold Individually.

Weld-In Oxygen Sensor Bungs with Caps

For exhaust systems without installed 02 sensor bungs. Drill pipe and weld in; choose straight or angled bung. Sold each, two required.

#272-200 Straight bung with cap, each #272-202 Angled bung with cap, each

#272-204 12mm Bung Cap set. For '10-up Touring, '12-up Softail®, Dyna® and V-Rod® & '14-up XL/ Sportster® models with stock sensors removed

Fuel Injection Components

Injectors (Weber Pico) for '01-'05 Delphi® injected models and '08-up TBW Touring models. Sold Each.

PART NO.

#150-709 #150-654









5.30 gr/sec (high flow replacement) #150-741 6.70 gr/sec (high flow replacement)

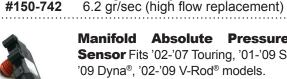


Injectors for '06-up Delphi[®] injected models with cable-actuated throttle body. Sold Each. **DESCRIPTION**

	Fuel Pressure Checking
S Andrews	Gauge Fuel injection systems
R-1 5 5	rely on consistent fuel pressure
A o off	for proper operation. When fuel
	pressure drops due to a clogging
	filter, pinholes in the in-tank
	fuel line or a faulty fuel

tank fuel pump, performance suffers. This is the FIRST tool you should grab for diagnosis.

Quickly installs in-line at the fuel tank outlet and allows you to verify pressure is within spec. #772-457



Manifold Absolute Pressure (MAP) Sensor Fits '02-'07 Touring, '01-'09 Softail®, '04-'09 Dvna®. '02-'09 V-Rod® models.

3.91 gr/sec (25° Big Twin stock replacement) 4.89 gr/sec (high flow replacement)

Fits '07 Touring, '99-'00 and '07-up Softail®, '99-'03 and '06-up Dyna®, '04-'06 XL models. #150-317



Fuel Pressure Regulator

Stock replacement. Fits '02-'07 Touring, '01-'07 Softail®, '02-'09 V-Rod® models. #150-408





Cylinder Head Temperature Sensor Fits '99-'09 Touring, '01-'09 Softail®, '04-'09 #395-062 Dyna®.



Manifold Air Temperature (MAT) Sensor Stock replacement, 1995-#150-270 2005 injected models.



Wiring Harness Connector Kit 2001-2005 Delphi EFI Includes connectors and terminal ends for IAC, TPS, MAT and injectors for 2001-2005 components. Allows fitment of 2001-

2005 throttle bodies to 2006-up Big Twins with cable-actuated throttle bodies. Wiring instructions included. #117-124



Manifold Air Temperature (MAT) Sensor Stock replacement, 2006up Delphi® injected models w cableactuated throttle body. #150-381



Wiring Harness Connector Kit 2006-up cable-type throttle body. Includes connectors and terminal ends

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for IAC, TPS, MAT and injectors for 2006-up cable-type throttle body components. Allows fitment of 2006-up cable-actuated throttle bodies to 2001-2005 bikes. Wiring instructions included. #117-125



Idle Air Control (IAC) Motor Stock replacement, 2001-2005 Delphi® injected models. #395-060



Intake flanges, 1984-2005 These are the offset type flanges that are front and rear specific (flanges stamped F & R). Sold each, order 2 for one engine.

> Front # 198-032 Rear # 198-033



Idle Air Control (IAC) Motor Stock replacement, 2006-up Delphi® injected models with cable-actuated throttle body. #395-061



Throttle Position Sensor (TPS) Stock replacement, 2001-2005 Delphi® injected models. #395-064



Throttle Position Sensor (TPS) Stock replacement, 2006-up Delphi® injected models with cable-actuated throttle body. #395-065



Intake flanges, 2006-Up Big Twins

These are the symmetrical type flanges that can be used on the front or rear head (equal distance between the mounting holes and the intake port). Sold each, order 2 for one engine. # 150-993



Ignition Systems

Zipper's Thunderbolt Ignition Module

The Zipper's Ignition System for the carburetor-equipped Twin Cam® and 2004-2006 XL engines offers the user many options for setting up the ignition system for optimum performance. Externally, the module is adjustable through 5 switches (face-mounted for easy access). These switches can be used to control operating modes including multi-spark, rev limit (in 100 RPM increments), initial timing setting and a selection of ignition advance slopes. These advance curves adjust timing not only by engine RPM, but also through engine load to help control detonation or pinging, a common occurrence in performance-modified engines. The module plugs into the factory harness and recognizes all factory



sensors; it communicates diagnostic information such as failed sensors or low/high battery voltage to the rider by blinking codes on the factory 'check engine' LED. Designed for use with the factory coil.

The module is also programmable with a laptop or standard PC through the factory diagnostic connector port. Advanced users will be able to program a custom advance curve with up to 128 different adjustment points; you can also adjust rear cylinder timing offset, as well as set and lock initial timing and RPM limits though the software. An exclusive feature is the ability to set the system up to delay the ignition fire (from 0 to 3 revolutions) to aid starting of large displacement or high compression engines. A cable and software is required for connection between the diagnostic port and the computer (purchase separately).

PART NO.	DESCRIPTION
#317-089	Zipper's '04-'06 TC, '04-'06 XL Thunderbolt Ignition Module
#317-088	Zipper's '99-'03 TC Thunderbolt Ignition Module
#399-110	Zipper's USB Software and Interface Cable kit
#317-091	Zipper's Serial Port '04-'06 TC/XL Software & Interface Cable
#317-092	'04-'06 Power adaptor, for off-bike programming
#317-095	'99-'03 Power adaptor, for off-bike programming



Twin Cam[®] Engine Wiring Harness

Building a Twin Cam® powered bike from scratch? Use this handy harness to simplify wiring the engine. Includes plug-in factory style connectors for use with any '99-'03 style ignition module and all the factory engine components and sensors including coil, map sensor, crank and cam position sensors, oil pressure switch and diagnostic data link port. Connection to your bike's main harness is through an included 8-pin Deutsch-style connector. Includes wiring schematic and main-harness-side plug with wire ends.

PART NO. DESCRIPTION

#350-435 Twin Cam[®] engine wiring harness (carb models)

Zipper's Drag Ignition For '04-'06 Carb Models

This ignition is packed with features that drag racers will love. You can simply set initial (0-25°), and maximum (20-40°) advance at your desired RPM using the external display and programming buttons, or fully plot your individual front and rear cylinder curves using the supplied software and a laptop or PC. Other features include adjustable rev limiter and start delay, live monitoring of engine timing, dwell, rpm, voltage, acceleration rate and more. Racers will value the built-in outputs for an analog tach, shift light and two-step rev limiter, which can be set on the fly using the external display and buttons.



309-575 Zipper's Drag Ignition, for '04-'06 carbureted Big Twin and Sportsters®







Dyna TC88-2P Digital Twin Cam® Ignition

The Dyna TC88-2P ignition module mounts to the stock location and accepts the factory harness plugs for a simple installation. Features 16 selectable curve in 3 groups: stock to slightly modified, heavily modified and insanely modified engines (ourfavorite!). Revlimiting is adjustable in 250-RPM increments from 5,750 - 7,250 RPM, and it is compatible with the stock coil. All stock sensors are used. Has reverse battery and spike protection built in; two year warranty. Optional Curvemaker software kit including communication cable allows the user to custom program the module using a PC.

PART NO.	DESCRIPTION	16
#366-292	Dyna TC88-2P digital ignition module, '99-'03 TC88	
#366-295	Communication serial cable & software for 99-03 TC ignition	on



TC88 PERFORMANCE IGNITION

Dyna Digital Ignition For 2004-2006 Carb Models

These Dyna Digital ignition modules are designed for 2004-2006 carburetor bikes that incorporate J1850 data bus communications. These modules mount to the stock location and accept the factory harness plugs for a simple installation. Features 16 selectable curve in 3 groups: stock to slightly modified, heavily modified and insanely modified engines (our favorite!). Rev limiting is adjustable in 250-RPM increments from 5,750 - 7,250 RPM, and it

is compatible with the stock coil. All stock sensors are used. Has reverse battery and spike protection built in; two year warranty. These ignitions are not programmable with Curve Maker software.

	Maker Sultware.	
PART NO.	DESCRIPTION	RACE Mac
#366-294	DESCRIPTION Dyna TC88-3 digital ignition module, '04-'06 TC88 Dyna DSPT-1 digital ignition module, '04-'06 XI	TSX27
#366-209	Dyna DSPT-1 digital ignition module, '04-'06 XI	ONLY



Thunder Heart Coil-Combo Digital Ignition

Want to run a Twin Cam® motor in your custom bike? With the Coil-Combo Digital Ignition, you can - easily! The Coil-Combo Digital Ignition is designed for use in custom bike applications where any engine equipped with a crank sensor (like a Twin Cam® or late EV) is going to be used. It consolidates all ignition components into a small, easy-to-mount package. Wiring the ignition system is a snap, because the builder doesn't need a factory Harley® wiring harness! The coil and module can be mounted together to simplify wiring and mounting. The included Smart Link software allows the user to fully program the front and rear spark timing and rev limit of this ignition with a laptop computer. Includes ignition, coil, plug wires, programming software, cable and comprehensive instructions.

PART NO. DESCRIPTION

#309-512 Crank Trigger Coil Combo Ignition



Twin Tec Evolution® Ignition Module

The Twin Tec External Ignition Module is designed to fit all Evolution Big Twins and Sportsters® to 1997. It mounts in the stock location and features many easy to program options. Two advance curve families with adjustable advance slopes can be programmed using the external dial switches, or you can plot your own curve using a PC with the optional software and cable kit. Rev limit is digitally set in 100 RPM increments and you can choose between single or dual fire operation, with or without multi-spark. It's all housed within the compact billet housing that plugs into the factory harness on 1991 and later bikes; earlier models require a separate wiring harness. Backed by a one year warranty.

PART NO.	DESCRIPTION
#399-107	Module w/8-pin plug, '94-'99 BT, '94-'97 X
#399-106	Module w/7-pin plug, '91-'93 BT & XL
#366-204	Harness w/7-pin plug for pre-'91 BT & XL
#399-110	USB Programming software and cable kit





Ignition Sensor Assembly

Original equipment ignition sensor and rotor assembly with harness and plug. For use with any ignition that triggers off of the stock sensor. Use to update an older bike with a late ignition system, to restore O.E. pickup to a late bike that has had original equipment parts removed, or for newly constructed bikes. Plugs into extension harness #366-204 listed above.

PART NO. DESCRIPTION

#350-400 Ignition sensor, fits 1970-up except Twin Cam



V.O.E.S. Switch

Here's a largely misunderstood part. The Vacuum Operated Electric Switch (V.O.E.S.) was standard equipment on all Evolution® engines and works in conjunction with most all late model electronic ignitions, both factory and aftermarket. It senses high and low manifold vacuum and signals the ignition to change its advance slope. Under high load, the switch signals the ignition module to electronically retard ignition timing to reduce the possibility of detonation. In low-load conditions such as cruising at light throttle, the ignition stays in the advanced mode for increased fuel economy and lower operating temperature. All controlled by the magical V.O.E.S. switch! Available with the switch activation pre-set to operate at 4, 5 or 6" of Mercury for your calibration requirements. If your pre-Twin Cam® engine doesn't have one, it should.

PART NO.	DESCRIPTION	
#395-084	V.O.E.S. switch with bracket, calibrated to 4" of Mercury	
#395-085	V.O.E.S. switch with bracket, calibrated to 5" of Mercury	
#395-086	V.O.E.S. switch with bracket, calibrated to 6" of Mercury	

Dyna 2000 EV Electronic Ignition Module



The Dyna 2000 is a digital EV ignition module with a host of unique features. Using a series of 'dip' switches, four different advance curves can be selected by the user to meet the needs of specific engine modifications or riding conditions, with or without the factory VOES switch. A built-in, independently programmable rev limiter can be set to 6000, 6500, 7000, or 7500 RPM, engaging the smoothest rev limiter in the industry for protection against damaging engine over-revving. A retard mode can be accessed for use with turbocharged or nitrous equipped engines. Both are designed to be used with the stock late model H-D® ignition pickup and plug right in to the factory harness on '91-'99 EV models. Installation on earlier models requires # 366-204 harness. 1 year warranty.

N/7-PIN PLUG	W/8-PIN PLUG	DESCRIPTION
#366-201	#366-218	Dyna 2000HD-1 single/dual fire ignition

'94-'99

#366-228

#366-202

Ignition Wiring Harness

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Wiring harnesses to simplify installation of ignition modules. Extension harness is used on bikes that have no provision for plug-in modules such as pre-'91 models, newly constructed EV-based bikes or bikes that have had original wiring removed. 8-to-7 adaptor harness is used to install early (7-pin) modules on '94-'99 bikes with 8-pin wiring harness plugs.

PART NO.	DESCRIPTION	
#366-204	Extension harness, use for installation on pre-'91 models	
#366-203	8-to-7 pin plug adaptor. Use to install earlier 7-pin modules	
	on '94 - "99 bikes with 8-pin wiring harness plugs.	



Dyna 2000HD-2 dual fire only module

Dyna Shift Light And Shift Minder

The Dyna Shift Light and Shift Minder system makes it easy for you to hit your shift points accurately, time after time. After setting the control module for your optimum shift rpm, the shift minder signals the shift light to light at that desired rpm, prompting you to shift. This proven method is more accurate and easier to see than the tach, allowing you to concentrate on the road or track in front of you. The Shift Minder is adjustable between 4,000 and 7,875 RPM in increments of 125 RPM using the 'dip' switches on the module. The Shift Minder can also be used to trigger other devises such as ignition retard functions in Dyna and Compu-Fire® ignitions. Very compact and rugged construction. Not compatible with EFI or digital ignitions used on carbureted Twin Cam® and '04-'06 XL engines

PART NO.	DESCRIPTION
#366-491	Shift Light & Shift Minder System
#366-492	Dyna Shift Light only
#366-493	Dyna Shift Minder only
#372-904	Replacement bulb (ea)
	` ,
	PINGEL 2-PIECE BILLET MOUNTING
PART NO.	PINGEL 2-PIECE BILLET MOUNTING BRACKET FOR DYNA SHIFT LIGHT
PART NO. #376-664	
	BRACKET FOR DYNA SHIFT LIGHT



Zipper's Thunderbolt Nosecone Ignition

The Thunderbolt nosecone internal ignition is designed to fit all Evolution® Big Twin and Sportster® models, as well as '70-up Shovelhead and '71-up Iron XL's. It is fully contained within the cam cover, replacing the externally mounted module on all models originally equipped with electronic ignitions. It features external switches that control single or dual fire operation, multi-spark function, advance curve selection and RPM limit. LED indicators assist static timing set up and VOES switch activation (the use of a V.O.E.S. switch is strongly recommended; without vacuum advance at idle and part throttle, thermodynamic efficiency is reduced and engine temperatures increase significantly). Designed for use with 3.0 ohm coils; 1 year warranty.

The Thunderbolt is also programmable with a laptop or standard PC. Software and an interface cable are required for connection between the tach port and the computer USB port (purchase separately). Advanced tuners will be able to program a custom advance curve; you can also adjust rear cylinder timing offset, as well as set initial timing and RPM limits though the software. An exclusive feature is the ability to set the system up to delay the ignition fire (from 0 to 3 revolutions) to aid starting of large displacement or high compression engines. Engines equipped with nitrous or a turbo can configure the VOES input port to be used as a retard switch input instead, with up to 10° timing retard.



u	t instead, with	Tup to To tirriing retard.	
	PART NO.	DESCRIPTION	
	#317-105	Zipper's Thunderbolt Nosecone Ignition Module	PERFORMANCE PRODUCTS
	#317-105K	Zipper's Thunderbolt Nosecone Ignition Module,	Kickstart models

#399-110 Zipper's Thunderbolt USB Software & Interface Cable





The Twin Tec ignition module for 1998-2003 Sportster® engines is a totally self contained programmable ignition that fits within the cam cover, and is wire-terminated for use with the factory wiring harness. Two advance curve families with adjustable advance slopes can be programmed using the external dial switches, or you can plot

your own curve using a PC with the optional software and cable kit. Rev limit is digitally set in 100-RPM increments and you can choose between single or dual fire operation, with or without multi-spark. It's all housed within the compact billet housing and is backed by a one-year warranty. *Does not fit 1200S models with dual plugs*.

PART NO. DESCRIPTION

#399-105S Twin Tec ignition, 1998-2003 XL (not 1200S) **#399-110** USB Programming software and cable kit

V.O.E.S. Switch

Here's a largely misunderstood part. The Vacuum Operated Electric Switch (V.O.E.S.) was standard equipment on all Evolution® engines and works in conjunction with most all late model electronic ignitions, both factory and aftermarket. It senses high and low manifold vacuum and signals the ignition to change its advance slope. Under high load, the switch signals the ignition module to electronically retard ignition timing to reduce the possibility of detonation. In low-load conditions such as cruising at light throttle, the ignition stays in the advanced mode for increased fuel economy and lower operating temperature. All controlled by the magical V.O.E.S. switch! Available with the switch activation pre-set to operate at 4,5 or 6" of Mercury for your calibration requirements. If your pre-Twin Cam® engine doesn't have one, it should.

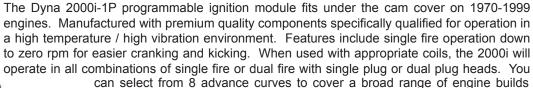
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PART NO.	DESCRIPTION
#395-084	V.O.E.S. switch with bracket, calibrated to 4" of Mercury
#395-085	V.O.E.S. switch with bracket, calibrated to 5" of Mercury
#395-086	V.O.E.S. switch with bracket, calibrated to 6" of Mercury



Ignition Rotor Cup

#350-402 Factory style rotor cup used to trigger many nosecone ignition systems including Zipper's Thunderbolt, Dyna 2000i, and Crane HI-4. Fits all pre-Twin Cam engines from '70-'99. Includes mounting bolt.

Dyna 2000i Programmable Ignition



can select from 8 advance curves to cover a broad range of engine builds and riding styles. Other features include over-rev protection adjustable from 6000 to 7500 rpm, adjustable timing retard for nitrous and turbo applications, built in tach driver which can also be used to activate shift lights, auto shifters, etc. Easy static timing set-up with built in timing indicator; once installed, its intelligent circuit protection detects and protects the module from wiring miscues. 2000i ignitions are also PC Programmable with Dyna's optional Curve Maker Software Programming kit (see below). 1 year warranty.

PART NO. DESCRIPTION

#366-207 Dyna 2000i-1P ignition, fits '70-'99 all models except Twin Cam®

Dyna Curve Maker Ignition Programming Kit

Dyna's Curve Maker software and cable kits allow the user to access more tuning options with their Dyna ignition. **Among the added features available with Curve Maker are:**

- Eight Point Fully Definable Part & Wide Open Throttle Curve
- Rev Limit Programmable In 50 Rpm Steps
- Programmable Dead Cranking Revs 0-10
- Programmable Rear Cylinder Offset, Total Of +/- 10 Degrees

Data Recording:

- Total Engine Hours & Time At Wide Open Throttle
- Number Of Engine Starts
- Longest Time Operating At Wide Open Throttle
- Maximum Rpm & Seconds Near Rev Limit
- Statistical Analysis Of Time At Rpm

PART NO.	DESCRIPTION
#366-208	Communication serial cable & software for 2000i-1P ignition
#366-209	Communication serial cable & software for 99-03 TC ignition

Dyna 'S' Ignition System

Dyna 'S' model ignition is a popular electronic ignition trigger plate and rotor button that uses the stock points-type mechanical flyweight assembly to control ignition advance instead of an electronic "black box". Simple and compact, everything fits behind the stock point cover. Dyna 'S' ignitions come in standard dual-fire configuration, or the popular single-fire version. Use 3-ohm coils for racing, 5 ohms for street applications. Any type plug wire can be used; installation couldn't be easier. Dyna 'S' ignitions are backed by a 1-year repair warranty.

DESCRIPTION		
Dyna 'S' DS6-1Dual-Fire ignition	#330-153	
Dyna 'S' DS6-2 Single-Fire ignition		
Tach adaptor for single-fire ignition		
Domed point cover, chrome. Eases installation of Dyna 'S' ignitions	in Evolutio	n® engines
	Dyna 'S' DS6-1Dual-Fire ignition Dyna 'S' DS6-2 Single-Fire ignition Tach adaptor for single-fire ignition	Dyna 'S' DS6-1Dual-Fire ignition #330-153 Dyna 'S' DS6-2 Single-Fire ignition



Rivera Stainless Steel Mechanical Advance

#372-327 Older Harleys® and certain race ignitions require a mechanical advance timing unit for their ignition systems. Rivera's competition mechanical advance assembly is the finest assembly sold today. Features stainless steel shaft, plate and weight washers; advance weights are heat treated, then coated with high tech, low friction polymers with hardened steel pins to hold the weights in place. *It's smooth, accurate and reliable!*

Ignition Advance Lock

#313-901 Full race engines equipped with off-board starters may perform best with the mechanical advance removed and the ignition timing locked. This device replaces the stock mechanical advance unit with a fixed adapter for accurate ignition timing. Works well with any ignition that originally accepted the mechanical advance, such as the Dyna 'S' and the Dyna 4000.





Dyna 4000 Super Pro High Energy Ignition

The Dyna Super Pro 4000 has substantial electrical noise immunity and includes a full wiring harness to ease installation and insure bulletproof operation under the extreme conditions of drag racing. Low ohm, high-energy coils deliver powerful, long duration spark controlled by the 4000's special microprocessor-based control circuitry.

Included within gas model 4000's is Dyna's excellent 2-stage rev limiter. The first stage (launch stage 3500-7000 rpm), is activated by a clutch switch to maintain launch RPM consistency, while the second stage (6500-10000 rpm) can be set for maximum RPM desired to prevent engine damage due to drive line breakage or missed shifts.

The Dyna 4000 ignition system can be operated in single- or dual-fire mode and is available for single or dual plugged heads. Kits include the ignition module, wiring harness, coils, and Dyna 8mm suppression plug wires. A special Dyna ignition trigger is used as a pickup for the 4000, and must be purchased separately (see below). This ignition is intended for racing use only. Not for street use.

PART NO.	GAS SINGLE PLUG SYSTEM
#366-440	Dyna 4000 Super Pro system, single plug head, dual fire
#366-441	Dyna 4000 Super Pro system, single plug head, single fire
PART NO.	GAS DUAL PLUG SYSTEM
#366-442	Dyna 4000 Super Pro system, dual plug head, dual fire
#366-443	Dyna 4000 Super Pro system, dual plug head, single fire
PART NO.	TOP FUEL SYSTEM (FOR NITRO USE - NO REV LIMITERS)
#366-444	Dyna 4000 SP Top Fuel system, dual plug, dual fire
PART NO.	REPLACEMENT MODULES
#366-448	Replacement module only for #366-440, #366-441
#366-449	Replacement module only for #366-442, #366-443
#366-447	Replacement module only for #366-444



Dyna 4000 Ignition Trigger

Used w/the Dyna 4000 Super Pro ignition, providing a strong, clean pickup signal to the ignition module. This pickup cannot be connected directly to the ignition coils as it is not an ignition, it is a pickup only for the 4000 ignition. Installs in the point plate location and includes required connectors. Use w/our Advance Lock for best results.

PART NO.	DESCRIPTION
#366-413	Dyna Ignition Trigger for the Dyna 4000 ignition system
#313-901	Zipper's Ignition Advance Lock. Eliminates centrifugal advance,
	locks rotor in one position. Also works with Dyna 'S' Ignitions!

Dyna Remote Display For 4000 Super Pro

#366-450 Handlebar-mounted device that allows the operator to test the 4000 Super Pro ignition system and all of its accessories without actually running the engine. "Run" the ignition through its RPM range and verify that it and other related components such as rev limiters and shift lights are functioning properly. It has a clutch switch status indicator and also allows instant starting line adjustments of the two-stage rev limits; for example, should you encounter a engine "bog" during a dry hop and want to raise the launch RPM a few points, you can do it right from the display's control switches. Easily plugs right in to the Dyna 4000 Super Pro.





Dyna 2-Step Retard Module

#366-415 This 2-stage retard module is for racers using Dyna 4000 ignition. Allows up to 3 timing settings. Static pickup timing and two stages of retard. Each retard stage is adjustable from 2 - 20° in 2° increments and activated by applying a 12v. signal that can be triggered in many ways, manually or electronically via an RPM adjustable circuit such as the Dyna Shift Minder. The retard module simply plugs in line between the ignition pickup and the Dyna 4000 module.

Ignition Components

Dyna Rev Limiters

A Rev Limiter is a wise investment for protecting your engine from damage due to over-revving. Dyna Rev Limiters are the smoothest in the industry, with no engine harming banging or popping due to unsteady limiting. These rev limiters are designed for inductive electronic ignitions. Not compatible with EFI or digital ignitions used on carbureted Twin Cam® and '04-'06 XL engines.

DRL 300 - Single Stage: This RPM Limiter is fully adjustable between 6,000 and 12,000 rpm and provides insurance against over-revving due to missed shifts, drive line breakage or just plain ol' too much throttle. In addition, the output stage has also added a separate kill input. This input works separate of the rev limiter and can function even when the rev limiter has no power. This will kill the spark whenever a 12V signal is applied to the input. Potential uses include shift kill to kill ignition during upshifts, allowing for clutchless shifts. Prewired and easy to install. One-year factory warranty.





DRL 400 - Two Stage: The racers friend for consistent launch RPM's and improved reaction times. Dyna's Two-Stage rev limiter uses a clutch actuated switch to control rpm stages - clutch in, first stage; clutch out, second stage. Now you can concentrate on the light, *not the tach!* Set the first stage for desired launch rpm, the second stage for maximum rpm to protect the engine from over-revving. Both stages are adjustable; the first stage can be set between 4,000 and 6,750 rpm (in 250 rpm increments), the second between 6,000 and 9,000 rpm (fully adjustable). Comes pre-wired for easy install. Requires clutch switch, which must be purchased separately. 1-year factory warranty.

PART NO. DESCRIPTION

#366-300 Dyna single stage rev limiter - DRL 300 **#366-400** Dyna two-stage rev limiter - DRL 400-HD



Dyna Shift Counter

#366-417 Dyna Shift Counter is a stand-alone devise useful for triggering other devices according to which transmission gear a drag race vehicle is in. Shift Counter can be used to activate a variety of vehicle functions including single or multi stage nitrous systems. retard box stage controls, multi stage waste gates, multiple Shift Minder switches for different shift points or just about anything else you might want that can be activated with a 12 volt signal. The shift counter also has a built-in programmable electronic shift kill function that replaces the typical air kill switch. Shift Counter must be used in conjunction with an electric switching valve on the air shift system (electric over air setup). The Shift Counter trigger input is connected to the handlebar electric shift button. At power-up, the Shift Counter resets itself to first gear, lights the 1st gear LED lamp and sends 12 volts to the 1st gear terminal. When the button is pushed for 2nd gear, the 1st gear terminal is de-activated and the second gear terminal is powered, and so on through all 5 gears. Each gear terminal becomes a 12-volt source to power/activate your accessory when the transmission is in that gear. A separate function during shifting is the shift kill pulse, which has an adjustable duration of 60, 70, 80 or 90 milliseconds to replace the air shifter air kill switch entirely.

Ignition Coils

What Coil Do I Need?

The many different ignitions available today can generally be used with a variety of different coil brands. Ignitions supplied on Twin Cam® and 2004-up Sportster® models are quite specialized and the factory coils supplied with them are also advanced and perform well in stock or performance applications.

Earlier (pre-TC) models with applications such as single or dual plug, and single or dual fire will affect which type of coil you may need to use. There are 3 basic types: O.E.M. Harley-Davidson® style coils which are shaped and mount like stock coils with two mounting holes and two wire outlets, typically used to upgrade dual-fire ignition systems. Next: There is the popular Dynatek post-mount coils which have a metal post that runs through the middle of the coil and has holes in each end for mounting; these coils require special mounting brackets to mount them properly. Last: Are the "two-in-one" coils for single-fire ignition systems that are actually two coils in one casing, made that way for easier mounting. These coils are generally slightly larger than stock, sometimes requiring special adaptors to retain the stock coil covers and can only be used on fully electronic (non-mechanical advance) ignitions.

You'll notice that we list the ohms resistance for the coils we offer. It is important that the coil you select has the correct resistance as specified by your ignition system. Improper resistance can lead to module failure or malfunction. It is OK to use one manufacturers' coil and another's ignition module as long as the specs are compatible. How to decide which coil to use: see what type of coil is compatible with your ignition selection, then decide which mounting method would work best for you. Here is a list of popular ignitions and their ohms resistance requirements:

Zipper's Thunderbolt EV Ignition	3.0 ohm	Dyna 4000 (race only)	0.7 ohm
Original equipment points ignition	5.0 ohm	Crane HI-4, HI-4E ignitions	3.0 ohm
'85-'99 Evolution® O.E. electronic	3.0 ohm	V-Thunder Controller & HyperFyre	3.0 ohm
Screamin' Eagle® Evolution® modules	3.0 ohm	Spyke Ignition	3.0 ohm
Dyna 'S' ignition (street use)	5.0 ohm	Compu-Fire ignitions	3.0 ohm
Dyna 'S' ignition (race use)	3.0 ohm	RevTech Digital module	3.0 ohm
Dyna 2000, 2000i	3.0 ohm		



Dyna Twin Fire® Coils

Dynatek Twin Fire® coils are designed to be used with single-fire microprocessor equipped (electronic advance) ignitions. Dyna's Twin Fire coils feature the same fast rise times, high energy and 30,000+ volts output as their other popular coils. The advantage of using a Twin Fire coil is it is actually two coils in a single housing, designed to bolt to stock mounts and simplify coil mounting in single-fire applications. Each outlet operates independently of the other (front cylinder, rear cylinder). A four outlet model is also available for dual plug, single-fire use. The 4-tower

coils are slightly larger than the 2-tower coils; stock coil covers will not fit without an optional coil cover bracket. These coils are NOT designed to be used with Dyna 'S' or other mechanical advance ignitions. Not for use on Twin Cam® applications except where noted.

PART NO.	DESCRIPTION
#366-615	3.0 ohm Mini Twin Fire w/2 outlet towers (single plug). Works with stock coil covers.
#366-614	3.0 ohm Twin Fire w/4 outlet towers for dual plug applications
#366-601	Coil cover adaptor bracket for 366-614, use on '84-'99 FXST models
#366-912	.7 ohm Twin Fire w/4 outlet towers (dual plug).
	For use with Dyna 4000 Super Pro ignitions only (replacement or spare)
#366-616	.5 ohm Twin Fire coil for carbureted Twin Cam® applications only

Spyke Coils

Spyke's high energy coils are excellent for stock replacement or single-fire upgrades. The single-fire coil is actually two coils in one housing that fits in the stock location. These are 3.0 ohm coils that work great with pre-Twin Cam® Zipper's, Dyna 2000, Crane HI-4, Spyke, Screamin' Eagle® and Compu-Fire digital ignitions. Has extremely quick rise/fall times and fires at low voltage for easy starting. Packs a whopping 80,000 volts. Requires resistor wires and plugs. Order 2 for dual plug applications.



PART NO.	DESCRIPTION
#372-605	Spyke single-fire coil
#372-607	Spyke dual-fire coil

Ignition Coils

Dyna Ignition Coils

Dyna's ignition coils provide spark voltages in excess of 30,000 volts and spark energies second to none. Generally regarded as very powerful and virtually bulletproof, these coils are available in two mold shapes; replacement Harley® style or Dyna's familiar post-mount type with angled plug towers. The post-mount coils are generally used on racers and require custom mounts or some fabricating. The 6 volt, 1.5 ohm coils work well on dual plugged engines running dual-fire ignition systems that require 3.0 ohms coils. When wired in series, the ignition reads the two coils as one 12 volt, 3.0 ohm coil.

PART NO.	DESCRIPTION	4
Harley® pre-	TC style coils. Bolts up like stock	
#366-611	3.0 ohm for '85-'99 EV ignitions (green)	
#366-711	5.0 ohm for points or DS6-1 ignitions (black)	
PART NO.	DESCRIPTION	
Post-Mount	Coils. Sold in pairs.	2 Gail E
#366-911	.7 ohm, dual outlet, (blue) use with Dyna 4000 only	0
#366-311	3.0 ohm, single outlet (green)	
#366-111	3.0 ohm, dual outlet, (green)	- Cont
#366-101	5.0 ohm, single outlet (black)	
#366-811	5.0 ohm, dual outlet (black)	
#366-211	6 volt, 1.5 ohm, (brown)	
#366-409	Coil grounding wire. Use to ground an un-used coil outlet	(ea.)



Blue Streak Ignition Coils

Blue Streak coils feature quicker rise times and more spark energy than factory coils. Durable designs and compact packaging with vibration resistant housings provide uncomplicated installations and long life. Blue Streak quality, value priced and compatible with stock or most aftermarket ignitions.

395-090	3 ohm, single fire, fits in stock location with stock cover
395-092	5 ohm, dual fire, stock replacement (points, Dyna 'S')
395-094	3 ohm, dual fire, stock replacement (EV electronic ignition)
395-096	.5 ohm, stock repl. (carb models) '99-'05 FXD, '00-'06 FXST, '04-'06 XL

Zipper's Dual Coil Mounting Kits

We've designed a dual coil mounting kit that is simple, functional and looks great. Developed to use H-D® style coils, these bracket kits include a top motor mount, special coil bracket, chrome steel coil covers and stainless steel mounting hardware. This system mounts the coils between the cylinders on the left side with the coil wire outlets facing in. Horn relocation may be required on some models. Coils not included.

PART NO. DESCRIPTION

PART NO.	APPLICATION
#317-140	Zipper's dual coil mounting kit, '84-'99 FXST
#317-142	Zippers dual coil mounting kit, '84-up FXR
#317-144	Zippers dual coil mounting kit, Shovel
#317-146	Zippers dual coil mounting kit, Iron XL
PART NO.	APPLICATION
#366-611	Dyna 3.0 ohm coil for above, sold each
#366-711	Dyna 5.0 ohm coil for above, sold each



Plug Wires

Dyna Universal Spark Plug Wires

Dyna graphite suppression core plug wires are available as universal kits with 4 feet of 7mm (black) or 8mm (gray) wire and 90 degree plug boots installed. Straight and 90 degree boots are included for the coil side; simply cut to desired length and install the coil ends. Not for Twin Cam® or '04-'06 XL use.

PART NO.	DESCRIPTION
#366-110	7mm Black Dyna universal wire set
#366-120	8mm Grey Dyna universal wire set



Taylor Universal Spark Plug Wires

The latest technology in 8mm RFI suppression plug wires. 100% silicone inner and outer jackets provide high heat protection and molded plug boots w/double interlocking plug connectors gets fire to

the plug, and only the plug, for max. spark. Resistance averages 3500 ohms per ft, ideal for any performance app. Universal wire kits contain 2 - 24" wires w/spark plug end attached and the coil end left unfinished. Cut to length and install supplied coil ends. Red or black. Not for Twin Cam® or '04-'06 XL use.

BLACK	RED	APPLICATION
#304-088	#304-288	Two 24" wires w/90° degree boots
#304-089	#304-289	Two 24" wires w/ straight boots

Crane Hi-Power Plug Wires

Crane's Hi-Power premium quality 8.5mm wires feature reactive spiral core construction that will withstand extreme temperatures and prevent voltage leaks for easier starting, cleaner burning plugs and better performance. Pre-cut sets made for most pre-Twin Cam® bikes. Universal kits are available for special applications with the plug boots installed and 41" of cable, with straight & 90 degree coil end boots; simply cut to length and crimp on coil ends.

PART NO.	DESCRIPTION
#338-850	Univ. Pre-TC Wire set w/90o boots
#338-851	Univ. Pre-TC Wire set w/135o boots
#338-852	Wire set, '86-'98 Sportster®
#338-853	Wire set, '84-'90 FXST, '91-'98 FXD, '71-'86 FX/FL, '79-'85 XL
#338-854	Wire set, '80-'84 FLT, FLHT
#338-855	Wire set, '85-'95 FLT, FLHT
#338-857	Wire set, '82-up FXR
#338-858	Wire set, '91-'99 FXST
#338-859	Wire set, Twin Cam [®] universal

Spark Plugs

Autolite Motorcycle Spark Plugs

Autolite "FINE WIRE" Platinum Plugs

Autolite's Platinum plugs deliver the highest performance you can buy in a spark plug. A full platinum power tip assures gap integrity and protects the engine from horsepower robbing gap erosion, while the computer designed insulator burns off deposits for anti-fouling and heat range control. Fine Wire center electrode and trimmed side wire focuses ignition power to enhance combustion initiation.

PART NO.	DESCRIPTION
#312-664	#4164: Pair Resister Platinum plugs for Twin Cam® and EV Sportsters®
#312-665	#4265: Pair Resister Platinum plugs for EV Big Twins and '75-up Shovels



Autolite Standard Plugs

Autolite standard plugs have always provided consistent performance in any engine. Superior materials are used in the construction of these plugs for no-compromise performance and long life.

PART NO.	DESCRIPTION
#312-164	#4164 – Ea/Resister plug for TC & EV Sportsters®
#312-132	#4132 – Ea/Colder (racing) resister plug for TC & EV XL
#312-265	#4265 – Ea/Resister plug, 75-81 Shovel, 84-up EV Big Twin
#312-275	#4275 – Ea/Non-resister plug for 48-74 Big Twins (short reach)
#312-123	#4123 – Ea/Resister plug for Iron XL's 80-85 w/elec. ignition





Spark Plug Reading Light

#730-155 Get a clear picture when reading plugs with this flashlight magnifier. Hand held tool has a magnifying lens to look thru and a light to clearly illuminate deep down into plugs for accurate readings. Lots of other uses. A must for any engine tuner.

Spark Plug Index Washers

Every little bit counts when tuning for that last bit of available power. Using these spark plug indexing washers will allow you to face the open side of the electrode towards the fuel charge instead of it being masked by the grounding strap on the plug. Five each of three different thicknesses are included in 12 or 14mm size.



PART NO.	DESCRIPTION	
#372-029	Spark plug indexing washers, 12mm	
#372-041	Spark plug indexing washers, 14mm	

Electrical Components

Handlebar Safety Switches

An engine kill switch is required by all racing sanctions as a safety measure. In the event that the rider is separated from the machine, ignition power is shut off when a plug or pin attached to the rider pulls out. The use of a high quality switch is paramount. A low quality switch will fail sooner or later and could cost you a race! These units from Pingel® are machined from billet and use a high quality connectors that won't vibrate out. All models are "normally closed circuit" for use with battery ignitions.

PART NO.	DESCRIPTION
#376-640	Pingel safety switch, for 7/8" bars
#376-650	Pingel safety switch, for 1" bars
#376-660	Pingel safety switch, 7/8", with mount for Dyna Shift Lite
#376-670	Pingel safety switch, 1", with mount for Dyna Shift Lite
#376-610	Pingel panel mount (5/8" hole) safety switch



Standard Motor Products Electrical Components

Blue Streak Tune-Up Kit

PART NO.	DESCRIPTION
#395-005	Points and condenser kit for '70-'E78
	models and conversions



BLUE STREAK

Quality, Made In USA electrical service parts from Standard Motor Products (Blue Streak).

Don't waste your time with low quality imports that might leave you on the side of the road one day.

Cam Sensor Plate Assemblies

PART NO.	DESCRIPTION
#395-070	Replaces OE # 32400-80,-80A,-80B
#395-072	Replaces OE # 32404-90,-90A
#395-074	Replaces OE # 32400-94,-94A





#395-010



#395-015



#395-012



#395-018

Relays

PART NO.	DESCRIPTION
#395-010	Starter relay for '73-'79 models & 'L84-'85 Big Twins replaces OE# 71463-73,-73A
#395-012	Starter relay (plug-in) replaces OE# 31506-79, -79A/B/C
#395-014	Starter relay (plug-in) replaces OE# 31504-91,-91A/B
#395-015	Micro relay (plug-in) replaces OE# 31522-00, -00A/B/C
#395-016	Micro relay (plug-in) replaces OE# 31511-01, -01A/B
#395-018	Micro relay (plug-in) replaces OE# 31601-04

Rear Brake Light Switches

#395-016

PART NO.	DESCRIPTION	
#395-026	Brake light switch with flag (push-in) terminals	
	replaces OE# 72023-51,-51A/B/C/D	
#395-028	Brake light switch with screw- eyelet terminals	
	replaces OE# 72002-51A	



#395-026



#395-028

Starter Solenoid

Starter Solenoid		
PART NO.	DESCRIPTION	
#395-030	Starter solenoid for '65-'86 4 speed, '84-'88 FXST,	
	'67-'80 XL replaces OE# 71469-65B	
#395-031	Starter solenoid for '80-'88 5 speed FLT/FXR	
	replaces OE# 31489-79,-79A/B	





Electrical Components

Starter Drive Gear

PART NO. **DESCRIPTION**

Starter clutch, '91-06 BT, '91-up XL (OE# 31663-90) #395-033

#395-032 Starter drive gear for '67-'80 XL, '65-'88 Big Twin (OE# 31443-65A)







#395-040



#395-042





Circuit Breakers

PART NO.	DESCRIPTION
#395-040	30A Main circuit breaker assy (OE# 74599-77B)
#395-042	15A Accessory circuit breaker assy (OE# 74589-73A)
#395-044	15A Accessory breaker, blade type (OE# 74587-94)
#395-046	50A Main circuit breaker assy (OE# 74600-94)
#395-048	40A Main circuit breaker assy (OE# 74600-97A)
#395-041	30A univ. breaker (10/32 stud, two 1/4" blades)
#395-049	40A univ. breaker (10/32 stud. two 1/4" blades)



#395-046





Oil Pressure Switches

PART NO.	DESCRIPTION
#395-020	OP Switch '41-'84 BT, '54-'76 XL (OE# 2552-72)
#395-022	OP Switch '77-'10 XL (OE# 26554-77, -77A/B)
#395-024	OP Switch '84-'99 EV Big Twin (OE# 26561-84)
#395-025	OP Switch '99-up TC, V-Rod® (OE# 26561-99)









#395-038

Neutral Switches

PART NO.	DESCRIPTION
395-034	Neutral Switch, replaces OE# 33900-59,-59A/B/C
395-036	Neutral Switch, replaces OE# 33902-98,-98A
395-038	Neutral Switch, replaces OE# 33904-00,-00A

Ignition Switches

PART NO. **DESCRIPTION**

Ignition Switch, universal 3-way 395-100

Ignition Switch, FXST, FXDWG, FLHR (OE# 71313-96,-96A) 395-102













Miscellaneous Electrical DESCRIPTION

PART NO. #395-050 Quality toggle switch for misc. uses, S.P.S.T. replaces OE# 67858-89

#395-052 In-Line Fuse Holder, 14 gauge wire w/20A flat blade fuse 2-Pole Connector, 12", 18 gauge wire, universal use. #395-054 Plugs into Battery Tender® lead for 12v power source.

Starters

Rivera/Primo Starter Gears

If you've broken teeth on your starter ring gear, there is no reason to buy an entire new clutch shell. Primo's replacement starter ring gears are made from high grade, heat treated steel and are designed to bolt onto the factory shell after the original equipment gear has been removed. Just grind off the rivet heads on the O.E. gear, drill the shell holes to 5/16" and bolt on the new gear. 1994-2006 (except 2006 Dyna®) 102 tooth models can be converted to the earlier, stronger 66 tooth version with the conversion gears listed below (requires special 9T pinion gear).

PART NO.	STOCK REPLACEMENT
#880-900	66T, '90-'93 stock replacement gear
#880-940	102T, '94-'97 stock replacement gear
#880-980	102T, '98-'06 5 speed stock replacement gear
#850-342	10T '94-'06 starter pinion gear
PART NO.	66T CONVERSION
#880-914	66/9T conversion kit, for '98-'06 5 speed Big Twin
#880-913	66/9T conversion kit, for '94-'97 Big Twin
#880-900	66T conversion gear only, for '94-'97 Big Twin
#880-981	66T conversion gear only, for '98-'06 5 speed Big Twin
#880-660	9T pinion gear only, use w/66T ring gear, '94-'06 5sp BT



Spyke Starter Motors

Spyke Super Torque starters crank the big engines using a standard battery. Spyke starters have 46% more cranking torque, made possible through higher output motors and gear reduction. Easy, stock-like installation and your choice of finishes.

•	0 0	1
CHROME	BLACK	DESCRIPTION
#372-933	#372-930	Spyke 1.4kw starter '06-up 6 speed BT
#372-943	#372-940	Spyke 1.4kw starter '94-'06 5 speed BT
#372-903	#372-900	Spyke 1.4kw starter '89-'93 5 speed BT (except FLT)
#372-863	#372-860	Spyke 1.4kw starter '86-'88 5 speed BT
#372-803	#372-800	Spyke 1.4kw starter '80-'85 5 speed BT
#372-823	#372-820	Spyke 1.4kw starter '80-'86 4 spd (rr belt) BT
#372-793	#372-790	Spyke 1.4kw starter L'79-E'85 4 spd (rr chain) BT
#372-653	#372-650	Spyke 1.4kw starter '65-E'79 4 spd (rr chain) BT
#372-813	#372-810	Spyke 1.4kw starter for '81-up Sportster





Spyke Hi-Torque Starter Ring Gears

Got a late model, big output engine that eats starter ring gears? This kit converts the 1994-2006 102 tooth starter ring gear back to the stronger 66 tooth style used in 1993 and earlier models. Kit includes a 9 tooth pinion gear and 66 tooth ring gear. Requires removal of the factory ring gear which is riveted to the clutch shell and enlarging the existing holes to 5/16". New ring gear bolts on using 5/16" bolts provided.

PART NO.	DESCRIPTION
#372-620	Kit for '94-'97 Big Twins
#372-622	Kit for '98-'06 5 speed Big Twin

Spyke On-Board Starter Button

When only the bare minimum will do! The Spyke On-Board Starter Button replaces the stock end cap on 1989 2006 style starters with this chrome plated, billet unit that incorporates the starter button within it. Just push it in and the solenoid engages the starter motor-it cranks for as long as you hold it. No handlebar switch, no wiring, no starter relay (and no key!). Use for racers or show bike for that "minimalist" look.

PART NO.	DESCRIPTION
#372-610	Fits stock to 1.4kw starters
#372-612	Fits 1.6 to 2.4kw starters



Spyke Starter Jackshaft Assembly

Get all the starter jackshaft pieces in one part number. Great for scratch-build projects.

PART NO.	DESCRIPTION
#372-615	'89-'93 starters (using 66T ring gear)
#372-617	'94-'06 starters, (using 102T ring gear)

Charging Systems

Compu-Fire 3 Phase/40amp Charging Systems

High output 3 phase charging systems are standard on late model EFI H-D®'s. The Compu-Fire 40 AMP / 3 Phase charging systems can be used for replacement on EFI bikes or as an upgrade on carburetor models. Provides 25 amps of charging power



at idle, and 40 amps continuously above 2800 RPM. The unique narrow rotor and stator combination fits Softail/Dyna primary cases and the voltage regulator bolts on without any frame modifications. The precision balanced vented rotor keeps the stator cooler in closed primary systems to maintain maximum output under all high current draw conditions. The large flanged seal spacer provides maximum support for the rotor and the voltage regulator output is calibrated to 14.25 volts from idle on up.

PART NO.	REPLACEMENT 3-PHASE COMPONENTS
#347-402	Regulator, 40amp/3 phase systems
#347-404	Stator, 40amp/3 phase f/'81-'99 EV Big Twin
#347-405	Stator, 40amp/3 phase f/'99-'06 Twin Cam®
#347-406	Rotor for 40A/3P systems

PART NO.	APPLICATION – 40A/3 PHASE
#347-565	'03-'06 5-speed Twin Cam® (stock roller output bearing; includes vented rotor)
#347-575	'03-'06 5-speed TC with belt primary drive (stock roller output bearing; includes non vented rotor)
#347-566	'99-'02 TC (also '03-'06 5-speed w/Timken® conversion) includes vented rotor f/chain primary
#347-576	'99-'02 TC (also '03-'06 5-speed w/Timken® conversion) includes non-vented rotor f/belt primary
#347-560	'81-'99 EV Big Twin includes vented rotor (closed primary systems)
#347-570	'81-'99 EV Big Twin with belt primary drive (includes non vented rotor)

Compu-Fire 32amp Charging Systems

These 32 amp Compu-Fire charging systems include the three components necessary to keep the battery charged for carbureted Evolution and Twin Cam® engines. These systems include a custom wound stator with the correct engine case plug, a precision balanced rotor with the magnets permanently attached and splines machined to match factory

or aftermarket sprocket shaft, and a black finned series type voltage regulator with the voltage output calibrated to meet maintenance free battery requirements.

