2017 PERFORMANCE PARTS CATALOG

www.ZippersPerformance.com • Zippers@ZippersPerformance.com
Elkridge, MD • (410) 579-2828 • 20170517

Zipper's Performance Products 2017

Zipper's is a privately held company who's highly skilled staff and owners maintain a strong passion for developing and building quality products that produce results. These guys and gals are extremely knowledgeable and skilled in their craft, eager to serve your needs.

Zipper's machinists, technicians, R&D mechanics and engineers are some of the most skilled in their trade. Integrity and hard work is how we strive to meet and exceed your expectation. **"This is how we do business."**

When developing high output kits and performance products, **Zipper's offers some of the most advanced solutions** to problems found on late model motorcycles.

Late model motorcycles are extremely complex electrical and mechanical system. Our team has a vast knowledge of all the components made for your motorcycle, to assure you the fun and enjoyment you expect from a real high performance experience.

These and other principals are factored into our engine kit and performance product development so you don't have to waste time trying to develop a reliable engine system that works.

The entire team at Zipper's Performance Products would like to say **"Thank You"** to our current dealers, and **"Welcome"** to all of our new dealers. **For over 30+ years Zipper's has revolutionized the motorcycle industry. Thank you for being a part of the Zipper's family!**

RED SHIFT
PERFORMANCE CAMSHAFTS

ThunderJet™ THUNDER MAX

Job, Services and Parts Order Form

Customer Info

From: _____ Contact Name: _____ Date: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Day Phone: _____ Night Phone: _____ Fax: _____

Email Address: _____ Your Contact at Zipper's: _____

Shipping & Payment

Return Shipping Method: ☐ UPS ☐ Ground ☐ 3-Day ☐ 2-Day ☐ Overnight ☐ Other: _____

Payment Method: ☐ COD ☐ Credit Card ☐ Visa ☐ Master Card ☐ Discover ☐ Other: _____

Billing Name & Billing Address on Card: _____

Credit Card #: _____ Exp: _____ CVN: _____

Signature: _____

Engine & Motorcycle Information

Year: _____ Model: _____ Use: ☐ Cruising ☐ Touring ☐ Sport ☐ Racing

Engine Size: _____ Bore/Stroke: _____ Cam: _____ Cranking Compresion: _____

Exhaust System: _____ Ignition System: _____ Carburetor: _____ Compression Ratio: _____

Other Modifications: _____

Parts Enclosed (Be Specific): _____

Work To Be Performed: _____

Parts Order

Qty	Part Number	Description	Price Each

Important Notes

- Providing us with this sheet fully filled out will help us give you the best service possible. Even if you have detailed conversations with our Tech department concerning your job, the fact we talk to hundreds of people over a week's time means that we may not fully recall your specific job. Not providing us with this vital information will cause your job to sit on a shelf until you can be contacted.

- We assume components being sent for modification are in working, serviceable condition. Previously modified components may require additional labor at additional cost, or in some cases may not qualify for a Zipper's-engineered service or kit. If there is any question concerning your parts and this policy, please call before shipping your parts.

- To protect the integrity of the work we perform and the price structure of our kits, we cannot use parts we do not, or did not, supply in any machine shop job we perform. Unless you have Zipper's products or parts that were previously purchased from Zipper's, do not send parts with your job to Zipper's.

- Most components require some important cleaning and/or preparation steps before work can be performed. 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 out preparation process to preserve finishes. Additional charges do apply for these services. Engine and transmission components should be washed free of oil and wrapped in heavy newspaper before being put in protective cartons. Strip down components whenever possible. Fully assembled components such as heads sent for dual plugging cannot be re-assembled without a valve job and its related cost.

- A standard charge of $4.50 is billed to each work order to cover shop costs for chemical disposal and other materials used during the processing of a job.

- Package your parts carefully! Use plenty of newspaper for padding parts and cardboard to separate them. Heads and cylinders should be wrapped in whole sections of newspaper, placed in individual boxes, then packaged together in a larger box with at least 2" of padding around them. Insure the boxes for replacement value.

Zipper's Performance Products
6655-A Amberton Drive, Elkridge - Maryland - 21075
Fax: 410-579-2835
Phone: 410-579-2828
Email: Zippers@ZippersPerformance.com
Web: www.ZippersPerformance.com

Notes

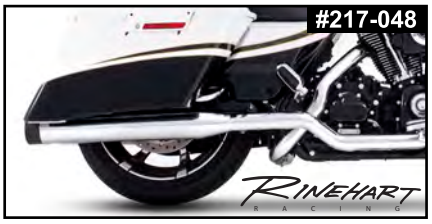
ENGINES & ENGINE KITS

Zip Kits for 2009-Up 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 wide-band sensors that ThunderMax® uses. In 2010, H-D® changed the size and location of the narrow-band 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!***

THUNDER MAX

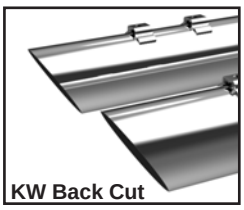
PART NO.	ZIP KITS FOR 2009-UP TOURING MODELS
Kits with Full Replacement Exhaust Systems (Rinehart True Duals)	
#217-048	For ’09-’13 w/Rinehart Xtreme TD, 4” mufflers
#217-448	For ’14-’16 w/Rinehart Xtreme TD, 4” mufflers
#217-050	For ’09-’13 w/Rinehart Classic TD, 4” mufflers
#217-450	For ’14-’16 w/Rinehart Classic TD, 4” mufflers
#217-052	For ’09-’13 w/Rinehart Xtreme TD, 3.5” mufflers
#217-452	For ’14-’16 w/Rinehart Xtreme TD, 3.5” mufflers
#217-054	For ’09-’13 w/Rinehart Classic TD, 3.5” mufflers
#217-454	For ’14-’16 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 ’14-’16 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 ’14-’16 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 ’14-’16 Touring models with chrome Rinehart 2:1
#217-057	For ’09-’13 Touring models with black Rinehart 2:1
#217-457	For ’14-’16 Touring models with black Rinehart 2:1
Kits with Full Replacement Exhaust Systems (KW 2:2 Power Headers)	
#217-028	For ’09-’13 w/KW Headers & D&D 4” Top Slant mufflers
#217-428	For ’14-’16 w/KW Headers & D&D 4” Top Slant mufflers
#217-030	For ’09-’13 w/KW Headers & D&D 4” Back Cut mufflers
#217-430	For ’14-’16 w/KW Headers & D&D 4” Back Cut mufflers
#217-032	For ’09-’13 w/KW Headers & KW HP+ 3.5” Top Slant mufflers
#217-432	For ’14-’16 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 ’14-’16 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 ’14-’16 w/KW Headers & KW HP+ 3.5” Back Cut mufflers
#217-036	For ’09-’13 w/KW Headers & KW HP+ 3.5” Taper mufflers
#217-436	For ’14-’16 w/KW Headers & KW HP+ 3.5” Taper mufflers
#217-044	For ’09-’13 w/KW Headers & Rinehart 3.5” mufflers
#217-444	For ’14-’16 w/KW Headers & Rinehart 3.5” mufflers
#217-046	For ’09-’13 w/KW Headers & Rinehart 4” mufflers
#217-446	For ’14-’16 w/KW Headers & Rinehart 4” mufflers



ThunderMAX® with AutoTune

D&D Slant Cut

RH 3.5” Mufflers



KW Back Cut

KW Tapered

RH 4” Mufflers

MAXFlow Air Filter Kit

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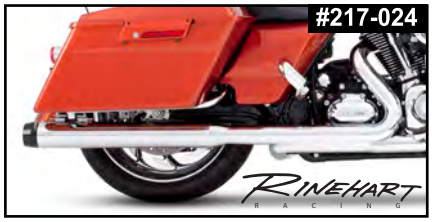
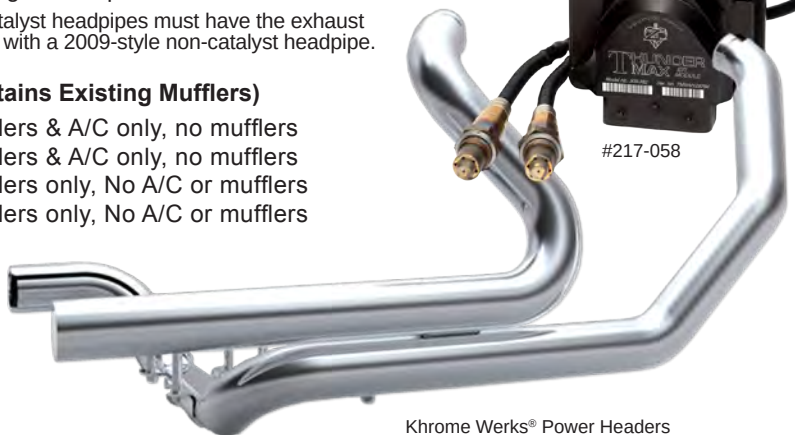
PART NO.	ZIP KITS FOR 2009-UP TOURING MODELS
Kits with Replacement Mufflers Only (Retains Factory Header)	
#217-004	For '09-'13 with D&D Top Slant slip-on 4" mufflers*
#217-404	For '14-'16 with D&D Top Slant slip-on 4" mufflers*
#217-006	For '09-'13 with D&D Back Cut slip-on 4" mufflers*
#217-406	For '14-'16 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 '14-'16 with KW HP+ 3.5" Top Slant mufflers*
#217-010	For '09-'13 with KW HP+ 3.5" Back Cut mufflers*
#217-410	For '14-'16 with KW HP+ 3.5" Back Cut mufflers*
#217-011	For '09-'13 with KW HP+ 4" Back Cut mufflers*
#217-411	For '14-'16 with KW HP+ 4" Back Cut mufflers*
#217-012	For '09-'13 with KW HP+ 3.5" Tapered mufflers*
#217-412	For '14-'16 with KW HP+ 3.5" Tapered mufflers*
#217-014	For '09-'13 with KW HP+Lite 3.5" Top Slant mufflers*
#217-414	For '14-'16 with KW HP+Lite 3.5" Top Slant mufflers*
#217-016	For '09-'13 with KW HP+Lite 3.5" Back Cut mufflers*
#217-416	For '14-'16 with KW HP+Lite 3.5" Back Cut mufflers*
#217-024	For '09-'13 with Rinehart 3.5" mufflers*
#217-026	For '09-'13 with Rinehart 4" mufflers*
#217-426	For '14-'16 with Rinehart 4" 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 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.



Kits with Replacement Headers Only (Retains Existing Mufflers)	
#217-058	For '09-'13 w/KW Power Headers & A/C only, no mufflers
#217-458	For '14-'16 w/KW Power Headers & A/C only, no mufflers
#217-060	For '09-'13 w/KW Power Headers only, No A/C or mufflers
#217-460	For '14-'16 w/KW Power Headers only, No A/C or mufflers



Khrome Werks® Power Headers

Zip Kits for Harley® Tri Glide® Models

THUNDER MAX

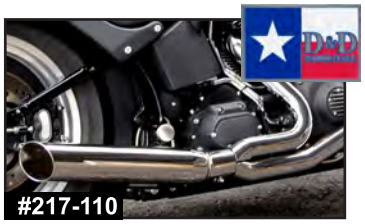
Got a new 103" Tri-Glide® and wondering where the power is? It's there, you just have to apply some Zip to it! No new engine responds to simple intake, exhaust, and EFI changes like a new Harley engine with a Zip Kit installed. Just bolt-on and plug-in a new Zip Kit, and you'll experience the benefits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

Rinehart® Xtreme® 3.5" True Duals

2009-2013	2014-2016	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-Up 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 wide-band sensors that ThunderMax® uses. In 2012, H-D® changed the size and location of the narrow-band 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-UP SOFTAIL® MODELS
Kits with Full Replacement Exhaust Systems (2:1 Style Header)	
#217-102	For '07-'15 Softail® with chrome D&D 2:1 Fat Cat
#217-602	For 2016 Softail® with chrome D&D 2:1 Fat Cat
#217-104	For '07-'15 Softail® with black D&D 2:1 Fat Cat
#217-604	For 2016 Softail® with black D&D 2:1 Fat Cat
#217-106	For '07-'15 Softail® with chrome D&D 2:1 Bob Cat*
#217-606	For 2016 Softail® with chrome D&D 2:1 Bob Cat*
#217-108	For '07-'15 Softail® with black D&D 2:1 Bob Cat*
#217-608	For 2016 Softail® with black D&D 2:1 Bob Cat*
#217-110	For '07-'15 Softail® with chrome D&D 2:1 Low Cat
#217-610	For 2016 Softail® with chrome D&D 2:1 Low Cat
#217-112	For '07-'15 Softail® with black D&D 2:1 Low Cat
#217-612	For 2016 Softail® with black D&D 2:1 Low Cat

*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-'15 Softail® with chrome Rinehart 2:1
#217-624	For 2016 Softail® with chrome Rinehart 2:1
#217-126	For '07-'15 Softail® with chrome Rinehart 2:2 (Flush)
#217-626	For 2016 Softail® with chrome Rinehart 2:2 (Flush)
#217-128	For '07-'15 Softail® with chrome Rinehart 2:2 (Stagger)
#217-130	For '07-'15 Softail® with chrome Rinehart 2:2 (Churchill)
#217-630	For 2016 Softail® with chrome Rinehart 2:2 (Churchill)
#217-132	For '07-'15 Softail® with chrome Rinehart 2:2 (X-Back Flush)
#217-632	For 2016 Softail® with chrome Rinehart 2:2 (X-Back Flush)

Kits with Replacement Mufflers Only (Retains Factory Headers)

#217-114	For '07-'15 Softail® with D&D Slash Cut slip-on mufflers*
#217-614	For 2016 Softail® with D&D Slash Cut slip-on mufflers*
#217-116	For '07-'15 Softail® with D&D Shotgun slip-on mufflers*
#217-616	For 2016 Softail® with D&D Shotgun slip-on mufflers*
#217-118	For '07-'15 Softail® w/Khrome Werks Slash slip-on mufflers*
#217-618	For 2016 Softail® w/Khrome Werks Slash slip-on mufflers*
#217-120	For '07-'15 Softail® w/Khrome Werks Taper slip-on mufflers*
#217-620	For 2016 Softail® w/Khrome Werks Taper 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.

See www.ZippersPerformance.com for Zip Kit Dyno Graphs!

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

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

#217-212 For '06-'16 Dyna® with chrome D&D 2:1 Fat Cat
#217-214 For '06-'16 Dyna® with black D&D 2:1 Fat Cat

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

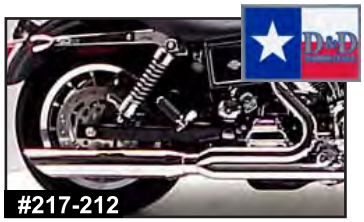
Rinehart Zip Kits are available in black, call your Zipper's rep for prices.

#217-226 For '06-'16 Dyna® with chrome Rinehart 2:1
#217-228 For '06-'16 Dyna® with chrome Rinehart 2:2 (Flush)
#217-230 For '06-'16 Dyna® with chrome Rinehart 2:2 (Stagger)
#217-232 For '06-'16 Dyna® with chrome Rinehart 2:2 (Churchill)
#217-234 For '06-'16 Dyna® with chrome Rinehart 2:2 (X-Back Flush)

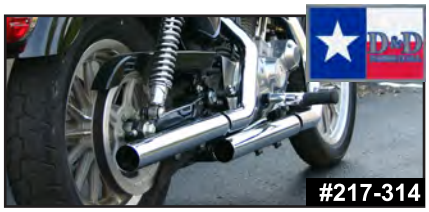
Kits with Replacement Mufflers Only (Retains Factory Headers)

#217-216 For '06-'16 Dyna® with D&D Slash Cut slip-on mufflers*
#217-218 For '06-'16 Dyna® with D&D Shotgun slip-on mufflers*
#217-220 For '06-'16 Dyna® w/Khrome Werks Slash slip-on mufflers*
#217-222 For '06-'16 Dyna® w/Khrome Werks Taper slip-on mufflers*
#217-224 For '06-'16 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.



Our Zip Kits for Sportster® models include a pre-mapped 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. 2014-Up models retaining the factory header pipes must have the 12mm oxygen sensor bungs modified to accept 18mm sensors.



"Best Money I've Ever Spent - Smoother, Stronger, Cooler Running!"

-J.M., USA

PART NO. ZIP KITS FOR 2007-UP 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-'16 Sportster® with chrome D&D 2:1 Bob Cat
#217-308 For '07-'16 Sportster® with black D&D 2:1 Bob Cat

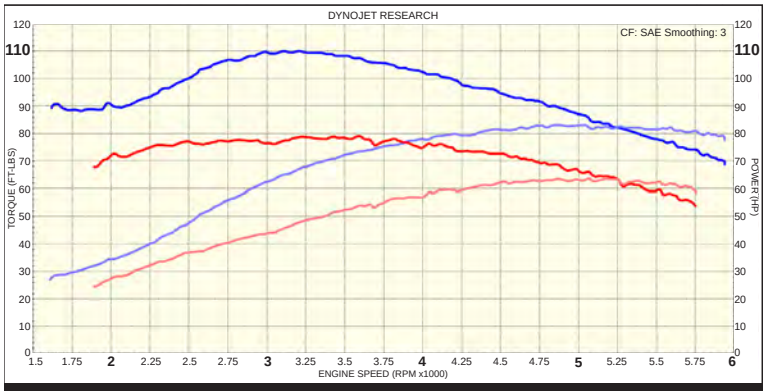
*Bob Cat systems are supplied with chrome or black headers and your choice of aluminum, black or carbon sleeved muffler bodies

Kits with Replacement Mufflers Only (Retains Factory Headers)

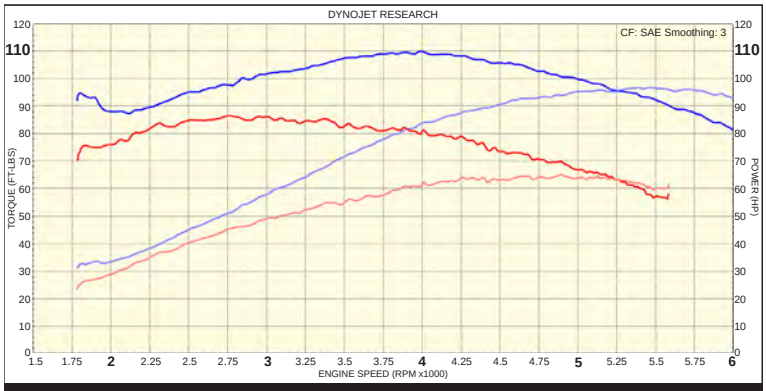
#217-310 For '07-'16* Sportster® w/chrome D&D Slash slip-on mufflers
#217-312 For '07-'16* Sportster® w/black D&D Slash slip-on mufflers
#217-314 For '07-'13 Sportster® w/chrome D&D Shotgun slip-on mufflers
#217-316 For '07-'13 Sportster® w/black D&D Shotgun slip-on mufflers
#217-318 For '07-'13 Sportster® w/Khrome Werks Slash slip-on mufflers
#217-319 For '14-'16* Sportster® w/chrome KWerks Slash slip-on mufflers
#217-320 For '07-'13 Sportster® w/KWerks Taper slip-on mufflers
#217-321 For '14-'16* Sportster® w/chrome KWerks Taper slip-on mufflers
#217-322 For '07 -'13 Sportster® with Full Boar Slash slip-on mufflers
#217-323 For '14-'16* Sportster® w/black KWerks Slash slip-on mufflers

*2014-2016 models retaining the factory header pipes must have the 12mm oxygen sensor bungs modified and possibly relocated to accept 18mm sensors.

RACE ONLY



BLUE - 2011 FLHR Sleeper 103” with Red Shift 525 and KW Cross Under Duals vs RED - 2011 FLHR Stock 96”



BLUE - 2011 FLHR Sleeper 103” with Red Shift 527 and D&D Fatcat vs RED - 2011 FLHR Stock 96”

Sleeper 103” Kit for 96” Engines

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

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. Two 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.

Cylinder/piston kits available separately. #517-320 and #517-322 are designed to re-use the factory pushrods.

PART NO.	DESCRIPTION
#517-320B	Sleeper 103 Kit for ’07-Up 96” BT with Red Shift® 525 Cams, Black
#517-320S	Sleeper 103 Kit for ’07-Up 96” BT with Red Shift® 525 Cams, Silver
#517-322B	Sleeper 103 Kit for ’07-Up 96” BT with Red Shift® 527 Cams, Black
#517-322S	Sleeper 103 Kit for ’07-Up 96” BT with Red Shift® 527 Cams, Silver

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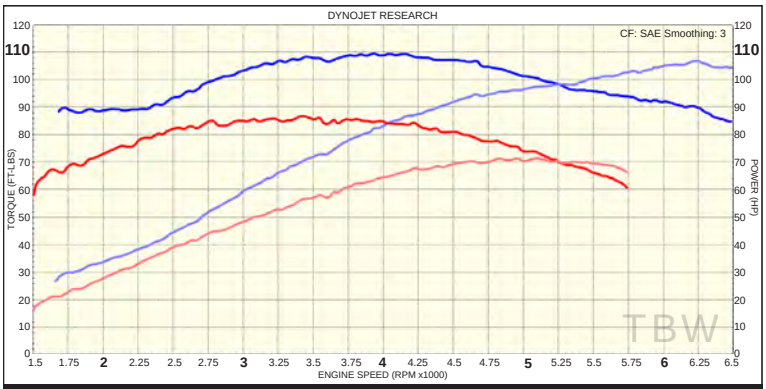
Muscle 103" Kit

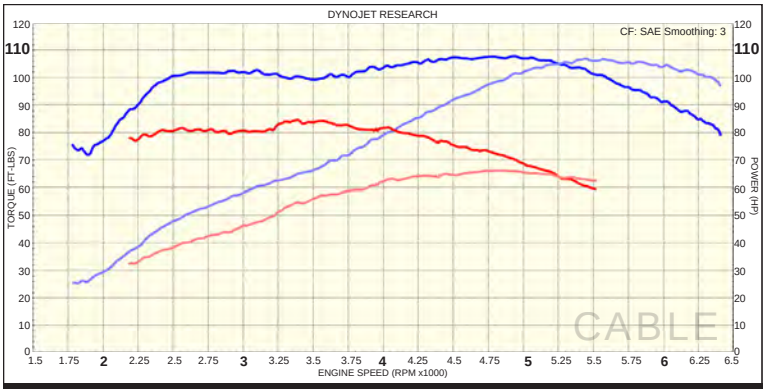
Watch Your Riding Buddies in Your Rear View Mirror with the Zipper's Muscle 103" Kit for Harley-Davidson® Twin Cam® Engines!

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.

This kit uses your factory head and cylinder cores sent in for modification, expect 1-2 weeks completion time. We keep exchange heads and cylinders in stock already modified for quicker turn-around; parts must be in nearly perfect cosmetic condition, expect the same from us. ***You can also purchase heads and cylinders outright (without supplying a core set). We will supply clean, reconditioned factory castings for your application - add part # 517-010 (cylinders) and 517-015 (heads) to your order.***

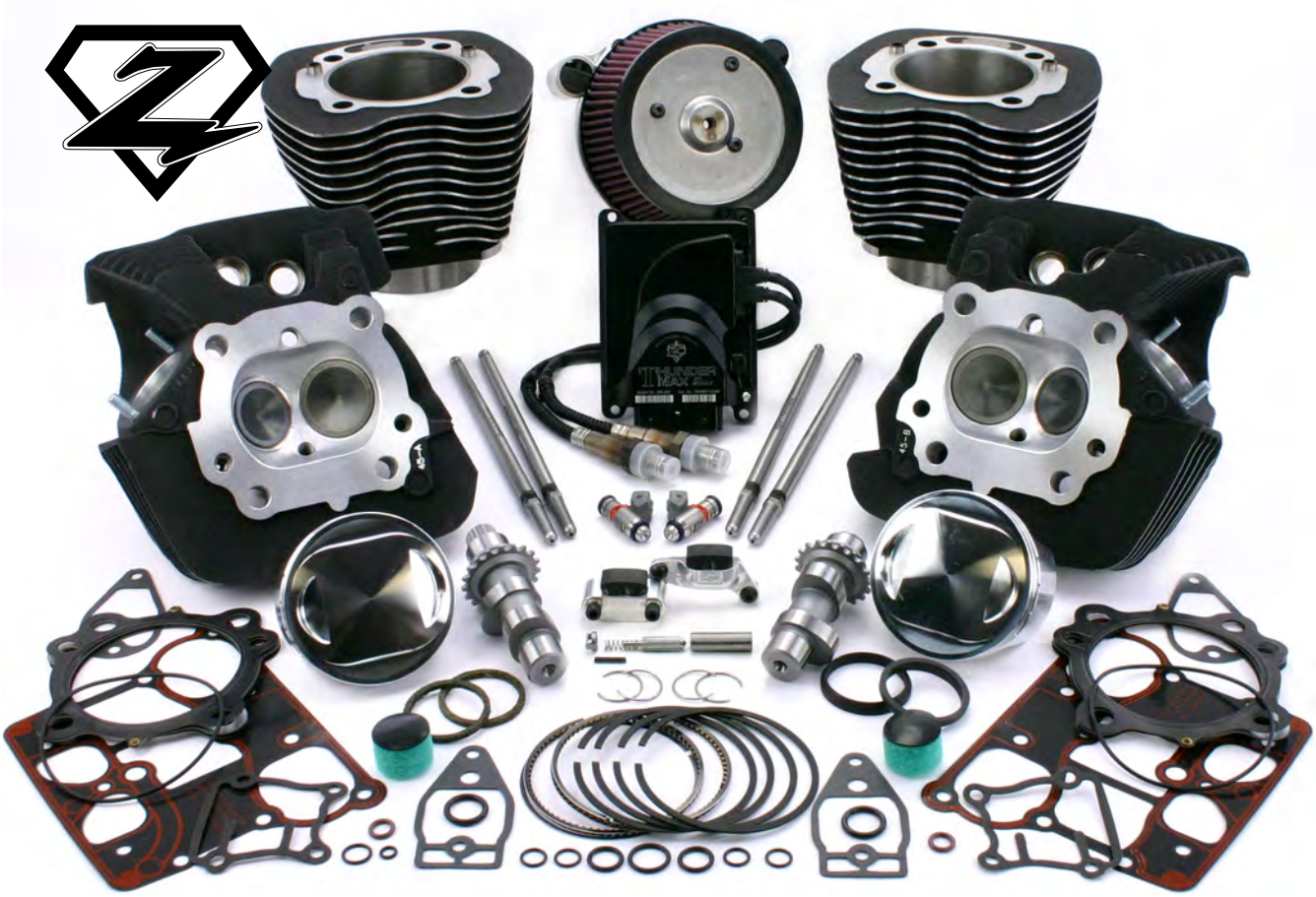


BLUE - 2010 FLHX Muscle 103" Kit with Red Shift 577 vs RED - 2012 FLHR Stock 103"

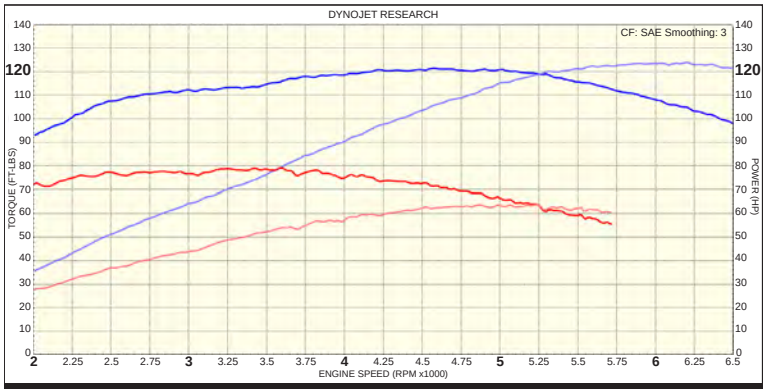


BLUE - 2007 FLHR Muscle 103" Kit with Red Shift 577 and D&D Fatcat vs RED - 2007 FLHR Stock 96"

PART NO.	DESCRIPTION
#517-313B	Muscle 103" Kit, '07-'16 Cable BT, Black
#517-313S	Muscle 103" Kit, '07-'16 Cable BT, Silver
#517-308B	Muscle 103" Kit, '08-'13 TBW Touring, Black
#517-308S	Muscle 103" Kit, '08-'13 TBW Touring, Silver



Muscle 107" Kit



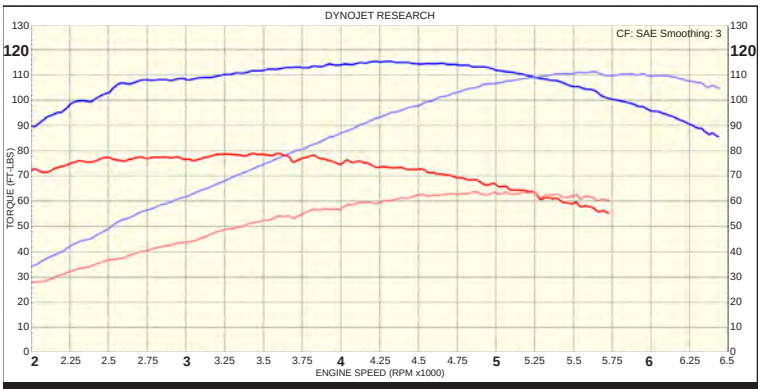
BLUE - 2009 FLHX Muscle 107" Kit with Red Shift 577 and D&D FatCat vs RED - 2011 FLHR Stock 96"

New from Zipper's is the Muscle 107 kit for 2007-Up Twin Cam® engines. Zipper's has carefully developed this package with optimized compression, porting, camshaft design and inlet flow, combined with our best-in-class finish work, extensive dyno and ride testing to deliver a very balanced engine kit that will not disappoint! The Muscle 107 delivers fantastic power curves with both torque and horsepower reaching north of 120. This power is very smooth and broad, with torque over 100 ft/lbs from below 3,000 RPM's to above 6,000! Kit includes CNC porting with premium components on your heads, fitting forged, 3.937" bore domed pistons to your cylinders, Red Shift® cams and dual piston cam chain tensioners, Axtell oil bypass valve, Pro-Taper pushrods, quality gaskets, high flow injectors and MaxFlow air cleaner assembly with a pre-programmed ThunderMax® EFI controller. Cable-throttle models require the sepapate purchase of H-D® Screamin' Eagle® 58mm throttle body (# 27639-07B) and manifold (# 29667-07); TBW models require separate purchase of H-D® Screamin' Eagle® 58mm throttle body # 27713-08 (not included); everything else you need is supplied in a single part number!

PART NO.	DESCRIPTION
#517-347B	Muscle 107 Kit, 2008-2016 Touring Models*, Black
#517-347S	Muscle 107 Kit, 2008-2016 Touring Models*, Silver *Includes Twin Cooled® Models
#517-317B	Muscle 107 Kit, 2007-2016 TC w/Cable Throttle, Black
#517-317S	Muscle 107 Kit, 2007-2016 TC w/Cable Throttle, Silver

This kit uses your factory head and cylinder cores sent in for modification, expect 1-2 weeks completion time. We keep exchange heads and cylinders in stock already modified for quicker turn-around; parts must be in nearly perfect cosmetic condition, expect the same from us. ***You can also purchase heads and cylinders outright (without supplying a core set). We will supply clean, reconditioned factory castings for your application - add part # 517-010 (cylinders) and 517-015 (heads) to your order.***

Zipper's Performance Products ● 6655-A Amberton Drive, Elkridge, MD 21075 ● (410) 579-2828



BLUE - 2011 FLHR with Sport 107" Kit, Red Shift 575 Cams and D&D Fatcat with Louvered Baffle vs RED - 2011 FLHR Stock 96"

Sport 107" Kit

Zipper's Sport 107 kit for 2007-Up Big Twin bikes is designed to provide maximum torque and horsepower in the range where most of us ride - between 2,000 and 5,000 RPM. If you're the type of rider who rarely runs your engine to redline, this kit is for you. We've carefully matched our Stage II cylinder head design with our Red Shift® 575 camshafts and optimized the compression ratio for super strong low and mid-range acceleration. With just a twist of the wrist, you'll have the power to pass without downshifting, even when your bike is loaded down for the long ride!

The Sport 107 kit includes specially designed high velocity CNC porting with premium components for your heads, forged, 3.937" bore flat top pistons precisely fitted to your cylinders and a top quality gasket set is included for assembly. Red Shift® 575 cams and dual-piston cam chain tensioners, an Axtell oil bypass valve and Pro-Taper pushrods provide the utmost in valve train stability and durability. The Sport 107 is designed to retain the factory throttle body and injectors, reducing cost. Our MaxFlow air cleaner directs plenty of clean, stable air through the intake tract so that best power can be achieved, and a pre-programmed ThunderMax® EFI controller takes the hassle out of quickly achieving a great tune without needing a dyno. Everything you need is supplied in a single part number and installation is straightforward.

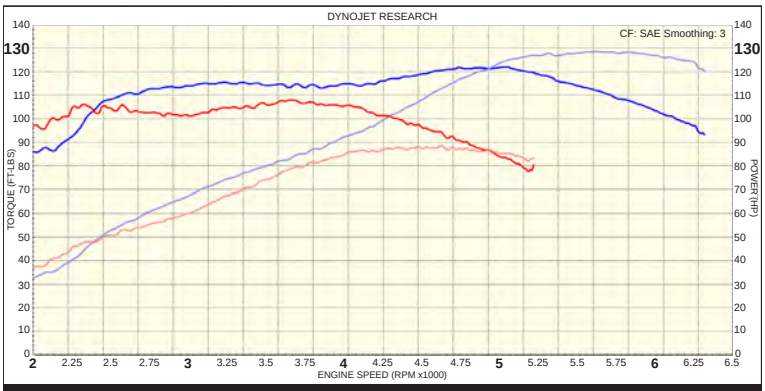
If you want your bike to pull like a freight train when you twist the throttle, the Sport 107 will not disappoint!

PART NO.	DESCRIPTION
#517-367B	Sport 107 Kit, '08-'16 Touring & TBW Models, Black
#517-367S	Sport 107 Kit, '08-'16 Touring & TBW Models, Silver
#517-377B	Sport 107 Kit, '07-'16 TC w/Cable Throttle, Black
#517-377S	Sport 107 Kit, '07-'16 TC w/Cable Throttle, Silver

This kit uses your factory head and cylinder cores sent in for modification, expect 1-2 weeks completion time. We keep exchange heads and cylinders in stock already modified for quicker turn-around; parts must be in nearly perfect cosmetic condition, expect the same from us. ***You can also purchase heads and cylinders outright (without supplying a core set). We will supply clean, reconditioned factory castings for your application - add part # 517-010 (cylinders) and 517-015 (heads) to your order.***

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! Developed using our highest quality materials and machining processes assures you years of performance and durability. Starting at the top, 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 10.9:1 forged pistons to your 110 cylinders using torques plates and the latest diamond honing technology. The piston dome design more closely conforms to the CVO 110 chamber shape for a tighter quench area, improving combustion and power, while special coatings enhance durability and performance. Red Shift® cams, Pro-Taper pushrods and Dual Piston cam chain tensioners are included with Axtell’s oil pressure bypass valve for a quieter engine with 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 H-D® 58mm Screamin’ Eagle® throttle body and performance exhaust to achieve advertised results).



BLUE - 2011 FLH Muscle 110” Kit with Red Shift 657 and D&D Boarzilla vs RED - 2011 FLH Stock 110”

The Muscle 110 package is a dream to ride everywhere - short hops or on the long haul; torque and horsepower are increased across the entire RPM range. Where the stock 110 engine levels out at just over 4,200 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!

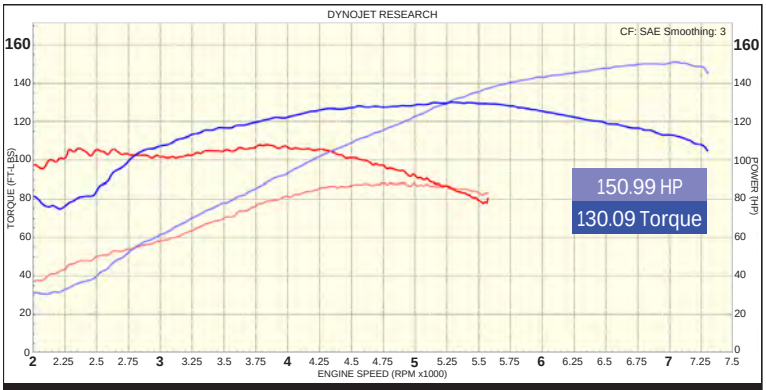
PART NO.	DESCRIPTION
#517-350	Muscle 110” kit for 2008-up CVO Touring and TBW models (including Twin Cooled® engines)
#517-357	Muscle 110” kit for 2007-up CVO cable-throttle Twin Cam® FX models

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. Kits can be purchased whole or in any configuration of components you desire. Contact Zipper’s Sales for details.

Zipper’s Performance Products ● 6655-A Amberton Drive, Elkridge, MD 21075 ● (410) 579-2828

Muscle 110" Extreme Kit

This is for CVO® owners who want to lead the pack! Our Muscle 110 Extreme kit is a combination of the right mix of components and modifications that extracts stunning horsepower and torque from the CVO® 110 platform. Our goal was to break the 150 horsepower barrier on pump gas without creating a narrow power curve that detracts from the riding experience. The Muscle 110 Extreme delivers, with torque breaking 100 ft/lbs from 2,750 rpm through red line, peaking at 130 ft/lbs ***– turning your CVO® into a Rocket Ship!***



Muscle 110" Extreme with D&D Boarzilla Exhaust vs Stock 110" Engine

Powerful components supplied with this kit include our proprietary 26cc dome high compression pistons fitted to your cylinders to provide the squeeze necessary to generate this kind of power. Valve action is provided by our Red Shift 687 cam, Pro-Taper pushrods and 1.725:1 roller rocker arms, yielding .730" lift at the valve. Our Stage III CNC headwork is performed on your CVO® heads, with valve springs upgraded to reliably handle this high lift. In the cam chest, a blueprinted billet cam plate, high volume oil pump and Red Shift dual-piston cam chain tensioners control critical oil flow and valve train stability.

Externally, your factory throttle body electronic components are installed in a Horsepower Inc 62/64mm Max Flow throttle body fitted with high flow injectors and Zipper's Premium air cleaner assembly. Engine management is handled by ThunderMax with AutoTune, loaded with a Zipper's-developed map to ensure you can hit the ground riding instead of having to develop a custom map. An included high voltage coil and wire package guarantees you have the high energy spark needed to make big power.

This package is for the rider wanting serious power. To make and maintain this kind of output and the type of riding that it promotes, other areas of your engine and motorcycle will need related performance modifications. The engine lower end should have the crankshaft blueprinted and output shaft bearing converted to the stronger Timken® design. The clutch will require an upgrade and the rear drive converted from belt to chain for strength. An exhaust system designed to support this output should be used (a D&D Boarzilla was used during our development of this kit).

The Muscle 110 Extreme kit is a no-nonsense hot rod package that delivers thrilling power across the RPM range. Every effort has been made to make this kit reliable for regular road use on standard high-test pump fuel, with cranking compression set to 220.

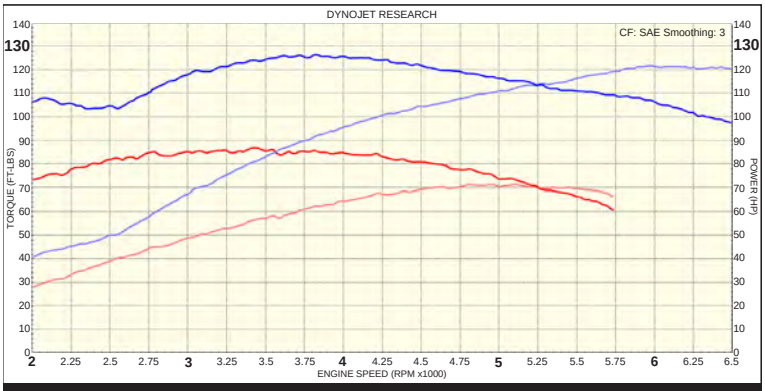
PART NO.	DESCRIPTION
#517-352	Muscle 110" Extreme kit for 2008-up CVO Touring and TBW models (including Twin Cooled® engines)

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 and throttle body for modification. In-shop time is generally 2 weeks. Kits can be purchased whole or in any configuration of components you desire. Contact Zipper's Sales for details.

RACE ONLY

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!



FLHR 117" Muscle Kit with Red Shift 657 and D&D Stubby Cat vs FLHR Stock 103"

High Flow CNC-ported heads (with 2.000" intake / 1.625" exhaust valves) 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. Kits for cable-throttle bikes include a 54mm ThunderMax® throttle body assembly; TBW bikes require the separate purchase of a larger TBW throttle body for best results.

PART NO.	DESCRIPTION
#617-307	Muscle 117" Kit, '08-'16 Air Cooled TBW Models, Black Finish
#617-308	Muscle 117" Kit, '08-'16 Air Cooled 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

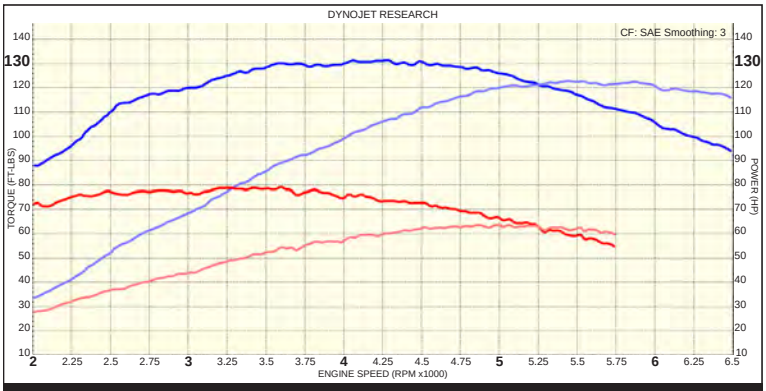
Optional Replacement Crankshaft
Part No. #698-351, #698-357

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.

Zipper's Performance Products ● 6655-A Amberton Drive, Elkridge, MD 21075 ● (410) 579-2828

Muscle 120” & 124” Kit

Muscle 120” and 124” Kits from Zipper’s Performance Products have evolved from over 30 years of experience building large displacement engines, giving you pre-engineered performance kits with proven results. Designed to fit on the stock H-D® case, these Muscle engine kits provide you with incredible power, triple digit torque just off idle, and Zipper’s legendary durability. Zipper’s Muscle Kits are designed for use with high octane pump fuel.



BLUE - 2010 FLHX Muscle 120” Kit with Red Shift 657 and D&D Boarzilla vs RED - 2011 FLHR Stock 96”

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.

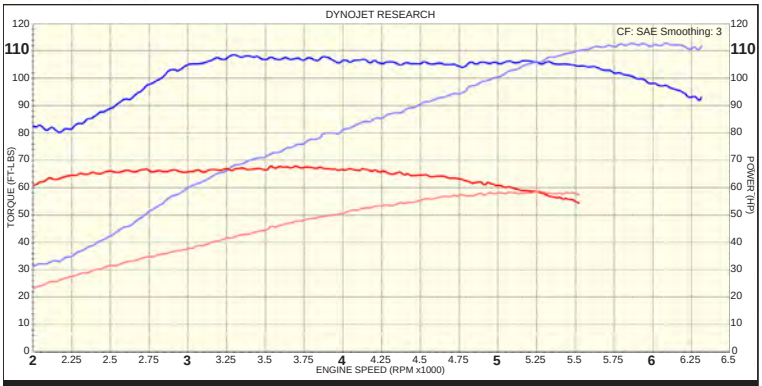
We’ve done the hard work for you - every part is ready to install, and the end result is more of what our reputation is made from: *Big Power all the way through the RPM range!*

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).

BLACK PART NO.	SILVER PART NO.	DESCRIPTION
#617-340	**#617-341**	Muscle 120” Kit, ’08-‘16 Air Cooled Touring Models
#617-320	**#617-321**	Muscle 120” Kit, 2007 Touring Models, ‘06-‘15 Dyna® Big Twins
#617-330	**#617-331**	Muscle 120” Kit, ‘07-’16 Softail® Models
#617-344	**#617-345**	Muscle 124” Kit, ’08-‘16 Air Cooled Touring Models
#617-324	**#617-325**	Muscle 124” Kit, 2007 Touring Models, ‘06- ‘15 Dyna® Big Twins
#617-334	**#617-335**	Muscle 124” Kit, ‘07-’16 Softail® Models

RACE ONLY

Muscle 95" EFI Kit



BLUE - 2003 FLSTF Muscle 95 Kit with Red Shift 577 and D&D FatCat vs. RED - 2004 FLT 88 Stock

Your buddies on their new 103's and 110's kicking sand in your face? You don't have to spring for a new bike to keep up, just breathe some new life into your TC88! Our Muscle 95 top-end packages for 88" engines will reliably flat-out smoke a bigger factory engine - mile after mile, year after year. 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 2001-up Delphi EFI-equipped bikes include a pre-mapped replacement ThunderMax® ECM with AutoTune and MaxFlow air cleaner assembly. 1999-2001 Touring models originally equipped with Magnetti-Marelli EFI also include conversion parts required for the installation of an included single-throat throttle body, manifold, air filter assembly and ThunderMax with AutoTune, which replaces the Marelli components entirely.

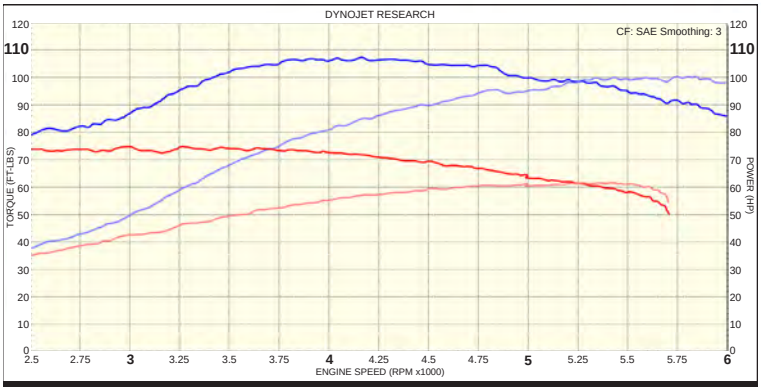
All kits are available with gear drive cams if desired; a hydraulic cam chain conversion is also available. This Muscle 95 kit includes a new ThunderMax® ECM loaded with a dedicated base map developed by Zipper's specifically for this kit and the chosen exhaust system. What you feel is super smooth power 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!***

BLACK PART NO.	SILVER PART NO.	MUSCLE 95" KITS FOR EFI-EQUIPPED BIKES
#517-295B	**#517-295S**	Muscle 95 kit, 1999-2001 Touring (Marelli EFI)
#517-296B	**#517-296S**	Muscle 95 kit, 2001-2006 (Delphi EFI)

OPTIONAL COMPONENTS

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

This kit uses your factory head and cylinder cores sent in for modification, expect 1-2 weeks completion time. We keep exchange heads and cylinders in stock already modified for quicker turn-around; parts must be in nearly perfect cosmetic condition, expect the same from us. ***You can also purchase heads and cylinders outright (without supplying a core set). We will supply clean, reconditioned factory castings for your application - add part # 517-010 (cylinders) and 517-015 (heads) to your order.***



BLUE - 2001 FXD Muscle 95 Kit with Red Shift 577 and Thunderheader vs RED - 2002 FXD 88 Stock

Muscle 95" Carbureted Kit

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" 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 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. 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!***

BLACK PART NO.	SILVER PART NO.	MUSCLE 95" KITS FOR CARBURETED 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

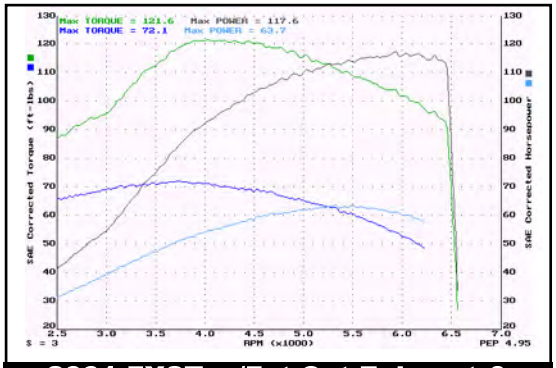
PART NO.	DESCRIPTION
#416-908	Gear Drive Cam Gear Set

This kit uses your factory head and cylinder cores sent in for modification, expect 1-2 weeks completion time. We keep exchange heads and cylinders in stock already modified for quicker turn-around; parts must be in nearly perfect cosmetic condition, expect the same from us. ***You can also purchase heads and cylinders outright (without supplying a core set). We will supply clean, reconditioned factory castings for your application - add part # 517-010 (cylinders) and 517-015 (heads) to your order.***

RACE ONLY

107" Muscle Kit for 1999-2006 Twin Cam®

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!*



2001 FXST w/Fat Cat Exhaust & Muscle 107 Kit

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!***

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

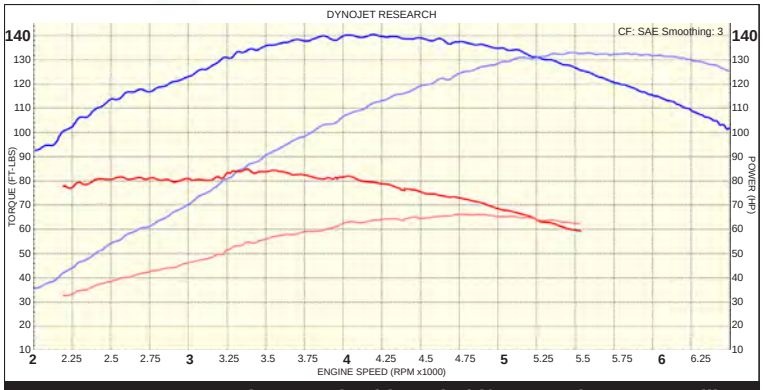
Send your carefully packed heads to Zipper's. Machining required for installation. Cases require boring to accommodate the Muscle 107 cylinders, and additional clearance in the cam chest will be required for high lift cams. '03-later cases should be converted to a Timken sprocket shaft bearing. These 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.

Zipper's Performance Products ● 6655-A Amberton Drive, Elkridge, MD 21075 ● (410) 579-2828

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

Twin Cam® 120/124" Muscle Kit

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.