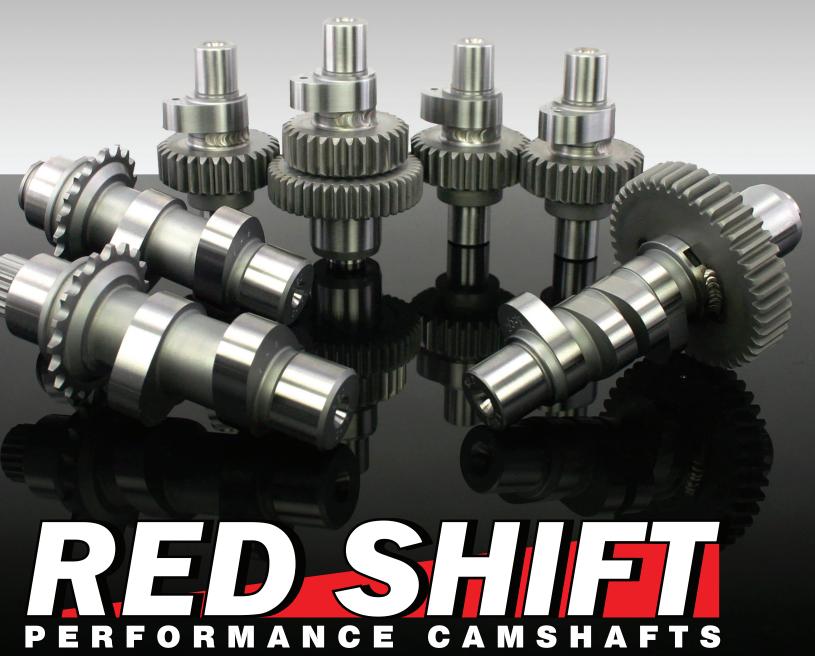
uų	out cambrated	to meet maintenance nee battery requirements.	
	PART NO.	APPLICATION - 32A SYSTEM	
	#347-522	32 amp 99-03 Carb FXD, '00 FXST Twin Cam®	and the same of th
	#347-520	32 amp 1981-1999 Carb EV BT w/factory crankshaft	
	#347-540	32 amp 1981-1999 Carb EV BT w/aftermarket crankshaft	

Compu-Fire Charging System Components

Quality replacement single-phase components from Compu-Fire. Compu-Fire rotor magnets are permanently attached with a proprietary gluing process and then the assembly is dynamically balanced to exceed factory specifications. The splined hole is properly sized to fit either OE or Aftermarket engines and spacer washers are supplied to fit all applications. Compu-Fire stators are manufactured with high quality copper windings and O.E. style molded case plugs. Compu-Fire voltage regulators have series type circuitry which allows both the stator and regulator to operate at a lower temperature by controlling the stator output. When the battery reaches full charge, the stator output is switched off by the regulator. The output voltage of the regulator is calibrated to meet the charging requirements of modern maintenance free batteries. The regulators are available in a chrome billet or black finned case.

i a cilionie bii	let of black littled case.		
PART NO.	32A COMPONENTS		
	Rotor, 32 amp '81-'99 EV w/H-D® crankshaft (OE# 29957-81B) Rotor, 32 amp '81-'99 EV w/aftermarket crankshaft		
	Stator, 32 amp, '99-'03 Carb FXD, '00 FXST Twin Cam® (OE# 29951-99) Stator, 32 amp, '89-'99 Carb EV Big Twin (OE# 29970-88)	#347-600	#347-530
#347-130*	Regulator, Black, 32 amp '89-'99 (OE# 74519-88A) Regulator, Chrome, 32 amp '89-'99 (OE# 74519-88A) model Big Twins can upgrade to 32 amp using these components		
PART NO.	STOCK REPLACEMENT		
#347-121 #347-125	Regulator, Black 22 amp '81-'88 Big Twin (OE# 74516-86) Regulator, Black 22 amp '91-'99 Sportster® (OE# 74523-91)	#347-130	#347-121

CAM - VALVE TRAIN



For over 3 decades, Red Shift Cams have been the choice of high performance engine builders. Master engine developer and Red Shift camshaft designer Dick Hilferty has always been at the forefront in all forms of racing and performance applications. Today Dick's designs are manufactured at Zipper's with the most advanced engineering design processes built into every cam. Zipper's has always believed that power gains should be achieved by improved dynamics and efficiency, not by compromising valve train component reliability. Let Red Shift create the power that you desire while protecting the investment that you have in your engine and valve train.

Red Shift® Dual Piston Hydraulic Cam Chain Tensioners

A Better Alternative to Gear Drive Cams!

New Red Shift® Dual Piston Hydraulic Cam Chain Tensioners are the "Go-To" product for all Twin Cam® engines using hydraulic chain tensioners. This revolutionary new design is simple and effective, improving cam chain tension stability, hydraulic performance, and valve train control for a quieter, better running engine.

Benefits Include:

- Dual Piston Design Eliminates Chain Instability & Tensioner Shoe "Rocking"
- Facilitates Accurate Cam Timing Events for Both Cylinders
- Tolerates Common Crankshaft Run-Out (Unlike Gear-Drive Cams)
- Improves Throttle Response, Acceleration and Across-The-Board Power
- Larger Reservoir Increases Oil Flow to Tensioners for Better Hydraulic Performance
- Precision CNC Machined and Made From Superior Materials





Red Shift® Dual Piston Tensioners feature design and manufacturing improvements for superior performance over the stock tensioners. When the Twin Cam® engine is running, the power pulses rock the factory single-piston tensioner shoe. The stock shoe movement causes the tensioner piston to unseat at the base, interrupting the pressurized oil system and introducing air into the tensioner. This introduction of air diminishes the pressure that the tensioner shoe places on the cam drive chains, resulting in poor valve train control. This loss of control contributes to engine noise and "bounced" components including valves, spring collars, rocker arms, pushrods, lifters and camshafts.

Red Shift® Tensioners' dual-piston design reinforces shoe and hydraulic stability, eliminating harmful air leaks in the tensioner system. By creating reliable overall valve train control and durability, Red Shift Tensioners will reduce engine noise and wear on valve train parts.

Red Shift® Dual Piston Cam Chain Tensioners are the finest tensioners on the market, engineered with superior manufacturing and design. Red Shift® Dual Piston Cam Chain Tensioners are manufactured in the U.S.A., from high-quality aluminum, premium wear-resistant plastic and automotive grade hydraulic tensioning bodies. These tensioners are manufactured to extremely close tolerances to ensure maximum valve train control and engine performance. Patent # 8,535,187

Part No.	Description
#413-901	Fits all '07-upTwin Cam® engines and '99-'06 engines converted to hydraulic tensioner systems
#413-902	Red Shift® Cam Chain Tensioners w/Axtell Oil Bypass Valve Kit #620-103 for all H-D® & S.E.® Cam Plates



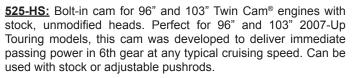




Red Shift® Performance Cams for 2007-Up* Twin Cam® Engines

The stroked crankshaft in the 96" engine changes the dynamic from '06 and earlier model 88" engines, making correct cam choice crucial to avoid engine damaging detonation with today's fuel quality. We recommend new cam bearings and performance tappets with any cam change.

*These cams can also be used in 2006 FXD engines.



DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 525-HS '07-up	#413-905S	N/A

527-HS: New balanced Hi-Torque design developed as a bolt-in cam for 96" to 110" O.E. engines. Delivers smooth and impressive Torque and H.P. increases over the factory installed cams. Designed to get your motorcycle moving quicker in the areas you ride the most. For use with OEM "Non-Adjustable" pushrods or adjustable pushrods.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 527-HS '07-up	#413-907S	N/A

575-HS: Bolt-in cams for 96, 103 and 110 inch engines with stock, unmodified heads. Great bolt-in upgrade for stock 96 or 110" engines; also works well in 96 to 103" conversions. Increases torque and horsepower across the board, with emphasis on torque.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 575-HS '07-up	#413-926S	#413-926G



Red Shift® Application Matrix for 1999-Up Twin Cam® Engines

		1999-2006				2007-UP					Big Inch Aftermarket			
Displacement		88	95	103	107	96	103	106	110	117	120	120 _R	124	131
Bor	·e	3.750"	3.875"	3.875"	4.125"	3.750"	3.875"	3.927"	4.000"	4.125"	4.125"	4.060"	4.125"	4.312"
Stro	ke	4.000"	4.000"	4.375"	4.000"	4.375"	4.375"	4.375"	4.375"	4.375"	4.500"	4.625"	4.625"	4.500"
Factory Stock Engine,	Early Torque					525	525	527				657	657	657
Unmodified Heads & Compression	Balanced TQ/HP	557	557	575		527 575	527	575	527			627	627	627
Modified Street	Early Torque		557	575			527	575	575	577	657	657	657	657
PUMP GAS, Modified Heads,	Balanced TQ/HP		577	577	657		575	577	657	657	627	627	627	627
& Increased Compression	Big HP		657	657			577 627	627	627	627	647	647	647	647
Race Only Race Fuel & High Compression	Balanced TQ/HP		657	657	657		657		647	657	627	627	627	627
	Big HP		627, 647 or 727	627, 647 or 727	627, 647 or 727		627 647		647 727	627 647	627, 647 or 727	627, 647 or 727	627, 647 or 727	627, 647 or 727

577-HS: Great for 103" and larger engines with good breathing heads and increased compression. Provides smooth power without detonation. Broader timing for lower cranking compression and more top-end pull. Performance springs recommended.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 577-HS '07-up	#413-921S	#413-921G

627-HS: Aggressive design for high output 103" and larger engine conversions. Compliments ported heads, hi-flow throttle body, exhaust. Static compression range 10.5 and up. Broad torque curve, strong pull to 6,000+ RPM.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 627-HS '07-up	#413-928S	N/A

647-HS: 113" and larger engines. Max power grind for '07up larger displacement engines. Broader timing for higher compression applications. Great valve train dynamics for long life. Compliments high flow heads, intake and exhaust.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 647-HS '07-up	#413-931S	N/A

657-HS: 107" and Larger Engines. Max torque grind for '07up larger displacement engines with heavy payload. Narrower timing increases compression for more low-end grunt. Excellent valve train dynamics for long life. Works well with most bagger exhaust.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 657-HS '07-up	#413-9419	N/A

v.20140709

Red Shift® Performance Cams for '99-'06* Twin Cam® Engines

Available in standard splined gear chain drive (stock H-D style), or configured for use with S&S® Gear-Drive gear sets. All require adjustable pushrods; spring work required unless otherwise noted as a bolt-in cam. We recommend new cam bearings and performance tappets with any cam change.

*These cams can also be used in 2006 FXD engines.

557TC: 88"-95" Twin Cam® grind. Smooth, quiet operation with excellent valve control. Strong torque curve works well for riders who like cruising at lower RPM's, and 95" dressers that pull a heavy payload. Bolt-in with conical springs ('05-'06); small amount of case clearance required on some earlier year cases. Recommended compression range 9.0- 9.8 to 1.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 557TC '99-'06	#413-910S	#413-910G

575TC: Torque cams specifically designed for CVO 103" engines. Best choice for riders who want a large increase in useable torque with durability and smooth, quiet operation. Creates best power between 2000-4800 for a strong pull you will enjoy with every shift. Bolt-in with CVO 103 heads or '05up heads with (stock) conical springs.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 575TC '99-'06	#413-925S	#413-925G

577TC: Performance cams for 95" & up Twin Cam® engines. Nice, smooth power and big torque in engines with good flowing heads, increased compression (9.5-10.5:1), performance ignition, exhaust and larger carb or throttle body. Bolt-in with conical springs or CVO 103 heads; runs very quiet. Can produce 105-110 rear wheel HP and torque in 95" engines.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 577TC '99-'06	#413-920S	#413-920G

627-TC: Aggressive design for high output 103" and larger engine conversions. Compliments ported heads, hi-flow throttle body, exhaust. Static compression range 10.5 and up. Broad torque curve, strong pull to 6,000+ RPM. Gear Drive only.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 627TC '99-'06	N/A	#413-922G

657TC: Popular big lift cam, standard equipment in our Muscle 107 kit. Designed for powerful torque applications; has produced over 120 rear wheel horsepower in a 107" engine with mild compression, mufflers and pump gas. Everything you expect from Red Shift – great performance with excellent valve train dynamics.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 657TC '99-'06	#413-940S	#413-940G

647TC: This cam is designed for true performance enthusiasts who require a wide, usable power curve and strong top end charge, with excellent valve control. Recommended engine size 116" and up; 10.0-10.5:1 compression for pump gas; for additional power add 1.75 rockers and more compression.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 647TC '99-'06	#413-930S	#413-930G

727TC: Our hottest TC cam, intended for drag racing but can be used for big displacement, performance application TC engines. Requires highly modified heads with special valve springs. Extensive set up required for installation. Available in gear drive only.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 727TC '99-'06	N/A	#413-950G

Red Shift Cams for Twin Cam[®] All numbers are calculated using stock rocker arm ratios. Re-calculate the figures if using higher ratio rocker arms. Part Model **Intake Timing TDC Lift** Valve Valve Cam Valve Duration Bolt-In? Exhaust @0.053 Number Year Model @ Valve Lift Spring 12 92 18 210 0.139 0.475 Intake Factory 413-905 '07-Up 525TC Yes* Beehive Exhaust 36 104 13 229 0.139 0.525 413-906 99-66 Intake 18 100 36 234 0.170 0.525 No Factory **527TC** 413-907 '07-Up Exhaust 42 106 12 234 0.138 0.525 Yes* Beehive 413-910 99-66 20 100 42 242 0.180 0.557 No Intake 557TC 538-111 413-911 '07-Up 44 104 242 0.164 0.557 Exhaust 18 Yes 99-06 97 246 0.200 413-925 Intake 25 41 0.575 Yes (CVO) 575TC 538-111 413-926 '07-Up Exhaust 49 105 17 246 0.157 0.575 Yes 99-06 25 252 0.214 0.577 413-920 Intake 100 47 No 577TC 538-111 413-921 '07-Up Exhaust 49 104 23 252 0.194 0.577 No 413-927 99-06 30 100 260 0.240 0.625 No Intake 50 627TC 528-972 No 413-928 '07-Up Exhaust 61 107 27 268 0.207 0.600 99-06 264 0.211 0.647 413-930 Intake 26 106 58 No 647TC 528-972 413-931 '07-Up 58 106 26 264 0.211 0.647 No Exhaust 413-940 99-06 Intake 27 99 45 252 0.227 0.657 No 657TC 528-972 413-941 '07-Up Exhaust 52 104 27 259 0.214 0.650 No 0.285 0.727 Intake 35 105 281 No 413-950 '99-'06 **727TC** 528-927 Exhaust 281 0.269 0.727 67 112 34 No

Andrews Cams For Twin Cam[®] Engines

Andrews cams for Twin Cam® engines are available for chain drive or gear drive. Chain drive sets are designed for use with splined drive gears only (1999 models require splined drive gear # 416-015). Gear drive cams are sold "bare", without gears; order gear drive gears separately. Always replace cam bearings when installing new cams.

*Note - For 2006 FXD engines, order 2007-up style cams

heavy bikes, stock compression ratios and stock pistons HP - torque at mid and upper RPM's (2600-6200). (1700-4800 RPM).

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Andrews 21H Cams '07-up	#416-321S	#416-321G
Andrews TW21 Cams '99-'06*	#416-121S	#416-121G

AP 26: Bolt-in cam: 88-95 inches and stock compression ratio. Great for two up touring, this cam will add torque and HP at lower and middle RPM ranges (1800-5200 RPM).

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Andrews 26H Cams '07-up	#416-326S	#416-326G
Andrews TW26 Cams '99-'06*	#416-126S	#416-126G

AP 31: Great cam for motors with 95 inches and 9.8 to 10.2 CR. Lower TDC lift for easy installation. Similar to 37 with different timing (2400-5600 RPM).

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Andrews 31H Cams '07-up	#416-331S	#416-331G
Andrews TW31 Cams '99-'06*	#416-131S	#416-131G

AP 32: High lift version of 31H. Much more power thru RPM range with 10:1+ compression pistons (2800-5600 RPM).

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Andrews 32H Cams '07-up	#416-332S	#416-332G
Andrews TW32 Cams '99-'06*	#416-132S	#416-132G

AP 37: Hot street cams for 88 or 95 inches. 80+ rear wheel HP possible with well tuned 88 incher, more with 95. Smooth idle, broad torque (2200-5600 RPM) 9.0 to 9.5 CR.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Andrews 37H Cams '07-up	#416-337S	#416-337G
Andrews TW37 Cams '99-'06*	#416-137S	#416-137G

AP 50: Designed for easy installation in 95 inch motors with stock heads and 9.5 to 9.8 CR. (2400 to 6000 RPM).

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Andrews 50H Cams '07-up	#416-350S	#416-350G
Andrews TW50 Cams '99-'06*	#416-150S	#416-150G

AP 54: Specially designed for 96 & 103 engines with CR up to 10:1 (2200-5600 RPM range).

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Andrews 54H Cams '07-up	#416-354S	#416-354G
Andrews TW54 Cams '99-'06*	#416-154S	#416-154G



AP 21: Bolt-in cam: More torque for all around riding with AP 55: Great cam for 95 inch engines with 9.8 to 10.2 CR. Max

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Andrews 55H Cams '07-up	#416-355S	#416-355G
Andrews TW55 Cams '99-'06*	#416-155S	#416-155G

AP 59: Great cam for 95-107+ inchers with 10:2 C.R. or higher. Max torque and HP (2700-6500+ RPM).

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Andrews 59H Cams '07-up	N/A	#416-359G
Andrews TW59 Cams '99-'06*	N/A	#416-158G

AP 64: Big cams for modified 95-116+ inch motors running 10:2 CR or higher. Heads must be set for .700 lift and modified for max air flow (3000-6500+ RPM).

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Andrews 64H Cams '07-up	N/A	#416-364G
Andrews TW64 Cams '99-'06*	N/A	#416-164G

AP 67: Performance cams for 95-107+ inches, 10.0 to 10.8 C.R. with high flow head setup (2600-6400+ RPM).

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Andrews 67H Cams '07-up	#416-367S	#416-367G
Andrews TW67 Cams '99-'06*	N/A	#416-167G

Andrews Cams for Twin Cam®

Ne-calculate the rigures it using higher ratio rocker airris.							
Cam Model	Valve		Timing : @0.053	Duration	TDC Lift @ Valve	Valve Lift	Spring Spacing?
AP 21	Intake	10	30	220	0.134	0.498	No
A. 2.	Exhaust	40	8	228	0.121	0.498	Bolt-In
AP 26	Intake	11	35	226	0.138	0.490	No
AF 20	Exhaust	41	9	230	0.120	0.490	Bolt-In
AP 31	Intake	10	46	236	0.131	0.510	No
AF JI	Exhaust	52	8	240	0.120	0.510	Bolt-In
AP 32	Intake	10	46	236	0.131	0.570	No
AF JZ	Exhaust	52	8	240	0.120	0.570	Bolt-In
AP 37	Intake	18	38	236	0.174	0.510	No
AP 31	Exhaust	46	14	240	0.148	0.510	Bolt-In
AP 50	Intake	20	48	248	0.184	0.510	No*
AF JU	Exhaust	54	18	252	0.168	0.510	CK TDC
AP 55	Intake	22	46	248	0.197	0.550	Yes*
AF JJ	Exhaust	52	20	252	0.181	0.550	0.620" F.T.
AP 60	Intake	24	56	260	0.205	0.560	Yes*
AF 00	Exhaust	58	22	260	0.192	0.560	0.620" F.T.
AP 54	Intake	16	42	238	0.165	0.555	Yes*
AF J4	Exhaust	43	15	238	0.158	0.555	0.615" F.T.
AP 67	Intake	24	48	252	0.165	0.570	Yes*
A. 07	Exhaust	58	22	260	0.158	0.570	0.630" F.T.
AP 59	Intake	29	57	266	0.238	0.590	Yes*
AP 59	Exhaust	63	27	270	0.218	0.590	0.650" F.T.
AP 64	Intake	30	62	272	0.262	0.640	Yes*
AF 04	Exhaust	66	30	276	0.232	0.640	0.700" F.T.

*Valve-to-piston and valve-to-valve clearances must be verified on

Red Shift® Quick-Change Cam Kits

Want to stay 96", or already 103" and just want to change cams? Zipper's Red Shift® Cam Kits are available with our most popular grinds: Red Shift® 525's, 527's, and 575's. The part numbers listed below include Red Shift® cams, Torrington® cam bearings, and a James cam change gasket set – everything you need for a quick cam swap! (575 Kit includes Pro-Taper pushrods)

Recommended: Use with Red Shift® Dual Piston Cam Chain Tensioners for improved cam chest component reliability, maximum throttle response, and reduced valve train noise.

Part No.	Cam Zip Kits for 2007-Up Twin Cam® Engines
#517-305	Red Shift® 525 Zip Kit: Includes Cams, Gaskets, Cam Bearings
#517-307	Red Shift® 527 Zip Kit: Includes Cams, Gaskets, Cam Bearings
#517-310	Red Shift® 575 Zip Kit: Includes Cams, Gaskets, Pushrods, Cam Bearings

S&S® Cam Gear Drive Kit

S&S's Gear Drive kit for Twin Cam® engines replaces the factory cam chain drive with inner and outer gear sets. Decreases drag and torsional load on the camshaft bearings, and eliminates chains, tensioners and guides that will eventually wear out over time. Because the factory chain drive has some slack inherent in its design, there are variations in cam timing that can lead to power losses, especially when high lift cams and performance valve springs are installed. Requires camshafts specifically designed for gear drives (sold separately). Over- and under-size gears are available for custom fitment of gear lash if desired.

'99-'06*	'07-UP	DESCRIPTION
#416-908 N/A *2006 FXD En	#416-691	4-pc inner/outer drive gears w/hardware Gear drive installation/oil port blocking kit -Up Gears
#416-903 #416-905 #416-906 #416-907 #416-901 #416-902 #416-909	#416-303 #416-305 #416-306 #416-307 #416-901 #416-902 #416-909	2-pc outer drive gears only w/hardware 2-pc inner drive gears only w/keys Undersize rear cam inner drive gear only Oversize rear cam inner drive gear only Undersize pinion (crankshaft) drive gear only Oversize pinion (crankshaft) drive gear only Replacement key set for gear drive gears



Cam Drive Gears for TC Engines

#416-323 Andrews 17T \$\bar{4}^\circ\$ offset cam drive sprocket for 2007-up TC engines. Alters cam timing plus or minus 4°, depending on installation orientation.

#450-734

Torrington[®] Cam Bearings



New cam bearings should be installed with any camshaft change. These convenient kits include Torrington® brand, full compliment inner bearings. For '99-'06 engines, choose inner bearings only or inner/outer kits with cam snap ring.

PART NO. DESCRIPTION

171111	BEGGINI HON
#417-460	'07-up (&'06 FXD) TC inner Torrington® bearing set
#630-974	'99-'06 TC (exc.'06 FXD) inner Torrington® bearing set
#417-450	'99-'06 TC (exc.'06 FXD) bearing I/O kit/chain drive cams
#417-455	'99-'06 TC (exc.'06 FXD) bearing I/O kit/gear drive cams
#758-993	JIMS® inner cam bearing puller for TC '07-up & '06 FXD
#758-279	JIMS® inner cam bearing puller for '99-'06 (exc. '06 FXD)
#758-787	JIMS® inner cam bearing installer for All Year TC
#758-277	JIMS® cam remover/installler, '99-'06 TC (exc. '06 FXD)
#758-280	JIMS® outer cam bearing puller. '99-'06 (exc. '06 FXD)



120"

Twin Cam[®] Primary Cam Sprocket Spacers

Use sprocket spacers to align the primary cam sprocket with the pinion shaft sprocket when installing new cams in a Twin Cam[®].

<u>'07-UP CAM SPROCKET SPACERS, EACH</u> .100" #450-729 .110" #450-731 .130" #450-736 .140" #450-737

.130	#450	-730	. 140	#450-757	.150	#450-750
#450-	726	"07-up C	am Spr	ocket Spacers	, Set of 6 (.100"150")

'99-'06 CAM SPROCKET SPACERS, EACH

.287" **#450-722** .297" **#450-723** .307" **#450-721** .317" **#450-719** .327" **#450-717**



#450-700 '99-'06 Cam Sprocket Spacers, Set of 5 (.287" - .327)

Cam Chest / Oil System Upgrades

Red Shift® Cam Chain Tensioners

Red Shift® Dual Piston Cam Chain Tensioners are a must-have for all 2007-up Twin Cam® performance applications. Red Shift® Cam Chain Tensioners are a direct-replacement product designed to improve cam timing accuracy and valve train control at two critical key areas - the drive and driven cam chains on all 2007-up engines. Red Shift® Cam Chain Tensioners are designed with shoe and hydraulic stability in mind, dramatically improving overall valve train control and durability. Patent # 8,535,187

Part No.	Description
#413-901	Fits all '07-up Big Twin engines, '06 FXD engines, and all '99-'06 TC® engines converted to hydraulic tensioner systems

Red Shift® Cam Chain Tensioners w/Axtell Oil Bypass Valve Kit #620-103 for all H-D® & S.E.® Cam Plates



This is a new product designed and developed by the Axtell Mountain Motor team. This bypass valve consists of a precision-machined "needle and seat" that inserts in place of the factory oil pressure relief valve located within the Twin Cam® cam plate. With the factory OEM oiling system configuration, when oil pressure becomes excessive, it is bypassed from the high pressure side of the feed gerotor back to the low pressure side, "looping" the oil in the feed gerotor gears. This causes the introduction of air into the pressurized oil (aeration) - aerated oil is foamy and spongy, and results in lower oil pressure and volume. When this occurs, the entire oiling system if affected - engine heat and noise builds, piston oilers shut down sooner than designed, valve train and top end life is shortened. This system blocks the factory port back to the feed side of the pump and directs the bypassed oil into the cam chest. The scavenge side of the oil pump returns the excess oil to the oil tank and eliminates the oil "looping" and its negative effects.



Read More on Page 4.2

With the Axtell valve you can expect higher, more stable oil pressure at all engine rpms, longer oil life due to reduced oil shear, lower oil and engine temperature, improved valve train control and reduced noise. Zipper's recommends this for use with our Red Shift® Dual Piston Cam Chain Tensioners. Fits all factory H-D® and Screamin' Eagle® cam plates. Patent Pending #61/693,612

Part No.	Description
#620-103	Axtell Bypass Valve for All Harley-Davidson® and Screamin' Eagle® Brand Twin Cam® Cam Plates
#413-902	Red Shift® Cam Chain Tensioners w/Axtell Oil Bypass Valve Kit #620-103 for all H-D® & S.E.® Cam Plates



Baisley's vs. Stock

Baisley Precision-Ground Bypass Plunger

#626-010 The factory-installed plunger valve does not have a concentric taper where the valve seats on the cam plate bypass passage and is known to leak pressure at lower engine rpm's. Baisley's Precision-Ground Oil Pressure Relief Valve has a concentric taper that is designed to improve sealing and oil pressure below the blow-off point, enhancing and stabilizing oil pressure to critical engine components. Fits all Twin Cam® engines

#626-010



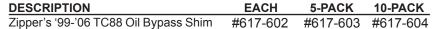
Oil Pressure Relief Valve Springs

A. Baisley Hi-Performance LMR-2: 6.2 lbs of Seat Force, 14.2 lbs fully compressed Baisley springs offer increased seat pressure and overall spring force. Baisley springs operate in a progressive manner, and are precision ground to exact lengths. **#626-002**

B. Baisley Hi-Performance LMR-4: 7.0 lbs of Seat Force, 16.7 lbs fully compressed Baisley Hi-Performance springs operate in a progressive manner, and are precision ground to exact lengths. LMR-4 is best for use in large displacement engines with upgraded oil pumps and aggressive cams. **#626-004**

Zipper's '99-'06 Twin Cam[®] Oil Bypass Shim

The TC engine features an oil pressure bypass passage within the cam support plate that is controlled by a spring-loaded plunger. Inconsistencies in 1999-2006 spring length and passage machining can cause the plunger to open prematurely and/or not fully close the passage, resulting in a loss of critical oil pressure and volume at lower RPM's. This shim assures proper spring pre-load, improving oil pressure and volume.





TC Cam Tools

Zipper's TC Cam Relief Tool

Installing high lift cams in an early Twin Cam® engine means you'll have to do some clearance work to the case around the pinion bearing boss and lower tappet bores for cam lobe swing. Our cam clearance tool makes this a quick and easy job! Designed to bolt to the case and powered by a drill motor, this tool quickly machines the case for clearance. Available with single or twin cutting spindles.

PART NO.	APPLICATION
#713-905	Zipper's '99-'06 TC88 cam tool, single spindle
#713-906	Zipper's '99-'06 TC88 cam tool, dual spindle (Works twice as fast!)
#713-903	Replacement cutter bit



Feuling® Twin Cam® Bypass Valve Checking Tool

This pressure test tool is a must for any engine builder. Easily bench tests the cam plate bypass valve for proper sealing when closed, pop-off pressure PSI and re-seat pressure. Bypass valve sealing is critical for proper low RPM oil pressure and assures oil flow to critical high pressure components such as lifters, pushrod/rocker arm seats and bushings and valve tips. #772-910

Feuling® Bypass Plunger Removal Tool

#772-900 This tool makes for easy removal and installation of the pressure relief spring, bypass valve and roll pin in the Twin Cam®

cam plate. The tool is used to hold the relief spring down and away from the roll pin.

Feuling® Crankshaft **Runout Tool**

#772-015 This tool attaches to the disassembled cam chest of any Twin Cam® engine and measures pinion shaft runout using an attached dial indicator.



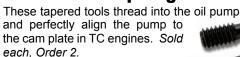
JIMS® Cam/Crank Sprocket Lock Tool



This precision tool allows the technician to lock the camshaft and crankshaft sprockets to properly remove, replace, and torque the sprocket bolts. The tool is made from non-marring Delrin.

'07-Up TC #758-994 '99-'06 TC #758-285

JIMS® Oil Pump Alignment Tools



All Years #758-443



'07-Up TC #758-993 99-'06 TC #758-279

JIMS® Camshaft Remover and Installer



This multi-function tool will remove and replace front and rear camshafts in the '99-'06 Twin Cam. It provides the precision alignment of the camshaft to ensure a smooth press in and out of the support plate.

'99-'06 TC #758-277

JIMS® Inner Cam Bearing Installer Tool

This tool will install the two inner cam needle bearings in the case. It perfectly aligns to the shaft bores for a precision press fit.

Twin Cam®, All Years #758-787



JIMS® Cam Assembly Stand '07-Up

#758-990 This tool holds the cams in nonmarring material to ease cam timing, and includes guides for cam plate assembly.



JIMS® TC Cam Chain Tensioner Tool



This tool will unload the spring pressure on the primary and secondary chain tensioners to assemble and disassemble cams.

For '99-'06 TC #758-283



JIMS® Cam Bearing Puller

Once the camshafts are removed from the support plate, this specialty tool will 6 remove the bearing from the camshaft.

Unlike a general-purpose puller this tool was designed to remove the bearing straight with no slipping or binding.

'99-'06 TC #758-280

How to Order Red Shift® Cams for Sportsters®

Red Shift Sportster® and Buell® cams can be ordered two ways. You can provide Zipper's your original cam gear set (A) from your engine, and we will remove the factory stock lobes (B) and replace them with new, hand-timed Red Shift lobes ground from 8620 steel billet (C). H-D® had gone to great pains to tighten gear lash on pre-2000 engines, using literally hundreds of cam gear sizes to match manufacturing differences during engine mass production. Installing the Red Shift lobes on the factory gear set retains this precise fitment.

If no cores are available or you do not want to wait (in-house production time is usually 2-3 weeks), you can order your cams installed on our new gear cores. Our cam gears feature a keyed drive to prevent gear slippage in severe applications, and are available with the #2 drive gear in the pre-2000 wide pitch design (D) or in the fine pitch used in 2000 and later engines (E).

Performance Notes: Any camshaft above .600" of lift on factory cores will require the press-fit #2 drive gear to be welded (F) to prevent rotation (Zipper's new gear cores use a keyway on the #2 drive gear (G) to prevent rotation and do not require welding). Red Shift Sportster® cams can be timed and shipped un-welded, giving the performance engine builder final control of desired cam timing. This is required for any aftermarket 4-cam cases and recommended for all-out competition engines, due to manufacturing variations in case and component production. Early XR-style intake and exhaust patterns can be easily adapted. Call or write with your special requests.

The one thing that the following cam grinds have in common is that they usually service engines that will be run hard! For these cams to be able to deliver maximum output reliably, consideration must be given to the entire valve train especially



in the area of the lifters and valve springs. The lifters in 5-speed XL® engines use guide pins against a flat area on the lifter body to control lifter rotation within the bore; they are tricky to modify properly for high lift cams and are prone to rotation in the bore. The stock lifters in '91-'99 engines should be replaced with units that are designed for increased lift and improved cam following such as JIMS® PowerGlide II lifters. A Zipper's Tappet Pin kit must be used on 'L94-'99 engines. Engines that will see RPM above 6,000 require stiff pushrods and heavier valve springs with titanium collars to reduce valve train weight and maintain valve control. Once control is lost, performance suffers and expensive parts get beat up in a hurry. Before making your purchase, think of the cams as only part of your valve train system. Contact us if you need help selecting the other supporting components. See page 4.12 for more componets and information.

Red Shift® Application Matrix for 1986-Up Sportster® Engines

		1991- ()	Up 5 Spo KL, XB &	ed Evo XR1200	lution))	1986-1990 4 Speed Evolution			
Displacement		883cc	1200сс	88"	99"	1200сс	88"	99"	100"
Bor	е	3.000"	3.500"	3.812"	3.812"	3.500" 3.812" 3.812" 4.000			4.000"
Stro	ke	3.812"	3.812"	3.812"	4.312"	3.812" 3.812" 4.312" 4.0		4.000"	
Modified Street PUMP GAS.	Balanced TQ/HP		567 or 575	605/591 or 630/585	605/591 or 630/585	573	615	625	615
Modified Heads & Increased Compression	Big HP		585	643	643	573	625	723	723
Race Only	Balanced TQ/HP	567	585 or 643	605/591 or 630/585	605/591 or 630/585	615	625	625	625
& High Compression	Big HP	585 or 643	643 or 729	643 or 729	643 or 729	625	723	723	723

Red Shift® Cams for 5 SP EV/XB/XR Sportsters®

These engines have on-center tappets (tappet centerline in line with cam shaft centerline) Most of our 5-speed XL cams require some clearance work to swing clearly in the engine case. This can be accomplished with our cam clearance tool (#713-908) for a very professional result. 2000 and later models require more extensive clearancing of the case and pinion bearing race. Most models will also require rocker box clearancing for the rocker arms on the pushrod side at full lift. Must be used with adjustable pushrods.

567V2: This extremely popular grind is used in our Super Hammer 1200 kit, produces the widest powerband available for the 5-speed 1200 engine! Narrow TDC lift for uncomplicated head set-up; excellent low end power and with great acceleration. RPM to 7200+ with proper set-up. Optimum performance with 9.8+:1 compression. Case clearancing required.

DESCRIPTION	ON YOUR CORES	S ON NEW CORES
For '91-up XL engines	#413-115	#413-115NC
For '02-up XB engines	#413-115XB	#413-115XBNC
For '08-up XR engines	#413-115XR	#413-115XRNC

<u>575V2:</u> New design for hot rod 1200 XL-XR engines. More low end/mid range torque than 567 cams; max power to 6500. Bolts in late model XL-XR engines with factory conical springs (2005-up), however, spring and retainer upgrade is required for high rpm use. Case clearancing required.

DESCRIPTION	ON YOUR CORES	ON NEW CORES
For '91-up XL engines	#413-117	#413-117NC
For '02-up XB engines	#413-117XB	#413-117XBNC
For '08-up XR engines	#413-117XR	#413-117XRNC

585V2: Performance grind designed for 78"-88" engines. Good manners with great mid-range and top end power in big bore engines. Works very well in big bore Buells and S&S 79" Hot Set Up engines. Requires cam lobe to case clearancing, quality lifters and valve springs.

DESCRIPTION	ON YOUR CORES	S ON NEW CORES
For '91-up XL engines	#413-120	#413-120NC
For '02-up XB engines	#413-120XB	#413-120XBNC
For '08-up XR engines	#413-120XR	#413-120XRNC



Red Shift Cams for 5 Speed XL

All numbers are calculated using stock rocker arm ratios. Re-calculate the figures if using higher ratio rocker arms.								
Cam Model	Valve		ke Tir ust @	ming 0.053	Duration	TDC Lift @ Valve	Valve Lift	Bolt-In?
567V2	Intake	24	101	49	253	0.211	0.567	Yes '04-Up
307 42	Exhaust	54	108	19	253	0.172	0.567	No '91-'03
575V2	Intake	26	96	38	244	0.204	0.575	Yes '04-Up
3/342	Exhaust	44	102	20	244	0.172	0.575	No '91-'03
585V2	Intake	22	108	59	261	0.183	0.583	No
30342	Exhaust	66	117	13	259	0.139	0.583	INU
605/	Intake	30	100	50	260	0.228	0.605	No
591V2	Exhaust	56	112	32	268	0.228	0.591	INU
630/	Intake	26	95	40	246	0.224	0.630	No
585V2	Exhaust	59	108	21	260	0.181	0.583	1 100
643V2	Intake	28	104	62	270	0.235	0.643	No
043VZ	Exhaust	71	116	19	270	0.172	0.643	1 110
729V2	Intake	34	104	65	279	0.279	0.729	No
12342	Exhaust	71	112	28	279	0.228	0.729	INO

605/591V2: Combination grind for big torque output with great low speed street manners, for 79-88" engines. Strong power in the 3,000-6,500 RPM range. Engines should have between 9.5-10.5:1 compression, good flowing heads, and a high quality exhaust.

DESCRIPTION	ON YOUR CORE	S ON NEW CORES
For '91-up XL engines	#413-126	#413-126NC
For '02-up XB engines	#413-126XB	#413-126XBNC
For '08-up XR engines	#413-126XR	#413-1126XRNC

<u>630/585V2:</u> Combination grind for high torque output in 79"- 88" engines. Really pulls down low to accelerate very quickly in the twistys. Strong power in the 2,200-6,000 RPM range. Engine should have 9.5-10:1 compression and good flowing heads.

DESCRIPTION	ON YOUR CORES	S ON NEW CORES
For '91-up XL engines	#413-127	#413-127NC
For '02-up XB engines	#413-127XB	#413-127XBNC
For '08-up XR engines	#413-127XR	#413-127XRNC

643V2: High output cams for 79"-99" competition engines. 11:1 compression needed for best results. Will deliver 7000+ RPM power with high breathing heads. Lower TDC lifts to reduce chamber volume in heads for ease of installation. Requires cam lobe to case clearancing, quality lifters and high quality valve springs.

DESCRIPTION	ON YOUR CORES	S ON NEW CORES	_
For '91-up XL engines	#413-130	#413-130NC*	
For '02-up XB engines	#413-130XB	#413-130XBNC*	k
For '08-up XR engines	s #413-130XR	#413-130XRNC	
*2000 and later engines re-	quire the purchase	of 1991-1999 pinior	7
drive gear for these cams.			

<u>729V2:</u> Dragster cams for 5 speed XL engines, and aftermarket cases with on-center tappets, 88" and up. Designed for max output of torque and HP. Requires high compression (12:1 min), case clearancing, tappet modifications, Pro Geometry roller rockers in 1.62 or use 1.75 to 1.85 rockers for more lift.

DESCRIPTION	ON YOUR CORES	S ON NEW CORES
For '91-up XL engines	#413-135	#413-135NC*
For '02-up XB engines	#413-135XB	#413-135XBNC*
*2000 and later engines re-	quire the purchase	of 1991-1999 pinion
drive gear for these cams.		



Red Shift® for 4 SP EVXL® / Ironhead / XR1000® 1986-1990 EV XL and 4 Cam Offset Tappet Engines

These engines have off-center tappets (tappet centerline offset from cam shaft centerline).

573V2: Back by popular demand! Hard charging cams for high output 1200 engines with oversize valves, ported heads, increased compression and performance intake and exhaust. Can also be used for higher torque in 79-88" engines.

DESCRIPTION ON YOUR CORES ON NEW CORES
For '86-'90 XL engines #413-615 #413-615NC

<u>615V2:</u> High lift and narrow lobe profile, for high output big bore engines. Run with 10.5-11:1 compression on pump gas. Excellent balance of torque and horsepower.

DESCRIPTION ON YOUR CORES ON NEW CORES
For '86-'90 XL engines #413-618 #413-618NC

625V2: The best cam for 88" - 89" hot street engines is back! Works well in larger engines too. Broad power range with great dynamics. Widely used in hot street / strip applications.

DESCRIPTION ON YOUR CORES ON NEW CORES
For '86-'90 XL engines #413-620 #413-620NC

<u>723V2:</u> Most popular design for Sportsman dragsters (88" and up), broad valve timing and big lift for maximum torque and high RPM horsepower. Excellent dynamics for valve control and longevity.

<u>DESCRIPTION</u> <u>ON YOUR CORES</u> <u>ON NEW CORES</u> For '86-'90 XL engines #413-635 #413-635NC



785V2: Offset tappet design - the original design of the venerable XL Pro-Stock-Top Gas Cams. This same profile has been used in many championship forms of racing. Net tappet lift is .485"; .785"@ valve with 1.62 rocker ratio. Increase rocker ratio for more valve lift.

DESCRIPTION ON YOUR CORES ON NEW CORES
For '86-'90 XL engines #413-642 #413-642NC

786V2: This profile will allow tuning for increased power and torque over the previous 785 off-center design. Increased valve train stability of this design requires extra-stiff pushrods but allows substantial reduction in valve spring pressure compared to other cams in this class. Baisley Pro-Geometry rocker arms recommended (increase ratio for more lift).

DESCRIPTION ON YOUR CORES ON NEW CORES
For '86-'90 XL engines #413-640 #413-640NC



	Red Shift Cams for 4 Speed XL All numbers are calculated using stock rocker arm ratios. Re-calculate the figures if using higher ratio rocker arms.										
Cam Model	Valve	Intak Exhau	ce Tir ust @		Duration	TDC Lift @ Valve	Valve Lift	Bolt-In?			
573V2	Intake	25	105	55	260	0.215	0.575	No			
37342	Exhaust	65	115	15	260	0.157	0.575	140			
615V2	Intake	28	103	58	266	0.225	0.615	No			
0.012	Exhaust	59	106	25	264	0.207	0.615	110			
625V2	Intake	32	103	58	270	0.250	0.625	No			
02312	Exhaust	62	107	28	270	0.228	0.625	140			
723V2	Intake	39	105	62	281	0.284	0.723	No			
72342	Exhaust	75	116	25	280	0.207	0.723	140			
785V2	Intake	27	112	71	278	0.237	0.786	No			
103VZ	Exhaust	78	119	20	278	0.190	0.786	110			
785V2	Intake	28	111	72	280	0.219	0.787	No			
70342	Exhaust	78	119	20	278	0.183	0.787	140			

1957-1985 Iron Sportsters® and 1983-1984 XR1000®

These engines have off-center tappets (tappet centerline offset from cam shaft centerline).

505XL/520XR: Performance cams for 61-74" Iron Sportster® engines (can also be configured for XR1000 engines). Compliments ported heads, increased compression, high flow carb and exhaust. Extra-wide powerband with great dynamics.

 DESCRIPTION
 ON YOUR CORES

 505XL: For '57-'85 XL engines
 #413-710

 520XR: For XR1000 engine
 #413-310

550XL/570XR: Street/strip cams for 74" and larger stroker Sportsters. Broad power in mid and upper range, very strong top end pull. Minimum case machine work required in '77 & later engines.

 DESCRIPTION
 ON YOUR CORES

 550XL: For '57-'85 XL engines
 #413-715

 570XR: For XR1000 engine
 #413-315

	Red Shift Cams for Ironhead XL & XR1000 All numbers are calculated using stock rocker arm ratios. Re-calculate the figures if using higher ratio rocker arms.									
Cam Model	Valve		ke Tir ust @	ming 0.053	Duration	TDC Lift @ Valve	Valve Lift	Bolt-In?		
505XL	Intake Exhaust	25 65	105 115	55 15	260 260	0.188 0.138	0.505 0.505	No		
550XL	Intake Exhaust	32 62	103 107	58 28	270 270	0.220 0.200	0.550 0.550	No		
520XR	Intake Exhaust	25 65	105 115	55 15	260 260	0.194 0.143	0.520 0.520	No		
570XR	Intake Exhaust	32 62	103 107	58 28	270 270	0.228 0.207	0.570 0.570	No		

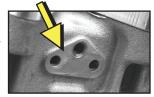
Sportster® Cam Drive Gears

These gears can be used to convert 2000 and later, high-contact cam drive gears to the pre-2000, wide teeth stronger versions used from 1991-1999. #2 drive gear is un-keyed and requires timing to be set in an engine base with a degree wheel, then welded to the shaft to prevent rotation in severe-duty applications.

PART NO.	DESCRIPTION
#416-200	#2 Cam driven gear, '91-'99 style
#698-162	"Blue" '91-'99 pinion drive gear (smallest)
#698-163	"Red" '91-'99 pinion drive gear
#698-164	"White" '91-'99 pinion drive gear
#698-165	"Green" '91-'99 pinion drive gear
#698-166	"Yellow" '91-'99 pinion drive gear (largest)

5-Speed XL Tappet Pin Kit

Pre-2000 5 Speed XL engines use a tappet guide pin to control tappet rotation in the tappet bore. In earlier engines ('91 to around mid-94), the guide pins were fully supported on both sides of the tappet bore by a hole drilled in the case. In later engines, the case was machined differently; the guide pin hole was not drilled as deep and the pin did not fully cross the tappet, contacting only a part of the flat machined on the tappet designed to control tappet rotation. In high lift and/or high



RPM applications, the tappet can be allowed to rotate as much as 5 degrees, resulting in premature tappet failure and cam damage. Our tappet pin kit includes 4 longer hardened pins and a drill bit to correct this problem. The engines in question can easily be identified by studying the photo shown. If the flat area under the cover plate is raised as shown (not recessed), you should perform this task.

PART	NO.	DESCRIPTION

#413-091 Red Shift Tappet Pin Kit, 'L94-'99 5 speed XL's



Andrews Evolution® Sportster® Cams

These cams DO NOT fit XR1200 engines.

V2/N2: Bolt in cams for stock 883, 1100 or 1200 engines. More V6/N6: Modified 1200s to 80 inches and/or high compression springs and hydraulic lifters recommended. 2000-6000 RPM.

DESCRIPTION	'86-'90	'91-'99	2000-UP
Andrews V2/N2 Cams	#416-120	#416-125	#416-129

Street/drags: Stock or modified 883/1100/1200. Slightly higher idle speed but stock springs-hydraulic lifters are and hydraulic lifters. Same intake cam as N4 but more exhaust recommended. RPM range: 2000-6000.

DESCRIPTION	'86-'90	'91-'99	2000-UP
Andrews V4/N4 Cams	#416-140	#416-145	#416-149

duration and lift means extra power thru RPM range. Stock pistons. Stock springs and hydraulic lifters are recommended: RPM range: 2500-6800.

DESCRIPTION	'86-'90	'91-'99	2000-UP
Andrews V6/N6 Cams	#416-141	#416-143	#416-189

V8/N8: Modified 1100-1200, stroked 883's with stock springs cam duration. Great mid-range power: 2000-6500 RPM.

DESCRIPTION	'86-'90	'91-'99	2000-UP
Andrews V8/N8 Cams	#416-180	#416-185	#416-148

BV/NV: Hi-lift cams for 88+ inches. Adjustable pushrods, springs and collars required. BV/NV cams start easy and run strong; 2000-6000+ RPM with hydraulic lifters.

DESCRIPTION	'86-'90	'91-'99	2000-UP
Andrews BV/NV Cams	#416-265	#416-268	#416-272

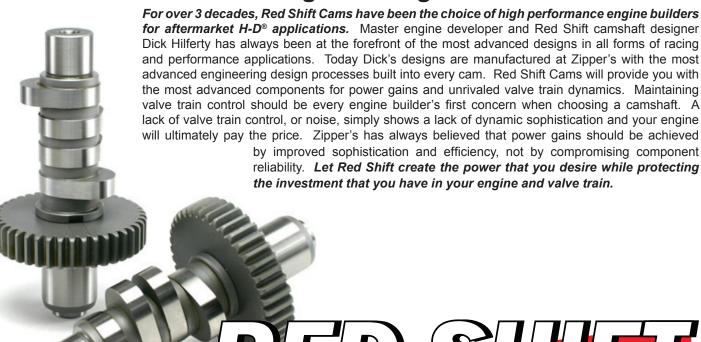
Andrews Iron Sportster® Cams

PB+: These cams work great as replacements for stock "P" cams and are a big improvement over the "Q" cams used in '80-'85 Sportsters®. They bolt in with no headwork and deliver a big increase in power across the board. Best torque will be made with a performance muffler pipe set.

DESCRIPTION	'57-'70	<u>'71-'80</u>
Andrews PB+ Cams	#416-040	#416-045
DESCRIPTION	'81-'E84	<u> 'L84-'85</u>

Andrews Cams for XL All numbers are calculated using stock rocker arm ratios. Re-calculate the figures if using higher ratio rocker arms.							
Cam Model	Valve	Intake Timing Exhaust @0.053		Duration	TDC Lift @ Valve	Valve Lift	Spring Spacing?
		E۱	OLUTION	- SPORTS1	TER®		
V2*/N2	Intake	22	38	240	0.180	0.465	No
	Exhaust	46	18	244	0.155	0.440	Bolt-In
V4/N4	Intake	30	46	256	0.216	0.490	Yes
V//14-1	Exhaust	52	24	256	0.189	0.490	103
V8/N8	Intake	32	44	256	0.226	0.490	Yes
70/110	Exhaust	56	28	264	0.212	0.500	103
V6/N6	Intake	24	50	264	0.241	0.500	Yes
70/110	Exhaust	56	28	264	0.212	0.500	165
BV/NV	Intake	35	59	274	0.260	0.590	Yes
DV/NV	Exhaust	59	35	274	0.260	0.590	165
	IRON - SPORTSTER®						
PB+	Intake	34	40	254	0.208	0.410	No
	Exhaust	43	31	254	0.208	0.410	Bolt-In

Red Shift® Cams for EV Big Twin Engines



PERFORMANCE

559V2: Our most popular performance cam for 80-88" Evolution engines, used in our 80/80 kit. Big, broad power from 2,200 to 6,000 RPM, this cam delivers an extra-wide torque curve that tops out at over 90 ft lbs of torque, HP in the mid to upper 80's. Designed to be used with 9.5 to 10:1 compression. Uncomplicated head set-up for .560" lift, minor case clearancing required.

 DESCRIPTION
 PART NO.

 Red Shift 559V2 '84-'99 EVBT Cam
 #413-413

576V2: This cam is designed for high output 80-88" EV engines, 10.5:1 and up. Aggressive torque and horsepower; with good heads will produce 105+ hp. Minor case clearancing necessary due to the larger base circle used to reduce pressure angle.

DESCRIPTION PART NO.
Red Shift 576V2 '84-'99 EVBT Cam #413-422

626V2: Torque cam for big bore/stroker engines, shifts optimum power to lower RPM range (2,200-5,500). Excellent choice for larger displacement engines in heavier bikes that will be operated at moderate RPM's. Case clearancing required.

DESCRIPTIONPART NO.Red Shift 626V2 '84-'99 EVBT Cam#413-427

647V2: Big motor horsepower cam. New dynamics matched for today's cylinder head technology yields excellent power increase throughout rpm range. Works best with 10.2 + compression on 100"+ cubic inch engines. Case clearancing required.

 DESCRIPTION
 PART NO.

 Red Shift 647V2 '84-'99 EVBT Cam
 #413-428

656V2: This cam is designed for maximum torque, yet produces excellent top end power in 96"-125" street engines. Ideal for use in heavier machines; a real stump puller! Requires moderate compression and uncomplicated head set-up; moderate TDC lifts make installation of this cam easy. Works best with 9.8-10+:1 compression. Case clearancing required.

DESCRIPTION	PART NO.
Red Shift 656V2 '84-'99 EVBT Cam	#413-442

790V2: Pro Gas dragster cam for big inch EV engines. Improved output and valve control, .790" lift with 1.62 rockers (increase rocker ratio for more lift.) Sophisticated profile delivers big power. TDC lift requires professional set up of cylinders heads and valve gear. Use with solid lifters only.

DESCRIPTION PART NO.
Red Shift 790V2 '84-'99 EVBT Cam #413-451

Pod Shift Come for Rig Twin EVO

All numbers are calculated using stock rocker arm ratios. Re-calculate the figures if using higher ratio rocker arms.								
Cam Model	Valve		ke Tir ust @	ning 0.053	Duration	TDC Lift @ Valve	Valve Lift	Bolt-In?
559V2	Intake	16	104	46	242	0.159	0.555	No
33372	Exhaust	47	106	15	242	0.154	0.555	INO
576V2	Intake	26	99	46	252	0.219	0.576	No
37342	Exhaust	47	102	25	252	0.203	0.576	INO
626V2	Intake	28	102	52	260	0.241	0.625	No
02042	Exhaust	58	107	27	265	0.204	0.600	INU
647V2	Intake	26	106	58	264	0.211	0.647	No
07/ V Z	Exhaust	58	106	26	264	0.211	0.647	INO
656V2	Intake	28	100	50	258	0.233	0.648	No
03042	Exhaust	52	104	26	258	0.219	0.648	
790V2	Intake	36	104	66	282	0.282	0.791	No
19042	Exhaust	66	106	36	282	0.280	0.791	No

Andrews Evolution® Big Twin Camshafts

Andrews Cams for Big Twin EVO Intake Timing Exhaust @0.053 Valve Cam TDC Lift Spring Duration Model @ Valve Lift Spacing? Intake 30 220 0.134 0.498 **EV 23** Bolt-In Exhaust 228 0.121 0.498 40 8 Intake 20 36 236 0.182 0.495 **EV 27** Bolt-In Exhaust 46 240 0.166 0.495 14 Intake 21 37 238 0.197 0.495 EV 3 Exhaust 43 15 238 0.159 0.495 0.207 Intake 41 246 0.495 EV 46* Bolt-In 49 17 246 0.163 0.495 Exhaust Intake 28 252 0.233 0.510 **FV** 51 Yes 22 **Exhaust** 54 256 0 195 0.510 28 48 256 0.236 0.560 Intake **EV** 59 Yes Exhaust 56 260 0.208 0.560 30 264 0.246 0.560 **EV** 72 Yes 0.230 Exhaust 60 28 268 0.560

EV 3: Bolt-in street cam for light bikes. Lots more mid-range and upper end power. Smooth idle; 2800 to 6500 RPM range cam with stock heads and springs.

DESCRIPTION	PART NO.
Andrews EV3 EV Big Twin Cam	#416-130

EV 23: Mild bolt-in street cam with more torque and horsepower for all around riding with stock compression ratio. Similar to stock early model Evo cam but with more output. Power range 1,800 -5,200 RPM. Can be used in carbureted and fuel injected engines. bolts in with no headwork.

DESCRIPTION	PART NO.
Andrews EV23 EV Big Twin Cam	#416-123

EV 27: Most popular bolt-in Evolution Big Twin cam, with faster opening and closing ramps for a broader torque curve. Wide power range, 2,000 to 5,500 RPM. Excellent choice as a stock replacement or mild performance cam for heavier touring or cruising bikes.

DESCRIPTION	PART NO.
Andrews EV27 EV Big Twin Cam	#416-127



EV 46: Bolt-in performance cam with fast open and close ramps. Longer duration increases top-end power and torque over the EV 3. Best with increased (9+:1) compression. Power range 2600 to 6000+ RPM.

DESCRIPTION	PART NO.
Andrews EV46 EV Big Twin Cam	#416-146

EV 51: Easy installation with longer duration for modified street engines with 10:1 compression or higher. Valve spring upgrade, hydraulic lifters OK (travel limiters recommended). Power range 3000-6500 RPM.

DESCRIPTION	PART NO.
Andrews EV51 EV Big Twin Cam	#416-151

EV 59: Fast ramps for modified 80-89 inch engines. Increased compression recommended. Broad power band to 6,000 RPM, hydraulic lifters OK. Performance spring kit a must.

DESCRIPTION	PART NO.
Andrews EV59 EV Big Twin Cam	#416-159

EV 72: For 92"+ performance engines. Increased compression, valve-to-valve (TDC) clearance work and performance valve springs required, hydraulic lifters w/limiters OK. 3,000-6,000 RPM.

DESCRIPTION	PART NO.
Andrews EV72 EV Big Twin Cam	#416-172

V-Thunder® Cams By Competition Cams

3010: This grind shines when used in a road machine that carries 3030: Performance cam for 80" engines, lighter bikes. Good mida heavy load. Strong low-end and mid-range power, where you range power and torque, pulls strongly to 6,000+ RPM. Heavier need it most in these applications. Bolts-in with no headwork.

DESCRIPTION	PART NO.
V-Thunder® EVL-3010 EVBT Cam	#428-301

bikes (Softails®) would benefit from increased compression for more low end power. Requires spring travel increase and heavier springs.

DESCRIPTION	PART NO.
V-Thunder® EVL-3030 EVBT Cam	#428-303

V-Thunder®Cams for Big Twin EVO All numbers are calculated using stock rocker arm ratios. Re-calculate the figures if using higher ratio rocker arms.

Cam Model	Valve		ke Tir ust @	ning 0.053	Duration	TDC Lift @ Valve	Valve Lift	Spring Spacing?
EVL	Intake	15	102	39	234	0.154	0.500	No
3010	Exhaust	39	102	15	234	0.154	0.500	Bolt-In
EVL	Intake	16	104	44	240	0.158	0.530	Yes
3030	Exhaust	44	104	16	240	0.158	0.530	163
EVL	Intake	22	104	50	252	0.187	0.510	Yes
3050	Exhaust	50	104	22	252	0.187	0.510	163

3050: Broader timing on this cam makes power in the higher RPM ranges in modified 80" engines; also works well in medium sized stroker/big bore engines. 10:1 compression is recommended for stronger low and mid-range.

DESCRIPTION	PART NO.
V-Thunder® EVL-3050 EVBT Cam	#428-305

Andrews Pan and Shovelhead Cams



Andrews Cams for Pan & Shovelhead

All numbers are calculated using stock rocker arm ratios.

Re-calculate the figures if using bigher ratio rocker arms.

The delication in lighted it doing higher ratio resider arms.									
Cam Model	Valve		Timing : @0.053	Duration	TDC Lift @ Valve	Lift Pan	Lift Shovel	Spring Spacing?	
J	Intake	21	41	242	0.154*	0.425	0.405	No	
,	Exhaust	41	21	242	0.154*	0.425	0.405	Bolt-In	
A2	Intake	19	43	242	0.156*	0.470	0.450	No	
AZ	Exhaust	50	18	248	0.142*	0.470	0.450	Yes ('80-'81)	
B2	Intake	26	50	256	0.187*	0.507	0.485	Yes	
BZ	Exhaust	53	25	258	0.176*	0.507	0.485	res	
#7	Intake	29	53	262	0.206*	0.535	0.510	Yes	
#1	Exhaust	59	27	266	0.186*	0.535	0.510	res	
_	Intake	37	61	278	0.234*	0.550	0.525	Voc	
· ·	Exhaust	61	37	278	0.234*	0.550	0.525	168	
С					0.00			Yes	

*Add 5% to posted TDC lift numbers for Panheads

<u>J:</u> Great stock replacement for Pans and Shovels. Smooth idle, more power throughout the RPM range. Bolts in with no headwork.

DESCRIPTION	'48-'69	'70-'77	'78-'84
Andrews J Cam	#416-011	#416-012	#416-013

<u>A2:</u> Updated version of the original A grind. Great performance upgrade for stock engines, a consistently popular choice. Boltsin with no headwork (except stock '80-'81 Shovel). Good overall power increase throughout RPM range. Hydraulic lifters OK. Best with 8:1+ pistons.

DESCRIPTION	'48-'69	'70-'77	<u>'78-'84</u>
Andrews A2 Cam	#416-260	#416-263	#416-267

B2: Very popular Shovel cam, strong mid- and top-end power, especially with dual plugs and 9.5:1 or higher compression. Use solid lifters or aftermarket performance hydraulics, and upgraded valve springs. Works well in 74/80 inchers and small stroker engines.

DESCRIPTION	'48-'69	'70-'77	'78-'84
Andrews B2 Cam	#416-351	#416-353	#416-358

#7: Upgraded version of the original #6 grind. Designed for 84-88" strokers, maximum torque available from 2200-6500 rpm.

DESCRIPTION	'48-'69	'70-'77	<u>'78-'84</u>
Andrews #7 Cam	#416-533	#416-536	#416-539

<u>C:</u> Power cam for big bore/stroker engines modified for maximum output. Power range 2200-7000 rpm with high flow heads and increased compression.

DESCRIPTION	'48-'69	'70-'77	'78-'84	
Andrews C Cam	#416-605	#416-610	#416-620	



V-Thunder® Cams for Shovelhead

All numbers are calculated using stock rocker arm ratios.

	ite-calculate the lightes it using higher fatto rocker arms.								
Cam Model	Valve		ke Tir ust @	ning 0.053	Duration	TDC Lift @ Valve	Valve Lift	Spring Spacing?	
SHV	Intake	17	104	45	242	0.147	0.485	Yes	
4020	Exhaust	45	104	17	242	0.147	0.485	103	
SHV	Intake	22	104	50	252	0.171	0.485	Yes	
4030	Exhaust	50	104	22	252	0.171	0.485	103	
SHV	Intake	17	104	45	242	0.147	0.485	Yes	
4040	Exhaust	50	104	22	242	0.171	0.485	163	

V-Thunder® Shovelhead Cams By Competition Cams

4020: Real nice cam for 74/80 inch engines with performance upgrades to the carb and exhaust systems. Excellent cruising power with crisp top end. We recommend a minimum of 8.5:1 compression, a valve spring upgrade, solid lifters or aftermarket hydraulics.

DESCRIPTION	'70-'77	<u>'78-'84</u>
V-Thunder® SHV-4020 cam	#428-421	#428-420

4030: Hot rod street cam for 74/80 inch Shovels. Fresh new profile delivers a wide, usable power and torque range, with a respectable top end pull. Solid lifters or aftermarket hydraulics, performance pipes and carb, headwork and 9.5:1 compression with dual plugs will have 'em watching your tailight!

DESCRIPTION	'70-'77	'78-'84
V-Thunder® SHV-4030 cam	#428-431	#428-430

4040: Good choice for hot rod 80"-86" Shovel engines with stock heads or minimal port work. Has broader exhaust timing to compensate for the low exhaust flow of the stock Shovel port. Increased compression and dual plugs, aftermarket hydraulic lifters recommended.

DESCRIPTION	'70-'77	<u> </u>
V-Thunder® SHV-4040 cam	#428-441	#428-440

Bearings and Cam Tools

Cam Shims

Installing a new cam generally requires re-setting the cam end play. These cam shims will help you get yours set right on the money!

PART NO.	BIG TWIN CAM SHIMS	
#448-550 #448-555	Cam shim set (.050"095", 10pcs), fits Big Twins Cam thrust plate w/ears '58-'94	
PART NO.	SPORTSTER CAM SHIMS	
#448-770	XL #1,3,4 cam shims, pk/10, .005"	
#448-769	XL #1,3,4 cam shims, pk/10, .007"	
#448-771	XL #1,3,4 cam shims, pk/10, .015"	
#448-773	XL #2 cam shims, pk/10, .005"	
#448-775	XL #2 cam shims, pk/10, .010"	
#448-778	XL #2 cam shims, pk/10, .015"	





Torrington® Cam Bearings for EVBT & XL® Engines

No cam should be changed without replacing the cam bearings. Failed inner cam bearings can lead to high repair costs! Replace them before they become a problem. These genuine Torrington® brand full-compliment (no inner cage) bearings are the best you can buy!

PART NO.	DESCRIPTION
#630-805	Each, Torrington® cam bearing, fits all Big Twins '58-'99
#630-400	Each, Torrington cam bearing, fits all XL's '57-'90 (each)

JIMS® Cam Bearing Puller

Use to remove inner cam bearings without splitting cases. Easily pulls bearing from the case; also keeps rollers from coming out during removal.

PART NO.	DESCRIPTION
#758-270	JIMS® cam bearing puller, fits all Big Twins '58-'99
#758-275	JIMS® cam bearing puller, fits all XL's '57-'90







Zipper's EV Cam Relief Tool

This tool was developed to make quick work of case machining when installing a high lift cam in a Big Twin single cam case, 1970-1999. Bolts to the case, uses the inner cam bearing to support the cutter spindle, has adjustable cutter diameter and threaded depth feed for precise control of the cut. Can be used on an assembled engine and does a much cleaner, professional job than a die grinder. Power it with a half-inch drill, or use it on an unassembled case in a milling machine. Makes a job everyone hates a lot easier and cleaner.

PART NO.	DESCRIPTION	
#713-902	Zippers cam relief tool, '70-'99 Big Twin	
#713-903	Replacement cutter bit	

Zipper's Sportster® Cam Relief Tool

Installing high lift cams in 5 speed Sportster and Buell engines usually requires the removal of some case material at the base of the lifter bores and around the pinion bearing for lobe swing clearance. Doing the job correctly required splitting the cases and a milling machine; a lot of work! This tool cuts clearance quickly and can be used on an assembled engine.

PART NO.	DESCRIPTION
#713-908	Zipper's '91-up XL, Buell XB cam relief tool (not XR1200®)
#713-909	Replacement cutter bit



Zipper's Performance Pushrods

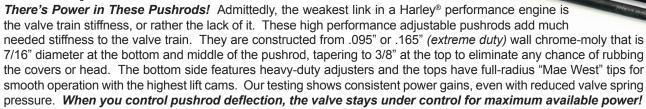
Zipper's TC 3/8" Diameter, .145" Wall Chrome Moly Pushrods

Strongest 3/8" straight-wall adjustable chrome moly pushrods we have! Unlike other 3/8" diameter pushrods, the pushrod and threaded adjuster section are machined from one piece of 145" thick-wall chrome moly. By not using an insert for the adjuster, the threaded portion remains a beefy 3/8" diameter, eliminating the chronic weak spot associated with 1/4" diameter inserts. The large diameter adjustable base and locknut provide ultimate stiffness; combined with the 3/8" diameter rod, pushrod tube rubbing is eliminated. We recommend these pushrods for use in Twin Cam® engines with stock beehive valve springs and bolt-in cams for precise valve train control.

PART NO. DESCRIPTION

#403-145 Set/4 Zipper's TC 3/8" diameter, .145" wall chrome moly pushrods

Zipper's Pro-Taper TC/XL Pushrods



PART NO.	DESCRIPTION
#403-088	Pro-Taper pushrods, all Twin Cam [®] , '91-up XL/XR/XB engines (set/4095" wall)
#403-165	Pro-Taper pushrods, all Twin Cam [®] , '91-up XL/XR/XB engines (set/4165" wall, extreme duty)

Zipper's Pro-Taper EV BT Pushrods

Our Pro-Taper pushrods are also available for the professional Evolution® engine builder who wants the stiffest adjustable pushrods available. The weakest link in an adjustable pushrod is the adjuster itself; keeping the pushrod adjuster as short possible helps maintain the highest resistance to deflection. For this reason we offer the Pro-Taper pushrods, sold each, in the fully collapsed lengths listed below so you can order exactly the lengths you need to keep the adjuster extension at a minimum, for maximum rigidity. Pushrods are chrome moly, .095" wall, 7/16" diameter at the bottom tapering to 3/8" at the top with a full radius rocker ball tip. Adjuster thread is 5/16" x 1.250" length, 32 TPI.

PART NO.	COLLAPSED LENGTH	PART NO.	COLLAPSED LENGTH
#403-105	Each, 10.500" Pro-Taper EV Pushrod	#403-112	Each, 11.250" Pro-Taper EV Pushrod
#403-106	Each, 10.625" Pro-Taper EV Pushrod	#403-113	Each, 11.375" Pro-Taper EV Pushrod
#403-107	Each, 10.750" Pro-Taper EV Pushrod	#403-115	Each, 11.500" Pro-Taper EV Pushrod
#403-108	Each, 10.875" Pro-Taper EV Pushrod	#403-116	Each, 11.625" Pro-Taper EV Pushrod
#403-110	Each, 11.000" Pro-Taper EV Pushrod	#403-117	Each, 11.750" Pro-Taper EV Pushrod
#403-111	Each, 11.125" Pro-Taper EV Pushrod		



Zipper's Cut-To-Fit Pushrods

Need custom length pushrods? These solid pushrods are made from heat treated .065" wall seamless 3/8" chrome moly tubing and are supplied with full radius "Mae West" tips (drilled for oil flow) for use with the highest lift cams. They are supplied extra-long with one end unfinished, to be custom fitted by the engine builder. Cut, drill end .250", ream 17/64", press in tip. Use with adjustable lifters or customize length for hydraulic lifter pre-load. Sold each!

Zip Tip: For the strongest valve train, when cutting pushrods to length for use with adjustable lifters, make them as long as possible.

PART NO.	DESCRIPTION
#413-210	Each, 11.5" max, fits TC, EV, Shovel
#413-213	Each, 13" max, fits TC, EV, Shovel

Zipper's Pushrod Measuring Tool

#713-901 Here's a simple way to determine the length pushrod you'll need when making custom length pushrods. Insert this telescoping dummy pushrod and expand it between the lifter and rocker arm seats, mark the length on the center stem and remove; set to the mark and measure for pushrod length required. *Quick and accurate!*

Zipper's Pushrod Covers & Cam Tools

Sportster® and Buell® Telescoping Pushrod Covers



Five speed Sportster® and Buell® engines require that you remove the cylinder heads and take off the one-piece pushrod covers to get to the pushrods, greatly complicating pushrod adjustments for tuning or maintenance when adjustable pushrods have been installed. These telescoping pushrod cover kits permit access to the pushrods without having to lift the heads. Pre-'04 XL and Buell XB kits include twin billet aluminum bases with special seals for the front and rear cylinders that replace the factory pushrod tube lower retainers. A full telescoping pushrod cover kit is included. The twin bases can be purchased separately if desired.



PART NO.	DESCRIPTION
#417-111	'04-up XL & XR1200 telescoping cover kit, stock length
#417-110	'91-'03 XL/Buell 1200 cover kit w/twin bases, stock length
#417-120	'91-'03 XL/Buell 1200 cover kit w/bases, w/long clips (strokers)
#417-115	'02-'10 Buell XB telescoping cover kit w/twin bases, stock length
#417-113	Buell Blast telescoping cover kit w/bases, stock length
#417-100	'91-'03 XL/Buell 1200 twin bases w/seals only
#417-105	O-ring and seal set for #417-100
#417-106	O-ring and seal set for #417-110, #417-120
#417-107	O-ring and seal set for #417-111
#417-108	O-ring and seal set for #417-115
#417-109	O-ring and seal set for #417-113

Zipper's Twin Cam[®] Pushrod Cover Set

#417-112 These telescoping pushrod covers have longer top clips and shorter lower tubes to allow more access to the adjusters on adjustable pushrods. You can adjust your pushrods using only two hands with these covers!



Rivera Taper-Lite™ Pushrods

Rivera's Taper-Lite™ pushrods are designed to be installed without rocker box disassembly, greatly reducing cam installation time. Light weight chrome moly rods (except Twin Cam® sets which are made from aircraft quality aluminum) are tapered for increased strength, and use a 3/8"-40 aircraft quality adjuster for rigidity. Adjuster length accommodates pushrod removal without engine disassembly. Strong and light!

•	, ,		
PART NO.	DESCRIPTION		
#480-000	Twin Cam [®] Taper-Lite™ pushrod set		Sign of the State
#480-100	EV Big Twin Taper-Lite™ pushrod set		Sept. William Sept.
#480-115	'91-up EV Sportster Taper-Lite™ pushrod set	-	#480-121 Includes special Taper-Lite™ pushrods, solid
#480-110	'86-'90 EV Sportster Taper-Lite™ pushrod set	-	adapters and plugs to replace the hydraulic units in the
#480-120	Shovelhead Taper-Lite™ pushrod set		factory-style lifter body (plugs block the hydraulic oil
#480-121	Shovelhead Taper-Lite™ Solid Lifter Convers	sion Kit	passages to keep oil out of the lifter to reduce lifter weight).

Andrews Pushrods

Andrews pushrods utilize 7/16" diameter tubing and are adjustable. Choose between lightweight aluminum or rigid chromemoly steel. Standard style Twin Cam® and Evolution® pushrods require rocker box disassembly for installation,

while the EZ-Install versions have extra-long adjusters that allow the pushrod to collapse enough for installation or removal without rocker box disassembly. Adjusters are 32 threads per inch.

ALUMINUM	CHROMEMOLY	EZ-INSTALL PUSHRODS
#416-188	#416-088	EZ-Install pushrod set, Twin Cam®
#416-215	#416-245	EZ-Install pushrod set, EV Big Twin
ALUMINUM	CHROMEMOLY	STANDARD-STYLE PUSHRODS
#416-388	#416-288	Pushrod set for '99-up Twin Cam®
#416-211	#416-214	Pushrod set for '84-'99 EV Big Twin
#416-030	#416-085	Pushrod set for '91-up XL/Buell®
#416-202	#416-209	Pushrod set for '86-'90 Sportster®
#416-006	#416-007	Pushrod set for Shovel w/stock lifters
#416-005	#416-004	Pushrod set for Iron XL (fixed length)

Tappets, Lifters, and Tappet Pins

Zipper's Oversize Tappet Guide Pins

These oversize tappet pins allow the builder to limit tappet rotation in the lifter bore; excessive rotation allows the lifter to side-load and cause operational issues. Red Shift recommends between .002" - .004" of clearance. Oversized pins are available in +.002" and +.006" sizes.

PART NO.	APPLICATION
#417-422	Set/2, +.002" Oversize Tappet Pins, Twin Cam®
#417-426	Set/2, +.006" Oversize Tappet Pins, Twin Cam®



Hy-Lift® Johnson 'Direct-Shot' Performance Lifters

#472-500 Designed for use in engines with performance cams, these lifters incorporate the Hy-Lift Johnson "direct shot" oiling system which places much needed oil directly onto the axle, roller needle bearings and cam lobe surface. Tighter tolerance I.D. grinding makes for a very slow leak down in performance applications that use higher spring pressures and more RPM capability. Sold in sets of 4, Made in the U.S.A.



#472-510 Designed for use in high lift, high RPM applications. These lifters leak down on the lower end of the scale, from 8 to 20 seconds. In true performance applications these lifters will actually "bleed" down and result in an effective loss of valve lift and duration at lower RPMs for increased torque. These are also referred to as "Variable Duration" lifters as the engine increases in RPM the bleed down effect is reduced, resulting in more duration and valve lift. Sold in sets of 4, Made in the U.S.A.





Feuling® HP+ Lifters

Feuling's® HP+ lifters are drop-in performance replacements for the stock lifters. Featuring optimized valving that improves oil flow to the top end while retaining true hydraulic operation, these lifters run quiet and are recommended for use with stock or Feuling's® Super Pump oil pump. Sold in sets of 4.

PART NO.	APPLICATION
#472-400	Set/4 Feuling® HP+ lifters, '99-up TC, '00-up XL, Buell
#472-425	Set/4 Feuling® HP+ lifters, '91-'99 XL, Buell set of 4
#472-461	Set/4 Feuling® HP+ lifters, '84-'99 EV BT, '86-'90 XL, Buell



Feuling® Race Series Lifters

USA-made Feuling® Race Series hydraulic lifters are designed to meet the needs of large lift cams and higher spring pressures, while maintaining proper and critical oil flow to valves, springs and rockers. These lifters are CNC machined from cold headed 1018 steel, heat treated and precision ground; internals are held to tight tolerances and pressure tested for a slower bleed down rate. The Feuling® Race Lifters are designed to work in conjunction with the Feuling® or other high volume oil pumps. Available in oversized diameters – *Case Savers!*

PART NO.	APPLICATION
#472-450	Set/4 std. TC / '00-up XL/Buell Feuling® Race Lifters
#472-451	Set/4 +.001" TC / '00-up XL/Buell Feuling® Race Lifters
#472-452	Set/4 +.0015" TC / '00-up XL/Buell Feuling® Race Lifters



S&S Hydraulic Tappets

S&S® tappets have optimized plungers and metering devises to better withstand pressures with high lift cams and heavier valve springs. EV lifters incorporate a traditional axle and inner race within the roller assembly. The larger inner bearing race permits the use of larger rollers to increase the load carrying surface area, increasing the life of the roller in high output applications. Available in sets of 4; EV applications can be ordered with or without S&S® Travel Limiters installed (adjustable pushrods required).

STD SET	SET W/T.L.	APPLICATION
#498-350	N/A	Set/4 TC / '00-up XL/Buell S&S tappets
#498-344	#498-346	Set/4 EV BT, '86-'90 XL S&S tappets

JIMS® Powerglide® II And Hydrosolid® II Tappets For TC/XL®

Newly designed in 2007, this tappet has undergone extensive development to increase its load, lubrication, hydraulic and life capacities. The Powerglide® II, has all the advantages of it's predecessor - billet steel body, superior hydraulic unit, roller perpendicularity held to .0002" and hand-honed hydraulic unit cavity; but its newest and most innovative feature is its pressure-fed oil passage that directly lubricates the axle, needle bearings and cam follower wheel. The total dynamic load capacities have been increased over 30% straight across the board, while the lubrication capacities for the hydraulic unit and valve train (top end) have increased 10%. For high rpm use, JIMS® offers the "Hydrosolid® II" series Powerglide® II tappets, which limit hydraulic travel to .050" for more precise valve control over 5,500 rpm (must use adjustable pushrods). These JIMS® tappets are sold each, and are available on standard or +.001, +.0015" oversize diameters to tighten loose lifter bores.

STD BORE	+.001" O/S	+.0015" O/S	+.010" O/S	APPLICATION
#458-870	#458-871	#458-872	#458-880*	Each, TC / '00-up XL/Buell Powerglide® II tappet
#458-820	N/A	N/A	N/A	Each, TC / '00-up XL/Buell Hydrosolid® II tappet

^{*}Use with #758-789 Twin Cam[®] case tappet bore reaming tool.



JIMS® EV Powerglide® Tappets



JIMS® Powerglide® tappets are high quality hydraulic replacement tappets for H-D® engines. The body components are produced from billet bearing steel, CNC machined to very tight tolerances for accuracy. To ensure precise cam following and quiet operation, the hydraulic elements ride in micro-finished bores and are carefully hand matched for a running fit of .0002" for improved performance and superior oil control. These units can handle the most aggressive cam profiles and high spring pressures. Tappets for '91-'99.XL/Buell engines have extended guide pin "flats" machined for use with high lift (.600"+) cams. For high rpm use, JIMS® offers the "Hydrosolid" series Powerglide® tappets, which limit hydraulic travel to .050" for more precise valve control over 5,500 rpm (must use adjustable pushrods). Available in standard and oversizes for reconditioning worn tappet blocks, the recommended tappet-to-wall clearance is .0007"-.0012".

STD BORE	+.002" O/S	+.005" O/S	APPLICATION
#458-561	#458-571	#458-581	Each, '84-'99 EVBT, '86-'90 XL Powerglide® tappet
#458-800	#458-802	#458-805	Each, '84-'99 EVBT, '86-'90 XL Hydrosolid® tappet
#458-065	#458-066	#458-067	Each, '91-'99 XL/Buell Powerglide® tappet
#458-830	N/A	N/A	Each, '91-'99 XL/Buell Hydrosilid® tappet

JIMS[®] EV Solid and Solid-Adjustable Tappets

For the builder who prefers a solid lifter, JIMS[®] has solid and solid-adjustable tappets. Solid tappets are designed to be used with adjustable pushrods, while Solid-Adjustable units include tappet adjusting screws drilled for top end oiling through the pushrod like stock, made from high strength 4340 chrome moly. Non-adjustable pushrods are used with Solid-Adjustable lifters, our Cut-To-Fit pushrods recommended. See page 4.17 for pushrods to use with these lifters.

STD BORE	+.002" O/S	+.005" O/S	SOLID APPLICATION
#458-010 #458-060	#458-012 N/A	#458-015 N/A	Each, '84-'99 EVBT, '86-'90 XL Solid tappet Each, '91-'99 XL/Buell Solid tappet
STD BORE	+.001" O/S	+.002" O/S	SOLID-ADJUSTABLE APPLICATION
#458-070	#458-071	#458-072	Each '91-'99 XL/Buell Solid-Adj tappet



Tappet and Lifter Kits

JIMS® Shovel and Panhead Stock Style Tappets

JIMS® stock replacement tappet bodies for Shovel and Panhead engines that accept the original equipment hydraulic units, or the solid lifter conversion kits listed below and on page <u>4.18</u>. Available in standard, +.002" & +.005" oversizes. Worn tappet blocks can be honed for fitting of oversize tappets.

STD BORE	+.002" O/S	+.005" O/S	APPLICATION
#458-030	#458-032	#458-035	Each, '53-'84 BT JIMS® tappet



S&S® Shovel Pushrod/Solid Lifter Kit



#498-568 S&S solid lifter adaptor kit for factory style lifter bodies, fits '66-'84 Shovel. Includes 4 drop-in adjustable adaptors that replace factory hydraulic units and a set of 7/16" diameter chrome moly pushrods. Also includes set screws for plugging stock oil feed passages in the tappet blocks.

JIMS® Shovel/Pan/Iron XL Solid-Adjustable Lifters

Solid adjustable tappets for '48-'84 Big Twins and '57-'85 Iron Sportsters®. Tappets are threaded for adjusters and locknuts (sold separately). Use with solid pushrods; we suggest our Red Shift cut-to-fit models for Big Twins (page 4.17).

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STD BORE	+.002" O/S	+.005" O/S	APPLICATION				
#458-040	#458-042	#458-045	Each, JIMS® Solid-Adj. tappet, '48	8-'84 Shovel, Pan			
#458-050	#458-052	#458-055	Each, JIMS® Solid-Adj .tappet, '57	7-'85 Iron XL			
PART NO.	APPLICAT	ION				Ш	
#458-092	Pk/4, JIMS	S® '48-'84 BT	Tappet adjustable screw only	6666		(5)	ш
#458-096	Pk/4, JIMS	S® '57-'85 XL	Tappet adjustable screw only		47		
#458-090	Pk/4, JIMS	S® Tappet ad	. screw locknut		17		



JIMS® Super Powerglide® Tappet Kit for Shovel Engines

Engineered to run quietly with stock or performance cams, JIMS® Super Powerglide® tappet kit for Shovelheads includes redesigned EV-style tappets that have lower pushrod seats and use 3/8" diameter pushrod cups. Internally, the tappets are equipped with high quality Powerglide® hydraulic components. Order a complete kit which includes lifter blocks machined from 7075-T651 billet, polished or chromed to a brilliant luster, or without blocks for use with stock or aftermarket lifter blocks. A set of JIMS® Pro-Lite pushrods round out this kit, with complete instructions.

PART NO.	APPLICATION
#458-411	JIMS® Polished '66-'84 Shovel Super PG lifter kit
#458-412	JIMS® Chrome '66-'84 Shovel Super PG lifter kit
#458-428	Same as above, without lifter blocks. Fits in stock bore blocks

JIMS® Roller Powerglide® Shovel Valve Train Kit

JIMS® has engineered a kit for Shovel owners that updates the top end oiling to EV style. Kit includes chrome plated, billet tappet blocks and special Powerglide® lifters, pushrods and roller rocker arms. Oil is fed through the lifters and pushrods directly to each rocker arm, instead of through the rocker boxes, for equal distribution. Eliminates the external oil lines. The tappets maintain oil pressure better, run quieter on any type of cam and lubrication is improved because oil is now pressurized through the points of contact.

PART NO.	APPLICATION
#458-446	JIMS® '66-'84 Shovel Roller Powerglide® system



Tappet Blocks

S&S® EV Tappet Blocks

S&S manufactures tappet blocks for both stock style and big bore Evolution® Big Twin engines in original-style cast finishes or beautiful, high strength billet. Cast blocks are made from 356-T6 aluminum, in burnished aluminum finish or powder coated wrinkle black. Billet blocks are fully CNC-machined and fully polished or chrome plated All tappet blocks are machined to accept most cams with valve lift to .600" without modification. Supplied with mounting bolts and gaskets. Special units available to fit S&S Special Application 4"+ bore and other cases with 1/4"cam chest offset.

ALUMINUM BLACK	CAST APPLICATION
#498-301 #498-301B	Cast S&S tappet blocks, f/'84-'99 EV Big Twin
#498-309 #498-309B	Cast S&S tappet blocks, f/4+" bore case w-1/4" offset
POLISHED CHROMED	BILLET APPLICATION
POLISHED CHROMED #498-320 N/A	BILLET APPLICATION Billet S&S tappet blocks, f/'84-'99 EV Big Twin





JIMS® EV Tappet Blocks

Now you can upgrade your stock EV Big Twin cast aluminum tappet blocks with these beautiful machined billet aluminum blocks. Made from super-strong 7075-T651, and machined to accept cams with valve lift to .550" without modification. These blocks are almost 3 times stronger than stock, and the machining

process assures precise cam timing. Available in a magnificently polished aluminum finish or flawlessly chrome plated.

POLISHED	CHROMED	APPLICATION
#458-400	#458-401	JIMS® Billet EV Big Twin tappet block set
N/A	#458-403	JIMS® Billet tap blocks f/4"+ bore EV engines

JIMS® Pan and Shovel Tappet Blocks

JIMS® has reproduced stock-type tappet blocks from 7075-T651 billet aluminum for use in Shovel and Pan engines. These precisely machined, beautifully polished or chrome plated units use stock-type tappet assemblies. Whopping 83,000 psi tensile strength, clearanced for most cams with valve lift to .550".

POLISHED	CHROMED	APPLICATION
#458-410	#458-415	JIMS® '53-'84 Shovel/Pan tappet blocks





Cast Iron Shovel And Pan Tappet Blocks

Economical replacement cast iron tappet blocks for Shovel and Panhead engines. Perfect to use when upgrading or replacing worn stock units. Choose black or chrome finish.

BLACK	CHROME	APPLICATION
#444-620	#444-630	'53-'84 Big Twin cast tappet block set



S&S® Tappet Blocks For '86-'90 Sportsters®

CNC machined billet tappet blocks for '86-'90 Sportster® engines. Includes mounting bolts and o-rings. Also used on S&S replacement XL cases that use '86-'90 cam geometry; special blocks are also available for use with S&S Special Application cases that have 1/2" offset cam chest.

PART NO.	APPLICATION
#498-375	Billet tappet block set for '86-'90 XL
#498-365	Billet blocks f/offset S&S case, '86-'90 tappets

JIMS[®] Iron XL Tappet Blocks

Precision machined, 7075-T651 billet tappet blocks feature helical style oil grooves for exceptional lubrication in the tappet bore. Polished or chrome finish, sold each.

POLISHED	CHROME	APPLICATION
#458-607	#458-608	Each, JIMS® '57-'85 XL billet tappet block



Rockers and Rocker Arms

Baisley Pro-Street Roller Rockers

Baisley Hi-Performance offers a roller tip rocker arm conversion for Harley® engines that dramatically reduces valve and guide wear. Baisley's modifies the stock rocker arms by adding the roller tip to it. These modifications are performed to the original equipment rocker arms, which you would supply to us. Baisley's can also change the rocker ratio and correct the rocker arm geometry for high lift applications (valve length modification and spacer plates required; call for specifics).

We keep modified rocker arm sets in stock to sell on an exchange basis to minimize downtime. Cores can be supplied if you have no cores to send in.

PART NO.	APPLICATION
#426-950NC	Baisley Pro-Street TC / EV rockers, standard 1.62:1 geometry, New Cores
#426-950EX	Baisley Pro-Street TC / EV rockers, standard 1.62:1 geometry, Exchange
#426-952EX	Baisley Pro-Geometry TC / EV BT 1.62:1 rockers w/modified geometry, Exchange
#426-954EX	Baisley Pro-Geometry TC / EV BT 1.7:1 rockers w/modified geometry, Exchange
#426-975EX	Baisley Pro-Geometry TC / EV BT 1.75:1 rockers w/modified geometry, Exchange
#426-953EX	Baisley Pro-Geometry EV XL/4-cam 1.62:1 rockers w/modified geometry, Exchange
#426-955EX	Baisley Pro-Geometry EV XL/4-cam 1.7:1 rockers w/modified geometry, Exchange
#426-940EX	Baisley Pro-Street Shovelhead rockers, standard 1.43:1 geometry, Exchange
#426-930EX	Baisley Pro-Street Iron XL rockers standard 1.43:1 geometry, Exchange
#426-954EX #426-975EX #426-953EX #426-955EX #426-940EX	Baisley Pro-Geometry TC / EV BT 1.7:1 rockers w/modified geometry, Exchange Baisley Pro-Geometry TC / EV BT 1.75:1 rockers w/modified geometry, Exchange Baisley Pro-Geometry EV XL/4-cam 1.62:1 rockers w/modified geometry, Exchange Baisley Pro-Geometry EV XL/4-cam 1.7:1 rockers w/modified geometry, Exchange Baisley Pro-Street Shovelhead rockers, standard 1.43:1 geometry, Exchange



Rocker Box Spacer Plates

#517-188 Machined aluminum rocker box spacer plates, used to correct rocker arm placement when using increased ratio and/or modified geometry rocker arms. May require valve stem length modification. 3/16" thick.

S&S® Forged Roller Rocker Arms

S&S® roller rocker arms are forged from 4140 steel, heat treated and shot-peened for additional strength and protection from long-term fatigue. These rocker arms ride on 3/4" wide bushings (stock is 1/2"), and feature a modified lubrication system for unrestricted roller oiling. Because the bushings are wider, we recommend new rocker shafts are used during installation if original shafts show wear in the bushing area. Available for Twin Cam® and EV engines in stock 1.62:1 or higher lift 1.725:1 ratio (modifications required), and Shovel engines in 1.5:1 ratio.

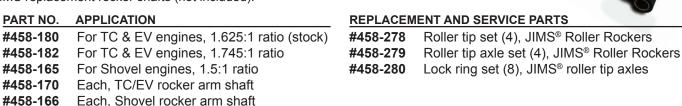


PART NO.	APPLICATION	PART NO.	APPLICATION
#498-465	For TC & EV engines, 1.62:1 ratio (stock)	#498-406	Each S&S TC/EV rocker arm shaft
#498-498	For TC & EV engines, 1.725 ratio	#498-466	S&S TC/EV roller rocker arm rebuild kit
#498-432	For Shovel engines, 1.5:1 ratio	#498-437	S&S Shovel roller rocker arm rebuild kit

JIMS® Machining Roller Rockers

JIMS® Roller Rocker arms are made from aerospace quality 4340 chrome moly steel, CNC machined and specially heat treated for durability. Critical areas of the arm are strengthened and material is removed where not needed for lighter weight. A roller tip made from bearing grade steel is incorporated to reduce valve and guide wear and 660 bronze bushings are

used for stability, longevity and strength. Available for EV and Twin Cam® engines in stock 1.625:1, or higher 1.745:1 ratio for additional lift at the valve (modifications required). Shovel arms are 1.5:1 ratio. Uses stock or JIMS replacement rocker shafts (not included).



Rocker Covers

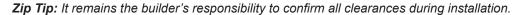
S&S® Rocker Covers

CHROME POLISHED

Twin Cam®: S&S® die-cast, chrome plated two-piece Twin Cam® rocker covers are clearanced to permit valve lifts up to .640" and valve springs up to 1.660" O.D. without modification. All S&S rocker covers include Viton® o-ring style cover seals for leak-free operation; an exclusive one way valve is built into the rocker cover gasket to control oil carry over in "head breathing" engines. Installation on stock and most comparable sized engines can be performed without removing the engine from the frame.

Evolution®: S&S® manufactures two styles of rocker covers for Evolution® style engines, billet and die-cast. While the billet version has the most room, both styles will allow the use of taller, larger than stock diameter springs. Billet models include billet rockers shaft supports; die-cast covers use a cast, one-piece rocker shaft support and an exclusive one-way valve for the breather port instead of the factory-style umbrella valve used in the billet models. Taller engines may require engine removal for installation in FXST models. S&S billet rocker covers are available in three finishes: show-quality chrome, polished, or unfinished. Die-cast covers are available in chrome finish only.

Shovelhead: S&S® show-polished billet rocker covers for Shovelhead engines look so good that it may be reason enough to put them on your bike, but the beauty is not just skin deep. Two-piece design allows removal and installation in some frames and is sealed with an o-ring type seal that insures leak free operation. Rocker shafts included with S&S Shovel rocker boxes are a strong and economical straight design. CNC machined from 6061-T6511 aluminum billet and clearanced for valve lifts of up to .590".



RAW

APPLICATION

#498-410 #498-495 #498-450 N/A	N/A N/A N/A N/A N/A #498-45 #498-435 N/A	S&S® Die-Cast Twin Cam® rocker box set S&S® Die-Cast EV BT rocker box set S&S® Billet EVBT, '91-'03 XL rocker box set S&S® Shovel rocker box set
PART NO.	REPLACEMENT AN	D SERVICE PARTS
#598-441	Gasket set, Die-cas	st EV rocker boxes (breather valve in gasket)
#598-449	Gasket set, Billet E	V rocker boxes (umbrella breather valve)
#598-471	Gasket set, Die-cas	st TC rocker boxes (breather valve in gasket)
#598-473	Gasket set, Billet T	C rocker boxes (umbrella breather valve)
#598-431	Gasket set, S&S® S	Shovel rocker boxes
#498-406	Each, S&S® TC/EV	rocker arm shaft (not included with boxes)
#498-436	Each, Rocker arm	shaft f/S&S® Shovel boxes (included with boxes)



Magnum Billet Rocker Covers

<u>Street (Breather) Version:</u> Distinctive two-piece Magnum rocker boxes are CNC machined from billet aluminum and offer the high output engine builder extra clearance for high lift cams, increased ratio rocker arms and oversize valve springs. Available in chrome or machined (satin) finish.

Race (Non-Breather) Version: Accommodates huge lifts and tipped valve angles as the lids include an additional 1/2" of

height; rocker shafts are moved out .060" and up .187", so no spacer plates are required when 1.7+ rockers are used. Available in machined aluminum finish only; can be plated or polished by the purchaser. Includes gaskets and mounting hardware.

SATIN	CHROME	DESCRIPTION
#525-450 #525-410	#525-450C N/A	Street Magnum Rocker Cover set Race Magnum Rocker Cover set
PART NO.	REPLACEM	ENT AND SERVICE PARTS
#532-740 #532-741 #498-406	Gasket set,	EV Street Magnum boxes EV Race Magnum boxes EV rocker arm shaft

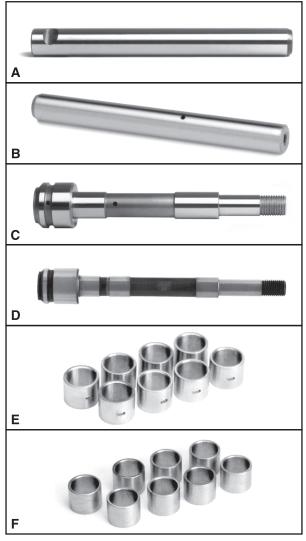


Rocker Arms and Shafts

JIMS® Rocker Arm Shafts

JIMS® rocker arm shafts are perfect for rebuilds or new construction, precision-ground right here in the USA. A special model for EV and Twin Cam® racing engines is available that is drilled and tapped on one end for grease fittings, designed to be used on engines that run "dry" top ends (no oil feed to the rocker arms). Sold each.

PART NO.	APPLICATION
#458-170	A. Rocker shaft '84-up EV & TC
#458-175	B. Special drilled shaft for EV & TC88
#458-162	C. Rocker shaft '57-'85 Sportster®
#458-166	D. Rocker shaft '66-'84 Shovel
#458-300	E. Each, Rocker arm bushing, Shovel & Iron XL
#458-301	F. Each, Rocker arm bushing, TC & EV engines



Rocker Arm Shims

Got those loose rocker tickin' blues? Tighten them up a bit with these shims. Factory clearance spec is .003"-.013" for end play; setting them up to the tighter side of the spec can reduce noise. Shims should be installed on the non-thrust side of the arm (left side on intake, right side on exhaust).

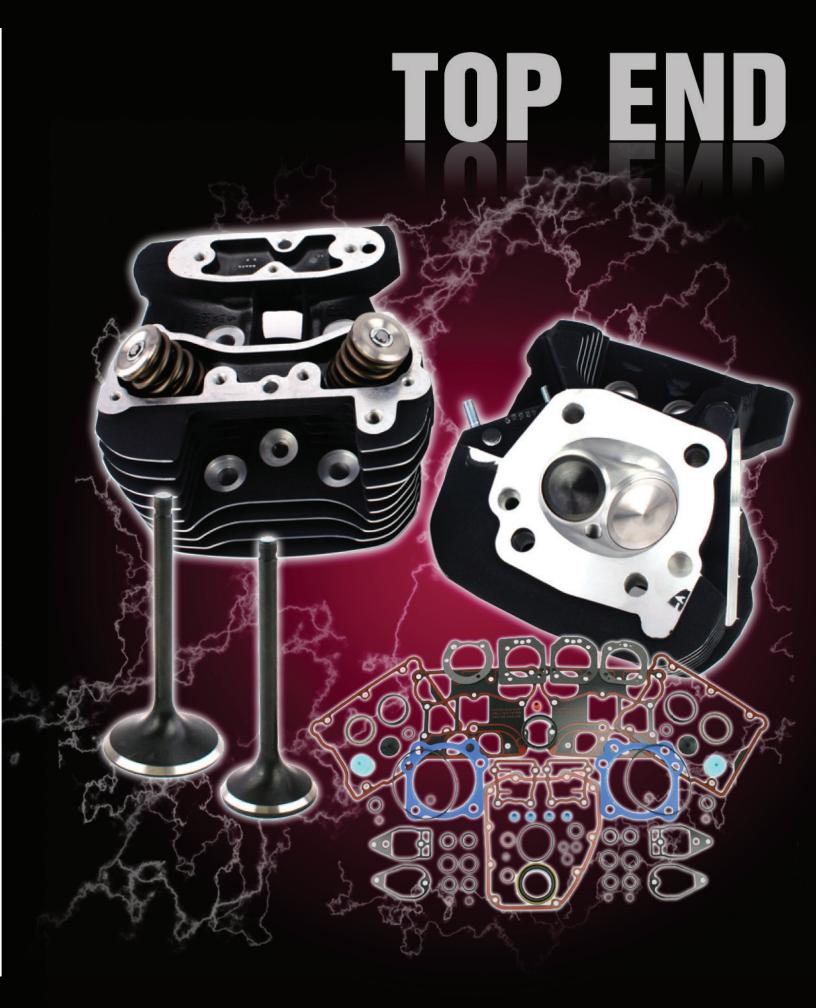
PART NO.	DESCRIPTION
#448-767	Pk/10 .007" Rocker arm shims
#448-768	Pk/10 .015" Rocker arm shims

Standard Rocker Arms

Stock replacement forged rocker arms for Twin Cam® and Evolution® engines. Made in USA.

PART NO.	APPLICATION
#450-360	Each FI-RE TC/EV Rocker Arm (OE# 17360-83A)
#450-375	Each FE-RI TC/EV Rocker Arm (OE# 17375-83A)





Zippers Stage III ThunderSport CNC 1.900" Heads









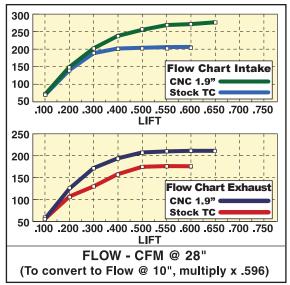
Unlock your Twin Cam® engine's full potential with this powerful head!

Zipper's was the first to offer fully CNC-ported factory heads using 5-axis machining centers in the year 2000. After CNC-porting and combustion chamber CC matching, these heads have our Step-Lock guides installed and the valve seats machined with our proprietary seat angles on Serdi equipment to accept 1.900" and 1.630" Baisley coated stainless steel valves for increased flow. After the valve job is complete, the head gasket surface is decked for flatness, Viton® seals installed and performance

valve springs are packed for up to .590" lift cam (heads can be ordered with different valve springs for higher lift applications). This head has been purpose built for 88" to 95" or 96" to 103" conversions; same head used in our Muscle 95 and 103 kits. Our Exchange Program allows super-quick turnaround and lower cost, or modified heads can be purchased outright. Also available with optional compression releases installed.

COMPONENTS INCLUDE:

- Full CNC Port & Combustion Chamber Machining
- Ductile Iron Step-Lock Valve Guides
- Competition Seat Work on Serdi Equipment
- 1.900" Int, 1.630" Exh Stainless Steel Valves
- Performance Valve Springs W/Moly Collars
- .650" Valve Spring Free Travel
- 91cc Combustion Chamber (Skim Decked)
- Completely Assembled, Ready To install
- Optional Compression Releases Installed



EXCHANGE HEADS

BLACK FINISH	SILVER FINISH	APPLICATION

Exchange Zipper's '99-'05 Twin Cam® 1.900" CNC heads #517-588EX #517-589EX #517-587EX Exchange Zipper's '06-up* Twin Cam® 1.900" CNC heads #517-586EX #517-688EX #517-689EX Exchange Zipper's '08-up Touring models TC 1.900" CNC heads Exchange Zipper's '08-up Touring models TC 1.900" CNC heads (ECR Compatible) #517-692EX

*517-586EX, 517-587EX do not include front head engine mount machining required for 2008-up Touring models; order part numbers 517-688EX,

517-689EX for 2008-up Touring models.

*We keep exchange heads in stock already modified for super quick turnaround. Parts must be in nearly perfect cosmetic condition (box heads individually with lots of newspaper or foam padding!); expect the same from us. Heads that are extremely dirty, stained, etched or have corroded finishes or damaged fins will be processed (10 working days) and returned to you. Remove heads from engine, wash off oil and ship to Zipper's as-is. Because improper cleaning methods can actually do more harm than good, we suggest you allow us to properly prepare your parts for modification. Extreme care is taken during our preparation process to preserve component finishes. A small cleaning charge applies to exchange heads. Previously modified heads are not eligible for exchange.

Zippers Stage IV ProMax CNC 2.0" Heads







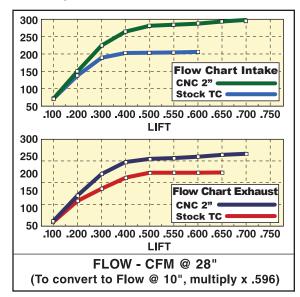


Our High Output 2.0"Twin Cam® heads are designed for larger displacement, 4 inch+ bore engines. Both ports feature more extensive CNC porting and the intake valve seat is changed and valve size is increased to 2.0 inch. The combustion chamber is enlarged to 97cc and un-shrouded for increased intake flow. Stainless steel valves, Step-Lock guides, Viton® seals and high lift valve springs are installed after the seatwork is finished on our Serdi equipment. These heads are also machined for and include compression releases. Used on our Muscle 107", 117", 120" and 124" engine kits. *This is the finest modified Twin*

Cam[©] head you're likely to find anywhere!