BLUE - 2007 FL Muscle 120" Kit with Red Shift 657 and D&D Boarzilla vs RED - 2007 FLHR Stock 96"

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!***

MUSCLE 120 KITS FOR EFI-EQUIPPED BIKES	BLACK	SILVER
Muscle 120 kit, '99-'01 'A' engines (Marelli EFI)	#617-027	#617-028
Muscle 120 kit, '02-'05 'A' engines (Delphi EFI)	#617-021	#617-023
Muscle 120 kit, 2006 'A' engines (Delphi EFI)	#617-026	#617-038
Muscle 120 kit, '01-'05 'B' engines (Delphi EFI)	#617-031	#617-033
Muscle 120 kit, 2006 'B' engines (Delphi EFI)	#617-036	#617-039

MUSCLE 124 KITS FOR EFI-EQUIPPED BIKES	BLACK	SILVER
Muscle 124 kit, '99-'01 'A' engines (Marelli EFI)	#617-048	#617-049
Muscle 124 kit, '02-'05 'A' engines (Delphi EFI)	#617-045	#617-047
Muscle 124 kit, 2006 'A' engines (Delphi EFI)	#617-066	#617-067
Muscle 124 kit, '01-'05 'B' engines (Delphi EFI)	#617-055	#617-057
Muscle 124 kit, 2006 'B' engines (Delphi EFI)	#617-068	#617-069

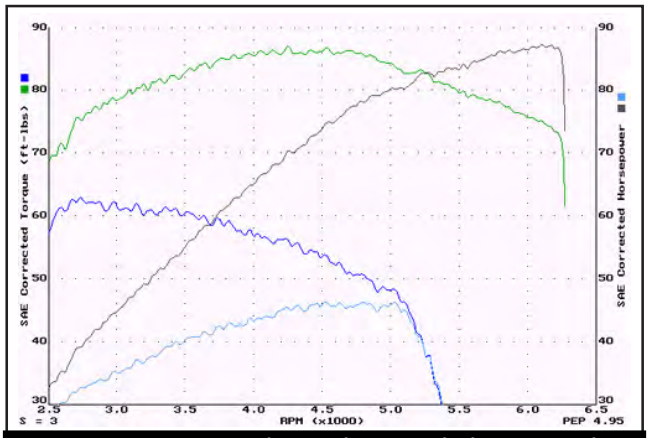
MUSCLE 120 KITS F/CARB-EQUIPPED BIKES	BLACK	SILVER
Muscle 120 kit, '99-'06 'A' w/S&S 'G2' carb	#617-020	#617-022
Muscle 120 kit, '99-'06 'A' w/Mikuni 48 carb	#617-040	#617-042
Muscle 120 kit, '00-'06 'B' w/S&S 'G2' carb	#617-030	#617-032
Muscle 120 kit, '00-'06 'B' w/Mikuni 48 carb	#617-050	#617-052

MUSCLE 124 KITS F/CARB-EQUIPPED BIKES	BLACK	SILVER
Muscle 124 kit, '99-'06 'A' w/S&S 'G3' carb	#617-025	#617-029
Muscle 124 kit, '99-'06 'A' w/Mikuni 48 carb	#617-043	#617-044
Muscle 124 kit, '00-'06 'B' w/S&S 'G3' carb	#617-035	#617-037
Muscle 124 kit, '00-'06 'B' w/Mikuni 48 carb	#617-053	#617-054

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.

80/80 Evolution® Big Twin Kit

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



1998 FLHR w/Stock Headpipes and **Slip On Mufflers**

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 top-end power band without any catastrophic dips or flat spots.

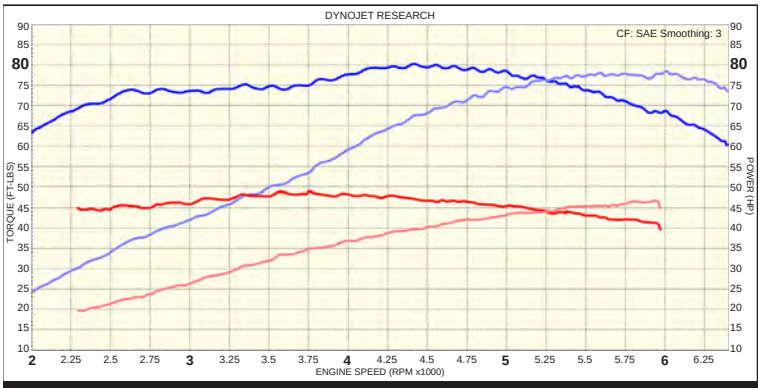
Headwork includes Zippers CNC porting, honed to size Zippers Step-Lock guides, multi-angle Serdi seat machining, Baisley Pro-Street Valves (1.900"/1.630"), performance spring kit and Viton valve seals. Cylinders are decked then mounted on torque plates and precision honed for forged domed pistons. Cam 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)

RACE ONLY



BLUE - 2009 XL883 1200 EFI Torkster Kit with Vance & Hines Short Shots vs RED - 2007 XL883 Stock

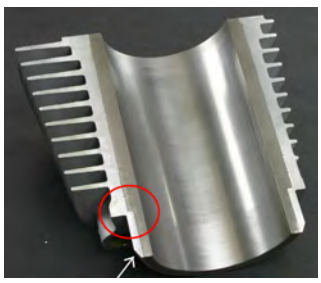
The Torkster 883-1200 EFI Engine Kit

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.



PART NO.	DESCRIPTION
#517-197	Torkster 883-1200 kit, 2007-up* 883

**2014-Up 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.*

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!*

RACE ONLY

The Super-Hammer 1200 Kit for EFI Sportsters®

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 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 re-assembly. 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.

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 ***Big Torque And Horsepower with every twist of the wrist!***

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.

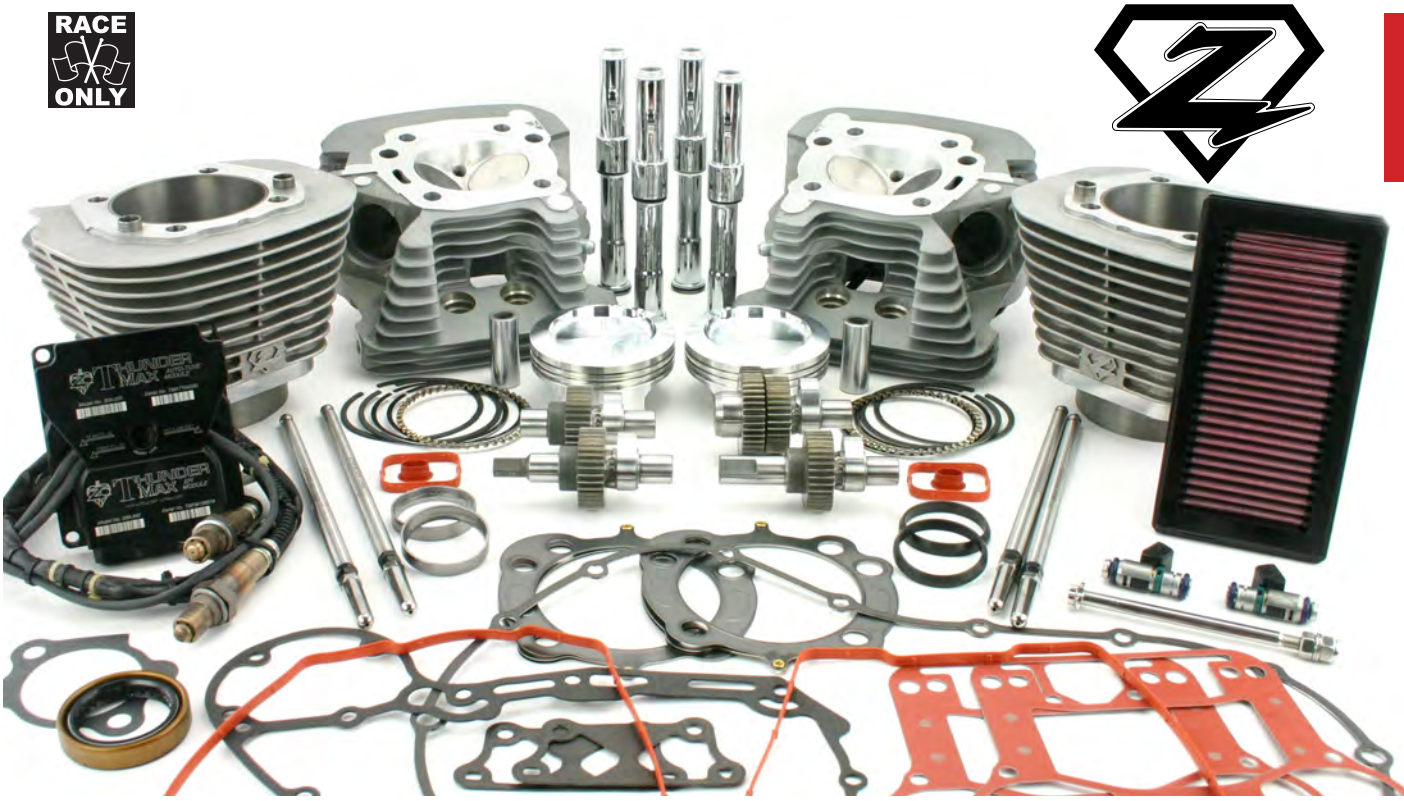
PART NO.	DESCRIPTION
#517-238	Super-Hammer kit for 2007-up* XL1200 (Except XR 1200)
#517-248	Super-Hammer kit for 2007-up* XL883
#517-258	Super-Hammer kit for 2008-up* XR1200

**2014-Up 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.*

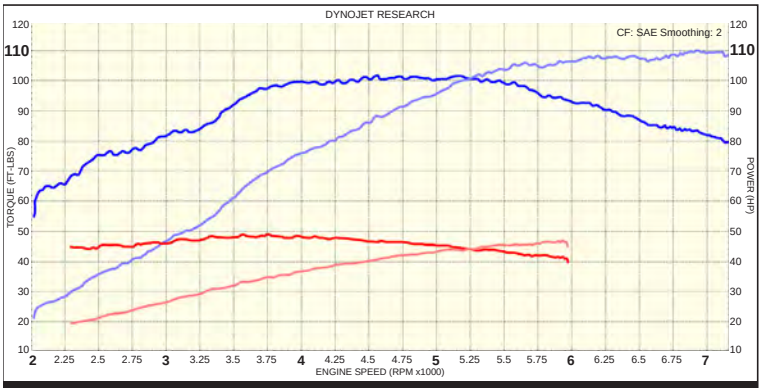
These kits are available from any Zipper's Performance Products dealer, or you can send your carefully packed parts directly to Zipper's. Send cams, cylinders and heads for modification. In-shop time is generally 2-3 weeks. Please pack your parts carefully!

RACE ONLY



Zipper's 88" Hammer Kit for XR1200® Models

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



BLUE - 2007 XL Hammer 88 Kit with D&D Fatcat vs RED - 2007 XL Stock 883

Shown is a Big Torque 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.

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, 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 cranks out Big Horsepower with more compression and larger Red Shift cams.

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

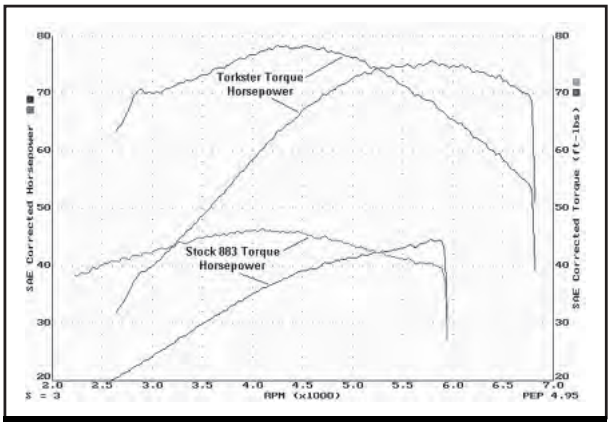
Installation is straightforward, requiring engine disassembly to bore the crankcases for the big bore cylinders, and case clearancing for high lift camshafts (Zipper's can provide these machining services). Rocker boxes will require extra clearance for high lift. Crankshaft requires no disassembly or 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!***

The Torkster 883-1200 Engine Kit

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

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!***



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

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!

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

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!

Zipper's Performance Products ● 6655-A Amberton Drive, Elkridge, MD 21075 ● (410) 579-2828

RACE ONLY

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 are included, set up for the kit.

This kit is ideal for the Sportster owner who wants a true max output 1200, suitable for everyday use. 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!***

PART NO.	DESCRIPTION
#517-236	Super-Hammer kit for 2004-2006 XL1200
#517-246	Super-Hammer kit for 2004-2006 XL 883

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

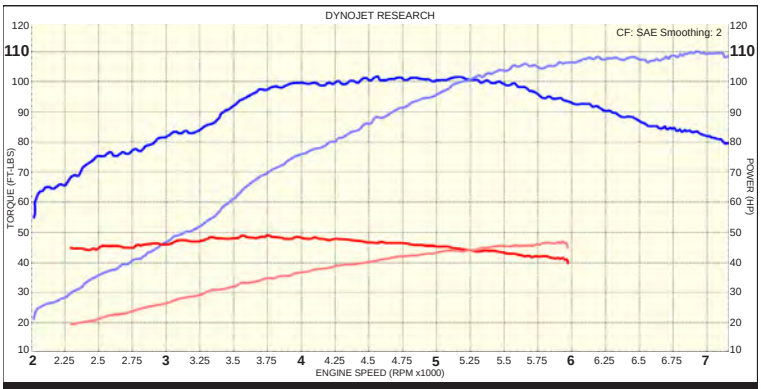
These kits are available from any Zipper's Performance Products dealer, or you can send your carefully packed parts directly to Zipper's. 2004-06 models: Send cams, cylinders and heads for modification. In-shop time is generally 2-3 weeks. Please pack your parts carefully!

RACE ONLY

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.



BLUE - 2007 XL Hammer 88 Kit with D&D Fatcat vs RED - 2007 XL Stock 883

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
#517-280T	Hammer 88 engine kit, '91-'99 models
#517-282T	Hammer 88 engine kit, '00-'03 models
#517-286T	Hammer 88 engine kit, '04-'06 883
#517-288T	Hammer 88 engine kit, '04-'06 1200
#517-290T	Hammer 88 engine kit, '07-Up 883
#517-292T	Hammer 88 engine kit, '07-Up 1200
#517-293T	Hammer 88 engine kit, '08-'13 XR1200

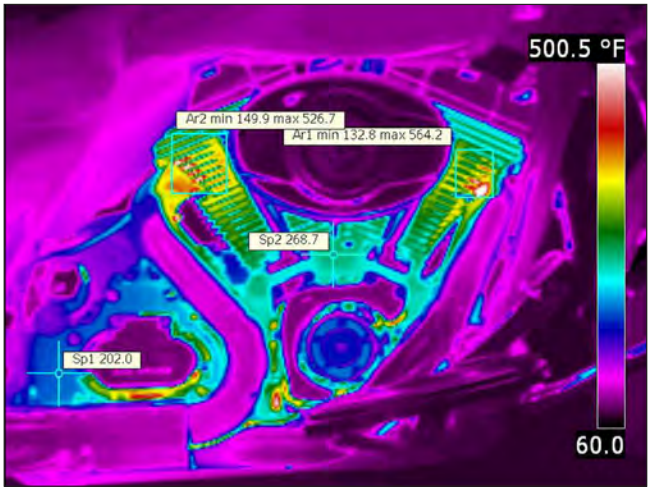
BIG HP KIT	APPLICATION
#517-280H	Hammer 88 engine kit, '91-'99 models
#517-282H	Hammer 88 engine kit, '00-'03 models
#517-286H	Hammer 88 engine kit, '04-'06 883
#517-288H	Hammer 88 engine kit, '04-'06 1200
#517-290H	Hammer 88 engine kit, '07-Up 883
#517-292H	Hammer 88 engine kit, '07-Up 1200
#517-293H	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. Please Advise If You Desire the Big Torque or the Big HP Version! 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 and heads for modification. In-shop time is generally 2-3 weeks. Please pack your parts carefully!

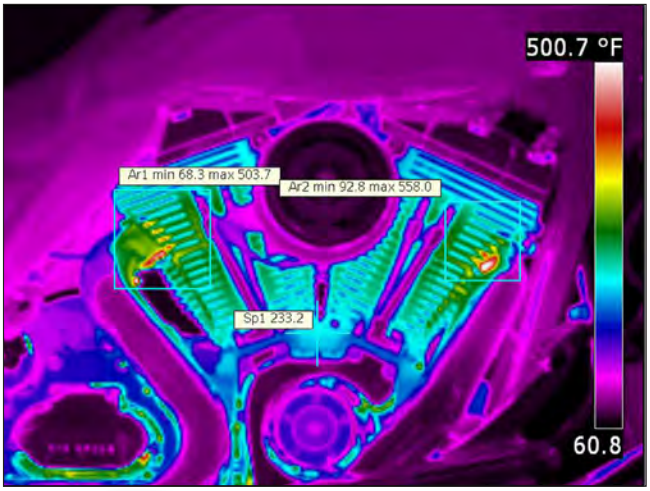
FUEL / AIR SYSTEMS

ThunderMax® is Key to A Cooler Running Engine

Thermal images show an air cooled H-D® engine with an unstable Air/Fuel Ratio vs. the ThunderMax® equipped engine with AutoTune.



Slide 1: Shows the excessive, high-heat environment in which a typical air cooled H-D® engine normally operates - Very uncomfortable for the rider!



Slide 2: Shows a ThunderMax® equipped engine with AutoTune; Note the cooler operating temperature resulting from a properly balanced fuel curve - Much more comfortable for both rider and passenger!

THUNDER MAX BUY FROM THE PROS!

ThunderMax® is an industry award winning, performance ECM designed specifically for EFI equipped Harley Davidson® motorcycles. This highly advanced, stand-alone tuning system utilizes proprietary AutoTune technology specificly designed to interface with wide-band oxygen sensors to automaticly adjust a wide range throttle positions and RPM ranges to deliver unmatched performance and driveability like no other product in the industry. ThunderMax® is made in the USA and comes 100% assembled, ready to install with no wire-cutting or splicing required. Simply replace the factory ECM and oxygen sensors, load a map, and enjoy your new ride!

- **Advanced, Rapid Throttle Response**
- **Wide Band Tuning for Better Performance**
- **A Cooler Running Engine**
- **AFR Maintained Regardless of Changes in Ambient Air**

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

Zipper's skill and knowledge of the ThunderMax® product is immense, plus our continued development of engine components and kits with ThunderMax® gives you a huge advantage over institutional suppliers of this technical product.

Touring

PART NO.	TOURING / TRIKE MODEL APPLICATION	THROTTLE TYPE
#309-588	2017 All Touring & Trike Models	Throttle-By Wire
#309-562	2014-2016 All Touring & Trike Models	Throttle-By-Wire
#309-362	2008-2013 All Touring & 2009-2013 Trike Models	Throttle-By-Wire
#309-460	2002-2007 All Touring Models	Cable Throttle

ThunderMax® requires 18mm exhaust sensor ports as used on 2007-2009 models. 2010-2017 (12mm) Touring models must use a 2009 style exhaust or modify the 2010-2017 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.

Softail®

PART NO.	SOFTAIL® APPLICATION	THROTTLE TYPE
#309-563*1	2016-2017 All Softail Models (103 & 110")	Throttle-By-Wire
#309-563*1	2014 FXSBSE **CVO** Breakout, 2014-2015 FLSTNSE **CVO** Deluxe	Throttle-By-Wire
#309-382	2012-2015 Softail 96" & 103" Models except FXSB Breakout	Cable Throttle
#309-383*1	2014-2015 FXSB 103" Breakout	Cable Throttle
#309-363*1	2011-2012 FLSTSE, 2013 FXSBSE **CVO** Softail Models	Throttle-By-Wire
#309-361*1	2011 All Softail 96" & 103" Models	Cable Throttle
#309-485*2	2008-2010 FXCW, FXCWC Rocker Models	Cable Throttle
#309-485*2	2009 FXSTSSE2 **CVO** Springer Softail	Cable Throttle
#309-460	2001-2010 All Softail Models	Cable Throttle
#309-456	6-Pin Data Port Communication Device	

*1 Due to inaccessible communication cable port on ECM once installed on Breakout® and 2011 FXCWC Rocker® models, #309-456 data port communication harness is required (purchase separately).

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

ThunderMax® requires 18mm exhaust sensor ports as used on 2007-2011 models. 2012-2017 (12mm) Softail® models must use a 2007-2011 style exhaust or modify the 2012-2017 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.

Dyna®

PART NO.	DYNA® APPLICATION	THROTTLE TYPE
#309-563	2016-2017 All 110" Dyna FXDLS models with Electronic Throttle	Throttle-By-Wire
#309-382	2012-2017 All 96"/103" Dyna® Models	Cable Throttle
#309-563	2016 FXDLS 110" Models	Throttle-By-Wire
#309-485*1	2004-2011 All Dyna® Models	Cable Throttle

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

ThunderMax® requires 18mm exhaust sensor ports as used on 2006-2011 models. 2012-2017 (12mm) Dyna® models must use a 2007-2011 style exhaust or modify the 2012-2017 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.

Sportster®

PART NO.	SPORTSTER® APPLICATION	THROTTLE TYPE
#309-382*1	2014-2017 All Sportster® XL Models	Cable Throttle
#309-485*2	2010-2013 All Sportster® XL Models	Cable Throttle
#309-485	2008-2012 XR1200® Models	Cable Throttle
#309-460	2007-2009 All Sportster® XL Models	Cable Throttle

*1 2014-2017 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.

Street® 500/750

PART NO.	STREET® 500 & 750 APPLICATION	THROTTLE TYPE
#309-384	2015-2017 Street® 500 & 750 Models	Cable Throttle

V-Rod®

PART NO.	V-ROD® APPLICATION	THROTTLE TYPE
#309-466*1	2002-2017 V-Rod® Models	Cable Throttle

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

ThunderMax® requires 18mm exhaust sensor ports as used on 2008-2011 models. 2012-2017 (12mm) V-Rod® models must use a 2008-2011 style exhaust or modify the 2012-2017 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.

ThunderMax® Communication Device

Required to commuicate with with ThunderMax® Modules that are unaccessable on the motorcycle.

4-Pin DATA-BUS #309-454 **6-Pin CAN-BUS #309-456**

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 the 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 automatically adjusting the air/fuel ratio, 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
#117-344[*1]	'99-'01 TC 44mm Conversion kit w/AutoTune (88"-95")
#117-351[*1]	'99-'01 TC 51mm Conversion kit w/AutoTune (95"-103")
#117-354[*1]	'99-'01 TC 55mm Conversion kit w/AutoTune (107"-up)
#117-361[*2]	'95-'98 EV 51mm Conversion kit w/AutoTune (80"-up)
#117-364[*2]	'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)*

THUNDER MAX

Made In USA

RACE ONLY

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, 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	'07 FL,'06-'14 Softail® ThunderMax® Zip Kit f/H-D® SE-120R engine
#117-273	'06-'14 FXD® ThunderMax® Zip Kit f/H-D® SE-120R engine
#117-250	'07 FL,'06-'14 Softail® ThunderMax® Zip Kit for JIMS®120
#117-251	'06-'14 Dyna® ThunderMax® Zip Kit for JIMS® 120 engine
#117-252	'02-'05 FL,'01-'05 Softail® ThunderMax® Zip Kit for JIMS®120
#117-253	'04-'05 Dyna® ThunderMax® Zip Kit for JIMS®120 engine
#117-254	'99-'01 Touring FL ThunderMax® Zip Kit f/JIMS®120
#117-260	'07 FL,'06-'14 Softail® ThunderMax® Zip Kit for JIMS®131
#117-261	'06-'14 FXD® ThunderMax® Zip Kit for JIMS®131 engine
#117-262	'02-'05 FL,'01-'05 Softail® ThunderMax® Zip Kit for JIMS®131
#117-263	'04-'05 Dyna® ThunderMax® Zip Kit for JIMS®131 engine
#117-264	'99-'01 Touring FL ThunderMax® Zip Kit f/JIMS®131

THUNDER MAX

XMS
EXHAUST MATCHED SERIES

by ThunderMax® for Throttle-By-Wire Touring Models

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 ThunderMax® 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

THUNDER MAX 50
EFI Made Simple.

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!

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 diagnostic trouble codes**

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 with 96" engine

Made In USA

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.

54MM	60MM	2006-UP THROTTLE BODY/MANIFOLD
Body/manifold are 1-piece, unit construction; includes billet intake flanges and seals.		
#109-654	**#109-660**	Throttle Body/Manifold, std length
#109-655	**N/A**	For 4.980" long cyls, JIMS 120"/131"
N/A	**#109-662**	For 5.013"-5.016" long cylinders
#109-658	**#109-664**	For 5.037" long cylinders
N/A	**#109-666**	For 5.100" long cylinders

PART NO.	2001-2005 THUNDERMAX MANIFOLDS
#109-709	For stock length (4.937") cylinders. Fits Zipper's 95 & 107" H-D 88, 95, 96, 103, 110, 113", JIMS-SE H-D® 120
#109-713	For 4.975"-4.980" long cylinders
#109-716	For 5.013"-5.016" long cylinders
#109-718	For 5.037" long cylinders
#109-723	For 5.100" long cylinders
#109-700	Max length, for cyls longer than 5.100"; machine to fit

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	'01-'05 54mm EFI Throttle Body only

Oversize Intake Flange/Seal Set

Fits 2006-up Screamin' Eagle® 50mm and 58mm throttle bodies, included with 2006-up ThunderMax throttle bodies. High strength billet construction eliminates problematic cracking at the mounting holes. *Sold in sets.* **# 117-059**

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

Zipper's Performance Products • 6655-A Amberton Drive, Elkridge, MD 21075 • (410) 579-2828

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
#127-116	'01-'05 HPI 51mm throttle body with 1.660" intake port
#127-118	'01-'05 HPI 51mm throttle body with 1.800" intake port
#127-156	'01-'05 HPI 55mm throttle body with 1.660" intake port
#127-158	'01-'05 HPI 55mm throttle body with 1.800" intake port
#127-186	'01-'05 HPI 58mm throttle body with 1.660" intake port
#127-188	'01-'05 HPI 58mm throttle body with 1.800" 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

PART NO.	THUNDERMAX® N.A.D.S. BOTTLE/BRACKET KITS
#109-220	N.A.D.S. 2002-2008 Touring Model Bottle/Bracket Kit
#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

Made In USA RACE ONLY

THUNDER MAX

ThunderMax® Communication Device

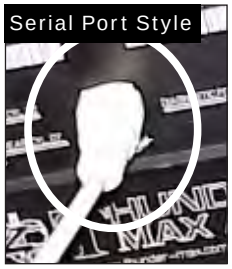
Required to commuicate with with ThunderMax® Modules that are unaccessable on the motorcycle.

4-Pin DATA-BUS #309-454 **6-Pin CAN-BUS #309-456**

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® 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

#372-002 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/7/8.

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 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.

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.

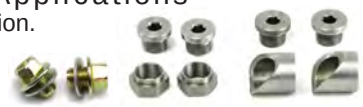
 # 309-330 *For All Models*

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*
#272-201 *Angled bung only, each*
#272-204 *12mm Bung Cap set. For 2010-up Touring, 2012-up Softail®, Dyna® and V-Rod® & 2014-up XL/ Sportster® models with stock sensors removed*

Zipper's Performance Products • 6655-A Amberton Drive, Elkridge, MD 21075 • (410) 579-2828

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

PART NO.	DESCRIPTION
#172-422	4.22 gr/sec (Big Twin stock replacement) white band
#172-481	4.81 gr/sec (V-Rod® stock replacement) turquoise band
#172-620	6.20 gr/sec (high flow replacement) yellow band
#172-670	6.70 gr/sec (high flow replacement) pink band

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 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**

Fuel Rail Kit
Stock replacement. Fits '06-up Delphi® injected Big Twin models with cable-actuated throttle body. **#150-651**

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

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

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

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**

Manifold Absolute Pressure (MAP) Sensor
Replaces OE32316-99 **#395-316**

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 Dyna®. **#395-062**

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**

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**

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

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**

RACE ONLY
Made In USA

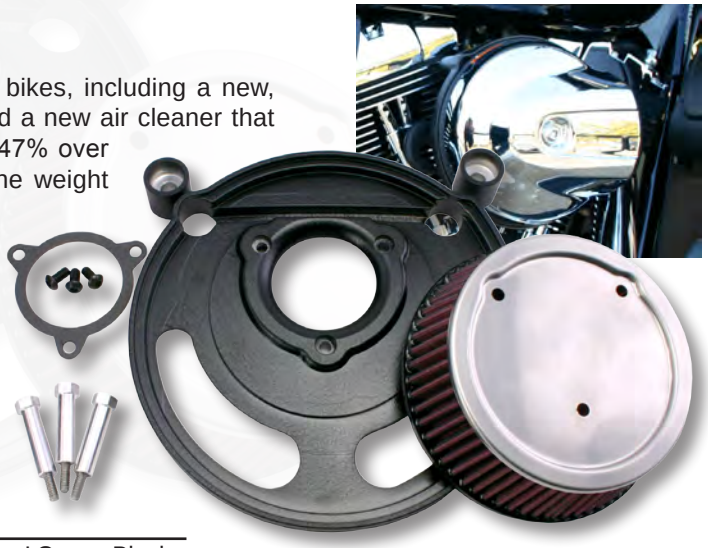
Note - *This kit is designed to be used on Twin Cam® engines equipped with H-D® Screamin' Eagle® Stage I air cleaner and the standard Twin Cam® "football" cover, which makes 360º contact between the cover back and the rubber gasket on the filter. Do not install decorative cover inserts (due to increased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

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!***

PART NO.	DESCRIPTION
#117-298	Fits '08-'13 Big Twin w/throttle by wire EFI equipped with factory Stage I A/C kit
#117-296	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)
#117-299	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*
#172-130	Replacement MaxFlow element for #117-298 kit
#172-114	Replacement MaxFlow element for #117-296 kit

Zipper's HighFlow Air Cleaner for '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	Fits '14-'16 Touring Models with 'Rushmore' Cover, Black
#172-107	Replacement MaxFlow element for #117-460 kit

Complete Premium Air Filter Kits

Here's a nice power increase that's easy to install! Our USA-Made Premium Air Cleaner Kits feature internal-breather backing plates CNC-machined from solid billet for strength, performance and beauty. The included cleanable/oilable, pleated gauze element is available in standard 2-1/4" width or our 5/8" wider MaxFlow unit to really let that engine breathe! Available with satin billet, texture black or chrome plated breather ports. ***Bolt it on and feel the difference!***

MaxFlow

PART NO.	DESCRIPTION
#117-440	Satin Billet MaxFlow A/C Kit, '99-up TC Big Twin* w/Carb or Cable-Operated Delphi® EFI
#117-440B	Black Billet MaxFlow A/C Kit, '99-up TC Big Twin* w/Carb or Cable-Operated Delphi® EFI
#117-440C	Chrome Billet MaxFlow A/C Kit, '99-up TC Big Twin* w/Carb or Cable-Operated Delphi® EFI
#150-591	Cover spacer, required for '08-up FXD w/ factory teardrop cover *2008-up Dyna® models require #150-591 cover spacer when retaining the factory teardrop cover
#117-468	Satin Billet MaxFlow A/C Kit, '01-up EFI/Cable w/27639-07B SE® 58mm Throttle Body
#117-455	Satin Billet MaxFlow A/C Kit, '08-'13 Touring with Stock 50mm TBW Throttle Body
#117-455B	Black Billet MaxFlow A/C Kit, '08-'13 Touring with Stock 50mm TBW Throttle Body
#117-455C	Chrome Billet MaxFlow A/C Kit, '08-'13 Touring with Stock 50mm TBW Throttle Body
#117-458	Satin Billet MaxFlow A/C Kit, '08-'13 Touring with SE® 58mm TBW Throttle Body
#117-458B	Black Billet MaxFlow A/C Kit, '08-'13 Touring with SE® 58mm TBW Throttle Body
#117-458C	Chrome Billet MaxFlow A/C Kit, '08-'13 Touring with SE® 58mm TBW Throttle Body
#172-114	Replacement MaxFlow element for #117-440 Series
#172-130	Replacement MaxFlow element for #117-468, #117-455 Series and #117-458 Series

HighFlow

PART NO.	DESCRIPTION
#117-442	Satin Billet HighFlow A/C Kit, '99-up TC Big Twin* w/Carb or Cable-Operated Delphi® EFI
#117-442B	Black Billet HighFlow A/C Kit, '99-up TC Big Twin* w/Carb or Cable-Operated Delphi® EFI
#117-442C	Chrome Billet HighFlow A/C Kit, '99-up TC Big Twin* w/Carb or Cable-Operated Delphi® EFI
#150-591	Cover spacer, required for '08-up FXD w/ factory teardrop cover *2008-up Dyna® models require #150-591 cover spacer when retaining the factory teardrop cover
#117-456	Satin Billet HighFlow A/C Kit, '08-'13 Touring with Stock 50mm TBW Throttle Body
#117-456B	Black Billet HighFlow A/C Kit, '08-'13 Touring with Stock 50mm TBW Throttle Body
#117-456C	Chrome Billet HighFlow A/C Kit, '08-'13 Touring with Stock 50mm TBW Throttle Body
#117-459	Satin Billet HighFlow A/C Kit, '08-'13 Touring with SE® 58mm TBW Throttle Body
#117-459B	Black Billet HighFlow A/C Kit, '08-'13 Touring with SE® 58mm TBW Throttle Body
#117-459C	Chrome Billet HighFlow A/C Kit, '08-'13 Touring with SE® 58mm TBW Throttle Body
#172-116	Replacement HighFlow element for #117-442 Series (OE# 29442-99/A/B/C/D, 29400020)
#172-128	Replacement HighFlow element for #117-456 Series and #117-459 Series (OE# 29244-08, 29400019)

Complete Economy TBW Air Filter Kits

These economically priced air cleaner assemblies include the same high quality, high flow filter elements as our Premium air filter kits. The difference is the backing plate design retains the factory throttle support bracket and breather assemblies and simply costs less to produce. We pass the savings on to you!

MaxFlow

PART NO.	DESCRIPTION
#117-448	Fits '08-'13 Big Twin with TBW EFI, Billet
#117-448B	Fits '08-'13 Big Twin with TBW EFI, Black
#117-448C	Fits '08-'13 Big Twin with TBW EFI, Chrome
#172-130	Replacement MaxFlow element for #117-448 Series

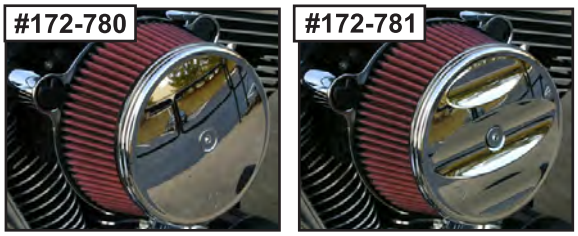
HighFlow

PART NO.	DESCRIPTION
#117-449	Fits '08-'13 Big Twin with TBW EFI, Billet
#117-449B	Fits '08-'13 Big Twin with TBW EFI, Black
#117-449C	Fits '08-'13 Big Twin with TBW EFI, Chrome
#172-128	Replacement HighFlow element for #117-449 Series (OE# 29244-08, 29400019)

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 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)

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.

Single Vent Type

Dual Vent Type

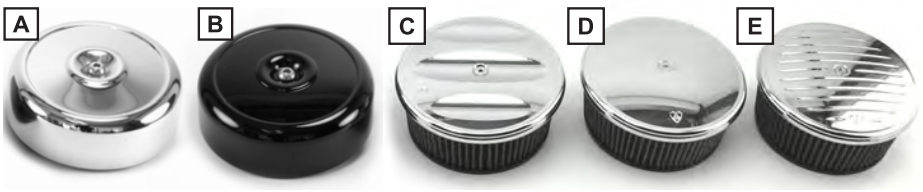
APPLICATION	F/TC COVER	F/8" EV COVER
Fits '01-up*1 TC w/Dephi® EFI or '99-'06 w/CV	**#117-212***2	**#117-112***2
Fits '93-'99 EV Big Twin w/CV carb	**N/A**	**#117-102***2
Fits '90-'92 EV Big Twin w/CV carb (no breathers)	**N/A**	**#117-090**
Fits '91-'06 Sportster® w/CV carb	**N/A**	**#117-095***2
Fits '07- up EFI Sportster® (2-1/4" element)	**#117-096***3	**N/A**
Fits '07- up EFI Sportster® (2-3/4" element)	**#117-097***3	**N/A**
Fits '95-'02 Buell® w/CV carb	**N/A**	**#117-098***2
Fits '99-'06 Twin Cam® with S&S 'E' or 'G' carb	**#117-233***4	**#117-132***4
Fits '93-'99 EV Big Twin with S&S 'E' or 'G' carb	**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	**#117-237***4	**#117-137***4
Fits '93-'99 EV Big Twin with S&S 'D' carb	**N/A**	**#117-135***4
Fits '99-'06 TC® w/Mikuni HSR42 / 45 / 48 carb	**#117-245***4	**#117-145***4*5
Fits '93-'99 EV BT w/Mikuni HSR42 / 45 / 48 carb	**N/A**	**#117-142***4*5
Fits '91-'06 EV XL w/Mikuni HSR42 / 45 / 48 carb	**N/A**	**#117-142***4*5

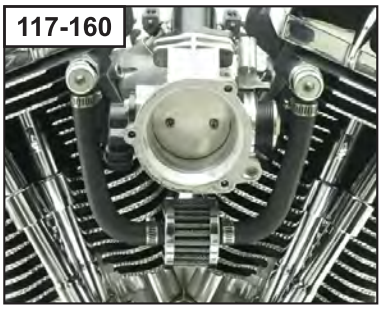
**1 - Does not fit 2008-up Touring models*
**2 - Single crankcase vent outlet can be routed to backplate or external breather filter (not supplied)*
**3 - Accepts stock oval Sportster® outer air cleaner cover or 51/2" Round Covers*
**4 - Dual crankcase vent outlets can be routed to external breather filter (not supplied)*
**5 - Includes chrome traditional round Mikuni air filter cover*

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.

COVERS FOR MAXFLOW AIR CLEANER	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**
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**





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. **#162-621**

Dual Inlet Port: This breather filter is designed to attach to any engine that uses banjo-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. **#117-160**

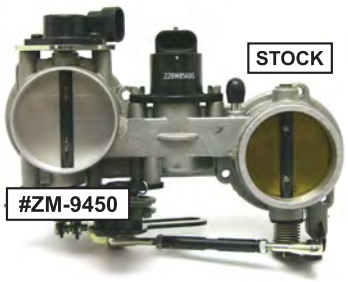
V-Rod® Zip Kit and Components

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!***

PART NO.	DESCRIPTION
#117-505	Zip Kit for '02-up V-Rod®

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!



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™

Made In USA RACE ONLY

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'
#113-014	Red ThunderJet™ f/S&S 'E' or 'B'
#113-015	Blue ThunderJet™ f/S&S 'E' or 'B'
#113-016	Black ThunderJet™ f/S&S 'E' or 'B'
#113-012	Satin Aluminum ThunderJet™ f/S&S 'E' or 'B'
#113-011	Polished Aluminum ThunderJet™ f/S&S 'E' or 'B'

PART NO.	THUNDERJET™ FOR S&S 'G' OR 'D'
#113-034	Red ThunderJet™ f/S&S 'G' or 'D'
#113-035	Blue ThunderJet™ f/S&S 'G' or 'D'
#113-036	Black ThunderJet™ f/S&S 'G' or 'D'
#113-032	Satin ThunderJet™ f/S&S 'G' or 'D'
#113-031	Polished ThunderJet™ f/S&S 'G' or 'D'

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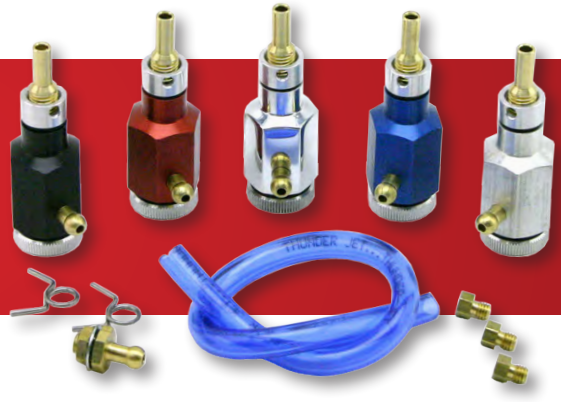


Adjustable Air Bleed Jet Pack

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.	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)

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 ThunderJet™ 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

ThunderJet™

Jets for ThunderJet™

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. (Sold Each)

JET SIZE	PART NO.	JET SIZE	PART NO.	JET SIZE	PART NO.
80	**#113-080**	120	**#113-120**	160	**#113-160**
85	**#113-085**	125	**#113-125**	165	**#113-165**
90	**#113-090**	130	**#113-130**	170	**#113-170**
95	**#113-095**	135	**#113-135**	175	**#113-175**
100	**#113-100**	140	**#113-140**	180	**#113-180**
105	**#113-105**	145	**#113-145**	185	**#113-185**
110	**#113-110**	150	**#113-150**	190	**#113-190**
115	**#113-115**	155	**#113-155**	200	**#113-200**

ThunderJet™ Jet Tool

#717-100 Also fits air bleed jets on ThunderJet™-equipped S&S® E/G carbs

ThunderJet™ Fuel Line

#1507 Replacement fueling line for ThunderJet™

Rebuild Kits

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

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'

PART NO.	DESCRIPTION
#198-100	'E' gasket & o-ring set
#198-102	'G' gasket & o-ring set

Zipper's Performance Products • 6655-A Amberton Drive, Elkridge, MD 21075 • (410) 579-2828

S&S® Carburetors

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®

Super 'E' & 'G' Carb Kits: The most popular aftermarket carburetor ever, the S&S E/G are butterfly-type carbs with a fully adjustable idle mixture screw, changeable mid-range and high-speed jets. Additional features are an adjustable volume accelerator pump, high flow air cleaner and enrichment device with a variable position lever, and a tight, tucked-in profile for maximum leg room. Two sizes are available; the 1-7/8" bore 'E', suitable for stock displacement engines and the 2-1/16" bore 'G' designed for larger displacement engines. ThunderJet-equipped models include an external, adjustable main air bleed and modified float bowl vent machining, included are additional jets for the ThunderJet® and air bleed.

New - 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 'G' CARB KIT			
STANDARD		W/ THUNDERJET™			STANDARD		W/ THUNDERJET™	
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 *(Cables Required See Below)*	#198-329	#198-329B	#198-429	#198-429B
#198-308	#198-308B	#198-408	#198-408B	Evolution® Sportster® kit '86-'90 *(Cables Required See Below)*	#198-328	#198-328B	#198-428	#198-428B
#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

**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.

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 and modified many carburetors with unique alterations for specific engine sizes and applications.

Kit with Zipper's Air Cleaner

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.

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 and cover
#117-233	Zipper's MaxFlow A/C kit, TC with E or G carb, uses stock TC football cover or accessory TC cover (see page 1.12)
#117-160	Twin Port breather filter. Attaches to head breather banjo fittings; breather filter located under carb bowl.

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 Max 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.

CARBURETOR ONLY	G1	G2	G3
Modified 'G' Carb Only, Aluminum	**#198-421**	**#198-421G2**	**#198-421G3**
Modified 'G' Carb Only, Black	**N/A**	**#198-421G2B**	**#198-421G3B**

ALUMINUM	BLACK	DESCRIPTION
#198-551	**N/A**	Twin Cam® 'G1' kit, 88"-103" engines, w/man
#198-552	**#198-552B**	Twin Cam® 'G2' kit, 103"-120" engines
#198-553	**#198-553B**	Twin Cam® 'G3' kit, 120"-131" engines
#198-534	**N/A**	Evolution® 'G1' kit, 88"-103" engines
#198-535	**#198-535B**	Evolution® 'G2' kit, 103"-120" engines
#198-536	**#198-536B**	Evolution® 'G3' kit, 116"-131" engines

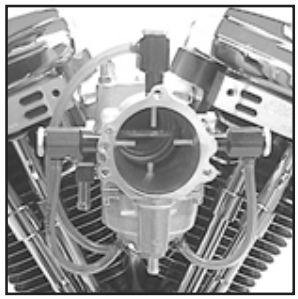
No manifold supplied unless noted. See manifold listing on page 1.20 for selection (order separately). Please specify engine size (bore and stroke) when ordering.

Zipper's Performance Products • 6655-A Amberton Drive, Elkridge, MD 21075 • (410) 579-2828

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 Max 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.

#198-112



Kit with Zipper's Air Cleaner

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
#117-237	Zipper's MaxFlow A/C kit, TC with 'D' carb, uses stock TC football cover or accessory TC cover (see page 1.12)
#117-160	Twin Port breather filter. Attaches to head breather banjo fittings; breather filter located under carb bowl.

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.

RACE ONLY

#198-189 Twin Cam® 'D2' kit, no manifold
#198-125 Evolution® 'D2' kit, no manifold

No manifold supplied unless noted. See manifold listing on page 1.20 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"

MANIFOLDS FOR TWIN CAM® ENGINES	CYL LENGTH	WIDTH CODE	44-45MM SPIGOT	'E' 1-7/8"	'G' 2-1/16"	'D' 2-1/4"
'99-'05TC Heads 88-95-103-107"	4.937"	410	**#198-288**	**#198-508**	**#198-938**	**#198-968**
'06+TC* Heads 88-95-103-107"	4.937"	405	**#198-287**	**#198-507**	**#198-937**	**N/A**
117" Zipper's	4.980"	414	**#198-289**	**N/A**	**#198-941**	**N/A**
120" Zipper's, S&S 124"	5.037"	417	**N/A**	**N/A**	**#198-940**	**N/A**
116" S&S	5.160"	428	**#198-290**	**N/A**	**#198-939**	**N/A**

**2006-up intake flanges must be used with 2006-up TC heads*

MANIFOLDS FOR EVOLUTION® ENGINES	CYL LENGTH	WIDTH CODE	44-45MM SPIGOT	'E' 1-7/8"	'G' 2-1/16"	'D' 2-1/4"
74", 79", 88" EVXL engines	4.650"	341	**N/A**	**#198-510**	**#198-220**	**#198-260**
89", 99" EVXL engines	5.087"	374	**N/A**	**#198-513**	**N/A**	**#198-263**
93", 102" EV Big Twin	5.500"	406	**#198-294**	**#198-517**	**#198-227**	**#198-267**
80", 89", 96", 105" EV BT	5.550"	410	**#198-296**	**#198-518**	**#198-228**	**#198-268**
98", 108" EV Big Twin	5.625"	415	**N/A**	**N/A**	**#198-229**	**#198-269**
103", 114" EV Big Twin	5.750"	426	**N/A**	**N/A**	**#198-232**	**#198-272**

MANIFOLDS FOR S&S EVOLUTION® ENGINES	CYL LENGTH	WIDTH CODE	44-45MM SPIGOT	'E' 1-7/8"	'G' 2-1/16"	'D' 2-1/4"
107" S&S (4" x 4-1/4")	4.870"	397	**#198-292**	**#198-516**	**#198-226**	**N/A**
113" S&S (4" x 4-1/2")	4.995"	406	**#198-294**	**#198-517**	**#198-227**	**#198-267**
111" S&S (4-1/8" x 4-1/8")	4.763"	398	**N/A**	**N/A**	**#198-985**	**#198-995**
117" S&S (4-1/8" x 4-3/8")	4.888"	408	**N/A**	**N/A**	**#198-987**	**#198-997**
124" S&S (4-1/8" x 4-5/8")	5.013"	417	**N/A**	**N/A**	**#198-989**	**#198-999**

MANIFOLDS FOR SHOVEL/ IRON SPORTSTER® ENGINES	CYL LENGTH	WIDTH CODE	O-RING 1-7/8" E	BAND 1-7/8" E	O-RING 2-1/16" G	BAND 2-1/16" G
Stock Length Cylinders	5.330"	220	**#198-520**	**#198-540**	**#198-560**	**#198-580**
BT 93" Stroker (high compr)	5.363"	222	**#198-521**	**#198-541**	**#198-561**	**#198-581**
BT 93" Stroker (std compr)	5.405"	225	**#198-522**	**#198-542**	**#198-562**	**#198-582**
BT 96" Stroker	5.440"	228	**#198-523**	**#198-543**	**#198-563**	**#198-583**
BT 98" Stroker	5.530"	235	**#198-524**	**#198-544**	**#198-564**	**#198-584**

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
#198-032	'84-'05 Front manifold flange, each
#198-033	'84-'05 Rear manifold flange, each
#150-993	'06-Up 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.

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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.

#198-393 *#198-379* *#198-378* *#198-376*

PART NO.	AIR CLEANER APPLICATIONS
#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	For '66-'84 Shovel, '66-'85 Iron XL w/stock carb

**Not for '08up 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 carb
#198-390	Backplate only for Shovel, Iron XL w/E/G carb
#198-039	Head breather 3-way tube, 'E' or 'G
#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

RACE ONLY

Made In USA

S&S® Breather Update Kit

Got an older (pre-2003) 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.

PART NO.	DESCRIPTION
#198-486	S&S pre-2003 EV BT E/G breather bolt update kit

Carburetor Support Brackets

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

PART NO.	DESCRIPTION
#198-471	Adjustable support for all S&S carbs, mounts from center case bolt between cylinders (if equipped) to bottom manifold bolt.
#198-793	Support brkt f/S&S E/G carb on Iron XL
#198-792	Support brkt f/S&S E/G carb on '66-'82 Shovel
#142-062	CV carburetor support bracket, fits '88-'03 XL
#142-067	CV carburetor support bracket, fits '90-'06 BT

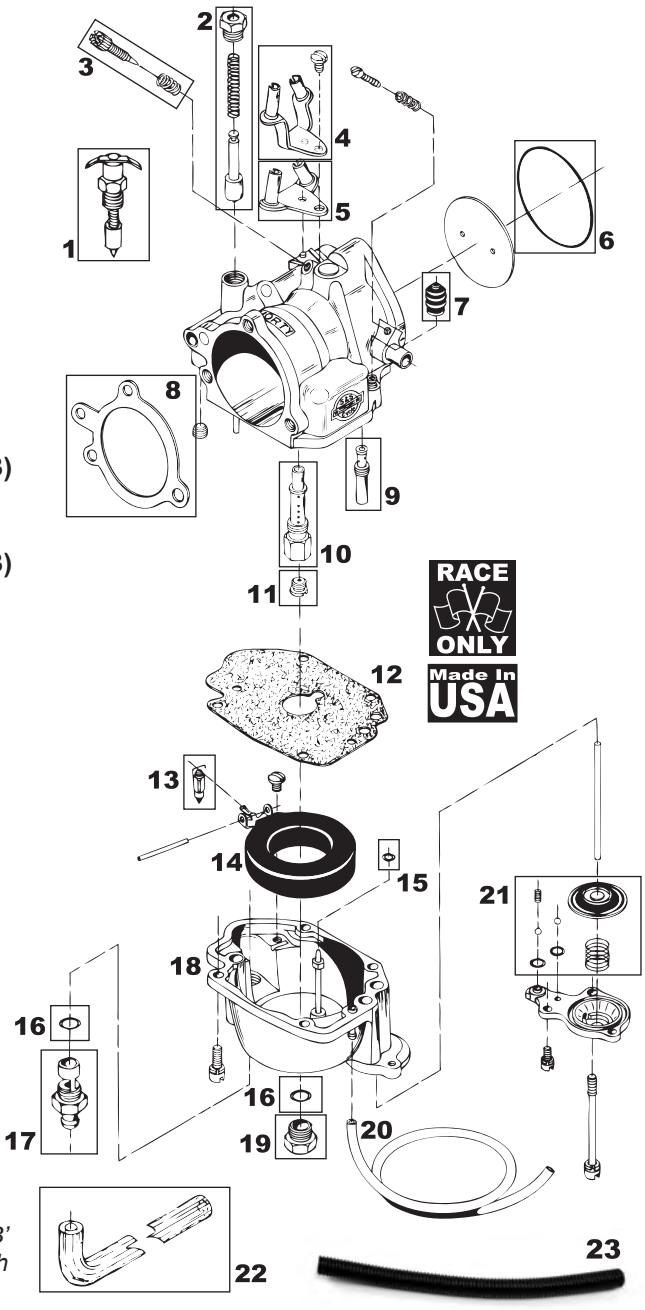
S&S® Cruise Control and Throttle Cable Brackets

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

DESCRIPTION	PART NO.
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**
2. Plunger assy, E/G enrichener (each)	**#198-043**
3. Mixture screw and spring, E/G/B/D carb	**#198-078**
4. Cable brkt tall E/G, '90-up cables	**#198-338**
5. Cable brkt short E/G, '81-'89 cables	**#198-339**
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**
O-ring, carb/manifold, 'D' (each)	**#198-814**
7. Bellows seal, pump E/G (each)	**#198-279**
8. Gasket, carb to a/c, E/G (each)	**#198-381**
9. Intermediate Jet	**(see page 1.23)**
10. Main discharge tube, E/G/B carb	**#198-085**
Main discharge tube, D carb	**#198-185**
11. Main Jet	**(see page 1.23)**
12. Float bowl gasket, E/G. Sold each.	**#198-386**
Float bowl gasket, B/D. Sold each.	**#198-086**
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**
15. O-ring, accel. pump nozzle (10pk)	**#198-096**
16. O-ring, drain plug/inlet seat (5pk)	**#198-095**
17. Needle seat, E/G (standard flow)	**#198-465**
Needle seat, E/G (high flow*)	**#198-466**
Needle seat, B (standard flow)	**#198-065**
Needle seat, B/D (high flow*)	**#198-165**
18. Float bowl (bare) E/G carb	**#198-388**
Float bowl (bare) B/D carb	**#198-088**
19. Float bowl plug, E/G/B/D (each)	**#198-092**
20. Overflow hose, E/G (each)	**#198-262**
21. Rebuild kit, E/G accel. pump, diaphragm, diaphragm spring, pushrod, check balls, springs and o-rings.	**#198-958**
22. Fuel line, w/ pre-formed 90° end, black (each)	**#198-475**
23. Insulator, fuel line (12")	**#198-172**

**Larger, higher capacity inlet seat and needle for use in 'E' / 'G' and 'B' 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

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

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'

PART NO.	DESCRIPTION
#198-100	'E' gasket & o-ring set
#198-102	'G' gasket & o-ring set

Quick Disconnect Fuel Line Coupler

#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.