COMPONENTS INCLUDE:

- Full CNC Port & Combustion Chamber Machining
- Ductile Iron Step-Lock Valve Guides
- Competition Seat Work on Serdi Equipment
- 2.000" Int, 1.625" Exh Stainless Steel Valves
- Performance Valve Springs with Moly Collars
- Moly Valve Collars and Viton Valve Seals
- .750" Valve Spring Free Travel
- Compression Releases Installed
- 97cc Combustion Chamber (Skim Decked)
- Completely Assembled, Ready To install



EXCHANGE HEADS

BLACK FINISH SILVER FINISH APPLICATION

#517-590EX #517-591EX Exchange Zipper's '99-'05 Twin Cam® 2.0" CNC heads #517-598EX #517-599EX Exchange Zipper's '06-up* Twin Cam® 2.0" CNC heads #517-690EX #517-691EX Exchange Zipper's '08-up Touring model TC 2.0" CNC heads

*517-598EX, 517-599EX do not include front head engine mount machining required for 2008-up Touring models; order part numbers 517-688EX, 517-689EX for 2008-up Touring models

*We keep exchange heads in stock already modified for super quick turnaround. Parts must be in nearly perfect cosmetic condition (box heads individually with lots of newspaper or foam padding!); expect the same from us. Heads that are extremely dirty, stained, etched or have corroded finishes or damaged fins will be processed (10 working days) and returned to you. Remove heads from engine, wash off oil and ship to Zipper's as-is. Because improper cleaning methods can actually do more harm than good, we suggest you allow us to properly prepare your parts for modification. Extreme care is taken during our preparation process to preserve component finishes. A small cleaning charge applies to exchange heads. Previously modified heads are not eligible for exchange.

Zipper's Stage I WorkHorse Heads







Add Torque and Power to any production Twin Cam® or Evolution® head with our WorkHorse blueprinting service. After cleaning and Step-Lock guide installation and fitment, proprietary seat and valve machining improves flow and ensures a positive seal by truing now heat-seasoned seats and removing typical production chatter that leads to leaks between the seat and valve. This process improves even new, low mileage heads on engines that are being upgraded with cams or big bore kits. Valves are upgraded to Baisley 1.840" intakes and 1.615" exhausts with Viton seals, while new valve springs are set up for cam selection provided. Head gasket surfaces are skimmed to ensure absolute flatness. This Stage I head delivers a true, high quality "budget upgrade" for any engine.

Stage I WorkHorse headwork is performed on supplied head cores; in-house shop time is 5-10 working days.

PART NO. DESCRIPTION

#517-551 Zipper's Stage I WorkHorse parts and labor on customer-provided cores

Remove heads from engine, wash off oil and ship to Zipper's as-is. Because improper cleaning methods can actually do more harm than good, we suggest you allow us to properly prepare your parts for modification. Extreme care is taken during our preparation process to preserve component finishes. A small cleaning charge applies to heads sent in for modification.

Zipper's Stage II SportMax Heads

SportMax heads include blueprinting work similar to the Stage I WorkHorse, with the addition of hand-porting the bowl area and the short-turn radius of the port to provide additional airflow for more power from your engine. Stainless coated Baisley valves are installed with Viton seals; sizes are increased to 1.900" intake and 1.630" exhaust (TC110 heads increase to 2.100"/1.650") with valve seat machining and blending for a smooth transition. Valve springs are packed to handle valve lifts up to .580"; head gasket surfaces are skimmed to ensure absolute flatness. This Stage II SportMax head provides real results - a great balance of performance and value!

Stage II SportMax headwork is performed on supplied head cores; in-house shop time is 5-10 working days (exchange heads may be available if your cores qualify).

PART NO.	DESCRIPTION
#517-552	Zipper's Stage II SportMax parts and labor on customer provided cores ('99-'05 Twin Cam®)
#517-553	Zipper's Stage II SportMax parts and labor on customer provided cores ('06-up Twin Cam®)
#517-554	Zipper's Stage II SportMax parts and labor on customer provided cores ('08-up FL Twin Cam®)
#517-557	Zipper's Stage II SportMax parts and labor on customer provided cores ('07-up 110" Twin Cam®)
#517-563	Zipper's Stage II SportMax parts and labor on customer provided cores ('84-'99 EV Big Twin)
#517-558	Zipper's Stage II SportMax parts and labor on customer provided cores ('87-'03 XL® 1200)

Remove heads from engine, wash off oil and ship to Zipper's as-is. Because improper cleaning methods can actually do more harm than good, we suggest you allow us to properly prepare your parts for modification. Extreme care is taken during our preparation process to preserve component finishes. A small cleaning charge applies to heads sent in for modification.

Zipper's Stage III CNC Ported Evolution® Heads

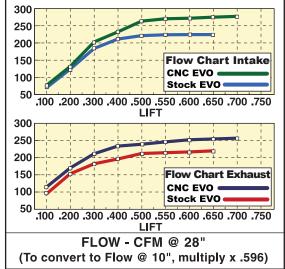


Owners of Evolution® powered Big Twins can increase their engine's output with a set of our CNC-ported EV heads! The factory casting is CNC-machined to our proven high torque, high power port shapes and the valve sizes are increased to 1.900" intake and 1.630" exhaust. Ductile iron Step-Lock guides are fitted and topped off with high quality Viton® seals and a performance spring kit. The head gasket surface is decked for flatness before final assembly. This head has substantially

higher low-lift flows for unreal torque increases and is capable of producing over 90 horsepower in an 80" engine (same head used in our 80/80 kit). Requires use of pop-up pistons and possibly additional deck machining for proper compression, depending on your choice of cam and pistons. Spring travel is set for up to .575" valve lift; higher lifts will require an optional spring change.

COMPONENTS INCLUDE:

- Full CNC Port & Combustion Chamber Machining
- Ductile Iron Step-Lock Valve Guides
- Competition Seat Work on Serdi Equipment
- 1.900" Int, 1.630" Exh Stainless Steel Valves
- Performance Valve Springs W/Moly Collars
- .630" Valve Spring Free Travel
- 91cc combustion Chamber (Skim Decked)
- Completely Assembled, Ready To install



PART NO. DESCRIPTION

#517-562 Zipper's Stage III EV-CNC parts and labor on customer-provided cores

Evolution® CNC headwork is performed on supplied head cores; in-house shop time is 10-14 working days.

Zipper's Stage III ThunderSport CNC '04-Up XL / XR1200® Heads



Put a set of our Stage III ThunderSport heads on your Sportster® to really let it breathe! Each port is fully CNC machined for exceptional flow rates; two available combustion chamber sizes are un-shrouded and CNC machined for accuracy in volume. Step-Lock guides are installed and honed to precise size, and seats are radius machined to our proprietary shapes on Serdi equipment for oversized valves of 1.900" and 1.615" diameter (883 heads have all 4 seats replaced to accommodate the larger valves). Viton seals and our Pro-Street springs with

COMPONENTS INCLUDE:

- Full CNC Port & Combustion Chamber Machining
- Ductile Iron Step-Lock Valve Guides with Viton Seals
- Competition Seat Work on Serdi Equipment
- 1.900" Int, 1.615" Exh Stainless Steel Valves
- Performance Valve Springs w/Titanium Collars
- Completely Assembled, Ready To install

Titanium collars are installed to provide proper valve train control. We stock these heads on an exchange basis if desired for super quick turnaround. These ThunderSport heads will allow your Sportster® to reach its full potential!

EXCHANGE HE	EADS	
FROM XL883	FROM XL1200	APPLICATION
#517-883EX	#517-885EX	Exchange '04-'06 XL 1.900" Stage III CNC heads for 3.5" bore
#517-887EX	#517-889EX	Exchange '04-'06 XL 1.900" Stage III CNC heads for 3.812" bore
#517-893EX	#517-895EX	Exchange '07-up XL 1.900" Stage III CNC heads for 3.5" bore
#517-897EX	#517-899EX	Exchange '07-up XL 1.900" Stage III CNC heads for 3.812" bore
FROM XR1200®	APPLICATION	
#517-905EX	Exchange '08-	up XR1200 [®] 1.900" Stage III CNC heads for 3.5" bore
#517-909EX	Exchange '08-	up XR1200® 1.900" Stage III CNC heads for 3.812" bore

We keep exchange heads in stock already modified for super quick turnaround. Parts must be in nearly perfect cosmetic condition (box heads individually with lots of newspaper or foam padding!); expect the same from us. Heads that are extremely dirty, stained, etched or have corroded finishes or damaged fins will be processed (15 working days) and returned to you. Remove heads from engine, wash off oil and ship to Zipper's as-is. Because improper cleaning methods can actually do more harm than good, we suggest you allow us to properly prepare your parts for modification. Extreme care is taken during our preparation process to preserve component finishes. A small cleaning charge applies to exchange heads. Previously modified heads are not eligible for exchange.

Zipper's CNC Thunderstorm® Heads

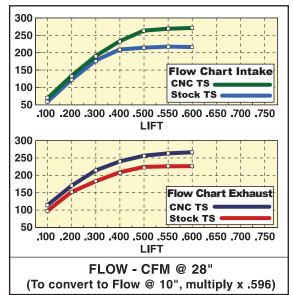


Buell[®] Thunderstorm[®] heads are a popular upgrade for '91-'03 Sportster[®] engines – and they reach Hurricane status with Zipper's CNC port work! After the ports receive the full CNC treatment, Step-Lock valve guides are installed and honed for a perfect fit; the seats are machined to accept larger Baisley stainless steel valves (1.840" intake, 1.615" exhaust) on our

Serdi head machine. Our Pro-Street valve springs with titanium collars are installed for precise valve control at the high RPM these heads are capable of delivering. Two versions are available; Standard for 3-1/2" bore 1200's (69cc chamber), and Big Bore for 3-13/16" bore, 88" or 99" XL or Buell engines (73cc chamber). Spring travel is packed for use with up to .575" cams (3-1/2" heads) or .650" cams (3-13/16" heads), and the combustion chamber in each type is CNC machined to match our specialty pistons for these bore sizes. These heads can be ordered with dual plugs as an option. Black finish only.

COMPONENTS INCLUDE:

- New Buell® Thunderstorm® Head Castings
- Full CNC Port & Combustion Chamber Machining
- Ductile Iron Step-Lock Valve Guides
- Competition Seat Work on Serdi Equipment
- 1.840" Int, 1.615" Exh Stainless Steel Valves
- Performance Valve Springs W/Titanium Collars
- Completely Assembled, Ready To install



PART NO.	DESCRIPTION
#517-574	Zippers 3-1/2" bore CNC Thunderstorm® heads (69cc)
#517-576	Zippers 3-13/16" bore CNC Thunderstorm® heads (73cc)

S&S® Super Stock® Shovelheads



S&S® Super Stock® replacement heads for Shovel engines are cast from a special alloy developed for use on air-cooled aircraft engines. Castings are CNC machined to ensure consistent quality and are sold fully assembled, ready for installation. The combustion chamber and port

locations are stock-like to accept all stock or popular performance components made to fit Shovel engines. Heads are sold with valves, guides, seals and .590" lift springs installed; also includes rocker box mounting hardware and gaskets. Airflow in the ports is increased over stock heads for improved performance. Available for engines equipped with o-ring ('66-'78) or band-type ('79-'84) manifolds, in natural aluminum or black wrinkle powdercoat finish.

NATURAL	BLACK	DESCRIPTION
#598-521	#598-541	S&S® Shovelheads, o-ring intake ('66-'78), stock bore
#598-531	#598-551	S&S® Shovelheads, band intake, ('79-'84) stock bore
#598-523	#598-543	S&S® Shovelheads, o-ring intake ('66-'78), 3-5/8" bore
#598-533	#598-553	S&S® Shovelheads, band intake, ('79-'84), 3-5/8" bore
#598-524	N/A	S&S® Shovelheads, o-ring intake ('66-'78), 3-5/8" bore, dual plug
#598-534	N/A	S&S® Shovelheads, band intake, ('79-'84), 3-5/8" bore, dual plug

Thunderstorm® Cylinder Heads

Economical upgrade to the factory 883 or 1200 engine for 1991-2003 Sportsters®. These heads have larger valves (1.810" intakes, 1.580" exhaust) than a regular 1200 for greater airflow and higher RPM capability. The combustion chambers are re-designed for the larger valves and should be used with a domed 1200cc piston such as our Wiseco #521-685 series. Can also be used on larger bores with proper piston selection. Heads are sold complete with valves, guides, seals and springs installed, powder coated black finish only (no fin highlighting). Sold each.



Manual Cylinder Head Compression Releases

Raising the performance level of any late model H-D® engine can very quickly pinpoint a new weakness—the starting system. Compression releases ease the strain and extend the life of the starter. These manual push button units are designed to shut automatically once the engine fires. Heads must be machined to accommodate them; we offer machining or tooling fixtures for installation. Sold each.

PART NO. DESCRIPTION

#572-050 10mm Mini compression release, each



S&S® Electronic Compression Releases

These Electric Compression Releases are supplied on many S&S® 4" and 4-1/8" bore engines. We stock replacement units for repair of existing units. Not intended for fitment into stock cylinder heads or heads not

DESCRIPTION

designed to accept them. Special 2-piece socket required for removal and installation.



#598-914 S&S® Electric Compression Release assembly, each \$\$8-916 S&S® ECR replacement silicone solenoid cap, each \$\$8-945 S&S® 2-piece install / remove socket

One-Way Check Valve



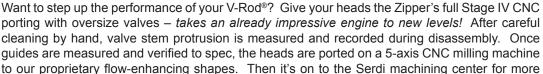
Simple one-way check valve suitable for many uses, such as venting crankcases or cylinder heads. 3/8" barbed hose inlet / outlet.

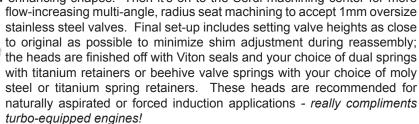
PART NO. DESCRIPTION

PART NO.

#598-122 3/8" one-way check valve, each

Zipper's CNC V-Rod® Heads







PART NO.	DESCRIPTION
#517-555*	Zipper's V-Rod® Stage IV CNC headwork with dual springs/titanium valve collars
#517-556M*	Zipper's V-Rod® Stage IV CNC headwork with beehive springs/moly valve collars
#517_556T*	Zinner's V-Rod® Stage IV CNC headwork with heahiye springs/titanium valve collars

This work is performed on your provided head cores; allow 3-4 weeks turnaround time.

*Guides and guide replacement labor not included in listed price; extra charges apply if valve guides require replacement (most do not).

5.9

Baisley Pro-Street Valves

When it comes to high performance valves, Pro-Street out shines the competition. One-piece stainless impregnated by a special German process (.002 deep and .0002 surface build-up) to improve wear performance in cast iron or nickel-bronze guides. This adds up to a valve that lasts up to 4 times the life of chrome stem valves! Unaffected by today's unleaded gas. All valve shapes were designed from the Baisley Hi-Performance flow bench for maximum airflow. Some of the fastest Harley-Davidsons® in the world run these valve designs!

Valves listed for Twin Cam[®] and Evolution[®] usage can be used in either engine platform with appropriate machining. Early style (5/16" stem valves) can be used in late (7mm stem valves) heads if guides and springs are used to match, and vice-versa.



TWIN CAM® '99-'04	Stock valve sizes are 1.840'	"Intake, 1.565" Exhaust
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PART NO.	VALVE	SIZE	TULIP	STEM DIAMETER	OA LENGTH	SPEC. NOTES
#526-501	Intake	1.840"	23°	.3100" (5/16")	4.445"	Standard
#526-503	Intake	1.900"	28°	.3107" (5/16")	4.400"	Oversize*
#526-502	Intake	1.940"	23°	.3107" (5/16")	4.380"	Oversize
#526-520	Intake	2.000"	23°	.3100" (5/16")	4.445"	Oversize
#526-506	Exhaust	1.615"	29°	.3096" (5/16")	4.520"	Oversize*
#526-507	Exhaust	1.630"	40°	.3096" (5/16")	4.520"	Oversize*
** ' ' ' '						

*Can be installed on stock seats with machining.



TWIN CAM® '05-Up Stock valve sizes are 1.805" Intake, 1.575" Exhaust

PART NO.	VALVE	SIZE	TULIP	STEM DIAMETER	OA LENGTH	SPEC. NOTES
#526-571	Intake	1.805"	1.7R	.2755" (7mm)	4.420"	Standard
#526-573	Intake	1.900"	28°	.2755" (7mm)	4.420"	Oversize*
#526-576	Exhaust	1.575"	22°	.2755" (7mm)	4.450"	Standard
#526-577	Exhaust	1.630"	34°	.2755" (7mm)	4.450"	Oversize*

*Can be installed on stock seats with machining.



EV BIG TWIN '84-'99 Stock valve sizes are 1.840" Intake, 1.610" Exhaust

PART NO.	VALVE	SIZE	TULIP	STEM DIAMETER	OA LENGTH	SPEC. NOTES
#526-501	Intake	1.840"	23°	.3100" (5/16")	4.445"	Standard
#526-503	Intake	1.900"	28°	.3107" (5/16")	4.400"	Oversize*
#526-502	Intake	1.940"	23°	.3107" (5/16")	4.380"	Oversize
#526-520	Intake	2.000"	23°	.3100" (5/16")	4.445"	Oversize
#526-506	Exhaust	1.615"	29°	.3096" (5/16")	4.520"	Standard
#526-509	Exhaust	1.615"	1.625R	.3096" (5/16")	4.460"	060", f/Branch head*
#526-507	Exhaust	1.630"	40°	.3096" (5/16")	4.520"	Oversize*
#526-511	Exhaust	1.650"	24°	.3095" (5/16")	4.480"	O/S
#526-508	Exhaust	1.750"	24°	.3095" (5/16")	4.480"	O/S, S&S® heads

*Can be installed on stock seats with machining.



These oversized valves are available with unfinished stems (extra long stem, no keeper groove) to be machined for use in special applications. Oversize seats required, valve tips must be hardened or lash caps used.



PART NO.	VALVE	SIZE	TULIP	STEM DIAMETER	OA LENGTH	SPEC. NOTES
#526-701	Intake	2.000"	23°	.3100" (5/16")	5.000"	Unfinished stem
#526-702	Intake	2.100"	23°	.3100" (5/16")	5.000"	Unfinished stem
#526-706	Exhaust	1.700"	40°	.3096" (5/16")	5.000"	Unfinished stem
#526-707	Exhaust	1.750"	40°	.3096" (5/16")	5.000"	Unfinished stem

Baisley Pro-Street Valves



EV SPORTSTER® '86-'03, BUELL® THUNDERSTORM

These valves can be used in '04-up XL1200, '02-up XB Buell® and '08-up XR1200 heads if 5/16"-style guides and springs are used (components used in '84-'03 EV heads).

Stock '86-'03 883 valve sizes are 1.585" Intake, 1.350" Exhaust

Stock '87-'03 1100/1200 valve sizes are 1.715" Intake, 1.480" Exhaust

Stock Buell® Thunderstorm valve sizes are 1.810" Intake, 1.580" Exhaust

PART NO.	VALVE	SIZE	TULIP	STEM DIAMETER	OA LENGTI	SPEC. NOTES
#526-604	Intake	1.710"	23°	.3100" (5/16")	4.480"	Standard '87-'03 1100/1200
#526-603	Intake	1.715"	23°	.3100" (5/16")	4.550"	OS f/883-1200 conversions**
#526-601	Intake	1.840"	23°	.3107" (5/16")	4.500"	OS f/Buell® Thunderstorm*
#526-602	Intake	1.940"	23°	.3107" (5/16")	4.440"	Oversize, requires larger seats
#526-608	Exhaust	1.475"	44°	.3095" (5/16")	4.560"	Standard '87-'03 1100/1200
#526-607	Exhaust	1.480"	44°	.3096" (5/16")	4.625"	OS f/883-1200 conversions**
#526-606	Exhaust	1.615"	44°	.3096" (5/16")	4.575"	OS f/ Buell® Thunderstorm*

^{*}Can be installed on stock seats with machining.

^{**}Can be installed on stock 883 seats w/machining; .060" longer than stock 1200 valves to facilitate installation in 883 heads.



EV1200 SPORTSTER® '04-up, XB BUELL® '02-up, XR1200® '08-up

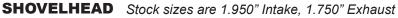
Stock valve sizes are 1.805" Intake. 1.575" Exhaust

PART NO.	VALVE	SIZE	TULIP	STEM DIAMETER	OA LENGTH	SPEC. NOTES
#526-671	Intake	1.805"	23°	.2758" (7mm)	4.525"	Standard replacement
#526-673	Intake	1.900"	28°	.2755" (7mm)	4.500"	Oversize*
#526-675	Exhaust	1.575"	23°	.2758" (7mm)	4.610"	Standard replacement
#526-676	Exhaust	1.630"	34°	.2755" (7mm)	4.590"	Oversize*

^{*}Can be installed on stock seats with machining.

PANHEAD Stock sizes are 1.750" Intake, 1.750" Exhaust

PART NO.	VALVE	SIZE	TULIP	STEM DIAMETER	OA LENGTH	SPEC. NOTES
#526-101	Intake	1.750"	23°	.3765" (3/8")	3.800"	Standard
#526-206	Exhaust	1.750"	29°	.3760" (3/8")	3.820"	Standard





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PART NO.	VALVE	SIZE	TULIP	STEM DIAMETER	OA LENGTH	SPEC. NOTES
#526-102	Intake	1.950"	23°	.3765" (3/8")	3.885"	Standard
#526-103	Intake	2.000"	23°	.3765" (3/8")	3.885"	Oversize*
#526-206	Exhaust	1.750"	29°	.3760" (3/8")	3.820"	Standard
#526-210	Exhaust	1.780"	29°	.3760" (3/8")	3.820"	Oversize*
#526-207	Exhaust	1.812"	29°	.3760" (3/8")	3.820"	Oversize*
#526-401	Intake	1.950"	23°	.3090" (5/16")	3.885"	Special thin stem
#526-406	Exhaust	1 750"	29°	3384" (11/32")	3 820"	Special thin stem

^{*}Can be installed on stock seats with machining.



IRON SPORTSTER®	Stock sizes are 1.935" Intake, 1.570" Exhaust
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PART NO.	VALVE	SIZE	TULIP	STEM DIAMETER	OA LENGTH	SPEC. NOTES
#526-302	Intake	1.935"	23°	.3090" (5/16")	3.615"	STD - '70-'85 models
#526-303	Intake	1.950"	23°	.3090" (5/16")	3.690"	Oversize, XL'R' length*
#526-306	Exhaust	1.570"	29°	.3384" (11/32")	3.510"	STD - '57-'85 models
#526-307	Exhaust	1.630"	29°	.3384" (11/32")	3.510"	Oversize*
#526-308	Exhaust	1.750"	29°	.3384" (11/32")	3.620"	Oversize, XL'R' length*

^{*}Can be installed on stock seats with machining (the head is the seat).

Manley Valves

The standard of the industry for years, Manley stainless steel valves are manufactured from high temperature materials and feature swirl polished, performance oriented shapes and durable chrome plated stems. Up to 30% weight reduction over stock insures a stable valve train, even at high rpm's. Sold each.

Severe Duty: Stainless steel, one-piece construction with fully-machined heads and improved chrome plated stems. This is Manley's most popular valve line. Works the best when used with cast iron guides. Sold each.

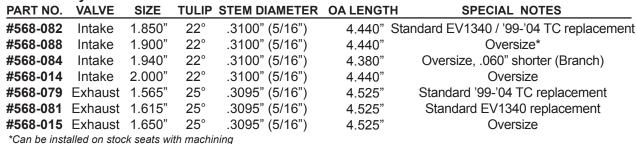
<u>Nitride Severe Duty:</u> Same construction as above, but with black nitride finish. Benefits of nitride are a super-hard and lubricious finish that permits tighter guide-to-stem fit. Can be used with cast iron or nickel-bronze guide in the most severe conditions.

Valves listed for Twin Cam[®] and Evolution[®] usage can be used in either engine platform with appropriate machining. Early style (5/16" stem valves) can be used in late (7mm stem valves) heads if guides and springs are used to match, and vice-versa.

EV BIG TWIN & TWIN CAM®

These valves can be used in EV or Twin Cam® heads. Machining required for oversize applications.

Severe Duty Stainless Valves





Nitride Severe Duty Valves

PART NO.	VALVE	SIZE	TULIP	STEM DIAMETER	OA LENGT	H SPECIAL NOTES
#568-182	Intake	1.850"	22°	.3100" (5/16")	4.440"	Standard EV1340 / '99-'04 TC replacement
#568-179	Exhaust	1.565"	25°	.3095" (5/16")	4.525"	Standard '99-'04 TC replacement
#568-181	Exhaust	1.615"	25°	.3095" (5/16")	4.525"	Standard EV1340 replacement



EV SPORTSTER®

Severe Duty Stainless Valves

PART NO.	VALVE	SIZE	TULIP	STEM DIAMETER	OA LENGTH	SPECIAL NOTES
#568-008	Intake	1.715"	22°	.3100" (5/16")	4.490"	Std '88-'03 EV1200 repl.
#568-009	Exhaust	1.480"	25°	.3095" (5/16")	4.560"	Std '88-'03 EV1200 repl.
#568-080	Intake	1.585"	22°	.3100" (5/16")	4.550"	Std '86-'03 EV883 repl.
#568-083	Exhaust	1.345"	25°	.3095" (5/16")	4.645"	Std '88-'03 EV883 repl.



SHOVELHEAD

Severe Duty Stainless Valves

PART NO.	VALVE	SIZE	TULIP	STEM DIAMETER	OA LENGTH	SPECIAL NOTES	
#568-010	Intake	1.940"	22°	.3765" (3/8")	3.890"	Std replacement	
#568-011	Exhaust	1.750"	12°	.3745" (3/8")	3.832"	Std replacement	



Nitride Severe Duty Valves

PART NO.	VALVÉ	SIZE	TULIP	STEM DIAMETER	OA LENGTH	SPECIAL NOTES
#568-110	Intake	1.940"	22°	.3765" (3/8")	3.890"	Std replacement
#568-111	Exhaust	1.750"	12°	.3745" (3/8")	3.832"	Std replacement

S&S Valves for S&S Engines

These valves fit S&S EV and Twin Cam® style heads equipped with 2" intake and 1.605" exhaust valves.



PART NO.	VALVE	SIZE	TULIP	STEM DIAMETER	OA LENGTH	SPECIAL NOTES
#598-920	Intake	2.000"	25°	.3100"	4.510"	Std replacement
#598-921	Exhaust	1.605"	1.7R	.3095"	4.562"	Std replacement

AV&V Black Tulip Extreme Duty Valves

These superb valves are one-piece forged from a racing grade stainless steel alloy with a hard black finish and a bearing quality hardened tip at the end of the stem to prevent premature wear with high-lift applications. Each valve is heat treated with a special process and the stem is centerless ground to a micro finish for a longer life.



EV Big T	win an	d Twi	in Ca	m® 5/16"		
PART NÖ.	VALVE	SIZE	TULIP	STEM DIAMETER	OA LENGTH	SPEC. NOTES
#515-120	Intake	1.845"	24°	.3108" (5/16")	4.458"	Std EV or TC intake
#515-121	Intake	1.900"	24°	.3108" (5/16")	4.440"	Oversize EV or TC intake
#515-123	Intake	1.990"	24°	.3108" (5/16")	4.440"	Oversize EV or TC intake
#515-124	Intake	2.020"	24°	.3108" (5/16")	4.440"	Oversize EV or TC intake
#515-125	Intake	2.020"	24°	.3108" (5/16")	4.490"	Oversize EV or TC intake
#515-126	Intake	2.020"	24°	.3108" (5/16")	4.480"	Oversize S&S EV or TC intake
#515-127	Intake	2.060"	24°	.3108" (5/16")	4.490"	Oversize EV or TC intake
#515-128	Intake	2.100"	24°	.3108" (5/16")	4.475"	Oversize SE110 TC intake
#515-220	Exhaust	1.570"	25°	.3106" (5/16")	4.525"	Std TC exhaust
#515-222	Exhaust	1.610"	25°	.3106" (5/16")	4.525"	Std EV or O/S TC exhaust
#515-223	Exhaust	1.610"	25°	.3106" (5/16")	4.565"	S&S EV or TC exhaust
#515-224	Exhaust	1.650"	25°	.3106" (5/16")	4.510"	Oversize SE110 TC exhaust
	_					



#515-224	Exhaust	1.650"	25°	.3106" (5/16")	4.510"	Oversize SE110 TC exhaust
Twin Ca	m® 7mr	n				
PART NO.	VALVE		TULIP	STEM DIAMETER	OA LENGTH	SPEC. NOTES
#515-720	Intake	1.810"	24°	.2757" (7mm)	4.455"	Std TC intake
#515-722	Intake	1.850"	24°	.2757" (7mm)	4.455"	Oversize TC intake
#515-724	Intake	1.900"	24°	.2757" (7mm)	4.455"	Oversize TC intake
#515-726	Intake	1.980"	23°	.2757" (7mm)	4.455"	Oversize TC intake
#515-730	Exhaust	1.575"	24°	.2755" (7mm)	4.545"	Std TC exhaust
#515-732	Exhaust	1.610"	24°	.2755" (7mm)	4.545"	Oversize TC exhaust
Sportste	er® 883	5/16"				
PĀRT NO.	VALVE		TULIP	STEM DIAMETER	OA LENGTH	SPEC. NOTES
#515-320	Intake	1.590"	23°	.3108" (5/16")	4.550"	Standard 883 intake
#515-330	Exhaust	1.355"		.3106" (5/16")	4.635"	Standard 883 exhaust
Sportste	er® & Bu	uell® 7	mm			
PĀRT NO.	VALVE	SIZE	TULIP	STEM DIAMETER	OA LENGTH	SPEC. NOTES
#515-721	Intake	1.810"	24°	.2757" (7mm)	4.480"	Std XL/XB1200 intake
#515-723	Intake	1.851"	24°	.2757" (7mm)	4.520"	Oversize XL/XB1200 intake
#515-731	Exhaust	1.575"	24°	.2757" (7mm)	4.620"	Std XL/XB1200 exhaust
V-Rod® (Oversize	e Chr	ome '	Valves		
PART NO.	VALVE	SIZE	TULIP	STEM DIAMETER	OA LENGTH	SPEC. NOTES

.2351" (6mm)

.2346" (6mm)

AV&V Manganese Bronze Valve Guides

#515-632*

#515-622*

Intake

41mm 24°

Exhaust 35.4mm 24°

*These valves for V-Rod® engines have hard chrome finish.

AV&V's CNC-machined valve guides are made from Manganese bronze alloy which allows tighter clearances for improved heat dissipation, quiet operation and long life. Design improvements include a shorter top for higher lift and machined groove for a special high temperature Viton o-ring to seal the area between the guide and head, along with their 'Super Grip' valve seal retention grooves to ensure the seal stays put. Tapered and radiused nose eases installation and raises airflow; guides are supplied with unfinished I.D., ready to be quickly sized using AV&V's long-pilot carbide reamers. These reamers are designed to quickly finish-size guides when using AV&V Manganese bronze guides (not for cast iron guides) and AV&V valves - no honing required!

P/N STD	+.001"	+.002"	+.003"	+.004"	DESCRIPTION
#515-000	#515-001	#515-002	#515-003	#515-004	Intake guide, '99-'04 TC, '84-'99EV, '86-'03 XL (5/16" stem valves)
#515-010	#515-011	#515-012	#515-013	#515-014	Exhaust guide, '99-'04 TC, '84-'99EV, '86-'03 XL (5/16" stem valves)
#515-020	#515-021	#515-022	#515-023	#515-024	Intake guide, '05-up TC, '04-up XL (7mm stem valves)
#515-030	#515-031	#515-032	#515-033	#515-034	Exhaust guide, '05-up TC, '04-up XL (7mm stem valves)
#515-060	#515-061	#515-062	#515-063	#515-064	Intake/Exhaust guide, '02-up V-Rod® (6mm stem valves)

AV&V Valve Guide Reamers



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AV&V	Viton	Valve	Seals

AV&V's valve seals are made from a special Viton compound that can resist higher temperatures than standard Viton seals. Manufactured to fit tighter on the guide – stays put! For this reason we recommend AV&V's Valve Seal Driver tools for installation.

PART NO.	DESCRIPTION
#715-810	AV&V .3120" reamer for AV&V 5/16" EV/TC guides & valves
#715-710	AV&V .2766" reamer for AV&V 7mm EV/TC guides & valves
#715-610	AV&V 6.0mm reamer for AV&V 6mm V-Rod® guides & valves

116.28mm 1mm oversize V-Rod[®] intake

116.9mm 1mm oversize V-Rod® exhaust

PART NO.	DESCRIPTION
#515-531	Set/4, 5/16" x .531" seals (Zipper's 5/16" EV/TC Step-Lock guides)
#515-421	Set/4, 5/16" x .421" seals ('84-'04 original equipment 5/16" guides)
#515-770	Set/4, 7mm x .562" seals (7mm with separate lower spring collar)
#515-772	Set/4, 7mm x .562" seals (7mm OE-style with integral lower collar)
#515-660	Set/4, 6mm x 8.5mm seals (V-Rod®)
#715-800	Seal driver tool, 5/16" valve seals
#715-700	Seal driver tool, 7mm valve seals
#715-600	Seal driver tool, 6mm valve seals

Zipper's Step-Lock Guides for EV & TC Engines

We've never been big fans of the shoulderless valve guides used by the factory in EV & TC heads, so we designed our own. Our ductile cast iron Step-Lock guides have a shoulder that helps set the guide to the correct depth, and, in the event that the engine is severely overheated causing the guide to come loose in the head, allows the lower collar to capture it keeping it in place. The top side of the guide is machined to accept larger .531" ID seals while the port side is tapered to enhance flow around the guide. Requires use of stepped lower valve spring collars (our Crane spring kits work fine w/o modification). We offer lower collar sets to fit the spring kits we sell for use with these guides. Sold each.



STANDARD	+.001"	+.002"	+.003"	+.004"	
#588-900	#588-901	#588-902	#588-903	#588-904	
LOWER COLLAR FOR STEP-LOCK GUIDES					

#513-972 Fits #528-972, #528-973, #528-927 Pro-Street spring kits, ea.

Rowe USA Valve Guides



While Supplies Last! Rowe is Out of Business as of 2011

O.D.	EV/TC 5/16"	EV/TC 7mm	80"SHOVEL*	SHOVEL/PAN	IRON XL	IRON XL	V-ROD®
SIZE	INT/EXH	INT/EXH	INT/EXH	INT/EXH	INTAKE	EXHAUST	INT/EXH
Std	#588-400	#588-450	#588-500	Sold Out!	#588-700	#588-800	#588-200
+.001"	Sold Out!	Sold Out!	Sold Out!	Sold Out!	#588-701	#588-801	#588-201
+.002"	#588-402	#588-452	Sold Out!	Sold Out!	#588-702	Sold Out!	#588-202
+.003"	#588-403	N/A	#588-503	Sold Out!	N/A	N/A	N/A
+.004"	#588-404	#588-454	#588-504	Sold Out!	N/A	N/A	#588-204
+.006"	#588-406	Sold Out!	#588-506	Sold Out!	N/A	N/A	#588-206
+.012"	#588-412	Sold Out!	Sold Out!	Sold Out!	N/A	N/A	#588-210

^{*}These late Shovel Guides have a cast-on shoulder, not a clip, and use a .531" seal.

Viton Valve Seals

Viton valve seals are encapsulated in a metal housing with a spring loaded wiper for positive oil control. *Sold in 4-packs.*

PART NO.	DESCRIPTION
#515-531	EV/TC, 5/16" x .531" for Zipper's step guides
#572-002	EV/TC, 5/16" x .415", stock replacement
#572-003	'48 -'84 74 & 80", 3/8"x.531" cutter required
#572-004	EV/TC 7mm x .562" f/use w/non-factory valve springs



Rowe USA Valve Seats

Rowe valve seats are manufactured from Tungsten, alloyed with Chrome, Molybdenum and Vanadium in a tool steel base to create an extremely strong and durable seat. Able to withstand heat in excess of 1400 degrees F, these seats offer greater resistance to oxidation from fuel contaminates. Rowe seats can be machined to size desired and will cut cleanly without clogging cutters or stones. Recommended press fit .007"-.008" in aluminum heads, .004"-.005" in cast iron. Sold each.



		Stock seat	sizes	are	listed	below	for	comparison.	
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APPLICATION	VALVE	O.D.	I.D.	HEIGHT
Twin Cam®	Intake	1.948	1.629	.400
Twin Cam®	Exhaust	1.713	1.380	.400
EV Big Twin	Intake	1.948	1.629	.400
EV Big Twin	Exhaust	1.713	1.380	.400
EV XL 11/1200	Intake	1.815	1.495	.388
EV XL 11/1200	Exhaust	1.579	1.215	.388
EV XL 883	Intake	1.815	1.398	.384
EV XL 883	Exhaust	1.579	1.107	.340
Shovel	Intake	2.132	1.752	.400
Shovel	Exhaust	1.940	1.562	.400

PART NO.	O.D.	I.D.	HEIGHT	SUGGESTED APPLICATION
#588-619	1.629	1.187	.380	EV XL 1200 exh
#588-659	1.718	1.385	.400	EV 1340 exh
#588-614	1.880	1.437	.406	EV XL 1200 Int
#588-661	1.945	1.562	.400	Shovel exh
#588-630	2.005	1.687	.281	900cc Iron XL int
#588-646	2.007	1.562	.453	Pan int/exh, Shov exh
#588-645	2.007	1.625	.453	EV 1340 int, Shov exh
#588-600	2.016	1.625	.453	EV 1340 int, Shov exh

AV&V Valve Spring Kits

From our northern friends in Canada come these excellent quality valve spring kits, utilizing ultra clean Kobe high silicon spring wire and precision-machined collars and steel keepers for improved valve control and long term durability. Development testing has shown AV&V's retaining components to be over 50% stronger in destructive tests than stock. Dual spring kits have reduced top retainer diameters for minimal rocker box clearance machining.



PART NO.	DESCRIPTION	SEAT PRESSURE	OPEN PRESSURE	COIL BIND
#515-160	.600" lift EV/TC 5/16" dual spring kit w/moly collars	155@1.825"	400@1.275"	1.080"
#515-260	.600" lift EV/TC 5/16" dual spring kit w/titanium collars	155@1.825"	400@1.275"	1.080"
#515-165	.650" lift EV/TC 5/16" dual spring kit w/moly collars	185@1.860"	460@1.160"	1.080"
#515-265	.650" lift EV/TC 5/16" dual spring kit w/titanium collars	185@1.860"	460@1.160"	1.080"
#515-267	.675" lift EV/TC 5/16" dual spring kit w/titanium collars	185@1.860"	460@1.160"	1.080"
#515-360	.600" lift EV/TC 5/16" beehive kit w/moly collars	165@1.860"	384@1.250"	1.200"
#515-365	.650" lift EV/TC 5/16" beehive kit w/moly collars	180@1.880"	385@1.200"	1.150"
#515-760	.600" lift EV/TC 7mm beehive kit w/moly collars	165@1.860"	384@1.250"	1.200"
#515-765	.650" lift EV/TC 7mm beehive kit w/moly collars	178@1.860"	385@1.200"	1.150"
#515-658	.580" lift V-Rod® 6mm beehive kit w/moly collars	83@1.500"	280@0.900"	0.870"
#515-659	.580" lift V-Rod® 6mm beehive kit w/titanium collars	83@1.500"	280@0.900"	0.870"

AV&V 7mm Lock & Retainer Set



Replace your factory powdered-metal retainers and stamped keys with these highly durable, high quality chrome moly forged spring retainers and steel keys. Don't risk a catastrophic

failure with substandard stock parts in your performance application!

PART NO. DESCRIPTION

#515-700 AV&V 7mm moly retainer and key set, '05-up Big Twin, '04-up XL, '02-up Buell, '08-up XR

Manley Valve Spring Kits

Manley valve spring kits contain proven parts made from the finest materials to ensure reliable, durable performance in a demanding environment.

Beehive Spring Kits: For stock to .600" lift, kits are available with single, beehive-style spring design made from super-clean ovate wire, with your choice of durable chrome moly steel or super lightweight titanium upper collars. For EV and '99-'04 Twin Cam® applications with 5/16" valves, steel lower collars and valve keys are included. 2005 and later 7mm applications include steel lower collars and are designed to be used with the factory keepers and triple-groove valves. 7mm kits include Viton valve seals. These kits are compatible with our Step-Lock guides.

Dual Spring Kits: For 2005-up performance 7mm applications with up to .650" valve lift, dual reverse-wound chrome silicon alloy springs are utilized with titanium upper and steel lower collars. Designed to be used with the factory keepers and triple-groove valves, include Viton valve seals. These kits are compatible with our Step-Lock guides.



PART NO.	DESCRIPTION
#568-240	Manley 5/16" (EV & '99-'04 TC) .600" lift beehive valve spring kit w/steel upper collars
#568-241	Manley 5/16" (EV & '99-'04 TC) .600" lift beehive valve spring kit w/titanium upper collars
#568-242	Manley 7mm (2005-up TC) .600" lift beehive valve spring kit w/steel upper collars
#568-243	Manley 7mm (2005-up TC) .600" lift beehive valve spring kit w/titanium upper collars
#568-244	Manley 7mm (2005-up TC) .650" lift dual valve spring kit w/titanium upper collars
#550-260	Set/8, OE 7mm triple groove valve keeper halves
#572-004	Set/4 replacement Viton valve seals for use with 568-242, -243, -244 valve spring kits



Crane Valve Springs

Matching the correct valve spring kit to your cam is very important to maintain proper valve train control. Crane's valve spring kits are an excellent choice for many performance applications. Spring kits are available with high strength chrome moly retainers or durable, light weight titanium for reducing reciprocating weight at the valve. The importance of a healthy spring kit in a performance application cannot be overstated!

Spring Kits for Evolution® and Twin Cam® Engines

These spring kits work great with Zippers "Step-Lock" valve guides for EV and Twin Cam[®] engines without modification.

PART NO.	DESCRIPTION	SEAT PRESSURE	OPEN PRESSURE	COIL BIND
#538-111	175# Kit w/chrome moly retainers, stock to .590" lift	175#@1.700"	394#@1.180"	1.080"
#538-112	155# Kit w/chrome moly retainers, stock to .590" lift	155#@1.800"	352#@1.280"	1.080"
#538-101	175# Kit w/titanium retainers, stock to .590" lift	175#@1.700"	394#@1.180"	1.080"
#538-102	155# Kit w/titanium retainers, stock to .590" lift	155#@1.800"	352#@1.280"	1.080"
#538-131	175# Replacement keeper set (red)		_	
#538-130	155# Replacement keeper set (silver)			
#538-120	Valve spring shim set, 4 ea .015, .030, .060			



Pro-Street Spring Kits for EV & Twin Cam[®] Engines

These spring kits are designed to give proper pressure when used with cams in the .550" - .675" lift range. The springs are manufactured from Chrome Silicon wire for maximum durability and longevity in street engines. Full sets include chromemoly or titanium top collars, steel lower retainers and chromemoly keys. Some rocker box clearancing is required. The lower collars supplied with these kits can be machined to accept Zippers "Step-Lock" guides, or you can purchase collars listed below. 1.530" O.D.

PART NO.	DESCRIPTION	SEAT PRESSURE	OPEN PRESSURE	COIL BIND
#528-972	675 Pro-Street kit, w/moly top collars	184#@1.850"	422#@1.250"	1.080"
#528-973				
#513-972	Lower collar, use w/Zippers Step guides, sold each			
#528-975	Replacement springs only, for 675 spring kits, set of 4			



Pro-Wire 700+ Valve Spring Kit

To make big power, run an aggressive cam profile with high lift. To maintain control of the valve train, the valve spring needs to provide adequate seat pressure and be able to last a reasonable life cycle in a sometimes brutal environment. In today's performance engines, this is one of the most highly stressed components; for this reason, you should only consider the highest quality spring you can buy. Our Pro-Wire 700+ kit uses super-clean alloy material

spring wire developed for use in NASCAR engines for performance and longevity, suitable for high performance use with cams up to .715" lift (more with longer valves). Kit is complete with titanium upper collars and moly lower collars. 10 degree moly keys included; springs are 1.540" O.D.

PART NO.	DESCRIPTION	SEAT PRESSURE	OPEN PRESSURE	COIL BIND
#528-927	Pro-Wire 700+ valve spring kit, complete	195#@1.900"	515#@1.250"	1.175"
#528-928	Pro-Wire 700+ replacement spring set only	_		
#513-972	Lower collar, each, use w/Zippers Step guides			

EV / TC Racing Valve Spring Kit

These full-race spring assemblies have been designed to handle lifts of up to one inch in Evolution® and Twin Cam® racing heads. Springs are manufactured from the finest quality Kobe spring wire, with titanium retainers and 10 degree chrome moly keys (titanium keys are available as an option). Keys and collars will accommodate lash caps if required. Spring pockets must be enlarged and clearancing of the rocker boxes will be required. Recommended for racing applications only.

PART NO.	DESCRIPTION
#568-425	EV / TC racing valve spring kit
#568-096	Titanium 10° valve key set



Crane Shovel Valve Springs

Matching the correct valve spring kit to your cam is very important to maintain proper valve train control. Crane's valve spring kits are an excellent choice for many performance applications. Spring kits are available with high strength chrome moly retainers or durable, light weight titanium for reducing reciprocating weight at the valve. The importance of a healthy spring kit in a performance application cannot be overstated!





Shovel and Panhead Spring Kits

Kits are supplied with springs and top collars only. Order keepers and lower collars separately, or use original equipment.

PART NO.	DESCRIPTION	SEAT PRESSURE	OPEN PRESSURE	COIL BIND
#538-110 #538-000	'48-'84 Kit w/chrome moly retainers, stock to .500" lift Springs only, replacement for above or O.E.M.	140#@1.500"	296#@1.080"	.890"
#550-228 #548-222	Keeper set, fits all Pan & Shovel engines High lift lower collar set, fits Shov/Pan w/.530"562" sea	ls		

Shovel Performance Spring Kit



This valve spring kit is designed for use in Shovel or Pan engines with cam lifts of .500"-.580". It is a double spring kit with high strength titanium top collars, specially machined steel lowers and quality keys. Late Shovel heads ('79-up) that use .625" guide bores require a small-top guide such as our #588-500 series for proper lower collar fitment.

PART NO. DESCRIPTION

#517-580 Shovelhead/Panhead Performance Spring Kit

Manley Iron Sportster® Valve Spring Kit

This dual spring kit includes springs, keepers and top collars (retain and re-use the stock lower collars) and is designed to work with valve lifts to .490". Spring outside diameter is same as stock for easy installation.



PART NO.	DESCRIPTION	SEAT PRESSURE	OPEN PRESSURE	COIL BIND
#568-217	Manley '57-'85 Iron Sportster® 490" valve spring kit	85@1.820	295@1.310	790"

Zipper's Twin Cam[®] Exchange Big Bore Cylinders



Zipper's knows human nature dictates that when we decide what we want, we want it now! Like our Twin Cam® exchange head program, our Twin Cam® 88 to 95 or 97" and Twin Cam® 96 to 103 or 106" cylinder exchange program reduces downtime – no waiting to have your cylinders sized because we have TC cylinders fitted and ready to ship. Factory cylinders are bored to fit the pistons of your choice and precision honed on torque plates by our state-of-the-art Rottler CNC hone. Forged Wiseco pistons with moly-coated skirts in different dome configurations allow you to choose the correct compression for your application. Cylinder kits include rings, pins, clips and a complete top end and cam change gasket set. Just carefully pack up your stock, unmodified TC cylinders and send them to us for same day turnaround.

Special Feature from Zipper's - Due to the high temperature ranges that Twin Cam® engines operate in, we've noticed irregularities on the head gasket sealing area of the cylinder casting. Once used, the aluminum cylinder's shape is distorted by high operating temperatures. This creates two irregularities in the head gasket surface as the aluminum collapses: (photo 1) high and low spots in the gasket surface, and (photo 2) a mismatch at the junction between the cast iron cylinder liner and the aluminum cast around it. Through these heating and cooling cycles, the cylinder is stress relieved and reaches a stability that is much less affected by future cycles – but the resulting surface irregularities remain until corrected. This can cause a premature head gasket failure including internal and/or external oil leaks on your fresh rebuild.

Decking the top surface of the cylinder is the best solution, so this is now a regular part of our process. The dowels are removed, an expanding mandrel in inserted in the cylinder bore (ensuring perpendicularity of the gasket surface) and the cylinder tops are machined perfectly flat and square in a lathe to provide proper sealing of your head gasket.

Exchange parts must be in acceptable cosmetic condition. Expect the same from us.

BLACK PART NO.	SILVER PART NO.	DESCRIPTION
A. #517-597B-EX	#517-597S-EX	97" (3.937" bore) exchange cylinders w/10:1 Wiseco dome pistons
B. #517-592B-EX	#517-592S-EX	95" (3.875" bore) exchange cylinders w/10.5:1 Wiseco dome pistons
C. #517-593B-EX	#517-593S-EX	95" (3.875" bore) exchange cylinders w/9.5:1 Wiseco low dome pistons
D. #517-594B-EX	#517-594S-EX	95" (3.875" bore) exchange cylinders w/9:1 Wiseco flat top pistons
D. #517-716B-EX	#517-716S-EX	106" (3.937" bore) exchange cylinders w/10:1 Wiseco domed pistons
E. #517-707B-EX	#517-707S-EX	103" (3.875" bore) exchange cylinders w/10.5:1 Wiseco domed pistons
F. #517-703B-EX	#517-703S-EX	103" (3.875" bore) exchange cylinders w/9.5:1 Wiseco flat top pistons
G. #517-705B-EX	#517-705S-EX	103" (3.875" bore) exchange cylinders w/9:1 Wiseco dish top pistons

















Zipper's 4-1/8" Bore Twin Cam[®] Big Bore Cylinders



Zippers 4-1/8" bore cylinders allow the Twin Cam® owner the ability to increase their engine's displacement with the largest bore you can safely fit to the stock case. These are completely new aluminum cylinders, cast around a .240" thick iron liner, 60% thicker than the stock cylinder liner. This thicker liner reduces twist and flex in an aluminum cylinder, providing a very stable bore for the rings to maintain seal. These cylinders can be ordered with the bore undersize for final fit by the purchaser, or sized by Zippers with our 4-1/8" big bore pistons. Top them off with our CNC ported TC cylinder heads, for a complete top end performance package. Installation requires engine disassembly for case boring (a service

available from our machine shop). Cylinder/piston kits include head and base gaskets (cylinders-only do not include gaskets, order separately). Available in as-cast aluminum finish or powder-coated black with machined fins.

107" Stock Stroke-Big Bore Kit for '99-'06 Engines

The original big bore kit from Zipper's! This kit increases Twin Cam® 88 displacement to 107" with the stock '99-'06 4" stroke crankshaft. Re-balancing is not required as these special forged pistons weigh the same as stock. Engine height unchanged. Piston dome shape works with the factory head casting (best results with our 2" high output CNC ported head). Includes cylinders fitted with forged pistons, rings, wrist pins, circlips, head and base gaskets. Case boring instructions included.

BLACK FINISH	SILVER FINISH	APPLICATION
#520-418B	#520-418S	Zippers 107" TC 4-1/8" cylinder/piston/gasket kit
#520-450B	#520-450S	Zippers 107" TC 4-1/8" cylinders only (unfinished bore)

117" Stock Stroke-Big Bore Kit for '07-up Engines

These cylinders are designed to be used with a stock 96" (4-3/8" stroke) crankshaft to increase displacement from 96" to 117". Can also be used in '99-'06 engine as long as the crankshaft is changed to 4-3/8" stroke. Complete kits include cylinders, forged flat top piston kit, head and base gaskets. Requires case boring (instructions included) and stroker piston cooling jet kit. These cylinders are .045" longer than stock and require a slightly longer intake manifold or throttle body (see section 1 for selection).

BLACK FINISH	SILVER FINISH	APPLICATION
#520-417B	#520-417S	Zippers 117" TC 4-1/8" cylinder/piston/gasket kit
#520-457B	#520-457S	Zippers 117" TC 4-1/8" cylinders only (unfinished bore)
		REQUIRED PART, NOT INCLUDED
		#698-026 Stroker piston cooling jet kit (required, set of 2)

120" Stroker Big Bore Kit

These cylinders, when used with our 4-1/2" stroker crankshaft, increase displacement to 120". Complete kits include cylinders, forged flat top piston kit, head and base gaskets. Requires case boring (instructions included) and stroker piston cooling jet kit. These cylinders are .120" longer than stock and require a slightly longer intake manifold or throttle body (see section 1 for selection). Modest height increase easily fits in all frames.

BLACK FINISH	SILVER FINISH	APPLICATION	
#520-420B	#520-420S	Zippers 120" TC 4-1/8" cylinder/piston/gasket kit	
#520-452B	#520-452S	Zippers 120" TC 4-1/8" cylinders only (unfinished bore)	
		REQUIRED PART, NOT INCLUDED	
		#698-026 Stroker piston cooling jet kit (required, set of 2)	

124" Stroker Big Bore Kit

These cylinders, when used with our 4-5/8" stroker crankshaft, increase displacement to 124". Complete kits include cylinders, forged flat top piston kit, head and base gaskets. Requires case boring (instructions included) and stroker piston cooling jet kit. These cylinders are .183" longer than stock and require a wider intake manifold (see manifold section for selection). Fits in all frames.

BLACK FINISH	SILVER FINISH	APPLICATION
#520-424B	#520-424S	Zippers 120" TC 4-1/8" cylinder/piston/gasket kit
#520-454B	#520-454S	Zippers 120" TC 4-1/8" cylinders only (unfinished bore)
		REQUIRED PART, NOT INCLUDED
		#698-026 Stroker piston cooling jet kit (required, set of 2)

Zipper's Big Bore Cylinders for Sportster® & Buell®

Zipper's has developed 3-13/16" bore aluminum alloy cylinders for 883 and 1200 engines to increase the engine size to 88" with the stock stroke crankshaft, or 99" with a 4-5/16" stroker crankshaft. These cylinders are manufactured with high quality cast-in iron liners and will work in all types of performance applications. Unhoned cylinders can be fitted with your choice of several piston designs to accommodate specific usages (see piston section or web site; Zipper's can provide this service). Includes design improvements for structural integrity, plus cooling fins have been increased to improve heat transfer. Note: Cylinders for 2004-up Sportsters® have 1/4" more fin circumference to match the newer cylinder head fin configuration. Cylinders only; order pistons, head and base gaskets separately.



Zip Tip ► 3-13/16" is the largest bore size that the stock H-D[®] XL cases can be safely bored for. 3-5/8" bore is the maximum S&S replacement XL/Buell cases can be bored for.

'86-'03XL '95-'02 BUELL	'04-UP XL XR1200	'02-UP BUELL XB	DESCRIPTION
#517-540S	#517-541S	#517-549S	Silver Zipper's 88" (3-13/16" x 4.650") un-honed cylinder set
#517-540B	#517-541B	N/A	Black Zipper's 88" (3-13/16" x 4.650") un-honed cylinder set
#517-542S*	N/A	N/A	Silver Zipper's 99" (3-13/16" x 5.087") un-honed cylinder set
*LISE with 4-5/1	6" stroke crank	7 113" rods	

Gaskets for Use with Zipper's 3-13/16" XL Cylinders

PART NO.	DESCRIPTION
#532-693 #532-692 #532-004 #532-870	Pk/2 .040" Cometic MLS head gaskets (XL & XB engines) Pk/2 .030" Cometic MLS head gaskets (XL & XB engines) Pk/2 .040" Cometic MLS head gaskets (XR1200® engines) Pk/2 .020" Cometic rubber coated steel base gaskets
#532-705 #532-710 #532-716 #532-720 #532-700	Pk/2 .005" Cometic copper base gaskets Pk/2 .010" Cometic copper base gaskets Pk/2 .016" Cometic copper base gaskets Pk/2 .020" Cometic copper base gaskets Pk/2 .020" Cometic copper base gaskets Builders kit, includes 2 each of .005", .010", .016", .020"

S&S® 3.927" Bore Cylinder Kits for Twin Cam® Engines

These 3.927" bore cylinders will allow the maximum safe displacement increase with the stock-stroke crankshaft and no case boring. High quality materials and thicker castings with increased fin area improve cooling and provide a stable base for taking displacement to the limit without lower end disassembly. Kits are available for increasing Twin Cam® 96" engines to 106", and for increasing Twin Cam® 88" engines to 97". Includes cylinders fitted with forged flat-top pistons and include rings/pins/clips, head, base and exhaust gaskets. Choose silver or black finish.



BLACK FINISH	SILVER FINISH	APPLICATION	0 (())
#598-560	#598-565	106" S&S Cylinder kit for Twin Cam® 96" (4-3	3/8" stroke) engines
#598-570	#598-575	97" S&S Cylinder kit for Twin Cam® 88" (4" st	roke) engines



S&S® Cylinders for Evolution® Engines

S&S® EV cylinders are cast of a special aircraft-grade alloy with a durable cast iron liner. Cylinders are sold in pairs with undersize bore for final sizing by the purchaser, or, we can precisely fit your favorite set of pistons here in our machine shop. Cylinders are available in plain aluminum finish or powder coated wrinkle black with machined highlights on the fins.

BLACK FINISH	SILVER FINISH	APPLICATION	
#598-750B #598-750 EV 80" Big Twin stock replacement (3-1/2" bore x 5.550" long)		EV 80" Big Twin stock replacement (3-1/2" bore x 5.550" long)	
#598-762B	#598-762	EV 96" Big Twin (3-5/8" bore x 5.565" long)	
#598-731B	#598-731	EVXL 1200 Sportster '86-'03 stock replacement (3-1/2" bore x 4.650" long)	

EV Cylinder Dowel Oil Filter

#572-572 Here's a simple idea that may save your oil pump or engine case in the case of a cylinder head part failure such as a valve spring. This system replaces your exhaust side factory cylinder dowel with a redesigned one containing a mesh screen and magnet to catch any failure debris or loose gasket material before it reaches the breather gear cavity or oil pump. Fits all EV Big Twin and Sportster® cylinders. *Cheap insurance!* **Set of 2**



Top End Mounting Hardware

Quality mounting hardware for your top end rebuild. Don't take chances with rusty, corroded or stretched fasteners – good gasket seal depends on accurate torque and the integrity of these important parts! During assembly, we highly recommend ARP Ultra-Torque Fastener Assembly Lubricant for ensuring the most consistent and accurate torque tension, and protection against thread seizing and galling.

against thread	d seizing and galling.	
PART NO.	MOUNTING HARDWARE	
#550-478 #550-480 #041-253 #598-014 #598-016	Ea, OE EV/TC right side 3.170" headbolt (long) cad plated Ea, OE EV/TC left side 1.890" headbolt (short) chrome plated Set/4 EV/TC 12pt. Diamond Eng. polished SS left headbolts Set/8 Stock length EV/TC S&S® headbolts w/washers (cad) Set/8 +.330" length EV/TC S&S® headbolts w/washers (cad)	
#598-013	Set/8 +.480" length EV/TC S&S® headbolts w/washers (cad)	ARP Ullra-Torque
#572-908 #572-909 #572-910	ARP Ultra-Torque Fastener Assembly Lubricant, .5oz packet ARP Ultra-Torque Fastener Assembly Lubricant, 1.69oz tube ARP Ultra-Torque Fastener Assembly Lubricant, 10oz bottle w/brush	FASTENER ASSEMBLY LUBRICANT
#550-834 #550-837 #550-832	Each, OE Twin Cam® cylinder stud (OE # 16834-99A) Each, OE EV Big Twin cylinder stud (OE # 16837-85C) Each, OE EV Sportster® cylinder stud (OE # 16832-86C)	
#598-024 #598-023 #598-310 #598-320 #530-195	Set/10 S&S® Shovel 12pt headbolt & washer set Set/8 S&S® Shovel 6pt cylinder base nuts Set/8 S&S® std. length '30-'84 BT base stud set Set/8 S&S® +5/16" longer '30-'84 BT base stud set Set/8 Iron XL or EV w/ductile cylinders 3/8" base studs	
#520-805 #520-810	Set/8 12pt 3/8-24 chrome moly base nuts Set/8 12pt 7/16-20 chrome moly base nuts	

Wiseco Forged Pistons

State-of-the-art performance for Harley® engines from Wiseco. Wiseco pistons are forged from high-silicon alloy to deliver long life, strength and consistent dimensions with low expansion, even at high temperatures. Well known in all forms of racing, Wiseco uses high-tech manufacturing techniques to achieve unique piston shapes that permit tight piston-to-wall clearances for quiet operation and superior ring seal. These pistons also feature machined anti-detonation grooves for improved combustion. Many models offer raised compression ratios for increased engine performance. Kits are sold complete including two pistons, rings, wrist pins and circlips.

Twin Cam[®] 96" to 103" Big Bore

Lightweight 'Slipper' Design! 1/8" oversize pistons feature ArmorGlide™ skirt coating, a high-tech lubricant that reduces friction and allows the piston to be fitted tighter within the bore allowing a better ring seal and reduced noise from piston rock. New for 2010 VM ring package includes 1.2mm compression rings with 2mm oil rings for better conformability to the bore, providing excellent oil control with reduced friction for improved performance. Choose domed 10.5:1, flat 9.6:1 or dished 9:1 pistons for use with 3-7/8" bore cylinders (stock TC96 cylinders can be bored from 3-3/4" to 3-7/8"). Fits '07-up 4-3/8" stroke 96" Twin Cam® engines.

				1.2, 1.2, 2MM*		
	BORE	10 .5:1 (+5CC)	9:6:1 (-2.2CC)	9:1 (-11.5CC)	REPL. RINGS, EA.	CIRCLIPS
	SIZE	DOME-TOP	FLAT-TOP	DISH-TOP	ORDER 2	SET OF 2
	3.875" Std	#521-970	#521-980	#521-960	#521-875	#521-052
3	3.875+.005"	#521-971	N/A	N/A	#521-880	#521-052
,	3.875+.010"	#521-972	#521-982	#521-962	#521-885	#521-052



*These rings fit TC pistons designed for Wiseco's "VM" ring package, introduced in 2010. For rings to fit Wiseco TC pistons produced between 1999 and 2009, see page 5.26 under Hastings Piston Rings.

Twin Cam® 88" to 95" Big Bore

Lightweight 'Slipper' Design! 1/8" oversize pistons feature ArmorGlide™ skirt coating, a high-tech lubricant that reduces friction and allows the piston to be fitted tighter within the bore allowing a better ring seal and reduced noise from piston rock. New for 2010 VM ring package includes 1.2mm compression rings with 2mm oil rings for better conformability to the bore, providing excellent oil control with reduced friction for improved performance. Choose high-domed 10.5:1, low-domed 9.5:1 or flat 9:1 pistons for use with 3-7/8" bore cylinders (stock TC96 cylinders can be bored from 3-3/4" to 3-7/8"). Fits '99-'06 4" stroke 88" Twin Cam® engines.

		1.2, 1.2, 2MM*	
(+14CC) 9:5:1 (+4.6CC)	9:1 (-2CC)	REPL. RINGS, EA.	CIRCLIPS
E-TOP DOME-TOP	FLAT-TOP	ORDER 2	SET OF 2
-930 #521-990	#521-940	#521-875	#521-052
l-931 N/A	#521-941	#521-880	#521-052
l-932 #521 - 992	#521-942	#521-885	#521-052
l-933 N/A	N/A	#521-895	#521-052
	E-TOP DOME-TOP	E-TOP DOME-TOP FLAT-TOP I-930 #521-990 #521-940 I-931 N/A #521-941 I-932 #521-992 #521-942	(+14CC) 9:5:1 (+4.6CC) 9:1 (-2CC) REPL. RINGS, EA. E-TOP DOME-TOP FLAT-TOP ORDER 2 I-930 #521-990 #521-940 #521-875 I-931 N/A #521-941 #521-880 I-932 #521-992 #521-942 #521-885



*These rings fit TC pistons designed for Wiseco's "VM" ring package, introduced in 2010. For rings to fit Wiseco TC pistons produced between 1999 and 2009, see page 5.26 under Hastings Piston Rings.

Twin Cam[®] 110" High Compression CVO Pistons

Co-designed by Zipper's and Wiseco Engineering during the development of Zipper's Muscle 110 kit, these powerful forged pistons have superior design features over the competition.







- Two dome heights 10.9:1 or 12.7:1 compression
- Lightweight design, 555 grams per assembly
- Additional clearance for high lifts / oversize valves
- +.007", +.014" and +.022" oversizes
- ArmorGlideTM bonded skirt lubricant allows tighter fit
- ArmorPlatingTM applied to the piston crown, ring grooves, and pin bore.

Strong, durable and light in weight - everything you need in a high performance piston! The dome design more closely conforms to the CVO 110 chamber shape for a tighter quench area, improving combustion and power. Two compression heights allow expanded camshaft compatibility and power goals.

1.2. 1.2. 3MM

		····, ····, ······		
BORE	10.9:1	12.7:1	REPL. RINGS, EA. CIRCLIPS	
SIZE	DOME-TOP	DOME-TOP	ORDER 2	SET OF 2
+.007"	#521-551	#521-561	#521-407	#521-052
+.014"	#521-552	#521-562	#521-414	#521-052
+.022"	#521-553	#521-563	#521-422	#521-052

Wiseco Forged Pistons

Twin Cam[®] 4-1/8" Big Bore

These 4-1/8" bore forged piston kits come complete with rings, wrist pins and circlips, and require 4-1/8" bore cylinders (case machining required). The design is similar to a NASCAR-style piston, stiff and very light. Valve pocket diameter and depth allow most oversize valves to be used without problems. Run at .0025" clearance in aluminum cylinders for street use.

'99-'06 Twin Cam® Stock 4" Stroke Pistons: 4-1/8" bore yields 107" displacement with stock '99-'06 (88") 4" stroke crankshaft, retains stock cylinder height. Wrist pin centerline to piston deck height of 1.265" (center of piston has .050" raised dome, can be cut flat if desired). Please note: In 2011, this piston design changed to accept Wiseco's new VM ring package. If ordering replacement rings, please verify your oil ring size before ordering.

		1.2, 1.2, 2MM; VM	1.2, 1.2, 3MM; GFX	
BORE	10 .5:1 (+2.4CC)	REPL. RINGS, EA.	REPL. RINGS, EA.	CIRCLIPS
SIZE	DOMÈ-TOP	ORDER 2	ORDER 2	SET OF 2
4.125" STD	#521-947	#521-225	#521-127	#521-024
4.125+.010"	#521-948	#521-235	#521-137	#521-024
4.125+.020"	#521-949	#521-245	#521-147	#521-024
4.125+.030"	#521-950	N/A	#521-158	#521-024



Twin Cam[®] 4-1/8" Bore Stroker Pistons

Stroker flat-top pistons with wrist pin bore raised .125" (wrist pin centerline to piston deck height of 1.140"). Use with stroker crankshaft and appropriate length 4-1/8" bore cylinders for the stroke you're using. Please note: In 2011, this piston design changed to accept Wiseco's new VM ring package. If ordering replacement rings, please verify your oil ring size before ordering.

		1.2, 1.2, 2MM; VM	1.2, 1.2, 3MM; GFX	
BORE	(-3.2CC)	REPL. RINGS, EA.	REPL. RINGS, EA.	CIRCLIPS
SIZE	FLAT-TOP	ORDER 2	ORDER 2	SET OF 2
4.125" STD	#521-820	#521-225	#521-127	#521-024
4.125+.010"	#521-821	#521-235	#521-137	#521-024
4.125+.020"	#521-822	#521-245	#521-147	#521-024
4.125+.030"	#521-823	N/A	#521-158	#521-024



80" Evolution® Big Twin

Available in stock 8.5:1 flat-top or 10:1 high dome compression. The domes in the high compression models are offset to work in stock EV combustion chambers without modification. Fits all 1984-1999 EV Big Twin engines.



Most Popular!			1/16, 1/16, 5/32"	
BORE	10:1 (+12.9CC)	8:5:1 (-1.5CC)	REPL. RINGS CIRCLIPS	
SIZE	DOME-TOP	FLAT-TOP	SETS OF 2 SET OF 2	
3.5" +.005"	#521-675	N/A	#554-105 #521-031	
3.5" +.010"	#521-666	#521-641	#554-110 #521-031	
3.5" +.020"	#521-667	#521-642	#554-120 #521-031	
3.5" +.030"	#521-668	#521-643	#554-130 #521-031	
3.5" +.040"	N/A	#521-644	#554-140 #521-031	

Shovelhead/Panhead 74" Piston kits include rings, wrist pins and circlips.



74" (1200CC)	9:1 (+52CC)	REPLACEMENT RINGS, EA	. WRIST PIN CIRCLIPS
BORE SIZE	DOME-TOP	(ORDER 2 FOR 2 PISTONS)	SET OF 2
3-7/16"+.010"	#521-606	#521-447	#521-031
3-7/16"+.020"	#521-607	#521-457	#521-031
3-7/16"+.030"	#521-608	#521-467	#521-031
3-7/16"+.040"	#521-609	#521-477	#521-031
3-7/16"+.050"	#521-610	#521-487	#521-031
3-7/16"+.060"	#521-611	#521-497	#521-031
3-7/16"+ 080"	#521-612	#521-517	#521-031

Shovelhead 80" Piston kits include rings, wrist pins and circlips.

PERI ACEMENT RINGS FA WRIST PIN CIRCLIPS

30" (1340CC)	9:5:1 (+56CC)	8:5:1 (+44.5CC)	, t	REPLACEMENT RINGS, EA.	WRIST PIN CIRCLIPS
BORE SIZE	DOME-TOP	DOME-TOP	(ORDER 2 FOR 2 PISTONS)	SET OF 2
-1/2"+.010"	#521-624	N/A		#521-507	#521-031
-1/2"+.020"	#521-625	#521-769		#521-517	#521-031
-1/2"+.030"	#521-626	#521-770		#521-527	#521-031
-1/2"+.040"	#521-627	N/A		#521-537	#521-031
-	BORE SIZE 1-1/2"+.010" 1-1/2"+.020" 1-1/2"+.030" 1-1/2"+.040"	BORE SIZE DOME-TOP 1-1/2"+.010" #521-624 1-1/2"+.020" #521-625 1-1/2"+.030" #521-626	BORE SIZE DOME-TOP DOME-TOP 1-1/2"+.010" #521-624 N/A 1-1/2"+.020" #521-625 #521-769 1-1/2"+.030" #521-626 #521-770	BORE SIZE DOME-TOP DOME-TOP (1-1/2"+.010" #521-624 N/A (1-1/2"+.020" #521-625 #521-769 (1-1/2"+.030" #521-626 #521-770	BORE SIZE DOME-TOP DOME-TOP (ORDER 2 FOR 2 PISTONS) 1-1/2"+.010" #521-624 N/A #521-507 1-1/2"+.020" #521-625 #521-769 #521-517 1-1/2"+.030" #521-626 #521-770 #521-527

Wiseco Forged Pistons

'86-up 883-1200cc EV Sportster® Conversion Pistons

Available in three different reverse-dome (compression) configurations for 883-1200 conversions using stock 883 heads.

Zip Tip ► Starting in the 2009 production year, the diameter of the cast iron liner in factory 883 cylinders will not allow cylinder boring to 3.5" for 1200 conversions; new 1200 cylinders must be sourced and fitted with +.010" pistons.



		Most Popular!		1/16, 1/16, 5/32"	
BORE	10:1 (-8.5CC)	9:5:1 (-11.2CC)	8:5:1 (-13.7CC)	REPL. RINGS	CIRCLIPS
SIZE	REVERSE-DOME	REVERSE-DOME	REVERSE-DOME	SETS OF 2	SET OF 2
3.5" Std	#521-682	#521-655	#521-723	#554-100	#521-031
3.5" +.010	" # 521-683	#521-656	N/A	#554-110	#521-031
3.5" +.020	" #521-684	#521-657	N/A	#554-120	#521-031
3.5" +.030	" N/A	#521-658	N/A	#554-130	#521-031
3.5" +.040'	" N/A	#521-659	N/A	#554-140	#521-031

'04-up 1200cc EV Sportster®

Available flat-top for 1200cc standard compression, and high compression dome-tops for use in modified 1200 XL / Buell® XB "bathtub" heads.



	Most Popular!			1/16, 1/16, 5/32"	
BORE	10:5:1 (+3.63CC)	12:1 (+12.3CC)	9:1 (-2.8CC)	REPL. RINGS	CIRCLIPS
SIZE	DOME-TOP	DOME-TOP	FLAT-TOP	SETS OF 2	SET OF 2
3.5" Std	#521-746	N/A	#521-660	#554-100	#521-031
3.5" +.010	" #521-747	#521-738	#521-661	#554-110	#521-031
3.5" + .020	" #521-748	N/A	#521-662	#554-120	#521-031

'86-'03 1200cc EV Sportster®

Available in flat-top for standard compression with factory 1200cc heads, and higher compression 10 degree dome-top for use with Thunderstorm® and factory 1200 XL heads (raises compression in factory 1200 heads to 10.5:1).

1/16, 1/16, 5/32"



BORE	10:5:1 (+6CC)	9:1 (-2.8CC)	REPL. RINGS	CIRCLIPS
SIZE	DOME-TOP	FLAT-TOP	SETS OF 2	SET OF 2
3.5" Std	#521-685	#521-660	#554-100	#521-031
3.5" +.010"	#521-686	#521-661	#554-110	#521-031
3.5" +.020"	#521-687	#521-662	#554-120	#521-031
3.5" +.030"	#521-688	N/A	#554-130	#521-031

EV Sportster® 3-13/16" Bore

Forged pistons specifically designed for use with XL & Buell 883/1200 engines converting to 3-13/16" bore. 15-degree dome configuration designed to match our CNC '04-up XL or '91-'03 Thunderstorm® heads with fully machined combustion chambers. Lightweight, slipper design weighs similarly to a stock 3-1/2" piston, eliminating the need for re-balancing work in 88" conversions. Three different dome configurations (no dish, shallow dish and deep dish) allow the builder to match the best piston for the application.



	BORE SIZE	11:5:1 (+11.14CC) DOME-TOP	, ,	Most Popular! 9:7:1 (-1.0CC) DOME-DISH TOP	F	REPL. RINGS, EA. ORDER 2	CIRCLIPS SET OF 2
3-	13/16+.01	td #521-360 10" #521-361	#521-380 #521-381	#521-340 #521-341		#521-812 #521-813	#521-031 #521-031
3-	13/16+.02	20" #521-362	#521-382	#521-342		#521-814	#521-031

1000cc Iron Sportster[®] Piston kits include rings, wrist pins and circlips.



61" (1000CC)	10:1 (+50.7CC)	REPLACEMENT RINGS, EA. WRIST PIN CIRCLIPS
BORE SIZE	DOME-TOP	(ORDER 2 FOR 2 PISTONS) SET OF 2
3-7/16+.010"	#521-601	#521-198 #521-031
3-7/16+.020"	#521-602	#521-208
3-7/16+.030"	#521-603	#521-218
3-7/16+.040"	#521-604	#521-228 #521-031

S&S Pistons for S&S Engines

Replacement forged pistons for popular S&S® engines. Sold as a set, with rings, pins and clips.

S&S 3-5/8" Bore Pistons for 96" EV Engines

Flat top pistons for use with stock style heads.



4-5/8" STROKE BORE SIZE	PISTON KIT DOME-TOP
3-5/8" Std	#598-930
3-5/8+010"	#598-931
3-5/8+020"	#598-932
3-5/8+030"	#598-933

REPLACEMENT RINGS, EA.	WRIST PIN CIRCLIPS
(ORDER 2 FOR 2 PISTONS)	SET OF 2
#598-100	#598-254
#598-101	#598-254
#598-102	#598-254
#598-103	#598-254

S&S 3.927" Bore Pistons for Twin Cam[®] Engines

Flat top pistons increase displacement in '99-'06 88" Twin Cam® engines to 97"; from 96" to 106" in '07-up engines. Special head gaskets and cylinder machining required.



BORE SIZE	PISTON KIT '99-'06 (88")	PISTON KIT '07-UP (96")	HEAD GASKS SOLD EACH	REPL. RINGS SETS OF 2	CIRCLIPS SET OF 2	
3.927" Std	#598-420	#598-425	#598-238	#598-150	#598-278	
3.927+010"	#598-421	#598-426	#598-238	#598-151	#598-278	

S&S 4" Bore Pistons for 100-107-113" EV Engines

Flat top pistons for S&S® Super Stock® 4" heads.



BORE	113" ENGINE	100/107" ENG	REPL. RINGS CIRCLIPS SETS OF 2 SET OF 2
SIZE	FLAT-TOP	FLAT-TOP	
4" Std	#598-410	#598-400	#598-130 #598-254
4+010"	#598-411	#598-401	#598-131 #598-254
4+020"	#598-412	#598-402	#598-132 #598-254
4+030"	#598-413	#598-403	#598-133 #598-254

S&S 4-1/8" Bore Pistons for 124" EV/TC Engines

Flat top pistons for S&S® 124" SSW+ engines.



BORE	4-5/8"STROKE
SIZE	FLAT-TOP
4-1/8" Std	#598-456
4-1/8+010"	#598-457
4-1/8+020"	#598-458
4-1/8+030"	#598-459

	WKIST FIN
REPLACEMENT RINGS	CIRCLIPS
SETS OF 2	SET OF 2
#598-140	#598-278
#598-141	#598-278
#598-142	#598-278
#598-143	#598-278

Tool Steel Wrist Pins, Locks & Teflon® Buttons

Wrist pins from tool steel are lighter and stronger than the stock wrist pins used by Harley®. We recommend using these in any performance application. Pin diameter recommendations for .791/.792" pins - use .085" wall pins in street engines with 3-1/2" to 3-5/8" bore; heavy-duty .140" wall in engines with 3-13/16"+ bore or smaller bore engines that see severe use. Teflon® buttons can be used instead of wrist pin spiral lock clips to eliminate any chance of the clips coming loose and causing damage. Buttons lengths are designed for use in Axtell pistons.



WRIST PIN

WDICT DIN

Wrist pin diameters have varied on H-D® engines over the years. .791" for Shovels & earlier EV XL's, .792" for Ev Big Twins & late XL's. Measure your stock ones if you're unsure.

PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
#520-310	.791" x .140" wall wrist pins (2), 2.795" length	#520-350	3.5" bore Teflon® buttons (Package of 4)
#520-315	.792" x .140" wall wrist pins (2), 2.795" length	#520-355	3.625" bore Teflon® buttons (Package of 4)
#520-302	Spiral locks for .791/.792" wrist pins, sold each	#520-360	3.812" bore Teflon® buttons (Package of 4)
#520-332	Spiral locks for .927" wrist pins, sold each		,

Hastings Piston Rings



These replacement ring sets by Hastings are the same as supplied in every new Harley-Davidson® motorcycle engine. The top ring is a barrel faced, moly filled design from which long life, proper lubrication & scuff free service can be expected. The 2nd ring is reverse torsion type; oil ring is the famous Hastings 'Flex-Vent' 3-piece design, which exerts uniform pressure on the cylinder wall while providing 200% more drainage capacity than conventional one-piece oil rings. Sold in sets for 2 pistons.

H-D® APPLICATIONS	STD	+.005"	+.010"	+.020"	+.030"	+.040"	+.050"	+.060"	+.070"
Twin Cam [®] 3-7/8" Bore	#554-600	#554-605	#554-610	#554-620	#554-630				
95", 103" (1.2, 1.2, 3mm)									
These rings also fit Wiseco TC µ 4678, 4916, 4917, 4957, 4964)	pistons produce	d between 199	9 and 2009 usir	ng Wiseco's "XI	\[\begin{align} \text{ring package} \end{align*} \]	(pistons are m	arked 4688,		
Twin Cam [®] 3-3/4" Bore	#554-200	#554-205	#554-210						
88", 96" (1.2, 1.2, 3mm)									
80"EV, 1200XL 3.5" Bore	#554-100	#554-105	#554-110	#554-120	#554-130	#554-140			
(1/16", 1/16", 5/32")									
80" Shovel/Pan 3.5" Bore	#554-300	N/A	#554-310	#554-320	#554-330	#554-340			
(1/16", 1/16", 3/16")									
74" Shovel/Pan 3-7/16"	#554-400	N/A	#554-410	#554-420	#554-430	#554-440	#554-450	#554-460	#554-470
(1/16", 1/16", 3/16")									
Iron XL 3-3/16" Bore	#554-500	N/A	#554-510	#554-520	#554-530	#554-540	#554-550	#554-560	#554-570
1000cc (1/16", 1/16", 3/16	3")								

SPECIALTY APPLICATIONS

(Not all listed are Hastings brand) STD		+.005"	+.010"	+.020"	+.030"	+.040"	+.050"	+.060"	+.070"
3-5/8" Bore (Hastings) (1/16", 1/16", 3/16")	#554-700	N/A	#554-710	#554-720	#554-730	#554-740			
3-5/8" Bore (Hastings) (1/16", 1/16", 5/32")	#554-800	N/A	#554-810	#554-820	#554-830				
3-5/8" Bore (S&S EV) (.0565, .0565, 5/32")	#598-100	N/A	#598-101	#598-102	#598-103				
3-5/8" Bore (S&S Shovel) (5/64", 5/64", 5/32")	#598-000	N/A	#598-001	#598-002	#598-003				
3-13/16" Bore (Hastings) (1/16", 1/16", 3/16")	#554-900	N/A	#554-910	#554-920	#554-930				
3.927" Bore (S&S TC) (1.2, 1.5, 2mm)	#598-150	N/A	#598-151						
4" Bore (Hastings) (1/16", 1/16", 3/16")	#554-000	#554-005	#554-010	#554-020	#554-030				
4" Bore (S&S EV) (1/16", 1/16", 5/32")	#598-130	N/A	#598-131	#598-132	#598-133				
4-1/8" Bore (Wiseco GFX) (1.2, 1.2", 3mm)	#521-127	N/A	#521-137	#521-147	#521-158				
4-1/8" Bore (Wiseco VM) (1.2, 1.2", 2mm)	#521-225	N/A	#521-235	#521-245					
4-1/8" Bore (S&S EV/TC) (1/16", 1/16", 5/32")	#598-140	N/A	#598-141	#598-142	#598-143				



Expert Cylinder Finishing By Zipper's

Zipper's can fit any of our pistons to your cylinders. All cylinders are torque plated and precision honed with diamond abrasives in our Rottler CNC hone. The hones' computer automatically senses any taper in the bore and adjusts dwell and short strokes to correct it. This latest technology in honing techniques and equipment assures you of a precision job and nearly perfect cylinder seal. See the services section for details.

Cometic "EST" Gasket Sets

"EST" stands for 'Extreme Sealing Technology'. EST gasket sets include gaskets made from different materials designed to create the best seal for the application:

SPS (Spring Steel) Gaskets are made from embossed stainless steel, coated with a high temperature viton material that virtually eliminates leakage when joining two metal surfaces.

MLS (Multi-Layer Steel) Gaskets are 3-piece head gaskets that include a stainless steel center sandwiched by two SPS outer layers.

AFM (Aluminum Foamet Material) Gaskets have a chemically blown, compounded nitrile synthetic foam-like rubber bonded to an aluminum core. AFM material does not require gasket sealers or silicone bead.

We stock
most all gaskets,
seals and o-rings
individually for '66 and
later Big Twins and '57-up
Sportsters®. Give us a call
with your specific needs –
we don't mind smaller
quantities!

In the following engine kits, EST gaskets are used in critical sealing surfaces such as rocker box and cylinder base gaskets. Head gaskets included with these kits are Cometic's 'MLS' (Multi-Layer Steel'). The balance of components included with these kits are made from the highest quality materials to ensure that your engine stays leak-free.

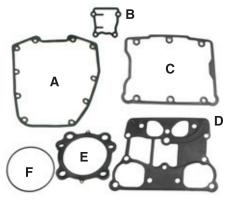
Twin Cam[®] Engine Cometic EST Complete Engine Gasket Sets

PART NO.	DESCRIPTION
#632-892	95 or 103" (3-7/8", .040" MLS H.G.) TC A/B engine complete
#632-140	110" (4" bore, .040" MLS H.G.) TC A/B engine complete
#632-834	Specialty Big Bore engine gasket set. Fits TC A/B engines, supplied without head & base gaskets (included w/our big bore cylinder kits)

Cometic EST Top End Gasket Sets

PART NO.	DESCRIPTION
#532-780	95 or 103" (3-7/8" bore, MLS .040" H.G.) TC A/B top end with cam kit
#532-779	88 or 96" (3-3/4" bore, MLS .040" H.G.) TC A/B top end with cam kit
#532-588	All Twin Cam [®] rocker boxes only kit





Cometic EST Component Gaskets PART NO. DESCRIPTION

#432-575	A. Pk/5 AFM TC cam cover gaskets OE #25244-99
#432-578	B. Pk/10 AFM TC tappet cover gaskets OE#18635-99
#532-577	C. Pk/10 SPS TC rocker box top (lid) OE #17386-99
#532-576	D. Pk/10 SPS TC rocker box base OE #16719-99
#532-722	E. Pk/2 MLS .040" 3-7/8" bore (95 & 103") head gaskets
#532-721	E. Pk/2 MLS .030" 3-7/8" bore (95 & 103") head gaskets
#532-745	E. Pk/2 MLS .040" 3-3/4" bore (88 & 96") head gaskets
#532-790	E. Pk/2 MLS .030" 3-3/4" bore (88 & 96") head gaskets
#532-726	E. Pk/2 MLS .040" 4" bore (110") head gaskets
#532-725	E. Pk/2 MLS .030" 4" bore (110") head gaskets
#572-155	F. Each, cylinder base o-ring TC 88, 95, 96, 103 OE #11256

Evolution® Big Twin Engine

Cometic EST Complete Engine Gasket Sets

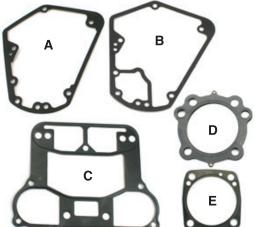
PART NO.	DESCRIPTION
#632-890	'92-'99 EV BT 80" (3-1/2", .040" MLS H.G.) engine complete
#632-908	'92-'99 EV BT big bore (3-5/8", .040" MLS H.G.) engine complete
#632-974	'92-'99 EV BT big bore (3-13/16", .040" MLS H.G.) engine complete
#632-891	'84-'91 EV BT 80" (3-1/2", .040" MLS H.G.) engine complete
#632-164	'84-'91 EV BT big bore (3-5/8", .040" MLS H.G.) engine complete

Cometic EST EV Big Twin Top End Gasket Sets PART NO. DESCRIPTION

PART NO.	DESCRIPTION
#532-635	'92-'99 EV BT 80" (3-1/2", .040" MLS H.G.) top end w/cam
#532-766	'92-'99 EV BT big bore (3-5/8", .040" MLS H.G.) top end w/cam
#532-768	'92-'99 EV BT big bore (3-13/16", .040" MLS H.G.) top end w/cam
#532-752	'92-'99 EV Big Twin rocker boxes only
#532-747	'84-'91 EV BT 80" (3-1/2", .040" MLS H.G.) top end w/cam
#532-767	'84-'91 EV BT big bore (3-5/8", .040" MLS H.G.) top end w/cam
#532-769	'84-'91 EV BT big bore (3-13/16", .040" MLS H.G.) top end w/cam
#532-753	'84-'91 EV Big Twin rocker boxes only



Cometic "EST" Gasket Sets



Evolution® Big Twin EngineCometic EST EV Big Twin Component Gaskets

PART NO.	DESCRIPTION
#432-328	A. Pk/5 '93-'99 AFM EV cam cover gaskets OE #25225-93
#432-302	B. Pk/5 '84-'92 AFM EV cam cover gaskets OE #25225-70B
#532-865	C. Pk/2 '84-'99 SPS EV 1-pc rocker box base OE #16800-84A
#532-866	C. Pk/10 '84-'99 SPS EV 1-pc rocker box base OE #16800-84A
#532-689	D. Pk/2 MLS .040" 3-1/2" bore EV head gaskets
#532-688	D. Pk/2 MLS .030" 3-1/2" bore EV head gaskets
#532-691	D. Pk/2 MLS .040" 3-5/8" bore EV head gaskets
#532-690	D. Pk/2 MLS .030" 3-5/8" bore EV head gaskets
#532-693	D. Pk/2 MLS .040" 3-13/16" bore EV head gaskets
#532-692	D. Pk/2 MLS .030" 3-13/16" bore EV head gaskets
#532-551	E. Pk/2 SPS .020" 3-1/2" bore EV BT base gaskets
#532-552	E. Pk/2 SPS .020" 3-5/8" bore EV base gaskets
#532-870	E. Pk/2 SPS .020" 3-13/16" bore EV base gaskets

Evolution® Sportster® Engine

Cometic EST Complete Engine Gasket Sets

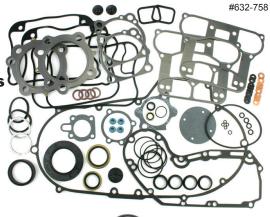
PART NO.	DESCRIPTION
#632-176	'07-'14 XL1200 (3-1/2", .040" MLS H.G.) engine complete
#632-952	'04-'06 XL1200 (3-1/2", .040" MLS H.G.) engine complete
#632-758	'91-'03 XL1200 (3-1/2", .040" MLS H.G.) engine complete
#632-757	'86-'90 XL1200 (3-1/2", .040" MLS H.G.) engine complete

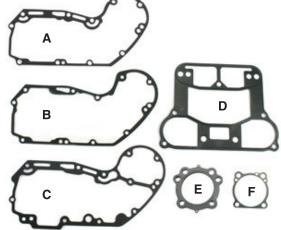
Cometic EST EV Sportster® Top End Gasket Sets

PART NO.	DESCRIPTION
#532-177	'07-'14 XL1200 (3-1/2", .040" MLS H.G.) top end kit
#532-970	'04-'06 XL1200 (3-1/2", .040" MLS H.G.) top end kit
#532-763	'91-'03 XL1200 (3-1/2", .040" MLS H.G.) top end kit
#532-761	'86-'90 XL1200 (3-1/2", .040" MLS H.G.) top end kit
#532-195	'07-'12 EV XL rocker boxes only
#532-954	'04-'06 EV XL rocker boxes only
#532-765	'91-'03 EV XL rocker boxes only
#532-764	'86-'90 EV XL rocker boxes only
motic E	ST EV Sportster® Component Gas

Cometic EST EV Sportster® Component Gaskets PART NO DESCRIPTION

DESCRIPTION
A. Pk/5 '04-'14 AFM XL cam cover gaskets OE #25263-90D
A. Pk/5 '91-'03 AFM XL cam cover gaskets OE #25263-90B
B. Pk/5 '86-'90 AFM XL cam cover gaskets OE #25263-86
C. Pk/5 '08-'12 AFM XR cam cover gaskets OE #25279-08
D. Pk/2 '86-'14 SPS XL 1-pc rocker box base OE #16800-84/
D. Pk/10 '86-'14 SPS XL 1-pc rocker box base OE #16800-84
E. Pk/2 MLS .040" 3-1/2" bore EV head gaskets
E. Pk/2 MLS .030" 3-1/2" bore EV head gaskets
E. Pk/2 MLS .040" 3-5/8" bore EV head gaskets
E. Pk/2 MLS .030" 3-5/8" bore EV head gaskets
E. Pk/2 MLS .040" 3-13/16" bore EV head gaskets
E. Pk/2 MLS .030" 3-13/16" bore EV head gaskets
F. Pk/2 SPS .020" 3-1/2" bore EV XL base gaskets
F. Pk/2 SPS .020" 3-5/8" bore EV base gaskets
F. Pk/2 SPS .020" 3-13/16" bore EV base gaskets







Pre-Evolution® Gasket Sets Cometic Complete Engine Gasket Sets

Cometic	Complete Engine Gasket Sets
PART NO.	DESCRIPTION
#632-964	'70-'84 Shovel engine w/4 speed primary
#632-051	'77-'85 Iron Sportster® 1000cc
#632-049	'L73-'76 Iron Sportster® 1000cc
#632-047	'72-'E73 Iron Sportster® 1000cc
Cometic	Top End Gasket Sets
PART NO.	DESCRIPTION

#532-967 '66-'84 Shovelhead top end kit #532-052 'L73-'85 Sportster® 1000cc top end kit #532-103 '72-'E73Sportster® 1000cc top end kit

Cometic Gaskets

Cometic 'MLS' Head Gaskets

Cometic's 'MLS' (Multi-Layer Steel') gaskets are 3-piece head gaskets that are made up of a stainless steel center sandwiched by two viton-coated spring steel embossed outer layers for a seal that can withstand the shearing forces created in the head gasket environment. Non-intrusive rivets hold the combination together. Sold in 2 different thicknesses, .040" (standard) and .030" (high compression). Piston-to-head clearance should be verified (.030"-.032" optimum) before using .030" gaskets. Sold in pairs.

na iii paiio.				
SET/2 .040"	SET/2 .030"	APPLICATION	d	
#532-745	#532-790	A. Twin Cam [®] 3-3-4" bore (88 & 96")	6	0
#532-722	#532-721	A. Twin Cam [®] 3-7/8" bore (95 & 103")	A	В
#532-726	#532-725	A. Twin Cam [®] 4" bore (110")		6
#532-876	#532-873	A. Twin Cam [®] 4-1/8" bore		
#532-689	#532-688	B. Evolution® 3-1/2" (stock) bore BT80 /	<u></u>	
#532-257	N/A	B. Evolution® 3-9/16" bore BT / XL		67
#532-691	#532-690	B. Evolution® 3-5/8" bore BT / XL		
#532-695	#532-694	B. Evolution® 3-3/4" bore BT / XL	C	D
#532-693	#532-692	B. Evolution® 3-13/16" bore BT / XL		
#532-003	N/A	C. XR1200® 3-1/2" (stock) bore		
#532-004	N/A	C. XR1200 [®] 3-13/16" bore	0	
#532-880	#532-878	D. S&S® EV Super Sidewinder® & TP 4" bore		
#532-933	#532-931	E. S&S® 4-1/8" Super Sidewinder® Plus		
#532-884	#532-882	TP 121" 4-1/8" bore	E I	F P
#532-984	N/A	F. Shovel 3-7/16, 3-1/2" bore (stock 74/80)		
#532-985	N/A	F. Shovel 3-5/8 bore engine		
			•	





Cometic Copper Head Gaskets

Specialty gaskets made from copper.

•	, ,	
PART	NO.	DESCRIPTION

#532-375 A. 3-13/16" EV copper .043" head gaskets, pair **#532-347 B.** 3-13/16" Shovel copper .020" head gaskets, pair

Cometic 'SLS' Base Gaskets

Cometic's 'SLS' (Single Layer Steel) .020" base gaskets are made from spring steel for durability, with a .001" thick layer of viton rubber on both sides for improved leak resistance. Sold in pairs.

SET/2 .020"	APPLICATION			
#532-738	A. Twin Cam® 4" bore		8	200
#532-739	A. Twin Cam [®] 4-1/8" bore			Y
#532-551	B. EV Big Twin 3-1/2" bore (stock)	Α	В	(c)
#532-553	C. EV XL 883-1200 3-1/2" bore (stock)	A		X
#532-552	B. EV BT / XL engine 3-5/8" bore			
#532-870	B. EV BT / XL engine 3-13/16" bore			
#532-872	D. S&S SSW EV BT 4" bore			
#532-936	E. S&S SSW+ EV&TC 4-1/8" bore	7	V	
#532-874	TP 121"4-1/8" bore	D	[E]	
#532-206	F. Shovel 3-7/16, 3-1/2" bore (stock 74/80)		-	
#532-207	F. Shovel engine 3-5/8" bore			
#532-893	F. Shovel engine 3-13/16" bore			





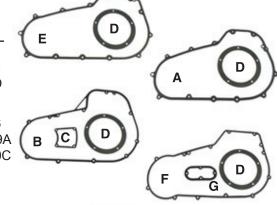
We stock these copper base gaskets in 4 different thicknesses, allowing the builder to adjust cylinder deck height for precise piston-to-head squish area. Simplifies set-up when building performance engines. Sold in pairs, or in 'Builders Kits' which include 2 each of .005", .010", .016" and .020" thicknesses, for stock or big bore Evolution® engines.

	APPLICATION	.005"	.010"	.016"	.020"	BUILDERS KIT
1	EV Sportster® 3-1/2" bore	#532-205	#532-210	#532-216	#532-220	#532-200
	EV Big Twin 3-1/2" bore	#532-305	#532-310	#532-316	#532-320	#532-300
	EV BT or XL 3-5/8" bore	#532-605	#532-610	#532-616	#532-620	#532-600
	EV BT or XL 3-13/16" bore	#532-705	#532-710	#532-716	#532-720	#532-700

Cometic Gaskets

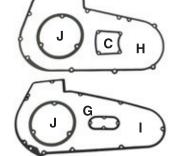
Cometic 'Afm' Primary Gaskets Cometic Twin Cam® Primary Chaincase Gaskets

PART NO.	DESCRIPTION
#832-179	A. Pk/5 '07-'14 FL AFM Touring prim cover OE #34901-07
#832-307	B. Pk/5 '94-'06 FL AFM Touring prim cover OE #34901-94C
#832-305	C. Pk/5 '85-'06 FL AFM Touring insp cover OE #34906-85D
#832-997	D. Pk/5 '99-'14 (all) AFM 5-hole derby cvr OE #25416-99
#832-145 #832-309 #832-331 #832-997	 E. Pk/5 '06-'14 FXD, '07-'11 Softail® prim cvr OE #60547-06 F. Pk/5 '91-'05 FXD, '89-'06 Softail® prim cvr OE #60539-89A G. Pk/5 '91-'05 FXD, '84-'06 Softail® insp cvr OE #60567-90C D. Pk/5 '99-'14 (all) AFM 5-hole derby cvr OE #25416-99



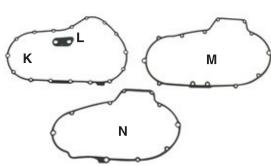
Cometic Big Twin Primary Chaincase Gaskets

PART NO.	DESCRIPTION
#832-307	B. Pk/5 '94-'06 FLT, FXR AFM primary cover OE #34901-94C
#832-308	H. Pk/5 '80-'93 FLT, FXR AFM primary cover OE #34901-79B
#832-305	C. Pk/5 '85-'06 FLT, FXR AFM inspection cover OE #34906-85D
#832-309	F. Pk/5 '91-'05 FXD, '89-'06 Softail® primary cover OE #60539-89A
#832-607	I. Pk/5 '84-'88 Softail®, '65-'86 4 speed primary cover OE #60538-81
#832-331	G. Pk/5 '91-'05 FXD, '84-'06 Softail® inspection cover OE #60567-90
#832-338	J. Pk/5 '65-'98 (all) AFM 3-hole derby cover OE #25416-70/83



Cometic Sportster® Primary Chaincase Gaskets

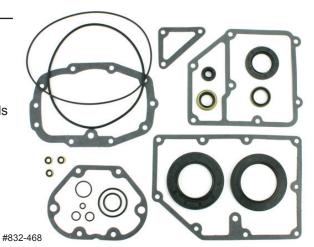
PART NO.	DESCRIPTION
#832-943	K. Pk/5 '04-'14 XL AFM primary cover OE #34955-04
#832-957	L. Pk/5 '04-'14 XL AFM chain inspection OE #34986-04
#832-314	M. Pk/5 '91-'03 XL AFM primary cover OE #34955-89B
#832-310	N. Pk/5 '77-'90 XL AFM primary cover OE #34955-75



Cometic Transmission Gasket Sets

Get all the seals, o-rings and gaskets required for a complete transmission teardown all in one kit. Gaskets are made from Aramid fiber, a premium, high temperature, creep resistant material that requires no re-torquing.

PART NO.	DESCRIPTION
#832-175	'07-'14 Touring models 6 speed
#832-174	'07-'14 Softail® models 6 speed
#832-151	'06-'14 Dyna® models 6 speed
#832-639	'99-'06 Touring and '00-'06 Softail® 5 speed
#832-640	'99-'05 FXD Dyna® Twin Cam® 5 speed
#832-469	'93-'98 Touring, '93-'00 FXR, '93-'99 Softail® models
#832-468	'91-'98 FXD Dyna® models 5 speed
#832-467	'L84-'92 5speed Big Twins except Dyna® models
#832-466	'80-'E84 FLT & FXR 5 speed models
#832-465	'L79-'86 4 speed FX-FL models
#832-464	'70-'E79 4 speed FX-FL models



James Gasket Kits

James Gaskets was started in 1979 by James Clark with the desire to improve sealing technologies on H-D® engines. Since then, the James product line has continued to expand and provide innovative solutions to mechanics all over the world seeking leak-free engines, primarys and transmissions.

James Complete Engine Gasket Sets

Complete rebuild sets include 1-piece coated composite head gaskets, coated metal rocker box and cylinder base gaskets (except Iron XL); EV models include rubber rocker layer gaskets.