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

Replacement Jets for S&S® Carbs

S&S INTERMEDIATE JETS (Sold Each)

JET SIZE	PART NO.	JET SIZE	PART NO.	JET SIZE	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**
.031”	**#198-731**	.036”	**#198-736**		

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**				

S&S® Jet Tool for Carburetors

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

S&S® ‘E’ and ‘G’ Velocity Stack Conversion Kits

S&S® Velocity Stacks and Covers Only

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

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
#113-072	Black bowl screws, set of 4

Spacer And Insulator Blocks

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 1” SPACER	PHENOLIC 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 leak-free 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, max 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, flanges and seals if needed separately, see page 1.20!***

STANDARD FINISH	POLISHED 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	**#117-453P**	Zipper's 45mm EV Mikuni kit, w/billet flange mount (no manifold)
#117-483	**#117-483P**	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/ stock TC a/c cover

Zipper's Mikuni Manifold Adapter

Two-bolt billet flange adapter for use with S&S 'G' manifold. Replaces rubber flange adapter, o-ring sealed on spigot and manifold mating surface. Includes mounting bolts.

PART NO.	DESCRIPTION
#117-745	45mm carb adapter
#117-748	48mm carb adapter

Zipper's Mikuni Air Cleaner Adapter

Securely clamps to carb spigot, allows mounting of any air cleaner with a CV bolt pattern. Machined from billet and 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/

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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 1990-up CV cables.

42MM "Easy" Kit

42 and 45MM "Total Kit"

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 (order flanges and seals seperatley if needed), 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 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	Rubber flange adaptor, 42mm carb
#108-085	Rubber flange adaptor, 45mm carb
#120-800	Rubber flange adaptor, 48mm carb
#120-200	Air cleaner adaptor, Mikuni to CV A/C

HS40
HSR42/45/48

Mikuni Jet Needles

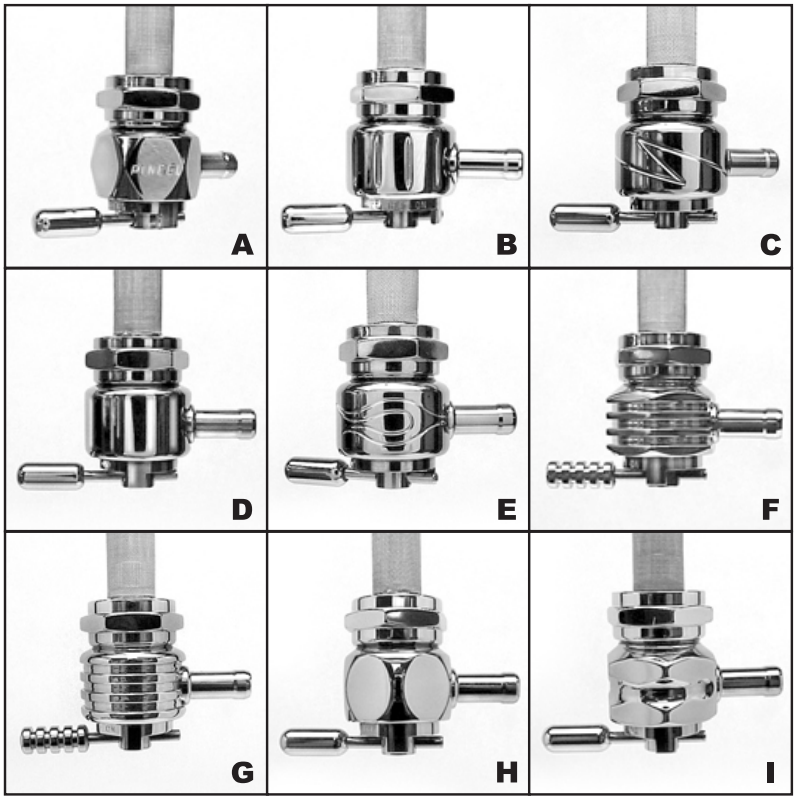
JET NEEDLE	FOR HSR42	FOR HSR45/48
95 (Richer)	**#108-095**	**#108-195**
96 (Stock)	**#108-096**	**#108-196**
97 (Lean)	**#108-097**	**#108-197**
98 (Leanest)	**#108-098**	**#108-198**

HS40
HSR42/45/48

Mikuni Carburetor Jets

PILOT 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**
22.5	**#108-225**	37.5	**#108-375**
25	**#108-250**	40	**#108-400**
27.5	**#108-275**	42.5	**#108-425**

MAIN JETS	PART NO.	MAIN JETS	PART NO.
145	**#108-936**	175	**#108-948**
150	**#108-938**	180	**#108-950**
155	**#108-940**	185	**#108-952**
160	**#108-942**	190	**#108-954**
165	**#108-944**	195	**#108-956**
170	**#108-946**	200	**#108-957**



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 PRO-FLO™ VALVES	1000 SERIES	4000 SERIES	6000 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**

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?

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...

Pingel® In-Line™ Fuel Filter

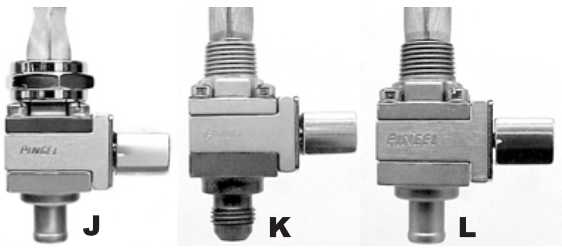
The same high quality construction found in Pingel® petcocks is found in the Pingel In-Line™ Super Short fuel filters. Featuring a main body machined from billet aluminum with a length of only 1-1/8", this filter has large, high flowing ports and a cleanable bronze element that will last a lifetime.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

#176-355

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.



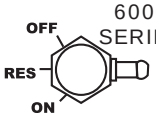
Which Fuel Valve For My Bike?

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.

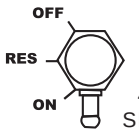
4000 Series: Mounts to the forward left side of the gas tank with the hose barb facing rearward, or the right at the rear of the tank with the hose barb facing forward. Fits some Fat Boy® models and some aftermarket tanks.

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.

1000 SERIES
Left Side Mounted, Hose Outlet Facing Forward

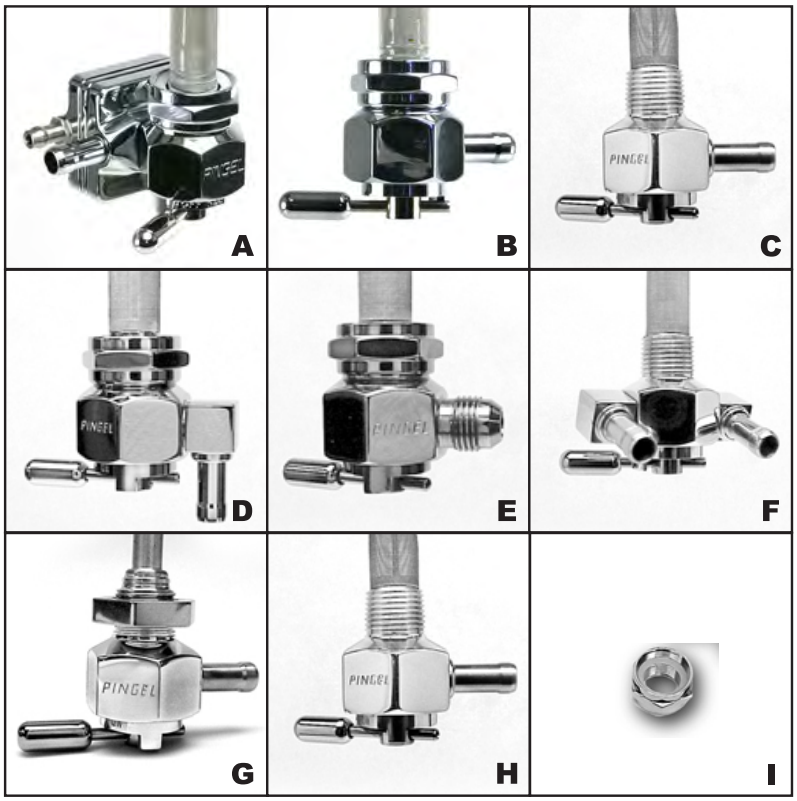


6000 SERIES
Left Side Mounted, Hose Outlet Facing Under Bike



4000 SERIES
Left Side Mounted, Hose Outlet Facing Back

Positions shown indicate lever and barb location from the rider's view, looking down at the gas tank (left side). Reverse for right side mounting.



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	**#176-134**	**#176-434**	**N/A**
B. Chrome w/22mm coupling nut, for '75-'06 tanks	**#176-133**	**#176-433**	**#176-633**
Aluminum w/22mm coupling nut, for '75-'06 tanks	**#176-135**	**#176-435**	**#176-635**
C. Chrome w/male 3/8"NPT threads, for pre-'75 tanks	**#176-131**	**#176-431**	**#176-632**
Aluminum w/male 3/8"NPT threads, for pre-'75 tanks	**#176-132**	**#176-432**	**#176-631**

PART NO. — **SPECIAL APPLICATION FUEL VALVES**

D. Down Outlet: Available only in original hex design with 22mm coupling nut for use on '75-'06 tanks. Hose barb is opposite of the lever, but points down. Works well on '95-'06 Sportsters® and other applications that require special routing.
- **#176-623** ..... Chrome with 22mm Coupling Nut
- **#176-624** ..... Chrome with 22mm Coupling Nut & Vacuum Shut-off

E. #176-630 ..... -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.

F. Dual Outlet: For use with Twin Carbs or Nitrous, with reserve.
- **#176-331** ..... Chrome Finish, with 22mm Coupling Nut for '75-'06 H-D® Tanks
- **#176-325** ..... Aluminum Finish, with 3/8" NPT Male Threads

G. #176-523 ..... In-Line Fuel Valve: Remote mount, in-line fuel valve includes mounting locknut.

H. Single Outlet **#176-315** Dual Outlet **#176-335** Race Fuel Valve: On/Off Only, No reserve. Male 3/8" NPT Mounting, Aluminum Finish.

I. #176-001 ..... 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 Carburetor Kit

Designed to be used on a stock, unmodified Keihin CV carb for improved throttle response and overall performance. Previously modified carburetors may require installation of stock needle jet, jet holder and needle for proper operation with this kit.

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

Keihin CV Low Speed Jets (Sold Each)

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**

Keihin CV Main Jets (Sold Each)

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**		

JET TOOL FOR KEIHIN JETS

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

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
#162-508	EFI: '08-'13 Touring mdls (OE#29633-08)
#162-608	EFI: '08-up Dyna® mdls (OE#29191-08)
#162-149	EFI: '00-'10 FXST, '04-'07 FXD, '02-'07 Touring mdls (OE#29461-99)
#162-889	EFI: '99-'01 Touring mdls (Marelli EFI), (OE#29462-99)
#162-149	Carb: '99-'06 TC® engs, (OE#29461-99)
#162-139	Carb: '90-'99 EV BT (OE#29259-91A)
#162-395	EFI: '95-'98 EV BT (OE#29291-95)
#162-834	'04-'13 Sportster® (OE#29331-04)
#162-138	'88-'03 Sportster® (OE#29331-96)
#162-910	K&N for All XR1200 Models
#162-112	'02-'14 V-Rod® (OE#29437-01)

PART NO.	NON-STOCK APPLICATIONS
#162-800	SE Stage I Carb '99-'06 mdls, EFI '01-'14 FXST, '02-'07 Touring, '04-'07 FXD EFI TC® (OE#29442-99, 29400020)
#162-818	SE Stage I '08+TBW EFI (OE#29244-08, 29400019)
#162-808	SE Stage I '08-up Dyna® (OE#29385-08, 29400021)
#162-910	SE '09+ CVO ventilator
#162-900	SE Stage I '04-'14 Sportster® (OE#29044-04B)
#162-226	S&S E/G carbs
#162-225	S&S B/D carbs
#162-621	Crankcase filter, 3/8" hose (single)

K&N® Filter Service Kit

#062-500 2-part kit includes cleaning solution that is uniquely formulated to clean the gauze media without damage, and oil that is applied after cleaning that traps dirt without hindering airflow.

EXHAUST SYSTEMS

During the development of our engine kits, 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.

Louvered - Original louvered baffle design, unwrapped except where noted (Q). **Loud**, but with wrist-manageable exhaust note; provides broadest torque curve without sacrificing horsepower output when used with stock or modified engines (our favorite!).

Q Big Bore - High flow perforated, big bore design with acoustical wrapping. **Louder** exhaust note and higher flow than the louvered version. Designed for the rider with increased displacement and extensive performance modifications who wants a power curve with emphasis on maximum high rpm output.

Perforated Big Bore - High flow perforated, big bore design without acoustical wrapping. **Loudest** exhaust note and most flow. Designed for the rider with increased displacement and extensive performance modifications who wants a power curve with emphasis on maximum high rpm output.

2:1 Fat Cat For Softail® Models

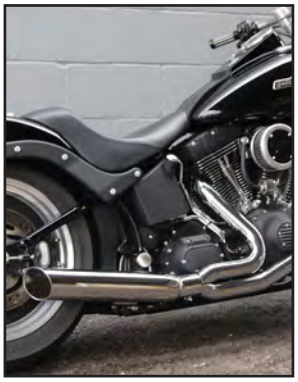
Fat Cats for '84-'11 Softail® models include 18mm oxygen sensor bungs; '12-up models include 12mm oxygen sensor bungs. If your '12-up model will be using a tuner that utilizes 18mm wide-band oxygen sensors (ThunderMax®), order a '84-'11 pipe for the proper model application.

For Softail® models **without** saddlebags.

APPLICATION	LOUVERED	W BIG BORE
Fits '84-'11 FXST, FXCW, FLST/F/N/SB Models, chrome (18mm bungs)	#255-044	#255-041
Fits '12-Up FXS, FLST/F/FB/N Models, chrome (12mm bungs)	#255-774	#255-771
Fits '84-'11 FXST, FXCW, FLST/F/N/SB Models, black (18mm bungs)	#255-046	#255-043
Fits '12-Up FXS, FLST/F/FB/N Models, black (12mm bungs)	#255-776	#255-773

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

APPLICATION	LOUVERED	W BIG BORE
Fits '84-'11 FLSTC Models, chrome (18mm bungs)	#255-734	#255-731
Fits '12-Up FLSTC Models, chrome (12mm bungs)	#255-744	#255-741
Fits '84-'11 FLSTC Models, black (18mm bungs)	#255-736	#255-733
Fits '12-Up FLSTC Models, black (12mm bungs)	#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.

APPLICATION	LOUVERED	W BIG BORE
Low Cat, '00-'11 FXST, FXCW, FLST/F/N/SB Models, chrome (18mm)	#255-384	#255-381
Low Cat, '12-Up FXS, FLST/F/FB/N Models, chrome (12mm bungs)	#255-804	#255-801
Low Cat, '13-Up FXSB Breakout®, chrome (12mm &18mm bungs)	#255-828	N/A
Low Cat, '00-'11 FXST, FXCW, FLST/F/N/SB Models, black (18mm)	#255-386	#255-383
Low Cat, '12-Up FXS, FLST/F/FB/N Models, black (12mm bungs)	#255-806	#255-803
Low Cat, '13-Up FXSB Breakout®, black (12mm &18mm bungs)	#255-829	N/A

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

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' baffles are equipped with acoustical wrapping.

APPLICATION WITH BACK-CUT MUFFLER	Q LOUVERED	Q BIG BORE	W BIG BORE
Fits '09-'16 Touring, chrome back-cut (dual O_2 ports)	#255-901	#255-908	#255-900
Fits '09-'16 Touring, black back-cut (dual O_2 ports)	#255-903	#255-909	#255-902

APPLICATION WITH STUBBY CAT MUFFLER	CHROME	BLACK
Fits '09-'16 Touring Models with Extended Saddlebags, Stubby Cat (12mm & 18mm bungs)	#255-971	#255-973

APPLICATION WITH BACK-CUT MUFFLER	LOUVERED	BIG BORE
Fits '95-'08 Touring Models, chrome back-cut (18mm)	#255-004	#255-001
Fits '95-'08 Touring Models, black back-cut (18mm)	#255-006	#255-003

TRIKE ADAPTER	PART NO.
Fits '09-'16 Trike Adapter / Extensions	#255-905

LEFT SIDE 'GHOST PIPE' WITH BACK-CUT MUFFLER	CHROME	BLACK
Fits '09-'16 Touring Models, Left Side Ghost Pipe back-cut	#255-546	#255-547
Fits '07-'08 Touring Models, Left Side Ghost Pipe back-cut	#255-025	#255-027
Fits '95-'06 Touring Models, Left Side Ghost Pipe back-cut	#255-365	#255-367

Slant 2:1 Fat Cat For Touring Models

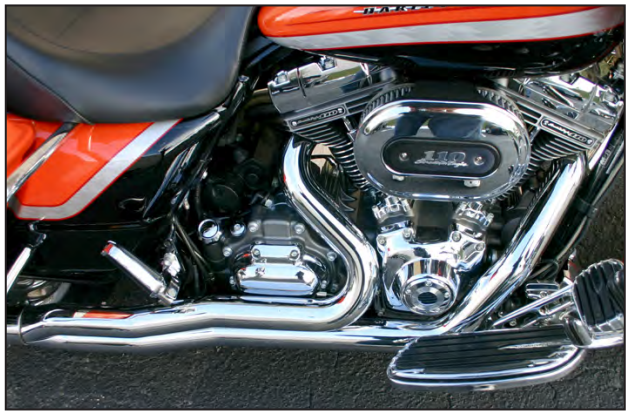
All Touring model 2:1 Fat Cats are equipped with oxygen sensor bungs and are available with traditional 'back-cut' or new 'slant' design muffler tip, which follows the saddlebag angle. For the traditionalist, a non-functional "Ghost" pipe is available for the left side of touring models to keep the dual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

APPLICATION WITH SLANT MUFFLER	Q LOUVERED	Q BIG BORE	W BIG BORE
Fits '09-'16 Touring, chrome slant (dual O_2 ports)	#255-911	#255-918	#255-910
Fits '09-'16 Touring, black slant (dual O_2 ports)	#255-913	#255-919	#255-912

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

APPLICATION WITH SLANT MUFFLER	LOUVERED	BIG BORE
Fits '95-'08 Touring Models, chrome slant (18mm)	#255-014	#255-011
Fits '95-'08 Touring Models, black slant (18mm)	#255-016	#255-013

LEFT SIDE 'GHOST PIPE' WITH SLANT MUFFLER	CHROME	BLACK
Fits '09-'16 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



2:1 Fat Cat For Dyna® Models

Fat Cats for 2006-2016 Dyna® models include both 12mm &18mm oxygen sensor bungs; pipes for 1995-2005 models include 18mm oxygen sensor bungs.

Note: *D&D Fat Cat Exhaust systems for Dyna® Models will not fit 2014-2016 FXDL Models.*

APPLICATION - CHROME FINISH	LOUVERED	W BIG BORE
Fits '12-Up FLD Switchback®, chrome back-cut (12mm & 18mm bungs)	#255-994	#255-991
Fits '12-Up FLD Switchback®, chrome slant-cut (12mm & 18mm bungs)	#255-944	#255-941
Fits '08-'16 FXDF, FXDWG, chrome (12mm & 18mm bungs)	#255-934	#255-931
Fits '06-'16 FXDB/C (not FXDF/FXDWG), chrome (12mm 18mm bungs)	#255-884	#255-881
Fits '95-'05 FXD Dyna® Models, chrome (18mm bungs)	#255-254	#255-251

APPLICATION - BLACK FINISH	LOUVERED	W BIG BORE
Fits '12-Up FLD Switchback®, black back-cut (12mm & 18mm bungs)	#255-996	#255-993
Fits '12-Up FLD Switchback®, black slant-cut (12mm & 18mm bungs)	#255-946	#255-943
Fits '08-'16 FXDF, FXDWG, black (12mm & 18mm bungs)	#255-936	#255-933
Fits '06-'16 FXDB/C (not FXDF/FXDWG), black (12mm & 18mm bungs)	#255-886	#255-883
Fits '95-'05 FXD Dyna® Models, black (18mm bungs)	#255-256	#255-253

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 and full header heat shields; models for '07-Up V-Rods® include 12mm & 18mm oxygen sensor bungs.

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 '02-'05 VRSC/A, /B Models (Forward Controls)	#255-391	#255-393

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® Note: *2012-Up models include 12mm oxygen sensor bungs. If your 2012-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.*

Dyna® Note: *D&D Bob Cat Exhaust systems for Dyna® Models will not fit 2014-2015 FXDL Models.*

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

FOR '06-UP DYNA® MODELS	ALUMINUM	BLACK	CARBON
For '06-'16 Dyna® with Black Headpipes (12mm & 18mm bungs)	#255-851	#255-852	#255-853
For '06-'16 Dyna® with Chrome Headpipes (12mm & 18mm bungs)	#255-856	#255-857	#255-858

FOR '04-UP XL SPORSTER® MODELS (12MM &18MM BUNGS)	ALUMINUM	BLACK	CARBON
With Black Headpipes, Wrapped Performance Baffle	#255-221	#255-222	#255-223
With Chrome Headpipes, Wrapped Performance Baffle	#255-226	#255-227	#255-228

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.

Standard Boarzilla's are equipped with perforated big bore muffler baffles, choose 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). Exclusive to Zipper's are Boarzillas for '09-up Touring models equipped with a wrapped, louvered baffle for super-strong mid-range power - great for road riders that want the widest power curve available.

2:1 Boarzilla For Touring Models

These Boarzillas for Touring models include oxygen sensor bungs and big bore perforated baffles.

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, lower 12mm) with caps*

These Boarzillas for Touring models include oxygen sensor bungs and wrapped (Q) louvered baffles.

APPLICATION	CHROME	BLACK
Fits '09-up FL Touring Models, back-cut, 'Q' louvered baffle	#255-704	#255-706
Fits '09-up FL Touring Models, top slant, 'Q' louvered baffle	#255-714	#255-716

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 '07-'08 Touring Models, top slant Ghost Pipe	#255-038	#255-039
Fits '95-'06 Touring Models, back-cut Ghost Pipe	#255-666	#255-668
Fits '95-'06 Touring Models, top slant Ghost Pipe	#255-664	#255-665

2:1 Boarzilla For Softail® Models

Upswept muffler design will not fit with factory FLSTC saddlebags. These Boarzillas for '84-up Softail® models include both 12mm & 18mm oxygen sensor bungs.

APPLICATION - CHROME FINISH	'Q' BAFFLE	BIG BORE
Fits '84-Up Softail® (except FXSB) Models, chrome (12mm &18mm bungs)	#255-787	#255-786
APPLICATION - BLACK FINISH	**'Q' BAFFLE**	**BIG BORE**
Fits '84-Up Softail® (except FXSB) Models, black (12mm &18mm bungs)	#255-789	#255-788

2:1 Boarzilla For Dyna® Models

Upswept muffler design improves cornering clearance but may interfere with saddlebags. Boarzillas for '06-Up models include 12mm & 18mm oxygen sensor bungs.

APPLICATION - CHROME FINISH	'Q' BAFFLE	BIG BORE
Fits '08-'16 FXDF, FXDWG models, chrome (12mm & 18mm bungs)	#255-267	#255-266
Fits '06-'16 FXDB, FXDC models, chrome (12mm & 18mm bungs)	#255-261	#255-260
Fits '95-'05 Dyna® models, chrome (18mm bungs)	#255-308	#255-300
APPLICATION - BLACK FINISH	**'Q' BAFFLE**	**BIG BORE**
Fits '08-'16 FXDF, FXDWG models, black (12mm & 18mm bungs)	#255-269	#255-268
Fits '06-'16 FXDB, FXDC models, black (12mm & 18mm bungs)	#255-263	#255-262
Fits '95-'05 Dyna® models, black (18mm bungs)	#255-309	#255-302

Zipper's Performance Products ● 6655-A Amberton Drive, Elkridge, MD 21075 ● (410) 579-2828

D&D Slip-On Mufflers For Touring Models

Beautifully chromed slip-on mufflers provide more power and torque while enhancing that great Harley® sound. These mufflers are equipped with D&D's wrapped Vortex baffle; 4" mufflers have a 2.5" baffle I.D., while 3.5" mufflers have a 2" core baffle. Designed for factory headpipes or any headpipe that is designed to accept factory-size muffler inlets. Available in chrome or black finish, with your choice of straight, back-cut (longer at top) or slant muffler cut (longer at bottom). New for 2015 - Vortex mufflers are available with interchangeable tips! Order mufflers and tips separately.

4" VORTEX SLIP-ON MUFFLERS	CHROME	BLACK
'95-'16 Touring 4" Vortex Back-Cut Mufflers, pr	#255-478	#255-479
'95-'16 Touring 4" Vortex Slant-Cut Mufflers, pr	#255-476	#255-477
'95-'16 Touring 4" Vortex Boss Straight-Cut Mufflers, pr	#255-474	#255-475

4" VORTEX MUFFLERS FOR INTERCHANGEABLE TIPS	CHROME	BLACK
'95-'16 Touring 4" Vortex Mufflers w/o tips, pair	#255-680	#255-685
4" 30° slash tip (install up or down), SOLD EACH (2 req'd)	#255-681	#255-686
4" Straight round tip, SOLD EACH (2 req'd)	#255-682	#255-687
4" Fish Mouth tip, SOLD EACH (2 req'd)	#255-683	#255-688

3.5" VORTEX SLIP-ON MUFFLERS	CHROME	BLACK
'95-'16 Touring 3.5" Vortex Back-Cut Mufflers, pr	#255-091	#255-093
'95-'16 Touring 3.5" Vortex Slant-Cut Mufflers, pr	#255-087	#255-089
'95-'16 Touring 3.5" Vortex Straight-Cut Mufflers, pr	#255-083	#255-085

3.5" VORTEX MUFFLERS FOR INTERCHANGEABLE TIPS	CHROME	BLACK
'95-'16 Touring 3.5" Vortex Mufflers w/o tips, pair	#255-690	#255-695
3.5" 30° slash tip (install up or down), SOLD EACH (2 req'd)	#255-691	#255-696
3.5" Straight round tip, SOLD EACH (2 req'd)	#255-692	#255-697
3.5" Fish Mouth tip, SOLD EACH (2 req'd)	#255-693	#255-698

D&D Slip-On Mufflers For Sportster®

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 SPORTSTER®	SLASH CHROME	SLASH BLACK	STRAIGHT CHROME	STRAIGHT BLACK
Fits '14-'16 XL Sportster® models	#255-470	#255-471	N/A	N/A

Zipper's 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 220º 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 Zipper's or other bagger muffler set.

CHROME	BLACK	DESCRIPTION
#242-065	#242-085	For '09-'16 Touring models
#242-060	#242-080	For '99-'08 Touring models
#242-066	N/A	Tri-Glide® exhaust adapter set

NOTE: *Installation on 2010-Up models eliminates the factory-installed catalytic converter from the system. Does not include exhaust gaskets, order separately.*

4" Zipper's Touring & Performance Mufflers

These unique 4" mufflers for Touring models from Zipper's 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.

PART NO.	DESCRIPTION
#242-700	Chrome '95-'16 4" back-cut mufflers with touring baffle inserts, pair
#242-705	Chrome '95-'16 4" back-cut mufflers with performance baffle inserts, pair
#242-780	Black '95-'16 4" back-cut mufflers with performance baffle inserts, pair
#242-704	Replacement touring baffle inserts, pair
#242-708	Replacement performance baffle inserts, pair
#242-712	Replacement louvered baffle inserts, pair

Zipper's Performance Products ● 6655-A Amberton Drive, Elkridge, MD 21075 ● (410) 579-2828

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.

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	**I.** 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
#272-201	18mm Angled bung only, ea
#272-203	18mm Bung Caps only, 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

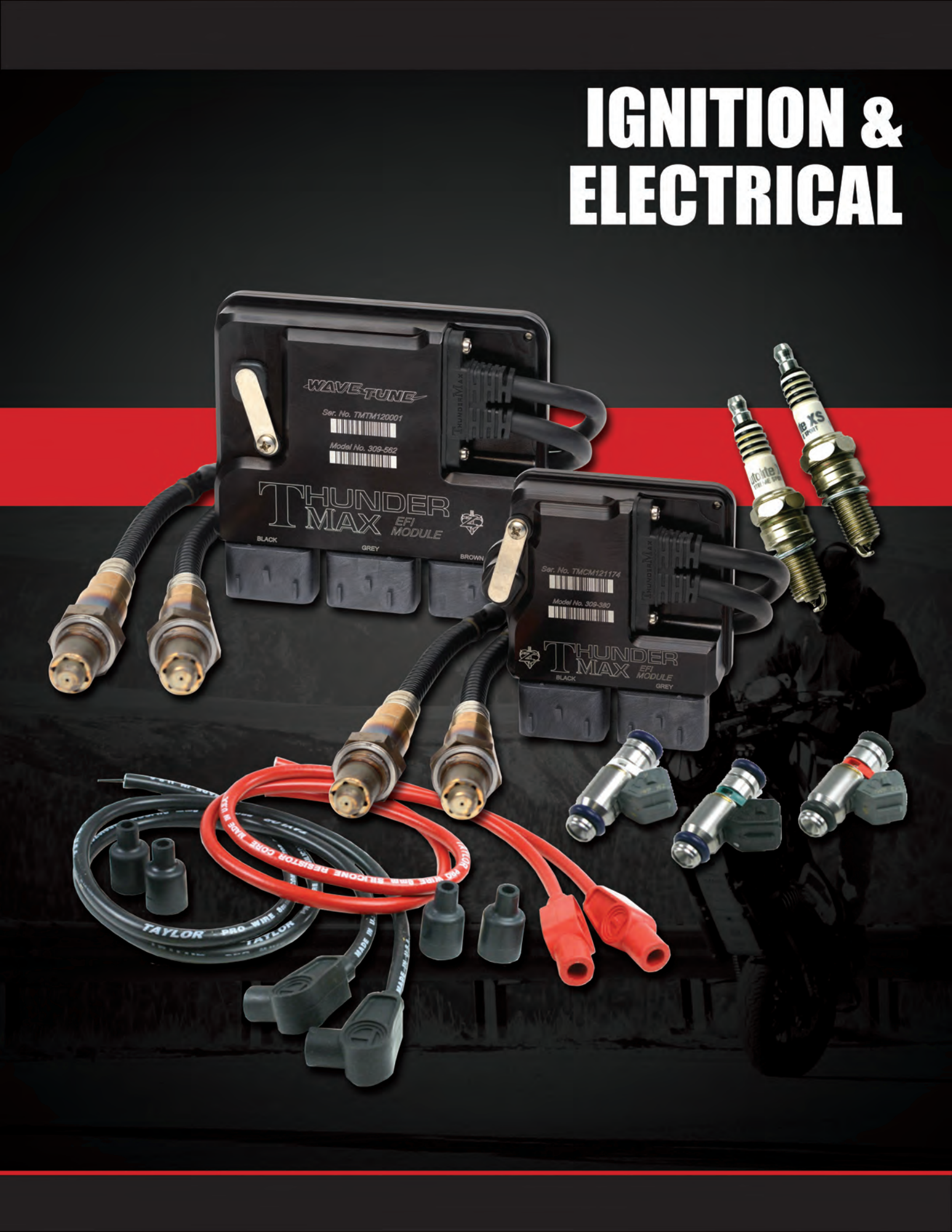
For the racer or exhaust fabricator, Zippers is stocking mandrel-bent sections of 18 ga. exhaust tubing ("J" bends) & straight tubing in 2", 2-1/8", 2-1/4", 2-3/8" & 2-1/2" sizes. Cut and weld to fabricate the special exhaust that you need - but can't buy. "J" bend legs are 10" on the short side, 20"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

SIZE	RADIUS ID	P/N J-BEND
1 3/4" Tubing	4"	**#222-175**
1 7/8" Tubing	4"	**#222-187**
2" Tubing	4"	**#222-200**
2-1/8" Tubing	4"	**#222-210**

SIZE	RADIUS ID	P/N J-BEND
2-1/4" Tubing	3-3/4"	**#222-220**
2-3/8" Tubing	3.5"	**#222-230**
2-1/2" Tubing	3.5"	**#222-250**
3" Tubing		**N/A**

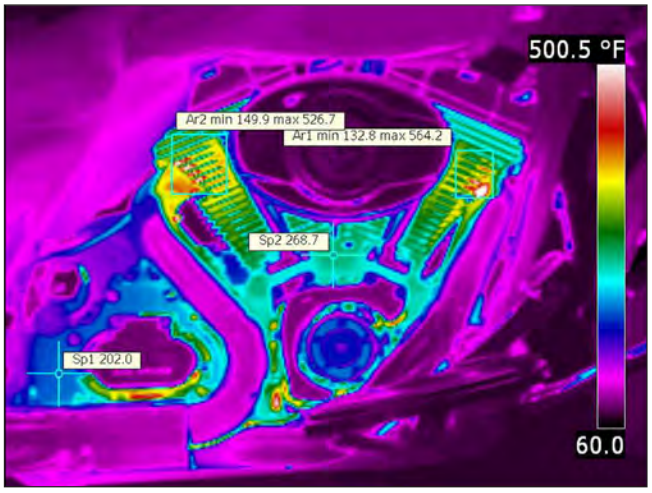
Notes

IGNITION & ELECTRICAL

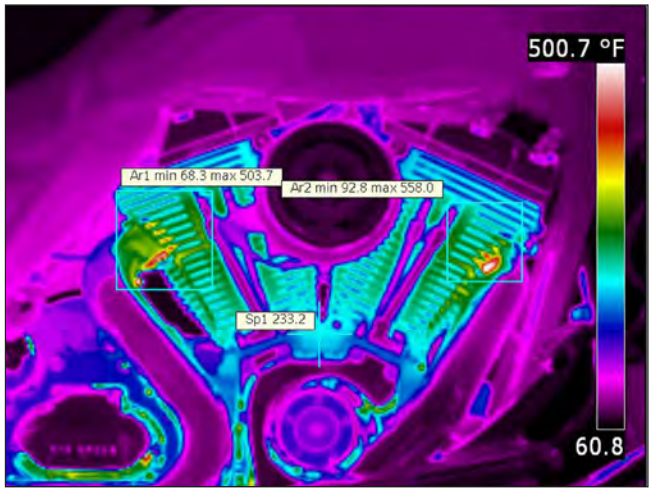


ThunderMax® is Key to A Cooler Running Engine

Thermal images show an air cooled H-D® engine with an unstable Air/Fuel Ratio vs. the ThunderMax® equipped engine with AutoTune.



Slide 1: Shows the excessive, high-heat environment in which a typical air cooled H-D® engine normally operates - Very uncomfortable for the rider!



Slide 2: Shows a ThunderMax® equipped engine with AutoTune; Note the cooler operating temperature resulting from a properly balanced fuel curve - Much more comfortable for both rider and passenger!

THUNDER MAX BUY FROM THE PROS!

ThunderMax® is an industry award winning, performance ECM designed specifically for EFI equipped Harley Davidson® motorcycles. This highly advanced, stand-alone tuning system utilizes proprietary AutoTune technology specificly designed to interface with wide-band oxygen sensors to automaticly adjust a wide range throttle positions and RPM ranges to deliver unmatched performance and driveability like no other product in the industry. ThunderMax® is made in the USA and comes 100% assembled, ready to install with no wire-cutting or splicing required. Simply replace the factory ECM and oxygen sensors, load a map, and enjoy your new ride!

- **Advanced, Rapid Throttle Response**
- **Wide Band Tuning for Better Performance**
- **A Cooler Running Engine**
- **AFR Maintained Regardless of Changes in Ambient Air**

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

Zipper's skill and knowledge of the ThunderMax® product is immense, plus our continued development of engine components and kits with ThunderMax® gives you a huge advantage over institutional suppliers of this technical product.

Touring

PART NO.	TOURING / TRIKE MODEL APPLICATION	THROTTLE TYPE
#309-588	2017 All Touring & Trike Models	Throttle-By Wire
#309-562	2014-2016 All Touring & Trike Models	Throttle-By-Wire
#309-362	2008-2013 All Touring & 2009-2013 Trike Models	Throttle-By-Wire
#309-460	2002-2007 All Touring Models	Cable Throttle

ThunderMax® requires 18mm exhaust sensor ports as used on 2007-2009 models. 2010-2017 (12mm) Touring models must use a 2009 style exhaust or modify the 2010-2017 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.

THUNDER MAX

Softail®

PART NO.	SOFTAIL® APPLICATION	THROTTLE TYPE
#309-563*1	2016-2017 All Softail Models (103 & 110")	Throttle-By-Wire
#309-563*1	2014 FXSBSE **CVO** Breakout, 2014-2015 FLSTNSE **CVO** Deluxe	Throttle-By-Wire
#309-382	2012-2015 Softail 96" & 103" Models except FXSB Breakout	Cable Throttle
#309-383*1	2014-2015 FXSB 103" Breakout	Cable Throttle
#309-363*1	2011-2012 FLSTSE, 2013 FXSBSE **CVO** Softail Models	Throttle-By-Wire
#309-361*1	2011 All Softail 96" & 103" Models	Cable Throttle
#309-485*2	2008-2010 FXCW, FXCWC Rocker Models	Cable Throttle
#309-485*2	2009 FXSTSSE2 **CVO** Springer Softail	Cable Throttle
#309-460	2001-2010 All Softail Models	Cable Throttle
#309-456	6-Pin Data Port Communication Device	

*1 Due to inaccessible communication cable port on ECM once installed on Breakout® and 2011 FXCWC Rocker® models, #309-456 data port communication harness is required (purchase separately).

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

ThunderMax® requires 18mm exhaust sensor ports as used on 2007-2011 models. 2012-2017 (12mm) Softail® models must use a 2007-2011 style exhaust or modify the 2012-2017 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.

Dyna®

PART NO.	DYNA® APPLICATION	THROTTLE TYPE
#309-563	2016-2017 All 110" Dyna FXDLS models with Electronic Throttle	Throttle-By-Wire
#309-382	2012-2017 All 96"/103" Dyna® Models	Cable Throttle
#309-563	2016 FXDLS 110" Models	Throttle-By-Wire
#309-485*1	2004-2011 All Dyna® Models	Cable Throttle

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

ThunderMax® requires 18mm exhaust sensor ports as used on 2006-2011 models. 2012-2017 (12mm) Dyna® models must use a 2007-2011 style exhaust or modify the 2012-2017 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.

Sportster®

PART NO.	SPORTSTER® APPLICATION	THROTTLE TYPE
#309-382*1	2014-2017 All Sportster® XL Models	Cable Throttle
#309-485*2	2010-2013 All Sportster® XL Models	Cable Throttle
#309-485	2008-2012 XR1200® Models	Cable Throttle
#309-460	2007-2009 All Sportster® XL Models	Cable Throttle

*1 2014-2017 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.

Street® 500/750

PART NO.	STREET® 500 & 750 APPLICATION	THROTTLE TYPE
#309-384	2015-2017 Street® 500 & 750 Models	Cable Throttle

V-Rod®

PART NO.	V-ROD® APPLICATION	THROTTLE TYPE
#309-466*1	2002-2017 V-Rod® Models	Cable Throttle

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

ThunderMax® requires 18mm exhaust sensor ports as used on 2008-2011 models. 2012-2017 (12mm) V-Rod® models must use a 2008-2011 style exhaust or modify the 2012-2017 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.

ThunderMax® Communication Device

Required to commuicate with with ThunderMax® Modules that are unaccessable on the motorcycle.

4-Pin DATA-BUS #309-454 **6-Pin CAN-BUS #309-456**

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 the 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 automatically adjusting the air/fuel ratio, 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
#117-344[*1]	'99-'01 TC 44mm Conversion kit w/AutoTune (88"-95")
#117-351[*1]	'99-'01 TC 51mm Conversion kit w/AutoTune (95"-103")
#117-354[*1]	'99-'01 TC 55mm Conversion kit w/AutoTune (107"-up)
#117-361[*2]	'95-'98 EV 51mm Conversion kit w/AutoTune (80"-up)
#117-364[*2]	'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)*

THUNDER MAX

Made In USA RACE ONLY

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, 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.

THUNDER MAX

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

Zipper's Performance Products • 6655-A Amberton Drive, Elkridge, MD 21075 • (410) 579-2828

XMS by ThunderMax® for Throttle-By-Wire Touring Models

EXHAUST MATCHED SERIES

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 ThunderMax® 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

EFI Made Simple.

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!

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 diagnostic trouble codes**

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 with 96" engine

ThunderMax® Communication Device

Required to commuicate with with ThunderMax® Modules that are unaccessable on the motorcycle.

4-Pin DATA-BUS #309-454 **6-Pin CAN-BUS #309-456**

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® 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

#372-002 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/7/8.

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 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.

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.

 # 309-330 *For All Models*

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*
#272-201 *Angled bung only, each*
#272-204 *12mm Bung Cap set. For 2010-up Touring, 2012-up Softail®, Dyna® and V-Rod® & 2014-up XL/ Sportster® models with stock sensors removed*

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

PART NO.	DESCRIPTION
#172-422	4.22 gr/sec (Big Twin stock replacement) white band
#172-481	4.81 gr/sec (V-Rod® stock replacement) turquoise band
#172-620	6.20 gr/sec (high flow replacement) yellow band
#172-670	6.70 gr/sec (high flow replacement) pink band

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 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**

Fuel Rail Kit
Stock replacement. Fits '06-up Delphi® injected Big Twin models with cable-actuated throttle body. **#150-651**

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

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

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

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**

Manifold Absolute Pressure (MAP) Sensor
Replaces OE32316-99 **#395-316**

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 Dyna®. **#395-062**

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**

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**

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

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**

TracMax by ThunderMax®

TracMax by ThunderMax is an easy to install ABS wheel size correction module that is designed to help you regain full ABS functionality on your 2014-2016 Harley Davidson® Touring and 2015-2016 Softail® models that have been equipped with an aftermarket big front wheel kit.

TracMax comes 100% assembled, ready to install with no wire-cutting or splicing required - installs in under 15 minutes. Simply plug the TracMax into the factory ABS wiring harness and it seamlessly corrects the wheel speed signal of the front wheel based on wheel diameter.


#309-073


#309-074


#309-075


#309-076

PART NO.	DESCRIPTION
#309-021	21” Front Wheel, 2014-2016 Touring models, 2015-2016 Softail® models
#309-023	23” Front Wheel, 2014-2016 Touring models, 2015-2016 Softail® models
#309-026	26” Front Wheel, 2014-2016 Touring models, 2015-2016 Softail® models
#309-030	30” Front Wheel, 2014-2016 Touring models, 2015-2016 Softail® models
#309-073	TracMax Harness for Required for 2015-Up Softail®
#309-074	TracMax Harness for Required for 2014 FLHRSE®
#309-075	TracMax Harness for Required for 2014-Up FLHR models
#309-076	TracMax ‘Y’ Power Adapter Harness

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

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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.

PART NO.	DESCRIPTION
309-575	Zipper's Drag Ignition, for '04-'06 carbureted Big Twin and Sportsters®

ZIPPER'S PERFORMANCE PRODUCTS

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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 *(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. Optional Curvemaker software kit including communication cable allows the user to custom program the module using a PC.

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

PART NO.	DESCRIPTION
#366-294	Dyna TC88-3 digital ignition module, '04-'06 TC88
#366-209	Dyna DSPT-1 digital ignition module, '04-'06 XL

RACE ONLY Made In USA

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 XL
#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

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.

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'94 & EARLIER W/7-PIN PLUG	'94-'99 W/8-PIN PLUG	DESCRIPTION
#366-201	**#366-218**	Dyna 2000HD-1 single/dual fire ignition
#366-202	**#366-228**	Dyna 2000HD-2 dual fire only module

Ignition Wiring Harness

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 pin 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 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)

PART NO.	PINGEL 2-PIECE BILLET MOUNTING BRACKET FOR DYNA SHIFT LIGHT
#376-664	Clamps to Handlebar as Shown for 7/8" bar
#376-674	Same as Above for 1" bar

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.

PART NO.	DESCRIPTION
#317-105	Zipper's Thunderbolt Nosecone Ignition Module
#317-105K	Zipper's Thunderbolt Nosecone Ignition Module, Kickstart models
#399-110	Zipper's Thunderbolt USB Software & Interface Cable

RACE ONLY Made In USA
ZIPPER'S PERFORMANCE PRODUCTS

Twin Tec Sportster® Ignition

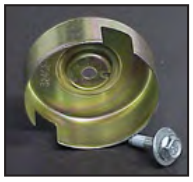
The Twin Tec ignition module for 1998-2003 Sportster® engines is a totally self contained programmable ignition that fits within the cam cover, and is wire-terminated for use with the factory wiring harness. Two advance curve families with adjustable advance slopes can be programmed using the external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

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.

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Dyna 2000i Programmable Ignition

The Dyna 2000i-1P programmable ignition module fits under the cam cover on 1970-1999 engines. Manufactured with premium quality components specifically designed for operation in a high temperature / high vibration environment. Features include single fire operation down to zero rpm for easier cranking and kicking. When used with appropriate coils, the 2000i will operate in all combinations of single fire or dual fire with single plug or dual plug heads. You 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.


#330-153

PART NO.	DESCRIPTION
#366-961	Dyna 'S' DS6-1Dual-Fire ignition
#366-962	Dyna 'S' DS6-2 Single-Fire ignition
#366-001	Tach adaptor for single-fire ignition
#330-153	Domed point cover, chrome. Eases installation of Dyna 'S' ignitions in Evolution® engines

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


#366-413

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!*

#366-415

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.

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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

#366-417

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.

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

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
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.	
#366-911	.7 ohm, dual outlet, (blue) use with Dyna 4000 only
#366-311	3.0 ohm, single outlet (green)
#366-111	3.0 ohm, dual outlet, (green)
#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.

PART NO.	DESCRIPTION
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.	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

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/90º 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®
#338-855	Wire set, '85-'95 FLT, FLHT
#338-858	Wire set, '91-'99 FXST
#338-859	Wire set, Twin Cam® universal

Some products on this page are not for sale or use on pollution controlled vehicles.

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

#730-155

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

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

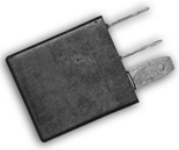

#395-010


#395-012


#395-014


#395-015


#395-016


#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

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

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

Some products on this page are not for sale or use on pollution controlled vehicles.

Starter Drive Gear

PART NO.	DESCRIPTION
#395-033	Starter clutch, ’91-06 BT, ’91-up XL (OE# 31663-90)
#395-032	Starter drive gear for ‘67-’80 XL, ‘65-’88 Big Twin (OE# 31443-65A)

#395-040

#395-042

#395-044

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)

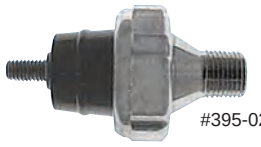
#395-046

#395-048

#395-041
#395-049

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)



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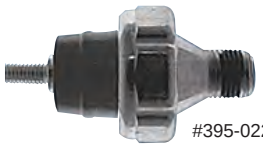

#395-022

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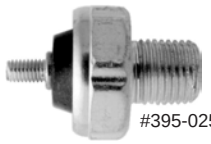


#395-025

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

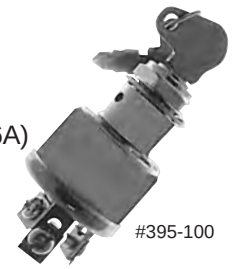
#395-034

#395-036

#395-038

Ignition Switches

PART NO.	DESCRIPTION
395-100	Ignition Switch, universal 3-way
395-102	Ignition Switch, FXST, FXDWG, FLHR (OE# 71313-96,-96A)



#395-100

#395-102

Miscellaneous Electrical

PART NO.	DESCRIPTION
#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
#395-054	2-Pole Connector, 12”, 18 gauge wire, universal use. Plugs into Battery Tender® lead for 12v power source.

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.

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)

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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.

PART NO.	APPLICATION – 32A SYSTEM
#347-522	32 amp 99-03 Carb FXD, '00 FXST Twin Cam®
#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.