PART NO.	DESCRIPTION	
#656-002	Twin Cam [®] '99-up 88 & 96" (stock 3-3/4" bore)	
#656-004	Twin Cam [®] '99-up 95 & 103" (3-7/8" bore)	
#656-010	EV Big Twin '92-'99 80" (stock 3-/2" bore)	
#656-007	EV Big Twin '84-'91 80" (stock 3-/2" bore)	
#656-025	Shovelhead '66-'84 (stock bore)	
#656-020	EV Sportster® '91-'03 883 & 1200	
#656-015	EV Sportster® '86-'90 883 & 1200	
#656-035	Iron Sportster® 'L73-'85 (stock bore)	



James Top End Gasket Sets

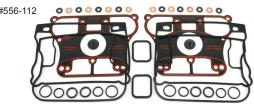
All kits include 1-piece coated composite head gaskets, coated metal rocker box and cylinder base gaskets (except Iron XL); EV models include rubber rocker layer gaskets.

PART NO.	DESCRIPTION
#556-588	Twin Cam [®] '99-up 88 & 96" (stock 3-3/4" bore)
#556-595	Twin Cam [®] '99-up 95 & 103" (3-7/8" bore)
#556-102	EV Big Twin '92-'99 80" (stock 3-/2" bore)
#556-100	EV Big Twin '84-'91 80" (stock 3-/2" bore)
#556-120	Shovelhead '66-'84 (stock bore)
#556-125	Panhead '48-'65 (stock bore)
#556-132	EV Sportster® '91-'03 883 & 1200
#556-130	EV Sportster® '86-'90 883 & 1200
#556-150	Iron Sportster® 'L73-'85 (stock bore)



James Rocker-Only Gasket Sets

All include coated metal rocker box base gaskets and pushrod tube seals; EV models include rubber rocker layer gaskets.



DESCRIPTION
Twin Cam [®] '99-up
EV Big Twin '92-'99
EV Big Twin '84-'91
EV Sportster® '91-'03
EV Sportster® '86-'90

James Metal Base Gaskets

Excellent James Gaskets are manufactured using only top grade materials. Perfect for any rebuilding or repair job. Made in USA from SAE 1010 steel and bonded with oil resistant rubber, with an additional proprietary release coating to facilitate clean removal of gaskets upon disassembly. Sold in pairs!





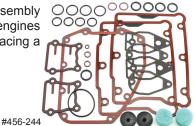


PART NO.	DESCRIPTION
#556-105	A. Pr/EV Big Twin, stock 3-1/2" bore, .020"
#556-106	A. Pr/EV Big Twin, 3-5/8" bore, .020"
#556-107	B. Pr/EV Sportster®, stock 3-1/2" bore, .020"
#556-104	C. Pr/Shovelhead, stock bore, .034"
#556-108	C. Pr/Shovelhead, 3-5/8" bore, .020"
#556-109	C. Pr/Shovelhead, 3-5/8" bore, .034"

James Cam Gasket Sets

'99-up Twin Cam® engines include rocket lid, cam cover, tappet cover and breather assembly gaskets, and pushrod tube o-rings required when replacing cams. '70-'99 Single-cam engines include cam cover and tappet gaskets, seals and pushrod tube o-rings required when replacing a cam (rocker gaskets not included).

PART NO.	DESCRIPTION
#456-244	'99-up Twin Cam®
#456-200	'70-'92 Big Twin
#456-205	'93-'99 Big Twin



James Gasket Kits

James Pushrod Cover Re-Sealing Kits

Perfe

erfect for re-sealing telescoping pushrod covers.		$\bigcirc \bigcirc \bigcirc \bigcirc$		88	XX	
	PART NO.	DESCRIPTION	0	O	∞	00
	#456-400	A. '99-'14 Twin Cam®, includes tappet cover gaskets	OP-91	(000)	88	QQ
	#456-405	B. '84-'99 EV BT, '86-'90 XL tube o-rings & steel base washers	OB-18	∞		
	#456-410	C. 'L79-84 BT Shovel tube o-rings		∞	88	00
	#456-415	D. '48-'E79 Big Twin rubber (cork-style) pushrod seals	$\overline{\mathfrak{M}}$		00	OO

James CV Carburetor Overhaul Kit

Includes gaskets, o-rings, pump boot, spring and diaphragm, needle, intake manifold seals and air cleaner mounting gaskets. Everything you need to overhaul a CV carb #156-006

erything you need to overhauf a CV carb.		#10
PART NO.	DESCRIPTION	
#156-006	James CV carb overhaul kit, all years	

James Oil Pump Rebuild Kit

Includes all parts necessary to rebuild a stock oil pump. Supplied with coated paper gaskets, seals, o-rings, keys and circlips. Perfect for any repair or rebuild job.

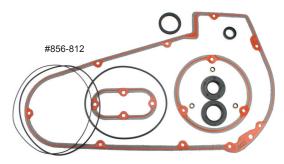
PART NO.	DESCRIPTION
#656-379	Big Twin '68-'80
#656-381	Big Twin '81-'91
#656-392	Big Twin '92-'99
#656-354	Sportster to '76
#656-377	Sportster '77-'90
#656-391	Sportster '91-'14 (not XR)





James Primary Service Kits

Includes all gaskets, o-rings, lock tabs and seals for servicing the primary drive compartment.



PART NO.	DESCRIPTION
#856-806	'07-'14 FLT 6-speed Big Twin inner & outer covers
#856-804	'94-'06 FLT/FXR 5-speed Big Twin inner & outer covers
#856-802	'80-'93 FLT/FXR 5-speed Big Twin inner & outer covers
#856-816	'07-'14 FXST, '06-'14 FXD Big Twin inner & outer covers
#856-814	'89-'06 FXST, '91-'05 FXD Big Twin inner & outer covers
#856-812	'65-'86 FX/FL 4-speed, '84-'88 FXST inner & outer covers
#856-826	'04-'14 Sportster® primary cover gaskets & seals
#856-824	'91-'03 Sportster® primary cover gaskets & seals
#856-822	'77-'90 Sportster® primary cover gaskets & seals

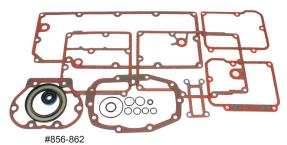
James Case Saver Gasket Kits

These kits are designed to seal the inner primary on Big Twin engine cases where the o-ring lip has been cracked or broken. Includes a Foamet® covered steel gasket and special locking tabs.

PART NO.	DESCRIPTION	9 000 9	1
#856-800	A. '84-'06 Big Twin 5-speed	/ o o T /	
#856-810	B. '70-'84 Big Twin 4-speed		
		2000	- 4

James Transmission Gasket Kits

All the quality gaskets, seals and o-rings you'll need to overhaul your transmission.



PART NO.	DESCRIPTION
#856-864	'07-'14 Touring with oil pan
#856-862	'99-'06 Touring, '99-'05 FXD Dyna® with oil pan
#856-860	'93-'98 Touring with oil pan
#856-874	'06-'14 FXD Dyna® with oil pan
#856-870	'91-'98 FXD Dyna® with oil pan
#856-855	'86-'06 Softail®, '82-'00 FXR, '80-'92 FLT 5 speed
#856-850	'36-'86 4 speed FX-FL models

S&S® Engine and Component Gaskets

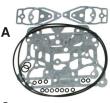
Specialty gaskets for servicing S&S® engines.

S&S® Complete Engine Gasket Kits

Complete overhaul gasket sets for S&S® engines. Due to engine options, kits may include gaskets not required in some applications.

PART NO.	DESCRIPTION
#698-810	'99-'06 4-1/8" bore S&S® Twin Cam® style engine
#698-820	'84-'99 4-1/8" bore S&S® Evolution® style engine
#698-823	'84-'99 4" bore S&S® Evolution® style engine
#698-826	'84-'99 3-5/8" bore S&S® Evolution® style engine
#698-830	'66-'84 3-1/2" bore S&S® Shovel style engine
#698-833	'48-'84 3-5/8" bore S&S® Pan & Shovel style engine

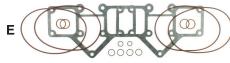














S&S® Rocker Box Gasket Sets

Full set of rocker box gaskets for a pair of S&S®-brand rocker boxes. Two styles of rocker boxes are manufactured by S&S® for EV & TC engines, original billet and newer die-cast. These gasket kits do not interchange. The easiest way to identify which one you have is by the rocker cover lid formed o-ring. The die-cast has a flat rubber flapper valve built into the breather window of that gasket; the billet style does not.

PART NO.	DESCRIPTION
#598-473	A. For billet S&S® TC rocker boxes
#598-471	B. For die cast S&S® TC rocker boxes
#598-441	C. For die cast S&S® EV rocker boxes
#598-449	D. For billet S&S® EV rocker boxes
#598-431	E. For S&S® Shovel style rocker boxes

S&S® Head, Base & Exhaust Gasket Kits

Two each head, base and exhaust gaskets for use on S&S® engines.

DESCRIPTION	
4-1/8" bore, S&S® stud pattern TC & EV	style engine
4" bore S&S® Twin Cam® style engine	
3.927" bore S&S® Twin Cam® cylinder k	it
4" bore S&S® EV BT & XL engine	
3-5/8" bore EV-style Big Twin	
3-5/8" bore EV-style XL/Buell®	
3-5/8" bore Pan/Shovel style engine	
	4-1/8" bore, S&S® stud pattern TC & EV 4" bore S&S® Twin Cam® style engine 3.927" bore S&S® Twin Cam® cylinder k 4" bore S&S® EV BT & XL engine 3-5/8" bore EV-style Big Twin 3-5/8" bore EV-style XL/Buell®

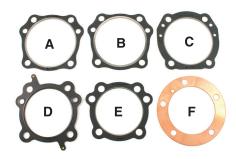
S&S® Sportster®/Buell® Cam Cover Gasket

Special cam cover gasket designed for use with S&S® XL case and cam cover (only).

PART NO. DESCRIPTION

#498-252 S&S® XL/Buell® '86-'03 case/cam cover gasket





S&S[®] Head Gaskets

Cylinder head gaskets specific to S&S® engines, one-piece style unless otherwise noted, **sold each.**

PART NO.	DESCRIPTION
#598-273	A. 4-1/8" bore .043" TC & EV SSW+, each
#598-243	B. 4" bore .043" Twin Cam® style, each
#598-240	C. 4" bore .045" Evolution® BT & XL, each
#598-238	D. 3.927" bore .045" Twin Cam® MLS, each
#598-237	E. 3-5/8" bore .045" EV BT & XL, each
#598-242	F. 3-5/8" bore 032" Shovel/Pan copper each

S&S® Oil Pump Gaskets

Select 'Gaskets Only' or 'Master' kits which include gaskets, keys, clips and seals.

GASKETS ONLY	MASTER KIT	DESCRIPTION
#698-299	#698-300	Fits '92-'99 HVHP S&S® pump
#698-273	#698-278	Fits '92-'99 Standard S&S® pump
#698-308	#698-309	Fits '36-'91 HVHP S&S® pump
#698-271	#698-275	Fits '36-'91 Standard S&S® pump



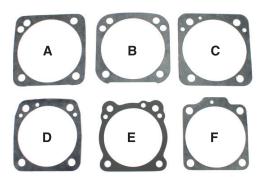


S&S® Engine and Component Gaskets

S&S® Base Gaskets

Micropore cylinder base gaskets specific to S&S® engines, sold each.

PART NO.	DESCRIPTION
#598-274	A. 4-1/8" bore .018" TC & EV SSW+, each
#598-268	B. 4" bore .018" Twin Cam®, each
#598-231	C. 4" bore .018" EV BT & XL SSW, each
#598-233	D. 3-5/8" bore .018" EV BT, each
#598-239	E. 3-5/8" bore .018" EV XL/Buell®, each
#598-222	F. 3-5/8" bore .018" Shovel/Pan, each

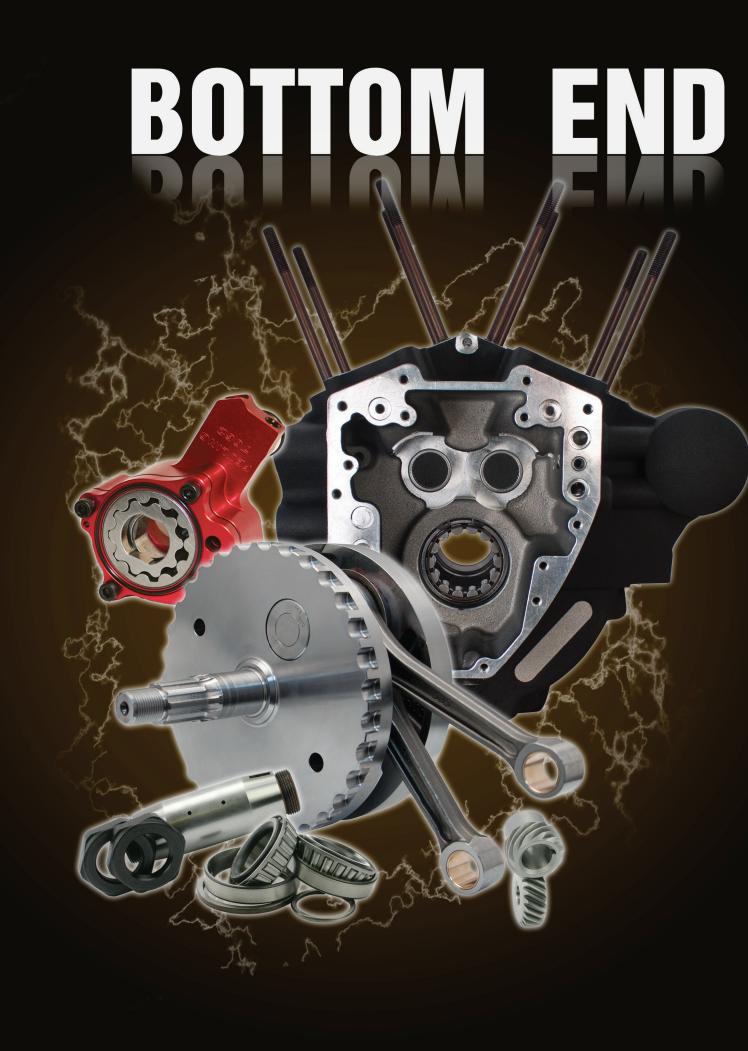


Cylinder Head O-Rings

In many hi-compression or big inch engines, head gaskets don't do an adequate job of sealing combustion at cylinder and head. The solution is machine the cylinder to accept an O-ring in place of the gasket. Special Viton O-rings are used in this case. **Sold Each.**

PART NO.	DESCRIPTION
#572-044	3-3/4" ID, for o-ringed stock EV and Axtell 3-5/8" & 3-13/16" bore cast cylinders
#572-045 #572-046 #572-047 #572-048	4" ID, for 3-13/16" bore ductile cylinders 4-1/4" ID, for 4" bore ductile cylinders 4-1/2" ID, for 4-1/4" bore ductile cylinders 4-3/4" ID, for 4-1/2+" bore ductile cylinders





Twin Cam[®] Engine **Engine Rebuild Parts**

Quality bearings, bushings, races and other parts for engine rebuild and upgrades. Proven parts that will provide years of faithful service.

Twin Cam[®] Engine Cam Bearings

PART NO.	DESCRIPTION	Will the same
#417-460	'07-up TC & 2006 FXD Torrington-brand inner cam bearings, set of 2	#4
#630-974	'99-'06 (except 2006 FXD) TC Torrington-brand inner cam bearings, set of 2	
#450-983	'99-'06 (except 2006 FXD) TC outer rear cam chain-drive roller bearing kit	6
#874-990	'99-'06 (except 2006 FXD) TC outer front cam ball bearing (use 2 for gear drive)	
#417-450	'99-'06 (except 2006 FXD) 4 PC inner/outer cam bearing set for chain drive	
#417-455	'99-'06 (except 2006 FXD) 4 PC inner/outer cam bearing set for gear drive	450-983





#630-974



Twin Cam[®] Primary Cam Sprocket Spacers

Use to align the primary cam chain sprocket with the pinion shaft sprocket. Sold as a set or individually.

'07-UP TC & 2006 FXD, TC CAM SPROCKET SPACER, EACH

.100"	#450	729	.110"	#450-731	.120"	#450-734
.130"	#450	736	.140"	#450-737	.150"	#450-738
#450-7	726	'07-up TC	& 2006	FXD, Set of 6 (.100" -	.150")



.287"	#450-722	.297"	#450-723	.307"	#450-721
.317"	#450-719	.327"	#450-717		

'99-'06 (except 2006 FXD) TC, Set of 5 (.287" - .327)





Twin Cam[®] Crankcase Bearings



#450-700



DESCRIPTION PART NO. #650-604

Left or right crankshaft bearing, '03-up TC A or B engine, each (OE #24605-07) #650-623 **#650-623** Right side pinion bearing, '99-'02 TC-A engine (OE #24623-99B) #630-048 Left case Timken® bearing & race set, '99-'02 TC A or B engine (OE #9028)

#644-048 Left case Timken® bearings only (2), '99-'02 TC A or B engine

#650-603 Left case roller bearing/inner race/thrust washer kit (OE #24004-03B) (use when installing pre-'03 crank in '03-up engine)

#874-992 Balancer shaft bearing (case), '07-up TC-B, each (OE #8992A) 2 reg'd #650-959 Balancer shaft bearing (housing), '07-up TC-B, each (OE #8959) 2 req'd #630-048 **#650-989** Balancer shaft bearing (case), '00-'06 TC-B, each (OE #8989) 2 reg'd

#650-991 Balancer shaft bearing (housing), '00-'06 TC-B, each (OE #8991) 2 reg'd #650-700



#650-991

Balancer shaft spacer set; use to align sprockets between crankshaft and counter balancers. 2000-2006 'B' Engines - Includes 2 each spacers .130"-.210" in .010" increments

#
#

BALANCER SHAFT SPACERS, SOLD IN PAIRS BY SIZE

.130"	#650-780	.140"	#650-781	.150"	#650-782
.160"	#650-783	.170"	#650-784	.180"	#650-785
.190"	#650-786	.200"	#650-787	.210"	#650-788



Timken® Spacers

Use these hardened and ground spacers when converting 2003 and later Twin Cam[®] engine cases to a Timken® output bearing. These spacers will provide correct primary chain sprocket alignment when assembling the engine with the wider Timken® bearing.

DESCRIPTION	
Sprocket spacer '03-up Touring, '06-up Dyna®, '07-up Softail® with Timken® conversion	
Sprocket spacer 2003 (only) Dyna® with Timken® conversion	
Sprocket spacer '03-'06 Softail®, '04-'05 Dyna® with Timken® conversion	
Set of 16, end play center spacers for BT Timken® bearings (.089"120")	
Set of 5, most commonly used center spacers for BT Timken® bearings (.0975"-	.1065")
	Sprocket spacer '03-up Touring, '06-up Dyna®, '07-up Softail® with Timken® conversion Sprocket spacer 2003 (only) Dyna® with Timken® conversion Sprocket spacer '03-'06 Softail®, '04-'05 Dyna® with Timken® conversion



Twin Cam[®] Bushings

PART NO.	DESCRIPTION
#658-998 #458-301	'99-'09 TC wrist pin bushings (full width), set of 2 TC rocker arm bushing (8 req'd), each





Single Cam Big Twin Engine

#630-805

Single Cam Big Twin Cam Bearings

PART NO.	DESCRIPTION
#630-805	Torrington cam (case) bearing '58-'99, each



PART NO.	DESCRIPTION
#630-048	'69-'99 BT left side brg/race set, Timken® (OE #9028)
#644-048	'69-'99 BT left side bearings (2) only (no races)
#630-927	'55-'68 BT left side brg/race set, Timken® (OE #9029)
#658-002	'70-'99 BT left bearing seal spacer (OE # 24002-70)



Pinion Bearings

'58-'86 BIG TWIN - PINION ROLLER SET (28 LOOSE ROLLERS)

#644-223 (+.0006") #644-220 (Std.) #644-221 (+.0002") **#644-222** (+.0004")

#644-224 (+.0008") **#644-225** (+.001") **#644-226** (+.002")

'87-'99 EV BIG TWIN - LATE CAGED PINION ROLLER SET

White/Grey (OE #24626-87A) #650-628 Green (OE #24628-87A) **#650-641** Red (OE #24641-87A) **#650-643** Blue (OE #24643-87A)





Pinion Bearing Races

'58-UP BIG TWIN RIGHT CASE PINION RACE, JIMS® BRAND

#658-020 (Std.) **#658-022** (+.002") **#658-026** (+.010") **#658-028** (+.032")



Rod Bearing & Races

Aluminum rod cages with bearings. (Standard and Oversize)

BIG TWIN '41-'99

#644-000 (Std.) **#644-001** (+.001") **#644-002** (+.002") **#644-003** (+.003")

PART NO. **DESCRIPTION**

#658-500 JIMS® '41-'99 Big Twin rod races, set of 3 #649-303 '71-'91 BT Flywheel washer (2 reg'd), each

















Engine	Bushings & Shafts
PART NO.	DESCRIPTION
#688-300	'36-'99 wrist pin bushings, set of 2
#458-300	JIMS® Shovel rocker arm bushing (8 req'd), ea
#458-301	JIMS® EV/TC rocker arm bushing (8 req'd) ea
#458-311	JIMS® '36-'69 B/T cam cover cam bushing
#458-315	Std JIMS® '70-'99 B/T cam cover cam bushing
#458-317	+.005" '70-'99 B/T cam cover cam bushing
#458-320	JIMS® '54-'92 B/T cam cover pinion bushing
#458-325	JIMS® '93-'99 B/T cam cover pinion bushing
#458-190	JIMS® '36-'69 idler gear shaft & bushing kit
#458-192	JIMS® '36-'69 circuit breaker gear shaft/bush kit
#458-305	JIMS® '36-'99 Big Twin oil pump shaft bushing
#658-180	JIMS® '36-'67 Big Twin JIMS Oil pump shaft
#658-182	JIMS® '68-'99 Big Twin JIMS Oil pump shaft

Sportster® Engine

Sportster® Cam Bearings

DESCRIPTION PART NO.

#630-400 Torrington (OE #9057) '57-'90, each (4 req'd)



Sportster® Shaft Bearings

PART NO.	DESCRIPTION
#630-042	'54-'76 XL left side bearing/race set, Timken® (OE #24929-52)
#630-134	'77-'03 XL left side bearing/race set, Timken® (OE #24729-74)



Pinion Bearings

'54-'76 SPORTSTER® - PINION ROLLER SET (13 LOOSE ROLLERS)

#644-421 (Std) **#644-422** (+.0002") **#644-423** (+.0004") **#644-424** (+.0006") **#644-425** (+.0008") **#644-426** (+.001")

'77-'86 SPORTSTER® - CAGED BEARING AND INNER RACE (PRESSES ON PINION SHAFT)

#649-790 Bearing Only #650-648 Bearing & Inner Race Set

'87-UP SPORTSTER® - LATE CAGED PINION ROLLER SET

#650-647 Blue (OE #24647-87A) #650-650 Red (OE #24650-87A) **#650-659** Wht/Grey (OE #24659-87A) **#650-660** Green (OE #24660-87A)

Pinion Bearing Races

'57-'76 XL® RIGHT CASE PINION RACE, JIMS® BRAND

#658-010 (Std.) #658-012 (+.005")

Rod Bearing & Races

Aluminum rod cages with bearings. (Standard and Oversize)

SPORTSTER® '57-'E86 (CAN BE USED ON L'86-UP IF FLYWHEEL THRUST WASHERS ARE CHANGED TO #649-303)

#648-200 #644-010 (Std.) **#644-011** (+.001") **#644-012** (+.002") **#644-013** (+.003") PART NO. **DESCRIPTION**

#648-200 '57-Up Sportster® rod races, Set of 3

#649-303 Flywheel washer, '79-'E86 XL® (2 req'd), each







Bushings

+.005" OVERSIZE	DESCRIPTION	
N/A	'54-up wrist pin bushings (Set of 2)	#588-310
N/A	JIMS® Iron XL® rocker arm bushing (8 req'd) each	
N/A	JIMS [®] EV XL [®] rocker arm bushing (8 req'd) each	
#458-332	JIMS [®] '54-up XL [®] cam cover #1,3 & 4 cam bushing	
#458-337	JIMS [®] '57-'90 XL [®] cam cover #2 cam bushing	
#458-332	JIMS [®] '91-up XL [®] case cam bushing (4 req'd)	
N/A	JIMS® '57-'74 XL® cam cover pinion bushing	
N/A	JIMS [®] '75-up XL [®] cam cover pinion bushing	58-300
#458-330	#458-335 #458-350 #458-355	#458-301
	N/A N/A N/A #458-332 #458-337 #458-332 N/A N/A	N/A N/A N/A JIMS® Iron XL® rocker arm bushing (8 req'd) each N/A JIMS® EV XL® rocker arm bushing (8 req'd) each JIMS® 54-up XL® cam cover #1,3 & 4 cam bushing JIMS® 57-'90 XL® cam cover #2 cam bushing JIMS® 91-up XL® case cam bushing (4 req'd) N/A JIMS® 57-'74 XL® cam cover pinion bushing N/A JIMS® 75-up XL® cam cover pinion bushing JIMS® 75-up XL® cam cover pinion bushing #458-335 #458-350

S&S® Twin Cam® 'A' Style Engine Cases

S&S® Twin Cam® 'A' style (non-counterbalanced) engine cases are available for the builder who wants to replace a worn out set or use as a rock-solid foundation for a large displacement engine. Made from high strength heat-treated aluminum castings, these cases incorporate additional clearance for longer stroke crankshafts and high lift cams. Additional support has been added around the engine mounts and Timken® output bearings for greater overall strength than stock cases in a high performance application. Includes cylinder studs, Torrington cam bearings, Timken® sprocket shaft bearing and assembly hardware. Compatible with stock components in Twin Cam® applications but requires year-specific oil line/installation kit. 2007-up cases require a simple transmission case modification; drilling fixture jig available, recommended for easy installation. A special version of these cases includes an Evolution®-style rear mount that allows mounting in any EV-style chassis, and accepts 1999-2005 Twin Cam® engine components for those that want to update their EV-based bike to a Twin Cam® style engine.



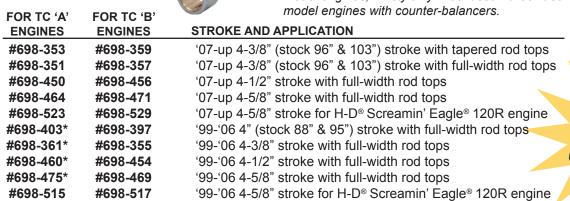
PART NO.	FOR 2007-UP TOURING MODELS
#698-967 #698-966	Black finish, stock bore cases, for 2007-up Touring models (not for 2007-up Dyna® models) Silver finish, stock bore cases, for 2007-up Touring models (not for 2007-up Dyna® models)
#698-435 #798-006	Oil line/installation kit, required for 2007-up Touring models (not for 2007-up Dyna® models) Transmission drilling fixture jig, optional for 2007-up Touring models
PART NO.	FOR '99-'06 TOURING, '99-'05 FXD MODELS
#698-952 #698-951	Black finish cases, stock bore, for '99-'06 Touring, '99-'05 Dyna® models Silver finish cases, stock bore, for '99-'06 Touring, '99-'05 Dyna® models
#698-425 #698-424	'99-'06 Touring model installation kit (required for Touring models) '99-'05 Dyna® model installation kit (required for Dyna® models)
PART NO.	FOR '84-'99 EV CHASSIS & TRANSMISSION
#698-974 #698-973	Black finish cases, stock bore '99-'06 Twin Cam® style cases with EV transmission mount Silver finish cases, stock bore '99-'06 Twin Cam® style cases with EV transmission mount



Want the strongest foundation for your Twin Cam® engine? Let us supply you with a new S&S® crankshaft assembly. Completely redesigned for 2014, these crankshafts are manufactured from heat-treated 4140 steel material that is 114% stronger than the stock flywheel material. To minimize the possibility of wheel shifting and flex, the new

1-piece integral flywheel/shaft halves are now assembled with a larger diameter 1.671" crank pin for a 5% gain in cross-sectional area that results in increased clamping force. Lighter weight connecting rod forgings allow higher rpm capabilities and have 20 rod rollers (vs. 18 stock) for increased strength and durability. These new features keep these wheels running true and eliminate the need for additional labor and welding to prevent the dreaded flywheel shifting!

'A'-style flywheel assemblies fit rubber-mounted Touring and Dyna® model engines; 'B'-style flywheel assemblies fit solid-mounted Softail® model engines with counter-balancers.



*Does not fit 2006 Dyna® (FXD) engines. These engines use 2007 'A'-style crankshafts.

Twin Cam® Engine

Axtell Oil Bypass Valve for Twin Cam® Engines

This is a new product designed and developed by the Axtell Mountain Motor team. This bypass valve consists of a precision-machined "needle and seat" that inserts in place of the factory oil pressure relief valve located within the cam plate. With the factory OEM oiling system configuration, when oil pressure becomes excessive, it is bypassed from the high pressure side of the feed gerotor back to the low pressure side, "looping" the oil in the feed gerotor gears. This causes the introduction of air into the pressurized oil (aeration) - aerated oil is foamy and spongy, and results in lower oil pressure and volume. When this occurs, the entire oiling system is affected - engine heat and noise builds, piston oilers shut down sooner than designed, valve train and top end life is shortened. This system directs the bypassed oil into the cam chest, where the scavenge side of the oil pump returns it to the oil tank and eliminates the oil "looping" and its negative effects.



With the Axtell valve you can expect higher, more stable oil pressure at all engine rpms, longer oil life due to reduced oil shear, lower oil and engine temperature, improved valve train control and reduced noise. Zipper's recommends this for use with our Red Shift Dual Piston Cam Chain Tensioners. Patent Pending #61/693,612

PART NO. DESCRIPTION

#620-103 Axtell Bypass Valve for All Harley-Davidson® and Screamin' Eagle® Brand Twin Cam® Cam Plates

Baisley® Precision-Ground Bypass Plunger



The Oil Pressure Relief Valve is designed to limit the oil feed pressure at higher engine rpms, primarily to reduce excessive oil volume from being pumped to the top end. However, the factory-installed valve body does not have a concentric taper to seal on, and does not properly seal oil pressure when operating below the blow-off point found at lower engine rpms. Baisley's® Performance's Precision-Ground Oil Pressure Relief Valve has a concentric taper that is designed to seal the oil pressure below the blow-off point. This enhances and stabilizes the oil pressure at idle, and forces the oil to take the correct path to the critical areas of the engine; like the tappets, cam chain tensioners, piston cooling jets, and the top end.

PART NO. DESCRIPTION

#626-010 Baisley® Precision-Ground Bypass Plunger, fits all Twin Cam® engines

Baisley® LMR Oil Pressure Bypass Springs

Baisley's® LMR oil pressure spring replaces the factory oil bypass valve spring and offers increased seat pressure and overall spring force. Baisley® springs operate in a progressive manner, and are precision ground to exact lengths. LMR-4 is best for use in large displacement engines with upgraded oil pumps and aggressive cams.



PART NO.	DESCRIPTION
#626-002	Baisley® Hi-Performance LMR-2 spring; 6.2 lbs of seat force, 14.2 lbs fully compressed
#626-004	Baisley® Hi-Performance LMR-4 spring; 7.0 lbs of seat force, 16.7 lbs fully compressed

Zipper's 1999-2006 Twin Cam® Oil Bypass Shim

The Twin Cam® engine features an oil pressure bypass passage within the cam support plate that is controlled by a spring-loaded plunger. The purpose of this passage is to allow excess oil pressure to be diverted back to the feed section of the oil system. Inconsistencies in spring length and passage machining can cause the plunger to open prematurely and/or not fully close the passage when it's supposed to be closed, resulting in a loss of critical oil pressure and volume at lower RPM's. This machined shim assures proper spring pre-load, improving oil pressure and volume in 1999-2006 engines (except 2006 FXD engines).

PART NO.	APPLICATION
#617-602	Each, Zipper's '99-'06 TC Oil Bypass Shim
#617-603	PK/5, Zipper's '99-'06 TC Oil Bypass Shim
#617-604	PK/10, Zipper's '99-'06 TC Oil Bypass Shim



Twin Cam[®] Engine

Feuling® Oil Pumps For Twin Cam® Engines

Improving the critical oiling system of your Twin Cam® engine with a Feuling® oil pump. Many engines experience low oil pressure and volume, which leads to increased temperature, noisy, improperly operating lifters and loss of power. Feuling® has several pump styles - the HP+, Race Series and Super Scavenger - for both early and late Twin Cam® engines that deliver more feed and scavenge volume than the factory units, increasing engine efficiency and protection while lowering oil temperatures. Manufactured with CNC-machined billet aluminum pump bodies and chrome moly gerotor gears for much tighter tolerances than the factory units. Simple bolt-in installation.



Feuling® HP-Plus Pump

Body is machined from 6061 billet, natural aluminum finish. Recommended for street applications; works with factory, Screamin' Eagle® and aftermarket cam plates designed for the stock pump.

PART	NO.	DESCRIPTIO
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#672-700 #672-760 '99-'06 (not for 2006 FXD) 40% more pressure volume than stock, 60% more scavenge '07-up (& 2006 FXD) 32% more pressure volume than stock (16% more than SE); 38% more scavenge (9% more than SE)

Feuling® Race Series Pump

Body is machined from harder, stronger 7075 billet with hard-anodized red finish for tighter tolerances under temperature. Pump assembly is blueprinted to exacting tolerances; recommended for carefully assembled strip and high performance street applications with minimum crankshaft run-out. Works with factory, Screamin' Eagle® and aftermarket cam plates designed for the stock pump or high-flow pump.

PART NO.

DESCRIPTION

#672-750 #672-762 '99-'06 (not for 2006 FXD) 40% more pressure volume than stock, 60% more scavenge '07-up (& 2006 FXD) 32% more pressure volume than stock (16% more than SE); 38% more scavenge (9% more than SE)

Feuling® Super Scavenger Pump

Body is 7075 billet with hard-anodized red finish, blueprinted same as the race pump. Pressure housing is thinner resulting in a higher scavenge return ratio which further reduces wet-sumping and oil carryover from the cam chest and crankcase. Works with factory, Screamin' Eagle® and aftermarket cam plates designed for the stock pump or high-flow pump.

PART NO.	DESCRIPTION
#672-759	'99-'06 (not for 2006 FXD) 18% more pressure volume than stock, 60% more scavenge
#672-769	'07-up (& 2006 FXD) 10% more pressure volume than stock (5% more than SE);
	38% more scavenge (9% more than SE)



Feuling[®] Oil Pump Gasket Kits

	7	

 PART NO.
 DESCRIPTION

 #672-710
 For '99-'06 Feuling® pumps # 672-700, 672-750, 672-759

 #672-761
 For '07-up (& 2006 FXD) Feuling® pumps # 672-760, 672-762, 672-769

S&S® Single-Cam Big Twin Cases

S&S® Super Stock® cases for EV-Shovel-Pan engines are made from 356-T6 heat-treated aluminum for strength and a "clean" functional appearance. A host of design improvements have been incorporated in these cases. They are delivered clearanced for strokes up to 5" and most stock length aftermarket connecting rods including S&S® Supreme rods. Also included is a "ported" breather passageway and a breather cavity that is machined to maximum timing specs for improved oil scavenging. Additional material has been added to key areas for strength. S&S® Super Stock® cases are supplied complete with all bearings, fittings and hardware- ready for assembly! Included are: Timken® and cam bearings (installed), pinion bearing race (installed and line honed), drive sprocket spacer and seal, grade 8 nickel-plated case bolts, breather and oil line fittings, tappet screen and plug, cylinder mounting studs, timing plug and a magnetic case drain plug. All '70-up alternator cases are machined to accept the 1992 and later stock spin-on oil filter mount and crank position sensor, and require 'L73-'92 style cam covers.

NATURAL ALUMINUM	WRINKLE BLACK	POLISHED FINISH	S&S® EVOLUTION® REPLACEMENT CASE
#698-905	#698-935	N/A	'92-'99 for stock bore cylinders
#698-911	#698-936	#698-943	'92-'99 for 3-5/8" bore cylinders
#698-900	#698-902	N/A	'84-'91 for stock bore cylinders
#698-901	#698-953	N/A	'84-'91 for 3-5/8" bore cylinders

S&S® Special Application EV cases have raised decks and spread cylinder stud patterns for 4 inch to 4-1/8 inch bore cylinders, and have the cam chest offset 1/4" which requires specially machined tappet blocks and 1/4" longer pinion shaft. These cases have crank sensor ports that accepts the factory crank position sensor.

NATURAL ALUMINUM	WRINKLE BLACK	POLISHED FINISH	S&S® SPECIAL APPLICATION EV CASES	
#698-925	#698-957	#698-938	'92-'99 S/A 4" bore cases (107"/113" engines)	nes)
#698-933	#698-937	#698-939	'92-'99 S/A 4-1/8" bore cases (111"/117"/124" engin	

NATURAL ALUMINUM	SHOVEL & PANHEAD REPLACEMENT CASES
#698-903	'70-'84 Shovel case, for stock bore cylinders
#698-904	'70-'84 Shovel case, for 3-5/8" bore cylinders
#698-930	'70-'84 Shovel case, for 3-13/16" bore cylinders
#698-910	'65-'69 Generator Pan/Shovel, (alum primary), stock bore
#698-913	'65-'69 Generator Pan/Shovel, (alum primary), 3-5/8" bore
#698-908	'48-'64 Generator Pan (tin primary), stock bore
#698-907	'48-'64 Generator Pan (tin primary), 3-5/8" bore



V-Thunder® Engine Mounts

V-Thunder's® engine mounts use space age materials to further reduce vibration on bikes with rubber-mounted engines. Their engine stabilizers replace the stock links with what amounts to a mini shock absorber. A stainless steel body and plunger assembly utilizes a special urethane damping system that significantly reduces transmitted vibration. A similar material is used on their front engine mount for FXR and FLT models.

PART NO.	DESCRIPTION
#828-960	V-Thunder® engine stabilizers (set/2) for all FXR & '80-'08 FLT models
#828-961	V-Thunder® engine stabilizer, single for Dyna® models
#828-920	V-Thunder® front engine mount, all FXR & '80-'08 FLT models

#828-920

S&S® Single-Cam & EV Sportster® Crankshafts

These S&S® crankshaft assemblies are perfect for reconditioning and high performance applications. These crankshafts are balanced and assembled by S&S® with standard diameter flywheels and S&S® heavy-duty rods. We can supply you with a balanced, assembled and trued crankshaft, stock stroke or stroker, that's ready to install in your case.

1990 and later EV Big Twins and 1988 and later Sportster® engines require our Pinion Shaft Conversion Kit components, see below.

PART NO.	APPLICATION
#698-520* #698-522*	'84-'99 EV BT 4-1/4" stroke crankshaft '84-'99 EV BT 4-5/8" stroker crankshaft
#698-525 #698-527	'70-'84 Shovel 4-1/4" stroke crankshaft '70-'84 Shovel 4-1/2" stroker crankshaft
#698-530 #698-533 #698-535**	'86-'90 Sportster® 3-13/16" stroke crankshaft '91-'03 Sportster® 3-13/16" stroke crankshaft '91-'03 Sportster® 4-5/16" stroker crankshaft

^{*}Please specify at time of order if you desire EV BT flywheels notched for use with a crankshaft position sensor.

^{**}This crankshaft includes longer (7.113") connecting rods and requires longer cylinders.



S&S® Pinion Shaft Conversion Kits

Over the years, H-D® has made design changes in the cam drive system that compromised strength when output of the engine was increased. There have been many cases of the pinion gear shearing the key and spinning on the shaft, causing the valve train to crash in performance applications. S&S® crankshafts use the earlier, stronger design.

BIG TWINS: In 1990, H-D® eliminated the taper on the pinion shaft that the pinion gear was keyed and pressed to, replacing it with a straight shaft and single key, thus relying on the torque of the pinion gear nut to keep gear in place. S&S® uses the stronger '89 & earlier pinion shaft design and components. When installing S&S® crankshafts in '90 & later BT engines, order #698-228 Big Twin Pinion Shaft Conversion Kit which includes the correct oil pump drive gear, spacer, end nut & pinion gear ("red" gear supplied unless otherwise specified).

SPORTSTERS: In 1988, H-D® eliminated the splines on the pinion shaft that the pinion and oil pump drive gears were machined to, and replaced it with a straight shaft and key, thus relying on the torque of the pinion gear nut to keep the gear in place. S&S® uses the stronger '86-'87 pinion shaft design and components. When installing S&S® crankshafts in '88-'03 XL engines, order #698-328 XL Pinion Shaft Conversion Kit which includes the correct oil pump drive gear, spacer, end nut and pinion gear ("white" gear supplied unless otherwise specified).

PART NO.	APPLICATION
#698-228	S&S® Big Twin Pinion Shaft Conversion Kit
#698-328	S&S® XL Pinion Shaft Conversion Kit







S&S® Shafts For S&S® And O.E. Flywheels

"Some shafts drive you nuts... our shafts come with them!" is the slogan from S&S®. Sprocket shafts are specially designed with oversize 6 degree tapers and heavy-duty keyways for use with like-machined S&S® flywheels. Big Twin pinion shafts can be used in S&S® or factory flywheels that have replaceable shafts. And, as stated, all come with the hardware required to install them into the flywheels.

PART NO.	SHAFTS FOR BIG TWIN FLYWHEELS (INC. KEYS & NUTS)
#698-204	Sprocket shaft, '70-'99 engines with S&S® SE or SL code flywheels only
#698-224	Pinion shaft, fits '58-'E81 OE flywheels and S&S® '58-'E81 L, AL or SE code wheels
#698-227	Pinion shaft, fits 'L81-'89 OE flywheels and S&S® 'L81-up BL, SL or SM code wheels



S&S® Connecting Rod Sets

Premium rod sets for Harley-Davidson® and S&S® engines. Manufactured from 4140 chrome-moly steel, reinforced in all critical areas and heat treated for maximum durability. Two styles are available, Heavy-Duty or Supreme. Heavy-Duty rods are recommended for any street application, while S&S® recommends the Supreme rod set for all drag race applications and any street situation where the strongest is warranted. Rods are supplied with wrist pin bushings, rod races, crank pin, bearings, aluminum cages and nuts ready for installation.

HEAVY-DUTY	SUPREME	APPLICATION
#698-703	#698-724	Big Twin '84-'99, stock 7.440" length, .792" wrist pin
#698-701	#698-721	Big Twin 'L81-'84, stock 7.440" length, .791" wrist pin
#698-700	#698-720	Big Twin '41-'E81, stock 7.440" length, .791" wrist pin
#698-780	N/A	EV Sportster® & XR1000, stock 6.926" length, .792" wrist pin
N/A	#698-790	EV Sportster® '86-up, special 7.113" length, .792" wrist pin
#698-751	#698-773	Sportster® 'L81-'85, stock 7.440" length, .791" wrist pin
#698-750	#698-771	Sportster® '57-'E81, stock 7.440" length, .791" wrist pin





Excellent quality 2-hole crank pins, supplied with nuts and key, for S&S® rods or stock rod reconditioning. We like the 2-hole versions because the rod bearings do not ride across the oil hole, where the hard surface around the hole could fracture over time. See page 6.3 for bearings and related rebuild parts.

PART NO.	BIG TWIN (PRE-TWIN CAM®)	PART NO.	SPORTSTER®/BUELL
#698-200	1.249" od, std '41-'E81 Big Twin OHV	#698-250	1.249" od, '57-'E81 Sportster®
#698-210	1.249" od, std 'L81-'86 H-D®, all S&S® rods	#698-260	1.249" od, std size L'81-'99 XL®
#698-211	1.250" od, std '87-'99 H-D® (+.001" for above)	#698-261	1.250" od, +.001" oversize L'81-'99 XL®
#698-212	1.251" od, (oversize)	#698-262	1.251" od, +.002" oversize L'81-'99 XL®
#698-213	1.252" od, (oversize)		

Rod Bearings & Cages

Aluminum rod cages with Torrington® bearings. (Standard and Oversize)

STD	+.001"	+.002"	+.003"	APPLICATION
#644-000	#644-001	#644-002	#644-003	Big Twin '41-'99
#644-010	#644-011	#644-012	#644-013	Sportster® '57-'E86*

^{*}Can be used on L'86-up if flywheel thrust washers are changed to #649-303



JIMS® Crank Pins

Two-hole crank pins, supplied with JIMS® excellent heat-treated crank pin nuts. We like 2-hole pins because oiling holes run between the bearing paths instead of in it. Each crank pin is made from special order American-Made steel that is thoroughly inspected from sawing to turning to heat-treating to final grinding. Even the threads are put through a special process to make them withstand greater torque (up to 50% more!). All crank pins are guaranteed against failure.

PART NO.	APPLICATION
#658-110	Crank pin & nuts for '41-'E81 Big Twin
#658-115	Crank pin & nuts for 'L81-'99 Big Twin



JIMS® Engine Shafts

JIMS® makes fine quality replacement shafts for your Harley®. They are manufactured from American-Made aircraft quality steel and finished on Swiss-made Tschudin precision cylindrical grinders, held to tolerances of .0002" or less. These parts fit better and last longer; accept nothing less for your engine!



PART NO.	SPROKET SHAFTS	PART NO.	PINION SHAFTS
#658-120	Sprocket shaft for '57-'76 Sportster®	#658-126	Pinion shaft for '57-'76 Sportster®
#658-122	Sprocket shaft for '77-'E81 Sportster®	#658-128	Pinion shaft for '77-'E81 Sportster®
#658-124	Sprocket shaft for 'L81-'85 Sportster®	#658-130	Pinion shaft for 'L81-'85 Sportster®
#658-140	Sprocket shaft for '56-'64 Big Twin	#658-150	Pinion shaft for '58-'72 Big Twin
#658-141	Sprocket shaft for '65-'69 Big Twin	#658-153	Pinion shaft for '73-'E81 Big Twin
#658-142	Sprocket shaft for '70-'71 Big Twin	#658-156	Pinion shaft for 'L81-'86 Big Twin
#658-143	Sprocket shaft for '72-'E81 Big Twin	#658-159	Pinion shaft for '87-'89 Big Twin
#658-146	Sprocket shaft for 'L81-'E85 Big Twin		

JIMS® Shafts Nuts

JIMS® shaft nuts give the ultimate in holding power. The mating face of each nut has been ground to a 32 RA surface finish and held square to the threads within .0005". For flywheel assembly, this means the shaft pulls straight into the flywheels, simplifying flywheel truing. Each nut is machined on CNC lathes and heat treated to make these the toughest nuts on the market! All nuts are sold each.

Flywheel Nuts - Sportster®

PART NO.	APPLICATION
#658-200 #658-202	Crank pin nut for '54-'E81 Sportster®, each, 2 req'd Crank pin nut for 'L81-'03 Sportster®, each, 2 req'd

Flywheel Nuts - Big Twin

PART NO.	APPLICATION
#658-210	Crank pin nut for '41-'E81 Big Twin, each, 2 req'd
#658-212	Crank pin nut for 'L81-'99 EV Big Twin, each, 2 req'd
#658-230	Sprocket shaft nut '36-'71 Big Twin
#658-232	Sprocket shaft nut '72-'E85 Big Twin
#658-230	Pinion shaft nut '36-'E81 Big Twin
#658-238	Pinion shaft nut 'L81-'89 Big Twin
_	



PART NO.	APPLICATION
#458-242	'54-'89 B/T pinion gear nut, left hand thread
#458-244	'90-'99 EV B/T pinion gear nut, left hand thread
#858-211	'36-'06 Big Twin transmission sprocket nut



Heavy Metal



Use in special applications or repairs to add weight to flywheels when balancing. Tungsten slugs weight a little more than double that of the steel they'll be replacing. Two lengths available in 1/2" O.D.; drill the wheel, insert the slug and weld. Sold each.

PART NO.	DESCRIPTION
#672-007	Heavy Metal slug, 1/2" x .750"
#672-012	Heavy Metal slug, 1/2" x 1.200"

S&S® High Volume / High Pressure (HVHP) Billet Oil Pump

When S&S® designed their 4-1/8" bore V-Series engines, they added piston cooling jets similar to H-D®'s Twin Cam®. These jets required higher oil volume and higher oil pressure (HVHP), so the HVHP oil pump was born. Machined from billet, this pump incorporates a new tooth profile with fewer but larger teeth on both the feed and scavenge sides of the pump. The feed gears are 9% wider to increase feed, while the scavenge gears are 28% wider than stock to safeguard against oil carry over from the crankcase breather. This was done without increasing overall thickness of the pump. This design provides increased capacity for performance use, and can be used on any EV style case. Sold as a complete pump only or pump with drive gears, steel breather gear and shims.

PART NO.	APPLICATION	
#698-629	S&S® HVHP '92-'99 EV-style oil pump	
#698-628	S&S® HVHP '92-'99 EV-style oil pump w/gears	
#698-627	S&S® HVHP '84-'91 EV-style oil pump	



S&S® Standard Billet Oil Pump

S&S® manufactures their replacement-style oil pumps in billet aluminum. These pumps are similar in design to the late H-D® pump and are direct bolt-on replacements for 1981-1999 model Big Twins. 1970 thru 1980 engines require a simple drilling step, and '70-'72 engines require a plugging step - both of which can be performed with the engine in the chassis (a drilling jig is available to simplify this procedure). Owners of 1936-1967 engines can benefit from the design improvements of this pump over the original cast iron pump for improved lubrication and cooling. Available as pump-only or a complete kit including pinion shaft drive gear, pump shaft driven gear and steel breather gear with shims for pre-'89 style pinion shaft (popular for scratch-built engines). Complete instructions are included with each kit.

Zip Tip: Two bolt patterns are used for the mounting of late model aluminum oil pumps, '91 & earlier and '92-up. Make sure you know which you need, especially if your engine has aftermarket cases.

Oil Pump Only

PART NO.	APPLICATION
#698-626	S&S® oil pump, '92-'99 Big Twins
#698-623	S&S® oil pump, '73-'91 Big Twins
#698-620	S&S® oil pump, '36-'72 Big Twins

Oil Pump With Drive & Breather Gears

PART NO.	APPLICATION
#698-696	S&S® OP w/gears, '92-'99 engines
#698-695	S&S® OP w/gears, '78-'91 engines
#698-694	S&S® OP w/gears, '70-'77 engines
#698-693	S&S® OP w/gears, '54-'69 engines



S&S[®] Big Twin Oil Pump Drive Gears

Standard replacement Big Twin 4:1 drive gears by S&S. 24T oil pump driven gear used in '73-'99 Big Twins. 6T pinion shaft drive gear used in '73-'89 H-D® engines and all aftermarket engines. Pinion shaft spacer and end nut sold separately.