PART NO.	32A COMPONENTS
#347-600*	Rotor, 32 amp '81-'99 EV w/H-D® crankshaft (OE# 29957-81B)
#347-650*	Rotor, 32 amp '81-'99 EV w/aftermarket crankshaft
#347-534	Stator, 32 amp, '99-'03 Carb FXD, '00 FXST Twin Cam® (OE# 29951-99)
#347-530*	Stator, 32 amp, '89-'99 Carb EV Big Twin (OE# 29970-88)
#347-120*	Regulator, Black, 32 amp '89-'99 (OE# 74519-88A)
#347-130*	Regulator, Chrome, 32 amp '89-'99 (OE# 74519-88A)

**1981-1988 model Big Twins can upgrade to 32 amp using these components*

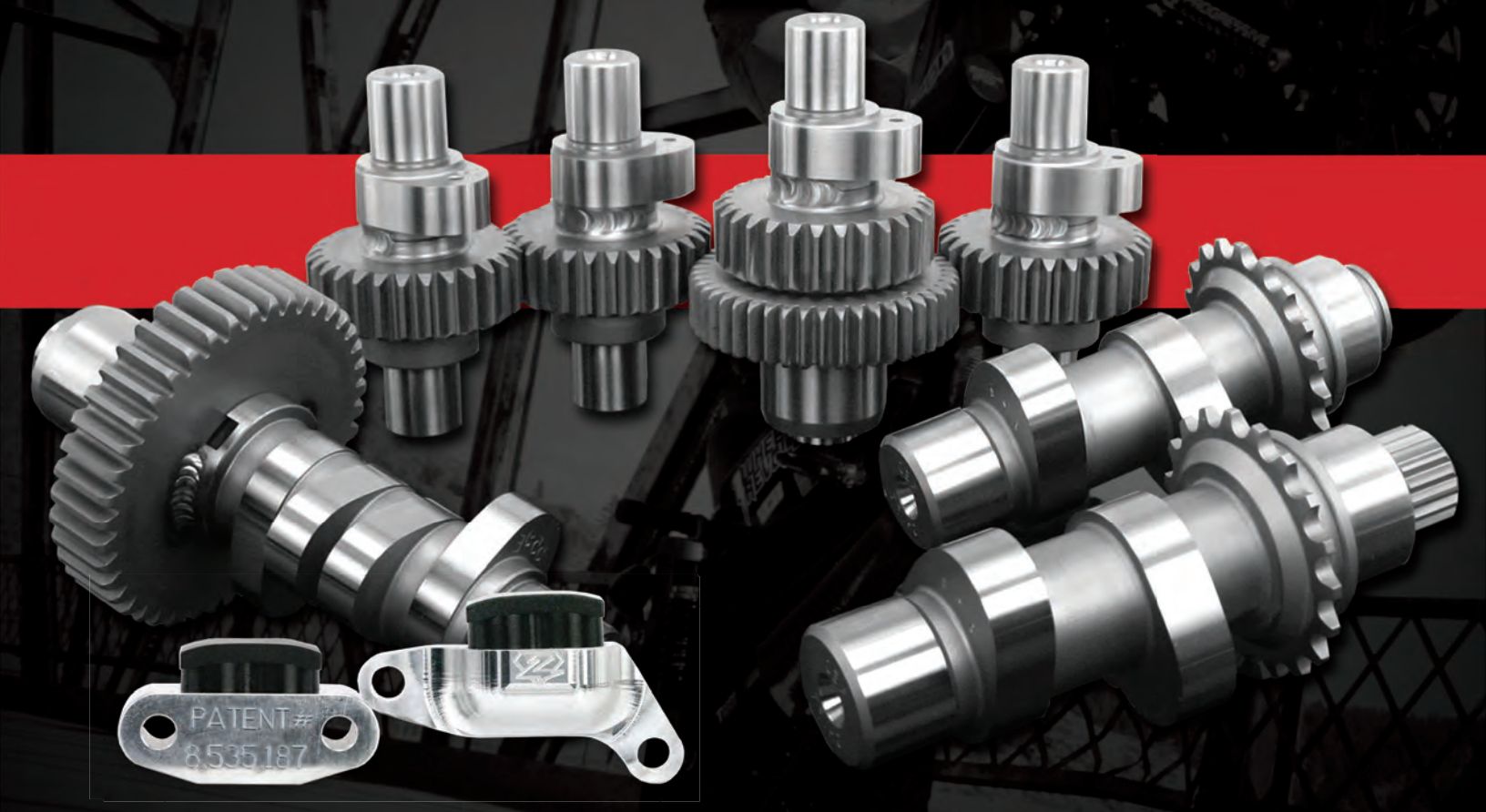
PART NO.	STOCK REPLACEMENT
#347-121	Regulator, Black 22 amp '81-'88 Big Twin (OE# 74516-86)
#347-125	Regulator, Black 22 amp '91-'99 Sportster® (OE# 74523-91)

Terry Components Battery Cables

These are the finest battery cables we've ever used. Made from 1650 strands of 44-gauge super flexible tinned copper wire, and covered with an equally flexible black silicone jacket. Designed to deliver all available amperage from your battery to the starter without voltage drop. Ends are finished with 99.9% pure electrolytic copper lugs, securely fastened for maximum durability and conductivity. Rated at 600 volts!

PART NO.	DESCRIPTION
#372-107	7" Terry Components Black Battery Cable
#372-108	8" Terry Components Black Battery Cable
#372-109	9" Terry Components Black Battery Cable
#372-110	10" Terry Components Black Battery Cable
#372-111	11" Terry Components Black Battery Cable
#372-112	12" Terry Components Black Battery Cable
#372-113	13" Terry Components Black Battery Cable
#372-114	14" Terry Components Black Battery Cable
#372-115	15" Terry Components Black Battery Cable
#372-116	16" Terry Components Black Battery Cable
#372-117	17" Terry Components Black Battery Cable
#372-125	25" Terry Components Black Battery Cable
#372-132	32" Terry Components Black Battery Cable

CAM & VALVE TRAIN

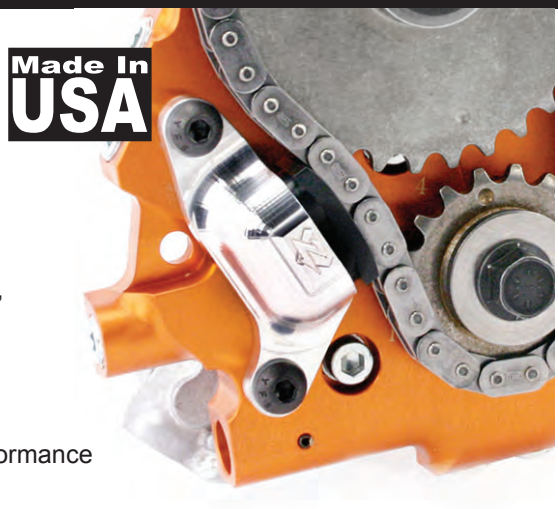


RED SHIFT
PERFORMANCE CAMSHAFTS

For over 3 decades, Red Shift Cams have been the choice of high performance engine builders. The late legendary engine builder and Red Shift cam designer Dick Hilferty was always 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.**

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 tensioner stability, hydraulic performance, and more control of the valve train 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

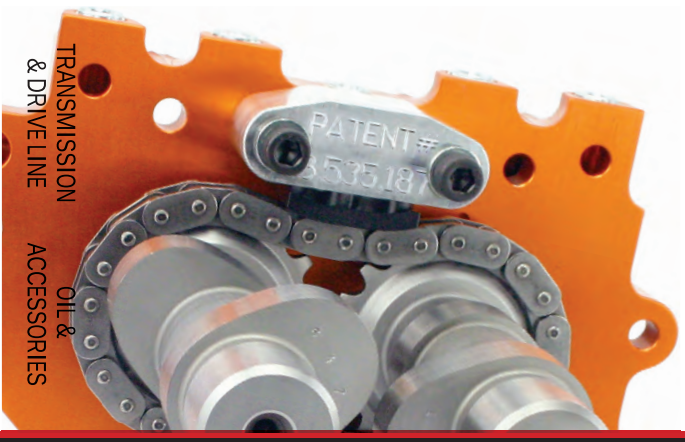
RED SHIFT
PERFORMANCE CAMSHAFTS

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 reduces 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. 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 CAMSHAFTS

Red Shift Cams Twin Cam® Application Matrix for 2007-Up Engines

Displacement		96	103	107	CVO110	117	120	120R	124	131
Bore		3.750"	3.875"	3.937"	4.00"	4.125"	4.125"	4.060"	4.125"	4.312"
Stroke		4.375"	4.375"	4.375"	4.375"	4.375"	4.500"	4.625"	4.625"	4.500"
Factory Stock Engine, Unmodified Heads & Compression	Early Torque	525	525	527	587			657		
	Balanced TQ / HP	527 575	527 575	575	587			627		
Modified Street PUMP GAS Modified Heads, Increased Compression	Early Torque	527	527	575* 576*	576	577	657	657	657	657
	Balanced TQ / HP	575* 576*	575* 576*	577	657	657	627	627	627	627
	Big HP	577	577 627	657	657 687	657	647 687	647 687	647 687	647 687
Race Only High Compression, Race Fuel	Balanced TQ / HP		657		647	657	627	627	627	627
	Big HP		627 647		687 727	627, 647 or 687	627, 647 or 727	627, 647 or 727	627, 647 or 727	627, 647 or 727

v.20170102

*RS575 for OE Beehive Spring Setups (7mm) 18245-02; RS576 for Heavy Duty Aftermarket Spring Setups or OE CVO110 Springs

Red Shift Cam Specs for 2007-Up Twin Cam® Engines

Part Number	Cam Name	Valve	Opening @ 0.053	C/L	Closing @ 0.053	Duration	TDC Lift @ Valve	Total Lift @ Valve	Model Year	Bolt-In?	Recommended Valve Spring
413-905	RS 525	Intake	12	92	18	210	0.139	0.475	07-Up	Yes	OE 7mm Beehive (18245-02)
		Exhaust	36	104	13	229	0.139	0.525			
413-907	RS 527	Intake	18	100	36	234	0.170	0.525	07-Up	Yes	OE 7mm Beehive (18245-02)
		Exhaust	42	106	12	234	0.138	0.525			
413-926	RS 575	Intake	25	97	41	246	0.200	0.575	07-Up	Yes	OE 7mm Beehive (18245-02)
		Exhaust	49	105	17	246	0.157	0.575			
413-929	RS 576	Intake	25	97	41	246	0.215	0.576	07-Up	Yes CVO110 ONLY	CVO110 or 538-111
		Exhaust	49	105	17	246	0.162	0.576			
413-921	RS 577	Intake	25	100	47	252	0.214	0.577	07-Up	No	538-111 or 528-972 / 973
		Exhaust	49	104	23	252	0.197	0.577			
413-933	RS 587	Intake	19	98	35	234	0.186	0.590	07-Up	Yes CVO110 ONLY	CVO110 or 538-111
		Exhaust	43	106	11	234	0.136	0.590			
413-928	RS 627	Intake	30	100	50	260	0.240	0.625	07-Up	No	528-972 / 973
		Exhaust	61	107	27	268	0.207	0.600			
413-931	RS 647	Intake	26	106	58	264	0.211	0.647	07-Up	No	528-972 / 973
		Exhaust	58	106	26	264	0.211	0.647			
413-941	RS 657	Intake	27	99	45	252	0.227	0.658	07-Up	No	528-972 / 973
		Exhaust	51	103	27	258	0.220	0.650			
413-945	RS 687	Intake	35	102	63	278	0.275	0.689	07-Up	No	528-927
		Exhaust	67	110	31	278	0.233	0.689			
413-950	RS 727	Intake	35	105	66	281	0.285	0.727	07-Up	No	528-927
		Exhaust	67	112	34	281	0.269	0.727			

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These Red Shift grinds are developed for use as a system with the engine to produce best results for your particular riding style. We recommend pressure testing cam plates for leaks, valving improvements, new cam bearings and performance tappets when upgrading cams in a Twin Cam® engine. For more advice for your application contact: zippers@zippersperformance.com

**These cams can also be used in 2006 FXD engines.*

525-HS: Extremely popular Early (High)-Torque for 96" and 103" Twin Cam® engines with stock, unmodified heads. Perfect for 96" and 103" 2007-Up Touring models, this cam was developed to deliver immediate passing power in 6th gear at any typical cruising speed. Power starts before 2000 RPM – Bolt-In, Can be used with stock or adjustable pushrods.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 525-HS '07-Up	**#413-905S**	**N/A**

527-HS: High-Torque design developed as a bolt-in cam for 96" to 110" O.E. engines. Delivers smooth and impressive Torque and Horsepower increases over the factory installed cams. Designed to get your motorcycle moving quicker in the areas you ride the most. Power starts at 2250 RPM, for use with OEM "Non-Adjustable" pushrods, or adjustable pushrods.

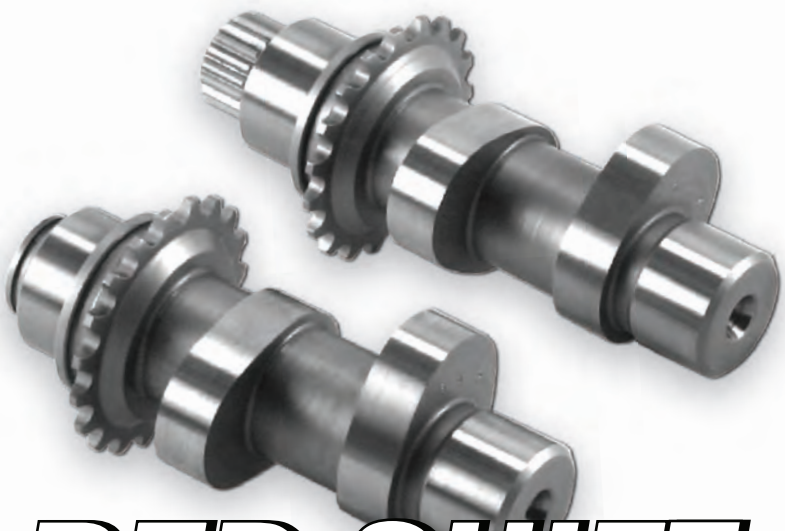
DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 527-HS '07-Up	**#413-907S**	**N/A**

575-HS: A favorite with engine builders, since it can be used in many late model Twin Cam® builds with 7mm valves and factory beehive springs. The RS575 was designed specifically for the OEM beehive spring (18245-02) that's used in all standard Twin Cams® from 2005 on (excluding all CVO models). The proprietary profile design ensures maximum valve train acceleration, which gives the rider a very free-revving experience that begs for more throttle. This is a great cam if you need a bolt-in now, but plan on upgrading the heads and compression in the future. However this cam is most impressive when used with high flowing heads, 10.5:1 compression, yielding a superior balanced torque and horsepower curve. As long as the valve train is light, this is one of the most powerful cams on the market for a Twin Cam® engine.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 575-HS '07-Up	**#413-926S**	**N/A**

576-HS: Developed off of the success of the RS575 cam, but meant to work with the heavier springs and valves that are present in CVO motorcycles and many aftermarket engine builds. The cam timing events are the same as the RS575, which results in the same power output and feel of the proven 575 design. The new profile yields a quiet valve train when used with heavier 5/16" stem valves and higher performance valve springs. This is an excellent cam to use with a CVO110 engine, and really shines when compression and increased airflow are added.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 576-HS '07-Up	**#413-929S**	**N/A**



RED SHIFT
PERFORMANCE CAMSHAFTS

Recommended: Use with **Red Shift® Dual Piston Cam Chain Tensioners (#413-901)** for improved cam chest component reliability, maximum throttle response and reduced valve train noise.

577-HS: Very popular grind for 103-107-110" engines with increased compression, ported heads with upgraded valve springs and larger throttle body. Strong mid-range hit that keeps pulling hard past 6,000 RPM, and great dynamics for long valve train life. Used in our Muscle series engine kits.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 577-HS '07-Up	**#413-921S**	**#413-921G**

587-HS: Designed and optimized to be the best bolt-in cam for the CVO 110 platform, dramatically increasing power and torque across the entire RPM range. Unlike many other cams, the 587 was designed to work with the larger valves and heavier springs that the CVO engines are equipped with. Specially designed cam lobe ramps ensure quiet operation of these heavier parts, while the lobe profiles take advantage of the high flow CVO heads to develop more power to red line.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 587-HS '07-Up	**#413-933S**	**N/A**

627-HS: Aggressive design for high output 103", 107" and larger engine conversions. Compliments ported heads, high-flow throttle body, and exhaust. Static compression range 10.5 and up. Broad torque curve, strong pull to 6,000+ RPM, requires performance valve springs.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 627-HS '07-Up	**#413-928S**	**N/A**

647-HS: For use with 117" and larger high compression engines. Good valve train dynamics for long life while providing power for severe duty use. Compliments high flow heads, intake and exhaust.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 647-HS '07-Up	**#413-931S**	**N/A**

657-HS: Extremely popular grind for 110" and larger modified engines. Max early torque with balanced power for quick acceleration with a heavy payload. Narrower timing increases compression for more low-mid grunt, with excellent peak power. Excellent valve train dynamics for long life, works well with most bagger exhaust.

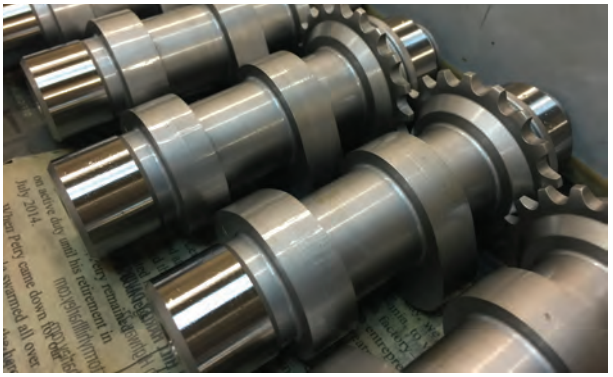
DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 657-HS '07-Up	**#413-941S**	**#413-941G**

687-HS: This new grind was developed for special application high output engines. Less TDC lift than the RS727 cams for easier fitment with popular aftermarket heads. Requires special set ups with high compression, proper valve springs, and a heavy duty oil system. Available in chain or gear drive applications.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 687-HS '07-Up	**#413-945S**	**#413-945G**

727-HS-GD: This is the highest output grind we make, intended for drag racing, LSR or other special high performance applications. Requires highly modified heads with special valve springs, and high compression engines. Extensive set up required for installation. Available in chain or gear drive applications.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 727-HS-GD '07-Up	**#413-951S**	**#413-951G**



RED SHIFT
PERFORMANCE CAMSHAFTS

Red Shift Cams Twin Cam® Application Matrix for 1999-2006 Engines

Displacement		88	95	98	CVO103	107	107	117	120	124
Bore		3.750"	3.875"	3.937"	3.875"	4.125"	3.937"	4.125"	4.125"	4.125"
Stroke		4.000"	4.000"	4.000"	4.375"	4.000"	4.375"	4.375"	4.500"	4.625"
Factory Stock Engine, Unmodified Heads & Compression	Early Torque	511 (99-04) 527 (05-06)	511 (99-04) 527 (05-06)		527					
	Balanced TQ / HP	511 (99-04) 527 (05-06)	511 (99-04) 527 (05-06)		576					
Modified Street PUMP GAS Modified Heads, Increased Compression	Early Torque	511 (99-04) 527 (05-06)	527	527	576	575* 576*	576	577	657	657
	Balanced TQ / HP	511 (99-04) 527 (05-06)	577	577	577	657	577	657	627	627
	Big HP		657	657	657		657	657	647 687	647 687
Race Only High Compression, Race Fuel	Balanced TQ / HP		657	657	657		657	657	627	627
	Big HP		627, 647 or 727	627, 647 or 727	627, 647 or 727		627, 647 or 727	627, 647 or 687	627, 647 or 727	627, 647 or 727

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*RS575 for OE Beehive Spring Setups (7mm) 18245-02; RS576 for Heavy Duty Aftermarket Spring Setups or OE CVO103 Springs

Red Shift Cam Specs for 1999-2006 Twin Cam® Engines

Part Number	Cam Name	Valve	Opening @ 0.053	C/L	Closing @ 0.053	Duration	TDC Lift @ Valve	Total Lift @ Valve	Model Year	Bolt-In?	Recommended Valve Spring
413-903	RS 511	Intake	25	94	33	238	0.207	0.510	99-04	Yes	99-04 Factory Dual Springs
		Exhaust	37	98	21	238	0.185	0.510			
413-906	RS 527	Intake	18	100	36	234	0.170	0.525	99-04	No	OE 7mm Beehive (18245-02)
		Exhaust	42	106	12	234	0.138	0.525	05-06	Yes	
413-925	RS 575	Intake	25	97	41	246	0.200	0.575	99-04	No	OE 7mm Beehive (18245-02)
		Exhaust	49	105	17	246	0.157	0.575	05-06	Yes	
413-923	RS 576	Intake	25	97	41	246	0.215	0.576	99-06	CVO103 ONLY	CVO103 or 538-111
		Exhaust	49	105	17	246	0.162	0.576			
413-920	RS 577	Intake	25	100	47	252	0.214	0.577	99-06	No	538-111 or 528-972 / 973
		Exhaust	49	104	23	252	0.197	0.577			
413-927	RS 627	Intake	30	100	50	260	0.240	0.625	99-06	No	528-972 / 973
		Exhaust	61	107	27	268	0.207	0.600			
413-930	RS 647	Intake	26	106	58	264	0.211	0.647	99-06	No	528-972 / 973
		Exhaust	58	106	26	264	0.211	0.647			
413-940	RS 657	Intake	27	99	45	252	0.227	0.658	99-06	No	528-972 / 973
		Exhaust	51	103	27	258	0.220	0.650			
413-950	RS 727	Intake	35	105	66	281	0.285	0.727	99-06	No	528-927
		Exhaust	67	112	34	281	0.269	0.727			

v.20161215

Zipper's Performance Products • 6655-A Amberton Drive, Elkridge, MD 21075 • (410) 579-2828

Red Shift grinds are developed for use as a system with the engine to produce best results for your particular riding style. Most are available in standard splined chain drive or configured for use with S&S® Gear-Drive gear sets. We recommend pressure testing cam plates for leaks, valving improvements, new cam bearings and performance tappets with upgrading cams in a Twin Cam® engine.

**1999-2006 cams require adjustable pushrods unless noted. These cams cannot be used in 2006 FXD engines.*

All 1999-2006 grinds, except the 511TC, are not designed to be used with the 1999-2004 factory dual spring. Those engines must have a spring upgrade or use 2005-Up conical springs.

511TC: Bolt-in grind for 1999-2004 Twin Cam® 88 or 95" engines, specifically designed for heads with stock valve springs. Exceptional power and torque while maintaining excellent valve train dynamics for quiet operation. Retains factory non-adjustable pushrods, no other modifications required. Big increases in overall power without sacrificing low end torque. Slight increase in cranking compression over stock (from 165 to 175 pounds in an 88" engine).

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 511TC '99-'04	**#413-903S**	**#413-903G**

527TC: New High-Torque design for the 1999-2006 engines. Developed as a bolt-in cam for 88-95-98 CI engines for 2005-2006 engines (requires a valve spring change for 1999-2004 engines). Delivers smooth and impressive torque and horsepower increases over the factory installed cams. This High-Torque cam is designed to get the motorcycle accelerating quicker in the RPM area where most people ride. Can be used with stock or adjustable pushrods. Gear drive option coming soon.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 527TC '99-'06	**#413-906S**	**N/A**

575TC: The power favorite with many engine builders, this cam should be used with the OE conical valve spring or lighter pressure dual springs. This cam is most impressive with added compression and or increased air flow. A very popular grind for hopped up 95-98" engines with added compression and increased airflow, yielding a superior balanced torque and horsepower curve. Adjustable pushrods required.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 575TC '99-'06	**#413-925S**	**#413-925G**

576TC: Developed off of the success of the RS575 cam, but meant to work with the heavier springs and valves that are present in CVO motorcycles and many aftermarket engine builds. The cam timing events are the same as the RS575, which results in the same power output and feel of the proven 575 design. The new profile yields a quiet valve train when used with heavier 5/16" stem valves and higher performance valve springs. This is an excellent cam to use with a CVO103 engine, and really shines when compression and increased airflow are added.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 576TC '99-'06	**#413-923S**	**N/A**

577TC: Performance cams for 95" and larger Twin Cam® engines. Nice, smooth power and big torque in engines with good flowing heads, increased compression (10.0+), performance ignition, exhaust and a larger carb or throttle body. Can produce 105-110 rear wheel horsepower and torque in 95" engines. Adjustable pushrods and performance valve springs required.

DESCRIPTION	CHAIN DRIVE	GEAR DRIVE
Red Shift 577TC '99-'06	**#413-920S**	**#413-920G**

627TC: Aggressive design for high output 103" and larger engine conversions. Compliments ported heads, high-flow throttle body, and exhaust. Static compression range 10.5+. 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 for 117", 120" and 124" engines, standard equipment in our 1999-2006 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 – broad power, 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 big engine performance enthusiasts who require a wide, usable power curve and strong top end charge with excellent valve control. Recommended engine size 116" and up; 10.5:1+ 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: The hottest Twin Cam® cam grind we make, intended for drag racing, LSR or other special high performance applications. Requires highly modified heads with special valve springs, and high compression engines. 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**

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*

AP 21: Bolt-in cam: More torque for all around riding with heavy bikes, stock compression ratios and stock pistons (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 55: Great cam for 95 inch engines with 9.8 to 10.2 CR. Max HP - torque at mid and upper RPM's (2600-6200).

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 to10.8 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®

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?
AP 21	Intake	10	30	220	0.134	0.498	No Bolt-In
	Exhaust	40	8	228	0.121	0.498	
AP 26	Intake	11	35	226	0.138	0.490	No Bolt-In
	Exhaust	41	9	230	0.120	0.490	
AP 31	Intake	10	46	236	0.131	0.510	No Bolt-In
	Exhaust	52	8	240	0.120	0.510	
AP 32	Intake	10	46	236	0.131	0.570	No Bolt-In
	Exhaust	52	8	240	0.120	0.570	
AP 37	Intake	18	38	236	0.174	0.510	No Bolt-In
	Exhaust	46	14	240	0.148	0.510	
AP 50	Intake	20	48	248	0.184	0.510	No* CK TDC
	Exhaust	54	18	252	0.168	0.510	
AP 55	Intake	22	46	248	0.197	0.550	Yes* 0.620" F.T.
	Exhaust	52	20	252	0.181	0.550	
AP 60	Intake	24	56	260	0.205	0.560	Yes* 0.620" F.T.
	Exhaust	58	22	260	0.192	0.560	
AP 54	Intake	16	42	238	0.165	0.555	Yes* 0.615" F.T.
	Exhaust	43	15	238	0.158	0.555	
AP 67	Intake	24	48	252	0.165	0.570	Yes* 0.630" F.T.
	Exhaust	58	22	260	0.158	0.570	
AP 59	Intake	29	57	266	0.238	0.590	Yes* 0.650" F.T.
	Exhaust	63	27	270	0.218	0.590	
AP 64	Intake	30	62	272	0.262	0.640	Yes* 0.700" F.T.
	Exhaust	66	30	276	0.232	0.640	

*Valve-to-piston and valve-to-valve clearances must be verified on these grinds.

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	**#416-308**	4-pc inner/outer drive gears w/hardware
N/A	**#416-691**	Gear drive installation/oil port blocking kit

**2006 FXD Engines Use '07-Up Gears*

#416-903	**#416-303**	2-pc outer drive gears only w/hardware
#416-905	**#416-305**	2-pc inner drive gears only w/keys
#416-906	**#416-306**	Undersize rear cam inner drive gear only
#416-907	**#416-307**	Oversize rear cam inner drive gear only
#416-901	**#416-901**	Undersize pinion (crankshaft) drive gear only
#416-902	**#416-902**	Oversize pinion (crankshaft) drive gear only
#416-909	**#416-909**	Replacement key set for gear drive gears

#416-323

Cam Drive Gears for TC Engines

#416-323 Andrews 17T 4° offset cam drive sprocket for 2007-up TC engines. Alters cam timing plus or minus 4°, depending on installation orientation.

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
#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)

#498-212

S&S Cam Bearing Retainer

#498-212 Heavy-duty cam bearing retainer plate for '99-'06 TC engines. *(OE #35060-00)*

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®.

'07-UP CAM SPROCKET SPACERS, EACH

.100"	**#450-729**	.110"	**#450-731**	.120"	**#450-734**
.130"	**#450-736**	.140"	**#450-737**	.150"	**#450-738**

#450-726 ''07-up Cam Sprocket Spacers, Set of 5 (.110" - .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")

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**

Read More on Page 4.2

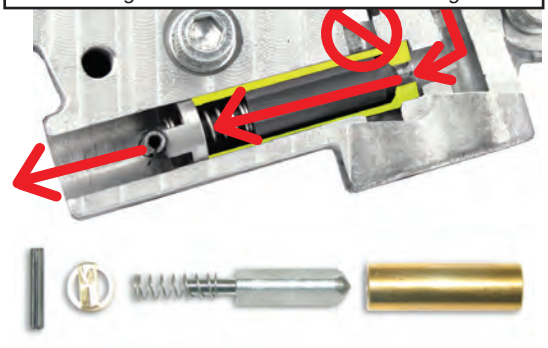
PART NO.	DESCRIPTION
#413-901	Fits all '07-up Big Twin engines, '06 FXD engines, and all '99-'06 TC® engines converted to hydraulic tensioner systems
#413-902	Red Shift® Cam Chain Tensioners w/Axtell Oil Bypass Valve Kit #620-103 for all H-D® & S.E.® Cam Plates

Axtell Oil Bypass Valve

This product is best suited to be used in conjuction with the O.E. cam plate, many of these plates suffer from severe porosity and low oil pressure due to the internal leaks in the engine with the O.E. cam plate, pressure valve and seat. This bypass valve consists of a precision-machined "needle and seat" that inserts in place of the factory oil pressure relief valve and seat located within the Twin Cam® Cam Plate. With the Axtell valve you can expect higher oil pressure at all engine rpms, longer oil life due to reduced oil shear, with added lubrication to high pressure parts in the engine. Fits OE and SE cam plates.

Patent Pending #61/693,612

Cam Plate Cutaway with #620-103 Bypass Valve
Fluted Design of Needle Allows Oil Flow Through Valve

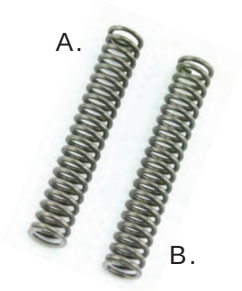


PART NO.	DESCRIPTION
#620-103	Axtell Bypass Valve for All Harley-Davidson® and Screamin' Eagle® Brand Twin Cam® Cam Plates
#413-902	Red Shift® Cam Chain Tensioners w/Axtell Oil Bypass Valve Kit #620-103 for all H-D® & S.E.® Cam Plates

Baisley 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

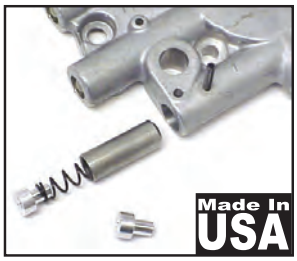
A. Baisley Hi-Performance LMR-2: 6.2 lbs of Seat Force, 14.2 lbs fully compressed
Baisley springs offer increased seat pressure and overall spring force. Baisley springs operate in a progressive manner, and are precision ground to exact lengths. **#626-002**

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.

DESCRIPTION	EACH	5-PACK	10-PACK
Zipper's '99-'06 TC88 Oil Bypass Shim	#617-602	#617-603	#617-604



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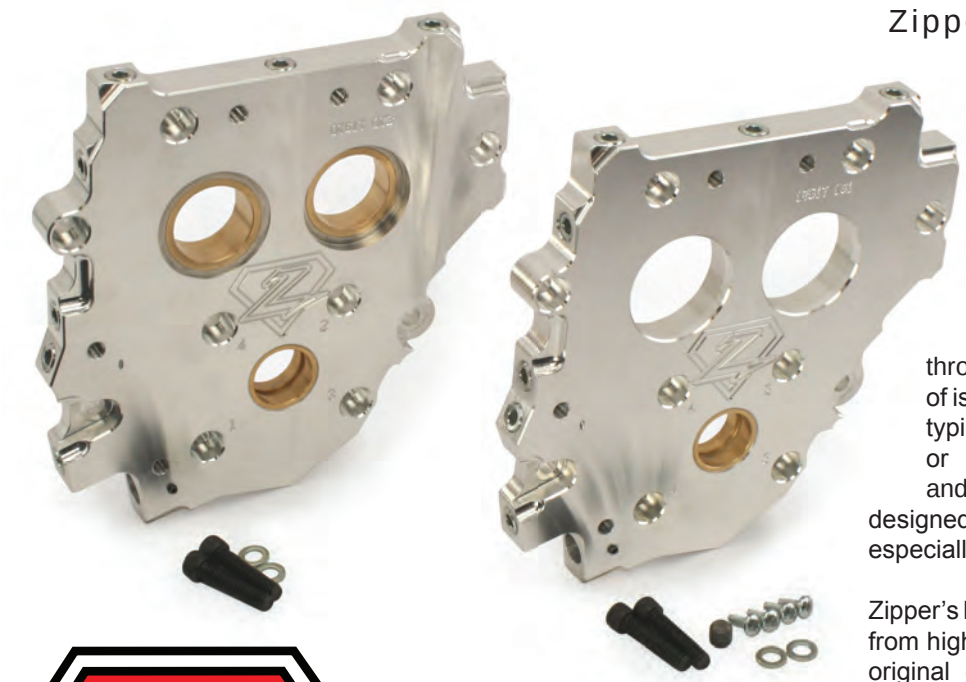


Zipper's Blueprinted Cam Plate

The cam support plate in a Twin Cam® engine not only supports the cams, it provides the manifold system used to distribute oil flow to all critical areas of the engine. It also contains oil pressure bypass valve, which is designed to redirect excess oil pressure from the manifold back into the pump. Once excess pressure is relieved, the bypass valve should close and direct all oil flow through the manifold system. Due to a number of issues, the factory parts used in this system typically do not seal (most we test leak 50% or more), causing available oil pressure and volume to fall below acceptable levels designed to protect critical engine components, especially at low RPMs and idle.

Zipper's Billet Cam Support Plate is CNC-machined from high quality billet aluminum, which unlike the original die-cast plate, does not have inherent casting porosity (air pockets and pits). These porosity pits are highly prevalent in the seat area of the bypass valve; between these casting voids and the irregular shape of the factory bypass valve tip, the system cannot fully seal when the valve closes. When the bypass valve leaks, engine wear accelerates, noise increases and performance suffers, as the engine's hydraulic components (lifters, cam chain tensioners, piston cooling jets) do not operate as designed. These issues are amplified when performance parts such as cams and heads are installed.

Each of our billet cam plates is blueprinted by our technicians and includes a spec sheet to assure the builder that it meets the specifications developed during our testing and R&D. This process provides increased oil flow throughout the entire engine, especially at idle and low RPMs when the oil pump is producing the least pressure. With this system installed, you can expect a quieter, smoother and longer-lasting engine!

FEATURES

- **Stronger Billet Plate Design with Bronze Bushings, Free of Porosity with Added Structural Integrity**
- **Hand-Sealed, Lapped and Pressure Tested Oil Pressure Bypass Valve**
- **50% or Greater Oil Flow at idle over Plates with Leaking Bypass Valves**
- **More Stable Oil Pressure at all RPM's, and all Temperature Ranges**
- **Prevents Wear on Critical, High Pressure Engine Components, Lengthening Engine Life**
- **Models For '99-'06 Engines Set Up for Hydraulic Cam Chain Tensioners and 2007+style Oil Pump**
- **Compatible with Zipper's Dual Piston Cam Chain Tensioners**
- **A Must for All Performance Engine Builds**

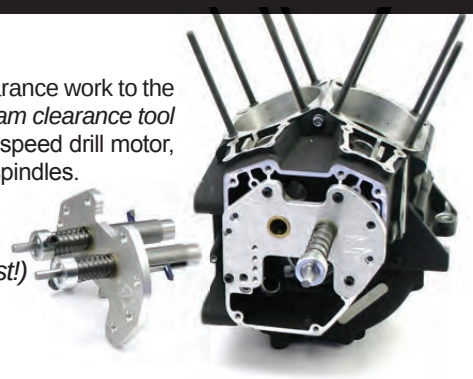
PART NO.	APPLICATION
#417-407	Zipper's Blueprinted Billet Cam Plate for 2006 FXD, 2007-up all Twin Cam® Engines
#417-406	Zipper's Blueprinted Billet Cam Plate for '99-'06 TC Engines (requires updating to hydraulic tensioners and 2007-up style oil pump)

PART NO.	RELATED CAM PLATE COMPONENTS
#672-763	Feuling® OE+ 2007-up oil pump assembly (fits all years Zipper's plates)
#413-901	Zipper's Dual-Piston Cam Chain Tensioners (fits all years Zipper's plates)
#472-500	Johnson Hylift Direct-Shot Lifter set for all year Twin Cam® engnes
#456-244	Cam Chest Service Gasket Set

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 high speed 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, sold each




#772-910

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 the included 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

These tapered tools thread into the oil pump and perfectly align the pump to the cam plate in TC engines. *Sold each, Order 2.*

All Years #758-443

JIMS® Inner Cam Bearing Remover

Removes the bearing easily without damage to the crankcase. This precision built tool will also keep the pin rollers from accidentally failing into the crankcase.

'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 non-marring 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 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

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 and welded 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).

Drive Gear Welding - 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).

Custom Timing by your Engine Builder - 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 crankshafts. All Sportster-based cams sold over 0.700" lift are sold unwelded for final timing.

Unlimited Custom Installation Options – Due to the Modular Lobe Design, Red Shift can easily accommodate nearly any custom arrangement you can dream up. XR750 Style with Two front heads. Backwards XR750 with two Rear Heads, Buell Blast, Unusual Single Cylinder configurations, plus different profiles on Intake or Exhaust, the sky is the limit. Please contact us about your unique engine build to learn the options we can assist you with.

Add lobes to unique or obsolete cores – The Red Shift modular lobe process may be the only option your performance cams, if your motorcycle model does not use a standard Sportster or Buell gear set. Outboard oil pump models, like the XR1200 and 2008-2010 Buell XB models use unique cam gears that also drive the oil pump. With no commercially available gearsets out there for these models, the Red Shift Modular lobe process is your best solution for obtaining a high performance camshaft to make the power you desire.

Red Shift® Application Matrix for 1986-Up Sportster® Engines

		1991-Up 5 Speed Evolution (XL, XB & XR1200)				1986-1990 4 Speed Evolution			
Displacement		883cc	1200cc	88"	99"	1200cc	88"	99"	100"
Bore		3.000"	3.500"	3.812"	3.812"	3.500"	3.812"	3.812"	4.000"
Stroke		3.812"	3.812"	3.812"	4.312"	3.812"	3.812"	4.312"	4.000"
Modified Street PUMP GAS, Modified Heads, & Increased Compression	**Balanced TQ/HP**		567 or 575	605/591 or 630/585	605/591 or 630/585	573	615	625	615
	Big HP		585	643	643	573	625	723	723
Race Only Race Fuel & High Compression	**Balanced TQ/HP**	567	585 or 643	605/591 or 630/585	605/591 or 630/585	615	625	625	625
	Big HP	585 or 643	643 or 729	643 or 729	643 or 729	625	723	723	723

Red Shift® Cams for 5 SP XL/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. Zipper's is the only manufacturer offering cams for XR1200 and '08-'10 XB's. The re-lobing process allows us to upgrade these models instead of having to make new gear sets. All 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	ON NEW CORES
For '91-up XL engines	#413-115	#413-115NC
For '02-'07 XB engines	#413-115XB	#413-115XBNC
For '08-'12 XR engines	#413-115XR	#413-115XRNC

575V2: 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-'07 XB engines	#413-117XB	#413-117XBNC
For '08-'12 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	ON NEW CORES
For '91-up XL engines	#413-120	#413-120NC
For '02-'07 XB engines	#413-120XB	#413-120XBNC
For '08-'12 XR engines	#413-120XR	#413-120XRNC

RED SHIFT PERFORMANCE CAMSHAFTS

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	Intake Timing Exhaust @0.053	Duration	TDC Lift @ Valve	Valve Lift	Bolt-In?
567V2	Intake	24 101 49	253	0.211	0.567	Yes '04-Up No '91-'03
	Exhaust	54 108 19	253	0.172	0.567	
575V2	Intake	26 96 38	244	0.204	0.575	Yes '04-Up No '91-'03
	Exhaust	44 102 20	244	0.172	0.575	
585V2	Intake	22 108 59	261	0.183	0.583	No
	Exhaust	66 117 13	259	0.139	0.583	
605/591V2	Intake	30 100 50	260	0.228	0.605	No
	Exhaust	56 112 32	268	0.228	0.591	
630/585V2	Intake	26 95 40	246	0.224	0.630	No
	Exhaust	59 108 21	260	0.181	0.583	
643V2	Intake	28 104 62	270	0.235	0.643	No
	Exhaust	71 116 19	270	0.172	0.643	
729V2	Intake	34 104 65	279	0.279	0.729	No
	Exhaust	71 112 28	279	0.228	0.729	

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. Case clearancing required.

DESCRIPTION	ON YOUR CORES	ON NEW CORES
For '91-up XL engines	#413-126	#413-126NC
For '02-'07 XB engines	#413-126XB	#413-126XBNC
For '08-'12 XR engines	#413-126XR	#413-1126XRNC

630/585V2: 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. Case clearancing required.

DESCRIPTION	ON YOUR CORES	ON NEW CORES
For '91-up XL engines	#413-127	#413-127NC
For '02-'07 XB engines	#413-127XB	#413-127XBNC
For '08-'12 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	ON NEW CORES
For '91-up XL engines	#413-130	#413-130NC*
For '02-'07 XB engines	#413-130XB	#413-130XBNC*
For '08-'12 XR engines	#413-130XR	#413-130XRNC

**2000 and later engines require the purchase of 1991-1999 pinion drive gear for these cams.*

729V2: 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. Case clearancing required.

DESCRIPTION	ON YOUR CORES	ON NEW CORES
For '91-up XL engines	#413-135	#413-135NC*
For '02-'07 XB engines	#413-135XB	#413-135XBNC*

**2000 and later engines require the purchase of 1991-1999 pinion drive gear for these cams.*

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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**

615V2: 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. Excellent bolt-in cam for S&S 100 ci Super Stock engines with offset tappets.

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**

723V2: 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.

DESCRIPTION	ON YOUR CORES	ON NEW CORES
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 PERFORMANCE CAMSHAFTS

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	Intake Timing Exhaust @0.053	Duration	TDC Lift @ Valve	Valve Lift	Bolt-In?
573V2	Intake	25 105 55	260	0.215	0.575	No
	Exhaust	65 115 15	260	0.157	0.575	
615V2	Intake	28 103 58	266	0.225	0.615	No
	Exhaust	59 106 25	264	0.207	0.615	
625V2	Intake	32 103 58	270	0.250	0.625	No
	Exhaust	62 107 28	270	0.228	0.625	
723V2	Intake	39 105 62	281	0.284	0.723	No
	Exhaust	75 116 25	280	0.207	0.723	
785V2	Intake	27 112 71	278	0.237	0.786	No
	Exhaust	78 119 20	278	0.190	0.786	
785V2	Intake	28 111 72	280	0.219	0.787	No
	Exhaust	78 119 20	278	0.183	0.787	

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.

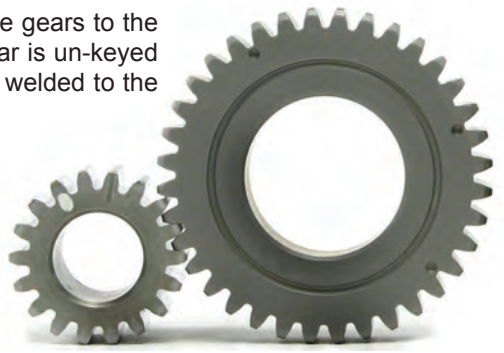
DESCRIPTION	ON YOUR CORES
550XL: For '57-'85 XL engines	**#413-715**
570XR: For XR1000 engine	**#413-315**

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	Intake Timing Exhaust @0.053	Duration	TDC Lift @ Valve	Valve Lift	Bolt-In?
505XL	Intake	25 105 55	260	0.188	0.505	No
	Exhaust	65 115 15	260	0.138	0.505	
550XL	Intake	32 103 58	270	0.220	0.550	No
	Exhaust	62 107 28	270	0.200	0.550	
520XR	Intake	25 105 55	260	0.194	0.520	No
	Exhaust	65 115 15	260	0.143	0.520	
570XR	Intake	32 103 58	270	0.228	0.570	No
	Exhaust	62 107 28	270	0.207	0.570	

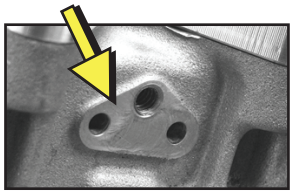
Sportster® Cam Drive Gears



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 duration and lift means extra power thru RPM range. Stock 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

V4/N4: Street/drags: Stock or modified 883/1100/1200. Slightly higher idle speed but stock springs-hydraulic lifters are recommended. RPM range: 2000-6000.

DESCRIPTION	'86-'90	'91-'99	2000-UP
Andrews V4/N4 Cams	#416-140	#416-145	#416-149

V6/N6: Modified 1200s to 80 inches and/or high compression 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 and hydraulic lifters. Same intake cam as N4 but more exhaust 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 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?
EVOLUTION - SPORTSTER®							
V2*/N2	Intake	22	38	240	0.180	0.465	No Bolt-In
	Exhaust	46	18	244	0.155	0.440	
V4/N4	Intake	30	46	256	0.216	0.490	Yes
	Exhaust	52	24	256	0.189	0.490	
V8/N8	Intake	32	44	256	0.226	0.490	Yes
	Exhaust	56	28	264	0.212	0.500	
V6/N6	Intake	24	50	264	0.241	0.500	Yes
	Exhaust	56	28	264	0.212	0.500	
BV/NV	Intake	35	59	274	0.260	0.590	Yes
	Exhaust	59	35	274	0.260	0.590	
IRON - SPORTSTER®							
PB+	Intake	34	40	254	0.208	0.410	No Bolt-In
	Exhaust	43	31	254	0.208	0.410	

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	'71-'80
Andrews PB+ Cams	#416-040	#416-045
DESCRIPTION	**'81-'E84**	**'L84-'85**
Andrews PB+ Cams	#416-050	#416-055

Zipper's Performance Products • 6655-A Amberton Drive, Elkridge, MD 21075 • (410) 579-2828

RED SHIFT
PERFORMANCE CAMSHAFTS

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.

DESCRIPTION	PART 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 increased 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

687V2: New design for large displacement Pro Street engines, designed for Big HP output with high flow heads. Early closing intake and slightly shorter duration than 715. TDC lift requires proper valve spacing and increased compression. Use with premium valve springs and valve gear parts.

DESCRIPTION	PART NO.
Red Shift 687V2 '84-'99 EVBT Cam	#413-444

715V2: Big power cam for large performance engines - The HP King! Big lift and broader timing, designed for large, high compression (11:.5-13:1) engines that have requirements that production cams cannot fill. Popular choice for all-out hot rods but has strong mid-range and good valve control for longevity and for street use.

DESCRIPTION	PART NO.
Red Shift 715V2 '84-'99 EVBT Cam	#413-445

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 train. Use with solid lifters only.

DESCRIPTION	PART NO.
Red Shift 790V2 '84-'99 EVBT Cam	#413-451

Red Shift Shovelhead Cam

509S: 74"-84" Shovelhead high output cam. Best with 9.5+:1 compression, ported heads and high flow carb. Extra-wide torque curve with great horsepower numbers. Solid or aftermarket hydraulic lifters required.

DESCRIPTION	PART NO.
Red Shift 509S '74-'84 Shovelhead Cam	#413-010L

Red Shift 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	Intake Timing		Exhaust @0.053	Duration	TDC Lift @ Valve	Valve Lift	Bolt-In?
559V2	Intake	16	104	46	242	0.159	0.555	No
	Exhaust	47	106	15	242	0.154	0.555	
576V2	Intake	26	99	46	252	0.219	0.576	No
	Exhaust	47	102	25	252	0.203	0.576	
626V2	Intake	28	102	52	260	0.241	0.625	No
	Exhaust	58	107	27	265	0.204	0.600	
647V2	Intake	26	106	58	264	0.211	0.647	No
	Exhaust	58	106	26	264	0.211	0.647	
656V2	Intake	28	100	50	258	0.233	0.648	No
	Exhaust	52	104	26	258	0.219	0.648	
687V2	Intake	35	105	65	280	0.275	0.685	No
	Exhaust	68	109	31	279	0.233	0.685	
715V2	Intake	31	110	71	282	0.251	0.715	No
	Exhaust	80	119	22	282	0.200	0.715	
790V2	Intake	36	104	66	282	0.282	0.791	No
	Exhaust	66	106	36	282	0.280	0.791	
Red Shift Shovelhead Cam								
509S	Intake	25	100	45	250	0.190	0.510	No
	Exhaust	43	100	27	250	0.187	0.510	

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Andrews 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	Intake Timing Exhaust @0.053		Duration	TDC Lift @ Valve	Valve Lift	Spring Spacing?
EV 23	Intake	10	30	220	0.134	0.498	No Bolt-In
	Exhaust	40	8	228	0.121	0.498	
EV 27	Intake	20	36	236	0.182	0.495	No Bolt-In
	Exhaust	46	14	240	0.166	0.495	
EV 3	Intake	21	37	238	0.197	0.495	No Bolt-In
	Exhaust	43	15	238	0.159	0.495	
EV 46*	Intake	25	41	246	0.207	0.495	No Bolt-In
	Exhaust	49	17	246	0.163	0.495	
EV 51	Intake	28	44	252	0.233	0.510	Yes
	Exhaust	54	22	256	0.195	0.510	
EV 59	Intake	28	48	256	0.236	0.560	Yes
	Exhaust	56	24	260	0.208	0.560	
EV 72	Intake	30	54	264	0.246	0.560	Yes
	Exhaust	60	28	268	0.230	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

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	Cam shim set (.050"-.095", 10pcs), fits Big Twins '36-'99
#448-555	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

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

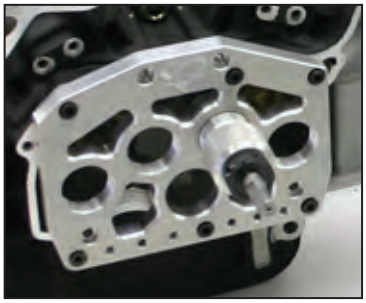
This tool was developed to make quick work of case machining when installing a high lift cam in a Big Twin single cam case, 1970-1999. Bolts to the case, uses the inner cam bearing to support the cutter spindle, has adjustable cutter diameter and threaded depth feed for precise control of the cut. Can be used on an assembled engine and does a much cleaner, professional job than a die grinder. Power it with a high powered 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, sold each

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 (does not work on '08-'10 XB or XR1200®)
#713-909	Replacement cutter bit, sold each



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 ¼" 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

There's Power in These Pushrods! Admittedly, the weakest link in a Harley® performance engine is the valve train stiffness, or rather the lack of it. These high performance adjustable pushrods add much needed stiffness to the valve train. They are constructed from .095" or .165" *(extreme duty)* wall chrome-moly that is 7/16" diameter at the bottom and middle of the pushrod, tapering to 3/8" at the top to eliminate any chance of rubbing the covers or head. The bottom side features heavy-duty adjusters and the tops have full-radius "Mae West" tips for smooth operation with the highest lift cams. Our testing shows consistent power gains, even with reduced valve spring pressure. ***When you control pushrod deflection, the valve stays under control for maximum available power!***

PART NO.	DESCRIPTION
#403-088	Pro-Taper pushrods, all Twin Cam®, '91-up XL/XR/XB engines (set/4 - .095" wall)
#403-165	Pro-Taper pushrods, all Twin Cam®, '91-up XL/XR/XB engines (set/4 - .165" wall, extreme duty)

Zipper's Twin Cam® Telescoping Pushrod Covers

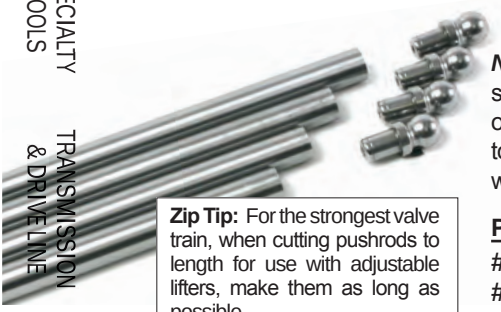
This telescoping pushrod cover set for all Twin CamR engines provides an additional 3/4" of an inch access to the adjusters of adjustable pushrods, adding needed room to this confined area. **#417-112**

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
#403-105	Each, 10.500" Pro-Taper EV Pushrod
#403-106	Each, 10.625" Pro-Taper EV Pushrod
#403-107	Each, 10.750" Pro-Taper EV Pushrod
#403-108	Each, 10.875" Pro-Taper EV Pushrod
#403-110	Each, 11.000" Pro-Taper EV Pushrod
#403-111	Each, 11.125" Pro-Taper EV Pushrod

PART NO.	COLLAPSED LENGTH
#403-112	Each, 11.250" Pro-Taper EV Pushrod
#403-113	Each, 11.375" Pro-Taper EV Pushrod
#403-115	Each, 11.500" Pro-Taper EV Pushrod
#403-116	Each, 11.625" Pro-Taper EV Pushrod
#403-117	Each, 11.750" Pro-Taper EV Pushrod



Zip Tip: For the strongest valve train, when cutting pushrods to length for use with adjustable lifters, make them as long as possible.

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!

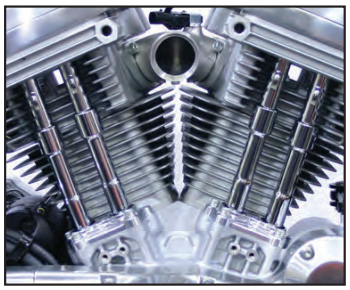
PART NO.	DESCRIPTION
#413-210	Each, 11.5" max, fits TC, EV, Shovel
#413-213	Each, 13" max, fits TC, EV, Shovel

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 Performance Products • 6655-A Amberton Drive, Elkridge, MD 21075 • (410) 579-2828

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. The complete kit includes the telescoping pushrod cover set and the necessary o-ring and seals needed for installation. The twin bases and replacment o-ring and seal kits 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

S&S® Quickee Pushrods & Cover Kit

PART NO.	DESCRIPTION
#498-051	S&S® Twin Cam® Quickee Pushrods & Cover Kit
#498-122	S&S® Twin Cam® Quickee Pushrods Only

S&S® Adjustable Pushrods & Cover Kit

PART NO.	DESCRIPTION
#498-095	S&S® Twin Cam® Standard Pushrods & Cover Kit

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
#480-100	EV Big Twin Taper-Lite™ pushrod set
#480-115	'91-up EV Sportster Taper-Lite™ pushrod set
#480-110	'86-'90 EV Sportster Taper-Lite™ pushrod set
#480-120	Shovelhead Taper-Lite™ pushrod set
#480-121	Shovelhead Taper-Lite™ Solid Lifter Conversion Kit

#480-121 Includes special Taper-Lite™ pushrods, solid adapters and plugs to replace the hydraulic units in the factory-style lifter body (plugs block the hydraulic oil passages to keep oil out of the lifter to reduce lifter weight).

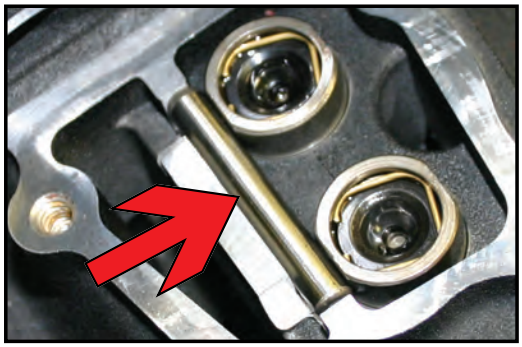
Andrews Pushrods

Andrews pushrods utilize 7/16" diameter tubing and are adjustable. Choose between lightweight aluminum or rigid chrome-moly 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)

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®

HYLIFT JOHNSON

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.

Hy-Lift® Johnson 'Race Design' Lifters

#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.

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

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S&S® Premium Performance Hydraulic Tappets

S&S® Premium High Performance Tappets are intended for performance street and racing applications. Machined to a higher standard, these tappets provide significantly lower leak down rates for quick pump up, consistent quiet operation, and stability at high rpm. They also feature a low mass, bearing grade, silicon nitride check ball and a lighter ball spring, which allows these tappets to operate efficiently on less oil pressure.

Designed for efficiency and performance, S&S® hydraulic tappets pump up quickly and stay quiet from start-up to the end of the ride, even with high oil temperatures. With these installed, your engine can handle high lift cams and stronger, performance valve springs with ease, extending the usable rpm range of your engine.

PART NO.	APPLICATION
#498-174	Set/4, TC / '00-up XL S&S Premium Tappets w/ Travel Limiters
#498-175	Set/4, TC / '00-up XL S&S Premium Tappets

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

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 **4.20 and 4.21** for pushrods to use with these lifters.

STD BORE	+.002" O/S	+.005" O/S	SOLID APPLICATION
#458-010	**#458-012**	**#458-015**	Each, '84-'99 EVBT, '86-'90 XL Solid tappet
#458-060	**N/A**	**N/A**	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

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 4.19. 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)**.

STD BORE	+.002" O/S	+.005" O/S	APPLICATION
#458-040	**#458-042**	**#458-045**	Each, JIMS® Solid-Adj. tappet, '48-'84 Shovel, Pan
#458-050	**#458-052**	**#458-055**	Each, JIMS® Solid-Adj .tappet, '57-'85 Iron XL

PART NO.	APPLICATION
#458-092	Pk/4, JIMS® '48-'84 BT Tappet adjustable screw only
#458-096	Pk/4, JIMS® '57-'85 XL Tappet adjustable screw only
#458-090	Pk/4, JIMS® Tappet adj. screw locknut

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

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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	CHROME	BILLET APPLICATION
#498-320	N/A	Billet S&S tappet blocks, f/'84-'99 EV Big Twin
N/A	#498-323	Billet S&S tappet blocks, f/4+" bore case w-1/4" offset

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	CHROME	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	CHROME	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

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

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
#498-465	For TC & EV engines, 1.62:1 ratio (stock)
#498-498	For TC & EV engines, 1.725 ratio
#498-432	For Shovel engines, 1.5:1 ratio

PART NO.	APPLICATION
#498-406	Each S&S TC/EV rocker arm shaft
#498-466	S&S TC/EV roller rocker arm rebuild kit
#498-437	S&S Shovel roller rocker arm rebuild kit

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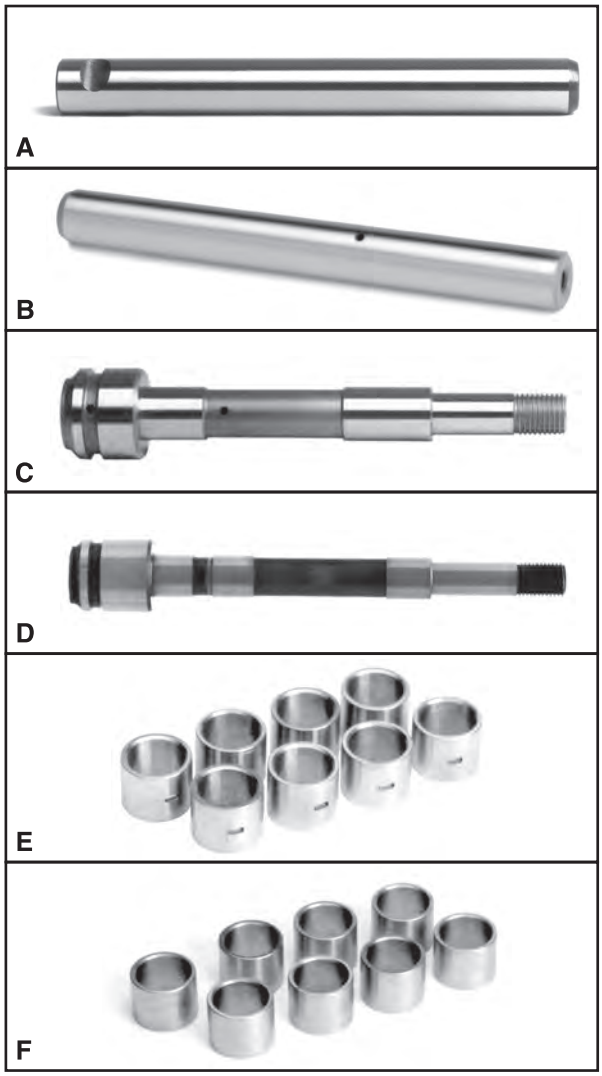
JIMS® Rocker Arm Shafts

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)

RED SHIFT

PERFORMANCE CAMSHAFTS

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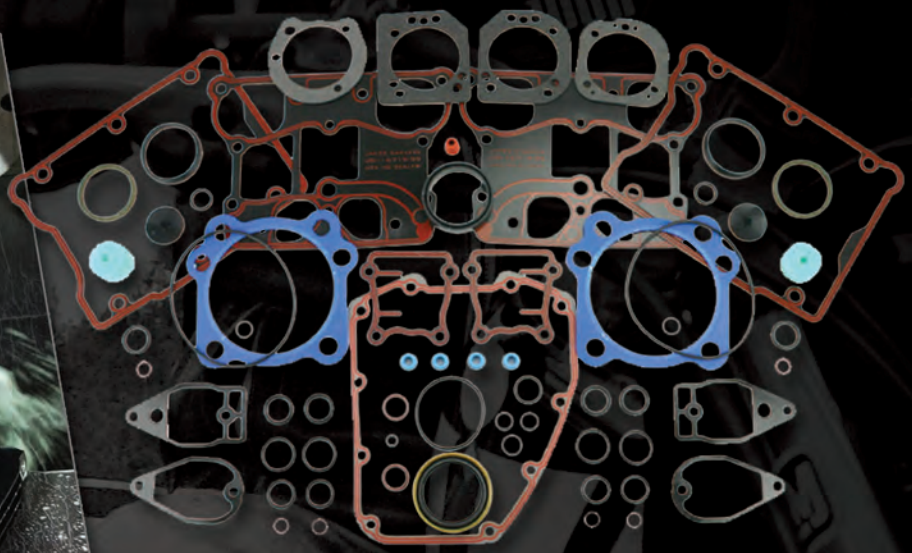
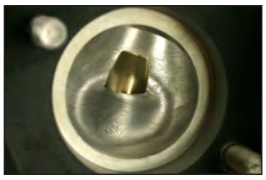
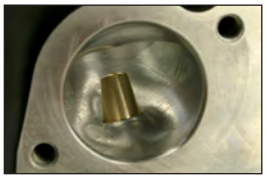
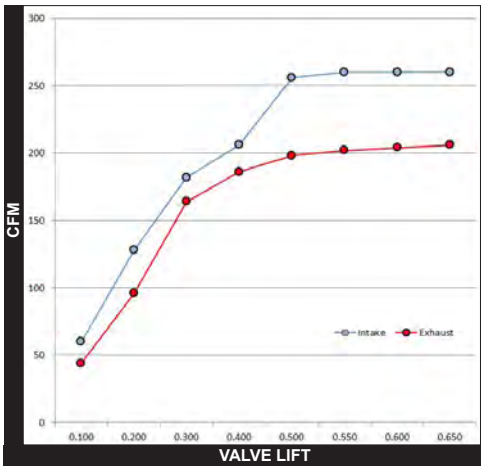
TOP END COMPONENTS







Our Stage II CNC heads employ special high velocity ports developed specifically for riders in search of early torque with broad power. With ports designed for high-velocity airflow, matching these heads with the proper camshaft and exhaust produces amazing power. Perfect for riders of heavier machines who want great acceleration just by turning the throttle - no rowing of the gearbox and high RPM needed!



- **Zipper's-developed high-velocity port shapes**
- **Designed for early torque applications**
- **Works great with flat-top pistons**
- **Custom decked for your specific application**
- **Chamber volume - 85cc with stock deck**
- **Best quality workmanship and materials used**

After cleaning, CNC porting and guide replacement, SportMax heads are fitted with high quality 7mm stainless steel 1.900" intake / 1.610" exhaust valves and beehive springs with chrome-moly steel retainers. Special valve seat machining and blending for a smooth transition to the ports is performed by our highly skilled specialists. Valve springs are custom-packed to handle valve lifts up to .580"*; head gasket surfaces are precision-machined to your deck requirements to ensure proper compression, absolute trueness and surface finish.

The Stage II CNC SportMax heads provide real results with a great balance of performance and value. These heads are designed for optimum results with the factory throttle body and injectors (lower cost!), maintaining high port velocity for best low and mid-range power. Contact us if you need assistance selecting the proper camshaft, piston compression volume and/or exhaust system for your application.

Work is performed on your supplied head cores; shop time is approximately 5 business days (allow for additional time during peak season). Exchange heads may be available if the condition of your cores qualifies. ***You can also purchase heads outright (without supplying a core set). We will supply clean, reconditioned factory castings for your application - add part #517-015 to your order.***

International Customers – Import duties are not required when to shipping your castings for modification. Special low shipping rates are available for your cores; contact your sales representative for details.

Supply us with your piston volume and camshaft selection for final cc volume through decking.

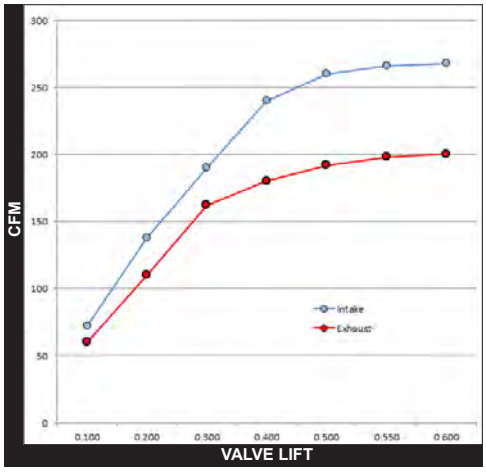
PART NO.	DESCRIPTION
#517-752	Zipper's Stage II SportMax service (parts and labor) '99-'05 Twin Cam®
#517-753	Zipper's Stage II SportMax service (parts and labor) '06-up Twin Cam®
#517-754	Zipper's Stage II SportMax service (parts and labor) '08-up Touring TC®
#517-759	Zipper's Stage II SportMax service (parts and labor) '14-up Twin Cooled® TC®

Remove heads from engine, wash off oil and ship to Zipper's as-is. Improper cleaning methods can actually do more harm than good; we suggest you allow us to properly prepare your heads 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 "ThunderSport" CNC 1.900" Heads

Our Stage III ThunderSport heads are the perfect choice for 3.875 - 3.937" bore Twin Cam® engines with all the highs - high compression, high flow throttle body, high flow exhaust and high output at all RPM's! Our original design has been fully refined to fulfill the airflow needs of the highly modified Twin Cam® engine with displacement ranging from 95 to 107 cubic inches.

- **Advanced port and valve designs works great with domed pistons**
- **Special ductile-iron step-lock valve guides**
- **5/16" stem 1.900" / 1.630" stainless steel valves with severe duty coatings**
- **Performance valve springs for .580" lift standard***
  ** Optional springs available for higher lift applications*
- **Fully machined 91cc** combustion chamber un-shrouds valves for increased flow**
  *** 84cc on Twin Cooled® heads*
- **Custom decked for your specific application**
- **Best quality workmanship and materials used**
- **Optional manual compression release machining available for non-ACR heads**



After 5-axis CNC-porting is complete, we install and size Zipper's super-concentric ductile-iron Step-Lock valve guides. Valve seats are machined with specially developed proprietary seat angles to accept oversized stainless steel valves treated with severe-duty coatings and flow-enhancing shapes. When full-radius seat and guide machining is complete, the head gasket surface is decked for combustion chamber CC requirements and trued for best possible gasket seal. Lastly, viton valve stem seals are installed and dual-coil performance valve springs are set up for your camshaft selection.

With the right combination of compression, camshaft, intake and exhaust choices, ThunderSport heads shine throughout the full RPM range, delivering the widest of powerbands. If your engine build includes domed pistons, larger throttle body, a "headwork required" camshaft and other related high performance components, this is the head for you! Zipper's 1.900" Stage III ThunderSport CNC heads can easily position a 107" engine for triple-digit torque at 2000 RPM, with horsepower climbing past the 120 mark - using reasonable compression and today's high-test pump gasoline.

Supply us with your piston dome volume and camshaft selection and we'll calculate the final decking required for your desired cc volume/compression ratio. Contact us if you need assistance selecting the proper camshaft, piston compression volume and/or exhaust system for your application.

Work is performed on your supplied head cores; shop time is approximately 5 business days (allow for additional time during peak season). Exchange heads may be available if the condition of your cores qualifies. ***You can also purchase heads outright (without supplying a core set). We will supply clean, reconditioned factory castings for your application - add part #517-015 to your order.***

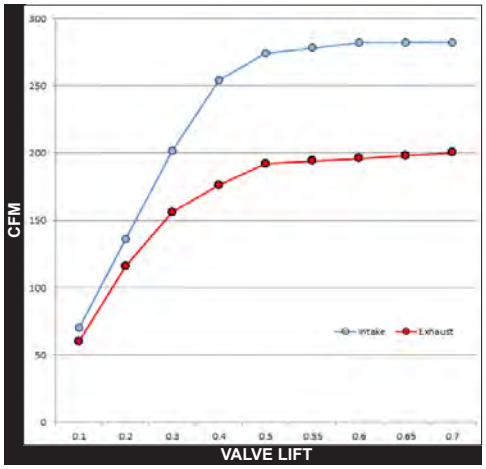
International Customers – Import duties are not required when shipping your castings for modification. Special low shipping rates are available for your cores; contact your sales representative for details.

Supply us with your piston volume and camshaft selection for final cc volume through decking.

BLACK	SILVER	DESCRIPTION
#517-696EX	**N/A**	Zipper's Stage III ThunderSport service '14-up Twin Cooled® models w/ACR's
#517-692EX	**N/A**	Zipper's Stage III ThunderSport service '08-up Touring models w/ACR's
#517-688EX	**#517-689EX**	Zipper's Stage III ThunderSport service '08-up Touring models (non-ACR)
#517-694EX	**N/A**	Zipper's Stage III ThunderSport service '06-up non-Touring models w/ACR's
#517-586EX	**#517-587EX**	Zipper's Stage III ThunderSport service '06-up center top mount (non-ACR)
#517-588EX	**#517-589EX**	Zipper's Stage III ThunderSport service '99-'05 all Twin Cam® models

Remove heads from engine, wash off oil and ship to Zipper's as-is. Improper cleaning methods can actually do more harm than good; we suggest you allow us to properly prepare your heads 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 has developed these Stage III heads specifically for CVO 110 and 120R/ST engines to increase port velocity and the result is a huge power increase for these thirsty engines! This unique design delivers an awesome experience, with broad power for all types of riding. Installed on a 110 with Red Shift 657 cams, these heads put over 129 HP through the rear tire with a conservative 10.3:1 compression! Other high output applications are also available.



- **Designed for balanced power applications with excellent peak power**
- **Zipper's developed high-velocity ports**
- **Chamber volume 102cc with stock deck**
- **Performance valve springs for .660" lift standard***
  *Optional springs available for higher lift applications
- **Requires high-dome pistons**
- **Requires larger throttle body and injectors**
- **Best quality workmanship and materials used**

After 5-axis CNC-porting is complete, we install and size Zipper's super-concentric ductile-iron Step-Lock valve guides. Valve seats are machined with specially developed proprietary seat angles to accept oversized stainless steel valves treated with severe-duty coatings and flow-enhancing shapes. When full-radius seat and guide machining is complete, the head gasket surface is decked for combustion chamber CC requirements and trued for best possible gasket seal. Lastly, viton valve stem seals are installed and performance valve springs are set up for your camshaft selection.

To unleash the power potential of this head, domed pistons and an oversized throttle body with higher flow injectors are required for any cable or TBW fitments. Contact us if you need assistance in selecting the proper camshaft, pistons and exhaust for your application.

Work is performed on your supplied head cores; shop time is approximately 5-7 business days (allow for additional time during peak season).

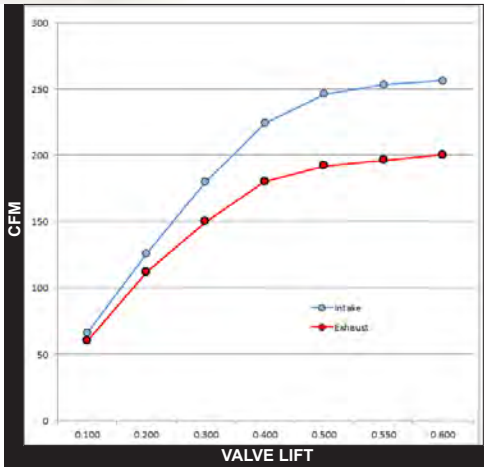
International Customers – Import duties are not required when shipping your castings for modification. Special low shipping rates are available for your cores; contact your sales representative for details.

Supply us with your piston volume and camshaft for final cc volume through decking.

PART NO.	DESCRIPTION
#517-567	Zipper's Stage III service for '14-up Twin Cooled® CVO 110 models
#517-557	Zipper's Stage III service for '07-up Air Cooled CVO 110 & 120R/ST models

Remove heads from engine, wash off oil and ship to Zipper's as-is. Improper cleaning methods can actually do more harm than good; we suggest you allow us to properly prepare your heads 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.

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 Titanium collars are installed to provide proper valve train control. These ThunderSport heads will allow your Sportster® engine to reach its full potential!



- **Full CNC port & combustion chamber machining**
- **Ductile iron step-lock valve guides with Viton seals**
- **Competition seat work on Serdi equipment**
- **1.900" Intake, 1.615" Exhaust stainless steel valves**
- **Performance valve springs with titanium collars**
- **Completely assembled, ready to install**

Work is performed on your supplied head cores; shop time is approximately 5-7 business days (allow for additional time during peak season).

International Customers – Import duties are not required when shipping your castings for modification. Special low shipping rates are available for your cores; contact your sales representative for details.

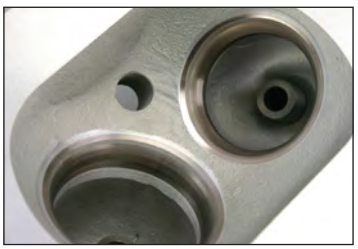
Supply us with your piston volume and camshaft for final cc volume through decking.

FROM XL883	FROM XL1200	DESCRIPTION
#517-883EX	**#517-885EX**	'04-'06 XL 1.900" Stage III CNC head work for 1200-1250 cc
#517-887EX	**#517-889EX**	'04-'06 XL 1.900" Stage III CNC head work for 3.812" bore
#517-893EX	**#517-895EX**	'07-up XL 1.900" Stage III CNC head work for 1200-1250 cc
#517-897EX	**#517-899EX**	'07-up XL 1.900" Stage III CNC head work for 3.812" bore

PART NO.	DESCRIPTION
#517-905EX	'08-Up XR1200® 1.900" Stage III CNC head work for 3.5" bore
#517-909EX	'08-Up XR1200® 1.900" Stage III CNC head work for 3.812" bore

Remove heads from engine, wash off oil and ship to Zipper's as-is. Improper cleaning methods can actually do more harm than good; we suggest you allow us to properly prepare your heads for modification. Extreme care is taken during our preparation process to preserve component finishes. A small cleaning charge applies to heads sent in for exchange or modification.

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 7mm coated stainless 1.850" intakes and 1.610" exhausts with Viton seals, while new lightweight beehive valve springs with chrome-moly retainers and keys 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, while updating 1984-2004 cylinder heads to modern, lightweight 7mm components.

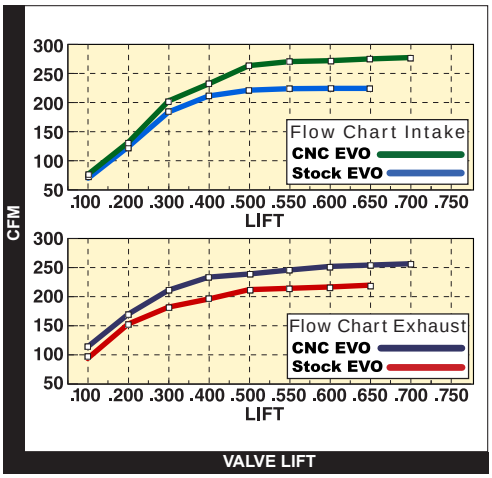


PART NO.	DESCRIPTION
#517-751	Zipper's Stage I WorkHorse parts and labor on customer provided cores

Stage I WorkHorse headwork is performed on supplied head cores; in-house shop time is 3-7 working days.

Exchange heads may be available if the condition of your cores qualifies. ***You can also purchase heads outright (without supplying a core set). We will supply clean, reconditioned factory castings for your application - add part #517-015 to your order.***

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 and your cam/compression requirements before final assembly.



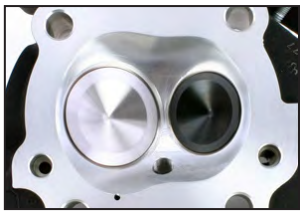
- **Full CNC intake & exhaust port machining**
- **Ductile iron step-lock valve guides**
- **Competition seat work on Serdi equipment**
- **1.900" Int, 1.630" Exh stainless steel valves**
- **Performance valve springs w/Moly collars**
- **.630" valve spring free travel**
- **86cc combustion chamber (skim decked)**
- **Completely assembled, ready to install**

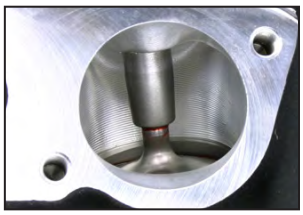
This head has substantially higher low-lift flows for unreal torque increases and is capable of producing over 90 horsepower in an 80" engine (same head used in our 80/80 kit). Requires use of pop-up pistons and possibly additional deck machining for proper compression, depending on your choice of cam and pistons. Spring travel is set for up to .575" valve lift; higher lifts will require an optional spring change.

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 5-10 working days.

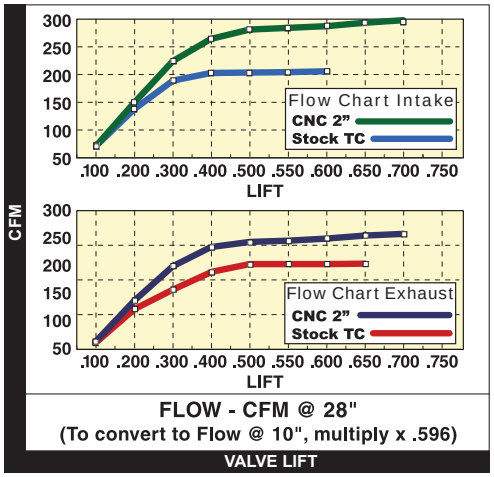
Remove heads from engine, wash off oil and ship to Zipper's as-is. Because improper cleaning methods can actually do more harm than good, we suggest you allow us to properly prepare your parts for modification. Extreme care is taken during our preparation process to preserve component finishes. A small cleaning charge applies to heads sent in for modification.





Our High Output 2.0"Twin Cam© heads are designed for larger displacement, 3.937" and larger bore engines. Both ports feature more extensive CNC porting and the intake valve seat is changed for a valve size increase to 2.0 inch. The combustion chamber is enlarged to 97cc (un-decked) with un-shrouding to 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.

- **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**
- **Manual Compression Releases Installed (if not ACR equipped)**
- **97cc Combustion Chamber (Skim Decked)**
- **Completely Assembled, Ready To install**



These heads are also machined for and include compression releases. Used on our Muscle 117", 120" and 124" engine kits. *This is the finest modified Twin Cam© head you're likely to find anywhere!*

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 (non-ACR) Twin Cam® 2.0" CNC heads
#517-698EX	**#517-699EX**	Exchange Zipper's '06-up (with ACR) Twin Cam® 2.0" CNC heads

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.

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 designed to accept them. Special 2-piece socket required for removal and installation.

PART NO.	DESCRIPTION
#598-914	S&S® Electric Compression Release assembly, each
#598-916	S&S® ECR replacement silicone solenoid cap, each
#798-045	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
#598-122	3/8" one-way check valve, each

Zipper's CNC V-Rod® Heads

Want to step up the performance of your V-Rod®? Give your heads the Zipper's full Stage IV CNC porting with oversize valves – *takes an already impressive engine to new levels!* After careful cleaning by hand, valve stem protrusion is measured and recorded during disassembly. Once guides are measured and verified to spec, the heads are ported on a 5-axis CNC milling machine to our proprietary flow-enhancing shapes. Then it's on to the Serdi machining center for more flow-increasing multi-angle, radius seat machining to accept 1mm oversize stainless steel valves. Final set-up includes setting valve heights as close to original as possible to minimize shim adjustment during reassembly; the heads are finished off with Viton seals and your choice of dual springs with titanium retainers or beehive valve springs with your choice of moly steel or titanium spring retainers. These heads are recommended for naturally aspirated or forced induction applications - *really compliments turbo-equipped engines!*

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*	Zipper's V-Rod® Stage IV CNC headwork with beehive 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).*

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*

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.*

EV & TWIN CAM®

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

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 LENGTH	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

SHOVELHEAD *Stock sizes are 1.950” Intake, 1.750” Exhaust*

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*

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).*

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.

Nitride Severe Duty: 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

PART NO.	VALVE	SIZE	TULIP	STEM DIAMETER	OA LENGTH	SPECIAL NOTES
#568-082	Intake	1.850"	22°	.3100" (5/16")	4.440"	Std EV1340 / '99-'04 TC replacement
#568-088	Intake	1.900"	22°	.3100" (5/16")	4.440"	Oversize*
#568-084	Intake	1.940"	22°	.3100" (5/16")	4.380"	Oversize, .060" shorter (Branch)
#568-014	Intake	2.000"	22°	.3100" (5/16")	4.440"	Oversize
#568-079	Exhaust	1.565"	25°	.3095" (5/16")	4.525"	Standard '99-'04 TC replacement
#568-081	Exhaust	1.615"	25°	.3095" (5/16")	4.525"	Standard EV1340 replacement
#568-015	Exhaust	1.650"	25°	.3095" (5/16")	4.525"	Oversize

**Can be installed on stock seats with machining*

Nitride Severe Duty Valves

PART NO.	VALVE	SIZE	TULIP	STEM DIAMETER	OA LENGTH	SPECIAL NOTES
#568-182	Intake	1.850"	22°	.3100" (5/16")	4.440"	Std 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.	VALVE	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 Twin and Twin Cam® 5/16"

PART NO.	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

Twin Cam® 7mm

PART NO.	VALVE	SIZE	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

Sportster® 883 5/16"

PART NO.	VALVE	SIZE	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"	23°	.3106" (5/16")	4.635"	Standard 883 exhaust

Sportster® & Buell® 7mm

PART 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 Chrome Valves

PART NO.	VALVE	SIZE	TULIP	STEM DIAMETER	OA LENGTH	SPEC. NOTES
#515-622*	Intake	41mm	24°	.2351" (6mm)	116.28mm	1mm oversize V-Rod® intake
#515-632*	Exhaust	35.4mm	24°	.2346" (6mm)	116.9mm	1mm oversize V-Rod® exhaust

**These valves for V-Rod® engines have hard chrome finish.*

AV&V Manganese Bronze Valve Guides

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

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

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
#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.

Precision Machining Cast Iron Valve Guides

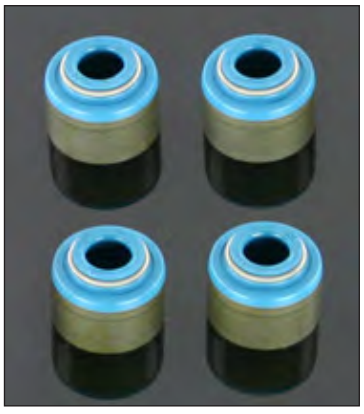
Precision Machining cast iron guides are produced using a proprietary cast iron blend that thrives in the tough operating conditions with today's fuels. Excellent wear resistance with ground O.D. and concentric bore finishes that install easily and last long with minimal seat machining.

O.D. SIZE	EV/TC 5/16" INT/EXH	EV/TC 7MM INT/EXH	80" SHOVEL* INT/EXH	SHOVEL/PAN INT/EXH	IRON XL INTAKE	IRON XL EXHAUST	VROD INT/EXH
Std	#588-400	#588-450	#588-500	#588-100	#588-700	#588-800	#588-200
+.001"	#588-401	#588-451	#588-501	#588-101	#588-701	#588-801	#588-201
+.002"	#588-402	#588-452	#588-502	#588-102	#588-702	#588-802	#588-202
+.003"	#588-403	N/A	#588-503	#588-103	N/A	N/A	N/A
+.004"	#588-404	#588-454	#588-504	#588-104	#588-704	#588-804	#588-204
+.006"	#588-406	#588-456	#588-506	#588-106	N/A	N/A	#588-206
+.010"	#588-410	#588-458	#588-510	#588-110	N/A	N/A	#588-210

**These late Shovel Guides have a cast-on shoulder, not a clip, and use a .625" 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

Zipper's Performance Products • 6655-A Amberton Drive, Elkridge, MD 21075 • (410) 579-2828

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	675 Pro-Street kit, w/titanium top collars	184#@1.850"	422#@1.250"	1.080"
#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	'48-'84 Kit w/chrome moly retainers, stock to .500" lift	140#@1.500"	296#@1.080"	.890"
#538-000	Springs only, replacement for above or O.E.M.			
#550-228	Keeper set, fits all Pan & Shovel engines			
#548-222	High lift lower collar set, fits Shov/Pan w/.530"-.562" seals			

Shovel Performance Spring Kit

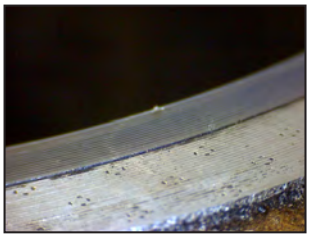
This valve spring kit is designed for use in Shovel or Pan engines with cam lifts of .500"-.580". It is a double spring kit with high strength titanium top collars, specially machined steel lowers and quality keys. Late Shovel heads ('79-up) that use .625" guide bores require a small-top guide such as 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@1.310	295@1.820	.790"



Zipper's Machining Services offers our blueprinting service for factory Twin Cam® cylinders that allows you to increase your engine size by simply replacing your stock cylinders and pistons with our specially modified units. We start with a seasoned set of factory cylinders. Once they are cleaned and inspected, the dowels are removed and the head gasket surface is precision machined for flatness and optimum gasket sealing surface. Then each cylinder is bored to the desired undersize before being fitted with torque plates and honed in stages on our Rottler CNC hone, precisely fitted to the hand-measured pistons chosen for the application.

We stock a wide selection of high quality forged pistons in several compression ratio configurations, and we verify with you that the components of your engine and the pistons chosen match the application for the optimum performance result. Each part number below also includes high quality top end and cam change gaskets (we can also custom-tailor your head gasket thickness if requested).

We stock cylinders fitted with pistons that are sold on an exchange basis to minimize turnaround time, or we can fit your supplied cores if requested. Just carefully pack up your stock, unmodified TC cylinders and send them to us. **We can also sell you a set of factory cores outright at a very reasonable cost if you want to avoid any downtime** (cores can be returned later for credit upon inspection). Any way you choose, you can count on our legendary attention to detail to make your Harley® the best it can be!

KITS FOR 2007-UP TWIN CAM® ENGINES

Factory 2007-up Twin Cam® engines are equipped with 4-3/8" stroke crankshafts. The factory cylinder bore size of 3-3/4" yields the 96" displacement, which was gradually increased to 3-7/8" starting in 2010 for 103" displacement. We can turn your 96" engine into either a 103 or a 107", and your 103 into a 107" simply by resizing the factory cylinders.

BLACK	SILVER	DESCRIPTION
#517-767B-EX	**#517-767S-EX**	3.937" (107") Exchange cylinder kit with 11:1 (+6cc) domed pistons, gasket set
#517-737B-EX	**#517-737S-EX**	3.937" (107") Exchange cylinder kit with 10.75:1 (+3cc) domed pistons, gasket set
#517-716B-EX	**#517-716S-EX**	3.937" (107") Exchange cylinder kit with 10.25:1 (-1.5cc) flat pistons, gasket set
#517-707B-EX	**#517-707S-EX**	3.875" (103") Exchange cylinder kit with 10.5:1 (+5cc) domed pistons, gasket set
#517-703B-EX	**#517-703S-EX**	3.875" (103") Exchange cylinder kit with 9.6:1 (-2.2cc) flat pistons, gasket set
#517-705B-EX	**#517-705S-EX**	3.875" (103") Exchange cylinder kit with 9:1 (-11.5cc) dished pistons, gasket set

Exchange parts must be in acceptable cosmetic condition. Expect the same from us. ***If you wish to purchase the cylinder cores outright (no exchange) add part number 517-010 to your order.***

KITS FOR 1999-2006 TWIN CAM® ENGINES

Factory 1999-2006 Twin Cam® engines are equipped with 4" stroke crankshafts. The factory cylinder bore size of 3-3/4" yields the 88" displacement. We can turn your 88" engine into either a 95 or a 98", simply by resizing the factory cylinders.

BLACK	SILVER	DESCRIPTION
#517-597B-EX	**#517-597S-EX**	3.937" (98") Exchange cylinder kit with 10.75:1 (+10cc) domed pistons, gasket set
#517-666B-EX	**#517-666S-EX**	3.937" (98") Exchange cylinder kit with 10.25:1 (+6cc) domed pistons, gasket set
#517-663B-EX	**#517-663S-EX**	3.937" (98") Exchange cylinder kit with 10:1 (+3cc) domed pistons, gasket set
#517-661B-EX	**#517-661S-EX**	3.937" (98") Exchange cylinder kit with 9.5:1 (-1.5cc) flat pistons, gasket set
#517-592B-EX	**#517-592S-EX**	3.875" (95") Exchange cylinder kit with 10.5:1 (+14cc) domed pistons, gasket set
#517-593B-EX	**#517-593S-EX**	3.875" (95") Exchange cylinder kit with 9.5:1 (+4.6cc) domed pistons, gasket set
#517-594B-EX	**#517-594S-EX**	3.875" (95") Exchange cylinder kit with 9:1 (-2cc) flat pistons, gasket set

Exchange parts must be in acceptable cosmetic condition. Expect the same from us. ***If you wish to purchase the cylinder cores outright (no exchange) add part number 517-010 to your order.***

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)

- Designed to increase displacement with heavy duty structural integrity
- Available with large fin or small fin design
- Requires special pistons
- Available in finished or un-finished bores
- No core required

Zipper's has developed 3-13/16" bore aluminum alloy cylinders for Sportster® engines increasing the engine size to 88" with the stock stroke camshaft, or upgrade a S&S® 89" engine kit to 99" with a 4-5/16" stroke camshaft. Manufactured by Zipper's these cylinders have a unique design with high quality cast-in ductile iron liners for maximum stability to work for all types of performance applications.

Un-honed cylinders can be fitted with your choice of several piston designs to accommodate specific usages, see piston section; Zipper's can provide this service. Our 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. Small fin cylinders are available for 2003-earlier applications. SKUs are for 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 recommended bore for S&S® replacement XL/Buell® cases.

'86-'03 XL '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

*Use with 4-5/16" stroke crank, 7.113" rods

Gaskets for Use with Zipper's 3-13/16" XL Cylinders

PART NO.	DESCRIPTION
#532-693	Pk/2 .040" Cometic MLS head gaskets (XL & XB engines)
#532-692	Pk/2 .030" Cometic MLS head gaskets (XL & XB engines)
#532-004	Pk/2 .040" Cometic MLS head gaskets (XR1200® engines)
#532-870	Pk/2 .020" Cometic rubber coated steel base gaskets
#532-705	Pk/2 .005" Cometic copper base gaskets
#532-710	Pk/2 .010" Cometic copper base gaskets
#532-716	Pk/2 .016" Cometic copper base gaskets
#532-720	Pk/2 .020" Cometic copper base gaskets
#532-700	Builders kit, includes 2 each of .005", .010", .016", .020"

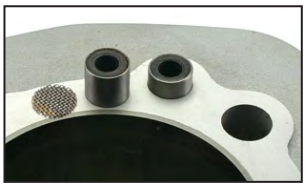
CP Twin Cam® Piston Kits

California based CP Pistons are produced using the latest computer designed forgings for strength and minimum weight. Their detailed machining processes ensure that these pistons can run tighter clearances with less noise, have better ring seal and make more power while providing the highest durability. Zipper's stocks a wide variety of CP pistons in different compression ratios to satisfy nearly all performance applications.

PART NO.	FOR 2007-UP 4-3/8" STROKE ENGINES
#534-700	107" - 3.937" bore, flat top 10.25:1 (-1.6cc)
#534-730	107" - 3.937" bore, dome top 10.75:1 (+3cc)
#534-760	107" - 3.937" bore, dome top 11:1 (+6cc)
#534-300	103" - 3.875" bore, flat top 10:1 (-1.6cc)
#534-320	103" - 3.875" bore, dome top 10.75:1 (+5.5cc)
#534-340	103" - 3.875" bore, dome top 11.25:1 (+10.5cc)

PART NO.	FOR 1999-2006 4" STROKE ENGINES
#534-800	98" - 3.937" bore, flat top 9.5:1 (-1.6cc)
#534-803	98" - 3.937" bore, dome top 10:1 (+3cc)
#534-806	98" - 3.937" bore, dome top 10:1 (+6cc)
#534-810	98" - 3.937" bore, dome top 10:1 (+10cc)
#534-500	95" - 3.875" bore, flat top 9.25:1 (-1.6cc)
#534-520	95" - 3.875" bore, dome top 9.75:1 (+4.6cc)
#534-540	95" - 3.875" bore, dome top 10.25:1 (+9.7cc)
#534-560	95" - 3.875" bore, dome top 11:1 (+14.5cc)

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.

PART NO.	MOUNTING HARDWARE
#550-478	Ea, OE EV/TC right side 3.170" headbolt (long) cad plated
#550-480	Ea, OE EV/TC left side 1.890" headbolt (short) chrome plated
#041-253	Set/4 EV/TC 12pt. Diamond Eng. polished SS left headbolts
#598-014	Set/8 Stock length EV/TC S&S® headbolts w/washers (cad)
#598-016	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)
#572-908	ARP Ultra-Torque Fastener Assembly Lubricant, .5oz packet
#572-909	ARP Ultra-Torque Fastener Assembly Lubricant, 1.69oz tube
#572-910	ARP Ultra-Torque Fastener Assembly Lubricant, 10oz bottle w/brush
#550-834	Each, OE Twin Cam® cylinder stud (OE # 16834-99A)
#550-837	Each, OE EV Big Twin cylinder stud (OE # 16837-85C)
#550-832	Each, OE EV Sportster® cylinder stud (OE # 16832-86C)
#598-024	Set/10 S&S® Shovel 12pt headbolt & washer set
#598-023	Set/8 S&S® Shovel 6pt cylinder base nuts
#598-310	Set/8 S&S® std. length '30-'84 BT base stud set
#598-320	Set/8 S&S® +5/16" longer '30-'84 BT base stud set
#530-195	Set/8 Iron XL or EV w/ductile cylinders 3/8" base studs
#520-805	Set/8 12pt 3/8-24 chrome moly base nuts
#520-810	Set/8 12pt 7/16-20 chrome moly base nuts

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.

BORE SIZE	10 .5:1 (+5CC) DOME-TOP	9:6:1 (-2.2CC) FLAT-TOP	9:1 (-11.5CC) DISH-TOP	1.2, 1.2, 2MM* REPL. RINGS, EA. ORDER 2	CIRCLIPS SET OF 2
3.875" Std	#521-970	#521-980	#521-960	#521-875	#521-052
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.

BORE SIZE	10 .5:1 (+14CC) DOME-TOP	9:5:1 (+4.6CC) DOME-TOP	9:1 (-2CC) FLAT-TOP	1.2, 1.2, 2MM* REPL. RINGS, EA. ORDER 2	CIRCLIPS SET OF 2
3.875" Std	#521-930	#521-990	#521-940	#521-875	#521-052
3.875+.005"	#521-931	N/A	#521-941	#521-880	#521-052
3.875+.010"	#521-932	#521-992	#521-942	#521-885	#521-052
3.875+.020"	#521-933	N/A	N/A	#521-895	#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® 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.

BORE SIZE	10.9:1 DOME-TOP	12.7:1 DOME-TOP	1.2, 1.2, 3MM REPL. RINGS, EA. ORDER 2	CIRCLIPS 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

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.

BORE SIZE	10 .5:1 (+2.4CC) DOME-TOP	1.2, 1.2, 2MM; VM REPL. RINGS, EA. ORDER 2	1.2, 1.2, 3MM; GFX REPL. RINGS, EA. ORDER 2	CIRCLIPS 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.

BORE SIZE	(-3.2CC) FLAT-TOP	1.2, 1.2, 2MM; VM REPL. RINGS, EA. ORDER 2	1.2, 1.2, 3MM; GFX REPL. RINGS, EA. ORDER 2	CIRCLIPS 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.

BORE SIZE	*Most Popular!* 10:1 (+12.9CC) DOME-TOP	8:5:1 (-1.5CC) FLAT-TOP	1/16, 1/16, 5/32" REPL. RINGS SETS OF 2	CIRCLIPS 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) BORE SIZE	9:1 (+52CC) DOME-TOP	REPLACEMENT RINGS, EA. (ORDER 2 FOR 2 PISTONS)	WRIST PIN CIRCLIPS 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.

80" (1340CC) BORE SIZE	9:5:1 (+56CC) DOME-TOP	8:5:1 (+44.5CC) DOME-TOP	REPLACEMENT RINGS, EA. (ORDER 2 FOR 2 PISTONS)	WRIST PIN CIRCLIPS SET OF 2
3-1/2"+.010"	#521-624	N/A	#521-507	#521-031
3-1/2"+.020"	#521-625	#521-769	#521-517	#521-031
3-1/2"+.030"	#521-626	#521-770	#521-527	#521-031
3-1/2"+.040"	#521-627	N/A	#521-537	#521-031

'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.

BORE SIZE	10:1 (-8.5CC) REVERSE-DOME	9:5:1 (-11.2CC) REVERSE-DOME	8:5:1 (-13.7CC) REVERSE-DOME	1/16, 1/16, 5/32" REPL. RINGS SETS OF 2	CIRCLIPS 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.

BORE SIZE	10:5:1 (+3.63CC) DOME-TOP	12:1 (+12.3CC) DOME-TOP	9:1 (-2.8CC) FLAT-TOP	1/16, 1/16, 5/32" REPL. RINGS SETS OF 2	CIRCLIPS 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).

BORE SIZE	10:5:1 (+6CC) DOME-TOP	9:1 (-2.8CC) FLAT-TOP	1/16, 1/16, 5/32" REPL. RINGS SETS OF 2	CIRCLIPS 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	10:8:1 (+8.1CC) DOME-DISH TOP	9:7:1 (-1.0CC) DOME-DISH TOP	REPL. RINGS, EA. ORDER 2	CIRCLIPS SET OF 2
3-13/16" Std	#521-360	#521-380	#521-340	#521-812	#521-031
3-13/16+.010"	#521-361	#521-381	#521-341	#521-813	#521-031
3-13/16+.020"	#521-362	#521-382	#521-342	#521-814	#521-031

1000cc Iron Sportster® Piston kits include rings, wrist pins and circlips.

61" (1000CC) BORE SIZE	10:1 (+50.7CC) DOME-TOP	REPLACEMENT RINGS, EA. (ORDER 2 FOR 2 PISTONS)	WRIST PIN CIRCLIPS SET OF 2
3-7/16+.010"	#521-601	#521-198	#521-031
3-7/16+.020"	#521-602	#521-208	#521-031
3-7/16+.030"	#521-603	#521-218	#521-031
3-7/16+.040"	#521-604	#521-228	#521-031

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.

3-5/8" STROKE BORE SIZE	PISTON KIT FLAT-TOP	REPLACEMENT RINGS, EA. (ORDER 2 FOR 2 PISTONS)	WRIST PIN CIRCLIPS SET OF 2
3-5/8" Std	**#598-930**	**#598-100**	**#598-254**
3-5/8+010"	**#598-931**	**#598-101**	**#598-254**
3-5/8+020"	**#598-932**	**#598-102**	**#598-254**
3-5/8+030"	**#598-933**	**#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	WRIST PIN 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 SIZE	113" ENGINE FLAT-TOP	100/107" ENG FLAT-TOP	REPL. RINGS SETS OF 2	WRIST PIN CIRCLIPS SET OF 2
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 SIZE	4-1/8"STROKE FLAT-TOP	REPLACEMENT RINGS SETS OF 2	WRIST PIN CIRCLIPS SET OF 2
4-1/8" Std	**#598-456**	**#598-140**	**#598-278**
4-1/8+010"	**#598-457**	**#598-141**	**#598-278**
4-1/8+020"	**#598-458**	**#598-142**	**#598-278**
4-1/8+030"	**#598-459**	**#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 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
#520-310	.791" x .140" wall wrist pins (2), 2.795" length
#520-315	.792" x .140" wall wrist pins (2), 2.795" length
#520-302	Spiral locks for .791/.792" wrist pins, sold each
#520-332	Spiral locks for .927" wrist pins, sold each

PART NO.	DESCRIPTION
#520-350	3.5" bore Teflon® buttons (Package of 4)
#520-355	3.625" bore Teflon® buttons (Package of 4)
#520-360	3.812" bore Teflon® buttons (Package of 4)

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 95", 103" (1.2, 1.2, 3mm)	#554-600	#554-605	#554-610	#554-620	#554-630				
**These rings also fit Wiseco TC pistons produced between 1999 and 2009 using Wiseco's "XK" ring package (pistons are marked 4688, 4678, 4916, 4917, 4957, 4964)*									
Twin Cam® 3-3/4" Bore 88", 96" (1.2, 1.2, 3mm)	#554-200	#554-205	#554-210						
80"EV, 1200XL 3.5" Bore (1/16", 1/16", 5/32")	#554-100	#554-105	#554-110	#554-120	#554-130	#554-140			
80" Shovel/Pan 3.5" Bore (1/16", 1/16", 3/16")	#554-300	N/A	#554-310	#554-320	#554-330	#554-340			
74" Shovel/Pan 3-7/16" (1/16", 1/16", 3/16")	#554-400	N/A	#554-410	#554-420	#554-430	#554-440	#554-450	#554-460	#554-470
Iron XL 3-3/16" Bore 1000cc (1/16", 1/16", 3/16")	#554-500	N/A	#554-510	#554-520	#554-530	#554-540	#554-550	#554-560	#554-570

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.

Zipper's Performance Products • 6655-A Amberton Drive, Elkridge, MD 21075 • (410) 579-2828

"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.