PART NO.	APPLICATION
#698-230	24T driven gear (OE# 26345-73)
#698-232	6T drive gear (OE# 26349-73/84)
#650-703	Pinion spacer (OE# 24703-54B)
#458-242	Pinion end nut (OE# 24023-54)









Oil Pump Tools & Service Parts

APPLICATION
S&S® drilling jig for 1970-'80 engines
Master Rebuild Kit '36-'91 S&S® pump
'Gasket Only' set '36-'91 S&S® pump
Master Rebuild Kit '92-'99 S&S® pump
'Gasket Only' set '92-'99 S&S® pump



Baisley® Oil Pump Speed-Up Gears

The folks at Baisley® Hi-Performance have developed these oil pump drive gear sets to increase the oil pump speed of the single-cam Big Twin engine from the stock 4:1 ratio to 3:1 or 2:1. The benefits are two-fold; increased volume for improved cooling and lubrication in big engines, and improved oil scavenging to move oil out of the engine quickly for less internal drag and higher horsepower output. Oil pressure can be controlled by simply installing an optional oil pressure bleed-off system (recommended for 2:1 gears).

PART NO.	APPLICATION	
#626-683	Baisley® 3:1 oil pump gears, '68-'89 Big Twins	
#626-680	Baisley® 2:1 oil pump gears, '68-'89 Big Twins	
#638-690	Baisley® 2:1 oil pump speed-up gears, '90-'92 Big Twins	
#638-693	Baisley® 2:1 oil pump speed-up gears, '93-'99 Big Twins	
#638-691	Baisley® oil pump bleed-off control system	





S&S® Breather Gears

S&S® breather gears are manufactured from steel in traditional rotary or a new stationary reed-valve style.

Rotary Style - We feel the steel rotary gear is superior to the factory plastic model; the plastic gear tends to collect metal which imbeds into the plastic and causes premature wear in the breather bore of the engine case. S&S® rotary steel gears have optimized windows for increased scavenging and a welded-in steel debris screen. Available in standard or +.030" to repair wore cases in this area. Sold as gear only or gear kit, which includes 8 breather gear shims (S&S® breather gears use '79-'82 style shims).



	GEAR	
GEAR ONLY	W/SHIMS	DESCRIPTION
#698-236	#698-237	Std. S&S® breather gear 'L77-'99 engines
#698-248	#698-238	+.030" S&S® breather gear 'L77-'99 engines,
#698-234	#698-239	Std. S&S® breather gear '48-'E77 engines
#698-233	#698-259	+.030" S&S® breather gear '48-'E77 engines,
8	#698-249	S&S® breather gear shim set (8 pcs, .100"170"), fits all S&S® gears

Reed Style - Designed to be used in larger displacement '93-'99 "head breather" EV Big Twins, this valve is inserted in place of the standard rotary-style breather gear and uses reeds that open by pressure on the piston downstroke and close on the upstroke. A slight vacuum is created in the crankcase during this process that improves scavenging.

PART NO.	DESCRIPTION
#698-096	Std S&S® crankcase breather reed valve
#698-097	+.030" S&S® crankcase breather reed valve

JIMS[®] Breather Gears

JIMS® steel breather gear is CNC machined for precise control of exhausting crankcase pressures. Steel is more expensive to manufacture but is easier on the case than the stock plastic gear. Available in standard or +.030" diameter; cases can be bored for the oversize model to repair damaged breather gear bores.

STANDARD	+.030" O.S.	DESCRIPTION	
#458-370 #458-380	#458-371 #458-381	JIMS [®] breather gear, 'L77-'99 Big Twin JIMS [®] breather gear, '48-'E77 Big Twin	#458-380
			11

Pre-Twin Cam[®] Engines S&S[®] Big Twin Pinion Gears

High quality \$\section{Sexset}\$ pinion gears are carefully machined, heat treated and finish ground. \$\section{Sexset}\$ color codes match H-D® codes so replacement is easy, just match it to the stock color. Gears are available for 'L77-'89 style tapered Big Twin pinion shafts. Later crankshafts used by H-D® ('90-'99) use a keyed, straight shaft for pinion gear mounting, which is not as strong as the earlier keyed and tapered shaft style. You'll notice that all performance application crankshafts are set up to use the earlier style pinion shaft and its related hardware, for this reason.

'L77-'89 BIG TWIN PINION GEARS

ETT OF BIG TVIIIVIII	HOH OLAHO		
#698-141 Orange	#698-142 White	#698-143 Yellow	
#698-144 Red	#698-145 Blue	#698-146 Green	#698-144
#698-147 Black			

JIMS[®] Big Twin Pinion Gears

For 'L77-'89 engines, and most aftermarket engines built with that style pinion shaft. Sizes are color coded same as stock H-D[®] for fitment. Gear sizes are shown as measured over .105" gauge pins.

'L77-'89 BIG TWIN PINION GEARS

#658-040 Orange	#658-041	White	#658-042	Yellow		
#658-043 Red	#658-044	Blue			The same	#658-043

S&S® Pinion Gears For Sportsters®

High quality S&S® pinion gears are carefully machined, heat-treated and finish ground. S&S® color codes match H-D® codes so replacement is easy, just match it to the stock color. Gears are available for splined '86-'87 style pinion shafts (required when installing an S&S® crankshaft in an '88-'03 engine), and keyed '91-'99 style stronger wide-pitch pinion gear (use when installing '91-'99 style wide-pitch cam gears in a 2000 and later engine with stock crankshaft).

'86-'87	'91-'99	#698-154
SPLINED	KEYED	APPLICATION
#698-152	#698-162	Blue XL® pinion gear
#698-153	#698-163	Red XL® pinion gear
#698-154	#698-164	White XL® pinion gear
#698-155	#698-165	Green XL® pinion gear

Sportster® Oil Pump Drive Gear

Splined pinion shaft oil pump drive gear used in '77-'87 Sportster® engines. Also required when installing an S&S® crankshaft in an '88-'03 engine. Shaft end nut and locktab sold separately.

PART NO.	DESCRIPTION
#650-318	Oil pump drive gear (OE# 26318-75)
#458-248	Pinion shaft end nut (OE# 7913)
#648-044	Pinion shaft nut locktab (OE# 7044A)

#650-318 #648-044 #458-248 #072-030

Oil System Pre-Filter

#072-030 Here's a slick item that could save you big bucks one day. The Pre-Filter can be installed on any oil line to trap unwanted debris from circulating through your engine. A high flowing 30-mesh screen stops larger debris while a ceramic magnet stops ultra fine ferrous fragments such as normal wear particles from roller bearings. Use it on oil feed or return lines, external oil drains and primary scavenge lines. It will allow gravity feed as free as the supply line and never needs replacement as it unscrews for quick and easy cleaning or inspection. Attractive machined aluminum finish.



Shovel Oil Restrictor

#617-600 Use this special fitting to restrict the oil that feeds the top end on Shovelheads. H-D® reduced the size of the orifice in these fittings in the early eighties to help control top end over-oiling which caused some engines to smoke. This fitting uses jets to allow adjustments. Installs in the engine case where the top end oil line feeds.

Pingel® Aluminum Catch Can

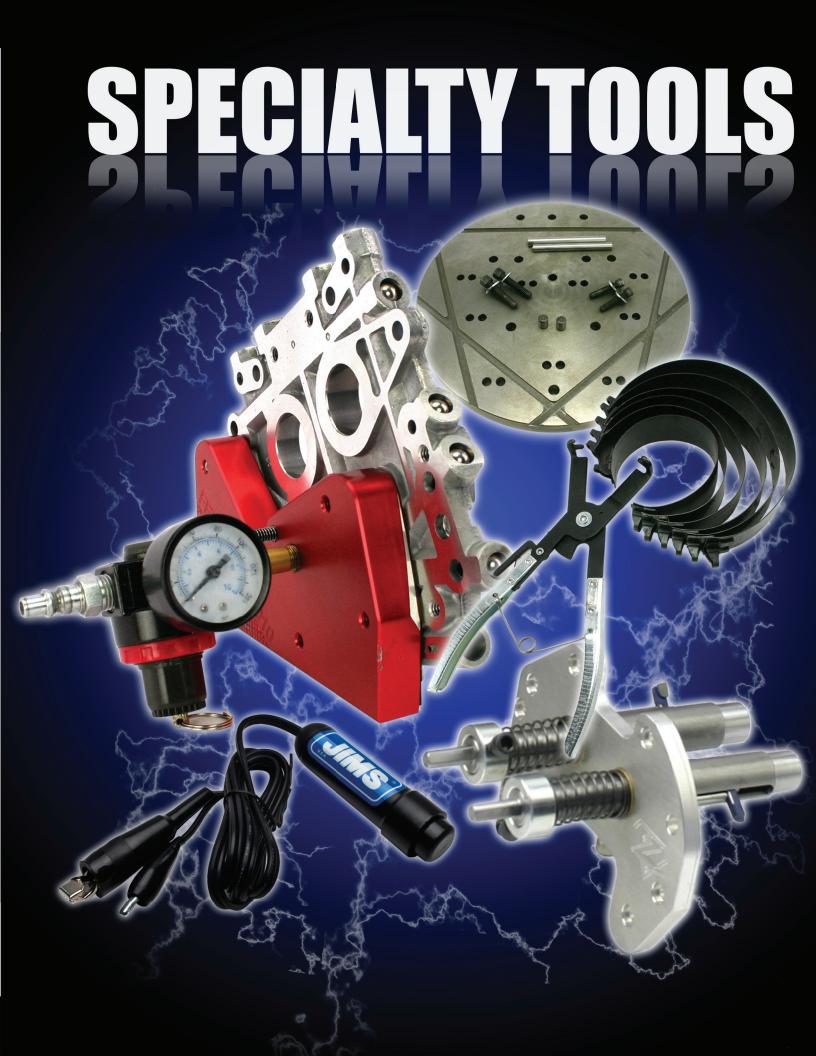
#676-084 Lightweight aluminum catch can is 2" in diameter and 6" long. Equipped with two offset 1/2" hose connections and has a 'T' handle drain valve.

K&N® Vent Filter

#162-621 Pleated $K\&N^{\circ}$ vent filter measures 2" in diameter and 1-1/2" tall. Attaches to crankcase vent hose via its 3/8" hose nipple. Washable and re-usable, Made in USA.



#617-600



Fuel Injection, Tuning and Diagnostic Tools



Fuel Pressure Checking Gauge

A healthy EFI system relies on consistent fuel pressure - one of the first things you should check if performance degrades. Use this tool to verify your system reaches and holds proper operating fuel pressure. Installs in-line at the fuel tank quick-connect junction. #772-457

Oxvaen Sensor Tools

Handy tools for removing or installing oxygen sensors.



7/8" sockets for 18mm sensors used on '06-'11 FXD/FXST, '07-'09 Touring, '07-'13 XL/XR, '08-'11 V-Rod® and aftermarket wide-band sensors.

PART N	O. [DESCR	IPTION

Dual-sided 6/12 point 7/8" crowfoot socket (most versatile) #772-750

#772-848 Single-sided 6 point 7/8" crowfoot socket

#772-229 6-point 7/8" slotted deep socket











#772-200

14mm sockets and special wrenches for removing and installing late-style 12mm oxygen sensors used on '10-up Touring, '12-up FXD/FXST/V-Rod® and '14-up XL.





Crowfoot 14mm socket wrench for FXD, V-Rod®, FXST (front) sensor #758-755 #758-756 6-point 14mm deep socket for FXST rear sensor #758-784 Crowfoot 14mm tool for '10-up Touring models, 3/8" torque wrench drive

Re-threading tools for exhaust pipe oxygen sensor bungs. Use to restore or repair threads.

#772-220

PART NO.	DESCRIPTION
#772-200	12mm thread chasing tool for O2 sensors and 12mm spark plugs
#772-230	18mm thread chasing tool for O2 sensors
#772-220	Dual end 18mm (O2) / 14mm (spark plug) thread chasing tool
#772-903	18mm thread cutting tap, ideal for re-tapping bungs after welding

Thread Chasing Tap Set

Thread chasers are used to ensure threaded holes are free of burrs or previously applied thread locking agents so proper torque is applied during re-assembly. Unlike thread cutting taps, chasers do not remove parent material from the threaded holes. Set of 6, sizes 1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13, 9/16-12. #772-902



Fuel Injection, Tuning and Diagnostic Tools

DTT Twin Scan Diagnostic Scan Tools

Twin Scan diagnostic scan tools from Daytona Twin Tec can be used to read and clear trouble codes from the factory ECM, ABS, speedo and TSM/TSSM, bleed ABS brakes, view live engine parameters and data-log up to an hour of engine data while logging trouble codes to help diagnose running disorders. Optional systems include DTT's WEGO (Wide-Band Exhaust Gas Oxygen) system which reads and logs AFR (air/fuel ratio) data as a tuning aid using exhaust-mounted wide-band oxygen sensors. This data is used to analyze front and rear AFR and volumetric efficiency percentages using the same RPM, TPS or MAP columns used in Super Tuner®, Power Commander® and Twin Tuner® software tables. Requires a Windows laptop PC with USB port to interface with.



Twin Scan Diagnostic Scan Tools

PART NO.	DESCRIPTION
#799-522	TSII/ABS J1850 Bus diagnostic tool for '02-'14 V-Rod®, '04-'10 FXST,

#799-530 TS3/ABS CAN Bus diagnostic tool for '11-'14 FXST, '12-'14 FXD, '14 XL, '14 Touring models

'04-'11 FXD, '04-'13 XL, '04-'13 Touring models

#799-532 TS3 Probe kit, adds scopemeter (two signal waveforms) feature

to 799-530 kit

Twin Scan Diagnostic Scan Tools with Dual Channel WEGO

FAILI NO.	DESCRIPTION
#799-521	TSII/ABS Plus kit with WEGO IIID dual channel AFR interface
#799-531	TS3/ABS Plus kit with WEGO IIID dual channel AFR interface
#799-540	TSII/TS3/ABS Plus kit with WEGO IIID dual channel AFR interface

DTT WEGO AFR Tuning Aids

Daytona Twin Tech's WEGO (Wide-Band Exhaust Gas Oxygen) systems allow the tuner to monitor live and recorded exhaust AFR to assist in fuel tuning. Available as single or dual channel (one or two sensors), with or without LED AFR readout, for use on motorcycle, automotive or any other small engine application, injected or carbureted. Wide-band technology has a measurement range of 10.3 to 19.5 gasoline AFR or 0.70 to 1.33 Lambda. Encapsulated, rugged design allows use on-road or in dyno cell, with 0-5V analog AFR outputs for interface with DynoJet®, SuperFlow® and other leading dyno systems. Additional features of systems with LED readout include logging of up to two hours of AFR and RPM data with a spare 0-5V analog input for additional logging such as TPS or MAP, with built -in USB interface. Includes bung(s) for exhaust sensor mounting.

PAI	RT NO.	DESCRIPTION
#79	99-121	DTT WEGO Single channel system with LED readout, data logging & 0-5V input
#79	99-125	DTT WEGO Dual channel system with LED readout, data logging & 0-5V input
#79	99-116	DTT WEGO Single channel dyno interface kit
#79	99-114	DTT WEGO Dual channel dyno interface kit
#79	99-115	DTT WEGO Dual channel dyno interface kit for SuperFlow® Dyno
#79	99-155	DTT WEGO tach adapter, required for use on bikes with CD type ignitions
#79	99-151	DTT WEGO replacement wide-band oxygen sensor, each





JIMS® AFR Sniffer Tool

This tool is designed to work with the DTT WEGO air/fuel ratio reading system or similar product that uses a wide-band oxygen sensor to report AFR feedback. If the bike you are working with does

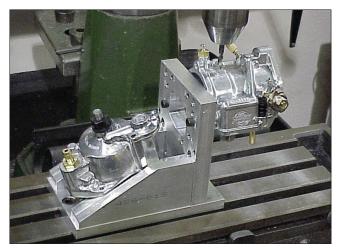
not have an 18mm oxygen sensor port in the exhaust pipe, this tool will allow you to place the probe tube far enough up the pipe to record accurate AFR samples with the WEGO or similar unit. Requires WEGO system (or similar, not included) and exhaust system with open baffle (exhaust modification required for closed-baffle exhaust). #758-777

Fuel Injection, Tuning and Diagnostic Tools



Compression Tester

Installs in place of the spark plug and allows cranking compression test. Test should be performed with both plugs removed and grounded, throttle held wide open. American made gauge includes 12, 14 and 18mm plug adapters. #758-953



Zipper's ThunderJet® Installation Fixture

If you've ever installed a ThunderJet®, you know the biggest challenge is the setup - getting the carburetor body to just the right angles to drill the holes. These fixtures take the hassles out of setting up to install the ThunderJet® by clamping the components at the correct angles for installation in a drill press or mill. If you install ThunderJets®, this tool will quickly pay for itself in time saved.

PART NO. DESCRIPTION

#713-910 ThunderJet® Fixture for S&S E/G/B/D Carburetors
#713-915 ThunderJet® Fixture for CV Carburetors

Spark Plug Reading Light

Get a clear picture when reading plugs with this flashlight magnifier. Hand held tool has a magnifying lens to look thru and a light to clearly illuminate deep down into plugs for accurate readings. Lots of other uses. A must for any engine tuner. #730-155



Cylinder Leakdown Tester

Use this dual-gauge unit to troubleshoot cylinder leak issues including valve, ring and gasket seal leaks. Includes 10, 12 14 and 18mm plug adapters for all $H-D^{\otimes}$ engine applications and others. #758-782



Carburetor Jet Tools

Tools that minimize damage to jets and delicate carburetor parts.

PART NO. DESCRIPTION

A #798-452
B #717-100
C #711-475
D #772-011
Jet tool for S&S® main jets
Jet tool for ThunderJet® jets
Jet tool for Mikuni main jets
Jet tool for Mikuni pilot jets

Jet tool for Mikuni pilot jets, CV low speed jets

& idle mixture screw



Electrical Tools

JIMS® Ignition Switch Connector Remover Tool

Use this tool to safely remove the ignition switch wiring connector on 2003-up Touring models. Slip the dog bone end of tool into the bottom side of connector until it is touching the back end of connector box. Then gently pull out the male wiring connector and tool. #758-942

JIMS® Ignition Switch Housing Alignment Tool

This tool will easily align the ignition switch housing as the retaining screws are being torqued on '03-Up Touring models. This gives the ignition switch knob the alignment it needs to help extend the life of the ignition switch housing.

PART NO. DESCRIPTION

#758-943 '03-'13 Touring Models **#758-944** '14-Up Touring Models





Electrical Connector Tool

Handy 6-in-1 tool for removing wire terminals from harness connectors. **#772-565**

#772-565

JIMS® Needle Sharp Multi-meter Probe Kit

On today's motorcycles, no longer are there only a small handful of wires to diagnose a problem. Today's harnesses and fairings are filled with hundreds of multiple gauge wires and connectors. This kit has an assortment of needle sharp probes for precise and non-damaging diagnostic work. Pins can be used with standard 4mm banana plug connections common with most multi-meters. This 17-piece selection includes: Straight, 45°, and 90° probes for hard to reach terminals as well as standard alligator clips. All probes are fully insulated with 30v protection. #758-737





JIMS® Alternator Rotor Removal Tool

This tool is a must have for later model, high magnetic charging systems. This tool will pull the rotor free from its magnetic hold. Use on FL and Ultra models, 1997-06. #758-147

JIMS® Remote Start Button

This simple remote switch makes it easy to activate the starter and rotate the engine without starting. Comes in handy for tappet adjustments, servicing and diagnosing starting & electrical issues. Use on all motorcycles with access to starter positive post terminal and motor post negative terminal. #758-752

#758-752



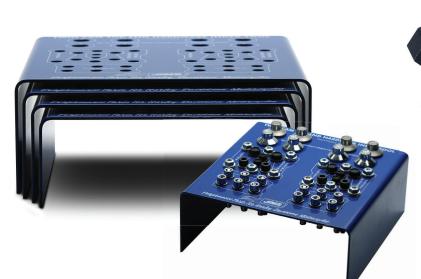
JIMS® Compression Release Fixture

Use this tool for machining all Twin Cam[®] heads 1999 and later to install manual 10mm compression release valves (#572-050). Install on the front or rear head with or without the valves installed. Simply drill, spot face, tap and install compression release valves. **#758-169**



S&S® Electronic Compression Release Socket

For S&S® electronic compression releases used in S&S® engines. Allows in-frame removal or installation of S&S® compression releases and protects wiring from damage during installation. #798-045



S&S® Rocker Box Wrench Set

Special tools for removing rocker boxes on Evolution® and Twin Cam® engines. Low profile, designed for use in the tight confines between frame and rocker boxes on an assembled motorcycle. #798-040

JIMS® Hardware Organizers

These JIMS® hardware organizers will keep track of hardware during a powertrain teardown. These time-saving organizers include a specific stand for top end, cam chest, transmission, and primary. When preparing for final assembly, the stands can be turned on their side for easy Loctite® preparation. The surface is powdercoated in durable blue and includes silkscreened hardware position art with torque specifications. Order all four or individually.

PART NO. DESCRIPTION

#758-426	Complete kit - 4-piece hardware organizers listed below		
#757-422	For cam cover, cam support and tappet cover hardware,		
	1999-up Twin Cam [®]		
#758-423	For inner and outer primary cover hardware, 1980-up Big Twin		

#758-424 For top end and rocker cover hardware, 1999-up Twin Cam[®] For 6-speed Cruise Drive transmission 2007-up Twin Cam[®]



JIMS® TC Rocker Box Alignment Screws

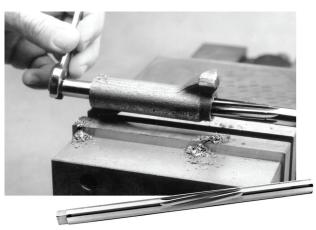
#798-040

Production tolerances on Twin Cam® rocker covers can allow them to shift when being tightened, causing misalignment which not only looks bad but can compromise the sealing surface. These alignment screws ensure that rocker cover alignment is correct. #758-961



JIMS® 1/4"-20 Alignment Tool

Tapered dowels that can be used to align many components on a Harley® engine. Single-cam tappet blocks, rocker boxes, TC oil pump and more. Sold each; get at least two! #758-443



JIMS[®] Rocker Bushing Line Reamer

Use to ream rocker bushings to a factory fit of .0007"-.0012" in line with each other. This precise line reamer is capable of a 24 finish or better. #758-577



Use to remove rocker bushing or bearing in one easy operation. Use on all Big Twin 1966-present and Sportster® 1957-present. #758-290

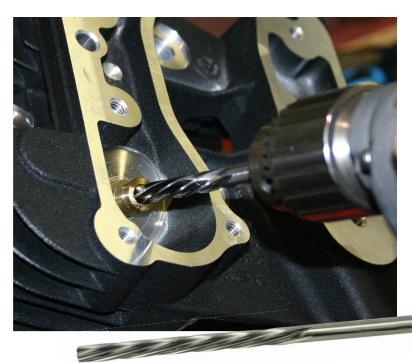


Use this fixture with a drill press mounted grinding wheel to resurface worn rocker arm pads. Badly pitted rocker arms can be welded using hard-faced rod and re-ground using this fixture. Works with Twin Cam®, Evolution®, Shovel and Sportster® rocker arms. #706-404



JIMS® Rocker Arm Bushing Installer

Use to install rocker arm bushings in rocker arms with or without a press. This tool will install each bushing to the correct depth for the best oil control. Use on all Big Twin 1966-present and Sportster® 1957-present. #758-357

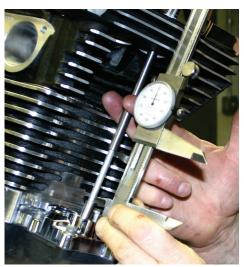


AV&V Valve Guide Reamers

These AV&V long-pilot carbide reamers are designed to quickly finish-size guides when using AV&V Manganese bronze guides (not for cast iron guides) and AV&V valves - no honing required!

PART NO.	DESCRIPTION
#715-810	AV&V .3120" reamer for AV&V 5/16" EV/TC guides & valves
#715-710	AV&V .2766" reamer for AV&V 7mm EV/TC guides & valves
#715-610	AV&V 6.0mm reamer for AV&V 6mm V-Rod® guides & valves

#713-901





Building specialty engines can require making special length pushrods. This inexpensive tool makes measuring the pushrod lengths a snap. Simply set your lifter adjuster to the desired length (we like to keep them as short as possible for increased strength), install the checking pushrod, telescope it to the proper length, measure the gap and remove. Re-set gap and measure then machine your new pushrods to the proper exact length. For Twin Cam®, EV and Shovel engines. #713-901



First thought...why would I need this tool when I've been installing and removing pushrod covers for years with just a screw driver? Made from black Delrin, this tool will NOT mar or slip — and will install the clip professionally, with just one hand, in seconds! #758-917



JIMS[®] Valve Guide Driver Set

Use for guide removal and installation on all models. Manufactured from 1144 stress proof steel. Sold as 3 piece set. #758-001



Pingel® Head Holder

Thread this tool into the spark plug hole in your cylinder head, and you can clamp the tool in a vise rather than risk damaging the gasket surfaces on your cylinder head. Threaded on both ends, one with 12mm, the other 14mm. #776-082







Valve Spring Seat & Guide Machining Tools

Quality tools for cylinder head specialists. Cutter tips are carbide for long life.

Spring Seat Machining Tools PART NO. DESCRIPTION

#768-853 Cuts 1.630" o.d./.760" i.d., includes 3/8" Pan/ Shovel arbor

#768-516 EV/TC 5/16" arbor only for use with above cutter

Valve Guide Machining Tools

Cuts guides to proper o.d. for installing valve seals.

PART NO.	DESCRIPTION
#772-435	Cuts to .415 o.d (5/16" EV/TC arbor included)
#768-712	Cuts to .531 o.d (3/8" Pan, Shovel arbor included)
#768-812	Cuts to .562 o.d (3/8" Pan, Shovel arbor included)
#768-816	Cuts to .625 o.d (3/8" Pan, Shovel arbor included)
#768-516	EV/TC 5/16" arbor only for use with above cutters
#768-274	TC 7mm arbor only for use with above cutters



AV&V Valve Seal Drivers

These aluminum seal drivers drive the most stubborn valve seals on straight, true and damage-free. Never cuss a plastic driver again!

PART NO.	DESCRIPTION
#715-800	5/16" seal driver
#715-700	7mm seal driver
#715-600	6mm seal driver





Use this tool to perform the final profile lapping of the valve seat. The suction cups affix to either dished or flat, and small or large valve faces. The handle is comfortably shaped, and ideal for quick and smooth rotations. #758-774



Baisley[®] Valve Geometry Tool

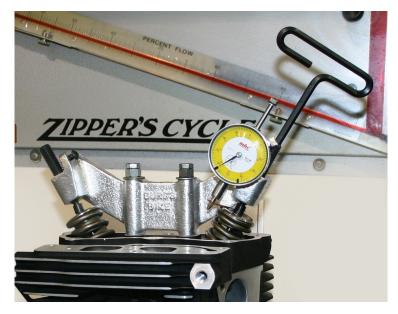
In many high lift racing applications, modification of the valve length is necessary for correct pushrod/rocker arm/valve geometry. This tool allows you to easily take measurements and determine what valve length you will need to achieve proper geometry. Instructions included. #726-001



JIMS® Valve Spring Compressor Tool

Hardened ball bearing style tip at valve head end eliminates damage to valve. Comes with new valve collar receiver for safer tool usage; can be clamped in vice. Use on all OHV H-D®/Buell® with dual springs (order adapter for beehive springs).

Tool **#758-600** Beehive adapter **#758-988**





JIMS® New & Improved Mini Valve Spring Tester

Use this tool in either a bench vice, arbor, hydraulic screw press or a drill press. Tool fits any dual rate or conical valve spring up to 1.6" diameter. Precision 0 to 1000 P.S.I. gauge. #758-090



Valve Clearance Checking Springs

These lightweight springs are ideal for use in engine mock-ups for checking clearances. Use them in place of valve springs when checking valve to piston clearance. Light pressure assures no deflection, allows accurate clearance measurements easily. Set of two. #738-881

Trock Travel Checker

The Trock travel checker takes the guesswork out of cylinder head preparation. It accurately measures valve and spring travel in any head using an attached dial indicator (sold separately). If a problem exists, the travel checker will pinpoint it quickly and easily. Also makes a great tool for flow bench work.

PART NO.	DESCRIPTION
#706-400	Twin Cam®/Evolution® checker
#706-401	Shovelhead checker
#706-402 Iron Sportster® checker	
#706-403	Dial indicator (not included w/checker)

#717-500



Trock's TC/EV faceplate is made from cast iron and can be mounted on a lathe or mill and used to deck gasket surfaces, machine combustion chamber squish areas or bore heads for big bore applications. The rocker side of the head is registered by two dowel pins on the faceplate for easily locating the center of the

combustion chamber. Other features include all rocker box threaded hole locations pre-drilled in the faceplate, which can be used as a guide for repairing damaged holes, as well as original cylinder stud locations for use when reducing head bolt holes for big bore applications. Angled slots cut into faceplate are parallel to all port flanges. For all EV and Twin Cam® heads. If you only modify a couple sets of heads a year, this fixture is worth having! #706-406



Zippers® Deck Height Tool

Installed over the center of the piston, this tool will help you accurately determine such measurements as piston deck height and squish. Complete with dial indicator, for Twin Cam® and EV engines. #717-500



JIMS® Head Bolt Torque Gauge

This accurate gauge allows the measuring of 90° when tightening

Twin Cam[®] or EV head bolts using the torque/turn method. Torque sequence lasered on gauge, with instructions. Use on all TC and EV models 1984-present. #758-392



TDC Piston Stop

14mm TDC tool threads into spark plug hole for use as a piston stop. Simple way to accurately find top dead center. Use with degree wheel for best results.

PART NO.	DESCRIPTION
#798-321	14mm Shovel, Pan, Iron XL
#798-322	12mm Twin Cam®, EV BT & XL



S&S® Degree Wheel Kit

A degree wheel is a handy tool to have when doing high performance engine work. It can be used for ignition timing, crankcase breather timing, cam degreeing and other tasks performed when blueprinting an engine. The S&S kit comes with the wheel, adapters for installing it on a Big Twin or Sportster® engine, and a pointer that attaches to the center case bolt. A must for the well-equipped engine builder. #798-020



JIMS® Piston Pin **Keeper Tool**

Use to install retaining ring in piston. This tool will install round circlip rings in one easy step without distorting ring, for the safest wrist pin retention possible. Use on all Big Twin 1983-present single cam and all Sportster® Late 1985-present. #758-623



JIMS® Twin Cam® Wrist Pin Remover & Installer

This new JIMS® tool will cut the time it takes to remove and install Twin Cam® wrist pins. This simple tool can be used easily by one person. No need to get another technician to hold the piston while you drift the pin in or out. #758-276



Piston Ring Groove Cleaner

Use this tool to remove carbon build-up from the two piston compression ring slots. This tool includes two cleaning spurs with sizes: 5/64", 3/32", 1/8", 5/32", 3/16", 1/4", 1.5mm, 1.75mm, 2mm. Use on all 2 3/4" to 5" diameter. #758-765



JIMS® Connecting Rod Bushing Tool
Use to remove and replace wrist pin bushings without removing connecting rods from crankcases. Use with JIMS® #758-284 rod holder tool.

PART NO. DESCRIPTION For Twin Cam® engines #758-051 #758-970 For pre-TC BT and XL engines



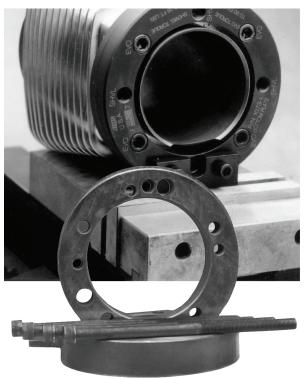
JIMS® Piston Support Plate

Using this tool will give you peace of mind when installing your rings and cylinders by providing a non-marring flat support to push the bottom of the piston against as you install the rings and cylinder over the piston. For all engines. #758-164



Rod Holder Tool

Use to keep connecting rods in place and eliminate twisting or bending of the connecting rod while reaming or honing the wrist pin bushings. Works with JIMS® #758-051 and 758-970 wrist pin bushing tools, and JIMS® #758-261, 758-262 and 758-263 wrist pin bushing reamers. #758-284



JIMS[®] Wrist Pin Bushing Reamer Tool

Use this kit to ream your wrist pin bushings to H-D® specifications. These reamers are made to exact tolerances, piloted to locate from the I.D. of your newly replaced wrist pin bushings. Reams are easy to use with their designed lead in taper at the start of each ream. NOTE: Some wrist pin bushings will need a small amount of ball honing to give specified fit, see H-D® service manual for specifications.

PART NO.	DESCRIPTION
#758-263	For Twin Cam [®] engines
#758-261	For late EV engines (.792")
#758-262	For early EV and earlier BT engines (.791")



Use to check rod straightness without removing rods from case. The alignment tool is 4-1/2" long.

PART NO.	DESCRIPTION
#758-148	.927" for Twin Cam® rods
#758-010	.791" for XL and pre-TC Big Twin

JIMS® Cylinder Torque Plate Kits

These plates simulate operating stress conditions when boring or honing aluminum cylinders. The JIMS® torque plates are drilled precisely for multiple applications use, and can accommodate various bore sizes, with stock or oversize bores. These kits are laser-lettered for ease of use with torquing sequence. Each part number includes plate for one cylinder.

PART NO.	DESCRIPTION
#758-951	Fits Twin Cam [®] 3-3/4" - 3/78" bore (88-103") cylinders
#758-930	Fits Twin Cam [®] 4"-4.060" big bore cylinders with stock
	stud pattern
#758-073	Fits Shovel, EVBT & S&S® engines with up to 4" bore
	(order 758-144 to use w/EVXL cyls)
#758-144	Shorter bolt set for 758-073, use for EVXL cylinders



Piston Ring Expander Tool

Use to remove and install piston rings. Adjustable stop reduces the risk of ring distortion or breakage. #772-839



This tool makes measuring ring end gap faster, more accurate and eliminate the guess work. The flanged design allows the piston ring to fit squarely in cylinder bore every time. Install the ring into the cylinder bore, square it with the tool and then view and measure the ring end gap in the "Key Slot". Double-sided tool works on two bore sizes.

PART NO. DESCRIPTION

Fits 3.875" (95/103 TC) and 4" (110" TC) bore #758-320

#758-321 Fits 4.125" and 4.310" bore



This ring compressor kit includes special pliers and six clamping bands for use in bore sizes from 2-7/8" - 4-3/8". #772-641

#772-641



JIMS® Exhaust Pipe **Retaining Ring Installation Tool**

This tool quickly and easily installs the exhaust pipe retaining ring in seconds on Twin Cam[®] and Evolution[®] exhaust systems without scratching the exhaust pipe or twisting the ring. #758-747

JIMS® Exhaust **Stud Drill Plate**

This tool is designed to guide and keep alignment of drill bit in order to completely drill out a broken exhaust stud in a TC or EV head. A follow up with a tap is needed to clean up threaded hole. This tool can be used with motor in most frames. #758-705



JIMS® Exhaust **Gasket Installer Tool**

No longer do you need to fight to install this fragile exhaust seal. Tool can be used with exhaust flange nuts or JIMS® driver handle #758-416 (sold separately). This tool will position the seal evenly into the exhaust port of and TC or EV head. Tool #758-788

Driver handle #758-416

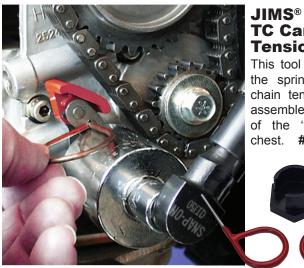
#758-416

Cam Chest Tools



JIMS[®] Tappet Adjustment Tool

This hand tool simplifies the way to verify tappet adjustment. After adjusting the tappet, simply insert the tip of this tool under the hydraulic unit retaining clip, above the pushrod seat. Similar to a "Go No-Go Gauge", if the tip doesn't fit between the clip and the pushrod seat OR if there is up and down end play, then the tappet is out of adjustment. Use on most hydraulic tappets (not for use on solid or travel-limited tappets). #758-746



JIMS® '99-'06 TC Cam Chain Tensioner Tool

This tool cocks and locks the springs on the cam chain tensioners to allow assemble and disassembly of the '99-'06 TC cam chest. #758-283



Feuling® Crankshaft Run-Out Checking Tool

This tool simplifies and speeds the process of checking crankshaft run-out on Twin Cam[®] and '70-up Big Twin engines. Can also be used to check backlash on gear driven cams. **#772-015**



bolts. This tool is made from non-marring Delrin. **PART NO. DESCRIPTION**

#758-994 For 2007-up Twin Cam® engines including 2006 FXD For '99-'06 Twin Cam® engines except 2006 FXD

properly remove, replace and torque the sprocket



JIMS® '99-'06 TC Camshaft Remover & Installer

This multi-function tool will remove and replace front and rear camshafts and the ball bearings in '99-'06 TC engines (except 2006 FXD). It provides precision alignment of the camshaft to ensure a smooth press in and out of the support plate. #758-277

Cam Chest Tools



cams if gear drive). Unlike a general purpose puller this tool was designed to remove the bearing straight with no slipping or binding. Fits '99-'06 TC (except 2006 FXD). #758-280



JIMS[®] TC Inner Cam Bearing Installation Tool

This tool easily presses the inner cam bearings straight and true into the right case, with the cases assembled, to the proper depth. Dual sided bearing press fits all Twin Cam® '99-up. #758-787



JIMS® Late TC Cam Assembly Tool

Use to hold both cams in an upright position while lowering the cam support plate over both guides and cam journal guides. Manufactured from a non-marring material that will not damage any of the cam surfaces. Fits all 2007-up Twin Cam® and 2006 FXD engines. #758-990



This tool removes the inner cam bearings easily without any damage to the crankcase. This precision built tool will also keep the pin rollers from accidentally falling into the crankcase.

PART NO. DESCRIPTION

#758-993	'06 FXD and all 2007-up Twin Cam®
#758-279	'99-'06 Twin Cam (except 2006 FXD)
#758-270	'58-'90 single-cam Big Twin engines
#758-275	'57-'90 XL/Buell® engines



This tool will remove and install the crankshaft pinion bushing in the cam support plate on a '99-'10 Twin Cam[®]. This tool is piloted for accurate operation. #758-281

Zipper's '99-'06 TC Cam Clearance Tool

Use this tool to provide clearance for high lift cam lobes in '99-'06 Twin Cam® engines. This tool will quickly machine precision cuts on the pinion bearing boss and the tappet bore housing undersides of the case. Single-spindle tool machines front or rear cam clearance separately; to reduce set-up time choose the dual spindle model. Can be used on the engine case in the frame with a 1/2" drill or in a milling machine with a disassembled engine.

PART	NO.	DESCRIPTION
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#713-905 Zipper's '99-'06 TC single-spindle cam clearance tool Zipper's '99-'06 TC dual-spindle cam clearance tool Replacement cutter bit, 713-902/905/906 cam tool



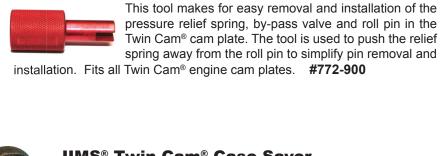




Feuling® TC Cam Plate PSI Tool

This pressure test tool is a must for any Twin Cam® engine builder. Used to bench test each cam plate before installation, this tool will allow you to cycle the pressure relief valve, test its operation and assure that the valve moves freely and is sealing in the closed position, know what PSI the relief valve opens and re-seats at. Tool includes: air regulator, 0 - 100 psi pressure gauge, gasket and needed hardware. Fits all Twin Cam® engine cam plates. Tool #772-910 Replacement gasket #772-911

Feuling® TC Oil Bypass Spring Tool





This tool can be a case saver if you have worn out or damaged tappet bores on any Twin Cam® engine case. This reamer tool is designed to ream the case .010" to a perfect finish hone on each tappet hole, to fit our JIMS® #458-880 +.010" tappet. #758-789

Single-Cam[®] Big Twin Cam Chest Tools



Use to remove a stubborn '70-'99 BT cam cover or remove and install the cam seal without removing the cam cover. Just mount tool in cover, screw in the two removing screws, turn center, and out comes the cam seal. The new seal is pressed in with the same tool, square and flat for a no leak fit. #758-243



Use on '54-'92 BT to remove or secure pinion gear nut to pinion gear shaft. 1/2" Drive. **#758-555**





Use to remove pinion gear on Big Twin '39-'89 and Sportsters® '57-'76. Use to install pressed-on splined pinion gears on Big Twin 1939-53. **#758-830**

#713-902

Single-Cam[®] Big Twin Cam Chest Tools

Zipper's '70-'99 BT Cam Clearance Tool

Use this tool to provide clearance for high lift cam lobes in '70-'99 single-cam Big Twin engines. This tool will quickly machine precision cuts on the pinion bearing boss of the case. Can be used on the engine case in the frame with a 1/2" drill or in a milling machine with a disassembled engine.

PART NO. DESCRIPTION

#713-902 Zipper's '70-'99 single-cam BT cam clearance tool **#713-903** Replacement cutter bit, 713-902/905/906 cam tool

JIMS[®] Cam Gear Remover Tool

Use to safely remove the cam gear from the camshaft on single-cam Big Twins. This precision tool acts as a stable base to keep the camshaft perfectly perpendicular to the press. A 3/8" ball bearing is included to protect the camshaft's end while pressing off the gear. Fits '39-'99 S/C BT. #758-390



JIMS[®] '70-'99 Single-Cam Big Twin Cam Gear Alignment Tool

This tool is designed to index the cam gear's position while removing or installing the cam gear. This tool will allow you to accurately position and or reposition the cam gear from one camshaft to another, as well as allow you to retard or advance the gear's position by up to 10 degrees with the accuracy of a 1/4 degree. #758-190





JIMS[®] Cam & Pinion Gear Gauge Pins

Use to check pinion and cam gears for pitch diameters. Sold in sets of 2.

PART NO. DESCRIPTION

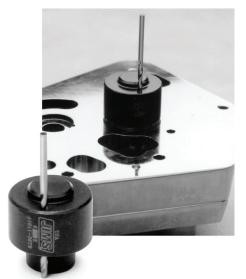
#758-310 For '54-'89 BT cam gear **#758-311** For '90-'99 BT cam gear



JIMS® 1/4"-20 Alignment Tool

Tapered dowels that can be used to align many components on a Harley[®] engine. Single-cam tappet blocks, EV rocker boxes, TC oil pump and more. Sold each; get at least two! #758-443

Single-Cam[®] Big Twin Cam Chest Tools



JIMS® Bushing Installer Drill Jigs

Press in a new bushing with jig and drill through guide hole in jig through both bushing and cam cover. Press in new staking pin #758-220 and bushing is locked in place. Supplied with drill bit.

PART NO. DESCRIPTION

#758-850	For '70-'99 BT cam cover cam bushing
#758-848	For '36-'69 BT cam cover cam bushing
#758-855	For '54-'92 BT cam cover pinion bushing
#758-865	For '54-up XL, '37-'48 flathead cam cover cam bushing
#758-220	Pk/10 .125" x .250" dowel pins



JIMS[®] Cam Cover Holding Tool

Use to hold cam cover for removing and installing bushings. Clamps in vice or Bridgeport® mill; holds cam cover flat and keeps it from being scratched. #758-840

JIMS® BT Pinion Bushing Puller

Use to remove pinion bushing from cam cover in one easy operation. Use with JIMS® tool #758-840, cam cover holder. For '54-'99 single-cam Big Twin. #758-800





Use to line ream cam cover bushing to size from inner cam bearing on an unassembled '70-'99 single-cam engine. Finish size will be about .0008"-.0015" over the cam journal. #758-845



Repair a damaged breather hole without need to disassemble the cases. Using JIMS® Reamer Tool will ream a damaged breather hole to use a .030" oversize breather gear in less than an hours time. For '36-'99 single-cam BT. #758-706

Single-Cam[®] Big Twin & Sportster[®] Cam Chest Tools



JIMS® S/C BT Inner Cam Bearing **Installation Press**

This tool easily presses the inner cam bearing straight and true into the right case, with the cases assembled, to the proper depth. Fits all single-cam Big Twins '58-up. #758-188



Bearing Driver Tools

Driver used to install inner cam bearings: use with tool handle #758-416 (sold separately). All of JIMS® bearing installers are designed with an angle to apply all the pushing force to the extreme outer diameter of the bearing housing.

	5 5
PART NO.	DESCRIPTION
#758-272	Driver, fits all single-cam
	Big Twins '58-'99
#758-273	Driver, fits all Sportster®/
	Buell® '57-'90
#758-416	Race & bearing driver

tool handle

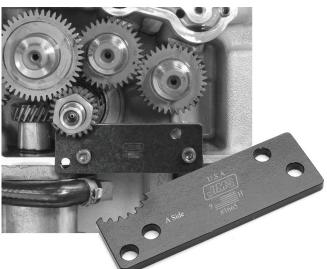
JIMS[®] Inner Cam Bearing **Remover Tool**

This tool removes the inner cam bearings easily without any damage to the crankcase. This precision built tool will also keep the pin rollers from accidentally falling into the crankcase.

PART NO. DESCRIPTION

#758-270 '58-'90 single-cam Big Twin engines **#758-275** '57-'90 XL/Buell® engines

Sportster® Cam Chest Tools



JIMS[®] XL Pinion Gear Lock Tool

Bolts to case and locks pinion gear when torquing the pinion nut.

PART NO. **DESCRIPTION**

For '00-up Sportster® & Buell/XB #758-065 #758-066 For '91-'99 Sportster® & Buell



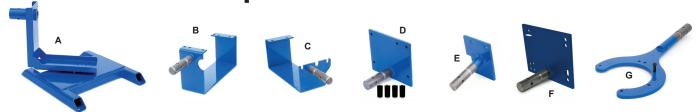
Zipper's '91-up XL Cam Clearance Tool

Use this tool to provide clearance for high lift cam lobes in '91-up XL/XB Sportster®/Buell® engines. This tool will guickly machine precision cuts on the pinion bearing boss and the tappet bore housing undersides of the case. Can be used on the engine case in the frame with a 1/2" drill or in a milling machine with a disassembled engine.

PART NO. DESCRIPTION

Zipper's '91-up XL/XB (not XR) cam clearance tool #713-908 #713-909 Replacement cutter bit, 713-908 cam tool

#758-416



JIMS® Modular Engine & Transmission Stand Kit

These high quality steel components provide a solid and versatile work center for a variety of engine types, allowing an engine builder to freely position complete engines and transmissions into the most optimum working position. The base stand allows 360° of rotation while the modular cradles swivel and lock in 180°, 90°, and 45° angles. The base easily bolts to a work bench, and comes ready to use with all hardware included. Order a complete kit or piece together specific needs.

	PART NO.	DESCRIPTION
	#758-145	Complete Kit includes 6 stands for TC A/B, '36-up Big Twin, '57-'03 XL engines, 5 & 6-speed BT transmissions
Α	#758-138	Swiveling base only
В	#758-139	'36-'99 Big Twin single-cam engine cradle
С	#758-130	'99-up Twin cam [®] 'A' engine cradle
D	#758-132	'00-up Twin cam [®] 'B' engine cradle
Ε	#758-131	'57-'03 XL, '87-'02 Buell engine cradle
F	#758-992	Twin Cam® transmission stand, 5&6 speed
G	#758-134	Pre-TC 5-speed transmission stand









JIMS® Engine and Transmission Stands

American made, steel powder-coated stands safely hold engines or transmissions for service, repair or storage once removed from the bike.

PART NO.	DESCRIPTION
#758-022	'99-up Twin cam® 'A' engine stand
#758-021	'00-up Twin cam® 'B' engine stand
#758-006	'36-'99 Big Twin single-cam engine stand
#758-007	'57-'03 XL, '87-'02 Buell engine stand
#758-009	'80-'92 FLT, all FXR 5 speed transmission stand
#758-008	BT 4-speed, '86-'99 FXST 5 speed trans stand (clamps in bench vise)



JIMS® Rolling Buddies

JIMS® Rolling Buddies take the place of a removed engine in a rubbermounted Big Twin, allowing the bike to be easily rolled or moved. Pull the engine, bolt in a Rolling Buddy and the bike is safely mobile again!

PART NO.	DESCRIPTION
#758-113	For Twin Cam® '07-up Touring & '06-up Dyna® models
#758-115	For Twin Cam [®] '99-'06 Touring & '99-'05 Dyna [®] models.
#758-114	For EV Touring, Dyna® and FXR Models.



Zippers Twin Cam Engine Stand Adaptor

Adapts a standard single-cam Big Twin engine stand to accept a '99-'06 (except 2006 FXD) Twin Cam "A" (non-counterbalanced) engine. With hardware. #717-588

JIMS® Engine Dipstick Socket

Are you tired of burning your hand while you check the oil level on your Bagger or Dyna? This ingenious tool allows riders and mechanics alike to quickly and safely remove the engine oil level dipstick that lies precariously close to a scorching hot exhaust pipe. Features a square hole for 3/8" ratchet fitment, 7/8" hex for wrench fitment, and a cutout for clearance around the exhaust pipe. Made of non-marring Delrin ensuring strength, durability, and heat resistance.

PART NO. DESCRIPTION

#758-759 For '06-'11 FXD, '07-'11 std. Touring, '07-'12 SE Touring models

JIMS® Oil Filter Cutting Stand

This stand can be mounted to a bench or used in a vice and makes the task of cutting open your slippery oil filter easy. The u-bolt quickly tightens the filter in place with the wing nuts provided. Use with JIMS® #758-935 oil filter cutter, fits all common O.E.M. H-D® spin-on oil filters. #758-934





This is the industries slimmest filter wrench allowing more clearance to remove the oil filter, especially around oil coolers and crank position sensors. Use on all 14 flute oil filters for H-D®'s. #758-941

#758-941



JIMS® Oil Filter Cutter

Use this tool to open your oil filter to inspect for any foreign particles that may be trapped in the filter. This tool locks down the filter for a clean cut around the filter base by rotating the filter. Fits filters up to 5-1/2" diameter. #758-935



JIMS[®] Big Twin Engine Rotator Socket

This tool is used to rotate the flywheel assembly when doing pushrod adjustments, building big inch designed like a long socket making it easier to use with a 1/2" drive tool.

WILITA 1/2 C	inve tool.
PART NO.	DESCRIPTION
#758-975	For 2006 FXD and 2007-up
	all Big Twin
#758-976	For all Big Twin 1955-2006
	(except 2006 FXD)

JIMS® Mighty Bite Flywheel Lock

This tool holds Twin Cam® flywheels in place when performing service work to the connecting rods or pistons with the cylinders off the engine. Just take out the flywheel position sensor and install the "Mighty Bite" into the case. #758-753





S&S[®] Crankshaft Anti-Rotation Bracket

Useful tools don't have to be expensive! This handy bracket slides over the sprocket shaft splines of '70-'06 Big Twin engines, and bolts to one of the primary bolt holes of the crankcase to keep the crank from rotating. Like an extra set of hands while installing pistons and cylinders, or any other operation where you don't want the crank to turn. #798-870



JIMS® EV Cylinder Stud Jig Assembly

Use to repair stripped or damaged cylinder stud case threads up to a 4" bore. This tool will hold centerline and squareness to where the factory intended them to be. All this with the engine still in the frame using an angle head drill (not included). Use on Big Twin 1984-1999 single cam only. #758-000





case. Bolt this tool to the

primary mounting holes with supplied hardware. For '55-up Big Twins ('00-up 'B' engines for crankshaft removal from left case half only).