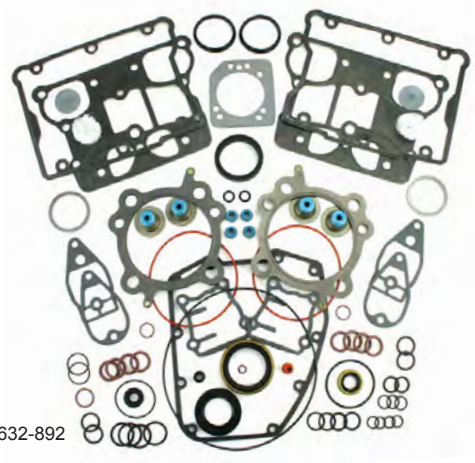
We stock most all gaskets, seals and o-rings individually for '66 and later Big Twins and '57-up Sportsters®. Give us a call with your specific needs – *we don't mind smaller quantities!*

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

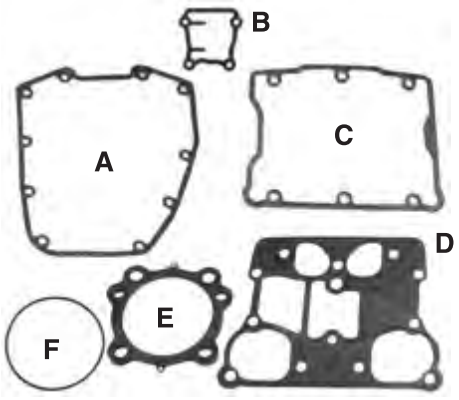
Cometic EST Complete Engine Gasket Sets

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)


#632-892

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

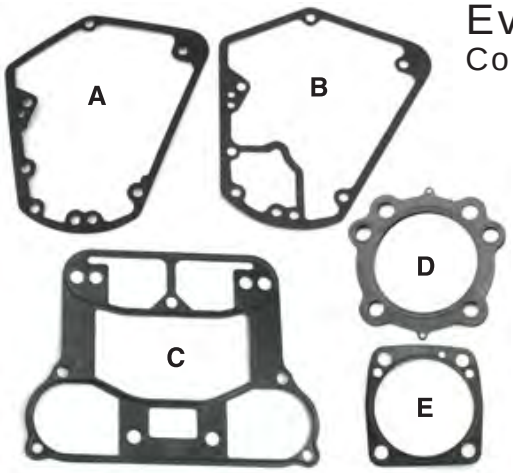
Cometic EST Complete Engine Gasket Sets

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


#632-890

Cometic EST EV Big Twin Top End Gasket Sets

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



Evolution® Big Twin Engine

Cometic EST EV Big Twin Component Gaskets

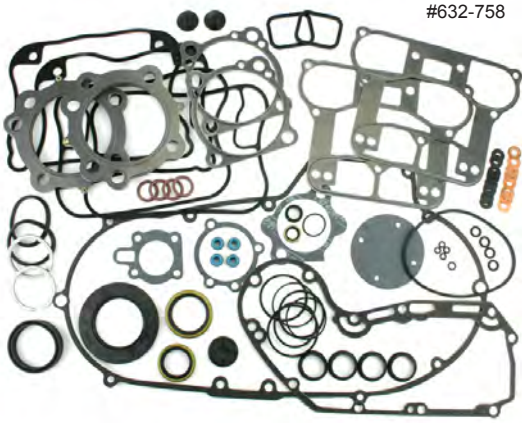
PART NO.	DESCRIPTION
#432-328	**A.** Pk/5 ’93-’99 AFM EV cam cover gaskets OE #25225-93
#432-302	**B.** Pk/5 ’84-’92 AFM EV cam cover gaskets OE #25225-70B
#532-865	**C.** Pk/2 ’84-’99 SPS EV 1-pc rocker box base OE #16800-84A
#532-866	**C.** Pk/10 ’84-’99 SPS EV 1-pc rocker box base OE #16800-84A
#532-689	**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

#632-758

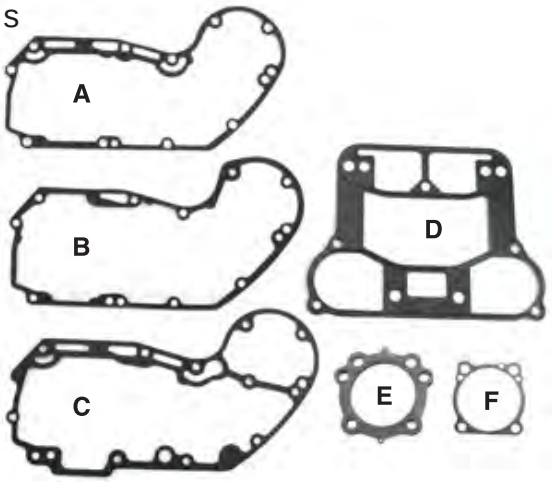


Cometic EST EV Sportster® Top End Gasket Sets

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

Cometic EST EV Sportster® Component Gaskets

PART NO.	DESCRIPTION
#432-944	**A.** Pk/5 ’04-’14 AFM XL cam cover gaskets OE #25263-90D
#432-313	**A.** Pk/5 ’91-’03 AFM XL cam cover gaskets OE #25263-90B
#432-311	**B.** Pk/5 ’86-’90 AFM XL cam cover gaskets OE #25263-86
#432-029	**C.** Pk/5 ’08-’12 AFM XR cam cover gaskets OE #25279-08
#532-865	**D.** Pk/2 ’86-’14 SPS XL 1-pc rocker box base OE #16800-84A
#532-866	**D.** Pk/10 ’86-’14 SPS XL 1-pc rocker box base OE #16800-84A
#532-689	**E.** Pk/2 MLS .040” 3-1/2” bore EV head gaskets
#532-688	**E.** Pk/2 MLS .030” 3-1/2” bore EV head gaskets
#532-691	**E.** Pk/2 MLS .040” 3-5/8” bore EV head gaskets
#532-690	**E.** Pk/2 MLS .030” 3-5/8” bore EV head gaskets
#532-693	**E.** Pk/2 MLS .040” 3-13/16” bore EV head gaskets
#532-692	**E.** Pk/2 MLS .030” 3-13/16” bore EV head gaskets
#532-553	**F.** Pk/2 SPS .020” 3-1/2” bore EV XL base gaskets
#532-552	**F.** Pk/2 SPS .020” 3-5/8” bore EV base gaskets
#532-870	**F.** Pk/2 SPS .020” 3-13/16” bore EV base gaskets



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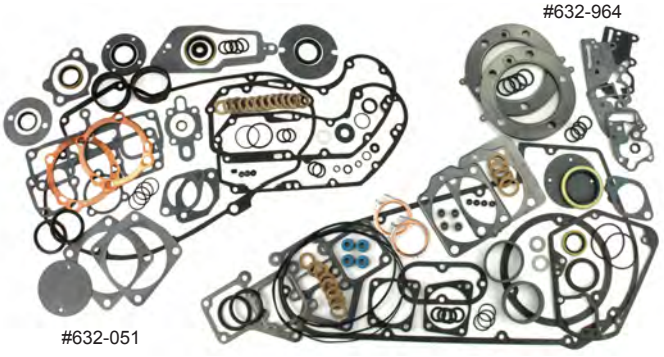


#632-051

Pre-Evolution® 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

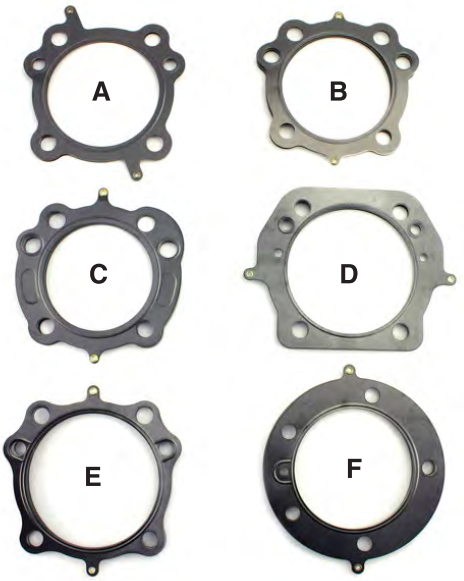
Cometic Top End Gasket Sets

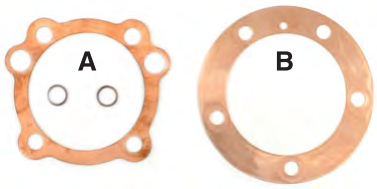
PART NO.	DESCRIPTION
#532-967	‘66-’84 Shovelhead top end kit
#532-052	‘L73-’85 Sportster® 1000cc top end kit
#532-103	‘72-’E73Sportster® 1000cc top end kit

Cometic '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.

SET/2 .040"	SET/2 .030"	APPLICATION
#532-745	#532-790	**A.** Twin Cam® 3-3-4" bore (88 & 96")
#532-722	#532-721	**A.** Twin Cam® 3-7/8" bore (95 & 103")
#532-726	#532-725	**A.** Twin Cam® 4" bore (110")
#532-876	#532-873	**A.** Twin Cam® 4-1/8" bore
#532-689	#532-688	**B.** Evolution® 3-1/2" (stock) bore BT80 /
#532-257	N/A	**B.** Evolution® 3-9/16" bore BT / XL
#532-691	#532-690	**B.** Evolution® 3-5/8" bore BT / XL
#532-695	#532-694	**B.** Evolution® 3-3/4" bore BT / XL
#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
#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
#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

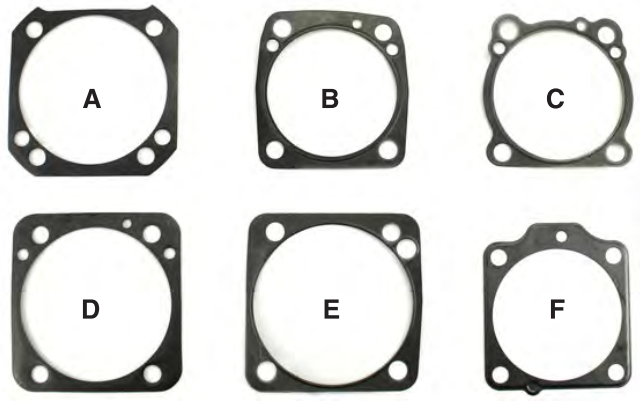
Specialty gaskets made from copper.

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
#532-739	**A.** Twin Cam® 4-1/8" bore
#532-551	**B.** EV Big Twin 3-1/2" bore (stock)
#532-553	**C.** EV XL 883-1200 3-1/2" bore (stock)
#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
#532-874	TP 121"4-1/8" bore
#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



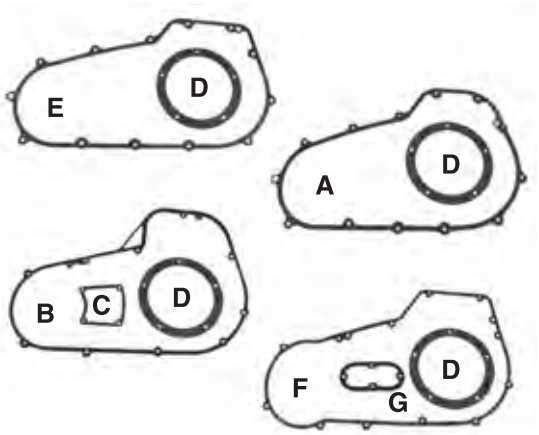
Cometic Copper Base Gaskets

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
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

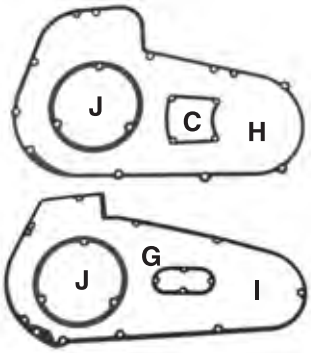
Cometic 'Afm' Primary Gaskets
Cometic Twin Cam® Primary Chaincase Gaskets

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	**E.** Pk/5 '06-'14 FXD, '07-'11 Softail® prim cvr OE #60547-06
#832-309	**F.** Pk/5 '91-'05 FXD, '89-'06 Softail® prim cvr OE #60539-89A
#832-331	**G.** Pk/5 '91-'05 FXD, '84-'06 Softail® insp cvr OE #60567-90C
#832-997	**D.** Pk/5 '99-'14 **(all) AFM 5-hole derby cvr** OE #25416-99



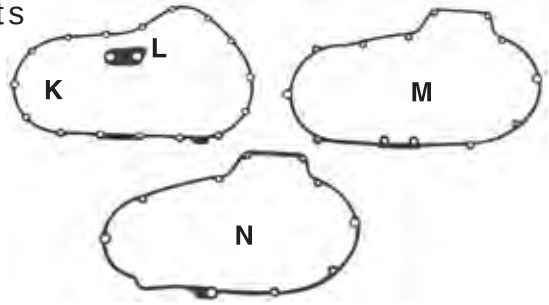
Cometic Big Twin Primary Chaincase Gaskets

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 #60538-81E
#832-331	**G.** Pk/5 '91-'05 FXD, '84-'06 Softail® **inspection** cover OE #60567-90C
#832-338	**J.** Pk/5 '65-'98 **(all) AFM 3-hole derby cover** OE #25416-70/83



Cometic Sportster® Primary Chaincase Gaskets

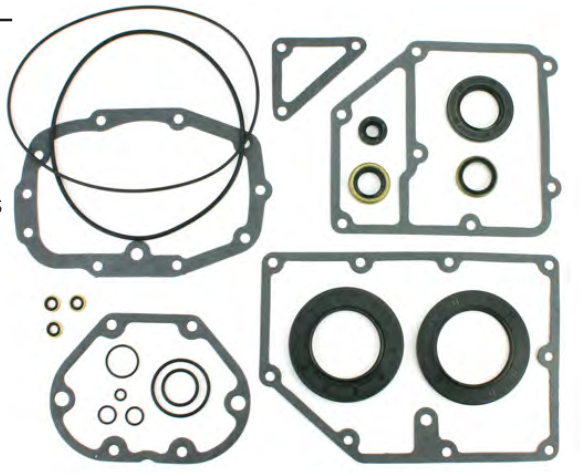
PART NO.	DESCRIPTION
#832-943	**K.** Pk/5 '04-'14 XL AFM primary cover OE #34955-04
#832-957	**L.** Pk/5 '04-'14 XL AFM chain inspection OE #34986-04
#832-314	**M.** Pk/5 '91-'03 XL AFM primary cover OE #34955-89B
#832-310	**N.** Pk/5 '77-'90 XL AFM primary cover OE #34955-75



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



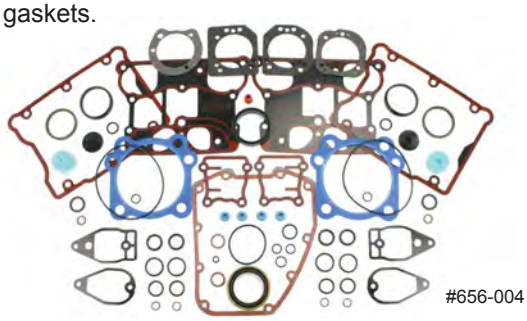
#832-468

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.

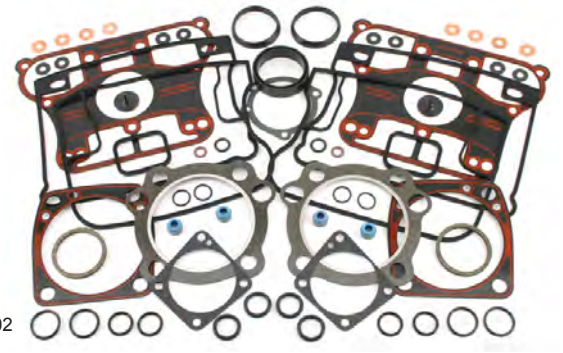
PART NO.	DESCRIPTION
#656-002	Twin Cam® '99-up 88 & 96" (stock 3-3/4" bore)
#656-004	Twin Cam® '99-up 95 & 103" (3-7/8" bore)
#656-010	EV Big Twin '92-'99 80" (stock 3-/2" bore)
#656-007	EV Big Twin '84-'91 80" (stock 3-/2" bore)
#656-025	Shovelhead '66-'84 (stock bore)
#656-020	EV Sportster® '91-'03 883 & 1200
#656-015	EV Sportster® '86-'90 883 & 1200
#656-035	Iron Sportster® 'L73-'85 (stock bore)


#656-004

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)


#556-102

James Rocker-Only Gasket Sets

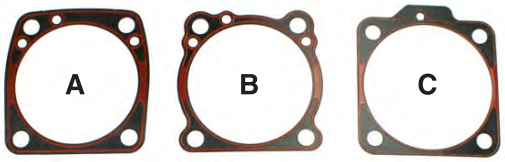
All include coated metal rocker box base gaskets and pushrod tube seals; EV models include rubber rocker layer gaskets.


#556-112

PART NO.	DESCRIPTION
#556-598	Twin Cam® '99-up
#556-112	EV Big Twin '92-'99
#556-110	EV Big Twin '84-'91
#556-142	EV Sportster® '91-'03
#556-140	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!

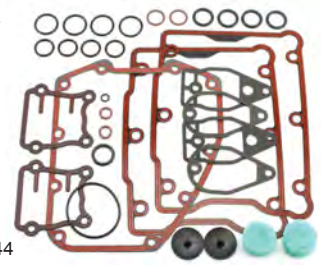


PART NO.	DESCRIPTION
#556-105	**A.** Pr/EV Big Twin, stock 3-1/2" bore, .020"
#556-106	**A.** Pr/EV Big Twin, 3-5/8" bore, .020"
#556-107	**B.** Pr/EV Sportster®, stock 3-1/2" bore, .020"
#556-104	**C.** Pr/Shovelhead, stock bore, .034"
#556-108	**C.** Pr/Shovelhead, 3-5/8" bore, .020"
#556-109	**C.** 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).

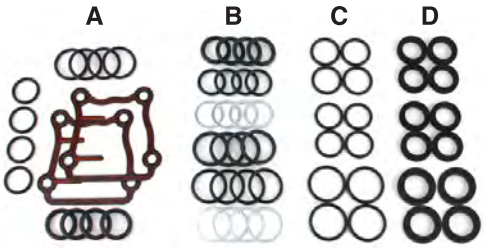
PART NO.	DESCRIPTION
#456-244	'99-up Twin Cam®
#456-200	'70-'92 Big Twin
#456-205	'93-'99 Big Twin


#456-244

James Pushrod Cover Re-Sealing Kits

Perfect for re-sealing telescoping pushrod covers.

PART NO.	DESCRIPTION
#456-400	**A.** '99-'14 Twin Cam®, includes tappet cover gaskets
#456-405	**B.** '84-'99 EV BT, '86-'90 XL tube o-rings & steel base washers
#456-410	**C.** 'L79-84 BT Shovel tube o-rings
#456-415	**D.** '48-'E79 Big Twin rubber (cork-style) pushrod seals



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.

PART NO.	DESCRIPTION
#156-006	James CV carb overhaul kit, all years

#156-006

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)

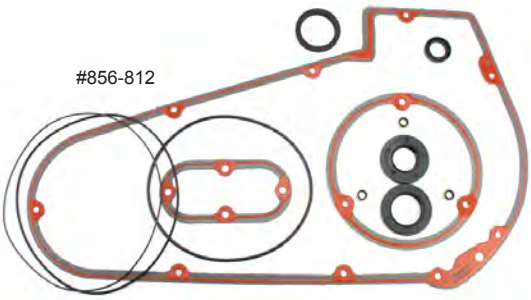
#656-391

#656-392

James Primary Service Kits

Includes all gaskets, o-rings, lock tabs and seals for servicing the primary drive compartment.

#856-812



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

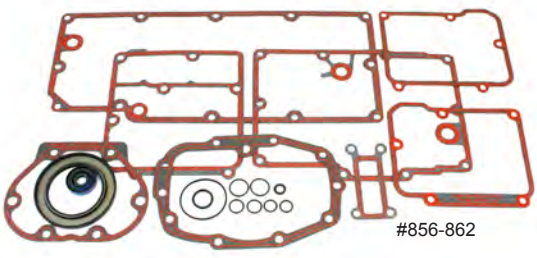
These kits are designed to seal the inner primary on Big Twin engine cases where the o-ring lip has been cracked or broken. Includes a Foamet® covered steel gasket and special locking tabs.

PART NO.	DESCRIPTION
#856-800	**A.** '84-'06 Big Twin 5-speed
#856-810	**B.** '70-'84 Big Twin 4-speed

James Transmission Gasket Kits

All the quality gaskets, seals and o-rings you'll need to overhaul your transmission.

#856-862



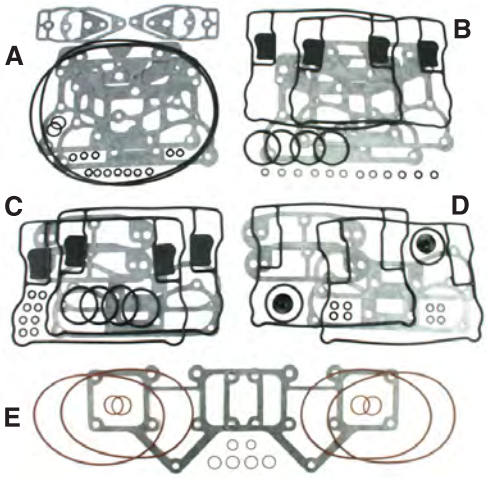
PART NO.	DESCRIPTION
#856-864	'07-'14 Touring with oil pan
#856-862	'99-'06 Touring, '99-'05 FXD Dyna® with oil pan
#856-860	'93-'98 Touring with oil pan
#856-874	'06-'14 FXD Dyna® with oil pan
#856-870	'91-'98 FXD Dyna® with oil pan
#856-855	'86-'06 Softail®, '82-'00 FXR, '80-'92 FLT 5 speed
#856-850	'36-'86 4 speed FX-FL models

S&S® 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

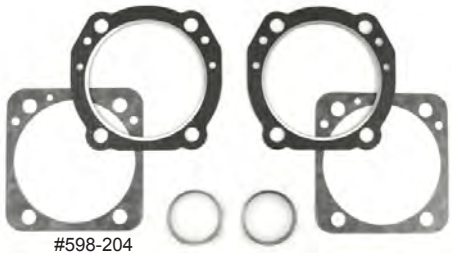
#698-820



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



#598-204

S&S® Head, Base & Exhaust Gasket Kits

Two each head, base and exhaust gaskets for use on S&S® engines.

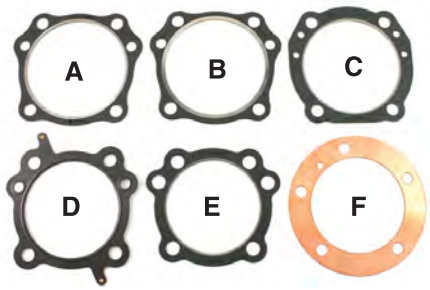
PART NO.	DESCRIPTION
#598-206	4-1/8" bore, S&S® stud pattern TC & EV style engine
#598-205	4" bore S&S® Twin Cam® style engine
#598-207	3.927" bore S&S® Twin Cam® cylinder kit
#598-204	4" bore S&S® EV BT & XL engine
#598-200	3-5/8" bore EV-style Big Twin
#598-201	3-5/8" bore EV-style XL/Buell®
#598-202	3-5/8" bore Pan/Shovel style engine

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

#498-252



S&S® Head Gaskets

Cylinder head gaskets specific to S&S® engines, one-piece style unless otherwise noted, **sold each.**

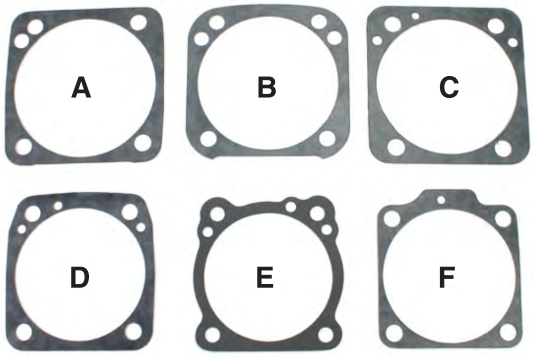
PART NO.	DESCRIPTION
#598-273	**A.** 4-1/8" bore .043" TC & EV SSW+, each
#598-243	**B.** 4" bore .043" Twin Cam® style, each
#598-240	**C.** 4" bore .045" Evolution® BT & XL, each
#598-238	**D.** 3.927" bore .045" Twin Cam® MLS, each
#598-237	**E.** 3-5/8" bore .045" EV BT & XL, each
#598-242	**F.** 3-5/8" bore .032" Shovel/Pan copper, each

S&S® Oil Pump Gaskets

Select 'Gaskets Only' or 'Master' kit 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


#698-278



S&S® Base Gaskets

Micropore cylinder base gaskets specific to S&S® engines, **sold each.**

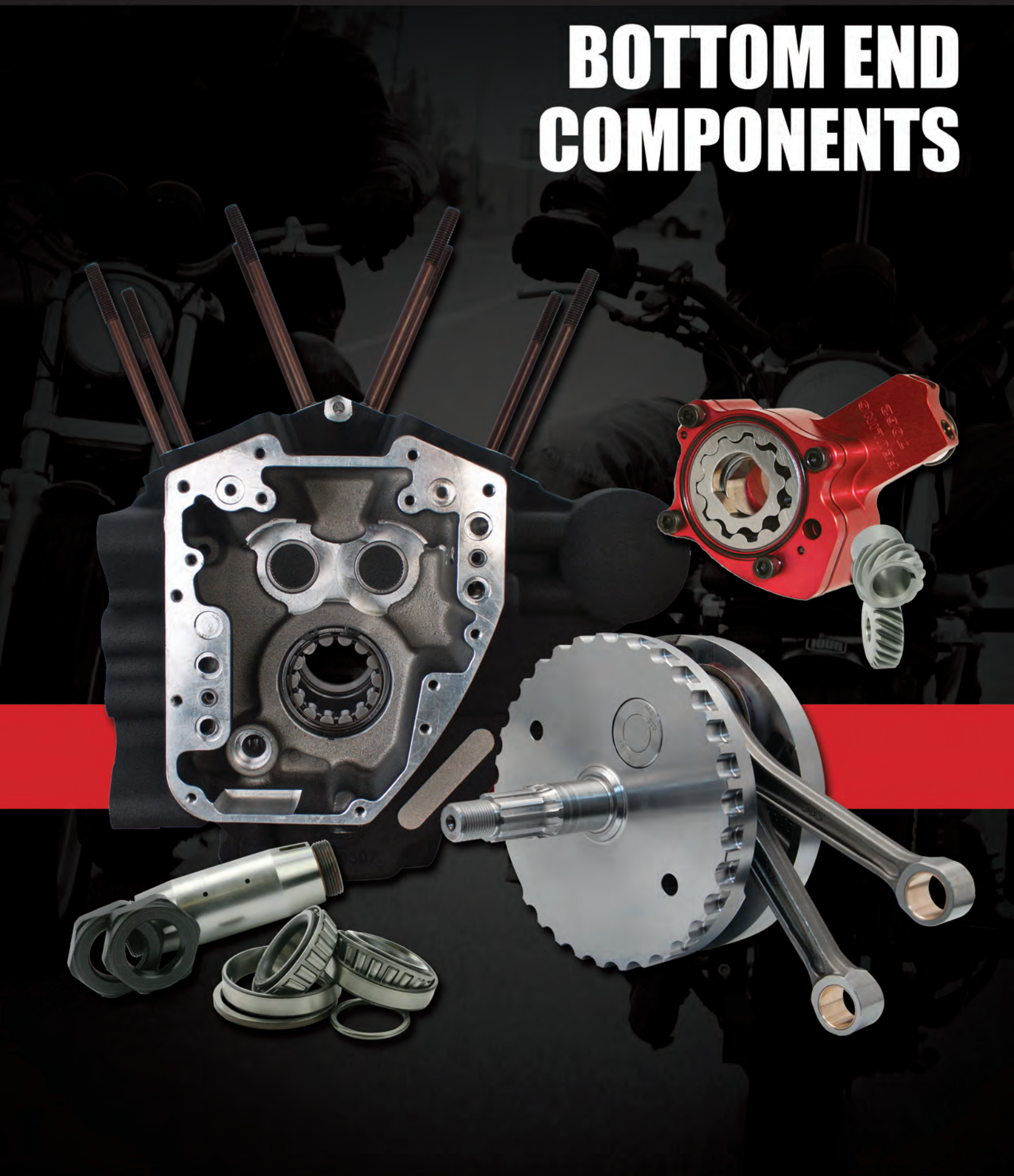
PART NO.	DESCRIPTION
#598-274	**A.** 4-1/8" bore .018" TC & EV SSW+, each
#598-268	**B.** 4" bore .018" Twin Cam®, each
#598-231	**C.** 4" bore .018" EV BT & XL SSW, each
#598-233	**D.** 3-5/8" bore .018" EV BT, each
#598-239	**E.** 3-5/8" bore .018" EV XL/Buell®, each
#598-222	**F.** 3-5/8" bore .018" 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	4" ID, for 3-13/16" bore ductile cylinders
#572-046	4-1/4" ID, for 4" bore ductile cylinders
#572-047	4-1/2" ID, for 4-1/4" bore ductile cylinders
#572-048	4-3/4" ID, for 4-1/2+" bore ductile cylinders

BOTTOM END COMPONENTS



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
#417-460	'07-up TC & 2006 FXD Torrington-brand inner cam bearings, set of 2
#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
#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


#417-460 #630-974


#450-983 #874-990

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**

#450-726 '07-Up TC & 2006 FXD, Set of 5 (.110" - .150")


#450-726

'99-'06 (EXCEPT 2006 FXD), TC CAM SPROCKET SPACER, EACH

.287"	**#450-722**	.297"	**#450-723**	.307"	**#450-721**
.317"	**#450-719**	.327"	**#450-717**		

#450-700 '99-'06 (except 2006 FXD) TC, Set of 5 (.287" - .327")


#450-700

Twin Cam® Crankcase Bearings


#650-604 #650-623


#650-603


#630-048

PART NO.	DESCRIPTION
#650-604	Left or right crankshaft bearing, '03-up TC A or B engine, each (OE #24605-07)
#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 req'd
#650-959	Balancer shaft bearing (housing), '07-up TC-B, each (OE #8959) 2 req'd
#650-989	Balancer shaft bearing (case), '00-'06 TC-B, each (OE #8989) 2 req'd
#650-991	Balancer shaft bearing (housing), '00-'06 TC-B, each (OE #8991) 2 req'd


#874-992 #650-959


#650-989 #650-991

#650-700 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**


#650-700

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.

PART NO.	DESCRIPTION
#650-008	Sprocket spacer '03-up Touring, '06-up Dyna®, '07-up Softail® with Timken® conversion
#650-038	Sprocket spacer 2003 (only) Dyna® with Timken® conversion
#650-039	Sprocket spacer '03-'06 Softail®, '04-'05 Dyna® with Timken® conversion
#648-600	Set of 16, end play center spacers for BT Timken® bearings (.089"-.120")
#648-605	Set of 5, most commonly used center spacers for BT Timken® bearings (.0975"-.1065")

Twin Cam® Bushings

PART NO.	DESCRIPTION
#658-998	'99-'09 TC wrist pin bushings (full width), set of 2
#458-301	TC rocker arm bushing (8 req'd), each


#658-998


#458-301

Single Cam Big Twin Cam Bearings

PART NO.	DESCRIPTION
#630-805	Torrington cam (case) bearing '58-'99, each


#630-805

Sprocket Shaft Bearings

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)


#630-048


#658-002

Pinion Bearings

'58-'86 BIG TWIN - PINION ROLLER SET (28 LOOSE ROLLERS)

#644-220 (Std.) **#644-221** (+.0002") **#644-222** (+.0004") **#644-223** (+.0006")
#644-224 (+.0008") **#644-225** (+.001") **#644-226** (+.002")

'87-'99 EV BIG TWIN - LATE CAGED PINION ROLLER SET

#650-626 White/Grey (OE #24626-87A) **#650-628** Green (OE #24628-87A)
#650-641 Red (OE #24641-87A) **#650-643** Blue (OE #24643-87A)


'58-'86


'87-'99

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 req'd), each


#644-000


#658-500


#649-303

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® Cam Bearings


#630-400

PART NO.	DESCRIPTION
#630-400	Torrington (OE #9057) '57-'90, each (4 req'd)

Sportster® Shaft Bearings


#630-134

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)

#650-648 Bearing & Inner Race Set **#649-790** Bearing Only

'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)

#644-010 (Std.) **#644-011** (+.001") **#644-012** (+.002") **#644-013** (+.003")



#648-200

#649-303

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

PART NO.	+.005" OVERSIZE	DESCRIPTION
#588-310	**N/A**	'54-up wrist pin bushings (Set of 2)
#458-300	**N/A**	JIMS® Iron XL® rocker arm bushing (8 req'd) each
#458-301	**N/A**	JIMS® EV XL® rocker arm bushing (8 req'd) each
#458-330	**#458-332**	JIMS® '54-up XL® cam cover #1,3 & 4 cam bushing
#458-335	**#458-337**	JIMS® '57-'90 XL® cam cover #2 cam bushing
#458-330	**#458-332**	JIMS® '91-up XL® case cam bushing (4 req'd)
#458-350	**N/A**	JIMS® '57-'74 XL® cam cover pinion bushing
#458-355	**N/A**	JIMS® '75-up XL® cam cover pinion bushing


#588-310


#458-300
#458-301


#458-330

#458-335

#458-350

#458-355

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	Black finish, stock bore cases, for 2007-up Touring models (not for 2007-up Dyna® models)
#698-966	Silver finish, stock bore cases, for 2007-up Touring models (not for 2007-up Dyna® models)
#698-435	Oil line/installation kit, required for 2007-up Touring models (not for 2007-up Dyna® models)
#798-006	Transmission drilling fixture jig, optional for 2007-up Touring models

PART NO.	FOR '99-'06 TOURING, '99-'05 FXD MODELS
#698-952	Black finish cases, stock bore, for '99-'06 Touring, '99-'05 Dyna® models
#698-951	Silver finish cases, stock bore, for '99-'06 Touring, '99-'05 Dyna® models
#698-425	'99-'06 Touring model installation kit (required for Touring models)
#698-424	'99-'05 Dyna® model installation kit (required for Dyna® models)

PART NO.	FOR '84-'99 EV CHASSIS & TRANSMISSION
#698-974	Black finish cases, stock bore '99-'06 Twin Cam® style cases with EV transmission mount
#698-973	Silver finish cases, stock bore '99-'06 Twin Cam® style cases with EV transmission mount

S&S® Twin Cam® Crankshafts

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.

FOR TC 'A' ENGINES	FOR TC 'B' ENGINES	STROKE AND APPLICATION
#698-353	#698-359	'07-up 4-3/8" (96",103",110") stroke with tapered rod tops
#698-351	#698-357	'07-up 4-3/8" (96",103",110") stroke with full-width rod tops
#698-450	#698-456	'07-up 4-1/2" stroke with full-width rod tops
#698-464	#698-471	'07-up 4-5/8" stroke with full-width rod tops
#698-523	#698-529	'07-up 4-5/8" stroke for H-D® Screamin' Eagle® 120R engine
#698-403*	#698-397	'99-'06 4" (stock 88" & 95") stroke with full-width rod tops
#698-361*	#698-355	'99-'06 4-3/8" stroke with full-width rod tops
#698-460*	#698-454	'99-'06 4-1/2" stroke with full-width rod tops
#698-475*	#698-469	'99-'06 4-5/8" stroke with full-width rod tops
#698-515	#698-517	'99-'06 4-5/8" stroke for H-D® Screamin' Eagle® 120R engine

*Does not fit 2006 Dyna® (FXD) engines. These engines use 2007 'A'-style crankshafts.

NEW 120R Cranks!

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.

Cam Plate Cutaway with #620-103 Bypass Valve
Fluted Design of Needle Allows Oil Flow Through Valve

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

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.	DESCRIPTION
#672-700	'99-'06 (not for 2006 FXD) 40% more pressure volume than stock, 60% more scavenge
#672-760	'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

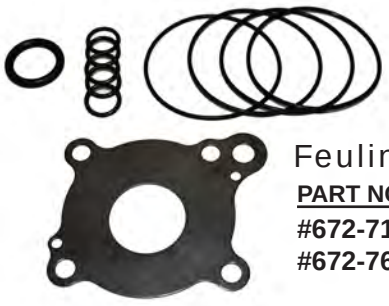
Body is machined from harder, stronger 7075 billet with hard-anodized red finish for tighter tolerances under temperature. Pump assembly is blueprinted to exacting tolerances; recommended for carefully assembled strip and high performance street applications with minimum crankshaft run-out. Works with factory, Screamin' Eagle® and aftermarket cam plates designed for the stock pump or high-flow pump.

PART NO.	DESCRIPTION
#672-750	'99-'06 (not for 2006 FXD) 40% more pressure volume than stock, 60% more scavenge
#672-762	'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

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

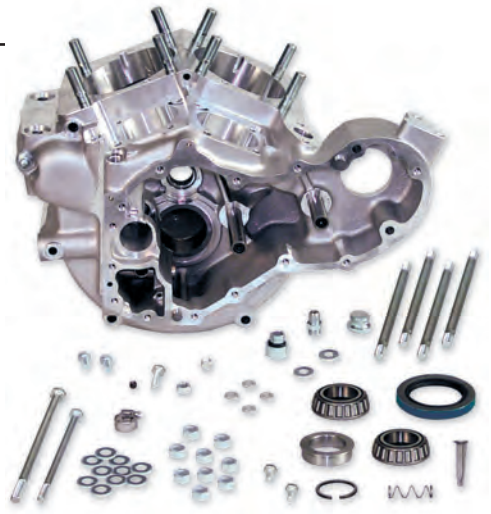
S&S® Single-Cam Big Twin Cases

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)
#698-933	**#698-937**	**#698-939**	'92-'99 S/A 4-1/8" bore cases (111"/117"/124" engines)



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

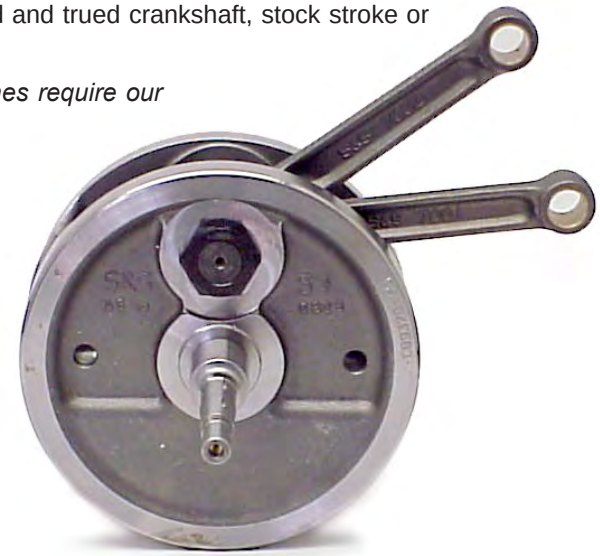
V-Thunder's® engine mounts use space age materials to further reduce vibration on bikes with rubber-mounted engines. Their engine stabilizers replace the stock links with what amounts to a mini shock absorber. A stainless steel body and plunger assembly utilizes a special urethane damping system that 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

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*	'84-'99 EV BT 4-1/4" stroke crankshaft
#698-522*	'84-'99 EV BT 4-5/8" stroker crankshaft
#698-525	'70-'84 Shovel 4-1/4" stroke crankshaft
#698-527	'70-'84 Shovel 4-1/2" stroker crankshaft
#698-530	'86-'90 Sportster® 3-13/16" stroke crankshaft
#698-533	'91-'03 Sportster® 3-13/16" stroke crankshaft
#698-535**	'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

S&S® Crank Pins

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®)
#698-200	1.249" od, std '41-'E81 Big Twin OHV
#698-210	1.249" od, std 'L81-'86 H-D®, all S&S® rods
#698-211	1.250" od, std '87-'99 H-D® (+.001" for above)
#698-212	1.251" od, (oversize)
#698-213	1.252" od, (oversize)

PART NO.	SPORTSTER®/BUELL
#698-250	1.249" od, '57-'E81 Sportster®
#698-260	1.249" od, std size L'81-'99 XL®
#698-261	1.250" od, +.001" oversize L'81-'99 XL®
#698-262	1.251" od, +.002" oversize L'81-'99 XL®

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
#658-120	Sprocket shaft for '57-'76 Sportster®
#658-122	Sprocket shaft for '77-'E81 Sportster®
#658-124	Sprocket shaft for 'L81-'85 Sportster®
#658-140	Sprocket shaft for '56-'64 Big Twin
#658-141	Sprocket shaft for '65-'69 Big Twin
#658-142	Sprocket shaft for '70-'71 Big Twin
#658-143	Sprocket shaft for '72-'E81 Big Twin
#658-146	Sprocket shaft for 'L81-'E85 Big Twin

PART NO.	PINION SHAFTS
#658-126	Pinion shaft for '57-'76 Sportster®
#658-128	Pinion shaft for '77-'E81 Sportster®
#658-130	Pinion shaft for 'L81-'85 Sportster®
#658-150	Pinion shaft for '58-'72 Big Twin
#658-153	Pinion shaft for '73-'E81 Big Twin
#658-156	Pinion shaft for 'L81-'86 Big Twin
#658-159	Pinion shaft for '87-'89 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	Crank pin nut for '54-'E81 Sportster®, each, 2 req'd
#658-202	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

Other Nuts

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 pump only or a complete pump kit 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

#698-628

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

#698-695

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)


#698-230 #698-232 #650-703 #458-242

Oil Pump Tools & Service Parts

PART NO.	APPLICATION
#798-013	S&S® drilling jig for 1970-'80 engines
#698-275	Master Rebuild Kit '36-'91 S&S® pump
#698-271	'Gasket Only' set '36-'91 S&S® pump
#698-278	Master Rebuild Kit '92-'99 S&S® pump
#698-273	'Gasket Only' set '92-'99 S&S® pump


#698-275

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).


#626-683 #638-693

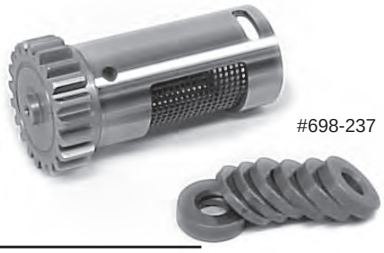
PART NO.	APPLICATION
#626-683	Baisley® 3:1 oil pump gears, '68-'89 Big Twins
#626-680	Baisley® 2:1 oil pump gears, '68-'89 Big Twins
#638-690	Baisley® 2:1 oil pump speed-up gears, '90-'92 Big Twins
#638-693	Baisley® 2:1 oil pump speed-up gears, '93-'99 Big Twins
#638-691	Baisley® oil pump bleed-off control system


#638-691

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 worn 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).


#698-237

GEAR ONLY	GEAR 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,
	#698-249	S&S® breather gear shim set (8 pcs, .100"-.170"), fits all S&S® gears


#698-096

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	**#458-371**	JIMS® breather gear, 'L77-'99 Big Twin
#458-380	**#458-381**	JIMS® breather gear, '48-'E77 Big Twin


#458-380

S&S® Big Twin Pinion Gears

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 '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

#698-141 Orange	**#698-142** White	**#698-143** Yellow
#698-144 Red	**#698-145** Blue	**#698-146** Green
#698-147 Black		


#698-144

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	


#658-043


#698-154

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 SPLINED	'91-'99 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.

#676-084

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.


#617-600

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® 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.


#162-621

SPECIALTY TOOLS


#772-457

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**


#772-750


#772-848


#772-229

Oxygen 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 NO.	DESCRIPTION
#772-750	Dual-sided 6/12 point 7/8" crowfoot socket (most versatile)
#772-848	Single-sided 6 point 7/8" crowfoot socket
#772-229	6-point 7/8" slotted deep socket


#758-755


#758-756


#758-784


#772-200


#772-230


#772-220

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.

PART NO.	DESCRIPTION
#758-755	Crowfoot 14mm socket wrench for FXD, V-Rod®, FXST (front) sensor
#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.

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**

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-up V-Rod®, '04-'10 FXST, '04-'11 FXD, '04-'13 XL, '04-'13 Touring models
#799-530	TS3/ABS CAN Bus diagnostic tool for '11-'14 FXST, '12-'14 FXD, '14 XL, '14 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

PART 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.

PART NO.	DESCRIPTION
#799-121	DTT WEGO Single channel system with LED readout, data logging & 0-5V input
#799-125	DTT WEGO Dual channel system with LED readout, data logging & 0-5V input
#799-116	DTT WEGO Single channel dyno interface kit
#799-114	DTT WEGO Dual channel dyno interface kit
#799-115	DTT WEGO Dual channel dyno interface kit for SuperFlow® Dyno
#799-155	DTT WEGO tach adapter, required for use on bikes with CD type ignitions
#799-151	DTT WEGO replacement wide-band oxygen sensor, each

JIMS® AFR Sniffer Tool

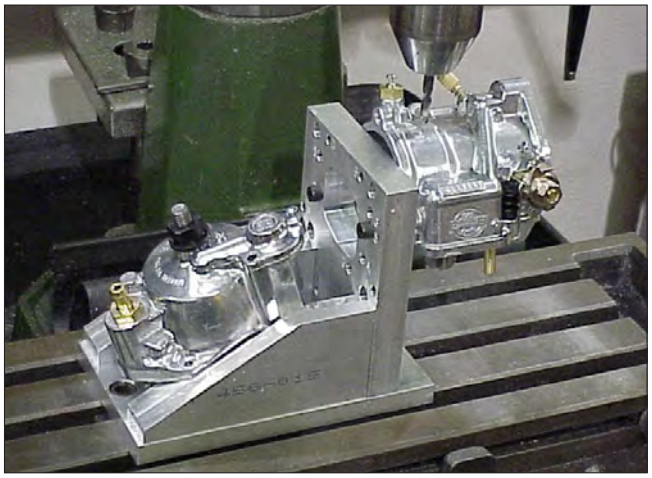
This tool is designed to work with the DTT WEGO air/fuel ratio reading system or similar product that uses a wide-band oxygen sensor to report AFR feedback. If the bike you are working with does not have an 18mm oxygen sensor port in the exhaust pipe, this tool will allow you to place the probe tube 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**

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**

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® engine applications and others. **#758-782**



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

Carburetor Jet Tools

Tools that minimize damage to jets and delicate carburetor parts.

	PART NO.	DESCRIPTION
A	**#798-452**	Jet tool for S&S® main jets
B	**#717-100**	Jet tool for ThunderJet® jets
C	**#711-475**	Jet tool for Mikuni main jets
D	**#772-011**	Jet tool for Mikuni pilot jets, CV low speed jets & idle mixture screw

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**


#758-942

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

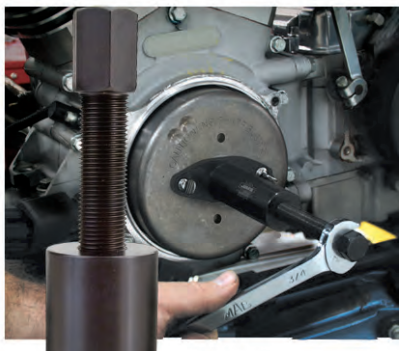

#772-565

Electrical Connector Tool

Handy 6-in-1 tool for removing wire terminals from harness connectors. **#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**


#758-147

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**

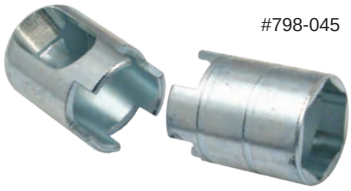
#758-752

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**

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**



#798-045

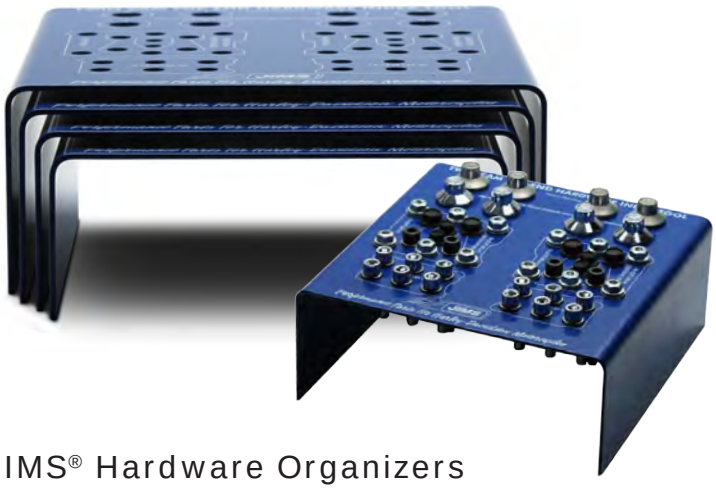
S&S® Electronic Compression Release Socket

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**

#798-040

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®
#758-425	For 6-speed Cruise Drive transmission 2007-up Twin Cam®

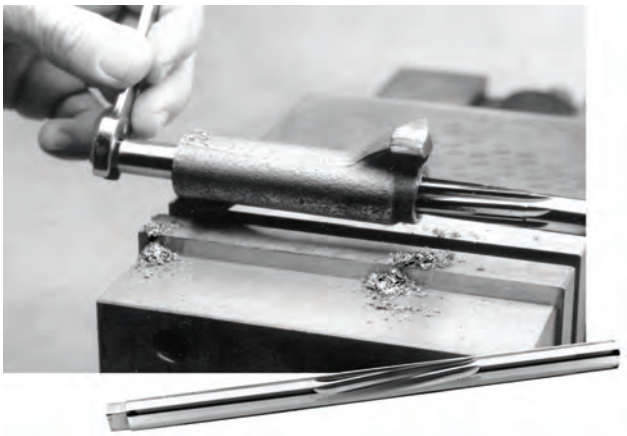
#758-961

JIMS® TC Rocker Box Alignment Screws

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**

JIMS® Rocker Bushing & Roller Bearing Puller

Use to remove rocker bushing or bearing in one easy operation. Use on all Big Twin 1966-present and Sportster® 1957-present. **#758-290**

Trock® Rocker Arm Grinding Fixture

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**

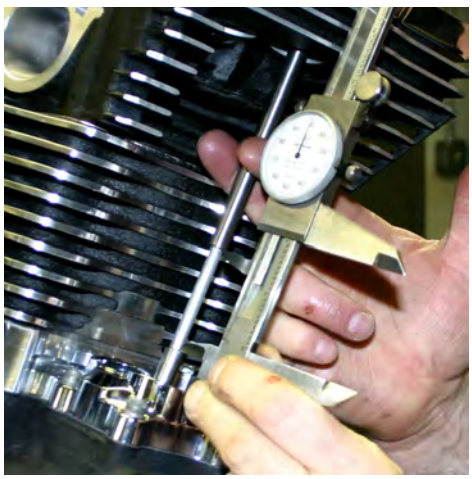
JIMS® Rocker Arm Bushing Installer

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

Zippers® Pushrod Checking Tool

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**

JIMS® Pushrod Cover Clip R&R Tool

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**

#758-001

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**

#776-082

#768-853

#768-435

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.

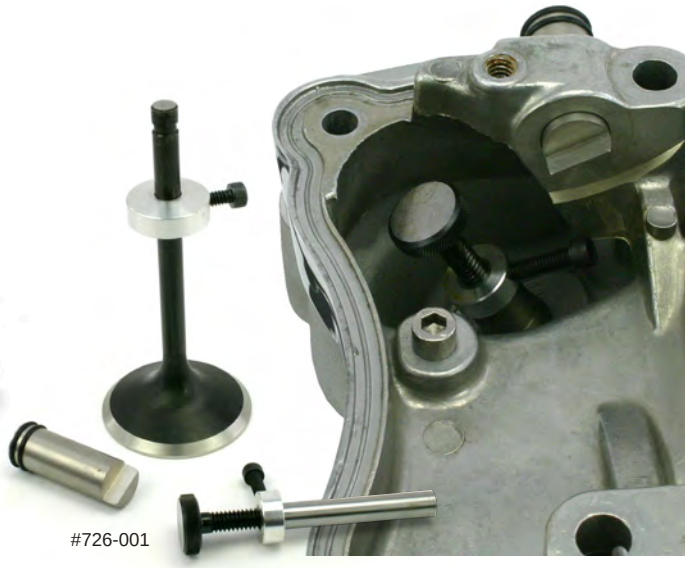
PART NO.	DESCRIPTION
#772-435	Cuts to .415 o.d (5/16" EV/TC arbor included)
#768-712	Cuts to .531 o.d (3/8" Pan, Shovel arbor included)
#768-812	Cuts to .562 o.d (3/8" Pan, Shovel arbor included)
#768-816	Cuts to .625 o.d (3/8" Pan, Shovel arbor included)
#768-516	EV/TC 5/16" arbor only for use with 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


#758-774


#726-001

Valve Lapping Tool

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

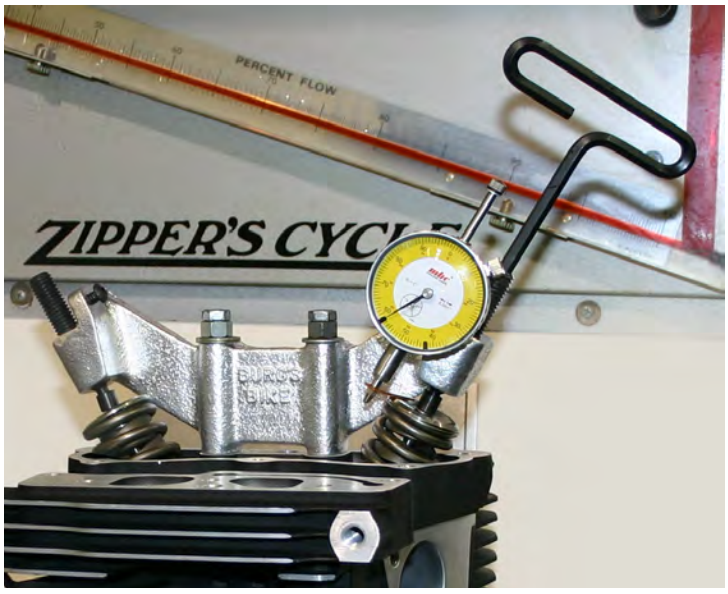
Hardened ball bearing style tip at valve head end eliminates damage to valve. Comes with new valve collar receiver for safer tool usage; can be clamped in vice. Use on all OHV H-D®/Buell® with dual springs (order adapter for beehive springs).
Tool **#758-600** Beehive adapter **#758-988**

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)

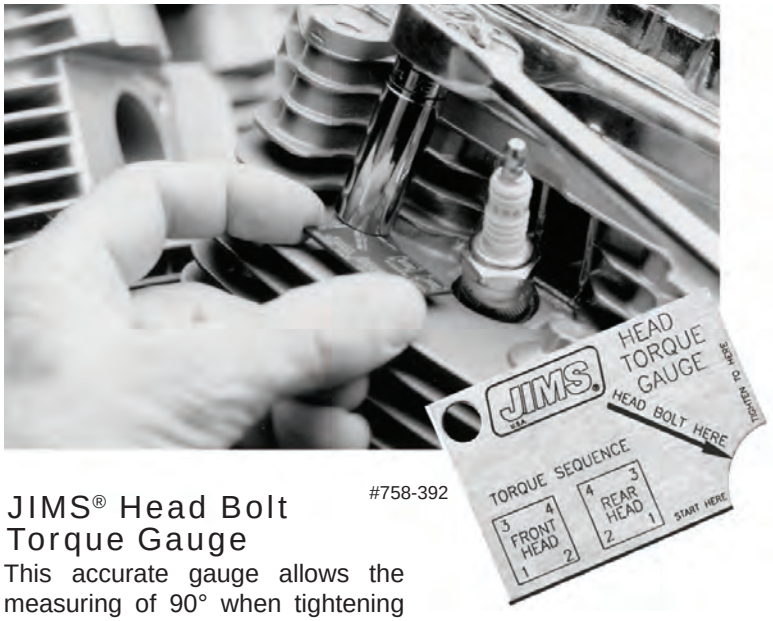
Trock® Cylinder Head Faceplate

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**

#717-500



#758-392

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**

#798-020

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**

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.

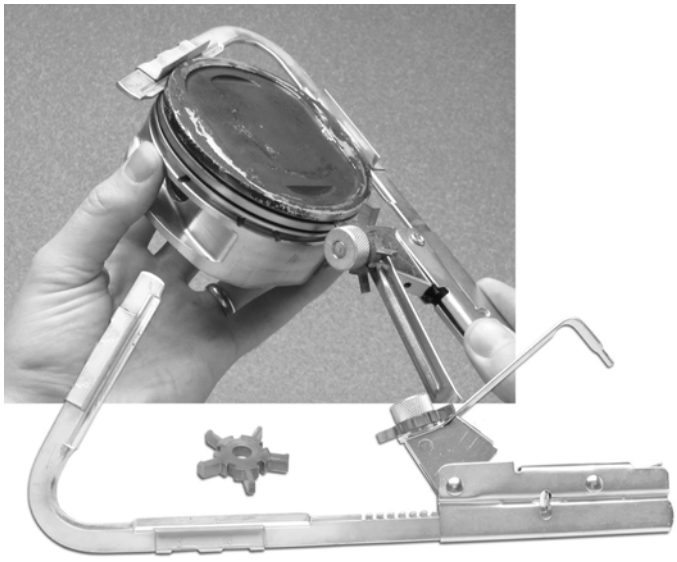
PART NO.	DESCRIPTION
#798-321	14mm Shovel, Pan, Iron XL
#798-322	12mm Twin Cam®, EV BT & XL

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

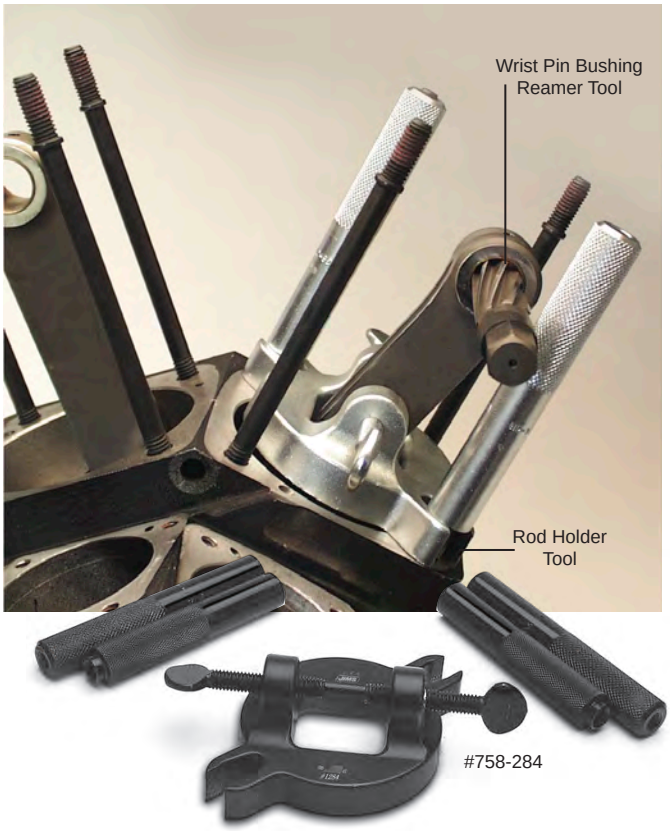
Use to remove and replace wrist pin bushings without removing connecting rods from crankcases. Use with JIMS® #758-284 rod holder tool.

PART NO.	DESCRIPTION
#758-051	For Twin Cam® engines
#758-970	For pre-TC BT and XL engines

#798-164

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

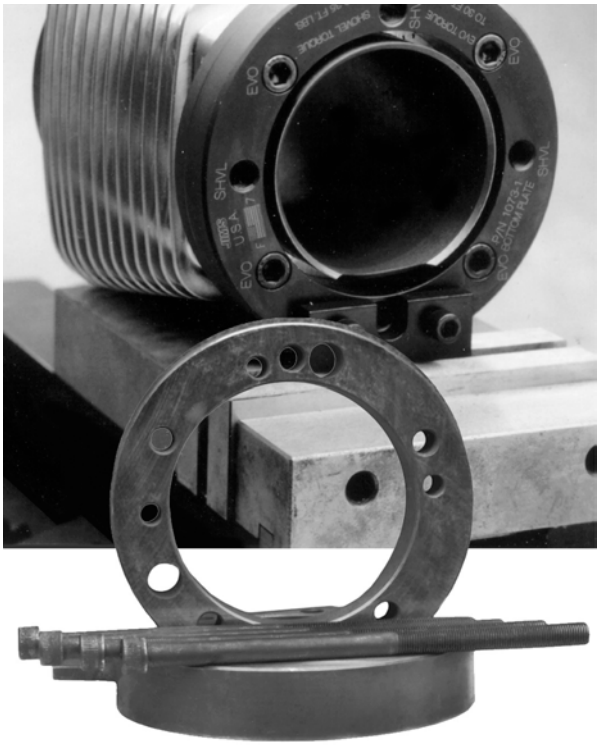
Use this kit to ream your wrist pin bushings to H-D® specifications. These reamers are made to exact tolerances, piloted to locate from the I.D. of your newly replaced wrist pin bushings. Reams are easy to use with their designed lead in taper at the start of each ream. NOTE: Some wrist pin bushings 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")

JIMS® Rod Alignment Checking Tool

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

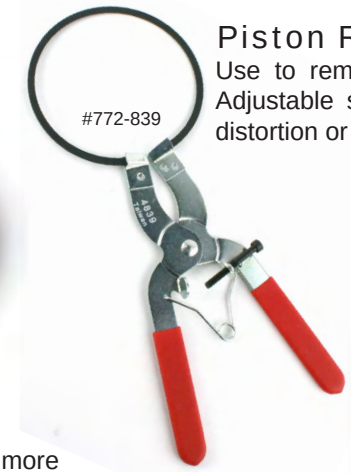
These plates simulate operating stress conditions when boring or honing aluminum cylinders. The JIMS® torque plates are drilled precisely for multiple applications use, and can accommodate various bore sizes, with stock or oversize bores. These kits are laser-lettered for ease of use with torquing sequence. 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

JIMS® Piston Ring Squaring Tools

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
#758-320	Fits 3.875" (95/103 TC) and 4" (110" TC) bore
#758-321	Fits 4.125" and 4.310" bore



Piston Ring Expander Tool

Use to remove and install piston rings. Adjustable stop reduces the risk of ring distortion or breakage. **#772-839**

Piston Ring Compressor Kit

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**

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

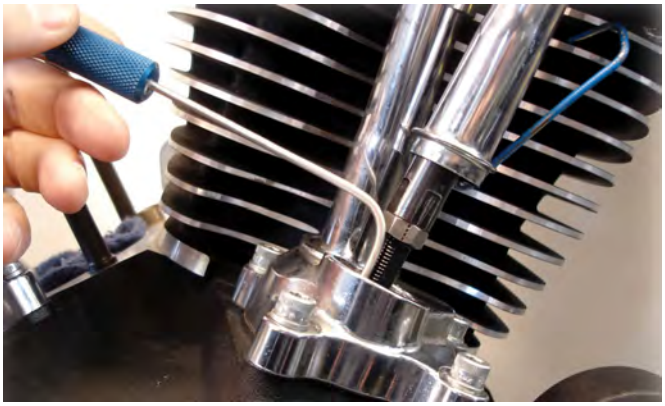
This tool is designed to guide and keep alignment of drill bit in order to completely drill out a broken exhaust stud in a TC or EV head. A follow up with a tap is needed to clean up threaded hole. This tool can be used with motor in most frames. **#758-705**

#758-788

JIMS® Exhaust Gasket Installer Tool

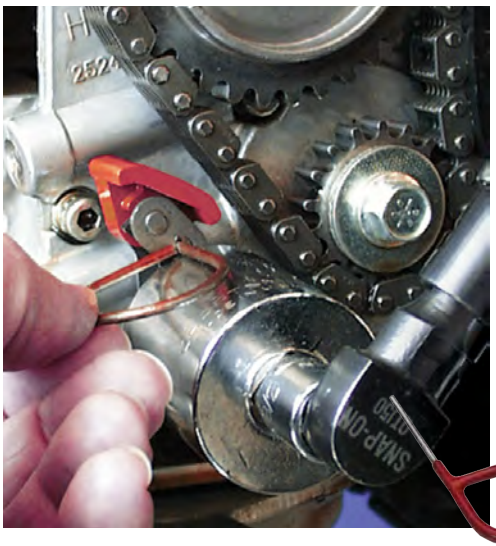
No longer do you need to fight to install this fragile exhaust seal. Tool can be used with exhaust flange nuts or JIMS® driver handle #758-416 (sold separately). This tool will position the seal evenly into the exhaust port of and TC or EV head. Tool **#758-788**
Driver handle **#758-416**


#758-416



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**

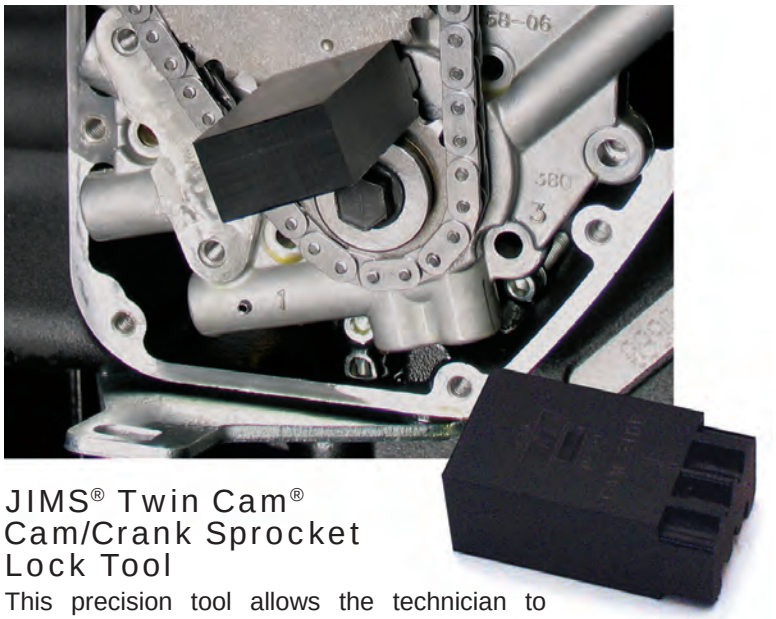


JIMS® '99-'06 TC Cam Chain Tensioner Tool

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

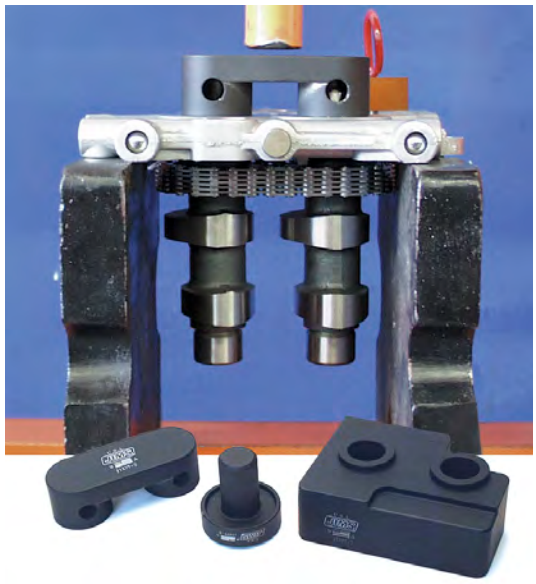
This tool simplifies and speeds the process of checking crankshaft run-out on Twin Cam® and '70-up Big Twin engines. Can also be used to check backlash on gear driven cams. **#772-015**



JIMS® Twin Cam® Cam/Crank Sprocket Lock Tool

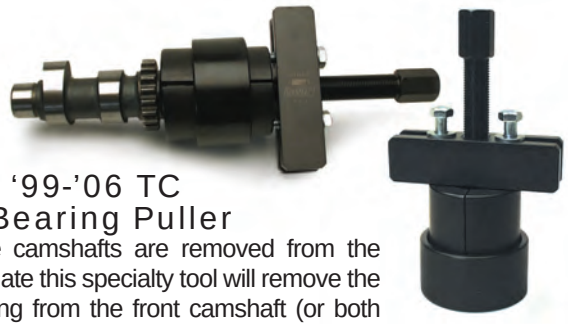
This precision tool allows the technician to lock the camshaft and crankshaft sprockets to properly remove, replace and torque the sprocket bolts. This tool is made from non-marring Delrin.

PART NO.	DESCRIPTION
#758-994	For 2007-up Twin Cam® engines including 2006 FXD
#758-285	For '99-'06 Twin Cam® engines except 2006 FXD



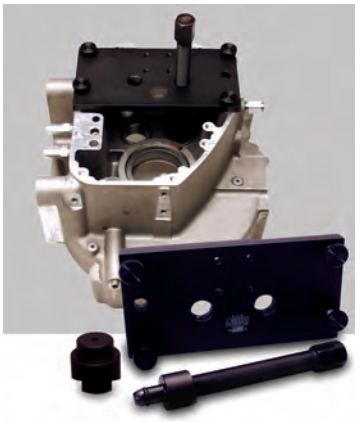
JIMS® '99-'06 TC Camshaft Remover & Installer

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**



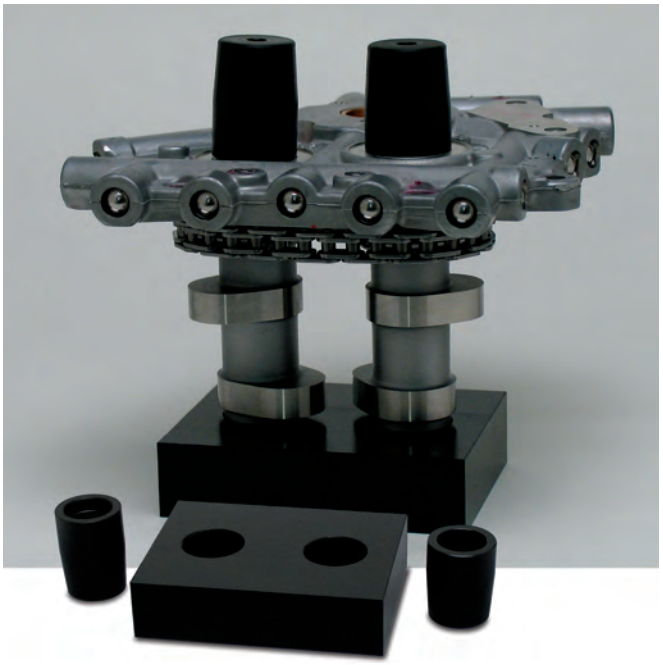
JIMS® '99-'06 TC Cam Bearing Puller

Once the camshafts are removed from the support plate this specialty tool will remove the ball bearing from the front camshaft (or both 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**

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
#758-993	'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

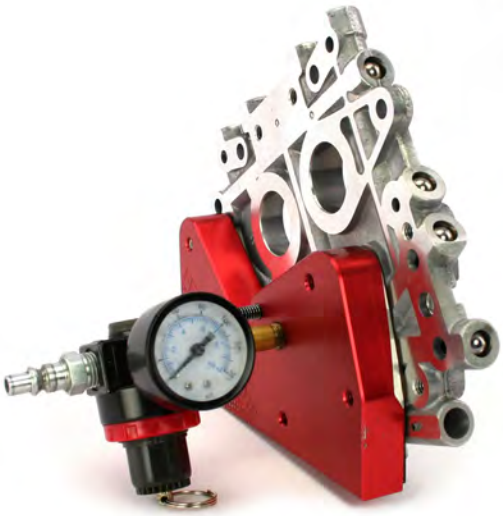
JIMS® TC Cam Plate Pinion Bushing Tool

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
#713-905	Zipper's '99-'06 TC single-spindle cam clearance tool
#713-906	Zipper's '99-'06 TC dual-spindle cam clearance tool
#713-903	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

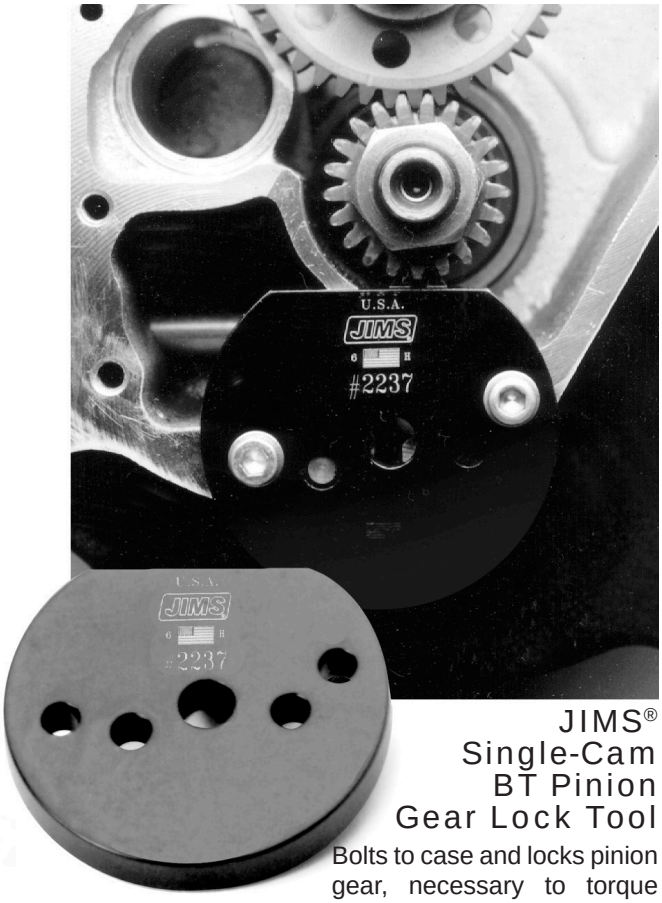
This tool makes for easy removal and installation of the pressure relief spring, by-pass valve and roll pin in the Twin Cam® cam plate. The tool is used to push the relief spring away from the roll pin to simplify pin removal and installation. Fits all Twin Cam® engine cam plates. **#772-900**

JIMS® Twin Cam® Case Saver Tappet Reamer

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**

JIMS® Big Twin Cam® Cover & Seal R&R Tool

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**



JIMS® Single-Cam BT Pinion Gear Lock Tool

Bolts to case and locks pinion gear, necessary to torque the pinion nut. Use on Big Twin '54-'99 single-cam engines. **#758-237**

JIMS® BT Pinion Nut Socket

Use on '54-'92 BT to remove or secure pinion gear nut to pinion gear shaft. 1/2" Drive. **#758-555**

JIMS® Pinion Gear R&R Tool

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

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**

#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**

#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**

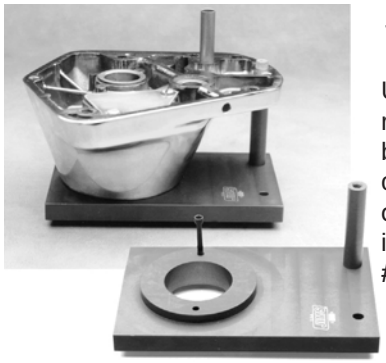
JIMS® Bushing Installer Drill Jigs

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

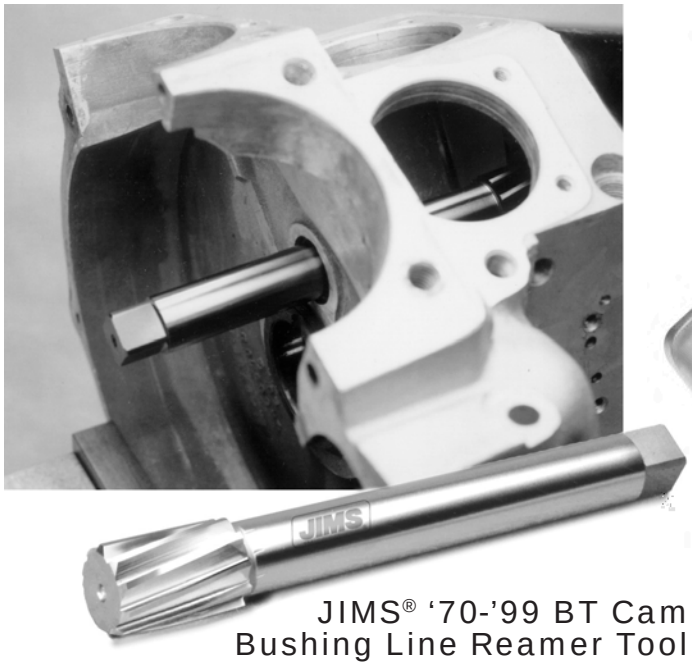
JIMS® BT Pinion Bushing Puller

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**



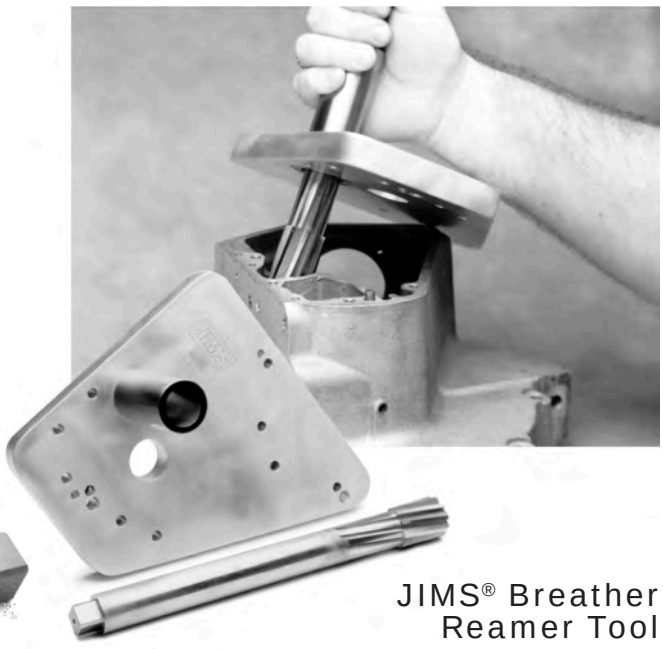
JIMS® Cam Cover Holding Tool

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® '70-'99 BT Cam Bushing Line Reamer Tool

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**



JIMS® Breather Reamer Tool

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**

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**

JIMS® Inner Cam 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.

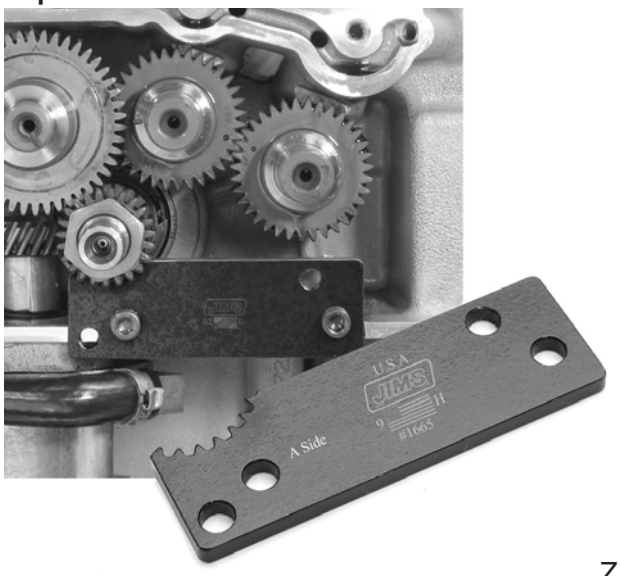
PART NO.	DESCRIPTION
#758-272	Driver, fits all single-cam Big Twins '58-'99
#758-273	Driver, fits all Sportster®/ Buell® '57-'90
#758-416	Race & bearing driver tool handle

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

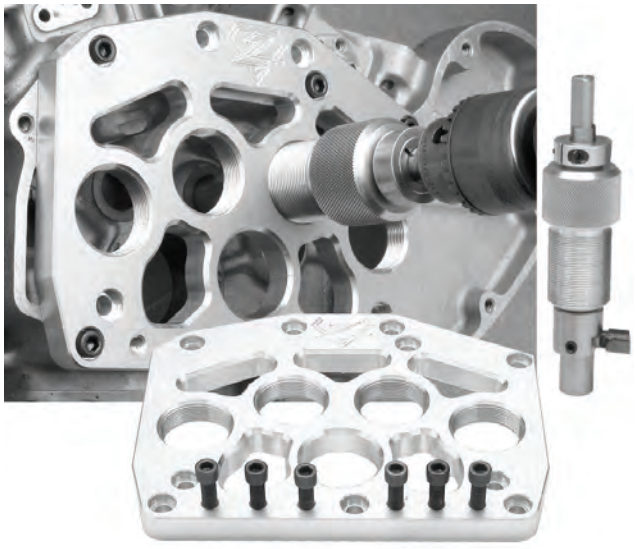
Sportster® Cam Chest Tools



JIMS® XL Pinion Gear Lock Tool

Bolts to case and locks pinion gear when torquing the pinion nut.

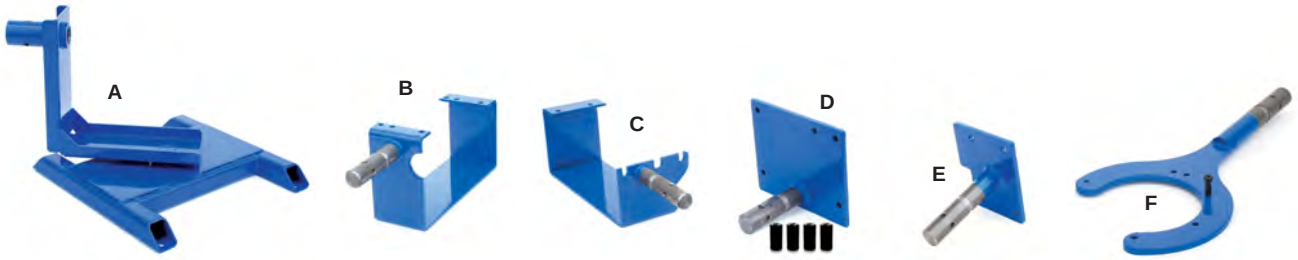
PART NO.	DESCRIPTION
#758-065	For '00-up Sportster® & Buell/XB
#758-066	For '91-'99 Sportster® & Buell



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 quickly 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
#713-908	Zipper's '91-up XL/XB (not XR) cam clearance tool
#713-909	Replacement cutter bit, 713-908 cam tool



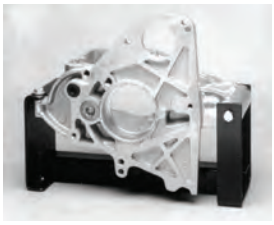
JIMS® Modular Engine & Transmission Stand Kit

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 360º of rotation while the modular cradles swivel and lock in 180º, 90º, and 45º 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
A	**#758-138**	Swiveling base only
B	**#758-139**	'36-'99 Big Twin single-cam engine cradle
C	**#758-130**	'99-up Twin cam® 'A' engine cradle
D	**#758-132**	'00-up Twin cam® 'B' engine cradle
E	**#758-131**	'57-'03 XL, '87-'02 Buell engine cradle
F	**#758-134**	Pre-TC 5-speed transmission stand


#758-022


#758-006


#758-009


#758-008

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 rubber-mounted 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® Slim Jim Oil Filter Wrench

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**

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® 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**

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.

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**

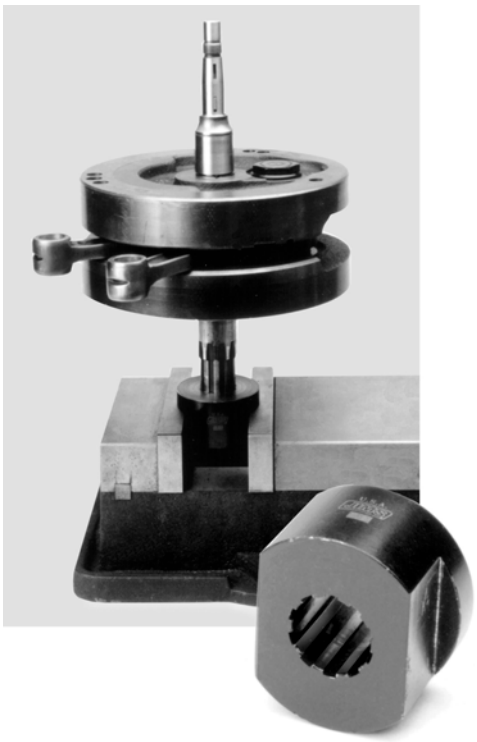
JIMS® Case Splitting Tools

Use these tools to "break" the case sealant by pushing apart both case halves; presses flywheels from left 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
#758-995	For '06-up 6-speed Twin Cam® engines
#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
#758-034	For all Big Twin 1955-2006 (except 2006 FXD)
#758-974	For 2006 FXD & 2007-up all Big Twin

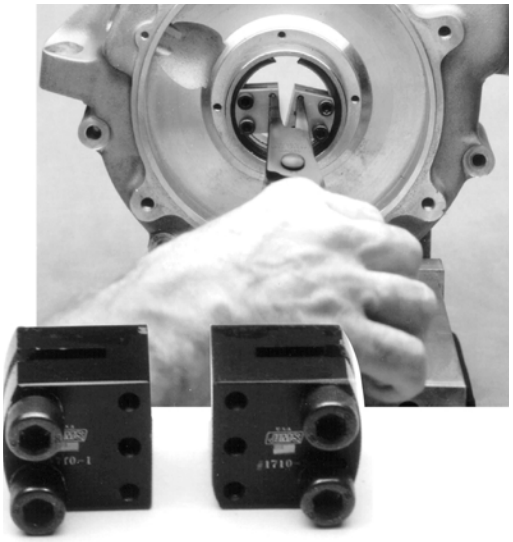
JIMS® Timken® Case Bearing Race Tool

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
#758-471	Fits '69-up Big Twin equipped with Timken® bearings
#758-472	Fits '77-'03 XL/Buell engines

#758-416

#758-388



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 '90-up cases without steel inserts. Use with heavy duty round tipped snap ring pliers. **#758-171**

JIMS® Timken® Bearing & Inner Race Puller Tool

This tool has been designed to remove the flywheel sprocket shaft inner Timken® bearing or '03-up straight-roller 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 press-fit transmission gears and bearings from input and output shafts on all V-Rod® models. **#758-963**

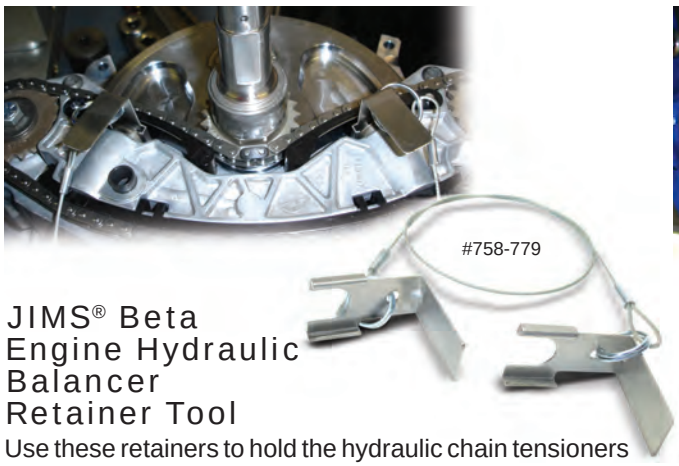
JIMS® Timken® Bearing Pullers

These tools easily remove the inner Timken® bearing from the sprocket shaft without removing the shaft from flywheels.

PART NO.	DESCRIPTION
#758-709	Fits '86-'06 Big Twin equipped with Timken® bearings (3/4-piece crankshaft)
#758-045	Fits '55-'85 Big Twin equipped with Timken® bearings (5-piece crankshaft)
#758-044	Fits '77-'03 XL/Buell equipped with Timken® bearings
#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**



JIMS® Beta Engine Hydraulic Balancer Retainer Tool

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 2000-up 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

This tool is designed to remove the rear counter-balancer shaft and bearing assembly, from the left engine case on '07-up 96" and 110" 'B' engines. **#758-096**

JIMS® Outer Balancer Bearing R&R Tool

This tool removes and installs the outboard balancer bearing on 2007-up 96" and 110" "B" Softail® engines chain guide support plate. **#758-957**

JIMS® Balancer Inner Bearing Installer

This tool will accurately and safely install the inner balancer bearing mounted in the left engine case. This tool is designed for early or late 'B' cases. **#758-915**

JIMS® Balancer Shaft Bearing Remover & Installer

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**

JIMS® Balancer Shaft Alignment Tool

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® Timken® Bearing Installation Tools

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)

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

#758-805

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

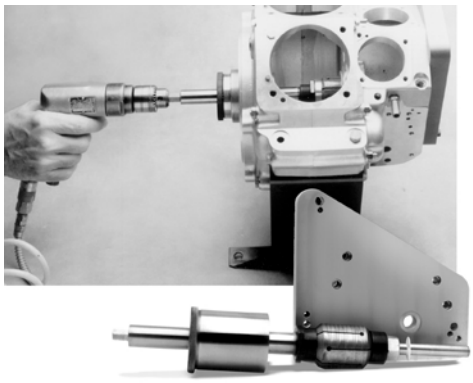
JIMS® Twin Cam® Crankshaft Bearing Tools

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.

PART NO.	DESCRIPTION
#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

JIMS® Crankshaft Installation Guide

This tool will spread crankcase pinion bearing rollers while reassembling right side engine 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**

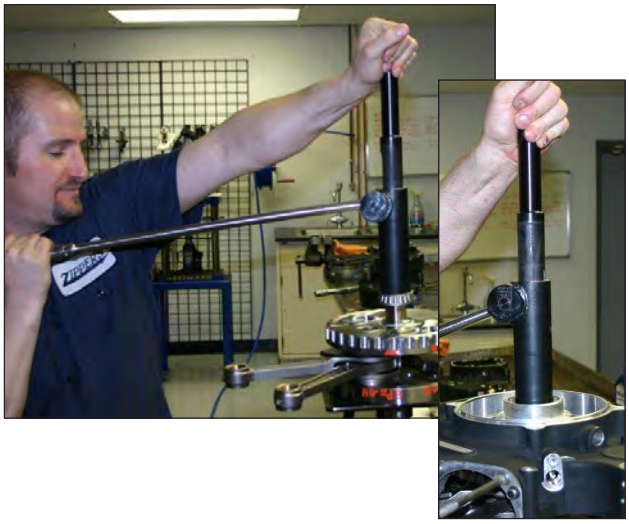
JIMS® Race & Bearing Install Tool Handle

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
#758-416	Tool driver handle
#758-388	Tool spacer for bearing race tools

#758-388

#758-416



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**

#758-246

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
#798-305	This boring plate kit is designed for boring stock Twin Cam® 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 heavy-duty 15" drill press. Bore cases with ease (with stock cylinder bolt pattern).

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)

S&S® Master Flywheel Balancing Kit

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

JIMS® Sprocket Shaft 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**

#758-324

JIMS® XL Sprocket Shaft Seal Installer

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**

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**

#798-013

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**

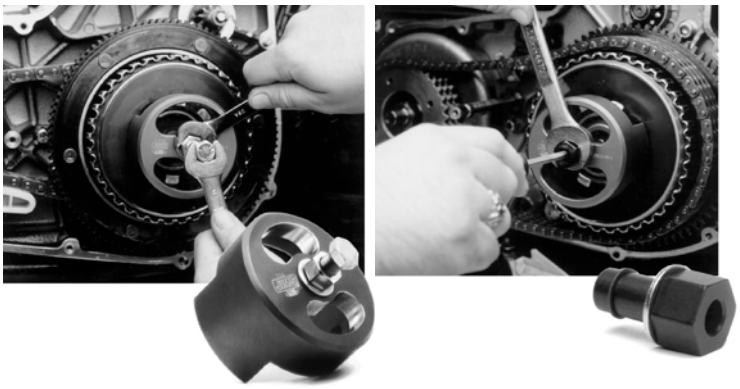
JIMS® Oil Pump Seal Installer

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**

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

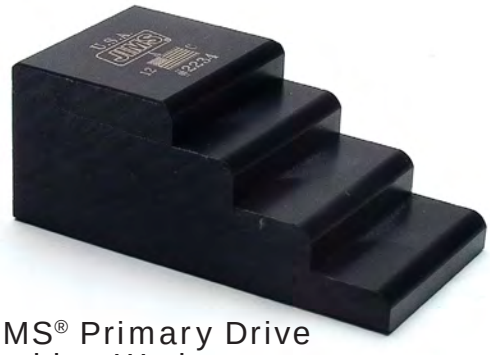
Use to release clutch spring for ease of retainer ring removal and installation.

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)

#758-761

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**



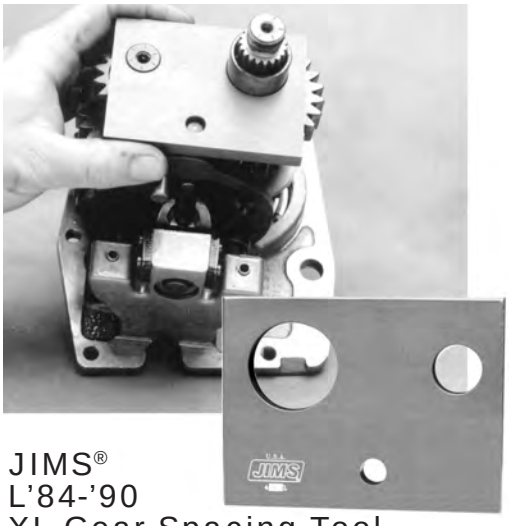
JIMS® Primary Drive Locking Wedge

Use on all primaries between front primary chain and motor sprocket. Made out of black Delrin. **#758-234**

#758-178

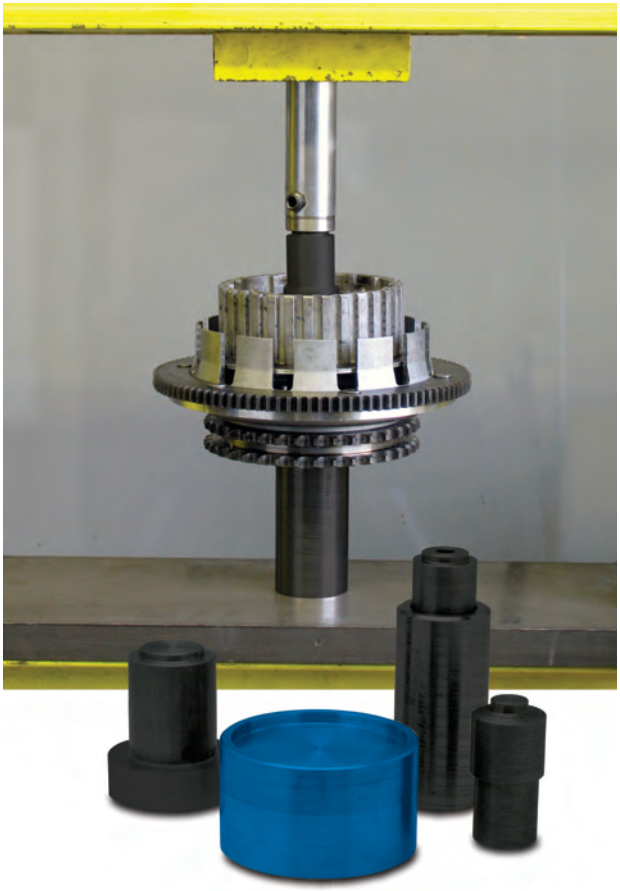
JIMS® '71-E'84 XL Clutch Spring Compressor

Use to remove and install clutch components. Use on all Sportster® 1971-E'84. **#758-178**



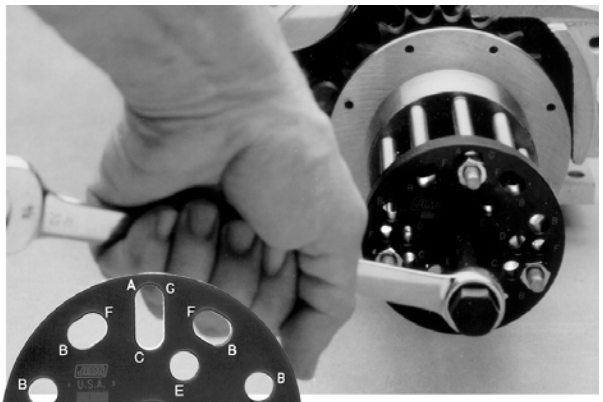
JIMS® L'84-'90 XL Gear Spacing Tool

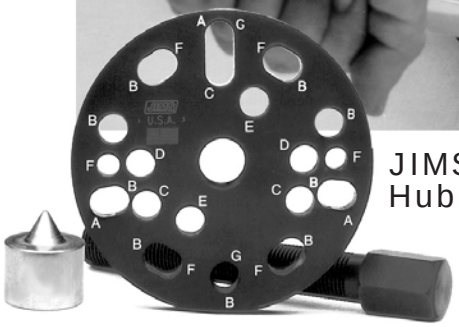
Use on all L'84-'90 Sportster® to hold transmission main, counter and shift fork shafts in proper alignment when setting up gear spacing on the bench top. **#758-820**



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**





JIMS® Clutch Hub Puller Plus

Lettered for removal of listed items. Works on: '41-'84 Big Twin 3, 5 & 10 finger hubs, BT alternator 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**

JIMS® Starter Support Bearing Remover Tool

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**

JIMS® Starter Ring Gear Rivet Tool

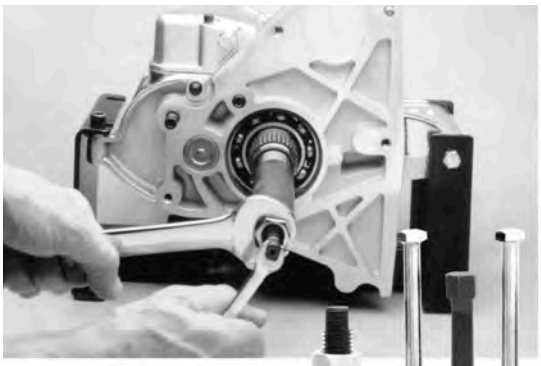
This tool is designed to remove the starter ring gear rivets from Big Twin clutch shells when replacing the starter ring gear. Use on all 1990-2006 5-speed Big Twin. **#758-965**

JIMS® Starter Jackshaft Seal Installer Tool

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® Gasket Locator Pins

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 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**

#758-967

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**

JIMS® Pulley Sprocket Locker

Use to lock final drive sprocket when removing and installing sprocket nut.

PART NO.	DESCRIPTION
#758-260	For all Big Twins 1980 to present 4, 5 & 6 speed
#758-620	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
#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**

#758-985

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® 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.

PART NO.	DESCRIPTION
#758-767	For 2006-up H-D® 6-Speed transmissions
#758-768	For 1980-2006 5-speed transmissions

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® 6 speeds, 2006-up. **#758-911**

JIMS® 6-Speed Main Drive Gear & Bearing R&R Tool

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® 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**

JIMS® 4&5 Speed Main Case Seal Installer

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.

PART NO.	DESCRIPTION
#758-972	For all H-D® 6 speeds, 2006-up
#758-256	For all H-D® 5 speeds, 1980-2006

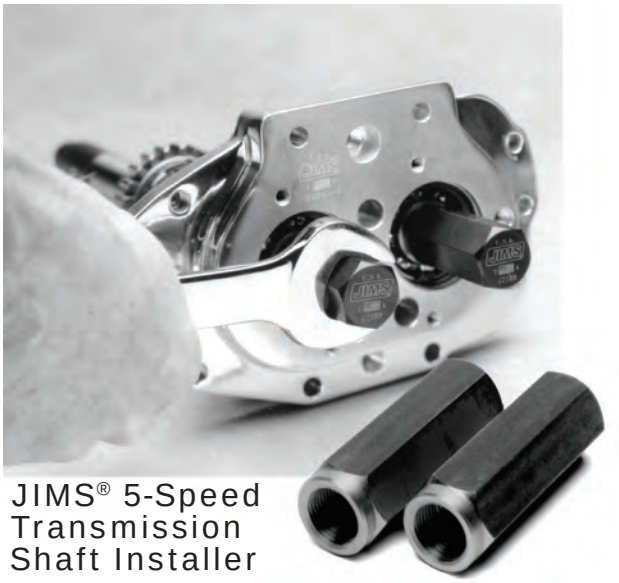
JIMS® Countershaft Bearing R&R Tool

This tool removes and installs the right side closed-end countershaft bearing in the case of all 5 and 6 speed Big Twin transmissions. Precisely presses bearing in to correct depth. **#758-739**

JIMS® Main Drive Gear Bearing & Seal Installer Tool

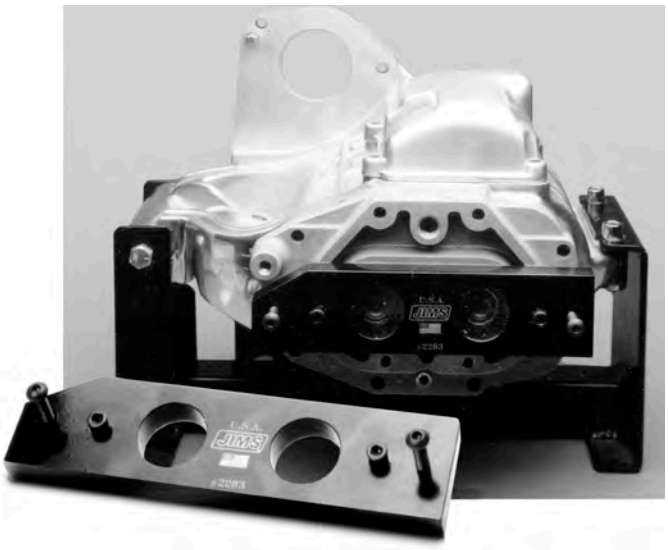
Use this tool to safely install new main drive gear inner needle bearings and seal. This tool will hold bearings and seal square to its bore, to the right depth.

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



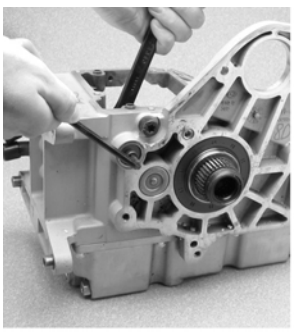
JIMS® 5-Speed Transmission Shaft Installer

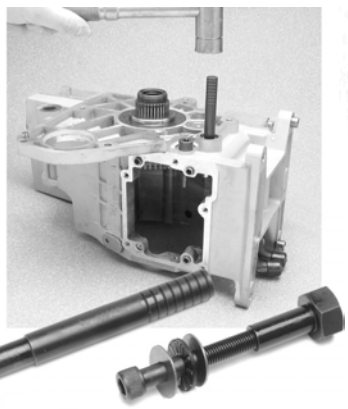
This tool allows installation of transmission shafts without the use of a hydraulic or arbor press.
#758-189



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

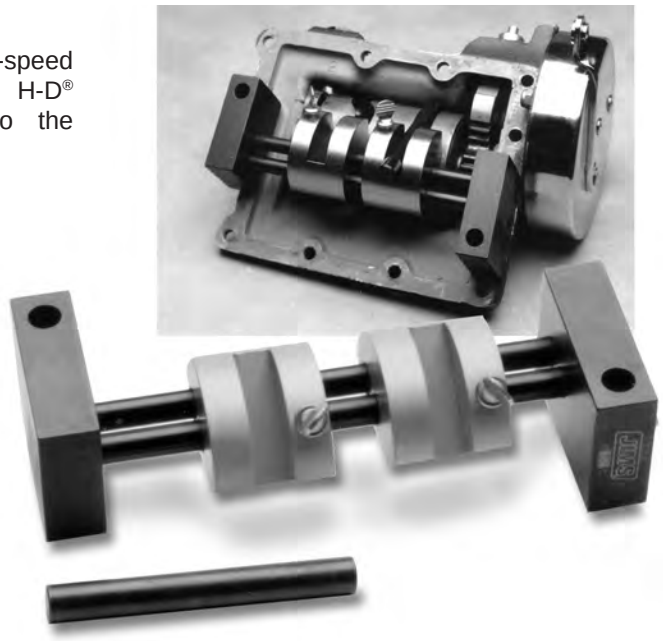
This tool allows you to remove and install the shifter shaft sleeve to the correct depth in case without error or damage.

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

#758-428

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**



JIMS® 4-Speed BT Shift Fork Gauge

Use to set and align shift forks on 4-speed Big Twin transmissions.