PART NO. DESCRIPTION

For '06-up 6-speed Twin Cam® engines #758-995 #758-047 For '55-'06 Big Twin except 2006 FXD



JIMS® Sprocket **Shaft Hard Cap**

Use to protect sprocket shaft when using JIMS® case splitting tool #758-047 or a press. Fits 1955 to 2006 Big Twins crankshafts except 2006 Dyna. #758-048

JIMS[®] Sprocket Shaft Holder

Use to hold the flywheel assembly in vise, with or without left case attached.

PART NO. DESCRIPTION

For all Big Twin 1955-2006 (except 2006 FXD) #758-034

#758-974 For 2006 FXD & 2007-up all Big Twin

JIMS® Timken® Case **Bearing Race Tool**

Use to remove and install Timken® outer bearing races from left engine case. Use with handle #758-416 and spacer #758-388.

PART NO. DESCRIPTION	P	ART	NO.	DESCRIPTION
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#758-471 Fits '69-up Big Twin equipped

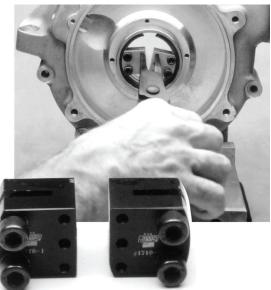
with Timken® bearings

#758-472 Fits '77-'03 XL/Buell engines









JIMS® Timken® Snap Ring Installer & Remover Tool

This tool will remove and install the sprocket shaft Timken® bearing outer race snap ring, without damage to case. A must for replacing rings in '90up cases without steel inserts. Use with heavy duty round tipped snap ring pliers. #758-171

Bottom End / Oil Pump Tools

JIMS® Timken® Bearing & **Inner Race Puller Tool**

This tool has been designed to remove the flywheel sprocket shaft inner Timken® bearing or '03-up straightroller bearing inner race from the sprocket shaft. Use on all straight-bearing Twin Cams® 2003-present and all Big Twins 1955-present equipped with Timken® bearings. Also can be used to correctly remove pressfit transmission gears and bearings from input and output shafts on all V-Rod® models. #758-963





JIMS® Timken® **Bearing Pullers**

These tools easily remove the inner Timken® bearing from the sprocket shaft without removing the shaft from flywheels.

. /	DESCRIPTION
#758-709	Fits '86-'06 Big Twin equipped with Tim

nken® bearings (3/4-piece crankshaft)

#758-045 Fits '55-'85 Big Twin equipped with Timken®

bearings (5-piece crankshaft)

Fits '77-'03 XL/Buell equipped with Timken® bearings #758-044 #758-305 Fits '57-'76 XL equipped with Timken® bearings

S&S® Crankpin Nut Clearancing Gauge

The S&S crankpin nut clearancing gauge is designed to simplify and eliminate clearancing problems that may arise when installing stroker flywheels in stock '58-'98 Big Twin crankcases. By painting the bosses to be clearanced and then placing the appropriate gauge on the main bearing

race, the crankcases can be marked with a scribe in the proper location for the stroke and style connecting rod crankpin nuts to be used, quickly, and precisely. #798-005



Use these retainers to hold the hydraulic chain tensioners in place when repairing all Beta engines. These are a "must have" tool for proper assembly or disassembly of the 'B' engine balancer system. #758-779



JIMS® Balancer Shaft Retention Pins Use this tool to secure the engine balancers on 2000up Twin Cam® "B" engines when servicing the flywheel assembly. This tool locks into the balancer's sprocket pin holes to prevent the balancer from turning out of sync with

the flywheel. #758-163

JIMS® 'B' Case Support Blocks

This tool is designed to protect the left engine case while servicing the inner balancer bearings or performing other general engine work. These blocks attach to the outer side of the engine case underneath the balancer bearing pads surface. The blocks are made of aluminum and have an inserted Delrin pad that rests against the case to prevent marring. The blocks properly support the case, keeping it on a level plane when using a press for bearing service work. For '00-up 'B' case. #758-916

JIMS® Balancer Shaft Removal Tool



JIMS® Balancer Inner Bearing Installer





installs the outboard balancer bearing on 2007-up 96" and 110" "B" Softail® engines chain guide support plate. #758-957



This tool will pull the bearings from the 2000-2006 "B" motor case in one easy smooth motion preventing any damage to the bearing bores. The installing portion of this tool is designed to be used with JIMS® #758-416 tool driver handle to push on the outer diameter of bearings preventing any damage to the bearing or its bore. #758-167



Use to install Timken bearings onto flywheel shafts and install flywheel assembly into left crankcase. Works best when used with JIMS® #758-660 1-7/8" socket (sold separately).

PART NO.	DESCRIPTION
#758-225	Fits Big Twin 1955-2002 and '03-up TC with
	Timken® conversion
#758-081	Fits Sportster® 1952-1976 (also fits 1977-2003
	XL/Buell when used with adapters below)
#758-475	2.060" long adapter for #758-081
	(required for XL 1977-2003)
#758-476	2.500" long adapter for #758-081
	(required for XL 1977-2003)
#758-660	1-7/8" transmission pulley nut deep
	socket (use with #758-225 & #758-081)

Bottom End / Oil Pump Tools



This tool will take all the guess work out of setting up shims for your sprocket and chain alignment on all years of the 'B' engine. **#758-166**



JIMS® Sprocket Shaft Bearing/Race Installation Adapter

This kit includes the necessary components required to use JIMS® #758-225 bearing installer tool on the late fine-spline 6-speed Twin Cam® sprocket shafts. This tool is designed to install either the roller bearing race used on factory 2003-up engines or a Timken® bearing assembly on Timken® converted engine case. #758-973



JIMS® Flywheel Shaft Sockets

These JIMS low profile sockets are just long enough to give 100% nut-to-socket contact and 100% drive end contact, machined flat at the nut receiving end to eliminate rounding off the nut. Machined from solid steel 4130 chromium-molybdenum and heat treated to give a lifetime of service.

PART NO. DESCRIPTION #758-102 1-3/8" x 1/2" drive, for L'81-'99 XL/Buell crank pin #758-104 1-5/16" x 1/2" drive, for '54-E'81 BT crank pin #758-106 1-1/2" x 1/2" drive, for L'83-'99 BT crank pin #758-108 1-1/4" x 1/2" drive, for L'81-'89 BT pinion shaft nut #758-110 1-5/8" x 3/4" drive, for '72-'99 BT sprocket shaft nut

JIMS[®] TC Crankshaft Bearing R&R Tool

Designed to protect expensive engine cases by using a specially designed support block to remove or install the cam side crankshaft bearing in a 2000-up 'B' engine.

#758-146





JIMS® Pinion Bushing Line Reamer Tool

Use to line pinion bushing in cam cover from right case race. Use on all Big Twin 1954-99 single cam only (NOTE: Includes aftermarket motors, also XL '57 to E'84 idler gear bushing). **#758-805**



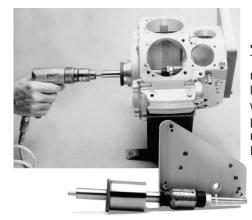
JIMS® Twin Cam® Crankshaft Bearing Tools

These quality tools are designed to remove and replace straight-roller crankcase bearings. Precision made and piloted using non-marring Delrin to press bearings in or out straight with no damage to the case.

#758-672 Fits all TC left case bearing '03-up; right case '00-up 'B' and '03-up 'A' cases #758-127 Fits '99-'02 'A' right (pinion) case bearing



case on to flywheel assembly. Use on all Twin Cam®, and 2003-up Buell XB9R/XB9S. #758-288



JIMS[®] Big Twin Case Lap Tool

This tool allows the engine builder to achieve the best of both worlds: removal of more material in less time with greater accuracy than a conventional lap. Both ends of the lap are supported in precisely the same centerline as the flywheel assembly. Use with conventional hand crank or with this extremely rigid arrangement it is possible to power the lap with a low speed drill motor without fear of chatter in the lapped bearing race. All wear surfaces are hardened and ground tool steel for a lifetime of service. Fits 1958-1999 Single-Cam Big Twin #758-710

JIMS® Race & Bearing Install Tool Handle

These two items are meant to be used in conjunction with several different JIMS® tools. Handle is approximately 12" long and fits the following tools: Timken® race drivers #758-471 & #758-472; cam bearing drivers #758-272 & #758-273; wheel bearing installation tool #758-071; steering neck race tool #758-232; balancer bearing tool #758-167; exhaust gasket tool #758-788. The spacer applies outward force on the bearing race tool halves #758-471, #758-472 and #758-232 to grip better, allowing easier removal of race.

PART	NO.	DESCRIPTION
		DEGUICIO II GIO

#758-416 Tool driver handle

#758-388 Tool spacer for bearing race tools



#758-388

S&S® Timken® Bearing & Seal Installation Tool

Developed for production shops, this smartly designed tool easily cuts the time it takes to install sprocket shaft bearings and seals. The S&S® installation tool uses a smooth operating rack and pinion system to quickly press bearings and seals into place. The tool is used by itself, without an adapter, to install sprocket shaft bearings for Big Twins. Included with the tool are four adapters that quickly convert the tool to install sprocket shaft bearings for Harley-Davidson® Sportster® models, or sprocket shaft seals for Big Twin and Sportster® models. Simply select the appropriate adapters, screw the installer onto the end of the sprocket shaft, and with a few strokes from your 1/2 inch drive ratchet wrench, the installation is performed quickly and accurately. This tool is built to stand up to daily shop use, and is covered by a two-year warranty. For 1955-2002 BT and 1957-2003 Sportster® models. #798-060





JIMS[®] Timken[®] Bearing Race Installer

Use to install bearing races in left crankcase. Use this precision tool to press in bearing races straight time after time (a must for the later engine cases). Use on all 1969-up Timken® Big Twin engines and XL '77-'03, Buell '87-'02. #758-246

JIMS[®] Timken[®] Bearing Simulator

This tool slips over the sprocket shaft in place of the outer Timken® bearing and is designed to hold the crankshaft in position when

checking rod-to-case, piston-to-flywheel, or cylinder-to-flywheel clearances. Made from black Delrin plastic, will not mar bearing races. Fits '70-'06 Timken®-equipped Big Twins. #758-745





S&S® Case & Head Boring Fixture Tools

These fixtures are designed to hold cases and heads when boring them for larger bore cylinders.

PART	NO.	DESCRIPTION
_		,

This boring plate kit is designed for boring stock Twin Cam® #798-305 cases to accept 4" and 4-1/8" bore cylinders. A spacer is included with the kit which allows the cases to be bored without removing the cylinder studs.

#798-306 This boring plate kit has Panhead and Shovelhead head bolt patterns in one end while the other end is machined with the cylinder base patterns of 1936-1999 Big Twin and 1986-2003 Sportster® cases. Spacers below are available for Evolution® engines which allow the cases to be bored without removing the cylinder studs.

#798-307 3-11/16" cylinder stud spacer, required for '86-'03 XL and '84-'99 BT cases.

#798-308 7/8" cylinder stud spacer must be used with #798-307 spacer for '84-'99 BT cases.



JIMS[®] Case Boring Tools

Why pay a machine shop to bore your cases? Use this tool in your own shop and save time and money. Designed to be used on a heavyduty 15" drill press. Bore cases with ease (with stock cylinder holt nattern)

otook cymiaci bolt pattorrij.		
	PART NO.	DESCRIPTION
	#758-408	Use on Twin Cam® cases with stock
		stud pattern (up to 4-1/8" bore)
	#758-409	Use on EV Big Twin cases with stock
		stud pattern (up to 3-13/16" bore)



The S&S master flywheel balancing kit is designed to allow the average shop to rebalance stock and S&S flywheels accurately and quickly. Whether doing a stock rebuild or a performance upgrade using aftermarket parts, flywheel rebalancing is a desirable step in the engine building process. A complete set of detailed instructions is furnished with each kit. For flywheels with tapered crankpins only.

PART NO.	DESCRIPTION
#798-027	Complete kit with balance scale included
#798-028	Complete kit without balance scale



JIMS® Rod Race R&R Tool

Supports both sides of rod as races are removed or replaced, minimizing the possibility of distortion to female rod or race. For all twins with replaceable races. #758-003



JIMS® Rod **Lapping Set**

Arbor assembly includes 1-1/2" and 1-5/8" laps. Use on all Twins that have replaceable races. #758-740



Seal Install Tool

Use to press oil seal over sprocket shaft into case. Tap in or press in straight and true with Timken® tool # 758-225. Use on all Big Twin 1969-present. #758-226

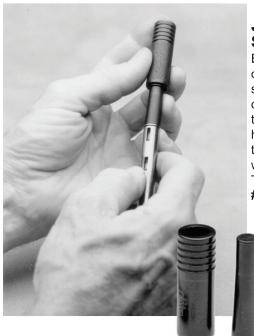


Sprocket Shaft

Use this kit to install the sprocket shaft seal to the proper depth and for holding the seal perfectly square, for a no leak fit. Driver handle sold separately, order handle #758-257. Use on all Sportster® '77-'03 & Buell '87-'02. #758-324

#758-324

#798-013



JIMS® Oil Pump **Snap Ring Installer**

Easily install outer snap ring on oil pump shaft, without over stretching the ring. Just apply oil to ring expander, slip ring up to the big end of ring expander, hold up to the end of the shaft, then push ring onto the shaft with sleeve. Use on all Big Twin oil pumps single cam only. #758-052



S&S® Oil Pump **Drill Jig Tool**

This is the drill fixture you need to modify '73-'80 BT cases to accept '81-'91 oil pumps, and other passage modifications when retrofitting oil pumps. #798-013



JIMS® BT Tappet Oil Screen Plug Tool

Use to remove tappet oil filter screen plug without removing exhaust pipes. For use on all single-cam Big Twins. #758-233



JIMS® Oil Pump Seal Installer

Easily installs oil pump seal perfectly below gear surface for a no leak fit. Fits all aluminum single-cam Big Twin pumps only. #758-053

Clutch / Drive Tools



JIMS® Primary Locking Bars

Use to lock primary for service work.

PART NO. DESCRIPTION

#758-212 For 2007-up Touring models

#758-215 For 2006-up Dyna® and 2007 Softail® models

#758-216 For 5-Speed Softail®/Dyna® and all 4-Speed FX/FL Big Twins

#758-217 For 5-Speed FXR, FLT & FLHT Big Twins

#758-218 For 883 Sportsters



JIMS® Clutch Spring Compressor

Use to release clutch spring for ease of retainer ring removal and installation.

PART NO. DESCRIPTION

#758-515 Spring compressor for '90-'97 BT, '91-'03 XL/Buell* **#758-516** Center nut kit for '91-'03 XL/Buell only (*use with #758-515 on XL/Buell)



JIMS[®] L'84-'90 XL Clutch Spring Compressor

Use to release the clutch spring tension for disassembly on L'84-90 XL, '87-'90 Buell. #758-761



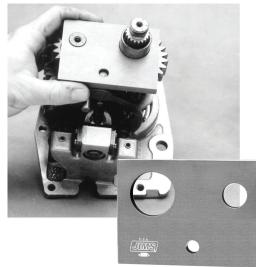
JIMS® Primary Drive Locking Wedge
Use on all primaries between front primary chain and
motor sprocket. Made out of black Delrin. #758-234



#758-178

JIMS[®] '71-E'84 XL Clutch Spring Compressor

Use to remove and install clutch components. Use on all Sportster® 1971-E'84. #758-178



JIMS[®] L'84-'90 XL Gear Spacing Tool

Use on all L'84-'90 Sportster® to hold transmission main, counter and shift fork shafts in proper alignment when setting up gear spacing on the bench top. #758-820

Clutch / Drive Tools

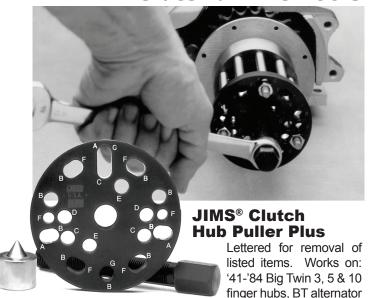


JIMS® Clutch Assembly Tool

This tool will safely disassemble and assemble the clutch shell assembly on 1990-2006 Big Twins. Easily removes and installs the clutch hub from its bearing. Safely removes and installs the clutch shell ball bearing without any damage to the new bearing. #758-971



Primary cover bearing can easily be removed, even if cover has been chromed with bearing installed. Note: This tool will also remove the #35961-52 bearing in countershaft gear (late) 4 speed BT and 4-speed XL clutch gear. #758-235



shells, 45" Clutch, XL transmission sprocket, BT engine sprocket, early and late Iron XL clutch and many more applications. #758-004



JIMS[®] Clutch Lock Plate

Use to lock clutch shell to clutch hub, for removing or installing clutch hub nut on 1941-1984 Big Twins. #758-245



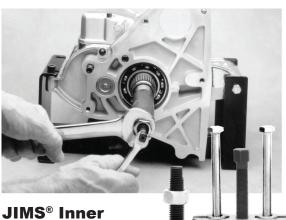
This tool is designed to remove the starter ring gear rivets from Big Twin

clutch shells when replacing the starter ring gear. Use on all 1990-2006 5-speed Big Twin. #758-965

Clutch / Drive Tools



This tool is designed to easily align and install the starter jackshaft seal without distorting or damaging the seal. Fits '94-'06 5-speed Big Twins #758-966



JIMS[®] Inner Primary Bearing Race Tool

Use to remove and install the inner primary bearing

inner race on the transmission mainshaft. Use on all Big Twin Late 1984-present 5 & 6 speed. #758-902

Replacement puller plate #758-903





These 1/4-20 pins will assist you in aligning the gaskets during assembly to avoid misalignment and oil leaks. Primary cover, cam cover, and transmission end cover gaskets are just a few of the possible applications. 3 piece set. #758-968



JIMS[®] Inner Primary Cover Bearing/Seal R&R Tool

Designed to safely remove and install the inner primary bearing without any damage to the new bearing. Also removes and installs inner primary seal. For '86-'07 Big Twin. #758-967



PART NO. DESCRIPTION

#758-260 For all Big Twins 1980 to present 4, 5 & 6 speed For '91-up XL, '94-'02 Buell with 28 or 29T pulley only

JIMS[®] Mainshaft Sprocket Nut Socket

Heavy-Duty thick wall tube. Extra long two piece design; inner collar supports socket square to nut for safer service work. 1/2" Drive.

PART	NO.	DESCRIPTION
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#758-660 For 1936-2006 4 & 5 speed Big Twins **#758-989** For 2006-up 6 speed Big Twins



JIMS[®] 6-Speed Transmission Door Remover Tool

Use this tool to remove (pull) the complete door with gears and shafts from the transmission. Can be used with transmission in the frame; for all H-D[®] 6-speeds 2006-up. **#758-984**



JIMS[®] 6-Speed Shift Fork Shaft Remover Tool

Tool loosens and removes both shifter shafts from the H-D® 6-speed transmission door, allowing further disassembly of transmission. For 2006-up H-D® 6-speed transmission. #758-985

JIMS® 6-Speed Trap Door Bearing R&R Tool

This new innovative tool will accurately install a lubed ball bearing into the H-D® 6-speed



transmission trap door. Also removes bearing without error and can be performed on a work bench, no need for an arbor press. For all $H-D^{\otimes}$ 6 speeds, 2006-up. **#758-911**



This is a complete kit for servicing the main drive gear and main bearing on the H-D[®] 6-speed transmission. This precision tool removes and installs both parts correctly without damaging the case. For 2006 FXD and all 2007-up Twin Cam[®] models. #758-900



JIMS® Transmission Case Shifter Shaft Seal Installer

These two simple tools make installing the shifter shaft seal precise and effortless. They align, center and install the shifter seal to the right depth.

line similer s	sear to the right depth.
PART NO.	DESCRIPTION
#758-767	For 2006-up H-D® 6-Speed
	transmissions
#758-768	For 1980-2006 5-speed
•	transmissions



JIMS[®] 6-Speed Main Case Seal Installer

H-D®'s new 6-speed case bearings are of such high precision that you must be very g e n t l e when working in or around them. JIMS has developed a driver style seal installer (not a pushing or pulling type, which could damage these bearings) that installs the main seal to the correct depth, without applying any stress to the precision bearings seal. #758-786



This tool will push the main drive case seal in as flat and straight as possible to .050" below housing for a no leak fit. Tool #758-642 includes the main tool components required and the seal installer for '41-'79 4-speeds. Order drivers for other year 4&5 speed transmissions separately.

PART NO.	DESCRIPTION
#758-642	Main tool with seal driver/remover for 41-79
	4 speed transmissions
#758-667	Seal driver only for 82-86 4 speed,
	use with 758-642
#758-346	Seal driver only for 80-84 5 speed,
	use with 758-642
#758-665	Seal driver only for 85-06 5 speed,
	use with 758-642



JIMS® Main Drive Gear Seal Installer

This tool is designed to properly align and install the mainshaft to main drive gear seal to the right depth into the end of the main drive gear. This can be performed while the assembled transmission is either on a bench or in the motorcycle chassis.

DESCRIPTION PART NO.

#758-972 For all H-D® 6 speeds, 2006-up #758-256 For all H-D[®] 5 speeds, 1980-2006



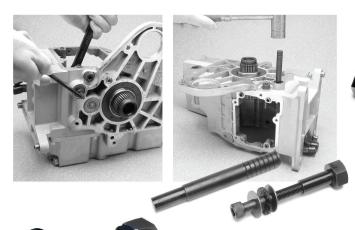
JIMS® Countershaft **Bearing R&R Tool**

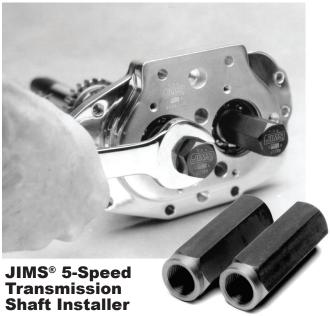




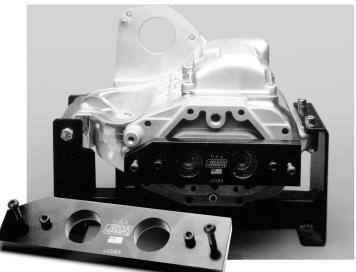
Use this tool to safely install new main drive gear inner needle bearings and seal. This tool will hold bearings and seal square to its bore, to the right depth.

PART NO.	DESCRIPTION
#758-986	For all 2006-up H-D® 6-speed transmissions
#758-736	For all '91-'06 H-D® 5-speed transmissions
#758-734	For all '80-'90 H-D® 5-speed transmissions





This tool allows installation of transmission shafts without the use of a hydraulic or arbor press. #758-189



JIMS® 5-Speed BT Door Puller

Use to remove Big Twin 5-Speed transmission door. This tool easily removes the transmission door with gears and shafts attached without any scratches or frustrations. #758-228

JIMS® Shifter Shaft Sleeve R&R Tool

This tool allows you to remove and install the shifter shaft sleeve to the correct depth in case without error or damage.

PART NO.	DESCRIPTION
#758-658	For all 2006-up H-D® 6-speed transmissions
#758-664	For all '00-'06 H-D® 5-speed transmissions

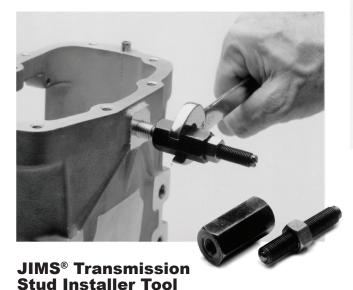


JIMS[®] Late 4-Speed Main Drive Gear Bearing Tool

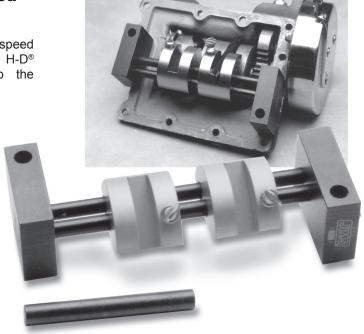
Use on all 1979-86 BT 4-speed to install main bearing H-D[®] No.8905 or No.8906 to the factory depth. #758-428



Use on all 1936-1986 Big Twin 4-speed transmissions to remove and install the main drive gear bushing; also used to remove Big Twin cam bushing 1970-1999. **#758-005**



Use on '36-'86 4 speed and '86-'99 Softail® 5-speed transmission case mounting studs. #758-050



JIMS® 4-Speed BT Shift Fork Gauge

For '39-'78 BT 4 speed

Use to set and align shift forks on 4-speed Big Twin transmissions.

PART NO. DESCRIPTION #758-385 For '79-'86 BT 4 speed

#758-384



This tool was designed specifically to remove the '36-'86 pressed-on mainshaft kick start gear (#33381-39 or 33560-75) without damage to the gear or shaft. **#758-700**



JIMS[®] Touring Model Steering Head Stem Nut Wrench

A great time-saving tool for use on '96-up FLT/HT and '94-up FLHR models. Normally to get access to the top stem nut you would need to remove the radio package; with this tool you are able to loosen, tighten and torque to spec the 1-1/2" stem nut without radio removal and ultimately saving about 45 minutes. #758-977

JIMS® Vacuum Fed Fork Filling Tool

Changing the fork fluid on models with fairings is a time-consuming job, but this tool eliminates the need to remove the fairing on Touring models to change the fork oil. After draining the forks, fill the tool's reservoir with pre-measured fork fluid, insert the tapered fitting into the drain hole and create a vacuum using a standard Mityvac hand pump (not included). Once you reach approximately 25 lbs. of vacuum pressure, rotate the tool's valve and the vacuum will draw the fork fluid into the fork tube. Use on all common damper tube type fork assemblies (not for use on motorcycles using cartridge type forks or inverted fork assemblies). Tool #758-074 Mityvac pump #758-075





JIMS® Fork Tube Nut Sockets

Use to remove and install top fork tube plugs. Eliminates burring of plugs caused by wrenches.

PART NO. DESCRIPTION

#758-043 For all 1948 and later Wide Glide / Touring models For all Sportsters® & Big Twins with 35 & 39mm NG forks

JIMS® Fork Seal & Cap Installers

Use to install fork seals, dust seals, and chrome caps squarely into the bore without damaging the seal lip surface.

PART	NO.	DESCRIPTION
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#758-204	39mm slider ('88-up narrow forks)		
#758-205	35mm slider ('73-'87 narrow forks)		
#758-207	41mm slider ('49-'13 wide forks)		
#758-209	49mm slider ('06-up FXD and		
	conventional fork V-Rod®)		







JIMS[®] Fork Stem Bearing Remover

Use this tool to remove the lower fork stem (Triple Clamp) tapered bearing on all lower fork stems that use a 48300-60 style tapered roller bearing. #758-414



JIMS® Swingarm Clevebloc Bushing R&R Tool

Use to remove and replace swing arm cleveblocs on all FXR's and '80-'01 FLT/FLHT. This tool presses on the outer sleeve of the bushing, preventing damage to the clevebloc. Can be used with or without a press. #758-743

JIMS[®] Steering Head Bearing Race Remover Tool

Use to remove and install steering head bearing races from frame. Use with 758-388 spacer and 758-416 driver handle. Use on '49-up Big Twins, '78-up XL, 87-'02 Buell® and '02-up V-Rod®.

PART NO. DESCRIPTION

#758-232 Race tool #758-388 Race tool spacer #758-416 Tool driver handle





Use to install tapered steering head races and ball bearing cups into the frame on all models, straight and true. #758-725



Use to install the swing arm in all FXR and '80-'01 FLT/HT models. This tool will spread the swing arm cleveblocs allowing for installation of the swing arm. #758-707



JIMS® Pivot Bearing Remover / Installer Tool

Use this tool when removing and installing the swingarm pivot bearing for 1984-present Softails® that use H-D® No.9076, or 9270A bearings. This tool can also be used to remove and install front fender spherical bearings on Heritage Softail® Springers 1997-02 & 2004-present that use H-D® No.9149. #758-250



JIMS[®] Rear Axle Nut Torque Adapter

This tool will make adjusting the drive belt tension or rear wheel alignment a bit easier on '06-up Touring and '05-up V-Rod® models.. Saves you time by eliminating the need to remove the mufflers to perform this service. The tool is designed with a 1/2" drive receiver hole for inserting your torque wrench thus letting you torque the axle nut from an offset position. #758-906



This tool easily and safely aligns the rubber mounted engine, transmission and the swingarm assembly to the correct position for touring models. Use on 1993-2008 FLHT models. #758-964



JIMS® 3rd Hand Axle Locker Tool

Have you noticed, as you are torquing down the axle nut after you set the proper belt tension, that the welded axle nut will move to the low side of adjuster cam? With this tool you will not need to find a helper to hold the nut or yourself having to reach around the tire and hold the nut from moving. Just place this tool over the welded nut on left side with the neck portion of the tool resting over the swing arm. Hand screw the adjusting screw to take up any slack in tool. Torque the axle nut from the right side knowing the welded nut will not turn allowing the belt to lose its adjustment. #758-970

JIMS® Late Sealed Wheel Bearing R&R Tool

Use to remove and install sealed wheel bearings in 2000 and later models without damaging the wheel. Includes removers and installers for both 2000-2006 1" and 2007-up 25mm bearings, with or without ABS.

PART NO. DESCRIPTION

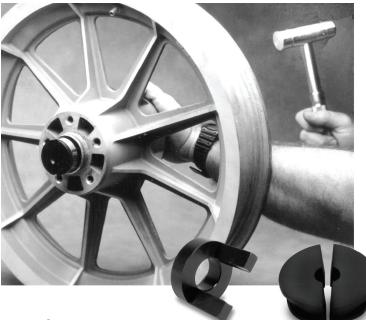
#758-142 Complete kit (includes both 1" & 25mm tools)

#758-958 2007-up update kit, includes 25mm R&R tools only to update









JIMS[®] '73-'99 Wheel Bearing Race R&R Tool

Use to remove and install bearing cups in cast wheels. Use with driver handle #758-416; includes #758-388 spacer. **#758-071** Driver Handle **#758-416**

#758-416



JIMS[®] Brake Caliper Piston Remover

This tool will support the brake caliper pistons for removal by holding the pistons square to their bores. This prevents any damage to the pistons and the piston bores so seals and wipers can be replaced.

DA DT NO	DESCRIPTION

#758-162 For '00-'07 BT, '00-'03 XL 4-piston calipers **#758-945** For '08-up FXST, FXD front caliper

#758-946 For '08-up FXST, FXD from caliper

JIMS® Reverse Brake Bleeding Tool

Bleeding brakes is now a snap! This tool will push the fluid from the caliper to the master cylinder. You can easily watch the master cylinder reservoir for all of the air bubble to be removed from the brake system. Once there are no more air bubbles rising in the master cylinder - the brake lines are properly bled. Note: some ABS systems may require a Digital Technician connection for proper service work. #758-738





BrakeStrip Fluid And Corrosion Detection Strips

We know the hydraulic fluid in brake and clutch systems may need to be changed or flushed. The question is: when? These detection strips reveal the condition of the fluid, as well as the hydraulic system itself. Great for service departments as well as the home mechanic. BrakeStrip detection strips also determine whether there is DOT 3, 4 or a combination of the two fluids in the system. Pack of 100 strips. #758-757

RK Chain Tool

This is the only chain tool you'll ever need. This heavy-duty unit includes pin press for chain breaking, a plate press for pressing on link plates and a staking tool for rivet-only links. Best chain tool we've ever used! #772-406



JIMS® Saddlebag **Latch Rivet Tool**

Use to crimp saddlebag latch and hinge rivets. This tool gives secure fastening when saddlebag latch replacement or tightening is required while providing a clean factory-finished look. Made in the USA, this tool also carries a lifetime guarantee. #758-754



Notes	



Transmission Components Bisagno by Zipper's Trans Door

Zipper's is the source for the Bisagno Bros. billet 5 speed Big Twin transmission door! This heavy-duty door originally designed by Frank and John Bisagno is now being produced by Zipper's. Its main features are the double-row ball bearings used to support the main and countershafts. Stock single-row bearings allow the shafts to flex considerably, causing accelerated wear on the gears and frictional power losses. This door holds the shafts straight and true for much needed additional support. Shifting is improved and more precise. Supplied show polished with spacers and shaft nuts for assembly. Beautiful polished finish, Made in USA!

DESCRIPTION	PART NO.
Bisagno By Zipper's door, '87-'93 FL, '87-'06 FX	#872-100
Bisagno By Zipper's door, '94-'06 FL Touring models	#872-105
Replacement double-row bearing (each)	#872-101



Zipper's Zip-Rack 5 Speed Transmissions



The 'Zip-Rack' is a fully assembled shaft and gear set that has been treated with our famous back-cut service. We start with a full set of new Andrews gears and shafts. The engagement dogs are carefully machined to the proper rake and depth by Zipper's for positive engagement, eliminating missed shifts at high RPM. The gears and shafts are assembled with new thrust washers and bearings, then installed on a billet door.

Standard cut supplied is designed for street and part-time racing use; for full-race cut, specify at time of order and add code # ZM-9503B to the order (additional charge).

BIG TWIN ZIP RACK	W/2.94 1ST GEAR	W/3.24 1ST GEAR
Zip-Rack '90-'93 FL, '90-'06 FX models	#817-162	#817-163
Zip-Rack '94-'06 FL Touring models	#817-164	#817-165
Zip-Rack '87-'89 Big Twin	#817-166	#817-167

 SPORTSTER® ZIP RACK
 W/2.61 1ST GEAR

 Zip-Rack '91-'03 XL, '95-'02 1200 Buell, Street Cut
 #817-180S

 Zip-Rack '91-'03 XL, '95-'02 1200 Buell, Race Cut
 #817-180R

Zipper's Billet Door f/5 Speed Sportster®

CNC machined from 7075-T6 billet aluminum, our door strengthens this critical area and provides rigid support for the transmission shafts. Includes grade 8 mounting hardware, shift drum bushing, main and countershaft ball bearings and circlips installed for your convenience. Made in USA.

DESCRIPTIONPART NO.Zipper's '91-'03 XL, '95-'02 1200 Buell door#817-891



Zipper's Billet 4 Speed EV Trap Door



This trap door can be used as a heavy duty stock replacement or as a rigid backbone for drag racing and high output 4 speed alternator-equipped Sportsters[®]. Includes a heavy-duty, double row mainshaft bearing for extra strength and stability for the clutch and shafts. It is a direct bolt-on replacement. Includes mounting hardware and countershaft bearing. Made in USA.

DESCRIPTION	PART NO.
Zippers billet door assembly,'L84-'90 XL	#817-840

Inner Primary Bearing Upgrade

In high output applications, we've seen the primary bearing race on 1985 and newer models that is pressed onto the mainshaft walk in to the main drive gear and damage it, requiring expensive repairs. This unit replaces the two-piece H-D bearing with a single sealed unit, similar to the earlier model bearing used successfully for years. Requires the seal listed below for wet applications. Fits all 1985 and later Big Twins.

DESCRIPTION	PART NO.
One piece primary bearing, '85-'07 Big Twins	#817-975
Double-lip seal for above, '85-up Big Twins	#872-527



We've taken the hassle of converting your late model belt driven H-D, to chain drive. Whether you're interested in a different final drive ratio, added driveline strength or more clearance for a wider tire, these kits will make your life easier. Front sprockets are steel, rear are made from extremely tough 7075-T6 aircraft quality aluminum. Choose between high-wearing RK Pro O-Ring chain or RK's brutally strong, non-o-ring DR (Drag Race) chain. Simply identify your motorcycle type and year group, what style of chain you wish to run, and what sprockets you've chosen and we'll supply you with everything

you'll need for the conversion. Email or call us to recommend what final drive ratio will work best for you, or choose your own (note: extremely small or large sprockets may require swing arm or frame modifications for clearance). 120 link chains are supplied, which must be shortened to fit.

BIG TWIN 5 SPEED: Choose between 21-24 teeth on the transmission sprocket, 46-55 teeth on the rear (23/24 front, 48-52 rear sizes fit best).

BIG TWIN 6 SPEED: Choose between 24-26 teeth on the transmission sprocket, 46-55 teeth on the rear.

SPORTSTER: Choose between 19-26 teeth on the transmission sprocket, 46-55 teeth on the rear (21/23 front, 46-51 rear sizes fit best on '91-'03 models; 2004-up models require larger diameter sprockets [25/26 front, 52-55 rear] to clear the passenger peg mounts on the frame).

APPLICATION	W/ O-RING CHAIN	W/ DRAG RACE CHAIN	APPLICATION	W/ O-RING CHAIN	W/ DRAG RACE CHAIN
'85-'93 Big Twin models	#817-700	# 817-710	Sportster® '91-'94 models	# 817-750	# 817-760
'94-'99 Big Twin models	#817-703	# 817-713	Sportster® '95-'99 models	# 817-753	# 817-763
'00-'06 Softail® models	#817-706	# 817-716	Sportster® '00-'03 models	# 817-754	# 817-764
'00-'06 Touring models	#817-709	# 817-719	Sportster® '04-'05 models	# 817-756	# 817-766
'00-'05 Dyna® models	#817-712	# 817-722	Sportster® '06-up models*	# 817-757	# 817-767
'06-up Dyna® models	#817-711	# 817-721	*Including XR1200® Models		
'07-'08 Touring models	#817-708	# 817-718			

Big Twin Chain Conversion Transmision Sprockets

These conversion sprockets will allow you to convert your Big Twin to chain drive and gives you room to run a wider tire. Ideal for racers wanting the extra strength of a chain, clearance to run different tires and simplified gear changes. .500" offset sprockets are a direct bolt-on for '94-up models; '85-'93 models require a seal and spacer kit listed below.

5 SPEED - Choose standard offset of .500", or extra wide offset of .810" or 1.060" (custom fabrication required for .810" and 1.060").

6 SPEED - Choose standard offset of .500", or extra wide offset of .750" (custom fabrication required for .750").

5 SPEED SPROKETS/OFFSET	.500"	.810"	1.060"	A B C
21T, '85-'06 BT 5 Speed	#852-521	N/A	N/A	
22T, '85-'06 BT 5 Speed	#852-522	N/A	N/A	Paramet.
23T, '85-'06 BT 5 Speed	#852-523	#852-533	N/A	Mac
24T, '85-'06 BT 5 Speed	#852-524	#852-534	#852-544	US

Seal & spacer kit, required for '85-'93 models #850-344



6 SPEED SPROKETS/OFFSET	
24T, '06-up BT 6 Speed	
25T, '06-up BT 6 Speed	
26T, '06-up BT 6 Speed	

D	<u> E</u>]
.500"	.750"*
#808-224	#808-324
#808-225	#808-325
#808-226	#808-326

[&]quot;34" offset for custom chassis use only

Chain Conversion Kits and Machining Services



Made in 5 Speed XL/Buell® Chain Conversion USA Transmission Sprockets

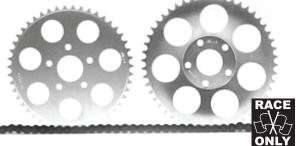
These sprockets are offset towards the engine case in a stock application, and use a flat rear sprocket. Direct bolt-on for '91-'94 models; '95 & later models require a seal and/ or spacer kit listed below.

Zip Tip ► Flip the sprocket over & gain 3/8" extra tire clearance, use a dished rear sprocket to match, then run a 150 series tire without problems!

DESCRIPTION	PART NO.	DESCRIPTION	PART NO.
19T 5-sp XL/Buell sprocket	#808-814	24T 5-sp XL/Buell sprocket	#808-819
20T 5-sp XL/Buell sprocket	#808-815	25T 5-sp XL/Buell sprocket	#808-820
21T 5-sp XL/Buell sprocket	#808-816	26T 5-sp XL/Buell sprocket	#808-821
22T 5-sp XL/Buell sprocket	#808-817	Seal & spacer kit,'95-'05	#850-940
23T 5-sp XL/Buell sprocket	#808-818	Spacer, Reg'd'06-up XL	#817-876

Aluminum Rear Chain Sprockets

American made from 7075-T6 aircraft quality aluminum alloy, which surpasses common steel sprockets in tensile, yield and shear strength. Manufactured in full width for size 530 chain, for maximum strength. Available dished and flat for standard Harley® 5 bolt early ('73-'99) and flat only for late (2000-up) pattern. Buell 5-bolt pattern available (flat only).



	'73-'06	'73-'99				UNL
FOR H-D®	FLAT	DISHED	F/ '95-'02 BUELL®	FLAT ONLY	F/ '95-'02 BUELL®	FLAT ONLY
46 Tooth Sprocket	#808-866	#808-880	46 Tooth Sprocket	#872-946	54 Tooth Sprocket	#872-954
47 Tooth Sprocket	#808-867	#808-881	47 Tooth Sprocket	#872-947	55 Tooth Sprocket	#872-955
48 Tooth Sprocket	#808-868	#808-882	48 Tooth Sprocket	#872-948	56 Tooth Sprocket	#872-956
49 Tooth Sprocket	#808-869	#808-883	49 Tooth Sprocket	#872-949	57 Tooth Sprocket	#872-957
50 Tooth Sprocket	#808-870	#808-884	50 Tooth Sprocket	#872-950		
51 Tooth Sprocket	#808-871	#808-885	51 Tooth Sprocket	#872-951		
52 Tooth Sprocket	#808-872	#808-886	52 Tooth Sprocket	#872-952		
53 Tooth Sprocket	#808-873	#808-887	53 Tooth Sprocket	#872-953		

Timken® Conversion for 2003 and Later Crankcases

Starting with the 2003 model year, the factory has replaced the Timken® sprocket shaft bearing on the crankshaft with a straight roller bearing. While this design eliminates setting bearing end play and significantly reduces the labor for installation/assembly, it was our opinion that this design would not sufficiently handle the loads generated by big bore/ stroker engines designed for substantial horsepower output. There have been many failures to substantiate this theory!

Zipper's developed a service in late 2002 to convert 2003 and later crankcases to the proven Timken® tapered bearing system. Send us your left crankcase and we'll return it fully machined with Timken® races installed, ready for assembly. Timken® bearings and seal spacer provided. For Timken® conversion only, send just the left case half. For additional services such as boring for big bore cylinders, send both halves with all case bolts in place.

10 p. 6.00.	
DESCRIPTION	SERVICE CODE
Crankcase machining for Timken® conversion,	ZM-9329
'03-up TC88 A/B cases	







Red Line engine and transmission lubricants have long been the choice of racers and knowledgeable engine builders. The thermal stability, film strength and reduced parasitic drag found in Red Line engine oil all contribute to lower operating temperatures, increased engine life and more power. This defines Red Line motor oil as a superior product for air-cooled engines, the heart of all American motorcycles. Red Line's transmission lubricants enhance smooth shifting, lower operating temperatures and reduce transmission noise. Red Lines' racing heritage is reflected in all of their products...you'll see more Red Line products at the track than any other lubricant manufacturer for all of these reasons.

RED LINE® Synthetic Motor Oil

Red Line synthetic motor oils use the most stable synthetic lubricant base stocks available and are formulated for wear protection and friction reduction across a wide range of engine operating conditions. Red Line lubricants are unique because they contain polyol ester base stocks, the only lubricant base stock that can withstand the incredible heat present in modern jet engines.



20W50 Motorcycle Oil: Most popular choice for use in Harley® engines. The ultimate high temperature protection in engine oils, recommended for street use in air-cooled engines. Provides 25% more viscosity in bearings than petroleum 20W-50s. Zipper's recommended for almost all street applications.

20W60HD Motorcycle Oil: Made especially for air-cooled engines operated in extremely warm environments. Helps quiet noisy engines.

PART NO.	DESCRIPTION
#084-205	20W50 Motorcycle Oil, Quart
#084-225	20W50 Motorcycle Oil, Gallon
#084-125	20W50 Motorcycle Oil, Red Line® Power Pack
#084-206	20W60HD Motorcycle Oil, Quart
#084-226	20W60HD Motorcycle Oil, Gallon
#084-126	20W60HD Motorcycle Oil, Red Line® Power Pack

RED LINE® Gear Oils

V-Twin Transmission Oil With Shockproof: By far the best transmission oil you can buy for use in Big Twin 4, 5 or 6 speed street bikes - you'll immediately notice smoother shifting and quieter operation! V-Twin Transmission Oil with ShockProof® provides unequalled protection for both stock and aftermarket American V-Twin transmissions. This product dampens transmission noise (reducing the notorious shifting "clunk" found in these gearboxes), dramatically reduces temperature, provides thicker oil films between gear teeth and completely resists throw-off. This stuff is magic in a bottle!

V-Twin Primary Case Oil: Red Line's new V-twin Primary Case Oil is designed specifically for '84-to-present V-Twin American motorcycle primary chaincase with wet-diaphragm spring clutches. Designed to operate over a wide temperature range, this Primary Case Oil improves clutch operation while reducing wear and temperature. Where most synthetics are too slippery for clutch operation, this friction-balanced product is balanced to provide less slip, smoother operation, and helps to apply more power in modified engines.

PART NO.	DESCRIPTION
#084-120	V-Twin Transmission Oil with Shockproof, Quart
#084-111	XL®/XR® Transmission Oil, Quart
#084-100	V-Twin Primary Case Oil, Quart





RED LINE® Specialty Products

Assembly Lube

High protection lubricant that clings to metal surfaces. Designed to be used a lubricant to apply to potential wear surfaces before assembly in order to prevent metal contact upon startup before adequate lubrication is supplied. Provides three times greater film strength than conventional black Molybdenum Disulfide greases and will not clog oil filters. This product clings to all surfaces and is an excellent rust inhibitor, allowing the storage of parts for years. A thin film of protection is all that is required on mating parts. Red Line Assembly Lube is an excellent corrosion inhibitor and can be used on machined surfaces to provide long-term corrosion protection. Do not use on exhaust bolts or other high temperature bolts which require an anti-seize.

PART NO.	DESCRIPTION
#084-401	Red Line® Assembly Lube, 4oz Tub
#084-403	Red Line® Assembly Lube, 12oz Bottle

SI-1 Injector Cleaner

Cleans fuel injectors and removes intake valve deposits for increased fuel economy and power output, while providing additional top end lubricant. Restores that 'snap' that today's modern fuel injected engine slowly loses over time. Available in 4 oz (treats up to 25 gallons) or 16 oz (treats up to 100 gallons) bottles.



PART NO.	DESCRIPTION
#084-316	SI-1 Injector Cleaner, 4oz
#084-315	SI-1 Injector Cleaner, 16oz

Red Line® Oil Power Packs and Gallons

Big Twin Power Packs

Complete kit, good for all EVO and TC Harley-Davidson® models. Includes: 5 quarts of Motorcycle Oil, 1 quart of V-Twin Transmission Oil w/ ShockProof, 1 quart of Primary Chain Case Oil, 1 bottle of Motorcycle Fuel Injection Cleaner, stickers, Red Line Oil embroidered hat, and a versatile funnel.

PART NO.	DESCRIPTION	
#084-125	20W50 Power Pack	
#084-126	20W60 Power Pack	

For '07-up H-D® motorcycles, users must purchase one extra bottle of Primary Chain Case Oil. Users must check vehicle specs for capacity to prevent overfilling, as full quarts may provide more product than necessary.





Gallons of Red Line Synthetic Motorcycle Oil

Zipper's Performance Products now carries 20W50 and 20W60 Red Line Motorcycle Oil in gallon containers. Larger containers are good space-savers for the garage!

PART NO.	DESCRIPTION
#084-225	20W50 Red Line Synthetic Motorcycle Oil, Gallon
#084-226	20W60 Red Line Synthetic Motorcycle Oil, Gallon

Variable Pressure Clutch (VPC)

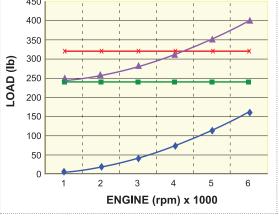
One of the less desirable byproducts of increased power is the need for a clutch spring upgrade, and the additional lever effort it requires. By adding the Variable Pressure Clutch (VPC) devise, clutch plate holding pressure is reduced at lower RPM's, and increased as RPM rises, reducing the chance of clutch slippage as power builds.

The factory system uses a diaphragm spring that applies a constant pressure amount across the RPM range, while the VPC system reduces initial pressure and uses weights and centrifugal force to increase pressure as RPM builds. *Clutch lever effort is reduced up to 50% at idle and low RPM*, resulting in less hand fatigue, smoother engagement and easy neutral location. Installation is easy (on most Big Twins it can be performed through the derby cover opening!).

Derby covers may require clearancing or Due to its centrifugal nature, lever effort is increased over 4,000 RPM. Some custom may not work with the VPC. Can be used with the stock or Screamin' Eagle® clutch spring (using SE spring raises torque handling capability). Choose the VPC that best fits your engine's power output!







APPLICATION	MAX TO W/STOCK SPG	MAX TO W/SE SPG	PART NO.
A. VPC (VP67T) for 1998-up Big Twin (80-88")	Up to 99 ft/lbs	Up to120 ft/lbs	#872-821
B. VPC (VP83T) for 1998-up Big Twin (95-103")	Up to 116 ft/lbs	Up to 142 ft/lbs	#872-823
C. VPC (VP92T) for 1998-up Big Twin (107"-up)	Up to 130 ft/lbs	Up to 158 ft/lbs	#872-828
APPLICATION			PART NO.
D. VPC (VP004) for 1990-97 EV Big Twin (supplied w/190 spring, up to 100 ft/lbs)			#872-824
E. VPC (VP005) for 1991-2003 883 Sportster® (supplied w/150 spring, up to 85 ft/lbs)			#872-825
F. VPC (VP006) for 1991-2003 1200 Sportster® (supplied w/190 spring, up to 98 ft/lbs)			#872-826
240# Spring f/high output EV engs (111 ft/lbs XL1200+, 115 ft/lbs EV BT), fits 872-824, -826			#850-910
320# Spring f/high output EV engines (140 ft/lbs XL1200+, EV Big Twin), fits 872-824, -826			#850-792

Derby Cover Spacers and Gaskets

Use to create room for VPC weights when using non-stock, flat-back derby cover. Billet aluminum spacer moves cover out for additional clearance. Requires 2 open-center derby cover gaskets.

DESCRIPTION	PART NO.
1/4" 5-hole spacer (Twin Cam®)	#872-842
1/2" 5-hole spacer (Twin Cam®)	#872-845
5-hole (TC) open-center derby gasket, each	#832-169
1/4" 3-hole spacer (Evolution®)	#872-844
3-hole (EV) open-center derby gasket, each	#832-167



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