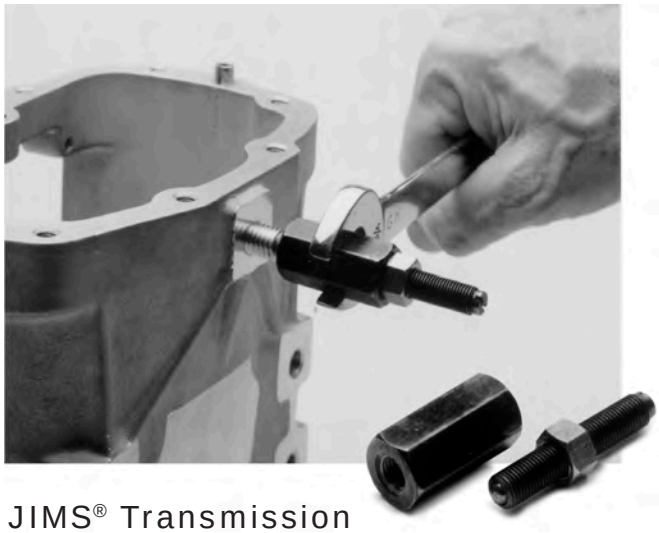
PART NO.	DESCRIPTION
#758-385	For '79-'86 BT 4 speed
#758-384	For '39-'78 BT 4 speed

JIMS® 4-Speed Main Drive Gear Bushing Tool

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**

JIMS® 4-Speed Mainshaft Kicker Gear Puller

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® Transmission Stud Installer Tool

Use on '36-'86 4 speed and '86-'99 Softail® 5-speed transmission case mounting studs. **#758-050**

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
#758-244	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
#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**

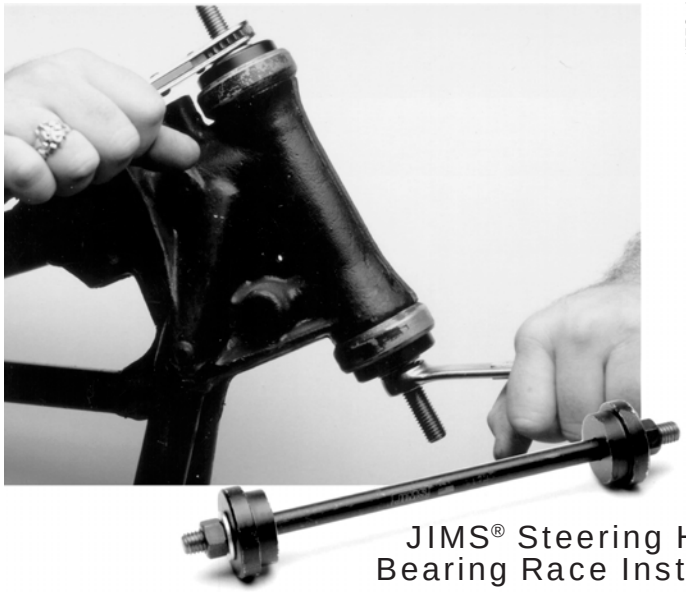
JIMS® Swingarm Clevebloc Bushing R&R Tool

Use to remove and replace swing arm clevebloc 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



JIMS® Steering Head Bearing Race Installer

Use to install tapered steering head races and ball bearing cups into the frame on all models, straight and true. **#758-725**

JIMS® Clevebloc Spreading Tool

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® FL Power Train Alignment Tool

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® 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**

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. **#758-097**

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® #1042 kit

#758-958

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.

PART 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 rear 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**

#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**


#772-406

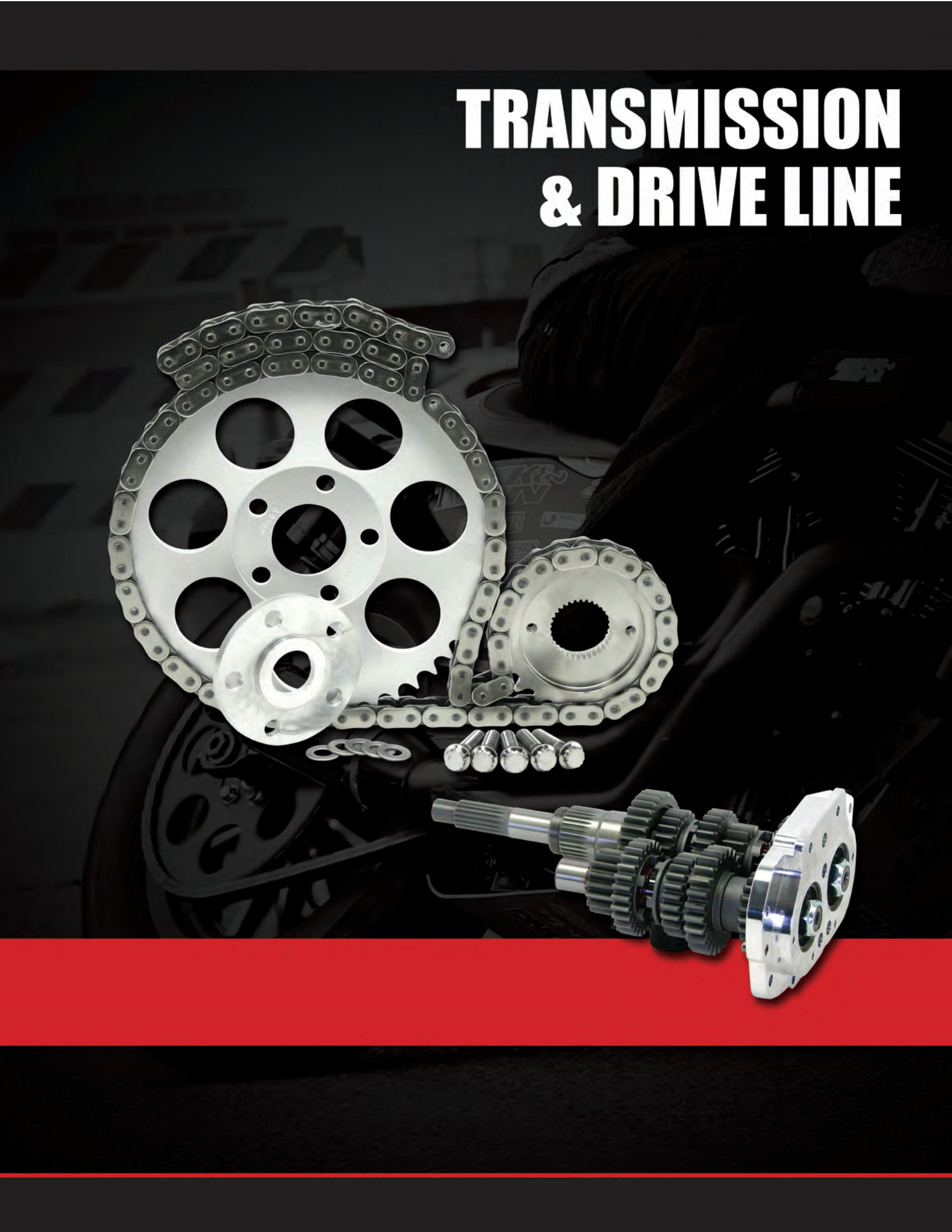

#758-754

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 & DRIVE LINE



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**

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**

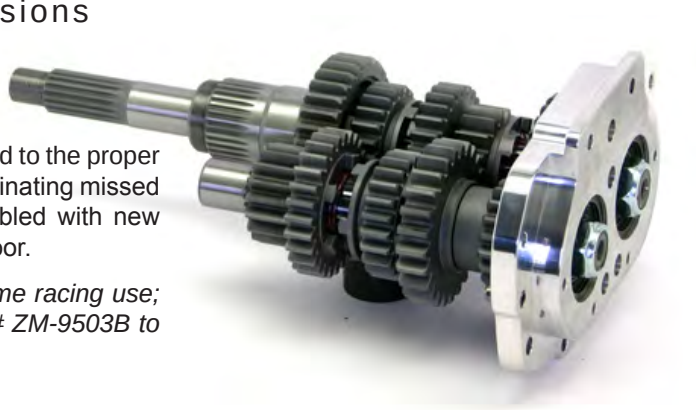
Bandit® Sportsman Superclutch

Bandits® racing history dictates that their clutches are the standard by which all others are judged. Bandit® Sportsman Superclutches for '90 and later Big Twins features legendary Bandit® durability that drops right into the stock clutch shell and requires only minor outer cover modifications. More than double the clutch plate surface area than stock; six coil pressure springs have a lighter lever pull and allow infinite adjustment to tailor the clutch to your bike. Includes steel center hub, Kevlar® clutch plate set and CNC-machined, coil-spring billet pressure head. No special tools required for installation.

PART NO.	DESCRIPTION
#824-399	Bandit Sportsman Clutch for 2006 FXD Dynas and 2007-up Big Twins - Cable Actuated
#824-399H	Bandit Sportsman Clutch for 2006 FXD Dynas and 2007-up Big Twins - Hydraulic Actuated
#824-398	Bandit Sportsman Clutch for 1998-2006 Big Twins - Cable Actuated (except 2006 FXD Models)
#824-398H	Bandit Sportsman Clutch for 1998-2006 Big Twins - Hydraulic Actuated (except 2006 FXD Models)
#824-396	Bandit Sportsman Clutch for 1990-1997 Big Twin Models

Zipper's Performance Products • 6655-A Amberton Drive, Elkridge, MD 21075 • (410) 579-2828

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 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**

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.

DESCRIPTION	PART NO.
Zipper's '91-'03 XL, '95-'02 1200 Buell door	**#817-891**

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. Kits are available with durable, high wearing RK Pro O-Ring chains (best for street use) 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. Contact 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.

Cushion-Drive Chain Conversion Kit for 2009-up Touring Models

Zipper's cushion-drive chain conversion kit for 2009-up Touring models is for high output engines, with a modular design for strength and easy ratio changes. This kit is supplied with a steel front sprocket, a 7075-T6 aerospace aluminum rear sprocket or black steel, and O-ring chain (available in standard metallic, gold, or black) or drag race chain. Our cushion-drive chain conversion kit is equipped with a chrome-moly axle and severe-duty slider-style chain adjusters, eliminating the cam adjusters. Conveniently, this system bolts-on and does not require modifications to the swing-arm.

Sprocket Size Options: Front: 24 - 25 - 26 **Rear:** 50 - 52 - 54

	O-RING CHAIN		DRAG RACE CHAIN	
TOURING APPLICATION	ALUMINUM REAR SPROCKET	STEEL REAR SPROCKET	ALUMINUM REAR SPROCKET	STEEL REAR SPROCKET
Touring '09-up models	**#817-707**	**#817-707S**	**#817-717**	**#817-717S**

PART NO.	AXLE & ADJUSTERS ONLY (AVAILABLE SEPARATELY)
#817-879	Axle & Adjusters Kit for 2009-up Touring models

Chain Conversion Kits for Big Twins

BIG TWIN 5 SPEED ('85-'99): Choose between 21-24 teeth on the transmission sprocket; on the rear 46-65 (aluminum), 46-49 & 51 (chrome steel) and 49 & 51 (zinc steel). Suggested ranges: 23/24 front, 48-52 rear. Sizes outside of these ranges may require modifications for proper clearance.

BIG TWIN 5 SPEED ('00-'06): Choose between 21-24 teeth on the transmission sprocket; on the rear 46-56 (aluminum), 46-56 (translucent black carbon steel). Suggested ranges: 23/24 front, 48-52 rear. Sizes outside of these ranges may require modifications for proper clearance.

BIG TWIN 6 SPEED ('07-'08*): Choose between 24-26 teeth on the transmission sprocket; on the rear 46-65 (aluminum), 46-49 & 51 (chrome steel) and 49 & 51 (zinc steel). Suggested ranges: 24-26 front, 48-55 rear. Sizes outside of these ranges may require modifications for proper clearance.

2008 models require extra purchase of H-D® axle spacer #41240-02

Street O-Ring Kits - Front sprockets are steel, rear are made from your choice of lightweight, extremely tough 7075-T6 aircraft quality aluminum, or steel in silver zinc or chrome finish ('85-'99,'07-'08) or translucent black carbon steel ('00-'06).

New! Optional chain finishes! We now offer our O-Ring Street Chains in standard metallic finish or with the link plates finished in black or gold (additional cost) for a true finishing touch. Please select the desired finish when ordering.

Drag Race Kits - Front sprockets are steel, rear are made from lightweight, extremely tough 7075-T6 aircraft quality aluminum. RK Drag Race chain included in standard metallic finish.

	O-RING CHAIN			
TOURING APPLICATION	ALUMINUM REAR SPROCKET	CHROME STEEL REAR SPROCKET	ZINC STEEL REAR SPROCKET	W/ DRAG RACE CHAIN
Touring '85-'94 models	**#817-700**	**#817-700C**	**#817-700S**	**#817-710**
Touring '95-'99 models	**#817-703**	**#817-703C**	**#817-703S**	**#817-713**
Touring '00-'06 models	**#817-709**	**N/A**	**#817-709S***	**#817-719**
Touring '07-'08 models	**#817-708**	**#817-708C**	**#817-708S**	**#817-718**

***Black Carbon Steel Rear Sprocket**

Chain Conversion Kits for Sportster® & FXR® Models

SPORTSTER® Choose between 19-26 teeth on the transmission sprocket; on the rear 46-65 (aluminum), 46-49 & 51 (chrome steel) and 49 & 51 (zinc steel). Suggested ranges: ('91-'03) 21/23 front, 46-51 rear sizes fit best; 2004-up models require larger diameter sprockets [25/26 front, 52-55 rear] to clear the passenger peg mounts on the frame). Sizes outside of these ranges may require modifications for proper clearance.

Due to available sprocket sizes, not all applications are available with steel rear sprockets.

FXR® 5 SPEED ('85-'99): Choose between 21-24 teeth on the transmission sprocket; on the rear 46-65 (aluminum), 46-49 & 51 (chrome steel) or 49 & 51 (zinc steel). Suggested ranges: 23/24 front, 48-52 rear. Sizes outside of these ranges may require modifications for proper clearance.

	O-RING CHAIN			
SPORTSTER® APPLICATION	**ALUMINUM REAR SPROCKET**	**CHROME STEEL REAR SPROCKET**	**ZINC STEEL REAR SPROCKET**	**W/ DRAG RACE CHAIN**
Sportster® '91-'94 models	**#817-750**	**#817-750C**	**#817-750S**	**#817-760**
Sportster® '95-'99 models	**#817-753**	**#817-753C**	**#817-753S**	**#817-763**
Sportster® '00-'03 models	**#817-754**	**N/A**	**N/A**	**#817-764**
Sportster® '04-'05 models	**#817-756**	**N/A**	**N/A**	**#817-766**
Sportster® '06-Up models*	**#817-757**	**N/A**	**N/A**	**#817-767**
*Including XR1200® Models				
FXR® APPLICATION				
FXR® '85-'94 models	**#817-700**	**#817-700C**	**#817-700S**	**#817-710**
FXR® '95-'99 models	**#817-703**	**#817-703C**	**#817-703S**	**#817-713**

Street O-Ring Kits - Front sprockets are steel, rear are made from your choice of lightweight, extremely tough 7075-T6 aircraft quality aluminum, or steel in silver zinc or chrome finish.

New! Optional chain finishes! We now offer our O-Ring Street Chains in standard metallic finish or with the link plates finished in black or gold (additional cost) for a true finishing touch. Please select the desired finish when ordering.

Drag Race Kits - Front sprockets are steel, rear are made from lightweight, extremely tough 7075-T6 aircraft quality aluminum. RK Drag Race chain included in standard metallic finish.

Chain Conversion Kits for Softail® & Dyna® Models

SOFTAIL® 5 SPEED ('86-'06): Choose between 21-24 teeth on the transmission sprocket; on the rear 46-65 (aluminum), 46-49 & 51 (chrome steel*) and 49 & 51 (zinc steel*). Suggested ranges: 23/24 front, 48-52 rear. Sizes outside of these ranges may require modifications for proper clearance. *Kits for 2006 FXST models with 200mm rear tire are only available with aluminum rear sprockets

SOFTAIL® 6 SPEED* ('07-'14): Choose between 24-25 teeth on the transmission sprocket; on the rear 46-65 (aluminum), 46-49 & 51 (chrome steel) and 49 & 51 (zinc steel). Suggested ranges: 24-26 front, 48-55 rear. Sizes outside of these ranges may require modifications for proper clearance. *Due to clearance limitations, chain conversion kits for 6 speed Softails® are only available with drag race chains

DYNA® 5 SPEED ('91-99): Choose between 21-24 teeth on the transmission sprocket; on the rear 46-65 (aluminum), 46-49 & 51 (chrome steel) or 49 & 51 (zinc steel). Suggested ranges: 23/24 front, 48-52 rear. Sizes outside of these ranges may require modifications for proper clearance.

DYNA® 5 SPEED ('00-'05): Choose between 21-24 teeth on the transmission sprocket; on the rear 46-56T aluminum or translucent black carbon steel. Suggested ranges: 23/24 front, 48-52 rear. Sizes outside of these ranges may require modifications for proper clearance.

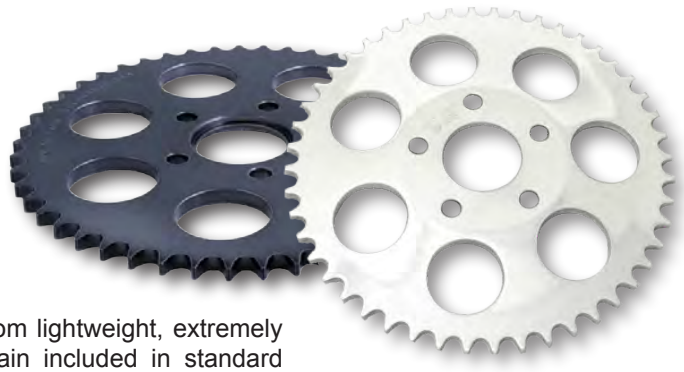
DYNA® 6 SPEED ('06-'14): Choose between 24-25 teeth on the transmission sprocket; on the rear 46-65 (aluminum), 46-49 & 51 (chrome steel) or 49 & 51 (zinc steel). Suggested ranges: 24-26 front, 48-55 rear. Sizes outside of these ranges may require modifications for proper clearance.

	O-RING CHAIN			
SOFTAIL® APPLICATION	**ALUMINUM REAR SPROCKET**	**CHROME STEEL REAR SPROCKET**	**ZINC STEEL REAR SPROCKET**	**W/ DRAG RACE CHAIN**
Softail® '86-'94 models	**#817-700**	**#817-700C**	**#817-700S**	**#817-710**
Softail® '95-'99 models	**#817-703**	**#817-703C**	**#817-703S**	**#817-713**
Softail® '00-'06 models	**#817-706**	**#817-706C**	**#817-706S**	**#817-716**
Softail® '06 model with 200 rear tire	**#817-706/200**	**N/A**	**N/A**	**#817-716/200**
Softail® '07-Up models	**N/A**	**N/A**	**N/A**	**#817-723**
DYNA® APPLICATION				
Dyna® '91-'94 models	**#817-700**	**#817-700C**	**#817-700S**	**#817-710**
Dyna® '95-'99 models	**#817-703**	**#817-703C**	**#817-703S**	**#817-713**
Dyna® '00-'05 models	**#817-712**	**N/A**	**#817-712S***	**#817-722**
Dyna® '06-Up models	**#817-711**	**#817-711C**	**#817-711S**	**#817-721**

***Black Carbon Steel Rear Sprocket**

Street O-Ring Kits - Front sprockets are steel, rear are made from your choice of lightweight, extremely tough 7075-T6 aircraft quality aluminum, or steel in silver zinc or chrome finish.

New! Optional chain finishes! We now offer our O-Ring Street Chains in standard metallic finish or with the link plates finished in black or gold (additional cost) for a true finishing touch. Please select the desired finish when ordering.



Drag Race Kits - Front sprockets are steel, rear are made from lightweight, extremely tough 7075-T6 aircraft quality aluminum. RK Drag Race chain included in standard metallic finish.

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	A .500"	B .810"	C 1.060"
21T, '85-'06 BT 5 Speed	#852-521	N/A	N/A
22T, '85-'06 BT 5 Speed	#852-522	N/A	N/A
23T, '85-'06 BT 5 Speed	#852-523	#852-533	N/A
24T, '85-'06 BT 5 Speed	#852-524	#852-534	#852-544

Seal & spacer kit, required for '85-'93 models #850-344

6 SPEED SPROKETS/OFFSET	D .500"	E .750"*
24T, '06-up BT 6 Speed	#808-224	#808-324
25T, '06-up BT 6 Speed	#808-225	#808-325
26T, '06-up BT 6 Speed	#808-226	#808-326

5 Speed XL/Buell® Chain Conversion Transmission Sprockets

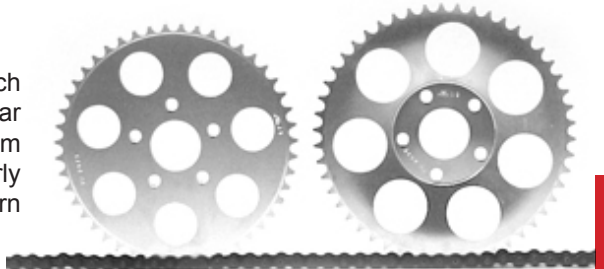
These sprockets are offset towards the engine case in a stock application, and use a flat rear sprocket. Direct bolt-on for '91-'94 models; '95 & later models require a seal and/or spacer kit listed below.

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, Req'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).



FOR H-D®	'73-'06 FLAT	'73-'99 DISHED
46 Tooth Sprocket	#808-866	#808-880
47 Tooth Sprocket	#808-867	#808-881
48 Tooth Sprocket	#808-868	#808-882
49 Tooth Sprocket	#808-869	#808-883
50 Tooth Sprocket	#808-870	#808-884
51 Tooth Sprocket	#808-871	#808-885
52 Tooth Sprocket	#808-872	#808-886
53 Tooth Sprocket	#808-873	#808-887

F/ '95-'02 BUELL®	FLAT ONLY
46 Tooth Sprocket	#872-946
47 Tooth Sprocket	#872-947
48 Tooth Sprocket	#872-948
49 Tooth Sprocket	#872-949
50 Tooth Sprocket	#872-950
51 Tooth Sprocket	#872-951
52 Tooth Sprocket	#872-952
53 Tooth Sprocket	#872-953

F/ '95-'02 BUELL®	FLAT ONLY
54 Tooth Sprocket	#872-954
55 Tooth Sprocket	#872-955
56 Tooth Sprocket	#872-956
57 Tooth Sprocket	#872-957

RK Pro O-Ring Chains

This is a sealed chain, lubricated with a special vacuum-injected grease and locked in by durable Nitrile Butadine rubber o-rings, available in metallic silver, gloss black, gold or black plates with gold pins finish. It has shot-peened and polished link plates, with a tensile strength of 9,000 lbs for long, long life and reduced maintenance.

SILVER	BLACK	GOLD	BLACK W/ GOLD PINS	DESCRIPTION
#882-120	#882-420	#882-620	#882-520	RK O-Ring chain, 530 x 120 links
#882-130	N/A	N/A	N/A	RK O-Ring chain, 530 x 130 links
#882-100	#882-400	#882-600	#882-500	Replacement connecting link only

RK Drag Racing Chain

RK 530DR is a non o-ring chain designed for the brutal world of drag racing where strength is king. Extra-heavy side plates and through-hardened pins keep stretch to a minimum. Tensile strength is a whopping 10,400 lbs. average.

PART NO.	DESCRIPTION
#882-200	Master link, RK 530 Drag Race chain
#882-220	RK Drag Race chain, 530 x 120 links (75”)
#882-230	RK Drag Race chain, 530 x 130 links (81”)
#882-250	RK Drag Race chain, 530 x 150 links (93.5”)

Belt Drive Transmission Pulleys

These transmission belt pulleys allow you to change your final drive ratio for faster acceleration or lower RPM cruising on the highway. **Installation notes** - Changing the final drive ratio will affect speedometer reading; ECM adjustment or a Speedometer Calibration Module may be required to correct reading. Generally speaking, a 1-tooth change can be performed without a belt length change; more than 1 tooth may require changing belt length. Rear axle position adjustment required for *each pulley tooth change* is +/-.125" (3.2mm), while rear axle position adjustment required for *each belt tooth change* is +/-.280" (7.1mm). Check axle travel and availability of belts before ordering!

Pulleys for '85-'06 5-Speed Big Twins - Stock pulley size is 32T. Andrews makes 5 different pulley sizes to allow you to change your overall gearing. 3 smaller sizes (29, 30 & 31) for quicker acceleration or to better handle heavy loads (sidecars, trailers, etc.), or 2 larger sizes (33 & 34) for reduced rpm on the highway. Ratios listed below are using '94-up primary ratio (25/36) and a 70 tooth rear pulley, standard on most models except '93 FXST's (61T), and '94-'99 FXST's (65T). Pulleys fit all '85-'06 models; include spacer, seal, lockplate & screws.

PART NO.	DESCRIPTION
#816-290	Andrews 29 tooth 5-speed pulley, 3.48 ratio (+9% RPM)
#816-300	Andrews 30 tooth 5-speed pulley, 3.36 ratio (+6% RPM)
#816-310	Andrews 31 tooth 5-speed pulley, 3.25 ratio (+3% RPM)
#816-330	Andrews 33 tooth 5-speed pulley, 3.05 ratio (-3% RPM)
#816-340	Andrews 34 tooth 5-speed pulley, 2.96 ratio (-6% RPM)

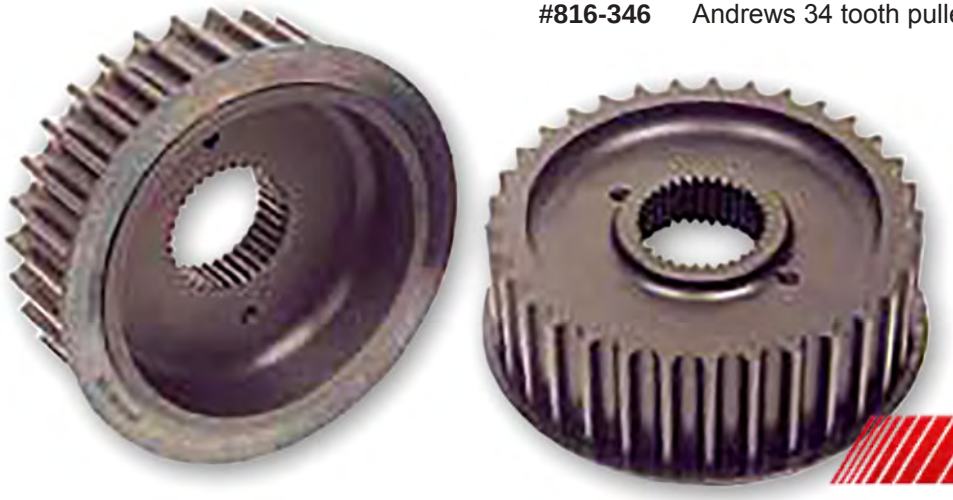
Pulleys for '07-up 6-Speed Big Twins - Stock pulley size is 32T. Andrews makes 3 different pulley sizes to allow you to change your overall gearing. 2 smaller sizes (30 & 31) for quicker acceleration or to better handle heavy loads (sidecars, trailers, etc.), or 1 larger size (34) for reduced rpm on the highway. Actual final drive ratio change depends on the year and model; consult chart below for your motorcycle.

06-07 FXD
Stock gearing is 32/70 = 2.960:1 **30/70** = 3.157:1 (+6.25%) **31/70** = 3.055:1 (+3.13%) **34/70** = 2.785:1 (-6.25%)

07-08 Touring, 08-16 Dyna®, 07-16 Softail®
Stock gearing is 32/66 = 2.790:1 **30/66** = 2.976:1 (+6.26%) **31/66** = 2.880:1 (+3.14%) **34/66** = 2.626:1 (-6.23%)

09-up Touring
Stock gearing is 32/68 = 2.875:1 **30/68** = 3.067:1 (+6.25%) **31/68** = 2.968:1 (+3.13%) **34/68** = 2.706:1 (-6.25%)

PART NO.	DESCRIPTION
#816-306	Andrews 30 tooth pulley, 06 FXD, '07-up 6-Speed
#816-316	Andrews 31 tooth pulley, 06 FXD, '07-up 6-Speed
#816-346	Andrews 34 tooth pulley, 06 FXD, '07-up 6-Speed

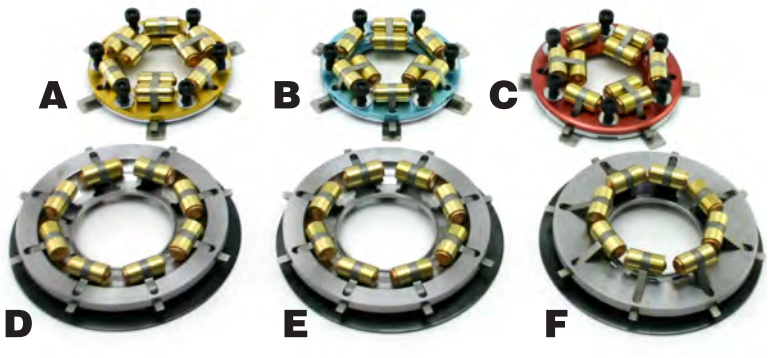


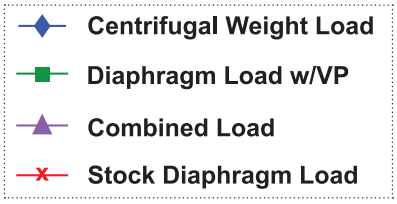
ANDREWS

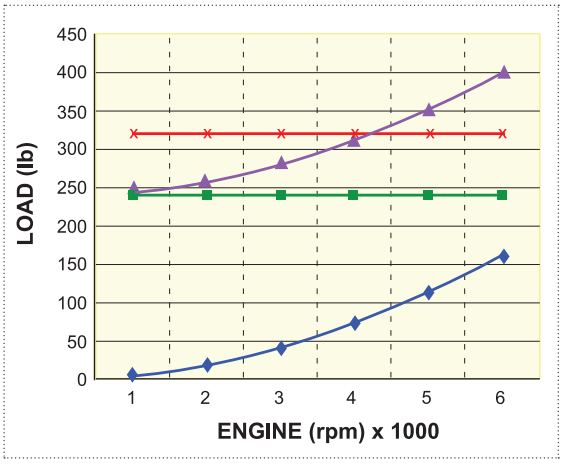
One of the less desirable byproducts of increased power is the need for a clutch spring upgrade, and the additional lever effort it requires. By adding the Variable Pressure Clutch (VPC) devise, clutch plate holding pressure is reduced at lower RPM's, and increased as RPM rises, reducing the chance of 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 and 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**
VPC (VPSDR) for 2013-up CVO® Models and Trikes, also 2015 FL Models	**#872-834**
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**

OIL & ACCESSORIES

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
#084-014	10W40 Motorcycle Oil, Quart

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® 80W 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

Red Line® Specialty Lubes and Fluids

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

CV-2 Grease: Red Line® Synthetic CV-2 Grease outperforms the best conventional or synthetic greases and lubes. CV-2 Grease withstands extreme temperature and pressure in wheel bearings, U-joints, and high-angle CV Joints. CV-2 Grease offers excellent high-temp stability, extreme-pressure protection, and water resistance, and can be used in a variety of applications with operating temps from -100°F to 500°F. Strong resistance to oxidation and corrosion, low evaporation and oil separation with a minimum effect on rubber seals. Contains an organic moly for chassis lubrication and high temp/high speed industrial equipment. Synthetic fluidity allows increases in bearing life up to 200%. Will darken after high-temp use-not detrimental to performance.

PART NO.	DESCRIPTION
#084-405	CV-2 Grease, 14oz.

Medium 10Wt Suspension Fluid: Red Line® Medium 10Wt Suspension Fluid is more stable replacement fluid for twin-tube racing shock absorbers like Pro Shocks, Carerra, and QA1.

Heavy Weight 30Wt Suspension Fluid: Red Line® Heavy Weight 30Wt Suspension Fluid is used in many Harley-Davidson® and American V-Twin motorcycle forks and rear shocks that have not been revalved.

PART NO.	DESCRIPTION
#084-410	Medium 10WT Suspension Fluid, Pint
#084-411	Heavy Weight 30WT Suspension Fluid, Pint

Power Steering Fluid: Red Line® Power Steering Fluid offers improved wear protection, resists thermal breakdown, evaporation and foaming. this power steering fluid provides continued high pump output, suitable for most power steering units. This lightweight fluid avoids power losses. 50% greater high-temp viscosity and 1/5 of the high-temp evaporation. Greater heat resistance helps to prevent boil-over. Helps to prevent high-temp steering fade and difficult effort steering at low temps. Compatible with petroleums and synthetics. 1/4 of the oxidation of petroleum power steering fluids. Helps prevent leakage and squealing.

PART NO.	DESCRIPTION
#084-412	Power Steering Fluid, Quart

Waterwetter® Coolant Additive: Red Line® Waterwetter® Coolant Additive is a unique agent for cooling systems that doubles the wetting ability of water. Rust and corrosion protection allows for use of straight water in racing or reduced antifreeze levels in warm climates. Waterwetter® improves heat transfer and reduces cylinder head temperature, and may allow more spark advance for increase power and efficiency. Use one bottle for most passenger cars and light trucks, treats 3 to 5 gallons or 13.2 to 15.9 liters. Vehicles with larger cooling systems should use two bottles. Small cooling systems should use 1oz (3 to 4 capfuls) per quart. Compatible with new or used antifreeze (including DEX-COOLTM and long-life versions) to improve the heat transfer of ethylene and propylene glycol systems. Satisfies ASTM D2570 and ASTM D1384 corrosion tests for glycol-based antifreezes.

PART NO.	DESCRIPTION
#084-420	Waterwetter® Super Coolant, 12oz.

SuperCool with Waterwetter® Performance Coolant: Red Line® SuperCool with WaterWetter® is a convenient, pre-mixed coolant for motorcycles, ATVs, karts, etc.-pour and go! Blended with purified, deionized water and proper WaterWetter percentage, Red Line® SuperCool reduces rust, corrosion and electrolysis; cleans and lubricates water pump seals. Compatible with all antifreeze and coolant. Satisfies ASTM D2570 and ASTM D1384 corrosion tests for glycol-based antifreezes.

PART NO.	DESCRIPTION
#084-425	SuperCool with Waterwetter®, 1/2 Gallon

Red Line® Fuel System Cleaners

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

Diesel Fuel Catalyst: Red Line® Diesel Fuel Catalyst is designed for use in all diesel engines - compensates for latest low-sulfur fuels. Diesel Fuel Catalyst and 85 Plus are products with the same chemistry. Promotes better fuel combustion and fuel system lubrication. Provides faster ignition, reduced detonation and smoke, improved efficiency. Powerful high-temp detergents to clean fuel injectors. Lubricates O-rings and seals to increase injector pump life, reduces ring friction. Contains cetane booster for added power benefits. Available in winterized formula, reduces pour point of typical fuel by 25°F. Use one bottle per tank-treats up to 100 gallons.

PART NO.	DESCRIPTION
#084-320	Diesel Fuel Catalyst, 12oz.

Red Line® Race Engine Oil

2WT Drag Race Oil (0W2): Red Line® 2 WT Drag Race Oil is an excellent racing oil used by championship-winning NHRA Pro Stock teams. this racing oil is designed for extremely tight bearing clearances. Use only at oil temps under 150°F. Available in Gallons only.

5WT Drag Race Oil (0W5): Red Line® 5 WT Drag Race Oil is an excellent racing oil popular for class racing in NHRA Stock and Super Stock; also popular in NHRA Competition Eliminator. Use only at oil temps under 150°F. Available in quarts only.

PART NO.	DESCRIPTION
#084-002	2WT Drag Race Oil (0W2), Gallon
#084-005	5WT Drag Race Oil (0W5), Quart

PART NO.	DESCRIPTION
#084-010	10WT Drag Race Oil (0W10), Quart
#084-020	20WT Drag Race Oil (5W20), Quart
#084-030	30WT Drag Race Oil (10W30), Quart

10WT Drag Race Oil (0W10): Red Line® 10WT Drag Race Oil is used by many NHRA Pro Stock teams for dyno testing, and can be used in Jr. Dragster engines. This race oil features much longer drain intervals than competing brands at similar viscosity. 10WT Drag Race Oil is popular in IHRA Pro Stock, Top Sportsman (normallu aspirated), ADRL Extreme Pro Stock and NHRA Competition Eliminator.

20WT Drag Race Oil (5W20): Red Line® 20WT Race Oil (5W20) offers consistent wear and operation in drag racing classes like Stock and Super Stock (many switch to 5WT for Class Racing). This race oil is popular for qualifying in stock car engines; used by many top engine builders in Spec Miata and other low-power road race engines. 20WT Rac Oil provides more power and better wear in Four-Cycle karting engines like Yamaha/Burris F200, Briggs Animal and World Formula, Honda GX 160 and GX 200, Kohler, Techmseh, and Clones.

30WT Drag Race Oil (10W30): Red Line® 30WT Race Oil is popular in NASCAR and Road Racing.

40WT Drag Race Oil (15W40): Red Line® 40WT Race Oil is a versatile product used in stock car racing, road racing, and sprint cars. 40WT Race Oil is used by many of the top Dirt Late Model teams, and by top teams in NASCAR Spec engines for Camping World East and West Series.

50WT Race Oil (15W50): Red Line® 50 WT Race Oil (15W50) is popular with sprint and midget applications on methanol; offers less frequent oil changes due to less fuel dilution. Used in applications with wider bearing clearances.

60WT Race Oil (20W60): Red Line® 60WT Drag Race Oil (20W60) is popular in Top Alcohol and Pro Mod classes, AHDRA Nitro bikes, and blown alcohol Tractor Pulling. This racing oil can be heated to evaporate fuel dilution and re-use. Improves valvetrain wear, lessens piston scuffing, and improves bearing wear.

PART NO.	DESCRIPTION
#084-040	40WT Drag Race Oil (15W40), Quart
#084-050	50WT Drag Race Oil (15W50), Quart
#084-060	60WT Drag Race Oil (20W60), Quart

70WT Nitro Drag Race Oil: Red Line® 70WT Nitro Drag Race Oil is utilized by NHRA Top Fuel and Funny Car champions. This race oil is designed for nitromethane, and dramatically improved fuel dilution. Provides ultimate protection against piston scuffing, valvetrain and bearing abuse. Best used in combination with Red Line® Assembly Lube.

PART NO.	DESCRIPTION
#084-070	70WT Nitro Drag Race Oil, Gallon

Two-Stroke Racing Oil: Red Line® Two-Stroke Racing Oil is the ultimate in two-cycle performance with extreme cleanliness. This two-stroke oil is popular in racing and daily applications like motorcycles, marine, snowmobile racing, etc. Dyno proven for gains of 3-5% and more power over longer runs. High-temp stability prevents deposits on combustion chambers, exhaust ports, upper ring, and piston crown. Suggested use at 50:1, but useful up to 100:1 depending on operating conditions. **#084-250**, 16oz.

5W20 Automotive Oil: Red Line® 5W20 Motor Oil is recommended for Chrysler®, Ford® WSS-M2C945-A, Acura®/ Honda®, Mazda® and Scion®. Thicker oil film at operating temperature than a petroleum 5W30 or 10W30. Recommended for API SN/SM/SL/SJ/SH/SG/CF and ACEA A5/B5

PART NO.	DESCRIPTION
#084-520	5W20 Automotive Oil, Quart
#084-530	5W30 Automotive Oil, Quart
#084-054	5W40 Automotive Oil, Quart

5W30 Automotive Oil: Red Line® 5W30 Motor Oil is the most popular oil for modern road cars and light trucks, as specified for most late-model BMW®, General Motors®, and Nissan® vehicles. Also suitable for VW/Audi 500.00, 501.01 and 502.00, Ford WSS-M2C946-A. Thicker oil film at operating temperature than a petroleum 10W40. Recommended for API SN/SM/SL/SJ/ SH/SG/CF and ACEA A3/B3/B4, GM dexos1® (GM-LL-A-025, GM6094M and GM4718M).

5W40 Automotive Oil: Red Line® 5W40 Motor Oil works as specified for Audi®, BMW®, Mercedes Benz®, Porsche® and VW® applications and is popular for turbocharged applications. This motor oil features thicker oil film at operating temperature than a petroleum 5W40 or 10W40. Recommended for API SN/SM/ CJ-4/CI-4/CI-4 PLUS, GM dexos2® (GM-LL-B-025 and GM-LL-A-025). Also recommended for ACEA A3/B4/E9.

10W30 Automotive Oil: Red Line® 10W30 Motor Oil is an all-weather viscosity grade oil for passenger cars and light trucks. This motor oil is popular in crate engines and high-performance V-8 engines. Red Line® 10W30 has a thicker oil film at operating temperature than a petroleum 10W40. Recommended for API SN/SM/SL/SJ/SH/SG/CF and ACEA A3/B3/B4.

10W40 Automotive Oil: Red Line® 10W40 Motor Oil is popular for medium and heavy-duty gasoline engines in light trucks. 10W40 Motor Oil is the best choice for high-performance engines that see street/strip or track activity, also great for engines with high oil temperatures. Red Line® 10W40 Motor Oil has a thicker oil film at operating temperature than a petroleum 20W50. Recommended for API SN/SM/SL/SJ/SH/SG/CF and ACEA A3/B3/B4.

20W50 Automotive Oil: Red Line® 20W50 Motor Oil is most popular for turbocharge applications. This motor oil is engineered for wider bearing clearances and racing engines that see occasional street use. Red Line® 20W50 features 25% more viscosity than petroleum 20W050s. Not recommended for use in cold climates (-15C/5°F for 20W50). Recommended for API SN/SM/SL/SJ/SH/SG/CF and ACEA A3.

PART NO.	DESCRIPTION
#084-103	10W30 Automotive Oil, Quart
#084-104	10W40 Automotive Oil, Quart
#084-025	20W50 Automotive Oil, Quart

15W40 Diesel Automotive Oil: Red Line® 15W40 Diesel Motor Oil is popular for Light Duty trucks including Chevrolet® Duramax, Dodge® Cummins, and Ford® Power Stroke. Best choice in medium and heavy-duty diesel truck engines for maximum durability. Offers improved drain intervals provide excellent value for commercial fleet use. Recommended for API CJ-4/CI-4 Plus/CI-4/CF/CH-4/CF-4. Also for API SM/SL/SJ/SH/SG/CF and ACEA A3/B3/B4 E7/E9, MB 228.3.

PART NO.	DESCRIPTION
#084-540	15W40 Diesel Automotive Oil, Quart

Red Line® Auto Manual Transmission Fluid

MTL 70W80 GL-4 Gear Oil: Red Line® 70W80 GL-4 Gear Oil is popular for BMW®, Honda® and Acura®, Ford Focus®, late-model Mini Cooper®, Land Rover/Range Rover® LT77S®, Dodge® & Jeep NV1500®, NV3500® and NV5600® truck transmissions. This gear oil is a popular replacement for, and an improvement over, GM Synchromesh® (#12345349) and Auto-Trak II® (#12378508) and Chrysler spec MS-9224. Red Line® MTL 70W80 GL-4 Gear Oil is safe for brass synchros, as it lacks the reactive sulfurs found in most GL-5 oils that cause damage. MTL 70W80 offers quicker shifts, eliminates notchy shifting (even when cold), and high performance gear protection. Satisifies the gear oil viscosity requirements of 70W, 75W, 80W, and motor oil viscosities of SAE 30, 10W30, and 5W30. Recommended for GL-1, GL-3, and GL-4 applications as well as where most special synchromesh fluids are specified.

MTL-90 75W90 GL-4 Gear Oil: Red Line® MT-90 75W90 GL-4 Gear Oil (similar to SAE 5W40/10W40 engine oil viscosity) is popular in Nissan®, Mazda®, Mitsubishi®, VW®/Audi®, Lotus® Elise/Exige, and Toyota® applications. MT-90 offers quicker shifts, perfect synchronizer coefficient of friction, high performance gear protection and longer synchro life. Eliminates notchy shifting, even when cold. Safe for brass synchros, as it lacks the reactive sulfurs found in most GL-5 oils that cause damage. Satisifies the gear oil viscosity requirements of 75W, 80W and motor oil viscosities of SAE 40, 10W40, and 15W40. Recommended for GL-1, GL-3, and GL-4 applications, as well as where most special synchromesh fluids are specified.

PART NO.	DESCRIPTION
#084-101	MTL 70W80 GL-4 Gear Oil, Quart
#084-230	MT-90 75W90 GL-4 Gear Oil, Quart

Red Line® Auto Automatic Transmission Fluid

D6 ATF: Red Line® D6 Automatic Transmission Fluid (ATF) is Red Line's lowest viscosity, most shear-stable ATF for consistent operation. Red Line® D6 ATF is designed to satisfy Dexron-VI®, Dexron-III®, Dexron-II®, Mercon®SP and Mercedes Benz® NAG-2 fluids. Also satisfies API 70W/75W/80W and GL-4 gear oil requirements.

D4 ATF: Red Line® D4 Automatic Transmission Fluid (ATF) is Red Line's® most versatile ATF, for use where Dexron III®, Dexron II®, Mercon® and Mercon V® fluids are recommended - provides a GL-4 level of gear protection. Popular applications include: Toyota® Type T-III and T-IV, Honda® ATF Z1, Nissan®Matic D, J, K, & S, Diamond SP-II, SP-III, Mazda® ATF M-V, most BMW®, Audi®, and VW® automatic transmissions. Also can be used with manual transmissions and transaxles like T-5, T-45, T-56 and late-model BMW. Excellent for cold weather operation.

C+ ATF: Red Line® C+ Automatic Transmission Fluid (ATF) satisfied Chrysler® ATF+, +2, +3 (Type 7179) and ATF +4 (Type 9602) requirments. Provides 30% greater operating viscosity and 1/3 the evaporation of Chrysler-style petroleum ATFs.

High-Temp ATF: Red Line® High-Temp ATF is excellent for heavily-loaded vehicles, allowing operation at up to 70°F higher while maintain thicker viscosity than traditional ATFs. High-Temp ATF offers dramatically less evaporation, and less varnish of valves and clutches in extreme conditions. Use where Dexron III®, Dexron II®, Mercon®, or GL-4 gear oil are recommended.

Synthetic Racing ATF: Red Line® Synthetic Racing ATF is similar to a Type F fluid, featuring even higher viscosity and no friction modifiers. This automatic transmission fluide produces faster shifts, quicker lock-up, and better converter efficiency at high temps. Enchanced extreme-pressure additivies provide 5-times better film strength than petroleum ATFs. Reduces clutch and gear wear. Sold in Quarts.

PART NO.	DESCRIPTION
#084-216	D6 Automatic Transmission Fluid, Quart
#084-220	D4 Automatic Transmission Fluid, Quart
#084-215	C+ Automatic Transmission Fluid, Quart
#084-213	High-Temp Automatic Transmission Fluid, Quart
#084-214	Synthetic Racing ATF, Quart

80W140 GL-5 Gear Oil: Red Line® 80W140 GL-5 Gear Oil is popular in stock car racing differentials and transmissions. This product contains additional friction modifiers for suitablity with clutch-type limited slip differentials - for most LSDs, no additional friction modifiers are required. This product is not designed for use in manual transmission or transaxles with synchronizers, as its slipperiness may lead to shifting problems. Recommended for API GL-5, GL-6, MT-1, MIL-L-2105E, and SAE J2360.

PART NO.	DESCRIPTION
#084-112	80W140 GL-5 Gear Oil, Quart

Heavy ShockProof® Gear Oil: Red Line® Heavy ShockProof® Gear Oil is recommended for heavily-loaded racing differentials, transmissions, and problem gearboxes. Excellent for many performance racing applications like Sprint/ Midget/Dirt Late Model Differentials, Detroit Lockers and spools, NHRA Top Fuel and Funny Car rear ends. Heavy ShockProof has a film thickness greater than an SAE 75W250, and yet low fluid friction like 75W90. Not recommended for most synchro applications due to the product's extreme slipperiness.

Lightweight ShockProof® Gear Oil: Red Line® Lightweight ShockProof® Gear Oil is designed for racing differentials under moderate loads. Lightweight Shockproof® has excellent low-temp flow for improved cold shifting. This products is popular in racing transmissions like Hewland® and other Road Racing dog-ring boxes, Bert and Brinn® for Stock Cars, G-Force®, and Liberty® clutchless for Drag Racing. Film thickness greater than an SAE 75W140, yet low fluid friction like 80W gear oil or 30W motor oil.

Superlight ShockProof® Gear Oil: Red Line® Superlight ShockProof® Gear Oil is pused in low-power dog-ring racing transaxles with moderate to low load, qualifying, etc. Popular in British F3®, Euro F3® and Star Mazda® racing gearboxes for ultra low drag. Red Line® Superlight ShockProof® Gear Oil's film thickness greater than an SAE 75W90, yet offers low fluid friction like ATF.

PART NO.	DESCRIPTION
#084-122	Heavy ShockProof® Gear Oil, Quart
#084-130	Lightweight ShockProof® Gear Oil, Quart
#084-140	Superlight ShockProof® Gear Oil, Quart

75W90 GL-5 Gear Oil: Red Line® 75W90 GL-5 Gear Oil is the most popular Red Line® gear oil, with thousands of applications for passenger cars, light trucks, and racing vehicles. Red Line® 75W90 GL-5 Gear Oil contains additional friction modifiers for suitability with clutch-type limited slip differentials - for most LSDs, no additional friction modifiers are required. This product is not designed for use in most manual transmissions or transaxles in passenger vehicles, since the extreme slipperiness may cause synchronizer mesh issues that lead to shifting problems. Recommended for API GL-5, GL-6, MT-1, MIL-L-2105E, SAE J2360, and Chrysler spec MS-9763.

PART NO.	DESCRIPTION
#084-110	75W90 GL-5 Gear Oil, Quart

K&N® Premium Oil Filters

K&N®'s premium line of motorcycle wrench-off canister oil filters were designed to meet the high performance needs of racers and road bikes, with high flow rates and outstanding filtration. These thick-wall, canister-style premium oil filters are designed to handle high oil pressures and they can be used with the latest synthetic or semi-synthetic motor oils.

DESCRIPTION	CHROME	BLACK
For All Year Twin Cams® and 2004-up Sportsters®	**#062-171**	**#062-171B**
For All Year EV Big Twins and Late 1984-2003 EV Sportsters®	**#062-170**	**#062-170B**
For 1982-1984 FX/FL 4 Speed Models and 1980-1984 Sportsters®	**#062-172**	**N/A**
For 1991-1998 EV FXD® Dyna® Models	**#062-173**	**N/A**

Super-Magnet Drain Plugs

FACT - Metal parts in your engine start wearing out the moment you hit the starter button. As they wear, metal particles circulate in your oil; left un-trapped, these same metal particles get run through high-pressure engine components, creating further wear. Your oil filter's job is to contain the majority of these particles, but some can still circulate when the particles are microscopic or the filter bypass valve opens. These simple super-magnets can effectively minimize the damage caused by metal particles by trapping the debris caused by normal wear or un-normal component failure.

PART NO.	DESCRIPTION
#672-520	Super-Magnet Drain Plug, ½-20 Threads, Fits 1993-Up Big Twin Oil Tanks & Transmission, 2007-up Big Twin Primary Cover
#672-218	Universal Super-Magnet Drain Plug, 1/4" NPT Threads, Fits 1999-up Twin Cam® Case Sump Plug
#672-324	Super-Magnet Drain Plug, 3/8-24 Threads, Fits 2004-2006 Big Twin Inner Primary Cover
#672-127	Universal Super-Magnet Drain Plug, 1/8" NPT Threads, Fits 1987-2003 Big Twin Primary Cover & 1984-1999 FXST Trans
#672-450	Super-Magnet 4-Pack, For Radially-Mounting on Oil Filter Housings

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